Audit Report of the City's 2013 Sewer System Management Plan (SSMP) for Waste Discharge Requirements Compliance

May 2016

City of Pomona
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ACKNOWLEDGEMENT

The material assembled in this report was gathered through the initial kick-off meeting and subsequent request for information from the City of Pomona (City). Additionally, supplemental information was provided by the City following the Workshop held at the City. The City would like to extend sincere thanks to the following staff from the City of Pomona who provided information for the preparation of this report. These staff included: Raul Garibay, Norbert Baldonado, Tim Hampton, and Ishmael Lopez.

LIST OF ACRONYMS

BMP-.Best Management Practice
CCTV- Closed-Circuit Television
CIP - Capital Improvement Program
CIWQS - California Integrated Water Quality System
CMMS – Computerized Maintenance Management System
CWC - California Water Code
CWEA – California Water Environment Association
DS – Data Submitter
FOG - Fats, Oils, and Grease
FSE – Food Service Establishments
GIS - Geographic Information Systems
I/I - Infiltration/Inflow
KPI - Key Performance Indicator
LACSD - Los Angeles County Sanitation Districts
LRO - Legally Responsible Official
MMRP - Mitigation Monitoring and Reporting Program
MRP - Monitoring and Reporting Program
NOI - Notice of Intent
NPDES - National Pollutant Discharge Elimination System
OES - Office of Emergency Services
O&M - Operations and Maintenance
PLSD – Private Lateral Sewage Discharge
PDWF - Peak Dry Weather Flow
PWRP - Pomona Water Reclamation Plant
RFP – Request for Proposal
RWQCB - Regional Water Quality Control Board
SECAP - Sewer System Evaluation and Capacity Assurance Plan
SSMP - Sanitary Sewer Management Plan
SSOs – Sanitary Sewer Overflows
SWRCB - State Water Resources Control Board
VCP - Vitrified Clay Pipe
WDR - Waste Discharge Regulations
WWD - Water/Wastewater Operations Director

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Executive Summary

Background

The City of Pomona is conducting this Audit Report to remain in compliance with the Waste Discharge Requirement (WDR).

This report has been developed based on the discussions with City staff. It is also based on a comprehensive review of all the internal SSMP related documents:

- 2008 and 2013 SSMPs
- 2005 Sanitary Sewer Master Plan
- 2010 Internal City Audit
- 2012 Gap Analysis
- City Ordinances, and
- Pomona Standard Drawings.

A detailed review and section by section comparison between where the City is and what it needs to do to become compliant with the WDR order is shown in the following sections.

Summary of Findings

The City has been proactive in its operation and management of its sanitary sewer system and its following of the WDR regulations. In September 2013, the City completed and adopted its Sanitary Sewer Management Plan (SSMP) and this is the first bi-annual self-audit.

Based on the WDR's requirement, the City has set the following eight goals for meeting the minimum requirements of the Order:

1. Proper management, operation, and maintenance of all parts of the system;
2. Reduced occurrence of and potential for SSOs;
3. An effective FOG control program;
4. Assurance of adequate capacity to convey peak wastewater flows
5. A current long-range planning and improvement plan;
6. Compliance with all regulatory requirements;
7. Protection of the public's health and safety; and
8. Effective public information and education efforts.

Based on an overall review of the City's SSMP, Sewer Master Plan, discussions with the Wastewater Maintenance Section, and a review of all other documents , it appears that Goals 1, 2, 5, 6, 7, and 8 have complied with the WDR requirements. Goals 3 and 4 have been initiated by the City but still need to be developed and implemented.

a) One of the first and most important actions the City needs to take is to update its organization chart for the WDR implementation purposes and also update the CIWIQS database accordingly. This includes designating the Water/Wastewater Operations Director (WWD) as the Legally Responsible Official (LRO). The WWD can and did delegate some of the LRO's responsibilities to other individuals such as the Wastewater Collection System Supervisor but it is important to assign the LRO designation to an individual that by title and code has the final say on all administrative and fiscal activities of the department responsible for the sanitary sewer system. Additionally, there are

several ordinances that we recommend be added to the City's code centralizing the role of the WWD in WDR related codes and giving him enforcement abilities in areas such as Fats, Oils, and Grease (FOG) compliance.

b) City needs to add other ordinances that would strengthen City's overall municipal code in WDR enforcement and compliance. These include adding sections addressing Infiltration/Inflow, stormwater, design issues and standards, and FOG.

c) In terms of overall Operations and Maintenance, the City needs to leverage its GIS technology more by the use of automated GIS Applications both for field use and office use. City of Pomona should utilize a Predictive Maintenance Program including plans for, planned and scheduled inspection and rehabilitation of its sanitary sewer system. These would include "Hot Spots" identification in GIS and Trend analysis utilizing the cleaning schedule. City has done a good job establishing a Key Performance Indicator (KPI) for cleaning its sewer system. This information, however, is not readily accessible by field and office staff. Additionally, the City's inventory of scanned sewer system as-built drawings are also not utilized on a regular basis. Use of a GIS application that connects both the as-built and the CCTV video to each sewer line will streamline functionality for City's staff. Additionally, this application can be also utilized on a Tablet by field staff to red line and relay field updated to City staff on a regular basis.

d) The City should develop and adopt a comprehensive FOG program.

e) The City should migrate towards implementing a GIS based Computerized Maintenance Management System (CMMS) for all its work orders and to efficiently and automatically track all personnel, equipment, and material. In the interim, they are in the process of developing and implementing the software Sedaru which will make operations reporting much more efficient.

f) The City should undertake a new and comprehensive Sanitary Sewer Master plan that incorporates a new hydraulic model of 8” or larger, has the latest population data, and incorporates the latest General Plan updates.

g) The City should develop and adopt a new Sewer Rate Study that takes into account the cost of implementing the WDR program including the revised CIP, equipment reserves, FOG Program, additional public outreach, etc.

h) The City should continue to develop a program that focuses on collecting data from all relevant sources, provides the City with critical information associated with the performance of the City’s sanitary sewer system and associated programs. This system needs to be integrated with GIS to help with trend analysis for Hot Spots, FOG, SSO mapping as well as CIP tracking. Furthermore, a system for communication and data submittals that are associated with SSOs and sewer backups that are reported to the online SSO database should be developed. If necessary, a matrix of additional Key Performance Indicators should be developed that would help the City develop its Measurement, Monitoring and Reporting Procedures (MMRP).

i) The City should develop an audit program that addresses the following:
   - Document Control
   - Training
   - Targets and Objectives
   - Data Management
   - Documented Procedures
   - Outcomes

j) Create a plan and schedule the implementation of a comprehensive public communication and educational program.

SECTION 1 – Introduction

This audit report is a means of examining systemic factors that have contributed to, or caused, a gap between the current state of the system and the future and desired state outlined in the WDR compliance requirements. The audit report analysis process includes an in-depth analysis of the factors that have created the current state, laying the groundwork for improvement planning. This approach ensures that the system improvement process does not jump from identification of problem areas to proposing and implementing solutions without first understanding the conditions that created the current state.

1.1 Service Area and Sewer System

The City of Pomona is located in Los Angeles County approximately 35 miles east of downtown Los Angeles, borders San Bernardino County's western boundary and is just 5 miles north of Orange County. The City encompasses approximately 23 square miles and serves approximately 152,419 residents. The City incorporated in January 1888, became a charter city in March 1911, and is the seventh-largest city in Los Angeles County based upon the 2010 census.

The wastewater collection service area includes incorporated areas within the City limits and a limited area outside the City limits. The City collects and conveys wastewater from the service area for treatment by the Los Angeles County Sanitation Districts (LACSD). Local City sewer mains discharge to several trunk sewers owned and maintained by the LACSD that run through the City. The City's service area is shown in Figure 1 below.

Figure 1: City's Sewer Service Area

The City is dedicated to improving the condition and performance of its wastewater collection system and reducing the occurrences of SSOs. Development and implementation of a wastewater collection system operations and maintenance (O&M) program serves to ensure that the wastewater collection system is routinely and properly maintained in a manner that minimizes failures and extends the longevity of the system.

1.2 Regulatory Overview

The State Water Resources Control Board (State Water Board) adopted Water Quality Order 2006-0003, on May 2, 2006, requiring all public agencies that own sanitary sewer collection systems greater than one mile in length to comply with the Statewide General Waste Discharge Requirements (WDR) for Sanitary Sewer Systems. All public agencies must apply for coverage by November 2, 2006, by completing the notice of intent (NOI) and legally responsible official (LRO) forms that the State Water Board distributed. The City of Pomona has completed the NOI and is within the regulatory time frames.

Section 3.2.4 Authorized Representatives of the 2013 SSMP requires the following modification to make it current:

- The Public Works Director Rene Salas is no longer the City's Primary Legally Responsible Official (LRO) and any reference should be removed
- Darron Poulsen Water/Wastewater Operations Director (909) 620-2253 is the City's primary LRO and the authorized representative registered with the State of California to officially sign and certify SSO reports submitted via the California Integrated Water Quality System (CIWQS).:
- The City has also identified the following staff as alternate LROs:
  - Norbert Baldonado Wastewater Collection System Supervisor (909) 620-2260
  - Raul Garibay Supervising Water Resources Engineer (909) 620-2239
  - Nick Capogni Water Treatment and Quality Supervisor (909) 620-2248

The intent of the WDR is to provide consistent statewide requirements for managing and regulating sanitary sewer systems throughout California. The State Water Board recognized a need to provide this consistent regulatory measure because many of the Regional Water Boards were beginning to implement similar measures inconsistently throughout the State, which was creating confusion in the discharger community. The State Water Board believes that providing a consistent regulatory measure that identifies regulatory expectations and comprehensive sanitary sewer overflow data will ultimately yield better collection system management and performance.

There are three major components to the WDR, including:

- Sanitary Sewer Overflow (SSO) Prohibitions;
- Sanitary Sewer Management Plan (SSMP) Elements; and
- SSO reporting.

While there are many other relevant components and findings within the WDR, the major components identified above represent most of the State Water Board's regulatory expectations for the implementation of the WDR. This regulatory audit is intended to provide an analysis of the current programs and practices within the City that address the above issues. This document will provide recommendations to ensure the development of appropriate SSMP programs and an appropriate time schedule necessary to comply with the WDR.

1.3 Prohibitions

Section C of the WDR identifies and prohibits SSOs that results in a discharge of untreated or partially treated wastewater to waters of the United States and/or creates a nuisance as defined in California Water Code (CWC) Section 13050(m) is prohibited. CWC section 13050, subdivision (m), defines nuisance as anything which meets **all** of the following requirements:

a) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.
b) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.
c) Occurs during, or as a result of, the treatment or disposal of wastes.

Since the State Water Board has not specifically defined SSOs that are subject to this prohibition and criteria for determining whether or not an SSO violates the above prohibition, the State and/or Regional Water Board will consider potential violations on a case-by-case basis. In general however, if an SSO results in a discharge to a surface water or drainage channel, the Water Board will consider this a discharge to Waters of the US. Additionally, if an SSO reaches an enclosed storm drainage pipe, and the SSO was not fully contained, captured, and pumped back into the sanitary sewer system, the Water Board will generally assume that the SSO reached a water of the US. In both cases, the SSO will probably result in a violation of the WDR prohibition.

Determining whether an SSO created a nuisance is even more problematic and subjective. Again, since the State Water Board has not specifically defined SSOs that are subject to the nuisance prohibition and criteria for determining whether or not an SSO is in violation of this prohibition, the State and/or Regional Water Board will consider violations on a case-by-case basis.

In both cases, while reporting SSOs, determining whether or not the SSO violated the prohibition is not up to the reporting Agency. It is the enforcement agency's responsibility to determine compliance with the WDR.

1.4 SSO Reporting

WDR finding number 9 states:

> Both uniform SSO reporting and a centralized statewide electronic database are needed to collect information to allow the State Water Board and Regional Water Quality Control Boards (Regional Water Boards) to effectively analyze the extent of SSOs statewide and their potential impacts on beneficial uses and public health. The monitoring and reporting program required by this Order and the attached Monitoring and Reporting Program No. 2006-0003-DWQ, are necessary to assure compliance with these waste discharge requirements (WDRs).

Furthermore, the State Water Board Fact Sheet states:

> SSOs can be distinguished between those that impact water quality and/or create a nuisance, and those that are indicators of collection system performance. Additionally, SSO liability is attributed to either private entities (homeowners, businesses, private communities, etc…) or public entities.
>
> Although all types of SSOs are important to track, the reporting time frames and the type of information that need to be conveyed differ. The Reporting Program and Online SSO Database clearly distinguish the type of spill (major or minor) and the type of entity that owns the portion of the collection system that experienced the SSO (public or private entity). The reason to require SSO reporting for SSOs that do not necessarily impact public health or the environment is because these types of SSOs are indicators of collection system performance and management program effectiveness, and may serve as a sign of larger and more serious problems that should be addressed. Although these types of spills are important and must be regulated by collection system owners, the information that should be tracked and the time required to get them into the online reporting system are not as stringent.
>
> Obviously, SSOs that are large in nature, affect public health, or affect the environment must be reported as soon as practicable and information associated with both the spill and efforts to mitigate the spill must be detailed. Since the Online SSO Database is a web based application requiring computer connection to the internet and is typically not as available as telephone communication would be, the Online Database will not replace emergency notification, which may be required by a Regional Water Board, Office of Emergency Services, or a County Health or Environmental Health Agency.

In order to implement the above vision, the State Water Board has developed a web based database that will be used to report all SSOs. This online spill reporting system is hosted, controlled, and maintained by the State Water Board. The web address for this site is http://ciwqs.waterboards.ca.gov

This online database is maintained on a secure site and is controlled by unique usernames and passwords. Because the City has been enrolled into the WDR, has identified a Legally Responsible Officials (LROs), the State Water Board has issued both a user name and password to each LRO and notified the individuals of this information.

These accounts will allow controlled and secure entry into the SSO Database. Additionally, within thirty (30) days of receiving an account and prior to recording SSOs into the SSO

Database, all Enrollees must complete the "Collection System Questionnaire", which collects pertinent information regarding an Enrollee's collection system. The "Collection System Questionnaire" must be updated at least every 12 months.

All reports required by this Order and other information required by the State or Regional Water Board shall be signed and certified by a person designated, for a municipality, state, federal or other public agency, as either a principal executive officer or ranking elected official, or by a duly authorized representative. For purposes of electronic reporting, an electronic signature and accompanying certification, which is in compliance with the Online SSO database procedures, meet this certification requirement.

All reporting requirements are described within the Monitoring and Reporting Program (MRP) that was adopted by the State Water Board Order, along with the WDR. The MRP is also attached to this document in Appendix A.

California Health and Safety Code section 5411.5, states that:

Any person who, without regard to intent or negligence, causes or permits any untreated wastewater or other waste to be discharged in or on any waters of the State, or discharged in or deposited where it is, or probably will be, discharged in or on any surface waters of the State, as soon as that person has knowledge of the discharge, shall immediately notify the local health officer of the discharge. Discharges of untreated or partially treated wastewater to storm drains and drainage channels, whether man-made or natural or concrete-lined, shall be reported as required above.

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

1. That person has knowledge of the discharge,
2. Notification is possible, and
3. Notification can be provided without substantially impeding cleanup or other emergency measures.

SECTION 2 – Background

The City operates its own wastewater collection system and associated infrastructure facilities within the City limits. The City's Water/Wastewater Operations Department's vision is responsible for the operation and maintenance of an extensive wastewater collection system and is tasked with ensuring proper and efficient operation of the system. The City provides sewer service throughout the City and to a limited area outside the City limits. The City's wastewater collection system consists of approximately 317 miles of gravity sewer, four (4) pump stations, 1.4 miles of force mains, 6,360 manholes, and five (5) siphons. (refer to the Service Area Collection Map)

Sewage collected by the City's wastewater collection system is conveyed to the Pomona Water Reclamation Plant (PWRP) for treatment and disposal under the authority of the LACSD. The four sewage pump stations are now owned, maintained and operated by the LACSD under the terms of a contract.

An SSO is defined by the WDR as any overflow, spill, release, discharge, or diversion of untreated or partially treated wastewater from a sanitary sewer system, including:

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

SSOs may cause a public nuisance, particularly when raw wastewater is discharged to areas having high public exposure, such as streets or surface waters used for drinking, fishing, or body-contact recreation. SSOs may pollute surface or ground waters, threaten public health, adversely affect aquatic life, and impair the recreational use and aesthetic enjoyment of surface waters.

Agencies in California that own sanitary sewer systems and experience SSOs are required to enter the SSO information into California's Integrated Water Quality System (CIWQS) database—the SWRCB's information management system for regulatory and water quality data reporting. In addition, SWRCB requires that agencies notify the State Office of Emergency Services (OES) within 24 hours of any spill that exceeds 1,000 gallons.

In summary, the WDR is intended to:

- Provide a consistent and unified statewide approach for the reporting and database tracking of SSOs.
- Establish consistent and uniform requirements for SSMP development and implementation.
- Facilitate consistent enforcement of the WDR regulation and violations.

There are three categories of SSOs:

- Category 1—A discharge that equals or exceeds 1,000 gallons and results in a discharge to a drainage channel, surface water, or drainpipe that was not fully captured and returned to the sanitary sewer system; and
- Category 2—A discharge that is under 1,000 gallons, or does not discharge to a drainage channel or surface water, or was captured and returned to the sanitary sewer system.
- Category 3 – all other discharges of untreated or partially treated wastewater resulting from an enrollees's sanitary sewer system failure or flow condition.

  Private Lateral Sewage Discharge – 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 SSO Database.

Capacity assurance is at the heart of the WDR. The SWRCB's WDR requires the preparation of SSMPs, while implementation of SSMPs is the responsibility of the nine Regional Water Quality Control Boards (RWQCBs). The SSMP consists of a set of documented plans to address how a wastewater collection system conducts business management, funding, design, operations, maintenance, and emergency response. The System Evaluation and Capacity Assurance Plan (SECAP) element of the SSMP includes evaluation of peak flows, design criteria, and capacity enhancement measures, and a schedule with planned completion dates of capital improvements.

Goals of the SSMP are to:

- Properly manage, operate, and maintain all portions of the agency's wastewater collection system;
- Provide adequate capacity to convey peak wastewater flows;
- Minimize the frequency of SSOs;
- Mitigate the impacts that are associated with any SSO that may occur; and
- Meet all applicable regulatory notification and reporting requirements.

The SSMP prescribes specific milestones that relate to the specific elements required in the WDR:

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

An SSMP program audit must be conducted at least every two years, and the audit report must be kept on file by the City staff. Successful implementation of an SSMP and compliance with the WDR could result in significant cost-savings to the City and its residents.

This report includes an analysis of the WDR regulation and the City's opinion of its current compliance status for each important element of the regulation.

SECTION 3 - Goals

Section D.13(i) - Goal: The goal of the SSMP is to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system. This will help reduce and prevent SSOs, as well as mitigate any SSOs that do occur.

3.1 Overview

This section describes the goals of the Sewer System Management Plan (SSMP), which is to provide a documented plan that describes all collection system activities and programs employed by an agency to ensure proper management of all collection system assets. Implementing an SSMP will ensure proper management, operation, and maintenance of all parts of the sanitary sewer system, ultimately helping to reduce and prevent SSOs, as well as mitigate any SSOs that do occur including meeting all applicable regulatory notification and reporting requirements.

Commitment to continual improvement will also ensure that the SSMP is both a living and sustainable document that is continually updated, revised, and tailored towards the City's needs. The City is required to comply with the "State Water Resources Control Board (SWRCB), Order No. 2006-0030 DWQ" (Order) on General Waste Discharge Requirements for publicly owned sewage collection agencies having more than one mile of collection pipelines.

3.2 Purpose

This element describes the City's stated goals of the SSMP and is intended to clarify the City's desired level of service that it is providing to its customers. Typically, high level statements regarding the overall management of a system includes a vision and mission statement, as well as a statement of short and long term goals.

THE MISSION STATEMENT is the first step in the planning process to identify overall functions or missions of the organization. This broad statement of purpose is commonly known as the mission statement.

THE VISION STATEMENT is a clarifying phrase that states where the City is heading. It helps set the course of future decisions and direction. The City Mission statement, as listed on its website, is as follows:

"The City of Pomona improves the quality of life for our diverse community".

A STATEMENT OF GOALS should include both short and long term commitments that will ultimately measure progress toward achieving and accomplishing both the stated Vision and Mission. Goals should be developed specific to the City's desired level of service. Careful thought and planning should occur when developing the Goals, because these are measurable outcomes that can be touted if accomplished or criticized if not accomplished. The development of reasonable Goals is often a balancing act between budget and performance. Creating Goals that meet this balance is often difficult and always specific to individual communities.

3.3 Minimum Requirements

Goals that the City must commit to and are identified in the WDR include:

1. Create/develop a management, operation and maintenance plan and schedule to reduce preventable SSOs.
2. Respond to and mitigate all SSOs discharging from the City's collection system.
3. Ensure adequate system capacity for the current and future needs of the City's service area.
4. Establish measurable performance indicators and manage assets at lowest life cycle costs.
5. Provide accurate reporting of all SSOs as described by the Order.
6. Properly fund, manage, operate, and maintain, with adequately trained staff and/or contractors.
7. All parties involved, shall possess adequate knowledge skills and abilities necessary to ensure the proper management, operation, and maintenance of all parts of the sewage collection system owned and/or operated by the City of Pomona.

The State Water Board also expects both a plan and schedule to be created by the City to ensure that an SSMP is developed in accordance with the time schedule identified in the WDR and will facilitate proper sanitary sewer system management, operation, and maintenance.

3.4 Evaluation

Has the agency established its goals consistent with the Order?

Based on a review of City's existing SSMP, the City has set the following eight goals for meeting the minimum requirements of the Order:

1. *Proper management, operation, and maintenance of all parts of the system;*
2. *Reduced occurrence of and potential for SSOs;*
3. *An effective FOG control program;*
4. *Assurance of adequate capacity to convey peak wastewater flows*
5. *A current long-range planning and improvement plan;*
6. *Compliance with all regulatory requirements;*
7. *Protection of the public's health and safety; and*
8. *Effective public information and education efforts.*

Has the agency established a defined level of service?

The City has established a level of service for cleaning of its sewer lines and establishing a numerical limit on SSO's per 100 mile of collection systems; or establishing a standard response time to an occurrence of an SSO. The goal is to clean every line segment every 1.5 years and reduce SSOs per year for every 100 miles of conveyance system. Based on discussions with the City's wastewater maintenance personnel, they have been able to meet and exceed both this goals. Additional Key Performance Indicators (KPI) need to be established though for all elements of the SSMP including FOG, CIP implementation, overflow emergency response and Mitigation Monitoring and Reporting Program or MMRP as well as define acceptable "Level of Service" as part of its goals.

3.5 Recommendations

Based on an overall review of the City's 2013 SSMP, discussions with the Wastewater Maintenance Section, and a review of all other City documents, it can be concluded that Goals 1, 2, 3, 5, 6, 7,8 have been initiated by the City, but still need additions and refinements. Goal 4 needs to be developed and implemented. These recommendations for specific sections of the SSMP have been discussed throughout this report.

Some items that the City may want to address in its Mission Statement are contained in Sections D.3-10, of the WDR. In general these items include:

- *The City will take reasonable steps and attempt to provide feasible alternatives to the reduction and mitigation of SSOs, including:*
  - *Temporary storage or retention of untreated wastewater*
  - *Reduction of inflow and infiltration*
  - *Use of adequate backup equipment*
  - *Collecting and hauling of untreated wastewater to a treatment facility or an increase in the capacity of the system as necessary to contain the design storm event identified in the SSMP.*

- *The Enrollee shall implement all remedial actions to the extent they may be applicable to the discharge and not inconsistent with an emergency response plan, including the following:*
  - *Interception and rerouting of untreated or partially treated wastewater flows around the wastewater line failure;*
  - *Vacuum truck recovery of sanitary sewer overflows and wash down water;*
  - *Cleanup of debris at the overflow site;*
  - *System modifications to prevent another SSO at the same location;*
  - *Adequate sampling to determine the nature and impact of the release; and*
  - *Adequate public notification to protect the public from exposure to the SSO.*

- *The City shall properly, manage, operate, and maintain all parts of the sanitary sewer system owned or operated by the City, and shall ensure that the system operators (including employees, contractors, or other agents) are adequately trained and possess adequate knowledge, skills, and abilities.*

- *The Enrollee shall allocate adequate resources for the operation, maintenance, and repair of its sanitary sewer system, by establishing a proper rate structure, accounting mechanisms, and auditing procedures to ensure an adequate measure of revenues and expenditures. These procedures must be in compliance with applicable laws and regulations and comply with generally acceptable accounting practices.*

- *The City will provide adequate capacity to convey base flows and peak flows, including flows related to wet weather events. Capacity shall meet or exceed the design criteria as defined in the Enrollee's System Evaluation and Capacity Assurance Plan for all parts of the sanitary sewer system owned or operated by the Enrollee.*

SECTION 4 - Organization

D.13 (ii) - **Organization**: The SSMP must identify:

(a) The name of the responsible or authorized representative as described in Section J of this Order.

(b) The names and telephone numbers for management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program. The SSMP must identify lines of authority through an organization chart or similar document with a narrative explanation; and

(c) The chain of communication for reporting SSOs, from receipt of a complaint or other information, including the person responsible for reporting SSOs to the State and Regional Water Board and other agencies if applicable (such as County Health Officer, County Environmental Health Agency, Regional Water Board, and/or State Office of Emergency Services (OES)).

4.1 Overview

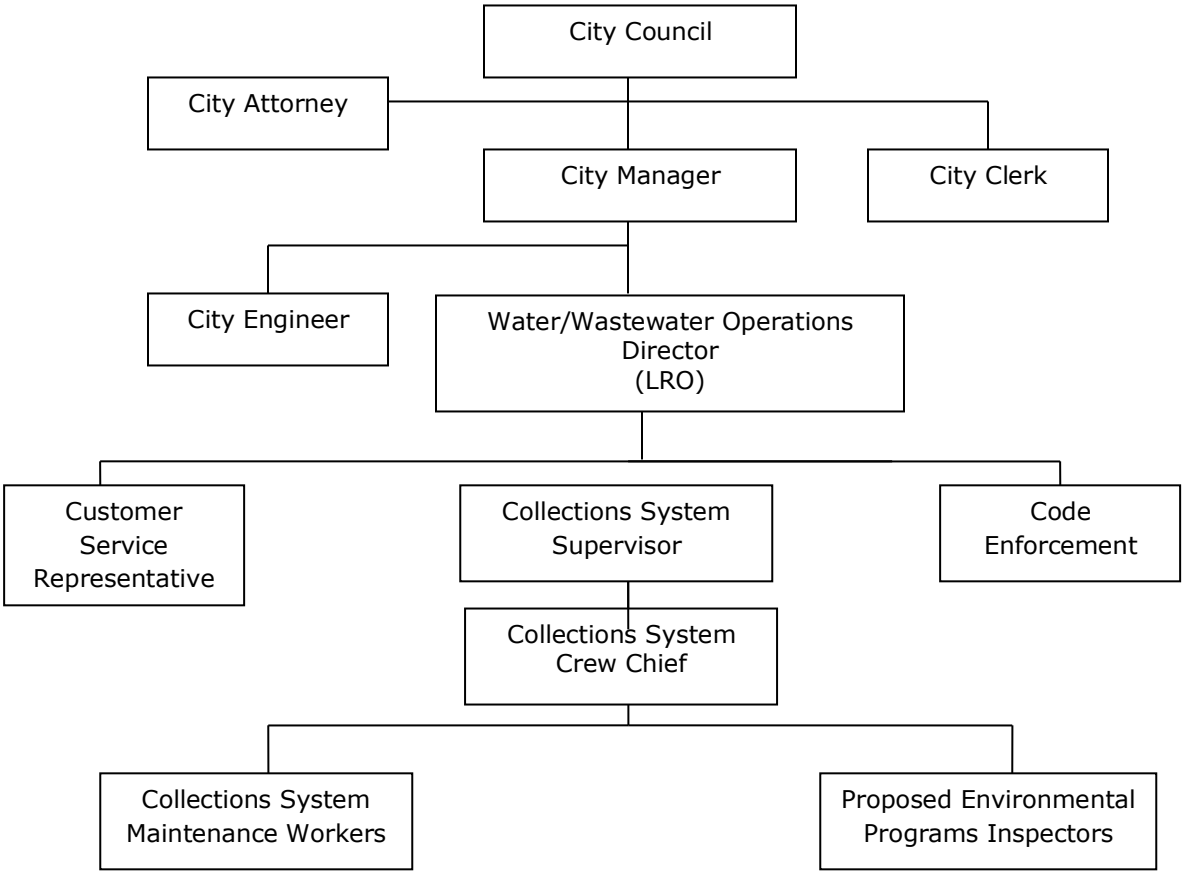
This element of the WDR describes both the organizational structure of the City as well as activities, duties, and responsibilities for individuals and positions associated with the sanitary sewer system. This section includes typical positions and their associated activities, duties, and responsibilities.

4.2 Purpose

Clearly identifying specific roles and responsibilities within the organization will ensure a clear understanding of duties that must be performed, as well as training and skill sets that are associated with specific jobs throughout the agency. Typical position and associated responsibilities are shown on Exhibit 1. The chart located in the 2013 SSMP listed the Public Works Director as the LRO. This Exhibit requires updating to replace this position with the Water/Wastewater Operations Director who is the primary LRO for the City.

The job title and descriptions will also require updating listed below the Exhibit 1 also require similar changes. More specifically, the Public Works Director should be removed and replaced with the Water/Wastewater Operations Director. The new Director title would replace the previous title of Water/Wastewater Manager held by Mr. Poulsen.

Exhibit 1
Typical City Org Chart



City Council — Establishes policies, reviews and accepts formal plans, sets overall City direction, authorizes funds for projects/plans/programs, general overview of upper management (Mayor, City Manager, City Attorney), conducts public meetings and hearings, approves SSMP.

City Attorney — The City's attorney develops and approves legal documents, provides legal advice, conducts litigation, and attends public meetings.

City Manager — Responsible for the day-to-day management and operation of the City under the direction of the City Council. Specifically the City Manager establishes procedures, plans strategy, leads staff, allocates resources defined in the City budget, delegates responsibility, authorizes outside contractor to perform services, and serves as overall public information officer.

City Engineer	Responsible for the development and implementation of city design and construction standards. Quite often responsible for 3rd party plan check as well as construction and building inspection. Provides engineering drawings, plans, and specifications for projects within the city. Also is responsible for developing or overseeing engineering studies such as hydraulic modeling, master planning, and CIP program development.
Water/Wastewater Operations Director	Responsible for the management and operation of the Water/Wastewater Operations Department, including the operation and management of the sanitary sewer system. Reports to the City Manager and is one of the **LRO for the City.**
Collections System Supervisor	Responsible for the operation and maintenance activities of the sanitary sewer system, including direct supervision and scheduling
Field Supervisor	Oversight of all maintenance crews, and regularly scheduling maintenance activities. Coordinates filed operations and prepares and implement overflow emergency response plan, leads emergency response, investigates and reports SSOs and trains maintenance workers and field crews.
Collections System Maintenance Workers	Staff preventative maintenance activities, report condition of City assets, mobilize and respond to notification of stoppages and SSOs, and mobilize sewer-cleaning equipment and by pass pumping equipment.
Customer Service Representative	Responsible for receiving maintenance calls and complaints and dispatching maintenance workers to perform emergency operations. Also responsible for initiating records within the agencies tracking system for SSOs and other related events.

4.3 Minimum Requirements

1. The name of the responsible or authorized representative as described in Section J of this Order.
2. 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
3. The chain of communication for reporting SSOs, from receipt of a complaint or other information, including the person responsible for reporting SSOs to the State and Regional Water Board and other agencies if applicable (such as County Health Officer, County Environmental Health Agency, Regional Water Board, and/or State Office of Emergency Services (OES)).

4.4 Evaluation

Has the agency named a responsible party or authorized representative compliant to the Order and is that person's name and contact information available?

Yes; that authorized Representative is Darron Poulsen. He is located at 148 North Huntington Street, Pomona, California, 91768. His office phone number is (909) 620-2253.

Have the names and telephone numbers for management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program been identified?

Yes; they are listed in the 2013 SSMP, Appendix D, Attachment E.

Have the lines of authority through an organization chart or similar document with a narrative explanation been developed?

Yes; the City's organizational chart is listed in the 2013 SSMP, Section. 3.2.1 Governance, Figure 3-1. It is also shown on Exhibit 2.

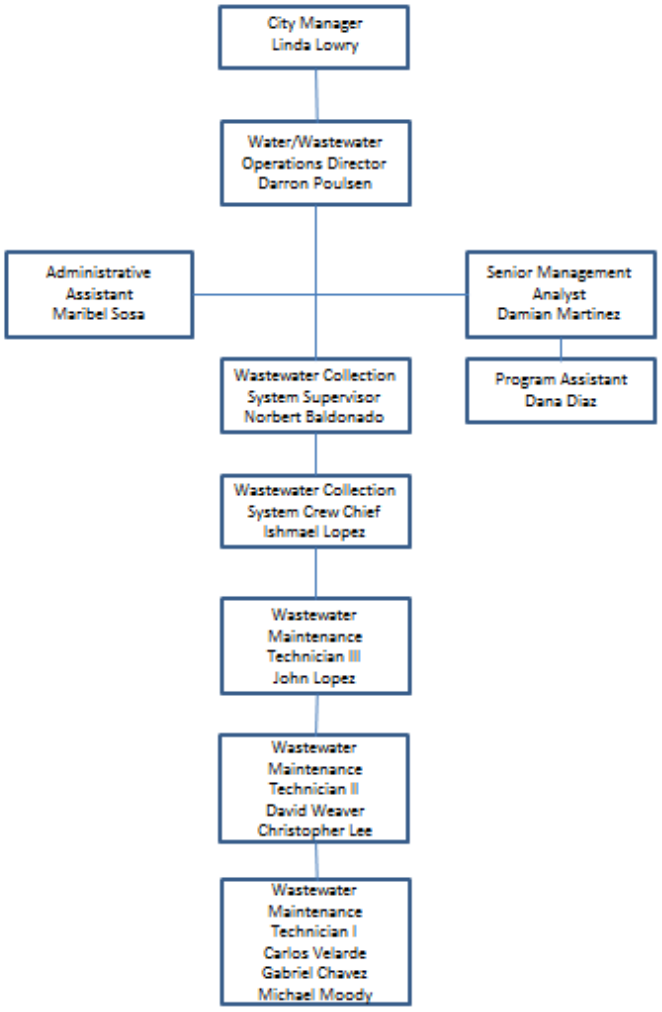


Exhibit 2: City of Pomona Wastewater System Organization Chart

Has the chain of communication and protocol for reporting and responding to SSOs been developed?

The City still maintains a chain of communication or protocol for those receive the initial notification of collection system issues, transmits that information to field crews, or who are responsible for notifying and implementing reporting procedures.

4.5 Recommendations

The City has designated the Water/Wastewater Operations Director as the primary LRO, He has delegated his authority on a daily basis to the Wastewater Collection System Supervisor and any additional LROs in the event of their absence from the workplace.

The current organizational document has been updated to define the roles and responsibilities for all City Employees and other parties that are responsible for carrying out activities associated with sanitary sewer system. Also, the job description includes duty statements, job performance requirements, and other pertinent information necessary to clearly communicate roles, responsibilities, skill sets, licensures, and training needed to carry out specific job related duties. .

Currently, the City has a "Customer Service Line" which refers customers to the Police Department Dispatch, after normal business hours. The Police Department does have all emergency contact information in case of an SSO.

The existing procedures should be updated, and communicated to all parties that could potentially be involved with SSO response, notification, and reporting. Emergency contact telephone numbers should be distributed to the public, public agencies that may be involved with response to SSOs (fire, police, public health, regional board, etc…), and all appropriate City staff. Additionally, clear procedures that identify communication paths between the City and any other city contractors should be developed, communicated, and routinely tested to ensure proper implementation, training, and revisions if needed. This information should readily be available on the City's web site, as well.

Listed below are specific changes that need to be updated in our current SSMP:

- ***Section 3.2**, Discussion on Organizational Structure: Need to remove the reference to the Public Works Department and replace with Water/Wastewater Operations Department:*
- ***Section 3.2.1**, Governance: Rene Salas is no longer the LRO; he needs to be replaced with Darron Poulsen name and title; the Sewer Division no longer resides under his authority so Figure 3-1 needs to be updated as well; need to change Darron title and job description on the Definitions*
- ***Figure 3-1**: Needs to reflect Darron's new position and title*
- ***Section 3.2.2**: Need to replace text that replaces Public Works Director with the Water/Wastewater Operations Director; also, need to remove the reference to the PW Director*
- ***Figure 3-1, Page 3-5**: Figure numbering system is incorrect; this should be Figure 3-2; need to replace text that replaces Public Works Director with the Water/Wastewater Operations Director; also, need to remove the reference to the PW Director*
- ***Section 3.2.3**: Needs to reflect Darron's new position and title; also, need to remove the reference to the PW Director*
- ***Section 3.2.4:** Needs to reflect Darron's new position and title; need to change his telephone number to (909) 620-2253*
- ***Figure 3-2**: Needs to reflect Darron's new position and title; also, need to remove the reference to the PW Director*

SECTION 5 - Legal Authority

D.13 (iii) **Legal Authority:** Each Enrollee must demonstrate, through sanitary sewer system use ordinances, service agreements, or other legally binding procedures, that it possesses the necessary legal authority to:

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

5.1 Overview

This chapter is intended to identify and describe the necessary legal authority that an agency must have in order to implement SSMP plans, programs, and procedures. Regulatory mechanisms that are used by cities quite often include City Ordinances, Codes, and Resolutions, State and Federal Laws, Licensing and Permitting Processes, Memorandum of Agreements, Contractual Agreements, as well as other programmatic mechanisms necessary to carry out asset management activities.

5.2 Purpose

The basis of all authority to manage, operate, and maintain agency's infrastructure is derived from documents adopted by its elected board or council. In order to ensure that the City has the proper legal authority established to implement and enforce all of the programs required by the WDR, the City must first establish necessary legal authority to do so.

5.3 Minimum Requirements

The SSMP must include the legal authority, through sewer use ordinances, service agreements, or other legally binding procedures, to:

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

b) Require that sewers and connections be properly designed and constructed;

c) Ensure access for maintenance, inspection, or repairs for portions of sewer mains owned and maintained by the city that are on private property.

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

e) Enforce any violation of its sewer ordinances.

5.4 Evaluation

Does the City Ordinance provide necessary control measures for illicit discharges including?

1. ***Infiltration and Inflow;***
2. ***Fats/Oils/Grease (FOG);***
3. ***Chemicals that may be harmful and/or dangerous to infrastructure and the environment; and***
4. ***Other debris such as root cutting and construction materials?***

The City does have ordinances providing control measures for illicit discharges such as FOG, chemicals, and other types of materials. However, there does not appear to be specific language as it relates to stormwater or I/I specific discharges and or construction. The City needs to prohibit discharge of unpolluted water, including stormwater, into a sanitary sewer through direct or indirect connection.

Do City ordinances and/or other legally binding requirements contain adequate legal authority to require proper design and construction of new and rehabilitation work?

After reviewing the City's Water & Sewer Ordinance, Chapter 62 of the City's Municipal Code, , there is adequate "General" language pertaining to the "Legal Authority" to require proper design and construction of new and rehabilitation work in the sanitary sewer system within the City of Pomona. There needs to be additional "Specific" language related to the construction of sewer lines and manholes to prevent I/I in the system, a review and revision of definitions, and a modification of role definition wherein the Water/Wastewater Director is acknowledged.

Do City legal requirements provide for both access for maintenance, repair, and inspection for all collection system assets?

There is adequate language pertaining to access to the sanitary sewer system for maintenance, repair and inspection within the City of Pomona.

Does the City's legal authority provide for enforcement measures in case of Ordinance violations?

The City's Water & Sewer Ordinance, Chapter 62 of the City's Municipal Code, has language pertaining to the enforcement measures that can be taken by Public Works Director/City Engineer. However, Public Works Director/City Engineer has limited or no authority when it comes to assessing fines for misdemeanors or infractions. As such, specific violations must be delineated to facilitate establishing the authorization necessary to issue violation notices and fines specific to the wastewater collection system, including passing on to the culpable parties fines and penalties that the City may incur for the negligent and intentional acts of others.

Are all service agreements up to date and explicitly identify roles and responsibilities and expectations?

The City no longer has a service agreement for maintenance of the four sewage lift stations. An agreement was reached and executed wherein the LACSD is now the owner and thus responsible for ongoing maintenance and capital improvements of those facilities.

Are other legally binding procedures documented, kept up to date, and available?

All legally binding procedures are documented, updated and available at City Hall.

5.5 Recommendations

The City should consider revising municipal codes, ordinance, and/or resolutions necessary to further develop the authority needed to implement many of the required SSMP elements and programs. One specific area that has still not been updated is centralizing the role of the Water/Wastewater Operations Director as the person responsible to review and condition construction plans, develop and enforce permits, and generally make decisions with respect to the wastewater collection system. Additional specific language for the construction of sewer lines and manholes for preventing I/I and stormwater needs to be developed.

Ordinances should also deal with easements and ingress-egress issues needed for access, ownership, and maintenance of all collection system assets. The City needs to revisit the agreements and locations, to explicitly lay out rolls, responsibilities, levels of service, programmatic implementation, and assumed liabilities and assumptions of risk.

SECTION 6 - Operation and Maintenance Program

D.13 (iv) **Operation and Maintenance Program:** The SSMP must include those elements listed below that are appropriate and applicable to the Enrollee's system:

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

(b) Describe routine preventative operation and maintenance activities by staff and contractors, including a system for scheduling regular maintenance and cleaning of the sanitary sewer system with more cleaning and maintenance targeted at known problem areas. The Preventative Maintenance (PM) program should have a system to document scheduled and conducted activities, such as work orders;

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

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

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

6.1 Overview

This section of the 2013 SSMP describes how the City will operate and maintain the sanitary sewer system within its jurisdiction. It involves the development and implementation of several major programs and activities including the production of maps, maintenance and cleaning schedules, and a comprehensive rehabilitation and replacement plan.

6.2 Purpose

Thorough assessment of the present condition of the sanitary sewer system, deficiencies and defects within the system can be identified so that these issues can be targeted and prioritized for rehabilitation. This program of preventative maintenance will help to ensure that costly catastrophic system failures are preempted and will serve to reduce the amount of SSOs to be reported within the City.

6.3 Minimum Requirements

At a minimum, each enrollee must:

1) Create and maintain an up-to-date map of the sanitary sewer system within an Enrollee's jurisdiction;
2) Develop and implement a Preventative Maintenance Program that describes preventative operation and maintenance activities and a system to document scheduled and conducted activities;
3) Develop a rehabilitation and replacement plan to identify and prioritize system deficiencies and rehabilitation actions, including regular inspections of the conditions within the system.
4) Provide regular training for staff and contractors
5) Provide equipment and replacement part inventories.

6.4 Evaluation

Does the City have and maintain a current collection system map?

The City does have its own automated set of collection system maps that have been developed and updated in a GIS system. This is shown in Appendix C of the 2013 SSMP.

Has the City developed and implemented a Preventative Maintenance Program that describes the Operations and Maintenance activities?

Yes, this program is defined in Appendix C of the 2013 SSMP. The program describes the City's responsibility for the ongoing maintenance and repair of the sewer main line. This includes routine and emergency cleaning. Elements of this plan includes preventive maintenance including cleaning of all sewer lines every 1.5 years. The City utilizes two (2) combination jetter/vactor vehicles and one (1) trailer mounted mechanical rodder. The sewers are typically cleaned by putting high pressure water jetting nozzles in the pipe and manually removing debris from the downstream manhole. Purchased equipment or staff-made appurtenances are inserted at the downstream manhole to capture and remove debris.

Has the City developed and implemented a rehabilitation and replacement plan?

Yes; there have been sewer rehabilitation/replacements since the City's 2005 Sewer Master Plan and its CCTV work in 2010. However, the 2005 Master Plan's hydraulic analysis was based on modeling of larger diameter pipes, thereby yielding minimal or no recommendations for smaller diameter pipes that constitute 75% of the City's system. Although we have been able to reduce the amount of hot spots in the City system, we anticipate additional locations in need of repair and/or rehabilitation once we develop the new hydraulic model that will be reflective of mains 8" and larger. This new model has been identified as part of the Department's Strategic Plan. An RFP has been developed and will be going out to bid in the near future.

Does the City provide regular training for staff and contractors that work with the sanitary sewer system?

There has been training for the staff responsible for the normal and emergency operation and maintenance of the sewer collection system. To the extent possible, staff is sent to CWEA events where they are exposed to the latest techniques in sewer management. A Training Log is kept current by the Wastewater Crew Chief, Mr. Ishmael Lopez.

City Of Pomona
Wastewater Department
2015 Training Database

Name	Annual SSO Emrgency Response Training 2/3/2015	Annual WDR workshop 3/13/2015	Wastewater Collections seminar 3/25/2015	Confined Space 4/1/2015	LCW Eval & Discipline 4/2/2015	Confined Space 4/7/2015	CWEA conference 4/29/2015	Wastewater Collections seminar 7/30/2015							Total Hours
Norbert Baldonado	2			4	X		X								6
Ishmael Lopez	2		4	4											10
John Lopez	2		4	4											10
Anthony Fedora	2														2
Christopher Lee	2		4			4									10
Carlos Velarde	2			4				4							10
David Weaver	2	4				4									10
Mike Moody	2		4			4									10

Figure -1: WW 2015 Training Database

When the City purchases new nozzles for cleaning, all staff undergo a training to understand the proper working of the equipment. Lastly, the staff is subjected to a spill scenario in January of each year wherein they have to demonstrate the proper procedure for establishing a manhole to manhole bypass system in the field.

Does the City have a system in place to track sewer system equipment and replacement part inventories?

The Wastewater Collection System staff maintains an inventory of vehicles and sanitary sewer system replacement parts. However, this is not an automated system and the City does not currently have a system for tracking sewer system equipment and replacement part inventories

6.5 Recommendations

The City should continue examine its cleaning program to see if it can "fine-tune" its cleaning frequency. Efforts to purchase water efficient nozzles and integrating root foaming products will provide efficiency and cost savings as the City moves forward.

There is 1,615,000 lineal feet of sewer pipeline in the system. Two (2) crews of two (2) persons each are assigned to continuously clean the system. To confirm the effectiveness of the cleaning activities, the City's CCTV inspection crew has begun to randomly televise approximately 4,000 lineal feet of pipe that has been cleaned within the past two (2) weeks. The locations should be equally divided among the work performed by the crews. A pipe's cleaning frequency should be based on the pipe's "grade" during its cleaning interval. The cleaning frequency for pipes should be based on tabulating the degree of cleaning required by that pipe after each cleaning interval. For example, if a pipe requires medium to heavy cleaning after an interval of every six months, it may be time to increase the frequency of cleaning from 6 months to every three months. Similarly if a pipe receives a "clear" finding three consecutive times in a cleaning interval, it may be a good idea to move that pipe down to needing a lower cleaning frequency. As of the drafting of this document, the City has not been able to acquire the resources to implement this feature at this time.

The following is a list of tasks and suggestions for inclusion in a comprehensive Operations and Maintenance Program as a part of the SSMP.

- *The City of Pomona has developed a Predictive Maintenance Program that includes plans for, planned and scheduled inspection and rehabilitation of their sanitary sewer system. This includes CCTV and proposed hydraulic modeling as part of a comprehensive Sewer Evaluation and Capacity Assurance Plan (SECAP) pursuant to the 2013 SSMP.*
    - *Pipe CCTV or by staff entry as indicated*
        - *"Hot Spots" identification in GIS*
        - *Trend analysis utilizing the cleaning schedule*
        - *Initial inspection prior to acceptance of CIP or rehab*
        - *Periodic system re-inspection*
        - *Detailed inspection of deteriorated areas prior to repair/rehab/replacement*
        - *Quality control on line cleaning, root cutting, etc.*

- *Standardized defect coding system needed*
  - *Checking for pipe condition, depth and/or percentage of concrete spalling, depth of corrosion, pH measurement*

- *Need to Complete Manhole inspections:*
  - *Visual from surface*
  - *Staff entry as indicated for detailed evaluation*
  - *Standardized defect coding needed*
  - *Should also cover: manhole concrete or protective coating condition, shelf condition and material loss, debris, roots, roaches/vermin, crown pH, flow depth of water/diameter of channel, velocity, turbulence, hydrogen sulfide levels*

- *Need to identify and begin database of existing easements from GIS maps and property records, develop a schedule for Easement and Right of Way surface inspections and creating assessments, and integrating into future CIP projects possible relocations*
  - *Checking for vandalism, potential problems due to vegetation, land movement, surface erosion, illegal improvements that limit access, etc.*

- *Lastly, specific section of the 2013 SSMP need to be addressed:*

  - ***Section 5.3.2.:*** *We have purchased a small amount of chemical for root treatment; will be selecting a site shortly; they have identified some potential locations to date 6840 linear feet treated to date*
  - *Have not implemented a new CMMS program; as an interim step, staff ids working with a firm ID Modelling to develop a reporting program; the program will be able to extract data from the hydraulic model and report on work orders for water and sewer divisions*
  - ***Section 5.3.3:*** *Only 25% of the manholes in the system were inspected and recorded by Trans Consulting; infiltration was identified when encountered*
  - ***Section 5.3.4****: This section does not cite the contract specification Special Technical Provisions, Section 1170, paragraph 1.5 wherein the the contractor must maintain sewage flows and sewage bypass if necessary*
  - ***Section 5.3.5****: Need to see the latest updates*

- *As the WDR requirements continue to unfold, the City should continuously update their Operations and Maintenance Program. Many of these recommendations have been outlined in the 2013 Sanitary Sewer Master Plan, the results which can be considered as additions or in some cases replacing the current operations and maintenance program.*

SECTION 7 - Design and Performance Provisions

D.13 (v) **Design and Performance Provisions:** :

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

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

7.1 Overview

Development of standards for the design, construction, inspection, testing and acceptance of new, rehabilitated, or repaired portions for the collection system is key in ensuring a safe, and reliable collection system. Even if the City has existing standards in place a comprehensive review of these is required to establish meeting the SSMP criterion.

7.2 Purpose

This requirement will create continuity within the system, preventing inconsistencies from leading to hydraulic deficiencies which can result in a sanitary sewer overflow.

7.3 Minimum Requirements

At a minimum, each enrollee must:

1) Develop and implement consistent design and construction standards for the installation of new sanitary sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sanitary sewer systems; and
2) Develop and implement procedures and standards for inspecting and resting the installation of new sewers, pumps and other appurtenances and for rehabilitation and repair projects.

7.4 Evaluation

Does the City require consistent design and construction standards for the installation of new sanitary sewer systems and all applicable appurtenances?

City Code Chapter 62, Article V, Division 1, from Section 62-391 to Section 62-396 includes the general design and construction requirements for the City's wastewater collection system. The sections include the requirements for sewer connection locations, pipe size, minimum grades, manholes, and construction requirements.

Inspecting and Testing

Compliance with the sewer design policy requires the contractor performing work on the City's sewer facilities to be responsible for conducting a CCTV inspection for all new and rehabilitated sanitary sewer systems and other appurtenances and submitting a copy of the CCTV report and inspection documentation to the City's Water/Wastewater Operations Director at least thirty (30) working days in advance of the anticipated date of final construction acceptance. The information provided by the contractor is subsequently reviewed by the City's designated inspector for compliance with City design and construction policies.

7.5 Recommendations

- *City of Pomona should continue review and develop new to reflect the changes in practice and technology. In speaking with staff, they have begun to review new standards as some of the existing standards are at least 30 to 40 years old and are hand drawn. In the interim, they should continue to using their established design and construction standards" for the installation of new sanitary sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sanitary sewer systems with the following considerations:*
- *In Appendix G, Sewer Design Policy and Standards, Section 1.6 – Capacity it says,"New sewer mains 15 inches and smaller in diameter shall be sized to carry the projected peak hour wet weather flow at a depth not greater than half of the inside diameter of the pipe (dn/D not to exceed 0.50, where dn is the nominal depth of the water in the pipe and D is the diameter of the pipe). New sewer mains 18 inches and larger in diameter shall be sized to carry the projected peak hour wet weather flow at a depth of flow not greater than 3/4 of the inside diameter of the pipe (dn/D not to exceed 0.75)."*
- *Per industry standards, sewers 12 inches in diameter and smaller are designed to carry peak dry-weather flows at d/D ratios of 0.50 or less; and sewers 15 inches in diameter and larger are designed to carry peak dry-weather flows at d/D ratios of 0.75 or less. To carry peak wet-weather flows at these same d/D ratios for peak dry-weather flow appears to be too conservative. Also, there is no standard wet-weather design storm by which to evaluate sewers. If wet-weather flow is to be the stipulated design criteria, then a storm would need to be identified, i.e. a 5-year recurrence interval storm or a 10-year recurrence interval storm, etc. But the same recurrence interval storm can have different combinations of rainfall intensities and durations. Also, even the same recurrence interval storm can cause different wet-weather runoffs into the sewer depending on terrain, i.e. slope, percent impervious, etc.*
- *City of Pomona should continue with existing protocols for the inspection and installation of new sanitary sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sanitary sewer systems as outlined in the City ordinance.*
- *It says in Appendix G, Sewer Design Policy and Standards, Section 1-6, "Design calculations shall include calculations of average day, maximum day, and peak hour." However, no City-accepted "general" peaking factors are provided that can be used "in the absence of flow data or other reliable information." Also, the peaking factors are not defined in terms of dry or wet-weather peaking factors. Maximum-day factors are typically not used in calculating peak wastewater flows. A range of residential peak dry-*

weather factors should be provided based on the number of dwelling units in the drainage basins, i.e. 2.0 to 3.0 for 2,000 DUs and less; and 1.5 to 2.0 for over 2,000 DUs.

- *It says in Appendix G, Sewer Design Policy and Standards Section 1-7, "In order to minimize the formation of deposits, the minimum grade for sewer mains shall be such as to provide a velocity of not less than two (2) feet per second (fps) when the sewer is flowing full or half full under peak dry weather flow (PDWF) at the time the pipe is placed into service. Additionally, during periods of low flow an actual velocity of 1½ fps should be achieved. Manning's coefficient of roughness "n" shall be assumed to be 0.013 for all types of sewer pipe. The maximum flow velocity shall not exceed eight (8) fps. The standard minimum slope sewer main is 1.0 percent."*
- *Per industry standards, sewer mains are designed to provide a minimum velocity of 2 feet per second (fps) when the sewer is flowing half full under peak dry weather flow (PDWF), but not when flowing full.*

In the 2013 SSMP Appendix C, Operations and Maintenance, there are repair techniques offered to rehabilitate manhole but not lids and frames for inflow defects. Inflow can enter manholes through openings in manhole lids and through defects in the frame. Manholes with such defects that are located in low earthen areas or near paved curbs and gutters are especially prone to inflow. Some methods to rehabilitate manholes for surface inflow defects include sealing the manholes that are in low level areas.

At conferences such as the Tri-State Seminar in Las Vegas, there were repair techniques made to known to attendees. Sprayed on synthetic liners was one of the methods that showed promise for our manholes. Vendors went on to talk about placing a layer of cement over brick manholes was a less costly repair but did not last as long. There should be more discussion of the various repair techniques and some sort of evaluation as to their effectiveness in the next SSMP.

Reset Frame and Raise to Grade. Resetting the frame is a method intended to adjust a frame that has moved horizontally and/or to raise the cover above grade to prevent inflow, mostly in non-paved areas (for example, when a cover is located in a slight depression where ponding of water occurs) and where new pavement work is taking place. The installation involves minimal excavation - only enough to allow replacement of damaged concrete leveling rings and addition of new rings to bring the top of the frame above grade.

- *Manhole Pans. Manhole pans fit under the manhole cover and are intended to prevent inflow through holes in the manhole cover. The pans are either HDPE or stainless steel.*
- *Manhole Covers. Gasketed manhole covers are steel covers with an inset gasket either in the frame or placed between the frame and cover. They are intended to prevent inflow from around the manhole cover. Solid manhole lids without holes are available, as are plugs for the holes. This is currently implemented in new construction where the ribbon gutter is in line with the sewer main as it flows around the manhole where the manhole cover is elevated above the flow line is currently practiced.*
- *Manhole Risers: Need to include additional discussion on synthetic risers that can be used to raise manholes covers in lieu of concrete ones. They are light weight and are made to sustain truck loading. Another topic raised at the Tri State Seminar.*

SECTION 8 - Overflow and Emergency Response Plan

D. 13 (vi) Overflow Emergency Response Plan - Each Enrollee shall develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment. At a minimum, this plan must include the following:

(a) Proper notification procedures so that the primary responders and regulatory agencies are informed of all SSOs in a timely manner;

(b) A program to ensure an appropriate response to all overflows;

(c) Procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities (e.g. health agencies, Regional Water Boards, water suppliers, etc.) of all SSOs that potentially affect public health or reach the waters of the State in accordance with the MRP. All SSOs shall be reported in accordance with this MRP, the California Water Code, other State Law, and other applicable Regional Water Board WDRs or NPDES permit requirements. The SSMP should identify the officials who will receive immediate notification;

(d) Procedures to ensure that appropriate staff and contractor personnel are aware of and follow the Emergency Response Plan and are appropriately trained;

(e) Procedures to address emergency operations, such as traffic and crowd control and other necessary response activities; and

(f) A program to ensure that all reasonable steps are taken to contain and prevent the discharge of untreated and partially treated wastewater to waters of the United States and to minimize or correct any adverse impact on the environment resulting from the SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge.

8.1 Overview

This element of the SSMP consists of both the contingency plan and the procedures for responding to an overflow event.

8.2 Purpose

Proper procedures must be established and put into practice in order to minimize the negative effects of an SSO. This section requires the implementation of a concise set of procedures that will seek to ensure that all negative effects of an SSO on public health and the environment are minimized. Proper overflow response procedures are one of the main reasons for the development of the WDRs for SSOs.

8.3 Minimum Requirements

At a minimum, each enrollee must include in its overflow emergency response plan:

1) Proper notification procedures for primary responders and regulatory agencies;
2) A program to ensure appropriate response to all overflows. Procedures to ensure prompt notification of appropriate officials or other potentially affected agencies for reporting purposes;
3) Procedures to ensure that all appropriate staff and contractor personnel are aware of and follow the Emergency Response Plan and are properly trained;
4) Procedures to address emergency operations
5) A program to ensure that all steps are taken to contain untreated wastewater and prevent discharge of untreated wastewater to waters of the United States.

8.4 Evaluation

Does the City currently have an Overflow Emergency Response Plan developed and implemented?

Yes, the City does have a comprehensive Sewer Overflow Response Plan which was updated in October 2013. This plan will need to be updated in view of many organizational changes that have occurred in the City since 2013.

8.5 Recommendations

The following sections in the 2013 SSMP, Appendix D are recommended to be updated:

- *Table 2-3 with regards to the new organizational changes and positions;*
  - *Delete Pomona " Pomona Public Works Director " and replace with "Water/Wastewater Operations Director"*
  - *Delete " Pomona Water/Wastewater Operations Manager" and replace with "Water/Wastewater Operations Director"*
- *Page 41, Sanitary Sewer On-call Response Personnel table needs to be updated and the name and phone number of the Water/Wastewater Operations Director needs to be added*
- *Page 41, Sanitary Sewer On-call Response Personnel table, delete "Pomona Public Works Director" and replace with "Water/Wastewater Operations Director"*
- *Page 41, Sanitary Sewer On-call Response Personnel table, delete "Water/Wastewater Collection System Operations Manager"*
- *Page 53, Sanitary Sewer Overflow Notification List table needs be updated and the name and phone number of the Water/Wastewater Operations Director needs to be added*
- *Page 53, Sanitary Sewer Overflow Notification List table, delete Public Works Director"*
- *Page 53, Sanitary Sewer Overflow Notification List table, delete "Pomona Water/Wastewater Operations Manager" and replace with "Water/Wastewater Operations Director"*

- *Figure 3-2 Communication Plan for SSMP Implementation in the City's current SSMP needs to be updated by replacing the box for "Public Works Director" with a box for "Water/Wastewater Operations Director"*

- *Procedures to ensure that all appropriate staff and contractor personnel are aware of and follow the Emergency Response Plan and are properly trained*
  - *The Overflow Response Plan should continue to be updated and made available to key personnel who are responsible for managing or responding to SSOs. Presentation of this section will be provided to maintenance once a year during a tail gate session. Copies of the City's instruction manuals should be available to field crews and engineers at the office who manage or have the role of preparing SSO reports to regulatory agencies.*
  - *Post the updated Sanitary Sewer Overflow Emergency Response Plan, as currently shown in Appendix D of the 2013 SSMP on the City's Intranet. Posting of public notices of SSOs should occur as soon as practical following the initial response to overflows. Signs should be posted on either side of the point of entry where sewage entered the body of water or public facility and the nearest public access point to that body of water or public facility*

- *Lastly, Section 7.2 of the 2013 SSMP needs to be addressed the following items:*
  - *Need to develop and present a short Powerpoint presentation to field crews; the intent would be not be to train the field staff to clean up the spill but more to contain the flow if possible by setting up berms until wastewater staff can arrive*
  - *Need to verify that the wastewater staff has been presented this section overview in their tailgates; probably need to attend one of those meetings*
  - *Staff has not ordered the emergency spill signs*
  - *Staff needs to continue to conduct annual bypass setup training in the field; the setup was performed in the first part of February 2015; pictures of the layout are attached*

SECTION 9 - FOG Control

D. 13 (vii) FOG Control Program - Each Enrollee shall evaluate its service area to determine whether a FOG control program is needed. If an Enrollee determines that a FOG program is not needed, the Enrollee must provide justification for why it is not needed. If FOG is found to be a problem, the enrollee must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system. The plan shall include the following as appropriate:

(a) An implementation plan and schedule for a public education outreach program that promotes proper disposal of FOG;

(b) A plan and schedule for the disposal of FOG generated within the sanitary sewer system service area. This may include a list of acceptable disposal facilities and/or additional facilities needed to adequately dispose of FOG generated within a sanitary sewer system service area;

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

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

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

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

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

9.1 Overview

Under the Order, the City is required to evaluate its service area to determine whether a Fats, Oils, and Grease (FOG) control program is needed. If the City determines that a FOG program is not needed, it must provide justification for why it is not needed. If FOG is found to be a problem, the City must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system.

9.2 Purpose

FOG is generated in most types of restaurants and food service establishments during food preparation, food service, and kitchen clean up. If flushed down the drain, FOG can build up in pipes, pumps, and equipment -- causing significant problems in the sanitary sewer system, including line blockages. Blockages can lead to sewer overflows, posing environmental and public health hazards. Understanding and controlling discharges of FOG will greatly reduce potential liability of SSOs and efforts required to keep lines clean.

The key to reducing FOG in the sanitary sewer system includes both a good source control program, as well as preventative maintenance to ensure FOG that does build up within the system is cleaned before significant buildup can occur. Additionally, understanding your collection system and the type of discharges within the service area is paramount to the strategic implementation of a FOG program.

9.3 Minimum Requirements

At a minimum, each enrollee must:

1) Determine if FOG is (or could be) an issue within the service area. If FOG is found not to be an issue, then justification must be provided
2) Create a plan and schedule for a public education outreach program that promotes proper disposal of FOG;
3) Develop 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;
4) Ensure that the appropriate legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG;
5) Require the installation of grease removal devices (such as traps or interceptors), including design standards for the removal devices, maintenance requirements, BMP requirements, record keeping and reporting requirements;
6) Make sure that the agency has the authority to inspect grease producing facilities, enforcement authorities, and whether the agency has sufficient staff to inspect and enforce the FOG ordinance;
7) Identify sections of the sanitary sewer system that are subject to FOG blockages and establish a cleaning maintenance schedule for each section; and
8) Develop and implement a source control and/or cleaning program for all sources of FOG discharged to the sanitary sewer system.

9.4 Evaluation

Does the agency have a FOG problem?

Yes, however, past SSOs have been a combination of FOG and system related issues. A comprehensive and practical plan will be developed and implemented by the City. Both funding and resources need to be identified and secured to implement this next phase.

Typically, data is provided that can prove or disprove the presence of a FOG issue. Data that may be used to make a determination includes:

1) *SSO Reports including the cause of blockage;*
2) *Cleaning and other maintenance data that identifies FOG as a potential problem;*
3) *CCTV inspection reports that identify areas or sources of FOG;*
4) *Master list of restaurants that discharge to the sanitary sewer system and that could potentially cause a FOG related problem*

Does the FOG control program have a plan and schedule for public education to promote the proper disposal of FOG?

The City has an informal public education program to promote the proper disposal of FOG. Information on proper disposal of FOG and other SSO prevention measures, including installation of backwater valves, house lateral maintenance, etc. disseminated through public events. In fact, one such event took place at the Los Angeles County Fair where the City has set up a booth to handout brochures on FOG and water conservation. The City's has provided information on its home web page by posting the 2013 SSMP and other related sewer documents., The City has not explored the use of radio and television announcements and other aggressive means to get the word out.

Does the FOG control program provide for the proper disposal of FOG generated within the Agency's jurisdiction including a list of acceptable disposal sites?

No. Much like the ***Guide for Developing and Updating of Sewer System Management Plans (SSMPs)*** *prepared in September 2013, this list has to be prepared without the appearance of bias.*

.

Is there a FOG ordinance or other legal authority that prohibits the discharge of FOG into collection system?

The City ordinances have language pertaining to FOG in the sanitary sewer system within the City of Pomona. What is included in the Division 3.Sand and Grease Traps ordinance makes reference to installation, packing, and maintenance of grease traps and grease interceptors.

Does the FOG control program require the installation of grease removal devices including design standards and maintenance requirements for grease removal devices?

The City does have requirements for grease removal devices as part of its ordinance pursuant to Division 3.

Does the FOG control program require the use of BMPs including record keeping and reporting requirements?

Yes, the City has requirements for the use of BMPs.

If required, what are the minimum required BMPs?

The City requires kitchen and restaurant best management practices to be implemented such as installation and maintenance of grease traps and sand traps

Does the FOG control program or ordinance provide the authority to inspect grease producing facilities?

It does not appear that the City ordinance has language for the inspection of grease producing facilities within the City boundaries. The City will be working on the area in the next phase of the SSMP process.

Does the FOG control program provide the legal authority and ability to enforce the FOG program?

It does not appear that the City ordinance has language for the enforcement of FOG discharges to the sanitary sewer system within the City boundaries.

Does the Agency have sufficient staff to inspect and enforce the FOG program or does the agency utilize a contractor for assistance?

The City does not have enough staff needed to inspect, and enforce a FOG program. The eventual goal was to first establish the program using outside sources. The program would be funded by charges to the establishment. Once established, and after the City gets familiar with the program, they would implement changes to the organization so that in-additional house would take over and enforce the program.

Has the Agency identified segments of the collection system that are prone to FOG blockages and has an enhanced cleaning program been established for these trouble areas?

The City has informally identified segments of the sewer system prone to FOG blockages and implemented regular cleaning, however, this has not been reflected on GIS or subjected to a trend analysis. In all of the cases so far, any spills which have occurred in the City's system have been the result of multiple factors not just FOGs accumulations.

Has the Agency developed source control measures for all sources of FOG that discharge into known trouble areas?

It does not appear that the City has any hot spots solely resulting from to FOG blockages or has established source control measures in place other than language in the City ordinance. This language describes prohibitions on the discharge of any materials or obstructions that have the potential to clog, obstruct or fill the sewer or will interfere with or prevent the effective use of the sewer system.

9.5 Recommendations

The City of Pomona will need to develop and implement a comprehensive FOG program with the requirements described in the WDRs, in addition to the language within the city's ordinance. For this reason, it is important for the City to conduct its own investigation of "hot spots" caused by FOG so that it can begin to enforce the FOG program requirements. The process should begin with a detailed assessment of the sewer system problems. As SSOs occur, they can be included in a GIS system that includes the sanitary sewer system within the City. The following is a list of projects that can be developed utilizing a sewer system GIS:

- *Inventory and Characterize Potential FOG Sources*
    - *GIS Application for the identification of sewer system blockages due to FOG and their potential sources*
        - *Identify and color code sewer collection lines subject to blockage*
        - *Identify and plot all SSOs resulting from FOG blockages*
        - *Development of a GIS based "hot spots" application for regular cleaning with query and reporting capabilities on the frequency of the said cleaning by location/date*
        - *Development of a GIS based "source identification" application to identify and plot potential sources of FOG in "hot spot" areas*
            - *Include query and reporting capabilities to view the current land use, past inspection reports and the condition of grease removal equipment installed at these potential sources:*
                - *Food service establishments (including restaurants, hospitals, nursing homes, grocery stores, caterers and commissaries)*
                - *High density multi-family dwellings*
                - *Residential – single family dwellings*
                - *Food manufacturing (industrial)*
- *Develop legal authority to impose FOG program requirements*
    - *Additional ordinance language, if necessary*
    - *Inspection program*
    - *Jurisdiction's regulatory authority over private and public property*
- *Monitoring and enforcement*
    - *Inspection, utilizing the sewer system GIS*
        - *Based on the "hot spot" source identification application, develop a prioritized inspection schedule to target establishments that are in FOG prone areas*
        - *Inspect food service establishments regularly*
        - *Inspect grease interceptor and grease traps regularly*
        - *Integrating the inspection results into a GIS based Computerized Maintenance Management System*

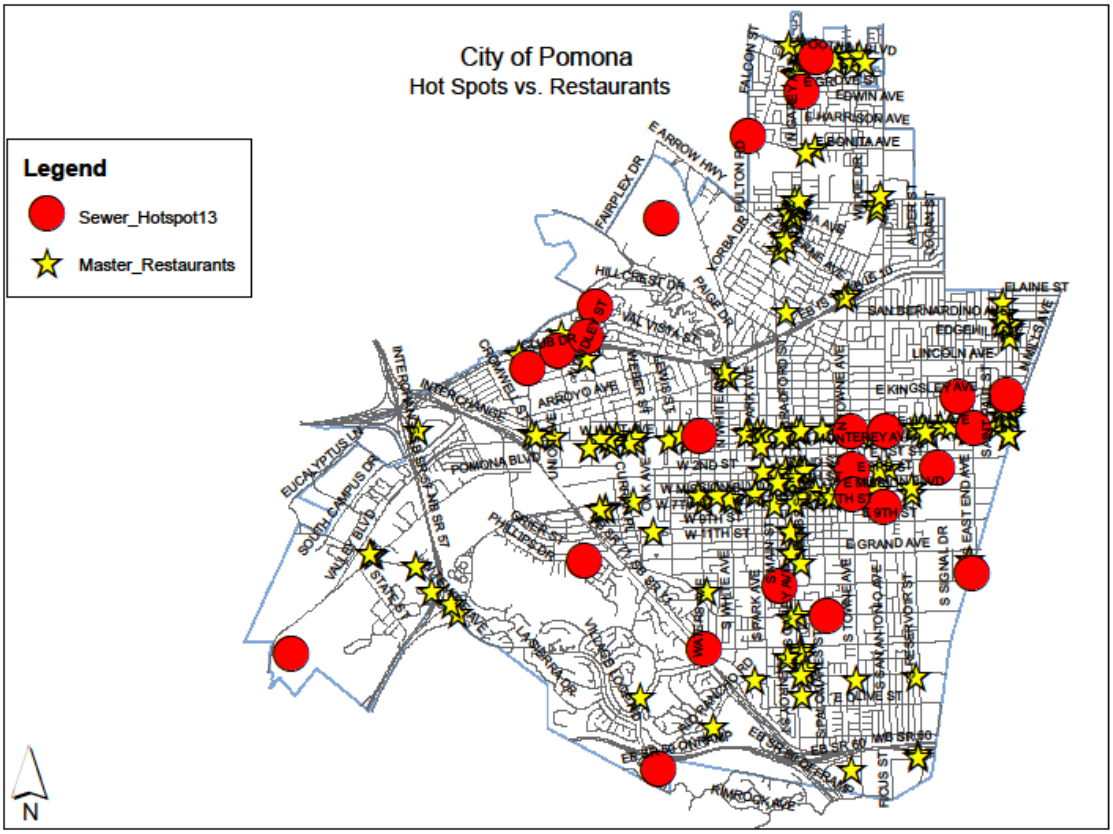


Figure 2: Sewer Hotspots

- *Enforcement, utilizing a GIS based Code Enforcement Module*
  - *Ensure due process within defined legal authority*
  - *Escalating enforcement structure*

- *Lastly, specific sections of the 2013 SSMP need to be address the following items:*
  - ***Section 6.2**: City has initiated an initial survey of Food Service Establishments but it is not complete. Additional surveys will have to be conducted to include schools and convalescent homes.*
  - ***Section 6.4:** Staff has reached out to public by creating a booth at the Los Angeles County Fair in September 2015; FOG brochures in Spanish and English were handed out by staff; Public outreach: Did not hold the Annual Public Works Fair in 2015; they continue to pass out fliers and other public events*
  - *The City still does not have a list of acceptable disposal facilities yet; struggling with this since we may be seen as endorsing certain private firms; this is discussed in the guidance manual*
  - *The City has not yet established standard details for grease trap installations*
  - *There has been changes to the High Frequency Maintenance Locations (Hot Spots) as repairs are made through the CIP program*

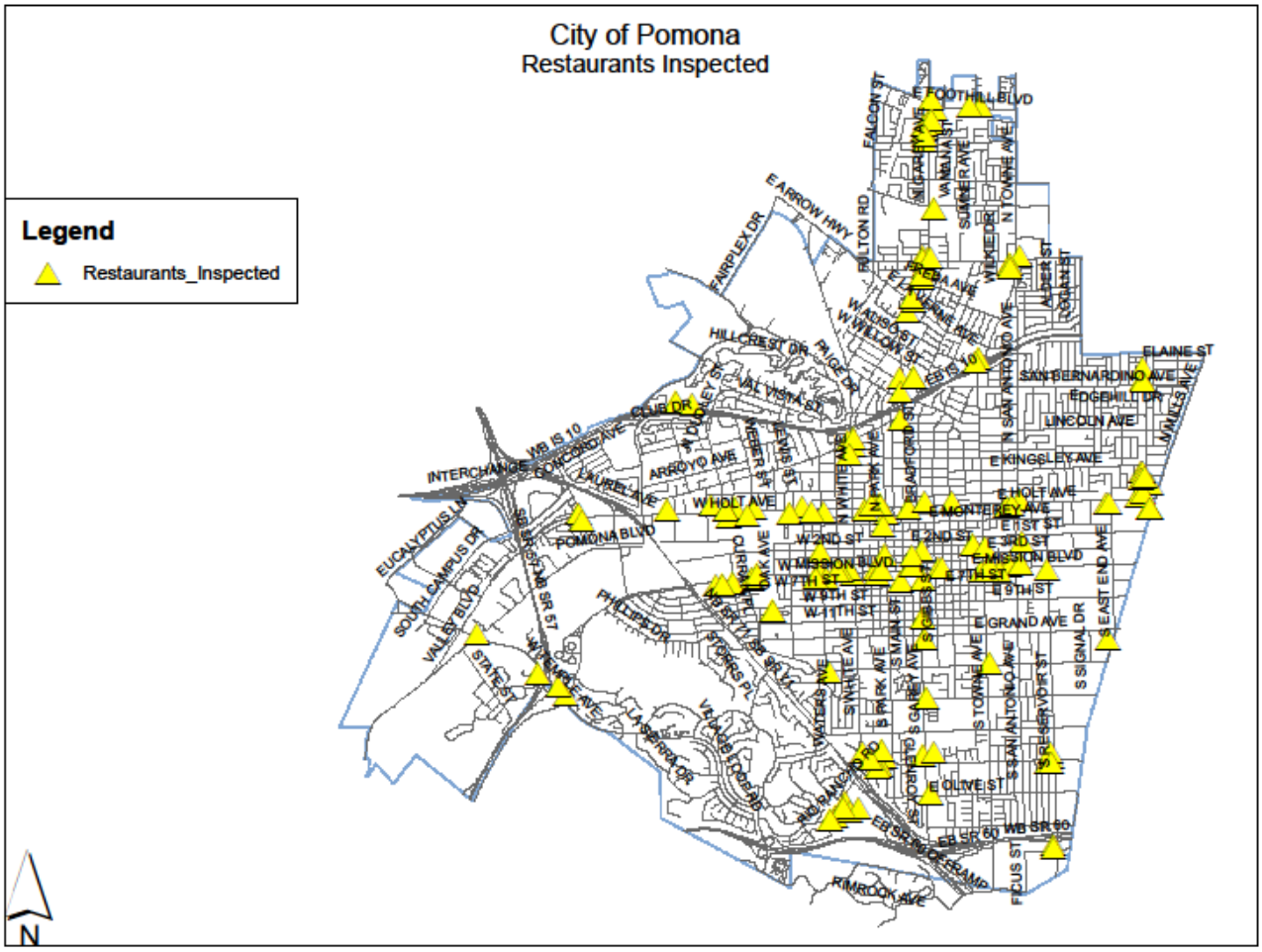


Figure 3: Restaurants Inspected

SECTION 10 - System Evaluation and Capacity Assurance

D. 13 (viii) System Evaluation and Capacity Assurance Plan: The Enrollee shall prepare and implement a capital improvement plan (CIP) that will provide hydraulic capacity of key sanitary sewer system elements for dry weather peak flow conditions, as well as the appropriate design storm or wet weather event. At a minimum, the plan must include:

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

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

(c) **Capacity Enhancement Measures:** The steps needed to establish a short- and long-term CIP to address identified hydraulic deficiencies, including prioritization, alternatives analysis, and schedules. The CIP may include increases in pipe size, I/I reduction programs, increases and redundancy in pumping capacity, and storage facilities. The CIP shall include an implementation schedule and shall identify sources of funding.

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

10.1 Overview

This element of the SSMP includes several major programs and activities regarding development of a capital improvement plan and hydraulic analysis. Most of the requirements would be satisfied by a recent collection system master plan.

10.2 Purpose

An important step in attempting to minimize the amount of SSOs in a given system, one must determine how the system will react to different conditions and stresses. Once this is achieved, City officials can identify areas in need of improvement and prioritize projects for a capital improvement program.

10.3 Minimum Requirements

At a minimum, each enrollee must:

1) Describe the methods used to identify areas of the sanitary sewer system that lack the sufficient capacity to convey an appropriate peak flow;
2) Establish consistent design criteria;
3) The identification of capacity needs and the approach used to take the results of the capacity evaluation to produce a prioritized list of capacity improvement projects; and
4) The development of a project schedule that addresses both condition-related and capacity-related projects.

10.4 Evaluation

Has the City had a recent collection system master plan done?

No, the City of Pomona has not completed a comprehensive sanitary sewer master plan since 2005. Staff has included the development of a Sewer Master Plan in the 2015 Strategic Plan RFP. In addition to the system overview, population projections, hydraulic model, and CIP program development, the goal is to develop flexible reporting tools for staff. The hope is that we can develop ways to get the word out quicker and more consistently with immediate staff, upper management, and residents. So, in this regard, it is a departure from normal master planning efforts.

Has the City performed a hydraulic capacity study to identify areas within the system that are contributing to SSOs?

The City of Pomona has a hydraulic model that includes 10 inch and larger diameter pipes that was developed for the 2005 Sewer Master Plan. However, these pipes constituted only 15% of the system and therefore another hydraulic modeling encompassing 100% needs to be developed. The RFP for the Strategic Plan will include the development of a sewer hydraulic model that incorporates mains 8"and larger. This model will reflect at least 98% of the City's sewer conveyance system.

Does the City have an established CIP to address hydraulic deficiencies, including prioritization alternatives analysis, and schedules?

The City has adopted a CIP that has been based on the 2005 sewer master plan and the CCTV work performed in 2010. However, the hydraulic modeling to date does not include 75% of the system that were 8 inches in diameter or less, and focused the modeling on 10 inch and larger

diameter pipes. This potentially omitted 8 inch or smaller pipes that were hydraulically deficient and therefore needed to be addressed in future the CIP projects.

10.5 Recommendations

The following is a summary of our comments and recommendations:

1. *A comprehensive sewer CCTV program was conducted in 2010 wherein the entire wastewater system was CCTVd by an outside firm and in-house wastewater crews. These condition assessment footages along with in-house camera work have initiated an on-going annual repair and rehabilitation CIP program.*
2. *A comprehensive manhole inspection program should be developed to complete the initial condition assessment of the City's manholes. Under the 2010 contract, only 25% of the City's manholes were field inspected. Defective sewer manholes and their appurtenances are one of the biggest sources of Inflow and Infiltration and as such need to be evaluated on a regular basis. Due to pavement subsidence, manholes in the middle of a street can still react as area drains with large amounts of rain runoff entering the manhole through lid and frame openings. Infiltration through manhole walls can also allow a large amount of water into the system.*

CITY OF POMONA
MANHOLE CONDITION ASSESSMENT FORM

Quadrant #:	4	Inspection Firm:	Tran Consulting Engineering	MH ID No.:	3048
Inspection Date:	6/24/2009	Inspection Time:	9:16	Field Book Page:	N27
Dispatch:	No Action	Inspection Crew:	Innerline Engineering	Street:	COUNTY RD

Dispatch Comments:

DEFECT	BROKEN*	CORROSION*	ROOTS*	I/I CODE**
Cover				
Frame				
Frame Seal				
Grade Ring				
Riser				
Cone				
Wall				
Bench				
Trough				

* SEVERITY CODE: 1) MILD: <25% 2) MODERATE: 25-50% 3) SEVERE: >50%
** I/I CODE: 1) INFLOW 2) INFILTRATION

ATMOSPHERE

Note: All measurements at MH bottom

OXYGEN	20.9	%
LEL	0	%
H_2S	0	PPM
CO	0	PPM

OBSERVATION		CODE NO.	CODE
Access:		1	1) DRIVE, PAVED 2) DRIVE, UNPAVED 3) DRIVEWALK < 30' 4) DRIVEWALK > 30' 5) NO MAINT. ACCESS, EASY WALK 6) NO MAINT. ACCESS, DIFFICULT WALK 7) ON MAINT. ACCESS, EASY WALK, CONTAC PROPERTY OWNER 8) NO MAINT. ACCESS, DIFFICULT WALK, CONTACT PROPERTY OWNER
Inspection Type:		2	1) INTERNAL 2) SURFACE 3) NOT INSPECTED 4) BURIED 5) NOT FOUND
Structure Type:		1	1) STND 2) CLN OUT 3) IN DROP 4) OUT DROP 5) ROCK TRAP 6) FILLED IN 7) TEE 8) JUNCTION
Location:		1	1) STREET 2) ALLEY 3) SIDEWALK 4) DRIVEWAY 5) PARKWAY 6) YARD 7) PARKING LOT 8) STORM DITCH 9) CREEK BED 10) OPEN SPACE
Surface Type:		1	1) ASPHALT 2) CONCRETE 3) GRAVEL 4) LANDSCAPING 5) NATIVE VEGETATION
Cover:	Type:	1	1) PICK 2) CONCEALED PICK 3) GASKETED 4) VENTED 5) STORM 6) 5/8" ALLEN BOLT 7) 3/4" ALLEN BOLT 8) PLASTIC 5 BOLT 9) ALFALFA BOLT
	Fit:	1	1) GOOD 2) TIGHT 3) LOOSE 4) ROCKING 5) BOLT MISSING 6) GASKET BAD/GONE 7) GOOD O-RING
	Seal:	1	1) NONE 2) GASKET 3) SILICONE
	Securing:	1	1) NONE 2) STRAPPING BAR 3) ANGLE IRONS 4) 5/8" ALLEN BOLT 5) 3/4" ALLEN BOLD 6) 5 POINT BOLT 7) ALFALFA BOLT 8) 6 POINT BOLT 9) BURIED 10) ASPHALT CAP 11) CONCRETE CAP
	Size:	24	DIAMETER IN INCHES
Frame:	Offset:	1	1) NO 2) YES
Grade Ring or Riser:	Type:	2	1) NONE 2) PRECAST 3) BRICK 4) BLOCK 5) POURED 6) PLASTIC 7) MORTAR 8) LINED
	Height (in)	18	IF > 18" ADD COMMENT
	Min. Dia. (in):	24	IF < 36" ADD COMMENT
	Comment	Riser diameter is < 36".	
Cone:	Type:	2	1) NONE 2) PRECAST 3) BRICK 4) BLOCK 5) POURED 6) BRICK/CONCRETE 7) CLAY 8) PVC 9) LINED
	Shape:	2	1) CONCENTRIC 2) ECCENTRIC 3) FLAT TOP
Wall:	Type:	2	1) NONE 2) PRECAST 3) BRICK 4) BLOCK 5) POURED 6) BRICK/CONCRETE 7) CLAY 8) PVC 9) LINED
	Diameter (in.)	48	
	Height (in.)	50	IF <= 36" ADD COMMENT "Calculated in field." IN COMMENT SECTION BELOW.
	Comment		
Bench:	Type:	6	1) NONE 2) PRECAST 3) BRICK 4) BLOCK 5) POURED 6) LINED
Trough Type:		3	1) NONE 2) PRECAST 3) POURED 4) VCP 5) PVC 6) BRICK
Steps:	Type:	4	1) NONE 2) BAR 3) CAST IRON 4) PLASTIC 5) PLASTIC COATED STEEL
	Condition:	1	1) GOOD 2) CORRODED 3) MISALIGNED 4) BROKEN 5) MISSING 6) UNSAFE
Manhole:		1	1) NO 2) YES
MH Insp. Depth (ft.):		8.67	RIM TO BENCH
Surcharge: Height Above Bench		0	0) NONE, IF SURCHARGE EVIDENT, RECORD DEPTH OF SURCHARGE (INCHES)

Figure 4: Manhole Condition Assessment Form

3. *Flow monitoring data showing basins with high inflow and infiltration (as high I/I is indicative of infrastructure defects) and areas with known problems should be investigated first. Field observations also help to gather information needed to make an informed decision on rehabilitation for manholes.*

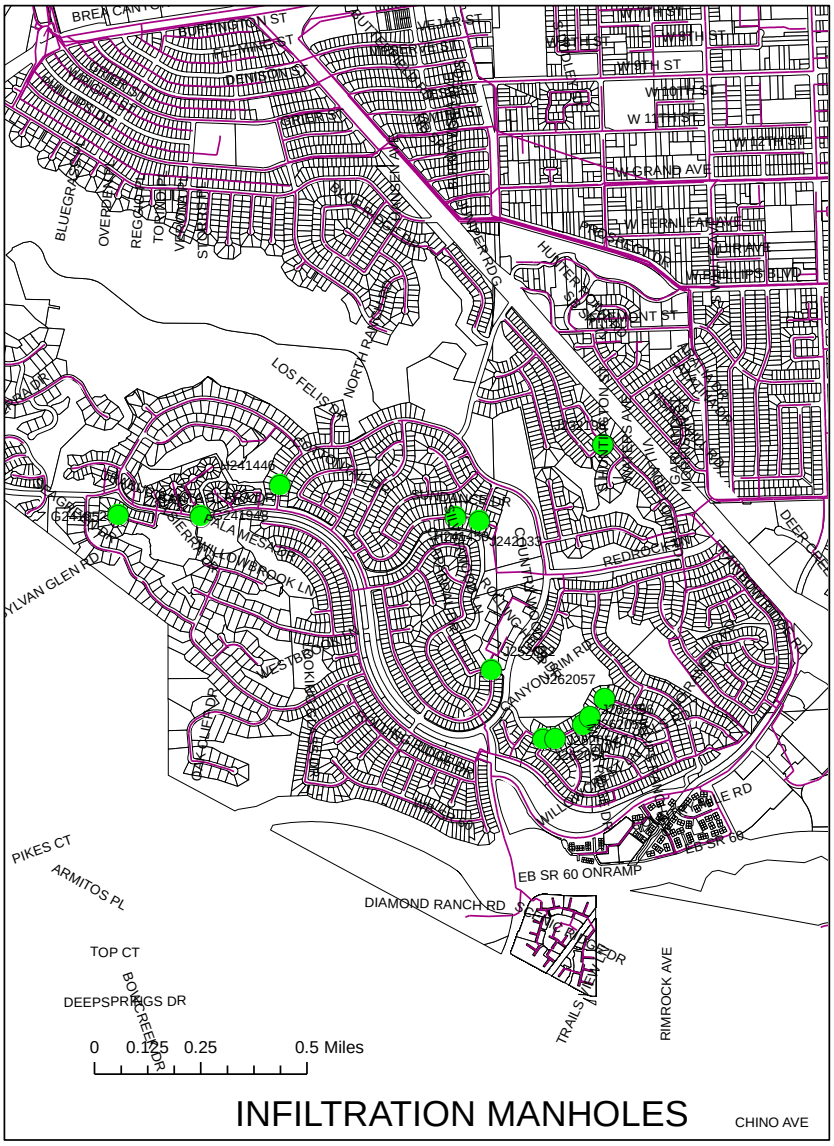


Figure 5: Infiltration Manholes

4. *Sewers are no longer replaced based on age alone as the majority (87%) of the system is VCP and VCP can last longer than 50 years depending on soil conditions, loadings, root intrusion, and other issues. Only infrastructure needing replacement should be scheduled in the CIP based on age, breaks, CCTV inspections, defect, and pavement conditions.*
5. *The City adopted a new General Plan in March of 2014. It would be beneficial to re-evaluate land use and corresponding wastewater generation using information from the City's latest General Plan.*

6. *Only "major" sewers (primarily those 10 inches in diameter and greater) were included and evaluated in the hydraulic model. This is 47 miles of the 317 miles of gravity sewers in the City's system, which is 15% of the system. There are 267 miles of 8-inch sewer in the system, which is 75% of the system, which was not included as well as 2.9 miles of 4-inch and 6-inch sewers.*
7. *All of the sewers should be detailed in the City's sewer GIS for documentation and operation and maintenance purposes. All sewers should then be imported into the hydraulic model and evaluated in the hydraulic analysis. Smaller sewers have the same likelihood as larger sewers to be over capacity depending on sewer slope relative to peak flows carried in the sewer. In order to demonstrate capacity assurance and to show due diligence in preventing overflows due to hydraulic deficiencies, the entire sewer system should be hydraulically evaluated with the model. If the City captures mains that area 8" or greater in their hydraulic model, it would be sufficient*
8. *There is no standard wet-weather design storm to evaluate sewers with, so sewers should be designed to carry peak dry-weather flows within the appropriate d/D ratios, which were developed so sewers would have capacity to carry wet-weather flows safely. This is industry standard criteria. Sewers with diameters 10 inches and greater (15% of the system) were evaluated in the 2005 Master Plan for peak dry-weather flow capacity with a criterion of no surcharging, i.e. d/D ratio of 1.00 or less, which is too high. It is important to assess sewer capacity with appropriate d/D ratios and also to err on the side of being conservative because the LACSD sewers are not modeled, i.e. a free discharge is assumed, and there could actually be backwater from the LACSD sewers during high flow conditions or due to constrictions or obstructions in their system.*
9. *Sewers with diameters 10 inches and greater (15% of the system) were evaluated in the 2005 Master Plan for wet-weather flow capacity with a criterion of no surcharging greater than 125% of pipe diameter, which is too high for a 2-year recurrence interval storm. No flow level above the top of pipe should be allowed for recurrence-interval storms less than or equal to 5 years.*
10. *For the 2005 hydraulic model, wet-weather flows were captured at 14 flow metering sites, but there is no reporting of the magnitude of inflow and infiltration (I/I) metered in the associated meter basins. Wet-weather flow monitoring should be used to identify relative I/I in the basins metered because higher I/I is indicative of sewer system defects that let water into the system. Higher I/I basins should then be investigated via sewer CCTV and manhole investigations to identify and rehabilitate the defective infrastructure components. Considering the size of the City's sewer system, more meters are needed to identify I/I in more areas of the system. This information should then be reported in the master plan and then used to investigate the system where high I/I is occurring.*
11. *A Sewer Rate Study should be conducted to ensure that the entire cost of the CIPs as well as other elements of WDRs are incorporated. This should include fees for the FOG program, including, equipment replacement, new regulations, inspections and FOG mitigation.*

SECTION 11 - Monitoring, Measurement, and Program Modification

D.13 (ix) Monitoring, Measurement, and Program Modifications: The Enrollee shall:

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

11.1 Overview

It is critical that the City monitors implementation of the SSMP elements, and measures the effectiveness of SSMP elements in reducing SSOs. Effectiveness should be measured by developing and tracking performance indicators on a regular basis. Performance indicators should be selected to meet the goals of the wastewater collection system agency.

11.2 Purpose

In order to effectively manage programs, performance measures that gauge success should be developed and data to support the findings must be collected. To this end, accurate and consistent data keeping is extremely important for successful sewer system management. It is imperative that the correct data is captured, in a format that is easily extractable, and that operations personnel understand their role in this process. Focus should be placed on performance metrics, components of trend tracking, and bench-marking procedures both internally and externally. Based upon data collected decisions can be made as to changes that may be warranted and needed in order to maximize program efficiencies. Setting up a Monitoring, Measurement, and Program Modification program will allow a community to better manage and implement SSMP programs.

11.3 Minimum Requirements

At a minimum, the enrollee must:

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

11.4 Evaluation

Has the City developed and do they maintain a data management system necessary to collect adequate information regarding their SSMP programs?

The City maintains a data management system that tracks program performance so as to report its findings to executive management on sanitary sewer system performance. The Director is in the process of developing a reporting program, known as SEDARU, to make this effort more readily available.

Was this data management system developed in a manner that collects relevant information, necessary to determine program effectiveness?

Yes, it is being developed to report on what is currently happening as well as possible scenarios. The program is expected to be able to extract information form the sewer hydraulic model, financial information, and CIP progress.

Have data reports been developed, which measure the effectiveness Of SSMP programs?

Yes; it does appear that reports have been developed that measure SSMP program effectiveness by establishing KPI such as miles of cleaning and number of SSOs per year.

Are program indicators and measures, as well as relevant data reports reviewed on a regular basis?

The City of Pomona has implemented a cleaning program that targets cleaning of every sewer line segment on an at least 1.5 years basis. The footages cleaned on "dailies" are kept in written and electronic format.. Staff maintains running totals on all of KPIs in an Excel.file.

11.5 Recommendations

The City should continue to develop a reporting program that focuses on collecting data from all relevant sources, which will provide the City with critical information associated with the performance of the City's sanitary sewer system and associated programs. The City should begin to communicate with all relevant agencies on a regular basis (at a minimum monthly) to go over both the progress and performance of all programs, as well as issues that arise during the subject time period.

The City has evaluated various Computerized Maintenance Management System (CMMS) to help track all Personnel, Equipment, and Material. One such program that appears to meet their needs is the CityWorks program. Whichever program is chosen, the system must be be integrated with GIS to help with trend analysis for Hot Spots, FOG, SSO mapping as well as CIP tracking. Furthermore, a system for communication and data submittals that are associated with SSOs and sewer backups that are reported to the online SSO database should be developed. A matrix of Key Performance Indicators should be developed that would help the City develop its Measurement, Monitoring and Reporting Procedures (MMRP).

*Lastly, **Section 11.2** should be modified to reflect Mr. Poulsen's new job title.*

SECTION 12 - Program Audit Procedures

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

12.1 Overview

Audit programs are intended to provide controls for ensuring that all programs associated with the SSMP are being implemented as planned and managed appropriately. Audit outcomes should provide information about challenges and successes in implementing the SSMP by evaluating work practices and operations, documentation, procedures records and staff for implementation effectiveness and consistency. The audit will identify any program or policy changes that may be needed to continually improve effective implementation. Information collected as part of an audit should be used in to plan program or procedure revisions necessary to improve program performance.

12.2 Purpose

SSMP audit program development should be developed specifically for the sanitary sewer system, but agency-wide procedures should be incorporated to ensure program sustainability. The audit can contain information about successes in implementing the most recent version of the SSMP, and identify revisions that may be needed for a more effective program. Information collected as part of the Monitoring, Measurement, and Program Modifications program should be used in preparing the audit. Quite often, performance measures and other management indicators are developed, providing a baseline that performance can be measured against. Tables, figures, and charts can be used to summarize information about these indicators. An explanation of the SSMP development and accomplishments in improving the sewer system should be included in the audit, including:

- Progress made on development of SSMP elements, and if the sewer system agency is on schedule in developing all elements of the SSMP;
- SSMP implementation efforts over the timeframe in question;
- The effectiveness of implementing SSMP elements;
- A description of the additions and improvements made to the sanitary sewer collection system in the past reporting year; and
- A description of the additions and improvements planned for the upcoming reporting year with an estimated schedule for implementation.

12.3 Minimum Requirements

The WDR requires that all agencies develop appropriate audit procedures necessary to evaluate the effectiveness of the SSMP, as well as the agency's compliance with all requirements identified in the WDR. The audit must identify any deficiencies in an agency's SSMP programs and include steps to correct these issues. At a minimum, audits must be conducted every two years and a report of the findings must be prepared and kept on file.

12.4 Evaluation

Has an audit program been developed to ensure programs are being implemented as intended?

Yes; this will be the first audit after the 2013 SSMP utilizing WDR approved audit checklist.

Are programs developed with a clear understanding of expectations?

Yes; discussions take place between Engineering and the Wastewater Supervisor on KPI, new nozzle acquisition, training, etc..

Have performance measures been identified and benchmarks established to determine programmatic success?

Yes; there are key performance indicators for SSO per mile and line cleaning goals.

Do audit checklists exist that focus on compliance as well as continual improvement?

Yes; in developing this audit, BACWA Checklist was evaluated as well as other related references

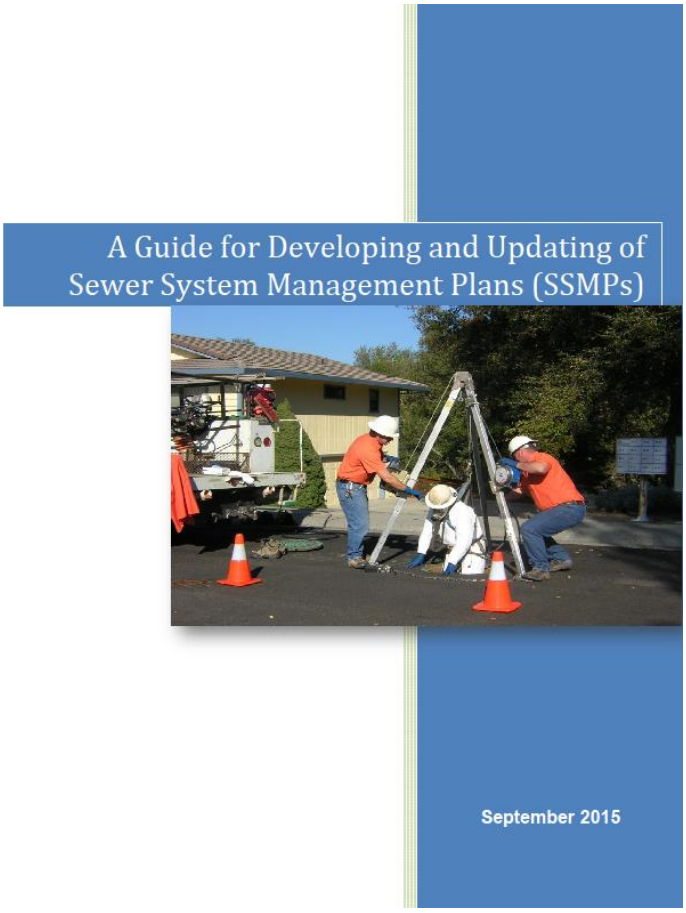


Figure 6: Guide for Developing and Updating SSMP Plans

Has an individual been assigned to perform the audit?

Yes; Raul C Garibay

Is there a process to utilize outside organizations to perform audits?

Yes; as we have done in 2012, we can go outside to procure the services of an outside firm to conduct an audit. This audit, however, is being performed in-house to reduce operating costs.

Does the entity performing the audit have enough authority to carry out all necessary data gathering?
Yes.

Does your agency's executive management fully support and authorize the audit procedures?

Yes, the City's management and Council would support and authorize the audit procedures.

Are audit finding and reports reported directly to agency management?

Yes.

Are random interviews conducted throughout the organizations and at all levels within the organizations hierarchy that may provide beneficial information regarding staff procedures and staff's knowledge of those procedures emphasizing identification, problem solving, and prevention opportunities?

No.

Does the communication to staff focus on the purpose of the audit to ensure effective staff participation in the audit process, (The audit is of the SSMP implementation, not of individuals)?

No.

12.5 Recommendations

The City needs to continue to implement an audit program that addresses the questions identified above. There should be one or two individuals designated internally that are charged with performing these audits on a regular basis. These individuals should report their findings to the LRO and City Council and utilize the results to effect needed changes. Additionally the audit program should address:

- *Document Control*
- *Training*
- *Targets and Objectives*
- *Data Management*
- *Documented Procedures*
- *Outcomes*

SECTION 13 - Communication Program

(xi) **Communication Program** – The Enrollee shall communicate on a regular basis with the public on the development, implementation, and performance of its SSMP. The communication system shall provide the public the opportunity to provide input to the Enrollee as the program is developed and implemented. The Enrollee shall also create a plan of communication with systems that are tributary and/or satellite to the Enrollee's sanitary sewer system.

13.1 Overview

Communication programs are often underrated and overlooked. However, an effective communication program may end up being the key element that keeps your organization from missing critical SSMP deadlines. Involving the public early and at appropriate times will help your organization avoid last minute comments that delay approval of your SSMP by your governing body. A quality communication program with satellite agencies will help to minimize negative operational impacts on your plant or collection system.

It is important to identify an individual who will be responsible for development of your communication program. Larger agencies will typically have Communications and Media Officers or Public Information Officers who are appropriate to lead the development of the communication program. Smaller agencies who don't have these staff in-house should look to those within the agency who have exhibited strong writing skills, public speaking skills, experience with customer interface, or have successfully completed controversial projects. A self-assessment and rough timeline follow to help you on your way to a successful communication program!

13.2 Purpose

Identifying key stakeholders and key issues, and thinking about how various stakeholders might react is the first step to developing a communication plan. Understanding what elements of an SSMP they will be most concerned with, is one of the many potential considerations that an agency may identify. Involving the right stakeholders on potentially controversial issues as early as possible is important to the success of any new program. Emphasizing collaboration and shared goals to reach a workable solution will not always ensure buy off, but will promote ownership and understanding. Avoiding proper outreach efforts for controversial issues in the hope that interested parties won't catch on usually backfires. These issues should be considered when developing a communication program

13.3 Minimum Requirements

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.

13.4 Evaluation

Have resources necessary to solicit and incorporate input on each phase of your SSMP (development, implementation, and performance), as well as document your outreach, efforts been identified?

It does not appear that the above has been completed.

Have a lists of stakeholders who will be interested in each phase of your SSMP been developed?

It does not appear that a list was established. However, the residents and the City Council have been made aware that the City won recognition as the best Mid-Sized Wastewater Collection System in the State of California in2014. This award was the result of a statewide competition with other sewer agencies via the CWEA organization.

Have key milestones in each phase of your SSMP when stakeholder input would be most useful and effective been created?

Based upon information provided by the City, it does not appear that the above has been completed.

Has a convenient way for your stakeholders to provide input at appropriate milestones during each phase of your SSMP been identified?

Based upon information provided by the City, it does not appear that the above has been completed.

Have all tributary and/or satellite systems to your organization's sanitary sewer system been identified?

Yes, those satellite agencies include the city of La Verne and the City of Claremont, Pomona Unified School District, and Cal-Poly Pomona University.

Has an individual within your organization who is responsible for interface with satellite systems been identified?

Yes: Raul Garibay.

Has a list of key information you would like to communicate to satellite systems, as well as key information you would like them to communicate to your organization, been developed?

Yes; there were attempts to meet with the City of Claremont, City of La Verne and Cal-Poly Pomona. Staff followed up with verbal and face-to-face discussions with each agency.

13.5 Recommendations

Develop a communication program that addresses the above evaluation questions. Additionally, the City may want to consider addressing the following issues:

- *Identify resources necessary to solicit and incorporate input on each phase of your SSMP (development, implementation, and performance), as well as document your outreach efforts.*
- *Identify key community stakeholders and key issues that various stakeholders may be interested in and/or concerned with.*
- *Make sure to involve the right stakeholders on potentially controversial issues as early as possible. Emphasize collaboration and shared goals to reach a workable solution.*
- *Create a list of key milestones in each phase of your SSMP when stakeholder input would be most useful and effective.*
- *Create a convenient mechanism for stakeholder input. Additionally, key considerations, while developing a communication program include:*
- *Continue to develop of a variety of communication methods, including newsletters, public meetings, web pages, and public service announcements. Different agencies will find that different communication methods are effective. Look for a method that reaches the desired audience at a reasonable cost.*
- *Consider joint efforts to develop a website with other agencies or professional organizations and share costs. The website could contain general information about the new Waste Discharge Requirements and SSMP components provide space to make documents available for public review, and contain contact, meeting times and locations, and other agency-specific information.*
- *For communication with other satellite agencies, continue regular coordination meetings, annual surveys for changes in their system, and/or web pages devoted to satellite agency issues.*
- *Include a copy of latest communication between the City and staff regarding the request to take over the force mains for the other sewer lift stations.*

Appendicies

In addition to the updates and/or deletions from the 2013 SSMP, the following Appendicies items need review and possible updating:

- ***Appendix A, Excerpts for Pomona's City Code***: No change required

- ***Appendix B, Recommended Legal Authority***:
  - Need to review and move forward with making changes to the City Ordinance
  - The definitions provided in the City Ordinance need to be updated

- ***Appendix C, City of Pomona Operations and Maintenance Program***:
  - Not much discussion on manhole inspections; the only record of such inspection was performed by Trans consulting and that only covered 15%; need to talk about what will be done in the future to bring that up to a larger and reasonable inspection ceiling
  - Need to develop a program for identifying and recording sewer easements; especially those that are deemed in accessible; need to put together a schedule for doing this work; who knows, as a result of finding these easements, it may require or be in the best interest of the City to relocate the facilities in its entirety
  - Talk about recent exposure to new repair technologies at the Tri State Seminar; especially the joint repair in place
  - It does not appear that the equipment and material inventory lists have been updated
  - **Figure 12-1**: Needs to reflect Darron's new position and title; also, need to remove the reference to the PW Director

- ***Appendix D, City of Pomona Sanitary Sewer Overflow Emergency Response Plan***:
  - **Table 2-3**: Needs to reflect Darron's new position and title; also, need to remove the reference to the PW Director
  - **Attachment B, Sewer Service On-Call Response Personnel**: Needs to reflect Darron's new position and title; also, need to remove the reference to the PW Director
  - **Attachment E, Sanitary Sewer Overflow Notification List**: Needs to reflect Darron's new position and title; also, need to remove the reference to the PW Director
  - **Attachment G, Possible Methods for Estimating Spill Volume:** Based upon the presentation at the last Tri-State Seminar, the City's methods do not include the bucket method; different ways to measure; point is to come up with ways to confirm spill number

- ***Appendix E, City of Pomona's Fats, Oil, and Grease Control Program Characterization Study***:
  - **Page 8**: Remove reference to the Utility Services Director and replace with the Water/Wastewater Operations Director, Darron Poulsen

- ***Appendix F, City of Pomona Fats, Oil, and Grease Control Program***:
  - No formal program has been developed yet
  - Talk about the initial inspection list of FSEs

- ***Appendix G, City of Pomona Sewer Design Policy and Standard Drawings***:
  - **Section 4.2**, Talk about the in place joint repair system from the Tri-State Seminar that places a "packer type sleeve" in the pipe; also include the presentation from Mr. Badgley and the application of polyethelene lining to perform manhole repair
  - For the 2018 SSMP, the Standard Drawings that have been adopted since the 2013 SSMP need to be included

- ***Appendix H, Sewer Lift and Force Main Transfer***: Working with the LACSD, they have been working with the LACSD to turn over all of the remaining force mains; staff has been in discussion to involve them in the design of duplicate force mains to ensure of an eventual transfer of force mains for the remaining Pump Stations.

- ***Appendix I, WEF Flyers, Council Presentation, PW Week***:
  - Need to include pictures of the regional Award as well as the State award; maybe be good to provide the picture of the City being noted or recognized in San Diego

- ***Appendix J, 2010 and 2012 SSMP Audits***: No change required; for the 2018 SSMP, the 2015 and 2017 audits should be inserted here

- ***Appendix K, Satellite Agreements***: No change required