CITY OF SUNNYVALE

Sewer System Management Plan

May 2015

CIWQS WDID: 2SSO10200

Last Updated in September 2012
City Council Adoption: May 12, 2015

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Note: Element numbers are based on SWRCB General Waste Discharge Requirements (GWDR), dated May 2, 2006

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I. INTRODUCTION

A. Sewer System Management Plan

This Sewer System Management Plan (SSMP) has been prepared by the City of Sunnyvale Environmental Services Department (ESD). It is a compendium of the policies, procedures, and activities that are included in the planning, management, operation, and maintenance of the City's sanitary sewer system.

The State Water Resources Control Board (SWRCB) has issued Statewide Waste Discharge Requirements for sanitary sewer systems, which include requirements for development of an SSMP. This SSMP is intended to meet the requirements of the San Francisco Bay Regional Water Quality Control Board and the State Water Resources Control Board. Specifically, it follows the General Waste Discharge Requirements (GWDR) for Wastewater Collection Agencies, State Water Resources Control Board Order Number 2006-0003 dated May 2, 2006 and amended by the revised Monitoring and Reporting Program (MRP) in Order WQ 2013-0058-EXEC, dated September 9, 2013.

The structure (element numbering and nomenclature) of this SSMP follows the General Waste Discharge Requirements (GWDR) for Wastewater Collection Agencies. The City's waste discharger identification number (WDID) in the California Integrated Water Quality System (CIWQS) is 2SSO10200.

B. Sanitary Sewer System Facilities

City of Sunnyvale

The City operates a sanitary sewer system that serves a residential population of approximately 147,000 (daytime population approximately 230,000) in a 23 square mile service area. The sewer system consists of about 295 miles of gravity sewers (approximately 6,925 line segments), approximately 16,079 feet of force main, 7,133 manholes, and five pump stations. The sewers range in size from 4-inch to 48-inch diameter.

Sewer service laterals are owned by, and therefore the responsibility of, the property owner to maintain and assure serviceability. The City may provide maintenance services to laterals located within the public right-of-way as a courtesy service if a property line cleanout exists, and the cleanout and adjacent area are accessible to City staff and equipment. The City may provide maintenance, repair, rehabilitation, and/or replacement of the "lower" portion of private sanitary sewer laterals located within the public right of way on a discretionary basis.

Information regarding City of Sunnyvale sewer system piping by size and material of construction is presented in Tables I-1 and I-2, respectively. Table I-3 includes information regarding laterals. Data regarding the exact age of the City's sewer system is inexact; however, the average age is estimated to be 46 years based on the town's incorporation in 1902, development records, and its historical population growth, and the City's GIS database.

Table I-1. Sewer System Size Distribution - Sunnyvale

Diameter	Total Number Line Segments	Total Linear Feet	Portion of Sewer System
Unknown	80	4,018	0.3%
4 inch	20	1,099	0.10%
6 inch	969	215,026	13.8%
8 inch	3,852	869,764	55.9%
10 inch	769	159,643	10.3%
12 inch	492	111,381	7.2%
14 inch	29	6,738	0.4%
15 inch	199	49,630	3.2%
16 inch	10	2,844	0.2%
18 inch	164	42,405	2.7%
20 inch	0	0	0%
21 inch	99	25,091	1.6%
22 inch	2	387	0.02%
24 inch	70	19,632	1.3%
27 inch	81	23,661	1.5%
30 inch	2	98	0.01%
33 inch	26	5,322	0.3%
36 inch	8	2,376	.2%
39 inch	27	9,594	0.6%
42 inch	12	4,711	0.30%
48 inch	14	2,559	0.20%
Grand Total	**6,925**	**1,555,979**	**100.0%**

Source: City of Sunnyvale GIS, 2015

Table I-2. Sewer System Materials of Construction - Sunnyvale

Material	Total Number Line Segments	Total Linear Feet	Portion of Sewer System
ABS	2	32	0.002%
CIP	44	5,311	0.3%
CMP	4	814	0.1%
CPDRG	1	419	.03%
DIP	5	450	0.03%
HDPE	22	6,834	0.4%
PE	18	4,852	.3%
PVC	67	11,112	0.7%
RCP	47	15,969	1.0%
VCP	6,543	1,497,488	96.2
Unknown	172	12,698	0.8
Grand Total	**6,925**	**1,555,979**	**100.0%**

Source: City of Sunnyvale GIS, 2015.

Table I-3. Laterals - Sunnyvale

	Number of Laterals
City of Sunnyvale	27,600 est.

Rancho Rinconada

The City also owns and operates the wastewater collection mains in portions of the Cities of Cupertino and San Jose known as the "Rancho Rinconada area." The service area is comprised of approximately 81,000 feet of sewer mains ranging in size from 6" to 15" diameter.

Sewer service laterals in the Rancho Rinconada area are owned by, and therefore the responsibility of, the property owner to maintain and assure serviceability. Maintenance, repair, rehabilitation, and replacement of private sanitary sewer laterals within the Rancho Rinconada area are the sole responsibility of the property owner. The City may provide maintenance services to laterals located within the public right of way as a courtesy service to the residents within the Rancho Rinconada area only if the property line cleanout and adjacent area are accessible to City staff and equipment. The City does not install any type of cleanout on private sewer laterals.

Information regarding Rancho Rinconada sewer system is included in Table I-4 and information regarding laterals is presented in Table I-5. Data regarding the exact age of the Rancho Rinconada sewer system is inexact; however, the average age is estimated to be 60 years based on the development records. The total sewer service area, including Rancho Rinconada, is about 310 miles of pipeline with 7,176 line segments.

Table I-4. Sewer System Size Distribution - Rancho Rinconada

Diameter	Total Number Line Segments	Total Linear Feet	Portion of Sewer System
6 inch	129	41,122	51.0%
8 inch	85	23,666	29.3%
10 inch	17	5,170	6.4%
12 inch	8	3,259	4.0%
15 inch	12	7,420	9.2%
Grand Total	**251**	**80,637**	**100.0%**

Source: Sunnyvale GIS, 2015.

Table I-5. Sewer System Materials of Construction - Rancho Rinconada

Pipeline Material	Total Number Line Segments	Total Linear Feet	Portion of Sewer System
CIP	3	753	0.9%
VCP	93	28,196	35.0%
WSP	2	249	0.3%
Unknown	153	51,439	63.8%
Grand Total	**251**	**80,637**	**100.0%**

Source: Sunnyvale GIS, 2015.

Table I-6. Laterals – Rancho Rinconada

	Number of Laterals
Rancho Rinconada	1,871

C. Definitions, Acronyms, and Abbreviations

ASTM - American Society for Testing and Materials

AWWA - American Water Works Association

BAWCA - Bay Area Clean Water Agencies

BMP - Best Management Practices

Refers to the procedures employed in commercial kitchens to minimize the quantity of grease that is discharged to the sanitary sewer system. Examples include scraping food scraps into a garbage can and dry wiping dishes and utensils prior to washing.

Cal OES - California OES Office of Emergency Management

Refers to the California Office of Emergency Management. All Category 1 SSOs greater than or equal to 1,000 gallons must be reported to Cal OES.

CCTV - Closed Circuit Television

Refers to the process and equipment that is used to internally inspect the condition of gravity sewers.

CIP - Capital Improvement Plan

Refers to the document that identifies future capital improvements to the City's sanitary sewer system.

CIP - Cast Iron Pipe

City

Refers to the City of Sunnyvale.

CIWQS - California Integrated Water Quality System

Refers to the State Water Resources Control Board online electronic reporting system that is used to report SSOs, certify completion of the SSMP, and provide information on the sanitary sewer system.

CMMS - Computerized Maintenance Management System

Refers to a database application used manage and document maintenance activities of a collection system.

CMOM - Capacity, Management, Operations, and Maintenance

Refers to the federal (USEPA) program for regulating operation of sewer collection systems. CMOM requirements were incorporated into draft regulations that were subsequently withdrawn. The SSMP and its requirements closely resemble the CMOM program.

CONC - Concrete Pipe

CSP - Corrugated Steel Pipe

CSRMA – California Sanitation Risk Management Authority

CWEA – California Water Environment Association

CY - Calendar Year

D/I - Drain Inlet

DIP - Ductile Iron Pipe

Dispatch

Dispatch refers to Sunnyvale Answer Point or Dept. of Public Safety Communications.

DPS – Department of Public Safety

DPW - Department of Public Works

ESD - Environmental Services Department

Refers to City of Sunnyvale Environmental Services Department, which includes the City's Water and Sewer Services, Water Pollution Control Plant, Solid Waste and Recycling, and Regulatory Programs Divisions.

FOG - Fats, Oils, and Grease

Refers to fats, oils, and grease typically associated with food preparation and cooking activities that can cause blockages in the sanitary sewer system.

FSE - Food Service Establishment

Refers to commercial or industrial facilities where food is handled/prepared/served that discharge to the sanitary sewer system.

FTE - Full-time Equivalent

Refers to the equivalent of 2,080 paid labor hours per year by a regular, temporary, or contract employee.

FY - Fiscal Year

GIS - Geographical Information System

Refers to the City's system that it uses to capture, store, analyze, and manage geospatial data associated with the City's sanitary sewer system assets.

GPS - Global Positioning System

Refers to the handheld unit that can be used to determine the longitude and latitude of sanitary sewer overflows for use in meeting CIWQS reporting requirements.

GWDR - General Waste Discharge Requirements

Refers to the State Water Resources Control Board Order No. 2006-0003, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, dated May 2, 2006, and amended by the revised monitoring and reporting program (Order WQ 2013-0058-EXEC) dated September 9, 2013.

HDPE - High Density Polyethylene Pipe

I/I - Infiltration/Inflow

Refers to water that enters the sanitary sewer system from storm water and groundwater and increases the quantity of flow. Infiltration enters through defects in the sanitary sewer system after flowing through soil. Inflow enters the sanitary sewer without flowing through the soil. Typical points of inflow are holes in manhole lids and direct connections to the sanitary sewer (e.g. storm drains, area drains, and roof leaders).

Lateral

Refers to the piping that conveys sewage from a building to the City sewer system. The distinction is sometimes made between the upper lateral (from building to public right-of-way) and the lower lateral (from public right-of-way to the sewer main).

LRO - Legally Responsible Official

Refers to the individual designated by the City to certify SSO reports on the CIWQS system. The LRO must be formally designated by the City and registered with the SWRCB.

MGD - Million Gallons per Day

M/H - Manhole

MMPM - Monitoring, Measurement, and Plan Modifications

M.O.C. - Municipal Operations Center

MRP - Monitoring and Reporting Program

Refers to the revised monitoring and reporting requirements included in Order WQ 2013-0058-EXEC, dated September 9, 2013.

Sunnyvale Answer Point and DPS Communications

The City of Sunnyvale operates two communication centers. During normal business operations, calls are received by Sunnyvale Answer Point. During all other hours, calls are received by Sunnyvale DPS Communications, the City's 911 system which is staffed 24/7. For the purpose of this SSMP, both will be referred to as SV Communications.

OERP - Overflow Emergency Response Plan

For the purpose of this SSMP, this plan will be referred to as the Sanitary Sewer Overflow Response Plan (SSORP).

O&M - Operations and Maintenance

PACP – Pipeline Assessment and Certification Program

PCC - Portland Cement Concrete Pipe

PM - Preventive Maintenance

Refers to maintenance activities intended to prevent failures of the sanitary sewer system facilities (e.g. cleaning, CCTV, repair).

Property Damage Overflow

Refers to a sewer overflow or backup that damages a property owner's premises.

PSD - Public Services Division

PVC - Polyvinylchloride Pipe

RCP - Reinforced Concrete Pipe

RWQCB - Regional Water Quality Control Board

Refers to the San Francisco Bay Regional Water Quality Control Board.

Sanitary Sewer System

Refers to the portion of the sanitary sewer facilities that are owned and operated by the City of Sunnyvale.

SCADA - Supervisory Control and Data Acquisition

Refers to the system that is employed by the City to monitor the performance of its pump stations and to notify the operating staff when there is an alarm condition that requires attention.

SDR - Standard Dimension Ratio

Refers to the ratio of pipe diameter to pipe wall thickness in plastic pipes.

SECAP - System Evaluation and Capacity Assurance Plan

SSMP - Sewer System Management Plan

SSO Report

Refers to sanitary sewer overflow report.

SSOs - Sanitary Sewer Overflows

Refers to the overflow or discharge of any quantity of partially treated or untreated wastewater from the sanitary sewer system at any point upstream from the wastewater treatment plant. SSOs are typically caused by blockages, pipe failure, pump station failure, or capacity limitation.

SSORP - Sanitary Sewer Overflow Response Plan

Refers to the City's Overflow Emergency Response Plan which is a component of this SSMP that addresses the City's response to SSO events.

SWRCB - State Water Resources Control Board

Refers to the California Environmental Protection Agency (EPA) State Water Resources Control Board and staff responsible for protecting the State's water resources.

USA – Underground Service Alert

VCP - Vitrified Clay Pipe

Water of the State

Water of the State means any water, surface or underground, including saline waters, within the boundaries of California. In case of a sewage spill, storm drains are considered to be waters of the State unless the sewage is completely contained and returned to the sewer system. May also be referred to as surface water(s) or State waterway.

Wastewater on-call duty

Refers to the City of Sunnyvale Wastewater on-call worker.

WPCP - Water Pollution Control Plant

WSP - Welded Steel Pipe

WWD - Wastewater Division

Refers to the City of Sunnyvale, Environmental Services Department, Wastewater Collections Division.

D. References

New Requirements for Preparing Sewer System Management Plans, California Regional Water Quality Control Board San Francisco Bay Region letter to Sewer System Authorities, July 7, 2005 www.cwea.org/conferences/sso/Reg2Letter-SSMP0705.pdf.

Sewer System Management Plan (SSMP) Development Guide, San Francisco Bay Regional Water Quality Control Board in cooperation with Bay Area Clean Water Agencies, July 2005 www.waterboards.ca.gov/sanfranciscobay/publications_forms/documents/SSMP%20Development%20Guide%20-%20Final.pdf

State Water Resources Control Board Order No. 2006-0003 Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, California State Water Resources Control Board, May 2, 2006, with Revised Monitoring and Reporting Program, Order WQ-2013-0058-EXEC
General Order:
www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2006/wqo/wqo2006_0003.pdf
Revised Monitoring and Reporting Program
www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2013/wqo2013_0058exec.pdf

Regional Water Board Letter dated October 3, 2012 Discontinuation of Requirements for Annual Reports of SSOs and Annual SSMP Audits, Effectively Rescinding November 2004 and July 2005 orders

ELEMENT I. GOALS

A. Introduction

This section 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 the high-quality work to implement the improvements in the management and maintenance of the City's wastewater collection system.

B. Regulatory Requirements

State GWDR Requirement:

The collection system agency must develop goals to properly manage, operate, and maintain all parts of its wastewater collection system in order to reduce and prevent SSOs, as well as to mitigate any SSOs that occur.

C. Goals for the Wastewater Collection System

Providing safe, responsive, and reliable sewage conveyance is a key component of the goals and objectives of the City's Environmental Services Division, Wastewater Collections Program.

The City's Wastewater Collections Program has adopted the following goals**.** These goals outline responsibilities and provide direction and understanding for all sewer maintenance and cleaning activities.

- Provide for the reliable collection of sewage throughout the City to protect public health and the environment, to prevent sanitary sewer overflows, and to minimize odors.
- Ensure all sanitary sewage is collected and transported to the City's Water Pollution Control Plant.
- Maintain and repair the City's Sanitary Sewer Collection System in a cost-effective, safe, reliable, and timely manner.
- Comply with all federal, state, and local laws and regulations pertaining to sanitary sewer collection operation and maintenance.
- Respond to emergency events and provide assistance for residents and businesses.
- Provide sewer collection services in the Rancho Rinconada area located in the cities of Cupertino and San Jose.
- Provide administrative and support services to promote customer satisfaction and confidence. Continue to professionally manage, operate, and maintain all parts of the sewer collection system.
- Provide adequate capacity to convey peak flows.

- Minimize the frequency of SSOs that can pose a threat to public health.
- Mitigate the impact of SSOs.

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

D. Goals and Policies:

The City's General Plan, which was consolidated in 2011, contains Goals and Policies applicable to the wastewater collection system. Refer to the City's General Plan web page at: http://sunnyvale.ca.gov/CodesandPolicies/GeneralPlan.aspx

ELEMENT II. ORGANIZATION

A. Introduction

This section of the SSMP identifies City staff responsible for implementing this SSMP, responding to SSO events, and meeting the SSO notification and reporting requirements. It also includes the designation of the Legally Responsible Official (LRO), who is responsible for completing and certifying spill reports submitted to the SWRCB's on-line reporting system (CIWQS). This section fulfills the organization requirement of the SWRCB (Element 2) SSMP requirements.

B. Regulatory Requirements

State GWDR Requirement:

The collection system agency's SSMP must identify:

1. The name of the responsible or authorized representative;
2. The names and telephone numbers for management, administration, 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 the California Office of Emergency Services (Cal OES).

C. Organization and Staffing

The organization chart for the management, operation and maintenance of the City's wastewater collections system is shown on Figure II-1. General Responsibilities are described below. Table II-1 is a listing of telephone numbers for key positions.

Figure II-1. Organization Chart for Wastewater Collections

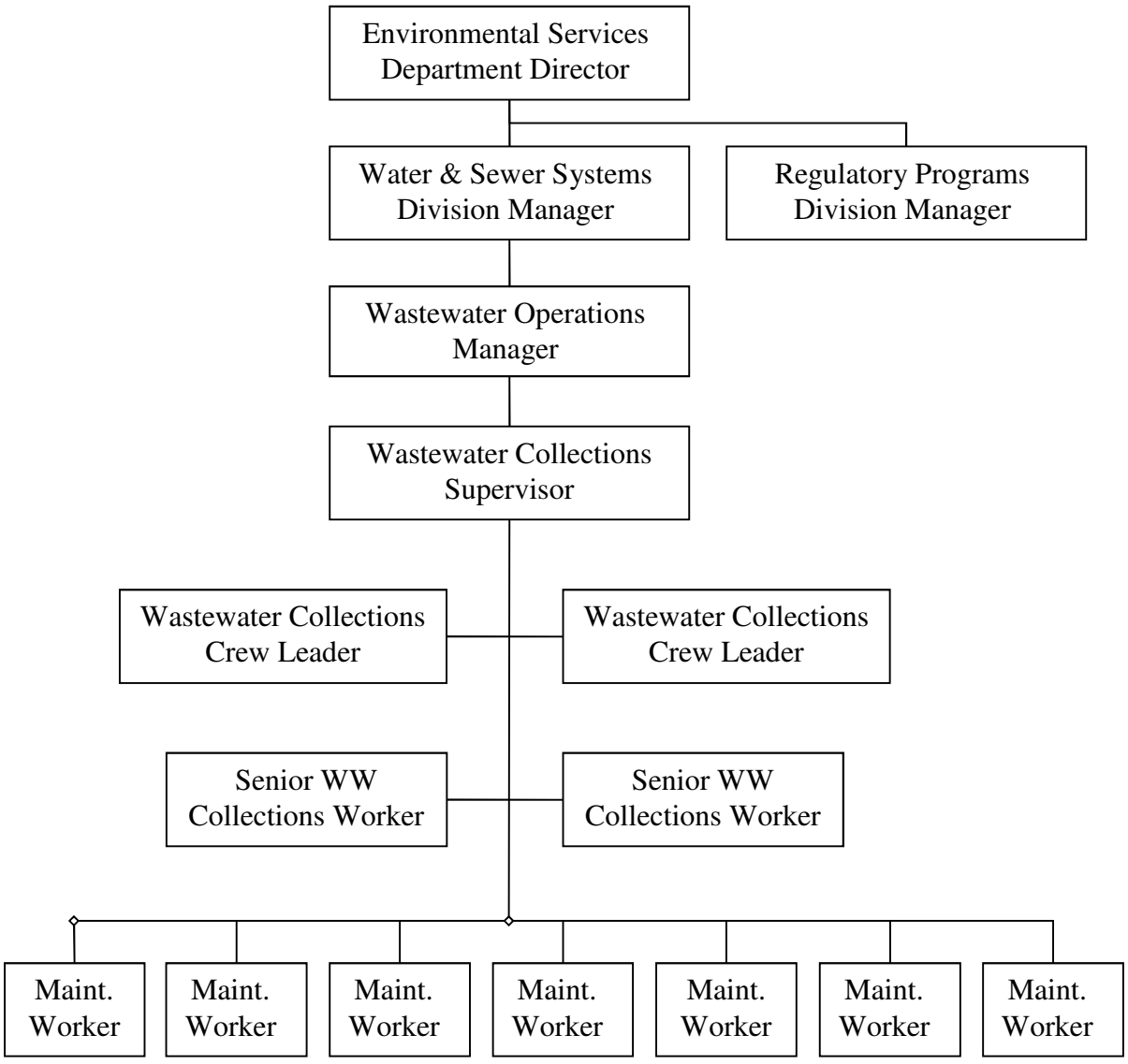


Table II-1. Contact Numbers for Key ESD Positions

Contact	Telephone Number
City Hall	408-730-7500
Answer Point / Dispatch	408-730-7400
Department of Public Safety	408-730-7100
Wastewater Operations Manager	408-730-7714
Wastewater Collections Supervisor	408-730-7566
Wastewater Collections Crew Leader	408-992-5846
Wastewater on-call staff	408-859-3559
Water and Sewer Systems Div. Manager	408-730-7578
Environmental Services Dept. Director	408-730-7954

Description of General Responsibilities

Environmental Services Director

Under administrative direction, provides overall management of the Environmental Services Department, consisting of the Water Pollution Control Plant, Water and Sewer Systems, Solid Waste Programs, and Regulatory Programs Divisions. Along with the City Manager, City Attorney, and other Department heads, serves as a member of the City's Executive Leadership Team.

Water and Sewer Systems Division Manager

Under administrative direction, provides general direction to direct the work of the Water and Wastewater Operations Programs; may act as the Environmental Services Director in the Director's absence or at the Director's discretion.

Wastewater Operations Manager

Under general direction from the Water and Sewer Systems Division Manager, the Wastewater Operations Manager manages operation of the City's wastewater and stormwater collection systems. This is a management level classification in which the incumbent plans, organizes, directs, and coordinates the activities of the wastewater and stormwater collection system programs.

Wastewater Collections Supervisor

Under direction, supervises the activities of lead personnel, field crews and individuals in the maintenance and repair of public utilities that are operated by the Environmental Services Department. Positions in this classification are characterized by an intermediate structure where

work activities change considerably from day to day, or even hour to hour, but usually within some reasonable or expected bounds. Contacts are regularly made both inside and outside the organization at all organizational levels, and require considerable tact, discretion and persuasion skills to obtain willing action and consent.

Wastewater Collections Crew Leader

Under direction, works with and leads field crews and individuals in the maintenance and repair of public utilities including, but not restricted to, storm drains, sanitary sewers and water systems; does related work as required.

Incumbents in this classification will normally receive assignments from individuals in the higher-rated classification of Wastewater Collections Supervisor, although they may also receive direction from the managerial classification of Wastewater Operations Manager.

Senior Wastewater Collections Worker

Under general direction, performs skilled manual tasks in the construction, repair, and maintenance of sanitary sewers, storm drains, and supporting facilities; operates motorized equipment; occasionally leads small field crews; performs related work as required.

Maintenance Worker I and II

Under general supervision, performs a variety of semi-skilled and skilled manual tasks in the construction, repair and maintenance of sanitary sewer and storm drain facilities; operates motorized equipment; performs related work as required.

Crew Assignments:

The Wastewater Operations Manager oversees the entire Program. The Wastewater Collections Supervisor oversees the day to day operation. The Wastewater Collections Crew Leaders, Senior Wastewater Collections Workers generally rotate duties which include: leading crews; operating hydro-flushers; operating CCTV equipment; performing underground utility locates (USA); and being on-call. Hydro-flushing, CCTV, locating, pump and lift station preventive maintenance, and general maintenance and construction duties are shared amongst Senior Utility Workers and the Maintenance Workers.

The construction crew makes needed repairs of the City sanitary sewer system which includes but is not limited to: mains, laterals, pump/lift stations, manholes, and repairs or installs property line clean outs. The construction crew typically consists of three employees.

The hydro-flushing crews perform all cleaning of City sewer mains. Hydro-flushing uses high pressure water to clean the sewer mains. A hydro-flushing crew consists of two employees on a hydro-flushing truck.

The CCTV crew performs televising and condition assessment of the sanitary sewer collection system piping using a robotic pipe inspection camera system and software. A CCTV crew consists of two employees.

The on-call service tech receives and responds to sanitary and storm sewer calls and emergency response requests for wastewater and other issues as required.

One employee is assigned to locating duties, and performs all city utility USA locates. Utilities owned and maintained by the City include sewer, storm and water mains, street light conduit, as well as other City owned subsurface infrastructure. This employee typically shares the televising of wastewater laterals duties.

Legally Responsible Official

The City's authorized representative in all wastewater collection system matters is the Environmental Services Director. The Water and Sewer Systems Division Manager is authorized to act in Director's absence. There are three individuals designated as a Legally Responsible Official (LRO) for purposes of CIWQS reporting and certification: the Wastewater Operations Manager (primary), the Water and Sewer Systems Division Manager (backup), and the Environmental Services Department Director. The City also has two additional employees designated as CIWQS data submitters.

Responsibility for SSMP Implementation

The Environmental Services Director is responsible for implementing all elements of this SSMP. The Environmental Services Director coordinates with the Public Works Director regarding construction of new City-owned sewer facilities. Table II-2 below indicates the City staff responsibilities for SSMP elements. Vacancies in these positions occur from time to time. Current staff lists can be found on the City web site.

SSO Response and Reporting Chain of Communication

The SSO reporting process is described in Element VI: Overflow Emergency Response Plan. Figure VI-1 depicts the chain of communication for responding to and reporting SSO's from observation of an SSO to reporting the SSO to the appropriate agencies. Table II-1 above lists the contact phone numbers for the parties involved in the chain of communication.

Table II-2. City Staff Responsibility for SSMP Elements

SSMP Element	Responsible Official	Name	Phone Number	Email Address
I – Goals	Wastewater Operations Manager (Interim)	Robert Wilsion	408-730-7714	rwilson@ sunnyvale.ca.gov
II – Organization	Environmental Services Director	John Stufflebean	408-730-7954	jstufflebean@ sunnyvale.ca.gov
III – Legal Authority	Environmental Services Director	John Stufflebean	408-730-7954	jstufflebean@ sunnyvale.ca.gov
IV – O&M Program	Wastewater Operations Manager (Interim)	Robert Wilson	408-730-7714	rwilson@ sunnyvale.ca.gov
V – Design & Performance Provisions	Water & Sewer Systems Div. Manager	Mansour Nasser	408-730-7578	mnasser@ sunnyvale.ca.gov
VI – Overflow Emergency Response Program	Wastewater Operations Manager (Interim)	Robert Wilson	408-730-7714	rwilson@ sunnyvale.ca.gov
VII - FOG Control Program	Regulatory Programs Manager	Melody Tovar	408-730-7808	mtovar@ sunnyvale.ca.gov
VIII – System Evaluation and Capacity Assurance Plan	Water & Sewer Systems Div. Manager	Mansour Nasser	408-730-7578	mnasser@ sunnyvale.ca.gov
IX – Monitoring, Measurement, and Program Modifications	Wastewater Operations Manager (Interim)	Robert Wilson	408-730-7714	rwilson@ sunnyvale.ca.gov
X – SSMP Program Audits	Wastewater Operations Manager (Interim)	Robert Wilson	408-730-7714	rwilson@ sunnyvale.ca.gov

XI – Communication	Environmental Services Director	John Stufflebean	408-730-7954	jstufflebean@ sunnyvale.ca.gov

ELEMENT III. LEGAL AUTHORITY

A. Introduction

This section of the SSMP discusses the City's Legal Authority, including the Municipal Code and agreements with other agencies.

B. Regulatory Requirements

The summarized requirements for the Legal Authority section of the SSMP are:

State GWDR Requirement:

The Wastewater Collection System Agency 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 City;

(d) Limit the discharge of fats, oils, and grease and other debris that may cause blockages;

(e) Enforce any violation of its sewer ordinances;

(f) Authority to inspect grease producing dischargers [from GWDR FOG provisions], and

(g) Authority to enforce sewer-related ordinances

C. Sunnyvale Municipal Code

The ***Sunnyvale Municipal Code,*** Chapter 12, describes the City's current legal authorities. The legal authorities provided by the Municipal Code and other sources that address the regulatory requirements are summarized in Table III-1.

Table III-1. Summary of Legal Authorities in Municipal Code and Other Sources

Requirement	Municipal Code Reference	Meets GWDR Requirements
General		
Prevent illicit discharges into the wastewater collection system	Chapter. 12.12.020	Yes
Limit the discharge of fats, oils, and grease and other debris that may cause blockages	Chapter 12.12.020 Chapter 12.12.025 Chapter 12.12.026	Yes
Require that sewers and connections be properly designed and constructed	Chapter 12.08.010 Chapter 12.08.020 Chapter 16.24	Yes
Require proper installation, testing, and inspection of new and rehabilitated sewers	Chapter 16.24 Chapter 18-12-150 City Std. Specs.	Yes
Maintenance and Inspection, including Laterals		
Clearly define City responsibility and policies	City Council Policy No. 3.3D.6	Yes
Ensure access for maintenance, inspection, or repairs for portions of the service lateral owned or maintained by the City	Chapter 18.08.040 (f), 18.12.150 (a) and 18.12.080(a)	Yes
FOG Source Control		
Requirements to install grease removal devices, design standards for the grease removal devices, maintenance, BMP, record keeping and reporting requirements	Chapter 12.12.026	Yes
Authority to inspect grease producing facilities	Chapter 12.12.026 Chapter 12.12.260	Yes
Enforcement		
Enforce any violation of sewer ordinances	Chapter 12.12.050 Chapter 12.12.060 Chapter 12.12.080 Chapter 12.18.090	Yes

The City's legal authority does not require the control of infiltration and inflow (I/I) from private service laterals. (The GWDR has no equivalent requirement). However, inflow and infiltration is not currently a significant issue for the City. Average daily flows during rain events are typically only 10-30% above dry weather flows, and the sewer system has not historically experienced capacity-related SSOs. In addition, with its large area of oxidation ponds providing flow equalization, the WPCP readily manages peak wet weather flows without the need for "blending". The Wastewater Collection System Master Plan effort, which began development in early 2012 and is expected to be completed in Winter 2015,

includes a task to evaluate sewer system I/I and to make cost-effective improvements to reduce I/I.

D. Agreements with Satellite Agencies

The City has informal, undocumented mutual aid agreements with the neighboring Cities of Santa Clara, Los Altos, and Mountain View. The City will continue to assist any surrounding cities when requested if able.

ELEMENT IV. OPERATIONS AND MAINTENANCE PROGRAM

A. Introduction

This section is intended to provide an overview of the City's sewer system operations and maintenance (O&M) program.

B. Regulatory Requirements

State GWDR Requirement (Operations and Maintenance)

(a) Maintain an up-to-date map of the sanitary sewer system, showing all gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable storm water conveyance facilities;

(b) 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 Preventative Maintenance (PM) program should have a system to document scheduled and conducted activities, such as work orders;

(c) Develop a 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;

(d) Provide training on a regular basis for staff in sanitary sewer system operations and maintenance, and require contractors to be appropriately trained; and

(e) Provide equipment and replacement part inventories, including identification of critical replacement parts.

C. Operations and Maintenance Program

RWQCB guidance and GWDR requirements for the Operations and Maintenance Program generally conform to each other. The following descriptions respond first to the SWRCB requirements. RWQCB guidance that is not addressed by the GWDR requirements follow at the end of this section.

Collection System Maps

The City has a Geographical Information System (GIS) that includes information for wastewater collection system assets including: gravity line segments, manholes, pumping

facilities, and pressure pipes (force mains). The City also has information in its GIS for the storm drainage system. The GIS information is available to internal City staff.

The field crews use hard copy "block maps" that are available in all maintenance vehicles as well as in the office. Map corrections are noted by field crews, transmitted to the IT section, and IT makes corrections in the GIS maps.

Preventive Operations and Maintenance

The elements of the City's sewer system O&M program include:

Proactive, preventive and corrective maintenance of gravity sewers;

CCTV inspection;

Rehabilitation and replacement of sewers that are in poor condition; and

Periodic inspection and preventive maintenance for the pump stations.

Currently there are two combination unit crews, one construction crew, one CCTV crew, one on-call crew, and one locating crew.

Gravity Sewers

With current funding and staffing levels, the City proactively cleans the sewer system every three to five years, and preventively cleans sewers with a history of issues on an enhanced frequency cleaning interval as necessary. The City has two combination (hydro/vacuum) units it uses for the cleaning or maintenance of its sewer mains. Enhanced frequencies are scheduled at 2, 3 and 6 month intervals for main lines that require more frequent cleaning, and lines are placed into those frequencies depending upon specific conditions in individual main lines segments. Approximately 90,000 feet or about 6% of the system are in the enhanced frequencies. The combination units are generally used for the enhanced frequency cleanings. The City also contracts for the chemical treatment of some lines with a history of issues with roots, currently about 35,000 feet are treated annually.

Gravity sewer maintenance is currently scheduled using maps and lists of enhanced frequency cleaning line segments. Completed sewer maintenance is recorded on field crew daily reports. Upon implementation of the computerized maintenance management system (CMMS) that is currently in progress, the CMMS will be used to generate work orders and track history for sewer line maintenance, and provide other O&M related functions. The City's Standard Operating Procedure (SOP) for sewer cleaning is included as Appendix IV-A.

In 2011, the City committed to an aggressive schedule of manhole inspections to identify potential cross-connections between the sewer system and the storm drain system. (Such connections were historically incorporated into the design of certain manholes as a means of preventing uncontrolled SSOs in the event a backup, but are no longer considered acceptable). The City inspected all 7,133 manholes by the end of 2013. As part of this process, the City documented condition of the manholes and identified other issues (e.g., deterioration, excessive I/I). Manhole inspections are now routinely performed during routine cleaning of lines and manhole rehabilitations are part of the City's CIP program.

CCTV Inspection

The City historically used an outside contractor for CCTV inspection services for both periodic condition assessment and for follow-up on SSO events. In April 2012, the City took delivery on its own CCTV equipment truck, so that inspections can be conducted by ESD staff, with the contractor providing backup assistance when needed. ESD staff has been trained in the use of the CCTV equipment, and an SOP for CCTV inspections has been created. This SOP has been added as Appendix IV-B. City staff that uses the CCTV equipment have been trained and certified in the PACP coding system that is used internationally to assess and grade the condition of lines and the City plans to have more wastewater collections employees certified in the future. The City plans to initially use a seven year cycle and then develop a plan for setting future frequencies of CCTV inspections similar to that done for cleaning, one that is condition-based and can use PACP ratings to set the period until the next CCTV inspection.

Rehabilitation and Replacement

City crews, or sometimes contractors, correct problems that are identified by CCTV and/or sewer cleaning crews. Repairs are completed in priority order. Repairs and replacement projects are coordinated with the City's street resurfacing program and annual water main replacement projects.

Wastewater Pump/Lift Stations Inspections and Maintenance

City crews inspect the operation of the Arques, Lawrence Station, Sunken Gardens, Baylands and Kifer Sewage Lift Stations weekly. Maintenance activities include: inspecting the site, verifying pump operation, and vacuuming out grease and debris or applying de-greasers as warranted. The pump stations have gravity bypass capability and can be powered by trailer-mounted generators during power outages. The City recently replaced four of the eight air relief valves on its force mains.

Rehabilitation and Replacement Program

The current budget will allow the City to inspect the condition of its gravity sewers on an approximately seven year cycle. The information gathered during the condition assessment will be used to select individual gravity sewers for repair, rehabilitation, or replacement.

Funding for the Capital Improvement Program is derived from the City's Sewer Fund. The sewer fund is an enterprise fund. Sewer fees are established on the basis of projected needs and are updated periodically. The budget and project description currently included in the City's Capital Improvement Program are listed in Appendix VII-A. This listing will be revised upon completion of the Wastewater Collection System Master Plan, expected in Spring 2015. Additional funding for special projects may be approved by the City Council on a case-by-case basis.

Training

The City uses a combination of in-house classes, on the job training, CSRMA site visits and webinars, CWEA conferences, seminars, and other training opportunities to train its Wastewater Collections staff. The City strongly encourages staff to advance their CWEA certification grade, provides financial support for certifications and CWEA, and provides training and advancement opportunities. Senior staff are actively involved in leadership roles in CWEA and BACWA.

Annual training on the City's SSMP and OERP is conducted for all wastewater collection employees. The City also maintains an ongoing safety training program that addresses both general and task-specific safety issues. The "Tailgate Schedule for Corp Yard" lists safety training activities for the Water and Sewer Division Program. This schedule is updated annually.

The City's contract language requires contractors working in the wastewater collection system to provide training for their employees in the activities that may cause SSOs and in responding to contractor-caused SSOs.

Replacement Parts

No critical replacement parts are warranted. The pump stations have gravity bypasses and the City has informal agreements with neighboring agencies for equipment support in the event the sewer maintenance equipment fails. However, the Division maintains an inventory of routine parts for repair of sewer lines.

Operation and Maintenance Resources

City staff positions dedicated to the maintenance of the collection system facilities are listed in Table IV-1. These positions also receive administrative and clerical support provided by the Environmental Services Department. Major pieces of equipment used to support maintenance activities are listed in Appendix IV-C. Staffing and resources are constrained under current budgets, but are sufficient to maintain services at an acceptable level and, with careful prioritization, to address long-term needs.

Table IV-1. Collection System Staff Maintenance Resources

Position/Activity	FTEs
Wastewater Operations Manager	1
Wastewater Collections Supervisor	1
Wastewater Collections Crew Leader	2
Senior Wastewater Collections Worker	2
Maintenance Worker I, II	7
Total	**13**

Outreach to Sewer Service Contractors

The City participates in the Bay Area Clean Water Agencies (BACWA) region-wide outreach program and has sent out notifications to local plumbing contractors. The City plans to repeat the mailing approximately every two years. The City also conducts general outreach to the public on proper disposal of FOG and other items that can cause SSOs. City outreach activities are described in detail in the WPCP's Annual Pollution Prevention Reports.

ELEMENT V. DESIGN AND PERFORMANCE PROVISIONS

A. Introduction

The City's design and construction standards are used by the City Staff and they are communicated to consulting engineers and/or developers at the start of a design process or proposed development.

B. Regulatory Requirements

State GWDR Requirement (Design and Performance Provisions)

(a) Design and construction standards and specifications for the installation of new sanitary sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sanitary sewer systems; and

(b) Procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects.

C. Design and Construction Standards

The City's design standards for residential drainage systems are specified in *"City of Sunnyvale – Single-Family Construction Standards"*, April 2013, located on the City's Community Development web page at:
http://sunnyvale.ca.gov/Portals/0/Sunnyvale/CDD/Residential/Residential%20Construction%20Standards-Text.pdf

Design requirements for replacement of sewer lines are specified in *"Plumbing (sewer and water line) Replacement*" located on the City's Community Development web page at:
http://sunnyvale.ca.gov/LinkClick.aspx?fileticket=zMvQ5a0_dRk%3d&tabid=478

Requirements for grease removal devices for food service establishments are specified in *"Grease Removal Devices"* located on the City's Community Development web page at:
http://sunnyvale.ca.gov/Portals/0/Sunnyvale/CDD/Non-Residential/Grease%20Removal%20Devices.pdf
The above requirements are consistent with the 2013 California Plumbing Code, which the City has adopted. The City's Building Division issues permits, conducts plan checks, and conducts inspections for all residential and commercial construction.

Design, installation and testing requirements for sewer mains and related appurtenances constructed in the public right-of-way are specified in the "*City of Sunnyvale Standard Details and Specifications",* located on the City's Department of Public Works web site at:
http://sunnyvale.ca.gov/Departments/PublicWorks/CityStandardDetailsandSpecifications.aspx

Projects in the public right-of-way are coordinated through the DPW's Engineering Division, which approves construction plans and specifications and conductions inspections.

The Wastewater Collection System Master Plan project, initiated in early 2012, includes a task for review of the City's design standards and standard details for wastewater systems, along with recommendations for revisions where needed. This work is on-going and it is anticipated revisions won't be made until 2015 or later.

ELEMENT VI. SANITARY SEWER OVERFLOW RESPONSE PLAN

A. Introduction

The City of Sunnyvale's Environmental Services Department, Water & Sewer Systems Division is responsible for the operation and maintenance of the sanitary sewer system. The system consists primarily of gravity flow lines that lead to the City of Sunnyvale's Wastewater Pollution Control Plant (WPCP).

Purpose

The Sanitary Sewer Overflow Response Plan (SSORP) is designed to ensure that every report of a confirmed sanitary sewer overflow (SSO) is immediately dispatched to the appropriate crews. This plan provides a procedure that, when enacted in response to the sewer overflow/spill, would reduce or eliminate public health hazards, prevent unnecessary property damage, and minimize the inconvenience of service interruptions. This plan provides procedures for City staff to follow when responding to, cleaning up, and reporting SSOs.

Objectives

The primary objectives of the Sanitary Sewer Overflow Response Plan are to:

Protect public health and the environment;
Protect collection system personnel;
Protect private and public property;
Respond quickly to minimize the volume of the SSO;
Satisfy regulatory agencies and waste discharge permit requirements;
Minimize enforcement actions against the City; and
Safeguard the infrastructure of the collection system.

Safety

Whenever qualified City personnel respond to a report of an overflow/spill, they may encounter an emergency situation that requires immediate action. The most critical aspect of resolving an incident of this nature is to safely and competently perform the actions necessary to return the system or facility to normal operations as soon as possible.

The most important item to remember during this type of incident is that safe operations always take precedence over expediency or shortcuts. Safety also takes precedence over regulatory notifications and reporting.

Upon arrival at a SSO, the Wastewater duty person will conduct a hazard assessment to determine potential safety hazards. There is always a possibility that a sewage overflow may contain unknown hazardous waste or chemicals. On rare occasions, gasoline and industrial solvents have been found in the sewer system. If a hazardous waste is suspected, the

responding field crew should notify DPS Communications immediately and request the Fire Department's Hazardous Materials Response Team.

The Wastewater Operations Manager should also be notified of a SSO as soon as possible. Personnel shall stay clear of any hazards and secure the area from the public.

Depending on the nature or cause of the SSO, personnel may be required to remove a mainline blockage with a hydro-flusher, repair a damaged section of pipeline, or wash/clean a City street. At this point, it is essential that all standard safety procedures and/or duties are followed as deemed appropriate.

Typical responses may require personnel to implement the following types of safety procedures:

- Standard personal protective equipment (PPE);
- Confined space entry procedures;
- Traffic control;
- Heavy equipment operation; and/or
- Adequate communication via two-way radio and/or cellular telephone.

B. Regulatory Requirements

State GWDR 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 Program (MRP). All SSOs shall be reported in accordance with this MRP, the California Water Code, other State Law, and other applicable Regional Water Board Waste Discharge Requirements or National Pollutant Discharge Elimination System (NPDES) permit requirements. The Sewer System Management Plan 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.

C. Sanitary Sewer Overflow Response

City of Sunnyvale employees are required to report all wastewater spills to their supervisor and/or manager. Secure the wastewater spill area, do whatever is necessary to relieve the cause of the wastewater spill and bring it under control, and clean the wastewater spill as soon as possible to minimize health hazards to the public and to protect the environment.

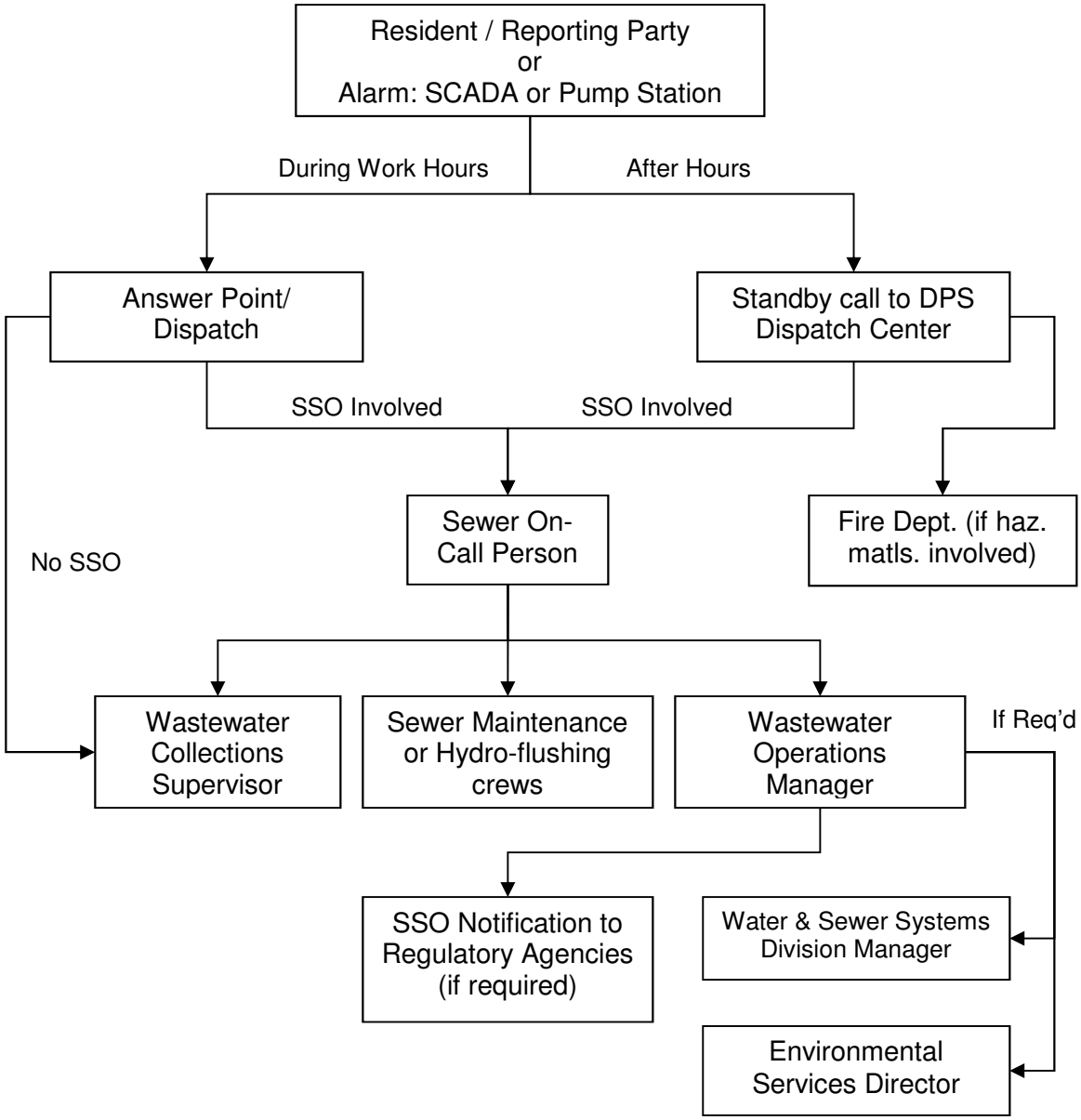
- NOTE: There are stringent regulatory notification and reporting requirements for SSOs, which vary depending on the category of spill. See Section D "SSO Reporting" below.
- If industrial toxic substances are involved, any volume must be immediately reported to the Fire Department and then reported, as soon as possible, to the State Office of Emergency Services and the Regional Water Quality Control Board.

Internal SSO Communications

- The Wastewater duty person (or Responder) should complete a Wastewater SSO Response Field Documentation Form (Appendix VI-C) and notify the Wastewater Operations Manager and/or the Wastewater Collections Supervisor.
- The Wastewater Operations Manager will notify the Water and Sewer Systems Division Manager and Environmental Services Director, as needed.
- The Wastewater Collections Supervisor will meet with field crew(s) at the site of the SSO event to assess the situation, document the conditions with field logs, photos, and direct recovery and cleanup activities.
- The. Wastewater Operations Manager will generally notify regulatory agencies as described in Section D "SSO Reporting". In the Wastewater Operations Manager's absence, the Water & Sewer Systems Division Manager will assume this responsibility.

Figure VI-1 depicts the chain of communication for responding to an SSO. Appendix VI-A contains a complete listing of Environmental Services Department employees and contact information.

Figure VI-1. SSO Internal Communications



Duties and Procedures:

The City of Sunnyvale emergency response procedure shall be followed for all minor or major sewage spills or overflows, and spills involving discharge from industries into City of Sunnyvale sewer or storm systems.

The City utilizes the document ***SSO and Backup Response Plan*** as a field manual for responding to SSOs and sewer backups. An abbreviated version of that document is kept in City vehicles. A copy of the full document is included as Appendix VI-B of this SSMP.

REPORTING PROCEDURES

Mandatory notification and reporting requirements are described under "SSO Reporting" (subsection D of this Section). In addition, under some circumstances, it may be appropriate to notify the following City Departments:

- Department of Public Safety Communications: (408) 730-7180
- Water Pollution Control Plant: (408) 730-7260

CONTROL THE CAUSE OF THE WASTEWATER SPILL:

(a) Set out absorbent materials to contain the sewage overflow. This is done to contain and prevent sewage runoff from entering into the storm system.

(b) Do whatever is necessary to correct the origin of the wastewater spill, or, if the overflow is caused by a stoppage in the sewer collection main, call for assistance and use the hydro jet flushing truck to relieve the stoppage immediately.

MAIN LINE STOPPAGE AND OVERFLOW:

(a) Check downstream manholes to determine between which two manholes the stoppage exists.

(b) Flush or rod from first clear downstream manhole towards stoppage.

(c) Capture and remove all debris if at all possible, if this can't be done check the downstream manholes for any sign of restrictions or the possibility of a second mainline stoppage. Where possible, drag the debris down to a larger main.

(d) Immediately flush the area and wash down manholes and street, contain and remove any solid debris.

(e) Collect as much runoff as possible and dispose back into the sanitary sewer system, estimating how much was captured and placed back into the sanitary sewer system.

(f) Sanitize affected area if necessary.

LATERAL STOPPAGE

(a) Check main line - if clear, stoppage must be in private sewer lateral or building plumbing.

(b) Check lower lateral from right-of-way cleanout to main line. If this line is clear, the property owner is advised that the lower lines are clear and the problem exists in the upper section of the private sewer lateral or building plumbing and it is the responsibility of the property owner to correct the problem.

(c) When the cleanout is buried, inaccessible, non-conforming, or non-existent, the resident is advised that the main line is clear and it is the responsibility of the property owner to clear the blockage in the private lateral. This may require the owner providing or installing appropriate access to the private sewer lateral for servicing.

(d) If a right-of-way cleanout exists and is accessible, the City may attempt to rod the lateral to the main and clear any stoppage that may exist as a courtesy service. If the

stoppage cannot be cleared by City staff, the property owner is advised that the City lines are clear and it is the responsibility of the property owner to correct the problem in the private plumbing.

(e) If the stoppage or structural defect is in the portion of the lateral that is in the public right-of-way, the City may repair the line on a discretionary basis.

If any lateral stoppage or structural defect is not able to be resolved by City staff, the City will turn the project over to the property owner and the property owner will have to complete the project at their expense.

CLEAN-UP AND MITIGATION

(a) To minimize health hazards to the public and to protect the environment, start cleaning the wastewater spill area as soon as possible.

(b) Inspect the storm drain catch basins to determine whether wastewater has entered the storm system, and to what extent.

(c) Install air plugs or sandbags in storm lines to contain the discharge and/or wash water. Flush the area with water and vacuum up the excess or pump it back into the sanitary sewer collection system.

(d) Remove all debris found in the wastewater spill area by vacuuming the surface area and disposing of the material as appropriate.

(e) Thoroughly inspect the spill area before leaving.

SAMPLING AND LAB TESTS

For those SSOs that reach surface waters or drainage channels that City staff believes may have a significant impact on water quality, and if feasible and safe, water quality samples should be collected. Samples shall always be taken if the SSO volume is estimated to be greater than 50,000 gallons. Whenever possible, samples should be collected by WPCP Laboratory or ESD / Inspection staff, who are trained in field sampling procedures rather than by Wastewater Collections Division staff. Ideally, samples should be collected at the point of discharge and at upstream and downstream locations. The upstream location should be far enough from the spill to be unaffected by the spill. The appropriate number and location of downstream samples will depend on various factors including volume of spill, volume or flow rate of receiving water, sample access, etc. Ideally a "near field" downstream sample (e.g. 100-ft downstream) and one or more "far field" samples (e.g. 500-ft, 1000-ft) should be collected. If tidal conditions are such that it is unclear as to what is "upstream" and "downstream" from the discharge location, analysis for conductivity may be useful. Samples should be analyzed for ammonia, dissolved oxygen, and a bacterial indicator, preferably enterococcus. (The WPCP lab is set up to perform both enterococcus and total coliform analysis. The enterococcus analysis is preferred to characterize SSO impacts). Field observations should also be made at each sampling location, including any visual evidence of the spill, presence of odor, evidence of fish kills. Follow-up sampling should be conducted on successive day(s) (or at other appropriate time intervals) to document the return to normal conditions, or that downstream levels of ammonia and the bacterial indicator are

approximately equal or less than upstream levels, or less than the applicable June 2013 Basin Plan limits for the appropriate beneficial use. The 2013 Basin Plan limits are:

Un-ionized ammonia: 0.4 mg/l as N, south of the Bay Bridge.
Enterococcus Bacteria (MPN/100ml): no sample > 104; in fresh water, no sample > 89

Field crews should exercise their best judgment in deciding whether to conduct sampling, and consult with the Wastewater Operations Manager or Wastewater Collections Supervisor. Water quality sampling should not be given precedence over stopping the SSO or protection of public health. However, if sufficient personnel are available, sampling can be conducted in parallel with these activities or with the clean-up effort.

SIGN POSTING AND BARRICADING

(a) If needed to exclude the public from interfering with clean-up activities or coming into contact with spills, secure the area with barricades and/or yellow caution tape.

(b) If the spill has entered an open creek, post warning signs and secure the area with barricades and/or yellow caution tape. Do not remove the signs or barricades until the results of the lab tests show the area to be clear. Appendix VI-H shows an example warning signed used by the City.

RECORDKEEPING AND FOLLOW UP WORK

(a) A City of Sunnyvale SSO Field Response Document (yellow form) shall be filled out for all system blockages that result in SSOs. A City of Sunnyvale Flushing Report shall accompany the mainline stoppage report. Copies of these Reports are included in Appendix VI-C. The information is entered into binders and is part of the collection system maintenance history. Staff is presently transitioning to a CCMS system that will enhance the storage and retrieval of this information. It will also be used by the Wastewater Operations Manager in reporting the incident to regulatory agencies.

(b) A City of Sunnyvale Surcharge Report (green form) shall be filled out for all blockages that do not result in SSOs. These shall be submitted to the Wastewater Collections Supervisor to determine appropriate follow up. A Flushing Report shall accompany the mainline Surcharge Report. These reports will be kept at the Corporation Yard.

(c) The affected pipe segment will generally be scheduled for televising, which will aid in determining appropriate follow-up work needed to maintain the segment in a clear condition. The recommended follow-up work will then be scheduled or the line segment will be added to one of the enhanced frequency cleaning lists (60-day, 90-day, or semi-annual) if needed.

(d) Any mainline blockage that caused property damage shall be evaluated and placed on an enhanced cleaning list as appropriate.

(e) Spot repairs, structural pipe repairs, root sawing, and root foaming are other possible follow up results of CCTV work or televising of pipe segments.

D. SSO Notification and Reporting

All confirmed sanitary sewer overflows must be reported to the Wastewater Operations Manager or designee, who will be responsible for notification and reporting to regulatory agencies. Notification and reporting requirements depend on the type of spill, as described below.

External SSO Notification and Reporting Procedures

The City is required to report all SSOs to the SWRCB using the California Integrated Water Quality System (CIWQS). SSOs greater than or equal to 1,000 gallons that reach a drainage channel or surface water or spilled in a location where it will probably will be discharged to surface water must also be reported by phone to the California Office of Emergency Services (Cal OES) within 2 hours as described below.

Category 1 SSOs

Definition:

All discharges of sewage resulting from a failure in the City's sanitary sewer system that:

Result in a discharge to a drainage channel and/or surface water; or

Discharge to a storm drain pipe that was not fully captured and returned to the sanitary sewer system.

Notification & Reporting Requirements

2-hr Notification:

For any Category 1 SSO greater than or equal to 1,000 gallons, contact Cal OES within 2 (two) hours of becoming aware of the SSO, at the number(s) indicated below. The Cal OES operator will provide a Control Number and they will notify other State agencies of the spill. This is the "Notification" requirement.

California Office of Emergency Services

Telephone: (800) 852-7550 or (916) 262-1621

3-day / 15-day Reporting

As soon as possible, but no more than three days after the City has knowledge of the SSO, file a draft report of the SSO using the SWRCB's online Reporting Database (CIWQS) at http://ciwqs.waterboards.ca.gov/ A final certification must be submitted via CIWQS within 15 days of the conclusion of SSO response activities. This is the "Reporting" requirement for Category 1 SSOs.

NOTE: A "Data Submitter" may enter data and create an SSO report in CIWQS. However, only a "Legally Responsible Official" (LRO) can certify SSO reports.

Category 2 SSOs

Definition:

All discharges of sewage resulting from a failure in the City's sanitary sewer system that:

1,000 gallons or greater; or

Discharge to the storm drain system that was fully captured and returned to the sanitary sewer system.

Reporting Requirements

3-day / 15-day Reporting

As soon as possible, but no more than three days after the City has knowledge of the SSO, file a draft report of the SSO using the SWRCB's online Reporting Database (CIWQS) at http://ciwqs.waterboards.ca.gov/ A final certification must be submitted via CIWQS within 15 days of the conclusion of SSO response activities. This is the "Reporting" requirement for Category 2 SSOs.

NOTE: A "Data Submitter" may enter data and create an SSO report in CIWQS. However, only a "Legally Responsible Official" (LRO) can certify SSO reports.

Category 3 SSOs

Definition:

All other discharges of sewage resulting from a failure in the City's sanitary sewer system.

Reporting Requirements

No initial notification is required. A final certified report must be filed using CIWQS within 30 days after the end of the calendar month in which the SSO occurs.

Private Lateral SSOs

Definition

Sewage discharges that are caused by blockages or other problems in privately owned sewer laterals.

Reporting Requirements

Reporting of SSOs from private laterals is voluntary. However, private lateral SSOs may be reported at the City's discretion through CIWQS.

No Spill Certification

Even if there are no SSOs during the calendar month, the City must certify through CIWQS that there were no SSOs for the designated month. This "No Spill Certification" must be submitted within 30 days after the end of each calendar month.

CIWQS Questionnaire Annual Update

The City must annually update the CIWQS Collection System Questionnaire, even if there are no changes from the previous year.

Table VI-1. Summary of Communication Requirements for SSOs

CATEGORIES	DEFINITIONS [see Section A on page 5 of Order 2006-0003-DWQ, for Sanitary Sewer Overflow (SSO) definition]
CATEGORY 1	**Discharges of untreated or partially treated wastewater of <u>any volume</u> resulting from an enrollee's sanitary sewer system failure or flow condition that:** • **Reach surface water and/or reach a drainage channel tributary to a surface water; or** • **Reach a Municipal Separate Storm Sewer System (MS4) and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or groundwater infiltration basin (e.g., infiltration pit, percolation pond).**
CATEGORY 2	**Discharges of untreated or partially treated wastewater of <u>1,000 gallons or greater</u> resulting from an enrollee's sanitary sewer system failure or flow condition that <u>do not</u> reach surface water, a drainage channel, or a MS4 unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.**
CATEGORY 3	**All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition.**
PRIVATE LATERAL SEWAGE DISCHARGE (PLSD)	**Discharges of untreated or partially treated wastewater resulting from blockages or other problems <u>within a privately owned sewer lateral</u> connected to the enrollee's sanitary sewer system or from other private sewer assets. PLSDs that the enrollee becomes aware of may be <u>voluntarily</u> reported to the California Integrated Water Quality System (CIWQS) Online SSO Database.**

Notification, Reporting, Monitoring, and Record Keeping Requirements

ELEMENT	REQUIREMENT	METHOD
NOTIFICATION (see section B of MRP)	• **Within two hours of becoming aware of any Category 1 SSO greater than or equal to 1,000 gallons discharged to surface water or spilled in a location where it probably will be discharged to surface water, notify the California Office of Emergency Services (Cal OES) and obtain a notification control number.**	**Call Cal OES at: (800) 852-7550**
REPORTING (see section C of MRP)	• **Category 1 SSO: Submit draft report within three business days of becoming aware of the SSO and certify within 15 calendar days of SSO end date.** • **Category 2 SSO: Submit draft report within 3 business days of becoming aware of the SSO and certify within 15 calendar days of the SSO end date.** • **Category 3 SSO: Submit certified report within 30 calendar days of the end of month in which SSO the occurred.** • **SSO Technical Report: Submit within 45 calendar days after the end date of any Category 1 SSO in which 50,000 gallons or greater are spilled to surface waters.**	**Enter data into the CIWQS Online SSO Database (http://ciwqs.waterboards.ca.gov/), certified by enrollee's Legally Responsible Official(s).**

REPORTING (see section C of MRP- con't)	• **"No Spill" Certification: Certify that no SSOs occurred within 30 calendar days of the end of the month or, if reporting quarterly, the quarter in which no SSOs occurred.** • **Collection System Questionnaire: Update and certify every 12 months.**	
WATER QUALITY MONITORING (see section D of MRP)	• **Conduct water quality sampling <u>within 48 hours</u> after initial SSO notification for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters.**	**Water quality results are required to be uploaded into CIWQS for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters.**
RECORD KEEPING (see section E of MRP)	• **SSO event records.** • **Records documenting Sanitary Sewer Management Plan (SSMP) implementation and changes/updates to the SSMP.** • **Records to document Water Quality Monitoring for SSOs of 50,000 gallons or greater spilled to surface waters.** • **Collection system telemetry records if relied upon to document and/or estimate SSO Volume.**	**Self-maintained records shall be available during inspections or upon request.**

E. Equipment

A listing of equipment used by the Wastewater Collections section is included as Appendix IV-C.

F. Training

SSO Response Training

All employees who may have a role in responding to, reporting, and/or mitigating a SSO should receive training on at least an annual basis. All new employees should receive training before they are placed in a position where they may have to respond in an independent manner, i.e. without the benefit of accompanying an experienced employee.

Employees are encouraged to participate in SSO response training and exercises offered by CWEA or other sanitation agencies, to the extent these opportunities can be accommodated within the Division's workload schedule.

Record Keeping

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

G. List of Plumbing and Emergency Response Contractors:

A list of plumbing contractors that the City uses for contract work on sewer mains or laterals is included in Appendix VI-D. A list of contractors who may be called out to assist with emergency response is included as Appendix VI-E.

ELEMENT VII. FOG CONTROL PROGRAM

A. Introduction

This section of the SSMP evaluates the extent and nature of SSOs related to Fats, Oils, and Grease (FOG), the need for a FOG Control Program, and outlines the elements of the City's FOG Control Program.

B. Regulatory Requirements for FOG Control Section

State GWDR Requirement:

The collection system agency shall evaluate its service area to determine whether a FOG control program is needed. If the collection system agency determines that a FOG program is not needed, the collection system agency must provide justification for why it is not needed. If FOG is found to be a problem, the collection system agency 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, best management practices (BMP) requirements, record keeping and reporting requirements;

(e) Authority to inspect grease producing facilities, enforcement authorities, and determination of whether the collection system agency has sufficient staff to inspect and enforce the FOG ordinance;

(f) An identification of sewer system sections subject to FOG blockages and the establishment of 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.

C. Nature and Extent of FOG Problem

The City has approximately 410 potential commercial and industrial sources of FOG discharge to the collection system. Currently, one Senior Environmental Compliance

Inspector and four Environmental Compliance Inspectors are involved in the FOG Program inspections. The largest concentration of commercial FOG sources are the food service establishments (FSEs) located in the vicinity of Murphy Ave and along some portions of El Camino Real. Some of the FSEs are located in older buildings and have undersized grease traps. In addition, there are eating and drinking establishments, cafeterias, bakeries, delis, meat preparation, mobile facilities and two food processing plants (butter and sausage manufacturing) that are located throughout the City.

Although FOG is not the cause of a majority of the SSOs in the City of Sunnyvale, it is the cause of 33% of the SSOs during the period of 2009-2013 and it is clear the City needs a FOG program. The City includes line segments that have had FOG-related SSOs or surcharging on the Enhanced Frequency Cleaning listings (60-day, 90-day, semi-annual, and bi-annual), which are used by the Wastewater Collections Section to schedule sewer lines preventive maintenance. The Enhanced Cleaning listings reside on the City network, are accessible by ESD staff, and are periodically updated based on information collected during maintenance activities (and particularly the results of video inspections). Such periodic updating allows the City to tailor cleaning frequencies to the needs of the particular line segment and more effectively utilize maintenance resources.

D. FOG Control Program

Environmental Services Department FOG Control Program Elements

A. Sewer Line Cleaning

FOG blockage information is shared between the Wastewater Collections Section (WW Collections) and the Regulatory Programs Division / Compliance Inspection Group.

1. WW Collections will contact the Compliance Inspection Group for enforcement or outreach support when an SSO event is in progress or has occurred.
2. WW Collections provides line blockage information to the Compliance Inspection Group for review and any follow up.
3. WW Collections will advise the Compliance Inspection Group of any possible grease discharge identified during mainline stoppage, follow up or general maintenance flushing or scheduled televising wastewater segments.
4. The Compliance Inspection Group will advise WW Collections of all findings, all outreach program participants and their findings of any investigation initiated by WW Collections caused by concerns identified during the follow up or annual maintenance flushing of wastewater main segments.

B. Legal Authority – Ordinance

The Sunnyvale Municipal Code (SMC) identifies FOG-related prohibitions and requirements. The Regulatory Programs Division incorporated additional SMC requirements in 2000.

1. Prohibitions on discharges (SMC 12.12.020)
2. Grease disposal prohibited (SMC 12.12.025)
3. Grease removal device required (SMC 12.12.026)
4. Discharge and threatened discharge into storm drain prohibited (SMC 12.12.050)

5. Administrative civil penalties (SMC 12.18.090)

C. FSE Permits/Registration

The Compliance Inspection Group has identified all FSEs in the City and performs sampling, inspection, and enforcement to verify compliance with Sunnyvale Municipal Code and Best Management Practices. New or remodeled FSEs are identified in conjunction with the City Building Department.

D. FSE Inspections/Enforcement

1. Since 2011, the Compliance Inspection Group inspects all FSEs on an annual basis. Emphasis is on:
    a. Grease removal device (GRD) installation and maintenance.
    b. Process information
    c. Grease management
    d. Best Management Practices
    e. Stormwater pollution prevention
2. Enforcement actions are clearly outlined in the Enforcement Response Plan. Elements include:
    a. Identifying and investigating instances of noncompliance
    b. Enforcement procedures
    c. Enforcement response guide

A summary of inspections and enforcement in the period of 2009 through 2013 is included in the following table:

Table VII-1. FSE Inspection and Enforcement

Year	Total FSEs	Total Inspections	Enforcement Actions
2013	412	515	76
2012	394	569	114
2011	353	349	56
2010	353	209	61
2009	353	245	43
Grand Total	**1865**	**1887**	**350**

E. Grease Interceptor and Trap Installation Requirements

All GRDs installed or caused to be installed are sized in conformance with the currently adopted edition of the Uniform Plumbing Code (SMC 12.12.026). The Compliance Inspection Group coordinates with the Building Division in the permit review of FSEs.

F. Grease Interceptor and Trap Maintenance Requirements

All GRDs installed or caused to be installed shall be kept in good repair and shall be maintained in continuous operation. The GRD contents shall be removed every six months at a minimum, and documentation of all grease removal activities shall be

maintained (SMC 12.12.026). The Environmental Compliance Inspectors inspect FSEs for these criteria and for large devices will routinely conduct FOG accumulation measurements of the GRD. The City requires compliance with the 25% rule Best Management Practice. FSE's are required to maintain their GRDs below 25% total capacity of measured solids and FOG. Any measurement above 25% indicates that the cleaning frequency of the GRD is not adequate and it requires an immediate pump out.

G. Grease Hauling and Disposal Requirements

It is unlawful for any person to dispose of any grease by discharge into any sanitary sewer or storm drainage system (SMC 12.12.025).

1. Environmental Compliance Inspectors review the contracted grease hauling and disposal company documents when conducting an FSE inspection.
2. FSEs that conduct self-cleaning of GRDs are provided guidance regarding proper disposal of the FOG.

H. Grease Hauling and Disposal Facilities

A listing of grease haulers and disposal facilities is available at http://www.calfog.org. The nearest disposal site for FOG is the Silicon Valley Clean Water (SVCW) treatment plant in Redwood City. Other local facilities that accept FOG from outside their service areas include the East Bay Municipal Utility District's (EBMUD) treatment plant in Oakland and the City of Watsonville Wastewater Treatment Facility. The recently-issued design contract for rehabilitation of Sunnyvale WPCP anaerobic digesters No. 1 and No. 2 includes the evaluation and design of a FOG and food waste receiving station at the WPCP.

I. Kitchen BMP Requirements

Kitchen BMP activities are observed and related inquiries are made during inspections of FSEs. All FSEs receive BMP documents or displayable posters regarding FOG reduction, and the BMPs are now expressed in four languages.

J. Residential Program

The Compliance Inspection Group previously conducted surveys and inspections of residential complexes located in FOG "hot spots," as identified by Wastewater Collections. These facilities receive information on BMPs, and their effectiveness will be monitored.

K. Education and Outreach

The Environmental Outreach Coordinator works with the Compliance Inspection Group in selecting and distributing both FSE and residential complex BMPs related to FOG reduction. In addition, FOG outreach regularly occurs as articles in city newsletters, on KSUN (community public access television), and in handouts and utility bill inserts.

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ELEMENT VIII. SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN

A. Introduction

This section outlines the City's programs and activities to provide adequate capacity.

B. Regulatory Requirements for the System Evaluation and Capacity Assurance Plan Section

State GWDR Requirement (SECAP)

The Enrollee shall prepare and implement a capital improvement plan (CIP) that will provide hydraulic capacity of key sanitary sewer system elements for dry weather peak flow conditions, as well as the appropriate design storm or wet weather event. At a minimum, the plan must include:

(a) Evaluation: Actions needed to evaluate those portions of the sanitary sewer system that are experiencing or contributing to an SSO discharge caused by hydraulic deficiency. The evaluation must provide estimates of peak flows (including flows from SSOs that escape from the system) associated with conditions similar to those causing overflow events, estimates of the capacity of key system components, hydraulic deficiencies (including components of the system with limiting capacity) and the major sources that contribute to the peak flows associated with overflow events.

(b) Design Criteria: Where design criteria do not exist or are deficient, undertake the evaluation identified in (a) above to establish appropriate design criteria.

(c) Capacity Enhancement Measures: The steps needed to establish a short- and long-term CIP to address identified hydraulic deficiencies, including prioritization, alternatives analysis, and schedules. The CIP may include increases in pipe size, inflow and infiltration (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.

(d) Schedule: The Enrollee shall develop a schedule of completion dates for all portions of the capital improvement program developed in (a)-(c) above. This schedule shall be reviewed and updated consistent with the SSMP review and update requirements as described in Section D. 14.

C. System Evaluation and Capacity Assurance Plan

Evaluation –Sewer System Master Plan

The City completed a Sewer System Master Plan in 1992 (Master Plan). The master planning effort evaluated the capacity of the existing sanitary sewer system assets and provided capacity design criteria for future assets.

At the time the Master Plan was prepared, the City was at or near build-out. Projects within the City's service area are primarily redevelopment projects. The City requires that redevelopment project proponents evaluate the offsite capacity impacts of their project through an engineering study.

The City initiated the development of a new Wastewater Master Plan in early 2012. The project's scope of work includes:

- Updating the Citywide Vertical Control/Benchmark system
- A report on the sewer and storm systems, their conditions and capabilities
- Flow monitoring and a report and recommendations regarding inflow and infiltration to the sanitary sewer
- A dynamic hydraulic systems models and flow projections
- A report on Operations and Maintenance, including fee assessment and fee schedules
- Up-to-date wastewater system maps in GIS format and drawings in CAD format
- A recommended comprehensive long-term Capital Improvement Program
- A review and recommendations for revisions to the City's design standards and standard detail for wastewater systems
- Development of an intranet web browser for technical and engineering documents

The City Council awarded a contract for developing the Master Plan on January 31, 2012. The schedule for completion of the Plan is estimated for Winter 2015.

Evaluation - Hydraulic Model

The City periodically monitors the flow in its sanitary sewer system to identify capacity deficiencies and to monitor the quantity of inflow and infiltration present.

The flows were most recently monitored at eight locations during April and May 2005. These sites had been previously monitored in 1998. The 2005 Flow Monitoring effort demonstrated that the City's large diameter sewers have adequate capacity to convey design flows (the maximum observed d/D was 72%). Capacity issues will be revised as part of the Wastewater Collection System Master Plan effort described below.

Design Criteria

The capacity-related design criteria are included in Element V - Design and Performance Provisions.

Capacity Enhancement Measures - Capital Improvement Program

The City's Wastewater Collection System Master Plan effort has identified capacity deficiencies at several locations at the time this SSMP was prepared. The City's Wastewater Collection System Master Plan effort calls for additional monitoring, development of a new collection system model, and capacity assessment at existing and future flows, up to and including 2035 "build-out" flows based on population and land use projections contained in City planning documents. The Master Plan will make

recommendations for addressing any current or future capacity deficiencies. The resulting projects will be incorporated into the City's Capital Improvement Program.

Schedule

The schedule for the City's capacity enhancement projects is included in the City's Capital Improvement Program. A listing of the annual budgets and project description for Sewer System CIP projects is included as Appendix VIII-A.

ELEMENT IX. MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS

A. Introduction

This section of the SSMP outlines the process that the City will follow to evaluate the effectiveness of the SSMP and to identify updates that may be needed for a more effective program.

B. Regulatory Requirements for the Monitoring, Measurement, and Program Modifications Section

State GWDR Requirement:

The Enrollee 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.

C. Performance Measures

The indicators that the City will use to measure the performance of its wastewater collection system and the effectiveness of its SSMP are:

- Total number of SSOs
- Number of SSOs by cause (roots, grease, debris, pipe failure, capacity, pump station failures, and other)
- Locations with multiple SSOs
- Volume of sewage spilled, recovered, and reaching waters of the state
- Volume spilled as a fraction of volume conveyed through system
- Emergency response times
- Planned to actual performance for preventive maintenance. (Future metric to be developed upon implementation of the CMMS)

D. Performance Monitoring and Program Changes

The City will evaluate the performance of its wastewater collection system and SSMP effectiveness annually using the performance measures described above. Results of the evaluation will be recorded on the SSMP Audit Form. The City will also evaluate the

effectiveness of individual SSMP elements. The primary tool for documenting the evaluation will be the SSMP audit. The City will prioritize its actions and initiate changes to this SSMP and the related programs based on the results of the evaluation. Examples of changes that could result from ongoing evaluation include:

- Revisions to frequency of cleaning cycles and/or FSE inspections based on field observations and CCTV inspections
- Reprioritization of rehabilitation and replacement projects based on the results of CCTV inspection, manhole inspections, and capacity analysis.
- Implementation of new methods and procedures based on experience developed in-house and from other agencies.
- Increased use of information technology (GIS, GPS, CMMS) for administrative and field operations.

Table IX-1. SSOs by Cause, 2009 through 2013

Year	Total SSOs	Cause			
		Roots	Debris	FOG	Pipe-Structural
2013	14	10	0	3	1
2012	9	3	0	5	1
2011	15	6	5	3	1
2010	16	8	1	7	0
2009	13	9	0	4	0

Figure IX-1. SSOs by Cause, 2009-2013

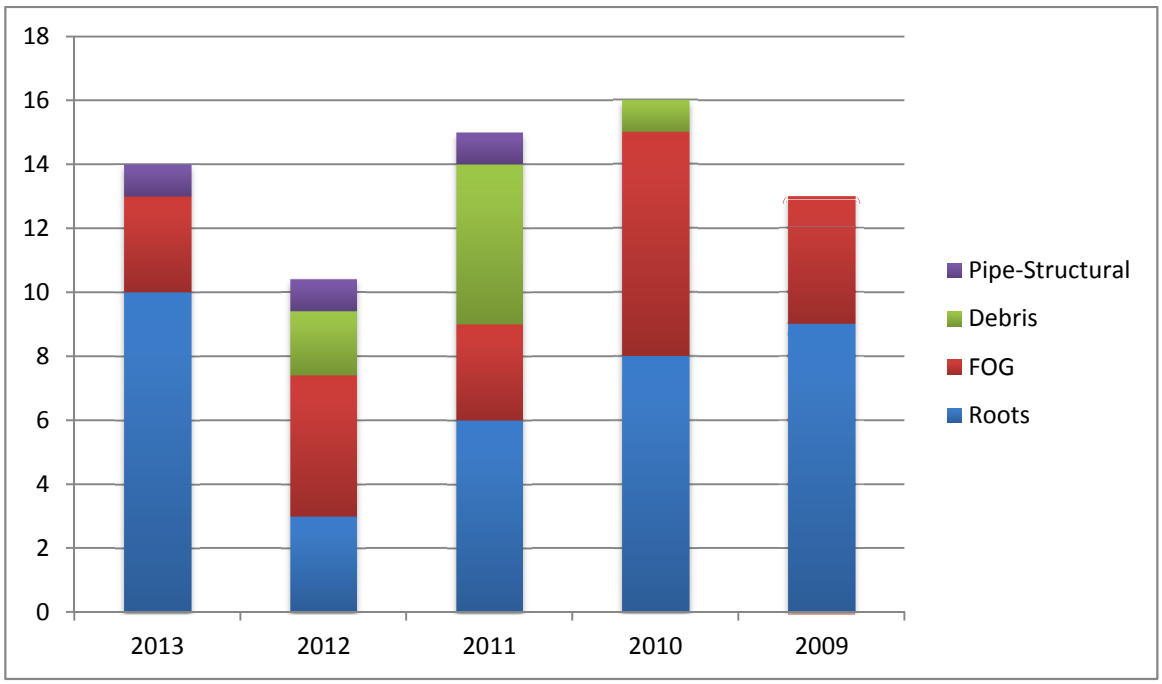
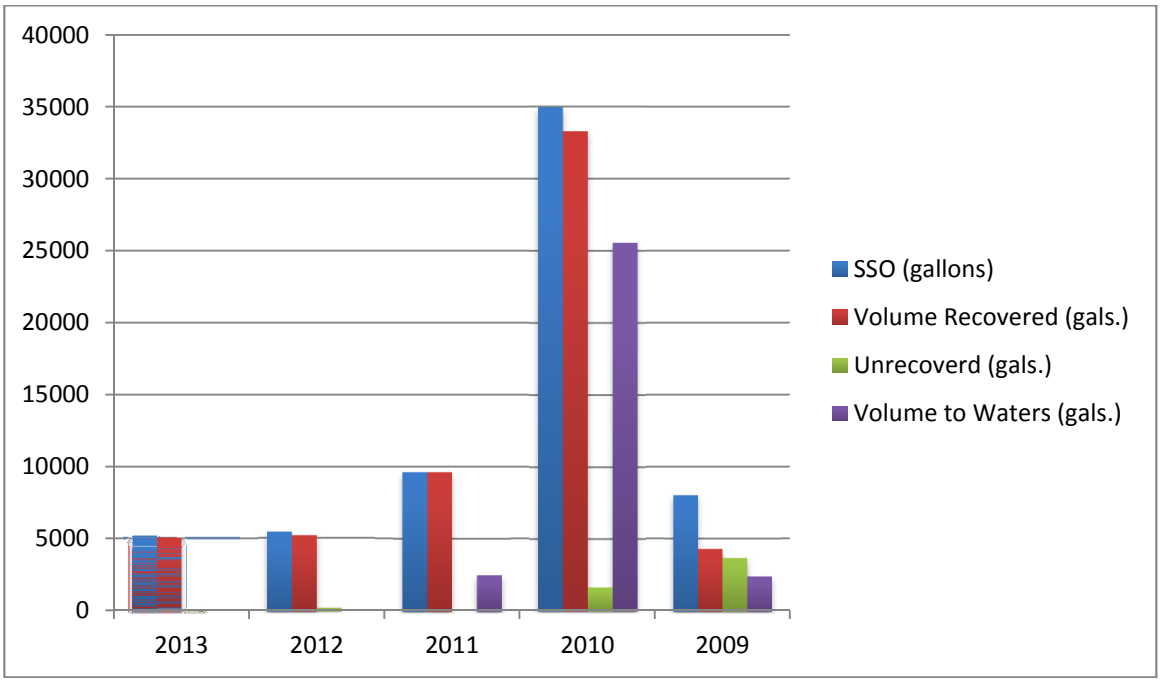


Figure IX-2. SSO Volumes, 2009-2013



Note: Volume Recovered may include washdown water used in cleanup activities.

ELEMENT X. SSMP PROGRAM AUDITS

A. Introduction

This section of the SSMP outlines the process that the City will follow to evaluate the effectiveness of the SSMP to identify updates that may be needed for a more effective program.

B. Regulatory Requirements

State GWDR Requirement

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

C. Audits

The City conducted annual audits of the SSMP from Calendar Year 2008 through 2011, and started bi-annual audits in 2012. After the 2014 audit, audits will be conducted every two years in the first quarter of the year by the Wastewater Operations Manager and/or an outside consultant. Other parties may be added to the future audit teams. The audit is retained by the Wastewater Operations Manager. A copy of the most recent SSMP Program Audit is included as Appendix X-A.

The audit covers each of the major sections of the SSMP. An Audit Checklist, adapted from a document developed by BACWA and based on the requirements of the GWDR is used. In addition to the Yes/No response to questions, the checklist provides space for each group of related questions to document any deficiencies and steps taken or planned to correct them. The comment spaces will also be used to document qualitative evaluations related to the particular element or sub-element. In this way, the audit serves as the primary tool for documenting SSMP effectiveness as described in Element IX.

D. SSMP Updates

The City will determine the need to update the SSMP based on the results of the Monitoring and Measuring Program and the SSMP audit. As part of the 2012 SSMP revision, information that is expected to require regular routine updating (contact lists, performance statistics, Enhanced Frequency Cleaning lists, etc.) was moved to the SSMP Appendices or replaced by reference to the appropriate external documents. This will facilitate the update process, and will reduce the frequency at which the main body of the SSMP will require updating. The Wastewater Operations Manager is responsible for maintenance and updating of the SSMP.

As part of the audit process, City staff will update critical information in the SSMP, such as contact information, names of the key staff in the response chain of communication, or other similar data as needed. A comprehensive SSMP update will occur every 5 years, as required by the GWDR.

Changes made to the SSMP will be documented in the Change Log located in Appendix X-B. The Change Log is effective as of adoption of this Revised SSMP.

ELEMENT XI. COMMUNICATION PROGRAM

A. Introduction

This section of the SSMP outlines the process involved in communicating with interested members of the public regarding the development, implementation, and performance of this plan.

B. Regulatory Requirements for the Communication Program Section

The requirements for the Communication Program section of the SSMP are:

State GWDR Requirement

The Enrollee 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 Enrollee as the program is developed and implemented.

The Enrollee shall also create a plan of communication with systems that are tributary and/or satellite to the Enrollee's sanitary sewer system.

C. Communication during SSMP Development and Implementation

Communication of SSMP Development and Updates

The City Council approved the schedule for completion of the SSMP at its August 27, 2007 Council meeting. In advance of such approval, Public Works staff prepared a Report to Council that provided background information including regulatory drivers for SSMP development, SSMP purpose and content, relationship to existing City policy as described in the Wastewater Management Sub-element of the City's General Plan, and the SSMP implement schedule. The Council report was available to the general public through posting of the Council agenda on the City's official notice bulletin board, posting of the agenda and report on the City Council web page, and through the City Library and the City Clerk's Office. The August 27 Council meeting was open to the public and included a period for public comment.

In May 2009, the City amended the sewer use ordinance to implement additional FOG Program elements as required by the SSMP. The proposed ordinance revisions were also publicly noticed and made available to the public through the channels listed above.

City Council approved a revised version of the SSMP at the September 11, 2012 City Council meeting. A Report to Council was prepared to advise of the changes to the existing SSMP that included several updates and format changes. The Council report was available to the general public through posting of the Council agenda on the City's official notice bulletin board, posting of the agenda and report on the City Council web

page, and through the City Library and the City Clerk's Office. The September 11 Council meeting was open to the public and included a period for public comment.

Ongoing Communication

Posting of SSMP on City Web Site: The City plans to post the SSMP on the City's web site after adoption of this revision. The link to the document will be on the Environmental Services Department, Water and Sewer Services page. That page currently includes contact information for reporting sewer backups (SSOs).

SSO Reporting: The Wastewater Operations Manager is the primary person responsible for reporting SSOs to Cal OES. Information on individual SSOs is available to the general public through a GIS-based application on the State Board's web site at http://gistest.waterboards.ca.gov/webmap/sso_pub.html

FOG Program: The City operates a FOG Program that regulates the discharge of FOG from commercial food service establishments (FSEs) by requiring the installation and maintenance of grease removal devices and through distribution of BMP information (see Element VII). FSE inspections and enforcement are administered through the WPCP Pretreatment Program. Control of FOG from residential sources is achieved primarily through education and outreach efforts that communicate a consistent and ongoing message regarding the impacts of FOG on the collections system, provides information for proper disposal, distributes FOG scrapers, etc. The FOG outreach activities are conducted at the community events such as the Health and Safety Fairs, during school presentations, and other venues. The Program also uses the City's quarterly newsletter, utility bill inserts, electronic billboards and links to online site to communicate a variety of pollution prevention messages, including FOG-related messages.

General Outreach: The City uses a quarterly newsletter, utility bill inserts, electronic billboards and its website to communicate a variety of pollution prevention messages. In addition, the City also participates in regional outreach activities through the Bay Area Clean Water Agencies (BACWA)/ Association of Bay Area Governments (ABAG)/ Bay Area Stormwater Agencies Association (BASMAA) Regional Media Relations Campaign.

Appendix IV-A

Standard Operating Procedure (SOP) for Sewer Cleaning

(2) Hydro-Jet Cleaning (Main)

1. Background:

The City of Sunnyvale will hydro-flush clean city mains on the city owned sewer.

2. Scope:

This document presents the materials, the procedures to follow, and the safety items to hydro-flush clean sewer mains for the City of Sunnyvale.

3. Materials:

3.1 Hydro-flush Truck.
3.2 Manhole hook.
3.3 GIS or map data.
3.4 Debris spoon (clam) and/or forks.

4. Procedure:

4.1 Ensure that all personnel are using prescribed personal safety/protective equipment (i.e.; ear protections, safety glasses, safety vest, appropriate foot wear, etc.) prior to beginning any work.
4.2 Ensure that all safety signage and warning devices and traffic control are in place prior to beginning any work.
4.3 Check GIS and/or Sewer Maps for ID numbers, location, and orientation of sewer assets.
4.4 Pull manhole lids upstream and downstream.
4.5 Insert jetter hose into tiger tail and into the run of the main.
4.6 Turn on water to jetter and turn up trucks rpm to get proper PSI.
4.7 Run out hose up the main until it gets to next manhole.
4.8 Pull hose back slowly to remove debris.
4.9 Vac out all heavy debris out of the manhole or use "clam" bucket to remove debris.
4.10 Set lids back on manholes.
4.11 Fill out all associated paperwork making note of work performed and findings.

Appendix IV-B

SOP for CCTV Inspections

(14) Video Sewer Inspection (Main)

1. Background:

The City of Sunnyvale will Video sewer mains on the city owned sewer.

2. Scope:

This document presents the materials, the procedures to follow, and the safety items to video sewer mains.

3. Materials:

3.1 Video truck.
3.2 Cable rollers.
3.3 Manhole hook.

4. Procedure:

4.1 Ensure that all personnel are using prescribed personal safety/protective equipment (i.e.; ear protections, safety glasses, safety vest, appropriate foot wear, etc.) prior to beginning any work.
4.2 Ensure that all safety signage and warning devices and traffic control are in place prior to beginning any work.
4.3 Check GIS and/or Sewer Maps for ID numbers, location, and orientation of sewer assets.
4.3 Clean main or root cut main prior to video operations if necessary.
4.4 Insert camera into main set and up manhole data in computer.
4.5 Televise from manhole to manhole noting all defects and laterals.
4.6 Replace manhole lids.
4.7 Fill out all associated paperwork making note of work performed and findings.

Appendix IV-C

Major Equipment Items to Support Maintenance

SEWER VEHICLES AND EQUIPMENT

Equipment #	Type	Description	Year	Make	Model
768-3	Vehicle	Dump Truck	2014	Ford	F-650
655-0	Vehicle	Supervisor Truck	2014	Ford	F-150
631-0	Vehicle	Flushing Truck	2014	Ford	F-450
641-8	Vehicle	On-Call Truck	2011	Ford	F-350
646-5	Vehicle	Construction Truck	2011	Ford	F-350
691-2	Vehicle	Locates Van - Econoline	2006	Chevrolet	3500
503-2	Vehicle	Vactor	2011	VacCon	Freightliner
500-2	Vehicle	Vactor	2014	VacCon	Freightliner 114 SD
598-3	Vehicle	Backhoe	2010	John Deere	310J
590-3	Compressor	Ingersoll Rand Compressor	2011	Ingersoll-Rand	P185
301-1	Saw	Concrete Saw	1996	MK	9136
309-2	Generator - Portable	3000 watt generator in Truck 646	2007	Honda	EU3000
368	Trailer	Mr. Manhole Trailer	2014		
552	Equipment	Mr. Manhole	2012	Case	TR270
396	Trailer	Emergency Response Trailer	2013	Pace American	
514	Vehicle	CCTV Truck	2012	Ford	E-450
967	Equipment	Skid Flusher - on Truck 631	2013	US Jetting	
341	Generator	3000 watt generator on Truck 641		Honda	E-3000
361	Pump	Trash Pump PT 6			

Appendix VI-A

List of ESD Employees and Contact Information

City Staff Responsibility for SSMP Elements

SSMP Element	Responsible Official	Name	Phone Number	Email Address
I – Goals	Wastewater Operations Manager (Interim)	Robert Wilson	408-730-7714	rwilson@ sunnyvale.ca.gov
II – Organization	Environmental Services Director	John Stufflebean	408-730-7954	jstufflebean@ sunnyvale.ca.gov
III – Legal Authority	Environmental Services Director	John Stufflebean	408-730-7954	jstufflebean@ sunnyvale.ca.gov
IV – O&M Program	Wastewater Operations Manager (Interim)	Robert Wilson	408-730-7714	rwilson@ sunnyvale.ca.gov
V – Design & Performance Provisions	Water & Sewer Systems Div. Manager	Mansour Nasser	408-730-7578	mnasser@ sunnyvale.ca.gov
VI – Overflow Emergency Response Program	Wastewater Operations Manager (Interim)	Robert Wilson	408-730-7714	rwilson@ sunnyvale.ca.gov
VII - FOG Control Program	Regulatory Programs Manager	Melody Tovar	408-730-7808	mtovar@ sunnyvale.ca.gov
VIII – System Evaluation and Capacity Assurance Plan	Water & Sewer Systems Div. Manager	Mansour Nasser	408-730-7578	mnasser@ sunnyvale.ca.gov
IX – Monitoring, Measurement, and Program Modifications	Wastewater Operations Manager	Robert Wilson	408-730-7714	rwilson@ sunnyvale.ca.gov
X – SSMP Program Audits	Wastewater Operations Manager	Robert Wilson	408-730-7714	rwilson@ sunnyvale.ca.gov
XI – Communication	Environmental Services Director	John Stufflebean	408-730-7954	jstufflebean@ sunnyvale.ca.gov

Appendix VI-B

SSO Backup Response Plan

(17) Sanitary Sewer Overflow (SSO) Response

1. Background:

The City of Sunnyvale will clear blockages and mitigate sewage overflows from city owned sanitary sewer.

2. Scope:

This document presents the materials, the procedures to follow, and the safety items to restore flow and recover spill contents emanating from city owned sewer structures.

3. Materials:

3.1 Combination truck.
3.2 GIS and/or block map book.
3.3 Manhole hook.
3.4 Absorbent.
3.5 Camera (portable or cell phone).

4. Procedure:

4.1 Ensure that all personnel are using prescribed personal safety/protective equipment (i.e.; ear protections, safety glasses, safety vest, appropriate foot wear, etc.) prior to beginning any work.
4.2 Ensure that all safety signage and warning devices and traffic control are in place prior to beginning any work.
4.3 Check GIS and/or Sewer Maps for ID numbers, location, and orientation of sewer assets.
4.4 Locate upstream and downstream manholes in suspected area.
4.5 Pull manhole lid on downstream manhole check for flow. Hydro-flush upstream if no flow and upstream manhole is holding sewer to restore flow.
4.6 Remove manhole lid on upstream manhole and monitor flow conditions.
4.7 Follow procedures in Sunnyvale Sanitary Sewer Overflow and Backup Response Plan.
4.8 Notify supervisor as soon as possible.
4.9 Contain spill contents and protect storm drain inlets.
4.10 Vacuum spill contents at furthest point of containment. Wash spill contents with fresh water toward vacuum unit ("wash and walk").
4.11 Hydro-flush and vacuum affected storm system if applicable.
4.12 Take pictures when arriving. Also photograph various points of spill mitigation at various locations.
4.12 Fill out all associated paperwork making note of work performed and findings.

Appendix VI-C

SSO Response Field Documentation Forms

- Sewer Flushing Report
- Surcharge Report
- SSO Response – Field Documentation

CITY OF SUNNYVALE

SEWER FLUSHING REPORT

Date:_____ Operators: _____

	Downstream M/H (BM# - M/H#)	Upstream M/H (BM# - M/H#)	Location	Length between M/Hs	Debris / Severity (see codes)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Water Meter Reading:

Start_____ End_____

Total footage of segments flushed

Debris Type:		
	0=none	4=roots
	1=grease	5=mud
	2=paper	6=foreign objects
	3= grit	7= other

Debris Severity:	
	1=clear
	2=mild
	3=medium
	4=severe
	5=stoppage

11/3/2011

City of Sunnyvale
Environmental Services Department
SURCHARGE REPORT

D

Time Call Received:

Dispatched to:

Weather Condition: Clear Rain

Location:

Cross Street:

Time arrived at site:

Time normal flow restored:

First Responder:

Crew Members:

Downstream Manhole:

Upstream Manhole:

Mainline size:

Distance between M/Hs:

Describe cause and location of blockage (include pictures if taken):

Additional comments:

Attach a copy of the service report, flushing report, site map & all pictures to this report

Televise Date:

Recommendation:

(6 Page Document)

SSO RESPONSE - FIELD DOCUMENTATION

REPORTED BY

Call Address:
On Service Request: _____ (SR #_____)

Caller Name: _____ **Phone:** _____ _____

Receipt of Call: Date: ____/____/____ **Time:** _____:_____ ☐ AM ☐ PM **Call Received By:** _____

Call Dispatch: _____/_____/_____ **Time:** _____:_____ ☐ AM ☐ PM **Assigned To:** _____

Sewer Staff Arrival: Date: _____/_____/_____ **Time:** _____:_____ ☐ AM ☐ PM

SSO End Time: _____:_____ ☐ AM ☐ PM Date: _____/_____/_____

SPILL START TIME NOTES

CALLER INTERVIEW: Contacted: _____:_____ ☐ AM ☐ PM Date: _____/_____/_____

Telephone ☐ In Person ☐ Left Message ☐ : _____:_____

Where did you see sewage spill from? From: Manhole ☐ Inside Building ☐ C/O ☐

☐ Wet well/Lift station ☐ Other _____

Time Caller noticed spill: _____:_____ ☐ AM ☐ PM Date: _____/_____/_____

Comments:

_____

_____

Last time Caller observed NO Spill occurring: _____:_____ ☐ AM ☐ PM Date: _____/_____/_____

Comments:

_____

_____

_____

Other Comments regarding spill start time:

_____

_____

_____

SSO RESPONSE - FIELD DOCUMENTATION

SPILL LOCATION

Observed: Spill from: ☐ Manhole ID_____ ☐ Lift Station ID _____

☐ Clean Out Address _____

Comments: _____

☐ Building Address _____

Comments: _____

Spill Destination: ☐Building ☐ Paved Surface ☐ Storm Sys ☐ Curb/Gutter ☐ Unpaved ☐ Surface Water

Answer these questions:

#1 - Was there a discharge to a drainage channel and/or surface water? _____ Yes _____No
#2 - Was there a discharge to storm drain pipe that was "NOT" fully captured & returned to the sanitary sewer system? _____ Yes _____No

If the answer is "yes" to any of the questions above, the SSO is a Category 1. (Notification within 2-hours is required)

SPILL VOLUME WORKSHEET

The purpose of this worksheet is to capture the data and method(s) used in estimating the volume of an SSO. Since there are many variables and often unknown values involved, this calculation is just an *estimate*. Additionally, it is useful to use more than one method, if possible, to validate your estimate.

The following methods and tools are the approved methods in the SSMP and ERP. Check all methods and tools that you used:

- ☐ Eyeball Estimate Method
- ☐ Measured Volume Method
- ☐ Duration and Flow Rate Method (Account for diurnal flow pattern for long duration)
- ☐ Other (explain) i.e.; estimated daily use per capita upstream or meter @ Pump Station.

_____
_____
_____
_____
_____
_____

Eyeball Estimate Method: Imagine the following container(s) of water tipped over to match the quantity observed.

Size of container(s)	How many of this Size?	Multiplier	Total Volume Estimated
1 gal. bucket		X 1	
5 gal. bucket		X 5	
32 gal. trash can		X 32	
55 gal trash can		X 55	
Total Volume Estimated Using Eyeball Method			

Measured Volume Method: (this may take several calculations and may have to break down the odd shaped spill to rectangles, circles, and polygons). It is important when guessing depth to measure in several locations and use an average depth if possible. Use a separate sheet, if necessary, to sketch the shapes and show your work.

1. Draw a sketch of the spill and/or use a photo copy of block map to draw on and attach it
2. Draw shapes and dimensions used on your sketch
3. Use correct formula for various shapes

Rectangle	L x W x D
Circle	3.14 x R^2 x D
Polygons see reference chart	Show formula used

Duration and Flow Rate Method worksheet:

Start Date and Time	1.
End Date and time	2.
Total time elapsed of SSO event (subtract line 1 from line 2. Show time in minutes)	3.
Average flow rate GPM (account for diurnal pattern)	4.
Total volume estimate using duration and flow rate method (Line 3 x Line 4)	5.

SSO RESPONSE - FIELD DOCUMENTATION

CAUSE OF SPILL

Spill Cause: ☐ Roots ☐ Grease ☐ Debris ☐ Vandalism ☐ Lift Sta. Fail ☐ Other _____

☐ Spill cause to be determined by CCTV inspection (Attach TV Report to this form)

Final Cause Determination:

_____

_____

_____

Follow-up or Corrective Action Taken:

_____

_____

_____

_____

SPILL CONTAINMENT

Containment Implemented: _____:_____ ☐ AM ☐ PM Date: _____/_____/_____

Containment Measures: ☐ Plugged Storm Drain ☐ Washed Down ☐ Vacuum Up Water/Sewage

☐ Other Measures: _____

_____

_____

_____

_____

Estimated Total spill volume to Reach Surface Water	Estimated Total spill volume to Reach Land	Estimated Total spill volume Recovered	Estimated Total spill volume

SSO RESPONSE - FIELD DOCUMENTATION

CLEAN UP

Clean Up Begin: _____:_____ ☐ AM ☐ PM Date: _____/_____/_____

Clean Up Complete: _____:_____ ☐ AM ☐ PM Date: _____/_____/_____

Describe Clean Up Operations: _____

_____

_____

_____: **Gallons** – Estimate Volume of Spill Recovered (**do not** count wash down water)

OTHER IMPORTANT MILESTONES

Contacted Supervisor: _____:_____ ☐ AM ☐ PM Date: _____/_____/_____

Requested Additional EE's/Equip: _____:_____ ☐ AM ☐ PM Date: _____/_____/_____

Requested Additional EE's/Equip: _____:_____ ☐ AM ☐ PM Date: _____/_____/_____

Requested Additional EE's/Equip: _____:_____ ☐ AM ☐ PM Date: _____/_____/_____

Departure Time: _____:_____ ☐ AM ☐ PM Date: _____/_____/_____

_____ _____:_____ ☐ AM ☐ PM Date: _____/_____/_____

_____ _____:_____ ☐ AM ☐ PM Date: _____/_____/_____

_____ _____:_____ ☐ AM ☐ PM Date: _____/_____/_____

Were signs posted? _____ Yes _____No

Were samples taken? _____ Yes _____No

REPORTING

Report to Cal-OES: Date:_____ _____:_____ ☐ AM ☐ PM (Cat.1 Only) **(800) 852-7550** By: _____

→ Control Number provided by Cal-OES: _____

→ Name of Person Contacted: _____ or Left Message: ☐

Notes: _____

Response Crew: _____, _____, _____, _____

_____, _____, _____, _____

Appendix VI – D

List of Plumbing Contractors – Work on Sewer Mains or Laterals

Contractors – Work on Sewer Mains or Laterals

City of Sunnyvale

1) Bay Area Trenchless

2) Able Septic Tank Service

3) Sanco Pipelines

4) Pacific Underground Construction

Appendix VI – E

List of Contractors – Emergency Response

Contractors – Emergency Response

City of Sunnyvale

1) Bay Area Trenchless

2) Able Septic Tank Service

3) Sanco Pipelines

4) Pacific Underground Construction

Appendix VII-A

City CIP Summary

Projects Budget Guide

Strategic Vision

The City of Sunnyvale has developed a strategic vision to develop its capital assets so residents will continue to realize optimal service in an aesthetically pleasing environment. Careful management of these assets keeps the City poised for flexible and responsive growth, while methodical planning allows the City to proactively prepare the ground work so it can seize opportunities arising from a dynamic economy. Further, this plan incorporates a broad vision that allows the City to concentrate on the "here and now" delivery of service, while keeping its eye on the horizon. Applying a long-term approach allows the City to seek economically solid and financially feasible opportunities to "grow" toward a vision of tomorrow.

In Sunnyvale's multi-year framework, capital improvement maintenance and infrastructure replacement are given high priority. New capital improvements must be supportive of the General Plan. The City's long-term financial plan represents the large demand that fixed asset replacement places on any government body.

Capital improvements substantially affect the economic vitality and quality of life in the community. By definition, a capital improvement requires a major initial investment, a significant and continuing financial commitment, and eventual replacement. Capital improvements require careful long-term planning and budgeting so cyclical downturns or unforeseen financial emergencies do not curtail planned maintenance and necessary replacement.

The City of Sunnyvale has a consolidated General Plan that contains a comprehensive capital assets plan that is specific to its focus on scope of service. This plan is formulated through careful analysis, study, and consideration. The Projects Budget aligns projects with the General Plan .

Using the plan as a foundation, individual projects are proposed based on the needs of the community. These projects may be designated as capital, infrastructure, special, or outside group funding. Capital projects relate to construction, major improvements, or acquisition of a structure. Infrastructure projects generally relate to the long-term renovation and replacement of the City's existing physical assets like

streets, sewers, water lines, roof replacements, and heating, air conditioning, and ventilation systems replacement. Special projects generally include one-time projects that are designed to address a specific community need or problem. For example, this category could include a feasibility study on the need for higher capacity at the Water Pollution Control Plant. The last category is outside group funding. These also are special projects, but are separated to identify City contributions to local community-based organizations.

Project Planning & Budgeting

Every other year the City reviews and updates the twenty-year Projects Budget. Every project is extensively reviewed. The City examines each project in several different contexts. Consideration is given to how the project will be financed and sometimes whether it will be financed. Cost/benefit analyses are conducted on the merits of the projects and where each fits into the overall capital assets plan for the City. Projections are formulated on expenditures and if the project will generate revenues. All project costs are updated to reflect current requirements.

In order to provide a sound foundation for decision making on capital improvements and other project-related efforts, the City applies extensive criteria to determine the value of each project. Criteria include, but are not limited to protection of public health and safety, adherence to legal requirements, environmental quality, level of public support, return on investment, availability of financing, and relationship to Council-adopted plans.

Operating resources required to maintain new capital improvements commencing the year the improvement is completed are included in the City's long-term financial plans. Each project identifies, if applicable, the amount and the fiscal year in which the additional operating costs become effective. These costs are incorporated in the long-term financial plans for each affected fund.

The City carefully considers each project's short-term and long-term effects against current policy directives, citywide needs, on-going operational needs, and budgetary constraints. These considerations are applied across the entire twenty-year planning horizon and to all projects, no matter their cost or scope. The effect is a long-term, comprehensive project plan that is synchronized with a balanced operating budget. This approach provides a complete financial analysis of the impact of all projects proposed for funding in the immediate year, as well as in future years. It also provides a "big picture" perspective of how the projects are synchronized with the operating budget.

Fiscal Policies Related to Capital & Infrastructure Expenditures

Council Fiscal Policy identifies a number of capital improvement and related policies designed to maximize value and cost-effectiveness of the City's infrastructure. Several key policies include those relating to plan, design, and funding.

Capital Improvement Plan. High priority should be given to replacing capital improvements prior to the time they have deteriorated to the point where they are hazardous, incur high maintenance costs, negatively affect property values, or no longer serve their intended purposes. Priority will be given to the repair and replacement of existing infrastructure as compared to the provision of new or expanded facilities.

Capital Improvement Design. The planning and design of all capital improvements should be based on standards that minimize construction costs, while assuring acceptable useful life and reducing maintenance requirements. Value engineering processes will be used when necessary and appropriate.

Capital Improvement Funding. In most cases, governmental capital improvements should be funded on a pay-as-you-go basis. Alternate financing strategies may be considered in light of the specific project and the consequences of each financing strategy.

Land Acquisition. A high priority will be given to acquiring undeveloped land needed to meet City goals. Developed land should be acquired in a reasonable time prior to when the property is required for City purposes.

Reserves. Provide a prudent level of reserves for future unexpected expenses and revenue declines; to accumulate funds to support future planned capital improvements; and to reduce the variability between high and low expenditure years in the Twenty-Year Resource Allocation Plan.

Unfunded Projects

Over the last several years, staff has made a concerted effort to identify all of the unfunded capital projects that pose a significant liability in the long term. Unfunded projects fall into several categories, with many having potential funding sources that can be pursued. Project Information Sheets for these unfunded projects can be found in numerical order in each project category following the Project Information Sheets for funded projects.

In addition, there are many unfunded projects identified in the long range plans for traffic and transportation that guide the development of the capital projects budget in the short- and long-term. These long range plans are discussed in more detail under the Traffic and Transportation projects category. The full listing of projects for this plan is also provided. For those projects on the lists that are not included in the projects budget, at such time as funding becomes available, those projects will be evaluated and moved into the projects budget as appropriate.

Appendix VIII-A

Sewer System CIP Projects – Budgets and Description

Project Information Sheet

Project: 815203 Replacement of Water/Sewer Supervisory Control System

Origination Year:	1999-00	Type:	Water	Fund:	460 Water Supply and Distribution Fund
Planned Completion Year:	Ongoing	Category:	Infrastructure	Sub-Fund:	300 Water Infrastructure Subfund
Department:	Environmental Services	Project Manager:	Jennifer Ng	Project Coordinator:	John Ramirez

Project Description / Scope / Purpose

The City's existing Supervisory Control and Data Acquisition (SCADA) System monitors and controls the operation of its water supply and distribution system, and provides monitoring over selected sanitary sewer, storm water, and recycled water facilities. Twenty-seven stations are monitored by the current SCADA system. These stations consist of one master station located at the Corporation Yard, two storm pump stations, five sanitary sewer lift stations, six domestic water supply Hetch Hetchy (SFPUC) connections stations, six groundwater well stations, five domestic water storage and pumping plants, one recycled water storage and pumping plant, and one pressure monitoring station. Phase I of the SCADA System replacement project, completed at 27 sites, allows for remote control access and monitoring capabilities providing information on tank levels, pump/motor and well operations, valves open/closed status, and distribution water pressure and flow.

The SCADA System Phase II includes selection of an upgraded software platform and programming to perform the software platform switchover, replacement of SCADA computer servers and design of a new server room layout.

Project Evaluation and Analysis

Continued operation of the SCADA system is critical to Water Division operations. The existing software platform is outdated and is no longer being updated and serviced. One of two existing computer servers has failed and the backup server has reached the end of its lifespan. This project will provide the latest technology for SCADA monitoring and controls, and ensure that water systems operations controlled via SCADA will continue. Operating expenses, maintenance and repairs are incorporated in the Water Supply and Distribution Program.

It is anticipated that the upgrades to the SCADA system (addition of items to be monitored and/or software upgrades) will be needed every ten years.

Fiscal Impact

This project is funded by the Water Supply & Distribution Fund.

Project Financial Summary

Financial Data	Prior Actual	Current 2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Y11-Y20 Total	Project Life Total
Project Costs	709,737	80,409	0	0	0	0	0	0	0	585,830	0	0	907,022	2,282,998
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 825331 Replacement/Repair/Rehabilitation of Sanitary Sewer System

Origination Year:	2005-06	Type:	Wastewater	Fund:	465 Wastewater Management Fund
Planned Completion Year:	Ongoing	Category:	Infrastructure	Sub-Fund:	300 Wastewater Infrastructure Subfund
Department:	Environmental Services	Project Manager:	Richard Chen	Project Coordinator:	Dan Stevenson

Project Description / Scope / Purpose

This project is for repair, replacement, and rehabilitation of sewer pipes. The City has over 280 miles of sewer lines, from 6 inches to 48 inches in diameter, valued at over $200 million. Many of the lines are 50 or more years old. Pipe failures have been occurring, and deficiencies have been noted at several locations. This project repairs, replaces, or rehabilitates sewer mains as they are assessed. Alternative technologies are investigated to apply the best method for each location, including open-trench replacement, "trenchless" pipe-bursting/replacement, or pipe-lining.

The project provides for rehabilitating approximately one mile of sewer main pipe per year including associated items such as manholes and lateral piping. Based on recent projects, the design and construction average cost is about $180 per lineal foot. This project relies upon condition assessment methods, most commonly the findings of video inspection, to identify locations in need of replacement or rehabilitation each year. This project will be revised based upon the upcoming Wastewater Master Plan findings. The project will also reduce sanitary sewer overflows as well as reduce inflow and infiltration which results in higher treatments costs.

The project scope may include repair, rehabilitation, and replacement of appurtenances consistent with a pipeline repair, rehabilitation, and replacement project. These items may include: manhole repair, rehabilitation, and/or replacement including the structure and associated components; sewer lateral piping and connections; cleanout installation; construction materials such as backfill and surface restoration (paving); cross connection eliminations; and other related items as identified.

Project Evaluation and Analysis

This project is necessary to comply with regulatory standards which require agencies to rehabilitate and/or replace sanitary sewer system piping and associated components. The alternative to replacement of sewer pipes in bad shape would be to repair them segment by segment on an emergency basis. Public health and the environment could be threatened and fines could be levied against the City should overflows occur as a result of a pipe failure. Further, repairing or replacing segments of pipeline on an emergency basis would be significantly costlier than scheduled replacements.

Fiscal Impact

This project is funded by the Wastewater Management Fund.

Project Financial Summary

Financial Data	Prior Actual	Current 2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Y11-Y20 Total	Project Life Total
Project Costs	5,331,360	2,497,002	0	208,080	1,273,450	216,486	1,324,897	225,232	1,378,423	234,332	1,434,111	243,799	9,969,188	24,336,360
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 825751 Sewer Lift Stations Rebuild

Origination Year:	2004-05	Type:	Wastewater	Fund:	465 Wastewater Management Fund
Planned Completion Year:	2014-15	Category:	Infrastructure	Sub-Fund:	300 Wastewater Infrastructure Subfund
Department:	Environmental Services	Project Manager:	Jennifer Ng	Project Coordinator:	Dan Stevenson

Project Description / Scope / Purpose

The City currently operates five sewer lift stations which use electric motors to convey sewage to the Water Pollution Control Plant (WPCP). Pump station components have a life expectancy of about 20 years. This project includes overhaul and/or replacement of pumps; rehabilitation of wet wells and associated piping; installation of traffic covers, flow meters, SCADA (Supervisory Control and Data Acquisition) and electrical panels; and other improvements to increase energy efficiency and lower maintenance and operations costs. The design of the rehabilitation of all five sanitary sewer lift stations will be performed in FY 2012/13, with the construction occurring in the following year.

A comprehensive condition assessment of each sewer lift station is included within the scope of the design work, upon which the design for work on each lift station will be based. Pending the results of the full design work, the construction activity to rehabilitate each lift station may be phased, prioritizing the most urgent needs first. The current identified budget is conceptual. Once the full design effort is finalized, the project construction costs can be reassessed and the budget adjusted as necessary.

Project Evaluation and Analysis

Repair and replacement of equipment will reduce the need for emergency repairs and improve the reliability of the lift stations. The project will thus preserve the City's investment in its infrastructure and prevent issues which could be inconvenient, costly, and unsanitary.

The only alternatives are to not fund this project or delay it. This could lead to failure of the sewer lift stations resulting in expensive emergency repairs. Public health and the environment could be impacted and fines could be levied against the City should overflows occur as a result of a lift station failure.

Fiscal Impact

This project is funded by the Wastewater Management Fund.

Project Financial Summary

Financial Data	Prior Actual	Current 2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Y11-Y20 Total	Project Life Total
Project Costs	129,004	172,000	890,000	0	0	0	0	0	0	0	0	0	0	1,191,004
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 827050 Wastewater Master Plan

Origination Year:	2007-08	Type:	Wastewater	Fund:	465 Wastewater Management Fund
Planned Completion Year:	2014-15	Category:	Infrastructure	Sub-Fund:	300 Wastewater Infrastructure Subfund
Department:	Environmental Services	Project Manager:	Nathan Scribner	Project Coordinator:	Dan Stevenson

Project Description / Scope / Purpose

This project provides funding for a master plan for the sanitary sewer system and storm drain system. The project is one of the next steps in the Long Range Infrastructure Plan. The project will update citywide vertical control/benchmark systems, assess the hydraulics, system models, physical condition, and separation and maintenance of the collection systems, and will recommend improvements to provide adequate hydraulic capacity and improve the reliability of the collection system. It will include an analysis of the financial impacts of the recommendations and scheduling, and may inform revisions to Project 825331, Replacement, Rehabilitation, and Repair of Sewer Pipes.

The City provides sanitary sewer services to residents and businesses within the City as well as a portion of Cupertino known as Rancho Rinconada. This study is needed to define the capital projects that will be necessary to replace aging infrastructure and to identify any capacity-increasing projects that may be needed as a result of in-fill development. Developing a comprehensive master plan is consistent with stipulations associated with Federal and State regulatory requirements for managing wastewater collection system assets. This type of plan is considered to be a best management practice for ensuring that the wastewater collection system can continue to provide reliable service.

The project began in FY 2011/12 and is expected to be completed in FY 2013/14. The project will analyze and develop alternatives for future wastewater capital projects and funding.

Project Evaluation and Analysis

This project is necessary to maintain existing essential infrastructure of the Wastewater Utility. The information developed as a result of this study can allow the City to require developers to pay for capacity increases or for rehabilitation of existing sewers. This project will also fulfill several regulatory requirements for wastewater asset management.

Fiscal Impact

This project is funded by the Wastewater Management Fund.

Project Financial Summary

Financial Data	Prior Actual	Current 2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Y11-Y20 Total	Project Life Total
Project Costs	424,888	361,412	0	0	0	0	0	0	0	0	0	0	0	786,300
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 829070 Lawrence Expressway Sanitary Sewer Rehabilitation

Origination Year:	2011-12	Type:	Wastewater	Fund:	465 Wastewater Management Fund
Planned Completion Year:	2017-18	Category:	Infrastructure	Sub-Fund:	300 Wastewater Infrastructure Subfund
Department:	Environmental Services	Project Manager:	Nathan Scribner	Project Coordinator:	Dan Stevenson

Project Description / Scope / Purpose

The Lawrence Expressway Sanitary Sewer trunk main is a critical pipe for carrying sewage from the southern and eastern portions of the City and the Rancho Rinconada area of Cupertino to the Water Pollution Control Plant (WPCP). The line was originally installed in 1963 and has a life expectancy of approximately 50 years. The Lawrence Trunk Line has been impacted by corrosive sewer gases over the years. Several structural defects have been found during inspections of the pipe. An analysis, assessment and rehabilitation is necessary to ensure continued serviceability. This project would identify and rehabilitate severely degraded portions of the sewer trunk main pipeline along the Lawrence Expressway from Homestead Road to Elko Drive.

The first stage of the project will include a preliminary design report and a thorough condition assessment. The condition assessment will include an inspection of the pipe and an engineering assessment of the capacity and flow dynamics. This will identify and prioritize the line segments in the most need of rehabilitation and repair. Feasibility of a relocation or realignment might be considered during this phase. The cost basis was derived from conceptual estimates for lining 20,000 lineal feet of pipe. Once the scope, rehabilitation options, and estimates are refined during preliminary design, the costs will be reviewed and updated as necessary.

Project Evaluation and Analysis

Not funding this project could result in a complete failure of the Lawrence Sanitary Sewer Trunk Main piping system. Due to the high volume of sewage that the line conveys, a failure of this magnitude could be an environmental disaster as the Lawrence Expressway roadway could potentially develop a sinkhole if the City takes no action.

Fiscal Impact

This project is funded by the Wastewater Management Fund.

Project Financial Summary

Financial Data	Prior Actual	Current 2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Y11-Y20 Total	Project Life Total
Project Costs	0	50,000	300,000	2,300,000	2,000,000	2,000,000	0	0	0	0	0	0	0	6,650,000
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 829100 Sanitary Sewer Siphon Cleaning and Assessment

Origination Year:	2011-12	Type:	Wastewater	Fund:	465 Wastewater Management Fund
Planned Completion Year:	2024-25	Category:	Capital	Sub-Fund:	300 Wastewater Infrastructure Subfund
Department:	Environmental Services	Project Manager:	Mansour Nasser	Project Coordinator:	Dan Stevenson

Project Description / Scope / Purpose

This project provides for the complete cleaning, sediment removal, and inspection of all sanitary sewer siphons.

The city sanitary sewer system contains 18 siphons of varying sizes, most of which are located at and carry flow under the Central Expressway. Siphons pose a unique challenge in sewer systems operation because they have low spots which collect debris. Conventional sewer cleaning methods do not adequately remove debris from siphons. As a result, the siphons require specialized cleaning at regular intervals. Ten-year cycles for complete debris removal are industry standard to ensure proper system function.

Project Evaluation and Analysis

The only alternative is not to remove the sediment buildup in the siphons. Public health could be threatened and fines could be levied against the City should overflows occur as a result of a sewer stoppage in a sewer siphon.

Fiscal Impact

This project is funded by the Wastewater Management Fund.

Project Financial Summary

Financial Data	Prior Actual	Current 2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Y11-Y20 Total	Project Life Total
Project Costs	0	50,000	51,000	0	0	0	0	0	0	0	0	60,950	62,778	224,728
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 830260 Sanitary Sewer Salinity Reduction Study

Origination Year:	2013-14	Type:	Wastewater	Fund:	465 Wastewater Management Fund
Planned Completion Year:	2013-14	Category:	Special	Sub-Fund:	300 Wastewater Infrastructure Subfund
Department:	Environmental Services	Project Manager:	Mansour Nasser	Project Coordinator:	Dan Stevenson

Project Description / Scope / Purpose

This project funds a study that will identify sources of direct Inflow and Infiltration (I&I) of ground water into the sanitary sewer collection system. I&I contributes to additional hydraulic loading in the collection system which increases treatment costs as well as reduces design collection system conveyance capacity. I&I causes poor recycled water quality. The City is currently producing recycled water with a higher than average salinity content, which is affecting the overall quality and usability of recycled water for certain applications. The current sewage treatment process used by the City is not effective at removing salinity.

Several neighboring cities have been successful at reducing salinity and treatment costs by identifying and correcting sources of groundwater I&I. The first phase of this project will conduct a feasibility study to identify sanitary sewer pipe segments where I&I is occurring. Conductivity monitors are deployed at strategic locations in the collection system where I&I is suspected. The information collected by conductivity meters identifies pipe segments where high salinity is occurring, which is generally indicative of an I&I source. Pipe segments are typically recommended to be rehabilitated to eliminate the I&I source. The most common method of pipe rehabilitation to correct I&I sources is cured in place pipe lining (CIPP), but replacement and/or spot repairs may be necessary as well.

Project Evaluation and Analysis

This project will identify sources of groundwater I&I, which may be affecting the quality of recycled water produced by the WPCP. The sanitary sewer collection system and the WPCP stand to benefit from this project by improving recycled water quality and reducing treatment costs associated with additional hydraulic loading. The reliability of the collection should also be improved as capacity in the system will be increased with the reduction of the additional hydraulic loading.

Failing to undertake this project would result in increased treatment costs to improve recycled water quality. It could also result in illicit sewage discharges from the sanitary sewer collection system due to hydraulic overloading which would have adverse public health and environmental impacts, as well as result in regulatory penalties and fines.

Fiscal Impact

This project is funded by the Wastewater Management Fund.

Project Financial Summary

Financial Data	Prior Actual	Current 2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Y11-Y20 Total	Project Life Total
Project Costs	0	50,000	0	0	0	0	0	0	0	0	0	0	0	50,000
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix X – A

SSMP Program Audit

Appendix X - A

City of Sunnyvale
SSMP Audit Report Form
September 2014

Introduction	Yes	No
Is the current system description complete and up to date? Are all infrastructure statistics current and complete?	x	

Discussion:

System information was corrected in the SSMP as a result of this audit. Accurate information was obtained from the City's MMS system, which is connected to its GIS system where pertinent system information is maintained.

	Element 1 – Goals	Yes	No
A	Are the goals stated in the SSMP still appropriate and accurate?	x	

Discussion:

Goals are still appropriate.

	Element 2 -- Organization	Yes	No
A	Is the Contact Information current?	x	
B	Is the Sanitary Sewer Overflow responder List current?	x	

Element 2 -- Organization		Yes	No
C	Is the Organization Chart in Figure 2-1 of the SSMP current?	x	
D	Are the position descriptions an accurate portrayal of staff responsibilities?	x	
E	Is the chain of communication for reporting and responding to SSOs accurate and up-to-date?	x	
Discussion: **SSMP reflects current responsibilities, information, and procedures for response and reporting.**			

Element 3 – Legal Authority		Yes	No
Does the SSMP contain current references to the Sunnyvale's Code documenting the City's legal authority to:			
A	Prevent illicit discharges?	x	
B	Require proper design and construction of sewers and connections?	x	
C	Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the City?		x
D	Limit discharges of fats, oil and grease?	x	
E	Enforce any violation of its sewer ordinances?	x	
F	Were any changes or modifications made in the past year or since the last SSMP audit to City Ordinances, Regulations, or standards?		x

Element 3 – Legal Authority	Yes	No

Discussion:

The City has no legal authority regarding elimination of I/I, but currently has no known I/I problems or issues.

The City has drafted a revision to its current ordinance regarding sewer laterals to define ownership and maintenance responsibilities.

Element 4 – Operations and Maintenance		Yes	No
Collection System Maps			
A	Does the SSMP reference the current process and procedures for maintaining the City's sanitary sewer system maps?	x	
B	Are the City's wastewater collection system maps complete, current, and sufficiently detailed?	x	
Prioritized Preventive Maintenance			
C	Does the SSMP describe current preventive maintenance activities and the system for prioritizing the cleaning of sewer lines?	x	
D	Based upon the SSO information in CIWQS and the Annual SSO Report, are the City's preventive maintenance activities sufficient and effective in minimizing SSOs and blockages?	x	
Rehabilitation and Replacement Program			
E	Is there an ongoing condition assessment program sufficient to rank the condition of sewer pipes and schedule rehabilitation? Are the current components of this program documented in the SSMP?	x	
F	Does the rehabilitation and replacement plan include a capital improvement plan that addresses proper management and protection of the infrastructure assets? Does the plan 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?	x	
Contingency Equipment and Replacement Inventory			
G	Does the SSMP list the major equipment currently used in the operation and maintenance of the collection system?	x	
H	Are contingency equipment and replacement parts sufficient to respond to emergencies and properly conduct regular maintenance?	x	

Element 4 – Operations and Maintenance		Yes	No
Training			
I	Are the training records current?	x	
J	Does the SSMP document current training expectations and programs?	x	

Discussion:

The preventive maintenance program is good & comprehensive. The SSMP has been revised to fully reflect all current preventive maintenance activities, including CCTV work. CCTV program has now adopted the use of NASSCO PACP rating system. The City will work towards using a prioritized system in the replacement of lines, based partially upon the assessed condition and rating of its televised lines. A list of contingency supplies and equipment was prepared as a result of this audit. The training requirements/program, including SSMP training, was revised as a part of the audit. A schedule in regards to the CIP is currently under development.

The full implementation of the City's CMMS and asset management programs are being pursued and will be used to help minimize SSOs and improve maintenance practices.

Map GIS info was updated in 2012 and field maps generated. The City is working to develop an ongoing system to improve the process for updating sewer asset mapping.

The City has formalized recording training documentation as a result of this audit.

Element 5 – Design and Performance Standards		Yes	No
A	Does the SSMP reference current design and construction standards for the installation of new sanitary sewer systems, pump stations and other appurtenances and for the rehabilitation and repair of existing sanitary sewer systems?	x	
B	Does the SSMP document current procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and the rehabilitation and repair of existing sewer lines?	x	

Element 5 – Design and Performance Standards	Yes	No
Discussion: **A revision to the System Master Plan is underway and expected to be completed in 2015. It's anticipated that revisions may be made to some standards as a result of this Plan revision. The City recently completed a revision of its Sanitary Sewer Design Guidelines.**		

	Element 6 – Overflow and Emergency Response Plan	Yes	No
A	Does the City's Overflow Emergency Response Plan (OERP) contain proper notification procedures so that the primary responders and regulatory agencies are informed of all sanitary sewer overflows (SSOs) as required by the WDR and MRP?	x	
B	Does the OERP have a program to ensure an appropriate response to all overflows?	x	
C	Does the OERP contain procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities of all SSOs that potentially affect public health or reach waters of the State in accordance with the MRP? Does the SSMP identify the officials who will receive immediate notification of such SSOs?	x	
D	Are staff and contractor personnel aware of the procedures of the OERP?	x	
E	Does the OERP contain procedures to address emergency operations such as traffic and crowd control and other necessary response activities?	x	

Element 6 – Overflow and Emergency Response Plan		Yes	No
F	Does the OERP ensure that all reasonable steps are taken to contain and prevent the discharge of untreated and partially treated wastewater to waters of the United States and to minimize or correct any adverse impact on the environment resulting from SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge?	x	
G	Considering SSO performance data, is the OERP effective in handling SSOs in order to safeguard public health and the environment?	x	
H	Is the Water Quality Monitoring Plan current? Have staff been trained and practiced on response to an SSO of large volume?	x*	x*
I	Was sampling conducted within 48 hours for all SSOs greater than 50,000 gallons and were results entered for these SSOs through the CIWQS website?	N/A	N/A
J	Has the City prepared a Technical Report for all SSOs larger than 50,000 gallons? Have all Technical Reports been filed on the CIWQS website as required?		x

Discussion:

The City's SSMP and OERP have been revised to comply with the new requirements for reporting, monitoring and sampling of SSOs. This includes the requirements related to the new SSO categories as well as the requirements for SSOs that exceed 50,000 gallons.

There have been no SSOs greater than 50,000 gallons requiring a Technical Report.

The audit highlighted the need to ensure that City contractors are informed and aware about SSO response procedures in the event they are involved or cause SSOs in their work. Wastewater staff will ensure contractors receive information on SSO reporting/response.

- Staff will be trained on the new Water Quality Monitoring Plan as a result of this audit.

Element 7 – Fats, Oils, and Grease (FOG) Control Program		Yes	No
A	Does the Fats, Oils, and Grease (FOG) Control Program include a description of public education outreach efforts that promote proper handling and disposal of FOG?	x	
B	Does the FOG program include a plan for the disposal of FOG generated within the sewer system service area?	x	
C	Does the City have sufficient legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG?	x	
D	Are there requirements to install grease removal devices (such as traps or interceptors), best management practices (BMP) requirements, record keeping, maintenance requirements and reporting requirements established in the City's FOG Control Program?	x	
E	Does the City have authority to inspect grease producing facilities and have sufficient staff to inspect and enforce the FOG ordinance?	x	
F	Does the FOG control program identify sections of the collection system subject to FOG blockages, establish a cleaning schedule and address source control measures to minimize these blockages?	x	
G	Does the FOG control program implement source control measures for all sources of FOG discharged to the collection system?	x	
H	Is the current FOG program effective in minimizing blockages of sewer lines resulting from discharges of FOG to the system?	x	

Discussion:

City inspections and enforcement actions related to FOG have increased significantly in the last two calendar years resulting in a corresponding drop in FOG-related SSOs, particularly in 2013. FOG-related SSOs were 21% of SSOs in 2013, compared to 33% for the five year period of 2009-2013.

The City FOG program will continue to be actively and aggressively pursued provided the significant amount of historical FOG-related SSOs.

Element 8 – System Evaluation and Capacity Assurance Plan		Yes	No
A	Does the System Evaluation and Capacity Assurance Plan evaluate hydraulic deficiencies in the system and provide estimates of peak flows associated with conditions similar to those causing overflow events, if applicable?	x	
B	Does the City's capital improvement program (CIP) establish a schedule of approximate completion dates for both short-term and long-term improvements and is the schedule reviewed and updated to reflect current budgetary capabilities and activity accomplishment?		x
C	Does the City take steps needed to establish a short and long-term CIP to address hydraulic deficiencies, including prioritization, alternatives analysis, and schedules? Are repair and replacement projects developed based upon condition assessment and/or field maintenance results?	x	

Discussion:

CIP budget and schedule has been included in the SSMP as a result of this audit.

The Master Plan involves significant modeling work and is identifying areas where capacity and/flows can be improved.

Completion dates are contingent project prioritization and available funding. Once the Master Plan is completed the project prioritization and funding will occur.

Element 9 – Monitoring, Measurement, and Program Modifications		Yes	No
A	Does the City maintain relevant information that can be used to establish and prioritize appropriate SSMP activities?	x	
B	Does the City monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP?	x	
C	Does the City assess the success of the preventive maintenance program?	x	
D	Does the City update program elements, as appropriate, based upon monitoring or performance evaluations?	x	

Element 9 – Monitoring, Measurement, and Program Modifications		Yes	No
E	Does the SSMP identify and illustrate SSO trends, including frequency, location and volume of SSOS?	x	

Discussion:

The City does measure the effectiveness of its SSMP, chiefly through the bottom line results of SSOs, volumes of SSOs, and recovered volumes. While this does not directly assess each individual element, it provides an indication of effectiveness of many SSMP elements. The City will look at methods to more effectively measure effectiveness of individual elements, and update elements as appropriate.

SSOs have remained relatively consistent during the past five years, at a rate of 4.5/100 miles/year in 2013 and an average of 4.3/100 miles/year for the period of 2009-2013.

One notable improvement is that the percentage of "recovered" SSO volume has been over 95% the last four years and that the volume of SSOs reaching waters has been 0 gallons in both 2012 and 2013, and total spill volume has been declining the past few years.

Element 10 – SSMP Audits		Yes	No
A	Does the audit focus on the effectiveness of the SSMP? If not, what needs to be changed to increase the effectiveness of the overall collection system program?	x	
B	Were the audit results shared with the City Council? And the public, via the City website?		x
C	Will the SSMP Audit be completed, reviewed, and filed as an Appendix to the SSMP on a biennial basis?	x	
D	Do any proposed changes to the SSMP require Council approval if they have a substantial change in the policies and procedures for collection system operations and maintenance?	x	

Element 10 – SSMP Audits	Yes	No
Discussion: **The Audit results will be shared with Council as part of the SSMP Revision process. Council is a policy-making body, but day-to-day operational changes are made by staff, without the need for Council input. Significant policy and cost issues are, and will continue to be, referred for Council approval.**		

Element 11 – Communication Program		Yes	No
A	Does the City communicate on a regular basis with the public and other agencies about the development and implementation of the SSMP? Does the communication system provide the public the opportunity to provide input as the program is developed and implemented? Were annual progress reports and metrics of implementation of the SSMP provided to the City Council?	*x	*x
Discussion: *** The City communicates with the public and other agencies, but has not provided regular reports to its Council, and will consider this in the future.**			

Change Log		Yes	No
A	Is the SSMP Change Log current and up to date?	x	
Discussion: **The Change Log, required by the 2013 MRP, has just been developed and implemented as a result of this audit.**			

Appendix X – B

SSMP Change Log

LIST OF SIGNIFICANT REVISIONS

TO

SEWER SYSTEM MANAGEMENT PLAN

LAST UPDATED SEPTEMBER 2013

Introduction

Subsection A. Sewer System Management Plan:

1. Revised to reflect latest amendments to State Water Resources Control Board Order Number 2006-0003, dated May 2, 2006.

Subsection B. Sanitary Sewer System Facilities

1. Updated system size in both text and tables using latest City GIS data.
2. Table 1-2, Added Total Linear Feet in new column for each material type
3. Reformatted section to improve clarity

Subsection C. Definitions, Acronyms, and Abbreviations

1. Reformatted and added missing abbreviations and definitions.

Element I. Goals

1. Changed section title from "Section I" to "Element I."

Subsection B. Regulatory Requirements

1. Deleted first paragraph titled "RWQCB Guidance."

Subsection C. Goals for Wastewater Collection System

1. Minor text edits to improve clarity.

Element II. Organization

1. Changed section title from "Section II" to "Element II."

Subsection A. Introduction

1. Deleted reference to RWQCB (Element 2) requirements.

Subsection B. Regulatory Requirements

1. Deleted first paragraph titled "RWQCB Guidance."

2. Changed former second paragraphs title from "SWRCB Requirement" to "State GWDR Requirement."
3. Updated contact reference from "California Emergency Management Agency" to "California Office of Emergency Services."

Subsection C. Organization and Staffing

1. Updated telephone numbers in Table II-1 titled "Contact Numbers for Key ESD Positions."
2. Added language to reflect additional Crew Assignments related to CCTY inspection and condition assessment workload.
3. Minor clarifying edits in "Legally Responsible Official" and "Responsibility for SSMP Implementation" paragraphs.
4. Added Table II-2, "City Staff Responsibility for SSMP Elements."

Element III. Legal Authority

1. Changed section title from "Section III" to "Element III."

Subsection B. Regulatory Requirements

1. Deleted first paragraph titled "RWQCB Guidance."
2. Changed second paragraph title from "GWDR Requirement" to "State GWDR Requirement."

Subsection C. Sunnyvale Municipal Code

1. Deleted "Control infiltration and inflow (I/I) from private service laterals (RWQCB Guidance) from Requirements column in Table III-1, "Summary of Legal Authorities in Municipal Code and Other Sources."
2. Minor clarifying text revisions.

Element IV. Operations and Maintenance Program

1. Changed section title from "Section IV" to "Element IV."

Subsection B. Regulatory Requirements

1. Deleted first paragraph titled "RWQCB Guidance (Measures and Activities)," items (a) through (g).
2. Changed second paragraph title from "GWDR Requirement (Operations and Maintenance)" to "State GWDR Requirement (Operations and Maintenance)."

Subsection C. Operations and Maintenance Program

1. Under "Collection System Maps," added text related to process for updating City's GIS maps with field verified data.
2. Under "Preventative Operations and Maintenance," provided additional information related to crew assignments.
3. Under 'Gravity Sewers," provided additional detail on City's cleaning activities and maintenance frequency and schedules.
4. Revised the number of manholes in the City upward based on latest GIS information.
5. Minor text updates and revisions.
6. New subsection heading "CCTV Inspection" added and text revised and updated to reflect significant changes in City's CCTV program since 2012 update.
7. New subsection heading "Rehabilitation and Replacement" added for clarity.
8. Subsection "Wastewater Pump/Lift Stations" title changed to "Wastewater Pump/Lift Stations Inspections and Maintenance"
9. Under "Wastewater Pump/Lift Stations Inspections and Maintenance" provided additional detail on pump station capabilities, as well as City's cleaning and maintenance activities, frequency and schedules.
10. Under "Rehabilitation and Replacement Program," minor text updates and revisions.
11. Under "Training," minor text updates and revisions including additional information related to SSMP and OERP training schedule.

Element V. Design and Performance Provisions

1. Changed section title from "Section V" to "Element V."

Subsection B. Regulatory Requirements

1. Deleted first paragraph titled "RWQCB Guidance (Design and Construction Standards)," items (a) and (b).
2. Changed second paragraph title from "GWDR Requirement (Design and Performance Provisions)" to "State GWDR Requirement (Design and Performance Provisions)."

Subsection C. Design and Construction Standards

1. Minor text updates and revisions

Element VI. Sanitary Sewer Overflow Response Plan

1. Changed section title from "Section VI" to "Element VI."

Subsection B. Regulatory Requirements

1. Deleted first paragraph titled "RWQCB Guidance," in its' entirety.

2. Changed second paragraph title from "GWDR Requirement" to "State GWDR Requirement."

Subsection C. Sanitary Sewer Overflow Response

1. Minor text updates and revisions.
2. Under "Internal SSO Communications," provided additional clarification on the specific form for reporting an SSO. Form found in Appendix VI-C.
3. Under "Lateral Stoppage," minor text revisions and clarifications.
4. Under "Sampling and Lab Tests," minor text revisions and clarifications including addition of 2013 Basin Plan limits for Un-ionized ammonia and Enterococcus Bacteria.
5. Under "Recordkeeping and Follow up Work," minor text revisions and clarifications.

Subsection D. Notification and Reporting

1. Minor text updates and revisions.
2. Revised and updated SSO Definitions, Notifications and Reporting Requirements consistent with SWRCB Order No. WQ 2013-058-EXEC.
3. Table VI-1, "Summary of Communication Requirements for SSOs revised and updated consistent with "Table 1 - Spill Categories and Definitions" contained in SWRCB Order No. WQ 2013-058-EXEC.

Subsection F. Training

1. Minor text revisions and clarifications.

Subsection G. List of Plumbing and Emergency Response Contractors.

1. Minor text revision.

Element VII. Fog Control Program

1. Changed section title from "Section VII" to "Element VII."

Subsection B. Regulatory Requirements

1. Deleted first paragraph titled "RWQCB Guidance," in its' entirety.
2. Changed second paragraph title from "GWDR Requirement" to "State GWDR Requirement."

Subsection C. Nature and Extent of FOG Problem

1. Updated number of potential sources of FOG discharges.

2. Revised text to include staff resources involved in FOG program.
3. Updated and revised text to clarify FOG impact on SSOs.

Subsection D. FOG Control Program

1. Under "B. Legal Authority - Ordinance), revised Ordinance section numbers.
2. Under "D. FSE Inspections/Enforcement", Minor text revision and clarifications.
3. Added Table VII-1. "FSE Inspection and Enforcement." which lists total FSE's, total inspections and enforcement actions by year.

Subsection E. Grease Interceptor and Trap Installation Requirements

1. Revised ordinance section number.

Subsection F. Grease Interceptor and Trap Maintenance Requirements

1. Revised ordinance section number.

2. Minor text revisions and clarifications.

Subsection H. Grease Hauling and Disposal Facilities

1. Minor text revisions and clarifications.

Subsection I. Kitchen BMP Requirements

1. Minor text revisions and updates.

Subsection J. Residential Program

1. Minor text revisions and clarifications.

Subsection K. Education and Outreach

1. Minor text revisions and updates.

Subsection L. FOG Characterization - Deleted in its' entirety.

Element VIII. System Evaluation and Capacity Assurance Plan

1. Changed section title from "Section VIII" to "Element VIII."

Subsection B. Regulatory Requirements for the System Evaluation and Capacity Assurance Plan Section

1. Deleted first paragraph titled "RWQCB Guidance (Capacity Management)," in its' entirety.

2. Changed second paragraph title from "GWDR Requirement (SECAP)" to "State GWDR Requirement (SECAP)."

Subsection C. System Evaluation and Capacity Assurance Plan

1. Under "Evaluation - Sewer System Master Plan," revised anticipated completion date for Master Plan.
2. Under "Capacity Enhancement Measures - Capital Improvement Program," updated information related to identified capacity deficiencies.
3. Under "Schedule," revised Appendix number.

Element IX. Monitoring, Measurement, and Program Modifications

1. Changed section title from "Section IX" to "Element IX."

Subsection B. Regulatory Requirements for the Monitoring, Measurement, and Program Modifications Section

1. Deleted first paragraph titled "RWQCB Guidance," in its' entirety.
2. Changed second paragraph title from "GWDR Requirement" to "State GWDR Requirement."

Subsection D. Performance Monitoring and Program Changes

1. Minor text revisions and updates.
2. Added Table IX-1 "SSOs by Cause, 2009 through 2013."
3. Added Figure IX-1 "SSOs by Cause, 2009-2013."
4. Added Figure IX-2 "SSO Volumes, 2009-2013."

Element X. SSMP Program Audits

1. Changed section title from "Section X" to "Element X."

Subsection B. Regulatory Requirements

1. Deleted first paragraph titled "RWQCB Guidance," in its' entirety.
2. Changed second paragraph title from "GWDR Requirement" to "State GWDR Requirement."

Subsection C. Audits

1. Updated text to reflect additional audits performed and increase in frequency.
2. Minor text revisions and updates.

3. Incorporated provision for the Change Log to document changes made to the SSMP going forward.

Element XI. Communication Program

1. Changed section title from "Section XI" to "Element XI."

Subsection B. Regulatory Requirements for the Communication Program Section

1. Deleted first paragraph titled "RWQCB Guidance," in its' entirety.
2. Changed second paragraph title from "GWDR Requirement" to "State GWDR Requirement."

Subsection C. Communication during SSMP Development

1. Under "Communication During SSMP Development," Updated text to reflect process followed for September 11, 2012 revision to the SSMP.
2. Under "Ongoing Communication," updated and revised text including *but not limited* to SSMP posting.
3. New Section describing general outreach added.

Appendices

Added the following as Appendices:

1. Appendix IV - A: Standard Operating Procedure (SOP) for Sewer Cleaning
2. Appendix IV-B: SOP for CCTV Inspections
3. Appendix IV-C: Major Equipment Items to Support Maintenance
4. Appendix VI-A: List of ESD Employees and Contact Information
5. Appendix VI-B: SSO Backup Response Plan
6. Appendix VI-C: SSO Response Field Documentation Form
7. Appendix VI-D: List of Plumbing Contractors - Work on Sewer Mains or Laterals
8. Appendix VI-E: List of Contractors - Emergency Response
9. Appendix VII-A: City CIP Summary
10. Appendix VIII-A: Sewer System CIP Projects - Budgets and Descriptions
11. Appendix X-A: City of Sunnyvale SSMP Audit Report Form September 2014
12. Appendix X-B: City of Sunnyvale Log of SSMP Changes
13. Appendix X-C: City of Sunnyvale Sanitary Sewer Management Plan Formal Adoption Documents

Appendix X – C

SSMP Formal Adoption Documents

NOTE: These documents will be inserted upon adoption