

# SEWER SYSTEM MANAGEMENT PLAN

for the

City of Sierra Madre



in

Los Angeles County, California

February 2022 Update

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## ABBREVIATIONS / ACRONYMS

APWA	American Public Work Association
BAT	Best Available Technology
BMP	Best Management Practice
CADD	Computer Aided Design Drafting
CAL-OSHA	California Occupation, Safety and Health Administration
CCTV	Closed - Circuit Television
CIP	Capital Improvement Plan or Program
CIPP	Cast-in-Place Pipe
CIWQS	California Integrated Water Quality System
CSD	County Sanitation Districts
DPW	Department of Public Works
FMD	Flood Maintenance District
FOG	Fats, Oil, and Grease
FSE	Food Service Establishments
GIS	Geographical Information System
I/I	Infiltration / Inflow
PC	Plumbing Code
OES	Office of Emergency Services
RWQCB	Regional Water Quality Control Board
SMMC	Sierra Madre Municipal Code
SMZ	Sewer Maintenance Zone
SO&M	Sewer Operations & Maintenance
SSMP	Sewer System Management Plan
SSO	Sanitary Sewer Overflow
SSS WDR	Statewide General WDR for Sanitary Sewer Systems
WDR	Waste Discharge Requirements
SWRCB	State Water Resources Control Board
VCP	Vitrified Clay Pipe

## DEFINITIONS

**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.

**Blockage** – A build-up of debris in the sewer, which stops the flow of wastewater and allows the water to back up behind the stoppage, sometimes causing an overflow.

**California Integrated Water Quality System (CIWQS)** – Refers to the State Water Resources Control Board online electronic reporting system that is used to report SSOs, certifies completion of the SSMP, and provides information on the sanitary sewer system.

**California Office of Emergency Services (OES)**

**Capital Improvement Program (CIP)** – Refers to the document that identifies planned capital improvements to the district’s wastewater collection system.

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

**California Water and Environmental Association (CWEA)** – CWEA the State Water Board committed to re-designing the CIWQS3 Online database to allow “event” based SSO reporting versus the original “location” based reporting. Website: <http://www.cwea.org/>

**DWQ** – Division of Water Quality

**Enrollee** – A public entity that owns or operates a sanitary sewer system and has submitted a complete and approved application for coverage under the SSS WDR.

**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.

**Food Service Establishment (FSE)** – Refers to commercial or industrial facilities where food is handled/prepared/served that discharge to the wastewater collection system.

**Geographical Information System (GIS)** – A database linked with mapping, which includes various layers of information used by government officials. Examples of information found on a GIS can include a sewer map and sewer features such as pipe location, diameter, material, condition, and last date cleaned or repaired. The GIS also typically contains base information such as streets and parcels.

**GWDR – General Waste Discharge Requirements** – Similar to a NPDES permit but with significant differences. A WDR is an authorization to discharge waste with certain conditions, which can be issued on an individual basis or to a group of dischargers. WDR's

do not sunset, unlike NPDES permits, and are most commonly issued by the Regional Water Boards. The Statewide General WDR for Sanitary Sewer Systems was adopted by the SWCRB and will be implemented by the Regional Water Boards and SWRCB

**Infiltration/Inflow (I/I)** -- Infiltration is generally extraneous subsurface water that enters the sewer system over long periods of time, such as groundwater seepage through joints, cracks and manhole structures. Inflow is generally extraneous surface waters that enter the system during a storm or flooding event, such as through manholes or defects in the sewer. While it is impossible to control all I/I, it is highly desirable to reduce I/I when cost-effective.

**Lateral (House Connection Sewer)** - The portion of sewer that connects a structure (residence or business) with the main sewer line in the street, alley or easement.

**Percent Reached Surface Water** – Volume of sewage discharged from a sanitary sewer system or private lateral or collection system estimated to have reached surface water divided by the total volume of sewage discharged.

**Percent Recovered** – Volume of sewage discharged that was disposed of properly, divided by the total volume of sewage discharged.

**Private Lateral** – Privately owned sewer service lateral.

**Private Lateral Sewage Discharge (PLSD)** – Sewage discharges caused by blockages or other problems within privately owned laterals, collection systems or other private sewer assets that are tributary to the reporting Enrollee's sanitary sewer system. Reports of these events may be submitted by Enrollees on a voluntary basis but are not the Enrollee's responsibility unless caused by issues in the main line or because of other Enrollee activity. Normally, this type of sewage discharge is the responsibility of the private lateral, private **asset, or collection system owner**.

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

**Overflows or releases of untreated or partially treated wastewater that reach waters of the United States;** Overflows or releases of untreated or partially treated wastewater that do not reach waters of the United States; and 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** – Any system of pipes, pump stations, sewer lines, or other conveyances, upstream of a WWTP head works and which is comprised of more than one mile of pipes and sewer lines, used to collect and convey wastewater to a publicly owned treatment facility.

## SANITARY SEWER OVERFLOW CATEGORIES

**SSO Category 1** – All discharges of sewage resulting from a failure in an Enrollee’s sanitary sewer system that resulted in a discharge to a drainage channel and/or surface water.

**SSO Category 2** – All discharges of sewage resulting from a failure in an Enrollee’s sanitary sewer system of a volume equal to or greater than 1,000 gallons that did not reach surface water.

**SSO Category 3** – All discharges of sewage resulting from a failure in an Enrollee’s sanitary sewer system of a volume less than 1,000 gallons that did not reach surface water.

**SSO Database** – Online reporting system developed, hosted, and maintained by the SWRCB for compliance with the Monitoring and Reporting Program contained in SSS WDR.

**System Evaluation and Capacity Analysis Plan (SECAP) Sewer System** – See Wastewater Collection System

**Sewer System Management Plan (SSMP)** is a document that describes the activities an agency uses to manage their wastewater collection system effectively.

**State Water Resources Control Board (SWRCB)** – State Water Resources Control Board and staff responsible for protecting the State’s water resources.

**Supervisory Control and Data Acquisition (SCADA)** – Refers to an electronic system that is used to monitor lift station performance and to initiate alarms when monitored parameters exceed pre-set limits.

**Upper Lateral** – Portion of a lateral usually from the building foundation to the property line or easement line where it connects to the Lower Lateral. Enrollees may not own and maintain this portion of a Lateral since responsibility usually lies with the owner of the property that the lateral serves.

**Waste Discharge Requirements (WDR/ 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, and Order No. WQ2013-0058-EXEC including all future revisions.

**Wastewater Collection System** -- All pipelines, pump stations, and other related facilities, upstream of the head works of the wastewater treatment plant that convey wastewater from its sources to the wastewater treatment plant.

**Waters of the United States** (paraphrased from 33 CFR Part 328) – All waters which are used, were used or may be used in interstate or foreign commerce; including interstate wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent streams), adjacent wetlands, impoundments of water, etc., the use, degradation or destruction of which could affect interstate or foreign commerce; tributaries of waters so identified; and the territorial seas.

**WDID** – **Waste Discharge Identification number assigned as a unique identifier by the SWRCB to** each Enrollee for regulatory recordkeeping and data management purposes.

# **SEWER SYSTEM MANAGEMENT PLAN FOR THE CITY OF SIERRA MADRE**

## **INTRODUCTION**

On May 2, 2006, the State Water Resources Control Board (SWRCB) adopted a Statewide General Waste Discharge Requirements and Monitoring and Reporting Program (GWDR) by issuing Order No. 2006-003. See Appendix A for reference. The regulations in the Order were developed out of growing concern about the water quality impacts of Sanitary Sewer Overflows (SSOs), particularly those that cause beach closures, adverse effects to other bodies of water, or pose serious health and safety nuisance problems.

On July 30, 2013, Attachment A to the Order was promulgated and became effective on September 9, 2013 and is known as Attachment A, SWRCB Order No. WQO 2013-0058-EXEC, amending the Monitoring and Reporting Program for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (together these documents constitute the “SSS WDR”). The amendment added a SSO Category 3 and revised the Category 1 and 2 updating the reporting requirement. This SSMP report has been revised pertaining these requirements.

See Appendix B for reference

This permit, among other things, requires local public sewer collection system agencies, referred to as “Enrollees,” to develop a Sewer System Management Plan (“SSMP”). SSMPs must be self-audited at least every two (2) years and updated every five (5) years from the original adoption date by the Enrollee’s governing board. The original SSMP must have been approved by the governing board of the Enrollee at a public meeting and adopted.

The five-year SSMP update must also be approved and certified as do all significant updates to the SSMP. The SSMP, all references in the document, and the adoption documents by the governing board must be available on the agency website or submitted to the SWRCB upon adoption or recertification. Enrollees do not send their SSMP to the State or Regional Water Boards for review or approval, but must make it publicly available, and upload an electronic copy to the SSO database or provide a link to the Enrollees’ website where the SSMP is posted.

Two major components of the WDR are:

the requirement that owners and operators of publicly owned collection sewer systems, a mile long or greater, apply for coverage under the WDR; and,  
the owners/operators of such systems must develop and implement a system specific Sewer System Management Plan (SSMP).

In compliance with the first component, the City filed its application form (See Appendix 'D') with the SWRCB on September 18, 2006. As a result, the City received its Username and Password for accessing the California Integrated Water Quality System (CIWQS) database. Within that database reporting program, the City completed its "collection system questionnaire" and will file all future updates and required SSO reports (See Appendix 'A', section G and Appendix 'B').

Section D.13 of the SSS WDR, requires all Enrollees to development an SSMP and make it available to the public and to the SWRCB and RWQCB. The SSS WDR further specifies eleven(11) mandatory Elements that must be addressed in the SSMP. The SSS WDR also requires that the SSMP be audited at least every two (2) years from the original governing board approval date and updated or revised and re-certified by the governing board at least every five years from adoption and must include any significant changes to the SSMP, as specified in Section D.14 of the SSS WDR. This guide is written to assist Enrollees in developing and updating SSMPs.

The eleven (11) required SSMP Elements that must be included in an SSMP are as follows:

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

If an Enrollee (the City) modifies amends or changes any of the Elements as a result of an audit, changes in its operating philosophies, or new technology additions, those changes must be specified and included in an SSMP Change Log now required to be included in an appendix to the SSMP (MRP Section E.3.).

This document with other existing agency programs referenced herein constitutes the SSMP for the City. By implementing the procedures contained in this SSMP, the occurrence of SSO or other adverse impacts should decrease or possibly be avoided throughout the City's Wastewater Collection System.

## EXECUTIVE SUMMARY

This updated plan document was prepared in compliance with the formal and executive orders issued by the SWRCB. Those orders require every owner and operator of publicly owned sewer systems to develop and implement a system specific Sewer System Management Plan (SSMP). The plan sets forth goals and actions to be followed, and guidelines for various activities involved in managing, operating, maintaining, repairing, replacing and expanding the sewer system. Chapter 6 describes actions to follow when responding to a Sewer System Overflow (SSO) occurrence within the community, including reporting obligations. Chapter 3 describes the legal authorities for managing the system. Chapters 6, 9 & 11 contain references to ministerial actions required in monitoring, auditing, reporting and communicating with the public and the regulators. There are specific requirements for accomplishing public involvement, meeting reporting criteria and making modifications to the plan. These later requirements are intended to raise public awareness of the hazards associated with SSO events and to minimize the occurrence of such events.

The revised (updated) plan is to be approved and certified during December 2021.

The plan is to be monitored and updated no less frequent than every five (5) years.

The plan must be periodically audited for effectiveness, a report compiled and kept on file and such audits must occur no less frequently than every two (2) years. The City didn't have an Internal Audit as per Steven McGee's email dated January 6, 2022

There are regular reporting timeframes for both emergency and routine reporting including annual (1-year) updates of the "Collection System Questionnaire".

The adoption of and any revision to the plan must be accomplished utilizing public notification and public hearing procedures as identified in the plan and Order

Copies of the approved (certified) plan must be available for public review, either by posting on an internet website, with all related documents and approval, or by providing a full **electronic** copy to the SWB at their designated mailing address. Copies to be provided include the biannual audit reports.

A key element of the initial (2009) plan was the sewer system capacity evaluation utilizing a hydraulic model of the sewer system to evaluate pipe capacity and probable constraints. The model identified one (1) location with pipe flow greater than 64% full (guideline criteria). The segments of pipe equal 400-feet (0.24 % of the total system length) with a probable replacement budget of \$130,000. This location should be monitored for further degradation that would indicate the need to schedule replacement.

In addition to the one capacity constrained segment, the spring of 2007 CCTV investigation revealed 6,587-feet (44 locations) with various structural deficiencies and 132 locations with various maintenance deficiencies (i.e. roots, grease, intrusions, sags, etc). The

structural deficiencies were rated and grouped with the higher priority locations first. There are 25 high priority locations having a probable repair cost of \$202,178, which should have received immediate attention. The next grouping contained 8 locations, having a probable repair cost of \$74,230, and should have been scheduled within two to three years from the report date. The third grouping contained 11 locations that should be monitored for further change and scheduled for repair as further findings indicate. These have a probable repair cost of \$58,036. More detailed information is included in Appendices 'J' and 'L', and project specific design and repair methods must be taken into consideration before proceeding.

The City of Sierra Madre exhausted about \$816,254 between FY 2013-2020 as per Steven McGee's email dated January 06, 2022. As for a budget for Sewer repairs, the city budgeted around 10,000 in Contract Services to do minor maintenance and insect control. The city is planning to purchase a Camera system and conduct their own inspection from now on as per Steven McGee's email dated January 6, 2022.

# CHAPTER 1 - GOALS and ACTIONS

## 1.1 Regulatory Requirements

*According to State Water Resources Control Board Order No. 2006-003 Item 13 (i), the goal of the SSMP is to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system. This will help reduce and prevent SSOs, as well as mitigate any SSOs that do occur.*

The **goals** of this SSMP are:

1. City wastewater collection system facilities are properly operated, maintained and managed to reduce frequency and severity of sanitary sewer overflows (SSO) and their potential impacts on public health, safety, and on the environment; and,
2. When SSO occurs, prompt action is taken to identify, contain, remove the cause and then to promptly report the event to appropriate regulatory authorities and that the public is adequately and timely notified; and,
3. All SSO and system deficiencies and remedial actions taken are well documented; and,
4. City sewer system operators, employees, contractors, responders, or other agents are adequately trained and equipped to effectively address an SSO event; and,
5. City sewer system is properly designed, constructed and funded to provide adequate capacity to convey base flows and peak flows while meeting or exceeding applicable regulations, laws and the generally acceptable practices relative to sanitary sewer system operations and maintenance.

The **actions** to be taken under this SSMP are:

1. Conduct planned and scheduled maintenance and training programs to minimize risk and occurrence of SSO, in support of the SSMP goals.
2. When SSO do occur, respond to the reported site in a timely manner and undertake feasible remedial actions to contain the overflow impacts, including stopping the flow from reaching the storm drain or water course, if possible; and,
3. Stop the overflow as soon as possible and limit public access to the overflow area to prevent public contact with any wastewater contamination; and,
4. Completely recover the overflow and return it to the sewer system, and clean up the contaminated area; and,
5. Gather and compile all pertinent information regarding the overflow event,

investigate as necessary to determine probable cause, document findings, report to the appropriate regulatory agencies in a timely manner, and file the completed report.

6. Condition all development and capital projects to evaluate, design and construct sewer facilities to the city approved standards and criteria.

### **1.2 Monitoring and Reporting Plan requirements**

All changes to this Element of the SSMP must be recorded along with the date and person responsible for the changes on the SSMP Change Log (MRP at section E.3.) attached as an appendix to the SSMP. Enrollees should also consider the addition of separate appendices for copies of all adoption and recertification documents and all audit reports completed by the Enrollee

### **1.3 References**

SSS WDR -

[http://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2006/wqo/wqo2006\\_0003.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2006/wqo/wqo2006_0003.pdf)

MRP -

[http://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2013/wqo2013\\_0058exec.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2013/wqo2013_0058exec.pdf)

## **CHAPTER 2 - DESCRIPTION OF THE ORGANIZATION**

### **2.1 Management**

The City was incorporated in February 1907, and currently covers an area of 3.0 square miles, and serves a population of approximately 11,268 people (Census 2020). The City's wastewater collection system is managed by the Public Works Department, and consists of about 32.0 miles of gravity sewer lines and there are no sewage pump stations or siphons. About 93-percent of flows from these local sewers discharge into Los Angeles CSD facilities for conveyance, treatment and disposal. The remaining 7-percent of total sewage generated within the City passes through the adjacent City of Arcadia sewer system and is conveyed to CSD facilities. The City's 2013/2014 budget for system operation, maintenance and administration was \$728,000.

The City has six (6) budgeted positions that service sewers as well as other public facilities. Distribution of those city personnel is depicted in the organization chart presented in section 2.4 of this plan. These personnel provide preventive maintenance services, repairs, engineering evaluation of sewer facilities, and administer the city sewer ordinances and sewer construction programs. They also review and approve all new service connections or added service areas, maintain facility records and plans and participate in the formation of assessment improvement districts, as needed.

### **2.2 Authorized Representative**

The Director of Public Works is the authorized representative who is responsible for the execution of compliance actions required under the WDR. This includes, but is not limited to, signing and certification of all reports and correspondence as required under the Order.

### **2.3 City Responsibilities**

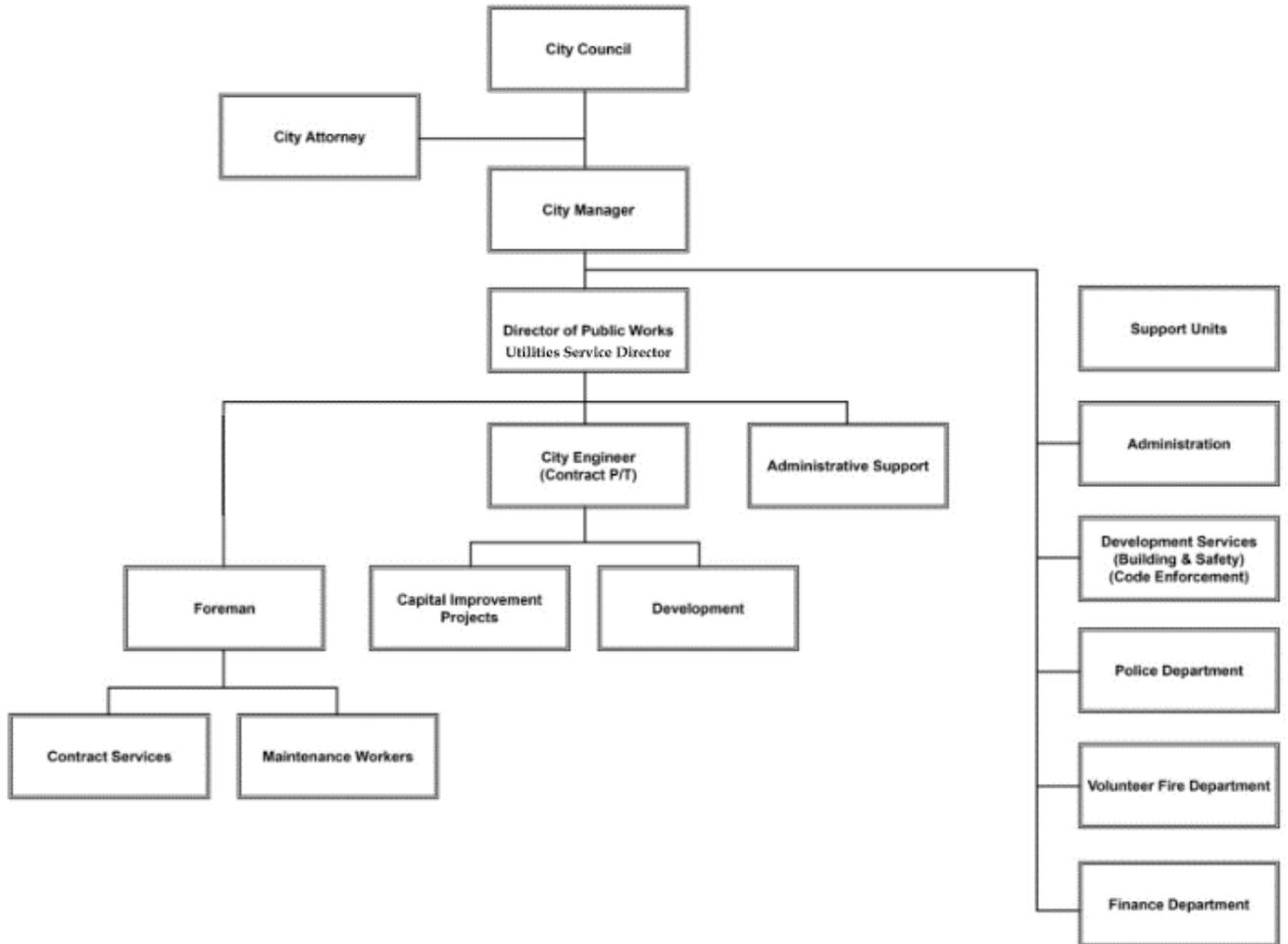
City shall apply through the CIWQS for coverage under the WDR for facilities it owns. City shall prepare a comprehensive SSMP, and if it has not yet fully adopted applicable codes, local ordinances or resolutions governing the performance of items stipulated in the WDR, it will promptly undertake actions to adopt the legal means to do so.

City departments will play significant roles, jointly and separately, towards attaining the goals of the WDR. The degree of these collaborative efforts will vary from department to department depending on the degree of SSO related services the DPW is providing.

### **2.4 Organization Chart and Responsibilities**

The organization chart, presented in Section 2.4.1, shows the structure and relationships of the City's legislative, administrative, management and field positions and their respective responsibilities and support are described in Sections 2.4.2 and 2.4.3

## 2.4.1 Organization Chart for the Sewer System Management Plan



## **2.4.2 Description of Responsibilities**

The description of responsibilities or roles of each position especially as related to SSO are as follows:

- City Council - Responsible for establishing new and amending existing ordinances and policies governing municipal operations, and the operations of the city's wastewater collection system including the approving of all budgets, contracts and agreements.
- City Attorney {Part Time Contract Services} – Provides advice on legal matters before the City and reviews or prepares contracts, ordinances, resolutions and renders opinions on policies, procedures and statutes relative to the City's governmental operations. Reports to the City Council.
- City Manager – Responsible for the overall management and application of all legal and policy directives that relate to the city's activities, including the operation and maintenance of the city's wastewater collection system. Reports to the City council.
- Director of Public Works – Directs the accomplishment of statutory and policy criteria, within the scope of the City Council's policy and legal requirements. Directs its execution, and evaluates work accomplished within designated areas of responsibility, including the SO&M program. Also directs the planning, budgeting, design and construction of new and rehabilitation of existing wastewater collection systems, and assists with claims and litigations against the City relative to public infrastructure and exercises oversight of clerical staff. Reports to the City Manager.
- City Engineer {Part Time Contract Services } – Directs engineering activities relating to studies, design, investigations, and the preparation of reports, budget recommendations and contractual agreements with firms for technical services projects. Performs special studies, investigations and reports concerning sewer infrastructure. Reports to the Director of Public Works.
- Deputy Director of Public Works - Exercises oversight of field operations and maintenance with responsibilities for day-to-day management and operation of the City's public facilities, including the wastewater collection system operation and maintenance activities. Directs emergency sewer response and repair activities. Reports to the Director of Public Works.
- Foreman - Responsible for assigning work, training and exercising oversight of field maintenance personnel who are responsible for the sewer collection system operation and maintenance activity. In addition, this position is also responsible for street maintenance activities, street trees and public open space areas. This is a working foreman type of position in which the foreman works as a member of the crew. Reports to the Deputy Director of Public Works.
- Maintenance Workers - These include three Public Works Maintenance Workers who are responsible for maintenance activities of the sanitary sewer collection system

including response to SSO, sewer cleaning, construction and other activities as needed. Reports to the Foreman.

- Office Administrative and Clerical Assistants - Assist in the preparation of the SO&M budget, reports, related correspondence, and are responsible for the sewer service charge direct assessments. Reports to the Director of Public Works.

### **2.4.3 Key Support Units**

Other divisions or departments within the city are currently and will continue to be responsible for carrying out some of the compliance actions called for by the WDR. The key support units and their responsibilities are described below:

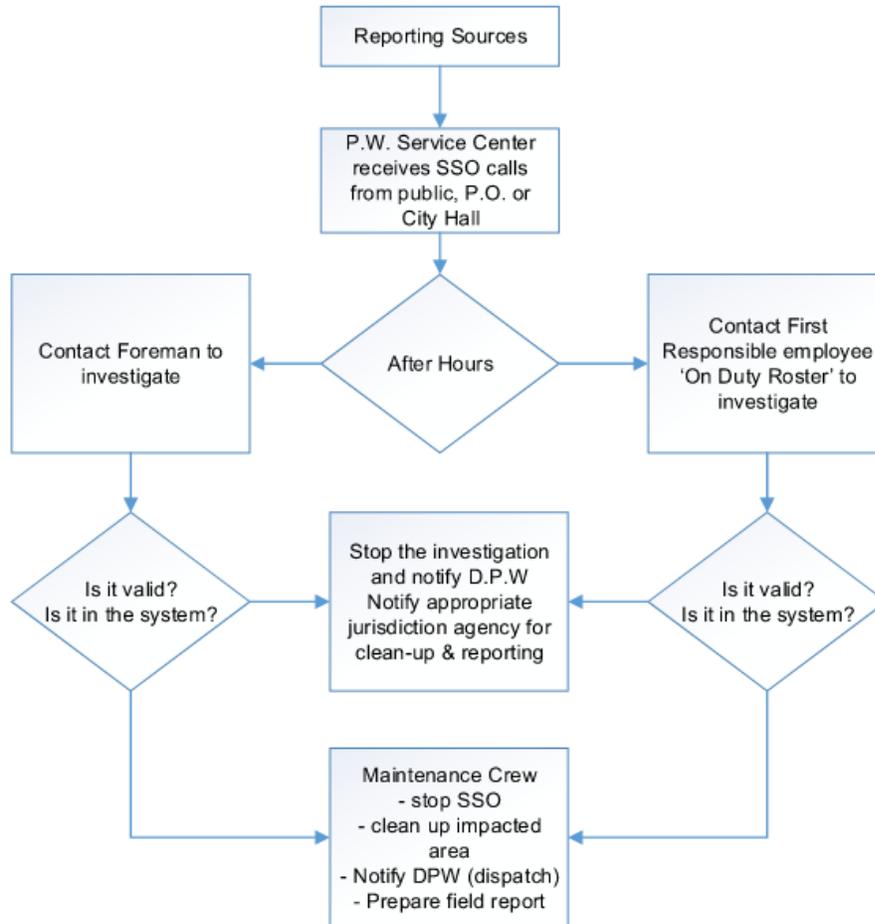
- Administrative Services Department - Responsible for procuring equipment and as needed contract services for emergency sewer repair projects, printing and mailing of public education outreach program materials, and for procuring material and supplies needed for the day to day operation and maintenance activities, and the staffing and general training of personnel. Also responsible for investigating SSO related claims and litigations against the City.
- Finance Department – Responsible for receiving and recording sewage related fees and charges, tracking expenses attributable to the sewer system, evaluating the relationship of revenues vs. expenses for the sewer system, facilitating and tracking any emergency related expenses incurred and participating in the periodic audits of the sewer system operations and maintenance functions.
- Building and Safety Division - [Part Time Contracted Services] - Responsible for reviewing various building permit applications, their relationship to public easements and facilities, and issuing permits for sewer laterals and connections.
- Code Enforcement Division – Responsible for enforcement of the Health and Safety Codes regarding waste disposal such as the FOG program, point source control inspection of industrial and commercial waste and grease generating facilities, and investigation of cases of illicit discharge of chemicals, debris, etc. into the public sewer system. Also enforcement of the Plumbing Codes involving proper connection and discharge into the public sewer system and the maintenance of sewer laterals between the structure served and the public wastewater collection main.
- Engineering Functions [Part Time Contracted Services] - Responsible for preparing plans and specifications for sewer construction and rehabilitation projects, and the administration of contracts for accomplishing such projects and emergency sewer repairs. Also responsible for subdivision or development project plan checks to ensure compliance with the City design, construction and inspection criteria, the review of sewer capacity studies to size proposed sewer lines and sets requirements to ensure adequate capacity in existing systems. Prepares easement documents or identifies and procures access rights for public sewer facilities located within private properties.

- City Volunteer Fire Department – Responsible for assisting with protecting the public in the event of an SSO that expands into high use public travel way and/or those that reach storm drains or watercourses and spread the effect of public risk to health and safety impacts.
- Police Department - Responsible for operating the Emergency Operation Center for the City including ASD handling after-hours service calls reporting SSO and other urgent facility needs and forwarding those reports to the DPW.

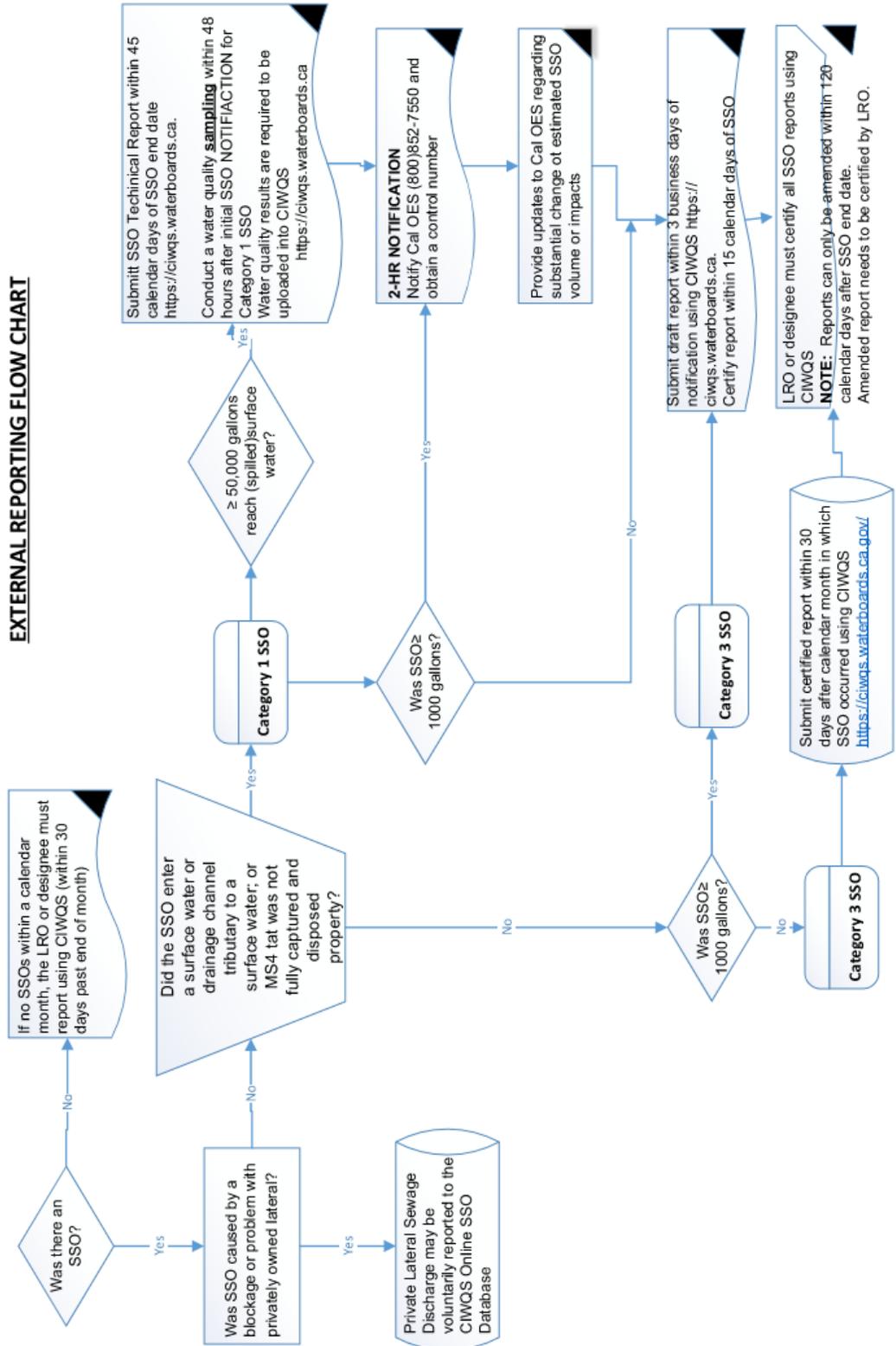
#### **2.4.4 Chain of Communication for SSO Reporting**

The chain of communication for reporting SSO, from receipt of a complaint or other reliable information source to notifying the appropriate regulatory agencies, is presented in section 2.4.5. The city contact directory for communicating with both internal and external parties involved in responding and reporting an SSO event is noted in Section 2.4.6. The complete Overflow Emergency Response Plan is presented in Chapter 6 of this document.

### 2.4.5 SSO Reporting Procedures Flow Chart



**EXTERNAL REPORTING FLOW CHART**



## 2.4.6 City’s Contact Directory for SSO Responding and Reporting

<u>Responsible Party’s</u>	<u>Name</u>	<u>Telephone</u>	<u>After Hrs. or Cell Phone</u>
City Manager	Reynoso, Jose	1-626-355-7135 x 201	
Director of Public Works	Chris Cimino	1-626-355-7135 ext. 801	
Utility Service Director	Steven McGee	1-626-355-6615 ext. 818	
Building Official	Willdan Services	1-626-355-7135 ext. 406	
Street & Sewer Foreman	James McGowan	1-626-355-7135 ext. 814	
Duty Person (After hours)	‘See Duty Roster’	1-626-372-6371	
Police Department	Watch Commander	1-626-355-1414	
Fire Department	Verdugo Dispatch	911	911
Co. Health Department		1-626-430-5420	1-213-974-1234
Co. Flood Control		1-626-445-7630	1-626-458-4357
Co. Sanitation Districts’	24-Hr. Opns. Cntr.	1-562-437-6520	1-562-437-6520 1-800-675-4357
L.A. County DPW	24-Hr. Opns. Cntr.	1-626-458-4357	1-626-458-4357
R.W.Q.C.B. (Region 4)		1-213-576-6600	
State O.E.S.		1-800-852-7550	1-800-852-7550
CIWQS Help Center			

## 2.5 Monitoring and Reporting Plan Requirements

The MRP states that:

- An Enrollee may/should have more than one LRO.
- Any LRO shall be registered with the SWRCB; link to CIWQS User Registration (LROs and Data Submitters) at <https://ciwqs.waterboards.ca.gov/ciwqs/newUser.jsp>.
- The Enrollee shall maintain continuous coverage by an LRO. Any change of a registered LRO, including deactivation or a change to the LRO’s contact information, shall be submitted by the Enrollee to the SWRCB within 30 days of the change by calling 866-79- CIWQS (24977) or by email at [ciwqshelp@waterboards.ca.gov](mailto:ciwqshelp@waterboards.ca.gov).

## 2.6 References

- SSS WDR – [http://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2006/wqo/wqo2006\\_0003.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2006/wqo/wqo2006_0003.pdf)
- MRP – [http://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2013/wqo2013\\_0058exec.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2013/wqo2013_0058exec.pdf)

## CHAPTER 3 - LEGAL AUTHORITY

### 3.1 Statutory Authority

Pursuant to the California Government Code, Sections 37100 and 54350, the City Council, as the local legislative body, may by ordinances and resolutions make and enforce all rules and regulations necessary for the administration of the City's SSMP. Such actions include, but are not limited to, the design, cleaning, repair, construction, reconstruction, rehabilitation, replacement, operation, and maintenance of wastewater collection system within the City. Consistent with the law, several ordinances have been established by the City Council to govern aspects of the SO&M plan. Legal authorities for the specific areas stipulated in the WDR are discussed below.

SMMC Section 15.20.010 entitled "Adoption of the 2019 California Plumbing Code and Appendixes", adopted by reference the Uniform International Plumbing Code, 2018 Edition with indexes, appendices and amendments in this Chapter; thereby, updating the Plumbing Code of the City.

SMMC Section 12.20.070 entitled "Duty of abutting landowners to cultivate trees on public property" Section D requires the owner of the property being served by a house connection sewer to maintain any sewer lateral lines serving that land clear of tree root obstructions.

#### *3.1.1 Authority to prevent illicit discharges into the sanitary sewer system*

SMMC Section 13.12.300 entitled "Discharge of objectionable materials prohibited" defines various substances that may not be placed, deposited or discharged into any public sewer or house sewer connection. Such substances include: petroleum products, grease, sand, soil, acids, and wastes that could cause obstructions to or otherwise interfere with the efficient and successful operation of the wastewater collection system.

SMMC Section 13.12.310 entitled "Rain and surface water prohibited" prohibits the discharge of surface drainage or storm waters into a public sewer. Section 13.12.330 entitled "Opening manholes" precludes anyone opening or entering any sewer manhole in order to dispose of substances including storm or surface waters or for any other purpose.

#### *3.1.2 Authority to require sewers and connections be properly designed and constructed*

SMMC Sections 13.12.010 through Section 13.12.210 pertain to permitting, plans, design criteria, materials, location, structures, construction and Section 13.12.280 entitled "Inspection; notice" describes the inspection criteria to be followed within the City. For on-site sewer laterals and facilities the reviewing, permitting and approval/rejection authority is the Building Official under the PC.

SMMC Section 13.12.050 Plumbing fixtures to be connected to public sewer. Every plumbing fixtures requiring drainage shall be connected to the public sewer, and that such fixture connections are verifiable.

### ***3.1.3 Authority to ensure access for maintenance, inspection, or repairs***

SMMC Section 13.12.290 entitled “Maintenance inspection” provides for access to all public sewers and house connection sewers for the purpose of inspecting such facilities as to proper operations and maintenance according to the code. Any obstruction to such inspection of the sewer facility must be removed if so directed by the Director. The PC also covers access to structures and private property relative to building permit activity.

### ***3.1.4 Authority limiting discharge of Fats Oils and Greases (FOG) and other debris that may cause blockage***

SMMC Chapter 13.14 entitled “Fats, Oil, and Grease Ordinance” establishes authorities, prohibitions, pretreatment, maintenance, record keeping and enforcement relative to the discharge of FOG by Food Service Establishments (FSE) into the wastewater collection system. Section 13.12.300 entitled “Discharge of objectionable materials prohibited” also limits discharge of oil, fatty matter and grease into the wastewater collection system. Grease traps and interceptor devices are also addressed in the PC.

### ***3.1.5 Authority to enforce any violation of sewer ordinances***

SMMC Chapter 1.18 entitled “Administrative Enforcement” Section 1.18.010 “Purpose and intent” describes the authorities, notices, procedures and penalties relative to violations of the City Codes.

SMMC Sections 13.12.360 through 13.12.390 addresses enforcement activities as does Sections 13.14.210 through 13.14.350 of the FOG Control Ordinance.

### ***3.1.6 Authority to Fund the operations & maintenance of the sewer system***

SMMC Section 13.08.020 entitled “Sewage Rates” and Section 13.08.070 entitled “Connection charges” authorize monthly sewer service charges and sewer connection fees, respectively to fund regular Operation and Maintenance activities on the City’s sanitary sewer system and to pay for the acquisition, construction, reconstruction, maintenance and operation, and repayment of debt service obligations for the construction of sewerage facilities. Clearly a portion of that charge could be used for Capital Improvement Projects (CIP) to finance sewer rehabilitation within the city’s system.

The Codes, standard plans, specifications and other materials cited in this chapter are filed in the Office of the City Clerk and the Office of the Director of Public Works.

## **3.2 Monitoring and Reporting Plan Requirements**

The September 2013 MRP did not change any of the requirements of the previously adopted SSS WDR for this element.

## **CHAPTER 4 - OPERATION AND MAINTENANCE PROGRAM**

### **4.1 Preventive Maintenance Program**

The program consists of random visual inspections of the sewer system manholes and pipelines, pipe cleaning, repairs as needs indicate, and related activities. This informal approach is structured and carried out to detect and correct potential problems as identified or reported.

The SO&M services are provided from a central maintenance service yard within the City, which is located at 621 E. Sierra Madre Blvd. From this location, maintenance activities are resourced and managed for response to an SSO or other emergency situations. The central office and each maintenance crew vehicle is radio equipped and crew leaders, supervisors and managers have mobile phones for timely communications. Other equipment resources include: light construction equipment, pumps, generators, trucks and trailer mounted equipment and supplies and various types of safety equipment. A complete inventory of the SO&M equipment and key materials is presented in Appendix 'E'.

The following is a summary of key preventive maintenance activities and where applicable, frequencies for these services have been included:

#### ***4.1.1 SO&M Mapping System –***

The City maintains “as-built” plans of the sewer facilities following their construction. Data on those plans, such as location, alignment, pipe material, size, etc. are stored in the drawing file system at city hall and is transferred to and maintained as features and attributes on the City GIS system files. Such transfer is accomplished within 30-days of receipt of the final records. The files can also contain last date cleaned or repaired, flow direction, and other layers of information to reflect related information such as the storm drain system, trunk sewer lines, video inspection data, etc. as used by the DPW and other governmental agencies. Information generated from the GIS system is printed on map sheets stored in the City Hall and at the Public Works, Field Services Division, located at 621 E. Sierra Madre Blvd. This information is referenced by field crew personnel for work scheduling and for responding to emergencies. Periodically the maps are updated to reflect changes in the system and copies are available to other agencies having a need for such information.

Periodic updates of the GIS files and maps may be scheduled by the DPW when it is necessary to reflect changes for maintenance uses and further evaluation of the sewer system.

A map showing the SO&M yard location, flow monitoring sites and sewage delivery points, to non-city systems (CSD trunks or other agencies), is presented in Appendix 'F'. An inventory of wastewater collection system facilities, listed by total number, total length and point of discharge within each SMZ is presented in Appendix 'G'.

#### ***4.1.2 Sewer Line and Manhole Inspection***

Currently there are no pump station facilities in the city system. So, on an as

indicated need basis, sewer lines can be mirrored to assess a potential problem. The inspection of manhole interiors and lid area are performed as overall work scheduling allows. This activity is to identify any structural defects, sewage flow condition, presence of vermin or rodents, deleterious industrial waste, odors and any signs of unusual settlement around the manholes and along sewer alignments.

#### ***4.1.3 Drop Manholes, Gas Trap Manholes and Siphons –***

Currently there are no Gas Trap Manholes or Siphons in the city sewer system. However, Drop Manholes are inspected, cleared of stoppages and flow restrictions on variable frequencies based on prior inspection records, but no less frequent than semi-annually.

#### ***4.1.4 Sewer Line Cleaning –***

Sewer lines are typically cleaned by hydro jet or mechanical root cutting (rodding). The frequency of cleaning and inspection is based on inspection records and/or call-outs on reported complaints. Sewer lines known to accumulate FOG, garbage grinds or other grit or have root intrusions are labeled maintenance “Hot Spots” (See Appendix ‘H’) and are put on a quarterly cleaning schedule. Pipe segments prone to root growth are periodically cleared using a chemical herbicide or root cutter. Those prone to accumulate FOG are periodically cleaned using caustics, surfactants, enzymes, microbes or high pressure jetting. The entire City mainline sewer system was cleaned by hydro jetting and inspected by CCTV equipment between February and May 2007.

#### ***4.1.5 Flow Monitoring Samples***

Selected SMZ’s are monitored periodically to obtain representative wastewater flow rate samples to assess possible operational changes in sewer system usage within the community. Such sampling is done on a frequency recommended by the City Engineer and usually performed by a qualified contractor that provides such services. Results of flow rate monitoring are contained in Appendix ‘H’.

#### ***4.1.6 Vermin and Rodent Control***

Manholes infested by insects are chemically treated. Those infested by rodents are baited.

#### ***4.1.7 Work Scheduling and Documentation***

All maintenance work is scheduled utilizing electronic record keeping within a maintenance tracking software purchased in 2012. Field crew activities are recorded on laptops containing mobile maintenance tracking software that links to the main system for collective data review and reporting usage. This includes service requests, cleaning reports, sewer maintenance daily reports, manhole adjustments, overflow reports, etc.

#### ***4.1.8 Operating Revenues***

Key to supporting a sound preventative maintenance program are the receipt of funds sufficient to support scheduled maintenance activities as described above. Shown in Appendix 'I' are the recent and projected fiscal years revenues generated within the city service area based on flat bimonthly rate sewer service charges for residences, and a flat plus indexed to water usage for commercial and industrial for 2014 thru 2018 pursuant to Ordinance #1351.

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

Sewer facilities assessment and rehabilitation are an integral part of the city's SO&M program. A summary of recent years capital improvement activities, a plan to identify and prioritize system deficiencies (condition assessment), and the programming of short-term and long-term rehabilitation projects and related funding development for those capital improvement projects are discussed below.

##### ***4.2.1 Recent Years CIP Activities***

In prior years the construction of sewers was accomplished using benefit assessment district methods or installation as part of an associated and benefiting development. There has been no capital improvement funding of sewers from any other sources.

##### ***4.2.2. Identification and Prioritization of System Deficiencies***

The 2007 CCTV inspection confirmed that all sewer pipelines within the City are made of vitrified clay, and are 8-inches in diameter. Beginning in 1947 the County Sanitation Districts' installed some 10-inch and 12-inch trunk sewer pipes in local arterials for the discharge of commercial sites and the yet to be constructed city sewer system. Then beginning in 1950 the city undertook phased construction of the community wastewater collection system, which was substantially complete by 1972. Only a few segments have been added over the years since that time. This results in a majority of the sewer system ranging from 42 years to 64 years old. As the sewer collection system continues to age, there will be an increasing risk of pipe failures. The types of failure or risk include: blockages (roots and FOG are common), deterioration collapse, lateral intrusions, breaks, missing pieces, joint offsets, excessive inflow and possibly infiltration, and other potential service disruptions (earthquakes) including potential for SSO.

In an effort to manage these challenges and to improve the reliability of the City's sewer infrastructure, the DPW implemented a more thorough Condition Assessment Program. This program involved a digital recording with both a structural and a maintenance rating of the community's entire sewer system. This method will be repeated at regular periodic intervals to monitor and assess system conditions and changes. The assessment system comprises of two parts: 1) A Closed Circuit Television recording team gathers digital and video data for each pipe segment and

manhole within the city's system; and, 2) Personnel in the office generate reports and manage a database with the gathered information that can be incorporated with the GIS mapping and reporting system for regular use in managing the sewer system. The details and schedule for future condition assessments will be recommended by the DPW.

Within the City SSMP, future CCTV work will be prioritized to focus on those sewers thought to have the most urgent repair needs. Maintenance history, past overflow records, known conditions, and age will be some of the factors used to prioritize CCTV work schedules. The CCTV data gathered in 2007 was analyzed to assess the current condition of the sewer system and used for preparing both the structural and maintenance "Hot Spots" shown in Appendix 'H' and the condition assessment and schedule shown in the Appendix 'J' report.

#### ***4.2.3 Short and Long Term Rehabilitation Action Plans –***

As previously described, the CCTV inspection and evaluation activity will be a key basis in the scheduling of any rehabilitation project. Those segments of the sewers that are inspected, evaluated and determined to be deficient will be scheduled for corrective action as funding is made available to perform the work. A list of current and future capital projects is maintained and updated as summarized in Appendix 'I'.

As deteriorated lines are discovered during future preventive maintenance inspection, those pipe segments are either immediately repaired by force account, use of emergency service contractors or added to the list of future CIP if timing is not deemed critical.

Funding for ongoing operations and maintenance and capital rehabilitation is shown in Appendix 'I' and will need to be kept current as part of the City's annual budget planning process.

#### **4.3 Equipment Maintenance and Replacement Policy**

The City has a comprehensive equipment maintenance program. Equipment is regularly checked, adjusted, repaired or replaced as necessary. However, major fixed assets are replaced when they meet or exceed the City's established fixed assets replacement criteria based on the equipment age, mileage, hours of use, repair history, safety, etc. Replacement of or additions to the major assets are accomplished through the annual budget planning process of the City. Recently due to budgetary revenue constraints a deferred maintenance schedule has been adopted, and results will be monitored to assess impacts and potential future risks.

#### **4.4 Training for Field Operations Personnel and Contractors**

The SO&M personnel and the public works inspectors attend structured collection system training classes or seminars given by other agencies including California Occupational, Safety and Health Administration (CALOSHA), California Water Environment Association (CWEA), County Sanitation Districts' (CSD), etc. This is to keep them

informed of the latest information in the industry on how to safely and efficiently carry out their tasks. The City also utilizes informal training approaches, such as tailgate meetings, monthly safety meetings and apprenticeship training program from higher level staff

Additionally, only those companies with well trained and experienced staff are considered for emergency SSO mitigation or sewer construction and rehabilitation work.

#### **4.5 Monitoring and Reporting Plan Requirements**

- a) The 2013 MRP update did not change the map requirements; however, the new Technical Report requirement for SSOs  $\geq 50,000$  gallons does require a “Detailed location map illustrating all water quality sampling points.” It may be useful to draw or sketch on a copy of your map when documenting an SSO event to indicate the location(s) where the spill occurred and where water quality samples or any photos were taken.
- b) The 2013 MRP update requires a Technical Report for SSOs  $\geq 50,000$  gallons. Part of that report must spell out an Enrollee’s response to the SSO, including “Final corrective action(s) completed and/or planned to be completed, including a schedule for actions not yet completed.” Any changes to the Preventive Maintenance Schedule could be included as a part of a corrective action plan. In addition, any Rehabilitation or Replacement needed could be listed as part of the corrective action(s) taken or planned.
- c) LROs, Data Submitters, and staff should be trained on details of the MRP as appropriate.
- d) The 2013 MRP update did not change the Equipment and Replacement Part Inventory requirements.
- e) The 2013 MRP update now requires an Enrollee to develop and implement a Water Quality Monitoring Program to assess impacts of all SSOs greater than 50,000 gallons reaching surface waters. Sampling, as described in Section D of the MRP, must be initiated within 48 hours of the Enrollee becoming aware of the SSO.

## **CHAPTER 5 - DESIGN AND PERFORMANCE PROVISIONS**

### **5.1 Design and Construction Standards and Specifications**

The City has Standard Plans and Specifications for the Construction of Sanitary Sewers and appurtenances to ensure that sewer lines and connections are properly designed and constructed. The specifications by reference incorporate the Standard Plans and Specifications for Public Works Construction, Special Provisions, and Standard Drawings. In addition, the City utilizes other publications such as the Los Angeles County DPW Sewer Standards, the County's Private Contract Sanitary Sewer Procedural Manual and Guidelines for the Design of Pump Stations etc. to ensure consistency in the design of wastewater collection systems within the City.

To further assure that sewer facilities are properly designed and constructed, City requires that plans are designed by licensed engineers. The plans are submitted to the DPW for thorough review and professional engineering precepts and practices are used in an iterative plan development / review process to ensure that the sewer will function properly over time. Permits for construction of any public sewer infrastructure are issued once the functional design and adequate capacity of the public sewer system has been analyzed.

### **5.2 Procedures and Standards for Inspection and Testing**

The City provides inspection for the installation of new and rehabilitation of deteriorated public sewer facilities. City inspectors (staff or contract) are required to be well trained in pipeline construction, and to attend training classes and educational seminars to maintain familiarity with advancements in the industry. The inspectors are also provided with adequate materials to perform their jobs, including the Standard Specification for Public Works Construction, the Standard Plans and the Public Works Inspectors Manual, etc. The City also requires the preparation and submittal of "As-Built" plans of completed projects prior to final approval and acceptance of the project as public infrastructure. In addition, the city requires all newly constructed or rehabilitated sewer lines to be CCTV inspected, logged and then reviewed by City personnel prior to acceptance of the project.

### **5.3 Monitoring and Reporting Plan Requirement**

The MRP, issued with the SSS WDR, has no requirements to report anything specifically related to the Design and Reporting Standards required in the SSS WDR.

## **CHAPTER 6 - OVERFLOW EMERGENCY RESPONSE PLAN**

### **6.1 Overflow Response Procedure**

The City provides 24-hour emergency response services to investigate and act upon notifications received from citizens or other valid sources. City personnel are available 24-hours each day to receive and respond to emergency calls related to problems in the sewer system. The city's SSO Emergency Response Plan is contained as Appendix 'K' in this manual.

SSO – Call @ 626-355-7135 Monday Thru Thursday : 7:30am – 5:30pm  
Outside of Business Hours Call @ 626-355-1414

All calls or notifications received are logged on a notification form, which is included as attachment K-1 in Appendix 'K'. The receiving person will record the required information and then promptly notify the designated after-hours 'duty person(s)' or during regular service hours dispatch the nearest Sewer Maintenance crew to the problem site. The SO&M superintendent or supervisor who receives the emergency call will investigate the reported notification and take appropriate action including, but not limited to, immediate dispatch of a standby crew with necessary equipment to manage the problem, or refer the call to other agencies if the problem is determined to be outside the jurisdiction of the City. These overflow responding and follow-up procedures are presented in the reporting procedures flow chart within Chapter 2.

As prescribed by City Best Management Practices and contained in the SSO Response Plan (See Appendix 'K'), the crew responding to an overflow emergency is required to contain and stop the overflow as soon as possible, and ensure that the facility or area is cleaned up and returned to normal operation. Notification to the residents/businesses in the immediate vicinity of the overflow is to inform them of the problem, its apparent cause and the corrective action taken.

The California Office of Emergency Services (Cal OES) must be notified of all overflows. That office will in turn notify the RWQCB and County Health Department as spill conditions require.

The city has the responsibility for updating Cal OES on all spill reports as well as filing required reports on the State CIWQS reporting system. When any spill volume reaches surface water and/or a drainage course or MS4 component and is not fully recovered is considered to have reached surface waters. If such potential occurs during any spill, it may be beneficial to also notify associated entities (e.g. CFCD, receiving agencies,) to enlist their aid in containment and recovery. The agencies to be notified, method and time frame for notification are presented in Section 6.1.1. The relevant data about the overflow such as location, volume, agencies notified, etc. is recorded in field report forms (see Appendix 'K') and then reported within allowed time frame into the CIWQS reporting system. Field personnel are trained to be conversant with these procedures and to accurately report SSO incidents.

The DPW has set a response goal of 15 to 60 minutes to respond to emergencies such as SSO, flood outs, or serious blockage/stoppages.

Under the Order's reporting requirements three categories of SSOs are defined:

- Category 1. All discharges of sewage of **any volume** resulting from failure in sanitary sewer system or flow condition that:
  - ✓ Reach drainage channel and/or surface water tributary to a surface water
- Reach a Municipal Separate Storm Sewer System (MS4) and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or groundwater infiltration basin (e.g., infiltration pit, percolation pond). Category 2. All discharges of sewage resulting from failure in sanitary sewer system that:
  - ✓ Equals or exceeds 1,000 gallons
  - ✓ Does not reach surface water, a drainage channel, or a municipal separate storm sewer system unless the entire SSO discharged to the storm drain is disposed properly
- Category 3. All other discharges of untreated or partially treated sewage resulting from a failure in the sanitary sewer system.
- Private Lateral Sewage Discharges. Sewage discharges that are caused by blockages or other problems within a privately owned lateral. PLSD that the enrollee becomes aware of may be voluntarily reported to the CIWQS Online SSO Database.

Initial reporting of Category 1 and Category 2 SSOs must be reported to the Online SSO Database as soon as possible, but no later than three business days after the SSO is known. A final certified report must be completed through the Online SSO Database within 15 calendar days of the conclusion of SSO response and remediation. Category 3 SSOs must be reported to the Online SSO Database within 30 days after the end of the calendar month in which the SSO occurs. Private Lateral Sewage Discharges may be reported on the Online SSO Database, but, if reported, should be identified as occurring and caused by a private lateral.

In addition to reporting on the SSO Database, Category 1 SSOs, especially those that enter surface waters, must notify the Office of Emergency Services (OES) within two hours and obtain a notification control number in accordance with California Water Code Section 13271, et seq. Order No. WQ. 2013-0058-EXEC

### 6.1.1 Regulatory Agencies Notification and Time Frame

SSO Category	Type or Description	Agencies to be Notified	Type of Notification and Timeframe	
			Timeframe	Written Report/Online Database
1	<p>Any volume of untreated or partially treated SSO:</p> <ul style="list-style-type: none"> <li>Reach surface water and/or drainage channel tributary to surface water</li> <li>Discharge to a storm drain and not fully captured and returned to the sanitary sewer system or not captured and disposed of properly. Any volume not recovered from storm drain is considered to have reached surface water.</li> </ul>	OES (≥ 1,000 gallons)	As soon as possible, but no later than 2 hours after becoming aware of the spill.	Call and obtain control number.
		DPH	Within 15 minutes after becoming aware of the spill.	Call and obtain operator number.
		FMD (only if entered into storm drain)	As soon as possible, but no later than 2 hours after becoming aware of the spill.	NA
		EPD (≥ 50,000)	As soon as possible, but no later than 2 hours after becoming aware of the spill.	Conduct Water Quality Sampling within 48 hours of initial spill. <b>CIWQS Online Database</b> – Upload water quality results. <b>SSO Technical Report</b> – Submit report within 45 calendar days on conclusion of SSO in which 50,000 gallons or greater are spilled to surface water.
		RWQCB (Region 4 or 6)	As soon as possible, but no later than 2 hours after becoming aware of the spill.	Certify that the notification has been made ASAP, but no later than 24 hours after becoming aware of the spill.
		SWRCB	As soon as we become aware of the SSO, reporting is possible and can be provided without substantially impeding cleanup or other measures.	<b>CIWQS Online Database Initial Report</b> - ASAP but no later than initial 3 business days after we are made aware of it. <b>Final Certified Report</b> – Within 15 calendar days on conclusion of the SSO response and remediation. <b>Additional Information</b> – Anytime in form of an attachment.
2	<p>≥ 1,000 gallons of Untreated or partially treated SSO:</p> <ul style="list-style-type: none"> <li>Does not reach surface water, drainage channel or storm drain unless discharge to storm drain system is fully recovered and disposed of properly.</li> </ul>	FMD (only if entered into storm drain)	Same as above	NA
		DPH	Same as above	NA
		RWQCB (Region 4 and 6)	Same as above	Same as above
		SWRCB	Same as above	Same as above
3	All other discharge of untreated or partially treated resulting from sewer system failure or flow condition.	DPH	Same as above	NA
		RWQCB (Region 4 and 6)	Same as above	Same as above
		SWRCB	Same as above	<b>CIWQS Online Database</b> – Within 30 days after the end of the calendar month in which the SSO occurred.
PLSD	Private lateral sewage discharge (PLSD) caused by blockages or other problems within a privately-owned lateral	DPH	Same as above	NA
		RWQCB (Regions 4 and 6)	Same as above	Same as above
		SWRCB (optional)	NA	NA
NA	No SSO in a calendar month	SWRCB	NA	<b>CIWQS Online Database</b> – Certified within 30 days after the end of the calendar month, certified statement that no SSO occurred.
NA	Collection System Questionnaire	SWRCB		<b>CIWQS Online Database</b> - Update and certify every 12 months.

### ***6.1.2 Field Response, Report Protocol and Forms***

Appendix 'K', the SSO Emergency Response Plan, describes the procedures and reporting activity to be accomplished during an actual overflow event in the physical setting in which it occurs. Corrective actions and reporting guides are described and an investigation and reporting format are included for reference use.

### ***6.1.3 Procedure to ensure staff and contractors are aware and appropriately trained to follow Emergency Response Plan***

The SSO Emergency Response Plan is available to key personnel who are responsible for managing or responding to SSO's. Copies of the City's instruction manuals are available to field crews and engineers at the office who manage or have the role of preparing SSO reports to regulatory agencies. The experience of any contractors' emergency response team plays a very important part during the selection of the City's as needed emergency contractors.

### ***6.1.4 Procedures to address emergency operations response activities.***

The SO&M field personnel and those of any emergency contractors' who are retained for SSO responses are required to be well trained in traffic and crowd control. The City's vehicles are well equipped with traffic and crowd control tools, including orange traffic control cones, yellow tape, flashing lights, orange uniforms, appropriate signs, etc.

### ***6.1.5 Program to eliminate or minimize discharge of SSO into waters of the United States***

The SO&M personnel and emergency contractors' crews are required to be properly trained on methods and procedures to prevent or limit the amount of SSO into Waters of the United States and how to mitigate such impacts. Some effective methods include the use of sand bag barriers to contain SSO's, placement of absorbent socks to intercept SSO discharge before entering storm drain inlets, and the use of vacuum equipment to suck up contained spills and dump effluent back into the collection system at other safe locations. The SO&M crews have as one of their major goals the reduction of response time for SSO. Reducing response time could significantly limit the amount of SSO that reaches the Waters of the United States.

### ***6.1.6 SSO flow estimation tables and photographs***

Example SSO flow estimation templates (guides) follow:

[Courtesy of the California Water Environment Association]

**Collection System Collaborative Benchmarking Group  
Best Practices for Sanitary Sewer Overflow (SSO) Prevention and  
Response Plan**

**Attachment D - Sample Templates for SSO Volume Estimation**

**TABLE 'A'**

**ESTIMATED SSO FLOW OUT OF M/H WITH COVER IN PLACE**

**24" COVER**

Height of spout above M/H rim <u>H in inches</u>	S S O FLOW <u>Q</u>		Min. Sewer size in which these flows are possible
	<u>in gpm</u>	<u>in MGD</u>	
1/4	1	0.001	
1/2	3	0.004	
3/4	6	0.008	
1	9	0.013	
1 1/4	12	0.018	
1 1/2	16	0.024	
1 3/4	21	0.030	
2	25	0.037	
2 1/4	31	0.045	
2 1/2	38	0.054	
2 3/4	45	0.065	
3	54	0.077	
3 1/4	64	0.092	
3 1/2	75	0.107	
3 3/4	87	0.125	
4	100	0.145	
4 1/4	115	0.166	
4 1/2	131	0.189	
4 3/4	148	0.214	
5	166	0.240	
5 1/4	185	0.266	
5 1/2	204	0.294	
5 3/4	224	0.322	6"
6	244	0.352	
6 1/4	265	0.382	
6 1/2	286	0.412	
6 3/4	308	0.444	
7	331	0.476	
7 1/4	354	0.509	
7 1/2	377	0.543	
7 3/4	401	0.578	8"
8	426	0.613	
8 1/4	451	0.649	
8 1/2	476	0.686	
8 3/4	502	0.723	
9	529	0.761	

**36" COVER**

Height of spout above M/H rim <u>H in inches</u>	S S O FLOW <u>Q</u>		Min. Sewer size in which these flows are possible
	<u>in gpm</u>	<u>in MGD</u>	
1/4	1	0.002	
1/2	4	0.006	
3/4	8	0.012	
1	13	0.019	
1 1/4	18	0.026	
1 1/2	24	0.035	
1 3/4	31	0.044	
2	37	0.054	
2 1/4	45	0.065	
2 1/2	55	0.079	
2 3/4	66	0.095	
3	78	0.113	
3 1/4	93	0.134	
3 1/2	109	0.157	
3 3/4	127	0.183	
4	147	0.211	
4 1/4	169	0.243	
4 1/2	192	0.276	
4 3/4	217	0.312	6"
5	243	0.350	
5 1/4	270	0.389	
5 1/2	299	0.430	
5 3/4	327	0.471	
6	357	0.514	
6 1/4	387	0.558	8"
6 1/2	419	0.603	
6 3/4	451	0.649	
7	483	0.696	
7 1/4	517	0.744	
7 1/2	551	0.794	
7 3/4	587	0.845	10"
8	622	0.896	
8 1/4	659	0.949	
8 1/2	697	1.003	
8 3/4	734	1.057	
9	773	1.113	

**Disclaimer:**

This sanitary sewer overflow table was developed by Ed Euyen, Civil Engineer, P.E. No. 33955, California, for County Sanitation District 1. This table is provided as an example. Other Agencies may want to develop their own estimating tables.

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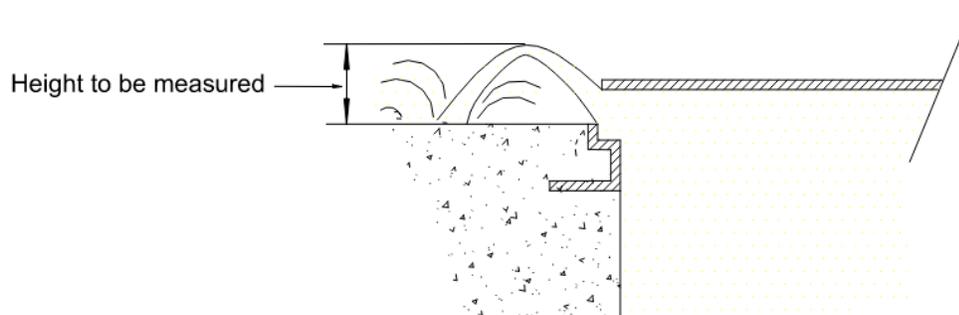
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The formula used to develop Table A measures the maximum height of the water coming out of the maintenance hole above the rim. The formula was taken from hydraulics and its application by A.H. Gibson (Constable & Co. Limited).

Example Overflow Estimation:

The maintenance hole cover is unseated and slightly elevated on a 24" casting. The maximum height of the discharge above the rim is 5 ¼ inches. According to Table A, these conditions would yield an SSO of 185 gallons per minute.

**FLOW OUT OF M/H WITH COVER IN PLACE**



This sanitary sewer overflow drawing was developed by Debbie Myers, Principal Engineering Technician, for Ed Euyen, Civil Engineer, P.E. No. 33955, California, of County Sanitation District 1.

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**TABLE 'B'  
ESTIMATED SSO FLOW OUT OF M/H WITH COVER REMOVED**

**24" FRAME**

Water Height above M/H frame H in inches	S S O FLOW Q		Min. Sewer size in which these flows are possible
	in gpm	in MGD	
1/8	28	0.04	
1/4	62	0.09	
3/8	111	0.16	
1/2	160	0.23	
5/8	215	0.31	6"
3/4	354	0.51	8"
7/8	569	0.82	10"
1	799	1.15	12"
1 1/8	1,035	1.49	
1 1/4	1,340	1.93	15"
1 3/8	1,660	2.39	
1 1/2	1,986	2.86	
1 5/8	2,396	3.45	18"
1 3/4	2,799	4.03	
1 7/8	3,132	4.51	
2	3,444	4.96	21"
2 1/8	3,750	5.4	
2 1/4	3,986	5.74	
2 3/8	4,215	6.07	
2 1/2	4,437	6.39	
2 5/8	4,569	6.58	24"
2 3/4	4,687	6.75	
2 7/8	4,799	6.91	
3	4,910	7.07	

**36" FRAME**

Water Height above M/H frame H in inches	S S O FLOW Q		Min. Sewer size in which these flows are possible
	in gpm	in MGD	
1/8	49	0.07	
1/4	111	0.16	
3/8	187	0.27	6"
1/2	271	0.39	
5/8	361	0.52	8"
3/4	458	0.66	
7/8	556	0.8	10"
1	660	0.95	12"
1 1/8	1,035	1.49	
1 1/4	1,486	2.14	15"
1 3/8	1,951	2.81	
1 1/2	2,424	3.49	18"
1 5/8	2,903	4.18	
1 3/4	3,382	4.87	
1 7/8	3,917	5.64	21"
2	4,458	6.42	
2 1/8	5,000	7.2	24"
2 1/4	5,556	8	
2 3/8	6,118	8.81	
2 1/2	6,764	9.74	
2 5/8	7,403	10.66	
2 3/4	7,972	11.48	30"
2 7/8	8,521	12.27	
3	9,062	13.05	
3 1/8	9,604	13.83	
3 1/4	10,139	14.6	
3 3/8	10,625	15.3	36"
3 1/2	11,097	15.98	
3 5/8	11,569	16.66	
3 3/4	12,035	17.33	
3 7/8	12,486	17.98	
4	12,861	18.52	
4 1/8	13,076	18.83	
4 1/4	13,285	19.13	
4 3/8	13,486	19.42	

**Disclaimer:**

This sanitary sewer overflow table was developed by Ed Euyen, Civil Engineer, P.E. No. 33955, California, for County Sanitation District 1. This table is provided as an example. Other Agencies may want to develop their own estimating tables.

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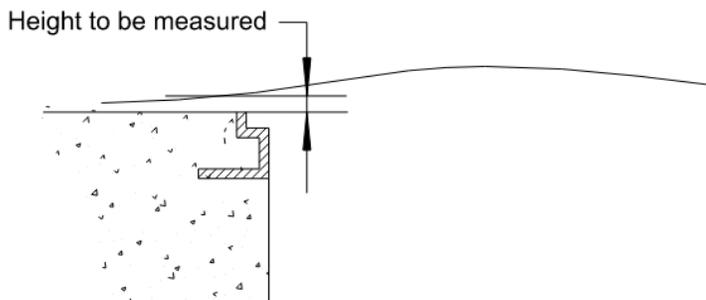
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The formula used to develop Table B for estimating SSO's out of maintenance holes without covers is based on discharge over curved weir -- bell mouth spillways for 2" to 12" diameter pipes. The formula was taken from hydraulics and its application by A.H. Gibson (Constable & Co. Limited).

Example Overflow Estimation:

The maintenance hole cover is off and the flow coming out of a 36" frame maintenance hole at one inch (1") height will be approximately 660 gallons per minute.

**FLOW OUT OF M/H WITH COVER REMOVED (TABLE "B")**



This sanitary sewer overflow drawing was developed by Debbie Myers, Principal Engineering Technician, for Ed Euyen, Civil Engineer, P.E. No. 33955, California, of County Sanitation District 1.

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Best Practices for Sanitary Sewer Overflow (SSO) Prevention and  
Response Plan**

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**TABLE 'C'  
ESTIMATED SSO FLOW OUT OF M/H PICK HOLE**

Height of spout above M/H cover H in inches	SSO FLOW Q in gpm	Height of spout above M/H cover H in inches	SSO FLOW Q in gpm
1/8	1.0	5 1/8	6.2
1/4	1.4	5 1/4	6.3
3/8	1.7	5 3/8	6.3
1/2	1.9	5 1/2	6.4
5/8	2.2	5 5/8	6.5
3/4	2.4	5 3/4	6.6
7/8	2.6	5 7/8	6.6
1	2.7	6	6.7
1 1/8	2.9	6 1/8	6.8
1 1/4	3.1	6 1/4	6.8
1 3/8	3.2	6 3/8	6.9
1 1/2	3.4	6 1/2	7.0
1 5/8	3.5	6 5/8	7.0
1 3/4	3.6	6 3/4	7.1
1 7/8	3.7	6 7/8	7.2
2	3.9	7	7.2
2 1/8	4.0	7 1/8	7.3
2 1/4	4.1	7 1/4	7.4
2 3/8	4.2	7 3/8	7.4
2 1/2	4.3	7 1/2	7.5
2 5/8	4.4	7 5/8	7.6
2 3/4	4.5	7 3/4	7.6
2 7/8	4.6	7 7/8	7.7
3	4.7	8	7.7
3 1/8	4.8	8 1/8	7.8
3 1/4	4.9	8 1/4	7.9
3 3/8	5.0	8 3/8	7.9
3 1/2	5.1	8 1/2	8.0
3 5/8	5.2	8 5/8	8.0
3 3/4	5.3	8 3/4	8.1
3 7/8	5.4	8 7/8	8.1
4	5.5	9	8.2
4 1/8	5.6	9 1/8	8.3
4 1/4	5.6	9 1/4	8.3
4 3/8	5.7	9 3/8	8.4
4 1/2	5.8	9 1/2	8.4
4 5/8	5.9	9 5/8	8.5
4 3/4	6.0	9 3/4	8.5
4 7/8	6.0	9 7/8	8.6
5	6.1	10	8.7

Unrestrained  
M/H cover will  
start to lift

Note: This chart is based on a 7/8 inch diameter pick hole

Disclaimer: This sanitary sewer overflow table was developed by Ed Euyen, Civil Engineer, P.E. No. 33955, California, for County Sanitation District 1. This table is provided as an example. Other Agencies may want to develop their own estimating tables.

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Best Practices for Sanitary Sewer Overflow (SSO) Prevention and  
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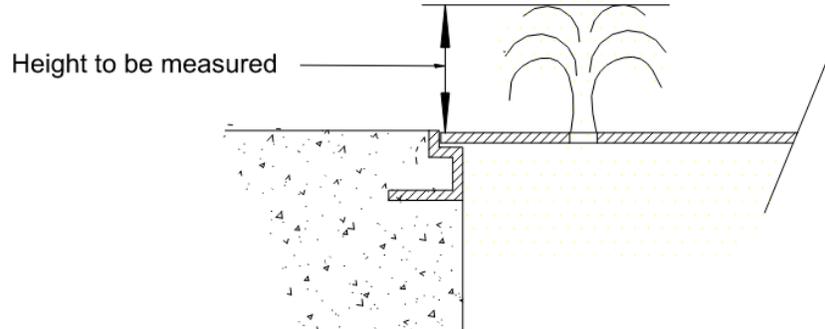
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The formula used to develop Table C is  $Q=CcVA$ , where Q is equal to the quantity of the flow in gallons per minute, Cc is equal to the coefficient of contraction (.63), V is equal to the velocity of the overflow, and A is equal to the area of the pick hole.<sup>2</sup> If all units are in feet, the quantity will be calculated in cubic feet per second, which when multiplied by 448.8 will give the answer in gallons per minute. (One cubic foot per second is equal to 448.8 gallons per minute, hence this conversion method).

Example Overflow Estimation:

The maintenance hole cover is in place and the height of water coming out of the pick hole seven-eighths of an inch in diameter (7/8") is 3 inches (3"). This will produce an SSO flow of approximately 4.7 gallons per minute.

**FLOW OUT OF VENT OR PICK HOLE (TABLE "C")**



This sanitary sewer overflow drawing was developed by Debbie Myers, Principal Engineering Technician, for Ed Euyen, Civil Engineer, P.E. No. 33955, California, of County Sanitation District 1.

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<sup>2</sup> Velocity for the purposes of this formula is calculated by using the formula  $h = v^2 / 2G$ , where h is equal to the height of the overflow, v is equal to velocity, and G is equal to the acceleration of gravity.

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Response Plan**



City of San Diego  
Metropolitan Wastewater Department

**Reference Sheet for Estimating Sewer Spills  
from Overflowing Sewer Manholes**  
*All estimates are calculated in gallons per minute (gpm)*



Wastewater Collection Division  
(619) 654-4160

**Flow Estimation Pictures**

 5 gpm	 25 gpm	 50 gpm
 100 gpm	 150 gpm	 200 gpm
 225 gpm	 250 gpm	 275 gpm

All photos were taken during a demonstration using metered water from a hydrant in cooperation with the City of San Diego's Water Department. rev. 4/99

### **6.3 Notification to Regulatory Agencies**

The City's Sanitary Sewer Overflow Response Plan outlines notification steps and includes a comprehensive contact and notification list. Notification depends on the severity and potential impact of the overflow. All sewer overflows that enter the waters of the state, such as the ocean, must be reported immediately – within 15 minutes of the knowledge of an overflow event, and/or when the Utilities Division's personnel determine that an overflow could potentially reach the waters of the State based on their knowledge of the sewer and storm drain infrastructure. Within two hours of becoming aware of any Category 1 SSO greater than or equal to 1,000 gallons discharged to surface water or spilled in a location where it probably will be discharged to surface water, notify CalOES and obtain a notification control number by calling at (800) 852-7550

# CHAPTER 7 - FOG SOURCE CONTROL PROGRAM

## 7.1 Public education and outreach program

The City notifies users of its sewer system about the FOG source control program. Information on proper disposal of FOG and other SSO prevention measures, including installation of grease traps, backwater valves, sewer lateral maintenance, etc. is disseminated through publication of brochures, articles in newsletters, individual notices to property owners, and with business license renewal notices. These notifications provide descriptions of grease control efforts that can be undertaken by homeowners and businesses alike. Additionally, the DPW utilizes personal contacts with home and business owners, by its field crews and the code enforcement inspectors, as conditions warrant. These methods are usually effective in relaying information to the community on proper disposal of FOG and other SSO prevention methods.

Other effective ways to communicate with the public are being considered, such as use of the City's home web page, and both radio and local cablevision announcements. Another helpful tool is the exchange of outreach information between sewer agencies, and use of bilingual posters, developed by the California Restaurant Association (CRA) and CSD, for direct distribution to food service establishments (FSE) as a BMP tool for training and reminding those who work with FOG producing products. The CSD has also developed a training program available to agency personnel on methods to control grease discharges in order to prevent SSO. For CSD's FOG Training available to local cities contact (562) 699-7411 x 2907, and information, documents and guidelines are available on the Cal FOG website <http://calfog.org>.

FOG in the local sewer system can be a prime contributor to an SSO. Related health and safety issues can also result from the discharge of pharmaceuticals and pesticides into the wastewater collection system. Although not usually a causative factor in sewer overflows, these chemicals can be toxic and have disruptive environmental and biological effects. Discharges of such chemical compounds, into the sewers, must be part of the community education and outreach program. *No drugs or household pesticides down the drain* are a compatible health and safety advisory.

## 7.2 Disposal methods for FOG generated within the system service area

Solidified FOG found in the public sewer system during regular scheduled cleaning operations or clearing of a blockage are trapped, collected and taken to an available local rendering company, a qualifying dump bin or to the Joint Water Pollution Control Plant (JWPCP), in the City of Carson, operated by CSD. The solid debris (FOG, roots, grit, etc.) collected from the system are taken to permitted FOG disposal facilities such as a land fill or the JWPCP. FOG in liquid form is flushed down by hydro jetting to designated treatment facilities for disposal.

## 7.3 Legal authority to prohibit discharges to the system and control measures to prevent SSOs and blockages caused by FOG

Legal authority to prohibit illicit discharges (i.e. FOG, etc.) to the sewer system is discussed in Chapter 3. Requiring grease interceptors at food preparation locations to prevent the discharge of grease to the public sewer system and educating the public on proper disposal methods for FOG are also discussed in this chapter. Discharges from industrial classification facilities are usually controlled under the terms of an industrial wastewater discharge permit, which is issued and

monitored by the local sewerage agency.

#### **7.4 Requirements for design, installation, maintenance, BMPs, record keeping and reporting of grease removal devices.**

The City Building Official and/or City Health Officer are authorized to monitor and enforce the terms of the Plumbing Code and the Public Health Code. This includes domestic waste disposal from residential and commercial facilities. The SMMC prohibits the discharge of water, sewage or liquid waste containing oil, grease, tar, or other ingredients in solution which may clog, obstruct or fill the and/or prevent the unobstructed use of the facility.

The DPW is charged with reviewing, permitting and inspecting industrial waste facilities that discharge into the City's wastewater collection system. Pretreatment devices are required for industrial waste generating facilities, including restaurants and other FSE. Grease removal devices are required to be designed per Chapter 10 of the PC, approved, installed and operated in a manner to control discharges of FOG into the wastewater collection system. This is to ensure that the facilities do not create nuisances, menaces to the public peace, health or safety hazards, or adverse impacts on the public sewerage system, soil, underground and/or surface waters. If there is a FOG related problem associated with an industrial waste permit, City will take enforcement action against the permittee.

When during inspection of the wastewater collection system, SO&M personnel determine that a FOG related problem exists and is traceable to a domestic sewage source of such character that is not suitable under the SMMC, pretreatment could be required or the discharge required to be eliminated. Domestic waste containing FOG can lead to SSO, such would be classed a public nuisance, and California Health and Safety Code Division 5, Part 3, Chapter 6, Article 2 can be used to impose appropriate domestic sewage discharge requirements.

The effectiveness of any grease removal devices is dependent upon their routine maintenance and monitoring/inspection for conformance with its intended purpose. Regular inspection and maintenance activity logging with quarterly reporting are required.

#### **7.5 Authority to inspect grease producing facilities, enforcement authorities, and evidence of adequate staffing to inspect and enforce the FOG control ordinance.**

The City has legal authority to inspect and enforce the local FOG ordinances Chapter 13.14 "FATS, OIL AND ORDINANCE".

The City has adequate staff to conduct inspections of the few pre-treatment facilities at the permitted FSE connected to the city sewer system. The funding mechanism now in place allows for increases in permit and other services charges if necessary to retain additional staff or consultant services.

#### **7.6 Cleaning schedule for identified FOG prone sewer segments**

Experience has shown that FOG contributes to about 50% of the total SSO events that occur in a community sewer system. The remaining 50% is usually attributable to root intrusion into the system and other structural causes. FOG prone sections, otherwise identified as "hot spots," in the wastewater collection system, are identified during routine maintenance operations and investigation of stoppages resulting in a SSO event. These "hot spots" (See Appendix 'H') are typically cleaned by hydro jetting and rodding or cutting if roots are encountered. Those

portions of the system that have persistent FOG problems are inspected and cleaned more frequently, depending on the magnitude of the problem. Segments of the collection system with persistent FOG problems are referred to the DPW for additional evaluation and corrective actions.

#### **7.7 Source control measures developed and implemented for “hot spots”**

Each “hot spot” cause and condition is not the same. For each identified problem location the means of effective maintenance is noted on the respective “hot spots” list (See Appendix ‘H’) for review and regular follow-up action by the sewer maintenance crews. The activities can be amended as conditions may require.

#### **7.8 Monitoring and Reporting Plan Requirements**

The September 2013 MRP did not change any of the requirements of the previously adopted SSS WDR for this element.

#### **7.9 Some BMP’s for Fats, Oils and Grease Control**

Example BMP’s for local application are on the following pages.

## **Some Best Management Practices (BMP) for Fats, Oils, and Grease**

Residual fats, oils and grease (FOG) are by-products that food preparation and food service establishments and automotive service facilities and machine shops must constantly manage. Typically, FOG enters a facility's plumbing from wash sinks and floor drains during daily operations. Sanitary sewer systems are not designed or equipped to handle accumulating FOG on the interior of sewer collection system pipes due to unmanaged – unmaintained discharges. Keeping FOG materials out of the plumbing system, by reasonable methods, is an important factor. The following are suggestions for proper FOG management:

### **Bulk or Dry Clean-Up**

- Practice bulk and dry materials clean-up before using wet methods that use water.
- Remove bulk or other solid food and grease laden substances into a suitable container before rinsing or washing the initial containers or surfaces that will drain into the plumbing system.
- Keep drain screens in place and fully serviceable to avoid clogging drains or accumulating FOG or grit on the interiors of pipes.
- Do not pour grease, fats, or oils down the drain nor place food scraps in the drain.
- Use food grade paper to soak up oils and grease and dispose of appropriately.
- Use paper towels to wipe down surfaces and work areas. Cloth towels require washing and thereby introducing FOG back into the drains.
- Success of bulk or dry clean-up is dependent upon the behavior of individuals and their access to tools and materials for use in removing bulk and dry materials before washing.
- A dry surface work place is safer for everyone in avoiding slips, trips and falls.
- Capture bulk or dryer materials and place them into an appropriate container.
- Empty containers before they are full to avoid spills.
- Cover any FOG container before transporting to the rendering storage container.
- Provide employees with proper tools to transport materials without spilling.

### **Maintenance**

- Whatever method(s) are being used to collect, filter and store FOG, ensure that equipment is regularly maintained.
- Employees should be aware of and trained to perform correct and scheduled cleaning procedures.
- A daily and weekly maintenance schedule is highly recommended.
- Contract with a responsible service company to regularly and thoroughly clean larger components and spaces requiring specialized equipment and skills (e.g. large hood filters, hot tanks, floor drain pipes, specialty tools).
- Smaller and less complex elements can be cleaned by hand by the user

### **Spill Prevention**

- Preventing spills reduces the amount of waste that will require clean-up.

- (e.g. small hood filters, counter/bench tops, sinks, storage areas, daily tools).
- Skim/filter fryer grease daily and test the oil to determine when change is necessary. Build-up of carbon deposits on the bottom of the fryer acts as an insulator that forces the fryer to heat longer, thus causing the oil to break down sooner. This extends the life of both the fryer and the oil.
  - Avoid discharging fryer oil into a drain or grease trap, but dispose into a rendering container for transport to a rendering company.
  - Cleaning intervals depend upon the type of product being prepared and the typical deposition of materials experienced. The larger the volume produced and deposits incurred, the more frequent the cleaning. This may warrant setting up a system of high use, high deposition work to be done in certain equipment that is cleaned more frequently than others to confine maintenance efforts.
  - FOG consists of commodities that if handled properly can be treated as a valuable resource.
  - Some rendering companies will offer services free-of-charge and other will give a rebate on the materials collected. Contact local rendering representative for specific information and details.
  - Use only covered rendering barrels and make sure all drain screens are installed.
  - Use a 3-compartment sink for ware washing. Begin with a hot pre-wash, then a scouring detergent wash, then a hot rinse. Each step should be trapped to capture non-emulsified FOG.

Donations can reduce disposal costs. Ensure that edible food is not washed or flushed down the drain. Edible food waste may be donated to a local food bank. Inedible food waste can be collected by a garbage feeder that will use discards for feeding livestock.

### **Grease Traps and Interceptors**

- For grease traps and interceptors to be effective, the units must be properly sized, constructed and installed in a location to provide an adequate retention time for settling and accumulation of the FOG.
- For information on properly locating, constructing and sizing grease traps and interceptors, contact the local governmental agency and examine EPA guidance documents and UPC criteria.
- Ensure all grease-bearing drains discharge to the grease trap/interceptor.
- No toilet or shower waste should be plumbed to the trap/interceptor

## **CHAPTER 8 - SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN**

### **8.1 System Evaluation**

To assess adequacy of the existing sewer system, a hydraulic evaluation of the entire city wastewater collection system was performed, based upon the existing General Plan Land Use Element. The resulting report and recommended improvements are contained in Appendix 'L'.

### **8.2 Design Criteria**

SMMC Chapter 13.12 empowers the Director of Public Works with legal responsibility for ensuring sound, logical and functional design of the city's public sewer infrastructure. The SMMC defines terms, establishes fees, sets out provisions for enforcement and maintenance, and provides the basis of design standards for sewers. For specifics on design and performance provisions, refer to Chapter 5.

### **8.3 Adequate Capacity**

City engineering division is responsible to ensure the public sewer infrastructure is adequately sized, correctly designed and easily accessed for maintenance. The DPW legal authority to perform these important tasks is set forth as summarized in Chapter 3 of this report.

Additionally, the city requires completion of a sewer capacity study, by a registered engineer, prior to giving approval for projects that can affect the capacity of the public sewer system. A completed study will analyze the existing system capacity and will set forth mitigation requirements for the proposed project to ensure adequate capacity is available. The study will also justify the sizing of proposed lines to accommodate the peak flows from all areas tributary to the mainline sewer under consideration or pumping station, now and in the future. The approved capacity study is referenced directly by the city plan checker when design plans for the new infrastructure are submitted to assure adequate capacity. Proposals for new connections to existing sewer must also comply with the DPW policies for managing available sewer capacity (See Appendix 'M').

### **8.4 CIP Schedule**

The scheduling of both Operating and Capital projects is contained in Appendix 'I' for Master Plan.

The City of Sierra Madre exhausted about \$816,254 between FY 2013-2020 as per Steven McGee's email dated January 06, 2022. As for a budget for Sewer repairs, the city budgeted around 10,000 in Contract Services to do minor maintenance and insect control. The city is planning to purchase a Camera system and conduct their own inspection from now on as per Steven McGee's email dated January 6, 2022.

Sewer Projects Cost Sheet				
FY Budget	Year of Comp.	Project		Final Cost
2013-2014	2015	Grandview Sewer Main Replacement		\$204,330
2016-2017	2017	2016-17 Sewer System Repair		\$165,828
2020-2021	2020	Vac-Con Model V350LHAN-P850		\$439,595.99
2019-2020	2020	Water Main Improvements (Remove and replace 8" Sewer-25 LF)		\$6,500

## **CHAPTER 9 - MONITORING, MEASUREMENT and MODIFICATION PROGRAM**

### **9.1 Monitoring**

Relevant data on work performed in implementation and execution of the SSMP program will be documented in the DPW records and used in preparing SO&M monthly summary of workload indicators (see Appendix ‘N’). This data is used in evaluating effectiveness of the overall program.

### **9.2 Program Effectiveness Evaluation**

Effectiveness of the program will be monitored and tracked using recorded data (from the CIWQS reporting system and local maintenance records) on key activities aimed towards minimizing sewer overflows and tabled in the Performance Measure Indicators Report (Appendix ‘O’). At minimum these include:

- total number of overflows
- total number of overflows equal to or greater than 1,000 gpm that reach surface waters (Waters of the United States)
- volume of overflows recovered and not recovered
- overflow response times
- reduction in repeated incidents of overflow at same location
- reduction in number of overflows caused by flows exceeding the capacity of the collection system

### **9.3 Program Modifications**

Based on the above monitoring and measurement evaluations, the affected SSMP elements will be updated or modified as necessary in order to meet the regulations.

### **9.4 SSO Location Mapping and Trends**

#### ***9.4.1 Location Map***

Locations of SSO occurrences are plotted semi-annually on a citywide map (Appendix ‘P’). Causes of the respective SSO events are also recorded. These maps are used for establishing SSO patterns, identifying probable ‘hot spots’ and for scheduling work assignments and providing information on SSO activities.

#### ***9.4.2 Mapping of SSO Frequencies***

Monthly numbers of SSO are also depicted in charts and graphs (Appendix ‘P’). The charts are used to identify SSO trends and as an indicator of infiltration/inflow problems that need to be corrected. The graphs are used to identify SSO trends and to evaluate

overall SSMP program success especially by comparing graphs of different years and with results from other sewer agencies.

**9.5 Monitoring and Reporting Plan Requirements**

The September 2013 MRP added an additional requirement related to the program modifications issue. The 2013 MRP states: “Records documenting all changes made to the SSMP since its last certification indicating when a subsection(s) of the SSMP was changed and/or updated and who authorized the change or update. These records shall be attached to the SSMP.”

These changes may relate to the results of the system’s performance evaluation. Other changes may be enacted by an Enrollee after an SSMP audit is performed. The changes are to be documented, whenever they are made, as described in the MRP. An Enrollee may easily keep these actions and changes documented through the use of a simple “Change Log” that may provide a brief description and date of any SSMP changes, as an appendix to the SSMP. A SSMP Sample Change Log is attached here.

Date	SSMP Element/Section	Description of Change/Revision Made	Change Authorized By:

## **CHAPTER 10 - PROGRAM AUDIT and CERTIFICATION**

### **10.1 Plan Program Audit**

The City will conduct periodic internal audits and prepare a report, at a minimum of every two (2) years. The audit will focus on evaluating operational and cost effectiveness of the SSMP as well as the City's compliance with all elements of the SSMP. This will include:

- Identification of any deficiencies in the SSMP
- Steps to correct any identified deficiencies
- Notes of interviews with key responding personnel and any contractors utilized
- Notes of operational observations, especially of each SSO event
- Notes of related equipment inspections
- Findings of all reviews of related records
- 

The most recent report of audit must be kept on file in the City Clerk's Office, the DPW Office and the field maintenance yard site, or posted on the city's web site along with the entire SSMP.

### **10.2 Plan Certification**

The SSMP shall be certified by the Director of Public Works to be in compliance with all requirements set forth in the WDR and be presented to the City Council for review and input at a public hearing. Following any necessary revisions, the Final SSMP report is to be adopted by the City Council, and the city's authorized representative must then complete the certification portion in the Online SSO Database Questionnaire by checking the appropriate milestone box, printing and signing the automated form and sending the signed form to:

State Water Resources Control Board  
Division of Water Quality  
Attn: SSO Program Manager  
P.O. Box 100  
Sacramento, CA 95812

### **10.3 Plan Modification and Re-certification**

The SSMP must be reviewed and updated every five (5) years to keep it current. When significant amendments are made to any portion or portions of the SSMP, it must be resubmitted to the City Council for a re-hearing, adoption and re-certification. The re-certification shall be in accordance with the certification process described in section 10.2 above.

### **10.4 Monitoring and Reporting Plan Requirements**

The September 2013 MRP did not change any of the requirements of the previously adopted SSS WDR for this element.

## **CHAPTER 11 - COMMUNICATION and SSMP AVAILABILITY**

### **11.1 Communication**

The City will provide all stakeholders and interested parties, the general public and other agencies (e.g. downstream sewer agencies), with status updates on the development, revisions, implementation and performance of the SSMP, and consider comments received from them [in conformance with the WDR, Section D-13(xi)].

The City will utilize various outreach means to communicate issues surrounding the use and operation of the City's wastewater collection system such as: letters, twice-monthly newsletter [The Village View- sign up [https://www.cityofsierramadre.com/services/public\\_information/the\\_village\\_view\\_city\\_newsletter](https://www.cityofsierramadre.com/services/public_information/the_village_view_city_newsletter).], water bill inserts, brochures, annual reports, notices in local newspapers, the City's home web page and the "Government Access" Cable TV, Channel 3 <https://www.foothillsmedia.org/sierramadre#sierramadre1>.

### **11.2 SSMP Availability**

Copies of the approved SSMP will be maintained in the offices of the DPW, the City Clerk, the SO&M service yard, and the City Library. Additionally a publicly available internet web site address to the CIWQS Online database where a downloadable copy of the approved SSMP, official supporting documents referenced in the SSMP and proof of local governing board approval of the SSMP is posted. If the above required SSMP documents are not available on the Internet, the city shall comply by submitting an electronic copy of all the required documents to the State Water Board, within 30-days of approval.

<https://ciwqs.waterboards.ca.gov/ciwqs/index.jsp>

### **11.3 Monitoring and Reporting Plan Requirements**

The September 2013 MRP did not change any of the requirements of the previously adopted SSS WDR for this element.

## APPENDICES

Appendix A	Waste Discharge Requirements (Order No. 2006-0003-DWQ)
Appendix B	Monitoring and Reporting Program (No. 2006-0003-DWQ) 'Amended' Water Resources Control Board (Order No. WQ 2013-0058-EXEC)
Appendix C	WDR 'Fact Sheets'
Appendix D	Agency WDR Application (NOI)
Appendix E	Inventory of Sewer Maintenance Equipment
Appendix F	Location Map / Maintenance Yard, Flow Monitoring Sites, SSO Locations & Delivery Points
Appendix G	Inventory of Sewer Collection Facilities by SMZ
Appendix H	Sewer "Hot Spots" Log (Maintenance and Structural), City Maintenance Records and Industrial Waste Discharge Permits
Appendix I	Operating and Capital Budgets
Appendix J	CCTV Inspection Report w/Conditions Assessment & Schedule
Appendix K	Sanitary Sewer Overflow Response Instruction Manual
Appendix L	Sewer System Capacity Evaluation and Flow Monitoring Results
Appendix M	Policies for Managing Available Sewer Capacity
Appendix N	Summary of Maintenance Productivity - Template
Appendix O	Performance Measure Indicators - Template
Appendix P	SSO Charts & Graphs

# **Appendix A**

*Waste Discharge Requirements (Order No. 2006-0003-DWQ)*

**STATE WATER RESOURCES CONTROL BOARD  
ORDER NO. 2006-0003-DWQ**

**STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR SANITARY  
SEWER SYSTEMS**

The State Water Resources Control Board, hereinafter referred to as "State Water Board", finds that:

1. All federal and state agencies, municipalities, counties, districts, and other public entities that own or operate sanitary sewer systems greater than one mile in length that collect and/or convey untreated or partially treated wastewater to a publicly owned treatment facility in the State of California are required to comply with the terms of this Order. Such entities are hereinafter referred to as "Enrollees".
2. Sanitary sewer overflows (SSOs) are overflows from sanitary sewer systems of domestic wastewater, as well as industrial and commercial wastewater, depending on the pattern of land uses in the area served by the sanitary sewer system. SSOs often contain high levels of suspended solids, pathogenic organisms, toxic pollutants, nutrients, oxygen-demanding organic compounds, oil and grease and other pollutants. SSOs may cause a public nuisance, particularly when raw untreated wastewater is discharged to areas with high public exposure, such as streets or surface waters used for drinking, fishing, or body contact recreation. SSOs may pollute surface or ground waters, threaten public health, adversely affect aquatic life, and impair the recreational use and aesthetic enjoyment of surface waters.
3. Sanitary sewer systems experience periodic failures resulting in discharges that may affect waters of the state. There are many factors (including factors related to geology, design, construction methods and materials, age of the system, population growth, and system operation and maintenance), which affect the likelihood of an SSO. A proactive approach that requires Enrollees to ensure a system-wide operation, maintenance, and management plan is in place will reduce the number and frequency of SSOs within the state. This approach will in turn decrease the risk to human health and the environment caused by SSOs.
4. Major causes of SSOs include: grease blockages, root blockages, sewer line flood damage, manhole structure failures, vandalism, pump station mechanical failures, power outages, excessive storm or ground water inflow/infiltration, debris blockages, sanitary sewer system age and construction material failures, lack of proper operation and maintenance, insufficient capacity and contractor-caused damages. Many SSOs are preventable with adequate and appropriate facilities, source control measures and operation and maintenance of the sanitary sewer system.

## **SEWER SYSTEM MANAGEMENT PLANS**

5. To facilitate proper funding and management of sanitary sewer systems, each Enrollee must develop and implement a system-specific Sewer System Management Plan (SSMP). To be effective, SSMPs must include provisions to provide proper and efficient management, operation, and maintenance of sanitary sewer systems, while taking into consideration risk management and cost benefit analysis. Additionally, an SSMP must contain a spill response plan that establishes standard procedures for immediate response to an SSO in a manner designed to minimize water quality impacts and potential nuisance conditions.
6. Many local public agencies in California have already developed SSMPs and implemented measures to reduce SSOs. These entities can build upon their existing efforts to establish a comprehensive SSMP consistent with this Order. Others, however, still require technical assistance and, in some cases, funding to improve sanitary sewer system operation and maintenance in order to reduce SSOs.
7. SSMP certification by technically qualified and experienced persons can provide a useful and cost-effective means for ensuring that SSMPs are developed and implemented appropriately.
8. It is the State Water Board's intent to gather additional information on the causes and sources of SSOs to augment existing information and to determine the full extent of SSOs and consequent public health and/or environmental impacts occurring in the State.
9. Both uniform SSO reporting and a centralized statewide electronic database are needed to collect information to allow the State Water Board and Regional Water Quality Control Boards (Regional Water Boards) to effectively analyze the extent of SSOs statewide and their potential impacts on beneficial uses and public health. The monitoring and reporting program required by this Order and the attached Monitoring and Reporting Program No. 2006-0003-DWQ, are necessary to assure compliance with these waste discharge requirements (WDRs).
10. Information regarding SSOs must be provided to Regional Water Boards and other regulatory agencies in a timely manner and be made available to the public in a complete, concise, and timely fashion.
11. Some Regional Water Boards have issued WDRs or WDRs that serve as National Pollution Discharge Elimination System (NPDES) permits to sanitary sewer system owners/operators within their jurisdictions. This Order establishes minimum requirements to prevent SSOs. Although it is the State Water Board's intent that this Order be the primary regulatory mechanism for sanitary sewer systems statewide, Regional Water Boards may issue more stringent or more prescriptive WDRs for sanitary sewer systems. Upon issuance or reissuance of a Regional Water Board's WDRs for a system subject to this Order, the Regional

Water Board shall coordinate its requirements with stated requirements within this Order, to identify requirements that are more stringent, to remove requirements that are less stringent than this Order, and to provide consistency in reporting.

## **REGULATORY CONSIDERATIONS**

12. California Water Code section 13263 provides that the State Water Board may prescribe general WDRs for a category of discharges if the State Water Board finds or determines that:

- The discharges are produced by the same or similar operations;
- The discharges involve the same or similar types of waste;
- The discharges require the same or similar treatment standards; and
- The discharges are more appropriately regulated under general discharge requirements than individual discharge requirements.

This Order establishes requirements for a class of operations, facilities, and discharges that are similar throughout the state.

13. The issuance of general WDRs to the Enrollees will:

- a) Reduce the administrative burden of issuing individual WDRs to each Enrollee;
- b) Provide for a unified statewide approach for the reporting and database tracking of SSOs;
- c) Establish consistent and uniform requirements for SSMP development and implementation;
- d) Provide statewide consistency in reporting; and
- e) Facilitate consistent enforcement for violations.

14. The beneficial uses of surface waters that can be impaired by SSOs include, but are not limited to, aquatic life, drinking water supply, body contact and non-contact recreation, and aesthetics. The beneficial uses of ground water that can be impaired include, but are not limited to, drinking water and agricultural supply. Surface and ground waters throughout the state support these uses to varying degrees.

15. The implementation of requirements set forth in this Order will ensure the reasonable protection of past, present, and probable future beneficial uses of water and the prevention of nuisance. The requirements implement the water quality control plans (Basin Plans) for each region and take into account the environmental characteristics of hydrographic units within the state. Additionally, the State Water Board has considered water quality conditions that could reasonably be achieved through the coordinated control of all factors that affect

water quality in the area, costs associated with compliance with these

requirements, the need for developing housing within California, and the need to develop and use recycled water.

16. The Federal Clean Water Act largely prohibits any discharge of pollutants from a point source to waters of the United States except as authorized under an NPDES permit. In general, any point source discharge of sewage effluent to waters of the United States must comply with technology-based, secondary treatment standards, at a minimum, and any more stringent requirements necessary to meet applicable water quality standards and other requirements. Hence, the unpermitted discharge of wastewater from a sanitary sewer system to waters of the United States is illegal under the Clean Water Act. In addition, many Basin Plans adopted by the Regional Water Boards contain discharge prohibitions that apply to the discharge of untreated or partially treated wastewater. Finally, the California Water Code generally prohibits the discharge of waste to land prior to the filing of any required report of waste discharge and the subsequent issuance of either WDRs or a waiver of WDRs.
17. California Water Code section 13263 requires a water board to, after any necessary hearing, prescribe requirements as to the nature of any proposed discharge, existing discharge, or material change in an existing discharge. The requirements shall, among other things, take into consideration the need to prevent nuisance.
18. California Water Code section 13050, subdivision (m), defines nuisance as anything which meets all of the following requirements:
  - a. Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.
  - b. Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.
  - c. Occurs during, or as a result of, the treatment or disposal of wastes.
19. This Order is consistent with State Water Board Resolution No. 68-16 (Statement of Policy with Respect to Maintaining High Quality of Waters in California) in that the Order imposes conditions to prevent impacts to water quality, does not allow the degradation of water quality, will not unreasonably affect beneficial uses of water, and will not result in water quality less than prescribed in State Water Board or Regional Water Board plans and policies.
20. The action to adopt this General Order is exempt from the California Environmental Quality Act (Public Resources Code §21000 et seq.) because it is an action taken by a regulatory agency to assure the protection of the environment and the regulatory process involves procedures for protection of the environment. (Cal. Code Regs., tit. 14, §15308). In addition, the action to adopt this Order is

exempt from CEQA pursuant to Cal.Code Regs., title 14, §15301 to the extent that it applies to existing sanitary sewer collection systems that constitute “existing facilities” as that term is used in Section 15301, and §15302, to the extent that it results in the repair or replacement of existing systems involving negligible or no expansion of capacity.

21. The Fact Sheet, which is incorporated by reference in the Order, contains supplemental information that was also considered in establishing these requirements.
22. The State Water Board has notified all affected public agencies and all known interested persons of the intent to prescribe general WDRs that require Enrollees to develop SSMPs and to report all SSOs.
23. The State Water Board conducted a public hearing on February 8, 2006, to receive oral and written comments on the draft order. The State Water Board received and considered, at its May 2, 2006, meeting, additional public comments on substantial changes made to the proposed general WDRs following the February 8, 2006, public hearing. The State Water Board has considered all comments pertaining to the proposed general WDRs.

**IT IS HEREBY ORDERED**, that pursuant to California Water Code section 13263, the Enrollees, their agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted hereunder, shall comply with the following:

#### **A. DEFINITIONS**

1. **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.
2. **Sanitary sewer system** – Any system of pipes, pump stations, sewer lines, or other conveyances, upstream of a wastewater treatment plant headworks used to collect and convey wastewater to the publicly owned treatment facility. Temporary storage and conveyance facilities (such as vaults, temporary piping, construction trenches, wet wells, impoundments, tanks, etc.) are considered to be part of the sanitary sewer system, and discharges into these temporary storage facilities are not considered to be SSOs.

For purposes of this Order, sanitary sewer systems include only those systems owned by public agencies that are comprised of more than one mile of pipes or sewer lines.

3. **Enrollee** - A federal or state agency, municipality, county, district, and other public entity that owns or operates a sanitary sewer system, as defined in the general WDRs, and that has submitted a complete and approved application for coverage under this Order.
4. **SSO Reporting System** – Online spill reporting system that is hosted, controlled, and maintained by the State Water Board. The web address for this site is <http://ciwqs.waterboards.ca.gov>. This online database is maintained on a secure site and is controlled by unique usernames and passwords.
5. **Untreated or partially treated wastewater** – Any volume of waste discharged from the sanitary sewer system upstream of a wastewater treatment plant headworks.
6. **Satellite collection system** – The portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility to which the sanitary sewer system is tributary.
7. **Nuisance** - California Water Code section 13050, subdivision (m), defines nuisance as anything which meets all of the following requirements:
  - a. Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.
  - b. Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.
  - c. Occurs during, or as a result of, the treatment or disposal of wastes.

## **B. APPLICATION REQUIREMENTS**

1. **Deadlines for Application** – All public agencies that currently own or operate sanitary sewer systems within the State of California must apply for coverage under the general WDRs within six (6) months of the date of adoption of the general WDRs. Additionally, public agencies that acquire or assume responsibility for operating sanitary sewer systems after the date of adoption of this Order must apply for coverage under the general WDRs at least three (3) months prior to operation of those facilities.
2. **Applications under the general WDRs** – In order to apply for coverage pursuant to the general WDRs, a legally authorized representative for each agency must submit a complete application package. Within sixty (60) days of adoption of the

general WDRs, State Water Board staff will send specific instructions on how to apply for coverage under the general WDRs to all known public agencies that own sanitary sewer systems. Agencies that do not receive notice may obtain applications and instructions online on the Water Board's website.

3. Coverage under the general WDRs – Permit coverage will be in effect once a complete application package has been submitted and approved by the State Water Board's Division of Water Quality.

### **C. PROHIBITIONS**

1. Any SSO that results in a discharge of untreated or partially treated wastewater to waters of the United States is prohibited.
2. Any SSO that results in a discharge of untreated or partially treated wastewater that creates a nuisance as defined in California Water Code Section 13050(m) is prohibited.

### **D. PROVISIONS**

1. The Enrollee must comply with all conditions of this Order. Any noncompliance with this Order constitutes a violation of the California Water Code and is grounds for enforcement action.
2. It is the intent of the State Water Board that sanitary sewer systems be regulated in a manner consistent with the general WDRs. Nothing in the general WDRs shall be:
  - (i) Interpreted or applied in a manner inconsistent with the Federal Clean Water Act, or supersede a more specific or more stringent state or federal requirement in an existing permit, regulation, or administrative/judicial order or Consent Decree;
  - (ii) Interpreted or applied to authorize an SSO that is illegal under either the Clean Water Act, an applicable Basin Plan prohibition or water quality standard, or the California Water Code;
  - (iii) Interpreted or applied to prohibit a Regional Water Board from issuing an individual NPDES permit or WDR, superseding this general WDR, for a sanitary sewer system, authorized under the Clean Water Act or California Water Code; or
  - (iv) Interpreted or applied to supersede any more specific or more stringent WDRs or enforcement order issued by a Regional Water Board.
3. The Enrollee shall take all feasible steps to eliminate SSOs. In the event that an SSO does occur, the Enrollee shall take all feasible steps to contain and mitigate the impacts of an SSO.

4. In the event of an SSO, the Enrollee shall take all feasible steps to prevent untreated or partially treated wastewater from discharging from storm drains into flood control channels or waters of the United States by blocking the storm drainage system and by removing the wastewater from the storm drains.
5. All SSOs must be reported in accordance with Section G of the general WDRs.
6. In any enforcement action, the State and/or Regional Water Boards will consider the appropriate factors under the duly adopted State Water Board Enforcement Policy. And, consistent with the Enforcement Policy, the State and/or Regional Water Boards must consider the Enrollee's efforts to contain, control, and mitigate SSOs when considering the California Water Code Section 13327 factors. In assessing these factors, the State and/or Regional Water Boards will also consider whether:
  - (i) The Enrollee has complied with the requirements of this Order, including requirements for reporting and developing and implementing a SSMP;
  - (ii) The Enrollee can identify the cause or likely cause of the discharge event;
  - (iii) There were no feasible alternatives to the discharge, such as temporary storage or retention of untreated wastewater, reduction of inflow and infiltration, use of adequate backup equipment, collecting and hauling of untreated wastewater to a treatment facility, or an increase in the capacity of the system as necessary to contain the design storm event identified in the SSMP. It is inappropriate to consider the lack of feasible alternatives, if the Enrollee does not implement a periodic or continuing process to identify and correct problems.
  - (iv) The discharge was exceptional, unintentional, temporary, and caused by factors beyond the reasonable control of the Enrollee;
  - (v) The discharge could have been prevented by the exercise of reasonable control described in a certified SSMP for:
    - Proper management, operation and maintenance;
    - Adequate treatment facilities, sanitary sewer system facilities, and/or components with an appropriate design capacity, to reasonably prevent SSOs (e.g., adequately enlarging treatment or collection facilities to accommodate growth, infiltration and inflow (I/I), etc.);
    - Preventive maintenance (including cleaning and fats, oils, and grease (FOG) control);
    - Installation of adequate backup equipment; and
    - Inflow and infiltration prevention and control to the extent practicable.
  - (vi) The sanitary sewer system design capacity is appropriate to reasonably prevent SSOs.

(vii) The Enrollee took all reasonable steps to stop and mitigate the impact of the discharge as soon as possible.

7. When a sanitary sewer overflow occurs, the Enrollee shall take all feasible steps and necessary remedial actions to 1) control or limit the volume of untreated or partially treated wastewater discharged, 2) terminate the discharge, and 3) recover as much of the wastewater discharged as possible for proper disposal, including any wash down water.

The Enrollee shall implement all remedial actions to the extent they may be applicable to the discharge and not inconsistent with an emergency response plan, including the following:

- (i) Interception and rerouting of untreated or partially treated wastewater flows around the wastewater line failure;
  - (ii) Vacuum truck recovery of sanitary sewer overflows and wash down water;
  - (iii) Cleanup of debris at the overflow site;
  - (iv) System modifications to prevent another SSO at the same location;
  - (v) Adequate sampling to determine the nature and impact of the release; and
  - (vi) Adequate public notification to protect the public from exposure to the SSO.
8. The Enrollee shall properly, manage, operate, and maintain all parts of the sanitary sewer system owned or operated by the Enrollee, and shall ensure that the system operators (including employees, contractors, or other agents) are adequately trained and possess adequate knowledge, skills, and abilities.
  9. The Enrollee shall allocate adequate resources for the operation, maintenance, and repair of its sanitary sewer system, by establishing a proper rate structure, accounting mechanisms, and auditing procedures to ensure an adequate measure of revenues and expenditures. These procedures must be in compliance with applicable laws and regulations and comply with generally acceptable accounting practices.
  10. The Enrollee shall provide adequate capacity to convey base flows and peak flows, including flows related to wet weather events. Capacity shall meet or exceed the design criteria as defined in the Enrollee's System Evaluation and Capacity Assurance Plan for all parts of the sanitary sewer system owned or operated by the Enrollee.
  11. The Enrollee shall develop and implement a written Sewer System Management Plan (SSMP) and make it available to the State and/or Regional Water Board upon request. A copy of this document must be publicly available at the Enrollee's office and/or available on the Internet. This SSMP must be approved by the Enrollee's governing board at a public meeting.

12. In accordance with the California Business and Professions Code sections 6735, 7835, and 7835.1, all engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. Specific elements of the SSMP that require professional evaluation and judgments shall be prepared by or under the direction of appropriately qualified professionals, and shall bear the professional(s)' signature and stamp.
13. The mandatory elements of the SSMP are specified below. However, if the Enrollee believes that any element of this section is not appropriate or applicable to the Enrollee's sanitary sewer system, the SSMP program does not need to address that element. The Enrollee must justify why that element is not applicable. The SSMP must be approved by the deadlines listed in the SSMP Time Schedule below.

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

- (i)**Goal:** The goal of the SSMP is to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system. This will help reduce and prevent SSOs, as well as mitigate any SSOs that do occur.
- (ii)**Organization:** The 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)).
- (iii)**Legal Authority:** Each Enrollee must demonstrate, through sanitary sewer system use ordinances, service agreements, or other legally binding procedures, that it possesses the necessary legal authority to:
  - (a) Prevent illicit discharges into its sanitary sewer system (examples may include I/I, stormwater, 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.

(iv) **Operation and Maintenance Program.** The 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 stormwater conveyance facilities;
- (b) Describe routine preventive operation and maintenance activities by staff and contractors, including a system for scheduling regular maintenance and cleaning of the sanitary sewer system with more frequent cleaning and maintenance targeted at known problem areas. The Preventative Maintenance (PM) program should have a system to document scheduled and conducted activities, such as work orders;
- (c) Develop a rehabilitation and replacement plan to identify and prioritize system deficiencies and implement short-term and long-term rehabilitation actions to address each deficiency. The program should include regular visual and TV inspections of manholes and sewer pipes, and a system for ranking the condition of sewer pipes and scheduling rehabilitation. Rehabilitation and replacement should focus on sewer pipes that are at risk of collapse or prone to more frequent blockages due to pipe defects. Finally, the rehabilitation and replacement plan should include a capital improvement plan that addresses proper management and protection of the infrastructure assets. The plan shall include a time schedule for implementing the short- and long-term plans plus a schedule for developing the funds needed for the capital improvement plan;
- (d) Provide training on a regular basis for staff in sanitary sewer system operations and maintenance, and require contractors to be appropriately trained; and
- (e) Provide equipment and replacement part inventories, including identification of critical replacement parts.

**(v) Design and Performance Provisions:**

- (a) Design and construction standards and specifications for the installation of new sanitary sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sanitary sewer systems; and
- (b) Procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects.

**(vi) Overflow Emergency Response Plan** - 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 SSMP should identify the officials who will receive immediate notification;
- (d) Procedures to ensure that appropriate staff and contractor personnel are aware of and follow the Emergency Response Plan and are appropriately trained;
- (e) Procedures to address emergency operations, such as traffic and crowd control and other necessary response activities; and
- (f) A program to ensure that all reasonable steps are taken to contain 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.

- (vii) **FOG Control Program:** 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.
- (viii) **System Evaluation and Capacity Assurance Plan:** 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 SSMP review and update requirements as described in Section D. 14.
- (ix) **Monitoring, Measurement, and Program Modifications:** The Enrollee shall:
- (a) Maintain relevant information that can be used to establish and prioritize appropriate SSMP activities;
  - (b) Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP;
  - (c) Assess the success of the preventative maintenance program;
  - (d) Update program elements, as appropriate, based on monitoring or performance evaluations; and
  - (e) Identify and illustrate SSO trends, including: frequency, location, and volume.
- (x) **SSMP Program Audits** - As part of the SSMP, the Enrollee shall conduct periodic internal audits, appropriate to the size of the system and the number of SSOs. At a minimum, these audits must occur every two years and a report must be prepared and kept on file. This audit shall focus on evaluating the effectiveness of the SSMP and the Enrollee's compliance with the SSMP requirements identified in this subsection (D.13), including identification of any deficiencies in the SSMP and steps to correct them.

(xi) **Communication Program** – The Enrollee shall communicate on a regular basis with the public on the development, implementation, and performance of its SSMP. The communication system shall provide the public the opportunity to provide input to the Enrollee as the program is developed and implemented.

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

14. Both the SSMP and the Enrollee's program to implement the SSMP must be certified by the Enrollee to be in compliance with the requirements set forth above and must be presented to the Enrollee's governing board for approval at a public meeting. The Enrollee shall certify that the SSMP, and subparts thereof, are in compliance with the general WDRs within the time frames identified in the time schedule provided in subsection D.15, below.

In order to complete this certification, the Enrollee's authorized representative must complete the certification portion in the Online SSO Database Questionnaire by checking the appropriate milestone box, printing and signing the automated form, and sending the form to:

State Water Resources Control Board  
Division of Water Quality  
Attn: SSO Program Manager  
P.O. Box 100 Sacramento, CA 95812

The SSMP must be updated every five (5) years, and must include any significant program changes. Re-certification by the governing board of the Enrollee is required in accordance with D.14 when significant updates to the SSMP are made. To complete the re-certification process, the Enrollee shall enter the data in the Online SSO Database and mail the form to the State Water Board, as described above.

15. The Enrollee shall comply with these requirements according to the following schedule. This time schedule does not supersede existing requirements or time schedules associated with other permits or regulatory requirements.

**Sewer System Management Plan Time Schedule**

Task and Associated Section	Completion Date			
	Population > 100,000	Population between 100,000 and 10,000	Population between 10,000 and 2,500	Population < 2,500
Application for Permit Coverage <b>Section C</b>	6 months after WDRs Adoption			
Reporting Program <b>Section G</b>	6 months after WDRs Adoption <sup>1</sup>			
SSMP Development Plan and Schedule <b>No specific Section</b>	9 months after WDRs Adoption <sup>2</sup>	12 months after WDRs Adoption <sup>2</sup>	15 months after WDRs Adoption <sup>2</sup>	18 months after WDRs Adoption <sup>2</sup>
Goals and Organization Structure <b>Section D 13 (i) &amp; (ii)</b>	12 months after WDRs Adoption <sup>2</sup>	12 months after WDRs Adoption <sup>2</sup>	18 months after WDRs Adoption <sup>2</sup>	18 months after WDRs Adoption <sup>2</sup>
Overflow Emergency Response Program <b>Section D 13 (vi)</b>	24 months after WDRs Adoption <sup>2</sup>	30 months after WDRs Adoption <sup>2</sup>	36 months after WDRs Adoption <sup>2</sup>	39 months after WDRs Adoption <sup>2</sup>
Legal Authority <b>Section D 13 (iii)</b>	24 months after WDRs Adoption <sup>2</sup>	30 months after WDRs Adoption <sup>2</sup>	36 months after WDRs Adoption <sup>2</sup>	39 months after WDRs Adoption <sup>2</sup>
Operation and Maintenance Program <b>Section D 13 (iv)</b>	24 months after WDRs Adoption <sup>2</sup>	30 months after WDRs Adoption <sup>2</sup>	36 months after WDRs Adoption <sup>2</sup>	39 months after WDRs Adoption <sup>2</sup>
Grease Control Program <b>Section D 13 (vii)</b>	24 months after WDRs Adoption <sup>2</sup>	30 months after WDRs Adoption <sup>2</sup>	36 months after WDRs Adoption <sup>2</sup>	39 months after WDRs Adoption <sup>2</sup>
Design and Performance <b>Section D 13 (v)</b>	36 months after WDRs Adoption	39 months after WDRs Adoption	48 months after WDRs Adoption	51 months after WDRs Adoption
System Evaluation and Capacity Assurance Plan <b>Section D 13 (viii)</b>	36 months after WDRs Adoption	39 months after WDRs Adoption	48 months after WDRs Adoption	51 months after WDRs Adoption
Final SSMP, incorporating all of the SSMP requirements <b>Section D 13</b>	36 months after WDRs Adoption	39 months after WDRs Adoption	48 months after WDRs Adoption	51 months after WDRs Adoption

1. In the event that by July 1, 2006 the Executive Director is able to execute a memorandum of agreement (MOA) with the California Water Environment Association (CWEA) or discharger representatives outlining a strategy and time schedule for CWEA or another entity to provide statewide training on the adopted monitoring program, SSO database electronic reporting, and SSMP development, consistent with this Order, then the schedule of Reporting Program Section G shall be replaced with the following schedule:

Reporting Program <b>Section G</b>	
Regional Boards 4, 8, and 9	8 months after WDRs Adoption
Regional Boards 1, 2, and 3	12 months after WDRs Adoption
Regional Boards 5, 6, and 7	16 months after WDRs Adoption

If this MOU is not executed by July 1, 2006, the reporting program time schedule will remain six (6) months for all regions and agency size categories.

2. In the event that the Executive Director executes the MOA identified in note 1 by July 1, 2006, then the deadline for this task shall be extended by six (6) months. The time schedule identified in the MOA must be consistent with the extended time schedule provided by this note. If the MOA is not executed by July 1, 2006, the six (6) month time extension will not be granted.

**E. WDRs and SSMP AVAILABILITY**

1. A copy of the general WDRs and the certified SSMP shall be maintained at appropriate locations (such as the Enrollee's offices, facilities, and/or Internet homepage) and shall be available to sanitary sewer system operating and maintenance personnel at all times.

**F. ENTRY AND INSPECTION**

1. The Enrollee shall allow the State or Regional Water Boards or their authorized representative, upon presentation of credentials and other documents as may be required by law, to:
  - a. Enter upon the Enrollee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order;
  - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;

- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
- d. Sample or monitor at reasonable times, for the purposes of assuring compliance with this Order or as otherwise authorized by the California Water Code, any substances or parameters at any location.

## **G. GENERAL MONITORING AND REPORTING REQUIREMENTS**

1. The Enrollee shall furnish to the State or Regional Water Board, within a reasonable time, any information that the State or Regional Water Board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order. The Enrollee shall also furnish to the Executive Director of the State Water Board or Executive Officer of the applicable Regional Water Board, upon request, copies of records required to be kept by this Order.
2. The Enrollee shall comply with the attached Monitoring and Reporting Program No. 2006-0003 and future revisions thereto, as specified by the Executive Director. Monitoring results shall be reported at the intervals specified in Monitoring and Reporting Program No. 2006-0003. Unless superseded by a specific enforcement Order for a specific Enrollee, these reporting requirements are intended to replace other mandatory routine written reports associated with SSOs.
3. All Enrollees must obtain SSO Database accounts and receive a "Username" and "Password" by registering through the California Integrated Water Quality System (CIWQS). These accounts will allow controlled and secure entry into the SSO Database. Additionally, within 30 days of receiving an account and prior to recording spills into the SSO Database, all Enrollees must complete the "Collection System Questionnaire", which collects pertinent information regarding a Enrollee's collection system. The "Collection System Questionnaire" must be updated at least every 12 months.
4. Pursuant to Health and Safety Code section 5411.5, any person who, without regard to intent or negligence, causes or permits any untreated wastewater or other waste to be discharged in or on any waters of the State, or discharged in or deposited where it is, or probably will be, discharged in or on any surface waters of the State, as soon as that person has knowledge of the discharge, shall immediately notify the local health officer of the discharge. Discharges of untreated or partially treated wastewater to storm drains and drainage channels, whether man-made or natural or concrete-lined, shall be reported as required above.

Any SSO greater than 1,000 gallons discharged in or on any waters of the State, or discharged in or deposited where it is, or probably will be, discharged in or on any surface waters of the State shall also be reported to the Office of Emergency Services pursuant to California Water Code section 13271.

#### **H. CHANGE IN OWNERSHIP**

- 1 This Order is not transferable to any person or party, except after notice to the Executive Director. The Enrollee shall submit this notice in writing at least 30 days in advance of any proposed transfer. The notice must include a written agreement between the existing and new Enrollee containing a specific date for the transfer of this Order's responsibility and coverage between the existing Enrollee and the new Enrollee. This agreement shall include an acknowledgement that the existing Enrollee is liable for violations up to the transfer date and that the new Enrollee is liable from the transfer date forward.

#### **I. INCOMPLETE REPORTS**

1. If an Enrollee becomes aware that it failed to submit any relevant facts in any report required under this Order, the Enrollee shall promptly submit such facts or information by formally amending the report in the Online SSO Database.

#### **J. REPORT DECLARATION**

1. All applications, reports, or information shall be signed and certified as follows:
  - (i) All reports required by this Order and other information required by the State or Regional Water Board shall be signed and certified by a person designated, for a municipality, state, federal or other public agency, as either a principal executive officer or ranking elected official, or by a duly authorized representative of that person, as described in paragraph (ii) of this provision. (For purposes of electronic reporting, an electronic signature and accompanying certification, which is in compliance with the Online SSO database procedures, meet this certification requirement.)
  - (ii) An individual is a duly authorized representative only if:
    - (a) The authorization is made in writing by a person described in paragraph (i) of this provision; and
    - (b) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity.

#### **K. CIVIL MONETARY REMEDIES FOR DISCHARGE VIOLATIONS**

1. The California Water Code provides various enforcement options, including civil monetary remedies, for violations of this Order.
2. The California Water Code also provides that any person failing or refusing to furnish technical or monitoring program reports, as required under this Order, or

falsifying any information provided in the technical or monitoring reports is subject to civil monetary penalties.

#### L. SEVERABILITY

1. The provisions of this Order are severable, and if any provision of this Order, or the application of any provision of this Order to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this Order, shall not be affected thereby.
2. This order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect the Enrollee from liability under federal, state or local laws, nor create a vested right for the Enrollee to continue the waste discharge.

#### CERTIFICATION

The undersigned Clerk to the State Water Board does hereby certify that the foregoing is a full, true, and correct copy of general WDRs duly and regularly adopted at a meeting of the State Water Resources Control Board held on May 2, 2006.

AYE: Tam M. Doduc Gerald D. Secundy

NO: Arthur G. Baggett

ABSENT: None

ABSTAIN: None



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Song Her  
Clerk to the Board

## **Appendix B**

*Monitoring and Reporting Program (No. 2006-0003-DWQ) 'Amended'*

*Water Resources Control Board (Order No. WQ 2013-0058-EXEC)*

STATE OF CALIFORNIA  
WATER RESOURCES CONTROL BOARD  
**ORDER NO. WQ 2013-0058-EXEC**

AMENDING MONITORING AND REPORTING PROGRAM  
FOR  
STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR  
SANITARY SEWER SYSTEMS

The State of California, Water Resources Control Board (hereafter State Water Board) finds:

1. The State Water Board is authorized to prescribe statewide general Waste Discharge Requirements (WDRs) for categories of discharges that involve the same or similar operations and the same or similar types of waste pursuant to Water Code section 13263(i).
2. Water Code section 13193 *et seq.* requires the Regional Water Quality Control Boards (Regional Water Boards) and the State Water Board (collectively, the Water Boards) to gather Sanitary Sewer Overflow (SSO) information and make this information available to the public, including but not limited to, SSO cause, estimated volume, location, date, time, duration, whether or not the SSO reached or may have reached waters of the state, response and corrective action taken, and an enrollee's contact information for each SSO event. An enrollee is defined as the public entity having legal authority over the operation and maintenance of, or capital improvements to, a sanitary sewer system greater than one mile in length.
3. Water Code section 13271, *et seq.* requires notification to the California Office of Emergency Services (Cal OES), formerly the California Emergency Management Agency, for certain unauthorized discharges, including SSOs.
4. On May 2, 2006, the State Water Board adopted Order 2006-0003-DWQ, "Statewide Waste Discharge Requirements for Sanitary Sewer Systems"<sup>1</sup> (hereafter SSS WDRs) to comply with Water Code section 13193 and to establish the framework for the statewide SSO Reduction Program.
5. Subsection G.2 of the SSS WDRs and the Monitoring and Reporting Program (MRP) provide that the Executive Director may modify the terms of the MRP at any time.
6. On February 20, 2008, the State Water Board Executive Director adopted a revised MRP for the SSS WDRs to rectify early notification deficiencies and ensure that first responders are notified in a timely manner of SSOs discharged into waters of the state.
7. When notified of an SSO that reaches a drainage channel or surface water of the state, Cal OES, pursuant to Water Code section 13271(a)(3), forwards the SSO notification information<sup>2</sup> to local government agencies and first responders including local public health officials and the applicable Regional Water Board. Receipt of notifications for a single SSO event from both the SSO reporter and Cal OES is duplicative. To address this, the SSO notification requirements added by the February 20, 2008 MRP revision are being removed in this MRP revision.

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<sup>1</sup> Available for download at:

[http://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2006/wgo/wgo20060003.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2006/wgo/wgo20060003.pdf)

<sup>2</sup> Cal OES Hazardous Materials Spill Reports available Online at:

[http://w3.calema.ca.gov/operational/mal haz.nsf/\\$defaultview](http://w3.calema.ca.gov/operational/mal haz.nsf/$defaultview) and  
<http://w3.calema.ca.gov/operational/mal haz.nsf>

8. In the February 28, 2008 Memorandum of Agreement between the State Water Board and the California Water and Environment Association (CWEA), the State Water Board committed to re- designing the CIWQS3 Online SSO Database to allow "event" based SSO reporting versus the original "location" based reporting. Revisions to this MRP and accompanying changes to the CIWQS Online SSO Database will implement this change by allowing for multiple SSO appearance points to be associated with each SSO event caused by a single asset failure.
9. Based on stakeholder input and Water Board staff experience implementing the SSO Reduction Program, SSO categories have been revised in this MRP. In the prior version of the MRP, SSOs have been categorized as Category 1 or Category 2. This MRP implements changes to SSO categories by adding a Category 3 SSO type. This change will improve data management to further assist Water Board staff with evaluation of high threat and low threat SSOs by placing them in unique categories (i.e., Category 1 and Category 3, respectively). This change will also assist enrollees in identifying SSOs that require Cal OES notification.
10. Based on over six years of implementation of the SSS WDRs, the State Water Board concludes that the February 20, 2008 MRP must be updated to better advance the SSO Reduction Program<sup>4</sup> objectives, assess compliance, and enforce the requirements of the SSS WDRs.

**IT IS HEREBY ORDERED THAT:**

Pursuant to the authority delegated by Water Code section 13267(f), Resolution 2002-0104, and Order 2006-0003-DWQ, the MRP for the SSS WDRs (Order 2006-0003-DWQ) is hereby amended as shown in Attachment A and shall be effective on September 9, 2013.

8/6/13

Date

  
Thomas Howard  
Executive Director

<sup>3</sup> California Integrated Water Quality System (CIWQS) publicly available at <http://www.waterboards.ca.gov/ciwqs/publicreports.shtml>

<sup>4</sup> Statewide Sanitary Sewer Overflow Reduction Program information is available at: [http://www.waterboards.ca.gov/water\\_issues/programs/ssr/](http://www.waterboards.ca.gov/water_issues/programs/ssr/)

## ATTACHMENT A

### STATE WATER RESOURCES CONTROL BOARD ORDER NO. WQ 2013-0058-EXEC

#### AMENDING MONITORING AND REPORTING PROGRAM FOR STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR SANITARY SEWER SYSTEMS

This Monitoring and Reporting Program (MRP) establishes monitoring, record keeping, reporting and public notification requirements for Order 2006-0003-DWQ, "Statewide General Waste Discharge Requirements for Sanitary Sewer Systems" (SSS WDRs). This MRP shall be effective from September 9, 2013 until it is rescinded. The Executive Director may make revisions to this MRP at any time. These revisions may include a reduction or increase in the monitoring and reporting requirements. All site specific records and data developed pursuant to the SSS WDRs and this MRP shall be complete, accurate, and justified by evidence maintained by the enrollee. Failure to comply with this MRP may subject an enrollee to civil liabilities of up to \$5,000 a day per violation pursuant to Water Code section 13350; up to \$1,000 a day per violation pursuant to Water Code section 13268; or referral to the Attorney General for judicial civil enforcement. The State Water Resources Control Board (State Water Board) reserves the right to take any further enforcement action authorized by law.

#### A. SUMMARY OF MRP REQUIREMENTS

**Table 1 – Spill Categories and Definitions**

<b>CATEGORIES</b>	<b>DEFINITIONS</b> [see Section A on page 5 of Order 2006-0003-DWQ, for Sewer Overflow (SSO) definition]
<b>CATEGORY 1</b>	Discharges of untreated or partially treated wastewater of <b><u>any volume</u></b> resulting from an enrollee's sanitary sewer system failure or flow condition that: <ul style="list-style-type: none"><li>• Reach surface water and/or reach a drainage channel tributary to a surface water; or</li><li>• Reach a Municipal Separate Storm Sewer System (MS4) and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or groundwater infiltration basin (e.g., infiltration pit, percolation pond).</li></ul>
<b>CATEGORY 2</b>	Discharges of untreated or partially treated wastewater of <b><u>1,000 gallons or greater</u></b> resulting from an enrollee's sanitary sewer system failure or flow condition that <b><u>do not</u></b> reach surface water, a drainage channel, or a MS4 unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.
<b>CATEGORY 3</b>	All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition.

<b>CATEGORIES</b>	<b>DEFINITIONS</b> [see Section A on page 5 of Order 2006-0003-DWQ, for Sewer Overflow (SSO) definition]
<b>PRIVATE LATERAL SEWAGE DISCHARGE (PLSD)</b>	Discharges of untreated or partially treated wastewater resulting from blockages or other problems <b><u>within a privately owned sewer lateral</u></b> connected to the enrollee's sanitary sewer system or from other private sewer assets. PLSDs that the enrollee becomes aware of may be <u>voluntarily</u> reported to the California Integrated Water Quality System (CIWQS) Online SSO Database.

**Table 2 – Notification, Reporting, Monitoring, and Record Keeping Requirements**

<b>ELEMENT</b>	<b>REQUIREMENT</b>	<b>METHOD</b>
<b>NOTIFICATION</b> (see section B of MRP)	<ul style="list-style-type: none"> <li>• Within two hours of becoming aware of any Category 1 SSO <b><u>greater than or equal to 1,000 gallons discharged to surface water or spilled in a location where it probably will be discharged to surface water</u></b>, notify the California Office of Emergency Services (Cal OES) and obtain a notification control number.</li> </ul>	Call Cal OES at: <b>(800) 852-7550</b>
<b>REPORTING</b> (see section C of MRP)	<ul style="list-style-type: none"> <li>• Category 1 SSO: Submit draft report within three business days of becoming aware of the SSO and certify within 15 calendar days of SSO end date.</li> <li>• Category 2 SSO: Submit draft report within 3 business days of becoming aware of the SSO and certify within 15 calendar days of the SSO end date.</li> <li>• Category 3 SSO: Submit certified report within 30 calendar days of the end of month in which SSO the occurred.</li> <li>• SSO Technical Report: Submit within 45 calendar days after the end date of any Category 1 SSO in which 50,000 gallons or greater are spilled to surface waters.</li> <li>• “No Spill” Certification: Certify that no SSOs occurred within 30 calendar days of the end of the month or, if reporting quarterly, the quarter in which no SSOs occurred.</li> <li>• Collection System Questionnaire: Update and certify every 12 months.</li> </ul>	Enter data into the CIWQS Online SSO Database ( <a href="http://ciwqs.waterboards.ca.gov/">http://ciwqs.waterboards.ca.gov/</a> ), certified by enrollee's Legally Responsible Official(s).
<b>WATER QUALITY MONITORING</b> (see section D of MRP)	<ul style="list-style-type: none"> <li>• Conduct water quality sampling <b><u>within 48 hours</u></b> after initial SSO notification for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters.</li> </ul>	Water quality results are required to be uploaded into CIWQS for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters.

<b>RECORD KEEPING</b> <b>(see section E of MRP)</b>	<ul style="list-style-type: none"><li>• SSO event records.</li><li>• Records documenting Sanitary Sewer Management Plan (SSMP) implementation and changes/updates to the SSMP.</li><li>• Records to document Water Quality Monitoring for SSOs of 50,000 gallons or greater spilled to surface waters.</li><li>• Collection system telemetry records if relied upon to document and/or estimate SSO Volume.</li></ul>	Self-maintained records shall be available during inspections or upon request.
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## **B. NOTIFICATION REQUIREMENTS**

Although Regional Water Quality Control Boards (Regional Water Boards) and the State Water Board (collectively, the Water Boards) staff do not have duties as first responders, this MRP is an appropriate mechanism to ensure that the agencies that have first responder duties are notified in a timely manner in order to protect public health and beneficial uses.

1. For any Category 1 SSO greater than or equal to 1,000 gallons that results in a discharge to a surface water or spilled in a location where it probably will be discharged to surface water, either directly or by way of a drainage channel or MS4, the enrollee shall, as soon as possible, but not later than two (2) hours after (A) the enrollee has knowledge of the discharge, (B) notification is possible, and (C) notification can be provided without substantially impeding cleanup or other emergency measures, notify the Cal OES and obtain a notification control number.
2. To satisfy notification requirements for each applicable SSO, the enrollee shall provide the information requested by Cal OES before receiving a control number. Spill information requested by Cal OES may include:
  - i. Name of person notifying Cal OES and direct return phone number.
  - ii. Estimated SSO volume discharged (gallons).
  - iii. If ongoing, estimated SSO discharge rate (gallons per minute).
  - iv. SSO Incident Description:
    - a. Brief narrative.
    - b. On-scene point of contact for additional information (name and cell phone number).
    - c. Date and time enrollee became aware of the SSO.
    - d. Name of sanitary sewer system agency causing the SSO.
    - e. SSO cause (if known).
  - v. Indication of whether the SSO has been contained.
  - vi. Indication of whether surface water is impacted.
  - vii. Name of surface water impacted by the SSO, if applicable.
  - viii. Indication of whether a drinking water supply is or may be impacted by the SSO.
  - ix. Any other known SSO impacts.
  - x. SSO incident location (address, city, state, and zip code).
3. Following the initial notification to Cal OES and until such time that an enrollee certifies the SSO report in the CIWQS Online SSO Database, the enrollee shall provide updates to Cal OES regarding substantial changes to the estimated volume of untreated or partially treated sewage discharged and any substantial change(s) to known impact(s).

4. PLSDs: The enrollee is strongly encouraged to notify Cal OES of discharges greater than or equal to 1,000 gallons of untreated or partially treated wastewater that result or may result in a discharge to surface water resulting from failures or flow conditions within a privately owned sewer lateral or from other private sewer asset(s) if the enrollee becomes aware of the PLSD.

### C. **REPORTING REQUIREMENTS**

1. **CIWQS Online SSO Database Account:** All enrollees shall obtain a CIWQS Online SSO Database account and receive a “Username” and “Password” by registering through CIWQS. These accounts allow controlled and secure entry into the CIWQS Online SSO Database.
2. **SSO Mandatory Reporting Information:** For reporting purposes, if one SSO event results in multiple appearance points in a sewer system asset, the enrollee shall complete one SSO report in the CIWQS Online SSO Database which includes the GPS coordinates for the location of the SSO appearance point closest to the failure point, blockage or location of the flow condition that caused the SSO, and provide descriptions of the locations of all other discharge points associated with the SSO event.
3. **SSO Categories**
  - i. **Category 1** – Discharges of untreated or partially treated wastewater of any volume resulting from an enrollee’s sanitary sewer system failure or flow condition that:
    - a. Reach surface water and/or reach a drainage channel tributary to a surface water; or
    - b. Reach a MS4 and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or groundwater infiltration basin (e.g., infiltration pit, percolation pond).
  - ii. **Category 2** – Discharges of untreated or partially treated wastewater greater than or equal to 1,000 gallons resulting from an enrollee’s sanitary sewer system failure or flow condition that does not reach a surface water, a drainage channel, or the MS4 unless the entire SSO volume discharged to the storm drain system is fully recovered and disposed of properly.
  - iii. **Category 3** – All other discharges of untreated or partially treated wastewater resulting from an enrollee’s sanitary sewer system failure or flow condition.
4. **Sanitary Sewer Overflow Reporting to CIWQS - Timeframes**
  - i. **Category 1 and Category 2 SSOs** – All SSOs that meet the above criteria for Category 1 or Category 2 SSOs shall be reported to the CIWQS Online SSO Database:
    - a. Draft reports for Category 1 and Category 2 SSOs shall be submitted to the CIWQS Online SSO Database within three (3) business days of the enrollee becoming aware of the SSO. Minimum information that shall be reported in a draft Category 1 SSO report shall include all information identified in section 8.i.a. below. Minimum information that shall be reported in a Category 2 SSO draft report shall include all information identified in section 8.i.c below.

- b. A final Category 1 or Category 2 SSO report shall be certified through the CIWQS Online SSO Database within 15 calendar days of the end date of the SSO. Minimum information that shall be certified in the final Category 1 SSO report shall include all information identified in section 8.i.b below. Minimum information that shall be certified in a final Category 2 SSO report shall include all information identified in section 8.i.d below.
- ii. **Category 3 SSOs** – All SSOs that meet the above criteria for Category 3 SSOs shall be reported to the CIWQS Online SSO Database and certified within 30 calendar days after the end of the calendar month in which the SSO occurs (e.g., all Category 3 SSOs occurring in the month of February shall be entered into the database and certified by March 30). Minimum information that shall be certified in a final Category 3 SSO report shall include all information identified in section 8.i.e below.
- iii. **“No Spill” Certification** – If there are no SSOs during the calendar month, the enrollee shall either 1) certify, within 30 calendar days after the end of each calendar month, a “No Spill” certification statement in the CIWQS Online SSO Database certifying that there were no SSOs for the designated month, or 2) certify, quarterly within 30 calendar days after the end of each quarter, “No Spill” certification statements in the CIWQS Online SSO Database certifying that there were no SSOs for each month in the quarter being reported on. For quarterly reporting, the quarters are Q1 - January/ February/ March, Q2 - April/May/June, Q3 - July/August/September, and Q4 - October/November/December.

If there are no SSOs during a calendar month but the enrollee reported a PLSD, the enrollee shall still certify a “No Spill” certification statement for that month.

- iv. **Amended SSO Reports** – The enrollee may update or add additional information to a certified SSO report within 120 calendar days after the SSO end date by amending the report or by adding an attachment to the SSO report in the CIWQS Online SSO Database. SSO reports certified in the CIWQS Online SSO Database prior to the adoption date of this MRP may only be amended up to 120 days after the effective date of this MRP. After 120 days, the enrollee may contact the SSO Program Manager to request to amend an SSO report if the enrollee also submits justification for why the additional information was not available prior to the end of the 120 days.

## 5. **SSO Technical Report**

The enrollee shall submit an SSO Technical Report in the CIWQS Online SSO Database within 45 calendar days of the SSO end date for any SSO in which 50,000 gallons or greater are spilled to surface waters. This report, which does not preclude the Water Boards from requiring more detailed analyses if requested, shall include at a minimum, the following:

- i. **Causes and Circumstances of the SSO:**
  - a. Complete and detailed explanation of how and when the SSO was discovered.
  - b. Diagram showing the SSO failure point, appearance point(s), and final destination(s).
  - c. Detailed description of the methodology employed and available data used to calculate the volume of the SSO and, if applicable, the SSO volume recovered.
  - d. Detailed description of the cause(s) of the SSO.

- e. Copies of original field crew records used to document the SSO.
- f. Historical maintenance records for the failure location.

ii. **Enrollee's Response to SSO:**

- a. Chronological narrative description of all actions taken by enrollee to terminate the spill.
- b. Explanation of how the SSMP Overflow Emergency Response plan was implemented to respond to and mitigate the SSO.
- c. Final corrective action(s) completed and/or planned to be completed, including a schedule for actions not yet completed.

iii. **Water Quality Monitoring:**

- a. Description of all water quality sampling activities conducted including analytical results and evaluation of the results.
- b. Detailed location map illustrating all water quality sampling points.

6. **PLSDs**

Discharges of untreated or partially treated wastewater resulting from blockages or other problems within a privately owned sewer lateral connected to the enrollee's sanitary sewer system or from other private sanitary sewer system assets may be voluntarily reported to the CIWQS Online SSO Database.

- i. The enrollee is also encouraged to provide notification to Cal OES per section B above when a PLSD greater than or equal to 1,000 gallons has or may result in a discharge to surface water. For any PLSD greater than or equal to 1,000 gallons regardless of the spill destination, the enrollee is also encouraged to file a spill report as required by Health and Safety Code section 5410 et. seq. and Water Code section 13271, or notify the responsible party that notification and reporting should be completed as specified above and required by State law.
- ii. If a PLSD is recorded in the CIWQS Online SSO Database, the enrollee must identify the sewage discharge as occurring and caused by a private sanitary sewer system asset and should identify a responsible party (other than the enrollee), if known. Certification of PLSD reports by enrollees is not required.

7. **CIWQS Online SSO Database Unavailability**

In the event that the CIWQS Online SSO Database is not available, the enrollee must fax or e-mail all required information to the appropriate Regional Water Board office in accordance with the time schedules identified herein. In such event, the enrollee must also enter all required information into the CIWQS Online SSO Database when the database becomes available.

## 8. **Mandatory Information to be Included in CIWQS Online SSO Reporting**

All enrollees shall obtain a CIWQS Online SSO Database account and receive a "Username" and "Password" by registering through CIWQS which can be reached at [CIWQS@waterboards.ca.gov](mailto:CIWQS@waterboards.ca.gov) or by calling (866) 792-4977, M-F, 8 A.M. to 5 P.M. These accounts will allow controlled and secure entry into the CIWQS Online SSO Database. Additionally, within thirty (30) days of initial enrollment and prior to recording SSOs into the CIWQS Online SSO Database, all enrollees must complete a Collection System Questionnaire (Questionnaire). The Questionnaire shall be updated at least once every 12 months.

### i. **SSO Reports**

At a minimum, the following mandatory information shall be reported prior to finalizing and certifying an SSO report for each category of SSO:

- a. **Draft Category 1 SSOs**: At a minimum, the following mandatory information shall be reported for a draft Category 1 SSO report:
  1. SSO Contact Information: Name and telephone number of enrollee contact person 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. Whether or not the SSO reached surface water, a drainage channel, or entered and was discharged from a drainage structure.
  5. Whether or not the SSO reached a municipal separate storm drain system.
  6. Whether or not the total SSO volume that reached a municipal separate storm drain system was fully recovered.
  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 Cal OES was called.

16. For spills greater than or equal to 1,000 gallons, the Cal OES control number.
- b. **Certified Category 1 SSOs:** At a minimum, the following mandatory information shall be reported for a certified Category 1 SSO report, in addition to all fields in section 8.i.a:
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 shall 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.
- c. **Draft Category 2 SSOs:** At a minimum, the following mandatory information shall be reported for a draft Category 2 SSO report:
1. Items 1-14 in section 8.i.a above for Draft Category 1 SSO.

- d. **Certified Category 2 SSOs:** At a minimum, the following mandatory information shall be reported for a certified Category 2 SSO report:
  1. Items 1-14 in section 8.i.a above for Draft Category 1 SSO and Items 1-9, and 17 in section 8.i.b above for Certified Category 1 SSO.
- e. **Certified Category 3 SSOs:** At a minimum, the following mandatory information shall be reported for a certified Category 3 SSO report:
  1. Items 1-14 in section 8.i.a above for Draft Category 1 SSO and Items 1-5, and 17 in section 8.i.b above for Certified Category 1 SSO.

ii. **Reporting SSOs to Other Regulatory Agencies**

These reporting requirements do not preclude an enrollee from reporting SSOs to other regulatory agencies pursuant to state law. In addition, these reporting requirements do not replace other Regional Water Board notification and reporting requirements for SSOs.

iii. **Collection System Questionnaire**

The required Questionnaire (see subsection G of the SSS WDRs) provides the Water Boards with site-specific information related to the enrollee's sanitary sewer system. The enrollee shall complete and certify the Questionnaire at least every 12 months to facilitate program implementation, compliance assessment, and enforcement response.

iv. **SSMP Availability**

The enrollee shall provide the publicly available internet web site address to the CIWQS Online SSO Database where a downloadable copy of the enrollee's approved SSMP, critical supporting documents referenced in the SSMP, and proof of local governing board approval of the SSMP is posted. If all of the SSMP documentation listed in this subsection is not publicly available on the Internet, the enrollee shall comply with the following procedure:

- a. Submit an **electronic** copy of the enrollee's approved SSMP, critical supporting documents referenced in the SSMP, and proof of local governing board approval of the SSMP to the State Water Board, within 30 days of that approval and within 30 days of any subsequent SSMP re-certifications, to the following mailing address:

State Water Resources Control Board  
Division of Water Quality  
Attn: SSO Program Manager  
1001 I Street, 15<sup>th</sup> Floor, Sacramento, CA 95814

**D. WATER QUALITY MONITORING REQUIREMENTS:**

To comply with subsection D.7(v) of the SSS WDRs, the enrollee shall develop and implement an SSO Water Quality Monitoring Program to assess impacts from SSOs to surface waters in which 50,000 gallons or greater are spilled to surface waters. The SSO Water Quality Monitoring Program, shall, at a minimum:

1. Contain protocols for water quality monitoring.
2. Account for spill travel time in the surface water and scenarios where monitoring may not be possible (e.g. safety, access restrictions, etc.).
3. Require water quality analyses for ammonia and bacterial indicators to be performed by an accredited or certified laboratory.
4. Require monitoring instruments and devices used to implement the SSO Water Quality Monitoring Program to be properly maintained and calibrated, including any records to document maintenance and calibration, as necessary, to ensure their continued accuracy.
5. Within 48 hours of the enrollee becoming aware of the SSO, require water quality sampling for, at a minimum, the following constituents:
  - i. Ammonia
  - ii. Appropriate Bacterial indicator(s) per the applicable Basin Plan water quality objective or Regional Board direction which may include total and fecal coliform, enterococcus, and e-coli.

**E. RECORD KEEPING REQUIREMENTS:**

The following records shall be maintained by the enrollee for a minimum of five (5) years and shall be made available for review by the Water Boards during an onsite inspection or through an information request:

1. General Records: The enrollee shall maintain records to document compliance with all provisions of the SSS WDRs and this MRP for each sanitary sewer system owned including any required records generated by an enrollee's sanitary sewer system contractor(s).
2. SSO Records: The enrollee shall maintain records for each SSO event, including but not limited to:
  - i. Complaint records documenting how the enrollee responded to all notifications of possible or actual SSOs, both during and after business hours, including complaints that do not result in SSOs. Each complaint record shall, at a minimum, include the following information:
    - a. Date, time, and method of notification.
    - b. Date and time the complainant or informant first noticed the SSO.
    - c. Narrative description of the complaint, including any information the caller can provide regarding whether or not the complainant or informant reporting the potential SSO knows if the SSO has reached surface waters, drainage channels or storm drains.
    - d. Follow-up return contact information for complainant or informant for each complaint received, if not reported anonymously.
    - e. Final resolution of the complaint.

- ii. Records documenting steps and/or remedial actions undertaken by enrollee, using all available information, to comply with section D.7 of the SSS WDRs.
  - iii. Records documenting how all estimate(s) of volume(s) discharged and, if applicable, volume(s) recovered were calculated.
3. Records documenting all changes made to the SSMP since its last certification indicating when a subsection(s) of the SSMP was changed and/or updated and who authorized the change or update. These records shall be attached to the SSMP.
  4. Electronic monitoring records relied upon for documenting SSO events and/or estimating the SSO volume discharged, including, but not limited to records from:
    - i. Supervisory Control and Data Acquisition (SCADA) systems
    - ii. Alarm system(s)
    - iii. Flow monitoring device(s) or other instrument(s) used to estimate wastewater levels, flow rates and/or volumes.

**F. CERTIFICATION**

1. All information required to be reported into the CIWQS Online SSO Database shall be certified by a person designated as described in subsection J of the SSS WDRs. This designated person is also known as a Legally Responsible Official (LRO). An enrollee may have more than one LRO.
2. Any designated person (i.e. an LRO) shall be registered with the State Water Board to certify reports in accordance with the CIWQS protocols for reporting.
3. Data Submitter (DS): Any enrollee employee or contractor may enter draft data into the CIWQS Online SSO Database on behalf of the enrollee if authorized by the LRO and registered with the State Water Board. However, only LROs may certify reports in CIWQS.
4. The enrollee shall maintain continuous coverage by an LRO. Any change of a registered LRO or DS (e.g., retired staff), including deactivation or a change to the LRO's or DS's contact information, shall be submitted by the enrollee to the State Water Board within 30 days of the change by calling (866) 792-4977 or e-mailing [help@ciwqs.waterboards.ca.gov](mailto:help@ciwqs.waterboards.ca.gov).
5. A registered designated person (i.e., an LRO) shall certify all required reports under penalty of perjury laws of the state as stated in the CIWQS Online SSO Database at the time of certification.

**CERTIFICATION**

The undersigned Clerk to the Board does hereby certify that the foregoing is a full, true, and correct copy of an order amended by the Executive Director of the State Water Resources Control Board.

7/30/13  
Date

  
Jeanine Townsend  
Clerk to the Board

# **Appendix C**

*WDR 'Fact Sheets'*



# Fact Sheet

STATE WATER RESOURCES CONTROL BOARD | 1001 I Street, Sacramento, CA 95814 | Mailing Address: P. O. Box 100, Sacramento, CA 95812-0100 | [www.waterboards.ca.gov](http://www.waterboards.ca.gov)

## **AMENDED MONITORING AND REPORTING PROGRAM FOR THE STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR SANITARY SEWER SYSTEMS**

### **BACKGROUND**

Water Code section 13193 (2001, A.B. 285) requires the State Water Resources Control Board (State Water Board) and Regional Water Quality Control Boards (collectively Water Boards) to gather comprehensive and specific Sanitary Sewer Overflow (SSO) information. Water Code section 13193 also requires the Water Boards to make available to the public information including but not limited to the cause, estimated volume, location, date, time, and duration of the SSO; whether the SSO reached or may have reached surface waters; the response and corrective action taken by the collection system owner or operator (hereafter, Enrollee) for each SSO event; and the contact information for each Enrollee.

On May 2, 2006 the State Water Board adopted Water Quality [Order 2006-0003-DWQ](#), “[Statewide Waste Discharge Requirements for Sanitary Sewer Systems](#)” (hereafter, SSS WDRs) to address Water Code section 13193 requirements and develop the framework for the statewide Sanitary Sewer Overflow Reduction Program. The SSS WDRs’ Monitoring and Reporting Program (MRP) includes specific SSO notification and reporting and record keeping requirements to meet SSO reporting requirements in the Water Code and facilitate compliance monitoring and enforcement for violations.

The State Water Board Executive Officer issued a revised MRP for the SSS WDRs on February 20, 2008 to rectify notification deficiencies that occurred early in program implementation and to ensure that first responders (e.g., Water Boards, California Office of Emergency Services, and County Health Departments) are notified in a timely manner for SSOs discharged to surface waters. Based on over six years of implementation of the SSS WDRs, the State Water Board concluded that the February 20, 2008 revised MRP is no longer adequate to advance the Sanitary Sewer Overflow Reduction Program objectives, assess compliance, and enforce the requirements of the SSS WDRs.

Following its January 24, 2012 workshop with stakeholders for the review and update of the SSS WDRs, the State Water Board directed staff to review and evaluate the existing monitoring and reporting requirements and prepare an amended MRP for the Executive Director’s issuance. Staff worked with the key stakeholders (e.g., California Association of Sanitation Agencies) to revise the monitoring and reporting requirements. State Water Board staff distributed the draft versions of the MRP to all stakeholders registered on the Lyris e-mail list for the Sanitary Sewer Overflow Reduction Program, solicited comments on the draft versions of the MRP in January and March 2013, and considered all comments received in developing the final revised MRP.

## **INSPECTION AND AUDIT FINDINGS**

Since January 2007, numerous violations of the SSS WDRs have been documented by the Water Boards through data review, compliance monitoring, and onsite inspections. The most common violations related to the MRP that the Water Boards have documented are:

- Failure to properly estimate and report SSO volumes discharged and recovered [violation of section G of the SSS WDRs]
- Failure of the Enrollee to comply with all minimum MRP record keeping requirements [violation of section G of the SSS WDRs]
- Failure of the Enrollee to implement feasible alternatives and actions necessary to identify and correct problems causing SSOs [violation of subsection D.6 of the SSS WDRs]
- Unauthorized use of legally responsible official's SSO Online Database login password and electronic signature; [violation of section J of the SSS WDRs]
- Failure of the Enrollee to develop and/or implement an Overflow Emergency Response Plan to ensure 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 accelerated or additional monitoring necessary to determine the nature and impact of the SSO [violation of subsection D.13(vi) of the SSS WDRs]
- Failure of the Enrollee to implement required training for sewer system operators and contractors [violation of subsections D.13(iv) and D.13(vi) of the SSS WDRs]

Amendments made to the MRP in Order 2013-0058-EXEC address these and other issues that have become apparent in the implementation of the SSS WDRs in over six years.

## **MONITORING AND REPORTING PROGRAM AMENDMENTS**

State Water Board staff and other members of the Data Review Committee reviewed the current SSS WDRs reporting requirements as part of the SSS WDRs review and update process. The Data Review Committee is open to all stakeholders. Consequently, enrollees, non-governmental organizations, and other agencies have participated. As a result of this process, new reporting requirements have been developed that address the compliance and enforcement issues noted above and improve the quality and usefulness of SSO data collected.

While the proposed changes streamline the reporting process overall, some fields have been added to the reports. These additions address critical information gaps in the current reporting that have been identified both internally and by stakeholders.

For example, many enrollees have noted that we need to be able to separate sewer lateral spills from spills occurring in other asset types like main lines or pump stations. The "where did the failure occur" question on the electronic spill report form was not a required field in the original or revised 2008 MRP. Many SSO reports do not have this information, thus, we cannot differentiate lateral spills from main line, pump station, or other types of spills. This is one example of the additions in the required data entry that have been addressed in the 2013 MRP revisions.

The following is a summary of major changes made to the existing MRP (Order 2008-0002-EXEC) and incorporated in the final revised MRP (Order 2013-0058-EXEC):

1. Change in Notification Requirement for spills that reach surface water:
  - Three notification calls were required (California Office of Emergency Services, Regional Water Quality Control Boards, and local Health Departments). Required notification has been changed to call California Office of Emergency Services (Cal OES) only since Cal OES notifies the Regional Water Quality Control Boards and local Health Departments when a spill notification is received.
  - Elimination of requirement to submit a certification to Regional Water Quality Control Boards within 24 hours of making notification calls.
  - Alignment of notification requirement with California Code of Regulations section 2250, Reportable Quantity of Sewage, by requiring notification calls for only spills of 1,000 gallons or more. Notification of Cal OES was required for all spills to surface water.
  - Addition of requirement to update Cal OES when there are substantial changes to previously reported spill volume estimates or impacts.
2. Defined new spill categories and refined spill report fields:
  - Replacement of spill Categories 1 and 2 with Categories 1, 2, and 3. Spills are now classified as follows:
    - Category 1 – Spills of any volume that reach surface water
    - Category 2 – Spills greater than or equal to 1,000 gallons that do not reach surface water
    - Category 3 (formerly Category 2) – Spills less than 1,000 gallons that do not reach surface water

All spills to surface water will be in a distinct category with this change. Spill reporting fields were refined and streamlined with stakeholder input.
3. Addition of requirement to submit a technical report within 45 days of the end date for spills to surface water over 50,000 gallons.
4. Addition of requirement for all Permit enrollees to develop a Water Quality Monitoring plan to be implemented within 48 hours after initial notification for spills where 50,000 gallons or more reach surface water.
5. Addition of requirement for Permit enrollees to submit an electronic copy of their Sewer System Management Plan (SSMP) or provide the web address where their SSMP is posted.
6. Addition of enhanced record keeping requirements.
7. Elimination of requirement to certify Private Lateral Sewer Discharge reports.
8. Addition of a 120-day time limit for amending and re-certifying spill reports.

# Appendix D

*Agency WDR Application (NOI)*

**State Water Resources Control Board  
NOTICE OF INTENT  
TO COMPLY WITH THE TERMS OF THE STATEWIDE GENERAL WASTE DISCHARGE  
REQUIREMENTS FOR SANITARY SEWER SYSTEMS  
(WATER QUALITY ORDER NO. 2006 - 0003 - DWQ)**

**I. Notice of Intent (NOI) Status**

Mark Only One Item	1. <input checked="" type="checkbox"/> New Permittee	2. <input type="checkbox"/> Change of Information	WDID #: 455010432
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**II. Agency Information**

A. Legally Responsible Official BRUCE N. INMAN			
B. Agency CITY OF SIERRA MADRE		C. Title DIRECTOR OF PUBLIC WORKS	
D. Mailing Address 232 W. SIERRA MADRE BLVD		E. Address (Line 2)	
F. City SIERRA MADRE	State CA	G. Zip 91024	H. County LOS ANGELES
I. Phone 626-355-7135	J. FAX 626-355-2251	K. Email Address brinman@ci.sierra-madre.ca.us	
L. Sanitary Sewer System SIERRA MADRE CITY CS		M. Regional Water Quality Control Board REGION 4 - LOS ANGELES	
N. Agency Type (check one) 1. <input checked="" type="checkbox"/> City 2. <input type="checkbox"/> County 3. <input type="checkbox"/> State 4. <input type="checkbox"/> Federal 5. <input type="checkbox"/> Special District 6. <input type="checkbox"/> Government Combination			
O. Population of Community Served (check one) <input checked="" type="checkbox"/> Less than 50,000 <input type="checkbox"/> Greater than or equal to 50,000			

**III. Billing Information**

A. Agency CITY OF SIERRA MADRE			
B. Contact Person BRUCE INMAN		C. Title DIRECTOR OF PUBLIC WORKS	
D. Mailing Address 232 W. SIERRA MADRE BLVD		E. Address (Line 2)	
F. City SIERRA MADRE	State CA	G. Zip 91024	H. County LOS ANGELES
I. Phone 626.355.7135	J. FAX 626.355.2251	K. Email Address	

The annual fee, which is required by the California Water Code (section 13260), is based on the daily population served by the sanitary sewer system. Additionally, an ambient water monitoring surcharge of 9 percent is required for each annual fee. The total fee is the sum of the annual fee and ambient water monitoring surcharge. Please see the instructions on completing this NOI for a detailed explanation of the fee structure.

- L. Total Fee (check one)  
 Population served < 50,000 – total fee submitted is \$ 872.00  
 Population served ≥ 50,000 – total fee submitted is \$ 4,676.00

A check for the appropriate total fee amount should be made payable to SWRCB and mailed with this completed NOI to the following address:

State Water Board Accounting Office  
 P O Box 1888  
 Attn: SSO Fees  
 Sacramento, CA 95812-1888

SWRCB Tax ID is: 68-0281986

IV. Electronic Submittal Authorization

I, BRUCE N. INMAN  
print name  
CITY OF SIERRA MADRE  
agency, certify that I am the legally responsible official for  
 My signature on this form certifies that, I  
 agree, my California Integrated Water Quality System (CIWQS) user ID and password  
 constitute my electronic signature and any information I indicate I am electronically certifying  
 contains my signature. I understand that I am legally bound, obligated, and responsible by use  
 of my electronic signature as much as by a hand-written signature.

I agree that I will protect my electronic signature from unauthorized use, and that I will contact  
 the State Water Resources Control Board, within 24-hours of discovery, if I suspect that my  
 electronic signature has been lost, stolen, or otherwise compromised. I certify that my  
 electronic signature is for my own use, that I will keep it confidential, and that I will not delegate  
 or share it with any other person.

V. Certification

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision  
 in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information  
 submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly  
 responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true,  
 accurate, and complete. I am aware that there are significant penalties for submitting false information, including the  
 possibility of fine and imprisonment. Additionally, I certify that the provisions of the Statewide General Waste  
 Discharge Requirements for Sanitary Sewer Systems, including electronic reporting of all sanitary sewer overflows  
 and development and implementation of a sewer system management plan, will be complied with."

A. Printed Name: BRUCE N. INMAN

B. Title: DIRECTOR OF PUBLIC WORKS

C. Signature: Bruce N. Inman D. Date: 9/14/06

**NOTE: Mail completed and signed form with a check for fee payment to the address below.**

State Water Board Accounting Office  
 P O Box 1888  
 Attn: SSO Fees  
 Sacramento, CA 95812-1888



**CITY OF SIERRA MADRE**  
 P.O. Box 0457  
 232 West Sierra Madre Blvd  
 Sierra Madre, CA 91024  
 Ph (626) 355-7135 FAX (626) 355-2251

015658

18-0  
100

BANK OF AMERICA  
 350 W. SIERRA MADRE BLVD.  
 SIERRA MADRE, CA

DATE  
 9/18/2006

CHECK NO  
 15658

AMOUNT  
 \$872.00

EIGHT HUNDRED SEVENTY TWO AND 00/100 DOLLARS

PAY TO  
 THE  
 ORDER  
 OF

STATE WATER RESOURCES CONTROL BOARD  
 P O BOX 1888  
 ATTN: SSO FEES  
 SACRAMENTO, CA 95812-1888

*John D. Buchanan*

MAYOR

*[Signature]*

CITY ADMINISTRATOR

*[Signature]*

TREASURER

⑈015658⑈ ⑆12200066⑆ 07659⑈80215⑈

ACCOUNT	P.O.	INVOICE	DESCRIPTION	AMOUNT
102.5811.217		4SS010432	ANNUAL SEWER PERMIT FEE	872.00

TOTAL 872.00

## **Appendix E**

### ***Inventory of Sewer Maintenance Equipment***

#### **A. Equipment and Materials Owned by the City**

- One Serico Hydro Jet – 1997 model
- One small CCTV unit w/100 feet of cable for use on laterals
- One vacuum-jetter truck Vac-Con model V350 LHA/850 – 2009 model
- One sidekick self-propelled easement jetter – 2014
- New vacuum jetter truck Vac-Con FL 114 SD - 2020 MODEL
- iWater Maintenance Tracking Software and laptops with mobile maintenance tracking compatible software links - 2012

#### **B. Equipment owned by maintenance service contractor**

Subject of future consideration

## **Appendix F**

*Location Map / Maintenance Yard, Flow Monitoring Sites, SSO Locations & Delivery Points*

**CITY OF SIERRA MADRE  
SEWER SYSTEM MANAGEMENT PLAN  
JUNE 2008**

**APPENDIX 'F'**

**MAINTENANCE YARD, SMZs,  
FLOW MONITORING LOCATIONS,  
& DELIVERY POINTS**

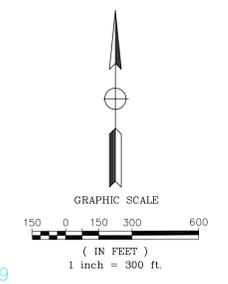
**LEGEND:**

-  CITY BOUNDARY
-  EXISTING TRUNK SEWER
-  EXISTING CITY SEWER
-  SEWER DRAINAGE AREA BORDER
-  FLOW MONITORING LOCATIONS
-  SEWER DRAINAGE AREA - OR - S.M.Z.

23



2401 E. Katella Avenue, Suite 450  
Anaheim, CA 92806  
(714)978-8200 fax (714)978-8299



U:\j15886 Sierra Madre SSMP\Exhibit\pl-EXHIB.dwg Plotted: Jun 17, 2009

# **Appendix G**

## ***Inventory of Sewer Collection Facilities by SMZ***

## INVENTORY OF SEWER COLLECTION FACILITIES BY SMZ

**Summary:**

1. The total number of sewer manholes in the system is: **747**
2. Total lineal feet of sewer is as follows:
  - a. 6-inch Sewer in the System = 474 feet
  - b. 8-inch Sewer in the System = 168,673 feet
  - Total = 169,147 feet

<b>32 Miles</b>
-----------------
3. Total number of laterals in the system is: **3,248**
4. Total number of siphons in the system is: **None identified**
5. Total number of lift (pump) stations in the system is: **None**

**Inventory by SMZ follows:**

Appendix 'G'

SMZ	MH's	Pipe Length-ft.	Laterals	Siphons	Lift Stations	Delivery To
1	9	2022	37	0	0	CSD Trunk
2	3	932.5	18	0	0	CSD Trunk
3*	Unk	437	Unk	0	0	CSD Trunk
4	12	2924	49	0	0	CSD Trunk
5	2	852	Unk	0	0	CSD Trunk
6	26	5270.2	82	0	0	CSD Trunk
7	2	776	12	0	0	CSD Trunk
8	22	4262	75	0	0	CSD Trunk
9	2	351	8	0	0	CSD Trunk
10	16	4155.2	94	0	0	CSD Trunk
11	4	998.8	17	0	0	CSD Trunk
12	69	18743.6	325	0	0	CSD Trunk
13	171	27764.7	659	0	0	CSD Trunk
14	20	6954.4	124	0	0	CSD Trunk
15	48	11777	239	0	0	CSD Trunk
16	145	35570.3	637	0	0	CSD Trunk
17	15	5164.6	119	0	0	CSD Trunk
18	2	597	14	0	0	CSD Trunk
19	5	936.7	28	0	0	CSD Trunk
20	5	1316.5	37	0	0	CSD Trunk
21	4	1428	32	0	0	CSD Trunk
22	13	3713.1	92	0	0	CSD Trunk
23	41	12377.8	268	0	0	CSD Trunk
24	58	9535.5	139	0	0	Arcadia Sewer
25	12	3019	45	0	0	Arcadia Sewer
26	16	1969.5	24	0	0	Arcadia Sewer
27	22	3871.1	50	0	0	Arcadia Sewer
28	3	1326.7	24	0	0	Arcadia Sewer
	747	169,046	3,248	0	0	
	Miles=	<b>32.0</b>				
*Pipe measured in AutoCAD from the center of the San Gabriel culdesac to CSD Trunk						

## **Appendix H**

*Sewer “Hot Spots” Log (Maintenance and Structural), City Maintenance Records and  
Industrial Waste Discharge Permits*

**SEWER "HOT SPOTS" LOG**

[Maintenance]

Location / Street	From	To	Up Stream of MH No.	Cause	Corrective Action	Date of Last Action
Santa Anita Dr.	Elkins	Via Granate		Roots		
Stonehouse	Grandview	Deadend		Roots		
Oakwood Ln.	Grandview	Santa Anita		Roots		
Sycamore Pl.	Grandview	Los Rocas		Roots		
Canon Dr.	Theresa	Sturtevant		Roots		
Woodland Dr.	Sturtevant	Alta Vista Dr.		Roots		
Brookside Dr.	Woodland	Sunnyside Ln.		Roots		
Madre Ln.	Old Ranch Rd.	Deadend		Roots		
Mountain Tr.	Orange Grove	Lowell				
East Highland Ave.	Mountain Tr.	Deadend		Roots		
West Highland Ave.	Baldwin	Lima		Roots		
West Highland Ave.	Lima	Michillinda		Roots		
Olive Tree Ln.	Grandview Ave.	830 Ft North	199	Roots (3)		
Windsor Ave.	Sierra Madre Blvd.	Montecito Ct.	C7	Grease		
Montecito Ct.	Windsor Ave.	Deadend	115	Grease		

**SEWER "HOT SPOTS" LOG**

**[Maintenance]**

Location / Street	From	To	Up Stream of MH No.	Cause	Corrective Action	Date of Last Action
Manzanita Ave.	Hermosa	Michillinda		Roots		
Mariposa Ave.	Lima St.	Ross Pl.	275	Roots (2)		
Mariposa Ave.	Hermosa Ave.	Lima St.	280	Roots (1)		
Hermosa Ave.	Esperanza Ave.	Mariposa Ave.	1	Roots (5)		
Suffolk Ave.	Sierra Pl.	Baldwin Ave.	355	Roots (1)		
Sierra Pl.	Lowell Ave.	Suffolk Ave.	350	Roots (4)		
Lowell Ave.	Mountain Trail Ave.	Sierra Pl.	351	Roots (4)		
San Gabriel Ct.	Holdman Ave.	Mountain Trail Ave.	284	Roots (1)		
Highland Ave.	Coburn Ave.	Canon Ave.	147	Roots (1)		
Toyon Rd.	Grandview Ave.	Cul-de-sac	200	Roots (9)		
Oak Crest Dr.	Carter Ave.	Cul-de-sac	298	Roots (11)		
Grandview Ave.	at Acacia St.		315	Roots (1)		
Foothill Ave	Acacia St.	Camillo St.	320	Roots (8)		
Camillo St.	Foothill Ave.	Lotus Ln	335	Roots (13)		
Camillo St.	Lotus Ln.	Dead end	341	Roots (5)		
Acacia St.	Foothill Ave.	Valle Vista Dr.	321	Roots (4)		



**SEWER "HOT SPOTS" LOG**

[Structural]

Location / Street	From	To	Up Stream of MH No.	Cause	Corrective Action	Date of Last Action
Michillinda Ave.	Orange Grove Ave.	Manzanita Ave.	?	Broken Pipe		
Orange Grove Ave.	Michillinda Ave.	Sunnyside Ave.	530	Broken Pipe		
Orange Grove Ave.	Park Ave.	Lima St.	537			
Orange Grove Ave.	Lima St.	Hermosa Ave.	538			
Lima St.	Orange Grove Ave.	Manzanita Ave.	537			
Orange Grove Ave.	Old Oak Ln.	Baldwin Ave.	C21			
Mariposa Ave.	Hermosa Ave.	Lima St.	278	Deformed		
San Gabriel Ct.	Mountain Trail Ave.	Sierra Pl.	545			
Mountain Trail Ave.	Bonita Ave.	Lowell Ave.	9	Deformed		
Canon Ave.	Orange Grove Ave.	Cul-de-sac	15	Broken		
Auburn Ave.	Sierra Madre Blvd.	Montecito Ct.	C 6			
Canon Ave.	At Montecito Ave.		165			
Laurel Ave.	Baldwin Ave.	Mountain Trail Ave.	427			
Grand View Ave.	Lima St.	Adams St.	204			
Baldwin Ave.	at Grand View Ave		?4			
Grand View Ave	Baldwin Ave	Mountain Trail Ave.	19			
Grand View Ave.	Sycamore Pl.	Camillo St.	506			

**SEWER "HOT SPOTS" LOG**

[Structural]

Location / Street	From	To	Up Stream of MH No.	Cause	Corrective Action	Date of Last Action
Grand View Ave.	Acacia St.	Foothill Ave.	314			
Easement	Grand View Ave	to the south				
Liliano Pl.	Grand View Ave	Cul-de-sac	?6			
Liliano Dr.	Stone House Rd.	Cul-de-sac	24			
Kaia Ln.	Arno Dr.	Cul-de-sac	309			
Arno Dr.	Kaia Ln.	Santa Anita Ave.	307	Broken		
Arno Dr.	Santa Anita Ave.	Cul-de-sac	308			
Santa Anita Ave.	Via Granate	Arno Dr.	304			
Santa Anita Ave.	at Elkins Ave.		34	Broken		
Crestvale Dr.	Fairview Ave.	Cul-de-sac	249			
Sierra Meadow Dr.	Carter Ave.	Wistaria Way	388			
Acacia St.	Grand View Ave.	Foothill Ave.	317			
Sturtevant Dr.	E/O Pleasant Hill Ln.		404			
Easement	N/O Sturtevant Dr.		404			
Churchhill Rd.	Old Ranch Rd.	Churchill Glen	415			
Woodland Dr.	Sturtevant Dr.	Brookside Ln.	9431 / 9432			
Brookside Ln.	sunnyslope Ln.	Woodland Dr.	9479			

**SEWER "HOT SPOTS" LOG**

[Structural]

Location / Street	From	To	Up Stream of MH No.	Cause	Corrective Action	Date of Last Action
Sunnyslope Ln.	Brookside Ln.	Cul-de-sac	9479			
Woodland Dr.	Brookside Ln.	Holly Trail	9435			
Woodland Dr.	Holly Trail	Alta Vista Dr.	9437			
Woodland Dr.	Yucca Tr.	Brookside Ln.	9442			
Yucca Tr.	Woodland Dr.	End	9441			
Canon Dr.	Theresa Ln.	Las Rocas Dr.	9410			
Sturtevant Dr.	Audubon Wy.	Oakdale Dr.	9501			
Oakdale Dr.	Vista Circle Dr..	Alta Vista Dr.	9516			
Alta Vista Dr.	Sturtevant Dr.	Oakdale Dr.	9503			

**SEWER "HOT SPOTS" LOG**

**[Structural]**

Location / Street	From	To	Up Stream of MH No.	Cause	Corrective Action	Date of Last Action
Michillinda Ave.	Orange Grove Ave.	Manzanita Ave.	?	Broken Pipe		
Orange Grove Ave.	Michillinda Ave.	Sunnyside Ave.	530	Broken Pipe		
Orange Grove Ave.	Park Ave.	Lima St.	537			
Orange Grove Ave.	Lima St.	Hermosa Ave.	538			
Lima St.	Orange Grove Ave.	Manzanita Ave.	537			
Orange Grove Ave.	Old Oak Ln.	Baldwin Ave.	C21			
Mariposa Ave.	Hermosa Ave.	Lima St.	278	Deformed		
San Gabriel Ct.	Mountain Trail Ave.	Sierra Pl.	545			
Mountain Trail Ave.	Bonita Ave.	Lowell Ave.	9	Deformed		
Canon Ave.	Orange Grove Ave.	Cul-de-sac	15	Broken		
Auburn Ave.	Sierra Madre Blvd.	Montecito Ct.	C 6			
Canon Ave.	At Montecito Ave.		165			
Laurel Ave.	Baldwin Ave.	Mountain Trail Ave.	427			
Grand View Ave.	Lima St.	Adams St.	204			
Baldwin Ave.	at Grand View Ave		?4			
Grand View Ave	Baldwin Ave	Mountain Trail Ave.	19			
Grand View Ave.	Sycamore Pl.	Camillo St.	506			

**SEWER "HOT SPOTS" LOG**

**[Structural]**

Location / Street	From	To	Up Stream of MH No.	Cause	Corrective Action	Date of Last Action
Grand View Ave.	Acacia St.	Foothill Ave.	314			
Easement	Grand View Ave	to the south				
Liliano Pl.	Grand View Ave	Cul-de-sac	?6			
Liliano Dr.	Stone House Rd.	Cul-de-sac	24			
Kaia Ln.	Arno Dr.	Cul-de-sac	309			
Arno Dr.	Kaia Ln.	Santa Anita Ave.	307	Broken		
Arno Dr.	Santa Anita Ave.	Cul-de-sac	308			
Santa Anita Ave.	Via Granate	Arno Dr.	304			
Santa Anita Ave.	at Elkins Ave.		34	Broken		
Crestvale Dr.	Fairview Ave.	Cul-de-sac	249			
Sierra Meadow Dr.	Carter Ave.	Wistaria Way	388			
Acacia St.	Grand View Ave.	Foothill Ave.	317			
Sturtevant Dr.	E/O Pleasant Hill Ln.		404			
Easement	N/O Sturtevant Dr.		404			
Churchhill Rd.	Old Ranch Rd.	Churchill Glen	415			
Woodland Dr.	Sturtevant Dr.	Brookside Ln.	9431 / 9432			
Brookside Ln.	sunnyslope Ln.	Woodland Dr.	9479			



# **Appendix I**

## ***Operating and Capital Budgets***

Sewer Projects Cost Sheet			
FY Budget	Year of Comp.	Project	Final Cost
2013-2014	2015	Grandview Sewer Main Replacement	\$204,330
2016-2017	2017	2016-17 Sewer System Repair	\$165,828
2020-2021	2020	Vac-Con Model V350LHAN-P850	\$439,595.99
2019-2020	2020	Water Main Improvements (Remove and replace 8" Sewer-25 LF)	\$6,500

**UTILITY SERVICES DEPARTMENT**

EXPENDITURE CATEGORY	FY 2019-2020 Actuals	FY 2020-21 Adopted	FY 2020-21 Amended	FY 2021-2022 ADOPTED
<b>UTILITIES</b>				
Personnel	1,546,483	1,479,323	1,621,623	1,609,400
Maintenance & Operations	1,716,523	1,955,100	2,143,600	2,054,900
Interest expense	245,196	235,000	235,000	228,000
Depreciation	829,523	960,000	960,000	910,000
Cost allocations	609,000	953,900	707,400	990,000
Other expenses	(693,257)	-	252,000	-
Investment in Capital Assets	1,929,722	1,905,000	2,345,000	3,183,500
Principal Payment	471,731	483,600	483,600	350,200
<b>TOTAL UTILITY SERVICES DEPARTMENT</b>	<b>6,654,921</b>	<b>7,971,923</b>	<b>8,748,223</b>	<b>9,326,000</b>

FUND TYPE	FY 2019-2020 Actuals	FY 2020-21 Adopted	FY 2020-21 Amended	FY 2021-2022 ADOPTED
<b>WATER FUND</b>				
Personnel	1,107,945	989,293	1,080,593	1,079,600
Maintenance & Operations	1,670,280	1,818,000	2,006,500	1,945,750
interest expense	243,700	235,000	235,000	228,000
Depreciation	652,337	750,000	750,000	700,000
Cost allocations	480,300	694,550	499,050	644,300
Other expenses	(483,752)	-	140,000	-
Investment in Capital Assets	1,929,722	1,565,000	2,005,000	3,058,500
Principal Payment	471,731	483,600	483,600	350,200
<b>TOTAL WATER FUND</b>	<b>6,072,263</b>	<b>6,535,443</b>	<b>7,199,743</b>	<b>8,006,350</b>
<b>SEWER FUND</b>				
Personnel	438,538	490,030	541,030	529,800
Maintenance & Operations	46,243	137,100	137,100	109,150
Interest expense	1,496	-	-	-
Depreciation	177,186	210,000	210,000	210,000
Cost allocations	128,700	259,350	208,350	345,700
Other expenses	(209,505)	-	112,000	-
Investment in Capital Assets	-	340,000	340,000	125,000
Principal Payment	-	-	-	-
<b>TOTAL SEWER FUND</b>	<b>582,658</b>	<b>1,436,480</b>	<b>1,548,480</b>	<b>1,319,650</b>
<b>TOTAL UTILITY SERVICES DEPARTMENT</b>	<b>6,654,921</b>	<b>7,971,923</b>	<b>8,748,223</b>	<b>9,326,000</b>

CITY OF SIERRA MADRE

## **Appendix J**

*CCTV Inspection Report w/Conditions Assessment & Schedule*

## **City of Sierra Madre CCTV INSPECTION REPORT Spring 2007**

### **Introduction and History**

The City owns and operates its local sanitary sewer system consisting of approximately 32 miles of gravity flow sewer pipelines (of 8-inch vitrified clay pipe) and 745 manholes. The existing sewer system consists completely of local collector sewers that discharge to trunk sewers (10 & 12 inch) that are owned and operated by the County Sanitation Districts of Los Angeles County and to the adjacent City of Arcadia sewer system at six (6) locations.

Although the City conducts limited video inspection of the sewer system, as maintenance issues arise or require, the City lacked a comprehensive record of the entire sewer system. Since the physical condition of a majority of the sewer system was uncertain, further analysis by video inspection was warranted. Therefore, a complete cleaning and CCTV inspection logging was performed during the spring of 2007.

The purpose of this report is two fold. 1) To document and synthesize the CCTV inspection results, and 2) To establish a list of improvement projects to eliminate structural defects identified in the mainline sewer, and to identify maintenance defects requiring action in order to preserve the City's infrastructure investment, maintain service, prevent failures and limit inflow, infiltration and overflow potential.

### **Study Approach**

Preparation of the Year 2007 CCTV Inspection Report involved various tasks. The sequence of tasks used in this study was the following:

1. Review the CCTV inspection digital videos prepared by the contractor.
2. Review CCTV Inspection Log and Evaluation Summary provided by the contractor.
3. Document a priority list for implementation of recommended improvements. Items considered in the formulation of the priority list included the severity of damage to the existing pipe, potential for public health problems, prior maintenance problems, deficiencies per the SMP, consequences to other improvement projects, and other criteria which is relevant.
4. Development of recommendations for system improvements to correct defects based on the priority list.
5. Preparation of cost estimate for the recommended improvements.
6. Preparation of the CCTV Inspection report.

### **Analysis of CCTV Inspection**

Analysis of the CCTV inspection consisted of reviewing both the digital video and written inspection log summaries. Identified defects were ranked by the severity of the defect based on deficiency criteria listed below. The length of sewer to be replaced was based on the type or extent of the repair that is needed and the depth below ground surface (extent of probable excavation). The types of repair considered were the following:

1. Spot Repair (Remove and replace a segment or several segments of mainline pipe)
2. Remove and replace the reach between manholes.
3. Sewer pipe lining with Cured in Place Pipe (CIPP) liner.

### **Pipeline Grading System**

The Pipeline Assessment and Certification Program (PACP), developed by The National Association of Sewer Service Companies (NASSCO), provide a uniform mechanism for creating reliable descriptions of pipe conditions. NASSCO has also developed a system based on the PACP codes to assign a condition rating to pipelines. Requirements of the grading system are as follows:

1. The grading system should be direct and objective.
2. The system should provide the ability to quantitatively measure the difference in pipe condition, between one inspection and subsequent inspections, and to prioritize among different pipe segments.

Many other approaches to sewer pipe grading have been used in the United States as well as in other parts of the World. These approaches generally use some type of defect grading that is then used to calculate an overall pipe rating. It is problematic to develop a single pipe segment rating that fully describes all of the important aspects of a pipe. Therefore the PACP Condition Grading System uses more than one method of rating pipe segment condition including a rating that considers the number of total defects within the pipe segment and a rating that considers the most severe types of defects within the pipe segment.

The PACP Condition Grading System only considers internal pipe conditions obtained from TV inspection. While other factors such as pipe material, depth, soils, and surface conditions also affect pipe survivability, those factors have not been included in the current version of the PACP Condition Grading System. It is expected that as the PACP further develops the PACP Condition Grading System will expand to include other factors.

The PACP Condition Grading System provides ratings for Structural Defects and Maintenance Defects.

APPROACH - Using the PACP Code Matrix, (see Appendix 'J-1') in which each defect code is assigned a condition grade of from 1 to 5; grades are assigned based on potential for further deterioration or pipe failure. Pipe failure is defined as when the pipe can no longer convey the pipe design capacity.

Grades are assigned for two categories, Structural, and Maintenance defects, as follows:

5 - Immediate Attention	Defects requiring immediate attention
4 - Poor	Severe defects that will become Grade 5 defects within the foreseeable future
3 - Fair	Moderate defects that will continue to deteriorate over time
2 - Good	Defects that have not begun to deteriorate
1 -Excellent	Minor defects

The mechanisms and rates of pipeline deterioration are highly dependent on local conditions. However the following general guidelines are provided to estimate the amount of time before the defect causes complete line failure. These guidelines should be verified by actual research under prevailing local conditions.

- 5 - Pipe has failed or will likely fail within the next five years. Missing materials with large voids and soil is visible.
- 4 - Pipe will probably fail in 5 to 10 years or will become category 5 in foreseeable future.
- 3 - Pipe may fail in 10 to 20 years and should be monitored for further deterioration and replaced as the conditions warrant.
- 2 - Pipe unlikely to fail for at least 20 years
- 1 - Failure unlikely in the foreseeable future

CONTINUOUS DEFECTS - The number of "repeated continuous" (joint) defect grades is calculated by dividing the length of the continuous defect by the joint length. For example, a 15 ft long repeating continuous defect, 3-foot joints, and a grade 2 defect, would equate to 5 (15/3) grade 2 defects.

The number of "truly continuous" defects is calculated by dividing the length of the continuous defect by 5. Example, a 20-foot long continuous defect, grade 3, should equate to four (20/5) Grade 3 defects. Fractions are rounded to the nearest whole number.

PIPE RATINGS - The pipe rating is based on the number of occurrences for each condition grade. Ratings are calculated separately for Structural and Maintenance Defects. Several ways of expressing pipe segment condition are used by the PACP Condition Grading System as follows:

SEGMENT GRADE SCORES - Each pipe segment will have a Segment Grade Score for each of the five grades. The number of occurrences of each pipe grade is multiplied by the pipe grade to calculate the segment grade score. Example, six Grade 5 defects would be (6x5) and equates to a Segment Grade 5 Score of 30. If a pipe segment had no defects of a particular grade, then the Segment Grade Score for that grade would be 0.

OVERALL PIPE RATING -The five Segment Grade Scores are added together to calculate the Overall Pipe Rating. Structural Pipe Ratings are calculated using only Structural Defect grades, while O&M Pipe Ratings are calculated using only O&M Defect grades.

**PACP QUICK RATING** -The PACP Quick Rating is a shorthand way of expressing the number of occurrences for the two highest severity grades. The PACP Quick Rating is a four character score as follows:

1. The first character is the highest severity grade occurring along the pipe length.
2. The second character is the total number of occurrences of the highest severity grade. If the total number exceeds 9, then alphabetic characters are used as follows:
  - 0 to 14 = A
  - 15 to 19 = B
  - 20 to 24 = C
  - 25 to 29 = D, etc.
3. The third character is the next highest severity grade occurring along the pipe length.
4. The fourth character is the total number of the second highest severity grade occurrences, derived as in item 2 above.

The PACP Quick Rating provides the ability to summarize the number and severity of defects found within a pipe segment, as with the Pipe Rating, Quick Structural Ratings are calculated using only Structural Defect Grades, and Quick O&M Ratings are calculated using only O&M Defect Grades.

### **First Example**

A segment of pipe with a PACP rating 4B27

This immediately shows that no grade 5 defects or grade 3 defects, however 15 to 19 grade 4 defects and seven grade 2 defects were found.

### **Second Example**

A segment of pipe with a PACP rating 3224

Two grade 3 defects and four grade 2 defects, however no grade 5 or grade 4 defects were found.

**PIPE RATINGS INDEX** -This is an indicator of the distribution of defect severity. The Pipe Ratings Index is calculated by dividing the Pipe Rating by the number of defects. For example, the Structural Pipe Ratings Index would be the Structural Pipe Rating divided by the number of structural defects. Pipe Ratings Indexes are calculated for Structural, O&M, and Overall.

### **SUMMARY**

The following procedures are used to calculate pipe segment ratings using the PACP Condition Grading System:

1. Determine the number of occurrences for each condition grade within the pipe segment. Calculate separately for Structural Defect Grades and O&M Defect Grades.

2. Calculate the Segment Grade Score by multiplying the number of occurrences by the respective grade 1 through 5. Calculate the Structural Segment Grade Score and the O&M Segment Grade Score separately, and then add together for the Overall Segment Grade Score.
3. Calculate the Pipe Rating for the pipe segment by adding the Segment Grade Scores. Add all five Structural Segment Grade Scores for the Structural Pipe Rating, and add all five O&M Segment Grade Scores for the O&M Pipe Rating. Add all five Overall Segment Grade Scores for the Overall Pipe Rating.
4. Determine the PACP Quick Rating by calculating the number of occurrences of the two highest severity grades.
5. Calculate the Pipe Ratings Index by dividing the Pipe Rating by the number of defects.

## **Identified Structural Defects Correction Projects**

### General Repair Methods

Repairs to existing sewers can be separated into two categories: 1) traditional removal and replacement of the damaged pipe with open trench operation typically called point repair, or 2) trenchless method using Cured in Place Pipe (CIPP) liner typically called a sewer-lining repair. Each method has advantages and disadvantages. The most cost effective repair of the sewer is a combination of the two methods since there may be only 8-10 foot length of sewer mainline that is in disrepair, but the remaining mainline contains cracks that can be repaired by lining the sewer with CIPP. The advantages and disadvantages and recommended uses for each method are listed below:

Traditional sewer replacement advantages are:

1. Common open trench construction method employed.
2. Best choice if the line to be repaired also needs to be upsized.
3. Only the section of pipe that is damaged needs to be replaced. The remaining line is not disturbed.
4. The sewer is replaced with a new VCP of the same diameter and will have a service life of more than 50-years.

Disadvantages:

1. Sewer line must be taken out of service for the duration of the repair and a temporary sewer by-pass system must be used.
2. If sewer is located within a street, traffic must be rerouted or detoured around trench or construction operation.
3. Sewer is located in an easement, access, and working space may be a practical factor.

Trenchless (CIPP) sewer rehabilitation advantages:

1. Can repair sewer defects under existing improvements, i.e. signs, fencing, etc.
2. Faster installation. Typically can install 300'-600' per day.
3. Sewer line is typically out of sewer less than 3 hours.
4. Can repair multiple defects in a sewer line.
5. Limited traffic interruptions.

## Disadvantages:

1. Must have approximately 3000 to 4000-feet of lining to be economical due to higher mobilization and equipment costs.
2. Depending on pipe flow, may require temporary sewer by-pass system.
3. Cannot be used to upsize deficient pipe.

Recommended Sewer System Improvements

Presented in Table 1 is a summary of the measures recommended to correct the structural defects shown on Exhibit Map 4. Criteria for recommending and prioritizing relief facilities are as follows:

1. Sewers with critical structural defects (Category 5) are recommended for correction measures as soon as possible. Sewers meeting these criteria are ranked highest priority.
2. Sewers with structural defects of category 4 are recommended for correction measures as funding is scheduled over the next 5-10 years.
3. Sewers with structural defects of category 3 are recommended for correction measures as change in conditions warrant. Sewers meeting these criteria should be monitored for changing conditions in future maintenance cycles.

Please note that recommended sewer system improvements as presented here are general in nature and should not be considered as absolutes for final design. Rather, they should be considered more as a guide.

<b>Priority Ranking</b>	<b>Defect Category</b>	<b>Tributary Area (Ac)</b>	<b>Depth of Pipe (Ft)</b>	<b>Pipe ID</b>	<b>Description of Measures To Correction Structural Defects</b>	<b>Cost</b>
1	5	12	4-5	10000096	Line 119 feet of 8-inch pipe	\$4,753
2	5	24	17-24	10000369	Line 267 feet of 8-inch pipe	\$10,680
3	5	13	6	10000305	Line 190 feet of 8-inch pipe	\$7,610
4	5	27	6-10	10000817	Line 323 feet of 8-inch pipe	\$12,927
5	5	13	4	10000254	Line 118 feet of 8-inch pipe	\$4,708
6	5	13	3	10000264	Line 135 feet of 8-inch pipe	\$5,412
7	5	24	5-13	10000362	Point repair lateral connection & line 187 feet of 8-inch pipe	\$13,478
8	5	13	4	10000203	Point repair 3 feet of existing 8-inch line.	\$2,400
9	5	12	6-8	10000041	Line 293 feet of 8-inch pipe	\$11,720
10	5	13	4	10000291	Line 170 feet of 8-inch pipe	\$6,800
11	5	13	3-4	10000221	Line 297 feet of 8-inch pipe	\$11,880

<b>Table 1</b>						
<b>Priority Ranking &amp; Summary of Structural Defect Correction Measures</b>						
<b>Priority Ranking</b>	<b>Defect Category</b>	<b>Tributary Area (Ac)</b>	<b>Depth of Pipe (Ft)</b>	<b>Pipe ID</b>	<b>Description of Measures To Correction Structural Defects</b>	<b>Cost</b>
12	5	16	8-12	10000625	Line 367 feet of 8-inch pipe	\$14,664
13	5	6	9	10000108	Point repair 5 feet of existing 8-inch line	\$5,000
14	5	16	16	10000525	Line 272 feet of 8-inch pipe	\$10,860
15	5	13	4	10000392	Line 127 feet of 8-inch pipe	\$5,080
16	5	16	9	10000456	Point repair 3 feet of existing 8-inch line.	\$3,000
17	5	13	9	MH 9444	Replace manhole.	\$10,000
18	5	16	9	10000640	Point repair 10 feet of existing 8-inch line.	\$10,000
19	5	13	3-4	10000266	Line 121 feet of 8-inch pipe	\$4,840
20	5	24	7	10000216	Line 130 feet of 8-inch pipe	\$5,195
21	5	20	13	10000589	Line 264 feet of 8-inch pipe	\$10,564
22	5	12	4-7	10000036	Line 175 feet of 8-inch pipe	\$7,005
23	5	6	8	10000186	Point repair 6 feet of existing 8-inch line.	\$6,000
24	5	13	5	10000269	Point repair 7 feet of existing 8-inch line.	\$5,600
25	5	14	8-11	10000739	Point repair 10 feet of existing 8-inch line.	\$12,000
					<b>Priority 5 subtotal</b>	<b>\$202,178</b>
26	4	10	17-18	10000079	Line 332 feet of 8-inch pipe	\$13,268
27	4	25	10-14	10000811	Line 327 feet of 8-inch pipe	\$13,075
28	4	13	4-6	10000282	Line 269 feet of 8-inch pipe	\$10,779
29	4	26	UNK	10000767	Line 184 feet of 8-inch pipe	\$7,354
30	4	25	7-8	10000806	Line 158 feet of 8-inch pipe	\$6,319
31	4	13	4	10000392	Line 127 feet of 8-inch pipe	\$5,070
32	4	13	5-6	10000226	Line 209 feet of 8-inch pipe	\$8,365
33	4	12	3-6	10000043	Line 310 feet of 8-inch pipe	\$10,000
					<b>Priority 4 subtotal</b>	<b>\$74,230</b>
34	3	14	6-8	10000688	Line 348 feet of 8-inch pipe	\$13,920
35	3	13	5	10000413	Line 49 feet of 8-inch pipe	\$1,960
36	3	13	2-5	10000227	Line 108 feet of 8-inch pipe	\$4,336
37	3	25	8	10000809	Line 202 feet of 8-inch pipe	\$8,068
38	3	27	8	10000805	Line 75 feet of 8-inch pipe	\$2,982
39	3	12	7	10000048	Line 297 feet of 8-inch pipe	\$11,870
40	3	12	UNK	10000199	Line 65 feet of 8-inch pipe	\$2,592
41	3	24	VAR	10000425	Line 88 feet of 8-inch pipe	\$3,526
42	3	15	8	10000681	Point repair 3.5 feet of	\$3,500

<b>Priority Ranking</b>	<b>Defect Category</b>	<b>Tributary Area (Ac)</b>	<b>Depth of Pipe (Ft)</b>	<b>Pipe ID</b>	<b>Description of Measures To Correction Structural Defects</b>	<b>Cost</b>
					existing 8-inch line.	
43	3	12	4	10000035	Line 62 feet of 8-inch pipe	\$2,480
44	3	13	5	10000283	Point repair 3.5 feet of existing 8-inch line.	\$2,800
					<b>Priority 3 subtotal</b>	<b>58,036</b>
					<b>TOTAL</b>	<b>\$334,444</b>

### Recommended Sewer System Improvement Projects

Presented in Table 2 is a brief summary of the recommended sewer system improvement projects to repair the structural defects. The first project is all of the category 5 structural defects. These repairs are recommended for immediate replacement as these pipes contain failures. The remaining projects are the category 4 and 3 structural defects and can be completed separately or together based on the funding available. It is recommended that these improvement projects be constructed as complete projects as the cost to perform the repairs individually will notably increase the cost.

<b>Project No.</b>	<b>Priority Ranking from Table 1</b>	<b>Defect Category</b>	<b>Tributary Area</b>	<b>Description of Measures To Correction Structural Defects</b>	<b>Cost</b>
1	1-25	5	Varies see Table 1	Point repair 52 feet of existing 8-inch pipe, and line 3,318 feet of existing 8-inch pipe, and replace a manhole.	\$57,478 \$134,700 \$10,000
2	26-33	4	Varies see Table 1	Line 1,916 feet of existing 8-inch pipe.	\$74,230
3	34-44	3	Varies see Table 1	Point repair 7 feet of existing 8-inch pipe, and line 1,294 feet of existing 8-inch pipe.	\$6,300 \$51,736
				Total all projects	<b>\$334,444</b>

### Sewer System Improvements Costs

The unit prices shown in the Engineer's Estimate (see Appendix 'J-2') represent the anticipated construction cost applicable for 2007. Bid prices received on jobs of similar nature in Southern California area were one source of information used to derive the cost figure. In addition, manufacturers, suppliers of material and equipment, and local contractors were consulted on various cost items. The unit prices do not include right-of-way acquisition or legal costs, if any. An additional 35% of construction cost is added to cover the cost of design engineering, contract administration, inspection, survey and contingency cost.

The Engineer's Estimate does not include an adjustment for inflation. Construction costs can be expected to fluctuate as corresponding changes occur in the national or local economy. One available indicator of these changes is the Engineering News-Record Construction Cost Index for the Los Angeles metropolitan area. This index is compiled from actual construction cost data for materials and labor and is reported in Engineering News-Record magazine. It is suggested that this index be used to update the unit prices presented in the Appendix and in adjusting the estimate from the date of the initial estimates.

### **Identified Maintenance Defect Locations**

In general, category 5 defects are recommended for immediate correction. These defects may be complete or partial blockages caused by root intrusion with maximum flow disruption. Root growth can also fracture sewer lines, causing soil and ground water contamination.

Category 4 defects are recommended for correction within the next year. A high majority of those obstructions are caused by root intrusion. These defects will become category 5 defects within the foreseeable future.

Categories 3 defects and lower are generally recommended for correction after the correction of category 5 and 4 defects. Pipes with this rating should be monitored for further deterioration and corrected as the conditions warrant.

The location of Categories 5, 4 and 3 maintenance defects are shown on Exhibit Map 5.

### General Maintenance Methods

Maintenance is performed using rodders and/or high pressure cleaners (hereinafter referred to as HPCs). A rodder is preferably used to deal with root intrusion (though a rodder may be used to remove solidified grease also). A rodder consists of a saw/blade attached to rod (metal cables) which is contained within a cage. The saw/blades and rods are fed out of the cage while spinning. The resulting motion cuts and dislodges roots and grease allowing the intrusions to move down the sewer line for capture and removal at the next downstream manhole. An HPC is preferably used to remove coagulated grease and grit (particulate matter) from the sewer lines. The HPC pumps water at a high pressure through the sewer lines. This water displaces the grease and grit. In some conditions a chemical herbicide or foaming root treatment may be appropriate. Such foam is pumped into selected pipe segments to kill existing roots and to inhibit their re-growth.

## Summary

Approximately 32 miles of sewer were inspected. Each reach of sewer inspected is put into a category based on the PACP rating system.

Based on the ratings for structural defects, approximately 3,421 feet (2.0 %) of the system was identified as Category 5 structural defect. About 1,916 feet (1.1 %) of the system was identified as Category 4 structural defect, and approximately 1,301 feet (0.8 %) of the system was identified as being Category 3 structural defect. Refer to Exhibit Map 4 for locations and descriptions of findings.

Based on the ratings for maintenance defects, 1 location was identified as Category 5 maintenance defect. 23 locations were identified as Category 4 maintenance defects, and 108 locations were identified as Category 3 maintenance defects. Refer to Exhibit Map 5 for locations and descriptions of findings.

**APPENDIX 'J-1'**

**NASSCO PACP Condition Grading System Code Matrix**

## NASSCO PACP Condition Grading System Code Matrix

Family	Group	Descriptor	Modifier	Code	Structural Grade	O&M Grade
Structural	Crack (C)	Circumferential ( C)		CC	1	
		Longitudinal (L)		CL	2	
		Multiple (M)		CM	3	
		Spiral (S)		CS	2	
Structural	Fracture (F)	Circumferential ( C)		FC	2	
		Longitudinal (L)		FL	3	
		Multiple (M)		FM	4	
		Spiral (S)		FS	3	
Structural	Pipe Failures (Silent)	Broken (B)		B	1 clock pos - 3, 2 clock pos - 4, >=3 clock pos - 5	
		Broken (B)	Soil Visible (SV)	BSV	5	
		Broken (B)	Void Visible (V V)	BVV	5	
		Hole (H)		H	1 clock pos - 3, 2 clock pos - 4, >= 3 clock pos - 5	
Structural	Collapse (X)	Hole (H)	Soil Visible (SV)	HSV	5	
		Hole (H)	Void Visible (V V)	HVV	5	
		Pipe (P)		XP	5	
		Brick (B)		XB	5	
Structural	Deformed (D)	(Pipe) (P)		D	<=10% - 4, >10% - 5	
		Brick (B)	Horizontally (H)	DH	5	
		Brick (B)	Vertically (V)	DV	5	
Structural	Joint (J)	Offset (displaced) (O)	Med (M)	JOM	1	
			Large (L)	JOL	2	
		Separated (open) (S)	Med (M)	JSM	1	
			Large (L)	JSL	2	
		Angular (A)	Med (M)	JAM	1	
			Large (L)	JAL	2	
	Surface Damage Chemical (S)	Roughness Increased (RI)	C	SRIC	1	
		Surface Spalling (SS)	C	SSSC	2	
		Aggregate Visible (AV)	C	SAVC	3	
		Aggregate Projecting (AP)	C	SAPC	3	
		Aggregate Missing (AM)	C	SAMC	4	
		Reinforcement Visible (RV)	C	SRVC	5	
Reinforcement Corroded (RC)		C	SRCC	5		
Missing Wall (MW)		C	SMWC	5		
	Other (Z)	C	SZC			
Surface Damage Mechanical (M)	Roughness Increased (RI)	M	SRIM	1		
	Surface Spalling (SS)	M	SSSM	2		
	Aggregate Visible (AV)	M	SAVM	3		
	Aggregate Projecting (AP)	M	SAPM	3		

## NASSCO PACP Condition Grading System Code Matrix

Family	Group	Descriptor	Modifier	Code	Structural Grade	O&M Grade
		Aggregate Missing (AM)	M	SAMM	4	
		Reinforcement Visible (RV)	M	SRVM	5	
		Reinforcement Corroded (RC)	M	SRCM	5	
		Missing Wall (MW)	M	SMWM	5	
		Other (Z)	M	SZM	N/A	
	Surface Damage Not Evident (Z)	Roughness Increased (RI)	Z	SRIZ	1	
		Surface Spalling (SS)	Z	SSSZ	2	
		Aggregate Visible (AV)	Z	SAVZ	3	
		Aggregate Projecting (AP)	Z	SAPZ	3	
		Aggregate Missing (AM)	Z	SAMZ	4	
		Reinforcement Visible (RV)	Z	SRVZ	5	
		Reinforcement Corroded (RC)	Z	SRCZ	5	
		Missing Wall (MW)	Z	SMWZ	5	
		Other (Z)	Z	SZZ	N/A	
	Surface Damage (Metal Pipes)	Corrosion (CP)		SCP	3	
Structural	Lining Failure (LF)	Detached (D)		LFD	3	
		Defective End (DE)		LFDE	3	
		Blistered (B)		LFB	3	
		Service Cut Shifted (CS)		LFCS	3	
		Abandoned Connection (AC)		LFAC		
		Overcut Service (OC)		LFOC	3	
		Undercut Service (UC)		LFUC	3	
		Buckled (BK)		LFBK	3	
		Wrinkled (W)		LFW	3	
		Other (Z)		LFZ		
Structural	Weld Failure (WF)	Circumferential (C)		WFC	2	
		Longitudinal (L)		WFL	2	
		Multiple (M)		WFM	3	
		Spiral (S)		WFS	2	
Structural	Point Repair (RP)	Localized Lining (L)		RPL		
		Localized Lining (L)	Defective (D)	RPLD	4	
		Patch Repair (P)		RPP		
		Patch Repair (P)	Defective (D)	RPPD	4	
		Pipe Replaced (R)		RPR		
		Pipe Replaced (R)	Defective (D)	RPRD	4	
		Other (Z)		RPRZ		
		Other (Z)		RPRZD		
Structural	Brickwork (Silent)	Displaced (DB)		DB	3	
		Missing (MB)		MB	4	
		Dropped Invert (DI)		DI	5	
		Missing Mortar	Slight	MMS	2	
			Medium	MMM	3	
			Large	MML	3	

## NASSCO PACP Condition Grading System Code Matrix

Family	Group	Descriptor	Modifier	Code	Structural Grade	O&M Grade
O&M	Deposits Attached (DA)	Encrustation (E)		DAE		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Grease (G)		DAGS		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Ragging ( R)		DAR		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Other (Z)		DAZ		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
	Deposits Settled (DS)	Hard/Compacted ( C)		DSC		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Fine (F)		DSF		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Gravel (G)		DSGV		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Other (Z)		DSZ		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
	Deposits Ingress (DN)	Fines silt/sand (F)		DNF		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Gravel (GV)		DNGV		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Other (Z)		DNZ		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
O&M	Roots ( R)	Fine (F)	Barrel (B)	RFB		2
			Lateral (L)	RFL		1
	Roots ( R) at a Joint	Tap (T)	Connection ( C)	RFC		1
			N/A	RF		1
			Barrel (B)	RTB		3
	Roots ( R) at a Joint	Medium (M)	Lateral (L)	RTL		2
			Connection ( C)	RTC		2
			N/A	RT		2
	Roots ( R) at a Joint	Ball (B)	Barrel (B)	RMB		4
			Lateral (L)	RML		3
			Connection ( C)	RMC		3
			N/A	RM		3
			Barrel (B)	RBB		5

## NASSCO PACP Condition Grading System Code Matrix

Family	Group	Descriptor	Modifier	Code	Structural Grade	O&M Grade
			Lateral (L)	RBL		4
			Connection (C)	RBC		4
	Roots (R) at a Joint		N/A	RB		4
O&M	Infiltration (I)	Weeper (W)		IW		2
		Dripper (D)		ID		3
		Runner (R)		IR		4
		Gusher (G)		IG		5
O&M	Obstacles/Obstructions (OB)	Brick or Masonry (B)		OBB		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Pipe Material in Invert (M)		OBM		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Object Protruding Thru Wall (I)		OBI		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Object Wedged in Joint (J)		OBJ		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Object Thru Connection (C)		OBC		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		External Pipe or Cable In Sewer (P)		OBP		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Built Into Structure (S)		OBS		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Construction Debris (N)		OBN		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Rocks (R)		OBR		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Other Objects (Z)		OBZ		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
O&M	Vermin (V)	Rat (R)		VR		2
		Cockroach (C)		VC		1
		Other (Z)		VZ		1
Construction Features	Tap (T)	Factory Made (F)		TF		
			Capped (C)	TFC		
			Defective (D)	TFD		2
			Intruding (I)	TFI		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
			Active (A)	TFA		

## NASSCO PACP Condition Grading System Code Matrix

Family	Group	Descriptor	Modifier	Code	Structural Grade	O&M Grade
		Break-In/Hammer (B)		TB		
			Capped ( C)	TBC		2
			Defective (D)	TBD		3
			Intruding (I)	TBI		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
			Active (A)	TBA		
		Saddle (S)		TS		
			Capped ( C)	TSC		
			Defective (D)	TSD		2
			Intruding (I)	TSI		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
			Active (A)	TSA		
Construction Features	Intruding Seal Material (IS)			IS		
		Sealing Ring (SR)		ISSR		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
			Hanging	ISSRH		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
			Broken	ISSRB		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Grout (GT)		ISGT		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
		Other (Z)		ISZ		<=10% - 2, <=20% - 3, <=30% - 4, >30% - 5
Construction Features	Line (L)	Left (L)		LL		<=10 Deg - 1, <=20 Deg 2, >20 Deg - 4
		Left/UP (LU)		LLU		<=10 Deg - 1, <=20 Deg 2, >20 Deg - 4
		Left/Down (LD)		LLD		<=10 Deg - 1, <=20 Deg 2, >20 Deg - 4
		Right ( R)		LR		<=10 Deg - 1, <=20 Deg 2, >20 Deg - 4
		Right/Up (RU)		LRU		<=10 Deg - 1, <=20 Deg 2, >20 Deg - 4

## NASSCO PACP Condition Grading System Code Matrix

Family	Group	Descriptor	Modifier	Code	Structural Grade	O&M Grade
		Right/Down (RD)		LRD		<=10 Deg - 1, <=20 Deg 2, >20 Deg - 4
		Up (U)		LU		<=10 Deg - 1, <=20 Deg 2, >20 Deg - 4
		Down (D)		LD		<=10 Deg - 1, <=20 Deg 2, >20 Deg - 4
Construction	Access Points (A)					
		Cleanout (CO)		ACO		
			Mainline (M)	ACOM		
			Property (P)	ACOP		
			House (H)	ACOH		
		Discharge Point (DP)		ADP		
		Junction Box (JB)		AJB		
		Meter (M)		AM		
		Manhole (MH)		AMH		
		Other Special Chamber (OC)		AOC		
		Tee Connection (TC)		ATC		
		WW Access Device (WA)		AWA		
		Wet Well (WW)		AWW		
Other	Miscellaneous (M)	Camera Underwater (CU)		MCU		4
		Dimension/Diam/Shape Change (SC)		MSC		
		General Observation (GO)		MGO		
		General Photograph (GP)		MGP		
		Material Change (MC)		MMC		
		Lining Change (LC)		MLC		
		Joint Length Change (JL)		MJL		
		Survey Abandoned (SA)		MSA		
		Water Level (WL)		MWL		
		Water Level (WL)	(S)	MWLS		<=30% - 2, <=50% - 3, >50% - 4
		Water Mark (WM)		MWM		>=50% 4, >=75% 5
		Dye Test (Y)		MY		
			Visible (V)	MYV		5
			Not Visible (N)	MYN		3

## **APPENDIX 'J-2'**

### **Engineer's Opinion of Costs**

Priority Ranking	Pipe ID	Street	CCTV Run No	Defect Grade	Tributary Area	Depth of Pipe	Length of Pipe	Description of Measures to Correct Structural Defects	Repair Length	Cost of Point Repair			Cost of Lining	General Comments
										0-5'	6-10'	>10'		
										\$800	\$1,000	\$1,200	\$40	
1	1000096	W. Orange Grove	661	5	12	4-5	118.82	Point repair 10 feet of existing 8-inch line.	10	\$8,000			\$4,753	Multiple breaks and cracks - recommend lining
2	10000369	E. Grandview	553	5	24	17-24	267	Point repair 6 feet of existing 8-inch line.	6			\$7,200	\$10,680	Several lengths of multiple fractures - recommend lining
3	10000305	N. Canon	412	5	13	6	190.26	Point repair 6 feet of existing 8-inch line.	6		\$6,000		\$7,610	Several lengths of multiple fractures - recommend lining
4	10000817	Arno Drive	244	5	27	6-10	323.18	Point repair 10 feet of existing 8-inch line.	10		\$10,000		\$12,927	Broken with fractures; roots at joints are prominent at different locations along segment - recommend lining
5	10000254	Woodland Drive	444	5	13	4	117.7	Point repair 3.5 feet of existing 8-inch line.	3.5	\$2,800			\$4,708	Broken with void followed by fractures - recommend lining
6	10000264	Sturtevant Drive	427	5	13	3	135.29	Point repair 45.5 feet of existing 8-inch line.	45.5	\$36,400			\$5,412	Broken with void; joints offset; and cracks are prominent at different locations along segment - recommend lining
7	10000362	Acacia Street	549	5	24	5-13	186.95	Point repair 5 feet of existing 8-inch line.	5			\$6,000	\$7,478	Broken at lateral (no longer connects) with fractures; point repair and lining
8	10000203	Churchill Road	379	5	13	4	337.36	Point repair 3 feet of existing 8-inch line.	3	\$2,400			\$13,494	Broken with visible soil; cracks also at break - recommend point repair
9	10000041	S. Lima Street	325	5	12	6-8	293.01	Point repair 5 feet of existing 8-inch line.	5		\$5,000		\$11,720	Broken with multiple cracks prominent at different locations along segment - recommend lining
10	10000291	Sturtevant Drive	431	5	13	4	170	Point repair 3.5 feet of existing 8-inch line.	3.5	\$2,800			\$6,800	Broken w/ visible soil; cracks prominent at different locations along segment - recommend lining
11	10000221	Woodland Drive	390	5	13	3-4	297	Point repair 3 feet of existing 8-inch line.	3	\$2,400			\$11,880	Broken w/ visible soil; cracks; and roots prominent at different locations along segment - recommend lining
12	10000625	N. Baldwin	154	5	16	8-12	366.61	Point repair 10 feet of existing 8-inch line.	10			\$12,000	\$14,664	Broken; asbestos cement pipe; recommend lining
13	10000108	San Gabriel Court	611	5	6	9	195	Point repair 5 feet of existing 8-inch line.	5		\$5,000		\$7,800	Relatively small void at the joint between two 8" VCP lengths - recommend point repair
14	10000525	W Grandview	126	5	16	16	271.5	Point repair 10 feet of existing 8-inch line.	10			\$12,000	\$10,860	Break void visible, ok to line.
15	10000392	Woodland Drive	467	5	13	4	127	Point repair 7 feet of existing 8-inch line.	7	\$5,600			\$5,080	Broken - recommend lining
16	10000456	Sierra Meadow	58	5	16	9	356.06	Point repair 3 feet of existing 8-inch line.	3		\$3,000		\$14,242	Broken - recommend point repair
17	MH 9444	Yucca Trail	393	5	13	9	1	Replace manhole.				\$10,000	\$0	Replace Manhole
18	10000640	Crestvale Drive	41	5	16	9	360	Point repair 10 feet of existing 8-inch line.	10		\$10,000		\$14,400	Broken - recommend point repair
19	10000266	Oakdale Drive	417	5	13	3-4	121	Point repair 6 feet of existing 8-inch line.	6		\$6,000		\$4,840	Break - recommend lining due to cost saving compared to point repair
20	10000216	E. Grandview	528	5	24	7	129.88	Point repair 10 feet of existing 8-inch line.	10		\$10,000		\$5,195	Break - recommend lining due to cost saving compared to point repair
21	10000589	Auburn	196	5	20	13	264.11	Point repair 10 feet of existing 8-inch line.	10			\$12,000	\$10,564	Break - recommend lining due to cost saving compared to point repair

Priority Ranking	Pipe ID	Street	CCTV Run No	Defect Grade	Tributary Area	Depth of Pipe	Length of Pipe	Description of Measures to Correct Structural Defects	Repair Length	0-5'	6-10'	>10'	Cost of Lining	General Comments
22	1000036	Michillinda Avenue	304	5	12	4-7	175.13	Point repair 7 feet of existing 8-inch line.	7		\$7,000		\$7,005	Break - recommend lining due to cost saving compared to point repair
23	10000186	S Canon Avenue	332	5	6	8	255.86	Point repair 6 feet of existing 8-inch line.	6		\$6,000		\$10,234	Break - recommend point repair
24	10000269	Vista Circle	407	5	13	5	233.39	Point repair 7 feet of existing 8-inch line.	7	\$5,600			\$9,336	Break - recommend point repair
25	10000739	N. Canon	516	5	14	8-11	447.98	Point repair 10 feet of existing 8-inch line.	10			\$12,000	\$17,919	Break - recommend point repair
26	10000079	Mariposa Avenue	593	4	10	17-18	331.69	Point repair 17.5 feet of existing 8-inch line.	17.5			\$21,000	\$13,268	Deformed with cracks and fractures at varying distances - recommend lining
27	10000811	Liliano	235	4	25	10-14	326.87	Point repair 9 feet of existing 8-inch line.	9			\$10,800	\$13,075	Deformed with cracks and fractures at varying distances - recommend lining
28	10000282	Easement	405	4	13	4-6	269.48	Point repair 3 feet of existing 8-inch line.	3		\$3,000		\$10,779	Multiple fractures and cracks at varying distances - recommend lining
29	10000767	Santa Anita	264	4	26		183.86	Point repair 3.5 feet of existing 8-inch line.	3.5			\$4,200	\$7,354	Broken with fractures on two segments, appear to be due to roots - recommend lining
30	10000816	Kaia Ln	243	4	25	7-8	157.97	Point repair 5 feet of existing 8-inch line.	5		\$5,000		\$6,319	Fractures; roots at different locations - recommend lining
31	10000392	Woodland Drive	446	4	13	4	126.76	Point repair 7 feet of existing 8-inch line.	7	\$5,600			\$5,070	Fracture - recommend lining on account of cost saving compared to point repair
32	10000226	Middle Brookside	465	4	13	5-6	209.12	Point repair 7 feet of existing 8-inch line.	7		\$7,000		\$8,365	Broken, appears to be due to roots - recommend lining
33	10000043	W. Orange Grove	306	4	12	3-6	309.64	Point repair 10 feet of existing 8-inch line.	10		\$10,000		\$12,386	Broken - recommend lining
34	10000688	E. Grandview	207	3	14	6-8	348	Point repair 10 feet of existing 8-inch line.	10		\$10,000		\$13,920	Multiple fractures at varying distances - recommend lining
36	10000413	Woodland Drive	471	3	13	5	49	Point repair 3.5 feet of existing 8-inch line.	3.5	\$2,800			\$1,960	Fracture, appears to be due to root - recommend lining
37	10000227	Easement	460	3	13	2-5	108.41	Point repair 7 feet of existing 8-inch line.	7	\$5,600			\$4,336	Multiple fractures and cracks at varying distances - recommend lining
38	10000809	Liliano Place	231	3	25	8	201.7	Point repair 3 feet of existing 8-inch line.	3		\$3,000		\$8,068	Multiple cracks at varying distances - recommend lining
39	10000805	Arno Drive	246	3	27	8	74.56	Point repair 5 feet of existing 8-inch line.	5		\$5,000		\$2,982	Fracture - recommend lining
40	10000048	W. Orange Grove	322	3	12	7	296.76	Point repair 5 feet of existing 8-inch line.	5		\$5,000		\$11,870	Multiple fractures prominent at different locations along segment - recommend lining
41	10000199	W. Orange Grove	324	3	12		64.81	Point repair 5 feet of existing 8-inch line.	5			\$6,000	\$2,592	Multiple fractures and cracks at varying distances - recommend lining
42	10000425	E. Grandview	569	3	24		88.16	Point repair 3 feet of existing 8-inch line.	3			\$3,600	\$3,526	Multiple cracks; joint offset - recommend lining
43	10000681	E. Laurel	210	3	15	8	286	Point repair 3.5 feet of existing 8-inch line.	3.5		\$3,500		\$11,440	Multiple cracks - recommend point repair
44	10000035	Michillinda Avenue	305	3	12	4	62	Point repair 5 feet of existing 8-inch line.	5	\$4,000			\$2,480	Multiple cracks - recommend lining
45	10000283	Sturtevant Drive	400	3	13	5	294	Point repair 3.5 feet of existing 8-inch line.	3.5	\$2,800			\$11,760	Fracture - recommend point repair
SUB-TOTAL										\$86,800	\$119,500	\$116,800	\$381,155	
TOTAL										\$323,100			\$381,155	
SUB-TOTAL RECOMMENDED REPAIRS (HIGHLIGHTED)										\$76,300			\$258,144	
TOTAL RECOMMENDED REPAIRS										\$334,000				

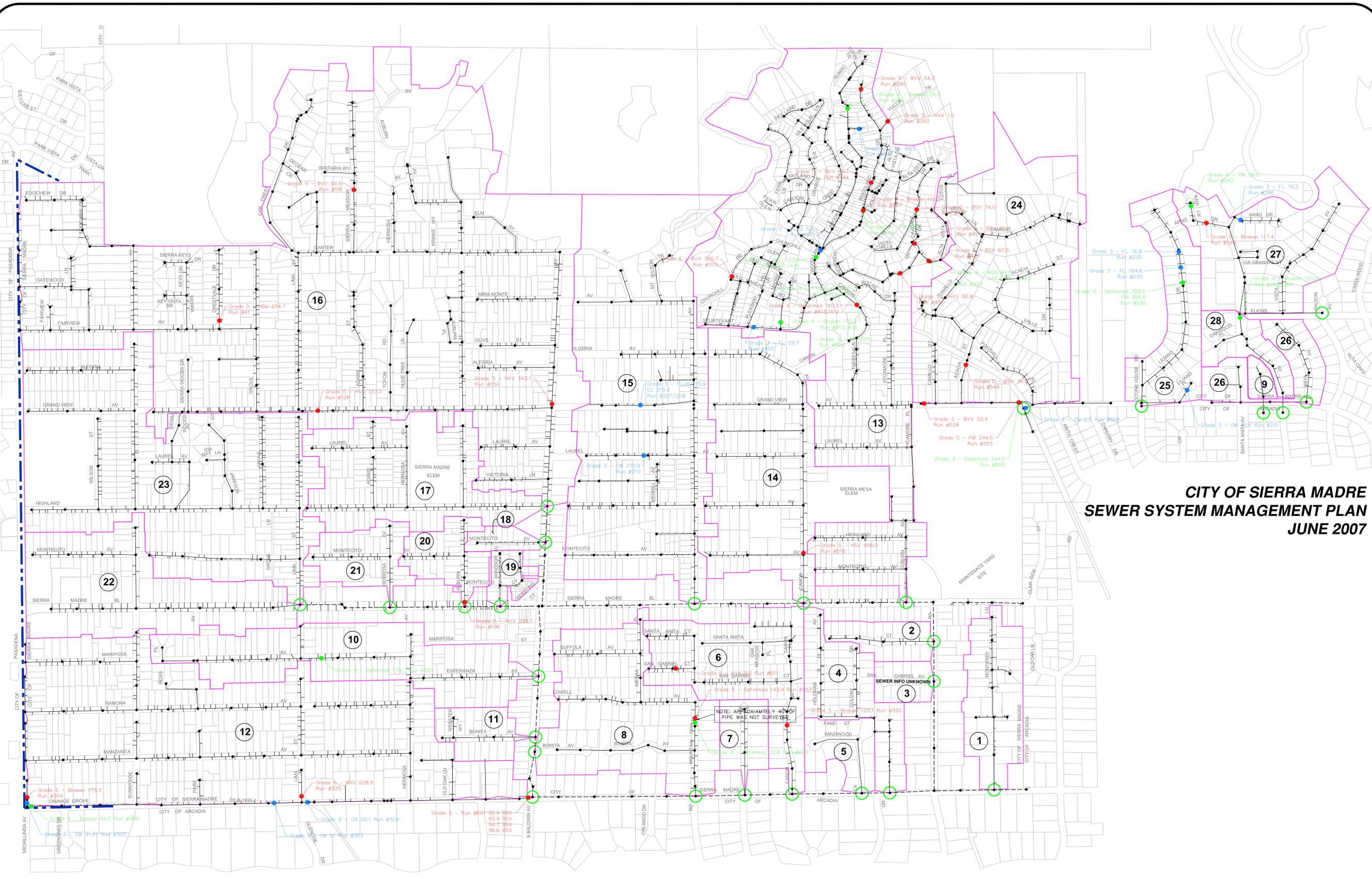
## **APPENDIX 'J-3'**

### **Exhibit Maps**

Structural Grade Defects [Exhibit 4]

&

Maintenance Grade Defects [Exhibit 5]



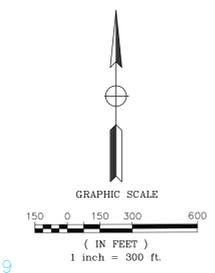
**CITY OF SIERRA MADRE  
SEWER SYSTEM MANAGEMENT PLAN  
JUNE 2007**

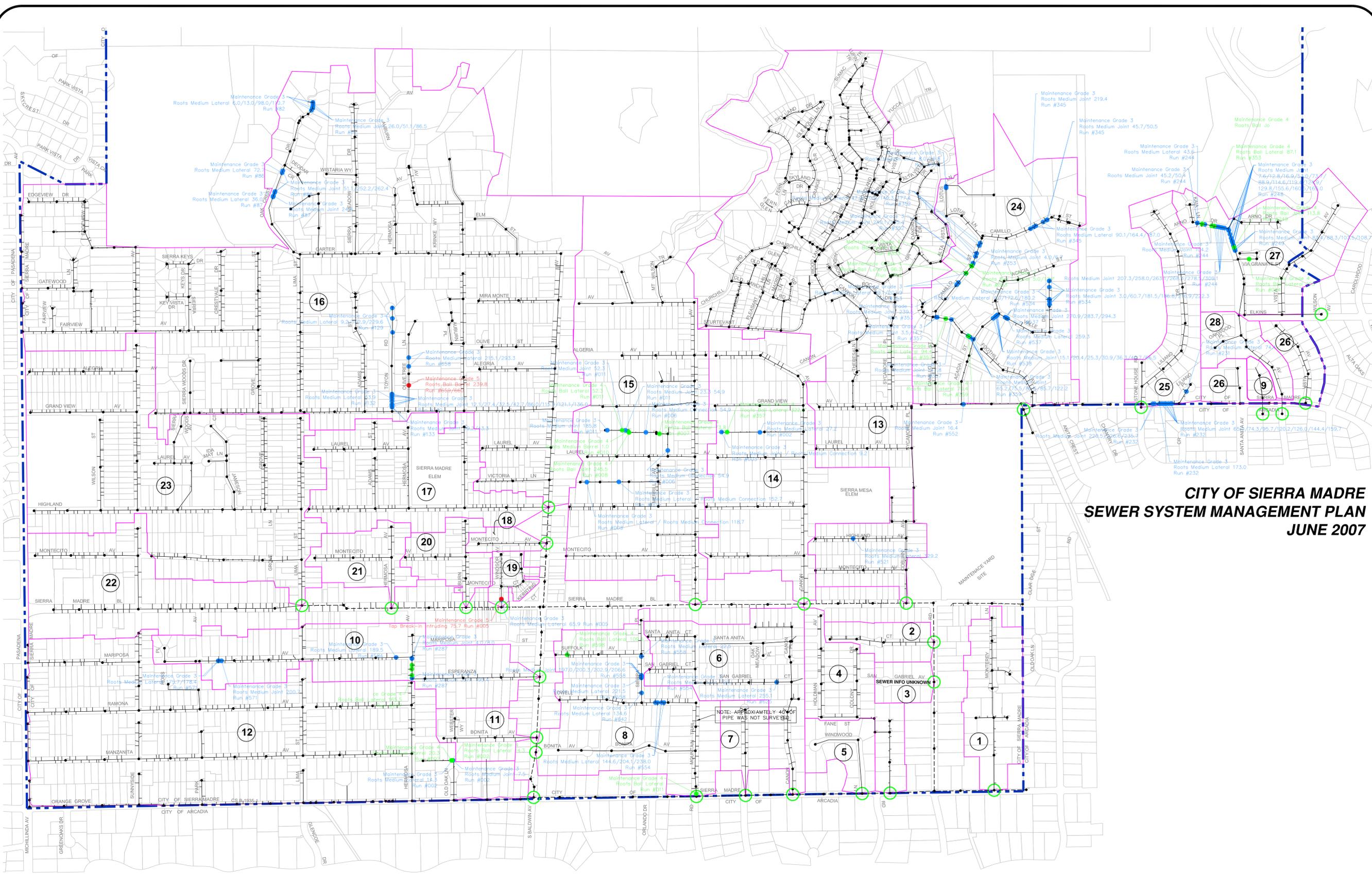
**EXHIBIT 4  
C.C.T.V. INSPECTION FINDINGS  
STRUCTURAL PROBLEM AREAS**

- CITY BOUNDARY
- EXISTING TRUNK SEWER
- EXISTING CITY SEWER
- SEWER DRAINAGE AREA BORDER
- SEWER DRAINAGE AREA - OR - S.M.Z.
- CONNECTION LOCATION
- HOT SPOTS - STRUCTURAL - GRADE 3
- HOT SPOTS - STRUCTURAL - GRADE 4
- HOT SPOTS - STRUCTURAL - GRADE 5



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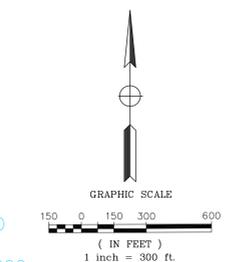
**CITY OF SIERRA MADRE  
SEWER SYSTEM MANAGEMENT PLAN  
JUNE 2007**

**EXHIBIT 5  
C.C.T.V. INSPECTION FINDINGS  
MAINTENANCE PROBLEM AREAS**

- CITY BOUNDARY
- EXISTING TRUNK SEWER
- EXISTING CITY SEWER
- SEWER DRAINAGE AREA BORDER
- SEWER DRAINAGE AREA - OR - S.M.Z.
- CONNECTION LOCATION
- HOT SPOTS - MAINTENANCE - GRADE 3
- HOT SPOTS - MAINTENANCE - GRADE 4
- HOT SPOTS - MAINTENANCE - GRADE 5



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# **Appendix K**

## ***Sanitary Sewer Overflow Response Instruction Manual***

## SANITARY SEWER OVERFLOW RESPONSE PLAN

### INTRODUCTION

City of Sierra Madre provides wastewater disposal needs of approximately 11,600 people within the northerly San Gabriel Valley in eastern Los Angeles County. The community sewers receive and convey approximately 1.7 mgd (million gallons per day) of wastewater. This waste flow goes to the regional trunk sewers and wastewater treatment plant. The city service area covers 3.0 square miles and its wastewater collection system consists of 32 miles of community sewer facilities, with 2.8 miles of regional trunk sewers (owned and operated by CSD of Los Angeles County) also located within the city area.

The primary goal of the City's sewer maintenance program has been and remains the protection of public health, safety and the environment. As a matter of State and Federal regulations, SSO's are prohibited, and moreover, are inconsistent with the City's goal of providing the highest level of sewer service to the public. The City places high priority on capacity assurance, repair and replacement, and proper operation and maintenance of its sewerage system. While the City desires to completely eliminate sanitary sewer overflows, it is also understood that manmade systems do fail. Regardless of the level of scrutiny and control provided, overflows will, on occasion, occur.

Therefore, when an SSO event does occur, this response plan encompasses measures necessary to minimize public health and environmental impacts. To accomplish this, the City operates a two-pronged response to SSO's that directs efforts to stop the overflow simultaneously with efforts to contain and then recover the wastewater discharged. Quick response to emergency situations can prevent overflows of wastewater from reaching the water of the United States.

The City is responsible for response to, and reporting of, all SSO's caused by problems within the City's sanitary sewer system. Under certain emergency circumstances, the City may also provide assistance to the CSD and sewerage entities within the surrounding area during an overflow response situation.

### OVERFLOW RESPONSE GOALS

1. The City's goals and actions regarding overflow response are stated in Chapter 1 of the SSMP.

### NOTIFICATION, INVESTIGATION AND MOBILIZATION

1. The City's chain of communication and reporting are stated in Chapter 2 of the SSMP.
2. The following occurs upon receiving notification of an overflow:

- The notification is logged on a form (See Attachment K-1) and assigned for follow-up actions.
- Dispatch of Personnel to Investigate - For overflows reported during the workday, a supervisor or other trained representative is immediately dispatched to investigate; during non-working hours, an on-duty employee or supervisor is dispatched.
- Dispatch of Staff and Equipment - When the initial investigation report indicates that a wastewater overflow has occurred from the City's sewer system, both equipment and personnel are mobilized and dispatched immediately to the overflow site. During non-workday hours, staff members are contacted and directed to report to their mobilization site for instructions.
- Notification for Outside Support – When the initial investigation determines that additional 'Outside Support' resources will be necessary to accomplish the containment and clean-up, the DPW is notified and informed of the situation and the perceived needs.
- Notification of Sewer Agencies - When the initial investigation indicates that an overflow has occurred from another agency's sewer or may have resulted from blockage in another agency's sewer, the potentially responsible agency is immediately notified. If the additional on-site investigation indicates that the overflow is the responsibility of the other agency, then the response efforts are turned over to that agency, with assistance from the City, if necessary and requested. Regardless of cause, once the overflow response has occurred, the primary objective is to minimize the risk to human health and to the environment (i.e Waters of the United States).
- Notification of Management Personnel - Appropriate management personnel are notified (if they have not already been notified) and any personnel necessary for office support of the field response are mobilized.

## RESPONSE

The overflow response is directed in the field by supervisors and/or managers who are trained and experienced in responding to SSO's, with additional operations, maintenance, engineering and agency support staff available as needed for public notification, protection, resource supply, expense authorization and tracking, and coordination of available support resources.

The individual steps involved in responding to a wastewater overflow event include:

1. Corrective Action and Site Control
2. Containment and Recovery
3. Cleanup
4. Sampling

5. Notification and Reporting
6. Post-Cleanup Activities

### 1. Corrective Action and Site Control

Upon arriving at the overflow location, concurrent actions taken by the various crews are:

- Prevent Public Access - Access to the immediate area of the overflow is restricted to minimize potential impacts to public health by redirecting pedestrian and automobile traffic away from the overflow through the use of traffic cones, plastic tape, barricades, and/or local law enforcement.

The extent of the overflow and its potential impacts to the public health are assessed by City personnel. This process involves determining if any private property owners/residents may be exposed to raw sewage, making direct contact with those parties who have been or may be directly affected by the overflow, advising those individuals of the potential health hazards associated with contact with raw sewage, and identifying prudent measures to be taken by private property owners/residents, such as vacating the property/area, to prevent contact with the overflow.

Simultaneous efforts include determining the path and final destination of the sewage spill and potential exposure to the public. If wastewater from the overflow is ponding in a location that can be isolated, then set up barricades to prevent public access. Traffic control is set up to prevent vehicles from entering locations where the overflow has contaminated public or private travel ways. City personnel are instructed to direct pedestrians and automobile traffic away from the spill path and final destination of the overflow. All involved persons must cooperate with local law enforcement and public works officials to ensure that public exposure to the overflow is minimized and to ensure spill site security.

- Prevent Wastewater Entry to Storm Drain System - When possible, contain and recover the overflow in the immediate vicinity of the overflow before it enters a storm drain catch basin. Measures to effect such containment include damming the overflow path with sandbags in the street gutter and recovering the impounded water with a vacuum truck or jet vactor, or using sandbags to divert the overflow back into a nearby sewer manhole.
- Stop Overflow - The cause of the overflow is identified and necessary corrective action is taken to stop the overflow and/or correct the condition that caused the overflow if the overflow has already stopped.

Typical corrective actions to stop a sewer overflow include:

- o clearing a pipe blockage with a jet vactor or rodding machine,
- o removing debris from a manhole,
- o upstream flow diversion,

- o bypass of wastewater around the blockage using vacuum trucks or pumps
- o bypass and repair of a damaged force main.

Bypass pumping is typically accomplished by the use of portable pumps and hoses to convey flow around the blocked or damaged sewer, the inoperative pumping plant or the damaged force main. The SO&M team maintains an Overflow Response Trailer, which is equipped with portable pumps and hoses of various sizes (designed to bypass flows of up to 450 gallons per minute), sandbags, fittings, and tools to facilitate pumped bypass. When possible, diversions are used to redirect a portion or all of the wastewater around the affected area in the system. Maintaining accurate and complete sewerage system maps is essential to expeditiously accomplish wastewater diversion during an emergency response.

- Pumping Plants - Emergency Procedure Operating Manuals for pumping plants (Lift Stations) are available in the DPW as references for operations, maintenance, engineering, supervisory, and management staff. The manuals provide comprehensive information on the proper response to all types of pumping plant failures, potential overflows and force main leaks and failures. Available information includes proper response to power failure, high wet well level, telemetry system failure, control system failure, procedures to bypass the plant, and emergency overflow information including low manhole location, storage time in the tributary sewer system, containment location and estimated travel time to the containment location.

## 2. Containment and Recovery

Containment and recovery of an overflow should occur as close as possible to the site of the overflow, preferably in the street curb and gutter, to minimize the length of the storm drain system affected by the wastewater. When a storm drain system is nearby, the overflow may enter the storm drain system prior to arrival of the first responding personnel. In these cases, engineering, supervisory and/or management staff identify the most practical containment location in the storm drain system downstream of the overflow. In selecting the best containment location, staff must consider many factors, including:

- time the overflow started,
- overflow route through the storm drain system,
- time needed to install a containment dam,
- travel time for the overflow to reach the containment location,
- safe access to the containment location for personnel and equipment, and
- availability of a nearby sewer with sufficient capacity into which recovered wastewater can be returned.

Access and safety considerations generally require establishment of containment in open storm drain channels. Containment in buried storm drains pipes upstream of any open channels is preferable when possible. However, the physical difficulty of deploying personnel and materials through a manhole into a buried storm drain pipe to construct a containment dam, the dimensions of the storm drain itself, and/or the safety procedures and authorization needed to

enter confined space generally preclude rapid and practical establishment of containment within a buried storm drain pipe. City staff can usually and safely enter the storm drain system to establish containment during dry weather conditions only. A containment location close to the overflow location is only possible when a containment dam can be deployed very quickly after the start of an overflow.

Once a suitable containment location is identified, the crew responsible for containment:

- deploys a sandbag containment dam or otherwise prevents the movement of the overflow and contaminated street runoff further downstream in the storm drain system, and
- deploys the vacuum trucks or portable pumps and piping necessary to return the contained wastewater, dry weather runoff, and clean up water back to the sewer system.

### 3. Cleanup

After the overflow has been stopped, the following steps are taken:

- Recover Locally Impounded Wastewater - All locally impounded wastewater is recovered with a vacuum truck or jet vactor and returned to the sewer system
- Collect Wastewater Debris - All visible debris of wastewater origin from the overflow location(s), street(s), curb and gutters, and the overflow runoff path is physically removed.
- Flush Affected Area - Overflow location(s), street(s), curb and gutters, and the runoff path are flushed with lightly chlorinated potable water, typically delivered by a vacuum truck or water truck. The flush water is also recovered and returned to the sewer system.
- Flush Storm Drain and Conduct Dye Study - Additional potable water is used to flush the overflow runoff path within the storm drain system. When appropriate, this flush water is marked with a nontoxic, visible dye. Arrival of the dye at the containment location establishes the actual travel time to the containment location. Recovery of the dye confirms completion of spilled wastewater and flush water recovery.
- Complete Cleanup - All sandbags and other containment are removed to complete the cleanup in the storm drain system. If spilled wastewater reaches natural watercourses or other areas accessible to the public, input is solicited from the responsible jurisdiction regarding additional measures which may be necessary or appropriate for a complete cleanup. Additional cleanup measures are completed as directed.

Private properties impacted by overflows or backups from problems within the City's sewer system should be cleaned up by a professional restoration company dispatched by the City. The City may offer residents meals, lodging, and reasonable expenses when they are temporarily displaced by private property restoration operations. Claims for property damage are handled by the City's Claims and Insurance Coordinator.

#### 4. Receiving Water Sampling

Bacterial test samples of SSO's should be collected by the first responder, whenever possible. If it is probable that an overflow may reach receiving waters, samples should also be taken of the receiving waters to evaluate the potential impact on the receiving water quality. Samples should be drawn from the location(s) most likely to be impacted by the overflow and also from a receiving waters location or locations that can be used to establish background water quality. Advance coordination with a certified laboratory for pre-arrangement of sampling supplies, notification protocol for urgent services, and training as may be required, will facilitate emergency sample delivery so that bacterial testing can begin immediately when needed. Delivered samples are analyzed for total coliform, fecal coliform, and enterococcus and other constituents that may be appropriate based on the nature of the receiving water and the spilled wastewater. Because it takes approximately 24 hours for the bacterial analyses, a second round of sampling is conducted within 24 hours of the first unless full containment and recovery of the overflow can be confirmed. If sample results indicate elevated bacterial levels in receiving waters, sampling is continued until results indicate a return to background levels.

#### 5. Notification and Reporting

Sewering entities are required to report to various regulatory agencies, including the appropriate Regional Water Quality Control Board, the County Department of Health Services, and the State Office of Emergency Services, any wastewater overflows greater than 1,000 gallons and, in some cases, overflows less than 1,000 gallons. The reporting requirements vary according to location of the overflow and the amount of wastewater spilled. The City's guideline for *Notification and Reporting Procedures for SSO's*, (included as Attachment K-2), contains an outlined notification and reporting procedures for the two categories of overflows. Chapter 2 of the SSMP contains a flow chart which is used to determine the notification and reporting procedures that apply to a given overflow incident. The SSMP also contains all of the appropriate contacts for reporting. A City's manager, typically the Sewerage System Manager, makes the notifications. When required, telephone notification should be made as soon as possible without substantially impeding response activities and always within 24 hours of the incident occurrence. The following information shall be provided, if available, when reporting an overflow by telephone:

- name of person reporting,
- name of agency,
- location of overflow,
- whether the overflow has entered or will enter receiving waters (rivers, lakes, storm drains, or ocean) of the State or the United States,
- date and time overflow began and ended,
- estimated volume of overflow,
- cause of overflow,
- corrective actions taken,
- estimated time of repair, and
- agencies involved in repair and clean-up.

All overflows, regardless of quantity, which reach receiving waters, impact groundwater, or endanger public health or the environment require immediate telephone notification of the County Department of Health Services, which is responsible for beach postings and closures and other forms of public notification deemed necessary to protect the public health.

Written notification of the overflow, when required, must be submitted within the required time period to the Regional Water Quality Control Board (RWQCB), typically within 30-days of an overflow and within 3 days if the incident has or may endangered public health or the environment. Written reports should be submitted to the local RWQCB for overflows occurring within their jurisdiction. To satisfy this requirement, the City may chose to submit a brief written confirmation of the reported overflow to the appropriate RWQCB within the time frame required. A follow-up, detailed written report, pursuant to the guideline as contained in Attachment K-2, will meet the statutory provisions of the State Water Code. This detailed report usually requires three to four weeks to complete. Copies of the detailed report is sent to those agencies which were initially noticed, unless otherwise notified.

## 6. Post-Cleanup Activities

Once clean up of an overflow is complete, the incident must be reviewed and any appropriate measures to prevent recurrence must be implemented. Follow-up CCTV inspection is performed when an overflow was caused by a blockage to verify complete removal of the material causing the blockage. If the overflow was avoidable by preventative maintenance, then maintenance activities are added or adjusted as necessary. An example is to increase the frequency of line cleaning where heavy grease build-up has caused an overflow to occur, while source control efforts are reviewed. If the overflow was caused by factors generally outside the City's control, such as vandalism, steps are still taken to minimize recurrence such as strengthening security by locking down manhole covers, increasing area surveillance, and requesting neighborhood assistance in reporting vandalism and unauthorized dumping.

Regardless of the size or type of overflow, all overflows are investigated thoroughly. Following the investigation, the information as noted on Attachment K-2 is documented and included as part of the City's internal spill records.

Policies and procedures are upgraded as appropriate to prevent recurrence of accidental spills due to procedural errors by City's staff and contractors. As part of their training, all involved employee's must thoroughly familiarize themselves with these emergency procedures. City's personnel administering contract sewer repair, rehabilitation and replacement projects must rigidly enforce contract provisions. Especially important is enforcing contractors' approved *Emergency Spill Response Plan* requirements (see Attachment K-3 for guidelines) intended to prevent and limit the impact of accidental spills.

An approved *Overflow Action Plan*, which is activated if an overflow from a contract activity enters a storm drain, should be incorporated into the contract documents of all sewer repair, rehabilitation, or replacement contracts involving sewage bypass operations. When successful

execution of an *Overflow Action Plan* requires pre-deployment of containment or pumping equipment, City's personnel administering the contract must ensure the necessary pre-deployment measures are taken. Guidelines for the preparation of an *Emergency Spill Response Plan* and an *Overflow Response Plan* are included as Attachment K-3.

## EMERGENCY RESPONSE PERSONNEL AND EQUIPMENT

### Personnel

The City has *the necessary* personnel to respond to *almost any* emergency, including *power failure, mechanical and electrical equipment breakdown, sewer blockage, pipe failure, and vandalism*. The urgency and seriousness of any wastewater overflow results in the full commitment and availability of all staff in the PWD to respond. Additional City's personnel are utilized for specialized assistance as needed. Contractors with emergency response capabilities are also used to assist in emergencies as needed.

An emergency contact list is maintained which includes the home phone number of all employees in the PWD. All supervisors and managers in the PWD are assigned cell phones and/or pagers and are accessible 24-hours a day. A table of organization, for the SSO responses and each supporting unit or group, is included in Chapter 2 of the SSMP.

A list of pre-qualified emergency response contractors is maintained. Contractors can be retained to perform emergency repair work on a time and materials basis under the emergency authority granted by the City Council.

### Emergency Equipment

In addition to the normal compliment of equipment utilized by the PWD for maintenance and repair of the sewerage system, specific items are maintained for use during emergency conditions. Such equipment includes:

- jet vector and rodding machines to clear pipe blockages
- portable engine driven electrical generators for use at pumping plants during power outages
- vacuum tankers to transport flow around blockages or to remove wastewater from a containment location in a street or storm drain
- submersible pumps for use as emergency pumps to bypass wastewater around a pipe blockage or a malfunctioning pumping plant
- pre-filled sand bags, flat bed and crane trucks for use in establishing containment dams
- front loaders for emergency earth moving operations
- portable engine driven centrifugal pumps (trash pumps) to bypass wastewater around pipe blockages and remove wastewater from storm drain channel containment locations

- hoses and lightweight quick-coupling piping in various sizes for use in bypass pumping
- pipe repair clamps, inflatable sewer plugs, and other miscellaneous pipe repair parts
- water trucks and bottled chlorine solution for use in clean up operations
- portable lights, air compressors, centrifugal blowers, and other miscellaneous equipment
- Protective clothing and supplies for safe use by personnel

A current listing of emergency equipment available from the Sewerage System maintenance yards is included as Appendix E.

## TRAINING

Training of City personnel in the goals and procedures of this Sanitary Sewer Overflow Response Plan is accomplished in annual emergency response classroom training. A checklist used by staff to check off and record information regarding the various procedures completed during a spill response is utilized during the training process. The checklist is included as Attachment K-4. Secondly, on-the-job training is administered to subordinate staff, by experienced supervisors and lead workers, during and following actual overflow events to further reinforce the annual training and to analyze event specific issues.

NOTIFICATION REPORTING FORM

Time: \_\_\_\_\_ a.m./p.m. Date: \_\_\_\_\_ Report taken by: \_\_\_\_\_

Location of Problem: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Repeat for clear understanding)

Nature and Details of Problem: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Repeat for clear understanding)

Reporting Party: \_\_\_\_\_ Telephone No. \_\_\_\_\_

Address: \_\_\_\_\_

Assigned to: \_\_\_\_\_ Assigned by: \_\_\_\_\_ Time assigned: \_\_\_\_\_

Field Report (for responder use)

Time arrived at site: \_\_\_\_\_ Time overflow stopped: \_\_\_\_\_

Duration of overflow: \_\_\_\_\_ Estimate of overflow volume: \_\_\_\_\_

U/S MH # \_\_\_\_\_ D/S MH # \_\_\_\_\_ Pipe size/length: \_\_\_\_\_

Findings: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Samples taken by: \_\_\_\_\_ Location of samples taken: \_\_\_\_\_

Describe cause of overflow: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Describe cleanup method(s): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Describe receiving water affected & location: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Were photographs taken? \_\_\_\_\_ Yes \_\_\_\_\_ No

Describe any property damaged and affected area:

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---

---

Signs posted? \_\_\_\_\_ Yes \_\_\_\_\_ No      Barricaded? \_\_\_\_\_ Yes \_\_\_\_\_ No

Neighbors notified:

---

---

---

---

Individuals and Regulators Notified & Times:

---

---

---

Follow-up measures:

---

---

---

Detailed sketch of affected area:

My signature indicates responsibility for content and accuracy of above information: \_\_\_\_\_

## NOTIFICATION and REPORTING PROCEDURES for SSO'S

### Category 1 - 1,000 Gallons or greater and/or impacting Waters of the State or the United States:

- Initial notifications ASAP per agency procedure described in this chapter (verbal, phone, fax or E-mail)

#### Letter Reports with attachments

- Confirmation letter of initial notification(s) including recovery results and status of any ongoing investigation report and expected date of completion.
- Final investigation report, including:
  1. Summary
  2. Event Date / Time / Duration:
  3. Description of affected sewer(s)
  4. Events during the Overflow
  5. Cause of the Overflow (specifically)
  6. Overflow quantity and how determined
  7. Discharge route, Containment and Clean-up
  8. Response and Corrective Action(s) taken
  9. Impact(s) of the Overflow
  10. Did overflow result in a beach closure?
  11. Sewerage Management Program in effect
  12. Measures to Prevent Recurrence
  13. Name, Address, Telephone of reporting system owner and specific contact name
    - Cc: to other required reporting agencies
    - System map of offending area, with relevant photographs
    - Overflow route and Containment site, with relevant photographs
    - Containment site and Sampling Locations, with laboratory results
    - Analysis tools and records used in impact evaluation
    - Maintenance management records

### Category 2 - Less than 1,000 Gallons to be reported within 30 days of SSO identification:

- Initial notifications per agency procedures in this chapter (verbal, phone, fax or E-mail)

#### Memorandum report format

- Event Date / Time / Duration:
- Event Location:
- Involved Sewer Data: (include: size, material, year constructed, date last inspected, etc.)
- Estimated Overflow Quantity:
- Cause of Overflow:
- Affected Area:
- Action(s) taken:
- Preparing party signature and date

#### Private Lateral Sewage Discharge:

Enrollee's discretion in reporting to the Online Data Base. Min. required information for reporting:

- Identify discharge as occurring and caused by a private lateral
- Identify responsible party for the private lateral

## EMERGENCY SPILL RESPONSE PLAN and OVERFLOW ACTION PLAN

### Guideline for a Contractor's Emergency Spill Response Plan:

- Identification of Project, Sewer owner, Contractor and Location of affected sewer(s)
- Description of Installation criteria, procedures, layout (with diagrams) and operations.
- Description of Spill prevention and protection measures/actions.
- Spill control (discharge) actions/measures, to minimize impacts.
- Remediation (Clean-up) measures.
- Emergency Materials and Equipment Onsite
- Emergency Equipment specifications that meet the potential spill risk
- Emergency Phone Numbers

### Guideline for a Overflow Action Plan [Where receiving waters are or will be affected]:

- Identification of Project, Sewer owner, Contractor and Location of affected sewer(s)
- Identification of affected drainage course/piping owner, proximity and emergency contacts
- Map of drainage path, access and containment points, with relevant photographs
- Identification of closest sewer to the containment point(s)
- Travel time to the containment point
- Emergency support resources and contacts
- Equipment and Materials necessary for containment and for Clean-up
- Require notification contacts

<b>SSO RESPONSE CHECKLIST</b>				
<b>General Information</b>				
Sewer location:				
Date & time of report:		Caller:		Phone:
Person receiving report			Phone:	
Time overflow started:		Where:		Noticed:
SSO response checklist completed by:				
Initial Response	Yes	No	N/A	Comments:
A. Initial on-scene response within 60 min.:(time)				
B. Sanitation District's responsible?				
C. Responsible agency contacted: (name/time)				
D. Manhole still overflowing (approx. flow rate)				
E. Containment to prevent SSO into storm drain				
F. Public excluded from affected area				
Gravity Sewer	Yes	No	N/A	Comments
A. Cause				
B. Corrective action to stop overflow				
Used jetter to remove blockage				
Removed blockage by man entry				
Removed wastewater with vac.trk.(loads)				
Set up pumped bypass system				
C. Time overflow stopped				
Pump STA./Force Main Overflows	Yes	No	N/A	Comments
A. Cause				
B. Corrective action to stop overflow				
Utility power restored (time)				
Portable generator to respond				
Portable/on-site generator operating (time)				
Bypass pumps installed				

<b>SSO RESPONSE CHECKLIST</b>				
Force main bypassed				
C. Time overflow stopped				
<b>Containment</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Comments</b>
A. Containment established in stormdrain				
Location				
Time				
B. Pumping start time				
C. Pumping stop time				
D. Spill contained				
<b>Clean-up</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Comments</b>
A. Area washed down & debris removed				
B. Wash water recovered				
C. Restoration company contacted				
D. Stormdrain flushed				
Time				
Volume of water used				
Dye used				
<b>Sampling</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Comments</b>
A. Overflow sample				
B. U/S D/S receiving water samples				
C. Samples analyzed				
D. Receiving water locations resampled				
<b>Reporting</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Comments</b>
A. Department head notified				
B. Appropriate regulatory agencies notified				

# **Appendix L**

## ***Sewer System Capacity Evaluation and Flow Monitoring Results***

**City of Sierra Madre**  
**SEWER SYSTEM CAPACITY EVALUATION**  
**2007**

## **Introduction and Summary**

The City owns and operates its local wastewater collection system consisting of approximately 32 miles of gravity flow sewer pipelines (8-inch vitrified clay pipe) and 745 manholes. The existing sewer system discharges to trunk sewers (10 & 12 inch) that are owned and operated by the County Sanitation Districts of Los Angeles County and to the adjacent City of Arcadia sewer system in six locations.

The purpose of this evaluation is to identify capacity deficiencies in the existing sewer mainline system, prioritize the deficient reaches, recommend alternatives to eliminate the deficiencies, and provide the City with a basis on which to build a future infrastructure management system.

The 32 miles of local sewer pipes were modeled using HYDRA® 6.4 by PIZER. Of the total miles, approximately 400 feet (two sections of pipe) of the existing system were identified as being capacity deficient (Greater than 64% full). The deficient reaches of sewer pipeline are located within SMZ # 16 on Grandview between Toyon and Hermosa. Please refer to Appendix 'L-2' for the deficient reach location. The cost to repair the deficient reach is described in Appendix 'L-1'.

During June 2007, flow monitoring was performed as part of this study at five locations to confirm the flow generation rates used in the computer model. In general, the results of the flow monitoring indicate that the model flow rates are conservative, averaging approximately 150% higher than the actual dry weather flow rates monitored. Based on the monitoring information obtained from the five sites, the City's overall existing sewer system capacity is considered to be satisfactory under the existing development conditions. However, obtaining additional future flow monitoring is recommended at other critical locations during periods of rain to verify or deny any potential inflow and infiltration impact to the sewer system.

In the event of any land use changes to the General Plan, upon which this study has been based, the model should be updated to reflect the consequences of such changes. The model should also be updated to reflect the construction of new relief facilities and/or the construction of new sewer lines.

## **Study Approach**

The following tasks were performed in the preparation of this Sewer System Capacity Evaluation Report.

1. The city provided its current GIS base map with sewer system features.
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2. The City provided the June 2003 Zoning Map (Appendix 'L-5') for use in creating a land use overlay of the parcels and sewer maintenance zones in the city system.
3. Collection of data for the existing sewer system (i.e., manholes, pipe size & slope, invert elevations) was obtained from the City in the form of GIS files, record construction drawings and sewer atlases sheets, which were compiled as shown in Appendix 'L-3'.
4. Formulation of a computer model of the City wastewater collection system.
5. Analysis of the existing wastewater collection system capacity, and determination of any capacity deficiencies (refer to the deficiency criteria section of this report and see Appendix 'L-2').
6. Development of recommendations for system improvements to correct deficiencies.
7. Preparation of cost estimates for the recommended improvements (Appendix 'L-1').
8. Preparation of evaluation findings and recommendations to correct identified deficiencies in this Sewer System Capacity Evaluation Report.

### System Criteria and Alternatives

In designing or evaluating a wastewater collection system, the engineer must establish certain criteria upon which to base the design. These include such things as available pipe sizes, materials, slope, bury or cover, connections, etc. Such criteria are established to ensure that the wastewater collection system can operate effectively under all flow conditions. Each pipe segment must be capable of carrying the peak flows without surcharging the system. Surcharging the system occurs when the pipe is flowing under pressure. However, many of the initial design assumptions are unnecessary in the analysis of a collection system when the pipe already exists and its features are fixed.

Therefore, in the analysis of an existing sewer system, the Hydra program compares the capacity of each pipe in the system with the peak wastewater flow projected for that particular link or reach of pipe. If the pipe segment is at or below design capacity, the analysis program continues down stream, segment by segment, evaluating successive pipe segments in the system. However, if the existing pipe size is surcharged, the Hydra program reports the surcharge condition and recommends a standard pipe size that will carry the design flow without being surcharged. Minimum criteria utilized is all pipes must be 8 inches or larger in diameter and the in pipe velocity of flow should be 2 feet per second (ft/s) or greater. This velocity will prevent deposition of solids in the sewer and help to re-suspend any materials that may have already settled in the pipe. Table 1 shows the minimum corresponding slopes to maintain 2 ft/s for various pipe sizes.

**Table 1**  
**Minimum Pipe Slopes ft/ft**

Sewer Size	Slope
8"	0.0028
10"	0.0021
12"	0.0016
15"	0.0012
18"	0.0010

Both design and analysis of gravity sewer pipes is typically based upon the depth of flow to the pipe diameter ratio (d/D). Common design criteria for proposed new sewer design is 0.50 (50% full) for 8 to 15-inch diameter pipes and 0.75 (75% full) for 18-inch and larger pipes. The area above the water surface (residual capacity) helps to keep the sewage aerated, reducing the possibility of septic conditions and odors. Existing wastewater systems are usually allowed to flow with less residual capacity because development and redevelopment has occurred or may be foreseeable in the near future.

This report establishes the hydraulic design criteria for existing sewer pipes by classifying "over capacity" pipes as any with a d/D greater than 0.64. This d/D ratio was arrived at by taking 75 percent of the depth to diameter ratio of a pipe having maximum stable flow capacity, which is at a d/D of 0.85 (75% of 85% is 64%). The area above a d/D of 0.85 is considered hydraulically unstable. This reduction results in approximately 35 percent of the pipe's full flow capacity being reserved for variations in discharges, seasonal variations and minor or temporary obstructions. Again, this residual capacity helps to keep the sewage aerated, reducing the possibility of septic conditions and odors.

The residual capacity allows for the possibility that actual wastewater flows may be slightly higher than anticipated, especially during the hours when instantaneous or intermittent peaks may occur. Such peaks are generally observed between the hours of 6:00 a.m. and 8:00 a.m. Monday thru Friday and between the hours of 9:00 a.m. and 11:00 a.m. Saturday and Sunday. Peak flows may also be observed during rainfall events due to inflow and infiltration conditions.

Appendix 'L-2' shows the pipes that are capacity deficient per the 0.64 criteria and also shows the pipes that are deficient per the 0.50 criteria. Only the pipes that exceed the 0.64 criteria are recommended for correction projects.

The design capacity of a gravity pipeline is the calculated capacity of the pipeline based on the Manning formula:

$$Q = 1.486 R^{2/3} S^{1/2} / n$$

where, Q = flow in cubic feet per second  
R = hydraulic radius in feet = A/ P  
A = cross-sectional area of the pipe in square feet  
P = wetted perimeter in feet  
S = slope of the pipe in feet of rise per foot of length  
n = Manning's friction factor

Sewer system capacity is established using a Manning's friction factor of 0.013 for vitrified clay pipe.

### Alternatives

The following alternatives were considered in developing the recommended schedule of deficiency correction projects.

1. Construction of a parallel sewer facility to carry the excess sewage flow is an obvious solution to most of the deficiencies; however, this solution is not necessarily the most economical or practical approach. In some instances rerouting of tributary areas or the construction of a single relief sewer line can be planned in such a way that it will relieve several main sewer lines thereby avoiding the construction of parallel facilities and the duplicate cost.
2. In other instances the replacement of the existing sewer with a larger size may be the preferred alternative. The replacement or upsizing of the line may include open trench installation or pipe bursting (if surrounding conditions are conducive), and the use of temporary bypass pumping. The decision as to which correction alternative to construct is typically made just prior to the design phase after careful consideration of all design constraints such as existing utilities and the costs associated with potential utility relocation to provide additional space for the construction of a replacement sewer line.

The engineer's opinion of budget figures (See Appendix 'L-1') was prepared based on the cost to remove and replace the existing sewer with a larger size, as this is the most conservative cost approach.

It is suggested that where the depth of flow exceeds the design criteria of 0.64 d/D, but does not exceed the maximum stable flow capacity of 0.85 d/D, that consideration be given to allowing these sewers to flow in a slightly overloaded condition in lieu of building a more costly relief facility. This overloading occurs only during peak flow conditions that are short in duration. The City should frequently monitor these sewers in order to undertake a future corrective action if the overloading problem becomes worse.

### **Analysis of Existing Sewer System**

The City's sewer system was modeled using Pizer Hydra Ver. 6.4. The Hydra program is designed to provide analysis of both the existing sewer system and the design of any new sewer lines.

After defining (laying out) the existing sewer system, the network was divided into 28 SMZ's or sewer drainage areas, based upon city sewer records, for input into the computer model. The input data consisted of a numerical designation for each manhole and length of sewer pipe between manholes, the slope of the line, and flow line and rim elevation of each manhole.

### **Computation of Wastewater Inflows**

Once the pipe schematic of the sewer system network was established, data was compiled on each SMZ, General Plan land uses (zoning), and related factors that affect the volume of wastewater generated. Next, it was necessary to compute the area of each type of land use; e.g., low-density, medium-density, and high-density residential, commercial, industrial,

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schools, etc., within each SMZ (drainage) boundary. The unit flow coefficients typical to this region (see Table 2) were then applied to the computed areas of land use within each SMZ. The results are a calculated peak flow rates for each particular land use category. The wastewater inflows calculated for the various land use categories within the SMZ were then accumulated to provide the calculated peak flow for the entire SMZ. The accumulation of estimated wastewater flow is accomplished totally within the computer program.

**Table 2**  
**Unit Flow Coefficients for Peak Flow Rates**

Zone	Cu. Ft. per sec. per acre	Gallons per day per acre
R-1	0.004	2585
R2	0.008	5171
R3	0.012	7756
R-P, Commercial	0.015	9695
Manufacturing	0.021	13573
Institutional	0.015	9695

### Flow Monitoring

In order to verify and/or calibrate the sewer flow modeling work, five selected flow-monitoring sites were chosen to represent existing developed area flows. This monitoring work was performed over a three week period from May 29 through June 19, 2007.

Flow monitoring data was provided by SFE Global as presented in their report SFE Project #C79-01 contained in Appendix 'L-4'. The flow monitoring site locations are as follows;

Site #1 C79-01-01 **47 Grandview Ave:** This site is located in SMZ # 16 over the 8-inch sewer line located in Grandview Ave. The manhole that was monitored is the first manhole located 400-feet west of Baldwin Ave. This site was chosen to determine the flow rate for R-1 zoning and to help determine if the sewer lines upstream are deficient as shown in the hydraulic model.

Site #2 C79-01-02 **61 E. Highlands Ave:** This site is located in SMZ # 17 over the 8-inch sewer located in Highland Ave. The manhole that was monitored is the first manhole west of Baldwin Ave. This site was chosen to determine the flow rate for School zoning.

Site #3 C79-01-03 **108 Esperanza Ave:** This site is located in SMZ # 10 over the 8-inch sewer located in Esperanza Ave. The manhole that was monitored is the second manhole west of Baldwin Ave. This site was chosen to determine the flow rate for R-3 zoning.

Site #4 C79-01-04 **160 Montecto Ave**: This site is located in SMZ # 15 over the 8-inch sewer located in Montecito Ave. The manhole that was monitored is the first manhole west of Mountain Trail Ave. This site was chosen to determine the flow rate for Commercial zoning.

Site #5 C79-01-05 **292 San Gabriel Ct**: This site is located in SMZ # 6 over the 8-inch sewer located in San Gabriel Ct. The manhole that was monitored is the first manhole west of Canon Ave. This site was chosen to determine the flow rate for R-2 zoning.

Each sites flow monitoring data was reviewed and compared to the contributing SMZ area. The peak monitored flow rate was compared to the design flow rate and the shape of the outflow curve was compared to the SMZ modeled result. The flow monitoring data was also compared to other data from previous studies in other cities to verify the results. An expected difference between the monitored flow and the design flow is between 150 to 250 percent. This difference is expected because the design flow rate includes the maximum flow rate expected from each development type, wet weather inflow/infiltration, and design safety factors. As shown in the table below the variance between the Calculated Peak Flow rate and the Maximum Monitored Peak Flow rate is between 54 to 207 percent. Based on these flow rate correlations, it appears the unit flow coefficients are reasonable.

Site No.	Location	SMZ Area	Maximum Monitored Peak Flow Rate (cfs)	Calculated Peak Flow Rate (cfs)	Rate Variance (%)	Comments
1	47 Grandview Ave	16	0.46	0.672	146%	R-1 Zoning
2	61 E. Highlands Ave	17	0.17	0.098	58%	School, R-1 Zoning
3	108 Esperanza Ave	10	0.17	0.354	208%	R-3 Zoning
4	160 Montecto Ave	15	0.11	0.18	164%	Commercial Zoning
5	292 San Gabriel Ct	6	0.14	0.076	54%	R-2 Zoning

### Summary of Findings and Recommendations

All 32 miles of local sewer were modeled, and approximately 400 feet (0.24% or two reaches of pipe) of the existing system were identified as being capacity deficient (Greater than 64% full). The deficient reaches of sewer mainlines are located within SMZ # 16. Please refer to Appendix 'L-2' for the deficient reach location.

In general, the results of the flow monitoring indicate that the flow rates used for the computer model are conservative, averaging approximately 126% higher than the actual flow rates monitored. Based on the modeling results and monitoring information obtained, the City's overall waterwater collection system capacity is considered to be satisfactory at this time.

Before further project priorities can be determined, the performance of additional flow monitoring is recommended at other critical locations during periods of rain to verify or deny any potential inflow and infiltration problems.

In the event of any land use changes to the General Plan, upon which this study was based, the model should be updated to reflect the consequences of such changes. The model should also be updated to reflect the construction of new sewer lines.

### Recommended Deficiency Correction Projects

Presented in Table 3 is a brief summary of the measures recommended to correct the deficiencies stated above and as shown on Exhibit 2. The criteria for recommending and prioritizing relief facilities is as follows:

#### Priority 1

Sewers with critical deficiencies of  $d/D > 0.85$ , are recommended for correction first. Sewers meeting these criteria are ranked highest.

#### Priority 2

Sewers with critical deficiencies of  $0.64 < d/D < 0.85$  are recommended for correction second. Sewers meeting these criteria are ranked lower.

#### Priority 3

Sewers with a  $d/D < 0.64$  are not capacity deficient; therefore, are not ranked here.

The recommended relief facilities presented below are for planning guidance only, further pre-design refinement and analysis will be necessary before initiation of a final design of improvements for the facilities is under taken.

**Table 3**  
**Priority Ranking of Summary of Deficiency Correction Measures**

Priority Ranking	Tributary Area	Description of Correction Measures To Relieve Deficient Sewers	Depth of sewer below surface	Cost
2	16	Replace existing 8-inch line with new 10-inch line ( <b>Line No. 1</b> )	11 - feet	\$130,000
<b>Total</b>				<b>\$130,000</b>

#### Sewer System Improvements Costs

The unit prices shown in the engineer's estimate (see Appendix 'L-1') represent the anticipated construction cost only as applicable for mid 2007. Bid prices received on jobs of similar nature in Southern California area were one source of information used to derive the cost figure. In addition, manufacturers, suppliers of material and equipment, and local contractors were consulted on various cost items. An additional 35% of construction cost is added to cover the cost of contingencies, design engineering, contract administration and construction observation.

The Engineer's Estimate does not include an adjustment for inflation. Construction costs can be expected to fluctuate as corresponding changes occur in the national or local economy. One available indicator of these changes is the Engineering News-Record Construction Cost Index for the Los Angeles metropolitan area. This index is compiled from actual construction cost data for materials and labor and is reported in Engineering News-Record magazine. It is suggested that this index be used to update the unit prices presented in Appendix 'L-1' and in adjusting the estimate from the date of the initial estimates.

## **Financing of Improvements**

### General

Funding considerations are often the deciding factor in scoping and implementation of a project. There are, of course, numerous methods or mix of methods, which could be used to finance the implementation of a sewer system capital improvement plan (CIP), and the ongoing operations and maintenance activities. Among these methods are:

1. Pay-as-You-Go Financing (rates, fees and charges based)
2. Redevelopment Agency Funding
3. State Assistance Programs
4. Municipal Securities
5. Improvement Districts
6. Federal Assistance Programs

In discussion that follows, the above funding options are briefly described and their adaptability to specific circumstances of a sewer system CIP are noted. In evaluating specific funding programs, services of financial and legal experts in such issues are recommended.

### Methods of Financing

#### 1. Pay-as-You-Go Financing:

Development of cash reserves or capital improvement funds, from an agency's revenue base, is often referred to as "pay-as-you-go" funding. This method avoids interest payments on other types of debt financing. Under this form of financing, the initial capital cost of a project must be accumulated in advance of construction, which can cause a delay in project implementation. If delay is not a crucial factor, this is a cost effective method due to the absence of debt financing costs. This method has sometimes been used together with various forms of short-term financing to construct needed sewer infrastructure.

#### 2. Redevelopment Agency Funding:

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Funds generated from property tax increment revenue, received by the City's redevelopment agency (RDA), is a possible source for sewer system capital improvements, within or beneficial to the RDA. A sewer system improvement project would have to compete with other agency planned projects, prioritized and an agency funding decision.

### 3. State Assistance Programs:

Under the rules and regulations of the Federal Water Pollution Control Act (Clean Water Act or CWA) and the Federal Safe Drinking Water Act (SDWA), the State has enacted the Clean Water State Revolving Fund (CWSRF) and the Drinking Water Revolving Fund (DWSRF), respectively. These programs are funded by Federal grants, State funds and Revenue bonds. The CWSRF Loan Program provides low-interest loan funding for construction of publicly-owned wastewater treatment facilities, sewers, sewer interceptors, water recycling facilities, as well as implementation of non-point source (NPS) projects or programs. There are different types of funding assistance available under these programs.

[www.waterboards.ca.gov/water\\_issues/programs/grants\\_loans/srf/](http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/)

The Department of Water Resources administers the State bond law programs for Water supply/Water quality, Water conservation, Flood management and Regional water management. [www.grantsloans.water.ca.gov](http://www.grantsloans.water.ca.gov)

The State Water Resources Control Board administers the State revolving fund loans, Water recycling grants & loans, Small community grants, Agricultural drainage loans, Agricultural drainage management loans, Clean beaches initiative grants, Agricultural water quality grants, Areas of special biological significance (ASBS) grants, Storm water grants, and Santa Monica bay restoration commission grants. [www.waterboards.ca.gov](http://www.waterboards.ca.gov)

The State Department of Public Health administers the DWSRF, Proposition 84 funding for public water systems, and Proposition 50 for the water security, clean drinking water, coastal and beach protection act of 2002 loans. [www.cdph.ca.gov](http://www.cdph.ca.gov)

Various types of infrastructure improvement/construction loans can be arranged through the California Infrastructure and Economic Development Bank (IBank) [www.ibank.ca.gov](http://www.ibank.ca.gov)

Limited amounts of public works grant funds have been available to agencies from the State Office of Economic Development. Use of such grant funds must result in the creation of new, permanent jobs in the private sector. In order to ensure that the funds are ultimately assisting those in most need, projects eligible for consideration must be those in areas designated eligible for HUD Urban Development Action Grants (UDAG), EDA Sudden or Long-term Economic Deterioration, or EDA Designated Special Impact Area.

### 4. Municipal Securities:

Historically, general obligation bonds (GOB's) had been a prevalent method of financing various public works improvements. They are secured by an agency's total assets and payable from ad valorem taxes levied on all taxable properties within the agency's

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boundary. However, the Jarvis-Gann Amendment (Proposition 13 of 1978) prohibits the levying of ad valorem property taxes beyond pre-existing authorizations and levels (pre-July 1, 1978). Therefore, authorization and issuance of GOB's is not considered feasible under current law.

An option to GOB's is the issuance of a specific type note or bond form, such as a revenue anticipation note (RAN) or a tax anticipation note (TAN) or a certificate of participation (COP) or various combinations of available authorities that can be used to fund public infrastructure needs. These types of municipal securities (Munis) are generally tax-exempt and commonly used to fund public works infrastructure and facilities. Many states also exempt their securities from their own taxes, which makes those securities particularly attractive investments for their own residents.

TAN's and RAN's are instruments backed by anticipated taxes or revenues respectively. When these types of notes are considered for funding of needed infrastructure, a specified source of tax or revenue stream is identified and pledged for repayment of the debt. For example, with sewer facilities, all or a portion of the sewer service revenue fees/charges could be used as backing for the debt instrument selected. Then other local revenue sources could be considered for ongoing operations and maintenance (O&M) or some acceptable mix and match of funds specified to secure the debt and accomplish the O&M.

COP's are another form of municipal funding instrument available. These generally require the facility improvement being funded to be named as security for the investment with a lease back of the facility by the municipality. In turn, the municipality pledges some revenue stream(s) that would be used to repay the investor held notes.

When Munis are being considered for funding of improvements, consultation with an experienced and qualified financing consultant and bond counsel are a must.

##### 5. Improvement Districts:

In general, special assessment district procedures have been established by statute to provide for financing of construction and/or acquisition of public works improvements, such as sewer systems, and for assessing the cost of such improvements to the benefiting properties. Under all assessment proceedings, the cost of the work is assessed against properties within the benefited area. The assessments are levied in specific amounts against each individual property on the basis of the benefit each parcel receives. The property owner may pay the assessment in cash during the cash collection period of 30 days. But, if any assessments are not paid in cash during that period, bonds are usually issued to represent the unpaid assessments and the benefited properties are assessed on their annual property tax bill over a usual period of 10 to 20 years.

Commonly used assessment acts are the 1911 and 1913 Acts. The common bond acts are the 1911 and 1915 Acts. These assessment and bond acts are used in varying combinations depending on the particular circumstances for each proposed improvement district.

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While an assessment district proceeding may be a reasonable and equitable means for financing sewer system improvements, further evaluation and stakeholder involvement is a usual practice to determine the viability and practicality of utilizing such financing method.

#### 6. Federal Assistance Programs:

There are, and have been, a series of federal grant and loan programs which may be applicable to public infrastructure projects. However, the qualification criteria for such programs vary from time to time and their funding or continuation is subject to congressional appropriations. Therefore, such programs should not be considered as a likely source of funds unless a funding commitment letter has been received.

Historically, federal programs administered by the Economic Development Administration (EDA) provide financial and technical assistance to aid the economic development of areas with high unemployment or low family income levels. Communities must make long-range plans for economic growth in order to be eligible for EDA financial assistance, in the form of grants and loans for public works and development that generates jobs and economic opportunity. Typical public works projects include construction of roads, water and sewer lines, and public facilities. To determine the status requires timely monitoring.

Under the rules and regulations of the Housing and Community Development Act of 1974, the Community Development Block Grant (CDBG) program can fund housing and community development needs. This includes part or all of improvements necessary to upgrade existing sewer facilities. Those qualifying geographic areas within the City that have the greatest overall deficiency in physical infrastructure receive the highest priority according to CDBG criteria. When the sewer system has a defined deficiency, then it is appropriate to use CDBG funds to meet health and safety standards as well as to encourage up-grading of abutting housing and physical environment.

The primary statutory objective of the CDBG program is to develop viable communities by providing decent housing and a suitable living environment and by expanding economic opportunities, principally for persons of low- and moderate-income. Communities receiving CDBG funds through the State may use the funds for many kinds of community development activities including, but not limited to:

- acquisition of property for public purposes;
  - construction or reconstruction of streets, water and sewer facilities, neighborhood centers, recreation facilities, and other public works;
  - demolition;
  - rehabilitation of public and private buildings;
  - public services;
  - planning activities;
  - assistance to nonprofit entities for community development activities; and
  - assistance to private, for profit entities to carry out economic development activities (including assistance to micro-enterprises).
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[www.hcd.ca.gov/ca/cdbg/about/html](http://www.hcd.ca.gov/ca/cdbg/about/html)

The United State Department of Agriculture Rural Development Program provides communities with population less than 50,000 a variety of direct-guaranteed-loans and /or grants. These include water and wastewater system improvement funding.

[www.rurdev.usa.gov/ca](http://www.rurdev.usda.gov/ca)

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## **APPENDIX 'L-1'**

### **Engineer's Opinion of Cost**



**CITY OF SIERRA MADRE**

<b>SANITARY SEWER IMPROVEMENTS</b>		<b>Date:</b>		8/20/2007	
<b>ENGINEER'S OPINION OF COSTS</b>		<b>Prepared by:</b>		KRK	
<b>PRIORITY 2</b>		<b>Checked by:</b>		K.T.	
<b>PROJECT: SEWER SYSTEM MANAGEMENT. PLAN</b>		<b>QUANTITY</b>		<b>UNITS</b>	
<b>ITEM NO.</b>	<b>DESCRIPTION</b>			<b>UNIT COST</b>	<b>TOTAL COST</b>
<b>AREA 16</b>					
2	10" VCP SEWER MAIN (7' TO 12' DEPTH)	(299 LF)			
2.1	7' TO 11' DEPTH - GRAND VIEW FROM TOYON TO HERMOSA	143	LF	\$ 250	\$ 35,750
2.2	9' TO 12' DEPTH - GRAND VIEW FROM HERMOSA TO EAST	156	LF	\$ 250	\$ 39,000
3	MANHOLE	3	EA	\$ 7,000	\$ 21,000
SUBTOTAL CONSTRUCTION:					\$ 95,750
(35% of Construction Cost)ENGINEERING, CONTRACT ADMIN, INSPECTION, AND CONTINGENCY:					\$ 33,513
<b>AREA TOTAL:</b>					<b>\$ 129,263</b>
<b>SAY</b>					<b>\$ 130,000</b> *
<b>TOTAL:</b>					<b>\$ 130,000</b> **

\* Price taken from actual bid of District 3A Sanitary Sewer Improvement for 325 LF of 10" VCP in the City of La Canada Flintridge plus \$83/LF for mobilization, traffic control, and and traffic markings.

\*\* Since the design professional has no control over the cost of labor, materials, equipment, or over the contractor's method of determining prices, or over competitive bidding or market conditions, his opinions of probable construction costs provided herein are to be made on the basis of his experience and qualifications. These costs opinions represent his best judgment as a design professional familiar with the construction industry. However, the design professional cannot and does not guarantee that proposals, bids, or the construction costs will not vary from opinions of probable cost prepared by him.

## **APPENDIX 'L-2'**

### **Sewer System Capacity Analysis Deficient Pipes Exhibit**



## **APPENDIX 'L-3'**

### **Pizer Hydra version 6.4 Hydraulic Calculations**



**APPENDIX 'L-4'**

**Flow Monitoring Report - SFE Project #C47-01**

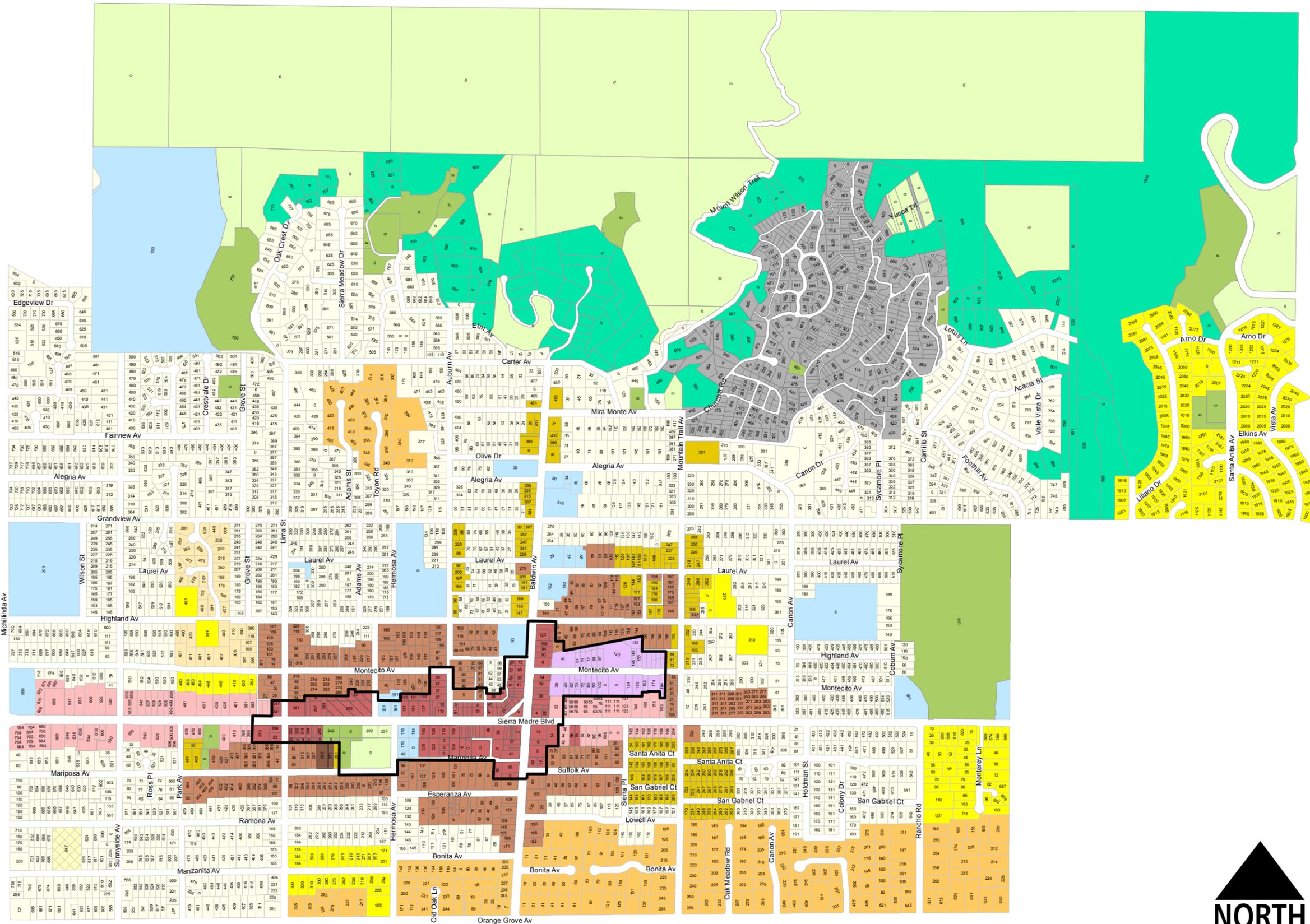


**APPENDIX 'L-5'**

**City Zoning Designations Map**



# City of Sierra Madre Zoning Map 2017



## Legend

— Measure V Area

## Zoning

- One Family Residential (7,500 sqft min.) - R-1
- British Home Specific Plan Overlay - BHPSO
- One Family Residential (9,000 sqft min.) - R-1-9
- One Family Residential (11,000 sqft min.) - R-1-11
- One Family Residential (15,000 sqft min.) - R-1-15
- Two Family Residential - R-2
- Multiple Family Residential - R-3
- Multiple Family Residential High Density - R-3H
- Residential Professional - R-P
- Open Space - OS
- Hillside Management - H
- Residential Canyon - RC
- Commercial - C
- Kensington Specific Plan Overlay - KSPO
- Institutional - I
- Manufacture - M
- Civic and City Park - C/CP



# **Appendix M**

## ***Policies for Managing Available Sewer Capacity***

## POLICIES FOR MANAGING AVAILABLE SEWER CAPACITY

### INTRODUCTION

In 2021 the City serves the wastewater disposal needs of approximately 11,000 people. The community sewers receive and convey approximately 1.7 mgd (million gallons per day) of wastewater to wastewater treatment plants via CSD trunk sewers and the adjacent City of Arcadia sewer system.

The purpose of this document is to describe the policies and practices followed by the City in tracking and determining the remaining available capacity within its sanitary sewer system. Tracking (monitoring) is necessary because of the significant lead time required for accomplishing improvements such as sewer rehabilitation or facility expansion without overloading sewage facilities. The objective is to enable the City to:

- Become more aware of how the sewer facilities are performing in order to take steps necessary to avoid (prevent) a SSO or nuisance problem due to operations.
- Provide all local decision makers with information needed to make informed decisions about the capacity of the wastewater system and its ability to accommodate new or increased connections.
- Make commitments for new or upsized connections with confidence that there is adequate capacity to serve additional demand as well as existing customers.
- Determine when the issuance of additional building/connection permits must be curtailed until sewer facility improvements are completed so that facilities are maintained in compliance with discharge permit criteria.
- Have more lead time to plan and arrange financing for needed sewer system upgrades.

### LEGAL MANDATE TO MANAGE WASTEWATER ALLOCATIONS

Local sewerage entities have a crucial role in providing safe and adequate wastewater systems and high quality operational performance. These local entities face many challenges to maintain and operate their systems in compliance with Federal and State laws and regulations. Cost continues to increase to keep these increasingly complex facilities operating properly, and the ability to raise rates to keep pace with costs is also regulated and challenging.

Perhaps most challenging is the need to manage the allocation of flow for new or expanding customer discharges in conformance with local land use, water and sewage plans, and the

NPDES and local permit limits. The agency responsible for issuing building/development approvals and permits must ensure adequate capacity is or will be reasonably available without impairing water quality or threatening public health and safety.

### ACTIONS TO BE TAKEN TO MANAGE AVAILABLE SEWER CAPACITY

Sewering entities are expected to manage their wastewater collection system capacities responsibly and to ensure the system functions within design capacity. In order to accomplish these expectations, it is necessary to implement a planning and engineering tool used to monitor the relationship between sewer facility capacity and population/economic growth while complying with statutes and regulations relative to discharges. Such tool could be a Municipal Sewage Capacity Plan and Report (MSCP/R).

A MSCP/R would contain information on sewage system capacity including demand created by both existing and proposed development. To ensure accuracy of such report will require the City to: monitor flows, track existing capacity utilization, evaluate the need for additional capacity, identify deficiencies, take proactive corrective steps to maintain system capacity, and to undertake orderly and timely funding and planning of projects to maintain or improve the system capacity. These actions for a successful monitoring and reporting tool will be accomplished through the application of the following policies:

1. Develop a perpetual 10-year capital improvement program that:
  - a. Includes pro-active sanitary sewer system improvements to correct and prevent system failures and overflows,
  - b. Provides sewer capacity in a timely manner to accommodate system rehabilitation and expansion, if any,
  - c. Incorporates monitoring, inspecting and demand findings compiled during routine operation and management of the system,
  - d. Maintains level of service standards that are desired and acceptable to the community and regulators,
  - e. Addresses current and reasonably anticipated regulatory requirements.
2. Actively manage the sanitary sewer conveyance system through a data collection and analysis process that determines wastewater usage by development type, projects future demand, and identifies inflow/infiltration deficiencies.
3. Issue development approvals based upon available capacity of the sanitary sewer system.

4. Implement work process and data management system improvements for sewer service management, operation, and maintenance that comply with WDR regulations and result in more effective and efficient sewer service.
5. Abate storm water inflow and groundwater infiltration to maintain capacity for sewer service and minimize service costs.
6. Expand the production and annual average use of recycled water to reduce the cost and environmental risk of effluent disposal and reduce reliance upon potable water sources.
7. Implement a complete asset management program for sustaining the sewer infrastructure through optimized service levels, managed risks, and minimized life-cycle costs of asset ownership.
8. Develop and distribute program information (documents) that defines and communicates policies, procedures, responsibilities and performance measures for work process improvements and encourages all system users to respect and comply with the community wastewater collection system program.

#### SIERRA MADRE GROWTH CHARACTERISTICS

Sierra Madre is a mostly built-out city. There are no undeveloped lands available for large scale development. According to data provided by the Southern California Association of Governments, Sierra Madre's population since 1974 has averaged 10,890. That population varies year to year, with the greatest being 12,140 in 1974 and lowest being 10,410 in 1997. Census data from 2020 lists the population within that range at 11,268. In as much as the existing sewer system is capable of meeting demands, there is little impetus for extensive studies of future demands and system capacity when there are no realistic growth projects for the city's service area.

# **Appendix N**

## ***Summary of Maintenance Productivity - Template***

**SEWER MAINTENANCE ACTIVITY REPORT**  
**Work Completed: January 1, 20xx to December 31, 20xx**

Number of parcels added/annexed to system during 20xx - XX

Total length of pipe in system as of December 31, 20xx - XXX,XXX L.F.

Total number of manholes in system as of December 31, 20xx - XXX

Total number of pump stations in system as of December 31, 20xx - XX

Total number of siphons in system as of December 31, 20xx - XX

**PREVENTATIVE MAINTENANCE ACTIVITIES**

Sewer Pipe

- Hydro cleaned xx,xxx l.f. of pipe
- Mechanically rodded x,xxx l.f. of pipe
- CCTV inspected and recorded xx,xxx l.f. of pipe
- Chemically treated (root control) x,xxx l.f. of pipe
- Repaved xxx l.f of pipe trench due to subsidence

Manholes

- Inspected xxx manholes
- Adjusted xx manhole frames and lids

Pump Stations

- Performed xxx inspections of pump stations
- Performed xx equipment repairs/overhauls
- Responded to xx alarma/service requests

Siphons

- Performed xxx inspections of siphons
- Mechanically or hydro cleaned xx siphons, of which xx were two or more times

**SERVICE REQUEST RESPONSES**

- xx Blockages / Stoppages
- xx Overflows
- xx Floodouts
- xx Rodent/Insect complaints
- xx Odor complaints
- xx Others (record type)
- False alarms

**CONSTRUCTION ACTIVITY**

- Installed x,xxx l.f. of pipe lining material
- Removed and replaced xxx l.f. of pipe
- Service saddles / connections installed = xx

# Appendix O

## *Performance Measure Indicators - Template*

City of Sierra Madre  
Sanitary Sewer Management Program  
Performance Measure Indicators

Overflow Prevention / Collection System Maintenance					
Performance Indicator	2021 - 2022	2022 - 2023	2023 - 2024	2024 - 2025	2025 - 2026
	Actual	Estimated	Projected	Projected	Projected
<b>INPUT</b>					
Total SSO response time (receipt of notification to site arrival)					
Total person-hours spent in responding to and alleviating SSO's					
Total miles of SS in the system					
Total number of gravity sewer system maintenance personnel					
Total number of pumping plant maintenance personnel					
Total number of scheduled manhole inspections					
<b>WORKLOAD / OUTPUT</b>					
Total number of SSO's responded to in 12-month period					
Number of SSO's > 1,000 gallons responded to					
Number of SSO's responded to within 30-minutes of less					
Total miles of sewer line maintained					
Total number of pump stations maintained					
Total number of manhole inspections completed					
Total FOG related SSO's cleared					
Total root related SSO's cleared					
Total SSO's due to other causes (debris, vandalism, etc.)					
Total number of capacity related SSO's					
Total number of SSO's due to pump station malfunction					
Total number of stoppages					
Miles of sewer on monthly check-n-clean					
Miles of sewer on quarterly check-n-clean					
<b>EFFICIENCY</b>					
Number of SSO's per 100 miles of sewer line					
Number of stoppages per 100 miles of sewer line					
Number of SSO's that reached "Waters of the United States"					
Number of pump stations with one or more malfunctions					
Number of pump stations per electro-mechanic crew					
Average response time per SSO					

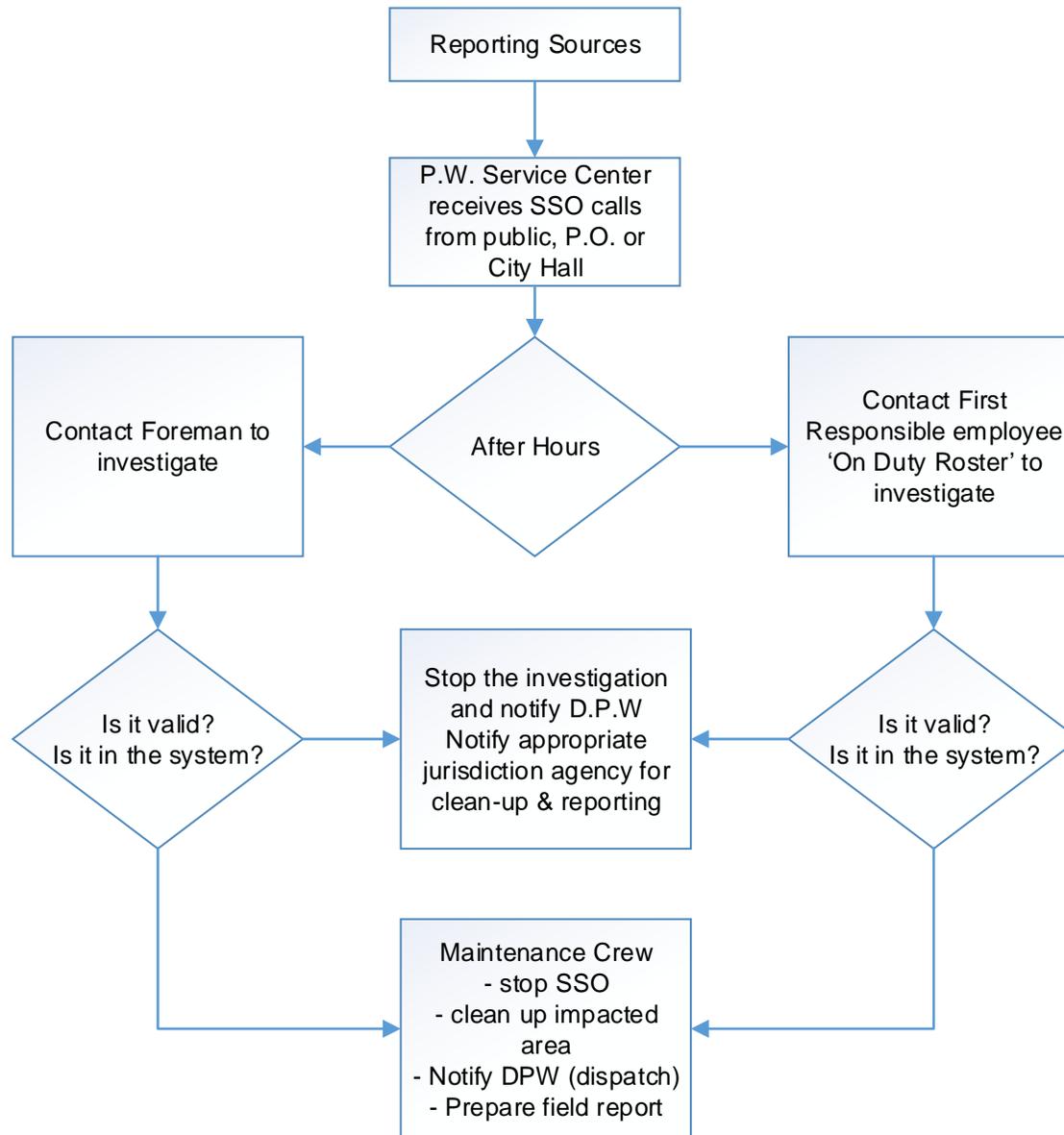
City of Sierra Madre  
Sanitary Sewer Management Program  
Performance Measure Indicators

Performance Indicator	2021 - 2022	2022 - 2023	2023 - 2024	2024 - 2025	2025 - 2026
	Actual	Estimated	Projected	Projected	Projected
Percent decrease in length of sewer line on quarterly of less schedule					
<b><u>EFFECTIVENESS / OUTCOME</u></b>					
Percentage of SSO's > 1,000 gallons					
Percentage of SSO's due to FOG					
Percentage of SSO's due to roots					
Percentage of SSO's due to other causes					
Percentage of SSO's that reached "Waters of the United States"					
Percentage of sewer on quarterly of less frequent schedules					
Percentage of pump stations with one or more malfunctions resulting in an SSO					
Percentage of SSO's with response time less than 30-minutes					
Percentage of stoppages not resulting in SSO					
<b><u>OBJECTIVE: To establish baseline performance measures for effective operations and maintenance of the community sewer system</u></b>					
<b><u>EXPLANATORY NOTES:</u></b>					

# **Appendix P**

## *SSO Charts & Graphs*

**2.4.5 FLOW CHART**  
**INTERNAL REPORTING FLOW CHART**



# EXTERNAL REPORTING FLOW CHART

