City of Whittier Sewer System Management Plan

Revised November 2014

(Adopted by City Council and the Whittier Utility Authority on December 9, 2014)

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Introduction

Background

This Sewer System Management Plan (SSMP) has been prepared in compliance with the State Water Resources Control Board (SWRCB) Order 2006-0003: Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (GWDR), as revised by Order No. WQ 2008-0002.EXEC on February 20, 2008, and amended by Order No. 2006·0003-DWQ, Monitoring and Reporting Program, effective September 9, 2013. The GWDR prohibits sanitary sewer overflows (SSOs) and requires reporting of SSOs using the statewide electronic reporting system. The SSMP should be updated as needed to reflect changes to the SSMP elements.

Organization of SSMP

The structure of this document follows the section numbering and nomenclature specified in the GWDR. The SSMP includes eleven sections, as follows:

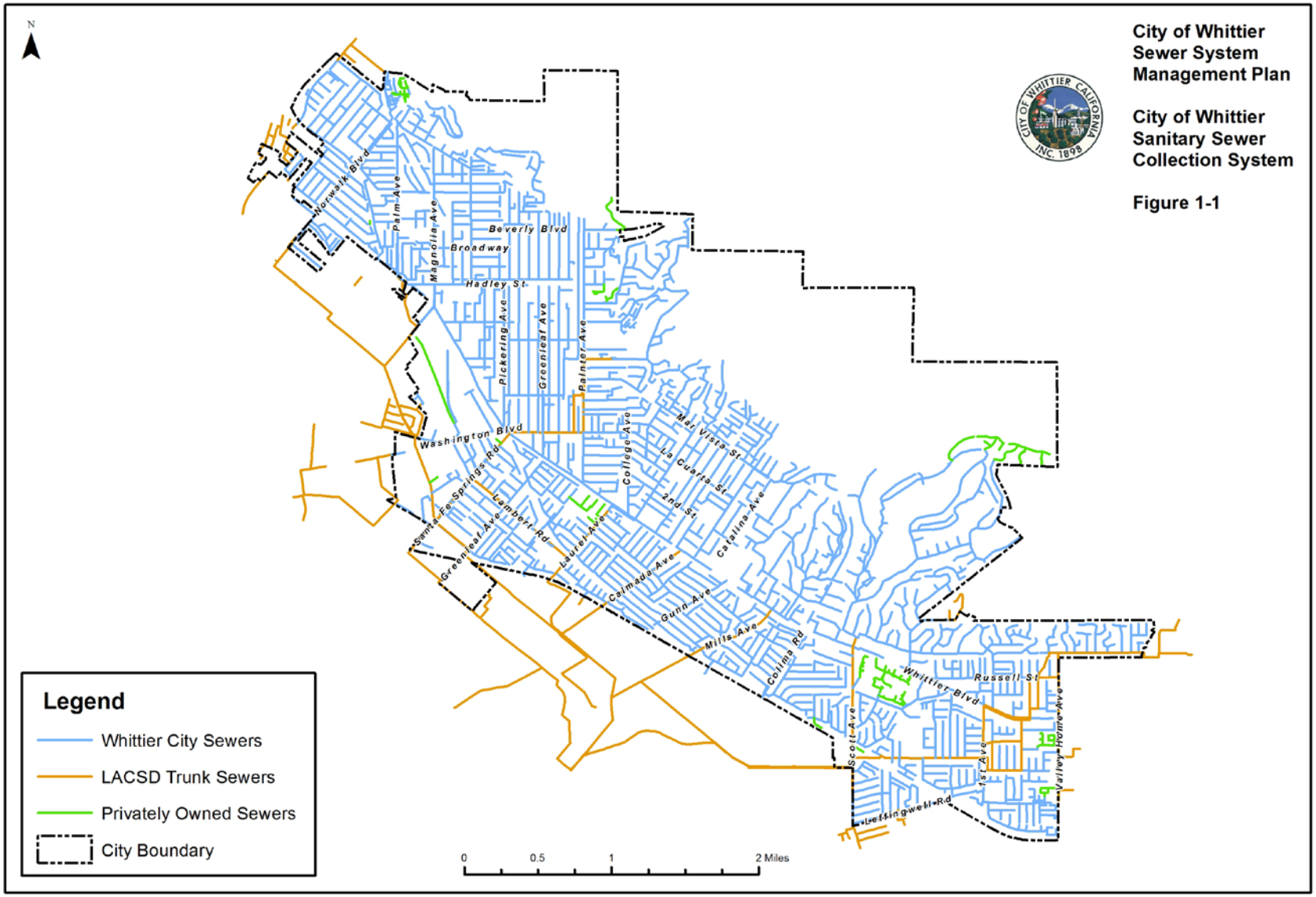
1. Goals
2. Organization
3. Legal Authority
4. Operation and Maintenance Program
5. Design and Performance Provisions
6. Overflow Emergency Response Plan
7. Fats, Oils and Grease (FOG) Control Program
8. System Evaluation and Capacity Assurance Plan
9. Monitoring, Measurement, and Program Modifications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

System Overview

The City owns, operates, and maintains the wastewater collection system that serves the City of Whittier. The wastewater generated in Whittier is collected by trunk sewers owned, operated, and maintained by the County Sanitation Districts of Los Angeles County (CSDLAC or LACSD). The City accepts a very small amount of wastewater into its system from unincorporated areas of Los Angeles County just outside the City boundary. Because those County areas are also in LACSD #18, they must comply with LACSD's discharge prohibitions.

The City's wastewater collection system consists of approximately 194 miles of sanitary sewer mains and 5,028 manholes. In addition to these City sewers, there are approximately 7 miles of private sewers and 14 miles of LACSD trunk sewers within the City limits that the City does not own or maintain. The City's sewer mains range in size from 4 to 15 inches in diameter as shown in Figure I-1. The sewer main material is nearly exclusively vitrified clay pipe (VCP). The majority of the sewer main was installed between 1950 and 1960, with some sewers dating back to 1917.

Figure I - 1: City of Whittier Wastewater Collection System and Service Area



Definitions, Acronyms, and Abbreviations

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

Building Sewer - Refers to the piping that conveys sewage within a building or residence.

Calendar Year (CY)

California Integrated Water Quality System (CIWQS) - Refers to the State Water Resources Control Board online electronic reporting system that is used to report SSOs, certify completion of the SSMP, and provide information on the sanitary sewer system. The electronic reporting requirement became effective on January 2, 2007 for Region 4.

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

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

City - Refers to the City of Whittier.

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

Collection System – See Wastewater Collection System

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

County Sanitation Districts of Los Angeles County (CSDLAC or LACSD)

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

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

Field Report - Refers to the Sanitary Sewer Overflow Field Report Form.

Fiscal Year (FY)

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

Full-time Equivalent (FTE) - Refers to the equivalent of 2,080 paid labor hours per year by a regular, temporary, or contract employee.

General Waste Discharge Requirements (GWDR) - Refers to the State Water Resources Control Board Order No. 2006-0003, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, dated May 2, 2006, as revised on February 20, 2008.

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

Global Positioning System (GPS) - Refers to the handheld unit used to determine the longitude and latitude of sanitary sewer overflows for use in meeting the Online SSO Reporting System reporting requirements.

Grease Removal Device (GRD) - Refers to grease traps or grease interceptors that are installed to remove FOG from the wastewater flow at food service establishments.

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

LACSD – County Sanitation Districts of Los Angeles County

Lateral - See sewer service lateral.

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

Los Angeles County Department of Public Health (LAC DPH)

Los Angeles Regional Water Quality Control Board (LARWQCB) - Refers to the Regional Water Quality Control Board for Region 4.

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

Monitoring, Measurement, and Program Modifications (MMPM)

Municipal Separate Storm Sewer Systems (MS4)

North American Industry Classification System (NAICS)

National Pollution Discharge Elimination System (NPDES)

Not Applicable (NA)

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

Office of Emergency Services (OES) - Refers to the California Governor's Office of Emergency Services.

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

Operations and Maintenance (O&M)

Overflow Emergency Response Plan (OERP)

Personal Protective Equipment (PPE)

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

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

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

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

(i) Overflows or releases of untreated or partially treated wastewater that reach waters of the United States;

(ii) Overflows or releases of untreated or partially treated wastewater that do not reach waters of the United States; and

(iii) Wastewater backups into buildings and on private property that are caused by blockages or flow conditions within the publicly owned portion of a sanitary sewer system.

Sensitive Area - Refers to areas where an SSO could result in a fish kill or pose an imminent or substantial danger to human health (e.g. schools, hospitals, parks, aquatic habitats, etc.)

Sewer Service Lateral - Refers to the piping that conveys sewage from the building to the City's wastewater collection system.

Sewer System - See Wastewater Collection System.

Sewer System Management Plan (SSMP)

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

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

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

Surface Waters - Means any water, surface or underground, including saline waters, within the boundaries of California. In case of a sewage spill, storm drains are considered to be surface waters unless the sewage is completely contained and returned to the wastewater collection system and that portion of the storm drain is cleaned.

System Evaluation and Capacity Assurance Plan (SECAP)

Vitrified Clay Pipe (VCP)

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

Wastewater Collection System - Refers to the portion of the sanitary sewer facilities that are owned and operated by the City of Whittier.

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

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

References

State Water Resources Control Board Order No. 2006-0003 Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, California State Water Resources Control Board, May 2, 2006.

Monitoring and Reporting Program 2006-0003 Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, State Water Resources Control Board, May 2, 2006 (www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2008/wqo/wqo2008_0002_exec.pdf).

State Water Resources Control Board Monitoring and Reporting Program No. 2006·0003-DWQ (as revised by Order No. WQ 2008-0002.EXEC) Statewide General Waste Discharge Requirements for

Sanitary Sewer Systems, California State Water Resources Control Board, February 20, 2008 (www.cwea.org/pdf/2008-0002-EXEC.pdf).

California Regional Water Quality Control Board, Los Angeles Region, Order No. 01-182, NPDES Permit No. CAS004001, Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges Within the County of Los Angeles, and the Incorporated Cities Therein, Except the City of Long Beach, December 13, 2001 (Amended on September 14, 2006 by Order RA-2006-0074).

State Water Resources Control Board Order No. WQ 2013-0058-EXEC Amending Monitoring and Reporting Program for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, California State Water Resources Control Board, effective September 9, 2013.

Chapter 1 Goals

The City of Whittier's goals for the management, maintenance and operation of its wastewater collection system are outlined in this section.

1.1 Regulatory Requirements for the Goals Element

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.

1.2 SSMP Goals

The goals of the City of Whittier's SSMP are:

(a) To properly manage, operate, and maintain all portions of the City's wastewater collection system;

(b) To provide adequate capacity to convey the peak wastewater flows;

(c) To reduce the frequency of SSOs and, wherever possible, prevent SSOs;

(d) To mitigate the impacts associated with any SSO that may occur;

(e) To meet all applicable regulatory notification and reporting requirements;

(f) To provide the necessary resources to adequately manage, operate, and maintain all portions of the City's sewer system; and

(g) To provide the necessary resources to implement capital improvements to provide adequate capacity to convey peak wastewater flows and rehabilitate or replace the City's sewer infrastructure.

Chapter 2 Organization

This section identifies the Authorized Representative to meet the SWRCB requirements for completing and certifying spill reports and the implementation and development of the SSMP. This section also includes the City staff responsible for managing and maintaining the City's wastewater collection system and the responders to SSO events.

2.1 Regulatory Requirements for Organization Element

The SSMP regulatory requirements for the Organization are listed below:

(a) The name of the responsible or Authorized Representative.

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

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

2.2 Authorized Representative

The City's Authorized Representative is the Director of Public Works or his/her designee and is the Legally Responsible Official (LRO). In this capacity, he is responsible for overseeing the SSMP, as well as certifying the SSOs to the State via the CIWQS electronic reporting system.

The Authorized Representative has delegated the field reporting to the City on-call sewer overflow response staff. As the first responders, they are responsible for documenting the conditions associated with the spill (this documentation is turned over to the Authorized Representative for on-line reporting and certifying). The on-call staff is also responsible for verbal notification to the various agencies, i.e., LACDPH, SWRCB, OES, as appropriate.

2.3 Responsibility for SSMP Development, Implementation, and Maintenance

The Director of Public Works or his/her designee is responsible for the development, implementation, and maintenance of all elements of the SSMP. The Director of Public Works or his/her designee in turn utilizes City staff to carry out the various tasks under the SSMP.

2.4 Organization Chart

The Public Works personnel responsible for the operation and maintenance of the City's wastewater collection system are listed in Figure 2-1. Appendix 2-A lists City staff responsible for the SSMP.

2.5 SSO Reporting Chain of Communication

The SSO reporting chain of communication is illustrated in Figure 2-2. Chapter 6 – Overflow Emergency Response Plan details the procedures and responsibilities during an SSO event, and the process is briefly summarized below.

Once a detection of an SSO is reported, either by the public or city personnel, sewer maintenance personnel will be dispatched to the scene through the City Corporate Yard. If notification occurs after hours, the on-call staff member is contacted. Once at the scene staff will:

- Investigate the site
- Determine the cause of the problem
- Request reinforcement, if necessary
- If possible, notify the responsible party if SSO is not caused by City's system
- Contain and mitigate
- Correct the SSO and clean-up
- Notify the proper agencies (LACDPH, SWRCB and OES), as appropriate
- Complete the SSO Report Form

No later than the next business day, the SSO Report Form is forwarded to the office of the Director of Public Works or his/her designee. Any debriefings of the respondents to the SSO will occur at the supervisor level. The report is then filed with the State through the CIWQS on-line data collection system and certified by the LRO.

Figure 2-1: Public Works Personnel Responsible for the Operation and Maintenance of the City's Wastewater Collection System

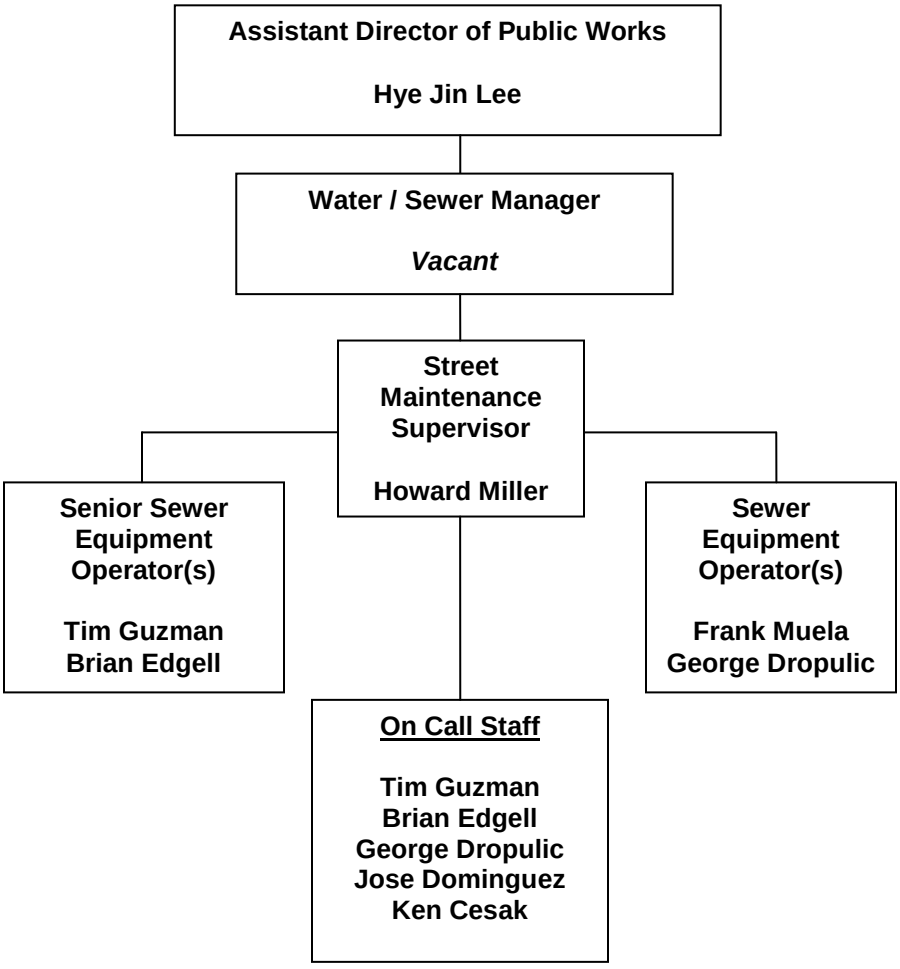
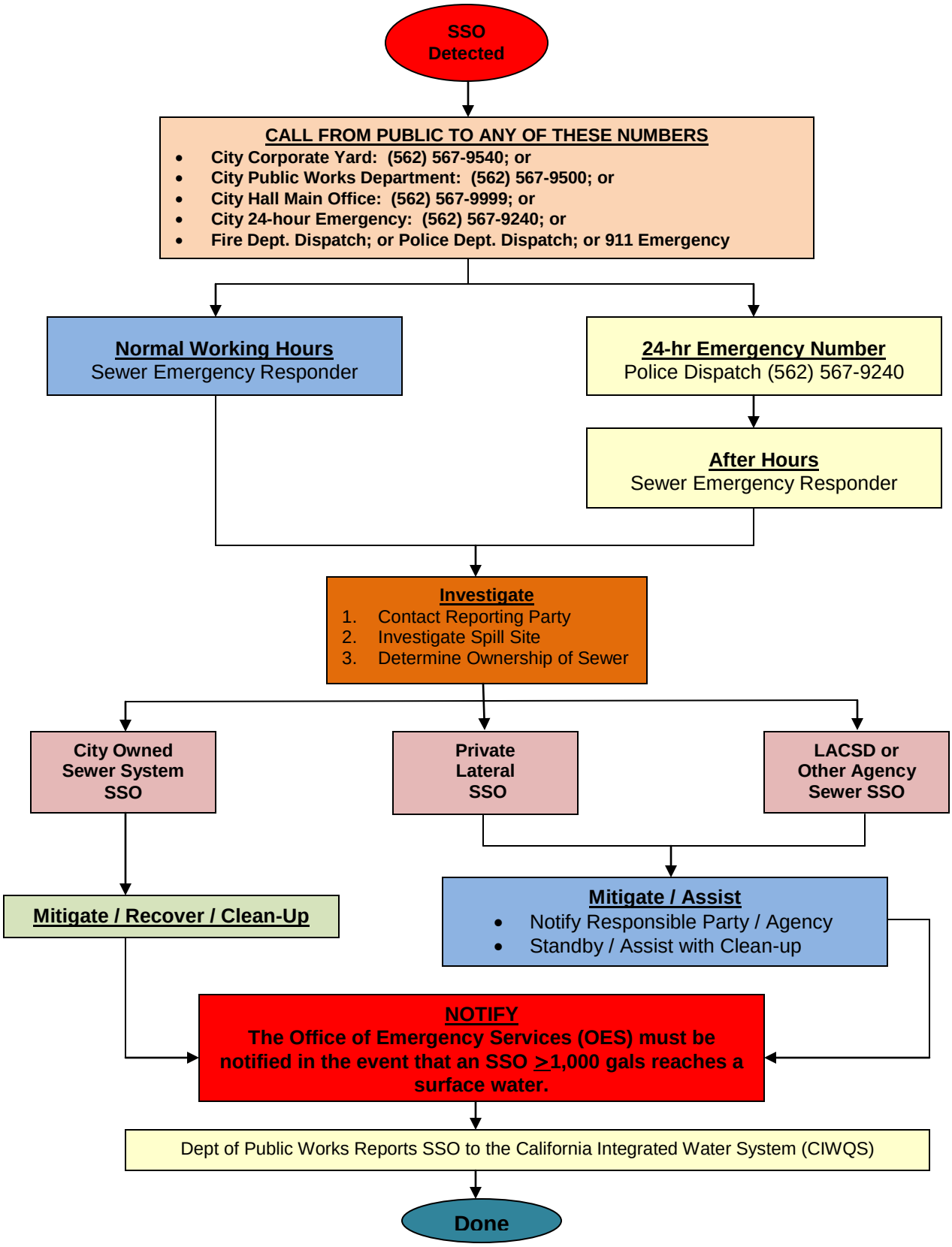


Figure 2-2: SSO Response Procedure Flow Chart



Appendix 2-A: List of City Staff Responsible for SSMP

Job Title	Name	Work Phone
Director Public Works (or designee)	David Pelser	562-567-9504
Assistant Director of Public Works (designee)	Hye Jin Lee	562-567-9505
Water/Sewer Manager	*Vacant*	
Street Maintenance Supervisor	Howard Miller	562-567-9558
Staff Assistant	Carole Kresan	562-567-9517
On-call contact (after hours)	Whittier Police Dispatch	562-567-9240

Chapter 3 Legal Authority

This section of the SSMP discusses the City's legal authority to comply with the SSMP requirements, as provided in its Municipal Code and agreements with other agencies.

3.1 Regulatory Requirements for Legal Authority Element

The requirements for the Legal Authority element of the SSMP are summarized below:

The City must demonstrate, through collection system use ordinances, service agreements, or other legally binding procedures, that it possesses the necessary legal authority to:

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

3.2 City Municipal Code

The legal authority required for the SSMP is contained within the City's code. Section 13.28, 13.32, and 13.36 of the City Code are dedicated to sewers. The following subsections of Title 13 Section II of the City code are discussed in more detail below as they pertain to prevention of illicit discharges, proper design and construction of sewer and connections, maintenance access, and enforcement measures. In addition, Section 15.04.10 5.a&b adopts the California Plumbing Code., 2013 Edition, including Appendix Chapters 1, A, B, D, F, I, K, and L, and all errata based on the 2012 Uniform Plumbing Code as published by the International Association of Plumbing and Mechanical Officials, as the Plumbing Code of the City of Whittier. The Plumbing Code also contains relevant prohibitions and requirements.

3.2.1 Prevention of Illicit Discharges

Measures prohibiting illicit discharges are included in Sections 13.36.010 to 13.36.050. The specific purpose of the Section is to prevent the discharge of any pollutant or any combination of pollutants into the sewers that would obstruct or damage the collection system, interfere with treatment, or threaten harm to human health or the environment. Section 13.36.040 prohibits the discharge of any deleterious substance or storm or surface waters directly into a manhole. Examples of discharges covered by Section 13.36.010 to 13.36.050 are included below. Refer to Section 13.36 of the City code for the complete text.

(i) Other Discharges. Section 13.36.010 prohibits discharge of any waste that could by itself or by interaction with other waste could, among other requirements, endanger human health, cause damage to the sewer system or extra collection, treatment, or disposal cost, create a nuisance, affect the treatment process, or impact treated water quality. This section sets forth standards or prohibits discharge of several components, including (but not limited to) explosives, organic solvents, radioactive waste, solids, and toxic substances. The California Plumbing Code also prohibits these types of discharges at Chapter 3, Section 306 (Damage to Drainage Systems or Public Sewer).

Whenever a person desires to make or maintain any connection with any part of the public sewer for the purpose of discharging sewage or waste which contains any of the objectionable substances, the person shall apply to the Public Works Department for a permit for those purposes.

- Unpolluted Waters. Section 13.36.020 allows unpolluted waters from refrigeration system, air conditioning systems, or industrial cooling systems may be discharged in a public sewer where written permission has been granted by the City, where discharge into a storm drain or dry well is not feasible.
- Storm water. The California Plumbing Code specifically limits the discharge of storm water in Chapter 11, Section 1101.2 (Storm Water Drainage to Sanitary Sewer Prohibited).
- Infiltration/Inflow (I/I). Section 306.2 of the California Plumbing Code prohibits the discharge of extraneous waters to a sanitary drainage system.
- Garbage. Section 13.36.030 allows garbage resulting from the preparation of any food or drink prepared on the premises is ground and discharged into the public sewer upon approval of the City and the director as to the fineness of content determined by a sieve analysis. The City may limit the permissible quantity of garbage to be disposed of through garbage grinders.
- Dumping Cesspool Effluent. Section 13.36.050 allows cesspool effluent which does not contain concentrations of industrial liquid wastes, oil, greases, or other deleterious substances may be dumped into certain specific manholes when permission in writing is secured from the City. No person shall dump cesspool effluent in any manhole other than those designated by the City, or do so without permission in writing.
- Fats, Oils, Grease (FOG). Section 13.36.010 prohibits the discharge of any oil, naphtha, liquid asphaltum, or petroleum product, or any fatty matter, rags san earth or stone dust into sewers or manholes. The California Plumbing Code specifies requirements for the installation of grease removal devices (GRDs) and design standards for GRDs.

3.2.2 Proper Design and Construction of Sewers and Connections

Regulations pertaining to the design, construction, and inspection of private sewer systems, building sewers, and connections are included in Section 13.32 of the City Code. The City of Whittier uses the Standard Specifications for Public Works Construction, popularly known as the "Greenbook".

- Permit Required. A permit is required prior to construction of any private sewage disposal system, lateral sewer or connection to a public sewer.
- Design Requirements. Section 13.32.120 specifies the installation of all sewer mains, house connections and appurtenances shall be made and done either by the City or by a licensed sewer contractor approved by the City according to the specifications of the City and to the satisfaction of the City.
- Installation Requirements. Section 13.32.010 and 13.32.020 requires that construction of all sewers shall meet the requirements of specifications adopted and approved by the City Council.

3.2.3 Lateral Maintenance Access

Per Section 13.32.050, property owners are responsible for maintaining laterals to their connection point with the main sewer. The City is not responsible for any portion of private service laterals connected to public sewer mains.

3.2.4 Enforcement Measures

Sections 13.32.070 and 13.28.020 of the City code describe measures available to City staff for enforcement of sewer provisions.

Written notice is provided to users suspected in violation of these requirements. The notice will include the description of the violation. Notice includes a 24-hour time limit to correction such violation, or

terminate the use. If the violation is not corrected or the use terminated the following actions may be taken.

1. Disconnection of the private lateral from public sewers may be enforced if written notice is not sufficient
2. Install flow-restricting devices restricting water service
3. Order issued for second preliminary notice

Service disconnected or restricted pursuant to item 1 or 2 above shall be restored only upon payment of the turn-on and other charged fixed by the City Council. Any person who has received preliminary notice of violation of a particular provision of this Section whom the City has taken action pursuant to this section and who has not corrected or terminated the use shall be guilty of a misdemeanor, punishable by a fine of not more than three hundred dollars or imprisonment in the county jail for not more than thirty days or both such fine and imprisonment.

3.3 Agreements with Other Agencies

The SSMP requirements for legal authority are fulfilled by the City's code. However, the City does have additional legal agreements with other agencies, which are described in this section for reference.

3.3.1 County Sanitation Districts of Los Angeles County

The City is currently included inside the boundaries of Los Angeles County Sanitation District #18 (LACSD #18), which has the direct responsibility for the transport and treatment of all wastewater discharged to the City sewer system pursuant to that agency's Wastewater Ordinance. In addition, the City coordinates with the LACSD #18 (Wastewater Ordinance Part IV, Industrial Waste) to permit and implement the industrial waste requirements of the Clean Water Act and the State Water Resources Control Board. The LACSD, in conjunction with the City, jointly permit all major industrial dischargers and categorical industries pursuant to its State approved pretreatment program requirements.

3.3.2 Los Angeles County Agreement

The City entered into an agreement with the Los Angeles County Consolidated Sewer Maintenance District on July 31, 2007. This agreement describes the discharge of sewage generated from the Senior/Community Center in Parnell Park (in the City of Whittier) through an 8-inch diameter sewer pipe owned by the County of Los Angeles.

3.3.3 Satellite Systems

The City accepts a small quantity of wastewater (from 315 dwelling units) into its sewer system from La Habra Heights, Pico Rivera, and La Mirada, just outside the City boundary. Because those agencies are also in LACSD #18, they must comply with LACSD's discharge prohibitions. The City currently has no agreements with these agencies regarding accepting their discharges, but has experienced no problems in its sewer system related to them. In addition, the City has verified that City sewers have adequate capacity to convey the minor flows it accepts from these agencies.

Chapter 4 Operations and Maintenance Program

This section of the SSMP presents the City's wastewater collection system operations and maintenance (O&M) program.

4.1 Regulatory Requirements for Operation and Maintenance Program Element

The summarized requirements for the Operations and Maintenance Program are:

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

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

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

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

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

4.2 Collection System Mapping

The City of Whittier uses Geographic Information System (GIS) technology to create, maintain, and manage maps and data sets associated with its wastewater collection system facilities and LACSD trunk sewers. Pipe and manhole inventory data including length, diameter, material, year built, rim/invert elevations, record drawing reference, and other information are maintained. The GIS information is available to appropriate City staff in the form of hard copy maps and the City is currently working on making it available through the City's Internet.

Record drawings for City sewer mains and LACSD trunk sewers are available at the Public Works counter in hard copy form. In addition, the City has scanned all of its sewer system record drawings and linked the scanned images for access via the GIS.

4.2.1 Updates to Existing Drawings

The City has a formal process to correct its maps. Proposed corrections are identified by field crews and communicated to engineering staff using the GIS Data Updates/Corrections/Modifications Reporting Form (**Appendix 4-A**). High priority corrections (those that may potentially lead to an SSO) are entered into the GIS and updated map pages are issued within 60 days. Low priority corrections and new facilities are incorporated into the GIS and updated map pages are issued annually.

4.2.2 New Improvement Plan Drawings

The City requires that record drawings be prepared and submitted for the installation of new sewer facilities and for the rehabilitation or replacement of existing facilities. The record drawings are submitted in both hard copy and electronic formats. The new record drawings are scanned and linked to the GIS and the new or altered facilities are digitized and the associated inventory data are added to the GIS database and hard copy maps annually.

4.3 Preventive Maintenance

The elements of the City's wastewater collection system Operation and Maintenance Program include proactive, preventive, and corrective maintenance of gravity sewers. The details of the City's O&M programs are described in this section. **Figure 4-1** provides a map of the City's sewer system by decade constructed.

The City proactively cleans every pipe segment in the wastewater collection system at least once a year. In 2011, City of Whittier engaged the services of Provisions Inc. to complete CCTV survey of all City's sewer mainline of approximately 194 miles. Based on the findings from the CCTV survey and historic SSO records that began in 2007, the frequency of sewer cleaning was adjusted to reflect the needs for problematic area for more frequent monthly and quarterly cleanings. Less problematic links are scheduled for semi-annual and annual cleaning cycles.

The cleaning intervals for all pipes and cleaning routes are also documented in an electronic spreadsheet that has been linked to a map using GIS. **Figure 4-2** provides a map of the City's sewer system and cleaning frequencies.

Sewer maintenance activities are scheduled based on maintenance frequency. Pipes on a 1-month cleaning schedule are the first pipes cleaned each month. Pipes on a 3-month cleaning schedule are cleaned every March, June, September, and December after cleaning of 1-month pipes are completed. Pipes on a 6-month schedule are cleaned in June and December after all 1-month and 3-month pipes are cleaned. Finally, pipes on a 12-month cleaning cycle are cleaned throughout the year and are used to balance the cleaning workload schedule with priority given to maintaining the cleaning schedule for 12-month pipes. The City uses a Sewer Maintenance Daily Progress Log to document sewer cleaning preventive maintenance activities. Completion of sewer cleaning activities are documented and tracked in the sewer card maintenance management system. The Sewer Maintenance Daily Progress Log is shown in **Appendix 4-B**.

An important aspect of the City's sewer cleaning program is to record cleaning results for each manhole-to-manhole pipe segment using code-based standard results on the Sewer Maintenance Daily Progress Log (see **Appendix 4-B**). Those results then provide the basis for the Sewer Maintenance Supervisor to modify the frequency or method of cleaning for that pipe segment to reflect current field conditions. Follow-up video inspections are requested by the Sewer Maintenance Supervisor based on crew feedback and needed repairs are identified and requested by the Sewer Maintenance Supervisor. This process is shown on **Figure 4-3**. The standard cleaning results are shown in **Appendix 4-C** along with the criteria for changing cleaning frequencies.

Response to customer complaints and sewer blockages are documented using a Sewer Stoppage/Complaint Form. The Sewer Stoppage/Complaint Form is shown in **Appendix 4-D**. Response to sewer overflows is documented on the Sanitary Sewer Overflow Field Report which is included as **Appendix 6-B** in the Overflow Emergency Response Plan.

Figure 4-1: Sewer System by Pipe Age

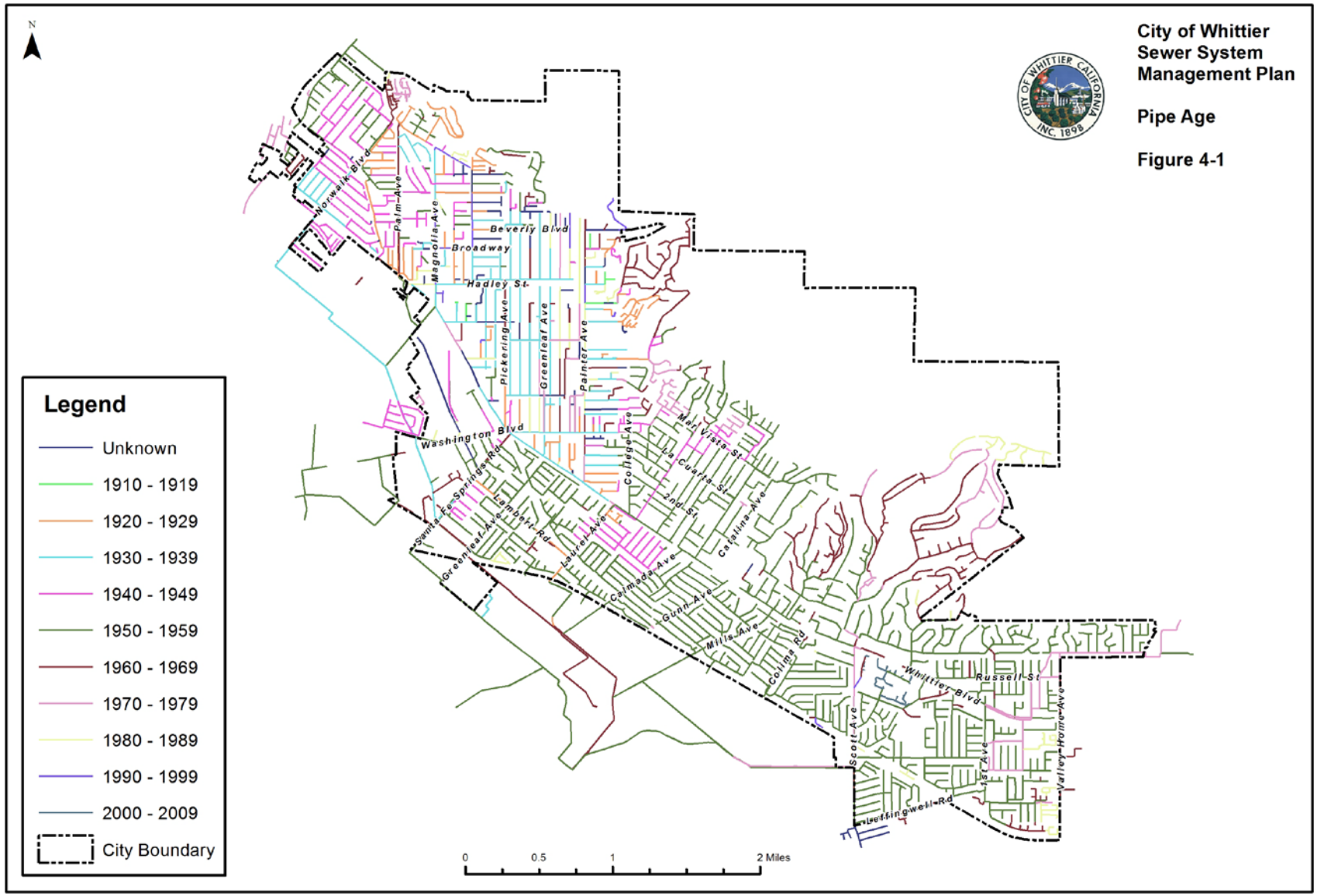


Figure 4-2: Sewer Cleaning Schedule Intervals Map

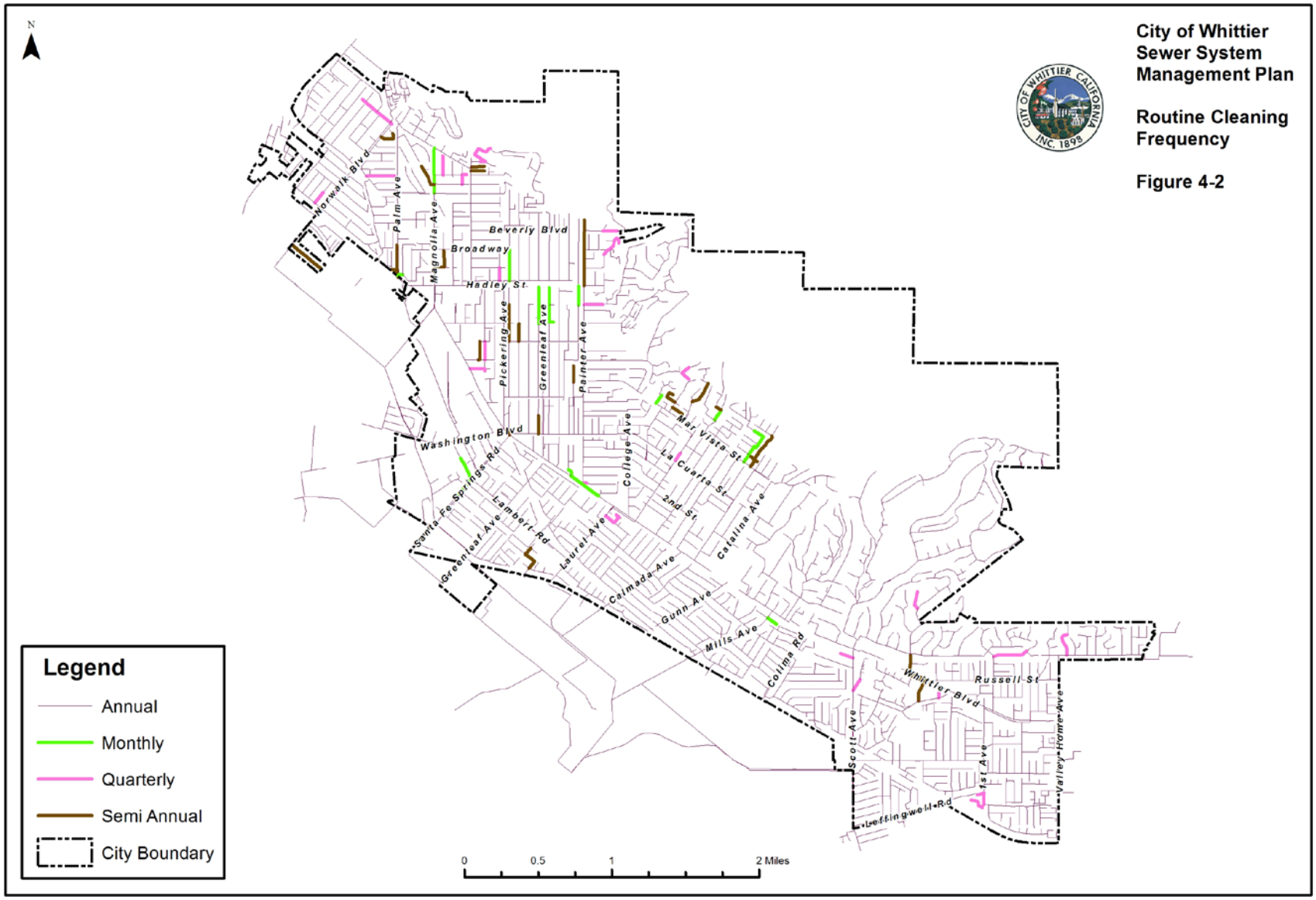
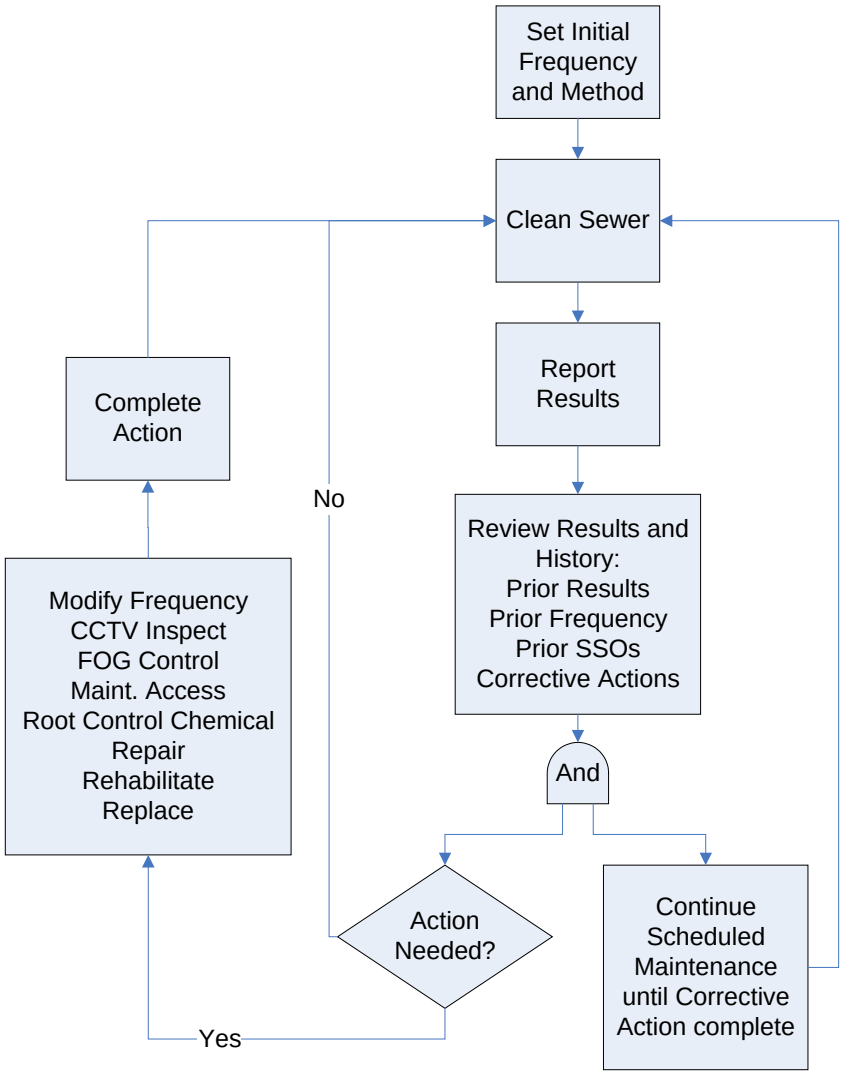


Figure 4-3: Sewer Cleaning Scheduling Flowchart



4.4 Rehabilitation/Replacement Program

The City's Rehabilitation and Replacement Program (Program) is driven by the condition of its sewer system assets. Since the City has no lift stations or force mains, the Program is limited to the City's gravity sewer system.

4.4.1 Sewer Inspection and Condition Assessment

In mid-2008, the City began a three-year video inspection program that includes cleaning and inspection of the City's entire 194-mile gravity sewer system. The video inspection was completed for the whole City's sewer system in 2011. Using the Pipeline Assessment and Certification Program (PACP) standards, Provision, Inc., a CCTV contractor, identified all structural and maintenance defects and assigning them a grade from 1 to 5.

At the start of the inspection program, the City selected 8.4 miles of sewers to be inspected first to provide an initial characterization of the structural condition of the total system. These selected sewers are located throughout the City and include a sampling of sewers built from the 1920s to the 2000s. **Figure 4-4** shows the location of these sewers, and **Table 4-1** compares the characteristics of the inspected sewers to the total system in terms of periods of construction. The three "generations" (pre-1950, 1950-1958, and post-1958) correspond to periods of different methods and materials of construction of clay pipe and joints. The three generations often vary in structural condition because of these different methods and materials, as well due to differences in their ages.

Table 4-1: Generation of City Sewers and Pipes Selected for Initial Inspections

Year Constructed (Generation)	Number of Pipe Segments in Whittier	Total Length of Pipe (miles)	Percentage of Total Length	Number of Pipe Segments Inspected	Length of Pipe Inspected (miles)	Percentage of Inspected Length
Generation 1 (Pre-1950)	1,079	55.9	28.8%	37	1.9	23.1%
Generation 2 (1950-1958)	2,053	91.5	47.1%	64	3.0	35.9%
Generation 3 (Post-1958)	1,068	46.8	24.1%	81	3.4	41.0%
Totals	4,200	194.2	100%	182	8.4	100.0%

The initial inspections began in early 2009 and a special attention was given to the number of Grade 5 structural defects observed. Grade 5 defects are the most severe defects and many require corrective action within one or two years to prevent possible pipe failure. The findings are summarized in **Table 4-2**. About 35 pipe segments (15 percent) inspected were found to have one or more Grade 5 defects, with Generation 1 pipes having significantly more of these defects. Extrapolating this finding to the entire sewer system indicates a potential total of about 850 Grade 5 defects.

Figure 4-4: Location of Sewers Selected for Initial Inspections

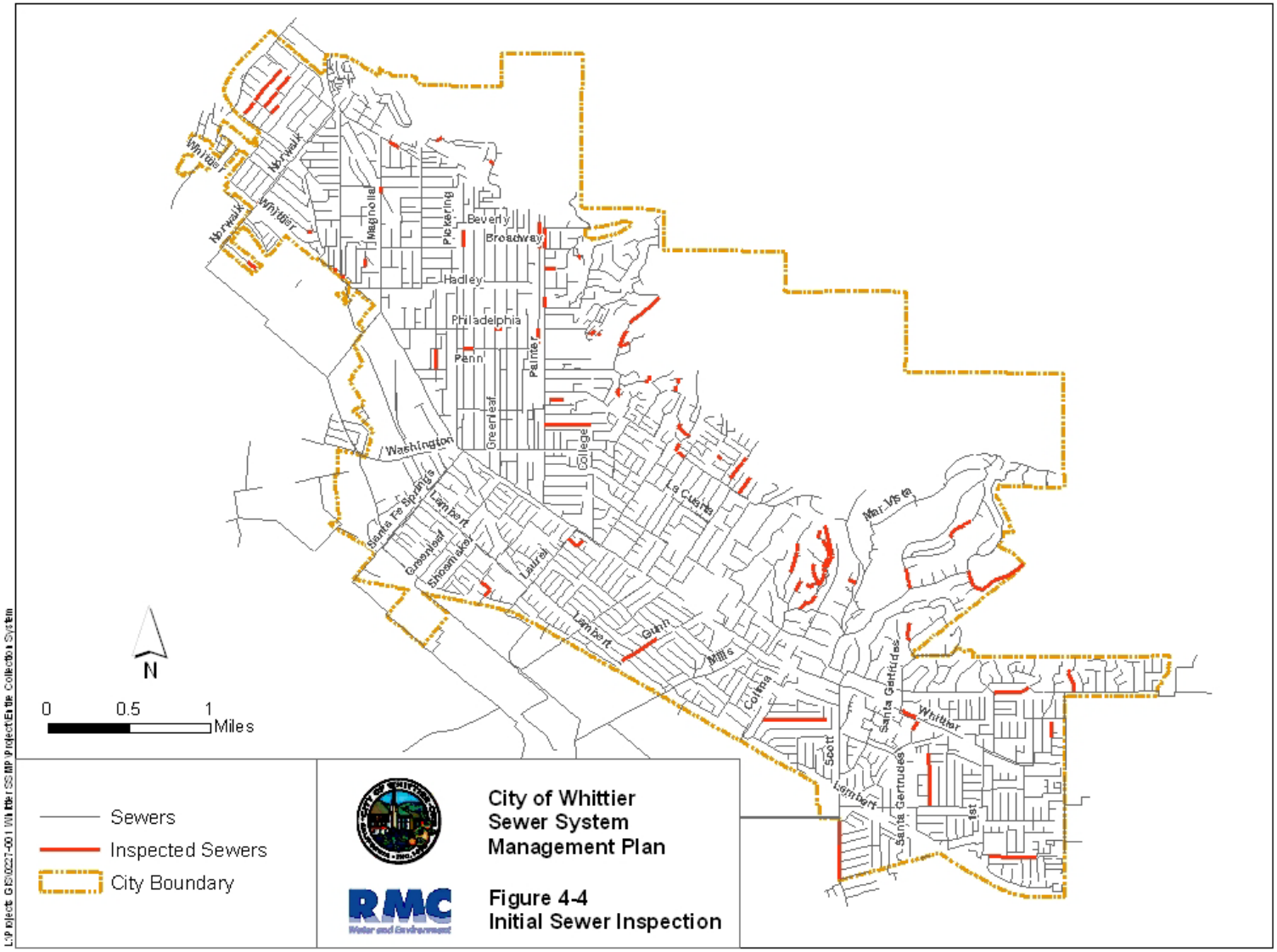


Table 4-2: Grade 5 Structural Defects Observed in Initial Inspections

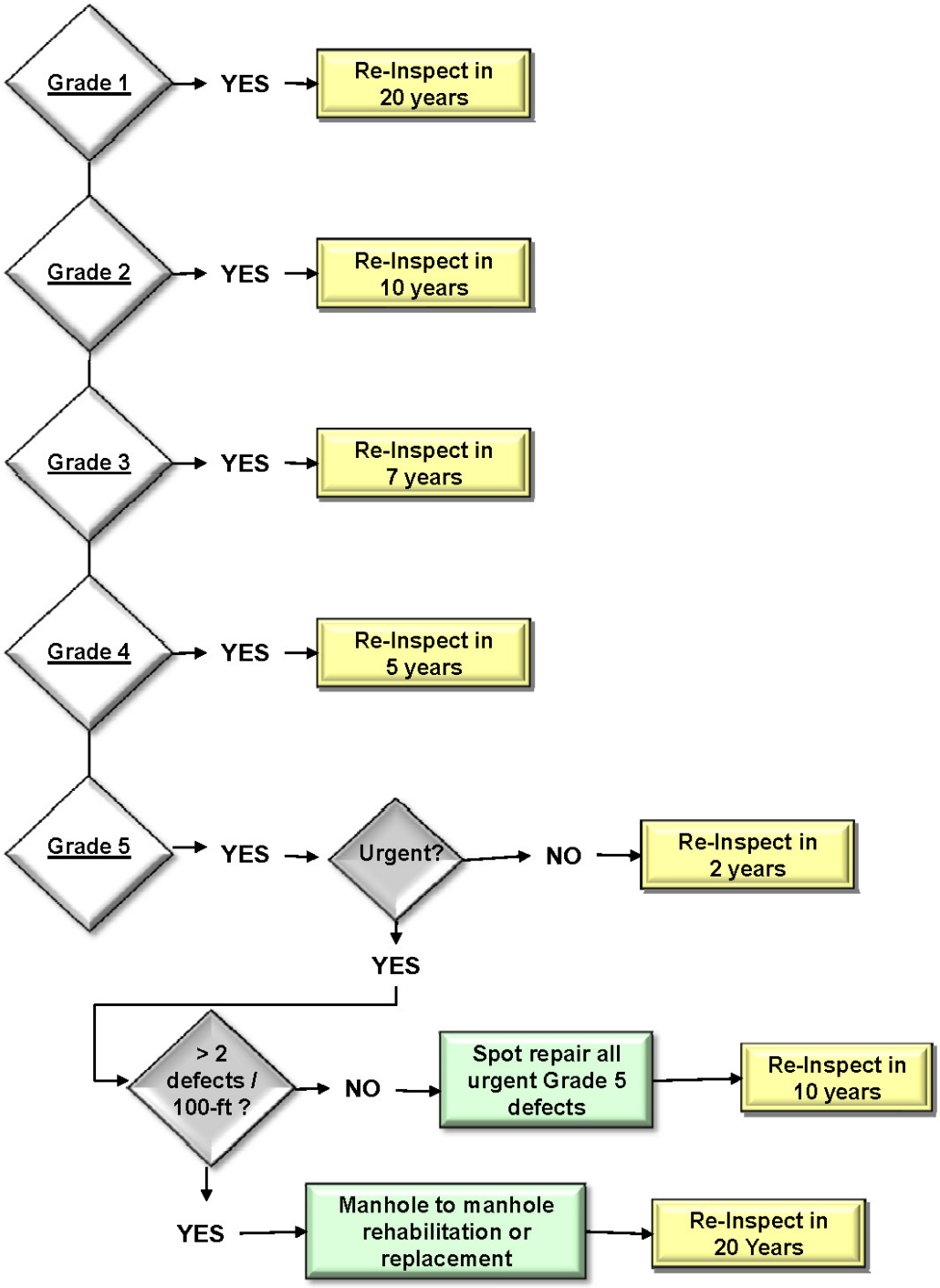
Year Constructed (Generation)	Length of Pipe Inspected (miles)	Number of Grade 5 Structural Defects	Length of Pipe Segments with Grade 5 Structural Defects (miles)	Percentage of Inspected Length With Grade 5 Structural Defects
Generation 1 (Pre-1950)	1.9	17	0.51	26.4%
Generation 2 (1950-1958)	3.0	8	0.15	5.1%
Generation 3 (Post-1958)	3.4	10	0.56	16.2%
Totals	8.4	35	1.22	14.6%

As the inspection program progressed, the City utilized the decision process shown in **Figure 4-5** to select the appropriate rehabilitation actions based on the structural grades observed during inspections. The City (or a consultant to the City) independently reviewed all inspection videos for pipes with Grade 4 and 5 structural defects, as well as a sampling of other pipes for quality control purposes. All pipes with no Grade 5 structural defects are scheduled for re-inspection at intervals dependent on their condition. Pipes with Grade 5 defects are further screened to determine which are urgent (i.e., significant risk of failing within 2 years). Those that are urgent are prioritized and scheduled for either spot repairs or manhole-to-manhole rehabilitation or replacement, considering the number of defects observed per length of pipe. Non-urgent Grade 5 defects are scheduled for re-inspection in two years to determine if the defects are deteriorating.

During the inspection program, any Grade 5 defects found that have already failed and/or present a high risk of causing an overflow are red-flagged and brought to the City's attention. In addition, if the Sewer Maintenance crew identifies urgent defects in manholes during normal system-wide sewer cleaning, the Water/Sewer Division Manager and Director of Public Works or his/her designee are notified. Red-flagged sewers and manholes are scheduled for repair or replacement on an accelerated schedule.

Based on the findings from the conclusion of video inspection in 2011, as well as observations from regular maintenance, City staff compiled a list of priority repair and rehabilitation locations throughout the City. There were 56 identified locations and reconstruction/repair work began spring 2012. From that time, repair or replacement has been performed at 104 sites, with 48 additional locations complete in 2013 and 2014. The City will include the highest priority projects in its capital improvement program, and update the program to incorporate findings from future re-inspections.

Figure 4-5: Flow Chart for Re-Inspection, Repair, and Rehabilitation Decisions



4.4.2 Capital Improvement Program

The annual expenditures since 2010, which total approximately $1.2 million for sewer system rehabilitation and replacement, are shown by program on **Table 4-3**.

Table 4-3: FY 2010/11 – FY 2014/15 Five-Year Capital Improvement Program

Program	FY 2010/11	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	Totals
CCTV Inspection	$292,564	--	--	--	--	$292,564
Rehabilitation/ Replacement	$500,000	--	--	$216,000	$216,000	$932,000
Totals	$792,564	--	--	--	--	$1,224,564

The funds that support the Capital Improvement Program come from the City's Sewer Fund. The Sewer Fund is an enterprise fund that includes Sewer Service Charges, Connection Fees, Development Contribution Fees, and interest. Sewer Service Charges are periodically reviewed and set based on identified capital improvement needs.

4.5 Training Program

4.5.1 City Staff

The City uses a combination of on-the-job training, conferences, seminars, and other training opportunities to provide technical training for its wastewater collection system staff. Vendors provide training for new equipment. The City of Whittier Sewer Maintenance budget includes funds for technical training. Examples of technical training and training materials the City's wastewater collection staff might take advantage of are listed in **Table 4-4** and **Table 4-5.**

Table 4-4: Training Resources (Conferences, Seminars, and Courses)

Sponsor	Event	Timeframe	References
California Water Environment Association	State Conference	April	www.cwea.org
	Southern Regional Safety Conference	May	
	Southern Collection Systems Committee	Quarterly	
Southern California Alliance of Publicly Owned Treatment Works	Collection System Committee	Quarterly	www.scap1.org
Tri-State Conference	Annual Conference	September	www.tristateseminar.com
Cuyamaca College, El Cajon	On-Campus Courses	Scheduled Classes	www.cuyamaca.edu/wwtr/courses.asp
UC Riverside Extension	Certification Exam Review Course ENSC 814.3	Scheduled Classes	www.extension.ucr.edu/

Table 4-5: Training Resources (Materials)

Sponsor	Materials	Reference
California State University, Sacramento	Videos, manuals, home study courses	www.owp.csus.edu
Santiago Canyon College, Orange	On-Campus Courses	www.sccollege.edu
Los Angeles Trade Tech, Los Angeles	Videos, manuals, home study courses	www.lattc.edu

Other potential sources of training include the Los Angeles Chapter of the American Public Works Association and the Southern California Chapter of the Maintenance Superintendents Association.

Individual training records are maintained by the City's Department of Human Resources using a database.

4.5.2 Contractor Employees Working on City Sewer Projects

The City requires contractors who work on City sewer projects to be qualified with wastewater collection system experience. During the process of selecting contractors the City requires that each contractor submit a list of three local comparable size project performed using the equipment and techniques specified. The bidders also provide years of experience and references to demonstrate they are qualified to complete the work and the City performs reference checks to verify contractor qualifications.

4.6 Equipment and Parts Inventory

The City has purchased a trailer for its overflow emergency response program to transport containment and safety equipment used during sewer overflow events.

The City has determined that there are no critical replacement parts at this time in their sewer collection system.

Appendix 4-A: Sample GIS Update/Correction/Modifications Form

GIS Data Updates / Correction / Modification REPORTING FORM

City Tracking #: XX-XX-XXXX

LOCATION AND DATA DETAILS:

Map Numbers(s): _____

Data Layer: Water

Sanitary Sewer	( )	Street Signs	( )	Trash Pickup	( )
Storm Drain	( )	Fiber Optics	( )	Centerline Ties	( )
Parcels/Address	( )	SCE Poles	( )	Traffic Counts	( )
Streets	( )	Street Sweeping	( )	Easements	( )
				Other	( )

Location: Street Address: _____

Nearest Cross Street: _____

Date of Field Verification: _____

Attached Information

( ) Hand Drawn Sketch
( ) Original As-Built
( ) Atlas Map Sheet
( ) Other: _____

Recommended Priority for Change:

( ) **Normal (3 months)**
( ) High (60 days)

Correction/Update/Modification:

_____

_____

_____

Reporting Party:

Name _____ Phone Number _____

Department _____ Email Address _____

Division _____ Date Submitted _____

Comments/Suggestions:

_____

_____

_____

Forward this form to:

☐ Asst. Dir. of Public Works-Utilities
Review / Approval

☐ GIS Staff

Date of Revision to GIS _____

Revision by _____

File Location:

Appendix 4-B: Sewer Maintenance Daily Progress Log

Date:_____ Leader:_____

Crew Member_____

Day: M T W Th F S

Card Number	Linear Feet	Clear	Roots	Grease	Debris
		CL	Rl/RM/RH	GL/GM/GH	DL/DM/DH
Total Footage					

Time	*Destination/Location*	*Special Request*
6:30		
7:00		
7:30		
8:00		
8:30		
9:00		
9:30		
10:00		
10:30		
11:00		
11:30		
12:00		
12:30		
1:00		
1:30		
2:00		
2:30		
3:00		

Truck Down Time: Hrs. Min. Supervisor:	

Appendix 4-C: Standard Measures of Observed Results

Next to cleaning the sewer line, effective observation of results is the most important work product of the field crew. The information they provide is the basis for defining future maintenance activities. Consistency is important. The standards for "results" for small diameter [a] (six- and eight-inch) sewers are:

	Clear	Light	Moderate	Heavy
Debris/Grit	**Code: CL** No observable debris or grit	**Code: DL** Minor amount of debris 15 minutes or less to clean 1 pass	**Code: DM** Less than 5 gallons of debris 15-30 minutes to clean 2-3 passes required Requires cleaning twice or less per year Only fine grit	**Code: DH** More than 5 gallons of debris More than 30 minutes to clean More than 4 passes required Requires cleaning four times per year Operator concern for future stoppage
Grease	**Code: CL** No observable grease	**Code: GL** Minor amounts of grease 15 minutes or less to clean 1pass	**Code: GM** Small chunks/no "logs" 15-30 minutes to clean 2-3 passes required Requires cleaning twice or less per year	**Code: GH** Big chunks/"logs" More than 30 minutes to clean More than 4 passes required Operator concern for future stoppage
Roots	**Code: CL** No observable roots	**Code: RL** Minor amounts of roots 15 minutes or less to clean 1 pass	**Code: RM** Thin/stringy roots present No large "clumps" 15-30 minutes to clean 2-3 passes required	**Code: RH** Thick roots present Large "clumps" More than 30 minutes to clean More than 4 passes required Operator concern for future stoppage
Other	**Code: OTH** Other is any other item found in sewer that does not fall in categories listed above.			
Criteria for Action	Decrease maintenance frequency to next lower frequency after 2 consecutive CL results (with supporting CCTV results)	Continue maintenance frequency	Increase maintenance frequency to next higher frequency	Increase maintenance frequency to next higher frequency

Footnote: (a) Times shown are for typical manhole to manhole distance of 250 feet. Longer runs will require longer cleaning times. Judgment will need to be applied by the field crews for varying lengths and pipe diameters.

Appendix 4-D: Sewer Stoppage/Complaint Form

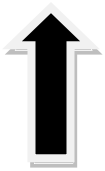
SEWER STOPPAGE/COMPLAINT

DATE_____ Time _____

ADDRESS OF COMPLAINEE_____ IN OUR LINE Yes_____ NO _____

CARD NO. _____ HOME FLOODED: YES _____ NO _____

MAP



N

CAUSE: KNOWN_____ UNKNOWN_____ WHAT WAS IT?_____

Gallons per minute coming out of manhole or clean out (GPM) _____ x _____ = _____

GPM Min. Total Spill Volume

Recovered Sewer Spill Volume:

_____ X _____ X _____ X 7.5 = _____GALLONS

LENGTH WIDTH DEPTH Gal/cu. ft.

_____

Crew ID Number # _____ SIGNATURE OF EMPLOYEE _____

Chapter 5 Design and Performance Provisions

This section of the SSMP documents the City's design and performance provisions.

5.1 Regulatory Requirements for Design and Performance Provisions Element

The summarized requirements for the Design and Construction Standards element of the SSMP are:

(a) The City must have design and construction standards and specifications for the installation of new sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sewer systems;

(b) The City must also have procedures and standards for inspecting and testing the installation of new sewers, pump stations, and other appurtenances and for rehabilitation and repair projects.

5.2 Design and Construction Standards

Section 13.32 of the Municipal Code specifies the installation of all sewer mains, house connections, and appurtenances shall be made and done either by the City or by a licensed sewer contractor approved by Council according to the specifications of the City and to the satisfaction of Council. The Code also includes specific requirements for connection of house sewers to City mains.

For the installation of new sewer systems or the repair or rehabilitation of existing sewer systems, the City uses current version(s) of the *Standard Specifications for Public Works Construction* (Greenbook), *Standard Plans for Public Works Construction*, the Los Angeles County Department of Public Works (LACDP) *Additions and Amendment to the Greenbook* (Graybook), along with the LACDP's *Private Contract Sanitary Sewer Procedure Manual* for standard design and construction specifications and details.

5.3 Inspection and Testing Standards

The City of Whittier currently uses the inspection and testing requirements detailed in the Standard Specifications for Public Works Construction (Greenbook) and the Los Angeles County Public Works Department Additions and Amendment to the Greenbook (Graybook).

Chapter 6 Overflow Emergency Response Plan

The purpose of the Overflow Emergency Response Plan (OERP) is to support an orderly and effective response to Sanitary Sewer Overflows (SSOs). This plan provides guidelines for City personnel to follow in responding to, cleaning up, and reporting SSOs that may occur within the City's service area.

6.1 Regulatory Requirements

6.1.1 GWDR for the Overflow Emergency Response Plan

The collection system agency shall develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment. At a minimum, this plan must include the following:

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

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

(c) Procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities (e.g. health agencies, regional water boards, water suppliers, etc.) of all SSOs that potentially affect public health or reach surface waters in accordance with the Monitoring and Reporting Program. All SSOs shall be reported in accordance with this MRP, the California Water Code, other State Law, and other applicable Regional Water Board Waste Discharge Requirements or National Pollutant Discharge Elimination System (NPDES) permit requirements. The 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 untreated wastewater and prevent discharge of untreated wastewater to waters of the United States and minimize or correct any adverse impact on the environment resulting from the SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge.

6.1.2 Regulatory Requirements for Municipal Storm Sewer Systems

The City is required to comply with the Municipal Stormwater Permitting Program for Los Angeles County that regulates stormwater discharges from municipal separate storm sewer systems (MS4s) as part of its National Pollution Discharge Elimination System (NPDES). The Federal Water Pollution Control Act and the Clean Water Act, as amended, give the US Environmental Protection Agency the authority to regulate the discharge of pollutants to Waters of the United States under the National Pollutant Discharge Elimination System (NPDES). That authority was expanded to include stormwater runoff in 1987. The current NPDES/MS4 regulations are summarized in **Table 6-1**.

Additional information regarding the Stormwater Pollution Prevention program is available at www.888CleanLA.com.

Table 6-1: Summary of NPDES/MS4 Requirements

Regulation	Requirements
Regional Water Quality Control Board NPDES Permit, 1996	Requires MS4 agencies with responsibility for sanitary sewer systems to: • Prevent sewage spills from entering the MS4, • Identify, repair, and remediate sewer blockages, • Prevent exfiltration, overflow, and wet weather flow complaints, • Respond to overflows and investigate complaints, • Ensure ability to investigate suspected connections or cross-connections, and • Notify public health agencies of beach closures.
Regional Water Quality Control Board MS4 Permit, 2012	Los Angeles County and 84 Cities (including Whittier) are required to: • Implement a response plan for SSOs with minimum requirements: • Investigate any complaints received, • Immediately respond and contain SSOs upon notification, and • Notify sewer and public health agencies when SSO to MS4 has potential to significantly impact downstream receiving waters. • Implement procedures to prevent sewage spills or leaks from entering the MS4. • Identify, repair, and remediate sanitary sewer blockages, exfiltration, overflow, and wet weather overflows from sanitary sewers into the MS4.
Los Angeles County Department of Public Works Stormwater Quality Management Program (SQMP), 2002	The objectives of the SQMP include: • Keep any sewage system overflow or leaks from entering the storm drain system or receiving waters to the maximum extent practicable • Identify, repair, and remediate sewage system blockages, exfiltration, and overflows, and implement procedures for investigating suspected cross-contamination • Notify the Los Angeles County Department of Health Services when there is a threat to public health.
General Waste Discharge Requirements (GWDR), 2006, amended Monitoring and Reporting Program (MRP), 2013	The SWRCB adopted a General Waste Discharge Requirement (GWDR) for all publicly-owned sanitary sewer collection system agencies in California with more than one mile of sewer pipe. The goal of the GWDR is to provide consistent state-wide approach for reducing SSOs. The requirements include: • Develop and implement a Sewer System Management Plans with the goal of preventing SSOs and mitigating the impact of SSOs that do occur. • Report all SSOs to the SWRCB's Online SSO System database, California Integrated Water Quality System (CIWQS), starting 2007.

6.1.3 Stormwater Permit Requirements

Part 4 Section (F)1 of the Environmental Protection Agency's NPDES/MS4 Permit issued in 2001 refers to the requirements for Sewage System Maintenance, Overflow, and Spill Prevention, which includes the following:

- Each Permittee shall implement a response plan for sanitary sewer system overflows within their respective jurisdiction, which shall consist at a minimum of the following:
    - Investigation of any complaints received;
    - Upon notification, immediately respond and contain any overflows; and
    - Notify appropriate sewer and public health agencies when a sewer overflow to the MS4 has the potential to significantly impact downstream receiving waters. (e.g. Los Angeles County Department of Public Health 24-hour phone number, 213-974-1234).
- In addition to the above, for those Permittees, which own and/or operate a sanitary system, the permittees shall also implement the following requirements:
    - Procedures to prevent sewage spills or leaks from entering the MS4; and
    - Identify, repair, and remediate sanitary sewer blockages, exfiltration, overflow, and wet weather overflows from sanitary sewers to the MS4.

6.2 Goals of the Overflow Emergency Response Plan

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

- Work safely;
- Respond quickly to minimize the volume of the SSO;
- Eliminate the cause of the SSO;
- Contain the spilled wastewater to the extent feasible;
- Prevent sewage system overflows or leaks from entering the storm drain system or receiving waters to the maximum extent practicable;
- Minimize public contact with the spilled wastewater;
- Mitigate the impact of the SSO; and
- Meet the regulatory reporting requirements.

6.3 SSO Detection

The processes that are employed to notify the City of the occurrence of an SSO include: observation by the public, receipt of an alarm, or observation by City staff during the normal course of their work.

6.3.1 Public Observation and Emergency Communications

Public observation is the most common way that the City is notified of blockages and spills. Contact information for reporting sewer spills and backups is in the phone book and on the City's website at www.cityofwhittier.org.

6.3.1.1 Normal Work Hours

The City's Sewer Maintenance Crew normal working hours are Monday through Friday from 6:30 a.m. to 3:00 p.m., except holidays. When a report of a sewer spill or backup is made, dispatch staff receives the call, takes the information from the caller and dispatches a field crew that respond to the site. Emergency calls received by Fire Department or Police Department Dispatch, Public Works Administration, or other City services offices are routed to the Sewer/Street Division.

6.3.1.2 After Hours

After hours emergency calls received by Fire Department or Police Department Dispatch personnel are routed to the City's Pumping Plant II and from there the on-call sewer crew is dispatched. After hours calls made to City Hall are given the City's 24-hour emergency phone number via the recorded message. Calls made to the 24-hour emergency number are routed to Pumping Plant #2, who then notifies the Sewer Maintenance Emergency Responder via cell phone. Home and/or cell telephone numbers of all City staff are on file and available for use during emergencies.

Information from the emergency call is recorded on the Sanitary Sewer Overflow Field Report Form (Appendix 6-B).

6.4 SSO Response Procedures

Sewer service calls are considered high priority events that demand a prompt response to the location of the problem. Upon notification of an overflow, a sewer maintenance work crew shall be dispatched onsite within one hour of notification.

The response procedures for SSOs that are caused by City-owned sewers, private laterals, and surrounding Agency sewers are depicted in **Figures 6-1**, **6-2**, **6-3**, and **6-4**.

Figure 6-1: SSO Response Procedure Flow Chart

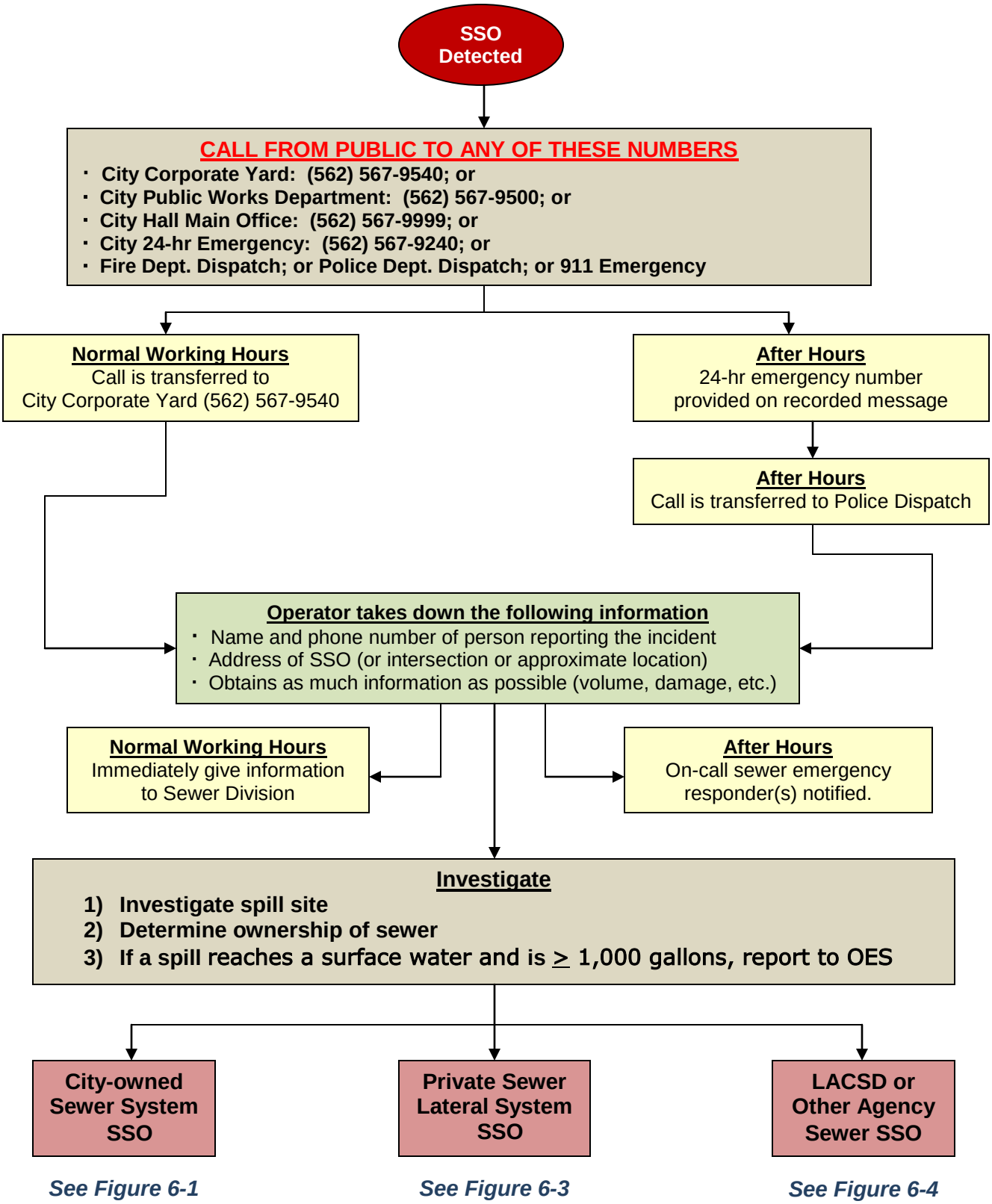
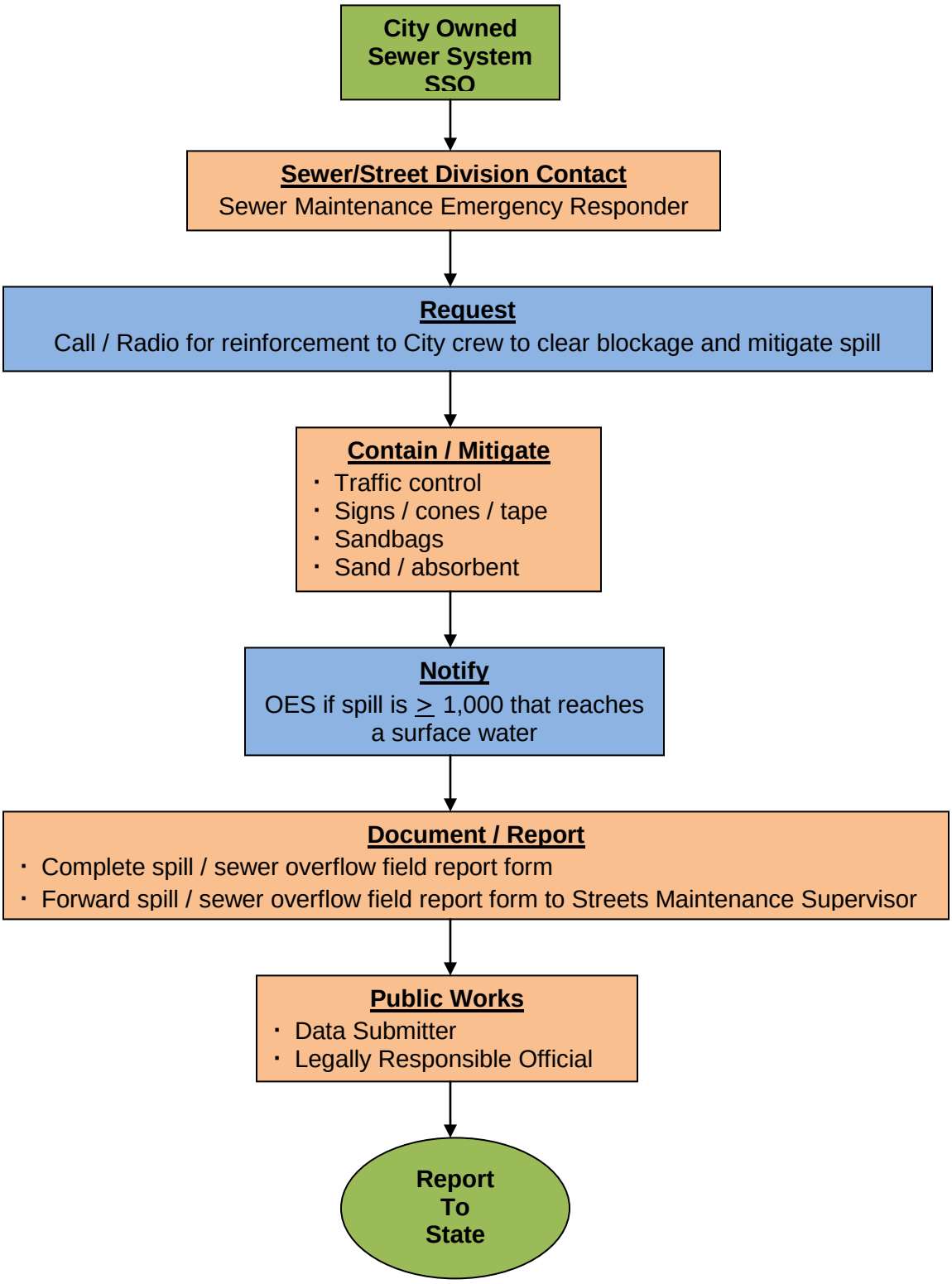


Figure 6-2: SSO Response Flow Chart for City-Owned Sewer SSOs



See Figure 6-5

Figure 6-3: SSO Response Flow Chart for Private Lateral/System SSOs

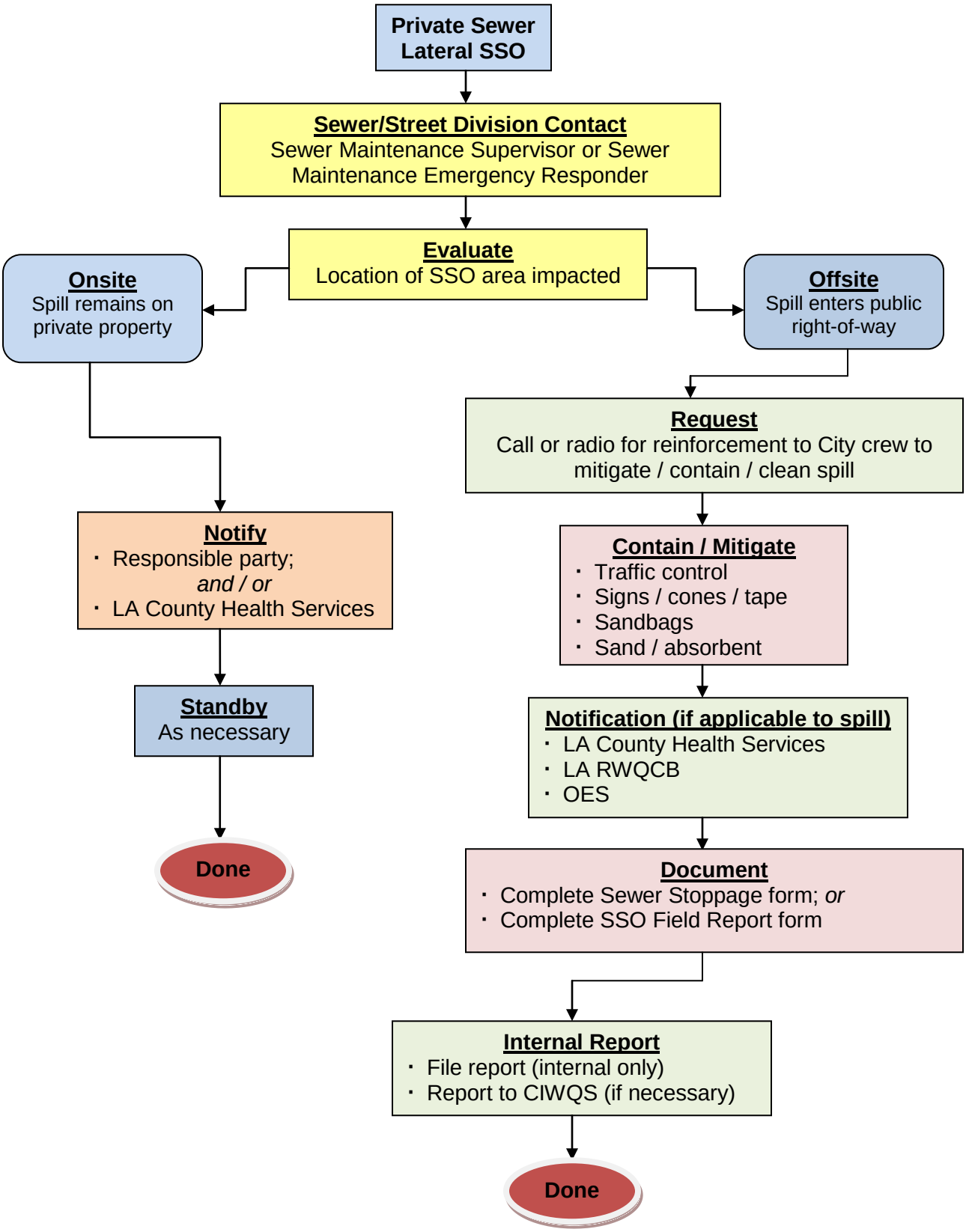
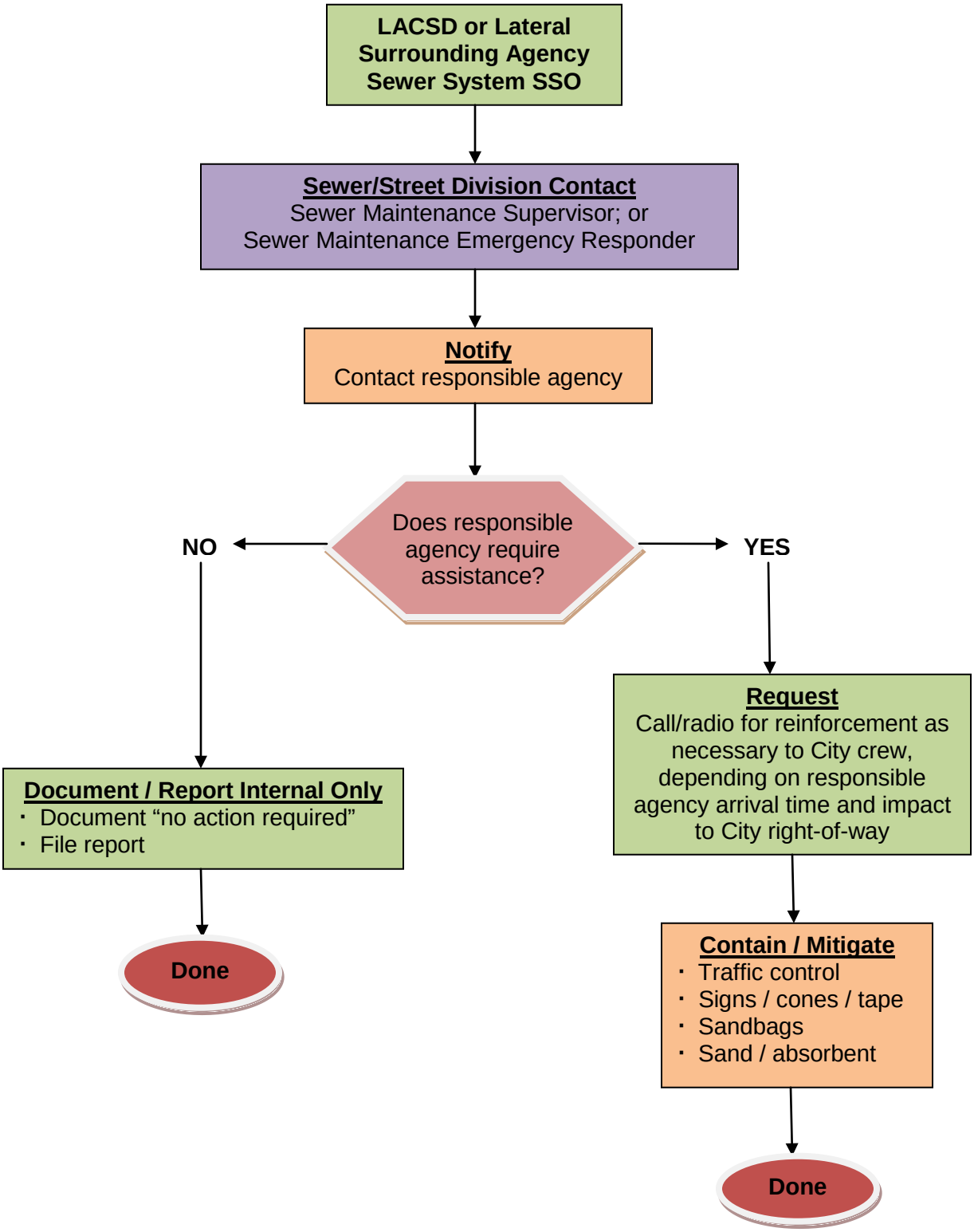


Figure 6-4: SSO Response Flow Chart for SSOs in Sewers Not Owned by City



Safety

The Sewer Maintenance Emergency Responder, as first responder, is responsible for following City safety procedures at all times.

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

6.4.1.1 Traffic Control

Traffic control requirements vary depending on the location and the risk to operating personnel and the public. Caltrans standards are the minimum for congested and/or high-speed streets and highways. The minimum traffic controls for low-speed/low-traffic-density streets should conform to City standards. In the case where there are no local standards, the minimum traffic control should be:

- Warning signs (signs with the symbol for person working are preferred);
- Directional arrow signs on rear of the truck;
- Traffic cones clearly delineating traffic lanes and directions; and
- One or more flaggers should be used to control and direct traffic where visibility is limited or the possibility of collision exits.

6.4.1.2 Hazardous Material Spills

On occasion City personnel may encounter a sewer spill that involves hazardous materials. In those instances, or in any instance where there is a reasonable doubt, they should immediately contact their Supervisor for instructions.

Water/Sewer Division personnel should remain on site and provide assistance if requested by the Hazardous Materials response team. The type of assistance to be provided includes traffic control and plugging storm drains from a safe distance.

6.4.2 Sewer Maintenance Emergency Responder Priorities

The Sewer Maintenance Emergency Responder's priorities, as the first person to respond to the call, are:

- To follow safe work practices;
- To respond promptly with appropriate equipment;
- To contain the spill wherever feasible;
- To restore the flow as soon as practicable;
- To minimize public access to and/or contact with the spilled sewage;
- To return the spilled sewage to the wastewater collection system; and
- To restore the area to its original condition (or as close as possible).

6.4.3 Initial Response

The Sewer Maintenance Emergency Responder calls the reporting party to clarify the situation and collect any additional information that may allow City personnel to respond in an efficient manner. The Sewer Maintenance Emergency Responder should:

- Field verify the address and nearest cross street to determine whether the spill or backup is located in the City's service area. If the location of the spill is not in the City's service area, call the responsible agency, provide them with the service call information, and notify the caller that the responsible agency has been notified.

- Respond with the appropriate spill response vehicle that has spill containment tools and materials and any additional equipment that may be needed based on the details provided by the caller.
    - Note arrival time at spill site.
    - If the initial inspection indicates that the discharging facility is not within the jurisdiction of the City of Whittier or that the problem is not caused by the City's sewer system, the responding crew will notify the appropriate agency staff and direct further field operations (See **Appendix 6-A** for contact information related to sewage spill response).
- If the spill/backup is caused by a private lateral, the responding crew should contain/mitigate the spilled sewage to prevent sewage from entering the public right of way without going on private property.
- If the spill/backup is caused by another agency sewer system, the responding crew should standby until representatives of the responsible party arrive and are fully operational unless an emergency on one of the City's sewers requires the team to respond to another location.
- Set up traffic and pedestrian control as necessary for safety of the public and the response crew.
- Identify and assess the affected area and extent of spill.
- Notify the Sewer Maintenance Supervisor or Water/Sewer Division Manager when:
    - The spill appears to be too large for the response crew to handle, in an area that may cause imminent or substantial danger to human health (e.g. impacting a school, hospital, park, etc.), or there is doubt regarding the extent, impact, or how to proceed.
    - Additional help is needed, to get assistance contacting other employees, contractors, and/or equipment suppliers.
- If the spill appears to be too large for the response crew to handle, in an area that may cause imminent or substantial danger to human health (e.g. impacting a school, hospital, park, etc.), document conditions upon arrival with photographs.
- Decide whether to proceed with clearing the blockage to restore the flow or to initiate containment measures. The guidance for this decision is:
    - Small spills – proceed with clearing the blockage.
    - Moderate or large spill where containment is anticipated to be simple – proceed with the containment measures.
    - Moderate or large spills where containment is anticipated to be difficult – proceed with clearing the blockage; however, call for additional assistance after 15 minutes without clearing the blockage and implement containment measures.

6.4.4 Restore Flow

Using the appropriate cleaning tools, set up downstream of the blockage and hydro clean upstream from a clear manhole. Attempt to remove the blockage from the system and observe the flows to ensure that the blockage does not recur downstream.

- If the blockage cannot be cleared within a reasonable time (15 minutes), or the sewer requires construction repairs to restore flow, then initiate containment and/or bypass pumping.
- If assistance is required, contact other employees, contractors, and equipment suppliers.

6.4.5 Initiate Spill Containment Measures

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

- Determine the immediate destination of the overflowing sewage.

- Plug storm drains using sandbags, plastic mats, and/or other dam construction material to contain the spill, whenever appropriate.
- Contain/direct the spilled sewage using dike/dam, sandbags, or earthen berms in landscaped or undeveloped areas.
- Pump around the blockage/pipe failure to convey the wastewater to the nearest downstream manhole or facility.
- If the spill is caused by a sewer lateral, City staff may shut off the water supply to that property when the wastewater endangers the public health.

6.4.6 Water Quality Sampling and Testing

The City of Whittier does not have any streams or water bodies requiring sampling.

6.4.7 Recovery and Clean Up

The recovery and clean up phase begins when the flow has been restored and the spilled sewage has been contained to the extent possible. The SSO recovery and clean up procedures are:

6.4.7.1 Estimate the Volume of Spilled Sewage

Use the methods outlined in **Appendix 6-C** to estimate the volume of the spilled sewage. Wherever possible, document the estimate using photos of the SSO site before and during the recovery operation.

6.4.7.2 Recovery of Spilled Sewage

Vacuum up spilled sewage using the Hydro-Vac or pump the spilled sewage and any water used to flush the area and discharge it back into the wastewater collection system.

6.4.7.3 Clean Up and Disinfection Recommendations

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

6.4.7.3.1 Hard Surface Areas

Take reasonable steps to contain and vacuum up the wastewater and return it to the wastewater collection system. Collect all signs of sewage solids and sewage-related material either by hand or with the use of rakes and brooms. Clean with disinfectant cleaner, solids are not washed down. Allow area to dry. Repeat the process if additional cleaning is required.

6.4.7.3.2 Landscaped and Unimproved Natural Vegetation

Collect all signs of sewage solids and sewage-related material either by hand or with the use of rakes and brooms. Wash down the affected area with clean water until the water runs clear. The flushing volume should be approximately three times the estimated volume of the spill. Either contain or vacuum up the wash water so that none is released. Return the wastewater to the wastewater collection system to the extent possible. Allow the area to dry. Repeat the process if additional cleaning is required.

6.4.7.3.3 Natural Waterways

There are no natural waterways in the City of Whittier.

6.4.7.4 Wet Weather Modifications

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

6.4.8 Follow Up Activities

If sewage has reached the storm drain system, the hydro-truck should be used to vacuum/pump out the catch basin.

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

If the sewer causes an overflow on a private property, the City will restore flow and call in their emergency restoration contractor who will take pictures and make notes. The resident is given the City contact info for making a claim, pending investigation.

6.5 Public Notification

Post signs and place barricades, cones, traffic arrow board, and caution tape as needed to keep vehicles and pedestrians away from contact with spilled sewage. Do not remove the signs until the effects of the spill have been mitigated. A sample warning sign is included as **Appendix 6-E**.

Major spills may warrant broader public notice. The approval of the City Manager is required prior to contacting local media when significant areas may have been contaminated by sewage.

6.6 SSO Analysis Investigation

The objective of the analysis investigation is to determine the cause of the SSO and to identify corrective action(s) needed that will reduce or eliminate potential for the SSO to recur.

The investigation should include reviewing all relevant data to determine appropriate corrective action(s) for the line segment. The investigation will be conducted by the Water/Sewer Division Manager and/or Supervisor and reported to the Director of Public Works or his/her designee. The investigation should include:

- Reviewing and completing/correcting the Sewer/Spill Overflow Report Form;
- Reviewing available photographs;
- Conducting a CCTV inspection to determine the condition of the portion of the line segment immediately following the SSO and reviewing the video and logs; and
- Interviewing staff who responded to the spill.

The product of the analysis investigation should be the determination of the cause and the identification of the corrective actions.

6.7 SSO Categories

The California State Water Resources Control Board (SRWCB) has established guidelines for classifying and reporting SSOs. Reporting and documentation requirements vary based on the type of SSO.

There are four categories of SSOs as defined by the SWRCB[1]:

- Category 1 – Spills of any volume that reaches surface water.
- Category 2 – Spills greater than or equal to 1,000 gallons that do not reach surface water.
- Category 3 – Spills less than 1,000 gallons that do not reach surface water.
- Private Lateral Sewage Discharges - Sewage discharges that are caused by blockages or other problems within a privately owned lateral.

6.8 SSO Documentation and Reporting

All SSOs should be thoroughly investigated and documented for use in managing the wastewater collection system and meeting established reporting requirements. The procedures for investigating and documenting SSOs are:

6.8.1 Internal SSO Reporting Procedures

6.8.1.1 Category 1 SSOs

The Sewer Maintenance Emergency Responder will fill out the Spill/Sewer Overflow Field Report Form and turn it in to the Sewer Maintenance Supervisor or Water/Sewer Division Manager upon returning to the Corporate Yard. The Sewer Maintenance Supervisor or Water/Sewer Division Manager will review the form and send it to the Director of Public Works or his/her designee.

In the event of a very large overflow or an overflow in a sensitive area, the Water/Sewer Division Manager will notify the Director of Public Works or his/her designee.

6.8.1.2 Category 2 and Category 3 SSOs

The Sewer Maintenance Emergency Responder will fill out the Spill/Sewer Overflow Field Report Form and turn it in to the Sewer Maintenance Supervisor or Water/Sewer Division Manager upon returning to the Corporate Yard. The Sewer Maintenance Supervisor or Water/Sewer Division Manager will review the form and send it to the Director of Public Works or his/her designee.

6.8.1.3 Private Lateral SSOs

If a Private Lateral sewage discharge is reported to the City, the Sewer Maintenance Emergency Responder will immediately notify the Water/Sewer Division Manager who may notify the Director of Public Works.

The Sewer Maintenance Emergency Responder will fill out the Spill/Sewer Overflow Field Report Form and turn it in to the Water/Sewer Division Manager.

[1] State Water Resources Control Board Monitoring and Reporting Program No. 2006·0003-DWQ (as revised by Order No. WQ 2008-0002.EXEC) Statewide General Waste Discharge Requirements for Sanitary Sewer Systems and amended by Monitoring and Reporting Program No. WQ 2013-0058-EXEC.

6.9 External SSO Reporting Procedures[2]

The California Integrated Water Quality System (CIWQS) Online SSO Reporting System should be used for reporting SSO information to the SWRCB whenever possible. A summary of external reporting requirements and contact information is included as **Figure 6-5**.

6.9.1.1 Category 1 SSOs 1,000 gallons or more that reach a Surface Water

If a Category 1 SSO results in a discharge to a surface water (or in a location where it may reach a surface water) greater than or equal to 1,000 gallons the enrollee shall, as soon as possible, but not later than two (2) hours after becoming aware of the SSO, notify the Cal OES and obtain a notification control number.

- **Within 3 business days** of the spill event draft reports shall be submitted to the CIWQS Online SSO database.
- **Within 15 calendar days** of the conclusion of SSO response and remediation, the Legally Responsible Official or his/her designee will certify the final report using the Online SSO Reporting System.
- The Legally Responsible Official or his/her designee will update the certified report as new or changed information becomes available. The updates can be submitted at any time and must be certified.

6.9.1.2 Category 1 SSOs not fully recovered

- **Within 3 business days** of the spill event, draft reports shall be submitted to the CIWQS Online SSO database.
- **Within 15 calendar days** of the conclusion of SSO response and remediation, the Legally Responsible Official or his/her designee will certify the final report using the Online SSO Reporting System.
- The Legally Responsible Official or his/her designee will update the certified report as new or changed information becomes available. The updates can be submitted at any time and must be certified.

6.9.1.3 Category 2 SSOs

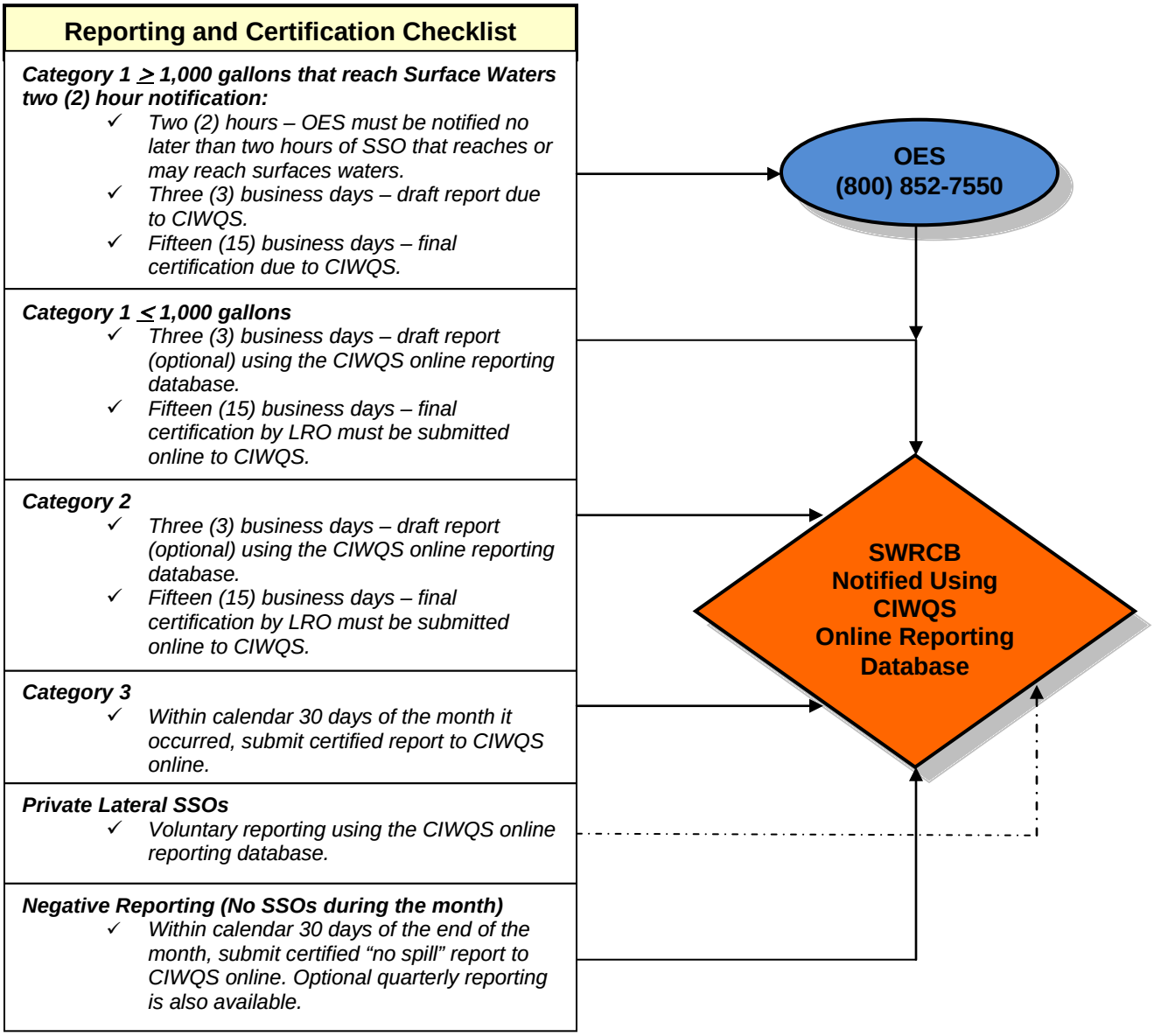
- **Within 3 business days** of the spill event draft reports shall be submitted to the CIWQS Online SSO database.
- **Within 15 calendar days** of the conclusion of SSO response and remediation, the Legally Responsible Official or his/her designee will certify the final report using the Online SSO Reporting System.
- The Legally Responsible Official or his/her designee will update the certified report as new or changed information becomes available. The updates can be submitted at any time and must be certified.

6.9.1.4 Category 3 SSOs

Within 30 calendar days after the end of the calendar month in which the SSO occurs, the Legally Responsible Official or his/her designee will submit a certified report using the Online SSO Reporting System. The report will include the information to meet the GWDR requirements.

[2] State Water Resources Control Board Monitoring and Reporting Program No. 2006·0003-DWQ (as revised by Order No. WQ 2008-0002.EXEC) Statewide General Waste Discharge Requirements for Sanitary Sewer Systems and amended by Monitoring and Reporting Program No. WQ 2013-0058-EXEC.

Figure 6-5: External Reporting Requirement Checklist and Contact Information



6.9.1.5 Private Lateral Sewage Discharges

The Legally Responsible Official or his/her designee may report private lateral SSOs using the Online SSO Reporting System **at the City's discretion**, specifying that the sewage discharge occurred and was caused by a private lateral and identifying the responsible party (other than the City), if known.

6.9.1.6 No Spill Certification

If there are no SSOs during the calendar month, the Legally Responsible Official will submit and certify an electronic report that the City did not have any SSOs within 30 days after the end of each calendar month. In addition, the CIWQS certification screen will allow for quarterly reporting of "no spills". For example, quarter one = January, February, March. Quarterly reporting must be done within 30 calendar days after the end of each quarter.

6.9.1.7 Online SSO Reporting System (CIWQS) Not Available

In the event that the Online SSO Reporting System is not available, the Legally Responsible Official or his/her designee will fax all required information to the LARWQCB office in accordance with the time schedules identified above. In such event, the City will submit the appropriate reports using the Online SSO Reporting System as soon as practical.

6.9.2 Internal SSO Documentation

6.9.2.1 Category 1, 2 and 3 SSOs

The Sewer Maintenance Emergency Responder will complete the Sanitary Sewer Overflow Field Report Form (**Appendix 6-B**) and provide copies to the Water/Sewer Division Manager or his/her designee.

The Legally Responsible Official or his/her designee will prepare a file for each individual SSO. The file should include the following information:

- Initial service call information;
- Sanitary Sewer Overflow Field Report;
- Online SSO Reporting System form;
- Volume estimate;
- Map showing the spill location;
- Photographs of spill location;
- CCTV inspection data, if applicable;
- Water quality sampling and test results, if applicable;
- SSO cause investigation results; and
- Any other forms related to the SSO.

6.9.2.2 Private Lateral SSOs

The Sewer Maintenance Emergency Responder will complete the Sewer/Spill Overflow Field Report Form and provide copies to Water/Sewer Division Manager or his/her designee if the spill moves from private property to the public right of way.

A separate file will be prepared for each individual SSO, at the Legally Responsible Official discretion. The file should include any relevant information from the above list.

6.9.3 External SSO Record Keeping Requirements[3]

The GWDR requires that individual SSO records be maintained by the City for a minimum of **five years** from the date of the SSO. This period may be extended when requested by a Regional Water Quality Control Board Executive Officer.

All records shall be made available for review upon State or Regional Water Board staff's request.

Records shall be retained for all SSOs, including but not limited to the following when applicable:

- Copy of Certified Online SSO Reporting System report(s);
- Any photos (if taken);
- Sanitary Sewer Overflow Field Report Form;
- Steps that have been and will be taken to prevent the SSO from recurring and a schedule to implement those steps.

If water quality samples are required by an environmental or health regulatory agency, or if voluntary monitoring is conducted by the City, as a result of any SSO, records of monitoring information shall include:

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

6.9.4 Post SSO Event Debriefing

As soon as possible after major SSO events, all of the participants, from the person who received the call to the last person to leave the site, should meet to review the procedures used and to discuss what worked and where improvements could be made in responding to and mitigating future SSO events.

6.10 Equipment

This section provides a list of specialized equipment that should be used to support this Overflow Emergency Response Plan.

Camera – A digital or disposable camera to record the conditions upon arrival, during clean up, and upon departure.

Closed Circuit Television (CCTV) Inspection Unit – A CCTV Inspection Unit to determine the cause for SSOs from gravity sewers. This equipment can be provided by a contractor.

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

Emergency Response Trailer – A trailer to store and transport the equipment needed to effectively respond to sewer emergencies. The equipment and tools should include containment and clean up materials: sandbags, barricades, cones, caution tape, signs, rakes, drop-inlet mats, and plastic sheeting.

[3] State Water Resources Control Board Monitoring and Reporting Program No. 2006·0003-DWQ (as revised by Order No. WQ 2008-0002.EXEC) Statewide General Waste Discharge Requirements for Sanitary Sewer Systems and amended by Monitoring and Reporting Program No. WQ 2013-0058-EXEC.

GPS Unit (Global Positioning System) – A hand held GPS unit to determine the coordinates of spills for use in meeting LARWQCB SSO reporting requirements.

Portable Generators, Portable Pumps, Piping, and Hoses – Portable equipment used to support this plan can be rented at short notice.

6.11 SSO Response Training

This section provides information on the training that is required to support this Overflow Emergency Response Plan.

6.11.1 Initial and Annual Refresher Training

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

6.11.2 SSO Training Record Keeping

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

6.12 Contractors Working on City Sewer Facilities

All contractors working on City sewer facilities will provide an OERP. This OERP will include which individual(s) the contractor will contact at the City and any actions that the contractor should perform in the event of an SSO.

Appendix 6-A: SSO Emergency Backup Sewer Contractor's Call Out List

Company	Name / Phone Number	Address	Services
Tunnel Works	Willie Duarte 562-201-4036	13502 Whittier Bl. Whittier, 90605	Main line repair, jetting, vactor, camera services
Performance Pipeline Technologies	Gene Glassburner 714-891-3090 714-536-7386 cell 714-350-2131	5901 Warner Ave. Huntington Beach 92649	Main line repair, jetting, vactor, camera services
United Pumping Services, Inc.	Don Moore 626-961-9326	14000 Valley Bl. City of Industry 91746	Jetting, vactor services
Provision Engineering, Inc.	Adam Tovar 626-523-2004 909-773-0450	2906 Merion St. Ontario 91761	Main line jetting, vactor, camera services
Morr-is Tested	Jeff Cravens 714-979-1573	19469 Via Del Caballo Yorba Linda 92886	Main line jetting, vactor, camera services
National Plant Services	526-437-3574	1461 Harbor Ave. Long Beach 90813	Main line jetting, vactor, camera services
Carter Sanitation	Frank Carter 562-665-9049 626-338-9538	4266 Elton St. Baldwin Park 91706	Sewer main & lateral repair, backhoe, vactor services

Appendix 6-B: Emergency and General Telephone Numbers for Local Agencies and Utilities

Agency	Number	Time	Contact
Army Corps of Engineers – Los Angeles District	213-452-3425/3440 213-452-3333 213-452-3840		Main District Office Number Emergency Management Environmental
CA Fish & Game	858-467-4201		jjackson@dfg.ca.gov
Emergency Management Agency (OES)	916-845-8150 916-845-8911 800-852-7550	 24 Hours	Main Number Communications & Warnings Caloes.ca.gov
LA County Dept. of Health Services	323-780-2272 562-345-6800 213-974-1234	 24 Hours	Commercial/Restaurant backups Residential sewer backups SSO call in number
Los Angeles Regional Water Quality Control Board	 213-576-6657 213-576-6640	 24 Hours 24 Hours	 Phone Fax (follow up)
Los Angeles County Dept of Public Works	 626-458-4357 562-861-0316	 24 Hours Business Hours	 Sewer Division Flood Control / Storm Drains
City of La Habra	562-383-4170	Business Hours	Public Works Maintenance Yard
City of La Mirada	562-902-2385	Business Hours	Public Works Department
City of Pico Rivera	562-801-4415 562-949-2421	 24 Hours	Public Works Sheriff - complaint desk
City of Santa Fe Springs	562-409-7540 562-944-9713 562-567-9200	7:30am-5:30pm 8am-5pm/M-F 24 Hours	Public Works Fire Dept, Santa Fe Springs Fire Dept, Whittier Dispatch
City of Whittier	562-567-9500 562-567-9540 562-695-5214 562-567-9240	8am-5pm/M-F 8am-5pm/M-F 24 Hours 24 Hours	Public Works City Corporate Yard Pumping Plant II PD Dispatch
Suburban Water	626-543-2640 562-464-1843	8am-5pm/M-F After hours	
So. Cal Gas Co.	800-427-2200 800-603-7060	24-hrs automated 24 hours	
So. Cal Edison	800-655-4555 800-611-1911	24 hours 24 hours	 Emergency Number
Los Angeles County Sanitation District	 562-437-6520	 24 hours	 Sewer Main Number
Friendly Hills Golf Course	562-322-5507 562-698-6004	Cell Office	 David Michael
Bee Removers	800-924-3097		Greg
Bee Gone	714-926-2377		Rob Cowen

Appendix 6-C: Sanitary Sewer Overflow Field Report Form

CITY OF WHITTIER

Sanitary Sewer Overflow (SSO) Field Report

Date of SSO Occurrence_____ **Estimated Spill Start Time** _____ am/pm

Time crew notified: _____ am/pm		**SSO Location** – Address (if known) _____
Estimated arrival time: _____ am/pm		Street: _____
Estimated Total Spill volume: _____ gallons		Cross street: _____
		Cause of Overflow:
SSO Recovery:		☐ Roots ☐ Grease ☐ Debris
Estimated volume *recovered* _____ gals		☐ Vandalism ☐ Capacity (heavy rain)
Estimated volume *NOT recovered* _____ gals		☐ Construction Damage ☐ Power Failure
		☐ Other _____
SSO Source:		**Final Spill Destination:**
☐ Manhole ☐ Gravity Main		☐ Storm Drain ☐ Captured Storm Drain
☐ Private Lateral ☐ Clean Out		☐ Surface Water ☐ Yard/Land
☐ Other _____		☐ Building
		☐ Other _____

NOTIFICATION (Effective 9/9/2013):

Notify *ONLY* the Office of Emergency Services (within 2 hours) of spills equal to or greater than 1000 gallons that are not recovered. Notification will normally not need to be made to other agencies and is not made for spills less than 1000 gallons.

Office of Emergency Services (800) 852-7550 **Time** _____ **Control #**_____

Supervisor's Comments/Observations *(if other agencies are notified, record information here).*

SSO END TIME _____ am/pm **GPS Coordinates**_____

Response Crew_____

Report Completed by_____ **Supervisor's Initials**_____

Please attach "sewer stoppage" form and include any diagrams, pictures, etc.

O:\Sewer\WDR--SSO\Field Report Form (rev 4-14).doc

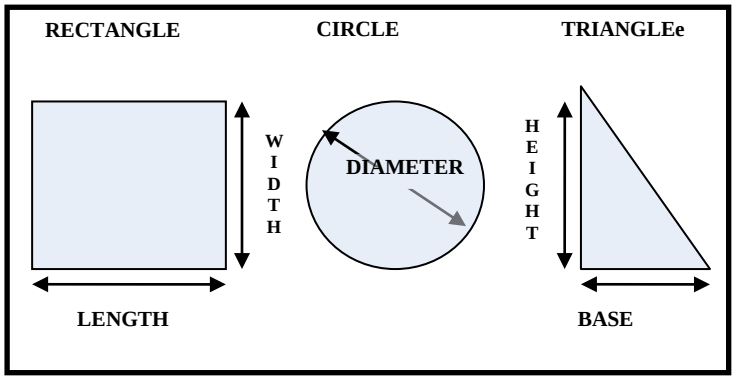
Appendix 6-D: Methods for Estimating Spill Volume

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

Method 1 Measured Volume

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

Common Shapes and Dimensions



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

Step 2 Measure or pace off the dimensions.

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

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

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

Rectangle:	Area = length (feet) x width (feet)
Circle:	Area = diameter (feet) x diameter (feet) x 0.79
Triangle:	Area = base (feet) x height (feet) x 0.5

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

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

Method 2 Duration and Flow rate

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

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

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

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

- Changes in flow on a downstream flowmeter can be used to establish the start time. Typically the daily flow peaks are "cut off" or flattened by the loss of flow. This can be identified by comparing hourly flow data during the spill event with flow data from prior days.
- Conditions at the spill site change over time. Initially there will be limited deposits of toilet paper and other sewage solids. After a few days to a week, the sewage solids form a light-colored residue. After a few weeks to a month, the sewage solids turn dark. The quantity of toilet paper and other materials of sewage origin increase over time. These observations can be used to estimate the start time in the absence of other information. Taking photographs to document the observations can be helpful if questions arise later in the process.
- It is important to remember that spills may not be continuous. Blockages are not usually complete (some flow continues). In this case the spill would occur during the peak flow periods (typically 10:00 to 12:00 and 13:00 to 16:00 each day). Spills that occur due to peak flows in excess of capacity will occur only during, and for a short period after, heavy rainfall.

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

Flow Rate: The flow rate is the average flow that left the wastewater collection system during the time of the spill.

There are three common ways to estimate the flow rate:

- The San Diego Manhole Flow rate Chart: This chart, included as Appendix 6-D, shows sewage flowing from manhole covers at a variety of flow rates. The observations of the field crew can be used to select the appropriate flow rate from the chart. If possible, photographs are useful in documenting the basis for the flow rate estimate.
- Flowmeter: Changes in flows in downstream flowmeters can be used to estimate the flow rate during the spill.
- Counting Connections: Once the location of the spill is known, the number of upstream connections can be determined from the sewer maps. Multiply the number of connections by 200 to 250 gallons per day per connection or 8 to 10 gallons per hour per connection.

  For example:

  22 upstream connections x 9 gallons per hour per connection

  = 198 gallons per hour / 60 minutes per hour

  = 3.3 gallons per minute

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

For example:

Spill start time = 11:00

Spill end time = 14:00

Spill duration = 3 hours

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

= 594 gallons

Method 3 Eyeball Estimate

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

Appendix 6-E: Manhole Overflow Flow Rate Guide

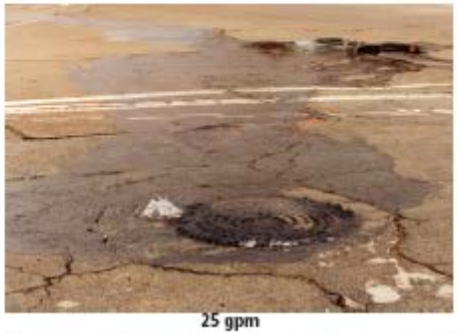
City of San Diego
Metropolitan Wastewater Department

Reference Sheet for Estimating Sewer Spills from Overflowing Sewer Manholes

All estimates are calculated in gallons per minute (gpm)

Wastewater Collection Division
(619) 654-4160


5 gpm


25 gpm


50 gpm


100 gpm


150 gpm


200 gpm


225 gpm


250 gpm


275 gpm

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

rev. 4/99

Appendix 6-F: Sample Warning Sign

DANGER!

CONTAMINATED WATER

KEEP OUT

AGUA CONTAMINADA

ALEJESE

PELIGRO!

Questions concerning exposure, posting, and clean up should be directed to:

City of Whittier Police Department

(562) 567-9240

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Chapter 7 FOG Control Program

This section of the SSMP presents the extent and nature of SSOs related to Fats, Oils, and Grease (FOG) and the need for a FOG Control Program.

7.1 Regulatory Requirements for the FOG Control Program Element

The collection system agency shall evaluate its service area to determine whether a FOG control program is needed. If the collection system agency determines that a FOG program is not needed, the collection system agency must provide justification for why it is not needed. If FOG is found to be a problem, the collection system agency must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system. The FOG source control program shall include the following as appropriate:

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

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

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

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

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

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

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

7.2 Nature and Extent of FOG Problem

The City has only reported eight FOG-related SSOs using CIWQS and as reported by City of Whittier Public Works Utilities Department from April 1, 2009 through September 30, 2014. All reported FOG-related SSOs is presumed to have originated from residential areas. There is no definite documentation that any of FOG related SSO originated from restaurant establishments.

Summary of primary causes for Whittier's 136 SSOs from April 1, 2009 through September 30, 2014 are shown on **Table 7-1**. Only 6% of the sewer overflows that have occurred in this 5.5 year reporting period can be attributed to FOG-related causes. Based on this data, the City of Whittier opts to continue addressing FOG-related issues in the sewer system using a preventive maintenance approach. The fact that the FOG related SSOs are originating mostly from residential areas are good indications that restaurant establishments are doing their part in complying with FOG program with grease traps and proper disposal of FOG.

The locations of the grease-related incident locations are shown in **Figure 7-1**. The City will continue with the current cleaning program and will collect to support making decisions to optimize maintenance frequencies.

Table 7-1: Analysis of Whittier SSO Data (4/1/2009 – 9/30/2014)

Cause	Count	SSOs/100 miles/year	Percent
Roots	92	8.61	68%
Unknown	24	2.25	17%
Debris	9	0.84	7%
Grease	8	0.75	6%
Pipe	3	0.28	2%
TOTAL	57	12.73	100%

As of November 2014, there are approximately 194 food service establishments (FSEs) in the City's wastewater collection system service area. **Figure 7-1** shows the City's grease-related incident locations in relationship to food service establishments and the eight FOG-related SSOs that have occurred in that time. Only two FOG related SSOs were near the food establishment areas. However, it was inconclusive on the exact source of FOG. The City believes that there is no basis, at this time, to support undertaking a commercial FOG source control program nor is there the basis to support undertaking a residential outreach program. The City will continue with the current program and will evaluate the effectiveness of the program.

7.3 Legal Authority to Support FOG Source Control Program

The City will not implement a commercial FOG source control program at this time. If and when the City implements a commercial FOG source control program it will need the following legal authorities:

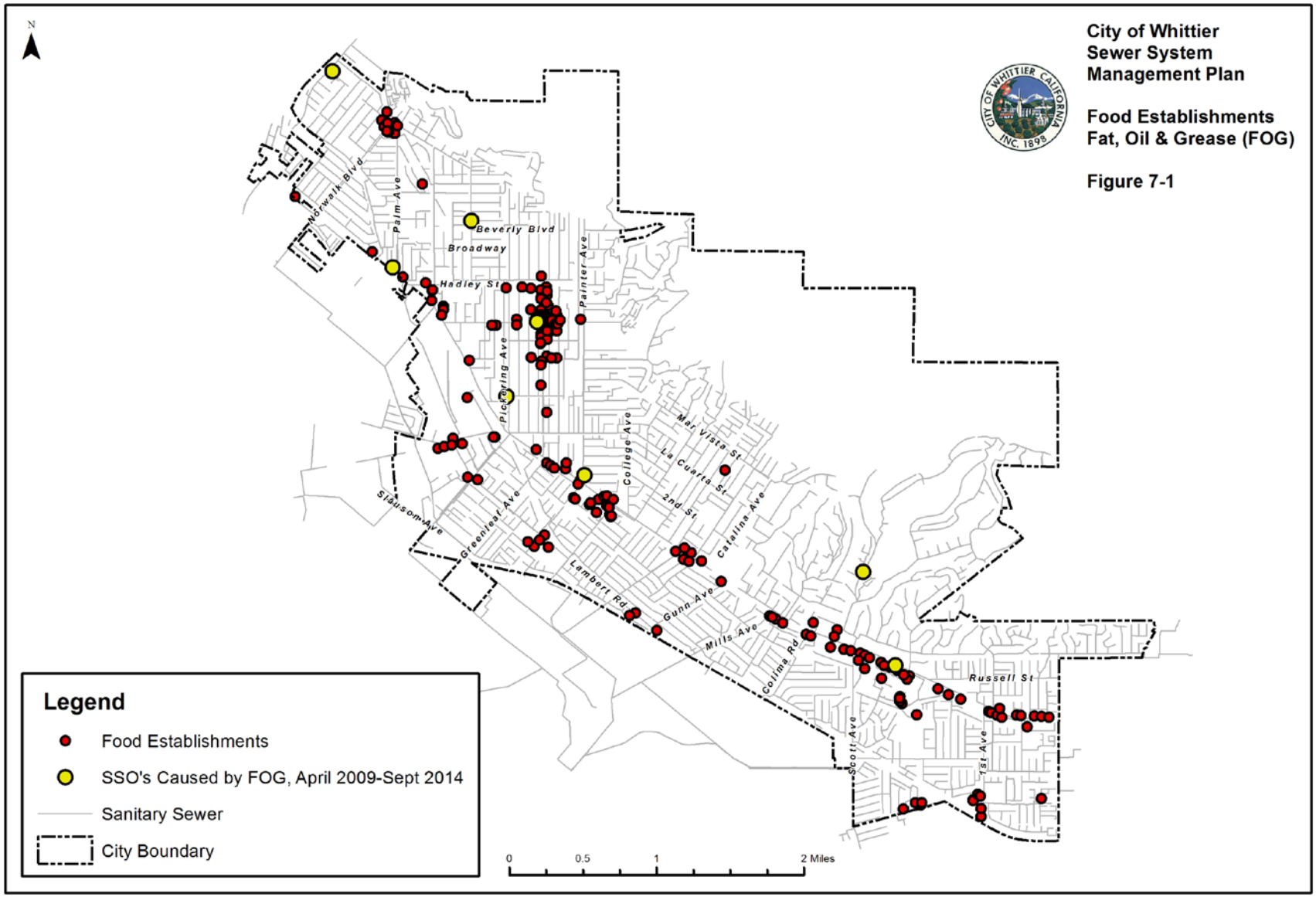
- Requirements to install grease removal devices
- Design standards for grease removal devices
- Maintenance requirements, BMP requirements, record keeping and reporting requirements
- Authority to inspect grease producing facilities
- Enforcement authorities

7.4 FOG Preventative Maintenance

The City currently employs preventive maintenance as the primary method to address FOG issues in the system. Most of the locations identified as priority incident locations due to grease issues were identified through cleaning crew knowledge, past grease-related SSOs and stoppages, and CCTV inspection data. The City will address these sewers through priority incident location cleanings and pipeline inspections. The sewer cleaning frequency of pipes with known grease issues will be adjusted and optimized to address the issue. The City will employ the methods outlined in Chapter 4 – Operations and Maintenance Program to optimize its preventive maintenance activities.

The City has an aggressive inspection program that includes all priority incident locations and will identify pipes with a grease problem. In addition, in the past sewer cleaning crews did not record the type and amount of material that was found during sewer cleaning except in the case of a sewer overflow or stoppage. Sewer cleaning crews will record the type and severity of material found during cleaning activities and the City shall utilize this information to adjust sewer cleaning frequencies as described in Section 4.3.

Figure 7-1: Food Service Establishments and Grease Related Incident Locations)



7.5 FOG Disposal Facilities

The list of identified FOG disposal sites and liquid waste haulers is included as **Appendix 7-A**. The primary source of this information is www.calfog.org/Hauler.html#LosAngeles and www.calfog.org/GreaseFacilities.html. The City will update the list annually. The number and close proximity of the disposal sites is adequate to handle liquid wastes being removed from current and future grease removal equipment within the City.

Appendix 7-A: Grease Haulers and FOG Disposal Facilities

Grease Haulers and FOG Disposal Facilities serving the Whittier area as of April 2013 are shown in the following lists. The source of this information is www.calfog.org/Hauler.html#LosAngeles and www.calfog.org/GreaseFacilities.html.

Grease Rendering/Drop Off Points for Whittier Area			
Baker Commodities, Inc.	4020 Bandini Blvd Los Angeles, CA (Vernon, CA)	(323) 268-2801 or (800) 427-0696	Grease recycler. Drop off location and grease trap cleaning/hauling.
Darling International	2626 E 25th St Los Angeles, CA	(323) 583-6311 (800) 473-4890	Drop off location and grease trap cleaning/hauling.
One More Time, Inc.	4144 Bandini Blvd Los Angeles, CA (Vernon, CA)	(323) 526-3838 (800) 624-5504	Used cooking oil only *No trap cleaning*
Southwest Processors	4120 Bandini Blvd Los Angeles, CA (Vernon, CA)	(800) 900-3366	Grease recycler. Drop off location and grease trap cleaning/hauling.
West Coast Rendering	4105 Bandini Blvd Los Angeles, CA (Vernon, CA)	(323) 261-4176	Small operation. Typically only accept grease from known grease hauler (Triple A). No grease trap servicing.

Grease Trap Cleaning/Hauling	
Ameriguard Maintenance Services	(559) 497-2925 (800) 347-7876 x14
Chans Grease Service	(951) 830-2172
New Leaf Biofuel	(619) 236-8500
SMC Grease Specialist	(951) 788-6042

Chapter 8 System Evaluation and Capacity Assurance Plan

8.1 Introduction

This section of the SSMP presents the City's System Evaluation and Capacity Assurance Plan (SECAP).

8.2 Regulatory Requirements for the System Evaluation and Capacity Assurance Plan Element

The requirements for the SECAP element of the SSMP are summarized below:

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

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

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

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

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

8.3 Capacity Evaluation

Although there have been no documented capacity-related SSOs in the City, a comprehensive capacity evaluation using a dynamic hydraulic model was performed to quantify flows and capacities in all major sewers under current and future flow conditions. This evaluation and its findings are documented in the report: City of Whittier Capacity Enhancement Plan, May 2009, and are summarized here.

The City's collection system was modeled using Wallingford Software's InfoWorks CS (version 9.5) program. InfoWorks CS uses Wallingford's proprietary hydraulic engine, which provides a fully dynamic solution for modeling stormwater and sanitary sewer systems.

The sewers included in the model consisted of all City pipes 10 inches and larger in diameter, additional 6- and 8-inch sewers serving larger areas (generally over 30 acres), and all Los Angeles County Sanitation District (LACSD) trunk sewer lines located within the City. In total, the network includes 1,430 pipe segments with a total length of 65.5 miles, representing 25% of the City's sewers and 30% of all sewers in Whittier (including LACSD trunks). Lampholes along modeled pipes were included in the model since they typically mark a change in grade between manholes.

Although ensuring adequate capacity in LACSD trunk sewers is not the City's responsibility, the trunks were included in the analysis to create a single connected network and to identify existing or future potential capacity restrictions in trunk sewers that could cause backups or overflows in City sewers.

The primary source of data on the location and attributes (i.e., pipe diameters, lengths, elevations, etc.) of the sewer manholes and pipes was the City's sewer GIS created in 2008 using information on sewer record drawings and limited field checks. The GIS data were validated and enhanced to ensure complete and accurate data for modeling, including elevations of all pipes and manholes on a common vertical datum.

The City's service area was divided into 241 tributary areas (median size of 30 acres) for the purposes of estimating existing and future wastewater flows. Flows in all tributary areas were estimated using a variety of information sources including parcel-level dwelling unit counts from the County Tax Assessor's database, census household size and population data, general and specific plan land uses and development projections, regional population projections, water billing records, and industrial permit data. The unit flow rates for dry weather flow conditions were calibrated using 24 of the temporary flow monitors installed by LACSD in Whittier in 2003.

Due to the unavailability of wet weather flow data, it was not possible to calibrate the model to a wet weather event. However, there is no history of overflows in Whittier due to lack of capacity during wet weather events. The lack of wet weather overflows suggests that I/I is probably not a major concern, although it is possible that I/I has or could have contributed to blockage-related overflows and that wet weather overflows could occur during storm conditions greater than recent historical events. In this situation, the approach used in the Capacity Plan was to identify sewers where the peak dry weather flow utilizes a high percentage of the pipe capacity, leaving little reserve capacity for I/I.

The hydraulic model was used to generate peak flows in each modeled pipe and to evaluate pipe capacities. A pipe was considered to have inadequate capacity if the ratio of flow depth to pipe diameter (d/D) at peak dry weather flow exceeded 75 percent under either existing or future conditions.

Based on these criteria, two sections within the City's system were determined to have inadequate capacity under both existing and future conditions. No capacity-related overflows were predicted. A list of these deficiencies is provided in **Table 8-1**.

Table 8-1: Identified Capacity Deficiencies

Project ID	Location	Length	Existing Diameter	Trigger Scenario	Existing Worst Condition	Future Worst Condition	Freeboard at Trigger Scenario
1	Norwalk Blvd from Dorlan St to Loch Lomond Dr	1,675'	10"	Existing DWF	0.4' of surcharge	0.5' of surcharge	6.1'
2	Whittier Blvd from Pickering Ave to La Cuarta St	301'	12"	Existing DWF	d/D=0.76'	0.2' of surcharge	6.2'

8.4 Design Criteria

In addition to the criteria used to evaluate the capacity of *existing* sewers for the Capacity Plan (as described in the preceding section), the City has separate criteria that they use for the design of all *new* sewers. The City has adopted unit flow factors and criteria from the City of Los Angeles Bureau of Engineering's *Sewer Design Manual* for the sizing of new sewer lines.

8.5 Capacity Enhancement Measures and Schedule

Two capacity enhancement projects were formulated to address the two identified capacity deficiencies. These projects are described in the City of Whittier Capacity Enhancement Plan, May 2009, and summarized in **Table 8-2**.

Table 8-2: Capacity Enhancement Projects

Project ID	Recommended Alternative	Cost
1	Upsize-in-place 1,675' of 10" with 15"	$800,000
2	Upsize-in-place 301' of 12" with 18"	$200,000

Although above capacity enhancement projects were identified in 2009, the projects have not yet been complete. These projects will be reviewed and programmed as part of City's 5-year Capital Improvement Program as budget and scheduling allows.

As noted previously, the two identified capacity deficiencies do not pose a significant immediate or future risk of causing a capacity-related overflow under dry weather flow conditions. The need for these projects is predicated on the existence of an unknown amount of infiltration/inflow (I/I). Based on the lack of wet weather flow data available at the time of the study, a conservative d/D of 0.75 was incorporated into the design criteria. This conservative factor effectively reserved some of the sewer system capacity for wet weather flow. Before either of these projects is designed or constructed, flow monitoring under dry and wet weather conditions will be performed to validate the need for the projects.

Due to lack of significant wet seasons during this reporting period, a flow monitoring program was not feasible. In the next reporting period if the wet weather conditions prevail, flow monitoring program will be performed during the winter months at the two project locations and at other key locations throughout the sewer system to determine the magnitude of I/I and to update dry weather flows. The results of the flow monitoring program will be used not only to determine if the two identified projects are needed, but also to update the dry weather flow parameters in the existing model and include wet weather flow parameters, to update the capacity analysis, and potentially to identify areas of high infiltration/inflow that could be targeted for I/I source detection and reduction measures.

Upon completion of the flow monitoring program and updating of the hydraulic model and capacity analysis, the need for the two identified capacity enhancement projects (or other projects) will be re-assessed and the projects prioritized and scheduled according to overflow risk. Flow monitoring, capacity assessments, and any required capacity enhancement projects will be funded from the City's sewer Capital Improvement Program budget.

Chapter 9 Monitoring, Measurement, and Program Modifications

This section of the SSMP presents the City's approach to Monitoring, Measurement, and Program Modifications.

9.1 Regulatory Requirements for the Monitoring, Measurement, and Program Modifications Element

The requirements for the Monitoring, Measurement, and Program Modifications element of the SSMP are that the City 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.

9.2 Performance Measures

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

- Total number of SSOs;
- Number of SSOs for each cause (roots, grease, debris, pipe failure, capacity, lift station failures, and other);
- Portion of sewage contained compared to total volume spilled;
- Volume of spilled sewage discharged to surface water; and
- Planned to actual performance for preventive maintenance.

9.3 Historical Performance Data

The City has limited historical baseline performance data as reported in 2009 as part of Sewer System Monitoring Program. The City has been reporting SSOs using the Online SSO Reporting System since January 1, 2007. The Online SSO Reporting System data, which is included as Appendix 9-A, will be used as the City's baseline performance data for this reporting period.

9.4 Baseline Performance

The baseline performance, which shows the performance of the City's wastewater collection prior to the implementation of the SSMP, is shown on **Table 9-1**.

Geospatial and trend analysis is not meaningful at this time due to the limited quantity of data available. Geospatial and trend analysis will be added in future years as additional data becomes available for analysis.

Table 9-1: Baseline SSO Performance Comparison with Current Reporting Period

Performance Indicator		Baseline January 2007 to April 2009 Value	2014 Reporting April 2009 to September 2014 Value
Number of SSOs		74	136
SSO Rate, SSOs/100 miles/year		16.56	12.73
Primary Cause of SSOs	Roots	57%	68%
	Grease	5%	7%
	Debris	9%	6%
	Pipe Failure	1%	2%
	Unknown	27%	17%
Median SSO Volume, gallons		138	125
Portion of SSOs ≤ 100 gallons		(34) 46%	(63) 47%
Portion of SSOs Reported as Category 1		(57) 77%	(121) 89%
Portion of Spilled Sewage Contained and Recovered		6%	20%
Portion of Spilled Sewage Entering Storm Drains		3%	34%
Data Source: CIWQS as reported by City of Whittier			

The first SSMP reporting was in 2009 as baseline from January 2007 to April 2009 (2.3 years). The current reporting period is from April 2009 to September 2014 (5.5 years). The current reporting is more than double the duration from the baseline reporting in 2009. April 2009 is overlapped in this reporting to keep consistent with the FOG data. Next 5 year reporting will begin from October 2014.

The SSO rate decreased from 16.56 to 12.73 SSOs/100 mile/year (23% reduction). The median spillage gallon also decreased from 138 gallons to 125 gallons (9%) reduction. Our Operations and Maintenance (O&M) efforts and the improvements to SSMP are effective in achieving our goal to decrease the SSO rate and reducing spillage.

However, as reported above, the tree roots are still the major causes of SSOs. Whittier has older clay pipes as sewer lines adjacent to mature trees with deep roots. Nearly 75% of City's approximately 194.2 miles of sewer system was constructed prior to 1960. Some sewer lines were constructed as early as 1910s, over 100 years ago.

Since the 2009 reporting period, City of Whittier Public Works made the following improvements to our Sewer System Management Plan.

- Reinstated an annual chemical root foaming program for sewer mains in May of 2012 and March of 2013 for root infested areas. Approximately 54 miles (about a quarter of the of City's sewer mains) were foamed at a cost of approximately $250,000 between 2012 and 2013. The effectiveness of this process is inconclusive. Root intrusion is still the primary causes of the SSOs. There was no chemical foaming application in 2014. This method will be reviewed further.
- Modified the cleaning schedules based on findings from complete CCTV inspection of the sewer main lines. This allows for more effective use of our resources.
- In January 2012, additional Vactor truck was added to the fleet for daily maintenance and responding to SSOs. Vactor truck is powered by CNG.
- Since 2010, the City repaired 134 spot repairs and 1051 foot of mainline sewer was replaced for Category 5 sewer lines.

- In 2012 as part of CIP program, approximately 1000 LF of undersized sewer main was upsized (Hadley Street from Painter Street to Alta Street was upsized to redirect undersized sewer main in Hadley Hills Estate subdivision.)
- On June 25, 2013, City of Whittier City Council adopted first of a 2-year stepped sewer fee increases to generate sufficient revenue to fund a target sewer infrastructure replacement schedule of 30 years. Another Public Hearing is proposed for the second stepped 2-year sewer fee increase in spring/summer 2015.

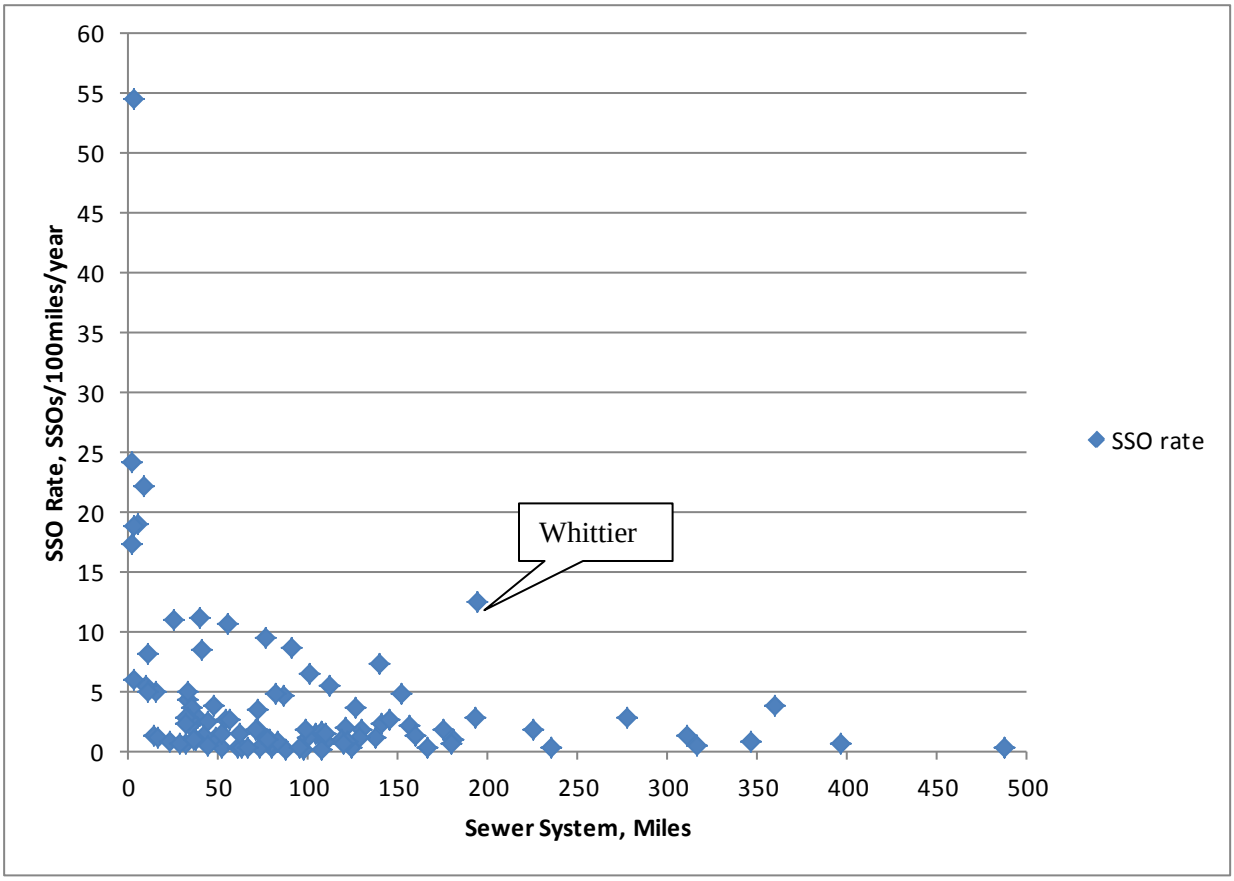
SSO data from California Region 4 was analyzed for the same timeframe in order to provide a basis for comparison of the City's Baseline Performance data. **Table 9-2** presents performance data for agencies less than 500 miles. **Figure 9-1** presents SSO Rate data for agencies less than 500 miles.

Table 9-2: SSO Performance of Region 4 Agencies Less Than 500 miles

Performance Indicator	Baseline January 2007 to April 2009 Value	2014 Reporting April 2009 to September 2014 Value
Average SSO Rate, SSOs/100 miles/year	4.7	4.96
Median SSO Rate, SSOs/100 miles/year	2.8	1.83
Portion of Spilled Sewage Contained and Recovered	41%	43%
Portion of Spilled Sewage Reaching Surface Waters	51%	45%
Data Source: CIWQS		

The City of Whittier's SSO rate is higher than the average SSO rates for the Region 4 agencies less than 500 miles of sewer main. However, the City's SSO is in the decline in this reporting period compared with the base line reporting in 2009. City hopes to continue with the operation and maintenance measures and continue reducing the SSO rate.

Figure 9-1: SSO Rates for Region 4 Agencies Less than 500 miles (April 1, 2009 to September 30, 2014)



9.5 Performance Monitoring and Program Changes

The City will evaluate the performance of its wastewater collection system at least annually using the performance measures identified in Chapter 9.2, Performance Measures, above. The City will update the data and analysis of performance measures at the time of the evaluation. The City may use other performance measures in its evaluation.

9.6 SSMP Updates

The City will update its SSMP at least every five years. The next update will be completed on or before August 1, 2019.

The City will determine the need to update its SSMP more frequently based on the results of the semi-annual audit and the performance of its sanitary sewer system. In the event that the City decides that an update is warranted, the process to complete the update will be identified at that time. The City will complete the update within one year following identification of the need for the update.

The City staff will seek approval from the City Council for any significant changes to the SSMP. The authority for approval of minor changes such as employee names, contact information, or minor procedural changes is delegated to the Public Works Director.

The City will certify that it has completed the semi-annual audit using CIWQS. Copies of the current SSMP document will be available to all interested parties on the City's website.

Appendix 9-A: Historical SSO Data (April 1, 2009 to September 30, 2014)

Spill Date	Address or Location	Estimated Volume, gallons	Estimated Recovered, gallons	Source / Cause
4/6/2009	13941 Summit	100		Manhole / Roots
4/23/2009	Pioneer & Brian Ct.	60		Manhole / Roots
5/4/2009	15287 Youngwood	20	20	Manhole / Roots
5/5/2009	12401 Washington Bl.	100		Manhole / Debris
6/16/2009	Whittier Bl. & Western	400		Manhole / Unknown
7/7/2009	Newlin & Broadway	100		Manhole / Unknown
7/12/2009	15301 Youngwood	800		Manhole / Unknown
7/17/2009	7th & Calmosa	500		Manhole / Roots
7/28/2009	13453 Beverly Bl.	100		Private Lat. / Unknown
8/17/2009	Painter & Philadelphia	100		Cleanout / Roots
9/2/2009	7815 Bowen	200		Manhole / Unknown
9/4/2009	13225 Walnut	60		Manhole / Roots
9/22/2009	12217 Honolulu Terr.	100		Manhole / Roots
10/1/2009	8118 Davista	200		Manhole / Unknown
10/15/2009	11312 Claire St.	200		Manhole / Roots
10/23/2009	Helen St. & Painter Av.	50		Manhole / Roots
11/2/2009	14010 Marsha Ln.	100		Manhole / Roots
11/3/2009	Janine & Pasada	300		Manhole / Roots
11/18/2009	7815 Bowen Dr.	200		Manhole / Roots / Grease
11/19/2009	Painter Av. & Philadelphia	100	100	Manhole / Roots
11/30/2009	Mar Vista & Ocean View	200		Manhole / Roots
11/26/2009	6562 Hill St.	400		Manhole / Roots
11/29/2009	6354 Painter	100		Cleanout / Roots
12/3/2009	12804 Rose Dr.	100		Manhole / Grease
12/4/2009	8036 Ocean View Av.	50		Cleanout / Debris (private)
12/3/2009	12803 Rose Dr.	400		Manhole / Grease
12/6/2009	Beverly Bl. & Haviland	200		Manhole / Roots
12/16/2009	7034 Hillside Ln.	200		Unknown
1/9/2010	14402 Tedemory	100		Manhole / Roots
1/15/2010	Washington / Walnut	200		Manhole / Roots
1/19/2010	13726 Philadelphia	100		Manhole / Roots
3/5/2010	Santa Gerturdes / La Forge	400		Unknown
3/30/2010	14459 Mar Vista	100		Manhole / Roots
4/3/2010	10334 Santa Gertrudes	200		Manhole / Roots

Spill Date	Address or Location	Estimated Volume, gallons	Estimated Recovered, gallons	Source / Cause
5/15/2010	9931 Shiloh	100		Manhole / Roots
5/28/2010	Cole Rd / Dittmar Av	100		Manhole / Roots
6/23/2010	Bailey / Hill	200		Manhole / Roots
6/28/2010	Philadelphia / Painter	40		Cleanout / Roots
6/27/2010	Villaverde & Youngwood	400		Manhole / Roots / Grease
7/1/2010	Whittier Bl / Santa Gertrudes	300		Manhole / Roots
8/8/2010	Canyon Dr / Canyon Crest	175		Manhole / Roots
8/7/2010	7901 Pickering Av	660		Manhole / Grease
10/24/2010	15723 Whittier Bl	70		Manhole / Unknown
11/1/2010	Intersection 7th St / Calmosa	20		Manhole / Roots
11/6/2010	7023 Hillside Ln.	100		Manhole / Roots
11/9/2010	7023 Hillside Ln.	200		Manhole / Roots
11/26/2010	Santa Gerturdes / La Forge	300		Manhole / Roots
12/2/2010	Hadley / Painter	100		Manhole / Roots
6/28/2010	Philadelphia / Painter	40		Cleanout / Roots
6/27/2010	Villaverde & Youngwood	400		Grease
7/1/2010	Whittier Bl / Santa Gertrudes	300		Roots
8/8/2010	Canyon Dr / Canyon Crest	175		Roots
8/7/2010	7901 Pickering Av	660		Grease
10/24/2010	15723 Whittier Bl	70		Unknown
11/1/2010	Intersection 7th St / Calmosa	20		Roots
2/1/2011	14461 Seventh St / Calmosa	70	0	Manhole / Roots
2/25/2011	8234 Painter Av / Ramona St	70	0	Cleanout / Grease
3/11/2011	Villaverde & Youngwood	200	50	Manhole / Roots
3/14/2011	Whittier Bl / Santa Gertrudes	100	0	Manhole / Roots
3/24/2011	Penn St / Canyon Dr	60	25	Manhole / Unknown
4/6/2011	Condessa Dr / Santa Gertrudes	60	0	Manhole / Roots
4/23/2011	Citrus Av / Howard St	600	0	Manhole / Grease
4/25/2011	12815 Rose Dr	200	0	Manhole / Unknown
4/30/2011	5546 Adele	15	15	Manhole / Unknown
5/10/2011	Painter Av / Earlham St	100	0	Manhole / Roots
5/21/2011	7816 Bowen	70	0	Manhole / Roots
6/21/2011	6760 Painter Av	350	100	Manhole / Roots
6/24/2011	Hill & Bailey	425	50	Manhole / Roots
6/25/2011	Hadley St / Hoover Av	130	0	Manhole / Debris
8/6/2011	10814 Monte Vista	300	0	Manhole / Unknown

Spill Date	Address or Location	Estimated Volume, gallons	Estimated Recovered, gallons	Source / Cause
8/24/2011	12717 Broadway	100	20	Manhole / Unknown
9/17/2011	7326 Painter Ave.	20	0	Manhole / Debris
9/21/2011	13612 Philadelphia St.	50	0	Lamphole / Roots
9/27/2011	La Cuarta St / Pickering Av	70	15	Manhole / Unknown
10/13/2011	7816 Bowen	50	10	Manhole / Unknown
11/25/2011	Santa Gertrudes / Whittier Blvd	15	0	Manhole / Roots
12/21/2011	Penn St. w/o Union	100	0	Manhole / Roots
12/25/2011	Eastridge Drive w/o Ocean View	25	10	Cleanout / Roots
1/1/2012	14084 Mar Vista @ Elden	100	0	Manhole / Roots
1/4/2012	13716 Penn @ Guilford	312	312	Manhole / Roots
1/22/2012	12204 Honolulu Ter @ Citrus	120	0	Manhole / Roots
1/30/2012	15655 Mar Vista @ Cordero Rd	275	120	Manhole / Roots
2/4/2012	Hill St & Bailey Av	80	20	Manhole / Roots
2/21/2012	8216 Ramona	50	0	Roots from private lateral
3/6/2012	13656 Sunset	5	5	Manhole / Roots
3/9/2012	Penn St / Union Ave	20	0	Manhole / Debris
3/18/2012	Camilla & Southwind	100	10	Manhole / Roots
3/25/2012	Whittier Bl / Santa Gertrudes	450	0	Manhole / Roots
4/7/2012	Hillside Lane / Bailey St	80	15	Manhole / Roots
4/15/2012	12349 Penn St	100	25	Manhole / Debris
4/19/2012	Penn St / Guilford Way	450	100	Broken pipe
5/22/2012	Whittier Bl / Santa Gertrudes	525	45	Manhole / Roots
6/8/2012	Whittier Bl / Santa Gertrudes	3375	275	Manhole / Roots
6/19/2012	6527 Painter / Hadley	1400	546	Manhole / Roots
8/4/2012	Santa Gertrudes / Whittier Blvd	100	0	Manhole / Grease
8/15/2012	Helen St / Painter Ave	25	0	Manhole / Roots
9/10/2012	Beverly Bl / Pioneer Bl	30	0	Broken pipe
10/19/2012	Whittier Bl / Santa Gertrudes	200	0	Manhole / Roots
10/26/2012	Philadelphia St / Bailey	25	25	Manhole / Roots
10/31/2012	Santa Gertrudes / La Forge	800	800	Manhole / Roots
11/5/2012	16430 Janine	20	0	Manhole / Roots
11/5/2012	12208 Honolulu Terrace	180	180	Manhole / Roots / Grease
11/6/2012	12204 Honolulu Terrace	160	160	Manhole / Roots / Grease
11/20/2012	6354 Painter Ave / Hadley	650	300	Private Cleanout / Roots
11/25/2012	13863 Penn / Canyon Crest	200	200	Manhole / Unknown
12/2/2012	8823 Watson / Chestnut	100	0	Manhole / Roots

Spill Date	Address or Location	Estimated Volume, gallons	Estimated Recovered, gallons	Source / Cause
12/30/2012	7214 Canyon Crest / Penn St.	170	120	Manhole / Unknown
1/10/2013	14459 Mar Vista St / Calmosa	450	0	Manhole / Roots
2/7/2013	13612 Franklin St / Painter	215	0	Cleanout / Roots
3/26/2013	15545 Whittier Bl /Santa Gertrudes	1800	1000	Manhole / Roots
4/14/2013	8948 Ben Hur / Whittier Bl	500	0	Manhole / Roots
4/23/2013	Penn St / Union Ave	50	15	Manhole / Grease / Debris
5/9/2013	14521 Mar Vista	50	8	Manhole / Roots
5/15/2013	6057 Pickering Ave	45	0	Private Lateral / Roots
5/22/2013	11511 Beverly Dr / Cadbury	800	100	Manhole / Roots
5/24/2013	13412 Via Del Palma	110	45	Manhole / Debris
6/26/2013	12611 Broadway / Pickering	200	0	Manhole / Unknown
8/2/2013	7214 Canyon Drive	250	117	Manhole / Roots / Debris
8/23/2013	6266 Western Ave	160	0	Manhole / Grease
9/29/2013	12816 Broadway	125	100	Manhole / Roots
10/1/2013	7902 Painter Ave	140	140	Manhole / Roots
11/5/2013	Pioneer & Beverly	144	0	Manhole / Grease
11/12/2013	12127 Beverly Dr / Hoover	1283	8	Manhole / Roots / Debris
11/24/2013	5450 Cadbury	400	400	Cleanout / Roots
12/4/2013	14459 Mar Vista St / Calmosa	40	0	Manhole / Roots / Debris
1/2/2014	5555 Greenleaf Av / Acheson Dr.	150	150	Cleanout / Roots / Debris
1/5/2014	Intersection Magnolia & Floral	900	0	Manhole / Unknown
1/7/2014	Intersection Cole Rd & Dittmar	175	0	Manhole / Roots / Debris
1/16/2014	7603 Milton (alley) @ Mar Vista	105	0	Manhole / Grease / Roots
1/24/2014	13658 Sunset w/o College	60	0	Manhole / Unknown
1/31/2014	10115 Santa Gertrudes / Whittier Bl.	690	380	Cleanout / Unknown
2/1/2014	8216 Painter Ave / Valna	925	63	Manhole / Roots / Grease)
2/5/2014	6253 Southwind Dr / Sycamore	95	95	Manhole / Roots / Debris
4/11/2014	13409 Philadelphia St / Painter Av	850	337	Cleanout / Roots / offset
4/25/2014	12921 Rose Dr @ Painter	125	0	Manhole / Debris
5/11/2014	14445 7th St. / Calmosa	537	537	Manhole / Roots
6/7/2014	Intersection of Painter & Bailey	1500	63	Manhole / Roots
6/23/2014	14513 Mar Vista / Calmosa	555	0	Manhole / Roots
8/16/2014	Youngwood & La Serna	225	0	Manhole / Roots
8/17/2014	8250 Painter / Ramona	75	0	Manhole / Unknown
8/21/2014	7th (14461) & Calmosa	130	0	Manhole / Roots
8/31/2014	15545 Whittier Bl / Santa Gertrudes	100	2	Manhole / Debris
9/15/2014	6044 Palm Ave / Broadway	500	0	Manhole / Unknown
9/26/2014	7902 Elden Ave / Eastridge Dr	75	0	Manhole / Roots

Chapter 10 SSMP Program Audits

This section of the SSMP presents the process the City will follow to audit its SSMP and related programs.

10.1 Regulatory Requirements for the SSMP Audits Element

The requirements for the SSMP Audits element of the SSMP are that:

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

10.2 SSMP Audits

The City will audit its SSMP every two years. The audit will determine whether the SSMP meets the current requirements of the GWDR, whether the SSMP reflects the City's current practices, and whether the City is following the SSMP. The first audit was completed in July 2011 and will covered FY 09/10 and FY 10/11. The second audit for FY 11/12 and FY 12/13 was completed in August 2013.

The audit will be conducted by a team consisting of City staff. At the City's discretion, a consultant may be retained to perform all or part of the audit process in cooperation with City staff.

The scope of the audits will cover each of the sections of the SSMP. The SSMP Audit Checklist, based on the requirements in the GWDR, will be used for the audit is included in Appendix 10-A.

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

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

Appendix 10-A: SSMP Audit Checklist

Audit Date: _____

Audit Team Members: _____

Section	Title	Requirement	SSMP Meets Current Requirements?	SSMP Current?	SSMP Implemented?
I	Goals	Reduce, prevent, and mitigate SSOs			
II	Organization	Names of Agency staff responsible for development, implementation, and maintenance of SSMP			
		Names and phone numbers for key Agency staff			
		Chain of communication for reporting SSOs			
		Designate LRO(s)			
		Chain of communication for reporting SSOs			
III	Legal Authority	Ability to prevent illicit discharges to sanitary sewer system			
		Ability to require sewers and connections be properly designed and constructed			
		Ability to ensure access for inspection, maintenance, and repairs (includes public portion of lateral)			
		Ability to limit discharge of FOG and debris that may cause blockages			
		Ability to require the installation of grease removal devices			
		Ability to inspect FOG producing facilities			
		Ability to enforce violations of the Agency's sewer ordinances			
IV	O&M Program	Maintain up-to-date maps of the sanitary sewer system			
		Describe routine preventive maintenance program			
		Document completed preventive maintenance using work order system			
		Rehabilitation and replacement plan that identifies and prioritizes sanitary sewer system facilities			
		CIP showing the schedule for rehabilitation and replacement projects			
		Provide regular technical training for City sanitary sewer system staff			

Section	Title	Requirement	SSMP Meets Current Requirements?	SSMP Current?	SSMP Implemented?
		Require contractors to provide training for their employees who work in the Agency's sanitary sewer system facilities			
		Maintain equipment inventory			
		Maintain critical spare part inventory			
V	Design and Performance Provisions	Design and construction standards for new sanitary sewer system facilities			
		Design and construction standards for repair and rehabilitation of existing sanitary sewer system facilities			
		Procedures for the inspection and acceptance of sanitary sewer system facilities			
VI	OERP	Procedures for the notification of primary responders			
		Procedures for the notification of regulatory agencies			
		Program to ensure appropriate response to all SSOs			
		Proper reporting of all SSOs			
		Procedure to ensure Agency staff are aware of, are trained, and follow OERP			
		Procedure to ensure contractor personnel are aware of, are trained, and follow OERP			
		Procedures to address emergency operations such as traffic and crowd control			
		Program to prevent the discharge of sewage to surface waters			
		Program to minimize or correct the impacts of any SSOs that occur			
		Program of accelerated monitoring to determine the impacts of any SSOs that occur			
VII	FOG Control Program	Public outreach program that promotes the proper disposal of FOG			
		Plan for the disposal of FOG generated within the Agency's service area			
		Demonstrate that the Agency has allocated adequate resources for FOG control program			
		Identification of sanitary sewer system facilities that have FOG-related problems			

Section	Title	Requirement	SSMP Meets Current Requirements?	SSMP Current?	SSMP Implemented?
		Program of preventive maintenance for sanitary sewer system facilities that have FOG-related problems			
VIII	SECAP	Identification of elements of the sanitary sewer system that experience or contribute to SSOs caused by hydraulic deficiencies			
		Established design criteria that provide adequate capacity			
		Short and long term CIP that includes schedules for projects to addresses known hydraulic deficiencies			
		Procedures that provide for the analysis, evaluation, and prioritization of hydraulic deficiencies			
IX	Monitoring, Measurement, and Program Modifications	Maintain relevant information to establish, evaluate, and prioritize SSMP activities			
		Monitor implementation of the SSMP			
		Measure, where appropriate, the performance of the elements of the SSMP			
		Assess success of the preventive maintenance program			
		Update SSMP program elements based on monitoring or performance			
		Identify and illustrate SSO trends			
X	SSMP Program Audits	Conduct audits at least every 2 years			
		Record the results of the audit in a report			
		Record the changes made and/or corrective actions taken			
XI	Communications Program	Communicate with the public regarding the preparation of the SSMP			
		Communicate with the public regarding the performance of the SSMP			
		Communicate with tributary or satellite sewer systems			

Chapter 11 Communication Program

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

11.1 Regulatory Requirements for the 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.

11.2 Communication during SSMP Development and Implementation

The City has posted the SSMP in its entirety on the City of Whittier website for public access and viewing. The City also loops an informational message on its local access cable TV station making the public aware of the online availability of the SSMP.

It is also noted that the SSMP can be viewed in person in the Public Works Department at City Hall, 13230 Penn Street, Whittier, CA 90602 during normal business hours. Interested parties or anyone with questions or comments should contact Carole Kresan at (562) 567-9517 or ckresan@cityofwhittier.org for additional information.

11.3 Communicating Sanitary Sewer System Performance

The City reports SSOs electronically to the California Integrated Water Quality System (CIWQS). The City will direct interested parties to the CIWQS public access website:

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

11.4 Communication with Tributary/Satellite Sanitary Sewer Systems

The City accepts a small quantity of wastewater (from 315 dwelling units) into its sewer system from La Habra Heights, Pico Rivera, and La Mirada, just outside the City boundary. Because those agencies are also in LACSD #18, they must comply with LACSD's discharge prohibitions, as well as provisions in their own codes. The City currently has no agreements with these agencies regarding accepting their discharges, but has experienced no problems in its sewer system related to them. In addition, the City has verified that City sewers have adequate capacity to convey the minor flows it accepts from these agencies. No formal means of communication with the satellite agencies has been established or are necessary. The City contacts the satellite agencies on an as-needed basis.