

# **City of San Jose Sewer System Management Plan**

## **October 2014**

## INTRODUCTION

This Sewer System Management Plan (SSMP) has been prepared in compliance with the State Water Resources Control Board (SWRCB) Order 2006-0003: Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (GWDR), as revised by Order No. WQ 2008-0002.EXEC on February 20, 2008. The GWDR prohibits sanitary sewer overflows (SSOs), requires reporting of SSOs using the statewide electronic reporting system, and requires the preparation of an SSMP.

The scope of the SSMP is limited to the sanitary sewer collection system of the City of San José. The SSMP does not cover the City's stormwater drainage system or its wastewater treatment plant.

The preparation of this document required extension collaboration between three City departments: Department of Transportation (DOT), Department of Public Works (DPW) and Environmental Services Department (ESD).

### System Overview

The City of San José (City) sanitary sewer system serves a population of approximately one million people in a 178 square mile service area. The City owns and operates approximately 2,294 miles of wastewater collection system pipeline that ranges from six to 90 inches in diameter, approximately 45,000 manholes and 16 sewage lift stations.

The collected wastewater is conveyed to the San Jose/ Santa Clara Water Pollution Control Plant (WPCP or "Plant") (also referred to as the San Jose/Santa Clara Regional Wastewater Facility) by major interceptor pipelines located in the northern part of San José. In addition to the City's collection system, wastewater is conveyed to the Plant from several sewage collection systems operated by and serving the Cities of Santa Clara and Milpitas, County Sanitation District 2-3, West Valley Sanitation District, Cupertino Sanitary District, and Burbank Sanitary District. Each of these municipalities and districts are obligated by agreement, to operate, maintain, and improve its collection system to ensure no adverse impacts to the Plant. Each satellite collection system is responsible for an ongoing program of maintenance and capital improvements for sewer lines and pump stations within its respective jurisdiction in order to ensure adequate capacity and reliability of the collection system. The responsibilities include managing overflows, controlling inflow and infiltration (I&I) and implementing collection system maintenance. Each satellite collection system must ensure that its wastewater does not adversely impact the Plant.

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

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

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. The State Water Board requirements are outlined in Order No. 2006-0003-DWQ, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, dated May 2, 2006 (SSO GWDR), and amended by Order No. 2013-0058-EXEC, dated July 30, 2013. In addition, the City's NPDES Permit incorporates the requirements to comply with the SSO GWDR by reference in the treatment Plant permit to operate that regulates the WPCP and City's sewage collection system.

This SSMP is organized by the SWRCB outline of elements; and contains quoted language taken from the SSO GWDR and shown at that beginning of each element. The SSO GWDR uses the term "Enrollee" to mean each individual municipal wastewater agency that has completed and submitted the required application for coverage under the GWDR (in this case, the Enrollee is the City of San José).

The City's SSMP contains 11 elements and is designed to meet the SSO GWDR requirements and the City's WPCP NPDES Permit. The structure of this document follows the section numbering and nomenclature specified in the SSO GWDR.

## **DEFINITIONS, ACRONYMS, AND ABBREVIATIONS**

***Best Management Practices (BMP)*** - 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 the garbage can and dry wiping dishes and utensils prior to washing.

***California Office of Emergency Services (Cal OES)*** - Refers to the agency responsible for overseeing and coordinating emergency preparedness, response, recovery and homeland security activities within the state.

***Calendar Year (CY)***

***California Integrated Water Quality System (CIWQS)*** - 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.

***Capital Improvement Program (CIP)*** - Refers to the document that identifies planned capital improvements to the City's sanitary sewer system.

***Certification of SSO Reports*** - The SWRCB requires the Legally Responsible Official (LRO, defined below) to login to CIWQS within a given time period to electronically sign submitted reports thereby stating that to the best of his/her knowledge and belief, the information submitted is true, accurate, and complete.

***City*** - Refers to the City of San José.

***Closed Circuit Television (CCTV)*** - Refers to the process and equipment that is used to internally inspect the condition of gravity sewers.

***Collection System Risk (CSR)***

***County Health*** – Refers to the Santa Clara County Public Health Department.

***Environmental Protection Agency (EPA)*** - Refers to the United States Environmental Protection Agency.

***Environmental Services Department (ESD)***

***Fats, Oils, and Grease (FOG)*** - Refers to fats, oils, and grease typically associated with food preparation and cooking activities that can cause blockages in the sanitary sewer system.

***First Responder*** - Refers to the City employee who provides the City's initial response to a sewer system alarm, emergency, or other event.

***Field Report*** - Refers to the Sanitary Sewer Overflow Report, a document used to provide the basis for entering an overflow report into CIWQS.

***Fiscal Year (FY)***

***FOG Discharge Risk (FDR)***

***Force Main*** - Refers to a pressure sewer used to convey wastewater from a pump station to the point of discharge.

***Food Service Establishment (FSE)***

***Gallons per Acre per Day (GPAD)***

***Gallons per Day (gpd)***

***Gallons per Minute (gpm)***

***General Waste Discharge Requirements (GWDR)*** - 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, as revised on February 20, 2008.

***Geographic Information System (GIS)*** – 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.

***Global Positioning System (GPS)*** - Refers to the handheld unit used to determine the longitude and latitude of sanitary sewer overflows for use in meeting the CIWQS Online SSO Reporting System reporting requirements. Google maps can be used in lieu of a GPS unit to obtain this information.

***Grease Control Device (GCD)*** - Refers to grease interceptor, grease trap, mechanical grease removal device or other device designed to collect and control solid- food wastes and floating grease from wastewater prior to discharge into the sanitary sewer collection system.

***House Connection Sewer (Upper Lateral)*** - Refers to that portion of the horizontal sewer piping from the building or structure to the property line of the public right-of-way or easement.

***Infiltration/Inflow (I&I)*** - Refers to water that enters the sanitary sewer system from stormwater and groundwater that increases the quantity of flow. Infiltration enters through defects in the sanitary sewer system after flowing through the 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*** - See sewer service lateral.

***Legally Responsible Official (LRO)*** - Refers to the individual who has the authority to certify reports and other actions that are submitted through the Online SSO Reporting System.

***Manhole (MH)*** - Refers to an engineered structure that is intended to provide access to a sanitary sewer for maintenance and inspection.

***Millions of Gallons per Day (MGD)***

***Monitoring, Measurement, and Program Modifications (MMPM)***

***National Pollution Discharge Elimination System (NPDES)***

***Not Applicable (NA)***

***Notification of an SSO*** - Refers to the time at which the City becomes aware of an SSO event through observation or notification from the public or other source.

***Office of Emergency Services (OES)*** - See California Office of Emergency Services (Cal OES).

***Online SSO Reporting System*** - Refers to the California Integrated Water Quality System (CIWQS).

***Operations and Maintenance (O&M)***

***Overflow Emergency Response Plan (OERP)***

***Pipeline Assessment and Certification Program (PACP)*** – Refers to the program developed by National Association of Sewer Service Companies (NASSCO) for standardizing sewer pipe condition evaluation and reporting results of CCTV inspection.

***Preventative Maintenance (PM)*** - Refers to maintenance activities intended to prevent failures of the sanitary sewer system facilities (e.g. cleaning, CCTV, inspection).

***Private Lateral Sewage Discharges (PLSD)*** - Sewage discharges that are caused by blockages or other problems within a privately owned sewer service lateral.

***Property Damage Overflow*** - Property damage overflow refers to a sewer overflow or backup that damages private property.

***Public Sewer*** – As stated in the Municipal Code, “public sewer” refers to any mainline sewer constructed in any street, highway, alley, place or right-of-way dedicated for public use. The term does not include sewer laterals or house connection sewers.

***Regional Water Quality Control Board (RWQCB)*** - Refers to the San Francisco Regional Water Quality Control Board – Region 2.

***Responsible Party (RP)***

***San Jose / Santa Clara Water Pollution Control Plant (WPCP or Plant)*** - also known as the San Jose / Santa Clara Regional Wastewater Facility (Facility)

***Sanitary Sewer Overflow (SSO)*** - Any overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from a sanitary sewer system. SSOs include:

- (i) Overflows or releases of untreated or partially treated wastewater that reach waters of the United States;
- (ii) Overflows or releases of untreated or partially treated wastewater that do not reach waters of the United States; and
- (iii) Wastewater backups into buildings and on private property that are caused by blockages or flow conditions within the publicly owned portion of a sanitary sewer system.

***Sanitary Sewer System*** - Refers to the portion of the sanitary sewer facilities that are owned and operated by the City of San José. The sanitary sewer system consists of collection sewers, trunk sewers, and pressure sewers (force mains).

***Sensitive Area*** - Refers to areas where an SSO could result in a fish kill or pose an imminent or substantial danger to human health.

***Sewer Service Lateral*** – For the purposes of this SSMP, the sewer service lateral includes both the upper lateral (house connection sewer) and the lower lateral (sewer lateral).

***Sewer Lateral (Lower Lateral)*** – Refers to the portion of the pipe between the house or building on private property and the sewer main, including the connection to the sewer main. The property owner is responsible to repair any failure or damage in the sewer lateral, including the connection to the sewer main; unless it is determined that another party caused the failure or damage.

***Sewer System*** – See sanitary sewer system.

***Sewer System Management Plan (SSMP)***

***Santa Clara County Public Health Department (County Health)***

***Standard Operating Procedures (SOP)*** - Refers to written procedures that pertain to specific activities employed in the operation and maintenance of the sanitary sewer system.

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

***Surface Waters*** - See waters of the State.

***System Evaluation and Capacity Assurance Plan (SECAP)***

***Trunk Sewer or Main Interceptor Sewer*** – The terms trunk sewer, gravity trunk line, and main interceptor sewer are used interchangeably to refer to the main branches of the sanitary sewer system, which carry flows from the collector sewers to the treatment plant.

***Volume Captured*** - The amount of spilled sewage that is returned to the sanitary sewer system. When recording the volume that is captured, the volume of water used for flushing and/or cleaning should not be included.

***Water Body*** - A water body is any stream, creek, river, pond, impoundment, lagoon, wetland, or bay.

***Waters of the State*** - Waters of the State (or waters of the United States) 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 sanitary sewer system and that portion of the storm drain is cleaned.

***Work Order (WO)*** - Refers to a document (paper or electronic) that is used to assign work and to record the results of the completed work.

## ELEMENT 1: GOALS

### **SWRCB Waste Discharge Requirement:**

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

The purpose of the SSMP is to provide guidance to the City in the operation, maintenance and rehabilitation of the sewer assets of the City of San José. Revisions to this section were made in August 2014 to address the subsequent SSO GWDR requirements, including the revised Monitoring and Reporting Program (MRP) effective September 9, 2013.

The goals of the SSMP are to:

- Properly manage, operate and maintain the wastewater collection system.
- Develop and maintain design construction standards and specifications for the installation and repair of the collection system and its associated infrastructure.
- Cost effectively minimize infiltration/inflow (I/I) and provide adequate system capacity to handle peak flows during a storm event.
- Respond to sanitary sewer overflows quickly and mitigate the impact of the overflow to public and environmental health.
- Implement a collection system maintenance program to minimize sanitary sewer overflows.
- Provide regular training for DOT, DPW, and ESD staff and contractors in collection system maintenance and operations and emergency response.
- Provide Standard forums for various tracking/reporting compliance requirements.



## **ELEMENT 2: ORGANIZATION**

### **SWRCB Waste Discharge Requirement:**

*The Sewer System Management Plan (SSMP) must identify:*

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

### **2.1 ORGANIZATIONAL STRUCTURE**

Organization charts are available for all three Departments (DPW, DOT & ESD) responsible for the management, operation and maintenance of the City's wastewater collection system on the City of San Jose's Intranet.

The Department of Public Works (DPW) designs and builds sanitary sewer infrastructure funded through the City's Capital Improvement Program. Public Works also reviews and inspects sanitary sewer improvements performed by private developers and other public agencies.

The Department of Transportation – Infrastructure Maintenance (DOT) performs day-to-day operations and maintenance of the collection system.

The Environmental Services Department (ESD) manages the wastewater from the collection system at the WPCP to ensure suitable treatment and discharge into San Francisco Bay and for beneficial reuse to protect the environment and public health. ESD also oversees the City's Pretreatment Program and the Commercial/Industrial Fats, Oils, & Grease Inspection Program (FOG) for the entire service area (i.e., San José and surrounding tributary cities). The Pretreatment Program permits, inspects, educates, and conducts surveillance of regulated industrial facilities to ensure their industrial wastewater is adequately treated prior to discharging to the collection system and the Plant, as required by Federal, state and local regulations. Similarly, the Commercial/Industrial FOG Inspection Program inspects, educates, and conducts grease investigations of all food service establishments to minimize FOG discharges, and to ensure compliance with local regulations.

The following are the Directors of the departments and the senior staff in charge of contributions to SSMP development and modifications.

DOT: Hans Larsen, Director (408) 535-3835  
 Kevin O’Connor, Deputy Director (408) 794-1987  
 Nichol Bowersox (LRO), Division Manager (408) 794-1941  
 Sam Koosha (LRO), Senior Civil Engineer (408) 794-1950  
 Bill Avila, Sewer Maintenance Superintendent (408) 343-3105

DPW: David Sykes, Director (408) 535-8444  
 Michael O’Connell, Deputy Director (408) 975-7333  
 Mathew Nguyen, Senior Civil Engineer (408) 793-4150  
 Shelley Guo, Senior Civil Engineer (408) 793-4132

ESD: Kerrie Romanow, Director (408) 535-8552  
 Napp Fukuda, Deputy Director (408) 793-5353  
 Steven Osborn, Program Manager (408) 793-5352  
 Casey Fitzgerald, Program Manager (408) 793-5378

**2.2 AUTHORIZED REPRESENTATIVES**

The city’s Authorized Representatives for sanitary sewer system matters are Sam Koosha and Nichol Bowersox. These individuals are authorized to submit verbal, electronic, and written spill reports to the CalOES and SWRCB, and to certify electronic spill reports submitted to the SWRCB.

**2.3 RESPONSIBILITY FOR SSMP MANAGEMENT, ADMINISTRATION AND MAINTENANCE**

The Deputy Director of Infrastructure Maintenance has the ultimate responsibility for management, administration and maintenance of all elements of the City’s SSMP. The responsibility for day-to-day implementation and maintenance of each of the City’s SSMP elements has been delegated to City staff. The table below lists the City staff involved with developing, implementing, and maintaining the City’s SSMP, along with their job titles and contact information.

<b>SSMP Element</b>	<b>Responsible City Official</b>	<b>E-Mail</b>
Element 1 - Goals	Kevin O’Connor, Deputy Director DOT IM	kevin.oconnor@sanjoseca.gov
Element 2 - Organization	Nichol Bowersox, Division Manager DOT IM	nichol.bowersox@sanjoseca.gov
Element 3- Legal Authority	City Attorney’s Office	napp.fukuda@sanjoseca.gov
Element 4- Operation and Maintenance	Bill Avila, Superintendent DOT IM	bill.avila@sanjoseca.gov
Element 5- Design and Performance Standard	Michael O’Connell, Deputy Director DPW	michael.oconnell@sanjoseca.gov

<b>SSMP Element</b>	<b>Responsible City Official</b>	<b>E-Mail</b>
Element 6- Sanitary Sewer Overflow Emergency Response Plan	Nichol Bowersox, Division Manager DOT IM	nichol.bowersox@sanjoseca.gov
Element 7- Fat, Oils and Grease Program	Steven Osborn, Program Manager ESD	steven.osborn@sanjoseca.gov
Element 8- System Evaluation and Capacity Management	Shelley Guo, Senior Engineer DPW	Shelly.guo@sanjoseca.gov
Element 9- Monitoring, Measurement, and Program Modifications	Nichol Bowersox, Division Manager DOT IM	nichol.bowersox@sanjoseca.gov
Element 10- Program Audits	Nichol Bowersox, Division Manager DOT IM	nichol.bowersox@sanjoseca.gov
Element 11- Communication Program	Nichol Bowersox, Division Manager DOT IM	nichol.bowersox@sanjoseca.gov

### **2.3 CHAIN OF COMMUNICATION FOR REPORTING SSOs**

In response to an SSO event, DOT immediately implements its Sanitary Sewer Overflow Emergency Response Plan (OERP), discussed in detail in Element 6. The OERP provides direction for the immediate verbal and written notification of City staff and Cal OES.

The initial notification of a blockage or SSO from the public is through the City’s 24-hour Dispatch Center. SSO-related calls received by other City departments are routed to the Dispatch Center for proper documentation and tracking. The Dispatch Center is responsible for routing the calls to the First Responder or Duty Supervisor. SSOs observed by City Staff in the course of their normal duties are also reported immediately to the Dispatch Center, if feasible.

During the response time, the dispatcher is in communication with the responding team to ensure each call is being routed to the appropriate supervisor or other supporting team. The Dispatch Center records communications between the callers, the responders and any other supporting team that is being dispatched to the SSO scene.

Phone Numbers for SSO Responders

<b>Responsible Party</b>	<b>Name</b>	<b>Phone Number</b>
Police Department		311
Dispatch Center		(408) 794-1900
DOT IM Office (Mabury)	Administrative Staff	
Storm and Sewer Superintendent	Bill Avila	(408) 794-6876

<b>Responsible Party</b>	<b>Name</b>	<b>Phone Number</b>
Legally Responsible Official (LRO)	Nichol Bowersox Sam Koosha	(408) 794-1941 (408) 794-1950
Data Submitters	Anjali Athavale Sharyn Evanich Roger Jesus Jesse Alvarez Armando Avila	(408) 794-1946 (408) 794-1997 (408) 794-1933 (408) 794-1930 (408) 794-1931
Deputy Director DOT IM	Kevin O'Connor	(408) 794-1987

## **ELEMENT 3: LEGAL AUTHORITY**

### **SWRCB Waste Discharge Requirement:**

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

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

### **3.1 LEGAL AUTHORITY**

This chapter describes the legal authority, through sewer use ordinances, services agreements and other legally binding procedures, to implement the SSMP plans to:

- Control infiltration/inflow (I/I) from satellite wastewater collection systems and laterals
- Require proper design and construction of new and rehabilitated sewers and connections
- Require proper installation, testing, and inspection of new and rehabilitated sewers

Applicable ordinances pertinent to sanitary sewer include Chapter 15.12 Sewers, Chapter 15.14 Sewer Use Regulations, Chapter 15.16 Sewer Connection and Storm Drainage, and Chapter 15.17 Sanitary Sewer Extension Program of the San Jose Municipal Code (SJMC) Ordinance 27626 (adopted 12-13-05).

Authority for control of infiltration/inflow (I/I) from satellite wastewater collection systems and laterals is described under Chapter 15.14 Sewer Use Regulations of the SJMC Ordinance 27626. The primary responsibility for enforcement of the provisions of Chapter 15.14 shall be vested in the director of environmental services. The regulations include permit requirements and conditions, limitation on point of discharge to a city-approved sewer connection; inspection, sampling and flow measurement of the building sewer through monitoring facilities; prohibition of any storm water, surface water or roof runoff to be discharged into the sanitary sewer system; restriction on groundwater or subsurface water to be discharged into the sanitary sewer system without a wastewater discharge permit issued by the director; and requirement of filing of discharge report. For non-compliances or violations, Chapter 15.14 also describes termination of service and permit revocation; correction of violations; and Civil penalties.

City of San Jose Standard Specifications (adopted in 1992) for Public Works Construction is issued by the Department of Public Works. The Drainage and Sewer Facilities element of the Standard Specifications provides specifications for the construction of new and rehabilitated sewers and lateral connections.

For private development or subdivision, under Title 19 Subdivision, Section 19.32.050 Sanitary Sewer Facilities (Ordinance 26386) of Chapter 19.32 Improvements and Fees in the SJMC describes the requirements for sewer facility installation by subdivider. Such sanitary sewer facilities either within or outside the subdivision shall be installed within easement and shall conform to those described in the standard specifications applicable at the time of approval of the tentative map, and shall be installed in accordance with the standard specifications applicable at the time of approval of the tentative map, in the specific locations shown on and in accordance with the plans which are approved by the city engineer for the subdivision.

The following ordinances are from the San José Municipal Code (SJMC):

SJMC # <sup>1</sup>	Municipal Code Language	Administrative Citation Fine <sup>2</sup>
<b>15.14.510</b> <b>Limitations on point of discharge.</b>	No person shall discharge any substances directly into a manhole or other opening in a city sewer, other than through a city-approved sewer connection. (Ord. 24800.)	\$500.00
<b>15.14.515</b> <b>Discharge into storm drain prohibited.</b>	It shall be unlawful to discharge any sewage, industrial waste or other polluted waters into any storm drain or natural outlet or channel without a valid National Pollutant Discharge Elimination System (NPDES) permit. (Ord. 24800.)	\$500.00
<b>15.14.520</b> <b>Regulation of trucked or hauled waste.</b>	No person shall discharge, cause, allow or permit any trucked or hauled waste to be discharged into the sanitary sewer system, except at a site specifically designated in a wastewater discharge permit issued pursuant to this chapter or a receiving station permit issued pursuant to Chapter 9.08 of this Code. (Ord. 24800, 28179.)	\$500.00
<b>15.14.530</b> <b>Protection from accidental discharge.</b>	A. Each industrial user shall provide protection from accidental discharge of prohibited materials or other wastes regulated by this chapter into either the storm sewer or sanitary sewer systems.	\$500.00

<sup>1</sup>

[http://sanjose.amlegal.com/nxt/gateway.dll/California/sanjose\\_ca/sanjosemunicipalcode?f=templates\\$fn=default.htm\\$3.0\\$vid=amlegal:sanjose\\_ca](http://sanjose.amlegal.com/nxt/gateway.dll/California/sanjose_ca/sanjosemunicipalcode?f=templates$fn=default.htm$3.0$vid=amlegal:sanjose_ca)

<sup>2</sup> <http://www.sanjoseca.gov/documentcenter/view/11697>

SJMC # <sup>1</sup>	Municipal Code Language	Administrative Citation Fine <sup>2</sup>
	<p>B. Facilities to prevent accidental discharge of prohibited materials shall be provided and maintained at the industrial user's expense.</p> <p>C. All industrial users shall notify the environmental services department by telephone or in person within one (1) hour of becoming aware of accidentally discharging wastes of reportable quantities as determined in 40 CFR 117 or discharge of any substance, which, if otherwise disposed of, would be a hazardous waste under 40 CFR Part 261, to enable countermeasures to be taken by the city to minimize damage to the sanitary sewer system, plant, treatment processes, and the receiving waters. If hazardous waste is discharged, industrial user shall be subject to all requirements in 40 CFR 403.12(p).</p> <p>D. Telephone notification shall be followed, within five (5) days of the date of occurrence, by a detailed written statement describing the causes of the accidental discharge and the measures being taken to prevent future occurrences.</p> <p>E. Notification to the city will not relieve industrial users of notification requirements under any other federal, state or local law, nor of liability for any expense, loss or damage to the sanitary sewer system, Plant or treatment process or receiving waters or for any fines or penalties imposed on the city on account thereof under applicable provisions of state or federal law.</p> <p>F. All permitted facilities must maintain a spill control plan for protection against accidental discharges, including but not limited to, berming of chemicals and waste materials. The review of such plans and procedures shall not relieve the industrial user from the responsibility of modifying the facility as necessary to provide the protection necessary to meet the requirements of this Code or other state or federal regulations.</p> <p>G. This plan must be reviewed and revised as</p>	

SJMC # <sup>1</sup>	Municipal Code Language	Administrative Citation Fine <sup>2</sup>
	<p>needed within thirty (30) days after an accidental discharge has occurred or as required by the director. (Ord. 24800, 28179.)</p>	
<p><b>15.14.550 Obstructing or injurious substances.</b></p>	<p>No person shall discharge, cause, allow, or permit to be discharged, thrown, or deposited into the sanitary sewer system or any part thereof, or into any plumbing fixture or private sewer or drain connected either directly or indirectly to the sanitary sewer system, any substance of any kind whatsoever tending to obstruct or injure the sanitary sewer system, or to cause a nuisance or hazard, or which will in any manner interfere with the proper operation or maintenance of the sanitary sewer system. (Ord. 24800.)</p>	<p>\$500.00</p>
<p><b>15.14.560 Hot substances.</b></p>	<p>No person shall discharge, cause, allow, or permit to be discharged into the sanitary sewer system or any part thereof, any liquid, solid, vapor, gas, or thing having or developing a temperature of one hundred fifty degrees Fahrenheit or more, or which may cause the temperature at the plant to exceed one hundred four degrees Fahrenheit. (Ord. 24800.)</p>	<p>\$500.00</p>
<p><b>15.14.565 Grease.</b></p>	<p>A. No person shall discharge, cause, allow, or permit to be discharged into the sanitary sewer system any liquid or other waste containing grease in excess of one hundred fifty parts per million by weight. B. No person shall discharge, cause, allow, or permit any grease discharge from a food service establishment into the sanitary sewer system, unless such discharge has first been processed through an approved grease control device. C. No person shall discharge, cause, allow, or permit to be discharged any yellow grease, or any waste or material mixed with yellow grease, into the sanitary sewer system from a food service establishment. No yellow grease from a food service establishment shall be mixed with grease trap or grease interceptor waste. (Ords. 24800, 28537.)</p>	<p>See below</p>



SJMC # <sup>1</sup>	Municipal Code Language	Administrative Citation Fine <sup>2</sup>
<b>15.14.570</b> <b>Solid or viscous matter.</b>	No person shall discharge, deposit, throw, or cause to be discharged, deposited, or thrown into the sanitary sewer system or any part thereof, any ashes, cinders, pulp, paper, sand, cement, mud, straw, shavings, metal, glass, rags, feathers, tar, asphalt, resins, plastics, wood, animal hair, paunch manure, or any heavy solid or viscous substance capable of causing obstruction to the flow in the sanitary sewer system or any part thereof, or which would interfere with the proper operation of the plant or the treatment of sanitary sewage or industrial waste. (Ord. 24800.)	\$500.00
<b>15.14.625</b> <b>Garbage.</b>	<p>A. No person shall discharge, deposit, or throw, or cause, allow or permit to be discharged, deposited, or thrown into the sanitary sewer system, or any part thereof, any garbage, or any fruit, vegetable, animal or other solid material from any food-processing plant or other industrial plant or retail grocery store, irrespective of whether or not it shall have been first passed through a mechanical grinder.</p> <p>B. No person shall install, operate, use or maintain upon the premises of any food-processing plant, or any other industrial plant or retail grocery store, any mechanical grinder or waste grinder that is connected directly or indirectly to the sanitary sewer system, or any part thereof.</p> <p>C. No person shall discharge, deposit, throw, or cause, allow or permit to be discharged, deposited, or thrown into the sanitary sewer system or any part thereof, any garbage or fruit, vegetable, animal or other solid kitchen waste material resulting from the preparation of any food or drinks, in any dwelling, restaurant, or eating establishment, unless the same shall have first been passed through a mechanical garbage or waste grinder in conformance with the provisions of the plumbing and electrical code of the city. (Ord. 24800.)</p>	\$500.00
<b>15.14.630</b>	A. Any food service establishment, or other type	\$500.00

SJMC # <sup>1</sup>	Municipal Code Language	Administrative Citation Fine <sup>2</sup>
<p><b>Installation of grease control devices.</b></p>	<p>of business or establishment where grease or other viscous, obstructing, or objectionable materials may be discharged into a public or private sewage main or disposal system, shall have a grease control device and related plumbing of a size and design approved by the director.</p> <ol style="list-style-type: none"> <li>1. Grease interceptors shall meet the following minimum requirements: <ol style="list-style-type: none"> <li>a. Designed retention time of no less than thirty minutes.</li> <li>b. The effluent from the device must flow through an approved sample box.</li> <li>c. Installed per manufacturer's specifications.</li> <li>d. At least two manholes, situated so all standpipes can be fully observed, and all internal surfaces can be reached, without confined space entry.</li> <li>e. Double-sweep clean-outs, on the interceptor inlet, and sample box outlet.</li> <li>f. Shall meet the specifications and be constructed in accordance with the applicable provisions of Chapter 24.04.</li> </ol> </li> <li>2. Grease traps shall meet the following minimum requirements: <ol style="list-style-type: none"> <li>a. No injection ports for chemicals or bacteria.</li> <li>b. Installed per manufacturer's specifications.</li> <li>c. Appropriate flow restrictors, whether integral or external to the device, must be installed.</li> <li>d. Shall meet the specifications and be constructed in accordance with the applicable provisions of Chapter 24.04.</li> </ol> </li> <li>3. Mechanical grease removal devices shall be installed in accordance with manufacturers' specifications.</li> </ol> <p>B. Each grease control device shall be so installed and connected that it shall be at all times easily accessible for visual inspection, sampling, cleaning and removal of grease, and other</p>	

SJMC # <sup>1</sup>	Municipal Code Language	Administrative Citation Fine <sup>2</sup>
	<p>matter from all surfaces.</p> <p>C. A grease control device shall be situated on the discharger's premises, except when such a location would be impractical or cause undue hardship on the discharger, the city may issue an encroachment permit to allow the grease control device to be installed in the public street or sidewalk area and located so that it will not be obstructed by landscaping or parked vehicles.</p> <p>D. Waste discharged from fixtures and equipment in establishments which may contain grease or other objectionable materials including, but not limited to, scullery sinks, pot and pan sinks, dishwashers, food waste disposals, soup kettles, and floor drains located in areas where such objectionable materials may exist, may be drained into the sanitary sewer through the grease control device if approved by the director provided, however, that toilets, urinals, wash basins, and other fixtures containing fecal material shall not flow through the grease control device.</p> <p>(Ords. 24800, 28537.)</p>	
<p><b>15.14.635</b>  <b>Screened industrial wastes.</b></p>	<p>A. No person shall discharge, cause, allow or permit to be discharged into the sanitary sewer system or any part thereof, any garbage, or any fruit, vegetable, animal, or other solid industrial wastes resulting from the processing, packaging, or canning of fruits, vegetables, or other foods or products, unless such wastes have first been passed through screens having openings not exceeding one-thirty-second of an inch in dimension.</p> <p>B. The director may authorize, in writing, the discharge into the sanitary sewer system of such wastes if they are first passed through screens having larger openings, if the director is satisfied that such larger openings will provide screening efficiency and effectiveness equal to or better than that provided by the above-specified openings of one-thirty-second of an inch in diameter.</p>	<p>\$500.00</p>

SJMC # <sup>1</sup>	Municipal Code Language	Administrative Citation Fine <sup>2</sup>
	<p>C. Each person who discharges, causes, allows, or permits to be discharged into the sanitary sewer system or any part thereof, any such wastes shall install and maintain in good operating order, screens as hereinabove specified and appurtenances thereto, including but not limited to all necessary conveyors and elevators, all in sufficient quantity and of sufficient size and quality to continuously and effectively screen not less than one hundred percent of the peak hydraulic and solids loading imposed on such screens and appurtenances during any processing period.</p> <p>D. No person shall discharge any such screened wastes into the sanitary sewer system, or any part of the system, unless and until he or she has obtained a wastewater discharge permit pursuant to this Chapter 15.14 granting approval to do so. The director may require such person to provide to the director a report prepared by a registered professional engineer which shows, to the satisfaction of the director, that the provisions of this section have been complied with, before the wastewater discharge permit is granted.</p> <p>(Ord. 24800.)</p>	
<p><b>15.14.650 Maintenance and operation of grease control devices.</b></p>	<p>A. Grease control devices shall be maintained in efficient operating condition by periodic removal of the accumulated grease. The use of chemicals, bacteria, enzymes, or other additives that have the effect of emulsifying or dissolving grease is prohibited unless specifically authorized by the director in writing. No accumulated grease shall be introduced into any drainage piping or public or private sewer.</p> <p>B. Grease control devices shall be cleaned on a sufficient frequency to prevent objectionable odors, surcharge of the grease control device, or interference with the operation of the sanitary sewer system.</p> <p>1. Grease traps shall be cleaned at least once every thirty days.</p>	<p>\$500.00</p>

SJMC # <sup>1</sup>	Municipal Code Language	Administrative Citation Fine <sup>2</sup>
	<ol style="list-style-type: none"> <li>2. Grease interceptors shall be cleaned once every ninety days.</li> <li>3. Mechanical grease removal devices must be maintained in a manner and frequency consistent with manufacturer specifications and guidance.</li> <li>4. Grease control devices shall be cleaned when their last chamber is filled to twenty-five percent or more of capacity with grease or settled solids. Grease interceptors with a sample box shall be cleaned immediately when grease is evident in the sample box.</li> <li>5. Grease control devices shall be cleaned by being pumped dry and all accumulated sludge on all surfaces shall be removed by washing down the sides, baffles and tees. No water removed from the device during cleaning shall be returned to the grease control device.</li> </ol> <p>C. The director may grant an exception to the requirements of Subsections B.1 and B.2 where the director finds, based on evidence presented by the discharger, that a less frequent cleaning schedule will be sufficient to assure that not more than twenty-five percent of the capacity of the grease control device will be filled with grease or settled solids.</p> <p>D. All dischargers shall implement best management practices in their operations to minimize the discharge of grease to the sanitary sewer system.</p> <p>E. Dischargers shall maintain records on site for a period of at least three years as follows:</p> <ol style="list-style-type: none"> <li>1. Dischargers with an installed grease control device shall maintain records showing that the grease control device has been properly maintained and cleaned as required by Subsections A. and B.; and</li> <li>2. Food service establishments shall maintain records showing the following related to all grease hauled off site: date and time material removed off site; volume</li> </ol>	

SJMC # <sup>1</sup>	Municipal Code Language	Administrative Citation Fine <sup>2</sup>
	<p>removed; hauler name; truck license number, type of grease removed, and final destination of material collected.</p> <p>F. Abandoned grease control devices shall be emptied and filled as required for abandoned septic tanks.</p> <p>(Ord. 28537.)</p>	
<p><b>15.14.685</b> <b>Falsification of information.</b></p>	<p>A. It shall be unlawful to make any false statement, representation, record, report, plan or other document or to tamper with or render inaccurate or divert flow from any monitoring device or equipment installed or operated pursuant to this chapter or of any permit issued under this chapter.</p> <p>B. In addition to any other punishment or remedy provided by law, any such falsification or tampering shall be grounds for revocation of any permit issued under this chapter.</p> <p>(Ord. 24800.)</p>	<p>\$500.00</p>
<p><b>15.14.690</b> <b>Power to inspect.</b></p>	<p>A. The director and other duly authorized employees and agents of the city bearing credentials and identification shall have the right to access upon all properties for the purpose of inspecting any sewer or storm drain connection, including all discharge connections of roof and surface drains and plumbing fixtures; inspecting, observing, measuring, photographing, sampling, and testing the quality, consistency, and characteristics of sewage and industrial wastewaters being discharged into any public sewer or natural outlet; and inspecting and copying any records relating to quantity and quality of wastewater discharges, including but not limited to water usage and effluent discharged, chemical usage, and hazardous waste records.</p> <p>B. The director may terminate service or revoke the permit of any person who has discharged wastewater to the sanitary sewer system and has unreasonably refused access to the city.</p> <p>(Ord. 24800.)</p>	<p>n/a</p>
<p><b>15.14.715</b></p>	<p>A. The city may abate any violation of this</p>	<p>n/a</p>

SJMC # <sup>1</sup>	Municipal Code Language	Administrative Citation Fine <sup>2</sup>
<b>Correction of violations; collection of costs; injunction.</b>	chapter. B. The cost of such abatement may be added to the sewer service charge of the owner or tenant of the property upon which the violation occurred, and the city shall have all available remedies for the collection of such costs as it has for the collection of sewer service charges. (Ord. 24800.)	
<b>15.14.720 Civil penalties.</b>	Any person who intentionally or negligently violates any provisions of this chapter, any provision of any permit issued pursuant to this chapter, or who intentionally or negligently discharges waste or wastewater which causes pollution, or violates any effluent limitation, national standard of performance, or national pretreatment or toxicity standard, shall be civilly liable to the city in a sum up to ten thousand dollars for the first day in which such violation occurs, up to twenty-five thousand dollars for the second day in which such violation occurs, and fifty thousand dollars for each additional day. (Ord. 24800.)	n/a

SJMC #	Violation	Administrative Citation Fine
<b>15.14.565A</b>	Grease limit 1X < limit ≤ 2X 1 <sup>st</sup> Violation in 1 year period 1X < limit ≤ 2X 2 <sup>nd</sup> Violation in 1 year period 1X < limit ≤ 2X 3 <sup>rd</sup> + Violation in 1 year period 2X < limit ≤ 4X 1 <sup>st</sup> Violation in 1 year period 2X < limit ≤ 4X 2 <sup>nd</sup> Violation in 1 year period 2X < limit ≤ 4X 3 <sup>rd</sup> + Violation in 1 year period 4X < limit < 10X 1 <sup>st</sup> Violation in 1 year period 4X < limit < 10X 2 <sup>nd</sup> Violation in 1 year period 4X < limit < 10X 3 <sup>rd</sup> + Violation in 1 year period 10X ≥ limit 1 <sup>st</sup> Violation in 1 year period 10X ≥ limit 2 <sup>nd</sup> Violation in 1 year period 10X ≥ limit 3 <sup>rd</sup> + Violation in 1 year period	\$250.00 \$312.50 375.00 \$500.00 \$625.00 \$750.00 \$1,000.00 \$1,250.00 \$1,500.00 \$1,500.00 \$1,875.00 \$2,250.00
<b>15.14.565 B</b>	Grease Control Device required	\$500.00
<b>15.14.565 C</b>	Discharge of yellow grease prohibited	\$500.00

### **3.2 AGREEMENTS WITH OTHER AGENCIES**

The Regional Wastewater Facility administers and manages a Master Agreement with each of the tributary agencies: City of Santa Clara, City of Milpitas, West Valley Sanitation District, Cupertino Sanitary District, County Sanitation District No. 2-3, and Burbank Sanitary District. Provisions in the Master Agreement requires that the agencies adopt companion ordinances and regulations to assure no upset or damaging conditions will affect the WPCP in the partner wastewater discharges. The City and partner agencies meet and discuss various issues on a regular basis. Each partner agency is responsible for its own collection operations maintenance and regulatory compliance.



## **ELEMENT 4: OPERATION AND MAINTENANCE PROGRAM**

### **SWRCB Waste Discharge Requirement:**

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

- 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*

*Provide equipment and replacement part inventories, including identification of critical replacement parts.*

### **4.1 Sanitary Sewer Mapping and Computer Systems**

#### **4.1.1 COLLECTION SYSTEM MAPS**

The City uses Geographic Information System (GIS) technology to create, maintain, and manage maps and data sets associated with its wastewater collection system facilities, storm drainage facilities, and force mains. Location, pipe and manhole inventory data including length, diameter, material, rim/invert elevations, street address, and other information are maintained. Hardcopies of maps of the system are maintained in all service vehicles assigned to wastewater operations an operation center. Hard copy maps are in the form of a 200-scale map book, which are in sizes 24"x16".

#### **Updates to Existing Drawings**

Discrepancies can be reported to the City HelpDesk. Email a description of the discrepancy including location, segment IDs and a detailed description of the discrepancy to [HelpDesk@sanjoseca.gov](mailto:HelpDesk@sanjoseca.gov)

Corrections are made to maps in the GIS system by DPW GIS staff when requested by the field and engineering staff. Interim changes on individual pages can be downloaded from the GIS system and given to collection system personnel. Proposed corrections identified by field crews are delivered by electronic service orders called “HEAT” to the DPW GIS staff as field staff discovers discrepancies.

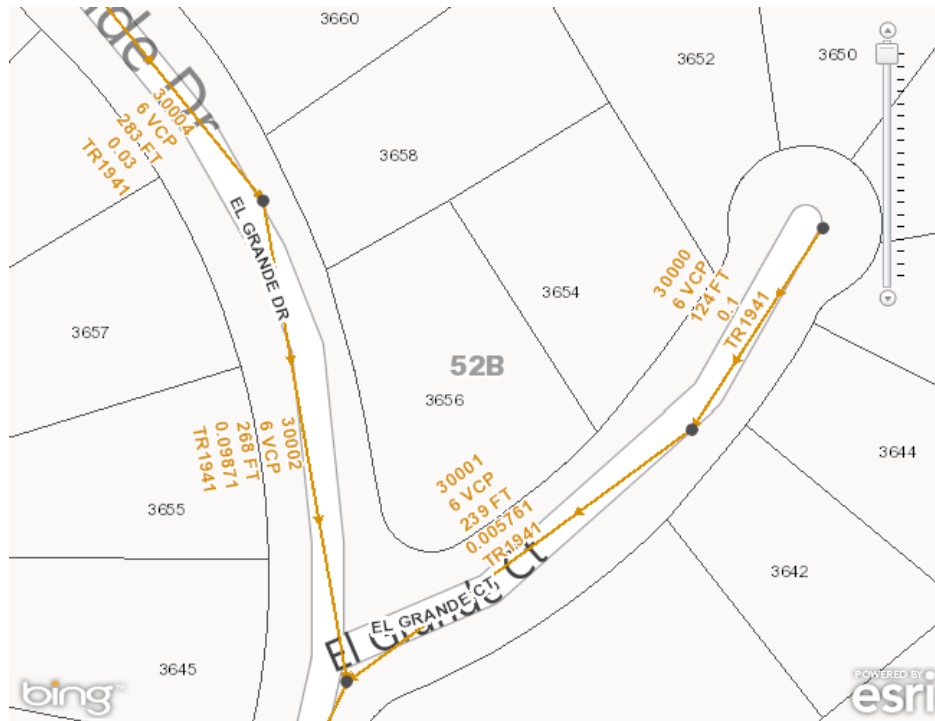
### **Storm Drains**

Storm drains are also shown on a GIS-based map and can be viewed by field and engineering staff. DPW Engineering staff is responsible for maintaining the storm drain map. In addition to the GIS map, a hard copy of the City’s storm drain system map is maintained in the DOT Mabury Yard and all service vehicles assigned to the wastewater collections operation. The system map can be used to determine the routing of SSOs, in order to potentially block storm drains and contain the volume of overflows before they reach waters.

The City sanitary sewer collection system is available in published mapbook format or can be accessed through the DPW’s intranet site at <https://cpms.sanjoseca.gov/emap/>. Internal staff can access the sewer collection system map via an interactive web map application available on the intranet at:

[http://nch-gisapp/infrastructure\\_dashboard/default.aspx](http://nch-gisapp/infrastructure_dashboard/default.aspx)





#### 4.1.2 INFORMATION MANAGEMENT SYSTEMS

The City currently uses two tools to provide the information to effectively manage the City’s collection system: A Geographical Information System (GIS) and a Computerized Maintenance Management System (CMMS).

##### Geographical Information System

GIS is a computer mapping system that links databases of geographically based information to maps that display the information. Over the past decade, the City has converted all its sanitary sewer collection mapping and infrastructure inventory data into a GIS format.

##### Computerized Sewer Management System

The City is using an in-house developed Computerized Maintenance Management System (CMMS) to track performance metrics and sanitary asset maintenance history. The primary functions of the City’s CMMS are to:

- Maintain service request and maintenance history information for sanitary collection assets.
- Produce work orders and regularly update the maintenance schedules for sanitary mains based on data collected from cleaning operations.

- Generate reports that support data analysis and decision-making.
- Provide documentation for use in regulatory compliance reporting.
- Indicate line segments or structures that may be candidates for replacement or rehabilitation under the capital improvement program.

## **4.2 PREVENTATIVE OPERATION AND MAINTENANCE**

The City’s wastewater collection system Operation and Maintenance Program includes proactive, preventive, and corrective maintenance of gravity sewers, and regular inspection and preventive maintenance of the lift stations and force mains. The details of the City’s O&M programs are described in sections 4.2 through 4.3.

### **4.2.1 HIGH PRIORITY CLEANING LIST**

The High Priority Cleaning (“HPC”) list specifies a cleaning cycle for approximately 12% of the City’s mains ranging from 7 days to 36 months. The list began as an informal accumulation of the working knowledge of the crews comprising of about 400 segments. While an informal list existed in some form for many years, it was first entered into a CMMS for programmed cleaning in January 2011.

From that point, the City conducted a number of studies that augmented the list:

- Segments with high frequency of cleanings (at least 10 cleanings in 10 years) but were not yet on a schedule, were assigned schedules based on the assessment made by the maintenance supervisors. These assessments were based on obstruction types, severity, and frequency gathered from cleaning history data and confirmed by another field inspection.
- An analysis was performed focused on all sanitary main segments that had a recorded one or more stoppages in five fiscal years between 2006 and 2011 (“stop-stat segments”). Segments were assigned a cycle based on the number of corrective maintenance stoppages recorded: one stoppage put it in a 24 month cycle, two stoppages a 12 month cycle, and three or more stoppages a 6 month cycle.
- All segments that caused an SSO were placed in a 6 month cleaning cycle unless overruled by a maintenance supervisor. This included all SSOs with records from 2006 to the present.
- In 2009, the City began a program to clean all segments 12” and smaller on a zone by zone basis (112 sewer maintenance zones throughout the City). Segments cleaned as part of this program between 2009 and 2012 were given HPC frequencies of 24 month cycles and 36 month cycles if the crews recorded stoppages or severe flow restrictions respectively.

The result of all of these studies was the expansion of the HPC list in December of 2012 resulting in three times the sewer miles included within the High Priority Cleaning List.

#### **4.2.2 PIPE FREQUENCY CALCULATOR**

The City developed the Pipe Frequency Calculator in 2012 for the following reasons:

- DOT had over 20 years of recorded cleaning data detailing the cleaning and video work performed on each segment.
- Sewer personnel reviewing a line segment's history were highly variable in both their analysis and their rating of the pipe resulting in inconsistent scheduling.
- The studies that contributed to the HPC list were binary; segments either qualified or did not qualify under specified criteria.
- The expanded HPC list was limited. Despite encompassing segments that had demonstrated possible problems, it did not address the remaining 88% of the system.

The purpose of the calculator was to derive a logical, real world based equation to tabulate a recommended cleaning frequency quickly using a uniform methodology for the City's entire sewer main inventory. By June 2013, DOT had completed a workable prototype and a work plan is being developed for implementation into the scheduling program. Modification will be made to the formula to account for changes in technology or information available.

#### **4.2.3 TARGETED ZONE CLEANING**

The City implemented a significant expansion of the HPC list in December 2012, and within just a few months began to notice a reduction in SSOs. A study was done to assess the remaining 88% of the sanitary sewer system to evaluate and develop a cleaning methodology and plan based on the recorded cleaning data. As a result, a plan was devised to go to each zone identified and prioritized based on degree of completion, and to the greatest degree possible, clean any line that had not been cleaned since 1/1/2009 (the start date of the original zone cleaning program). Once the incomplete sets were cleaned, all lines 12" or less within that zone would be assigned a frequency by the PFC if it did not already have one. These frequencies would range from seven days to eight years. Based on productivity rates and the amount cleaned to date, we project that the entire inventory of sewer mains 12" and smaller will be cleaned by the end of 2016, 8 years after the initial start date.

### **4.3 OTHER DOT MAINTENANCE PROGRAMS**

Scheduled maintenance of pump stations is also performed to increase pump station reliability and efficiency, resulting in fewer stoppages. All stations are visited daily to assess the condition of the pumps (checked for leaks and proper function) and wet wells.

DOT has also been working closely with DPW to address neighborhood sewer issues. The City intends to commence monthly meetings between DPW and DOT to initiate ongoing dialogue between the departments to mitigate problems DOT is experiencing in the field.

DOT has also implemented a Root Control Program to address chronic root intrusion issue in established neighborhoods. Areas with a history of root problems are maintained with power rodding, high pressure cleaning, or application of chemical root control.

#### 4.3.1 GRAVITY MAIN INSPECTION (CCTV)

Miles of Pipe Inspected in the Last 10 Years and Planned Inspection Next 10 Years				
Date Range	Inspection Method	Miles of Pipe with repeats	Useable Condition Assessment	
			Miles of Pipe (without repeats)	% of System
2003 to 2013	CCTV by Contract (PW administered)	NA	322	14%
2013 to 2023	CCTV by Contract (PW administered)	NA	2,250	100%

The Sanitary Sewer Condition Assessment (SSCA Program) was initiated in 2010 by DPW. The original pilot project utilized closed circuit television (CCTV) to video and collect data on a 46 mile, representative sample, of the City’s 2,250 mile sanitary sewer system. The raw data collected established the foundation to begin analysis on the overall condition of the City’s sanitary sewer network. The long-term goal of the program is to utilize larger data sets collected to perform analysis and ultimately develop various risk assessments to develop and prioritize the rehabilitation portion of the Sanitary Capital Improvement Program. The current program schedule involves condition assessment on one-tenth of the City every year with an anticipated completion of the full assessment of the City by 2021.

#### 4.4 ANTICIPATED CAPITAL IMPROVEMENTS AND MAINTENANCE NEEDS

Pipe Rehabilitation and Replacement Methods Used:

Miles of Pipe Rehabilitated or Replaced: Last 10 Years and Planned Next 10 Years		
Date Range	Miles of Pipe	% of System (System miles: 2259)
2000 to present	60	3%
Present to 2020	70	3%

## **PROGRAM PRIORITIES AND OBJECTIVES**

The majority of funds in the Sanitary Sewer System CIP are used to construct sewer improvement projects. Construction projects in the Proposed CIP meet one of two goals: (a) enhance sewer capacity to meet economic development; or (b) rehabilitate existing sewers, with higher priority given to those with extensive, severe deterioration. A project that will enhance capacity and rehabilitate existing sewers is considered a rehabilitation project for the purpose of the City’s budget process. Priority is given to larger lines within each category. The Sanitary Sewer Master Plan Capacity Assessment was completed on April 2013 and is used to help identify high priority capacity in this Proposed CIP.

- a. Capacity Improvement projects are selected by utilizing a computerized sewer flow model (which utilizes the San José 2040 General Plan to project sewage flows in the system), City maintenance records, and flow monitoring. These allow sewer capacity constraints to be identified. The Master Plan identified a total of 93 new capacity projects that will upsize for existing deficiencies and will accommodate near-term and long-term flows.
- b. Rehabilitation projects are selected based on hydrogen sulfide studies that analyze pipe corrosion, condition assessment studies, maintenance records and reports, and actual pipe failures due to pipe corrosion or other physical deficiencies. The actual condition of candidate projects is verified by internal videotape inspections, which are then evaluated to establish project priorities.

### **4.5 INFLOW AND INFILTRATION (I&I) REDUCTION PROGRAM**

City has established an Inflow and Infiltration (I&I) Reduction Program. This I&I Reduction Program is a key element of the Environmental and Utility Services Business Plan. This program is intended to rehabilitate portions of the sewer system where groundwater, stormwater and other sources of water enter the sewers. The goal of the I&I Reduction Program is to decrease the flow to the WPCP and help continue to meet the discharge flow cap. This program operates in conjunction with the Flow Monitoring and Master Planning Program to identify areas of the system that have substantial I&I, and construct improvements to reduce I&I.

### **4.6 TRAINING**

The City uses a combination of in-house classes, on-the-job training, conferences and seminars, and other training opportunities to train its sanitary sewer system staff. All personnel is provided a copy of the Code of Standard Practices (COSP) and trained on each piece of equipment assigned to that section. A portion of bi-weekly tailgate meetings are dedicated to training on various wastewater topics. These short meetings prior to the start of the day's field work provide the opportunity for quick discussions of short topics related to specific collection system operations issues. The table below lists the sources of technical training and training materials available:

<b>Sponsor</b>	<b>Event</b>	<b>Timeframe</b>	<b>References</b>
California Water Environment Association (CWEA)	State Conference	April	www.cwea.org
	Northern Regional Safety Conference	September	
	Santa Clara Valley Section Meetings & collections training events & classes	Monthly	
CWEA - San Francisco Bay Area section	Meetings and collections training events & classes	Monthly	www.cwea.org
Bay Area Clean Water Association (BACWA) Collection Systems Committee	Collection System Committee meetings	Monthly	www.bacwa.org

City staff receives annual training on the following topics: volume estimation, storm water pollution prevention, confined space entry, biological and chemical hazards, VacCon safety, underground construction, gas detector use, application of overflow control materials, back injury prevention, overflow reporting and field documentation, and the content and procedures of the SSMP. In addition, the City provides free training and seminars on various professional development topics including computer applications, writing, and communication skills.

Individual training records are documented and maintained by the City's Department of Human Resources.

#### **4.7 EQUIPMENT**

This section provides a summary of the equipment used for the maintenance of the wastewater collection system. Furthermore, DOT works closely with the Department of General Services to ensure that each piece of equipment is functioning properly and safely. Replacement of equipment and spare parts for emergencies are addressed as budgets will allow.



List Major Equipment Owned by the Utility:

<b>Equipment</b>	<b>Number</b>	<b>Number in Service</b>
Combination Trucks (Vaccon)	18	18
Mechanical Rodder	2	2
CCTV Truck	2	2
Utility Truck	17	17
Light Duty Truck	12	12
Crane Truck	1	1
Portable Pumps	16	16
Portable Generator	10 *	10
Dump Trucks	5	5
Backhoes	5	5

\* Portable Generators available and maintained at General Services Yard.

## ELEMENT 5: DESIGN AND PERFORMANCE PROVISIONS

### *SWRCB Waste Discharge Requirement:*

- 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.*

### 5.1 DESIGN GUIDELINES

The City utilizes the Design Guidelines for Sanitary Sewer (“Guidelines”) for establishing minimum standards for construction of public sanitary sewers. This document was prepared by City staff in 1991. These guidelines are intended to aid consulting engineers, developers, and others doing work in the City on public sanitary sewer projects.

The Guidelines describe the calculation for peak flow rate; design flow depth and minimum slope; pipe material, soil cover, minimum spacing/clearance and sizing for laterals mains and manholes; sewer connection; site planning; and required submittals.

The Guidelines do not include the design standards for pump station or force main, and pump station and force main designs. These types of facilities are typically designed by outside engineering consultants.

### 5.2 SANITARY SEWER DESIGN PROCEDURES

The first edition Sanitary Sewer Design Procedures (In-House) manual was prepared in 1991. Since then, the Design Procedures have been followed by City staff for in-house and consultant designed projects. The Design Procedures incorporate the previously mentioned Guidelines, in addition to outlining project management procedures to deliver a project from initial scoping to the award of contract. The additional procedures include:

- ***Preliminary Engineering*** including planning; scheduling; budgeting; requesting for services or information from utilities companies, material testing, survey, and transportation departments; hydraulic analysis; preliminary design; and environmental clearance applications such as exemption, negative declaration, or EIR.
- ***Initial Design and Plan Check Distribution*** for review to utility companies, impacted agencies, and involved departments and divisions including material testing lab, survey, transportation, sewer maintenance, and construction, and other CIP groups within the Sanitary Sewer Section for peer review.

- *Final Design* includes property acquisition, request for insurance specification, request for encroachment permits, construction quantities and cost estimates, preparation of final plans and specifications, final review and approval, and bid and award.

The Procedures ensures the communication, coordination, and collaboration with the involved parties in the design review process.

### **5.3 SEWER LEVEL OF SERVICE POLICY**

In June 1982, City Council adopted a Sanitary Sewer Level of Service Policy (“Policy”). The primary purpose of the Policy is to ensure that the City will not have sewage spills due to insufficient capacity in the collection system; and that there is adequate capacity in existing sewer mains before development occurs which could compromise the ability of the system. There are six levels of service (LOS) that are used to determine under what conditions new developments are allowed to connect to the existing sewer system. The LOS is defined based on comparison of flows to existing sewer capacity.

### **5.4 OTHER DESIGN STANDARDS USED**

When a trenchless technique or a lining system for pipelines is used to rehabilitate an existing system, the design conforms to ASTM and appropriate industry standards. Some of the trenchless techniques used by the City for rehabilitation are:

- Cured-in-Place Pipe Lining
- Sliplining
- Fold and Form Lining
- Spirally Wound Pipe Lining
- Directional Drilling
- Pipe Bursting
- Micro-Tunneling

The engineering analysis during design phase includes factors such as pipe size, length, and depth; existing pipe condition; capacity requirement; access conditions; right-of-way requirements; soil condition and cover; groundwater conditions; project locations; traffic conditions; environmental impacts; etc.

ASTM and other industry standards are also used for the design of manhole rehabilitation with lining method. City has specified the following lining methods in the Special Provisions for various manhole rehabilitation projects:

- Cementitious Liner with Corrosion Protection Epoxy Coating
- Cementitious Liner with Calcium Aluminate Mortar
- Epoxy Lining
- Cured-in-Place Lining

## **5.5 CITY'S STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION**

The 1992 edition of the City of San José Standard Specifications and Details for Public Works Construction, issued by the Department of Public Works, identify minimum construction standards and specifications for the installation of new sanitary sewer systems and for the rehabilitation and repair of existing sewer systems.

Specifically, the specifications that directly relate to the sewer construction and rehabilitation are included in the "Drainage and Sewer Facilities" general provisions include the following sections:

- 1207. Pipe and Structures
- 1301. Trench Excavation, Bedding and Backfill
- 1302. Pipe Installation
- 1305. Pipeline Structures
- 1307. Acceptance Tests for Sanitary Sewers
- 1308. Cleaning Pipelines
- 1501. Sanitary Sewer Rehabilitation

Standard drawings for manholes and lateral connections are included in the "Sewer/Drainage Structures", section of the City's Standard Details.

The complete City of San José Standard Specifications and Details are available at City's internet website in Adobe PDF format:

[http://www.sanjoseca.gov/publicworks/details\\_specs/index.asp](http://www.sanjoseca.gov/publicworks/details_specs/index.asp)

These documents can also be purchased in book form from Public Works.

## **5.6 STANDARDS FOR INSPECTION AND TESTING FOR NEW AND REHABILITATED FACILITIES**

### **5.6.1 CITY'S STANDARD SPECIFICATIONS AND DETAILS**

Inspection and testing of new and rehabilitated facilities is essential to ensure that the standards established in Section 7.a., "Standards for Installation, Rehabilitation and Repair" are adequately implemented in the field. The standards for inspection and testing of new and rehabilitated facilities are described in the following sections of the City's 1992 edition of the Standard Specifications (Standard Specifications) issued by Public Works:

- Section 1207, Pipe and Structures
- Section 1301, Trench Excavation, Bedding and Backfill
- Section 1302, Pipe Installation
- Section 1305, Pipeline Structures
- Section 1307. Acceptance Tests for Sanitary Sewers
- Section 1308, Cleaning Pipelines

- Section 1501, Sanitary Sewer Rehabilitation

Along with Standard Specifications, the Standard Details provide the “Sewer and Drainage Structures” Section for sewer facility construction.

Section 1307, “Acceptance Tests for Sanitary Sewers,” provides specifications for sewers and force mains testing for leakage and deflection. The methods of testing specified in this section include:

- *Air Pressure Test* to determine watertight integrity for all sewers
- *Hydrostatic Leakage Test* to be used only when specifically ordered by the Engineer in writing
- *Deflection Test* to be required for flexible pipe sewers only
- *Television Inspection* to look for deficiencies such as joint separation, offset joints, cracked or damaged liner pipe, infiltration points, debris in sanitary sewer and liner installation

City requires all developers and design consultant to reference or use the City’s Standard Specifications as the minimum compliance standards in the design and construction of new, repaired and rehabilitated sewer projects.

### **5.6.2 GREENBOOK AND ASTM STANDARDS**

When specification for certain construction or testing method is not provided in City’s Standard Specifications, the project Special Provision will reference to the Greenbook and/or Caltrans Standard Specifications and ASTM standards with modified provisions that meet the City’s requirements. Each capital project has its own special provisions that include sections of material, installation of pipes and appurtenances, inspection, testing and acceptance of work.

### **5.6.3 INSPECTION GUIDELINES**

The City prepared the Construction Inspection Guidelines in March 1990 (First Edition). The Guidelines includes inspection guidelines in the following areas:

- Before construction: plan check, pre-job, material submittals
- Clearing and grubbing checklist
- Sewers: sanitary sewer project procedures and sewer inspection checklists
- Roadway, subgrade and base
- Concrete
- Utilities and electrical
- Paving
- After construction: punch list, final inspection and record drawings
- Contract change orders – forms and procedures
- Reporting and documentation

The Guidelines also provide checklists for sewer construction in these categories:

- General and preliminary dealing with permits, safety, traffic control, etc.
- Trenching
- Pipe laying
- Trench backfill and jetting (or compaction)
- Manholes and structures
- Miscellaneous and testing

## **5.7 CONSTRUCTION MANAGEMENT**

City's construction management includes continuous onsite inspection. Inspections are performed during the progress of the work and at the completion of the construction. All acceptance testing for gravity sewers are performed in the presence of the project inspector, and the sampling of liners are performed in the presence of and the testing performed by the third-party inspection and testing firms. The project will not be accepted until all results of the testing of sewers or liners meet the requirements of the project plans and specifications or established standards. When acceptance tests fail, the City requires contractors to submit a repair plan for approval and conduct the repair pursuant to the approved plan. Acceptance testing is then performed again until the testing results meet City's requirements.

For a CIP project, a full-time inspector is assigned to the project. For each development project, an inspector will follow the project until its acceptance. Inspectors are under Principle Construction Inspector's (PCI) and Engineer's supervision and direction, and should report any discrepancies directly to the PCI and the Engineer. All communications between the contractor and the Engineer are through the project Inspector.

The inspector will mark any changes to the design plans in his/her working plans. At the acceptance of a project, the inspector will provide the marked working plans to the engineer for the making of the "record-drawings" by updating all changes from the original plan drawings.

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

### ***SWRCB Waste Discharge Requirement:***

***Each Enrollee 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 an 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 MRP. All SSOs shall be reported in accordance with this MRP, the California Water Code, other State Law, and other applicable Regional Water Board WDRs or NPDES permit requirements. The Sewer System Management Plan (SSMP) should identify the officials who will receive immediate notification;***
- d. Procedures to ensure that appropriate staff and contractor personnel are aware of and follow the Emergency Response Plan and are appropriately trained;***
- e. Procedures to address emergency operations, such as traffic and crowd control and other necessary response activities; and***

***A program to 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 the SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge.***

### **6.1 GOALS OF THE SANITARY SEWER OVERFLOW EMERGENCY RESPONSE PLAN**

The City's goals with respect to responding to SSOs are:

- Worker safety;
- Minimize public contact with the spilled wastewater;
- Respond quickly to minimize the volume of the SSO;
- Contain spilled wastewater to the extent feasible;
- Eliminate the cause of the SSO;
- Prevent sewage system overflows or leaks from entering the storm drain system or receiving waters to the maximum extent practicable;
- Mitigate the impact of the SSO
- Meet the reporting requirements in the SSS GWDR;
- Evaluate the causes of failure related to certain SSOs; and

- Revise response procedures resulting from the debrief and failure analysis of certain SSOs.

## **6.2. SSO DETECTION**

### **6.2.1 PUBLIC OBSERVATION**

Public observation is the most common way that the City is notified of blockages and spills. Contact information for reporting sewer spills and backups are on the City's website: [www.sanjoseca.gov](http://www.sanjoseca.gov). During all hours, the public is instructed to call DOT Dispatch at (408) 794-1900.

When a report of a sewer spill or backup is made, City staff receives the call, takes the information from the caller and fills out the first section of a Service Request.

The person who takes the call verbally communicates it to the collection system field crew.

#### **After Regular Work Hours**

San José Fire Dispatch (SJ20) staff receives the call and obtains the name and phone number of the caller and address of the SSO. The DOT staff person who is contacted by the Fire Dispatch will determine the appropriate response measures based on information provided by the caller.

### **6.2.2 RECEIPT OF PUMP STATION AND SMART COVER UNIT ALARMS**

Pump Station and Smart Cover Unit alarms are considered high priority events that warrant a prompt response. Alarms are received either through dispatch or through SMS text message through the SCADA system.

### **6.2.3 CITY STAFF OBSERVATION**

City staff conducts periodic inspections of its sewer system facilities as part of their routine activities. Any problems noted with the sewer system facilities are reported to appropriate City staff who, in turn, respond to emergency situations. Work orders are issued to correct emergency and non-emergency conditions.

## **6.3 SSO RESPONSE AND PROCEDURES**

### **6.3.1 SAFETY**

The First Responder is responsible for following safety procedures at all times. Special safety precautions must be observed when performing sewer work to protect public health, environment and property from sewage spill events and to restore area back to normal as soon as possible.



There may be times when City personnel responding to a sewer system event are not familiar with potential safety hazards particular to sewer work. In such cases, it is appropriate to take the time to identify hazards, discuss safety issues, consider the order of work, and check safety equipment before starting the job.

### **6.3.2 INITIAL RESPONSE**

All sanitary sewer system calls require a response to the reported location of the event in an attempt to minimize or eliminate an overflow. The First Responder must respond to the site of the reported problem immediately, and visually check for potential sewer stoppages or overflows.

**Response Time** - It is the goal of the City to respond to an SSO within 30 minutes of the initial call.

First Responder's (First Person at SSO Site) Role is to:

- i. Identify and clearly assess the affected area and extent of spill and note arrival time at spill site.
- ii. Establish perimeters and control zones with traffic cones, barricades, vehicles, or terrain.
- iii. Document conditions upon arrival with photographs.
- iv. Promptly notify the Sewer Superintendent in the event of a major SSO or when the spill appears to be large, in a sensitive area, or there is doubt regarding the extent, impact, or how to proceed, and request additional resources (e.g. people, equipment, etc.).
- v. Contain and control the sewage discharged to the maximum extent possible.
- vi. Make every effort to prevent the discharge of sewage into waterways.
- vii. Notify ESD if sewage may have entered a waterway by calling the (408) 945-3000 Stormwater Hotline.
- viii. Restore the flow as soon as practicable and contact the caller for additional information.
- ix. Return the spilled sewage to the sewer system.
- x. Restore the area to its original condition (or as close as possible).

If the problem is in a private sewer lateral and the flow has entered the public right-of-way, then the first responder should:

- o Request the resident cease activities that are causing continuation of the sewer spill (e.g. flushing toilets, washing laundry).
- o Ensure containment of any spilled sewage. Return any spill that has entered the public right-of-way back to the sanitary sewer system.

- Instruct the resident to call a plumber to correct the problem with their lateral.

### **6.3.3 CONTAINMENT**

The first responder should also attempt to contain as much of the spilled sewage as possible using the following steps:

- Determine the immediate destination of the overflowing sewage.
- Plug storm drains using sandbags, and/or plastic mats to contain the spill, whenever appropriate. If spilled sewage has made contact with the storm drainage system, attempt to contain the spilled sewage by stopping downstream storm drainage facilities with sandbags.
- Call for additional assistance to pump around the blockage/pipe failure/pump station if necessary.

### **6.3.4 RESTORE FLOW**

The responding crew should attempt to restore the flow when practical. Once flow is restored, the crew should observe and note flows in the sewer main to ensure that the blockage does not create a blockage downstream.

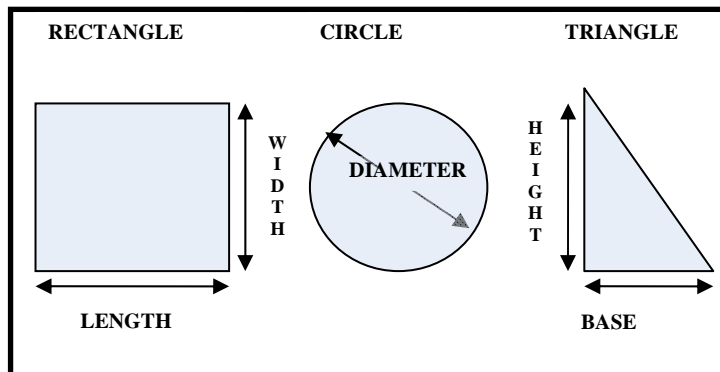
If the blockage cannot be cleared within a reasonable time or the sewer main requires construction repairs to restore flow, then initiate containment and/or bypass pumping. If assistance is required, immediately contact the Sewer Superintendent, other employees, contractors, or equipment suppliers.

### **6.3.5 SSO VOLUME ESTIMATION**

A variety of approaches exist for estimating the volume of a sanitary sewer spill. This section discusses the two methods that are most often employed. The person preparing the estimate should use the method most appropriate to the sewer overflow in question and use the best information available.

Measured Volume - The volume of most small spills that have been contained can be estimated using this method. The shape, dimensions, and the depth of the contained wastewater are needed. The shape and dimensions are used to calculate the area of the spills multiplied by the average depth of wastewater to calculate the volume.

## Common Shapes and Dimensions



Step 1 Sketch the shape of the contained sewage (see figure above).

Step 2 Measure or pace off the dimensions.

Step 3 Calculate the area in square feet using the following formulas:

Rectangle: Area = length (feet) x width (feet)

Circle: Area = diameter (feet) x diameter (feet) x 0.785

Triangle: Area = base (feet) x height (feet) x 0.5

Step 4 Multiply the area (square feet) by the depth (in feet) to obtain the volume in cubic feet.

Step 5 Multiply the volume in cubic feet by 7.5 to convert it to gallons

1. **Duration and Flow rate** - Calculating the volume of larger spills, where it is difficult or impossible to measure the area and depth, requires a different approach. In this method, separate estimates are made of the duration of the spill and the flow rate. The methods of estimating duration and flow rate are:

**Duration:** The duration is the elapsed time from the time the spill started to the time that the flow was restored. Duration time for an SSO does not include the time required to perform cleaning efforts.

**Flow Rate:** The flow rate is the average flow that left the sewer system during the time of the spill. The San Diego Manhole Flow rate Chart is used to estimate the manhole overflow rate. Photographs showing the actual measurement should be taken in documenting the basis for the flow rate estimate.

**SSO Start time:** The start time is sometimes difficult to establish. Here are some approaches:

- Nearby Witnesses: Witnesses can be used to establish start time. Contact and interview the reporting party, nearby residents, business owners or any witnesses that may have observed the incident. Inquire as to their observations. Spills

that occur in rights-of-way are usually observed and reported promptly. Spills that occur out of the public view can go on longer. Sometimes observations like odors or sounds (e.g. water running in a normally dry creek bed) can be used to estimate the start time.

- **Site Conditions:** Conditions at the spill site change over time. Initially there will be limited deposits of toilet paper and other sewage solids. After a few days to a week, the sewage solids form a light-colored residue. After a few weeks to a month, the sewage solids turn dark. The quantity of toilet paper and other materials of sewage origin increase over time. These observations can be used to estimate the start time in the absence of other information. Taking photographs to document the observations can be helpful if questions arise later in the process.
- **Accounting for Flow Variation:** It is important to remember that spills may not be continuous and uniform. Blockages are not usually complete (some flow continues). In this case the spill would occur during the peak flow periods (typically 10:00 to 12:00 and 13:00 to 16:00 each day). Spills that occur due to peak flows in excess of capacity will occur only during, and for a short period after, heavy rainfall.
- **Spill Volume/Flow rate:** Start time can be calculated using estimated flow rate and estimated spill volume. Crewmembers will use the San Diego Manhole Flow rate Chart to estimate the flow rate and to estimate the spill volume using approved methodology (please see method 2 calculation above). The start time then is calculated by using both the estimated flow rate and the estimated spill volume.

**SSO Stop time:** The stop time is usually much easier to establish. The stop time is determined when field crews visually confirm that the SSO has stopped. This typically is the time when the blockage has been removed.

**Spill Volume calculation using flow rate:** Once duration and flow rate have been estimated, the volume of the spill is the product of the duration in hours or days and the flow rate in gallons per hour or gallons per day.

For example:

Spill start time = 11:00

Spill end time = 14:00

Spill duration = 3 hours

3.3 gallons per minute x 3 hours x 60 minutes per hour= 594 gallons

### **6.3.6 ESTIMATING OF RECOVERY VOLUME OF SPILLED SEWAGE**

The following methods can be used, depending on the circumstances for estimating recovered sewage volume:

1. **Two Truck or Hydrant and Meter Sewage Recovery Method:** The sewage recovery and clean-up effort often requires fresh water usage to clean the affected area or storm pipe lines. The collected liquid in the tank would not represent the actual spill sewage volume if water is introduced for clean up. By using this method crewmembers will use two VacCon trucks, one with an empty tank at a downstream collection manhole and one with filled fresh water at an upstream manhole where the fresh water is introduced. The total recovered volume will include water and sewage; by knowing how much water is introduced the actual sewage spill is calculated. The total amount of collected truck tanks less water used would provide the actual sewage spilled/recovered.
2. **Pipe Volume Calculation:** Using this method, before vacuuming the sewage from storm pipeline into a tank, crewmembers will measure the level of liquid standing in the pipe. By knowing the pipe size, level of liquid in the pipe and the length, spill sewage volume is calculated.
3. **Vacuum Truck Log Record:** The DOT staff will keep log records in every VacCon truck. The log sheet will include the SSO address, truck number, the date, and the volume of water and debris collected for each truck. The information is used to corroborate the actual volume recovered from an SSO event.

### **6.3.7 CLEAN UP**

The recovery and clean up phase begins when the flow has been restored and the spilled sewage has been contained to the extent possible. Clean up and disinfection procedures should be implemented to reduce the potential for human health issues and adverse environmental impacts that are associated with an SSO event. The procedures described are for dry weather conditions and should be modified as required for wet weather conditions. Where clean up is beyond the capabilities of City staff, a cleanup contractor will be used.

#### **6.3.7.1 HARD SURFACE AREAS**

- Collect all signs of sewage solids and sewage-related material either by hand or with the use of rakes and brooms.
- Wash down the affected area with clean water. Take reasonable steps to contain and vacuum up the wastewater.

- Disinfect all areas that were contaminated from the overflow using the disinfectant solution. Apply minimal amounts of the disinfectant solution using a hand sprayer.
- Repeat the process if additional cleaning is required.

#### **6.3.7.2 LANDSCAPED AND UNIMPROVED NATURAL VEGETATION**

- Collect all signs of sewage solids and sewage-related material either by hand or with the use of rakes and brooms.
- Wash down the affected area with clean water.
- Contain and vacuum up the wash water so that none is released.
- Repeat the process if additional cleaning is required.

#### **6.3.7.3 NATURAL WATERWAYS**

- The California Department of Fish and Wildlife should be notified in the event an SSO impacts any creeks or natural waterways. Fish and Wildlife will provide the professional guidance needed to effectively clean up spills that occur in these sensitive environments.
- Clean up should proceed quickly in order to minimize negative impact.
- DOT will notify ESD whenever an SSO reaches a waterway by calling the (408) 945-3000 Stormwater Hotline. ESD will respond and will determine if additional measurements, observations, monitoring, or sampling is required and act accordingly.

#### **6.3.7.4 WET WEATHER MODIFICATIONS**

- Omit flushing and sampling during heavy storm events with heavy runoff where flushing is not required and sampling would not provide meaningful results.

#### **6.3.7.5 FOLLOW-UP ACTIVITIES**

- If sewage has reached the storm drain system, use the combination sewer cleaning truck to vacuum/pump/flush out the affected portions of the catch basin and any other portion of the storm drain that may contain sewage.
- In the event that an overflow occurs at night, inspect the location the following day. Look for any signs of sewage solids and sewage-related material that may require additional cleanup activities.

### **6.3.8 PUBLIC NOTIFICATION**

As needed, post “Raw Sewage” signs, or place barricades or caution tape to keep vehicles and pedestrians away from contact with spilled sewage. Do not remove the signs until directed.

Creeks and streams that have been contaminated as a result of an SSO will be posted at visible access locations until cleanup is completed.

Major spills may warrant broader public notice. The City Manager will authorize contact with local media when significant areas may have been contaminated by sewage. The City Manager’s Office or the DOT Director will provide and update the contact information for local media.

### **6.3.9 WATER QUALITY SAMPLING AND TESTING**

Water quality sampling and testing is required by the MRP to assess impacts of the SSO whenever 50,000 or more gallons of spilled sewage enters surface waters and are not recovered. In such an event, the following steps should be taken:

- The first responder should notify the Environmental Services Department (ESD) to collect samples.
- Samples should be collected as soon as practicable and within 48 hours after the discovery of the SSO event.
  - a) In flowing water (e.g. creeks), samples should be collected from upstream of the spill, from the spill area, and downstream of the spill
  - b) In stationary water bodies (e.g. ponds and lakes), samples should be collected near the point of entry of the spilled sewage and at appropriate intervals away from the entry point.
- If samples must be collected during non-business hours to be taken to adhere to the 48-hour time limitation described in the WDR, trained DOT staff will collect the samples.
- Basic analyses should include ammonia and appropriate bacterial indicators.
- ESD Stormwater Management staff may recommend or carry out other monitoring as needed.
- ESD’s laboratory, which is certified by the State Water Resources Control Board under the Environmental Laboratory Accreditation Program (ELAP), will analyze the samples.
- ESD Stormwater Management and Laboratory staff will evaluate results. ESD Stormwater Management will communicate and provide a copy of the laboratory analysis results to DOT.

### **6.3.10 WEEKLY SSO MEETINGS (FAILURE ANALYSIS INVESTIGATION)**

The objective of the failure analysis investigation is to determine the “primary cause” of the SSO and to identify corrective action(s) needed that will reduce or eliminate future potential for the SSO to recur. Every SSO event is an opportunity to evaluate maintenance history of the relevant segment(s), the response and reporting procedures. Each overflow event is unique, with its own elements and challenges including volume, cause, location, terrain, and other parameters.

All relevant participants, from maintenance personnel, sewer superintendent, and engineering staff meet weekly to review the procedures used and to discuss what worked and where improvements could be made in responding to and mitigating future SSO events. The results of the debriefing are recorded and tracked to ensure the action items are completed.

The investigation should include reviewing all relevant data to determine appropriate corrective action(s). The product of the failure analysis investigation should be the determination of the primary cause and the identification of the corrective actions.

Investigations include the following:

- Reviewing and completing the Sanitary Sewer Overflow Report
- Reviewing input from maintenance personnel who responded to the spill
- Reviewing the incident timeline and other documentation regarding the incident.
- Reviewing communications with the Reporting Party and witnesses.
- Reviewing photographs of the incident.
- Reviewing SSO volume estimate, volume recovered estimate, volume estimation assumptions and associated drawings.
- Reviewing past maintenance records of affected manholes and pipe segments.
- Reviewing past CCTV records.
- Conduct new CCTV inspection, if necessary.
- If the SSO is located within the designated hot spot areas, considering increasing the maintenance frequency.
- Reviewing any FOG related information or results from RWQCB
- If the SSO is due to pipe failure, scheduling repair or replacement as soon as feasible.
- If the SSO is due to an under-sized pipe, I&I or other engineering defect, contacting DPW for inclusion in the CIP work.
- If the SSO is in a commercial area and is due to FOG, contact ESD for possible Grease Investigation (see Element 7.6.5)
- Developing agreed upon changes and additions to the OERP or City Procedures resulting from the investigation and debriefing session(s).



## 6.4 SSO DOCUMENTATION AND REPORTING

All SSOs should be thoroughly investigated and documented for use in managing the sewer system and meeting established reporting requirements. Reporting and documentation requirements vary based on the type of SSO.

### 6.4.1 SSO CATEGORIES

The SWRCB has established guidelines for classifying and reporting SSOs.

There are three categories of SSOs as defined by the SWRCB<sup>3</sup>:

**CATEGORY 1** - ALL discharges of sewage of ANY volume resulting from the City's sanitary sewer system failure that

- a. Reach surface water; or
- b. Reach the City's storm system and is not fully captured and returned to the sanitary sewer collection. Any volume of wastewater not recovered from City's storm system is considered to have reached surface water.

**CATEGORY 2** – ALL discharges of sewage of **1,000 GALLONS OR GREATER** resulting from a failure in the City's sanitary sewer system that **DO NOT** reach surface water or a drainage channel, unless the entire SSO discharged to the City's storm system is fully recovered and returned to the sanitary collection system.

**CATEGORY 3** - ALL other discharges of sewage resulting from a failure in the City's sanitary sewer system.

### 6.4.2 INTERNAL SSO REPORTING AND DOCUMENTATION PROCEDURES

#### **Internal Reporting Category 1 & Category 2 SSOs**

The first responder will immediately notify the supervisor on duty who will notify the Sewer Superintendent of the SSO event.

The first responder will fill out the SSO Report Form, take photos and make the report available to the Sewer Superintendent. The Sewer Superintendent or his /her designee will meet with field crew(s) at the site of the SSO event to assess the situation and to document the conditions with photos.

In the event that wastewater reaches surface water the first responder will notify ESD inspector for testing surface water for any contamination and follow up.

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<sup>3</sup> State Water Resources Control Board Monitoring and Reporting Program No. 2006-0003-DWQ (as revised by Order No. WQ 2013-0058.EXEC) Statewide General Waste Discharge Requirements for Sanitary Sewer Systems

In the event of a very large overflow or an overflow in a sensitive area, the Sewer Superintendent or the DOT Director or designee may notify the City Manager and the City Council.

### **Internal Reporting Category 3 SSOs**

The first responder will fill out the SSO Report Form, take photos and make the report available to the Sewer Superintendent.

### **Documentation**

For each SSO, a file will be kept which includes the following information:

- Initial service call information
- Sanitary Sewer Overflow Report form
- Copy of the CIWQS report forms
- Failure Analysis Investigation results

## **6.4.3 EXTERNAL NOTIFICATION AND SSO REPORTING PROCEDURES<sup>4</sup>**

The California Integrated Water Quality System (CIWQS) electronic reporting system will be used for reporting SSO information to the SWRCB. If there are no SSOs during the calendar month, the Sewer Superintendent or his/her designee will submit an electronic report that the City did not have any SSOs, within 30 calendar days after the end of each calendar month. The Legally Responsible Official (LRO) or his /her designee will certify the report.

In the event that CIWQS is not available, the Sewer Superintendent or his/her designee will forward all required information to the RWQCB in accordance with the time schedules. In such event, the City will submit the appropriate reports using CIWQS as soon as practical.

### **External Notification and Reporting Category 1 SSOs**

Within **2 hours** of being notified of the spill event, the first responder will notify:

- Cal OES (and obtain spill number for use in other reports), (800) 852-7550
- Department of Fish and Wildlife (DFW), 408-499-8714
- Environmental Services Division (ESD), 408-945-3000

Within **3 business days** of being notified of the spill event, the LRO or his/her designee will submit the initial report using CIWQS.

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<sup>4</sup> State Water Resources Control Board Monitoring and Reporting Program No. 2006-0003-DWQ (as revised by Order No. WQ 2013-0058.EXEC) Statewide General Waste Discharge Requirements for Sanitary Sewer Systems.

Within **15 calendar days** of the conclusion of SSO response and remediation, the LRO or his/her designee will certify the final report using CIWQS. The LRO or his /her designee will update the certified report as new or changed information becomes available. The updates can be submitted at any time and must be certified.

At minimum, the following mandatory information shall be reported prior to finalizing and certifying an SSO report:

**Draft Category 1 SSO:**

1. SSO Contact Information: Name and telephone number of City staff who can answer specific questions about the SSO being reported.
2. SSO Location Name.
3. Location of the overflow event (SSO) by entering GPS coordinates. If a single overflow event results in multiple appearance points, provide GPS coordinates for the appearance point closest to the failure point and describe each additional appearance point in the SSO appearance point explanation field.
4. When a SSO reaches surface water, a drainage channel, or entered and was discharged from a drainage structure.
5. Whether the SSO reached a municipal separate storm drain system.
6. Results in a discharge to a storm drain that was not fully captured and returned to the sanitary sewer system.
7. Estimate of the SSO volume, inclusive of all discharge point(s).
8. Estimate of the SSO volume that reached surface water, a drainage channel, or was not recovered from a storm drain.
9. Estimate of the SSO volume recovered (if applicable).
10. Number of SSO appearance point(s).
11. Description and location of SSO appearance point(s). If a single sanitary sewer system failure results in multiple SSO appearance points, each appearance point must be described.
12. SSO start date and time.
13. Date and time the enrollee was notified of, or self-discovered, the SSO.
14. Estimated operator arrival time.
15. For spills greater than or equal to 1,000 gallons, the date and time OES was called.
16. For spills greater than or equal to 1,000 gallons, the OES control number.

**Certified Category 1 SSO:**

At a minimum, the following mandatory information shall be reported for a certified Category 1 SSO report, in addition to items 1-16 above:

1. Description of SSO destination(s).
2. SSO end date and time.
3. SSO causes (mainline blockage, roots, etc.).
4. SSO failure point (main, lateral, etc.).
5. Whether or not the spill was associated with a storm event.

6. Description of spill corrective action, including steps planned or taken to reduce, eliminate, and prevent reoccurrence of the overflow and a schedule of major milestones for those steps.
  7. Description of spill response activities.
  8. Spill response completion date.
  9. Whether or not there is an ongoing investigation, the reasons for the investigation and the expected date of completion.
  10. Whether or not a beach closure occurred or may have occurred as a result of the SSO.
  11. Whether or not health warnings were posted as a result of the SSO.
  12. Name of beach(es) closed and/or impacted. If no beach was impacted, NA must be selected.
  13. Name of surface water(s) impacted.
  14. If water quality samples were collected, identify parameters the water quality samples were analyzed for. If no samples were taken, NA shall be selected.
  15. If water quality samples were taken, identify which regulatory agencies received sample results (if applicable). If no samples were taken, NA shall be selected.
  16. Description of methodology(ies) and type of data relied upon for estimations of the SSO volume discharged and recovered.
  17. SSO Certification: Upon SSO Certification, the CIWQS Online SSO Database will issue a final SSO identification (ID) number.
- SSO Technical Report, for spills in which **50,000 gallons or greater** reach surface waters, an SSO Technical Report will be submitted in CIWQS within 45 calendar days of the SSO end date. The report will detail the following:
    - Causes and Circumstances of the SSO
    - Response to the SSO
    - Water Quality Monitoring Activities

**External Notification and Reporting Category 2 SSOs**

Within 3 business days of being notified of the spill event, the LRO or his/her designee will submit the initial report using CIWQS.

Within 15 calendar days of the conclusion of SSO response and remediation, the LRO or his/her designee will certify the final report using CIWQS. The LRO or his /her designee will update the certified report as new or changed information becomes available. The updates can be submitted at any time and must be certified.

At a minimum, the following mandatory information shall be reported prior to finalizing and certifying a Category 2 SSO report:

**Draft Category 2 SSO:**

Items 1-3 and 12-14 in the Draft Category 1 section above.

**Certified Category 2 SSOs:**

In addition to Items 1-3 and 12-14 in the Draft Category 1 section, Items 1-9, and 17 in the Certified Category1 SSO section above.

**External Reporting Category 3 SSOs**

Within 30 calendar days after the end of the calendar month in which the SSO occurs, the LRO or his/her designee will submit an electronic report using CIWQS. The LRO or his/her designee will certify the report. The report will include the information to meet the GWDR requirements.

At minimum, the following mandatory information shall be reported prior to finalizing and certifying a Category 3 SSO report:

**Certified Category 3 SSOs:**

In addition to Items 1-3 and 12-14 in the Draft Category 1 section, Items 1-6, and 17 in the Certified Category1 SSO section above.

**Private Lateral Sewage Discharges**

The LRO or his/her designee may report private lateral SSOs using CIWQS and specifying that the sewage discharge occurred and was caused by a private lateral and identifying the responsible party (other than the City), if known. No LRO certification is required for PLSDs.

**No Spill Certification (Monthly)**

Within 30 calendar days of the end of a calendar month that there are no SSO's, the LRO must certify a "No Spill" certification to the CIWQS online SSO database.

**CIWQS Not Available**

In the event that the CIWQS online SSO database is not available, the Wastewater Collection Supervisor will fax or e-mail all required information to the RWQCB office at (510) 622-2460 in accordance with the time schedules identified above. In such an event, the City will submit the appropriate reports using the CIWQS online SSO database when the database becomes available. A copy of all documents that certify the submittal in fulfillment of this section shall be retained in the SSO document file.

**Amending SSO Reports**

A City LRO is responsible for amending SSO reports. Certified SSO reports may be updated by amending the report or adding an attachment to the SSO report within 120 calendar days after the SSO end date. After 120 days, the City must contact the State SSO Program Manager to request to amend an SSO report along

with a justification for why the additional information was not available prior to the end of the 120 days. The SSO Program Manager contact information follows:

Victor Lopez  
State Water Resources Control Board  
Division of Water Quality  
1001 I Street 15<sup>th</sup> Floor  
Sacramento, CA 95814  
E-mail: [victor.lopez@waterboards.ca.gov](mailto:victor.lopez@waterboards.ca.gov)  
Phone: (916) 323-5598

## **6.5 POST SSO ANALYSIS**

### **6.5.1 POST-SSO DEBRIEFING**

For each SSO event, all participants involved in the response – from the person who received the call to the last person to leave the site – should meet, as soon as feasible, after the event to review and evaluate the incident and the City response procedures. The objective of the Post-SSO Debriefing is to determine actions necessary, if any, to reduce the recurrence and better mitigate the effects of SSOs. The results are documented and tracked on a Post-SSO Debriefing form to ensure the identified action items are implemented. The Post-SSO Debriefing documentation is filed in the final SSO file for the incident.

### **6.5.2 SSO INVESTIGATION AND MITIGATION**

It is the responsibility of the LRO to investigate an SSO and to ensure that the procedures in the OERP are followed or modified as a result of the incident failure analysis. The failure analysis is intended to determine if additional maintenance, repair/replacement or other follow-up actions or response procedures changes are needed to reduce or eliminate the likelihood of future SSOs. The procedures for investigating an SSO are as follows:

- Review the incident/overflow report.
- Interview dispatch, first line supervisor, primary person, field service representatives, customers service representatives (if used) responding crew members or any other agency staff that were involved with the response.
- Review the incident timeline and other documentation regarding the incident.
- Review communications with the Reporting Party and witnesses.
- Review photographs of the incident.
- Review SSO volume estimate, volume recovered estimate, volume estimation assumptions and associated drawings.

- Review past maintenance records of affected manholes and pipe segments.
- Review past CCTV records.
- Conduct new CCTV inspection, if necessary.
- If the SSO is located within the designated hot spot areas, consider increasing the maintenance frequency.
- Review any FOG related information
- If the SSO is due to pipe failure, schedule repair or replacement as soon as feasible.
- If the SSO is due to an under-sized pipe, I&I or other engineering defect, contact DPW for inclusion in the CIP work.
- If the SSO is in a commercial area and is due to FOG, contact ESD for possible Grease Investigation (see Element 7.6.5)
- Develop agreed upon changes and additions to the OERP and/or City Procedures resulting from the investigation and debriefing session(s).

### **6.5.3 SSO RECORD KEEPING REQUIREMENTS<sup>5</sup>**

The GWDR requires that individual SSO records be maintained by the City for a minimum of five years from the date of the SSO. This period may be extended when requested by the RWQCB Executive Officer. All records shall be made available for review upon SWRCB's or RWQCB's staff's request. Records shall be retained for all SSOs, including but not limited to the following when applicable:

- Copy of Certified CIWQS report(s);
- All original recordings for continuous monitoring instrumentation;
- Service call records and complaint logs of calls received by the City;
- SSO calls;
- SSO records;
- Steps that have been and will be taken to prevent the SSO from recurring and a schedule to implement those steps;
- Work orders, work completed, and any other maintenance records from the previous five years which are associated with responses and investigations of system problems related to SSOs;
- A list and description of complaints from customers or others from the previous five years; and
- Documentation of performance and implementation measures for the previous five years.

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<sup>5</sup> State Water Resources Control Board Monitoring and Reporting Program No. 2006-0003-DWQ (as revised by Order No. WQ 2008-0002.EXEC) Statewide General Waste Discharge Requirements for Sanitary Sewer Systems.

If the SSO water samples are taken for water quality results, the records of monitoring information shall include the following:

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

## **6.6. VIDEO INSPECTION AND EQUIPMENT**

The City maintains specialized equipment that is required to support this OERP, including:

- A. Closed Circuit Television (CCTV) Inspection Unit** – A CCTV Inspection Unit to help determine the primary cause for all SSOs from gravity sewers.
- B. Camera** – A digital, disposable, or cell phone camera to record the conditions upon arrival, during clean up, and upon departure.
- C. GPS Unit (Global Positioning System)** – A hand held GPS unit to determine the coordinates of spills for use in meeting RWQCB SSO reporting requirements, unless otherwise stored in the City's GIS.
- D. Combination Sewer Cleaning Truck** – A combination high velocity sewer cleaning truck with vacuum tank to clear blockages in gravity sewers, and clean up the impacted area following the SSO event.
- E. Portable Generators, Portable Pumps, Piping, and Hoses** – Portable generators, pumps, piping and hoses to pump around failed sewers, force mains, or pump stations.

## **6.7. SSO RESPONSE TRAINING**

This section provides information on the training that is required to support the OERP.

### **6.7.1 Initial and Annual Refresher Training**

All City personnel who may have a role in responding to, reporting, or mitigating a sewer system overflow will receive training on the contents of this OERP. Current employees will receive annual refresher training or as needed on this plan and the procedures to be followed.



### **6.7.2 SSO Response Drills**

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

### **6.7.3 SSO Training Record Keeping**

Records will 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 will include date, time, place, content, name of trainer(s), and names of attendees.

### **6.7.4 Contractors Working on City Sewer Facilities**

All contractors working on City sewer facilities will be contractually required to develop a project-specific Overflow Response Plan. All contractor personnel will be required to receive training in the contractor's Overflow Response Plan and to follow it in the event that they cause or observe an SSO.

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

### **SWRCB Waste Discharge Requirement:**

*Each Enrollee shall evaluate its service area to determine whether a FOG control program is needed. If an Enrollee determines that a FOG program is not needed, the Enrollee must provide justification for why it is not needed. If FOG is found to be a problem, the Enrollee must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system. This plan 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 removal devices, maintenance requirements, BMP requirements, record keeping and reporting requirements;*
- e. Authority to inspect grease producing facilities, enforcement authorities, and whether the Enrollee has sufficient staff to inspect and enforce the FOG ordinance;*
- f. An identification of sanitary sewer system sections subject to FOG blockages and 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 sanitary sewer system for each section identified in (f) above.*

### **7.1 INTRODUCTION**

Fats, oils, and grease (FOG) are produced from residential and commercial food preparation activities and are pollutants of concern due to their potential clogging impact on the sanitary sewer collection system. The goal of the City's FOG Control Program elements is to reduce the number of SSOs caused by FOG in the collection system by minimizing FOG discharged into the sanitary sewer system. The City's Department of Transportation (DOT) and Environmental Services Department (ESD) implement various programs to address FOG and meet these goals. The City's FOG Control Program includes the following elements 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 or

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

## **7.2 PUBLIC EDUCATION AND OUTREACH**

The goal of FOG public education and outreach is to educate residents about preventing grease blockages through proper handling and disposal of FOG. When a grease-related SSO occurs in a residential area, DOT staff distributes educational materials to nearby residents. These door hangers notify the resident that an SSO occurred in their area, and include information on proper disposal of FOG. Please see Appendix 3 for a copy of the door hanger.

In addition, the City participates in developing and delivering grease-related messages in both English and Spanish through the Bay Area Clean Water Agencies (BACWA) and the Bay Area Pollution Prevention Group (BAPPG). These media campaigns deliver pollution prevention messages to audiences in the 9-county San Francisco Bay Area. In 2013, the campaign featured 288 spots promoting the FOG message and resulted in 1.7 million impressions during the holiday season.

## **7.3 FOG DISPOSAL**

FOG is collected from commercial food service establishments (FSEs) by private grease haulers. San José maintains a [list](#) of grease haulers and provides it to FSEs as a courtesy, though the list is not all-encompassing and the City does not endorse or vouch for any hauler. Please see Appendix 3 for a copy of the list.

When City sewer maintenance crews remove significant amounts of grease from a sanitary sewer line, they will empty their trucks at the San José/Santa Clara Regional Wastewater Facility.

Other trucked grease waste is not currently accepted at the San José/Santa Clara Regional Wastewater Facility. Haulers typically take trucked grease waste to one of the following receiving stations:

- East Bay Municipal Utility District Wastewater Treatment Plant, 2020 Wake Ave., Oakland CA, <https://www.ebmud.com/water-and-wastewater/wastewater-treatment/resource-recovery-trucked-waste-program>
- East Bay Dischargers Authority – Hayward Water Pollution Control Facility, 3700 Enterprise Ave., Hayward CA.
- Silicon Valley Clean Water (SVCW) Wastewater Treatment Plant, 1400 Radio Road, Redwood City CA, <http://www.svcw.org/>
- Watsonville Wastewater Treatment Plant, 401 Panabaker Lane, Watsonville CA, <http://cityofwatsonville.org/public-works-utilities/wastewater-treatment-plant>

#### **7.4 BEST MANAGEMENT PRACTICES (BMP) REQUIREMENTS**

San José Municipal Code 15.14.650 D states “All dischargers shall implement best management practices in their operations to minimize the discharge of grease to the sanitary sewer system.” Environmental Inspectors educate FSE staff on Best Management Practices (BMPs) that protect the collection system and maximize removal efficiency of GCDs and strongly encourage their use. BMPs are detailed in [outreach materials](#), available in multiple languages, given to FSEs during inspections and also available for download from the City’s website. Please see Appendix # 3 for examples of outreach materials used during FSE Inspections, and the Inspection and Enforcement Procedures section for information on inspections.

#### **7.5 GREASE CONTROL DEVICES (GCDs)**

##### **7.5.1 GCD INSTALLATION REQUIREMENTS**

San José Municipal Code 15.14.630 A states that any food service establishment, or other type of business or establishment where grease or other viscous, obstructing, or objectionable materials may be discharged into a public or private sewage main or disposal system, shall have a grease control device (GCD) and related plumbing of a size and design approved by the director or designee. ESD’s Watershed Protection – Environmental Engineering section determines the requirements for GCDs. Please see the Wastewater Plan Check Fact Sheet in Appendix # 3 for details on the plan check process. This information is also available [online](http://www.sanjoseca.gov/index.aspx?NID=1641) at <http://www.sanjoseca.gov/index.aspx?NID=1641>.

##### **7.5.2 GCD DESIGN STANDARDS**

An FSE’s potential for discharging grease into the sanitary sewer determines the size and type of GCD required to treat their waste stream. Some of the factors

considered in order to determine the required GCD size include the size of the restaurant, the type and amount of cooking and cleaning equipment installed, and the number of meals served. GCD requirements range from a small grease trap installed inside the facility to a large in-ground grease interceptor. Approved grease trap sizes range from 40 to 100 pounds. Grease interceptors must be a minimum of 1000 gallons. The City has a variance procedure for these requirements available by request on a case-by-case basis for facilities where implementing the typical requirements are not physically feasible.

The GCD design utilizes the requirements contained in the Uniform Plumbing Code (UPC) Appendix H and is based on the plans submitted and the information provided in the San Jose/Santa Clara Water Pollution Control Plant Food Service Facility Wastewater Discharge Questionnaire. A copy of the questionnaire is available [online](http://www.sanjoseca.gov/DocumentCenter/View/4187) at <http://www.sanjoseca.gov/DocumentCenter/View/4187>, and included in Appendix # 3. The City has a fact sheet detailing the acceptable specifications for Grease Interceptors, which is available [online](http://www.sanjoseca.gov/Archive.aspx?ADID=1325) at <http://www.sanjoseca.gov/Archive.aspx?ADID=1325> and included in the Appendix # 3.

### **7.5.3 GCD INSTALLATION**

In 2013, the City started its [Small Business Ambassador Program](http://www.sanjoseca.gov/index.aspx?NID=3457) (<http://www.sanjoseca.gov/index.aspx?NID=3457>) to assist new businesses navigate their way through required reviews and permits before starting their business. FSEs receive their GCD requirements through the process for applying for building permits for new construction or remodeling of existing facilities. FSEs submit their plans for Planning, Building, and Code Enforcement for review, and are given a list of clearances to obtain, typically from the Santa Clara County Department of Environmental Health and ESD, which must be completed prior to the issuance of building permits. After receiving approval and having the plans stamped by the Santa Clara County Department of Environmental Health, the FSE representative will schedule an appointment for the food service plan check. A watershed protection plan-checker is on duty each business day. In addition to the plans, the FSE also submits a San Jose/Santa Clara Water Pollution Control Plant Food Service Facility Wastewater Discharge Questionnaire. The questionnaire includes information such as the contact information for the restaurant, the size of the restaurant, the type and number of meals served, the type and number of fixtures that generate wastewater, and any existing GCDs. A copy of the questionnaire is available [online](http://www.sanjoseca.gov/DocumentCenter/View/4187) at <http://www.sanjoseca.gov/DocumentCenter/View/4187>, and included in the Appendix # 3.

The plan-check review process also involves a GCD certification, where the restaurant representative signs an acknowledgement of GCD maintenance requirements. The minimum acceptable cleaning frequency for the type of GCD being required, the on-site maintenance of a schedule and instructions for

cleaning, and cleaning records and receipts, are some of the requirements acknowledged in the certification. BMPs may be discussed and distributed to restaurant representatives during the plan check, including kitchen practices to minimize the discharge of grease into the sewer system, maintenance tips for grease traps and interceptors, and record keeping requirements.

The plans and questionnaire are reviewed by the plan-checker, who determines if and what type of GCD will be required. The size and type of GCD required is determined based upon the facility's potential for discharging grease in the wastewater. Requirements range from a small grease trap installed inside the facility to a large in-ground grease interceptor. Approved grease trap sizes are 40, 50, 70, and 100 pounds. Grease interceptors must be a minimum of 1000 gallons.

At the conclusion of the plan-check, the plans are stamped with the GCD requirements and a letter is generated to the plumbing division's plan check group summarizing the requirements. The applicant is given a copy of the letter. The applicant will then return to the building department for further plan review. The plumbing plan check review verifies compliance with applicable building codes for the installation of the GCD prior to the issuance of the building permits. Building inspectors from the Department of Planning, Building, and Code Enforcement verify the installation and connections of the GCD.

#### **7.5.4 GCD MAINTENANCE REQUIREMENTS**

San José Municipal Code 15.14.650 details the minimum maintenance requirements for GCDs:

- A. Grease control devices shall be maintained in efficient operating condition by periodic removal of the accumulated grease. The use of chemicals, bacteria, enzymes, or other additives that have the effect of emulsifying or dissolving grease is prohibited unless specifically authorized by the director in writing. No accumulated grease shall be introduced into any drainage piping or public or private sewer.
- B. Grease control devices shall be cleaned on a sufficient frequency to prevent objectionable odors, surcharge of the grease control device, or interference with the operation of the sanitary sewer system.
  - 1. Grease traps shall be cleaned at least once every thirty days.
  - 2. Grease interceptors shall be cleaned once every ninety days.
  - 3. Mechanical grease removal devices must be maintained in a manner and frequency consistent with manufacturer specifications and guidance.
  - 4. Grease control devices shall be cleaned when their last chamber is filled to twenty- five percent or more of capacity with grease or settled solids.

Grease interceptors with a sample box shall be cleaned immediately when grease is evident in the sample box.

5. Grease control devices shall be cleaned by being pumped dry and all accumulated sludge on all surfaces shall be removed by washing down the sides, baffles and tees. No water removed from the device during cleaning shall be returned to the grease control device.

Environmental inspectors review records during FOG inspections to verify compliance with these requirements. Please see the Inspection and Enforcement Procedures section for more information.

### **7.5.5 GCD MAINTENANCE RECORDS**

San José Municipal Code 15.14.650E details the minimum record-keeping requirements for GCDs:

Dischargers shall maintain records on site for a period of at least three years as follows:

1. Dischargers with an installed grease control device shall maintain records showing that the grease control device has been properly maintained and cleaned as required by Subsections A. and B.; and
2. Food service establishments shall maintain records showing the following related to all grease hauled off site: date and time material removed off site; volume removed; hauler name; truck license number, type of grease removed, and final destination of material collected.

Environmental inspectors review records during FOG inspections to verify compliance with these requirements. Please see the Inspection and Enforcement Procedures section for more information.

## **7.6 INSPECTION AND ENFORCEMENT PROCEDURES**

### **7.6.1 LEGAL AUTHORITY**

The San José Municipal Code grants the authority to manage and/or prohibit discharges to the sanitary sewer collection system, and grants authority to inspect facilities connected to the sanitary sewer collection system.

SJMC 15.14.130 gives “The primary responsibility for enforcement of the provisions of this chapter shall be vested in the director of environmental services” or his/her duly authorized employees and agents of the city.

SJMC 15.14.690 states that “The director and other duly authorized employees and agents of the city bearing credentials and identification shall have the right to access upon all properties for the purpose of inspecting any sewer or storm drain connection, including all discharge connections of roof and surface drains and plumbing fixtures; inspecting, observing, measuring, photographing, sampling, and testing the quality, consistency, and characteristics of sewage and industrial wastewaters being discharged into any public sewer or natural outlet; and inspecting and copying any records relating to quantity and quality of wastewater discharges, including but not limited to water usage and effluent discharged, chemical usage, and hazardous waste records.”

The complete San José Municipal Code is available [online](http://sanjose.amlegal.com/nxt/gateway.dll/California/sanjose_ca/sanjosemunicipalcode?f=templates$fn=default.htm$3.0$vid=amlegal:sanjose_ca) at [http://sanjose.amlegal.com/nxt/gateway.dll/California/sanjose\\_ca/sanjosemunicipalcode?f=templates\\$fn=default.htm\\$3.0\\$vid=amlegal:sanjose\\_ca](http://sanjose.amlegal.com/nxt/gateway.dll/California/sanjose_ca/sanjosemunicipalcode?f=templates$fn=default.htm$3.0$vid=amlegal:sanjose_ca), and an excerpt of pertinent ordinances and associated administrative penalties is included in Element 3.

## **7.6.2 STAFFING**

San José has approximately 3,900 active food service establishments, and the tributary service area has approximately 2,000 active food service establishments. As of 2014, the City has a staff of nine (9) environmental inspectors assigned to inspect FSEs and enforce FOG ordinances in the City of San José and the other six (6) tributary agencies whose collection systems discharge to the WPCP. These positions are paid for by sewer use fees collected from residential, commercial, and industrial users of the sanitary sewer system.

## **7.6.3 GCD INSPECTIONS**

The City conducts GCD inspections at all City FSEs with GCDs. GCD inspections differ from FSE inspections (see FSE section below) in that they are wholly focused on the condition and functionality of the GCD. The City inspects all GCDs (traps, interceptors, powered grease control devices) at a minimum of once per year. GCD inspection frequencies may increase based upon site-specific findings or staff resources. Basic steps of a GCD inspection include the following:

- GCD pre-inspection
  - Senior Environmental Inspector assigns annual workload to each Environmental Inspector.
  - Environmental Inspector plans inspections geographically to maximize efficiency and minimize drive time between facilities.
  - Although GCD Inspections are unannounced, plan GCD inspections to accommodate FSE-specific scheduling issues, such as avoiding opening traps during the busy lunch hours.



- Review pre-inspection report for pertinent site-specific information
- Download inspection forms from Enforcement database
- Gather and prepare any needed tools, supplies, educational materials, documentation, etc.
  
- GCD Inspection
  - Introduce and identify yourself to the facility operator, typically the owner or manager on duty. Use the GCD introduction fact sheet as needed. Please see the Appendix # 3 for examples of outreach materials used during inspections.
  - Explain the purpose of the inspection, what areas need inspecting, and request permission to inspect GCD.
  - Inspect and document the condition of all pertinent components
    - Baffle plates, stand pipes, flow restrictors, sample boxes, overall device integrity
    - Heating elements, skimmers, timers, catch bins, other components of powered GCDs
  - Take a core sample to determine depth of grease and solids in the device.
  - Measure length, width, and depth of device
  - Determine and document if FOG present in the effluent
  - Determine and document if any major faults in the device need attention, such as an unsecured lid, evidence of bypass, evidence of incorrectly-plumbed device (grinder, dishwasher, sanitizer, etc.), evidence of domestic sewage, device is installed backwards, powered device is unplugged, etc.
  
- GCD Inspection Report
  - Complete GCD Inspection Report
  - Input GCD Inspection Report into the Enforcement database
  - Submit GCD Inspection Report for supervisor/peer review and deadfiling

GCDs found to have components broken or missing, incorrectly plumbed, or over 25% full of grease and solids are referred for a FSE inspection.

#### **7.6.4 FSE INSPECTIONS**

In addition to GCD Inspections, the City also conducts FSE inspections. The City's FSE Inspection Program uses a SSO risk-based approach to identify which facilities to inspect and how often to inspect them. This approach, detailed in the

Business Inspection Plan, prioritizes FSE inspections based upon whether the FSE is grease producing, has adequate pretreatment, the likelihood of a SSO to occur in that area based on an analysis of the likelihood of the City sewer line the FSE discharges into to become blocked or overflow (termed Collection System Risk, or CSR), and the potential for the FSE to generate grease (termed FOG Discharge Risk, or FDR) in addition to FOG violation history and last inspection date. These criteria are revised and updated annually.

CSR is determined based on whether a segment has had a grease-related blockage or SSO, if a segment is on an elevated cleaning schedule, or if a segment is in an area prone to significant grease or structural issues. DOT identifies sewer segments impacted by FOG and other factors and, as needed, assigns a high priority cleaning frequency for each segment. This data is compiled and mapped using GIS tools to identify areas of high, medium, low, and no CSR level.

FDR is determined based on the number and type of grease-producing fixtures in use at a given facility (i.e. 3-compartment sinks, wok ranges, dishwashers, etc.). This information is collected through plan checks and by inspectors conducting FSE inspections, stored in the Enforcement database, and each facility is assigned a high, medium, or low FDR level based on this data.

The City's FSE Inspection Program risk-based approach increased inspection frequencies at locations most likely to cause or contribute to SSOs in the City, while maintaining a minimum frequency of at least once every five (5) years at lower-risk grease producing locations. See Appendix # 1 for the Business Inspection Plan, which details how FSE Inspections are prioritized.

Basic steps of a FSE inspection include the following:

- FSE pre-inspection
  - Senior Environmental Inspector assigns annual workload to each Environmental Inspector.
  - Plan inspections geographically to maximize efficiency and minimize drive time between facilities.
  - Although FSE inspections are unannounced, plan inspections to accommodate FSE-specific scheduling issues, such as avoiding busy lunch hours.
  - Review the pre-inspection report. Determine if the facility has plan check requirements, and what they are. Identify whether the facility has a GCD, type of GCD, if the facility is the responsible party for the GCD, any variances to GCD cleaning frequencies issued, previous violations, previous BMPs distributed, etc. Review violation history, previous GCD inspection information, and other pertinent information.
  - Download cases from Enforcement database onto field device.

- Gather and prepare any needed tools, supplies, educational materials, documentation, etc.
- FSE inspection
  - Introduce and identify yourself to the Responsible Party, typically the owner or manager on duty. Use the FSE introduction fact sheet as needed. Please see Appendix # 3 for examples of outreach materials used during inspections.
  - Explain the purpose of the inspection, what areas and documentation need inspecting, and request permission to inspect facility.
- GCD records review
  - Request to review self-maintenance logs and/or pumping receipts.
  - Review available records for compliance with applicable ordinances.
  - If necessary, the inspector can contact the facility's grease hauler to obtain records as a courtesy. However, it is the facility's responsibility to keep three (3) years of records on-site and available for inspection.
- GCD review
  - Locate and identify GCD. Confirm type, size, and connected equipment, including plumbing fixtures discharging to the sanitary sewer and compare them to the wastewater plan check information (if available) in the pre-inspection report.
  - Check the parking lot and perimeter to look for GCDs.
  - Document if the pre-inspection report has incomplete information or needs to be updated (e.g. GCD found to be a different size, different fixtures connected to GCD, more fixtures discovered, untreated grease waste streams identified, etc.).
  - Conduct GCD inspection, if needed, and record information needed to require adjustments to minimum GCD cleaning frequencies.
- Kitchen grease control BMP review
  - Inspect floor drains and floor sinks. Are grates/screens present and secure? Is there excessive food waste or debris? Are they flowing freely?
  - Are there floor mats? Where are they cleaned? (Stormwater violations are referred to the Industrial/Commercial or Illicit Discharge Inspection Programs.)
  - Is there a mop sink? Is it being used for anything other than intended purpose? Are grates/screens present and secure? Is there excessive food waste or debris?
  - Is there a grinder? If yes, is it plumbed to a grease trap? If there is no grinder, where is food waste scraped or rinsed?
  - Are there screens for the sinks? Are employees using them properly?

- Is there a dishwasher? Is it plumbed to a grease trap?
- Any signs of drain problems? Is there a plumbing snake? Are there drain cleaners?
- Are there hoods and/or exhaust ducts? If the facility self-cleans vent filters, ask about the emulsified grease (detergents, caustic, acid, etc) disposal method and document.
- FSE inspection report
  - Document findings and generate FSE Inspection Report (in field) detailing violations, corrective actions, and due dates (if any), as well as recommendations.
- Exit interview
  - Give a copy of the FSE Inspection Report to the Responsible Party.
  - Educate the Responsible Party on the importance of kitchen BMPs.
  - Present and review BMPs with the Responsible Party. When appropriate, give BMPs in English as well as other languages.
- Follow-up inspections and case completion
  - If needed, conduct follow-up FSE inspections to ensure corrective actions are completed and the facility is back in compliance.
  - Input FSE Inspection Report(s) into Enforcement database by syncing field device.
  - Finalize case file and submit for supervisor/peer review and deadfiling.

Violations of the San José Municipal Code are documented and prosecuted through the Enforcement Response Plan, which is a guidance document used by environmental inspectors that details enforcement actions, timelines for corrective actions, and roles and responsibilities of staff involved in enforcement. Environmental inspectors follow up with the FSE until all violations are resolved. Please see Appendix # 2 for the Enforcement Response Plan. Facilities generating grease are re-inspected periodically (every one to five years) depending on the risk of discharging FOG to the collection system, the condition of the collection system the facility discharges into, inadequate pretreatment, and violation history. Educational and outreach materials are distributed to restaurant operators during the inspections, as appropriate, including kitchen practices to minimize the discharge of grease into the sewer system, maintenance tips for grease traps and interceptors, and record keeping requirements. Please see Appendix # 3 for examples of outreach materials used during inspections. All inspection data is tracked in the Environmental Enforcement Data Management System.

### **7.6.5 GREASE INVESTIGATIONS**

ESD Watershed Protection Environmental Inspectors also conduct inspections at FSEs which may be contributing to a grease blockage or unusual build-up of

grease that has occurred in the sanitary sewer as reported by DOT. Referrals from DOT are sent from the maintenance supervisor or senior maintenance worker, then to the senior environmental inspector. Some common reasons for requesting grease investigations include:

- Excessive grease build up
- Odor complaints
- Blockages due to grease
- Excessive grease evident during preventative maintenance
- Reduced flow
- Video Inspection identifies excessive grease
- Litigation

Upon notification from DOT, environmental inspectors review the area upstream of the grease build-up for potential sources. This review includes researching the Enforcement database for FSEs near the area in question, and visually inspecting the area in question to look for any FSEs or other potential sources. If a potential commercial source is found, an FSE Inspection and/or a GCD Inspection is performed. The presence and size of GCDs are documented, and GCD cleaning and maintenance records are reviewed. Enforcement action is taken against FSEs determined to be causing or contributing to grease blockages in the sanitary sewer, and additional requirements for cleaning or installation of GCDs can be imposed.

## **7.7 FOG BLOCKAGES AND MAINTENANCE SCHEDULES**

The Department of Transportation is responsible for the identification of sanitary sewer system sections subject to FOG blockages and establishment of a cleaning maintenance schedule for each section. In addition, each SSO is thoroughly reviewed to determine if changes to the maintenance frequency of the sanitary sewer segment(s) are needed. Please see Elements 4.2, 6.3.10, and 6.5.2 of the SSMP for details.

## ELEMENT 8: SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN

### SWRCB Waste Discharge Requirement:

*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; and*
- 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, 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 Sewer System Management Plan (SSMP) review and update requirements as described in Section D. 14.*

### 8.1 SYSTEM EVALUATION

The Annual Condition Assessment program consists of two main projects as identified in the City's five- CIP:

**Sanitary Sewer Condition Assessment** – this project funds an ongoing condition assessment program to inspect and evaluate the condition of the existing pipelines and identify the needs for pipeline rehabilitation and/or replacement. The annual funding for this project is \$2.5M over 10 years with a target to video inspect approximately 10% of the system every year.

**Condition Assessment Sewer Repairs** – this project funds the development and implementation of contracts to identify and repair damaged pipe in the sanitary sewer system. Areas in which a sanitary sewer overflow would have high consequences will be the focus for these identify-and-repair contracts. The annual funding for this project is

\$2M with a target to repair all pipe lines with high probability of failure (multiple rate five defects) as soon as possible.

## 8.2 CAPACITY ASSURANCE

There are no current capacity constraints within the system that could potentially result in a capacity bottleneck spill. The City’s master planning efforts using a dynamic computer model of the system allows staff to manage the system and model different future development scenarios.

The Master Plan project team used a systematic process to incorporate land use planning information, flow monitoring data and design criteria for estimating wastewater flows for use in a computerized hydraulic model of the trunk and interceptor system. The model depicts how the system would perform under various planning scenarios and identifies sewers that may not have sufficient capacity to convey the predicted flows. For wet weather conditions, an infrequent, conservative 10-year, 24-hour duration rainfall event was selected as design storm with the peak RDII flow coinciding with the peak diurnal base wastewater flows.

The Master Plan recommended capacity improvement projects are designed to provide adequate sewer system capacity for the City’s existing and anticipated future development. Ninety-three (93) projects were identified, totaling approximately 200,000 feet of sewer pipelines. The total program level estimated capital cost of the capacity improvement projects is approximately \$175 million, including some projects on joint-use sewers with adjacent agencies.

<b>Metered Segment</b>	<b>Project Location</b>	<b>Remark</b>
6504	Almaden Expressway SS Improvement	In 5-Yr CIP
2648	Coleman Road SS Improvement	In 5-Yr CIP
1886	Coleman Road SS Improvement	In 5-Yr CIP
15307	Curtner Ave SS Improvement	Future Proj.
15311	Husted-Richland SS Improvement	In 5-Yr CIP
27142	Minnesota Avenue SS Improvement	In 5-Yr CIP
27171	Minnesota Avenue SS Improvement	In 5-Yr CIP
33256	Cropley Avenue SS Improvement	In 5-Yr CIP
33190	Trimble Rd./Capewood Ln.	Future Proj.

I&I assessments were done at some of the known I/I areas, such as the Redmond Avenue area and Edenvale System. Between 1999 and 2000, approximately 100 manholes were inspected by V&A Engineers, Inc. (V&A) for the City’s Dry Weather Infiltration Flow Reduction Study. In 2007, a person-entry condition assessment in the 54” Edenvale System was performed by V&A.

On March 2010, City authorized V&A to perform I&I assessment in the sewer-shed south of Camden Avenue. The flow from the sewer-shed drains to the trunk sewer

system along Almaden Expressway and Camden Avenue. V&A conducted I&I reconnaissance and completed a smoke testing program in the area on September 2010. The smoke test is conducted in approximately 18,000 linear feet sewer pipeline in 31 locations. The smoke testing identified only a moderate number of potential inflow sources. Smoke issuing from the ground above a broken lateral was only identified in five locations in this study, and only two of those were rated as severe.

Based on 14 permanent flow meters & 11 rain gauges throughout the City, a 2011-2012 Sewer Flow Data RDII Evaluation has been completed by ADS on August 2012. Five storms with magnitude of slightly less than 2-year return period are monitored within the study. Base infiltration is within 14% to 40% in Average Daily Dry Flow. The majority of rain events generated less than 3% R-value. Hydraulic performance indicators were assessed. This included an evaluation of maximum flow depth vs. pipe diameter ratios. None of the sites reached or exceeded full pipe within the study period. The analysis recommended installation of additional long term flow meters and rain gauges in strategic locations.

On April 2013, RMC completed the Sanitary Sewer Master Plan Capacity Assessment Phase II and Update of Phase I (Master Plan). Part of the study concluded that in most areas of the City, ground water infiltration (GWI) is not determined to be a significant source of flow during dry weather periods.

The City does not perform flow monitoring in-house. The flow models used by consultants include ISCO 2150, SIGMA 910 or TELEDYNE-MGD ADFM Area-Velocity flow meters, and ADS Model 1502, 3600, or T-5500A and FlowShark Intrinsically Safe Model.



## **ELEMENT 9: MONITORING, MEASUREMENT AND PROGRAM MODIFICATIONS**

### **SWRCB Waste Discharge Requirement:**

#### ***The Enrollee shall:***

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

### **9.1 MAINTENANCE OF RELEVANT DATA**

The City tracks relevant information that is used to establish and prioritize appropriate SSMP activities. Field data such as pipe cleaning and inspection frequencies, SSOs, and lateral replacements are tracked in the CMMS and/or other systems (for example GIS). On a monthly basis, the division manager, superintendent, and supervisors generate monthly reports to monitor and evaluate the effectiveness of the City's collection system operation. The monthly report is also discussed with engineering staff at the division's regular monthly meetings.

### **9.2 MONITORING AND ASSESSMENT**

The City has selected certain performance indicators to assess the effectiveness of the SSMP and the Utilities Operations Division of the sanitary sewer collection system. These indicators were selected because they are straightforward, quantitative, and focused on results. Changes in the indicators over time can be used to assess the overall success of the SSMP or, conversely, to identify underlying conditions that inhibit success and necessary program revisions and changes to fully implement the SSMP. The two categories of performance indicators are listed below:

#### **Data Regarding Implementation of SSMP Measures**

- Feet of sewer main inspected with CCTV/year
- Feet of sewer main cleaned/year
- Number of lower laterals with PM activity/year
- Feet of sewer main treated for root control
- Feet of sewer main rehabilitated
- Number of lower laterals rehabilitated
- Number of FSEs inspected

- Number of FOG inspections
- Number of GCD inspections
- Number of Grease Investigations
- Average response time for SSO event (time between City becoming aware of potential SSO and first responder arriving on site).

**Data Regarding Success of Preventative Maintenance**

- SSO Rate (SSOs/100 miles/year);
- Number of SSOs for each cause (roots, grease, debris, pipe failure, capacity, lift station failures, and other) for each zoning parameter (e.g.: residential, commercial);
- Median SSO volume (gallons);
- Percentage of SSOs greater than 100 gallons; and
- Percentage of total spilled sewage reaching surface water.

Sanitary Sewer Overflows						
Year	Mains (Miles of Mains 2252)		Laterals (Miles of Laterals NA)		Totals (Total Miles 2252)	
	#SSOs	Gross Spill Volume (gallons)	#SSOs	Gross Spill Volume (gallons)	Total SSOs	Total Gross Spill Volume (gallons)
2009	242	20,192	-	-	242	20,192
2010	180	72,717	-	-	180	72,717
2011	194	83,520	-	-	194	83,520
2012	184	183,225	-	-	184	183,225
2013	126	118,670	-	-	126	118,670
Total	926	478,324	-	-	926	478,324

**Spill Cause**

Year	Blockage						Gravity Pipe Break		Force Main Break		Other/Unknown		Capacity	
	Grease		Roots		Debris		#	%	#	%	#	%	#	%
	#	%	#	%	#	%								
2009	149	62%	29	12%	50	21%	12	5%	0	0%	2	1%	0	0%

2010	122	68%	17	9%	28	16%	8	4%	1	1%	4	2%	0	0%
2011	108	56%	29	15%	20	10%	28	14%	0	0%	9	5%	0	0%
2012	76	41%	36	20%	24	13%	41	22%	1	1%	6	3%	0	0%
2013	47	37%	18	14%	19	15%	30	24%	1	1%	11	9%	0	0%
Total	502	54%	129	14%	141	15%	119	13%	3	0%	32	3%	0	0%

### 9.3 SSMP UPDATES

The City will re-certify its SSMP at least every five (5) years in compliance with the requirements of the GWDR. The City will continue to monitor the need to update its SSMP more frequently based on the results of the biennial audit (required by the RWCQB) and the performance of its sanitary sewer system. In the event that the City decides that an update is warranted, the process to complete the update will be identified at that time. The City will complete the update within one year following identification of the need for an update.

The authority for approval of changes such as employee names, contact information, or minor procedural changes is delegated to the Division Manager of DOT-IM.

**ELEMENT 10: SSMP PROGRAM AUDITS**

**SWRCB Waste Discharge Requirement:**

*As part of the Sewer System Management Plan (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.*

The City will audit its SSMP every two years. The audit will determine whether the SSMP meets the current requirements of the GWDR, whether the SSMP reflects the City’s current practices, and whether the City is following the SSMP.

**SSMP Audit Checklist**

<b>Element 1 – Goals</b>		<b>Yes</b>	<b>No</b>
A	Are the goals stated in the SSMP still appropriate and accurate?	X	

<b>Element 2 -- Organization</b>		<b>Yes</b>	<b>No</b>
A	Is the Contact Information current?	X	
B	Is Organization Chart of the SSMP current?	X	
C	Is the chain of communication for reporting and responding to SSOs accurate and up-to-date?	X	

<b>Element 3 – Legal Authority</b>		<b>Yes</b>	<b>No</b>
Does the SSMP document 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	

<b>Element 4 – Operations and Maintenance</b>		<b>Yes</b>	<b>No</b>
<b>Collection System Maps</b>			
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 sanitary sewer system maps complete, current, and sufficiently detailed?	X	

<b>Element 4 – Operations and Maintenance</b>		<b>Yes</b>	<b>No</b>
<b>Resources and Budget</b>			
C	Does the City allocate sufficient funds for the effective operation, maintenance, and repair of the sewer system and is the current budget structure documented in the SSMP?	X	
<b>Prioritized Preventive Maintenance</b>			
D	Does the SSMP describe current preventive maintenance activities and the system for prioritizing the cleaning of sewer lines?	X	
E	Based upon the SSO information in CIWQS, are the City's preventive maintenance activities sufficient and effective in minimizing SSOs and blockages?	X	
<b>Scheduled Inspections and Condition Assessments</b>			
F	Is there an ongoing condition assessment program sufficient to develop a capital improvement program addressing the proper management and protection of infrastructure assets? Are the current components of this program documented in the SSMP?	X	
<b>Contingency Equipment and Replacement Inventory</b>			
G	Does the SSMP list the major equipment currently used in the operation and maintenance of the sanitary sewer system and document the procedures for inventory management?	X	
H	Are contingency equipment and replacement parts sufficient to respond to emergencies and properly conduct regular maintenance?	X	
<b>Training</b>			
I	Are the training records current?	X	
J	Does the SSMP document current training within the City?	X	
<b>Element 5 – Design and Performance Standards</b>		<b>Yes</b>	<b>No</b>
A	Does the SSMP contain 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	
<b>Element 6 – Overflow and Emergency Response Plan</b>		<b>Yes</b>	<b>No</b>
A	Does the City's Overflow Emergency Response Plan establish procedures for the emergency response, notification, and reporting of sanitary sewer overflows (SSOs)?	X	
B	Are Public Works staff and contractor personnel trained on the procedures of the Overflow Emergency Response Plan?	X	
C	Is the SSO procedure current?	X	
D	Are the SSO External Reporting Requirements current?	X	

<b>Element 6 – Overflow and Emergency Response Plan</b>		<b>Yes</b>	<b>No</b>
E	Is the After Hours Information current and complete?	X	
F	Is the Emergency Contact List for reporting SSOs current and complete?	X	
G	Is the Overflow Emergency Response Plan effective in handling SSOs in order to protect public health and the environment?	X	

<b>Element 7 – Fats, Oils, and Grease (FOG) Control Program</b>		<b>Yes</b>	<b>No</b>
A	Does the Fats, Oils, and Grease (FOG) Control Program include efforts to educate the public on the proper handling and disposal of FOG?	X	
B	Does the City’s FOG Control Program identify sections of the sanitary sewer system subject to FOG blockages, establish a cleaning schedule and address source control measures to minimize these blockages?	X	
C	Are requirements for grease removal devices, best management practices (BMP), record keeping, and reporting established in the City’s FOG Control Program?	X	
D	Is the current FOG Control Program effective in minimizing blockages of sewer lines resulting from discharges of FOG to the system?	X	

<b>Element 8 – System Evaluation and Capacity Assurance Plan</b>		<b>Yes</b>	<b>No</b>
A	Does the City’s Master Plan evaluate hydraulic deficiencies in the system, establish sufficient design criteria and recommend both short-term and long-term capacity enhancement and improvement projects?	X	
B	Does the City’s capital improvement program (CIP) establish a schedule of 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	

<b>Element 9 – Monitoring, Measurement, and Program Modifications</b>		<b>Yes</b>	<b>No</b>
A	Does the SSMP accurately portray the methods of tracking and reporting selected performance indicators?	X	
B	Is the City able to evaluate the effectiveness of SSMP elements based on relevant information?	X	

<b>Element 10 – SSMP Audits</b>		<b>Yes</b>	<b>No</b>
A	Were the results of prior SSMP Audits recorded in a written report?	X	
B	Were the actions recommended in the SSMP Audit report(s) implemented?	X	

<b>Element 11 – Communication Program</b>		<b>Yes</b>	<b>No</b>
A	Does the City effectively communicate with the public and other agencies about the development and implementation of the SSMP and continue to address any feedback?	X	

# **City of San José SSMP Internal Audit for Calendar Years 2012 and 2013**

## **INTRODUCTION**

The City of San José (City) owns, operates and maintains the sanitary sewer collection system that serves close to one million residents in the City. The entire system is approximately 2,294 miles of piping comprised of 58,000 sewer segments, 16 pump stations, and 48,000 sanitary manholes. The system serves the residents and businesses and conveys wastewater to the San José/Santa Clara Pollution Control Plant by major interceptor pipelines located in the northern part of the City. Operation and maintenance of these facilities is governed by Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, State Water Resources Control Board Order No. 2006-0003-DWQ (Order). The Order is a general permit that contains waste discharge requirements and a monitoring and reporting program.

This Audit report provides information about the implementation of the City's Sanitary Sewer Management Plan (SSMP) during calendar years 2012 and 2013. The report satisfies the requirement stated by San Francisco Bay Regional Water Quality Control Board in its July 7, 2005 letter, *New Requirements for Preparing Sewer Management Plans*.

## **SSMP AUDIT REPORT**

The purpose of this SSMP Audit Report is to describe the effectiveness of the City's SSMP and to demonstrate the City's compliance with all applicable SSMP requirements.

### **SSMP Development**

The City's first SSMP was developed and implemented in August 2008, in compliance with the State Water Resources Control Board (SWRCB) Order 2006-0003: Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (GWDR), as revised by Order No. WQ 2008-0002.EXEC on February 20, 2008. The current SSMP was completed and implemented on August 27, 2010. This current version of the SSMP is in compliance with Section D.13 of the GWDR and may be viewed at the following website: [http://www.sanjoseca.gov/transportation/s\\_sewer.htm](http://www.sanjoseca.gov/transportation/s_sewer.htm)

### **Overall Effectiveness of the SSMP**

The goals of the City's SSMP are to:

- Reduce and prevent both dry weather and wet weather sewer overflows
- Mitigate the impact of sewer overflows that do occur
- Properly manage, operate and maintain all parts of the wastewater collection system

- Provide adequate capacity to convey peak flows that are associated with the design storm event.

The City has implemented various programs identified in the SSMP and has effectively reduced the number of SSOs from 184 in calendar year 2012 to 126 SSOs in calendar year 2013. This is approximately a 31% SSO reduction. The SSO reduction is the result of implementation of sanitary sewer improvement programs and proper management, operation and maintenance of its sanitary sewer collection system. Additionally, significant improvements were made in terms of responding to, preventing and mitigating the impacts of SSOs. The City is making every effort to ensure that the sanitary sewer collection system has adequate capacity to convey peak flows associated with storm events.

### **Compliance of the SSMP with Subsection D.13 of the GWDR**

The sections below describe the following for each SSMP element:

- Summary from the City’s SSMP.
- Compliance of the SSMP with the requirements identified in the GWDR.

#### **1. Goal**

##### Summary from the SSMP

The goal of the City’s SSMP is to:

- Reduce and prevent both dry weather and wet weather sewer overflows.
- Mitigate the impact of sewer overflows that do occur.
- Properly manage, operate and maintain all parts of the wastewater collection system.
- Inspect and assess the collection system using CCTV
- Provide adequate capacity to convey peak flows that are associated with the design storm event.

##### SSMP Compliance with the GWDR

The stated goals are sufficient in terms of providing a meaningful, useful and proper strategic framework for the SSMP and direction for the City to properly manage, operate and maintain all parts of the sanitary sewer collection system.

##### Potential Future Revisions

Potential future revisions of this element of the SSMP could include establishing quantitative and measurable goals.

#### **2. Organization**

##### Summary from the SSMP

The SSMP lists the three City departments; Transportation, Public Works, and Environmental Services along with contact information for each department Director



and key staff responsible for managing, implementing and updating SSMP. Organization charts are also available for all three Departments responsible for the management, operation and maintenance of the City's wastewater collection system on the City's Intranet. The SSMP also describes chain of communication for reporting SSOs, from receipt of a complaint or other information, including the person responsible for reporting SSOs to the California Office of Emergency Services (Cal OES), RWQCB and other agencies.

#### SSMP Compliance with the GWDR

The SSMP sufficiently describes the organization and informs the staff responsible for effective management, implementation, and updating of the SSMP.

#### Potential Future Revisions

Potential future enhancements to this element of the SSMP will include the following:

- Description of the specific roles and responsibilities of each department and programs involved in implementing, managing, and updating the SSMP.
- An organizational chart summarizing the relationships among all the entities, departments, and programs responsible for implementing, managing, and enhancing the SSMP.
- The use of job titles instead of employee names where applicable.

### **3. Legal Authority**

#### Summary from the SSMP

The SSMP lists the pertinent ordinances in place to implement the SSMP in order to:

- Control infiltration/inflow (I/I) from satellite wastewater collection systems and laterals.
- Require proper design and construction of new and rehabilitated sewers and connections.
- Require proper installation, testing, and inspection of new and rehabilitated sewers.
- Regulate Use.
- Enforce violations.

#### SSMP Compliance with the GWDR

Applicable ordinances pertinent to sanitary sewer are stated in the SSMP that provide the City with adequate legal authority to effectively manage and implement SSMP. This includes Chapters from the City's Muni code on the following areas:

References: Sewer use charge regulations – City's Muni Title 15.14, Ordinance No. 28179

Sewer connection and storm drainage - City's Muni Title 15.16

#### Potential Future Revisions

Potential future revisions of the SSMP will include all citations required by the SSS-GWDR including:

- Legal Authority
- FOG Dischargers
- Illicit Dischargers

#### **4. Operations and Maintenance Program**

##### **Collection System Maps**

###### Summary from the SSMP

The SSMP provides information for accessing on-line maps of the entire sanitary sewer collection system and describes the information provided on the maps. The SSMP also describes the process for updating and reporting map discrepancies.

###### SSMP Compliance with the GWDR

The SSMP references up-to-date and sufficiently detailed maps to effectively manage, implement, and update the SSMP.

###### Potential Future Revisions

Potential future revisions of the SSMP will include “snap shots” of the GIS mapping of the sewer system.

##### **Preventive Operation and Maintenance Program (Sanitary Maintenance Scheduling)**

###### Summary from the SSMP

The SSMP describes how the sanitary main preventive and high priority cleaning programs revolve around the functional condition of the sanitary sewer collection system. The SSMP describes information from CMMS used to manage the sanitary sewer system assets and maintenance activities; the High Priority Line Cleaning program to prevent SSOs in lines with a history of roots, grease or other conditions; and a system-wide line cleaning by sewer zones.

###### SSMP Compliance with the GWDR

The SSMP provides sufficient information and guidance regarding the City’s preventive maintenance program to effectively manage and implement the SSMP.

###### Potential Future Revisions

Potential future revisions of the SSMP will include additional information on the preventive operation and maintenance program being implemented by the City.

##### **Rehabilitation and Replacement Plan**

###### Summary from the SSMP

The SSMP describes the following:

- The majority of the funds in the Sanitary Sewer System CIP are used to construct sewer improvement projects.
- The rehabilitation of existing sewers, with higher priority given to those with extensive, severe deterioration.
- Capacity improvement projects are selected by utilizing a computerized sewer flow model. The master plan identified 93 new capacity project that will upsize for existing deficiencies and will accommodate near-term and long-term flows. The recommended a program level cost is \$175M.
- Rehabilitation projects are selected based on hydrogen sulfide studies that analyze pipe corrosion, condition assessment studies, maintenance records and reports. Expenditures for rehabilitation projects total \$39M for the next five years.
- Summary of City's I&I Reduction Program.

#### SSMP Compliance with the GWDR

The SSMP describes the approach used to effectively assess, prioritize, and address system rehabilitation and replacement needs in order to effectively manage and implement the SSMP.

#### Potential Future Revisions

Potential future revisions of the SSMP will include criteria utilized in the assessment and prioritization of rehabilitation and replacement needs as they relate to the overall performance of the SSMP and sewer system.

### **Training**

#### Summary from the SSMP

The City uses combination of in-house classes, on the job training, conferences, seminars, and other training opportunities to train its sanitary sewer system staffs. All personnel are provided a copy of the Code of Standard Practices (COSP).

#### SSMP Compliance with the GWDR

The SSMP provides information about the City's employee training program to effectively manage, implement and update the SSMP.

#### Potential Future Revisions

Potential future revisions of the SSMP will include information or references to the updated COSP and training program for the various elements discussed in the SSMP.

### **Equipment**

#### Summary from the SSMP

The SSMP lists the major fleet equipment owned by the City for operating and maintaining the sanitary sewer collection system. The City has secured funding to increase number of its sanitary sewer Vaccons fleet size from 16 to 20. Two of the new Vaccons will be added in mid 2014 and the other two will be added to the fleet in

early 2015. The City also invested an additional \$2.2M for vehicle fleet repair and replacement.

#### SSMP Compliance with the GWDR

While the SSMP does not specifically identify critical equipment or their associated replacement parts, the City has operational and contingency plans in place to manage unexpected failures needed in order to effectively manage and implement the SSMP.

#### Potential Future Revisions

Potential future revisions of the SSMP will include revisions to the inventory listing as necessary.

### **5. Design and Performance Provisions**

#### Summary from the SSMP

The SSMP references and generally describes a variety of information related to design and performance provisions:

- Design Guidelines for Sanitary Sewer to aid consulting engineers, developers and others in making various design calculations.
- Sanitary Sewer Design Procedures that outline internal project management procedures to deliver projects from initial scoping to the award of contract.
- The City Council adopted Sewer Level of Service Policy to ensure that the City will not have SSOs due to insufficient capacity in the collection system and adequate capacity as development occurs.
- The City's Standard Specifications and Details for Construction identifies construction standards and specifications that are used for the installation of new systems and the rehabilitation of existing systems.
- Other design standards for specific rehabilitation techniques to ensure appropriate industry standards are utilized.
- City's construction management includes continuous onsite inspection. Inspections are performed during the progress of the work and at the completion of the construction.

#### SSMP Compliance with the GWDR

The SSMP sufficiently references and describes the City's design and performance provisions necessary for proper design and construction of sewer facilities in order to effectively manage, implement and update the SSMP.

#### Potential Future Revisions

No potential future revisions of the SSMP are necessary at this time.

### **6. Overflow Emergency Response Plan**

#### Summary from the SSMP

The SSMP provides a detailed description operating procedures for the following elements included in the City's Overflow Emergency Response Plan:

- SSO Detection
  - Public observation – contact information provided in the City’s website for the general public to contact the City during business and after hours.
  - Receipt of pump station and smart cover alarms – considered high priority events that warrant prompt response.
  - City staff observation –City staff conducts periodic inspections of its sewer system as part of their routine activities.
  
- SSO Response and Procedures
  - Safety – City staff responding to an SSO event are responsible for the following safety procedures at all times.
  - Initial response – It is the goal of the City to respond to all sanitary calls within 30 minutes of the first call.
  - Containment – The first responder should attempt to contain as much of the spilled sewage as possible as outlined in this section of the SSMP.
  - Restore Flow – City maintenance personnel responding to a sanitary sewer event are trained to remove blockage and restore flow in the most efficient manner.
  - SSO Volume Estimation – Three volume estimating procedures of Eyeball Method, Measuring Volume, and Duration and Flowrate are discussed in extensive details under this section of SSMP.
  - Estimating Recovery Volume of Spilled Sewage – Procedures for estimating recovered volume including two truck recover method and pipe volume calculation are explained.
  - Clean up- procedures how to conduct effective cleaning of different type of surfaces such as streets, storm sewers, and natural waterways are explained.
  
- Weekly SSO Review Meetings (Failure Analysis Investigation)- Weekly SSO meetings are held to analyze and determine the reasons for SSO occurrence(s) and to identify corrective action(s) needed to reduce or eliminate future potential SSOs from recurring. Engineering and maintenance personnel view segment maintenance history and video inspections as part of their analysis and evaluations.
  
- SSO Documentation and Reporting – City’s goal is to ensure that all SSOs are thoroughly investigated and documented for use in managing the sewer system. Documenting and reporting requirements for all three SSO Categories are explained in this section.
  - Internal SSO reporting and documentation procedures – City’s internal reporting procedures protocol are described under this section of the SSMP.
  - External SSO reporting and documentation procedures – External reporting requirements and procedures including reporting to CIWQS and CAL-EMA for different types of SSO categories are described under this section to comply with all regulatory agencies’ reporting and notification requirements.

- Video Inspection and Equipment – The City maintains specialized equipment to support and manage maintenance and operation of its sanitary sewer collection system including closed circuit camera (CCTV), GPS unit, combination sewer cleaning trucks (Vaccons), portable generators, and pumps and hoses.
- SSO Response Training – City’s sanitary sewer maintenance personnel are trained at least once per year for responding to an SSO event. The training consists of a minimum of three hours of classroom training and a simulated practical training to evaluate the personnel’s skills on the job. The training also includes;
  - Initial and annual refresher training
  - SSO response drills – periodic training drills are held to ensure that employees are up to date on the procedures, the equipment, documenting, notifying and reporting.
  - SSO training record keeping

SSMP Compliance with the GWDR

The SSMP effectively describes the City’s Overflow Emergency Response Plan and enables highly effective overflow response activities in order to effectively manage, implement and update the SSMP.

Potential Future Revisions

Potential future revisions of the SSMP will include revisions to the OERP and SSO forms as required by the revised MRP.

**7. Fats, Oils, and Grease (FOG) Control Program**

Summary from the SSMP

The SSMP provides details of the following elements of the City’s FOG Program:

- The review of building plans for new construction or remodeling of restaurants and food service facilities by City staff to ensure the proper grease removal devices are included prior to the issuance of a permit and certification of acknowledgement by a designated representative from the establishment about the requirements associated with grease removal devices.
- The standard inspections performed at all restaurants and other food service facilities to ensure proper FOG prevention and monitoring.
- The investigation of FOG in sewer mains as reported by City staff or other sources.
- Outreach materials and efforts available and distributed to reduce FOG.

Compliance with the SSMP GWDR

The SSMP describes the City’s FOG Control Program that provides effective FOG control order to effectively manage, implement and update the SSMP.

Potential Future Revisions

Potential future revisions of the SSMP will include detailed discussion on the FOG Implementation Program.

## **8. System Evaluation and Capacity Assurance Plan**

### Summary from the SSMP

The SSMP references and discusses the City's Sanitary Sewer Master Plan that depicts how the system would perform under various planning scenarios and identifies sewers that may not have sufficient capacity to convey the project flow. The City completed Sanitary Sewer Master Plan Capacity Assessment Phase II and Update of Phase I (Master Plan) in April 2013. There are no current Capacity constraints within the system that could potentially result in a capacity bottlenecks spill.

### SSMP Compliance with the GWDR

The Sewer Master Plan efforts have resulted in a comprehensive understanding of the collection system characteristics related to base sanitary flows and patterns, I&I during wet weather, and in the performance of the trunk system during dry and wet weather flow conditions. The Sewer Master Plan provides an effective tool to help guide the planning, design, operation and maintenance of the collection system and identified capital improvement projects needed to ensure adequate existing and long-term capacity in order to effectively manage, implement and update the SSMP.

### Potential Future Revisions

Potential future revisions of the SSMP may include updates regarding the latest status and findings from Sewer Master Plan completed in 2011.

## **9. Monitoring, Measurement and Program Modifications**

### Summary from the SSMP

The SSMP describes the criteria used to monitor system and program performance, including number of SSOs, SSO causes, overflow volumes, overflow volume contained, miles of sewer lines cleaned, and food service inspections, investigations and enforcement. The SSMP also shows this information in tables for the past five years (2009-2013) including number of backups and associated costs for the same calendar years.

### Compliance with the SSMP GWDR

The SSMP describes the monitoring and measurements for evaluating, prioritizing, and updating the SSMP.

### Potential Future Revisions

Potential future revisions of the SSMP will include any adjustments to the monitoring criteria as a result of the program performance evaluation.

## **10. SSMP Program Audits**

### Summary from the SSMP

The SSMP describes that the City will audit the SSMP annually.

#### Compliance with the SSMP GWDR

The SSMP is in compliance with this requirement. The GWDR requires, at a minimum, audits of the SSMP every two years.

#### Potential Future Revisions

The City will continue to refine its audit process to better evaluate the SSMP in terms of its compliance with the GWDR and effectiveness in managing, operating and maintaining the sanitary sewer collection system.

### **11. Communication Program**

#### Summary from the SSMP

The SSMP outlines the communications and outreach plan used by the City for the SSMP, including the following:

- A link on the City's website to the SSMP for public review and comment.  
<http://www.sanjoseca.gov/DocumentCenter/Home/View/7>
- Outreach and education regarding FOG.
- Dissemination in meetings and/or by flyers to land developers, consultant engineers, plumbing contractors and others regarding various SSMP requirements.
- Communications with contributing satellite agencies regarding the SSMP.

#### Compliance with the SSMP GWDR

The SSMP describes the City's communications to the public and other entities regarding the development and updating, management, implementation and performance of the SSMP, and provides opportunity for feedback and comment.

#### Potential Future Revisions

No potential future revision of the SSMP is necessary at this time.



## **ELEMENT 11: COMMUNICATION PROGRAM**

### **SWRCB Waste Discharge Requirement:**

*The Enrollee shall communicate on a regular basis with the public on the development, implementation, and performance of its Sewer System Management Plan (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.*

This section highlights the communications and outreach plan developed for the City of San Jose's Sewer System Management Plan (SSMP).

The City of San Jose's primary "customers" are the residential, industrial, and commercial customers that connect to the sewers located within San José. In addition, six "satellite agencies" contribute flow to the City of San José sanitary sewer collection system. These contributing agencies are the City of Santa Clara, the City of Milpitas, West Valley Sanitation District, Cupertino Sanitary District, Burbank Sanitary District, and County Sanitation Districts 2 and 3.

### **11.1 COMMUNICATIONS WITH AND OUTREACH TO RESIDENTIAL, INDUSTRIAL, AND COMMERCIAL CUSTOMERS AND THE GENERAL PUBLIC**

The City provided a link at the DOT public website where the public is encouraged to view and comment on SSMP sections. The DOT SSMP website provides a list of the SSMP Sections, PDF files for draft SSMP sections, and a link for customers to provide feedback and comments. The site is also referred to in all other outreach efforts.

The City of San José conducts extensive public outreach and education to residents and businesses related to sanitary sewer overflows, preventing grease blockages and Best Management Practices for handling of grease waste.

In areas where a sewer overflow is attributed to the build up of fats, oil, or grease in the sewer pipes, the City canvasses the vicinity with door hanger type flyers notifying the neighbors of the event, reinforcing the message to avoid pouring these items down the drain and describing the continued negative impacts that putting grease down the drain may have on the sewer system. Both the annual mailer and the door hanger provide information in English, Spanish, and Vietnamese.

### **11.2 COMMUNICATIONS WITH AND OUTREACH TO LAND DEVELOPERS, CONSULTANT ENGINEERS, CONTRACTORS**

The City has disseminated information, in meetings and/or by flyers, to land developers, consultant engineers, and plumbing contractors regarding the need and methods to reduce

SSOs. The City has communicated and solicited input regarding the SSMP requirements with emphasis on design and construction practices that reduce SSOs.

The City is reviewing the need for updates to the existing Sewer Level of Service Policy adopted in 1982. There will be outreach effort to the development communities and City Council to discuss City's master plan effort, capacity issues, and SSMP requirements for capacity assurance, and recommended updates to the existing policy.

For the Sewer Connection Fee Study, the City will provide outreach to ratepayers, local neighborhood associations and the development communities and City Council discuss proposed rate changes and impacts on capital programs with such changes.

Internally, the City will communicate within various departments, such as ESD, DPW, DOT, and Building and Code Enforcement regarding the overall SSMP, program audits, emergency response plan, FOG program, and design standards.

For the CIP, key stakeholders including engineering consultants and contractors may be included in the outreach efforts. Potential issues of interest include design standards, capital program, and consulting and contracting opportunities.

### **11.3 OUTREACH TO PLUMBERS AND BUILDING CONTRACTORS**

Plumbers and sewer contractors have access to all available City plans, specifications and standard details. The City participated with BACWA in developing an outreach flyer for these entities. Information was disseminated on construction standards, proper operations and maintenance activities, and effective measures for removing blockages.

### **11.4 COMMUNICATIONS WITH CONTRIBUTING "SATELLITE" AGENCIES**

The City developed and implemented a communications program with its six contributing agencies. The plan has established a collaborative approach to communicate with contributing agencies and work together during the development and implementation of, and future improvements, to the SSMP. The City plans to work with all of the contributing agencies as they develop their SSMP's and facilitate meetings to discuss common issues and provide support during the SSMP development process. Subsequent meetings will be held each quarter with representatives who are responsible for development and maintenance of the SSMP at each contributing agency. The agenda or topics for quarterly meetings with satellite agencies may include master plan, capacity issues, emergency response plans, and capital programs.

# Document Version Control

This Sewer System Management Plan (SSMP) is a living document that is anticipated to change over time. This version control sheet is intended to support the City's efforts to keep the copies of the SSMP that have been assigned to City Staff current. Please contact Nichol Bowersox prior to making copies for use by others, initiating changes, or for information regarding the current version of this document.

SSMP Copy Number: \_\_\_\_\_

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