



# City of Los Angeles



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## SEWER SYSTEM MANAGEMENT PLAN

*Hyperion  
Sanitary Sewer System*

February 2017



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## ***City of Los Angeles***

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

#### ***For the Hyperion Sanitary Sewer System***

## **Overview**

This Sewer System Management Plan (SSMP) has been prepared for the Hyperion Sanitary Sewer System pursuant to the State Water Resources Control Board's May 2, 2006, Statewide General Waste Discharge Requirements (WDRs) and amendments thereto. As shown on the following maps, the Hyperion System is by far the largest of the City's three Sanitary Sewer Systems, including 6,117 miles of gravity sewer and 24 miles of force main. Currently an average wastewater flow rate of nearly 300 million gallons per day (MGD) is generated in the System. Approximately 60 MGD is treated at upstream Donald C. Tillman and Los-Angeles Glendale Water Reclamation Plants. All other flow in the System, and the biosolids from the upstream reclamation plants which are returned to the collection system, are treated at the Hyperion Water Reclamation Plant located in Playa Del Rey.

The original SSMP was adopted by the City's Board of Public Works and certified with the SWRCB in February 2009. Pursuant to the WDRs, the City conducts a biennial self-audit of its SSMPs and updates them as appropriate. This SSMP was prepared upon completion of the required self-audit and represents the City's current SSMP as of February 2017.

This SSMP is in full compliance with the WDRs and meets the following WDR objectives:

- a. Properly fund, manage, operate and maintain, with adequately trained staffs and/or contractors possessing adequate knowledge, skills, and abilities as demonstrated through a validated certification program at all times, all parts of the sanitary sewer system owned and/or operated by the discharger.
- b. Provide adequate capacity to convey base flows and peak flows, including flows during wet weather events, to the minimum design criteria as defined in the discharger's System Evaluation and Capacity Assurance Plan (a required component of the SSMP), for all parts of the sanitary sewer system owned and/or operated by the discharger.

- c. Take all feasible steps to stop and mitigate the impact of Sanitary Sewer Overflows (SSOs) in the sanitary sewer system owned and/or operated by the discharger.

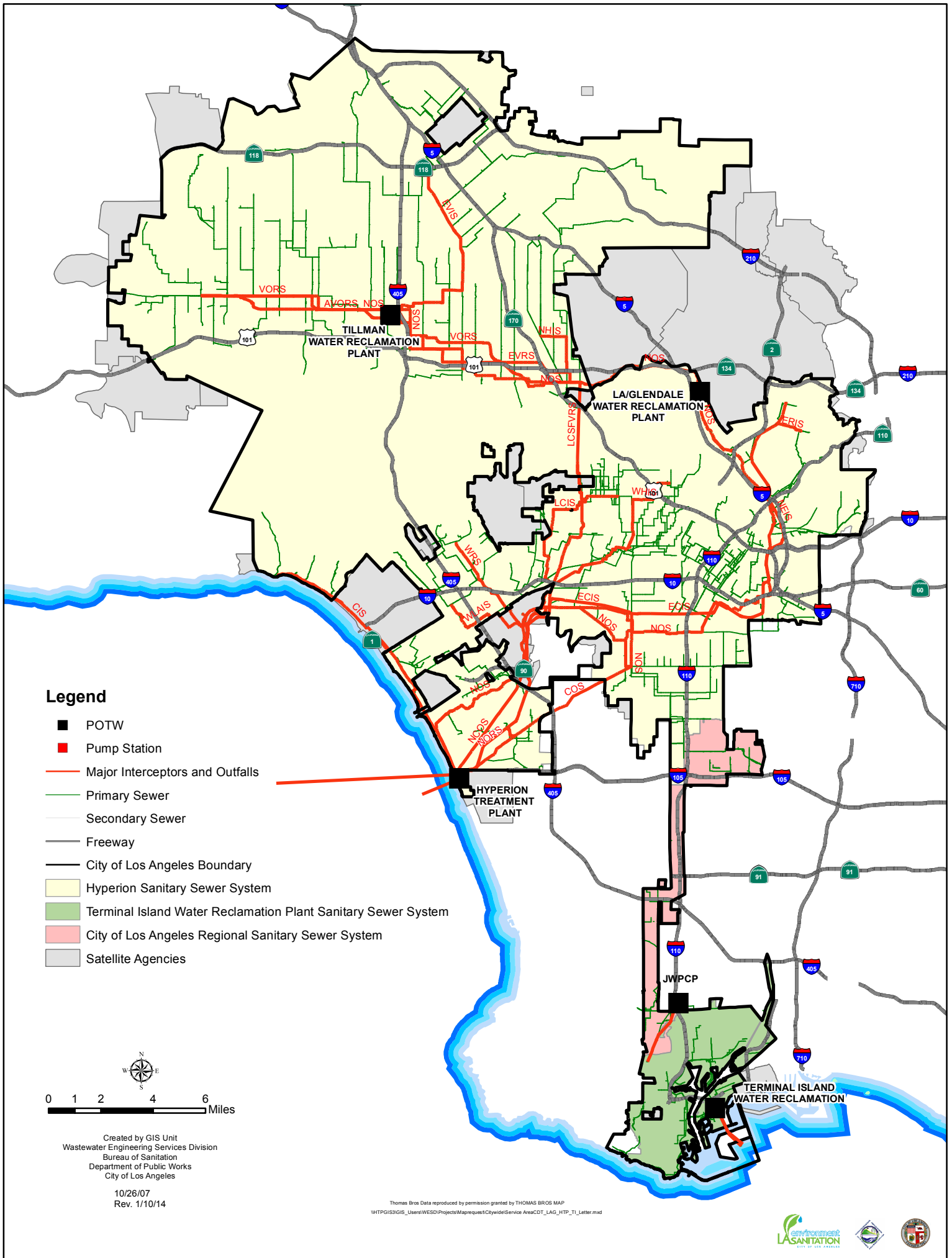
The City achieves the above objectives by implementing a comprehensive sewer infrastructure asset management program that is documented in the following 11 components of the SSMP, including sewer condition assessment; master plans; repair, rehabilitation, and replacement; capacity assurance; operation & maintenance; source control; and overflow response programs.

- i. Goal
- ii. Organization
- iii. Legal Authority
- iv. Operation and Maintenance Program
- v. Design and Performance Provisions
- vi. Overflow Emergency Response Plan
- vii. FOG Control Program
- viii. System Evaluation and Capacity Assurance Plan
- ix. Monitoring, Measurement, and Program Modifications
- x. SSMP Program Audits
- xi. Communication Program

The SSMP integrates numerous programs into one formal document. These programs are described in greater detail in a variety of documents. It is not the intent nor is it practical to include these documents in the SSMP. However, applicable documents that support various SSMP components are referenced and will be made available upon request.

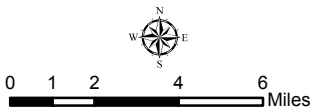
By agreements, the City accepts, conveys, and treats wastewater from 29 municipal satellite agencies. Since the City does not own, operate, fund, or control any of the sanitary sewer systems of these communities and they are not included under the NPDES permit conditions of the City's treatment facilities, it is assumed that these satellite agencies will be required to apply for permit coverage under the WDRs and develop and implement their own SSMPs. A pdf copy of this SSMP is available on the internet at:

<https://www.lacitysan.org/cs/groups/public/documents/document/y250/mdey/~edi sp/cnt012544.pdf>



**Legend**

- POTW
- Pump Station
- Major Interceptors and Outfalls
- Primary Sewer
- Secondary Sewer
- Freeway
- City of Los Angeles Boundary
- Hyperion Sanitary Sewer System
- Terminal Island Water Reclamation Plant Sanitary Sewer System
- City of Los Angeles Regional Sanitary Sewer System
- Satellite Agencies



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 Bureau of Sanitation  
 Department of Public Works  
 City of Los Angeles

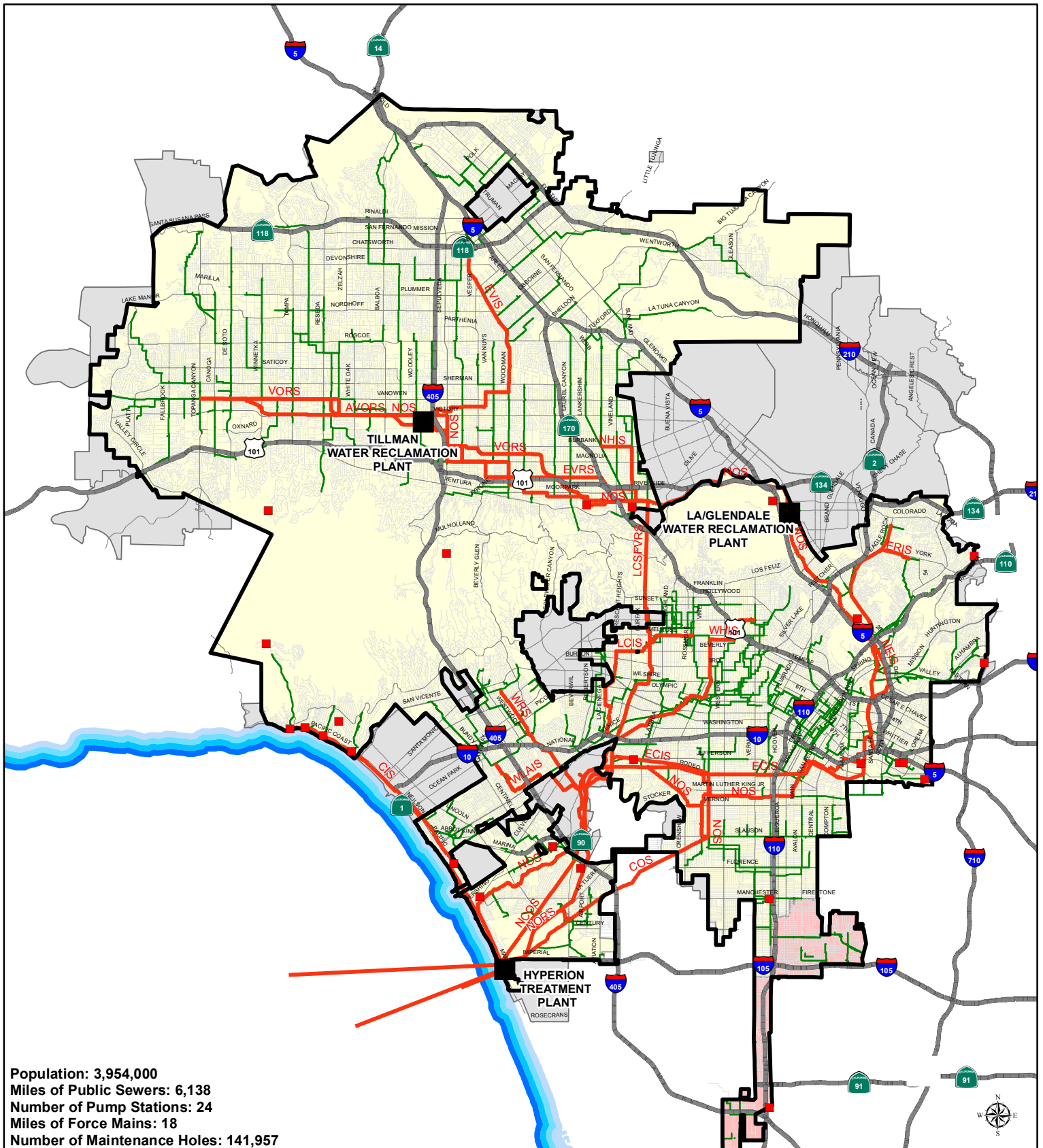
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 WHPGISGIS\_Users\WESD\Projects\Maprequest\Citywide\Service Area\CDT\_LAG\_HTTP\_TI\_Letter.mxd



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Population: 3,954,000  
 Miles of Public Sewers: 6,138  
 Number of Pump Stations: 24  
 Miles of Force Mains: 18  
 Number of Maintenance Holes: 141,957

### Hyperion Sanitary Sewer System

#### Legend

- POTW
- Pump Station
- Major Interceptors and Outfalls
- Primary Sewer
- Secondary Sewer
- Freeway
- City of Los Angeles Boundary
- Hyperion Sanitary Sewer System
- Terminal Island Water Reclamation Plant Sewer Sanitary System
- City of Los Angeles Regional Sanitary Sewer System
- Satellite Agencies



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## TABLE OF CONTENTS

Overview .....	
i. Goal.....	1
ii. Organization .....	3
ii-a Authorized Representative .....	5
ii-b Management and Organization Chart .....	5
ii-c SSO Reporting Chain of Communication .....	9
iii. Legal Authority.....	11
iii-a To Prevent Illicit Discharges into the Sewer System .....	11
iii-b To Require Proper Design and Construction of Sewers .....	15
iii-c To Ensure Access to Publicly Owned Portion of Lateral .....	15
iii-d To Limit the Discharge of FOG and other Debris .....	15
iii-e To Enforce Violations of Sewer Ordinances .....	16
iv. Operation and Maintenance Program .....	19
iv-a Up-to-Date Map of the Sanitary Sewer System .....	19
iv-b Preventative Maintenance Program .....	19
iv-c Rehabilitation and Replacement Plan .....	23
iv-d Training for Sanitary Sewer System Staff and Contractors .....	25
iv-e Equipment and Replacement Part Inventory.....	26
v. Design and Performance Provisions .....	29
v-a Design and Construction Standards and Specifications .....	29
v-b Procedures and Standards for Installation, Rehabilitation and Repair Projects .....	30
vi. Overflow Emergency Response Plan.....	33
vi-a Proper Notification Procedures for SSOs.....	33
vi-b Appropriate Response Program for SSOs .....	37
vi-c Prompt Notification to Regulatory Agencies .....	37
vi-d Emergency Response Plan and Appropriate Staff Training.....	38
vi-e Emergency Operation Procedures such as Traffic and Crowd Control.....	38
vi-f Containment and Prevention Program for SSO Discharge into U.S. waters .....	39

vii. FOG Control Program .....	41
vii-a Implementation Plan and Schedule for Public Outreach .....	42
vii-b Plan and Schedule for Disposal of FOG within the Service Area .....	42
vii-c Legal authority to prohibit FOG discharges and prevent related SSOs and blockages .....	43
vii-d Requirement to install grease removal devices, and provision of design standards and requirements for such devices.....	43
vii-e Authority to inspect grease producing facilities, enforcement authorities, and evidence of sufficient enforcement staff for FOG ordinance.....	44
vii-f Identification and maintenance scheduling of sewer sections prone to FOG blockages .....	46
vii-g Development and Implementation of source control measures for FOG sources in above identified sections .....	47
viii. System Evaluation and Capacity Assurance Plan .....	49
viii-a Sanitary Sewer System Evaluation.....	49
viii-b Design Criteria.....	63
viii-c Capacity Enhancement Measures .....	63
viii-d Completion Schedule .....	64
iv. Monitoring, Measurement and Program Modifications .....	65
ix-a Maintenance of information to prioritize SSMP activities.....	65
ix-b Monitoring of implementation and effectiveness of SSMP elements.....	70
ix-c Assessment of Preventative Maintenance Program.....	70
ix-d Update of program elements based on evaluation .....	70
ix-e Identification and illustration of SSO trends .....	73
x. SSMP Program Audits .....	75
xi. Communication Program.....	77

## ACRONYMS

Acronym	Definition
ATF	Air Treatment Facility
BMPs	Best Management Practices
CCTV	Closed-Circuit Television
City	City of Los Angeles
CIS	Coastal Interceptor Sewer
d/D	The ratio of the depth of flow (d) in a sewer pipe to the diameter (D) of the pipe
ECIS	East Central Interceptor Sewer
EIR	Environmental Impact Report
ERIS	Eagle Rock Interceptor Sewer
FOG	Fats, Oils, and Grease
FSE	Food Service Establishment
FY	City of LA's Fiscal Year (July 1 through June 30)
GBIS	Glendale-Burbank Interceptor Sewer
GIS	Geographic Information System
LADWP	Los Angeles Department of Water and Power
MH	Maintenance Hole
MIKE URBAN	A GIS-based hydrodynamic modeling software
NCOS	North Central Outfall Sewer
NEIS	Northeast Interceptor Sewer
NORS	North Outfall Relief Sewer
NOS	North Outfall Sewer
PDWF	Peak Dry Weather Flow
SSMP	Sewer System Management Plan
SSO	Sanitary Sewer Overflow
SWRCB	State Water Resources Control Board
WCSD	Wastewater Collection System Division
WDRs	Statewide General Waste Discharge requirements
WLAIS	West Los Angeles Interceptor Sewer

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## i. GOAL

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

The long-standing City policy as affirmed by the City Council on December 7, 1956, provides the basis for and guides the actions of operating departments and bureaus in protecting the waters of the City and the region.

*“It is the policy of the City of Los Angeles to provide and maintain facilities for the treatment and disposal of sewage which shall be, at all times, adequate in capacity and adequate for protection of the public health and public interest in this and neighboring communities including maintenance of the beaches and coastal waters in an attractive condition suitable for recreational and other beneficial uses equal to or better than the conditions specified by the State agencies having control over the subject water.”*

The Department of Public Works’ Bureau of Sanitation owns and operates the City’s sanitary sewer systems. The Bureau’s Wastewater Collection System Division (WCSD) is in charge of operation and maintenance of the sewer system with the mission to:

*“Operate the wastewater collection systems in a safe, efficient, and cost effective manner, with an emphasis on protecting the environment and public health, recognizing the public as our primary customer deserving of courteous and expeditious service, and recognizing our employees as our most valuable asset.”*

Consistent with the City policy and its mission *to protect public health and the environment*, the Bureau of Sanitation has adopted and is dedicated to achieving the following broad objectives:

- Repair, rehabilitate, replace, and upgrade system components as/when needed;
- Provide sufficient sewage capacity to accommodate current and projected flows;
- Eliminate all preventable dry-weather overflows;
- Eliminate wet-weather overflows from all storm events less severe than or equal to 10-year design storm;
- Maintain an effective SSO response plan to mitigate any SSOs that do occur in a timely manner;
- Control corrosion and minimize odor releases; and

- Provide operational reliability and flexibility.

These objectives correspond with the State General Waste Discharge Requirements (WDRs) provisions which require Enrollees to maintain all parts of the system, provide adequate capacity to minimize sewer overflows, and maintain a plan to respond to and mitigate overflows when they do occur. This SSMP documents how the City's collection system practices are integrated toward the achievement of the above objectives.

***References:***

City Charter, City of Los Angeles, City Council Resolution of December 7, 1956

LA Sanitation's Strategic Plan





## ii. Organization

- (a) **The name of the responsible or authorized representative as described in Section J of this order (WDR);**
- (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)).**

The City operates its sanitary sewer systems. It also processes wastewater from 29 satellite communities under contractual agreements but does not fund, operate or have control over the sanitary sewer systems of these communities.

The City is governed by the Mayor, who is the chief executive, and 15 full-time Council Members. The Mayor and the City Council authorize the necessary funding. The City Attorney provides legal advice and guidance to elected officials and City departments; and represents the City, its departments, commissions and employees in legal matters, including enforcement actions.

The Board of Public Works, a full-time Board, whose members are appointed by the Mayor and confirmed by the City Council, is the “governing body” for the Department of Public Works. The Sanitary Sewer Systems are organized and managed under the Department’s Wastewater Program, also known as the Clean Water Program.. The Department of Water and Power (DWP) manages the City’s water programs through. DWP reports directly to the Mayor.

The Department of Public Works is made up of five Bureaus. Among these are the Bureaus of Sanitation, Engineering, and Contract Administration. The responsibility for various functions of the Sanitary Sewer Systems resides with these Bureaus. LA Sanitation is in charge of advance planning, financial management, and operation &. The Bureau of Engineering is in charge of capital improvement projects design, bid & award, construction management, start-up and optimization. The Bureau of Contract Administration provides inspection for construction and maintenance contracts for work done in public right-of-way and enforces contract and permit compliance

The Department of Building and Safety through permit requirements enforces the Uniform Plumbing Code and sewer ordinances on private properties, for example, upper portion of the private sewer laterals (House Connections) which run from the building structures to property lines. The Department of Public Works' Bureau of Engineering issues permits for lower private laterals which run in public right-of-way.

The lines of authority are clearly diagrammed from the Mayor through the Board of Public Works, Bureaus, Divisions, and workgroups to each individual position. City offices that are responsible for SSMP-related functions and activities are listed in Subpart ii (b) of this SSMP and shown in Figure 2-.

The City's organization is fluid, changing with changing community and regulatory needs and priorities. The design of the structure and the staffing levels and skills of the organizational units are tailored to needs. For example, because of their size and complexity, some programs, such as the pretreatment program, are the responsibility of a separate division that is dedicated and focused primarily on the pretreatment program goals. Other programs, while the primary responsibility of a workgroup within a division, are accomplished with significant input from multiple divisions. Program work elements are subdivided into manageable work programs to ensure that full attention and support is given to each need and each task within the program. This organizational structure allows assignment of experts who are knowledgeable about the regulations and requirements of each specific task within each program work element.

The City Charter also provides for the formation of Neighborhood Councils throughout the City to promote increased public participation in City government; make government more responsive to local needs; facilitate the delivery of City services to neighborhoods; and ensure equal opportunity for stakeholders in all communities to have access to and participate in the efforts to address community concerns. The WDRs requirement to "... communicate on a regular basis with the public on the development, implementation, and performance of its SSMP..." which is a part of SSMP Part xi, Communication Program is primarily fulfilled through ongoing communications with the Neighborhood Councils.

The City is not responsible for the organization of the Satellite agencies or for implementing WDRs/SSMP measures within these organizations. Satellite agencies own and operate sanitary sewer systems within their jurisdictions.

***Sanitary Sewer Systems Organization:***

Principal Divisions in the Bureaus with lead responsibility for sanitary sewer systems are shown in Figure 2-1.

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

The City has designated a Legally Responsible Official (LRO) pursuant to Section J., REPORT DECLARATION, of the State General WDR (Order No. 2006-0003). Below is the contact information for the LRO.

Mr. Barry G. Berggren, Division Manager  
Wastewater Collection Systems Division  
2714 Media Center Drive  
Los Angeles, CA 90065  
(323) 342-6002  
barry.berggren@lacity.org

**(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**

Figure 2-1 is the SSMP organization chart. A list of responsible positions is provided below. They may be reached by dialing the toll free number 311, or (213) 485-2121 if calling from outside the Los Angeles areas. The operator will transfer the call to the intended office.

- Wastewater Collection Systems Division, Division Manager (Legally Responsible Official)
  - Operation and Maintenance Program
  - Overflow Emergency Response Plan
  - Monitoring, Measurement and Program Modifications
  - SSMP Audits and Updates
  
- Wastewater Engineering Services Division, Division Manager
  - System Evaluation and Capacity Assurance Plan
  - Monitoring, Measurement and Program Modifications
  - GIS and Mapping
  - Communication Program
  - SSMP Audits and Updates
  
- Industrial Waste Management Division, Division Manager
  - Fats, Oils, and Grease (FOG) Control Program
  - Legal Authority

- Source Control
  - Pretreatment
  - Enforcement
- Financial Management Division, Division Manager
  - Budget and Financial Support for Capital Improvement and O&M Programs
  - Legal Authority
    - Contracts with Satellite Agencies
- Bureau of Engineering, City Engineer
  - Deputy City Engineer in Charge of Wastewater Program
    - Wastewater Conveyance Engineering Division, Division Engineer
      - Design and Performance Provisions
      - Sewer Rehab/Replacement Planning, Design, Bid & Award
    - Wastewater Conveyance Construction Division, Division Engineer
      - Sewer Rehab/Replacement Construction Management
    - Geographic Information Systems, Group Manager
      - GIS and NavigateLA
- Bureau of Contract Administration, Director
  - Wastewater Construction Division, Division Manager
    - Contract Compliance
- Department of Building and Safety, General Manager
  - Uniform Plumbing Code Enforcement
  - Los Angeles Municipal Code Sewer Ordinance Enforcement for Work on Private Properties

# City of Los Angeles SSMP Implementation Organization Chart

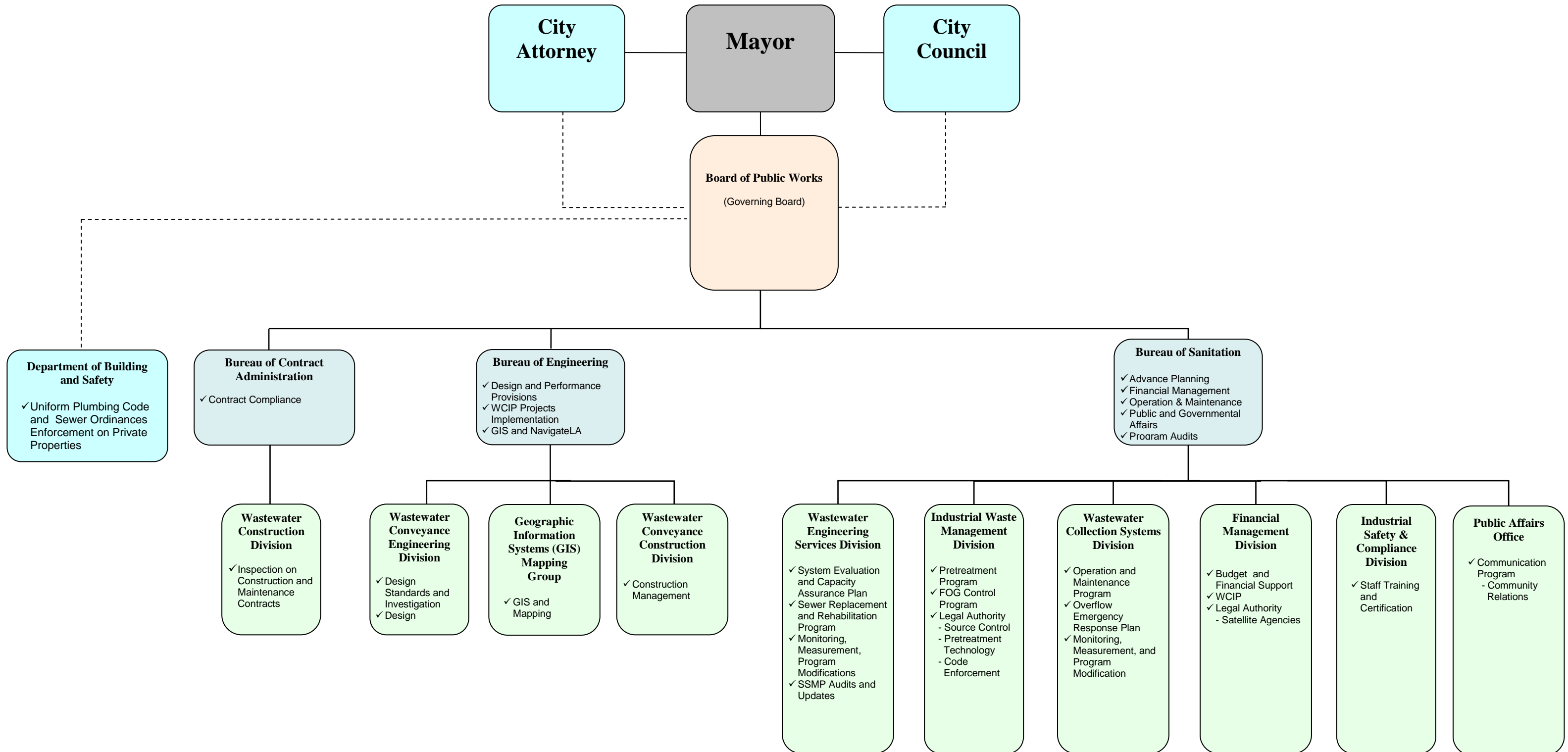


Figure 2-1

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**(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)).**

The Bureau of Sanitation's Wastewater Collection Systems Division follows procedures that provide for effective notification of each Category of SSOs through a clear and step-by-step method, as Shown in Figure 6-1 of this SSMP. The policies and procedures for SSO reporting are reviewed and updated at appropriate intervals to ensure that they remain current and in full compliance with all regulatory and legal requirements.

These reporting procedures are incorporated herein by reference. Electronic and hard copies of the referenced document are available upon request.

***Reference***

Bureau of Sanitation, Wastewater Collection Systems Division, Sanitary Sewer Overflow Response and Reporting Procedures, Latest edition

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### **iii. Legal Authority**

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

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

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

#### **1. Industrial Waste Pretreatment**

The California State Constitution provides in Article 11, Section 7, that “A county or city may make and enforce within its limits all local, police, sanitary, and other ordinances and regulations not in conflict with general laws.” The City of Los Angeles Charter, Section 101 specifies the Powers of the City. It states that “The City of Los Angeles shall have all powers possible for a Charter City to have under the constitution and laws of this state as fully and completely as though they were specifically enumerated in the Charter, subject only to the limitations contained in the Charter.”

The Los Angeles Charter and Administrative Code, Article V, Sec. 580 (a) gives the Department of Public Works the powers and duties to design, construct, excavate and

maintain streets and public works improvements including but not limited to bridges, public parkways and rights-of-way, sanitary sewers and storm drains, water and sewer treatment facilities, landfills and public rights-of-way lighting facilities owned by the City.

The City implements the requirements set forth in 40 CFR Section 403.8 in the manner specified in the Los Angeles Municipal Code (LAMC), Section 64.30, as more specifically described herein. The pretreatment standards are applied to individual industrial users through Industrial Wastewater Permits issued to the users.

The City ensures industrial user compliance with pretreatment standards, requirements, and conditions of the permit by taking administrative enforcement actions consistent with the City's Enforcement Response Plan (ERP) in the event of noncompliance. The City's first ERP documented existing enforcement procedures in October 1990 and was submitted to the EPA on October 30, 1991. The enforcement procedures described in the ERP have established criteria and other considerations for responding to violations of pretreatment regulations and discharge standards in a consistent and timely manner. The procedures provide a range of enforcement responses with the objectives of regulating industrial users to achieve and maintain consistent compliance and subjecting repeat offenders to escalated enforcement actions in a timely manner. The types of escalated enforcement actions can range from notices of violation and administrative orders to suspension of discharge privileges, permit revocation, water or utility service termination, and/or City Attorney referral for filing of civil/criminal charges. The City reviews and updates its ERP periodically to ensure that it accurately reflects modifications to its authority and describes current operating practices.

The LAMC Section 64.30 provides the legal authority to implement provisions specified under Part 40 CFR Section 403.8(f)(1), which provides the basis for each procedure under 40 CFR Section 403.8(f)(2), as follows:

General Provisions - The City, pursuant to LAMC Section 64.30, commonly referred to as the Industrial Waste Control Ordinance (Ordinance) regulates industrial wastewater discharges into the Publicly Owned Treatment Works (POTW). Section 64.30 (A)(2) sets forth the objectives of the Ordinance. The objectives are met through a permit and inspection program administered under the jurisdiction of the Board of Public Works (Board) to ensure City compliance with all applicable State and Federal laws. The Director of the Bureau of Sanitation (Director) under the jurisdiction of the Board is given the authority to administer, implement and enforce the provisions of the Ordinance. The Ordinance gives the Board and the Director the power, jurisdiction, and supervision over places of discharge of wastewater into the POTW, necessary to adequately enforce and administer all applicable State and Federal laws. Section 64.30(A)(3) of the Ordinance states "This section shall apply to all dischargers within the City of Los Angeles and to all persons outside the City of Los Angeles who discharge to the City's POTW except as otherwise provided herein, the Director of the

LA Sanitation under the jurisdiction of the Board of Public Works shall administer, implement and enforce the provisions of this section.”

There are twenty-nine contributing jurisdictions (8 cities and 21 agencies) that discharge wastewater into the City’s POTW. The City has sewage disposal contracts with all contributing jurisdictions including the Cities of Beverly Hills, Burbank, Culver City, El Segundo, Glendale, La Canada Flintridge, San Fernando, and Santa Monica. The sewage disposal contract requires the contract cities to ensure compliance with federal, state and local regulations, including pretreatment regulations. Section VI.B.1 makes regulatory liability a cost of the Amalgamated System and therefore proportionally chargeable to the City of Los Angeles and the contract cities and agencies, if this liability results from the construction or operation of the Amalgamated System (treatment plants and large trunk sewers). This liability may be related to industrial waste enforcement inside the contract cities and agencies. The sewage disposal contract allows the City to enter an agency’s or contract city’s jurisdiction if: (1) the federal or state government require the City of Los Angeles to establish a program, prepare a study, or undertake some other action, and (2) the action would require Los Angeles to enter the agency’s or contract city’s jurisdiction, and (3) the agency or contract city fails to take action that results in liability that is payable from the Amalgamated System (which means that the liability must also result from the City’s operation of the Amalgamated System).

Contract cities and agencies will pay any fines resulting from their failure to comply with state or federal requirements. The term of an agency’s or city’s agreement will revert to a month-to-month relationship eventually leading to removing its wastewater from the City of Los Angeles’ system if the agency is in default for more than 90 days. The sewage disposal contract also allows the City to sue for specific performance if a contracting city or agency defaults or breaches the agreement.

Section 64.30(A)(3) of the LAMC provides for the regulation of dischargers to the Publicly Owned Treatment Works (POTW) through the issuance of Industrial Wastewater Permits containing specific discharge requirements and through enforcement of general discharge prohibitions; authorizes monitoring and enforcement activities; imposes reporting requirements on specific permittees; and sets fees for the recovery of program costs. The City’s Industrial Wastewater Permit is the control mechanism employed in applying pretreatment standards to industrial users.

The LAMC Section (C)(1)(a) states “No person shall discharge industrial wastewater to the POTW without permission as provided in an Industrial Wastewater Permit. The permit shall not be issued until determination has been made by the City’s Board of Public Works that the wastewater to be discharged shall not violate any provisions of this Code, the Board’s Rules and Regulations, the water quality objectives for receiving waters established by the California Water Quality Control Board, Los Angeles Region, or any applicable federal or state statutes, rules or regulations. Such determination shall be made from the information set forth in the application for permit.” Sect 64.30(B) specifies the conditions and prohibitions placed on Industrial

Wastewater Permits. Industrial Wastewater Permits may deny or condition new or increased contribution of pollutants, or changes in the nature of pollutants to the POTW by industrial users where such conditions do not meet applicable pretreatment standards and requirements or where such conditions would cause the POTW to violate its NPDES Permit.

The LAMC Section 64.30(B)(3) specifies conditions on the Industrial Wastewater Permits that require compliance with applicable pretreatment standards and requirements by industrial users. Industrial Wastewater Permits incorporate pretreatment standard limitations based on such standards and requirements. It provides that upon the promulgation of mandatory National Categorical Pretreatment Standards (NCPS) for any industrial category, the NCPS, if more restrictive than limitations otherwise imposed under the Ordinance, shall apply, and that a discharger shall comply with applicable NCPS as set forth in 40 CFR Part 401 et seq. Section 64.30(C)(1) includes a statement which states that the granting of the permit shall not relieve the discharger from the responsibility for compliance with all provisions of the Ordinance. All other general pretreatment standards and prohibitions and local limits developed to implement the general and specific standards are included as permit conditions.

## **2. Illicit Discharges and Inflow/Infiltration Prevention**

The Municipal Code is very clear in regard to controlling infiltration and inflow. It has always been the policy of the City, through the foresight of its early leaders, to have a separation of the storm and sanitary sewer systems. The Code prohibits connections of storm drains, downspouts, area drains, storm sewer connections and other sources that could contribute infiltration and/or inflow to the system. The ordinances provide for the inspection of new and rehabilitated private sewer laterals and mainline sewers to ensure that installation meets the City's performance standards. The ordinances also provide for enforcement actions for noncompliance.

Plumbing on private properties is under the jurisdiction of the Department of Building and Safety. The Los Angeles Municipal Code and the Section 1101.2 of the Los Angeles City Plumbing Code prohibit the connection of storm water or surface water drains to sanitary sewers stating “... *rainwater piping shall discharge to an approved point of disposal, not to a public sewer.*”

On June 12, 2001, the City Council approved a motion, Council File 01-1055, authorizing the Department of Building & Safety and the Bureau of Sanitation to bring properties into compliance. Sanitation and Building & Safety jointly implemented measures to detect and eliminate sources of infiltration and inflow through a program titled Sewer Infiltration and Inflow Prevention (SIIP) Program. The program was designed to reduce the impacts from unauthorized discharges from roof drains, area drains, parking lot drains, and downspouts. An estimated average extraneous flow of 8 million gallons per day was eliminated from the system as a result of the SIIP Program.



Currently in the Hyperion Sanitary Sewer System, however, dry weather urban runoff is diverted from storm drains into the City sewers and conveyed to the Hyperion Treatment Plant for treatment. This is to protect groundwater, inland surface water, bays, estuaries, and the ocean from pollutants present in urban runoff that could reach these waters. The Hyperion Treatment Plant's current National Pollutants Discharge Elimination System (NPDES) Permit provides for this diversion. Originally, dry weather urban runoff diversion was only during the period of April 1 to October 31. However, since 2009, dry weather urban runoff has been diverted year-round to conform to the compliance schedule for bacteria concentrations during winter dry weather contained in the Santa Monica Bay Beach Dry-weather Bacteria Total Maximum Daily Load (TMDL) regulation (Resolution No. 02-004 and Resolution No. 2002-022) and adopted by the Los Angeles Regional Water Quality Control Board. There is no dry weather runoff diversion to the Donald C. Tillman, the Los Angeles-Glendale, or the Terminal Island Water Reclamation Plants There is no wet weather flow diversion to any plants.

**(b) Require that sewers and connections be properly designed and constructed.**

The Los Angeles Municipal Code Chapter VI, Article 4 – Sewers, Watercourses, and Drains codify the City's policy for the design and construction of sewers and connections. The LAMC requires that all sewers constructed in the City comply with the Bureau of Engineering's standard plans, specifications, policies and practices. These standards are continuously updated to incorporate new materials and construction methods to ensure that the completed installations meet construction and performance standards. Service connections must be designed and constructed to meet the Los Angeles City Plumbing Code. The Department of Public Works' Bureau of Contract Administration enforces construction and performance standards for projects in public right-of way.

**(c) Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the Public Agency.**

The City does not maintain private lateral sewer lines. Property owners are responsible for proper installation, operation and maintenance of both upper and lower laterals, including laterals on the City-owned easement. Property owners are required to obtain permits from the Department of Building & Safety for work on private properties and the Department of Public Works for work in the public right-of-way.

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

LAMC Section 64.30.B.1.(a) states "Except as expressly allowed in an Industrial Wastewater Permit, no person shall discharge, permit the discharge, cause the discharge or contribute to the discharge of the following to the publicly owned treatment works (POTW): Any solid or viscous materials which could cause obstruction to the flow or operation of the POTW, and any material which will cause the POTW to violate its NPDES Permit, applicable Federal and State statutes, rules or regulations." The

Ordinance requires the installation of a grease interceptor at all food Service Establishments that are to be newly constructed that have the potential to generate waste FOG and any remodels of existing FSEs valued at \$100,000 or more. A grease interceptor is a plumbing device, with a minimum size of 750 gallons that is installed in a wastewater drainage system to intercept and prohibit fats, oils, and grease from entering the sanitary sewer system.

The Industrial Wastewater Permit controls the contribution to the POTW by each industrial user to ensure compliance with applicable standards and requirements. Section 64.30(C)(1)(g) specifies the duration of Industrial Wastewater Permits. Section 64.30(C)(1)(e) controls the transfer of permits. The Ordinance specifies that any discharger may be required by the Director, by permit or otherwise, to engage in periodic monitoring and sampling of its discharge. Section 64.30(C)(1)(d) specifies that the Director shall have authority to impose permit conditions including limits regarding the discharge of specific pollutants, requirements, which may include specific sampling locations, frequency of sampling, times of sampling, number, types, test standards and reporting schedules, for monitoring programs, and requirements for maintaining and affording City access to plant records relating to discharges, including hauled waste records and manifests.

LAMC Section 64.30 (C)(1)(b)(12) requires the development of a compliance schedule by each industrial user for the installation of technology required to meet applicable pretreatment standards and requirements. Section 64.30(C)(1)(d)(11) specifies that the Director may require all industrial users to install pretreatment systems, upgrade existing pretreatment systems and/or install additional pretreatment systems, implement Best Management Practices, and any other conditions deemed appropriate to achieve the objectives of the Ordinance. Section 64.30(C)(2) requires industrial users to submit reports necessary to assess and assure compliance.

**(e) Enforce any violation of its sewer ordinances.**

The City's sewer ordinances provide the authority to carry out all inspection, surveillance, and monitoring procedures necessary to make a determination on compliance or noncompliance by industrial users with applicable pretreatment standards and requirements, independent of information supplied by industrial users. The Ordinance gives the Board and the Director the power, jurisdiction, and supervision over places of discharge of wastewater into the POTW, necessary to adequately enforce and administer all applicable State and Federal laws. Section 64.30(C)(5) of the Ordinance specifies that whenever it is necessary to make an inspection to enforce any of the provisions of, or perform any duty imposed by this section or other applicable law, or whenever the Director has reasonable cause to believe that there exists upon any premises any violation of the provisions of this section or other applicable law, or any condition which makes such premises hazardous, unsafe, or dangerous, the Director is hereby authorized to enter such property at any reasonable time and to inspect the same and perform any duty imposed upon the Director by this section or other applicable law.

LAMC Section 64.30(E) authorizes enforcement actions for non-compliance with pretreatment standards by an industrial user. It allows for the imposition of criminal penalties for violations. Section 64.30(E (7) specifies that, except as expressly provided, violation of this section or any order issued by the Board or the Director as authorized by this section is a misdemeanor punishable by a fine not to exceed \$1,000.00 per violation per day or by imprisonment in the County jail for a period of not more than six (6) months, or by both such fine and imprisonment. The Ordinance provides the authority to seek injunctive relief for noncompliance by industrial users with pretreatment standards and requirements. It specifies that whenever a discharger of wastewater is in violation of this section or otherwise causes or threatens to cause a condition of contamination, pollution or nuisance, the Board or the Director may cause the City to seek a petition to the Superior Court for the issuance of a preliminary or permanent injunction, restraining order, or other order, as may be appropriate in restraining the continuance of such discharge. The Ordinance also specifies the terms under which civil liabilities can be imposed.

### ***References***

Bureau of Sanitation, Industrial Waste Management Division, Guide for Discharging Industrial Wastewater To The Sewer, Latest Edition

Los Angeles Municipal Code

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## iv. Operation and Maintenance Program

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

The City maintains separate sewer and storm drain systems. Plans for both systems are digitized into GIS databases from the historic “S” maps for sewer lines and “D” maps for the storm drain system. Both sewer and storm drain systems can be queried through the City’s Navigate LA web mapping system which also combines over 250 layers of data, linked databases and reports. Navigate LA can be used in the field for locating pipelines, maintenance holes, service connections and other features of the City’s sewer and storm drain systems. The maps are routinely updated to include new and rehabilitated sewers as well as the addition of any new developments or tracts. The Bureau of Engineering District Offices and the Bureau of Contract Administration provide as-built information to the Bureau of Engineering Mapping Group which is responsible for ensuring the most up to date information is presented in the GIS dataset.

For operation and maintenance customized GIS datasets of both systems and other information layers are used in work prioritization and other decision making processes. The GIS datasets are used in multiple tasks ranging from pipe cleaning; to chemical treatment for roots, corrosion, and odor control; to hydrodynamic sewer modeling and stormwater capture project placement.

- (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.**

The City operates and maintains the largest sewer system in the nation, serving a population of over four million within a 600 square mile service area. It consists of more than 6700 miles of sewers, 140,000 maintenance holes, and 46 pump stations. In addition, there are about 700,000 privately owned sewer laterals with an estimated total length of 11,000 miles. Laterals are maintained by private property owners.

The City also provides wastewater conveyance and treatment services to 29 satellite agencies under contractual agreements but is not responsible for satellite agencies' sewer system management.

The Department of Public Works, Bureau of Sanitation, Wastewater Collection Systems Division's operation and maintenance manuals guide the frequency of sewer cleaning and maintenance of pump stations and equipment. Tasks and their frequency are determined based on operation and maintenance experience, past performance, manufacturer's recommendations and site-specific conditions. Scheduled and completed tasks are catalogued and tracked by work orders in a maintenance management system called Enterprise Maintenance Planning and Control (EMPAC). Pump run times are routinely monitored and used in scheduling routine maintenance. Maintenance program includes preventive, proactive, predictive, and corrective maintenance; maintenance engineering; and quality control.

EMPAC is an asset management and maintenance system the Wastewater Collection Systems Division utilizes to manage work, track warehouse parts, and streamline maintenance related purchases. The Division also uses the Field Automation Sanitation Trucks (FAST) which is a field data access component to EMPAC. FAST greatly reduces the amount of paperwork in collecting closure data for work orders. Work orders are closed in the field, thus reducing data entry by clerks and supervisors. Geographic Information System (GIS) integration ties EMPAC assets to actual field locations, searchable by street address or intersection. Real-time access to data in the field enables crews to work more efficiently.

### **Sewer System Preventive and Proactive Maintenance**

The City has a proactive and preventive maintenance program. Six maintenance yards are strategically located throughout the City to minimize travel time and maximize efficiency. Preventive maintenance is focused on critical and problematic areas. Maintenance is performed by staff assigned to each maintenance yards. Problem sewers are identified, prioritized and scheduled for maintenance based on comprehensive review of the maintenance history and system characteristics including overflows, blockages, excessive maintenance, age, material, and sewer condition. Maintenance includes high velocity sewer cleaning, bucketing, mechanical and manual rodding of sewers. The City's sewers are classified into two groups: primary sewers (greater than 15 inches in diameter) and secondary sewers (15 inches or smaller in diameter). Primary sewers are divided into 26 and secondary sewers into 240 basins along drainage boundaries.

All problem sewers are inspected using closed circuit television (CCTV) to identify any necessary repairs or special maintenance needs as soon as possible, usually within 48 hours after the initial occurrence of an overflow.

Flow monitoring and CCTV inspection records are reviewed to identify deficiencies. High d/D (flow depth to pipe diameter) levels or operational failure trigger further reviews to determine cause and take immediate or accelerated corrective actions. Priorities and schedules are set based on the severity of the problem.

In addition to the preventive maintenance, the City implements a proactive maintenance program where “non-problem” sewers are also scheduled for maintenance and cleaning, but on a less frequent basis. Proactive maintenance of secondary sewers is performed on a basin by basin basis.

The City implements a quality control/quality assurance program designed to examine the effectiveness of cleaning. After cleaning a sewer, sample pipes are inspected by CCTV to ensure that cleaning has restored the flow area of the sewer to at least 95 percent of the pipe diameter. Any sewer that fails the inspection is re-cleaned and the crew is retrained on the proper procedures.

### **Fats, Oils, and Grease (FOG) Cleaning**

Overflows caused by FOG-related blockages are monitored to identify locations and determine cleaning frequency. Cleaning frequency is increased for sewers with repeated FOG-related blockages or overflows.

### **Root Control Strategy**

In addition to the City’s routine maintenance activities including mechanical root removal, sewers that are prone to tree roots intrusion (primarily through privately owned sewer laterals) are treated for root control using environmentally safe chemicals. The effectiveness of chemical root control treatment is carefully monitored and the frequency of treatment and application rates adjusted as required to eliminate blockages caused by roots.

The City also implements a community outreach and education program to control roots in private sewer laterals located in areas where tree roots intrusion into mainline sewers require frequent root removal and chemical treatment. A root control pamphlet is periodically mailed to properties in these areas. Property owners may also contact LA Sanitation via a helpline and an email address which are listed below.

Root control pamphlet is available on the web at:

[http://www.lasewers.org/sewers\\_shared/pdf/tree\\_roots\\_brochure.pdf](http://www.lasewers.org/sewers_shared/pdf/tree_roots_brochure.pdf)

Helpline: (323) 342-1566

Email Address: sewer.root@lasewers.org

## **Odor Control Strategy**

The City keeps a sewer odor master plan containing a multitude of odor control and response measures including:

- Ongoing sewer air pressure and odor monitoring;
- Air manipulation in the sewer using flow diversion and air curtains;
- Odor removal from air in the sewer using carbon scrubbers and bio-trickling filters;
- Sewer cleaning and maintenance;
- Chemical treatment;
- Sewer construction and repair;
- Sealing of sewer maintenance holes;
- Trap maintenance hole inspection, cleaning, repair, and replacement; and
- Conducting investigation on and responding to odor complaints received through the sewer odor hotline and an LA Sanitation website.

## **Pump Stations Maintenance**

All of the City's 46 sewage pump stations have built-in backup emergency and redundancy systems. The Venice Pumping Station serves as the main center for monitoring and control of all pump stations. The City has upgraded its pump stations and equipped them with state-of-the-art controls, emergency backups, and redundancy systems. This has eliminated overflows caused by power outages and mechanical failure.

As a part of routine preventive maintenance program, the Wastewater Collection Systems Division conducts scheduled preventive maintenance of pumps and related accessories. On the average, each station is visited for inspection/maintenance about 80 times in each year by various crafts. A crew spends about 30 minutes to 2 hours in a station for every scheduled preventive maintenance visit.

## **Construction-Related Overflow Prevention**

In a determined effort to reach the City's goal to have no preventable dry weather overflows and wet weather overflows during all but most severe storm events, the Bureaus of Engineering, Contact Administration and Sanitation issued a "Joint Statement of Policy Pertaining to the Prevention of and Response to Construction Contract-Related Sewage Spills The policy states the responsibilities of each Bureau in overflow prevention, response, reporting, public information dissemination and follow up. The policy requires, among other provisions, coordination among the Bureaus in pre-design reviews to determine appropriate means for preventing overflows and to determine appropriate flow control requirements during construction to be included in the bid and contract documents. The Policy further requires that flow control requirements be explained to potential bidders at the pre-bid meeting. The contractor is required to provide an Emergency Response Plan for



controlling sewage flow during the construction. LA Sanitation reviews and approves the Contractor's Emergency Response Plan prior to the start of construction. The policy also requires a sign-off for private development projects by LA Sanitation.

A map of all sewer construction projects is continuously updated by the Bureau of Engineering. Contact information for each ongoing construction project, including the names and contact information of the inspector, the inspector's supervisor and contractor's contact person, is prepared by the Bureau of Contract Administration and forwarded to Sanitation's Wastewater Collection Systems Division.

The Bureau of Contract Administration's inspector is responsible for communicating the City's "no-spills" policy and project plans and specifications to the contractor, enforcing the plans and specifications and ensuring the contractor responds appropriately in case of emergencies. The inspector is required to explain the City's "no-spills" policy to the contractor, remind them of their responsibility to prevent overflows and respond with quick mitigating action if an overflow does occur. The Bureau of Contract Administration form M-159, Sewage Spill Prevention Preconstruction Meeting Check List, covering the bypass plan and implementation and Emergency Response Plan is discussed during the pre-construction meeting with the contractor. The contractor is required to sign the checklist and agree to comply with the plans. A City inspector is on site during sewage bypasses.

**(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.**

The City rates the condition of its sewers in an ongoing CCTV condition assessment program. Structural deficiencies are identified and the needed improvements developed and implemented systematically as a part of the City's sewer rehab and replacement plan.

**Short Term:**

The City staff and private contractors perform CCTV inspection in support of operation and maintenance and for capital improvement planning purposes. Each maintenance hole to maintenance hole segment is assigned a condition rating from A to E. Condition E pipes are immediately rehabilitated on an emergency basis and

condition D pipes, which are not considered to be in imminent danger of failure, are placed in the City's Wastewater Capital Improvement Program (WCIP [??? hyperlink](#)) as a CIP project in a priority order based on sewer condition. Condition D pipes are scheduled for replacement or rehabilitation usually within five years. These sewers are scheduled for re-televising annually until the CIP project is complete. This information is also used to identify short-term rehabilitation needs.

Follow-up CCTV inspections are conducted at overflow locations usually within 48 hours of overflow occurrence to identify the extent of necessary repairs or any special maintenance needs.

### **Long Term:**

The City conducts comprehensive and systematic inspections and assessments of all components of its sewer system. Inspections are used to identify problems requiring repair and prioritize the needed improvement projects for inclusion in the Wastewater Capital Improvement Program (WCIP). Sewers are classified into two groups: primary sewers (greater than 15 inches in diameter) and secondary sewers (15 inches or smaller in diameter). Primary sewers have been divided into 26 and secondary sewers into 240 basins.

The City uses state-of-the-art CCTV equipment to inspect and assess the condition of secondary sewers. Secondary sewers are inspected in a priority order using a ranking system that incorporates age, size, construction material, overflow history, and known problems. Some primary sewers are also inspected depending on size and flow levels. Inspection and maintenance of the remaining primary sewers at the City's discretion may be contracted to private contractors.

To assess the condition of CCTV inspected sewers, the City uses a five category rating system based on the types and severity of defects. The Categories range from Category A (Excellent) to Category E (Emergency Condition). The condition ratings trigger a follow-up action that includes either rehabilitation within a certain time frame or a follow-up inspection. Rehabilitation projects are developed and scheduled for implementation on a prioritized basis with other identified needs. Category A and B Sewers are in excellent to good condition and are scheduled for continued inspections and monitoring. Category C condition sewers are considered to be in fair condition and are scheduled for follow-up inspections every five years until repairs have been completed. Category D condition sewers are in a condition that requires close monitoring and may require rehabilitation within five years and are included in the WCIP for planning, design and construction. More frequent inspections are conducted at locations with known problems to avoid emergency situations Category E condition sewers are considered emergency where a pipe failure has already occurred or there is a full flow obstruction. Immediate repairs are initiated for sewers rated an E condition.

CCTV inspections and flow gauging provide up-to-date data that are used to evaluate hydraulic and structural sewer condition. From this assessment,

deficiencies are identified and evaluated, and improvement projects developed and scheduled in the WCIP.

Rehabilitation and replacement projects are developed and included in the WCIP. WCIP is prepared annually and covers a 5- to 10-year period. This annual report contains a planned expenditure summary for identified projects, projects description, and a 10-year project expenditure plan. Detailed project plans are developed and implemented when they are scheduled for implementation.

The following are notable examples of the City's sewer renewal programs.

- Accelerated Sewer Repair Program (ASRP) following the 1994 Northridge Earthquake;
- Concrete Sewer Repair program (CSR);
- Sixty-mile (per year) Program where a total of a minimum of 420 miles of sewer pipes were replaced, rehabbed, or repaired in the seven-year period starting with Fiscal Year 2007-08;
- Secondary Sewer Renewal Program (SSRP); and
- Emergency Sewer Repair Program (ESRP).

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

The City provides classroom training and on-the-job, hands-on training. Training is facilitated by both City staff and by outside training workshops. Most internal functional and safety training is provided through LA Sanitation's Industrial Safety and Compliance Division (ISCD). New training courses are added and existing courses are modified to stay current with the rapidly changing technology and requirements, including computer-aided and online training. On-the-Job cross training is actively pursued to ensure that staff has a proficient working knowledge of their tasks and subtasks. City Staff is cross-trained so that critical tasks can be performed without interruption when assigned crew members are not available. Training records are maintained in the Training Information Management System (TIMS) TIMS is used to monitor completed classes and to schedule employee training on appropriate frequencies to keep skills proficiency current and meet certification requirements.

Crews are initially trained in the proper operation and maintenance of all new major mobile equipment and facilities by the contractor/manufacturer. Written operation and maintenance manuals are used as resource material for initial start-up training

as well as new staff training. ISCD is responsible for providing operational training on sewer cleaning equipment.

Safety training is an integral part of the City's training program. Every staff member receives formal classroom training on important safety topics, for example, confined space entry and hazardous materials management as required by regulations.

ISCD prepares employees to respond to major emergencies and disasters and has established an operation center and emergency response teams. Emergency training exercises are conducted and documented annually.

The Fats, Oils, and Grease (FOG) Control Ordinance became effective on August 5, 2001. As part of the FOG Control Program, the City authorized and provided funding for Industrial Waste, Senior Industrial Waste and Chief Industrial Waste Inspectors. Training for these new staff additions was initiated with the implementation of the FOG Control Program on October 15, 2001. The training program consists of a comprehensive series of courses and lessons that are designed to provide inspectors with specific skills and knowledge necessary for their everyday operations.

Training is enhanced with presentations conducted by the FOG Control Program engineering staff who continually research and develop new training materials. To stay current and highly proficient, staff routinely attends seminars and presents information at specialty conferences. The City also acquires training presentations by vendors.

In order to ensure a complete and thorough inspection of a food service establishment (FSE), Standard Operating Procedures (SOPs) have been developed to guide inspectors through inspection process in a systematic fashion.

The City identifies training needs for staff development in its annual budget and provides adequate funding for tuition reimbursement. The City also maintains an online library of self-improvement training courses and encourages self-training.

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

City crews maintain the pump stations but do not perform repair or replacement of underground pipelines. Repair and replacement of underground pipelines are contracted out to licensed contractors who have the equipment, materials and staff to complete the work. The City maintains an electronic inventory of equipment, replacement parts, and supplies and follows a structured process to ensure an up-to-date accounting and complete inventory of equipment and replacement parts. Parts that are needed for preventive maintenance are identified ahead of time for each maintenance task and secured prior to the start of preventive maintenance

tasks. Redundancy is provided for key pump station equipment and most pump stations have backup power to minimize the risk of a complete shut-down. As a backup, managers have credit authority to purchase needed materials and supplies from local vendors of non-stock items when they are critically needed. There has been little need to purchase parts through this means, which attests to the City's advance preparation and readiness.

The City maintains equipment such as sump pumps, portable generators, traffic control and night lighting systems, in a ready state for immediate deployment in an emergency.

The City has a procedure for pre-qualifying manufactures and equipment vendors and for sole-sourcing when necessary to standardize equipment and parts. This additional procurement option reduces inventories, simplifies procurement procedures, and reduces training and operation & maintenance costs.

### ***References***

LA Sanitation's Wastewater Collection Systems Division's Operation & Maintenance Manuals

LA Sanitation's Wastewater Collection Systems Division's Pump Station Maintenance Schedules and Service Guide

LA Sanitation,'s Wastewater Collection Systems' Division Enterprise Maintenance Planning and Control (EMPAC)

LA Sanitation's Industrial Waste Management Division's Fats, Oils, and Grease Standard Operating Procedures 001

LA Sanitation's Wastewater Engineering Services Division's Collection System Annual Performance Report

Navigate LA User's Manual

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## v. Design and Performance Provisions

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

New and rehabilitated sewers and pump stations are planned, designed and constructed to meet the highest performance standards in the industry in accordance with the City's Sewer Design Manual. The Manual contains criteria for planning and design of new sewers; pump stations, force mains, and appurtenances; and for the rehabilitation of existing sewers. It includes sections on:

- Flow projections and sewer hydraulics
- Sewer alignments
- Sewer materials and structures
- Planning and design for sewer rehabilitation and replacement
- Sewer construction
- Pump stations and force mains
- Sewer system operation and maintenance

Standard Plans are used to provide consistency and quality in design. The City encourages users of the Sewer Design Manual and Standard Plans to critique and provide feedback on the standards. Thus, the Sewer Design Manual and the Standard Plans are continuously being updated to incorporate improved materials, methods, and processes. The Bureau of Contract Administration provides recommendations to the Bureau of Engineering for modifying the standard details and master specifications for construction projects. The Bureau of Sanitation's Wastewater Collection Systems Division provides input for improved performance of system components based on experience gained in operation and maintenance. Proposed changes to the criteria and the Standard Plans are evaluated thoroughly before they are adopted.

Complicated connection, diversion, and transition structures are modeled in the City's hydraulic research laboratory to ensure that each structure will perform equal to or better than designed. Modelers work closely with designers to optimize performance.

As new products are introduced, they undergo a thorough review and evaluation by the "Green book" Committee, a group of public works officials in the Southern

California area that is dedicated to high performance construction materials and standards. The “Green Book” Committee is a clearinghouse for the review of new products and construction methods. It develops standard specifications that become part of the “Green Book.” The City supports this committee and references applicable “Green Book” specifications as appropriate for the construction of new and rehabilitation sewer projects. Emergency repairs are conducted according to the “Green Book” standards. Specifications for larger diameter sewers are tailored to meet the unique project needs. The Bureau of Contract Administration provides constructability reviews of sewer, pump station, and force main designs. All City designs are independently reviewed before they are signed by the City Engineer.

All system components are designed to meet permit requirements of the various federal, state and local agencies. In addition, environmental documents are prepared to comply with the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), or both as appropriate. This process ensures that projects benefit from the input of all affected and interested parties including the communities.

The Bureau of Engineering, Wastewater Conveyance Engineering Division is responsible for updating and maintaining the City’s design requirements and standards. Users of the design guide are responsible for submitting suggested modifications to the standards. Bureau of Contract Administration is responsible for enforcing compliance with the plans and specifications for installing new sewers, pumps and appurtenances, and rehabilitation and repair projects.

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

The Bureau of Contract Administration (BCA) provides inspection on all rehabilitation and new sewer system construction contracts. Written inspection procedures are followed to ensure that sewer system facilities are built to conform to the plans and specifications. Inspections are conducted both on the jobsite and at material fabricators during manufacture and testing. The Bureau of Contract Administration coordinates its work with the design engineers to ensure the intent of the design is met. The City does not accept the installed components until they pass all required performance tests and a field acceptance from the BCA final inspector is issued. New or rehabilitated system components are placed into service upon certification by the Bureau of Contract Administration’s inspectors that they have been installed in accordance with plans and specifications.

***References***

Building News, “Public Works Inspectors’ Manual, Latest Edition

City of Los Angeles Master Specifications



City of Los Angeles, Bureau of Engineering, Sewer Design Manual

City of Los Angeles, Department of Public Works, Bureau of Engineering, Standard Plans

Building News, "Standard Specifications for Public Works Construction," (referred to as the "Green Book"), Anaheim, California, Latest Edition

Building News, "Public Works Inspectors' Manual," Anaheim, California, Latest Edition

City of Los Angeles, City Uniform Plumbing Code, Latest Edition

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## vi. Overflow Emergency Response Plan

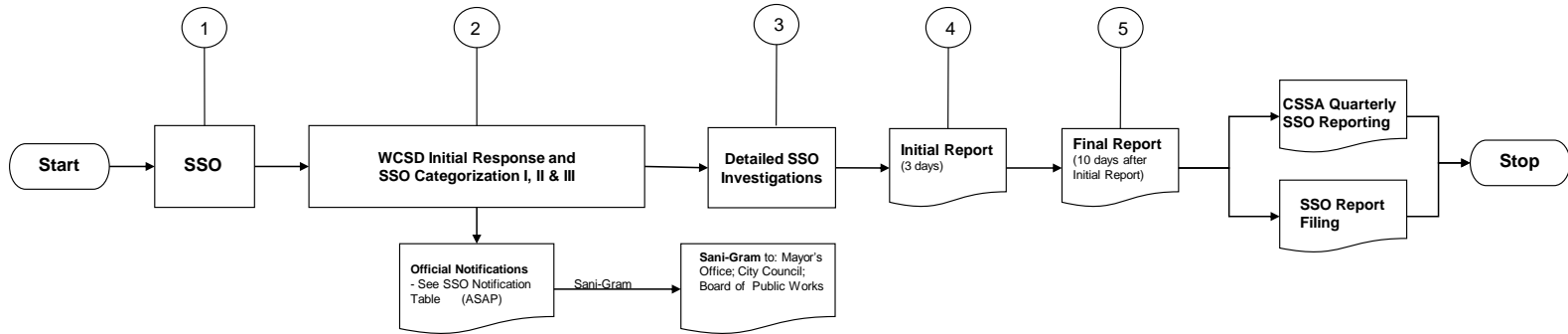
### **(a) Proper notification procedures so that the primary responders and regulatory agencies are informed of all SSOs in a timely manner**

The Bureau of Sanitation's Wastewater Collection Systems Division maintains an up-to-date Sanitary Sewer Overflow Response and Reporting Procedures. City staff meets all permit and regulatory requirements by following these procedures. The City encourages citizens to report overflows to the Bureau of Sanitation. Citizens may use the toll free telephone number "311" or (213) 773-CITY to report overflows and other sewer problems. Staff is available 24 hours per day, seven days per week to receive calls. The appropriate phone numbers are listed in local phone directories and posted on the Bureau's web sites. All calls are automatically forwarded to the Venice Pump Station to ensure that none are missed. Once verified, all sewer overflows regardless of volume or potential impact are reported to all parties in the chain of communication within the City and to the appropriate regulatory agencies, as shown in Figure 6-1. When an overflow is due to private construction activities, the construction contractors and City inspectors are required to report the overflow to the Bureau of Sanitation immediately.

All sewer overflows that enter the waters of the state such as ocean and waterways must be reported immediately. For the purposes of reporting to the Health Officer, the term immediate is defined as within 15 minutes of the knowledge of an overflow event. Immediate reporting is made when an overflow results in a direct discharge into the waters of the State and/or when the Bureau of Sanitation's Wastewater Collection Systems Division's personnel determine that an overflow could potentially reach the waters of the State based on their knowledge of the sewer and storm drain infrastructure. All other overflows must be reported to the Health Officer and the RWQCB within two hours of the knowledge of overflow event. In addition, other agencies must be notified a list of which is included in the Wastewater Collection Systems Division's Sanitary Sewer Overflow Response and Reporting Procedures, Latest Edition.

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**Figure 6-1  
Sanitary Sewer Overflow (SSO) Reporting and Response Cycle**



1. **SSO Occurs** Reported by a private individual to City departments: LAFD, LAPD, 311, BOS, etc. Report of SSOs is relayed to WCSO in BOS. Specific response procedures are set up for after hour SSO reporting.
2. **WCSO Initial Response**
  - a) Dispatches response crews, identify possible causes and initiate the appropriate corrective measures to contain, clean up and repair the SSO.
  - b) Categorize SSO into Categories I-III based on discharge amount, water body impacted, and drainage/storm system affected responsible parties. (Category I: SSOs All Sanitary Sewer Overflows of any volume that; Reach surface water and/or reach a drainage channel tributary to a surface water; Reach a Separate Storm Sewer System and are not fully captured and returned to the sanitary sewer system. Category II: All Sanitary Sewer Overflows of 1,000 gallons or greater that; Do not reach surface water, a drainage channel, or a Separate Storm Sewer System, or Reach a Separate Storm Sewer System or a drainage channel and are fully captured and returned to the sanitary sewer system. Category III: All Sanitary Sewer Overflows less than 1,000 gallons that; Do not reach surface water, a drainage channel, or a Separate Storm Sewer System, or Reach a Separate Storm Sewer System or a drainage channel and are fully captured and returned to the sanitary sewer system.)
  - c) Makes official telephone notifications to LACDHS, RWQCB, OES, and other departments depends on category.
  - d) Perform necessary clean up, take SSO samples for laboratory analysis if required, Identify schools in immediate vicinity of the SSO if impacted, post community warning signs and barricades as necessary.
  - e) Informs BOS director or executive in charge.
3. **Detailed SSO Investigations And Field Response**
  - a) Document initial observations, estimate SSO volume, take pictures and CCTV recordings of SSO, QA/QC of SSO response.
  - b) Immediate repair conducted by on-call BOE contractor if necessary.
4. **Initial Report**
  - a) Sani-Gram issued by BOS Executive Office as soon as possible, but no later than 9:00 AM the following business day.
  - b) Initial report shall include information such as: date and time, location, duration, causes, nature and volume, sewer conditions, type of remedial/cleanup measure, corrective/preventive actions taken, water body impacted, date and time of notifications for regulatory agencies.
  - c) Initial written report faxed to the RWQCB & LADHS within 24 hours of occurrence ( CAT I ) or next business day (CAT II and III)
  - d) Initial report of the SSO shall be completed within 3 days of the SSO incident, entered into CIWQS (California Integrated Water Quality System) database.
  - e) Initial report of the SSO shall be submitted within 5 days of the SSO incident to Los Angeles Regional Water Quality Control Board (LARWQCB).
5. **Final Report**
  - a) Final report of the SSO shall be completed within 10 days of submission of the Initial Report.
  - b) CSSA Quarterly SSO Reporting and filing need to be conducted periodically within BOS.

Sani-Gram Distribution List (BOS Executives)			
TO:	CC:		
President of Board of Public Works	All Council Members	Office of Chief Legislative Analyst	All Bureau Division Heads
Vice President of Board of Public Works	Mayor's Office	Environmental Monitoring Division	Baykeeper
President Pro-Tempore of Board of Public Works	Public Affairs Office	L. A. County Public Works	Pacific Palisades Community Council
Commissioners of Board of Public Works	City Engineers, Deputy City Engineer	Community Council	Santa Monica Canyon Civic Association
	City Attorney's Office	All Bureau Assistant Directors	Surfrider
	Office of the City Administrative Officer	Los Angeles County, Public Health Department	Heal the Bay

SSO Notification Table (WCSO)			
SSO Category	I	II	III
District Supervisor, Manager I, II, III	√	√	√
Los Angeles County Department of Health Services (LADHS)	√	√	√
California State Department of Health Services (SDHS)	√	√	√
Los Angeles Regional Water Quality Control Board (LARWQCB)	√	√	√
State Office of Emergency Services (OES)	√	√	
Environmental Protection Agency, Region 9 (EPA) / National Response Center	√	√	
Board of Public Works (BPW), Mayor's Office, Council Offices (as directed by BOS Executive Management)	√		
Heal the Bay (notified when beach advisory or closure occurs)	√		
Los Angeles Unified School District (LAUSD, when SSO impacts a school)	√	√	√
Board of Public Works Public Affairs Office (notified when beach advisory or closure occurs)	√		
California State Department of Fish and Game (notified when SSO reaches receiving waters)	√		
Watershed Protection Division (WPD, notified when SSO reaches City of Los Angeles storm drain)	√		
Los Angeles County Department of Public Works, Information Technology Division (notified when SSO reaches Los Angeles County drainage and/or storm drain system)	√	√	√
Environmental Monitoring Division (EMD, notified when SSO reaches receiving waters)	√		
Department of Water and Power (DWP), Water Control Office (WCO) (notified when SSO would impact shallow groundwater)	√		
Human Resource Development Division (HRDD, notified when requiring coordination of multi-agency response and upon approval from the Division Manager)	√	√	√
Los Angeles County, Department of Beaches and Harbor	√	√	
Issue Sani-Gram to Distribution List	√	√	

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

The City's emergency response procedures require full, immediate, and appropriate attention and response to a sanitary sewer overflow with the ultimate goal of minimizing impacts to public health and safety and the environment. It is the City policy that "Every reported sewage spill affecting public or private property within the City of Los Angeles shall be acted upon by the Division." Telephone calls to report overflows or other maintenance problems are answered 24 hours per day, 7 days per week. Crew leaders are immediately notified upon receipt of a reported potential sewer overflow and are instructed to respond immediately. Written procedures are provided for assessing the overflow, notifying supervisors, documenting the overflow, estimating the volume of the overflow, sampling and laboratory analysis, posting warning signs and following up. The highest priorities are to contain the overflow and minimize, if not prevent the overflow from reaching the storm drain system, and to minimize or eliminate exposure to the public and impact on public health. The City's procedures are designed to protect public health and safety, meet all regulatory reporting requirements, and ensure immediate and effective response.

Construction contractors are required to have an approved sewage flow bypass system and Emergency Response Plan in place prior to start of construction. Contractors are instructed to take immediate action to stop any overflow. These are discussed at the pre-construction conference and enforced by the Bureau of Contract Administration.

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

The City's Sanitary Sewer Overflow Response and Reporting Procedures outlines notification steps and includes a comprehensive contact and notification list. Notification depends on the severity and potential impact of the overflow. All sewer overflows that enter the waters of the state such as ocean and waterways must be reported immediately. For the purposes of reporting to the Health Officer, the term immediate is defined as within 15 minutes of the knowledge of an overflow event. Immediate reporting is made when an overflow results in a direct discharge into the waters of the State and/or when the Bureau of Sanitation's Wastewater Collection Systems Division's personnel determine that an overflow could potentially reach the waters of the State based on their knowledge of the sewer and storm drain infrastructure. All other overflows must be reported to the Health Officer and the RWQCB within two hours of knowledge of overflow event. In addition, immediate notification of the public, health agencies, and others of overflows "that may

imminently and substantially endanger human health” is required. Initial notification includes posting warning signs and barricades as necessary by the responding crews. Appropriate agencies and impacted entities are notified in accordance with City procedures. The notification lists are updated to keep officials names and positions current. Construction contractors are required to take immediate measures to mitigate and report overflows as soon as they are discovered. The Department of Public Works’ Bureau of Contract Administration inspectors report construction-related overflows to the Bureau of Sanitation and document the time, location, cause, estimated quantity, and any impact of the overflow, and take mitigation measures as needed.

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

The emergency response plan is clearly documented and available to all personnel. It is used as a resource in the emergency response training. All wastewater operation and maintenance staff are trained on emergency response procedures at least annually. New employees receive this training as part of their orientation and this training is reinforced during tailgate training sessions. Construction inspectors are also trained in emergency response procedures. The City emphasizes its goal to have no construction-related overflows during pre-bid and pre-construction meetings. Construction contractors are required to submit and obtain approval of all flow bypasses and emergency response plans prior to the start of construction.

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

The City has developed and implemented an advanced and comprehensive overflow prevention, response and reporting program. These include timely reporting to the impacted agencies and stakeholders, computer templates for estimating overflow volume, training for overflow review committee, and follow-up CCTV inspection to accurately determine cause and prevention methods.

Adequate staff is placed on standby status to supplement existing staff as needed or respond to an emergency after hours. The City maintains a list of pre-qualified on-call contractors who provide specific equipment, materials, and crews to the City in emergency operations. Operation Staff at the Venice Pump Station constantly monitor the status of the remote pump stations and are authorized to dispatch standby personnel as necessary. In addition, the City’s Police Department, Fire Department, and Department of Transportation can be utilized to assist in emergency situations. The Bureau of Sanitation conducts table top exercises to simulate a multi-agency response to major sewer emergency.



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

The City seeks to protect public health & safety and the environment through the implementation of all Federal and State laws, standards, and orders applicable to untreated wastewater. Through a comprehensive and systematic program of cleaning, condition assessment, repair, and upgrade of its sewer system, the City controls the discharge of untreated and partially treated wastewater into receiving waters such as ground water, streams, and rivers.

When an overflow occurs, the highest priorities are to contain the overflow and minimize, if not prevent, the overflow discharge into the storm drain system, and to minimize or eliminate exposure to the public and impact on public health. The Wastewater Collection Systems Division's Sanitary Sewer Overflow Response and Reporting Procedures provide guidance to the crews in order to accomplish this objective.

A comprehensive investigation is performed for each overflow event to diagnose cause and take remedial measures to prevent and mitigate similar future events.

Furthermore, the City has ongoing public outreach and education programs on untreated or partially treated wastewater, its health risk and impact to the receiving waters.

### ***References***

Bureau of Sanitation, Wastewater Collection Systems Division, Sanitary Sewer Overflow Response and Reporting Procedures, Latest Edition

Bureaus of Engineering, Contract Administration and Sanitation; "Joint Statement of Policy Pertaining to the Prevention of and Response to Construction Contract-Related Sewage Overflows."

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

**FOG Control Program:** Each Enrollee shall evaluate its service area to determine whether a FOG control program is needed. If an Enrollee determines that a FOG program is not needed, the Enrollee must provide justification for why it is not needed. If FOG is found to be a problem, the Enrollee must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system.

### **Background**

In July 1997, the City launched a study to assess the impacts of excessive Fats, Oils, and Grease (FOG) discharges on its sewer system. The study was intended to identify the sources of FOG discharges into the system and recommend measures to control FOG and minimize related sewer blockages and overflows in a cost-effective manner. The study revealed that, at the time, approximately 50% of all sanitary sewer overflows (SSOs) were caused by FOG. Major FOG contributors were Food Service Establishments (FSEs), non-profit organizations involved in food processing or preparation, and residential dwellings.

The study recommended the establishment of a grease control program that included a more aggressive preventive maintenance program, more extensive sewer inspection and cleaning, and the implementation of a source control program that would restrict the amount of grease from various sources.

Following an extensive outreach to and in partnership with the City's approximately 10,000 FSEs, a FOG Control Program was developed. The following are the principal elements of the program.

- 1. Source Control**
- 2. Sewer Cleaning**
- 3. Community Outreach and Education**

Effective August 5, 2001, the City Council enacted the FOG Control Ordinance (Number 174,047). This Ordinance amended the Los Angeles Municipal Code Section 64.30 and the Board of Public Works' (Board) Rules and Regulations Governing Disposal of Industrial Wastewater into Publicly Owned Treatment Works (POTW) of the City of Los Angeles (Rules and Regulations).

As a result, the City has since achieved a remarkable reduction of more than 90 percent in FOG-related sewer overflows (SSOs), from a high of over 300 overflows in the baseline Fiscal Year 2000-01 to less than 20 per year.

The following is a description of the City's program in accordance with Sub-parts (a) through (g) of the State's General Waste Discharge Requirements for SSMP Part vii, FOG Control Program.

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

Ongoing public and stakeholder education, outreach, and participation are one of the pillars of the FOG Control Program. Educational videos and brochures on best management practices (BMPs) are distributed to food service establishments (FSEs) in five languages: English; Spanish; Korean; and two Chinese dialects, Mandarin and Cantonese. BMP pamphlets and door hangers are also distributed to Los Angeles residents. In addition, LA Sanitation maintains an up-to-date website, [www.lacitysan.org](http://www.lacitysan.org), which serves as an additional source of information to the food service industry and the community at large. A summary of the FOG Control Ordinance, BMP Guidebook for FSEs, and general information about eliminating FOG discharges into the sewer system are provided.

The City participates in conferences and expositions, and conducts annual workshops to communicate its FOG Control Program requirements to and obtain feedback from general public, FSEs, and regulatory agencies.

**(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.**

The City does not own or operate any FOG disposal facilities. The FSEs must, at a minimum, collect the waste FOG and prevent the waste FOG discharge into the sewer system by implementing the following BMPs:

- "Dry wipe" pots, pans, dishware and work areas prior to washing. Use rubber scrapers or paper towels to remove FOG from cookware, utensils, and serving ware.
- Collect waste cooking oil and store properly in recycling barrels or drums. Use a licensed hauler or recycling facility to dispose of this waste.
- Use absorbent products to clean under fryer baskets and other locations where FOG may be spilled or dripped.

The City does not allow FOG waste haulers to discharge waste FOG into the sewer system either. However, it provides FSEs with a list of licensed grease haulers and rendering companies.

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

The City's FOG Control Ordinance (Number 174,047) prohibits FOG discharges by food service establishments (FSEs). In addition, LA Sanitation implements a Sewer Spill Response Plan (SSRP) to mitigate the impact of SSOs resulting from blockages caused by FOG accumulation when they do occur, . The SSRP provides guidelines for investigating FOG-related SSOs and taking enforcement and corrective actions to prevent future occurrences.

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

The Los Angeles Industrial Waste Control Ordinance (Paragraph (l) of Subdivision 1 of Subsection C) states:

*“FSEs that are required to maintain an Industrial Wastewater Permit are also required to install, operate, and maintain an approved type and adequately sized, remotely located and readily accessible, grease interceptor, unless a conditional waiver is granted by the Director [of the Bureau of Sanitation].”*

Major provisions of the FOG Control Ordinance and its Rules and Regulations regarding the requirements for installing and maintaining grease removal devices are summarized below:

• **Grease Interceptor Requirements**

Installation of grease interceptor(s) is required at all FSEs that have the potential to generate waste FOG unless a Conditional Waiver is granted, including: (1) FSEs that are to be newly constructed, (2) any existing non-FSE converting to an FSE, (3) FSEs with remodeling valued at \$100,000 or more, and (4) any FSE deemed by the Director of the Bureau of Sanitation, for example, any FSE that is known to cause FOG-related sewer blockages or overflows or fails to implement BMPs.

A grease interceptor is a plumbing device, with a minimum size of 750 gallons that is installed in an industrial wastewater drainage system to intercept and prohibit FOG from entering the sewer system. If an FSE can demonstrate that installation of a grease interceptor is not feasible due to space constraints or other considerations, the Director may issue a variance from grease interceptor requirements and authorize the installation of alternative grease removal devices.

The design, construction, installation and testing of commercial kitchen grease interceptors or grease traps shall be in accordance with Section 94.1000 of the City of Los Angeles Plumbing Code.

- **Operation and Maintenance of Grease Interceptors**

FSEs are required to comply with the following requirements for operation and maintenance of grease interceptors:

- a) Grease interceptors shall be maintained in efficient operating condition by periodic removal of accumulated grease including floating material, sludge and solids.
- b) Grease interceptors shall be cleaned at a frequency such that the combined FOG and solids accumulation does not exceed 25% of the total liquid depth of the grease interceptor.
- c) A logbook of grease interceptor cleaning and maintenance practices shall be maintained.
- d) Copies of records and manifests of hauled waste FOG or hauled interceptor wastewater shall be maintained in FSEs files.

FSEs are also required to comply with the requirements for the operation and maintenance of grease traps as follows:

- a) Grease traps shall be cleaned on a daily basis.
- b) A visual inspection of grease traps shall be conducted on a daily basis to check for leaking seams and pipes and ensure effective operation of the baffles and flow regulating device.
- c) Grease traps and baffles shall be maintained free of all caked-on FOG and food waste.
- d) Removable baffles shall be removed and cleaned during the maintenance process.
- e) Grease traps shall be maintained free of all food residues and any FOG waste dislodged during the cleaning and scraping process.
- f) Any waste including FOG and solid material removed from the grease removal device shall not be discharged into the sanitary sewer.

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

The Industrial Waste Control Ordinance was amended in August 2001 by the FOG Control Ordinance (No. 174,047), contained in Section 64.30 of the Los Angeles Municipal Code (LAMC), in order to control waste FOG discharges from food service establishments. A major stipulation under this amendment requires those FSEs that

generate waste FOG during food preparation processes to obtain an Industrial Wastewater Permit.

The FOG Control Ordinance provides the Bureau of Sanitation with the legal authority to visit and inspect FSEs and monitor the implementation of Best Management Practices. As part of routine inspection activities, inspectors from the Bureau's Industrial Waste Management Division (IWMD) determine permit requirements and verify compliance with the FOG Ordinance provisions. Additionally, information and training materials such as multi-language DVDs, BMP posters, a summary of the FOG Control Ordinance, and lists of licensed grease waste haulers and pretreatment equipment manufacturers are provided to help businesses comply with the Rules and Regulations.

Major provisions of the FOG Control Ordinance and its Rules and Regulations are summarized below:

- **Industrial Wastewater Permit**

Unless exempt, FSEs are required to obtain a Permit, pay a Permit application fee and an annual Inspection and Control fee. An FSE is exempted from obtaining an Industrial Wastewater permit if it does not potentially generate waste FOG during food preparation processes, and does not significantly affect the publicly owned treatment works (POTW), provided that the FSE has implemented and demonstrates compliance with BMPs as specified in the Rules and Regulations. Determination of permit exemption shall be based upon cooking equipment on site at the FSE. Exempted establishments shall not be engaged in preparation of foods that are prepared using grills, fryers, stir-fry type (woks) ranges, barbecues, or similar devices where grease can be introduced in the wastewater.

- **Best Management Practices (BMPs)**

FSEs are subject to BMP requirements as specified in Section 64.30, Subsection C.1.(c) and (k) of the code. All FSEs shall be required, at a minimum, to comply with the following BMPs, when applicable. Acceptable fulfillment of all requirements is subject to approval by the Director. The BMPs that FSEs are required to implement include collecting waste cooking oil and storing in drums or barrels for recycling, disposing food waste directly into the trash/garbage can and not into the sink, dry-wiping pots, pans, dishware prior to washing, using absorbent pads or other materials to clean up spills before mopping the floor, and removing garbage grinders which force food containing FOG into the sewer.

- **Revocation of Conditional Waivers**

The Director's determination to revoke an FSE's Conditional Waiver from Grease Interceptor Installation Requirements is based on the FSE's non-compliance with any of the terms and conditions of the Conditional Waiver. Specific violations that result in revocation of the FSE's Conditional Waiver are as follows:

- a) The FSE disposes of food waste into sinks or equivalent, rather than directly into the trash or garbage receptacles;

- b) The FSE fails to “Dry Wipe” all pots, pans, dishware and work areas prior to washing of such utensils, equipment or areas;
- c) The FSE fails to collect waste cooking oil and store it properly in recycling barrels or drums;
- d) The FSE is confirmed to have contributed to FOG accumulation within the sewer collection system that resulted in, or threatens to result in, an Sanitary Sewer Overflow (SSO); or
- e) The FSE fails to comply with any other condition deemed appropriate by the Director.

- **Variance to allow Alternative Grease Removal Devices**

LAMC Section 64.30 (C)(1) states: “If an FSE can demonstrate that installation of a grease interceptor is not feasible due to space constraints or other considerations, the Director may issue a variance from grease interceptor requirements and authorize the installation of alternative grease removal devices. Alternative grease removal devices include, but not limited to, devices that are used to trap, separate and hold grease from wastewater and prevent it from being discharged into the POTW. All alternative grease removal devices must be approved, by the Director, on a case-by-case basis. The FSE must also demonstrate that BMPs have been implemented.

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

SSOs caused by blockages from FOG are monitored for location and required cleaning frequency. All blockages are plotted on a GIS overlay map. Locations with a high number of FOG blockages are given special investigation and cleaning status. Sewers prone to FOG accumulation or blockages are given high priority and cleaned more frequently in an effort to prevent FOG-related overflows. All reaches, including “non-problem” sewers, are included in a routine preventive maintenance cleaning schedule.

Scheduled and completed tasks are catalogued and tracked by work orders in a maintenance management system called Enterprise Maintenance Planning and Control (EMPAC). The maintenance program includes preventive, proactive, predictive, and corrective maintenance; maintenance engineering; and quality control.

EMPAC is an asset management and maintenance system the Wastewater Collection Systems Division utilizes to manage work, track warehouse parts, and streamline maintenance related purchases. The Division also uses the Field Automation Sanitation Trucks (FAST) which is a field data access component to EMPAC. FAST greatly reduces the amount of paperwork in collecting closure data for work orders. Work orders are closed in the field, thus reducing the need for data



entry by clerks and supervisors. Geographic Information System (GIS) integration ties EMPAC assets to actual field locations, searchable by street address or intersection. Real-time access to data in the field enables crews to work more efficiently.

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

The Industrial Waste Management Division (IWMD) investigates potential source(s) of FOG waste to verify compliance with applicable sections of LAMC 64.30. The City has developed an Enforcement Response Plan. FSEs are required to have an industrial wastewater permit, comply with source control measures for all sources of grease as specified in LAMC 64.30, implement BMPs, install grease interceptors as applicable, and are subject to annual inspections to verify continuous compliance.

The FOG Control Ordinance provides the Bureau of Sanitation with the legal authority to visit and inspect FSEs and monitor the implementation of Best Management Practices. As part of routine inspection activities, inspectors from the Industrial Waste Management Division (IWMD) determine permit requirements and verify observance of FOG Ordinance provisions. Additionally, information and training materials such as multi-language DVDs, BMP posters, an ordinance summary, lists of licensed grease waste haulers, and pretreatment equipment manufacturers are provided to help businesses comply with the Rules and Regulations.

Installation of grease interceptor is required at all FSEs that have the potential to generate waste FOG unless a Conditional Waiver is granted, including: (1) FSEs that are to be newly constructed, (2) any existing non-FSE converting to an FSE, (3) those FSEs with remodeling valued at \$100,000 or more, (4) any FSE is deemed by the Director of the Bureau of Sanitation. For example, any FSE that is known to cause FOG-related sewage overflows or fails to implement BMPs will be required to install a grease interceptor.

In the event an industrial discharger fails to comply with the requirements of the FOG Control Ordinance, the IWMD takes immediate enforcement action by applying one or more appropriate enforcement action(s). The Enforcement actions available to the City of Los Angeles are outlined in the Enforcement Response Plan that includes the following:

- Notice of Violation (NOV) – A notice by certified mail or personal service which identifies the permit condition(s) violated, the circumstances surrounding the violation(s), and provides the FSE with an opportunity to correct the noncompliance on its own initiative.

Within 10 days of the NOV, the FSE is required to conduct an investigation and submit a written response describing the cause of the violation, the actions taken to correct the violation or prevent future violations and the date those corrective actions will be completed.

- Telephone Assistance – A telephone call or verbal notification to an FSE official used to address violations, usually of a minor nature. All phone or verbal notifications are documented in the FSEs' file.
- Conditional Waiver Revocation – IWMD personnel revoke the FSEs Conditional Waiver for cause and require an installation of a grease interceptor.
- Administrative Enforcement Order – An order that requires the FSE to cease a specific activity and implement corrective actions to permanently achieve and maintain compliance. An Order may be issued when an FSE fails to achieve compliance after a NOV is issued or when a pattern of noncompliance is observed.
- The City may pursue civil and criminal penalties, as well as injunctive relief.

### ***Reference***

LAMC Section 64.30 and Board of Public Work Rules and Regulations Governing the Disposal of Industrial Wastewater into the Publicly Owned Treatment Works of the City of Los Angeles

City of Los Angeles, Department of Public Works, Bureau of Sanitation, Industrial Waste Management Division's Referral and Enforcement Response Procedures for Fats, Oils, and Grease Discharges Resulting in a Sanitary Sewer Overflow



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

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

- (a) Evaluation: Actions needed to evaluate those portions of the sanitary sewer system that are experiencing or contributing to a Sanitary Sewer Overflow (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.**

Flow monitoring, hydraulic condition assessment, sewer master plans, and capital improvement program are essential elements of the City's System Evaluation and Capacity Assurance Plan. The Wastewater Collection System Capacity Report and Plan documents the City's approach to capacity assurance. This report is available online at [http://www.lasewers.org/cssa/CRP/2006-06-20\\_CapacityPlanReport.pdf](http://www.lasewers.org/cssa/CRP/2006-06-20_CapacityPlanReport.pdf).

The City's sewer system has sufficient capacity to handle peak dry-weather flows and has not experienced any wet weather overflows since major relief sewers were completed in 2006. Overall overflows decreased by more than 80 percent from FY 2000/01 through FY 2011/12. The City has virtually eliminated dry-weather overflows resulting from power outages or equipment failures at its pump stations.

The system has the capacity to convey wet-weather flows from 10-year storms. The vast majority of the system components have sufficient capacity to handle larger, less frequent storms. However, overflows can occur at a limited number of locations during larger than 10-year storm events.

Through an ongoing flow monitoring program and Close Circuit Television (CCTV), system components with current or projected hydraulic deficiencies are identified and sewer relief and replacement projects are developed and included in the Wastewater Capital Improvement Program (WCIP).

The City uses three (3) different flow gauging programs to obtain data to evaluate sewer hydraulic condition.

- Near-time Gauging: Continuously monitors 194 locations in major outfall, interceptors, and primary sewers (pipes 16-inch and greater in diameter).
- Periodic Gauging: Monitors over 500 locations in the primary sewers and some secondary sewers (pipes 15 inch or smaller in diameter).
- Special Gauging: Provides for short-term gauging of one day to one week duration and is conducted at any sewer location upon requests by planners, engineers, and operation & maintenance staff.

The flow rates and d/Ds (flow depth to pipe diameter ratios) provided by the Flow Monitoring Program in the Primary System hydraulic model. Operating scenarios are simulated to identify system deficiencies and to develop and prioritize capacity relief projects. This data is also used to assist in the preparation of wet-weather operation plans.

The City maintains a database where all gauging data is recorded. Data is retrieved from all gauging locations and evaluated. Exception reports are generated for appropriate follow-up actions for the monitoring stations where the flow depths are 75 percent or more of the pipe inside diameter. Causes of high flow rates are determined through flow analysis and field investigations that could include sewer blockage, structural failure, unusually high and excess discharges by industrial users, or continued growth in the basin. Locations where gauged flow depth is equal to or greater than 50 percent but is less than 75 percent of the pipe diameter are also listed and closely monitored. Flows are compared to historic flows and trending reports are developed. Sewer basins planning reports are prepared including recommended capital improvement projects. Recommended projects are included in the Wastewater Capital Improvement Program (WCIP) in a priority order to meet near-term needs and accommodate future growth.

Primary and Secondary Sewer Master Plans and concept reports provide the bases for capital improvement projects. Primary sewers which are larger than 15 inches in diameter are divided into 26 basins. Secondary sewers are 15 inches or smaller in diameter. The Secondary System is divided into 240 basins (or sewer sheds) along drainage boundaries. Basin plans and concept reports identify deficiencies and evaluate alternatives for needed improvements and make recommendations.

The City uses a GIS-based flow estimating model and a hydrodynamic model which support the planning efforts.

## **Major Interceptors and Outfalls Planning**

Long-term hydraulic, structural, environmental, and operational needs are studied. Operating (flow routing) options and alternatives for major physical facilities for wastewater collection, conveyance, and storage are evaluated and recommendations for capital improvement and optimal operating scenarios are made.

Coastal Interceptor Sewer (CIS)  
Central Outfall Sewer (COS)  
North Outfall Sewer (NOS)  
North Central Outfall Sewer (NCOS)  
North Outfall Replacement Sewer (NORS)  
West Los Angeles Interceptor Sewer (WLAIS)  
Westwood Relief Sewer (WRS)  
Wilshire-Hollywood Interceptor Sewer (WHIS)  
La Cienega Interceptor Sewer (LCIS)  
La Cienega – San Fernando Valley Relief Sewer (LCSFVRS)  
Valley Outfall Relief Sewer (VORS)  
Additional Valley Outfall Relief Sewer (AVORS)  
East Valley Relief Sewer (EVRS)  
East Valley Interceptor Sewer (EVIS)  
East Central Interceptor Sewer (ECIS)  
North East Interceptor Sewer (NEIS)  
Eagle Rock Interceptor Sewer (ERIS)

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## Primary Basin Plans

Sewers 16 inches and larger in diameter are categorized as primary sewers. As shown in Figure 8-2, there are 26 primary sewer drainage basins in the City. Basin boundaries coincide with natural drainage boundaries. Primary basin plans provide comprehensive analysis of basin conditions and recommendations for needed improvements to meet current and future demands. Basin needs are identified through hydraulic, structural, and environmental (odor) condition assessment; alternative solutions are developed, screened, and evaluated based on selection criteria for technical feasibility, cost-effectiveness, community and environmental impact; and selected alternatives are recommended for inclusion with the city's Wastewater Capital Improvement Program (WCIP). Master plans are updated on a 5- to 8-year cycle to meet new demands due to changes in population and population forecast, aging system components, and application of new and superior technologies.

Primary Master Plans were completed for the Central Business District and the Silver Lake/Central City North, Wilshire, and Northeast Wilshire Areas in the early 1990's before a need to shift resources to repair sewer damages caused by the Northridge earthquake. By 2003, a majority of the earthquake sewer repair projects had been completed and the City resumed work on Primary Master Plans. Master plans for all of the City's 26 Primary Basins listed below have since been completed.

1. Lincoln Heights
2. Boyle Heights
3. Central Business District
4. Silver Lake/Central City North
5. Granada Hills/Mission Hills
6. Van Nuys/Sylmar
7. South Los Angeles
8. Wilmington
9. San Pedro
10. Brentwood/Pacific Palisades
11. Venice
12. Westchester
13. Baldwin Hills
14. Northeast Wilshire
15. Wilshire
16. Hollywood
17. West Los Angeles
18. North Hollywood/Sunland
19. Woodland Hills/Canoga Park
20. Chatsworth
21. Northridge
22. Tarzana

- 23. Encino/Studio City
- 24. Pacoima
- 25. Highland Park/ Eagle Rock  
Griffith Park

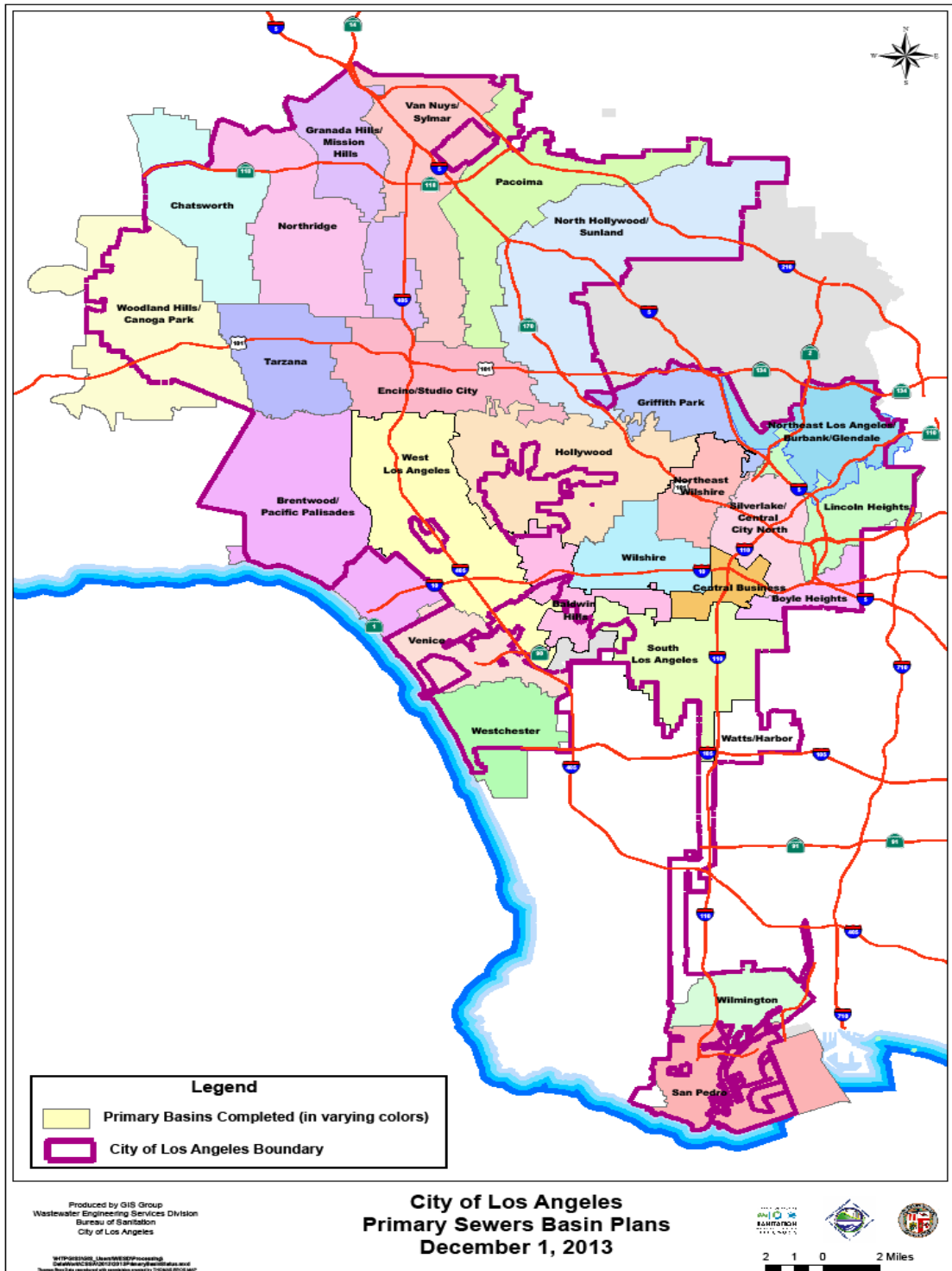


Figure 8-2

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## **Secondary Basin Plans**

Secondary sewers are the City sewers that are smaller than 16 inches in diameter. The City's entire sewer system, including all three sanitary sewer systems, is divided into 220 secondary sewer basins (also known as sewer sheds), shown in Figure 8-3. The secondary basins follow the natural sewer drainage boundaries. The basins are prioritized for planning purposes by performing a Sanitary Sewer Overflow (SSO) analysis using weighted risk factors such as number of SSOs per unit length of sewer, percentage of known problem material, and age categories.

The basin plans provide comprehensive analysis of the secondary sewer basins; identify structural, operational, and hydraulic deficiencies in the system; and provide corresponding renewal recommendations. The recommended renewal projects are prioritized and included in the City's Wastewater Capital Improvement Program (WCIP).

Since 2004, the City has completed all 100 of the highest priority secondary basin plans. Recommended projects are prioritized and implemented as part of the City's Wastewater Collection System Rehabilitation and Replacement Report and Plan described in further details in Part iv, Operation and Maintenance Program, of this SSMP.

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# Secondary Sewer Renewal Program

Status as of January 24, 2017

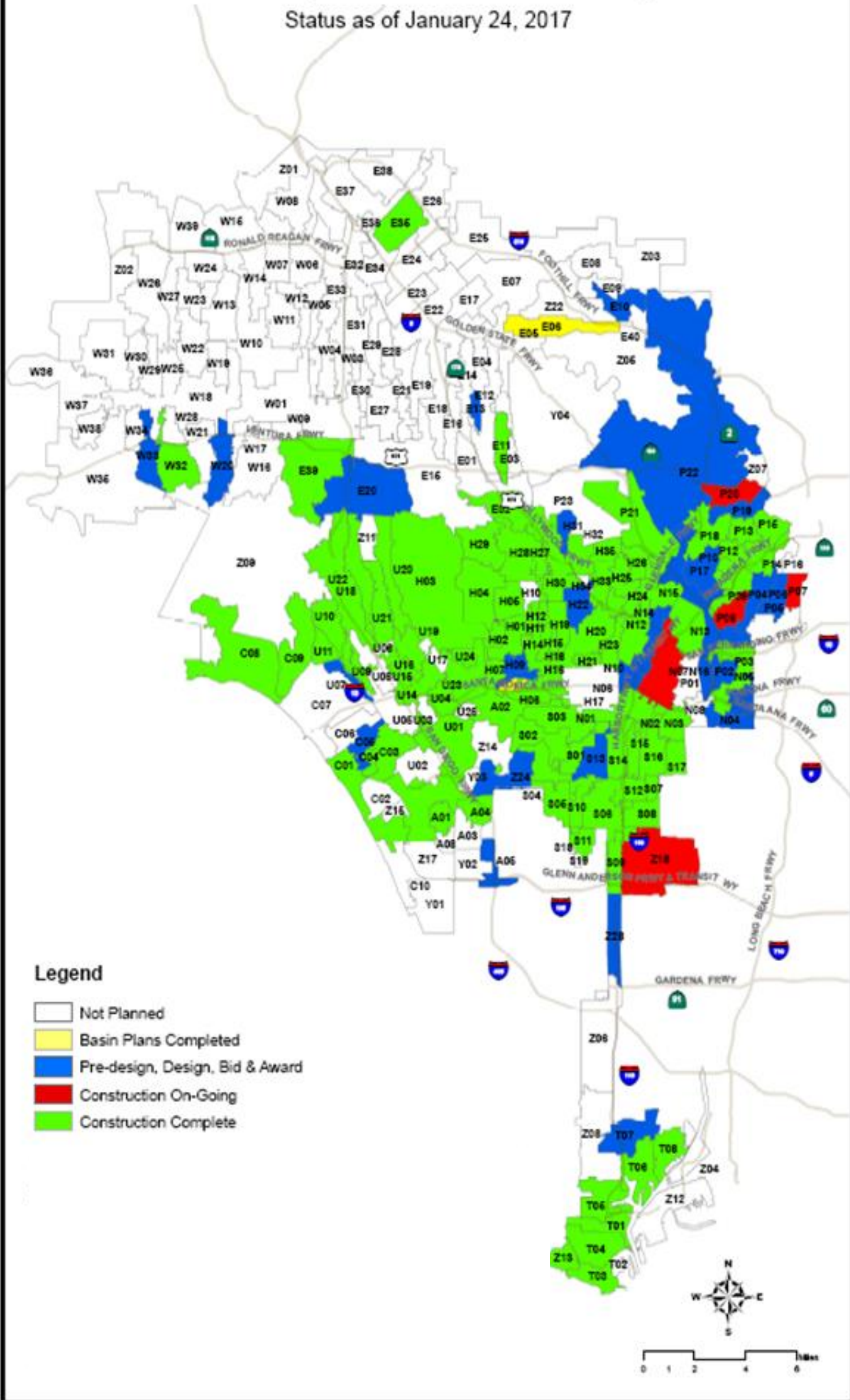


Figure 8-3

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

The City has a long-established Sewer Design Manual that undergoes periodic review and updates to incorporate the latest advances in design and construction techniques. The Sewer Design Manual is maintained by the Bureau of Engineering. The Bureau is in charge of design, construction, start-up and optimization of public works projects.

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

Through hydraulic condition assessment, population forecast, and modeling, the City identifies the current capacity needs and predicts future requirements and develops capital improvement projects to address them. Flow gauging data is recorded in a computer-based network database, analyzed, and displayed in GIS map overlays, tables and other forms for evaluation and decision-making. When the peak flow in a sewer reaches a predetermined level, it triggers a planning study that is initiated in time to ensure that additional capacity is provided to meet future demands before the sewer d/D (ratio of flow depth to pipe diameter) reaches 0.75 in conformance with the City's Sewer Design Manual criteria. The study results are summarized in a concept report.

Concept reports are prepared for locations in need of additional capacity. The reports validate and quantify capacity needs; develop and evaluate alternative solutions considering current and future structural, hydraulic, and operational needs; and recommend preferred solutions consistent with long-term Master Plans. Environmental documents are prepared and public outreach conducted to incorporate community feedback in project planning and meet the requirements of National Environmental Policy Act (NEPA) and/or California Environmental Quality Act (CEQA) as appropriate.

Projects recommended in concept reports are prioritized, funded, and implemented as a part of the City's Wastewater Capital Improvement Program (WCIP). The City's WCIP is available for viewing online at <http://san/fmd/WCIP/WCIPBook16-17.pdf>.

The WCIP project schedules and funding are approved by a Wastewater Program Review Committee (PRC) which holds regularly scheduled meetings. The PRC is made up of members of executive management from the Bureaus of

Sanitation and Engineering. The PRC process includes a mechanism for project change authorization as justified based on a variety of reasons including technical and financial considerations and changing needs or requirements.

The WCIP is funded by revenues generated through collection of fees for wastewater services that are determined based on a fair and equitable system of cost-sharing by all users of the system. These include Sewerage Facilities Charge (SFC), Sewer Service Charge (SSC), Quality Surcharge Fees, and fees paid by the City's satellite agencies under contractual arrangements. WCIP funding is augmented through the issuance of revenue bonds.

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

The City's 10-Year Wastewater Capital Improvement Program (WCIP) is reviewed and updated annually. It is an expenditure plan for the wastewater collection, conveyance, treatment, disposal, reclamation, and reuse projects. Projects get included in the WCIP based on a risk-based prioritization system. The collection and conveyance projects description and expenditure plans are included in a section titled "Collection System (CS)."

The 10-Year WCIP (Fiscal Years 2016/17 through 2025/26) is available online at <http://san/fmd/WCIP/WCIPBook16-17>.

### ***References***

City of Los Angeles, Wastewater Collection System Capacity Report and Plan, June 2006

Integrated Plan for the Wastewater Program

Los Angeles Municipal Code, Section 64.30

Board of Public Works' Rules and Regulations Governing the Disposal of Industrial Wastewater into the Publicly Owned Treatment Works of the City of Los Angeles

City of Los Angeles Annual 10-Year Wastewater Capital Improvement Program, Latest Edition.



## **ix Monitoring, Measurement, and Program Modifications: The Enrollee shall:**

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

The City has multiple ongoing programs that support the collection and management of data and information essential to successful implementation of its Sewer System Management Plan (SSMP). Major SSMP activities are established and prioritized as follows:

- **Information Management Systems**

Extensive and continuing data collection and analysis lead to an effective and efficient use of City resources and optimization of its wastewater collection and conveyance system. The City's information management systems are an essential element of the operation and maintenance program. All attributes of each sewer segment are included in a comprehensive inventory database. Information regarding all maintenance activities, sewer condition, overflows, and odor complaint is entered into electronic information management systems. This information is routinely evaluated to document maintenance needs, identify problem locations, and assist in analysis of overflow events and odor complaints. This data coupled with flow information is overlaid on a GIS base map of the sewer system to quickly identify and visualize problem areas, communicate actual condition and maintenance needs to operation and maintenance staff, prioritize cleaning and root removal activities, and provide corrective measures. Through the use of this information management system, the City is able to monitor hydraulic and structural conditions and focus on the areas of greatest needs. The GIS maps are among primary tools used in prioritizing and scheduling sewer assessments and maintenance activities in preventive maintenance program.

- **Sewer Condition Assessment**

To assess the condition of CCTV inspected sewers, the City uses a five-category rating system based on the types and severity of defects. They range from A (excellent) to E (emergency) condition. The condition ratings trigger follow-up actions that could include increased monitoring and

maintenance to keep a problem sewer fully operational while a capital improvement project is being developed and implemented to provide long-term solution. Rehabilitation or replacement projects are developed and scheduled for implementation on a priority order with other identified needs. Category A and B sewers are in excellent to good condition and are scheduled for continued inspections and monitoring on 10-year cycles. Category C condition sewers are considered to be in fair condition and are scheduled for follow-up inspections once every five years. Category D condition sewers are closely monitored and are included in the Wastewater Capital Improvement Program (WCIP) for replacement or rehabilitation within five years. Increased preventive measures are taken for Category D condition sewers, as appropriate, to avoid emergency situations and follow-up inspections are conducted annually. Category E condition sewers are considered emergency. These are sewers where a pipe failure has already occurred or there is a full flow obstruction. Condition E sewers are immediately repaired and restored to condition A or B sewers.

- **Operation and Maintenance Program**

The City has an extensive proactive and preventive maintenance program for its collection system. Maintenance is performed by staff assigned to one of 13 maintenance sections. Six maintenance yards are strategically located throughout the City to minimize travel time and maximize efficiency. Preventive maintenance is focused on critical and problem areas. Critical sewers are identified, prioritized and scheduled for maintenance based on a comprehensive review of maintenance history and system characteristics of all sewers in the City including overflows, blockages, excessive maintenance, age, pipe material, and condition assessment records.

In an effort to prevent overflows, flow monitoring and CCTV records are reviewed to identify potential weaknesses in the system. Sewer locations that exhibit high flow levels and sewers that are in poor condition are identified through this process. These assessment activities may trigger further reviews to determine cause and/or may trigger immediate or accelerated corrective actions. Maintenance priorities are set based on the relative severity of the problem.

In addition to the focused preventive maintenance efforts, the City has implemented a proactive maintenance program where “non-problem” sewers are also scheduled for maintenance and cleaning on a less frequent basis.

- **Overflow Emergency Response**

Managers and staff meet monthly to review emergency response actions and collaborate on methods and procedures that will improve performance. Aggressive performance standards for timely response to sewer overflows are established and communicated to overflow response teams. Response protocol is reviewed periodically and updated as needed based on a review of established and actual response times.

- **Odor and Corrosion Abatement**

The City has a four-pronged approach to odor control: regular maintenance, system-wide treatment, site-specific corrective action, and capital improvement including new and state-of-the-art odor control facilities. Most odor problems are resolved by regular cleaning. However, some complex odor problems, such as airflow restrictions in a line due to high flow, cannot be resolved by maintenance. In these instances the City will implement site-specific actions, including flow diversions, chemical addition and the use of relief sewers. The City has also implemented an aggressive, system-wide odor control program at a cost approaching \$3 million per year. Under this program, chemicals are injected into the system at key locations to reduce the levels of hydrogen sulfide, the predominant source of odors. This program has been extremely successful in reducing hydrogen sulfide levels by over ninety percent since 1997. The City has also built permanent odor treatment facilities at strategic locations along major interceptors. These new odor facilities will capture hydrogen sulfide through the use of fans and treat sewer gases using highly advanced treatment technologies.

- **System Evaluation and Capacity Assurance Plan**

The City regularly monitors and evaluates hydraulic performance of the entire sewer system. Three (3) different flow gauging programs are used to obtain data to evaluate sewer hydraulic condition.

- Near-time Gauging: Continuously monitors 194 locations in major outfall, interceptors, and primary sewers (pipes 16-inch and greater in diameter).
- Periodic Gauging: Monitors over 500 locations in the primary sewers and some secondary sewers (pipes 15 inch or smaller in diameter).
- Special Gauging: Provides for short-term gauging of one day to one week duration and is conducted at any sewer location upon requests by planners, engineers, and operation & maintenance staff.

Two d/D (ratio of sewer flow depth to sewer diameter) levels are considered in capacity planning for existing sewers, Trigger d/D and Relief d/D.

The Relief level is the highest Peak Dry Weather Flow (PDWF) d/D in a sewer that will accommodate the projected peak wet-weather flow to be handled by a sewer pipe. This means that hydraulic relief of the sewer must be in place and operational by the time the PDWF reaches the Relief level. Per the Sewer Design Manual the Relief d/D is currently 0.75 for all City sewers.

The Trigger level is defined as the PDWF d/D that triggers initiation of sewer relief projects. The Trigger d/D is smaller than the Relief d/D to allow for an increase in flow level during the time it takes to plan and build the relief projects. The difference between the Trigger and Relief levels is referred to as the buffer.

While the Relief d/D is currently 0.75 across the City for all existing sewers, the Trigger d/D varies on a project by project basis because each project's tributary area has its own unique characteristics such as population growth projection, commercial and industrial discharge forecast, and other contributing factors that determine how quickly flows are projected to increase over time.

In addition, the Sewer Design Manual requires d/D of 0.5 for the design of all new sewers. Replacement and relief sewers are designed for a PDWF d/D of 0.5 for the projected design year. Figure 9-1 which is an excerpt from the City's Sewer Design Manual is a graphical presentation of the foregoing.

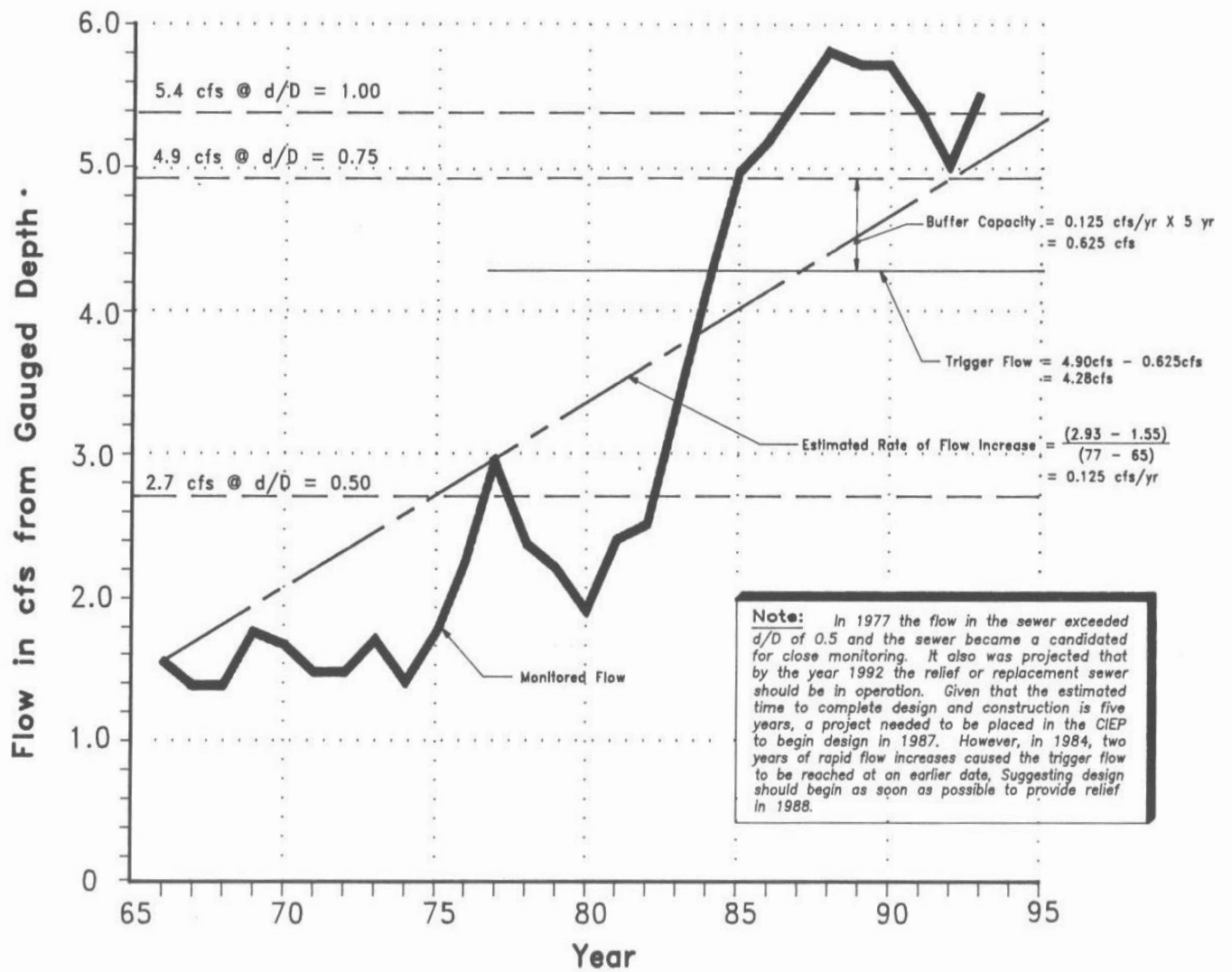


Figure F257  
Trigger Flow and Buffer Capacity in Sewers

\* Note: Monitored Flow is in 15-inch-diameter pipe,  $s = 0.008$ ,  $n = 0.013$ , in Lankershim Blvd. S/W of Hamlin St. at MH# 427-01-128 (NH-7).

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

The SSMP is a well-integrated plan with each element designed to complement and support the others. Each year the SSMP goals are set, the deliverables required to meet goals are defined and prioritized, the lead and support offices and resources are assigned, and progress is measured and reported on to ensure meeting or exceeding goals. Overall SSMP performance is evaluated and reported to management quarterly, and annually following the end of each fiscal year. Any plan updates necessary to enhance the SSMP performance are identified and become a part of the following year's Five-Year Strategic Planning process.

**(c) Assess the success of the preventative maintenance program.**

The City assesses the success of its programs by analyzing the condition assessment results and keeping track of the quantities and trends of various types of sewer blockages and overflows as well as odor problems and complaints. Successful practices are continued and program adjustments are made when appropriate.

Examples of these assessments include: weekly condition assessment review meetings, monthly Sanitary Sewer Overflow (SSO) reviews, monthly performance meetings with chemical root control contractors, and a comprehensive annual review of the preventive maintenance program.

The City's preventive measures also include community outreach and education programs on the workings of the sewer system and steps the public can take to help reduce blockages and overflows.

**(d) Update program elements, as appropriate, based on monitoring or performance evaluations.**

The following are examples of ongoing monitoring and review processes that are a part of system performance evaluation and continual improvement efforts.

- **Annual review of preventive maintenance**

On an annual basis in a comprehensive review the critical sewers are identified, prioritized, and scheduled for maintenance based on parameters such as blockage and overflow records, frequent maintenance requirement, age, pipe material, and condition assessment results.

Flow monitoring and CCTV records are reviewed to identify potential weaknesses in the system. Sewer locations that exhibit high flow levels and sewers that are in poor condition are identified through this process. As



appropriate further reviews may follow to determine cause, develop and prioritize corrective actions.

- **Fats, Oils, and Grease (FOG) Control Program**

The City is implementing a robust program including FOG control at the source, frequent sewer cleaning, and ongoing user education and involvement. The goal is to eliminate all preventable FOG-related sewer overflows. Program modifications are made with active support of the food service establishments as needed and appropriate.

- **Root Control Program**

The City has an aggressive root control program that entails chemically treating problem sewer reaches using environmentally friendly chemicals. The program includes root growth monitoring by CCTV inspection, mechanical root removal, and chemical treatment with herbicide to prevent root re-growth. Currently, the City removes tree roots from more than 1,000 miles of sewer mechanically and chemically treats more than 350 miles per year. Similar to the grease control program, the goal is to eliminate all preventable sewer overflows caused by roots.

Recognizing that private sewer laterals are a major source of tree roots intrusion into the sewer system, beginning in 2006 the City expanded the root control program by the addition of a community outreach and education program. Property owners are provided helpful information on routine maintenance and corrective actions required to protect the laterals from roots penetration and damage and to prevent root-related overflows. Additional information on this community service program may be obtained at:

Web site: <http://www.lasewers.org/sewers/roots/>  
Email: [sewr.root@lacity.org](mailto:sewr.root@lacity.org)  
Phone: (323) 342-1566

- **Stormwater Inflow and Infiltration Prevention (SIIP) Program**

The Los Angeles Municipal Code prohibits connections of storm drains, downspouts, area drains, storm sewer connections and other sources that could contribute infiltration and/or inflow to the system.

In the late 1990's and early 2000's, the City identified sources of unauthorized discharges of stormwater into the sanitary sewer system using smoke testing. These included roof drains, yard area drains, parking lot drains, downspouts, and other sources draining directly to the sewer system. The Bureau of Sanitation and Department of Building & Safety jointly sent notices to property

owners, including evidence of such unauthorized connections and the need for corrective action as required by City ordinances. Follow-up inspections and surveys conducted in the mid 2000's confirmed the success of the SIIP Program. An estimated annual average of more than 8 million gallons per day (mgd) of extraneous water has been excluded from the system due to the SIIP Program.

- **Flow Monitoring Program**

Flow monitoring provides important support to sewer planning and operation & maintenance. Trending reports are used to project future flows and prioritize planning studies, design and construction projects. Sewers where peak dry weather flow levels reach 75 percent of the pipe diameter receive the highest priority. When the unrestricted flow in a pipe reaches a predetermined "trigger flow" depth, a planning study will be initiated to define and validate the problem; evaluate future needs; and develop recommend alternatives for implementing sewer relief or replacement projects. The trigger flow concept ensures that projects planning are initiated sufficiently in advance so that capital improvements are implemented to provide additional capacity by the time needed.

- **Hydraulic Modeling**

The City has been an industry leader in using leading edge technology to model and assess the hydraulic performance of its complex network of pipes, diversion structures, flow splits, and pumping plants. The City has been utilizing hydraulic models as planning and operation & maintenance tools since early 1980's. Currently MIKE URBAN, a GIS-based hydraulic model, predicts sewer flows in the primary sewer system for planning purposes and is used to simulate various flow scenarios to help with operational control.

In addition, the City employs a technology that greatly improves the accuracy of wet weather flow prediction using radar generated instantaneous rainfall data. Historic data from the National Weather Service is used to refine the accuracy of rainfall simulations used for assessing various historic storm impacts on the City's collection system. Using this data the MIKE URBAN model is calibrated for wet-weather projections.

- **Sewer Design Manual**

The City's Bureau of Engineering maintains high design standards through periodic reviews and updates of the sewer design manual. The manual serves as a guide for all phases of sewer work and provides design criteria, specifications, and standard details. The City Engineer issues Special Orders whenever new criteria or standards are developed to meet a particular need or to provide for cutting-edge methods that have not yet been included in the

manual. The requirements set forth in these Special Orders become a part of the Sewer Design Manual as the Manual is updated periodically.

- **Construction**

To avoid construction related sewer overflows to comply with the City's "zero [construction] spill" policy, the Bureau of Contract Administration requires that a spill prevention and response plan be developed and implemented for all sewer construction projects. The City's zero spill policy is documented in the Brown Book which is an adaptation of the "Standard Specifications for Public Works Construction (Green Book)" including the City's amendments and additions that address specific City needs and wants and policy requirements.

- **Project (ad hoc) Teams**

Ad hoc teams are formed to address specific issues as they are identified. For example, Strategic Planning Teams (SPTs) which are joint labor and management teams meet regularly to identify opportunities for tasks enhancement and determine optimal workload, resource and personnel requirements. Core business activities are identified and a task analysis of each activity is used to determine appropriate staffing levels and equipment needs.

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

Data acquisition, analysis, and management is provided in an elaborate and integrated information management system. SSO trends are identified and tracked through a state-of-the art GIS tracking system. When complaints are called in, they are uploaded to a master database and plotted on a City-wide map. All attributes of each sewer pipe gravity and pressure segment are included in a comprehensive inventory database. Information regarding each new overflow and odor complaint is entered into a maintenance management database. This information is evaluated to document locations, causes, and frequency of overflows and odors. This data is superimposed on a GIS base map of the sewer system to quickly identify and visualize problem areas; communicate conditions and needs to City policy makers and management; and prioritize maintenance activities, urgent and emergency repairs, and mid- and long-term solutions.

**References**

City of Los Angeles CCTV Inspection Manual

City of Los Angeles FOG Control Ordinance

City of Los Angeles, Bureau of Sanitation, Industrial Waste Management Division  
FOG Program Enforcement Response Plan

Bureau of Sanitation, Industrial Waste Management Division, Fats, Oils, and  
Grease, Standard Operating Procedures 001

Standard Specifications for Public Works Construction (Green Book), Latest Edition

City of Los Angeles, Department of Public Works, Additions and Amendments to the  
2006 Edition of the Standard Specifications for Public Works Construction (Brown  
Book)

City of Los Angeles, Bureau of Engineering Sewer Design Manual

City of Los Angeles Master Specifications

Flow Meter and Data Acquisition Operation and Maintenance Manuals

Primary and Secondary Basin Plans

City of Los Angeles 10-year WCIP

Navigate LA User's Manual



## x. SSMP Program Audits

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

Each year as a part of a Five-Year Strategic Planning process, the deliverables that are required to meet SSMP goals are defined and prioritized, and the lead and support offices and resources necessary to complete deliverables assigned. Progress is measured and reported on an ongoing basis to ensure timely completion of deliverables. Any gaps between targeted results and actual progress are identified or anticipated and mitigation measures developed and implemented to close or avoid performance gaps. The overall SSMP performance is evaluated and reported to management and the governing board periodically. Any plan updates necessary to enhance the SSMP performance are included as a part of the following year's Five-Year Strategic Planning process.

A team of experienced personnel is formed once every two years that performs biennial self-audits in accordance with the WDRs requirements on this SSMP Part X, Program Audits. The audit team evaluates the effectiveness of each SSMP Part and Sub-part and makes recommendations for improvements and updates. The SSMP is then updated by incorporating the adopted recommendations. Audit reports and related materials are maintained in a hard copy and an electronic document tracking and management system.

In the course of the audits, all parts and sub-parts of the SSMP are reviewed critically for compliance with the WDRs and effectiveness in the efforts to achieve the SSMP goals, comply with City policies, and provide excellent community service. In addition to these self-audits, the City may engage outside entities to independently review and assess its SSMP performance once every five (5) to 10 years as appropriate.

The following are some notable examples of ongoing self-monitoring and program modifications.

- **Maintenance Management Approaches**

The City takes a sewer shed based approach to maintaining its secondary sewer system with the goals of improving the system performance and the efficiency of its maintenance efforts. Priority is given to sewers in sewer sheds that return the most benefit. Data are accumulated on maintenance hot spots and displayed on GIS maps to show locations requiring additional attention. This information forms the basis for prioritizing cleaning, inspection, and rehabilitation. All maintenance holes are physically inspected biennially; all sewers cleaned on a maximum five year rotation; and operationally challenged sewers will be cleaned more often on an as-needed basis. Each sewer shed is assigned to one of the City's six maintenance yards. Standards are developed for each sewer shed and used to measure crew and system performance. This ongoing monitoring and adjustment process will work to optimize staff efficiency and system performance. The maintenance program is regularly reviewed for changes such as user disconnections or new connections including restaurants and industrial users, and priorities are adjusted accordingly. Effectiveness of root control is also monitored closely and changes to cleaning schedules are made as appropriate.

- **Emergency Overflow Response**

Staff and managers meet regularly to review emergency response actions and collaborate on methods and procedures that will improve performance. Performance standards are developed, published and communicated. Actual response times are compared to standards; changes are made and documented and staff retrained as appropriate.

### ***References***

State Water Board's Order No. 2006-0003, Statewide General Waste Discharge Requirements (WDRs) for Sanitary Sewer Systems, 05/02/2006



## **xi. Communication Program**

**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.**

The City reaches out to its communities through a rich variety of means including newsletters; surveys; community events; presentations to neighborhood councils and other community organizations; advisories and press releases; websites; and toll-free helplines. Outreach events are held for the general public, commercial and industrial entities, trade associations, professional organizations, and students, on the Fats, Oils, and Grease (FOG) Control Program, root control program, and other SSMP elements.

Outreach events include community fairs, LA Sanitation Maintenance Yard Open Houses, and school visits. Electronic versions of the outreach materials are also made available on CDs and DVDs and are available on the website.

City staff periodically reviews and provides timely updates and enhancements to the websites. Regulatory compliance reports such as implementation plans and periodic progress reports are also posted on the sites. Questionnaires are sent out at appropriate intervals on selected programs to seek public input, gauge the effectiveness of the programs, and make changes as appropriate.

The following are examples of the community outreach efforts.

### **FOG Control Program**

The FOG Control Program outreach is geared towards food service establishments (FSEs), non-profit groups that have large food preparation services, and residents. The City staff participates in conferences and expositions and conduct annual workshops to communicate Program requirements and obtain feedback from the general public, (FSEs), and regulatory agencies.

## **Private Lateral Sewer Maintenance and Root Control Outreach**

This outreach is focused in the areas of City designated as “root hot spots where a large number of SSOs occur due to blockages caused by roots. Properties in the “root hot spot” areas were sent pamphlets which contained information regarding causes of root growth in private laterals, prevention methods and proper operation and maintenance for private laterals. Customers can use a telephone helpline and an e-mail address to contact City staff for further assistance. A website also provides additional information and useful tips.

## **Capital Improvement Projects (CIPs)**

Capital Improvement Projects (CIPs) are listed on [lasewers.org](http://lasewers.org) and are advertised in the community through updates from City Staff, on billboards throughout the community. Phone numbers are posted on project signs that customers can call either for more information on a project or to report dust or noise coming from the project site, as well as project start and end dates. Outreach is also conducted by meeting with local businesses and community. These activities ensure that the communities are informed about projects in their neighborhoods.

## **Satellite Agencies**

The City provides wastewater conveyance and treatment services to 29 satellite communities under contractual agreements but does not fund, operate or have control over the sanitary sewer systems of these communities. The agencies that meet the applicability criteria of the WDRs are required to maintain and implement their own SSMPs. The City meets with its satellite agencies on common contractual matters regularly.





**odor reporting HOTLINE**

To report sewer odors call  
Toll-free 24-hour hotline:  
**1-866-44SEWER** 1-866-447-3937  
or go to [www.lasewers.org](http://www.lasewers.org)



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