Sewer System Management Plan

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CARLYLE S. WORKMAN, PE
Public Works Manager

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Introduction

On May 2, 2006, the State Water Resources Control Board (SWRCB) adopted Order No. 2006-003-DWQ (Order) which established General Waste Discharge Requirements (GWDRs) for all publicly owned or operated sanitary sewer systems within the State of California. The GWDRs require that owners and operators of sewer collection systems:

a) Report Sanitary Sewer Overflows (SSOs) in the California Integrated Water Quality System (CIWQS), an electronic reporting system developed by the SWRCB, and

b) Develop and implement a Sewer System Management Plan (SSMP) with the goal of reducing SSOs. In short, the SSMP is a document that details how a specific sewer collection system is operated, maintained, repaired, and funded.

On July 30, 2013, SWRCB adopted Order No. WQ 2013-0058-EXEC amending the monitoring and reporting procedures listed in the original Order (Amendments).

This SSMP developed by the City of Lancaster (City) is organized into 11 chapters to parallel the requirements included in the GWDRs. Each section or subsection of each chapter addresses the individual elements of the SSMP.

The City's first SSMP was certified in May 2009. This SSMP dated July 2015 is the City's update to its first SSMP.

Definitions, Acronyms, and Abbreviations

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

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

Certification of SSO Reports: The SWRCB requires the LRO to login to CIWQS within a given time period to electronically sign submitted reports thereby stating that to the best of his/her knowledge and belief, the information submitted is true, accurate, and complete.

CIP - Capital Improvement Program: Refers to the plan that identifies anticipated capital improvements to the City's wastewater collection system.

City: Refers to the City of Lancaster.

CIWQS - California Integrated Water Quality System: Refers to the SWRCB online electronic reporting system that is used to report SSOs, certify completion of the SSMP, and provide information on the sanitary sewer system.

CMMS - Computerized Maintenance Management System: Refers to software and a database that is used to manage maintenance and condition assessment data including the production of work orders and the recording of work completed.

CSMD - Consolidated Sewer Maintenance District: A sewer maintenance district managed by the Los Angeles County Department of Public Works.

EMA - Emergency Management Agency: Refers to the California Emergency Management Agency.

EPA - Environmental Protection Agency: Refers to the United States Environmental Protection Agency.

FM - Force Main: Refers to a pressure sewer used to convey wastewater from a lift station to the point of discharge.

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

FSE - Food Service Establishment: Refers to commercial or industrial facilities where food is handled, prepared, and/or served that discharge to the wastewater collection system.

FY: Fiscal Year refers to period from July 1st through June 30th of the following year.

GIS - Geographic Information System: Refers to the City's system that it uses to capture, store, analyze, and manage geospatial data associated with the City's wastewater collection system assets.

GPS - Global Positioning System: Refers to the handheld unit used to determine the longitude and latitude of SSOs for use in meeting the CIWQS online SSO reporting system requirements.

GRD - Grease Removal Device: Refers to grease traps or grease interceptors that are installed to remove FOG from the wastewater flow at FSEs.

GWDR - General Waste Discharge Requirements: Refers to the SWRCB Order, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, dated May 2, 2006, as revised on February 20, 2008.

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

LACSD – Los Angeles County Sanitation Districts

Lateral: Refers to the piping that conveys sewage from a building to the City's wastewater collection system.

LRO - Legally Responsible Official: Refers to the piping that conveys sewage from the building to the City's wastewater collection system.

LWRP: Lancaster Water Reclamation Plant, sewer treatment plant, owned and operated by LACSD located on Avenue D just east of Freeway 14.

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

MMPM - Monitoring, Measurement, and Program Modifications (MS4): Refers to Municipal Separate Storm Sewer Systems**.**

NPDES: National Pollution Discharge Elimination System

O&M: Operations and Maintenance

OASIS - Operator Assisted Sewer Information System: Refers to the City's CMMS.

OERP: Overflow Emergency Response Plan

Order: Refers to SWRCB Order No. 2006-0003-DWQ

PACP: Pipeline Assessment and Certification Program, a program offered by National Association Sewer Service Companies (NASSCO). PACP is the City's standard for CCTV inspection.

Preventative Maintenance: Refers to maintenance activities intended to prevent failures of the wastewater collection system facilities (e.g. cleaning, CCTV inspection).

Pump Station: Used interchangeably with the term lift station.

RWQCB - Regional Water Quality Control Board: One of nine regional boards in California that issue and enforce waste discharge requirements within their regions. Lancaster is in the Lahontan region.

Sensitive Area: Refers to areas where an SSO could result in an imminent or substantial danger to human or animal health (e.g. parks, aquatic habitats, etc.)

SOP - Standard Operating Procedures: Refers to written procedures that pertain to specific activities employed in the operation and maintenance of the wastewater collection system.

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

a) Overflows or releases of untreated or partially treated wastewater that reach waters of the United States;
b) Overflows or releases of untreated or partially treated wastewater that do not reach waters of the United States; and
c) 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.

SSMP: Sewer System Management Plan

Surface Waters: Rivers, lakes, and streams.

SWRCB - State Water Resources Control Board: Refers to the California State Water Resources Control Board and staff responsible for protecting the State's water resources.

USS - Utility Services Section: In the City of Lancaster, one of the departments is Development Services Department; one of the divisions in that department is the Public Works Division which is comprised of the Maintenance Services Section and the Utility Services Section.

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

Chapter 1 Goals

Chapter 1 of the SSMP addresses the requirements included in Subsection D.13.(i) of the Order. The requirements state:

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.

SSMP Goals

The City is committed to providing high quality and cost effective management O&M of its sanitary sewer system for the public by meeting or exceeding the following goals:

a) To maintain and improve the condition of the City's sanitary sewer collection system infrastructure including:
   - Appropriately budget for necessary repairs and/or replacement;
   - Utilize collected sewer system funds for O&M, Capital Replacement, and expansion of existing collection system components;
   - Where appropriate, to condition new development to build new sewers;
   - Be available and responsive to the needs of the public; and
   - To provide funding for equipment and training of staff to adequately manage, operate and maintain all portions of the City's wastewater collection system.

b) To minimize I/I.

c) To minimize the number and impact of SSOs that occur through efficient management of the system the City will:
   - Implement regular, proactive maintenance of the system to remove roots, debris, fats, oils, and grease in sewer lines;
   - Perform CCTV inspection and system assessment on a regular ongoing basis; and
   - Implement an effective FOG prevention program;
   - Work cooperatively with local, state, and federal agencies to reduce and/or mitigate the impacts of SSO's; and
   - Report SSO's in the manner and time frame required.

Chapter 2 Organization

Chapter 2 of this SSMP addresses the requirements included in Subsection D.13.(ii) of the Order. The requirements state:

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)

2.1 Description of System

The City owns, operates, and maintains the wastewater collection system serving its population of approximately 159,523 (2013). Figure 2-1 shows the current City boundary. As shown in the figure, the City's sewers discharge to a network of trunk sewers owned and operated by the LACSD, which conveys the City's wastewater to LACSD's Lancaster Water Reclamation Plant (LWRP) for treatment.

The City's sewer system consists of over 429 miles of mains, 8,970 manholes, and one sewer force main (FM) pump station.

The sewer mains range in size from 6 to 24 inches in diameter, with 85 percent being 8 inches. Approximately 99% of gravity mains are vitrified clay pipe. The average sewer age is 31 years.

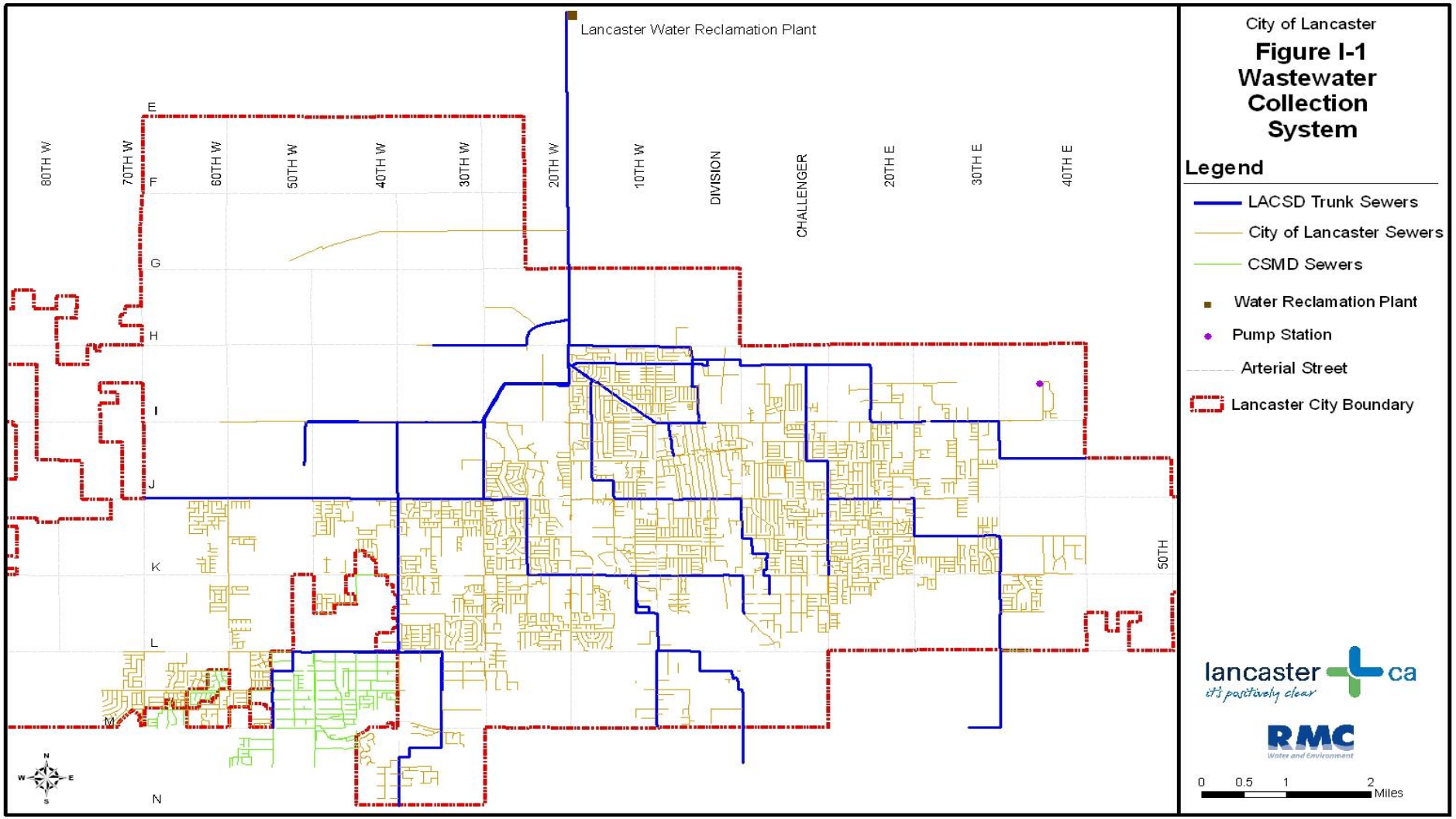


Figure 2-1 Wastewater Collection System

2.2 Authorized Representative

As described in Section J (Report Declaration) of the Order, all reports required by the Order and other submittals required by the State or Regional Water Board shall be signed and certified by a person designated as either a principal executive officer or ranking elected official, or by a duly authorized representative of that person. An individual is a duly authorized representative only if:

a. the authorization is made in the form of an official letter signed by the person designated as either a principal executive officer or ranking elected official; and

b. the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity.

The signed letter is uploaded to the CIWQS website for record keeping. The Utility Services Manager is the City's authorized representative registered with the CIWQS. The Utility Services Manager has authorized the Public Works Supervisor and the Lead Utility Maintenance Worker to prepare and submit initial electronic reports.

For purposes of electronic reporting of SSOs, an electronic signature and accompanying certification, as provided by the CIWQS, the electronic reporting system developed by SWRCB, meet this certification requirement.

2.3 Organizational Charts and Contact Information

2.3.1 City Organization

The City incorporated in November 1977, as a general law city. Currently, the City is a charter city under the laws of the State of California. The City operates under a City Council-City Manager form of government. The County of Los Angeles CSMD provided sewer O&M for the City until July 1, 2008, at which time the City's Utility Services Division of the Public Works Department assumed all maintenance responsibilities. The organization chart for the USS is provided below followed with a brief description of the duties of each key position.

In 2014 the City reorganized the Public Works Department. The Public Works Department was renamed to the Development Services Department; the Maintenance Services Division and the Utility Services Divisions were merged into Utilities/Maintenance Services Division, which is now referred to as the Public Works Division and is comprised of the Utility Services Section and the Maintenance Services Section.

Figure 2-2 City of Lancaster SSMP Organizational Chart

2.3.2 Description of General Responsibilities

Development Services Department Director

The Development Services Department Director provides general direction to the Public Works Manager.

Public Works Manager

The Public Works Manager provides general and day-to-day direction to the Utility Services Manager.

Utility Services Manager

Under general direction from the Public Works Manager plans, organizes, coordinates, administers, and manages the affairs of the City's Utility Services Section (USS); assists to identify needed policy and procedures, and directs the staff in all functions and operations. The Utility Services Manager represents and implements Council policy and programs with employees, community organizations, regulators, other public agencies and service providers, and the general public. The Utility Services Manager reviews budget requests and makes recommendations to the Public Works Manager on final expenditure levels, manages all labor and management activities, and performs all related work as

required. The Utility Services manager is the primary responsible authority for reporting to and coordinating with the SWRCB.

Public Works Supervisor

Under general direction of the Utility Services Manager, the Public Works Supervisor plans, directs, manages, and reviews the activities of the USS for the City. The USS maintains, cleans, and repairs the City's sanitary sewer collection system, pump (lift) stations, and related appurtenances. The Public Works Supervisor is responsible for initial reporting to appropriate regulatory agencies.

Lead Utility Maintenance Worker

Under general supervision of the Public Works Supervisor, the Lead Utility Maintenance Worker directs, leads, and personally performs a variety of tasks related to the maintenance, cleaning, and repair of the City's sanitary sewer collection system, pump stations, and sewer related appurtenances. The Lead Utility Maintenance Worker is responsible for regularly leading a crew(s) and has specialized responsibilities such as spill response, enforcement of City safety regulations, maintenance and repair records keeping.

Utility Maintenance Worker I/II

Under supervision of the Lead Utility Maintenance Worker, Utility Maintenance Workers I/II perform a variety of tasks related to the maintenance, cleaning, and repair of the City's sanitary sewer collection system, pump stations, and related appurtenances. Utility Maintenance Workers I/II will function in a watch/stand-by capacity to be on-call on a rotating basis to respond to after hour spills and or emergencies.

2.3.3 Responsibility for SSMP Implementation

The Utility Services Manager is responsible for overseeing the overall implementation of the SSMP. Various individuals within the City's organization are responsible for implementing one or more of the SSMP elements. Table 2-1 summarizes the responsibilities for SSMP implementation by element.

Table 2-1 Summary of Responsibilities for SSMP Implementation by Element

SSMP Element	Responsible Person(s)
1. Goals	Utility Services Manager
2. Organization	Utility Services Manager
3. Legal Authority	Utility Services Manager
4. Operations and Maintenance Program	Utility Services Manager, Public Works Supervisor
5. Design and Construction Standards	Utility Services Manager (Supported by the Development Services Department)
6. Overflow Emergency Response Plan	Public Works Supervisor
7. Fats, Oils and Grease Controls	Utility Services Manager
8. Capacity Management	Utility Services Manager
9. Monitoring, Measurement and Program Modifications	Utility Services Manager, Public Works Supervisor
10. SSMP Audits	Utility Services Manager
11. Communication Plan	Utility Services Manager

Responsibility for Element 1 - Goals

The Utility Services Manager is responsible for leading staff in the implementation of the City's SSMP goals.

Responsibility for Element 2 – Organization

The Utility Services Manager is responsible for updating the organizational structure, SSMP implementation assignments, and SSO responding and reporting chains of communication.

Responsibility for Element 3 – Legal Authority

The Utility Services Manager is responsible for upholding the City's Sanitary Sewer Ordinance and drafting new ordinances, as needed.

Responsibility for Element 4 – Operation and Maintenance Program

The Utility Services Manager is responsible for resources, budget, and public outreach. The Public Works Supervisor is responsible for prioritized preventive maintenance; contingency equipment; replacement inventories; training for Maintenance Workers; the collection system map; scheduled inspections; and condition assessment.

Responsibility for Element 5 – Design and Construction Standards

The Utility Services Manager is responsible for reviewing design and construction documents to ensure that all construction projects meet the City's standards. The Utility Services Manager is also responsible for updating standards for installation, rehabilitation, and repair, as needed. Technical assistance for these engineering functions will be provided by the City's Development Services Department.

Responsibility for Element 6 – Overflow Emergency Response Plan

The Public Works Supervisor is responsible for implementation of the OERP, including revisions to the plan and annual training for maintenance crew members and reporting of SSO's.

Responsibility for Element 7 – FOG Controls

The Utility Services Manager is responsible for determining the need for a defined FOG program and for permitting and inspecting grease interceptors that have been installed at non-residential locations at the Utility Services Manager's direction, and for enforcing discharge regulations, as needed.

Responsibility for Element 8 – System Evaluation and Capacity Management

The Utility Services Manager is responsible for establishing and assessing capacity requirements for the City's sanitary sewer collection system and for preparation and implementation of the City's System Evaluation and Capacity Assurance Plan. The Utility Services Manager is responsible for maintaining the sewer system master plan and for submitting recommendations for the near and long-term CIPs.

Responsibility for Element 9 – Monitoring, Measurement and Program Modifications

The Utility Services Manager is responsible for monitoring implementation and assessing success of the overall SSMP program elements. The Public Works Supervisor is responsible for identifying trends in SSO occurrences and providing recommendations to the Utility Services Manager. The position is also responsible for developing, monitoring, and reporting of appropriate performance standards for the sanitary sewer collection system O&M.

Responsibility for Element 10 – SSMP Audits

The Utility Services Manager is responsible for overseeing bi-annual SSMP audits.

Responsibility for Element 11 – Communication Plan

The Utility Services Manager is responsible for communicating with the public and outside agencies the status of the City's SSMP.

2.3.4 Chain of Communication for Responding to SSOs

The communication chain for responding to an SSO is described in more detail in Chapter 6 (Overflow Emergency Response Plan).

2.3.5 Chain of Communication for Reporting SSOs

The communication chain for reporting on an SSO is described in more detail in Chapter 6 (Overflow Emergency Response Plan).

Chapter 3 Legal Authority

Chapter 3 of this SSMP addresses the requirements included in Subsection D.13. (iii) of the Order. The requirements state:

a) *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:*

b) *Prevent illicit discharges into its sanitary sewer system (examples may include I/I, storm water, chemical dumping, unauthorized debris and cut roots, etc.);*

c) *Require that sewers and connections be properly designed and constructed;*

d) *Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the Public Agency;*

e) *Limit the discharge of FOG and other debris that may cause blockages; and*

f) *Enforce any violation of its sewer ordinances.*

3.1 City Municipal Code

The legal authorities for the City to comply with the SSMP requirements are contained within Municipal Code Title 13 (Public Services), Chapters 13.07 (Sanitary Sewers), 13.08 (Sanitary Sewers and Industrial Waste) and 13.09 (Sewer Service Charges), and Title 15 (Building and Construction) Chapter 15.20 (Plumbing Code), which adopts by reference the 2013 California Plumbing Code.

3.2.1 Prevention of Illicit Discharges

Measures to prohibit illicit discharges are currently included in the City's Municipal Code Title 13.07.010, and Title 13.08, which refers the reader to the 2013 California Plumbing Code dealing with these provisions in Chapter 3 sections 303, 305, 306; Chapter 7 section 714 and Chapter 11 section 1101. The specific purpose of the section is to prevent the discharge of any pollutant or any combination of pollutants into the sewers that would obstruct or damage the sanitary sewer system, interfere with treatment, or threaten harm to human health or the environment. Additionally, Section 714 (Damage to Public Sewer or Private Sewage System) prohibits the opening or entering of any appurtenance and prohibits the discharge of any cesspool effluent directly into a manhole or other opening in the City's collection system, except pursuant to special permission issued by the City for such discharge.

Examples of discharges that are covered under the current City legal authorities are discussed below:

a) Stormwater – Municipal Code Section 13.08.730 (Deposit of Certain Substances Prohibited) specifically prohibits the discharge of stormwater into a

City sewer. The California Plumbing Code specifically limits the discharge of stormwater in Chapter 11, Section 1101.2 (Storm Water Drainage to Sanitary Sewer Prohibited).

b) Industrial Waste – The legal authority for these wastes is contained in Chapter 13.08 Section 500 et seq. The City has also adopted by reference the California Plumbing Code which also prohibits these types of discharges in Chapter 3, Section 306 (Damage to Drainage Systems or Public Sewer).

c) FOG – Title 13.08.730 of City's Municipal Code (Deposit of Certain Substances Prohibited) specifically prohibits the discharge of FOG materials into a City sewer. The City Council also has adopted the FOG-related Ordinance No. 926 that will deal directly with this issue. The City has also implemented public outreach efforts to educate and train residential households and FSEs on the problems related to FOG in the sewer system. In addition, the City has also adopted by reference the California Plumbing Code, which deals specifically with this issue in Chapter 10, Sections 1009, 1014 and 1015.

d) I/I – Section 306.2 of the California Plumbing Code prohibits the discharge of extraneous waters to a sanitary drainage system. City Municipal Code Chapter 13.07, Section 200, specifically limits the disposal of I/I. Section 13.07.060 requires the house lateral to be maintained by the owner and provides the City with the authority to require or complete repairs when necessary to assure safe and sanitary conditions.

3.2.2 Proper Design and Construction of Sewers and Connections

The City has the responsibility for the review and approval of plans and specifications for the construction and dedication of sanitary sewers, house laterals and sewer-related appurtenances through the development processes of the Department of Development Services, Community Development Division. The Division ensures all construction within the public right-of-way complies with adopted codes, ordinances, engineering standards, and the Subdivisions Map Act. All sewers and sewer related facilities are to be designed and constructed according to the "Standard Specifications of Public Works Construction" as adopted by the City Council and must be filed in the office of City Engineering and be prepared under the direct supervision of and signed by a Registered Civil Engineer of the State of California.

The authority for the design, approval, inspection and construction of all new, rehabilitated and/or replaced sewer pipelines and appurtenances, pump stations and other sewer infrastructure is granted in Chapter 13.08, Articles 1, 3 and 4 of the City Municipal Code. The City has no responsibility for the maintenance and/or replacement of house laterals.

Enforcement of all sanitary sewer provisions is granted to City staff in Municipal Code Sections 1.12.020 and 13.07.160 (Violation – Penalty). All sections provide the authority for the Director of Development Services, or his/her, designee to administer, implement and enforce any violation of the provisions of the sanitary sewer and industrial waste codes.

Chapter 4 Operation and Maintenance Program

Chapter 4 of this SSMP addresses the requirements included in Subsection D.13.(iv) of the Order. The requirements state:

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 storm water conveyance facilities;*

b) *Describe routine preventive operation and maintenance activities by staff and contractors, including a system for scheduling regular maintenance and cleaning of the sanitary sewer system, with more frequent cleaning and maintenance targeted at known problem areas. The Preventive Maintenance 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 CCTV 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 O&M, and require contractors to be appropriately trained; and*

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

4.1 Collection System Mapping

The City has a GIS that it uses to create and maintain maps of its wastewater collection system facilities. The GIS was created in 2007 by conversion of CAD drawings and the City's scanned sewer record drawings and is maintained in the USS of the maintenance yard. Manholes, sewers, and sewer laterals are continually added to the City's GIS through ongoing mapping maintenance efforts. Each manhole and pipe has a unique

identifier. Pipe attributes stored in the GIS include pipe length, diameter, slope, material, year built, upstream and downstream manholes, and upstream and downstream invert elevations, and links to plans. Manhole attributes include year built, rim and invert elevations, and street address. In addition to being used to create sewer maps, the GIS is used as the database for other applications such as hydraulic modeling, maintenance management, video inspections, and for ad-hoc mapping and database queries.

A set of map sheets is periodically generated from the GIS in pdf format suitable for viewing in Adobe Acrobat and for printing hard copy sewer map books for various uses including field maintenance activities. The map set consists of 144 sheets at a scale of approximately 1" = 333' when printed on 11 by 17 inch pages. The maps show all parcels with addresses and street names, manholes with identifiers and special symbols for deep manholes, pipes with diameters, lengths, and flow direction arrows, and service laterals. In addition to the City's sewers, sewers owned and operated by other agencies (Sanitation District 14 of Los Angeles County, CSMD, and the City of Palmdale) are shown in different colors. Storm water conveyance facilities as included in the City's storm drain GIS are also shown on the maps, including inlets, manholes, pipes, open channels, and retention basins.

4.1.1 Updates to Existing Drawings

The field crews use hard copy maps that were produced using the GIS. Proposed corrections are identified by field crews and communicated to engineering staff using the Mapping/GIS Update/Correction Form shown in Appendix A. High priority corrections (those that may result in poor decision-making and potentially leading to an SSO) are entered into the GIS and updated map pages are issued as soon as possible to the field crews. Low priority corrections and new facilities are incorporated into the GIS and updated map pages are issued not less than annually.

Record drawings for LACSD trunk sewers and City sewer mains, lift stations, and appurtenant facilities are available at the Engineering counter in hard copy form. In addition, the City scans sewer system record drawings and links the scanned images to the associated sewer facilities in the GIS. These images are also available electronically to Public Works employees through the City's Intranet.

4.1.2 New Improvement Plan Drawings

Developers are required to prepare and submit as-built drawings upon installation of new sewer mains, storm drains, and associated facilities. The City scans all of these drawings and maintains them in a document management system. On an as needed basis, the City updates the GIS to include these new facilities and then updates the pdf map set and issues revised map book pages to all map book holders.

4.2 Maintenance

The elements of the City's wastewater collection system Operation and Maintenance Program include proactive, preventive, and corrective maintenance of gravity sewers, and periodic inspection and preventive maintenance of lift stations. The details of the City's operation and maintenance programs are generally described in this section.

4.2.1 Preventive Maintenance

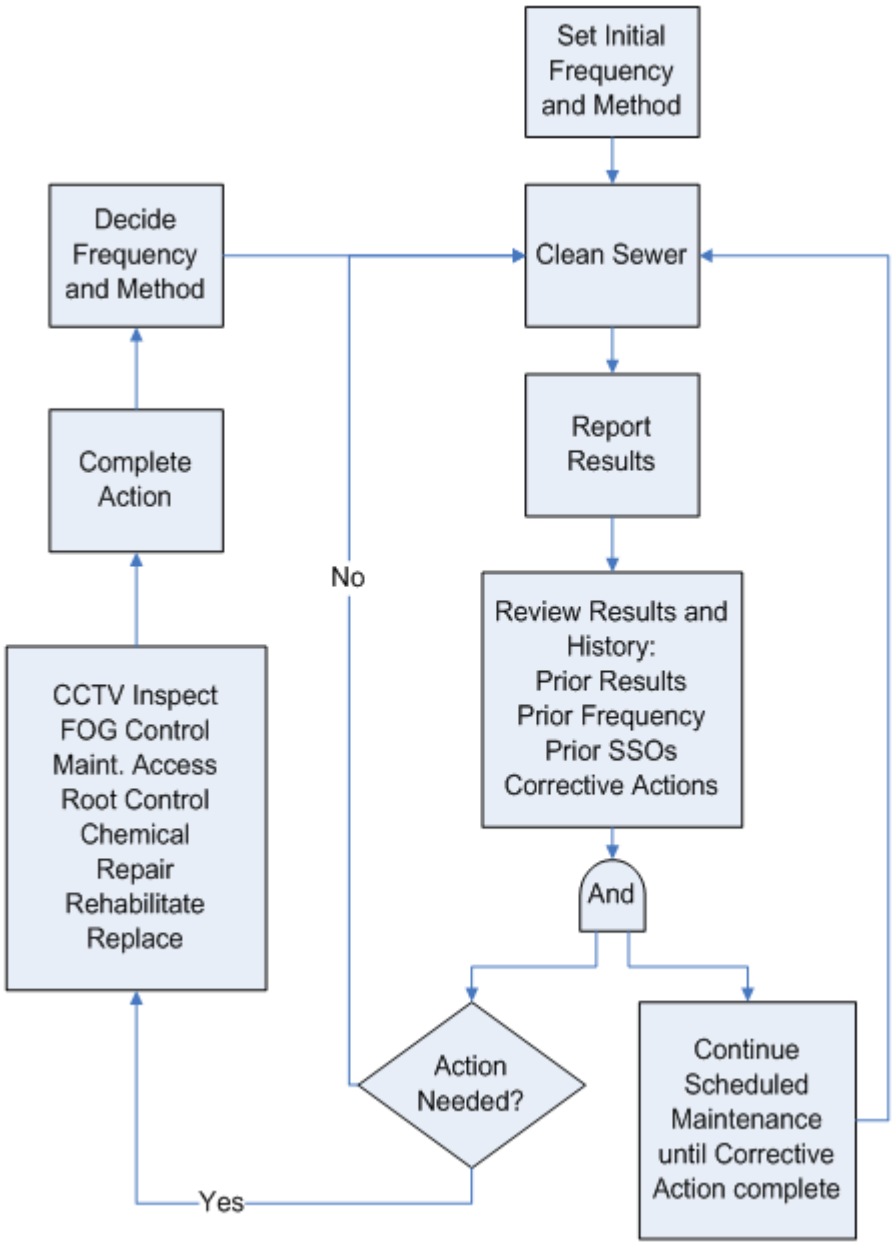
The City cleans all sewers utilizing a grid system. The City adjusts the frequency of repeat cleanings based on the results from prior cleaning activities as delineated on the Sewer Work Order Form in Appendix B. The process is shown in the flow chart below. The standard cleaning results are shown in Table 4.2 and 4.3, along with the criteria for changing cleaning frequencies.

After each cycle of wastewater collection system cleaning has been completed, the City will re-evaluate the preventive maintenance approach where each asset is periodically cleaned based on the frequency appropriate to maintaining reliable operation.

Table 4-2 Standard Sewer Cleaning Results and Criteria for Rescheduling

	Clear	Light	Moderate	Heavy
Debris	Code: **CL** No observable debris	Code: **DL** Minor amount of debris 15 minutes or less to clean 1 pass	Code: **DM** Less than 5 gallons of debris per line segment 15-30 minutes to clean 2-3 passes	Code: **DH** More than 5 gallons of debris per line segment More than 30 minutes to clean More than 4 passes Operator concern for future stoppage
Grease	Code: **CL** No observable grease	Code: **GL** Minor amounts of grease 15 minutes or less to clean 1 pass	Code; **GM** Small "chunks" No "logs" 15-30 minutes to clean 2-3 passes	Code: **GH** Big "chunks" or "logs" More than 30 minutes to clean More than 4 passes Operator concern for future stoppage
Roots	Code: **CL** No observable roots	Code: **RL** Minor amounts of roots 15 minutes or less to clean 1 pass	Code: **RM** Thin stringy roots No "clumps" 15-30 minutes to clean 2-3 passes	Code: **RH** Thick roots Large "clumps" More than 30 minutes to clean More than 4 passes Operator concern for future stoppage
Other	Code: **CL** No observable materials	Code: **OL** Specify material Minor amounts of material	Code: **OM** Specify material Less than 5 gallons of material per line segment	Code: **OH** Specify material More than 5 gallons of material per line segment Operator concern for future stoppage
Action	Decrease maintenance frequency to next lower frequency after 2 consecutive CL results (with supporting CCTV results)	Continue maintenance frequency	Increase maintenance frequency to next higher frequency	Increase maintenance frequency to next higher frequency

Footnotes:
Times shown are for typical manhole to manhole distances of 350 feet. Longer runs will require longer cleaning times.



The City's SOP for sewer cleaning is included as Appendix C.

Gravity sewer maintenance is scheduled using the City's computerized maintenance management system (CMMS). Work orders are issued to the sewer cleaning crews and the results of their work are recorded on the completed work orders which, in turn, are entered into the CMMS. A sample Work Order Form is included as Appendix B. Gravity sewers, where the field crew encounters problems during cleaning are scheduled for CCTV inspection and appropriate action from the results identified.

The City's gravity sewer condition assessment program consists of visually inspecting gravity sewers using CCTV. Future inspection frequencies will be based on the conditions observed in the gravity sewer during the latest CCTV inspection.

Table 4-3 CCTV Inspection Frequencies

Condition	PACP Structural Condition Grade	Inspection Frequency, Years
Excellent (no or minor defects)	0 or 1	20
Good (some defects but not deteriorating)	2	10
Fair (moderate defects)	3	7
Poor (defects deteriorating)	4	5
Immediate Attention	5	1 (until repaired or rehabilitated)

The City may assess the condition of the manholes and other structures using City field crews and visual inspection methods during its system-wide sewer cleaning. Manhole inspection is noted on the Daily Crew Sheet; if there are any structural defects, unsanitary issues, roach/vermin issues, or surcharging/flow issues a Defect Sheet is filled out. A sample of the Daily Crew Report and a Defect Sheet is included as Figure 4-1.

City crews conduct minor corrective maintenance; major repairs are typically contracted out. The USS maintains a list of known structural deficiencies. The list is maintained in priority order. Urgent priority structural deficiencies, which may cause an SSO, are corrected as soon as possible.

City crews apply pesticides on an annual basis to control cockroaches. Sewers and appurtenant structures are treated as needed to control infestations noted during regular inspections or identified through complaints.

City crews apply root control chemicals on an as-needed basis in order to reduce the rate of root growth and subsequent structural damage to the pipe. Application process will vary depending upon type of root control product used. Depending on the manufactures guidelines, the pipe segments are cleaned approximately two months prior to application of the root control chemicals in order to remove major root masses and to allow time for some re-growth for optimal herbicide uptake. The optimal application period is during the hot, dry months (July through September).

4.2.2 Reactive Maintenance

Reactive maintenance activities typically include investigation and response to complaints regarding a manhole overflow, missing or shifted manhole covers, manhole covers that are excessively noisy, sewer odor, etc. Sewer complaints received by the USS are typically investigated and appropriate actions are taken to identify the source of the problem and resolve the issue if possible.

4.2.3 Lift Station and Force Main

The City monitors the operation of its lift station using operational inspections and alarms. The City conducts weekly operational inspections of the lift station and the wet well is cleaned by City staff as needed. Preventive maintenance for mechanical and electrical equipment is scheduled as appropriate according to manufacturer's specifications. The City monitors the pump discharge pressure during its operational inspections. The deposition of solids will cause the pump discharge pressure to gradually increase over time. The City will use this data to determine if and when the FM requires cleaning.

4.3 Rehabilitation and Replacement Plan

USS has a Rehabilitation and Replacement Program in place to:

a) Ensure the timely repair of sewer facilities in imminent danger of failure or blockage;

b) Provide for the long range replacement of obsolete or aging assets; and

c) Improve performance and reduce spills caused by pipe defects or mechanical failures.

The Rehabilitation and Replacement Program uses data from the City's CCTV inspection and available flow monitoring programs, as well as feedback from regular maintenance activities, to prioritize and schedule the rehabilitation and replacement projects.

When sufficiently damaged, deteriorated, or near capacity sewer facilities are identified, a CIP Project is developed. A short term repair program would be completed in two years or less, while a long term repair program would require longer than two years for completion. Priorities and timing are based upon necessity and available budget.

4.3.1 Gravity Sewers

City crews assess the condition of gravity sewers using CCTV and use the industry-standard PACP to assign a condition grade from 1 to 5. The results, in terms of the most severe defect found in each pipe, are shown on Table 4-3 which shows the 2008 condition assessment. The small portion (< 5%) of gravity sewers with at least one grade 4 or 5 defect suggests that the City's gravity sewers are in generally excellent condition.

Table 4-4 Results of 2008 Structural Condition Assessment

Highest PACP Condition Grade	Number of Lines	Miles	Percentage of Total
5 – Immediate Attention	55	2.4	1.9%
4 – Poor (severe defects)	74	3.2	2.5%
3 – Fair (moderate defects)	595	25.8	20.5%
2 – Good (defects not yet deteriorating)	114	4.9	3.9%
0 or 1 – Excellent (no or minor defects)	2,065	89.6	71.1%
Total:	2,903	125.9	100%

4.3.2 Lift Station

Before the City took over the sewer system from Los Angeles County in July 2008, the lift station was found to be in good condition. Future lift station condition assessments will be conducted based on the SSMP Audit Checklist included in Table 10-11. The results will be used to identify major maintenance and capital improvement projects. The crews shall also take and retain pictures of these facilities and any deficiencies identified during the inspections. A comprehensive S.O.P for Lift Station Condition Assessment is used for regular inspections.

4.3.3 Capital Improvement Program

The City requested withdrawal from the CSMD in December 2006. In order to generate funds for maintenance and reconstruction of sewer system, the City Council established a sewer service charge beginning in fiscal year 2007-08. The sewer service charge is broken down into an O&M component and a capital replacement component. The sewer service charge is determined by multiplying the number of sewage units by the rate established by City Council. A single family residence represents 1 (one) sewage unit and is the basis for determining sewage charge for other users. The amount of sewer service charge assessed is based on current land use. Current sewage units for designated land uses are identified in 'Table A' of the Chapter 13.09.120 of the Lancaster Municipal Code.

The City is required to:

a) Set sewer service charges that meet on-going operating expenditures of the sanitary sewer system; and
b) Provide for the timely replacement and rehabilitation of existing infrastructure.

A portion of the sewer charges collected bi-annually through property tax rolls is set aside as funding for future CIP Projects. It is anticipated that both short and long term CIP Projects will be adequately funded through this source.

4.4 Training Program

4.4.1 City Staff

The City uses a combination of on-the-job training, conferences, seminars, and other training opportunities to provide technical training for its wastewater collection system staff. The City also requires each collection system worker to have obtained appropriate certification for their level of responsibility and to maintain that certification. Various training venues are provided to obtain the necessary continuing education credits for CWEA certifications. The safety-related training for the wastewater collection crew members is specified in the City's Illness and Injury Prevention Plan maintained by the Human Resources Division. Vendors provide training for new equipment. Each person who is required to enter a confined space is provided with Confined Space training and certification on a bi-annual basis. All Public Works Division Staff are provided First Aid and CPR training. The USS budget includes funds for technical training.

Other potential sources of training include the High Desert Chapter of the American Public Works Association, California Water Environment Association, American Water Works Association, and the Southern California Chapter of the Maintenance Superintendents Association. Individual employee training records are maintained by the Human Resources Division and the Development Services Department.

4.4.2 Contractor Employees Working on City Sewer Projects

Contract workers performing work on City sewers are required to meet the City standards as outlined in this SSMP and the City's design guidelines. Instructions are provided to contractors for obtaining training at the start of each project.

4.5 Equipment and Parts Inventory

The list of major equipment that the City uses in the operation and maintenance of its wastewater collection system is listed on the Major Collection System Frequency Equipment Inventory list and the Critical Collection System replacement Parts Inventory included in Appendix F and Appendix G.

The City maintains a supply of critical replacement parts consisting of manhole lids and rings, manhole reconstruction components, and back-up submersible pumps.

4.6 References

Best Practices Manual: Hydroflush, California Collection System Collaborative Benchmarking Group, February 2001.

Appendix A Update/Correction Form

City of Lancaster
Mapping/GIS Correction/Update Form

Location and Data Details:

Map Number(s): _____

Data Layer:
- ☐ Sanitary Sewer
- ☐ Storm Drain
- ☐ Recycled Water

Location: Street Address: _____

Nearest Cross Street: _____

Date of Field Verification: _____

Attached Information (REQUIRED):
- ☐ Sketch
- ☐ As-built Drawing
- ☐ Defect Sheet
- ☐ Map Sheet
- ☐ Other: _____

Description of Correction/Update:

_____

_____

_____

Form Submitted by:

Name: _____ Phone: _____

Division: _____ Date: _____

For Office Use Only

Recommended Priority:
- ☐ Normal (12 Months)
- ☐ High (60 Days)

Comments/Suggestions: _____

_____

_____

Date of Revision to GIS: _____ Revision done by: _____

Appendix B Sewer Work Order Form from OASIS

City of Lancaster Sewer Work Order

City of Lancaster Sewer Work Order

				38
OASIS automatic work order ID:	38			
Agency's internal work order ID, if used				
This work order is for what structure?	SS	1829-0387+1829-0382		
Intersection?				
Work order address & street name:				
What is the 1st cross-street for the location?				
What is the 2nd cross-street for the ocation?				
City the work is located in?				
Reference point that helps locate the work:				
Is the work order location in an easement?				
Location Notes:				
What field map is the work located in?				
What is the reported problem or situation?			Qty:	0
Notes about reported problem/situation:				
Problem /situation reported by:	Scheduled pm due: 10/3/2008			
What was the source of the work order?	PM			
Problem/situation first reported when?	10/28/2008	at this time:	3:05 PM	
Work order's priority?	1: High	2: Medium	3: Low	4: PM
Is this a reportable overflow?				
Weather conditions:				
Worksite status:		Barricaded?		
W/O scheduled for specific date/time:		at this time:		
Actual problem, condition or requirement?	SCP	Scheduled pm	Qty:	1 each
Notes about the actual problem/situation:				
Main action taken to resolve the situation?	CJET	Clean w/hydrojet/combin	Qty:	277 infl
Work order was done/completed when?		at this time:		
Notes about the action taken:				
What is the work order's status?	Open			

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City of Lancaster Sewer Work Order 38

Work Order Notes:

Notes:

Pipe Size – 8 Pipe Material – VCP

	Upstream MH			Downstream MH			Pipe		
Quick Rating-	1	2	3	1	2	3	1	2	3
Structural Rating-	1	2	3	1	2	3	1	2	3
Debris Rating-	1	2	3	1	2	3	1	2	3
Grease Rating-	1	2	3	1	2	3	1	2	3
Roots Rating-	1	2	3	1	2	3	1	2	3
Infl/Infil Rating-	1	2	3	1	2	3	1	2	3
Odor Rating-	1	2	3	1	2	3	1	2	3
Vermin Rating-	1	2	3	1	2	3	1	2	3
Surcharge-	1	2	3	1	2	3	1	2	3
Condition Scoring Scale:	1	Severe		2	Moderate		3	OK	

Who/what was the work order assigned to?	Cleaning Crew
Note the ID of any separate reference file(s) for this work order:	
Who prepared the work order?	Auto
Who assigned and/or supervised the work order?	
Is a capital project needed or underway?	☐
Note the capital project reference file ID?	
Is the work order related to a claim for damages?	☐
Note the claim ID:	
How many crew/labor hours were used to do the work order?	
What was the work order's cost?	
What account was the work order charged to?	
Drainage district or basin?	
What is the ZIP?	
What neighborhood is the work located in?	

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Appendix C Standard Operating Procedures for Gravity Sewer Cleaning

Purpose

The purpose of the SOP is to ensure that sewer cleaning is performed in a manner that will produce a high quality work product. Quality of work is important to ascertain that the sanitary sewers will not experience problems prior to their next scheduled cleaning.

Goal

The goal of cleaning a gravity sewer is to restore the flow area to 95% of the original flow area of the pipe.

Required Equipment and Tools:

a) Personal protective equipment including hardhat, steel toe boots, gloves, eye/face protection, hearing protection;

b) Calibrated gas detector;

c) Safety cones, barricades, flagging, signs, and/or other traffic control devices and communications devices;

d) Sewer maps;

e) Hydro Cleaning Unit or Rodder;

f) Stone Age Tools "Warthog" cleaning nozzle or ENZ "Bulldog" cleaning nozzle or similar;

g) Six-wire skid ("proofer") in pipe sizes that will be encountered during the day;

h) Debris traps in the sizes that will be encountered during the day;

i) Manhole hook, pick-axe, or bar;

j) Measuring wheel;

k) Work order/Manhole inspection form/map correction forms;

l) Customer notification hangers; and

m) City Claim Forms and Customer Information Letter.

Procedures for Public Works Supervisor:

a) Assign crew's work at least three days in advance, when possible.

b) Determine if there are any special traffic conditions that need to be addressed for the assignment. For heavy traffic areas, plan traffic control in advance so that ample traffic control devices and personnel can be transported to the jobsite. Give at least 24-hour notice to any business that will be adversely impacted by traffic control or the cleaning operations.

c) Identify the schedule for cleaning. When possible, cleaning operations should be conducted during normal business hours. When in residential areas, cleaning operations should not begin before 7 a.m. nor continue after 7 p.m. unless there is an emergency that warrants working outside of these hours. Door hangers shall be put out the day prior to any cleaning in a residential area when the cleaning will occur before 7 a.m. or after 7 p.m.

d) Review completed work orders returned by field crews for completeness and accuracy prior to data entry of results and sign completed work orders indicating acceptance of the work.

e) Submit data to entry clerk for entry to CMMS system.

Procedures for Sewer Cleaning Crew

Prior to Leaving the Maintenance Yard:

a) Plan the work so that it starts in the upstream portion of the area and moves downstream.

b) Wherever possible, plan to clean individual sewers from the downstream manhole.

c) Inspect the sewer cleaning nozzles for wear. Replace nozzles that are excessively worn.

d) If this is the crew's first day with this cleaning unit, inspect the first 200 feet of hose and couplings for damage or wear.

e) Visually inspect the exterior of the sewer cleaning vehicle for safety purposes.

At the Jobsite:

a) Wear proper personal protective equipment.

b) Fill the water tank at the closest recycled water facility.

c) Determine and confirm location of upstream and downstream manholes (use street addresses, if possible).

d) Look for any overhead utilities that may come into contact with the vacuum boom during the cleaning operation.

e) Set up proper traffic control by placing traffic signs, flags, cones, and other traffic control devices.

f) Move the cleaning unit into the traffic control zone so that the hose reel is positioned over the manhole.

g) Prior to opening the manhole use a gas detector to determine if it is safe to proceed with the cleaning operation.

h) Install the 45 degree or Warthog nozzle on the hose.

Cleaning Operation

a) Insert the debris trap.

b) Lower the hose, with a guide or roller to protect the hose, into the manhole and direct it into the sewer to be cleaned.

c) Start the high pressure lift and set the engine speed to provide adequate pressure for the sewer cleaning operation.

d) Open the water valve and allow the hose to proceed up the sewer. The hose speed should not exceed 30 feet per minute.

e) Allow the hose to proceed 25% of the length of the sewer and pull the hose back if any significant debris is observed or suspected.

f) Observe the nature and the quantity of debris pulled back to the manhole and collected in the debris trap.

g) If there is little or no debris, allow the hose to proceed to the upstream manhole.

h) If there is moderate to heavy debris, clean the remaining portion of the sewer in steps not to exceed 25% of the length of the sewer.

i) When the length of the segment is not known, open an upstream manhole and verify that the nozzle is at or past the manhole.

j) Multiple segments may be cleaned simultaneously when and where appropriate.

k) The sewer has been adequately cleaned when:

- Successive passes with a cleaning nozzle do not produce any additional debris, and
- The sewer is able to pass a full size, six-wire skid ("proofer") for its entire length.

l) Determine the nature and quantity of the debris removed during the cleaning operation. Use the codes in the following table to report the nature and quantity of debris. Table 4-2 in this SSMP provides a more detailed description of each of the codes.

m) Remove the debris from the manhole using the vacuum unit.

n) Rewind the hose on the reel.

o) Remove the debris trap.

p) Clean the mating surface and close the manhole. Ensure that the manhole is properly seated.

q) Enter the results on the Sewer Cleaning/Inspection Work Order and/or Manhole Inspection Form.

r) Move the cleaning unit, break down and stow the traffic controls.

s) Proceed to the next cleaning jobsite.

Type of Material	Clear (no debris)	Light	Moderate	Heavy
Debris (sand, grit, rock)	CL	DL	DM	DH
Grease	CL	GL	GM	GH
Roots	CL	RL	RM	RH
Other:	CL	OL	OM	OH
Source: Best Practices Manual: Hydroflush, California Collaborative Benchmarking Group, 2001				

At the End of the Day

a) Inspect the equipment and tools for problems.

b) Report any problems with equipment, tools, or sewers that were cleaned during the day to the lead worker or Public Works Supervisor.

c) Turn in all completed Sewer Cleaning and or Inspection Work Order Forms to the Public Works Supervisor at end of shift.

Data Entry of Cleaning Operations

a) Daily work order information is entered into CMMS by lead workers and/or the crew. The CMMS creates work orders.

DAILY CREW REPORT
PUBLIC WORKS DIVISION - UTILITIES SECTION
OPERATIONS AND MAINTENANCE UNIT

lancaster ca
it's positively clear

DEVELOPMENT SERVICES DEPARTMENT

Date _____ Shift Hrs: 0600-1530

Lead Worker _____

Injuries/Accidents 0 ReH2O 0

HOURS FOR STAFF & EQUIPMENT (Last names & Equipment Numbers on diagonals)

Days Activities & Accomplishments

Activity Name	Action Code	LF	CY	EA	Crew Lead	UMW__	UMW__	UMW__	EQ HRS	EQ HRS	EQ HRS	
Vehicle Maintenance AM/PM	I92											
Totals												

Jobs & Locations

Comcate or W/O #	Page #	ML or MH ID/Location	Task	Quantities HOURS	LF	CY	EA	Reason & Findings/Note if Incomplete

I certify the accuracy of this document _____ (Crew Leader Signature)

Figure 4-1 Daily Crew Report

Development Services Dept
Public Works Division - Utilities Section

lancaster ca
it's positively clean

Sewer/Drainage/Recycled Water
Defect Report

MAP/PAGE &
MH or ML ID No. _____

Location (Street & Cross Street) _____

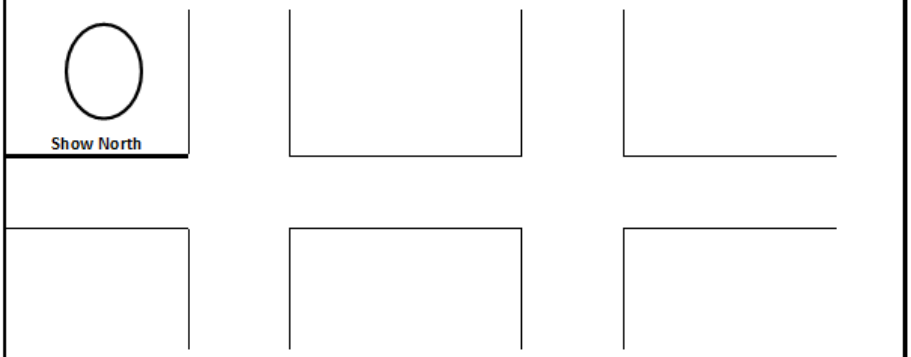
Problem _____

_____

Suggested Fix _____

Reported By _____ Date _____

Show MHs/Mainlines - include ID numbers, pipe size, distances and flow direction. Include street names and other identifying buildings/structures/landmarks



First Assignment _____ Date _____

Work Done _____

Complete? _____

Y or N _____ By _____

Second Assignment _____ Date _____

Work Done _____

Complete? _____

Y or N _____ By _____

Figure 4-2 Sewer/Drainage/Recycled Water Defect Report

Appendix D Cooperstown Lift Station Inspection and Maintenance Records

FOR THE MONTH(S) OF _____ , 20_____

Station: 35th E. and Ave. H-8 Station Telephone #: 661-946-8864

Table 4-5 Cooperstown Lift Station & Inspection Log

DATE	TIME	INITIALS	PUMP # 1 HOURS	PUMP # 2 HOURS	H2S READING	NOTES

***CHECK TO MAKE SURE THAT THE RACO ALARM IS SET AND THAT THE STANDBY GENERATOR IS IN REMOTE SETTING BEFORE LEAVING THE LIFT STATION.**

Appendix E Standby Generator Log

STANDBY GENERATOR LOG

Location: COOPERSTOWN Model: ONAN50DGCA SPEC J S/N: G940547705 Date:_____to _____

	Pre-Start Inspection					With Engine Running					After Shut-Down				
DATE	Oil Level	Coolant Level	Air Cleaner ind.	Batter+ Cables	Battery Charger	Oil Pressure	Coolant Temp.	Volts	Frequency	Leaks or Noise	Automatic Switches	Hour meter	Fuel Usage	Tank Level	Water in Tank?

COMMENTS ON BACK

Appendix F Major Collection System Frequency Equipment Inventory

Major Equipment Type	Equipment Description	C.O.L. EQ No.	Year Purchased
Vactor Truck (Sewer)	Kenworth	3988	2013
Vactor Truck (Drainage)	Sterling	3779	2008
Vactor Truck (Back-up)	International	3351	1997
Mechanical Rodder, Medium	GMC	3994	2008
Sewer Cleaning Unit, Jet, Hydro Medium*	Sterling	3998	2009
CCTV Van	Ford-E450	3989	2010
Easement Machine	JetAway JAJ-600TH	3995	2009
Hose Reel Trailer	HR 6x6 hose reel 10-12	3987	2012
Sewer By-pass Pump	Griffin 6NHCD-11	3986	2012
Power Unit for Portable Pump	Stanley-Hydraulic	3993	2008
3” Portable Pumps (Two)	(powered by 3993)		
Truck, Water Tanker, 2000 gallon	Ford F-750	3985	2006
Truck, Stake Bed, 1 Ton (Stand-by Truck)	Dodge 3500	3814	
Truck, Stake Bed, 1 Ton	Dodge 3500	3991	2008
Truck, Utility Bed, 1 Ton	Dodge 3500	3992	2008
Truck, Pickup, ¾ Ton (Lead Worker)	Dodge 2500	3990	2007
Truck, Pickup, ¾ ton	Dodge 2500	7505	2006
Truck, Maintenance Supervisor	Dodge Dakota	6819	2008
Pick-up Truck (Lead Worker)	Ford F-250	7607	2006
Utility Trailer	Carson	3996	2010
Enclosed Trailer for Confined Space Entry		2380	2006
Arrow Board (Towable, for traffic control)		3983	2014
Arrow Board (Towable, for traffic control)		3984	2013

*This unit also has a 3” hydraulic pump with an on-board power unit

Appendix G Critical Collection System Replacement Parts Inventory

Inventory Date _____

Inventory/Condition Checked by _____

Critical Parts Item	Recommended Stock Amount	Total Currently in Stock	Total Needed to Order
Concrete Bags	75		
Manhole Covers	5		
Manhole Rings	5		
Sand Bags	200		

Chapter 5 Design and Performance Provisions

Chapter 5 of this SSMP addresses the requirements included in Subsection D.13.(v) of the Order. The requirements state:

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.

5.1 Design & Construction Standards and Specifications Documents

The City uses established guidelines for design and construction of new sanitary sewers, pump stations and appurtenances. The following is a summary of documents used by the City as design and construction standards and specifications.

5.1.1 Ordinance No. 910 (Sewer Ordinance)

City Ordinance No. 910 adopted Chapters 13.07, 13.08 and 13.09 as the City's Sanitary Sewer and Industrial Waste Ordinance. With respect to design and performance provisions, the ordinance includes regulations for design and permitting, installation, inspection, and maintenance. Article 3 of Chapter 13.08 (13.08.175 to 13.08.290) sets minimum standards for sewer diameter, pipeline grade, flow velocity, depth, house lateral design, manhole spacing and location, pipe material, and pipe and installation requirements. Article 4 (13.08.325 to 13.08.345) specifies City inspection procedures for sewer work and Article 5 (13.08.375 to 13.08.390) specifies maintenance provisions. For additional requirements, the ordinance refers to the Engineering Design Guidelines Policies and Procedures, the Standard Specifications for Public Works Construction, and the City Standard Plans, which are described in more detail below along with other documents that the City uses. The ordinance requires that all designs and installations be prepared and approved by a registered civil engineer prior to approval by the City.

5.1.2 City Engineering Design Guidelines Policies and Procedures

The City's Engineering Design Guidelines, Policies and Procedures establish design guidelines for private development and public projects including sewer rehabilitation and repair projects, within the City. Section 2.4, Sewer

Improvement Plans, of that document identifies design criteria for new sewer systems including lateral connections, sewer mains, manholes, and sewer loading criteria (unit flow factors). This section also includes the City's submittal requirements, sewer improvement plan checklist, standard sewer improvement plan notes, and testing, inspection, record drawings and dedication requirements, which would be included in the Contract Drawings and Special Provisions for sewer projects.

City's Engineering Design Guidelines, Policies and Procedures contain standard requirements for sewer rehabilitation and repair projects; however, the City also establishes project-specific design criteria for these projects because existing methods are constantly evolving, new methods are continually being developed, and each project is typically unique.

As needed, the City will update, change, or add specific guidelines for wastewater pump station design and plans and is considering the development of basic evaluation and design guidelines for rehabilitation and repair projects, such as pre-design inspection requirements, calculation requirements for various techniques, and identifying acceptable rehabilitation and repair methods.

5.1.3 Los Angeles County Department of Public Works Guidelines for Wastewater Pump Station Design and Plan Submittal Procedures (June 2005)

Los Angeles County's Guidelines for Wastewater Pump Station Design and Plan Submittal Procedures recommends minimum acceptable design and plan submittal requirements for wastewater pump stations. This document establishes plan requirements and calculation requirements for structural elements, estimates of flows, wet well design, head and surge, force main, noise, ventilation, and sizing of major pieces of equipment. Detailed design criteria are defined for wet wells and dry wells, force mains, valve vaults, access hatches, electrical and controls, pumps and motor, valves, emergency generators, air compressors, buildings and canopy and protective coatings. This document also specifies requirements for plan submittal, inspection, testing, record drawings, and acceptance (dedication), which would be included in the Contract Drawings and Special Provisions for sewer projects. Designs will be reviewed on a case-by-case basis and applicable modifications to the County guidelines made as determined by the City.

5.1.4 "Greenbook" Standard Specifications for Public Works Construction

The Greenbook, written by Public Works Standards, Inc. provides specifications that have general applicability to public works projects. Part 1 of the Greenbook

specifies general provisions for construction. Parts 2 through 4 of the Greenbook specify requirements for construction materials, construction methods and inspection and testing procedures, which apply to pipelines (pressure and gravity), earthwork, structural work, electrical components (for pump station work) and coatings. Part 5 of the Greenbook specifies materials, construction methods and inspection and testing procedures for rehabilitation projects, including pipeline rehabilitation through point repairs and various liners, and manhole/structure rehabilitation.

Construction requirements for site improvements, structural, basic electrical work and earthwork for pump stations are covered in the Greenbook. Construction requirements for mechanical equipment, buildings, valves, backup power, and other special equipment are project-specific and would be covered in the Contract Drawings and Special Provisions.

5.1.5 Standard Plans for Public Works Construction and City Standard Plans

The *Standard Plans for Public Works Construction* is a compilation of standard plans for use in conjunction with the Greenbook standard specifications. Section 2 includes standard plans (details) for sewers and sanitation, including manholes/structures and pipe and appurtenances. The City Standard Plans, which are included as part of the Engineering Design Guidelines Policies and Procedures, contain pipeline trench details.

5.1.6 Contract Drawings and Special Provisions

For each design project, the City approves Contract Drawings and Special Provisions prepared and signed by a registered civil engineer that are specifically tailored for that facility. The Contract Drawings and Special Provisions supplement the Greenbook, the City Standard Drawings, and the Standard Plans for Public Works Construction to form the construction Contract Documents. As mentioned above, construction requirements for mechanical equipment, valves, backup power, and other special equipment for pump stations are specified in the Contract Drawings and Special Provisions.

5.1.7 Industry Standards, Codes and Regulations

In addition to the guidelines above, facility design and construction requirements incorporate a number of industry standards and applicable codes and regulations including, but not limited to:

- American Society of Mechanical Engineers (ASME) Standards;
- American National Standards Institute (ANSI) Standards;
- American Society for Testing and Material (ASTM)Standards;
- American Water Works Association (AWWA) Standards;

- Hydraulic Institute (HI) Standards;
- American Concrete Institute (ACI) Standards;
- National Electric Code (NEC);
- National Electric Manufacturer's Association (NEMA) standards;
- City Municipal Codes, including but not limited to the Electrical, Mechanical, Plumbing, Fire and Building Codes;
- California Plumbing Code;
- State of California Industrial Safety Orders; and
- Applicable State and Federal regulations.

5.2 Inspection and Testing Procedures

The City has established procedures for inspection and testing of new sanitary sewer systems and repair and rehabilitation projects, including gravity sewers, force mains, pump stations, pipeline and manhole repair and rehabilitation, and pump station upgrades and rehabilitation.

Inspection, testing, and acceptance criteria for sanitary sewers, force mains, manholes and lateral connections are specified in the City's *Engineering Design Guidelines, Policies and Procedures*, and in the *Greenbook*, as described above. The documents include requirements for submitting record drawings and photographic documentation of construction; cleaning requirements; testing of sewer lines and manholes; post-installation video inspection; soils testing; inspection of structure excavations; and backfill compaction testing. The project-specific *Contract Drawings and Special Provisions* include additional testing requirements, as applicable.

Inspection, testing and acceptance procedures for pump stations are described in the *Guidelines for Wastewater Pump Station Design and Plan Submittal Procedures*. The guidelines include requirements for submittal of record drawings, operation and maintenance manuals, and photographic documentation of construction; inspections by city as applicable for compliance with building, plumbing, mechanical and electrical codes; factory test documentation for materials and equipment; functional tests of equipment witnessed by the manufacturer's representative, contractor, and City inspector; demonstration testing witnessed by the manufacturer's representative, contractor, and City engineer; and certified reports of noise testing. These requirements are written into project-specific *Special Provisions*.

Chapter 6 Overflow Emergency Response Plan

Chapter 6 of this SSMP addresses the requirements included in Subsection D.13.(vi) of the Order. The requirements state:

Overflow Emergency Response Plan: Each Enrollee shall develop and implement an OERP 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 the MRP, the California Water Code, other State Law, and other applicable Regional Water Board Waste Discharge Requirements 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.

6.1 Goals

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

a) Respond quickly to minimize the volume of and damage from the SSO;
b) Eliminate the cause of the SSO;

c) Contain and return the spilled wastewater to the extent feasible;
d) Minimize public contact with the spilled wastewater;
e) Mitigate the impact of the SSO;
f) Meet the regulatory reporting requirements; and
g) Notify the public when a threat to public health exists.

6.2 SSO Detection

The processes that are employed to notify the City of the occurrence of an SSO include:

a) observation by the public,
b) receipt of an alarm,
c) observation by City staff during the normal course of their work.

6.2.1 Public Observation

Public observation is the most common way that the City is notified of blockages and spills. Contact information for reporting sewer spills and backups are in the phone book and on the City's website: http://www.cityoflancasterca.org. The City's Public Works front counter telephone number, (661) 723-5985, is used during normal working hours and the Lancaster Sheriff's Station number, (661) 948-8466, is used to report after hour sewer emergencies.

6.2.1.1 Normal Work Hours

The City's normal working hours at the Maintenance Yard are as follows:

Field Crews: 6:00 am - 3:30 pm Monday through Thursday
6:00 am – 2:30 pm Friday
(Except holidays & weekends)

Office Personnel: 7:00 am – 5:00 pm Monday through Thursday
7:00 am – 4:00 pm Friday
(Except holidays & weekends)

When a report of a sewer spill or backup is made, City staff receives the call, takes the information from the caller, and communicates it to the Lead Utility Maintenance Worker who responds to the site and/or dispatches a field crew to the site. If the lead utility worker is unavailable, the call goes to the Public Works Supervisor who then responds to the site and/or dispatches a field crew to the site.

6.2.1.2 After Hours

After 5:00 p.m. and before 7:00 a.m. calls are directed to the Lancaster Sheriff's Station number (661) 948-8466. The Sheriff Dispatcher receives the call, takes the information from the caller, and communicates it to the Public Works Division Standby Crew at (661) 510-4362.

6.2.2 Autodialer Alarm

The Autodialer Alarm system sensing any sort of failure at the sewer lift station first calls the Lead Utility Maintenance Worker, followed by the Public Works Supervisor, followed by the Maintenance Yard Front Desk and then the stand-by crew in that order. Autodialer continues calling until it receives an acknowledgement that the call is answered.

6.2.3 Smart Manhole Covers

Manholes at locations that are prone to blockages and overflows have been fitted with covers containing a sensor to detect rising water levels. The sensor will notify by email and text the depth levels of rising water to Lead Workers, Stand-by Workers, and Public Works Supervisors.

6.2.4 City Staff Observation

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

6.3 SSO Response Procedure

The SSO response procedure flow chart is shown on Figure 6-1 below.

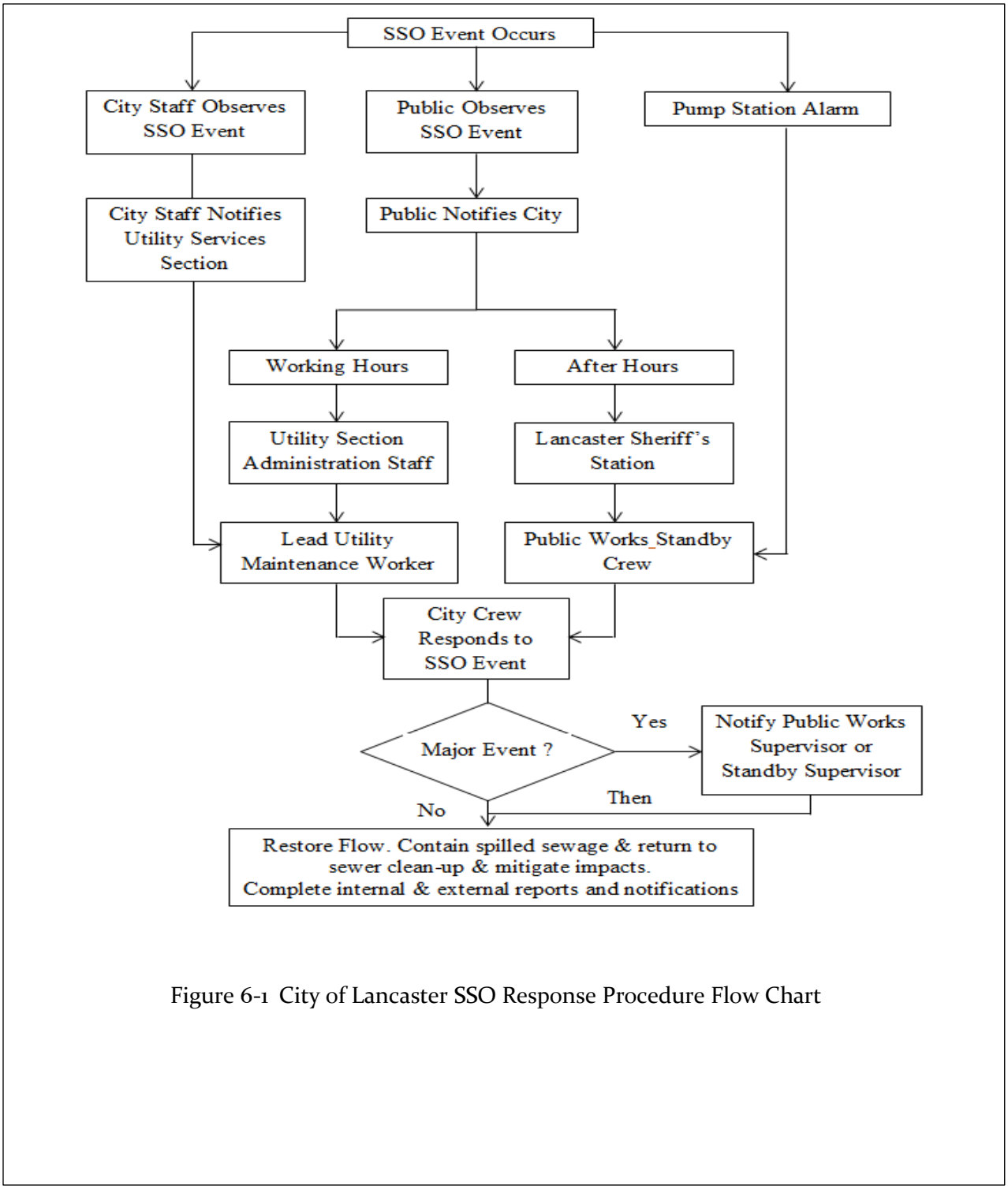


Figure 6-1 City of Lancaster SSO Response Procedure Flow Chart

6.3.1 First Responder Priorities

The first responder's priorities are:

a) To follow safe work practices.
b) To respond promptly with the appropriate equipment.
c) To contain the spill wherever feasible.
d) To restore the flow as soon as practicable.
e) To minimize public access to and/or contact with the spilled sewage.
f) To promptly notify the Public Works Supervisor or On Call Supervisor in the event of a major SSO.
g) To return the spilled sewage to the sewer system.
h) To restore the area to its original condition (or as close as possible).

6.3.2 Safety

The first responder is responsible for following safety procedures on all jobs. Special safety precautions must be observed when performing sewer work.

6.3.3 Initial Response

All SSO calls require a response to the reported event location. Sewer system calls should never be handled without an on-site evaluation. The first responder must respond to the reporting party/pump station site and visually check for potential sewer stoppages or overflows.

The first responder should:

a) Note arrival time, document conditions with photographs and contact caller if time permits.
b) Verify the existence of a sewer system spill or backup.
c) Identify and assess the affected area and extent of spill.
d) Regardless of whether the spill/backup is caused by a private lateral or other agency sewer system, the first responder should always contain/mitigate the spilled sewage to the extent feasible and standby until representatives of the responsible party arrive and are fully operational.
e) Notify the Public Works Supervisor or his/her designee in event of a major SSO:
    - If the spill appears to be large, in a sensitive area, or there is doubt regarding the extent, impact, or how to proceed.
    - If additional help is needed, the Public Works Supervisor/Lead Worker will approve the call out of other employees, contractors, and/or equipment suppliers.
f) Initiate containment where possible then:
    - Small spills – proceed with clearing the blockage.

- Moderate or large spill– reinforce the containment measures as necessary as blockage is cleared.
- Moderate or large spills where containment is anticipated to be difficult – call for additional assistance; proceed with clearing the blockage.

6.3.4 Troubleshooting and Clearing Sewer Stoppages

The first responder should follow the steps outlined below for each type of sewer call.

6.4.3.1 Pump Station Alarms

An overflow or other significant alarm at the pump station requires a site visit. In the event that an SSO has occurred or is imminent due to a pump station failure, the first responder should use their professional experience and judgment to determine if it is necessary to call for assistance. The first responder should initiate and organize delivery of portable pumping units (including fuel), hoses, portable lights and safety cones if required.

6.3.4.1 Building Lateral Stoppage or Sewer Backup into House or Building

Whenever a stoppage is suspected to initiate in the City's mainline, inspect the City's system by checking the upstream and downstream manholes. If the problem is in the City's system, clear the blockage, begin the initial cleanup and contact the Public Works Supervisor if situation warrants.

If the problem is in the lateral, notify the customer that the blockage is in the customer's line and inform the customer that they must contact a plumber or a drain cleaning company to correct the situation. Do not recommend specific contractors or companies. See Appendix I titled Private Property Damage Procedures and Appendix J entitled Customer Information Letter for guidelines and customer information.

6.3.4.2 Mainline Stoppage and/or Manhole Overflow

Inspect upstream and downstream manholes to determine the location of the blockage. Clear the blockage using appropriate equipment. Initiate spill recovery and cleanup procedures identified in this chapter.

6.3.4.3 Odor Problem

Investigate odor complaints to determine if the City's sewer system is the cause of the complaint. Do not always assume that a malodorous condition is related to the sewer system. If the City's sewer system is the cause, clean the mainline to flush the system. If the cause is from another source (e.g. storm drain), notify the appropriate party. Contact the original source of the complaint to inform them of the results of the evaluation.

6.3.4.4 Sewage in Street/Parking Lot

If a call is received reporting sewage in a street or parking lot, respond immediately to determine if the cause is from the City's sewer system. If it has been determined that the overflow is from a private source, inform the responsible party (owner of the private source and/or property) and direct them to have the site cleaned up. If the source of the sewage is illegal RV dumping, notify the Public Works Supervisor.

The first responder should never leave a site where there is sewage in a street or parking lot until the threat of public contact is eliminated and it is clear that the site will be effectively cleaned up by the private party. If it becomes clear that the site will not be effectively cleaned up by the private party, or if it is unclear who the responsible party is, and if there is a risk of public contact, then the first responder is required to initiate cleanup. Maintain proper documentation for use in billing the responsible party.

6.3.5 Restore Flow

Using the appropriate cleaning tools, set up downstream of the blockage and clean upstream from a clear manhole. Attempt to remove the blockage from the system and observe the flows to ensure that the blockage does not recur downstream. Follow SOP for Gravity Sewer Cleaning, included as Appendix C.

If the blockage cannot be cleared, or sewer requires construction repairs to restore flow, then inform supervisor and initiate containment and bypass pumping.

6.3.6 Initiate Spill Containment Measures

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

- Determine the immediate destination of the overflowing sewage.
- Review sewer maps for possible temporary upstream flow diversion bypassing.
- When a spill, leak, and/or overflow occurs, keep sewage from entering the storm drain system to the maximum extent practicable by covering or blocking storm drain inlets and catch basins, or by containing and diverting the sewage away from open channels and other storm drain facilities (using sandbags, inflatable dams, plastic mats, etc.).
- Pump around the blockage/pipe failure/pump station.
- Dike/dam (or sandbag) spill by building a temporary berm to collect spill.
- If overflowing sewage has made contact with the storm drainage system, attempt to contain the spilled sewage by plugging downstream storm drainage facilities.
- Modify these methods as needed to accommodate wet weather conditions where the feasibility of containment may be impacted by both the quantity of sewage and the quantity of storm water runoff.
- Assess the need for public notification and posting as required in Section 6.6.

6.4 Recovery and Clean Up

The recovery and clean up phase begins when the flow has been restored and the overflow of sewage has been stopped.

6.4.1 Water Quality Sampling and Testing

Water quality sampling and testing is done at the request of RWCQB to determine the extent and impact of the SSO. The water quality sampling procedures are:

- Samples should be collected as soon as possible after the request from RWCQB, without delaying the restoration of flow or the containment activities.
- The water quality samples should be collected from upstream of the spill, from the spill area, and downstream of the spill in flowing water (e.g. creeks). The water quality samples should be collected near the point of entry of the spilled sewage and every 100 feet along the shore on impoundments (e.g. ponds).
- A private laboratory will be used to analyze the results to determine the nature and impact of the discharge. Additional samples will be taken to determine when posting of warning signs can be discontinued. The basic analyses should include total coliform, fecal coliform, biochemical oxygen demand (BOD), dissolved oxygen, and ammonia.

6.4.2 Estimate the Volume of Spilled Sewage

Use the methods outlined in Appendices 6-D and 6-E and interviews of any customers who have observed or reported the overflow to estimate the volume of the spilled sewage. Wherever possible, document the estimate using photos of the SSO site before the recovery operation.

6.4.3 Recovery of Spilled Sewage

Remove the spilled sewage using vacuum equipment or use other measures to divert it back to the sanitary sewer system.

6.4.4 Clean Up and Disinfection

When disinfecting a sewage-contaminated area, take every effort to ensure that the disinfectant or sewage treated with the disinfectant is not discharged to the storm drain system or surface waters.

Methods may include blocking storm drain inlets, containing and diverting disinfectant and sewage away from open channels and other storm drain fixtures, and removing the material with vacuum equipment.

Clean up and disinfection procedures below should be implemented to reduce the potential for human health issues and adverse environmental impacts that are associated with an SSO event. The procedures described are for dry weather conditions and should be modified as required for wet weather conditions. Where cleanup is beyond the capabilities of City staff, a cleanup contractor will be used as determined by the Public Works Supervisor or his/her designee.

6.4.4.1 Private Property

Offer assistance with clean up and advise resident or property owner of claim procedures (see Appendices 6-B and 6-C). Review, enter appropriate information and leave the Customer Information Letter with the affected parties.

6.4.4.2 Hard Surface Areas

a) Collect all signs of sewage solids and sewage-related material using rakes, brooms, and shovels.
b) Wash down the affected area with clean water until the water runs clear. Take reasonable steps to contain and vacuum up the wash down water.
c) Disinfect all areas that were contaminated from the overflow using a disinfectant solution. Apply the disinfectant solution using a hand sprayer in amounts adequate to wet the surface but not cause runoff.

Document the volume and application method of disinfectant solution that was employed on the Report of Unauthorized Sanitary Sewer Overflow Form. See Appendix H.

d) Allow area to dry. Repeat the process if additional cleaning is required.
e) Do not apply disinfectant solution during wet weather conditions.

6.4.4.3 Landscaped Areas and Unimproved Natural Vegetation

a) Collect all signs of sewage solids and sewage-related material either by hand or with the use of rakes, brooms, or shovels.
b) Wash down the affected area with clean water until the water is clear. The flushing volume should be approximately three times the estimated volume of the spill.
c) Take reasonable steps to contain and vacuum up the wash down water.
d) Allow the area to dry. Repeat the process if additional cleaning is required.
e) Do not apply disinfectant solution to landscaped areas or unimproved natural vegetation.

6.4.4.5 Wet Weather Modifications

Omit flushing during heavy storm events with heavy runoff where flushing is not required.

6.4.5 Follow-Up Activities

If sewage has reached the storm drain system, sewer cleaning equipment should be used to vacuum/pump out the catch basin and any other portion of the storm drain that may contain sewage.

In the event that an overflow occurs at night, the location should be re-inspected first thing the following day. City Staff should look for any signs of sewage solids and sewage-related material that may warrant additional cleanup activities.

6.5 Public Notification

The public that may be at risk should be warned to avoid contact with sewage or sewage-contaminated water from an SSO which may cause illness. Posting signs and placing barricades may be necessary to keep vehicles and pedestrians away from spilled sewage. Post the warning signs and block access to the contaminated water areas with “Caution” tape and barricades. Do not remove the signs until directed by the Public Works Supervisor or Lead Utility Maintenance Worker.

Major spills may warrant broader public notice. The City Manager will authorize contact with local media when significant areas may have been contaminated by sewage.

6.6 Failure Analysis Investigation

The objective of the failure analysis investigation is to determine the "root cause" of the SSO and to identify corrective action(s) needed that will reduce or eliminate future potential for the SSO to recur. The investigation should include reviewing all relevant data to determine appropriate corrective action(s). The investigation should include:

- Reviewing and completing the SSO Spill Reporting Form;
- Reviewing past maintenance records;
- Reviewing available photographs;
- Conducting a CCTV inspection to determine the condition of the line segment immediately following the SSO and reviewing the video and logs; and
- Interviewing staff who received and responded to the spill.
- Interviews with persons reporting and/or observing the spill in the field.

6.7 SSO Categories

The California SWRCB has established guidelines for classifying and reporting SSOs. Reporting and documentation requirements vary based on the type of SSO. Attachment "A" of the SWRCB Fact Sheet for Order No. WQ-2013-0058-EXEC has identified the following categories of spills as shown in Table 6-6.

6.8 SSO Documentation and Reporting

All SSOs should be thoroughly investigated and documented for use in managing the sewer system and meeting established reporting requirements. City staff will maintain a SSO file management system that includes a separate file for each SSO with all documents resulting from the spill and shall maintain a log of all SSO files for ease of management and to comply with regulations regarding SSO reporting. Attachment "A" of SWRCB Order No. WQ 2013-0058-EXEC, has amended the monitoring and reporting program (MRP), which is summarized in Table 6-7.

Table 6-6 Spill Categories and Definitions

CATEGORIESs	**DEFINITIONS** [see Section A, page 5 of Order 2006-0003-DWQ, for SSO Definition]
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: ▪ Reach surface water and/or reach a drainage channel tributary to a surface water; or ▪ Reach a Municipal Separate Storm Sewer System (MS4) and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or groundwater infiltration basin (e.g., infiltration pit, percolation pond).
Category 2	Discharges of untreated or partially treated wastewater of **1,000 gallons or greater** resulting from an enrollee's sanitary sewer system failure or flow condition that **do not** reach surface water, a drainage channel, or a MS4 unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.
Category 3	All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition.
Private lateral Sewage Discharge (PLSD)	Discharges of untreated or partially treated wastewater resulting from blockages or other problems **within a privately owned sewer lateral** connected to the enrollee's sanitary sewer system or from other private sewer assets. PLSDs that the enrollee becomes aware of may be voluntarily reported to the CIWQS online database.

Table 6-7 Notification, Reporting, Monitoring & Record Keeping Requirements

ELEMENT	REQUIREMENT	METHOD
NOTIFICATION	Within 2 (two) hours of becoming aware of any Category 1 SSO **greater than or equal to 1,000 gallons discharged to surface water or spilled in a location where it probably will be discharged to surface water**, notify the California Office of Emergency Services (Cal-OES) and obtain a notification control number	▪ Call Cal-OES at: (800) 852-7550 ▪ Call LA County of Public Health at (213) 974-1234
REPORTING	▪ Category 1 SSO: Submit draft report within three business days of becoming aware of the SSO and certify within 15 calendar days of SSO end date. ▪ Category 2 SSO: Submit draft report within 3 (three) business days of becoming aware of the SSO and certify within 15 calendar days of the SSO end day. ▪ Category 3 SSO: Submit certified report within 30 calendar days of the end of month in which SSO occurred. ▪ SSO Technical Report: Submit within 45 calendar days after the end date of any Category 1 SSO in which 50,000 gallons or greater are spilled to surface waters. ▪ "No Spill " Certification: Certify that no SSOs occurred within 30 calendar days of the end of the month. ▪ Collection System Questionnaire: Update and certify every 12 (twelve) months.	Enter into the CIWQS online SSO database: (http://ciwqs.qaterboards.ca.gov/), certified by enrollee's LRO.
WATER QUALITY MONITORING	▪ Conduct water quality sampling within 48 hours after initial SSO notification for Category 1 SSOs in which 50,000 gallons or greater are spilled into surface waters.	Water quality results are required to be uploaded into CIWQS for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters.
RECORD KEEPING	▪ SSO event records. ▪ Records documenting SSMP implementation and changes/updates to the SSMP. ▪ Records to document Water Quality Monitoring for SSOs of 50,000 gallons or greater spilled to surface waters.	Self-maintained records shall be available during inspections or upon request.

Refer to Attachment "A" of SWRCB Order No. WQ 2013-0058-EXEC for details of each of the elements in this table.

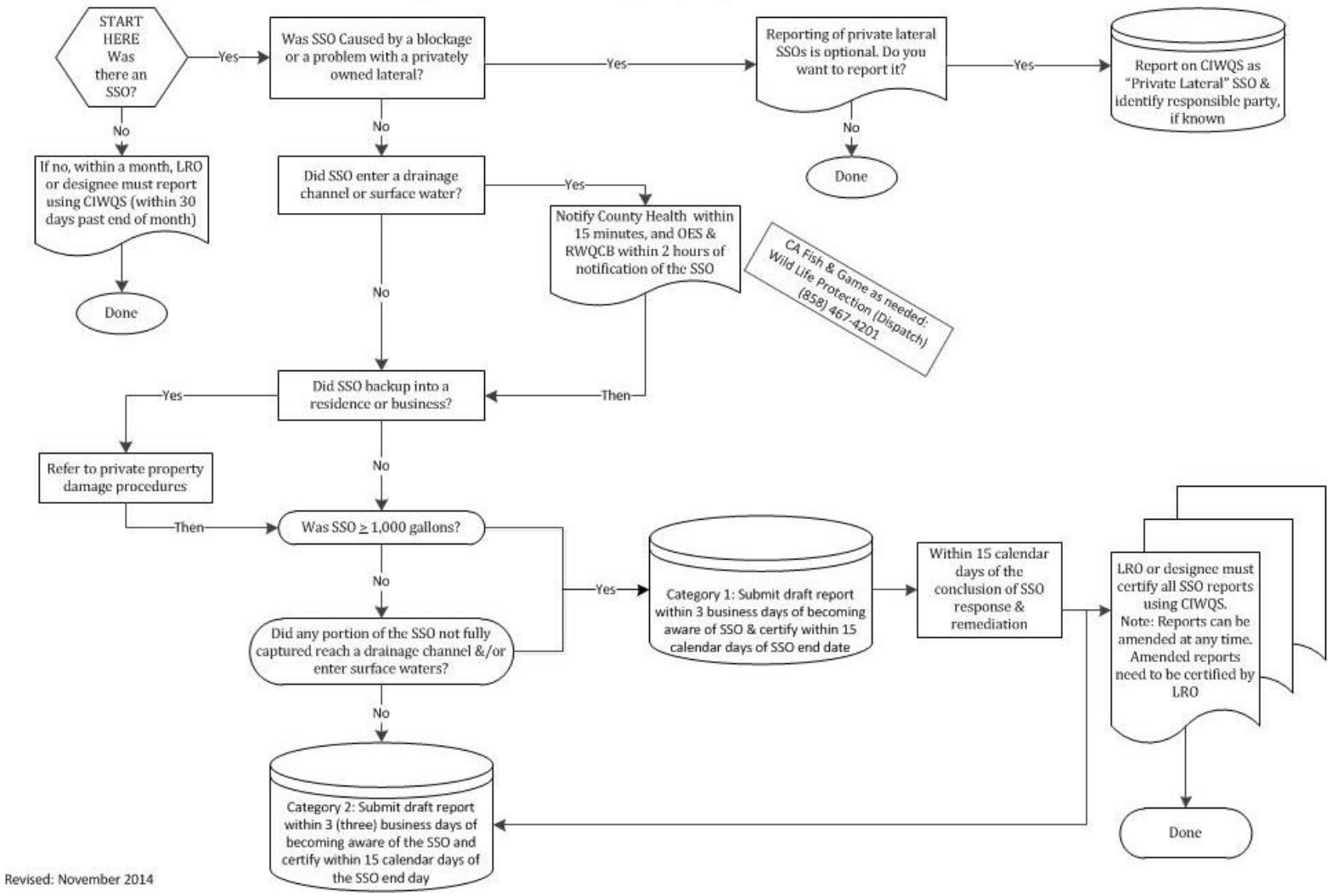


Figure 6-2 SSO External Reporting Requirement Flow Chart

6.8.1 CIWQS Not Available

In the event that CIWQS is not available, the City will fax all required information to the Regional Water Quality Control Board (RWQCB) in accordance with the time schedules identified above in Figure 6-2. In such event, the City must also enter all required information into CIWQS as soon as practical. The fax number is (760) 241-7308.

6.8.2 Internal SSO Documentation

The Public Works Supervisor will prepare a file for each individual SSO and add the event to the City SSO Log using the unique City event number for the event or the EMA Control Number. The file includes the following information:

- Initial service call information.
- Report of Unauthorized Sewer System Overflow Form
- CMMS (OASIS) Spill Report and CMMS work order.
- Copy of CIWQS Report.
- Volume estimate.
- Appropriate maps showing the spill location.
- Photographs of spill location.
- Post-SSO CCTV video tape and evaluation.
- Interviews with customers and the public.

6.8.3 External SSO Record Keeping Requirements

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

- Copy of Certified CIWQS report;
- All original recordings from continuous monitoring instrumentation;
- Service call records and complaint logs of calls received by the City;
- SSO calls;
- SSO records;
- SSO CCTV results and reports
- Work orders, work completed, and any other maintenance records from the previous five years which are associated with responses and investigations of system problems related to SSOs;
- A list and description of complaints from customers or others from the previous five years; and

- Documentation of performance and implementation measures for the previous five years.

If water quality monitoring is conducted by the City or its agent(s), as a result of any SSO, records of monitoring information shall include:

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

6.9 Post SSO Event Debriefing

Every SSO event is an opportunity to evaluate the response and reporting procedures. Each overflow event is unique, with its own elements and challenges including volume, cause, location, terrain, and other parameters.

After major SSO events, all of the participants, from the person who received the call to the last person to leave the site, meet to review the procedures used and to discuss what worked and where improvements could be made in responding to and mitigating future SSO events. The results of the debriefing are tracked to ensure the action items are completed.

6.10 Equipment

This section provides a list of specialized equipment that may be used to support this OERP.

- Closed Circuit Television (CCTV) Inspection Unit – A CCTV Inspection Unit can help determine the root cause of SSOs from gravity sewers.
- Camera – A digital or disposable camera can be used to record the conditions upon arrival, during clean up, and upon departure.
- Emergency Response Truck – A utility body pickup truck can be used to store and transport the equipment needed to effectively respond to sewer emergencies. The equipment and tools should include spilled sewage containment and clean up materials.
- GPS Unit – A hand held GPS unit can be used to determine the coordinates of spills for use in meeting RWQCB SSO reporting requirements.
- Portable Pumps and Hoses – Portable pumps and piping will be used to pump around failed facilities and to recover spilled sewage.

- Combination Sewer Cleaning Truck – A combination high velocity sewer cleaning truck with vacuum tank can be used to clear blockages in gravity sewers, vacuum spilled sewage, and wash down the impacted area following the SSO event.

6.11 SSO Response Training

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

6.11.1 Initial and Annual Refresher Training

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

6.11.2 SSO Response Drills

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

6.11.3 SSO Training Record Keeping

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

6.12 Contractors Working on City Sewer Facilities

City inspectors and contractor personnel will be made aware of and required to follow the Emergency Response Plan. Any training identified in the City's OERP will be given or required. All contractor personnel will be required to receive training in the contractor's Overflow Response Plan and to follow it in the event that they cause or observe an SSO.

Appendix H Sanitary Sewer Overflow Form

City of Lancaster
Report of Unauthorized Sanitary Sewer Overflow Form

Private Spill: ☐ Yes ☐ No

Private Discharger:

Company: _____

Contact Person: _____

Physical Address: _____

Mailing Address: _____

Telephone: _____

City of Lancaster Sanitary Sewer Overflow: ☐ Yes ☐ No

If Yes, City of Lancaster – Development Services Department
44933 Fern Avenue, Lancaster, CA 93534
Telephone: (661) 723-6000

Date of Spill: _____ **Time of Spill** (from, to)**:** _____

Location of Spill (Use one or more of the following locator methods)**:**

Address: _____

Section/Township/Range: _____

Assessor's Parcel No.: _____

GPS Coordinates: _____

Map showing site location attached? ☐ Yes ☐ No

Aerial Photo showing extent of spill attached? ☐ Yes ☐ No

City Employee Reporting Spill:

Select a NameSelect a NameSelect a NameSelect a NameSelect a NameSelect a NameSelect a NameSelect a NameSelect a Name

Agency Notifications, Verbal

☐ **Within 15 Minutes,** LA County Health: (213) 974-1234 **or** (626) 430-5420

Person Notified: ______________________

Date & Time: ______________________

Name of person who notified: *Select a NameSelect a NameSelect a NameSelect a NameSelect a NameSelect a NameSelect a NameSelect a Name*

Ticket Number: ______________________

☐ State Office of Emergency Services (OES): (800) 852-7550 **or** (916) 262-1621

Person Notified: ______________________

Date & Time: ______________________

Name of person who notified: *Select a NameSelect a NameSelect a NameSelect a NameSelect a NameSelect a NameSelect a NameSelect a Name*

OES Spill Number: ______________________

☐ Lahontan Regional Water Board: (760) 241-6583 **or** (530) 542-5400

Person Notified: ______________________

Date & Time: ______________________

Name of person who notified: *Select a NameSelect a NameSelect a NameSelect a NameSelect a NameSelect a NameSelect a NameSelect a Name*

Ticket Number: ______________________

☐ Others (Fish & Wildlife, SWRCB):

Spill Magnitude: *Choose an item.*

SSO Source: *Select . . .Select . . .Select . . .Select . . .Select . . .Select . . .Select . . .Select . . .Select . . .*

Final Spill Destination: *Select . . .Select . . .Select . . .Select . . .Select . . .Select . . .Select . . .Select . . .Select . . .*

Receiving Waters Description:

Cause of SSO (Check all that apply):

☐ Roots in City Main	☐ Grease in City Main	☐ Vandalism to City Main
☐ Construction Damage in City Main	☐ City Pump Station Failure	☐ Surcharged LASCD trunk line
☐ Failure to adequately maintain private lateral/food service establishment grease trap/interceptor		☐ Private equipment failure
☐ Operator error	☐ Inadequate design	
☐ Other (explain)		

Description of spill: _____

Gallons spilled: _____

Method used to determine above: ☐ Measured volume ☐ Duration/Flow rate

☐ Other (explain)

Gallons recovered: _____

Observed Effects of Spill:

Injuries or human exposure:	☐ Yes	☐ No
Evacuations required:	☐ Yes	☐ No
Water systems shut down:	☐ Yes	☐ No
Fish or wildlife killed inadvertently:	☐ Yes	☐ No
Odors or gases:	☐ Yes	☐ No
Vegetation damaged:	☐ Yes	☐ No
Other adverse effects (environmental, discolored water, sheen, explosion, etc.):	☐ Yes	☐ No

Explain, if "yes" to any of above:

Photos taken: ☐ Yes ☐ No Attached: ☐ Yes ☐ No

Area Barricaded: ☐ Yes ☐ No If barricaded, for how long:

Signs posted: ☐ Yes ☐ No Samples taken: ☐ Yes ☐ No

If samples taken, provide details (types, locations, date collected, if chain-of-custody forma attached, if analyzed by California certified lab, whether samples tested to appropriate detection levels, sample ID numbers, parameters analyzed, copies of lab report attached):

Describe spill stoppage and containment (how, when where, what material):

Describe cleanup & disinfection (include start & end times, type & amount of disinfectant, decontamination/disinfection details, equipment & facility repairs, soil & water cleanup, other corrective actions. If temporary storage took place, note where, how long, & how stored. If permanent disposal took place, indicate where & when):

If City SSO, spill recurrence prevention plan:

A CCTV will be performed on City's mainline to determine location and problem, then preventive maintenance schedule will be established or, if already established for this mainline, will be adjusted to reflect current conditions. If necessary, repairs to mainline will be scheduled. If overflow was caused by FOG, City will attempt to determine source and remedy under City's FOG Ordinance No. 926.

Additional Information:

Attach maps, aerial photos, sketches: (Show City and Private mainlines & manholes, intersections, location of stoppage, area affected, etc.)

Appendix I Private Property Damage Procedures

Customer Relations Guidelines

It is important for employees to communicate effectively and in a timely manner with the City's customers, especially in a sewage backup situation. How we communicate – on the phone, in writing, or in person – is how we are perceived. Good communication with the homeowner results in greater confidence in our ability to address the problem satisfactorily, less time to resolve the claim, and less damage done to the property.

As a representative of the City, you will occasionally have to deal with an irate homeowner. A backup is a stressful event and even a reasonable homeowner can become irate should he/she perceive us as being indifferent, uncaring, unresponsive, or incompetent.

Although sometimes difficult, effective management of a sewage backup situation is critical. If it is not managed well, the situation can end up in a costly, prolonged process with the homeowner. We want the homeowner assured that we are responsive and that the homeowner's best interest is a top priority.

Communication Tips

1. Give the homeowner ample time to explain the situation or to vent. Show interest in what the homeowner has to say, no matter how many times you have heard it before, or how well you understand the problem.
2. As soon as possible, let the customer know that you will determine if the source of the sewer backup is in the sewer main and, if it is, will have it corrected as quickly as you can.
3. Acknowledge the homeowner's concerns. For example, if the homeowner seems angry or worried about property damage, say something like, "I understand you're concerned about the possible damage to your property, but a professional cleanup crew can restore the area, and if it is determined that the City is at fault, the property owner has the right to file a claim for any reasonable repairs or losses resulting from this incident".
4. Express regret for any inconveniences caused by the incident, but do not admit fault.
5. As much as possible, keep the homeowner informed on what is being done and will be done to correct the problem.
6. Keep focused on getting the job done in a very professional manner. Don't wander from the problem with too much unnecessary small talk with the homeowner.
7. Don't find fault or lay blame on anyone or the City.
8. Make sure someone follows up with a telephone call to ensure everything is being handled as it should be.

Before you leave, make sure the homeowner has the name and telephone number of someone at the City to call if he/she has questions or wants additional information. The customer information letter and the City claim form contains this information and you should take the time to review this with the homeowner.

Appendix J Customer Information Letter

Dear Mr./Ms.: _____ Date: _____

Address: _____

We recognize sanitary sewer backflow incidents can be stressful. The City of Lancaster (City) has prepared this brief set of instructions to help you minimize the impact of the loss by responding promptly to the situation.

The City is not responsible for clean-up charges or damages caused by blockages in the property owner's sewer lateral or caused by Code violations. At this time, the City is investigating the cause of the loss and does not assume liability for damages. However, if the investigation determines the City is responsible for this incident, the costs you incur for reasonable and necessary clean-up will be included in the settlement of your claim. Regardless of whether you or the City is responsible for the loss, it is up to you to arrange for the repair of your property and to present a claim for the City's consideration.

You or the property owner should immediately contact a contractor for clean-up of the affected areas. If you do not know of a company to call for service, the following emergency restoration companies are available to respond:

- ☐ A 1 Professional (661) 424-9312
- ☐ American Craftsman restoration (661) 295-5176
- ☐ Emergency Service Restoration (800) 577-7537 (throughout California)
- ☐ Kaping Construction (661) 265-7200
- ☐ Restoration Management Co. (800) 400-5058 (located in Orange County)
- ☐ Service Master Clean (661) 299-9090
- ☐ Servpro (661) 272-1499
- ☐ United Restoration Services Inc. (661) 945-2555

This list is provided as a resource only. The City does not require or endorse the use of any of these contractors. This list is not to be construed as exclusive, comprehensive or limiting in any way. Qualified contractors can be found I the Yellow Pages under "Water Damage Restoration" or "Fire & Water Damage Restoration". However, be sure you hire a contractor with experience in sewer backups and enough resources to get the job done quickly.

What you need to do now:

- » Contact a restoration contractor for cleanup and removal of affected surfaces.
- » Do not attempt to clean the area yourself, let the contractor you hire handle this.
- » Keep people and pets away from the affected area(s).
- » Turn off heating/air conditioning systems.
- » Prevent any material from reaching floor vents to prevent contamination.
- » Do not remove items from the contaminated area—the contractor you hire will handle these contents.
- » Contact your homeowners' insurance carrier to report a claim.
- » If you wish to file a claim for damages with the City, do so as soon as practical with _____ at the City of Lancaster, _____, Lancaster, CA _____, (___)___-_____. The California Government Code, Sections 900—960 requires filing a written claim and outlines specific time lines and notice procedures that must be used.

I/We acknowledge receipt of this letter:

Employee Signature: _____ Date: _____

Customer Signature: _____ Date: _____

Appendix K Methods for Estimating Spill Volume

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

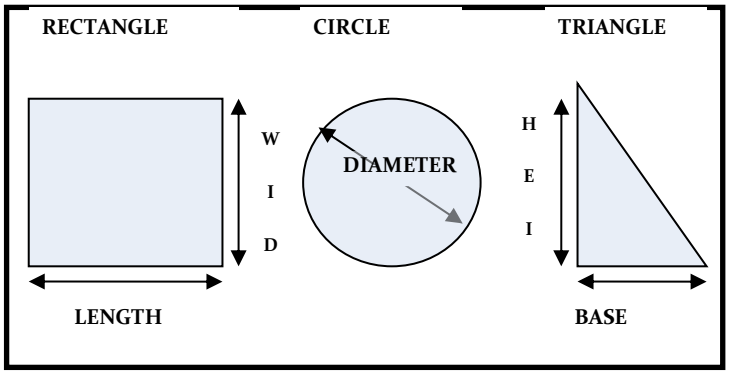
Method 1 Eyeball Estimate

The volume of small spills can be estimated using an "eyeball estimate". To use this method imagine the amount of water that would spill from a bucket or a barrel. A bucket contains 5 gallons and a barrel contains 50 gallons. If the spill is larger than 50 gallons, try to break the standing water into barrels and then multiply by 50 gallons. This method is useful for contained spills up to approximately 200 gallons.

Method 2 Measured Volume

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

Common Shapes and Dimensions



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

Step 2 Measure or pace off the dimensions.

Step 3 Measure the depth at several locations and select an average.

Step 4 Convert the dimensions, including depth, to feet.

Step 5 Calculate the area in square feet using the following formulas:

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

Circle: Area = diameter (feet) x diameter (feet) x 0.79

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

Step 6 Multiply the area (square feet) times the depth (in feet) to obtain the volume in cubic feet.

Step 7 Multiply the volume in cubic feet by 7.5 to convert it to gallons.

Method 3 Duration and Flowrate

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

Duration: The duration is the elapsed time from the time the spill started to the time that the flow was restored.

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

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

b) Changes in flow on a downstream flowmeter can be used to establish the start time. Typically the daily flow peaks are "cut off" or flattened by the loss of flow. This can be identified by comparing hourly flow data during the spill event with flow data from prior days.

c) Conditions at the spill site change over time. Initially there will be limited deposits of toilet paper and other sewage solids. After a few days to a week, the sewage solids form a light-colored residue. After a few weeks to a month, the sewage solids turn dark. The quantity of toilet paper and other materials of sewage origin increase over time. These observations can be used to estimate the start time in the absence of other information. Taking photographs to document the observations can be helpful if questions arise later in the process.

d) It is important to remember that spills may not be continuous. Blockages are not usually complete (some flow continues). In this case the spill would occur during the peak flow periods (typically 6 am to 9 am and 4 pm to 8 pm each day). Spills that occur due to inflow and infiltration in excess of capacity will occur only during, and for a short period after, heavy rainfall.

End Time: The end time is usually much easier to establish. Field crews on-site observe the "blow down" that occurs when the blockage has been removed. The "blow down" can also be observed in downstream flowmeters.

Flowrate: The flowrate is the average flow that left the wastewater collection system during the time of the spill. The flowrate is expressed in gallons per minute.

There are three common ways to estimate the flowrate:

a) The San Diego Manhole Flowrate Chart: This chart, included as Appendix L, shows sewage flowing from manhole covers at a variety of flowrates. The observations of the field crew can be used to select the appropriate flowrate from the chart. If possible, photographs are useful in documenting the basis for the flowrate estimate.

b) Flowmeter: Changes in flows in downstream flowmeters compared to their typical readings can be used to estimate the flowrate during the spill.

c) Counting Connections: Once the location of the complete blockage is known, the number of upstream connections can be determined from the sewer maps. Multiply the number of connections by 200 to 250 gallons per day per connection or 8 to 10 gallons per hour per connection.

For example:

22 upstream connections x 9 gallons per hour per connection

= 198 gallons per hour / 60 minutes per hour

= 3.3 gallons per minute

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

For example:

Spill start time = 11:00

Spill end time = 14:00

Spill duration = 3 hours

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

Appendix L Manhole Overflow Flowrate Guide

City of San Diego
Metropolitan Wastewater Department

Reference Sheet for Estimating Sewer Spills from Overflowing Sewer Manholes

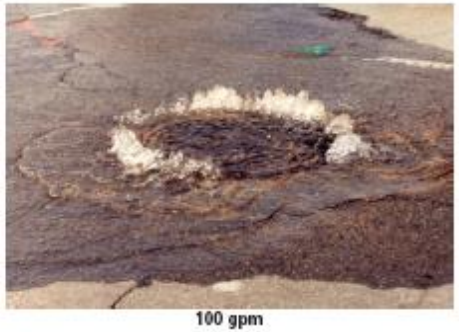
All estimates are calculated in gallons per minute (gpm)

Wastewater Collection Division
(619) 654-4160


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

Appendix M Sample Warning Sign

DANGER!

CONTAMINATED WATER

KEEP OUT

AGUA CONTAMINADA

ALEJESE

PELIGRO!

City of Lancaster Development Services Department
Public Works Division- Utility Services Section
(661) 723-5985

Chapter 7 FOG Control Program

Chapter 7 of this SSMP addresses the requirements included in Subsection D.13.(vii) of the Order. The requirements state:

a) *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:*

b) *An implementation plan and schedule for a public education outreach program that promotes proper disposal of FOG:*

c) *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;*

d) *The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG;*

e) *Requirements to install GREASE REMOVAL DEVICEs (such as grease traps or grease interceptors), design standards for the removal devices, maintenance requirements, BMP requirements, record keeping and reporting requirements;*

f) *Authority to inspect grease producing facilities, enforcement authorities, and whether the Enrollee has sufficient staff to inspect and enforce the FOG ordinance;*

g) *An identification of sanitary sewer system sections subject to FOG blockages and establishment of a cleaning & maintenance schedule for each section; and*

h) *Development and implementation of source control measures for all sources of FOG discharged to the sanitary sewer system for each section identified in (f) above,*

7.1 Extent and Nature of City FOG Control Program

City Ordinance No. 926 implements FOG control measures within the City boundary. This section of the SSMP presents the extent and nature of SSOs related to FOG and the need for a FOG Control Program.

There are over 300 commercial FOG sources (FSEs) in the City's wastewater collection system service area (see Figure 2-1). There are likely other FOG sources (e.g. commercial kitchens, caterers, institutional kitchens) that are also discharging FOG to the City's sewer system. The City frequently cleans certain sewer lines known to be prone to blockages, in order to prevent SSOs due to the deposition of FOG and other causes. The City adds sewer lines to its preventive maintenance program following blockages or SSO events and in response to observations of grease or other debris during CCTV inspections or during proactive cleaning of sewers.

The City's preventive maintenance approach to minimizing FOG-related SSO events has been effective. Through following our proactive plan, we experienced consistently less spill numbers and volumes per spill than the statewide and regional average SSOs, based on the Statewide SSO Reduction Program Report for FY 2013-14, which can be accessed at:
http://www.swrcb.ca.gov/water_issues/programs/sso/docs/compliance_report_fy1314.pdf

The City will remain proactive in ensuring that FOG-related SSOs are kept to a minimum by initiating additional FOG control measures to support/enhance its current efforts to control FOG in the sewer system. These efforts may include frequent inspections of FSEs and residential outreach.

7.2 FOG Control Program Activities

The City's FOG Control Program currently consists of providing preventive maintenance for its problematic gravity sewers. The City will continue to collect data related to sewer service calls, sewer cleaning activities, SSOs, and CCTV inspections to identify problematic gravity sewer lines. This data will be analyzed and problematic lines will be cleaned more frequently. Cleaning schedules for these sections will be determined based on severity, ranging from monthly to semi-monthly. The City will evaluate the effectiveness of its FOG Control Program and public outreach program during future SSMP updates. Table 7-1 lists the activities that the City will include in its current FOG Control Program.

Table 7-8 Summary of FOG Control Program Activities

Focus	Activity
Commercial Sources	Optimize sewer cleaning using CMMS.
	Repair/replace problem sewers identified during CCTV inspection program.
	Make information available to FSEs regarding their impact on the sewer system and BMPs.
	Require problematic FSEs to install GRDs using authority provided by California Plumbing Code and Municipal Code, Chapter 13.10.
	Identify FOG disposal sites and make information available to liquid waste haulers.
Residential Sources	Optimize sewer cleaning using CMMS.
	Repair/replace problem sewers identified during CCTV inspection program.
Plan Review	Review plans for new and remodeled FSEs and require installation of GRDs including inspection ports using the sizing criteria in the California Plumbing Code.
Sewer System Performance	Investigate all blockage and SSO events to determine root cause. In the case of FOG-related blockages and SSO events, the investigation will attempt to identify if the source is an FSE.
	Gather sewer system performance information for next SSMP update.
Retrofit Problematic FSEs with GRD	Require existing FSEs that have caused repeated blockages or SSOs to install and maintain appropriate GRDs.

7.2.1 FOG Preventive Maintenance

The City's preventive maintenance program will continue its focus on problematic sewer locations. The City will employ the methods outlined in Chapter 4 - Operations and Maintenance Program to optimize its preventive maintenance activities.

7.2.2 GRD Installation, Design, Maintenance, and Record Keeping

The City has developed and implements a robust FOG control program starting from project planning, design, construction and commissioning, which **proactively prevents discharge of FOG in City's sewer lines. The City has** adopted Municipal Code Section 13.10 and it can use that authority to require new and remodeled or problematic FSEs to install GRDs.

7.3 FOG Disposal Facilities

The list of identified liquid waste haulers and FOG disposal sites is included as Appendix N. The City will update the list annually and it will make the information available on its website.

The number and proximity of the disposal sites is adequate to handle liquid wastes being removed from current grease removal equipment within the City.

7.4 Staffing

The City maintains a staffing adequate to perform routine maintenance and respond to an SSO. A minimum of four utility maintenance workers are on staff during all regular work day. Inspectors are also utilized for FSE FOG inspections.

Appendix N Grease Haulers and FOG Disposal Facilities

Grease Haulers and FOG Disposal Facilities serving the Lancaster area are shown below.

Grease Interceptor/Grease Trap Cleaning	
Alex Sanitation	(661) 942-2306
American Oil Co.	(800) 464-8297
Baker Commodities, Inc.	(323) 268-2801
Darling International, Inc.	(323) 583-6311
Enviro Tech	(818) 882-9091
Granada Grease Co.	(714) 839-6900
HTS, Inc.	(562) 906-0588
JCP Services	(323) 587-4199
Nottingham MC Co. of So. California	(323) 283-8821 (626) 799-4122
Roberts Liquid Disposal	(562) 864-2953
Southwest Processor, Inc.	(323) 269-9876
United Pumping Service	(626) 961-9326
J.C.'s Grease Buyers	(951) 736-1198
Bob Walton	(760) 949-7887
J.N. Grease Service, Inc.	(951) 343-1221
So. Cal. Pumping	(866) 479-4976

Waste Oil Pickup	
Bob Walton	(760) 949-7887
Pipe Maintenance Service, Inc.	(951) 738-0041, (877) 793-6272
JB Grease	13658 Terra Bella St., Arleta, CA 91331
One More Time, Inc.	(800) 624-5504
J.C.'s Grease Buyers	(951) 736-1198
J.K. Collection	(213) 389-0505
So. Cal. Pumping	(866) 479-4976
EnviroKlean	(877) 97-GREASE
City of Lancaster Maintenance Yard (Drop-off Only)	(661) 723-6055

Chapter 8 System Evaluation and Capacity Assurance Plan

Chapter 8 of this SSMP addresses the requirements included in Subsection D.13. (viii) of the Order. The requirements state:

(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-term and long-term CIP to address identified hydraulic deficiencies, including prioritization, alternatives analysis, and schedules. The CIP may include increases in pipe size, inflow and infiltration (I/I) reduction programs, increases and redundancy in pumping capacity, and storage facilities. The CIP shall include an implementation schedule and shall identify sources of funding.

(d) Schedule: The City 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 (of the GWDR).

8.1 Capacity Evaluation

As part of the original SSMP, a comprehensive capacity evaluation using a dynamic hydraulic model was performed to quantify flows and capacities in all major sewers under current and future flow conditions. This evaluation and its findings are documented in the report: *City of Lancaster Sewer Master Plan*, September 2009 (Master Plan).

The conclusion of the capacity evaluation was that Lancaster's sewer system has adequate capacity for current and future flows through at least 2030, and that no capital improvements are required at this time for the purposes of increasing sewer capacity.

In the event that new sanitary sewer projects are proposed, the City's Engineering Design Guidelines, Policies and Procedures provide guidelines for public and private development. Section 2.4 of that document identifies design criteria for new sewer systems including unit flow factors, peaking factors, hydraulic friction factors, minimum slopes, and maximum allowable depth of flow. Prior to the approval of new sewers, the City requires that developers perform a sewer area study that applies these criteria to confirm the adequacy of the proposed sewers.

8.2 Capacity Enhancement Measures and Schedule

Because of the uncertainty in the wet weather flow estimates and the potential for capacity problems in the CSD-14 system in the future, the City has installed surcharge monitors at eight locations inside sewer manholes that are predicted to surcharge, as well as in City manholes that are closest to exceeding capacity criteria. The monitor locations are described in the Master Plan and may be modified over time as initial data is gathered and assessed. These monitors will be checked after major storms to determine if surcharging actually occurred. The City will share its modeling and monitoring findings with CSD-14, who are responsible for ensuring that the trunk sewers have adequate capacity.

8.3 Capital Improvement Program

The City maintains a robust CIP. When sufficiently damaged, deteriorated, or near capacity sewer facilities are identified, a CIP Project is developed. A short term repair program would be completed in two years or less, while a long term repair program would require longer than two year for completion. Priorities and timing are based upon necessity and available budget. Slip lining, point repair, pipe bursting, and replacement are included as methods that may be employed to improve the sewer system.

Chapter 9 Monitoring, Measurement, and Program Modifications

Chapter 9 of this SSMP addresses the requirements included in Subsection D.13.(ix) of the Order. The requirements state:

a) *Maintain relevant information that can be used to establish and prioritize appropriate SSMP activities;*

b) *Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP;*

c) *Assess the success of the preventative maintenance program;*

d) *Update program elements, as appropriate, based on monitoring or performance evaluations; and*

e) *Identify and illustrate SSO trends, including: frequency, location, and volume.*

9.1 Performance Measures

Performance measures show average annual basic maintenance measurements and SSO data. The indicators that the City uses to measure the performance of its wastewater collection system and the effectiveness of its SSMP are:

- Total number of SSOs and SSO rate per 100 miles per year;
- Portion of SSOs for each cause (roots, grease, debris, pipe failure, capacity, lift station failure, vandalism, and other);
- Portion of sewage contained compared to total volume spilled,
- Portion of spilled sewage discharged to surface water, and
- Planned to actual performance for preventive maintenance as a percentage.

Table 9-1 shows basic maintenance measurements and SSO data averaged over the past six years. Table 9-2 shows Lancaster's average SSO data compared to the latest average SSO data for our region (Lahontan Region 6).

Figure 9-1 shows a comparison of the City SSOs/100 miles to Lahontan Region 6. The number of SSOs within the City are only about a quarter of the Region's average. Figure 9-2 compares the average volume spilled per SSO between the City and Lahontan Region 6. It can be seen that the City's volume spilled per SSO is only about one-tenth of the Region's average. This is because of our preventive maintenance and inspections that catch problems when still small and our public outreach that educates everyone to report SSOs. Also our quick response time and well trained crews insure the spill volumes in SSOs are minimal.

Table 9-9 Sewer System Performance Averages from FY 08/09 to FY 13/14

Sewer System Performance	
Pipe Cleaning:	
Pipe Flushing	303,811 LF, or 57.5 Miles
Root Removal	148,699 LF, or 28.2 Miles
Closed-Circuit TV Inspection:	118,066 LF, or 22.4 Miles
Manholes:	
Inspected	1,744
Repaired	19
Vermin Abatement	848 (began last fiscal year)
Sewer Overflow (SSOs):	4.67
Annual SSO Rate (SSO/100 miles of pipe)	1.11
Portion of SSO Runoff Contained	98%
Main SSO Causes	
Grease	91%
Roots	9%

Table 9-10 Lancaster vs Lahontan region 6 SSOs

Region	Total Size of Collection System (miles)	Number of SSO Events	Volume of all SSOs (gallons)	Average Volume/SSO	Average SSOs/100 miles
Lahontan Region 6 (2011)	3,030	115	1,604,507	13,952	3.8
Lancaster Average	417	4.2	6,515	1,564	1.0

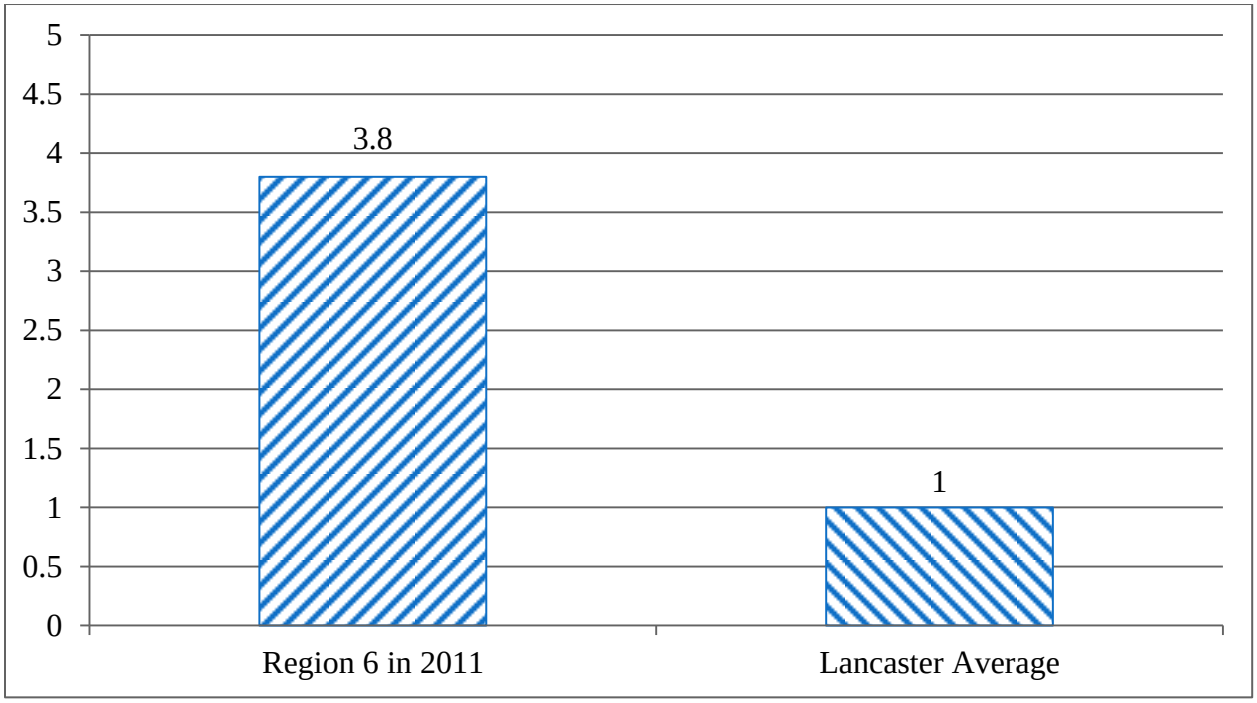


Figure 9-1 Average SSOs Per 100 Miles

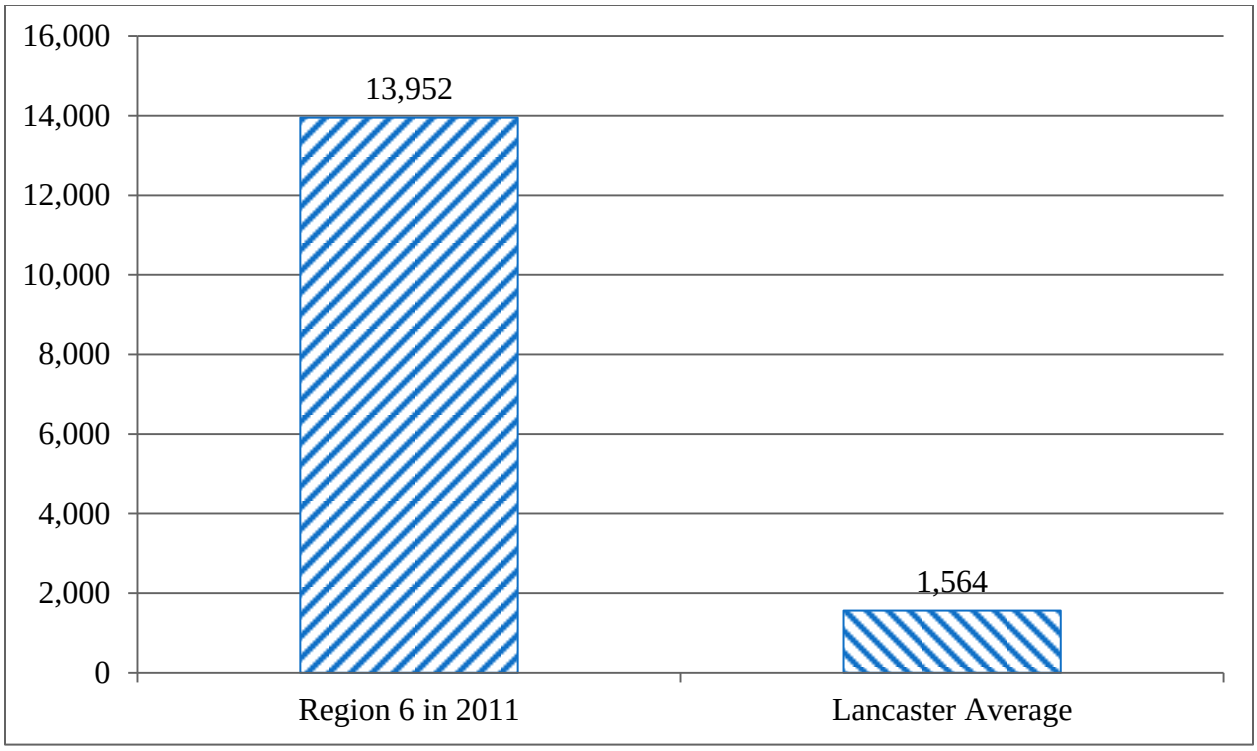


Figure 9-2 Average Volume per SSO in Gallons

9.2 Record Keeping

At the end of the work day, the sewer crew performs the following as part of keeping and maintaining records:

a) Inspect the equipment and tools for problems.

b) Report any problems with equipment, tools, or sewers that were cleaned during the day to the lead worker or Public Works Supervisor.

c) Turn in all completed Sewer Cleaning/Inspection Work Order Forms to the Public Works Supervisor at end of shift.

Data Entry of Cleaning Operations

a) Public Works Supervisor submits all completed and approved work orders and inspection forms to the administrative staff for entry into the City CMMS system.

b) Administrative staff enters all data within 10 days of receipt of forms and produces final reports for management QA/QC review and approval.

c) Administrative staff files all records and reports and retains as required by the laws governing retention of records and reports.

9.3 Performance Monitoring and Program Changes

City will compare annual measurements against previous year's averages to determine if a greater number of SSOs occurred in the year compared to the average year and if so, if they may be attributed to any change in maintenance activities. Future activities may be changed depending upon the outcome of that evaluation.

9.4 SSMP Updates

This is the first update to the City's SSMP. City Staff will seek approval from the City Council for any significant changes to the SSMP. The authority for approval of minor changes such as employee names, contact information, or minor procedural changes is delegated to the Utility Services Manager.

The City will certify that it has completed SSMP updates using CIWQS. Copies of the current SSMP document will be available to all interested parties on the City's website (www.cityoflancasterca.org), at the Lancaster Public Works Maintenance Yard located at 615 West Avenue H, and at City Hall located at 44933 Fern Avenue during normal business hours.

9.5 Sewer Information in GIS

The City will annually, or sooner, as appropriate, plot our SSOs in the GIS, along with relevant attributes, to determine if location or other ascertainable factors can be identified as trends. We will make adjustments to our SSMP as needed to lessen SSO trends found in this analysis.

Chapter 10 SSMP Program Audits

Chapter 10 of the SSMP addresses the requirements included in Subsection D.13.(x) of the Order. The requirements state:

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 City's compliance with the SSMP requirements identified in this subsection (D.13 of the GWDR), including identification of any deficiencies in the SSMP and steps to correct them.

10.1 SSMP Audits

The audit is conducted by a team consisting of City Staff. The scope of the audit covers each of the sections of the SSMP. The SSMP Audit Checklist, based on the requirements in the GWDR, that will be used for the audit is included.

The audit results will be included in the SSMP Audit Report. The SSMP Audit Report will focus on the effectiveness of the SSMP program, compliance with the GWDR requirements, and identification of any deficiencies in the SSMP. The SSMP Audit Report will identify revisions that may be needed for a more effective program. Information collected as part of Section 9 - MMPM will be used in preparing the audit. Tables and figures or charts will be used to summarize information about performance indicators.

The City conducted its first SSMP Audit in November 2013. The audit concluded that reporting, response and recording procedures should be streamlined.

The City certifies that it has completed the bi-annual audit using CIWQS. Copies of the bi-annual Audit Reports will be retained by the City for five years.

Audit Date_____

Audit Team Members_____

Table 10-11 SSMP Audit Checklist

Section	Title	Requirement	SSMP Meets Current Requirements?	SSMP Matches Current Practices?	SSMP Adequate?
1	Goals	Reduce, prevent, and mitigate SSOs.			
2	Organization	Names of Agency staff responsible for development, implementation, and maintenance of SSMP.			
		Names and phone numbers for key Agency staff.			
		Chain of communication for reporting SSOs.			
		Designate LRO(s).			
		Chain of communication for reporting SSOs			
3	Legal Authority	Ability to prevent illicit discharges to sanitary sewer system.			
		Ability to require sewers and connections be properly designed and constructed.			

Section	Title	Requirement	SSMP Meets Current Requirements?	SSMP Matches Current Practices?	SSMP Adequate?
		Provide regular technical training for City sanitary sewer system staff.			
		Require contractors to provide training for their employees who work in the City's sanitary sewer system facilities.			
		Maintain equipment inventory.			
		Maintain critical spare part inventory.			
5	Design and Performance Provisions	Design and construction standards for new sanitary sewer system facilities.			
		Design and construction standards for repair and rehabilitation of existing sanitary sewer system facilities.			
		Procedures for the inspection and acceptance of sanitary sewer system facilities.			
6	Overflow Emergency Response Plan	Procedures for the notification of primary responders.			
		Procedures for the notification of regulatory agencies.			
		Program to ensure appropriate response to all SSOs.			

Section	Title	Requirement	SSMP Meets Current Requirements?	SSMP Matches Current Practices?	SSMP Adequate?
		Proper reporting of all SSOs.			
		Procedure to ensure Agency staff are aware of, are trained, and follow OERP.			
		Procedure to ensure contractor personnel are aware of, are trained, and follow OERP.			
		Procedures to address emergency operations such as traffic and crowd control.			
		Program to prevent the discharge of sewage to surface waters.			
		Program to minimize or correct the impacts of any SSOs that occur.			
		Program of accelerated monitoring to determine the impacts of any SSOs that occur.			
7	FOG Control Program	Public outreach program that promotes the proper disposal of FOG.			
		Plan for the disposal of FOG generated within the Agency's service area.			
		Demonstrate that the Agency has allocated adequate resources for FOG control program.			
		Identification of sanitary sewer system facilities that have FOG-related problems.			

Section	Title	Requirement	SSMP Meets Current Requirements?	SSMP Matches Current Practices?	SSMP Adequate?
		Program of preventive maintenance for sanitary sewer system facilities that have FOG-related problems.			
8	System Evaluation and Capacity Assurance Plan	Identification of elements of the sanitary sewer system that experience or contribute to SSOs caused by hydraulic deficiencies.			
		Established design criteria that provide adequate capacity.			
		Short and long term CIP that includes schedules for projects to addresses known hydraulic deficiencies.			
		Procedures that provide for the analysis, evaluation, and prioritization of hydraulic deficiencies.			
9	Monitoring, Measurement, and Program Modifications	Maintain relevant information to establish, evaluate, and prioritize SSMP activities.			
		Monitor implementation of the SSMP.			
		Measure, where appropriate, the performance of the elements of the SSMP.			

Section	Title	Requirement	SSMP Meets Current Requirements?	SSMP Matches Current Practices?	SSMP Adequate?
		Assess success of the preventive maintenance program			
		Update SSMP program elements based on monitoring or performance.			
		Identify and illustrate SSO trends.			
10	SSMP Program Audits	Conduct audits at least every 2 years.			
		Record the results of the audit in a report.			
		Record the changes made and/or corrective actions taken.			
11	Communications Program	Communicate with the public regarding the preparation of the SSMP.			
		Communicate with the public regarding the performance of the SSMP.			
		Communicate with tributary or satellite sewer systems.			

Chapter 11 Communication Program

Chapter 11 of the SSMP addresses requirements included in Subsection D.13.(xi) of the Order. Requirements state:

(a) 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.

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

11.1 Communication during SSMP Development and Implementation

The City posted a notice on its website to inform interested members of the public that it has developed an SSMP. The City will make the SSMP documents and contact information available for review at the City Hall located at 44933 Fern Avenue, and at the Maintenance Yard located at 615 W. Avenue H, and will post them on the City's website at *www.cityoflancasterca.org*. The City will also post updates to the SSMP on this website to keep interested citizens informed of progress.

11.2 Communicating Sanitary Sewer System Performance

The City reports SSOs electronically to the CIWQS. The URL for the CIWQS public access site is:

https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportSSOServlet?reportAction=criteria&reportId=sso_overview

The City will report the performance of its sanitary sewer system to the City Council each year at a regularly scheduled meeting and the performance information is included in the minutes of that public meeting. Once accepted by City Council, the City posts information on the performance of its sanitary sewer system performance on its website. The performance information includes the performance indicators listed in Section 9 - MMPM and is compiled annually.

11.3 Communication with Tributary/Satellite Sanitary Sewer System

City sewers convey flow from a small number of connections owned by customers of the Los Angeles County Department of Public Works and the CSMD. The CSMD flow represents less than 1% of the total flow moving through City sewer lines. The City and Los Angeles County have entered into a reciprocal agreement for sanitary sewer conveyance for joint use of the sanitary sewer system.