CITY OF ANAHEIM
SEWER SYSTEM MANAGEMENT PLAN

March 2009

Prepared For:

The City of Anaheim
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Certification

I certify under penalty of law that this Sewer System Management Plan, and the subparts contained herein, comply with the requirements set forth in the General Waste Discharge Requirements (WDRs) for Sanitary Sewer Systems, Order No. 2006-0003 within the time frames identified in the schedule provided in WDRs and as amended by a Memorandum of Agreement executed on June 27, 2006 between the Executive Director of the SWRCB and the California Water Environment Association. I further certify that this document and all attachments were prepared under the City's direction and supervision in accordance with its policies and procedures to assure that qualified personnel properly provided, evaluated, and incorporated the information reflected in this document, that the information included in this document is, to the best of my knowledge and belief, true, accurate, and complete, and that this document has been duly presented to and approved by the City Council on the _____ day of _____,_____.

_____ _____

Natalie Meeks Date

Director of Public Works

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Acknowledgements

The City of Anaheim would like to acknowledge the following individuals for their outstanding efforts and contributions, which resulted in the creation of this document. The comprehensive plans included herein reflect the City's on-going commitment to the effective and efficient operation, maintenance and management of its wastewater collection system and achieving the City's goals and objectives.

City of Anaheim

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Acronyms

AC	Acre
BMP	Best Management Practices
CAO	Chief Administrative Officer
CCTV	Closed Circuit Television
CMMS	Computer Asset Management System
CIP	Capital Improvement Program
City	City of Anaheim
CIWQS	California Integrated Water Quality System
CPC	California Plumbing Code
CWA	Clean Water Act
CWEA	California Water Environment Association
DPW	Director of Public Works
EPA	Environmental Protection Agency
FOG	Fats, Oils, and Grease
FSE	Food Service Establishment
GIS	Geographic Information System
GPCD	Gallons per Capita per Day
GPD	Gallons per Day
HFMS	High Frequency Maintenance Sites
I/I	Inflow and Infiltration
LRO	Legally Responsible Official
MRP	Monitoring and Reporting Program
NASSCO	National Association of Sewer Service Companies
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
OCHCA	Orange County Health Care Agency

Acronyms

PACP	Pipeline Assessment and Certification Program
PIO	Public Information Office
SARWQCB	Santa Ana Regional Water Quality Control Board
SPPWC	Standard Plans for Public Works Construction
SSMP	Sewer System Management Plan
SSO	Sanitary Sewer Overflow
SSOERP	Sanitary Sewer Overflow Emergency Response Plan
SWRCB	State Water Resources Control Board
WDR	Waste Discharge Requirements

Executive Summary

On May 2, 2006, the State Water Resources Control Board (SWRCB) adopted Order Number 2006-0003-DWQ, the Waste Discharge Requirements (WDRs), which requires all federal and state agencies, municipalities, counties, districts, and other public entities that own or operate a wastewater collection system greater than one mile in length to develop and implement a system specific Sewer System Management Plan (SSMP). An SSMP must document how an agency manages its wastewater collection system. Each agency must present the Development Plan and Schedule to its governing body at a public meeting prior to certifying the document. The City of Anaheim (City) must certify its SSMP on or before May 2, 2009.

This SSMP, prepared by the City in compliance with the requirements of the WDRs, documents the City's system specific plans and programs to operate, maintain, and manage its wastewater collection system. Goals of the SSMP include:

- Minimizing the frequency and impact of sanitary sewer overflows (SSOs);
- Effectively and efficiently mitigating the impacts of SSOs should they occur;
- Providing adequate sewer capacity to convey peak flows;
- Maintaining and improving the condition of the collection system infrastructure to provide continual reliable service; and
- Engaging and educating the public regarding programs and issues related to the wastewater collection system.

The Table ES-1 includes a summary of the mandatory components required by the WDRs and included in the City's SSMP.

Table ES-1
WDR Requirements and Chapter Location

WDR Element	Element Description	Chapter
(i)	Goals and Objectives	2
(ii)	Organization and Communication	3
(iii)	Legal Authority	4
(iv)	Operations and Maintenance Program	5
(v)	Design and Performance Provisions	8
(vi)	Overflow Emergency Response Plan	7
(vii)	Fats, Oils, and Grease (FOG) Control Program	6
(viii)	System Evaluation and Capacity Assurance Plan	9
(ix)	Monitoring, Measurement and Plan Modifications	11
(x)	SSMP Program Audits	12
(xi)	Communication Program	10

Each element of the SSMP is described in detail in the corresponding chapter shown in the Table ES-1. Plans in support of the City's effort to meet the state requirements and formally document its current efforts are included in the appendices. The plans include detailed information regarding the City's specific policies and procedures to reduce SSOs and manage the wastewater collection system. The plans are included as appendices to facilitate implementing updates to the various programs as they are implemented, refined, and modified. This document satisfies the WDRs requirement to complete an SSMP.

Chapter 1
Introduction

This Sewer System Management Plan (SSMP) has been prepared in compliance with the requirements of the State Water Resources Control Board (SWRCB), Order 2006-0003, Statewide General Waste Discharge Requirements (WDRs) for Sanitary Sewer Systems. The goal of the WDRs is to provide a consistent statewide approach for reducing Sanitary Sewer Overflows (SSO). This chapter includes a brief overview of the City of Anaheim's (City's) service area and sanitary sewer system, a summary of the regulations that serve as the impetus for the development of this SSMP, and the purpose and organization of this SSMP.

1.1 Service Area and Sewer System

The City provides sewer service throughout the City and to a limited area outside the City limits. The areas of service are composed of residential, commercial and industrial land uses. As illustrated in Figure 1-1, in addition to the City of Anaheim, the City's service area includes portions of Fullerton, Garden Grove, Cypress, and unincorporated areas of Orange County.

The City's wastewater collection system consists of approximately 560 miles of gravity sewer, 11,000 manholes and 124 siphons. The wastewater generated in the City is collected by the City's wastewater collection system and conveyed to the Orange County Sanitation District's (OCSD) trunk lines for ultimate treatment and disposal.

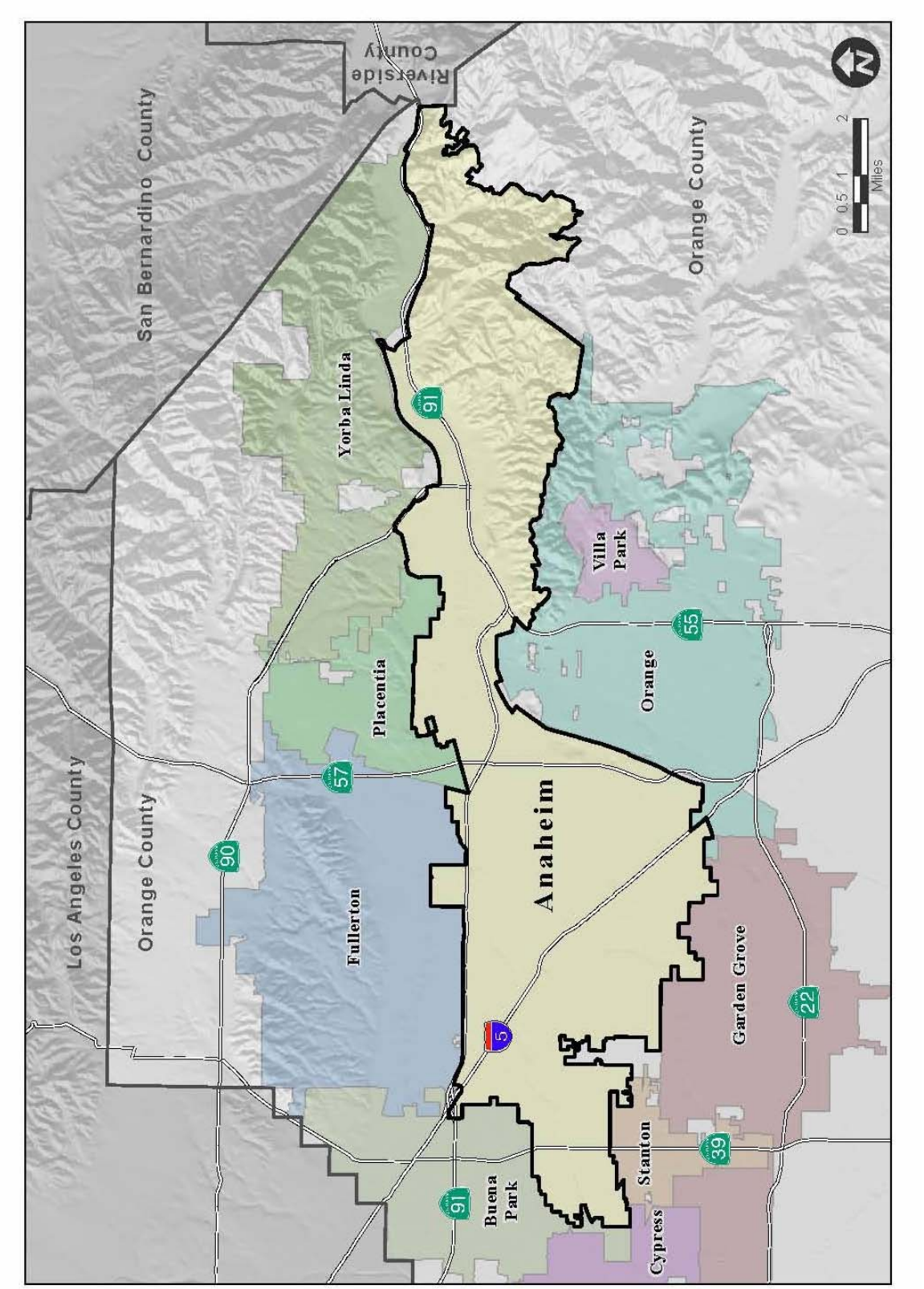
1.2 Waste Discharge Requirements

On May 2, 2006, the SWRCB adopted Order 2006-0003, the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, which requires all federal and state agencies, municipalities, counties, districts, and other public entities that own or operate a sanitary sewer system greater than one mile in length to comply with the elements of the WDRs. The WDRs serve to provide a unified statewide approach for reporting and tracking SSOs, establishing consistent and uniform requirements for SSMP development and implementation, establishing consistency in reporting, and facilitating consistent enforcement for violations.

On June 27, 2006, the Executive Director of the SWRCB executed a memorandum of agreement with the California Water Environment Association (CWEA), outlining a strategy and time schedule for CWEA to provide training on the (1) adoption of the program, (2) SSO database electronic reporting, and (3) SSMP development. This agreement also extended the completion dates for most tasks by six (6) months from the dates shown in the adopted WDRs.

The WDRs include directives for owners and operators of sanitary sewer systems to demonstrate adequate and efficient management, operation, and maintenance of the sanitary sewer system. Generally, the WDRs require that:

Figure 1-1
City of Anaheim – City Boundary



a. In the event of an SSO, all feasible steps be taken to control the released volume and prevent untreated wastewater from entering storm drains, creeks, etc.

b. If an SSO occurs, it must be reported to the SWRCB using California Integrated Water Quality System (CIWQS), the online reporting system developed by the SWRCB. The City completed its enrollment into the program and the demographic questionnaire, and electronic reporting commenced in January 2007.

c. An SSMP with all mandatory elements be developed and approved by the governing body that owns or is responsible for the operation of the sanitary sewer system. The SSMP must include provisions to provide proper and efficient management, operation, and maintenance of the sanitary sewer system.

This SSMP includes the various plans and programs that comprise a comprehensive SSMP. The completion dates for each mandatory element is determined according to the size of population served by the federal and state agencies, municipalities, counties, districts, and other public entities that own or operate a sanitary sewer system. Based on an estimated population of approximately 340,000 customers, the City must comply with the schedule provided for agencies that serve a population greater than 100,000.

1.3 Purpose

The City recognizes the importance of preventing sewage spills for the mutual protection of our surface waters and the overall environment to safeguard public health and safety. Therefore, in a proactive approach to achieve WDR compliance, the City has prepared this comprehensive SSMP. This SSMP is designed to ensure continuous improvement of system performance, response, monitoring, data recording, and documentation for future system assessments. The City considers the completeness and practicality of the SSMP a critical component for its long range plans to comply with all applicable regional, State, and Federal requirements under the CWA, the Santa Ana Regional Water Quality Control Board (SARWQCB) and the WDRs.

This SSMP provides a summary of the action plan implemented by the City to comply with the sanitary sewer system requirements imposed by the WDRs and other governing agencies. As well, it includes the specific details of the activities and procedures that personnel follow to implement the various programs encompassed in its overall efforts to efficiently manage, operate, and maintain its sanitary sewer system and facilitate the reduction and potential elimination of SSOs.

1.4 SSMP Elements and Organization

This SSMP includes detailed information demonstrating the City's efforts to comply with each of the mandatory and applicable elements required for its SSMP. The organization of this document is consistent with the SWRCB guidelines and includes the following eleven (11) mandatory WDR elements:

(i) Goals

(ii) Organization

(iii) Legal Authority

(iv) Operations & Maintenance Program

(v) Design and Performance Provisions

(vi) Overflow Emergency Response Plan

(vii) Fats, Oils, and Grease Control Program

(viii) System Evaluation and Capacity Assurance Plan

(ix) Monitoring, Measurement and Plan Modifications

(x) SSMP Program Audits

(xi) Communication Program

Supporting information for an element is included in an appendix associated with the chapter, as applicable. Generally, information expected to require relatively frequent updates that can be modified without formal action is included in appendices.

Chapter 2
Goals and Objectives

The following sections include a summary of the City's goals that reflect its commitment to continue its effort towards ensuring the effective and efficient management, operation and maintenance of the sanitary sewer system.

2.1 Regulatory Requirements for Goals Element

Establishing goals to properly manage, operate, and maintain all parts of its sanitary sewer system allows the City to achieve its ultimate goal of reducing and preventing SSOs and to properly mitigate any SSO that may occur. To achieve the goals established by the City, it becomes imperative for City staff to consistently maintain quality working procedures and continue efforts towards identifying and implementing improvements in managing the sanitary sewer system.

The WDRs require that the City, at a minimum, develop goals that incorporate and achieve the following:

- Proper management, operation, and maintenance of all parts of the sanitary sewer system;
- Provide adequate capacity to convey peak flows;
- Minimize the frequency and volume of SSOs;
- Mitigate the impacts of SSOs if they occur;
- Inform and educate the public on programs, projects, and issues related to the sanitary sewer system; and
- Proper implementation of regulatory notification and reporting requirements.

2.2 Goals for City System Maintenance and Management

The City has establish several internal core objectives to allow City staff to focus on complying with the WDRs, and develop strategies and procedures to achieve successful overall management and maintenance of the sanitary sewer system. Goals promote unified efforts towards implementing improvements as they affect the operations, maintenance, and management of the sanitary sewer system. They may also reflect performance, safety, levels of service, resource use, and other criteria.

The City's ultimate goals include operating and maintaining all portions of the City's sanitary sewer system to minimize the potential for SSOs and to quickly and effectively mitigate the impacts associated with an SSO if it were to occur so as to protect life, environment, and property while adhering to regulatory requirements. To achieve these goals, the City's SSMP includes methods for ensuring that adequate capacity to convey the peak wastewater flows is

provided and that comprehensive procedures are established to meet all applicable regulatory notification and reporting requirements.

The City's Department of Public Works is responsible for ensuring the proper operation and maintenance of the wastewater collection system. Its mission statement is:

> *The Department of Public Works is dedicated to delivering engineering and operational services that provide the Anaheim community with pride in their City and its work force.*

Building on this mission statement and input from City staff, the goals of the City are summarized in the following paragraph:

> The City's goal is to provide safe, effective, and efficient operation of the City's wastewater collection and conveyance system through:
>
> - Proper management, operation, and maintenance of all parts of the system
> - Reduced occurrences of and potential for SSOs
> - An effective FOG Control Program
> - Assurance of adequate capacity to convey peak wastewater flows
> - A current long-range planning and improvement plan
> - Compliance with all regulatory requirements
> - Protection of the public's health and safety
> - Effective public information and education efforts

Chapter 3
City Organization and Communication

An organizational chart for the City's Department of Public Works serves to identify the administrative, maintenance, and management positions responsible for implementing, managing, and updating the overall measures included in this SSMP. This chapter identifies the City's staff that is responsible for implementing the plans and progress included in the SSMP, responding to SSO events, and meeting the SSO reporting requirements.

The communication plan that accompanies the organizational chart serves to define the role of each position to ensure that all elements of this SSMP are addressed on a regular basis and that all appropriate staff is properly informed. A specific response and notification plan to document the sanitary sewer overflow emergency response and reporting procedures was developed and is included in the City of Anaheim Sanitary Sewer Overflow Emergency Response Plan (SSOERP) included in Appendix D. The response procedure identifies the staff positions responsible for managing the SSO response, investigating the SSO cause, and reporting the SSO to the appropriate parties. The SSOERP also includes a consolidated list of contact information of key personnel with regard to SSOs. The sequence of communication for reporting SSOs, and the appropriate agencies to be notified, is also included.

3.1 Regulatory Requirements for the Organization and Communication Element

It is required that the City's SSMP clearly identify the staff responsible for implementing measures outlined in this SSMP. The WDRs require that the City identify the following:

a) The name of the responsible or authorized representative;

b) The names and telephone numbers for management, administrative, and maintenance positions responsible for implementing specific measures of 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 persons 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, and/or State Office of Emergency Services).

3.2 Discussion on Organizational Structure

The City's organizational structure for the Public Works Operations staff, who is responsible for implementing and overseeing the SSMP program, is described in the following sections. Additionally, the general responsibilities of the personnel and chain of communication is included.

City Organization and Communication

3.2.1 Governance

The City's elected governing body is composed of five (5) elected officials including the mayor and four (4) City council members. Each member is elected to a four-year term, with terms overlapping. The City Council develops the policies of the City and is responsible for appointing a City Manager/Chief Administrative Officer (CAO) to oversee the daily operations of the City. The City Manager/CAO is directly responsible to the City Council for the administration and daily operations of all City functions. The City Council must certify the completed SSMP and ultimately share the responsibility that the sanitary sewer system is managed efficiently.

Under policy direction of the City Manager/CAO, the Deputy City Manager oversees and leads the daily overall City operations, long-term operating strategy, master planning and Capital Improvement Program (CIP) and budget. In response to the administrative direction from the City Manager/CAO, the Deputy City Manager oversees the following departments:

- Planning
- Community Development
- Public Works

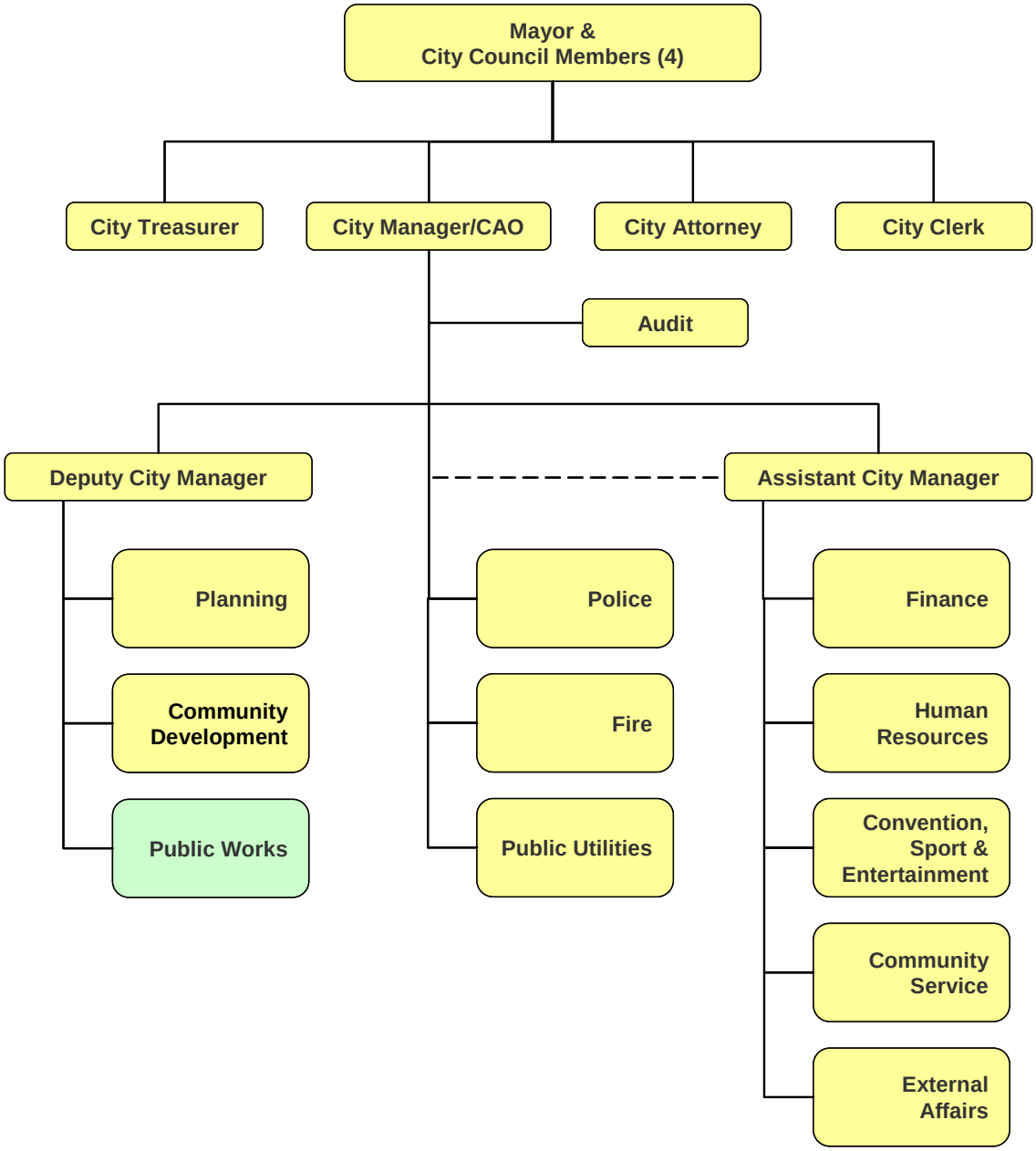
Figure 3-1 illustrates the overall organizational chart for the City and the Department of Public Works as the principal division that will be responsible for the implementation of the SSMP elements.

3.2.2 Wastewater Maintenance Organization

The Director of Public Works, who reports directly to the Deputy City Manager, oversees six (6) Divisions which include the Administration, Engineering, Construction Services, Financial and Administrative Services, Public Works Operations, and Fleet and Facility Services. Within the Public Works Operations Division there are two (2) primary sections that include Streets and Sanitation Administration and Resort District Maintenance Administration. Within Streets and Sanitation Administration, there are seventeen (17) staff positions that support the operation and maintenance of the sanitary sewer system and include the following:

- Public Works Operations Manager (1)
- Streets and Sanitation Manager (1)
- Public Works Operations Superintendent (1)
- Public Works Operations Crew Supervisor (1)
- Sewer Machine Operator (4)
- Street Maintenance Worker (7)
- Contract Specialist (1)
- Part Time Office Specialist II (1)

Figure 3-1
Overall Organizational Chart of City



City Organization and Communication

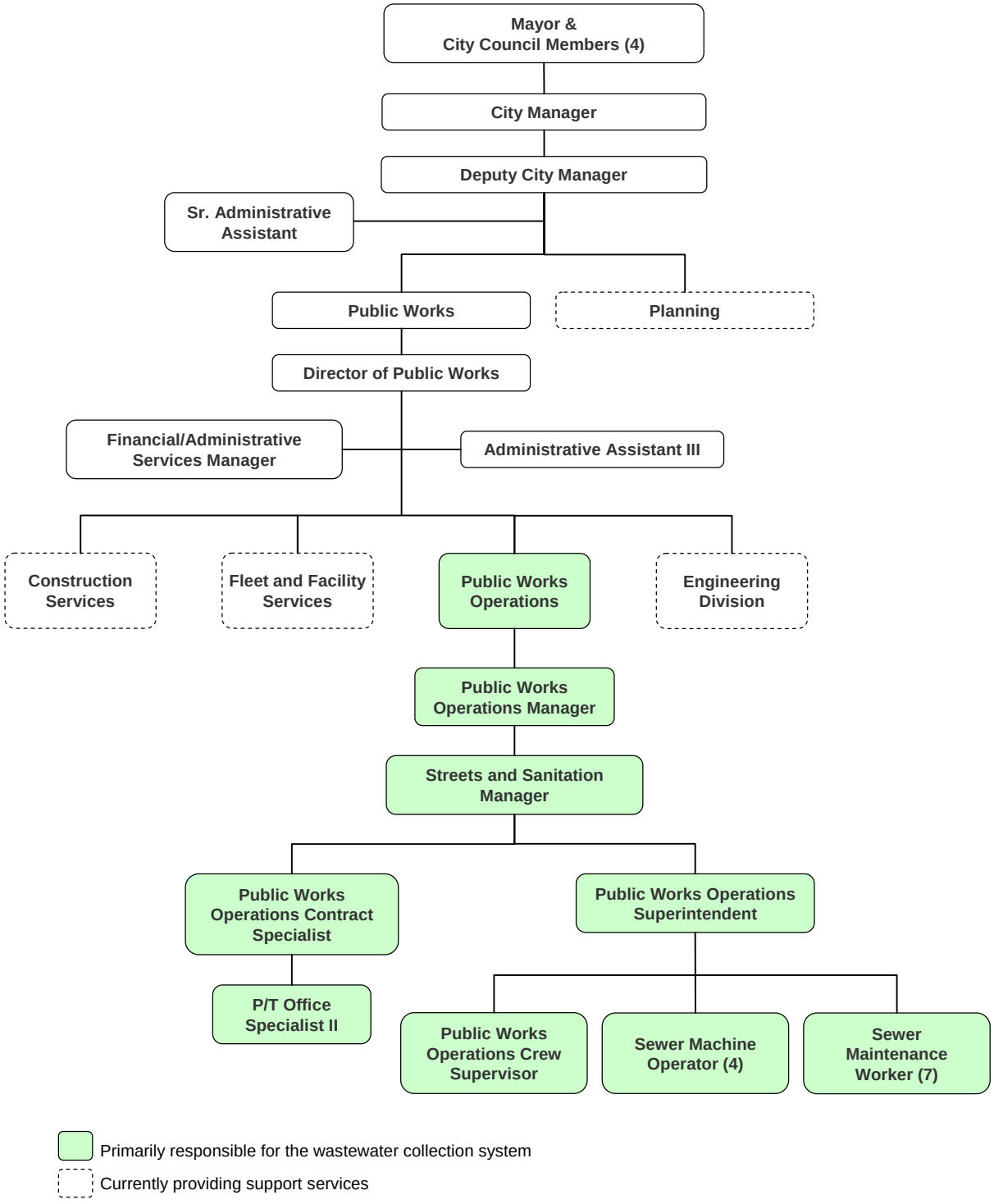
All seventeen (17) positions are currently staffed. In addition to the staff within the Public Works Operations Division, staff from the other divisions provide some staff time in support of the Public Works Operations Division. The Planning Department, Engineering Division, Construction Services, and Fleet and Facility Services will provide coordination and technical support staff that also provide assistance in the implementation of various elements of the SSMP.

The organizational chart presented in Figure 3-2 shows the departments, divisions, sections, and positions identified within the City's current organization that are responsible for concurrently implementing and managing various components of plans and procedures required to satisfy the elements of the SSMP.

Highlighted on the organizational chart are the current fiscal year's budgeted positions in the Public Works Operations Division, the section that is primarily responsible for operating and maintaining the sanitary sewer system. The boxes shown in dashed lines identify departments and divisions that provide some day-to-day support of the sanitary sewer system, but these divisions also have other, unrelated duties. Examples of functions provided by these divisions include engineering and system mapping assistance, permit oversight and possible heavy construction support.

The organizational chart will be revised to reflect the updated key staff positions, responsibilities between the divisions that support the Public Works Operations activities, changes in the restructuring of chains-of-command made to better align responsibilities and the ability of staff to comply with the WDRs, and to include changes and additions to positions for activities needed to successfully implement the SSMP. Although compilation and maintenance of up-to-date contact lists is required for compliance with the WDRs, it has been included separately in the SSOERP to facilitate routine updates.

Figure 3-2
Organizational Chart of Positions Supporting the Sanitary Sewer System



3.2.3 Description of General Responsibilities

The following information provides a brief summary of the roles and responsibilities for City staff supporting the sanitary sewer system as illustrated in Figure 3-2.

City Manager/CAO

The City Manager plans, directs and reviews the overall activities and operations of the City, coordinates activities with other outside agencies and organizations, and provides highly responsible and complex administrative support to the City Council. The City Manager/CAO also develops and implements goals, policies and procedures, oversees the annual budget in accordance with the City Charter and City Council directives, evaluates the effectiveness of the City's organizational structure, manages the City's work plan and economic development activities, negotiates contracts and participates on boards and commissions.

Senior Administrative Assistant

The Senior Administrative Assistant provides highly responsible and confidential secretarial and administrative assistance to the City Manager/CAO and the City Council, and performs a variety of tasks relative to assigned area of responsibility.

Deputy City Manager

Under policy direction of the City Manager, the Deputy City Manager is responsible for providing guidance and direction to ensure the efficient management and effective operation of City services. The Deputy City Manager exercises leadership with department heads, prepares and presents programs for approval to the City Manager and City Council and coordinates the implementation of approved programs and projects for accomplishing the City's short and long term goals and objectives.

The Deputy City Manager may represent the City Manager before other local government entities, state government departments, elected officials and other non-profit agencies. The Deputy City Manager is responsible for responding to citizens' complaints and concerns on behalf of the City Manager, assisting in the preparation and review of the City budget, and preparing and reviewing bid specifications.

Director of Public Works

The Director of Public Works (DPW) plans, directs, manages and oversees the activities and operations of the Public Works Department including the Administrative Division, the Engineering Division, Construction Services, Financial and Administrative Services, Public Works Operations, and Fleet and Facility Services. The DPW coordinates assigned activities with other City departments and outside agencies and provides administrative support to the Deputy City Manager.

Financial/Administrative Services Manager

Under the direct supervision of the DPW or assigned Department Head, the Financial/Administrative Services Manager assists and provides responsible and professional assistance to the Deputy City Manager, department heads and other professional staff by

providing administrative and technical support in the planning, direction and operation of the City. Additionally, the Financial/Administrative Services Manager plans, develops, and manages special projects including problem identification, research studies, analyzing options, statistical analysis, presentation of recommendations, including preparation of documents.

Administrative Assistant

Under general direction and supervision, the Administrative Assistant performs a wide variety of responsible and complex administrative, technical, and secretarial duties in support of assigned department heads and departments, as well as general administrative details, prepares a variety of fiscal, administrative, and operational reports, and provides a variety of information to other agencies, City staff and the general public. The work requires a general knowledge of City functions and specialized knowledge of the technical aspects of the assigned administrative functions.

Public Works Operations Manager

The Public Works Operations Manager directs, manages, supervises and coordinates the programs and activities of multiple programs of the Public Works Operations Division. The Public Works Operations Manager coordinates with other City departments, divisions and outside agencies and provides administrative support to the Director of Public Works.

The Public Works Operations Manager also develops goals, policies and procedures, manages revenue, evaluates the effectiveness of service delivery methods and procedures, selects personnel, coordinates training, coordinates the work plan, manages the Public Works Operations annual budget, conducts studies related to modifying Public Works Operations programs and directs emergency operations support activities.

Streets and Sanitation Manager

The Streets and Sanitation Manager directs, manages and supervises activities pertaining to maintenance operations; coordinates assigned activities with other City departments, divisions, outside agencies and external clients; and provides administrative support to the Public Works Operations Manager.

The Streets and Sanitation Manager is involved in task forces and committees to further the City's interests, serves as a liaison with other City departments, divisions and outside agencies, selects and trains operations maintenance personnel and coordinates work plans.

Public Works Operations Superintendent

The Public Works Operations Superintendent manages, plans, and coordinates the activities and operations of Facility Services, Fleet Services, Resort Services and/or Streets and Sanitation. The Public Works Operations Superintendent coordinates organization, staffing and operational activities, work plans, implements improved service delivery methods, manages the program budget, develops and implements goals, policies and procedures, reviews capital improvement plans and supervises the preparation of time, material and equipment use records.

The Operations Superintendent coordinates work with outside service contractors and vendors for routine and emergency maintenance and repairs, administers training programs,

maintenance contracts and capital projects, develops a five (5) year plan for maintenance projects and monitors National Pollutant Discharge Elimination System (NPDES), Local Implementation Plan (LIP) and Best Management Practices (BMPs) for section compliance.

Public Works Contract Specialist

The Public Works Contract Specialist performs responsible staff work in the management of contracts including Franchise Agreement administration and sanitation fees billing management and participates in the annual audit of the Sanitation Franchise.

The Contract Specialist also coordinates enforcement against illegal solid waste contractors, gathers information for implementation of new rates and coordinates with the County Integrated Waste Management Department, Orange County Sanitation District, and prepares the annual AB939 report.

Public Works Operations Crew Supervisor

The Public Works Operations Crew Supervisor coordinates, directs and supervises the activities and operations of assigned crews and/or contractors performing a variety of construction and/or maintenance work. The Crew Supervisor also provides training to ensure Work Area Traffic Control Handbook (WATCH) practices are enforced, manages projects and responds to citizen complaints and requests for service.

Sewer Machine Operator

The Sewer Machine Operator operates a sewer vacuum truck or sewer television truck to service City sewer lines. The Sewer Machine Operator is required to determine locations of manholes, sewer lines and connections, operate a pressure hose to wash sewer lines, storm drain lines, catch basins and pump stations, locate cracks in sewer lines and determine repair needs, and respond to sewer emergency calls.

Street Maintenance Worker

The Street Maintenance Worker constructs, maintains and repairs streets, alleys, sewers, storm drains and ditches. The Street Maintenance Worker is required to operate equipment including dump trucks, a crack sealing machine, rollers, water trucks and skip loaders in the construction, maintenance and repair of streets, alleys, sewers, storm drains and ditches, raising water valve covers, and locating valves.

Part Time Office Specialist II

The Office Specialist performs varied clerical duties involving regular use of a computer terminal and/or typewriter keyboard. The Office Specialist acts as a receptionist to the public, maintains radio communication with field personnel, composes various documents and maintains various records.

3.2.4 Authorized Representative

The Public Works Operations Manager is the City's Legally Responsible Official (LRO) and authorized representative registered with the State of California to officially sign and certify SSO reports submitted via CIWQS. As well, the LRO is responsible for certifying the SSMP milestones. Alternate LROs include the Public Works Operations Superintendent, the Streets and Sanitation Manager, Principal Engineer, and Contracts Specialist.

3.3 City Communication Structure for Collection System Issues

Communication of activities is important in order to keep managerial staff informed of successes and potential problems. Additionally, implementation of the various elements of the SSMP will require constant coordination between the various sections identified in the organizational chart. Therefore, clearly identifying the specific positions and staff as well as establishing communication protocols is necessary to ensure the appropriate personnel are properly informed to respond to sanitary sewer system related issues in the most effective and efficient manner.

3.3.1 SSMP Communication Structure

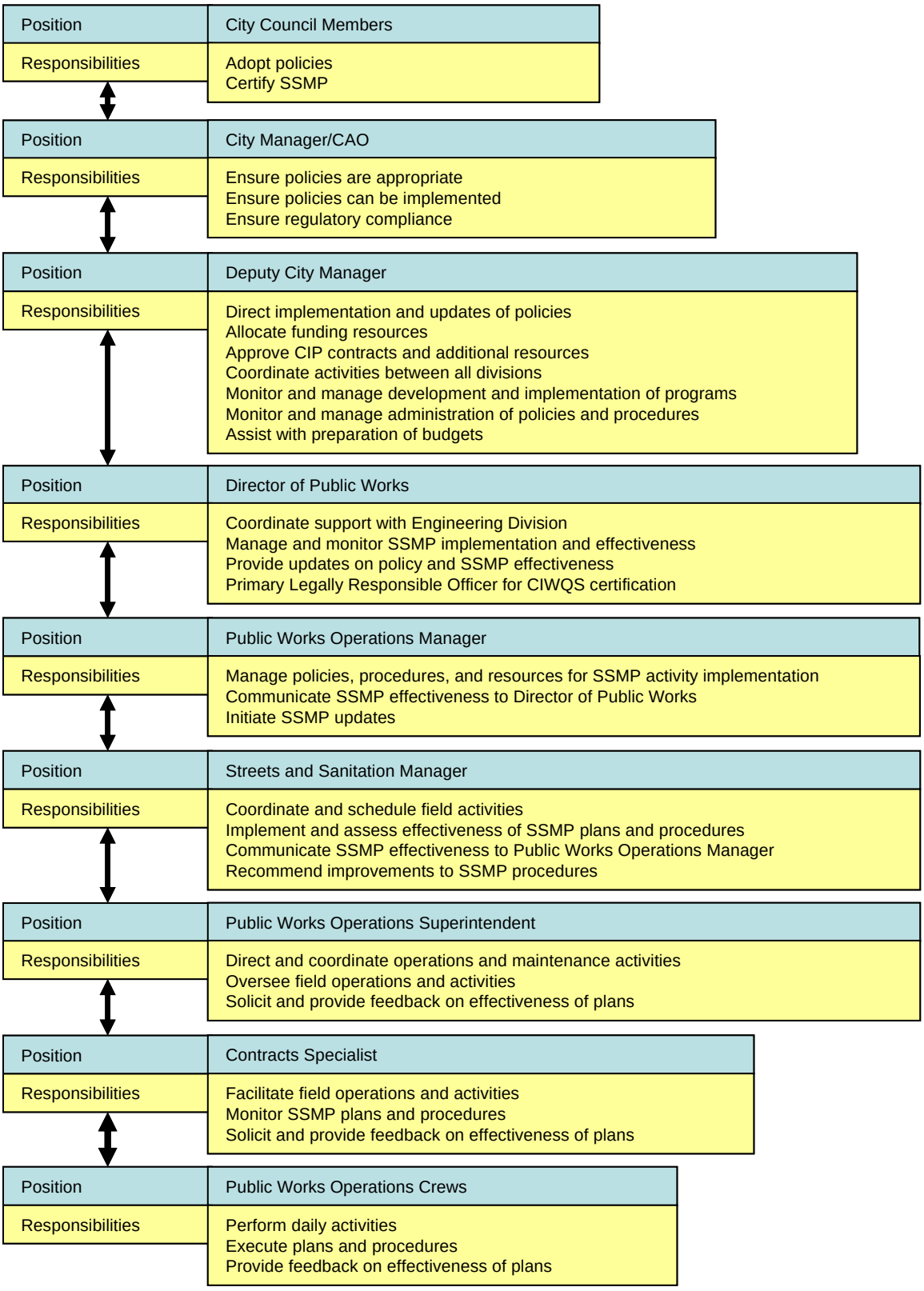
Continual communication among the Public Works Operations and Engineering Divisions as well as along the levels of hierarchy facilitates and supports activities that allow the Public Works Operations Division to inform the appropriate staff about the operation and management of the collection system.

Generally the communication plan will follow the chain of command identified in the organizational chart. Specific levels of authority will be required to facilitate implementation and enforcement of the plans and procedures developed for the SSMP. As the various plans and procedures are implemented, an assessment as to the effectiveness of the plans will best be determined by the labor force that executes and evaluates the immediate impacts of the plans and procedures. Efficient and timely responses will be essential to ensure that the adopted plans and procedures are effective for the management and operation of the wastewater system. Figure 3-3 shows the communication protocol that the City should follow for the SSMP. Figure 3-3 also provides a summary of general responsibilities among the staff as it affects the management, operation, and maintenance of the City's sanitary sewer system. The responsibilities listed are to illustrate the overall importance of continual communication among the organization regarding wastewater related issues.

3.3.2 SSO Response and Communication Structure

A communication structure related specifically to SSO responding and reporting is discussed in Chapter 7 of this SSMP and more thoroughly documented in Appendix D, which contains a copy of the City's SSOERP.

Figure 3-3
Communication Plan and SSMP Responsibilities



An SSO is reported to either the City's Customer Service Department or the City's after-hours answering service. The call is routed directly to the Public Works Operations Superintendent during normal business hours while during non-business hours, weekends, and designated City holidays, calls will be routed directly to the City's Utilities Department and then to the Fire Department or Police Department dispatch centers as needed. The City's Utilities Department, Fire Department and/or Police Department dispatchers will notify the On-Call Duty Manager via an assigned pager.

The staff member receiving the notification is considered the First Responder and has primary responsibility for coordinating and managing all emergency activities to properly respond to the occurrence. The First Responder must immediately go to the reported SSO location to assess the cause and extent of the SSO, recruit necessary assistance from appropriate personnel and/or outside services, determine and direct immediate remedial action, initiate notification of mandatory and advisory agencies, coordinate sample collection and laboratory sample processing, if required, and complete the Sanitary Sewer Overflow Field Report. The size and conditions of the SSO will determine which regulatory agencies will be notified. Notifications to the following agencies will be performed as required:

- Orange County Sheriff's Department (as necessary)
- Governor's Office of Emergency Services
- Santa Ana Regional Water Quality Control Board
- Orange County Health Care Agency (as necessary)
- Resources and Development Management Department (as necessary)
- City of Anaheim Risk Management Division (when a public SSO enters a home or business)

A response and notification procedure is documented in the SSOERP, included in Appendix D. Figure 2-1 of the SSOERP illustrates the response procedures for the potential scenarios (public or private SSOs) and clearly delineates responsibilities for First Responders and ultimate sewer maintenance crew and/or contractor assignments. Table 2-2 of the SSOERP describes the SSO notification requirements, procedures, timeline, and the regulatory agencies that are to be notified.

3.4 Summary and Continuing Efforts

When the City updates its plans and procedures, and/or revises the SSMP, the SSMP should be updated as necessary to include the specific responsibilities associated with each position. To maintain compliance with the WDRs, the City organizational chart must include the administrative, maintenance, and management positions responsible for implementing, managing, and updating the overall measures contained in this SSMP. Key contact lists are included in the appendices and attachments to facilitate updates.

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Chapter 4
Legal Authority

To prevent SSOs and meet state and federal requirements, each governing agency must ensure that its existing codes, ordinances, policies and procedures include the necessary requirements to implement and fulfill the specific needs of the agency, and to protect the health and safety of people, property, and environment. This chapter of the SSMP includes a discussion of the City's current legal authority for the collection and conveyance of wastewater.

4.1 Regulatory Requirements for Legal Authority Provisions

The WDRs require that the City show, through ordinances, service agreements, or other legally binding procedures, that the City possesses the legal authority to:

a) Prevent illicit discharges into its sanitary sewer system including, but not limited to, inflow and infiltration, storm water, chemical dumping, unauthorized debris, and cut roots, etc.;

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

c) Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the City;

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

e) Enforce any violation of its sewer ordinances.

4.2 Background for Legal Authority

The California Water Code of the California Code of Regulations, the Federal Clean Water Act of the United States Code, and the California Waste Discharge Requirements grant the City the authority to establish codes, agreements, policies, and procedures for the construction, operation, and maintenance of a wastewater collection system, and the ability to enforce the necessary requirements. Below is a discussion of the relevant sections granting this authority.

California Water Code Section 13271, California Code of Regulations: Section 13271 of the California Water Code, Title 23 of the California Code of Regulations, prohibits the discharge of sewage and hazardous material into the waters of the State and requires the proper notification of authorized agencies in the event of an SSO. Entities which do not properly follow the requirements of this section may be found guilty of a misdemeanor and punished by fine, imprisonment, or both.

Clean Water Act, Section 1251 of Chapter 33 of the United States Code: In 1972, the federal Congress enacted the Federal Water Pollution Control Act, commonly known as the Clean Water Act (CWA). The CWA prohibits the discharge of pollutants, including sewage, into public waters of the United States. The federal government has the authority to enforce compliance with the CWA via specific permits, such as National Pollutant Discharge Elimination

System (NPDES) permits, as well as court action such as administrative orders and consent decrees.

Code of Federal Regulations, Title 40, Protection of the Environment: The Environmental Protection Agency (EPA), in its general pretreatment regulations (40 CFR Part 403) prohibits any user from discharging solid or viscous pollutants, such as fats, oils, and grease (FOG) wastes, in amounts which will cause obstructions (blockages) to the flow in the wastewater system and interfere with the operation of the wastewater system.

California Waste Discharge Requirements: On May 2, 2006, the SWRCB adopted the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, Order No. 2006-0003. The WDRs are applicable to all federal and state agencies, municipalities, counties, districts, and other public entities that own or operate sanitary sewer systems greater than one mile in length that collect and/or convey untreated or partially treated wastewater to publicly owned treatment facilities in the state of California. Specifically, the WDRs require all affected agencies, municipalities, counties, districts, and other public entities to take a proactive approach to ensure a system-wide operation, maintenance, and management plan is established to effectively reduce the potential, quantity, and frequency of SSOs that may occur and impact surface or ground waters, threaten public health, adversely affect aquatic life, and impair the recreational use and aesthetic enjoyment of surface waters.

4.3 Summary and Evaluation of the City's Existing Legal Authority

The City's legal authority and powers pertaining to the City's wastewater collection system originate from the powers granted by the State and Federal governments. Requiring compliance with its existing codes, regulations, ordinances, and permitting procedures allows the City to require and enforce various measures for ensuring the proper and efficient operation, management, and maintenance of the City's wastewater collection system. These mechanisms include, but are not limited to, limiting the types of substances allowed to be discharged into the City's wastewater collection system, establishing requirements for the proper design, construction and connections to the City's collection system, ensuring access to City sewer pipelines for inspecting, monitoring and enforcing activities, limiting the discharge of fats, oils, grease, and other types of debris that cause blockages, and enforcing violations of its sewer related ordinances, codes, and laws.

The City also requires compliance with the City of Anaheim's Sewer Design Manual and Standard Plans and Details and in compliance with the "Standard Plans for Public Works Construction" (Greenbook), prepared by the American Public Works Association for the design, construction, and installation of wastewater facilities. Collectively, the documents serve to facilitate the control of inflow and infiltration (I/I); require proper design, construction, installation, testing, and inspection of new and rehabilitated sewers and laterals; control the discharge of FOG; enforce violation of ordinances; and promote and protect the health, safety, and general welfare of all of the citizens of the City of Anaheim.

The following sections include a summary of the City's existing codes and ordinances as they apply to its sanitary sewer system.

4.3.1 Prevention of Illicit Discharges

The City is required to prevent discharges of illicit and undesirable substances from entering the wastewater collection system. Illicit discharges include, but are not limited to, the release of I/I, storm water, chemical dumping, unauthorized debris and constituents, and cut roots. Discussed below is the City's authority to control the discharge of the prohibited substances.

Section 10.08.040, Substances Banned From the Public Sewers, includes a general description of the various types of substances restricted by the City from being directly or indirectly discharged into the collection system. The restrictions are applicable to all users of the City's system except as permitted by other ordinances of the City.

This section of the municipal code also further restricts the substances allowable into the system by including a description of the effects on the system the City intends to avoid. Generally, the prohibited items include substances with characteristics that may cause:

- Obstructions to the flow in the sewer system;
- Interference with the operation of the Publicly Owned Treatment Works;
- Damage or create a hazard to City's wastewater collection system structures;
- Damage or create a hazard to the City's wastewater collection system equipment;
- A public nuisance or create a hazard to life; and/or
- Interference with the maintenance of the sewage collection system.

Regulating the type of substances allowable in the City's wastewater collection system serves to protect and maintain its integrity.

4.3.2 Proper Connections and Construction

The requirements for the design and construction of new, rehabilitated, and replaced sewer system facilities, including mains, tie-ins, service laterals, cleanouts, manholes, and other system appurtenances, are necessary to ensure the proper operation of the sewer system.

Section 10.08.050, Building Sewer Connections, of the City's municipal code references the Uniform Plumbing Code and the City's Standard Details for the general requirements pertaining to the design, construction, inspection and plumbing permits and costs of sewer connections. Collectively, the City's Sewer Design Manual and Standard Details provide design and construction information for sewer facilities.

4.3.3 Accessibility for Maintenance, Inspection, and Repair

Section 10.08.030, Powers and Authority of the Engineer and Inspector, provides the City the authority to perform inspections of all properties, structure or premises that are served by any public or private sewer, for the purpose of examining and inspecting the construction or condition of the sewer. Additionally, this code allows the City Engineer and/or Inspector to inspect as often as deemed necessary every sewage pumping plant, private sewage disposal

system, house connection sewer, dilution basin, neutralization basin, back-water trap or valve, grease interceptor or grease trap, or other similar appurtenances for the purpose of ascertaining whether such facilities are maintained and operated in accordance with the provisions of the chapter.

Although this section provides City staff the authority to access wastewater related facilities, it does not allow City staff to access the facilities for maintenance purposes or to perform these functions on systems that discharge domestic wastewater. In the event a site inspection reveals improper maintenance and\or cleaning and there is imminent danger to the City's sewer facilities or the public, the City should have the authority to access the site and related facilities to perform the necessary maintenance and cleaning in an effort to prevent exposing the public to a health risk or hazard and compromising the operation of the City's wastewater collection system. Additionally, the City should have access to the site for maintenance and cleaning purposes in the event an emergency occurs that requires the immediate cleaning of the sewer facilities discharging into the City's wastewater system.

4.3.4 Limit Fats, Oils, and Grease Discharge

Municipal Code 10.08.100, Discharges of Fats, Oils and Grease from Food Service Establishments, serves to ensure the City's compliance with federal, state, and regulatory agency laws, regulations and standards relating to FOG discharges to sewer facilities. It also specifies the City's FOG discharge requirements to enhance the beneficial public use of the City's sewer facilities and prevent blockages of sewer lines resulting form discharges of FOG and other constituents into the sewer facilities.

The City recently prepared the City of Anaheim Fats, Oils, and Grease Source Control Program (FOG Source Control Program), that documents and establishes the formal procedures City staff implements to effectively minimize the direct or indirect discharge of all wastewater or waste containing FOG into the City's wastewater collection system. Compliance with the program requires Food Service Establishments (FSEs) and other non-domestic waste and wastewater generating facilities to obtain a permit which sets forth the specific terms, conditions, and criteria required for compliance with the City's codes and ordinances, FOG Source Control Program, and policies for each facility requiring connection to the City's wastewater collection system.

Additionally, this section of the code requires compliance with the provisions applicable to the direct and indirect discharge of all FOG to sewer facilities. The provisions are included in the FOG Source Control Program, Fats Oils and Grease Source Control Program Rules and Regulations, kitchen BMPs, FOG pre-treatment requirements, and monitoring and record keeping requirements.

The City's objective is to continue to implement and enforce actions against users of the wastewater collection system that violate the prohibition of discharging FOG into the wastewater collection system. The City will continue enforcement actions for noncompliance and it will be possible for other regulatory agencies to initiate enforcement actions concurrently with City efforts.

4.3.5 Violation Enforcement

The authority for the City to enforce penalties for violations of the City's codes, ordinances and other adopted policies as they pertain to its wastewater collection system is included in Section 10.08.140, Penalties, of the municipal code. This section codifies the City's authority to enforce violations of the codes, ordinances, and applicable policies with respect to the sanitary sewer system.

Section 10.080.140.050 allows the City Engineer to discontinue use, at any premise, of the public sewerage system that is found to be improperly disposing prohibited substances into the City's wastewater collection system or that is in violation of specific conditions of the City's municipal code.

Section 10.080.140.060 allows the City to require reimbursement for damages caused to, and any cleaning required of, any portion of the public sewerage system in the event it is determined that there is a violation of the provisions included in Section 10.08 of the municipal code and prohibited substances have been discharged into any public sewer, sewer pipe, manhole, septic tank connected with the public sewerage system, or municipal industrial waste pipeline within the City.

Section 1.01.370 describes the general penalties for violating sections of the code and for continuing violations. Individuals convicted of a violation of the City code that is not specifically declared to be an infraction shall be considered guilty of a misdemeanor, and punished with a fine of not more than $1,000.00, imprisonment in the city or county jail for not more than six (6) months or both such fine and imprisonment.

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Chapter 5
Operations and Maintenance Program

This chapter of the SSMP discusses the City's operations, maintenance and other related measures and activities as they pertain to its sanitary sewer system.

5.1 Regulatory Requirements for Operations and Maintenance Program

The WDRs require that the SSMP contain descriptive measures of the City's Operations and Maintenance (O&M) Program that are implemented by City staff to facilitate proper and efficient management and maintenance of the sanitary sewer system and the affected appurtenances. The WDRs require that the SSMP include a description of each of the following components as they apply to the City's sanitary sewer system:

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

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

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

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

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

5.2 City's Operations and Maintenance Program

The City prepared a comprehensive document titled City of Anaheim Operations and Maintenance Program (O&M Program) which includes a summary of the City's current procedures and practices as they pertain to the O&M activities related to its sanitary sewer

system. The City's O&M Program contains information pertaining to the following components for compliance with the WDRs:

- Inventory and Mapping of the Sanitary Sewer System Assets
- Preventative Maintenance Program
- Sanitary Sewer Overflow Emergency Response Plan
- Fats, Oils, and Grease Reduction and Management Program
- Wastewater System Inspection and Assessment Program
- Capital Improvement Program (CIP) Project Identification
- Computerized Maintenance Management System
- Equipment and Replacement Part Inventories
- Training Program
- Staffing Requirements and Recommendations

5.3 Discussion of Regulatory O&M Components

To address the components listed in Section 5.1 and as required by the WDRs, the following subsections provide a summary of the applicable O&M procedures currently being implemented. The following paragraphs correlate to the WDR components listed in Section 5.1. The complete O&M Program is included in Appendix B.

5.3.1 Sanitary Sewer System Mapping

The locations of the City maintained wastewater system pipes and associated appurtenances were originally documented based on as-built drawings. These as-built drawings were used to develop a Geographic Information System (GIS) database of the facilities which facilitates management of O&M activities and expedites data management and retrieval for reporting purposes.

Necessary revisions and/or updates to the GIS information are typically identified by the Public Works Operations crews while performing routine operation and maintenance activities. Discrepancies between information contained on the maps books and field conditions are manually documented on the map books. The map book pages containing comments are submitted to GIS staff for electronic updates. Subsequent to performing the updates, the revised sheets are printed and distributed to the City's maintenance crews.

The Public Works Operations Division currently employs one staff member whose primary responsibility is to update and/or revise GIS information pertinent to the City's Public Works Department and that pertains specifically to wastewater collection and stormdrain facilities. The City is working towards developing formal standard operating procedures (SOPs) for routinely updating GIS information.

Additionally, City staff has identified IWater as a potential Computer Asset Maintenance Management System (CMMS) that will interface with the City's GIS data, to be implemented to facilitate management of the City's facilities. The City is working towards implementing the program in approximately 1.5 to 2 years.

5.3.2 Preventive Maintenance Program

The City's sanitary sewer system, as do other aging utilities serving mature communities, has required frequent maintenance due to age, extended use, debris accumulation, and tree root intrusion. To minimize and prevent system blockages and preserve and extend the useful life of the sanitary sewer system, the City's Preventive Maintenance Program has primarily included the routine cleaning of its wastewater pipelines. The City's Preventive Maintenance Program includes scheduled cleaning, root control and manhole treatment and is further documented in the O&M Program.

Mechanical Cleaning

The City's Public Works Operations staff conducts the routine cleaning of a significant portion of its wastewater collection system. The City's program includes the cleaning of its wastewater collection system once every one to one and one-half years, and cleaning of the identified high frequency maintenance sites, referred to as "Recall" sites by City staff, on a scheduled 30, 90, and/or 120 day basis. City staff performs the routine maintenance on the portion of the wastewater collection system that consists of pipelines up to and including 12-inches in diameter. Three (3) crews are assigned a specific area and each is responsible for cleaning the sewer mains, siphons, and high frequency maintenance locations in those areas. Each crew is responsible for the cleaning of specific "Recall Sites" and siphons on a scheduled and routine basis. Cleaning of the City's wastewater pipelines 15-inches in diameter and larger is performed by a contractor approved by the City on an as-needed basis.

Public Works Operations staff performs the cleaning of the system pipelines up to and including 12-inches in diameter approximately once every year using three (3) combination jet-rodder/vactor vehicles. The three (3) trucks are equipped with a vacuum attachment and large holding tank and are utilized on a daily basis in conjunction with saws and chain flails to clean pipelines and inverted siphons and to clear obstructions. The sewer pipelines and siphons are typically cleaned by inserting a high pressure flushing nozzle or jet-rodder in the pipe.

Root Treatment

City staff does not currently perform chemical treatment for root removal, but is working towards implementing a root treatment program where the frequency of root treatment is based on information captured during the cleaning and televising of the system. Pipelines identified as locations with root intrusion problems are cleaned and evaluated on a regular basis. Target sites are located in the older developed areas with large mature trees as well as locations identified via the CCTV inspection efforts that identify high concentration of roots.

Manhole Treatment Program

To control infestations of insects and to maintain adequate access to the system, the City's wastewater collection system manholes are systematically treated for the removal of roaches. The roach treatment program implemented by City staff includes using soap foam and primarily targets the more mature areas within the City as well as areas with food service establishments. Additionally, the City has retained an independent contractor that is coating several affected and some adjacent manholes with an epoxy impregnated with pesticide. The manholes selected for treatment are identified by areas known to be prone to insect infestation, and from observations made during the annual cleaning.

5.3.3 Sanitary Sewer System Inspection and Condition Assessment Program

Regular and systematic inspection and assessment of sanitary sewer system facilities provides a means to monitor the condition of the facilities, the effectiveness of the maintenance operations, and provides a basis for identifying and scheduling capital improvements. As well, the overall assessment can be used to determine the funding required to repair, rehabilitate, and replace an aging collection system and to prioritize the allocation of funds and optimize the expenditure and efforts to operate a sewer collection system.

System Inspection and Assessment

The City employs Closed Circuit Television (CCTV) technology for the inspection of its pipelines. The CCTV inspections are performed subsequent to pipe cleaning and debris removal and of all new and rehabilitated pipelines to identify potential defects, determine the effectiveness of the cleaning efforts, and ensure contractor compliance with City design and construction standards. The City's CCTV truck is equipped with Wincan software developed by Cues. Using the Wincan software, pictures of all detected defects and potential problems that may require repair are taken and printed.

Generally, condition assessment of the sewer pipelines is performed in the field during the CCTV inspection process by the City field maintenance crews performing the inspections. Defects detected are recorded on VHS tape and a picture of the defect(s) and potential problem(s) requiring repair is taken and printed out for review and to identify the necessary repair method. Permanent records of the detected defects are produced by capturing still images of the information on the TV screen and recording the images on the local drive that is maintained at the Operations Yard. Video of the pipeline is not recorded unless a defect is detected.

Progress is recorded on a log by the staff and is maintained on the CCTV truck for tracking progress and for reference. A progress report is submitted to the Public Works Operations Superintendent and utilized for recording, tracking, and reporting purposes. As the necessity to televise a particular location or portion of the wastewater collection system arises, staff is assigned to accommodate the requirement. The City generally televises its sewer system from east to west and can televise the entire system in approximately seven (7) years.

Repair and Rehabilitation Projects

The City's Public Works Operations Division is responsible for ensuring that immediate "unscheduled" repairs and/or rehabilitation improvements of various types and pertaining to wastewater facilities are adequately performed. The repairs and/or rehabilitation work performed by City staff may be identified via the CCTV inspections and primarily includes point repairs but does not include work requiring the replacement of entire pipe segments between manholes. Repairs that require resources beyond those available within the Public Works Operations Division or require further prioritization and planning are coordinated and scheduled with the City's Engineering Division.

CIP Development

Several factors determine the priority of projects identified during the assessment process, although the condition of the pipe is usually the primary factor. Additional factors may include goals to reduce sanitary sewer overflows, providing sufficient system capacity, reducing infiltration and inflow in pipes located below the water table, or reducing maintenance efforts by improving the pipe condition. Other considerations include coordinating surface and utility improvements with the other agencies that may be impacted by improvements. Integrating the results of the inspection and assessment efforts, with the capacity modeling efforts, the City will pursue a proactive and comprehensive long-range planning effort.

5.3.4 Training Program

Prior to performing any work on City facilities, Public Works Operations staff is trained on the existence and the provisions of the wastewater operations and maintenance policies, procedures, safety policies, and the equipment used. Training for operation of City equipment includes "on-the-job" training in conjunction with weekly "tailgate" meetings to discuss safety issues. For weekly meetings, topics are selected and presented by the operators. Topics are typically relative to the position of the individual presenting. General monthly meetings are conducted by the supervisors on topics selected by the supervisors and are typically relevant to recent activities and/or events and safety issues.

All maintenance crews are trained and certified to implement proper traffic control procedures. Additional instructional material should include the City's approved SSMP and the SSOERP. This will serve as a mode of instructing staff on the SSMP, SSOs, and all the required documentation. Training and event participation must be documented and maintained by either the Public Works Operations Division or the Risk Management Division. As necessary and determined by appropriate managerial staff, training programs may also include supplemental technical training required to efficiently and safely perform specific job related duties.

Although not currently required, the City encourages its Public Works Operations staff to obtain all four (4) grade levels included in the Technical Certification Program for Collection System Maintenance sponsored by California Water Environment Association (CWEA). The City's incentive program reimburses its staff for the associated test fees and the contact hours once the successful completion of the test is confirmed.

As necessary and determined by appropriate managerial staff, training programs may also include supplemental technical training required to efficiently and safely perform specific job related duties.

5.3.5 Equipment and Replacement Part Inventories

The Public Works Operations Division maintains an inventory of City vehicles and replacement parts. The inventory of vehicles and equipment available for performing the daily routine operations and maintenance of the City's wastewater collection system includes the type and quantity of the equipment.

The City's vehicles and sewer system replacement parts are made readily accessible to maintenance staff. The replacement parts maintained in the Operations Yard are for the specific types of repairs the Public Works Operations staff performs. As necessary, maintenance staff solicits the utilization of resources, including equipment and staff, from divisions. For implementation of repairs that extend beyond the City's internal resource capabilities, the City retains the services of professional contractors.

Chapter 6
Fats, Oils, and Grease Control Program

This chapter of the SSMP discusses the City's FOG Control Program including identification of high frequency maintenance locations and source control.

6.1 Regulatory Requirements for a FOG Control Program

To comply with the WDRs, the City is required to evaluate its service area to determine whether a FOG Control Program is necessary. If deemed necessary, the City is required to develop and implement a FOG Control Program to effectively control the quantity of FOG that is discharged into the City's sanitary sewer system. The FOG Control Program shall include the following as appropriate:

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

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

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

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

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

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

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

6.2 Discussion of FOG Control Program

The City prepared and implemented a FOG Control Program in 2005. The program documents its current activities and facilitates the maximum beneficial public use for the City's sanitary sewer system while preventing blockages of the sewer lines and reducing the adverse affects on sewage treatment operations resulting from discharges of FOG into the system.

The City's FOG Control Program summarizes the components of the processes and procedures intended to reduce the quantity of FOG discharged into the City's sanitary sewer system to achieve the goal of minimizing SSOs due to excessive FOG. The key elements of the City's FOG Control Program include:

- FOG Control Ordinances
- Effluent Limitation & Discharge Requirements
- Kitchen Best Management Practices
- FOG Pretreatment
- Notification, Record-Keeping, & Reporting Requirements
- Grease Interceptor Installation and Operation Requirements
- Grease Trap Operation, Inspection, and Maintenance Requirements
- Waste Hauler Requirements
- Permits, Inspection, and Enforcement
- Public Education

To address the components required by the WDRs, the following subsections provide a summary of the applicable FOG control procedures currently being implemented. The complete FOG Control Program is included in Appendix C.

6.2.1 Public Education Program

A component of the City's FOG Control Program has been on source control with a concentrated effort in educating FSE staff and on the negative impacts of putting FOG into the wastewater collection system. During the regularly performed site inspections, City staff provides informative and practical suggestions for reducing the quantity of FOG discharged into the City's wastewater collection, engaging FSE staff in reducing FOG related SSOs. To date, the City's efforts to educate FSE staff has been effective in attaining the desired results from the FSEs.

6.2.2 Disposal of FOG

In addition to the FOG Ordinance, the City has adopted Fats, Oils, and Grease Source Control Program Rules and Regulations to specify appropriate FOG discharge requirements and limitations for FSEs to prevent blockages of sewer lines resulting from discharges of FOG.

Additionally, the Rules and Regulations include BMPs which are simple and effective practices that an FSE can implement to prevent and reduce the quantity of FOG discharged into the sanitary sewer system. The BMPs include specifics for items including, but not limited to, collection, storage and disposal of waste cooking oil; disposal of FOG waste into trash rather than sinks or floor drains; employee training; signage; and availability of spill kits.

The effluent limitations and requirement for the pretreatment of wastewater flows generated at FSEs is also included in the FOG Control Program. General FOG pretreatment requirements are specified in the ordinance. Specifics are included in the Rules and Regulations. The ordinance includes provisions such that existing FSEs are not required to install a grease interceptor, unless the FSE adversely impacts or has the reasonable potential to adversely

impact, the sanitary sewer system by causing or contributing to FOG high maintenance locations, interference, or SSOs.

6.2.3 Legal Authority to Prohibit Discharges

The City's current legal authority to limit and prohibit FOG from entering the City's wastewater collection system is established through its existing municipal codes, regulations, ordinances, and permitting procedures. Section 10.08, Domestic and Industrial Waste, of the City's municipal code, includes the City's requirements and prohibitions pertaining to the use of the City's wastewater collection system.

Specifically, Section 10.08.040, Substances Banned From The Public Sewers, of the City's municipal code, includes a general description of the various types of substances restricted by the City from being directly or indirectly discharged into the collection system. The restrictions are applicable to all users of the City's system. As well, Section 10.08.100 specifically addresses the FOG discharge limitations for FSEs pertaining to the direct or indirect discharge of FOG to the City's sewer facilities.

FOG Ordinance 5950, which serves to adopt the City's Fats, Oils, and Grease Source Control Regulations, also specifies appropriate FOG discharge requirements, limitations, and prohibitions for FSEs to prevent blockages of sewer lines resulting from discharges of FOG. The key elements of the Rules and Regulations applicable to FSEs include implementation of Kitchen BMPs, installation, operation and maintenance of an approved type and adequately sized grease control device, and the notification, record keeping and reports.

6.2.4 Requirements for Installation of Pretreatment Devices

The requirement for the installation of a grease interceptor is a key requirement of the City's municipal code and FOG Rules and Regulations. Figure 4-1 of the FOG Control Program (See Appendix C) describes the evaluation process currently utilized to determine whether installation of a grease interceptor is required.

Sizing and installation requirements for the grease interceptors are determined by the City's Building Division which reviews and approves the sizing and installation of grease interceptors with input from the FOG Source Control Program Manager as a part of the building permit process. The Building Division bases the design and sizing of the grease interceptors on the adopted version of the California Plumbing Code (CPC).

City staff requires compliance with specific sections of the adopted CPC. Cleaning and removal of accumulated grease is required by a licensed waste hauler with an approved license from an authorizing agency. To ensure proper disposal of the collected grease, the FSE is required to maintain copies of hauling documentation.

6.2.5 Facility Inspection

The City focuses its inspection efforts on "Recall Sites," FSEs, and establishments that have historically discharged FOG to the sewer system. The inspections serve to ensure compliance with the City's municipal code, FOG Control Program Ordinances and requirements, and the Fats Oils and Grease Source Control Program Rules and Regulations. Compliance with the City's municipal code requires that reasonable access to all parts of the FSE be made available when inspection and/or sampling of the wastewater is required.

As part of an agreement with the City, the Orange County Health Care Agency (OCHCA) inspects FSEs for FOG compliance at least once a year during routine health inspections. Follow up inspections are conducted if the OCHCA inspection encounters establishment deficiencies, private SSOs, contribution to a high frequency maintenance location or other violations. BMP inspections are conducted to evaluate compliance with the facility's best management practices requirements. Enforcement inspections are conducted when increased enforcement is deemed necessary or when the establishment's Conditional Waiver or Variance is revoked.

Since the City's proactive maintenance procedures have been successful in minimizing the number of SSOs and addressing the high frequency maintenance locations, the City intends to continue its current FOG Control Program.

6.2.6 Maintenance Schedule for High Frequency Maintenance Locations

The performance and scheduling of preventive, operation and maintenance activities is performed by the existing staff. The Preventive Maintenance Program includes a cleaning cycle for the areas that have been identified by City staff as "Recall-Sites." The City's Recall Sites include pipe segments with high FOG, root concentrations, and siphons. The pipe segments within the wastewater system identified as Recall Sites are routinely cleaned on a 30, 90, and 120 day basis based on field observations or supervisor recommendations.

6.2.7 Development and Implementation of Source Control Measures

Detailed information pertaining to the implementation of the City's FOG Control Program and the source control measures for all sources of FOG discharged to the sanitary sewer system is included in the FOG Control Program which is included in Appendix C for reference.

Chapter 7
Sanitary Sewer Overflow Emergency Response Plan

This chapter of the SSMP provides a summary of the City's SSOERP. A copy of the City's SSOERP is included in Appendix D for reference.

7.1 Regulatory Requirements for Overflow Emergency Response Plan

The WDRs require that the City develop and implement an overflow emergency response plan which identifies measures to protect public health and the environment. At a minimum, the plan must include the following:

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

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

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

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

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

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

7.2 Discussion of Overflow Emergency Response Plan

The City prepared the SSOERP that establishes the formal procedures for City staff to contain, correct, and clean up SSOs. The SSOERP is intended to provide the City with a comprehensive document that includes components necessary for minimizing the effects of SSOs on the environment while protecting the public's health and safety.

The SSOERP includes a strategy for the Sewer Maintenance Section to mobilize labor, material, tools, and equipment to contain, mitigate, and clean-up residuals from an SSO and correct or repair any condition which may cause or contribute to an un-permitted sewage

discharge. The document provides the necessary guidelines for City staff to respond to an SSO event and contains the following elements:

- Introduction and Regulatory Requirements
- Sanitary Sewer Overflow Emergency Response Plan
- Public Advisory of Sewage Contamination Procedures
- SSO Reporting Requirements
- Training Requirements
- SSOERP Updating Requirements
- Various Attachments

To address the components listed in Section 7.1 and as required by the WDRs, the following subsections provide a summary of the applicable procedures that are currently being evaluated for implementation and included in the SSOERP. Further detailed descriptions of the policies and procedures as they pertain to responding to SSOs are included in the SSOERP document included in Appendix D.

7.2.1 SSO Notification Procedures

The SSOERP includes procedures for proper notification of the appropriate staff in a timely manner. Notifications of possible SSOs are received via telephone calls. All telephone calls or complaints for actual or possible SSOs are routed directly to the Public Works Operations Division from either City's Customer Service or the Utilities Department if the notification is received during non-business hours.

The City has primary responsibility for determining when to post notices of polluted surface waters or ground surfaces that resulted from uncontrolled wastewater discharges from its facilities. The Orange County Health Care Agency may also make a determination and direct the City to post notices. The postings do not necessarily prohibit the use of recreational areas, unless posted otherwise, but provide a warning of potential public health risks due to sewage contamination.

The posting of notices shall be done as soon as practicable following the initial response to the overflow. Signs should be posted on either side of the point of entry where sewage entered the body of water or public facility and the nearest public access point to that body of water or public facility. Examples of signs are included in Attachment H of the SSOERP.

Should additional notification of sewage contamination be deemed necessary, City staff shall, in cooperation with the City's Public Information Office (PIO), provide further notices through the use of pre-scripted notices made available to the printed or electronic news media for immediate publication or airing, or by other measures, such as door hangers. Examples of pre-scripted notices, which are included in Attachment I of the SSOERP, should be modified to accurately reflect the conditions at the time of publication and/or airing.

7.2.2 SSO Response

The City's SSOERP includes response priorities, safety, and overflow containment, correction, and clean-up measures for potential or actual SSOs of various types. Specific actions to be performed by the Public Works Operations Division staff and additional crews for public and private SSOs are outlined and described. To summarize the SSO response procedures, a flow chart that illustrates the City's emergency response procedures, including notification and request of additional resources as required in the event of a large SSO, is included and offers a concise overview of the steps required to quickly respond to an actual or possible SSO event.

7.2.3 Procedures for Prompt Notification of Regulatory Agencies

The volume, impact, and location of an SSO determine the level of notifications required to comply with City and regulatory requirements. Included in the SSOERP is Table 2-2 that summarizes the officials and agencies to be notified and under what conditions they are to be notified of an SSO. Attachment C of the SSOERP includes a list of the specific names and telephone numbers of the individuals to be notified. The contact list should be updated as necessary and verified at least every six (6) months.

7.2.4 Training of Appropriate Staff and Contractor

Appropriate staff will participate in regularly scheduled training sessions to assist response crews in awareness of their responsibilities and executing their duties. The training sessions will be organized based on the latest SSOERP as well as other reference materials. Training will also incorporate hands-on field demonstrations to insure the preparedness of all response personnel to all anticipated situations.

Training and event participation will be documented and maintained. Currently, Public Works Operations staff is encouraged to receive training through various vendors. Additionally, the City encourages its staff to obtain the CWEA sponsored Collection System Maintenance certification. CWEA training and certification is encouraged at all four (4) grade levels. Additional certification requirements may be imposed in the future if deemed necessary by the SARWQCB.

7.2.5 Emergency Procedures and Response Activities (i.e. traffic/crowd control and other necessary response activities)

Guidelines for traffic and crowd control to limit public access to areas potential impacted by un-permitted discharges of sewage based on the various types of SSOs are also provided. Traffic and crowd control guidelines are included in Section 2.6 of the SSOERP.

Additional response activities are detailed in Chapter 3 of the SSOERP that may include posting of notices which shall be done as soon as practicable following the initial response to the overflow.

7.2.6 SSO Prevention and Containment

The City follows an O&M Program to prevent SSOs. The City's Preventative Maintenance Program includes the routine cleaning and inspection of the wastewater pipelines and specifically the high frequency maintenance locations.

The SSOERP provides the guidance to facilitate and ensure the proper response to any type of potential SSO occurrence. The SSOERP includes a strategy for the Public Works Operations staff to mobilize labor, material, tools, and equipment to contain, mitigate, and clean-up residuals from an SSO and correct or repair any condition which may cause or contribute to an un-permitted sewage discharge. Appropriate mitigation measures to contain the SSO and recover spilled sewage to minimize the impact to the public or environment are included. Additionally, City staff will implement monitoring measures and perform a thorough assessment of the site for potential future SSOs and to prevent SSOs from re-occurring. The efforts serve to minimize and correct any adverse impact on the environment that may potentially result from an SSO.

Chapter 8
Design and Performance Provisions

This chapter of the SSMP discusses the City's design and construction standards and serves to fulfill the Design and Performance Provisions required by the WDRs.

8.1 Regulatory Requirements for Design and Performance Element

The WDRs require that the SSMP address the following:

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

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

8.2 Discussion on Design and Performance Provisions

Municipal Code 10.08.050 codifies the City of Anaheim's current design and performance criteria. The code references the latest edition of Uniform Plumbing Code (UPC) and the City's Standard Details for the design, construction, and inspection of wastewater collection facilities. Detailed design criteria are documented in the City's Sewer Design Manual and Standard Drawings for Construction.

The City's Sewer Design Manual is supplemented with the appropriate provisions of the adopted Standard Specifications for Public Works Construction (Greenbook), Standard Plans for Public Works Construction (SPPWC) and the requirements contained in the City's Contract Documents and Standard Specification Supplement specific to the project, all of which specify detailed design, inspection and installation criteria for sanitary sewer design and construction. A copy of the City's current Sewer Design Manual and Standard Details are included in Appendix E and a sample of the City's Contract Documents and Standard Specification Supplement is included in Appendix F for reference.

To address the components listed in Section 8.1 and as required by the WDRs, the following subsections provide a summary of the applicable provisions currently being implemented by the City.

8.2.1 Design and Construction Standards and Specifications

Criteria for the design and construction of new, rehabilitated, and replaced sewer system facilities, including main, tie-ins, service laterals, cleanout, manholes, and other system appurtenances, are necessary to ensure the proper operation of the wastewater collection system.

Design and Performance Provisions

All public sewer mains constructed within the City or under contract to the City are constructed according to the City's Sewer Design Manual and Standard Drawings and in compliance with the "Standard Plans for Public Works Construction" (Greenbook), prepared by the American Public Works Association.

The City's Sewer Design Manual and Standard Drawings include minimum design standards for sewer mains, sewer manholes, sewer laterals, and general guidelines for performing the hydraulic analysis. Additionally, the City's Sewer Design Manual references the SPPWC and Greenbook regarding sewer connection locations, pipe installation and pipe bedding sections.

Design considerations for wastewater facilities that the City considers non-standard, such as pump or lift stations, force mains, siphons, internal sealing of existing sewers, outfall sewers, energy dissipaters, regulating devices, and/or flow measurement devices, are not included in the Sewer Design Manual and Standard Drawings and require prior approval from the City before design can begin.

8.2.2 Inspecting and Testing

Compliance with the City's Sewer Design Manual and Standard Details, the Greenbook, and the SPPWC requires the contractor performing work on the City's sewer facilities to be responsible for conducting a CCTV inspection for all new and rehabilitated sanitary sewer systems and other appurtenances.

The Greenbook includes procedures and standards for inspecting and testing the installation of sewer mains and related appurtenances and for the rehabilitation and repair of existing sanitary sewer systems. Compliance with the Greenbook specifications requires air tests to be performed in accordance with Section 306-1.1.4. As well, it includes inspection and testing criteria for various pipe materials and installation methods. Section 500-1.2.6 requires the Engineer to review pipeline inspection video submitted by the Contractor to verify the pipeline point repair or replacement when retained for construction and installation of wastewater pipelines and manholes prior to backfilling.

Municipal Code 10.08.030 provides the City's Engineer and/or Inspector the authority to enter any property, structure or premises served by any public or private sewer facility for the purpose of examining, inspecting the construction or condition of the sewer or appurtenances.

Chapter 9
System Evaluation and Capacity Assurance Plan

Identified as an element of the SSMP, the WDRs require each agency to prepare a System Evaluation and Capacity Assurance Plan. This chapter of the SSMP discusses the City's capacity management measures to address the current and future capacity requirements of its collection system and the recommended capacity improvement projects.

9.1 Regulatory Requirements for System Evaluation and Capacity Assurance Plan

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

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

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

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

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

9.2 Discussion on System Evaluation and Capacity Assurance Plan

The City's most recent efforts in performing an evaluation of its sanitary sewer system are documented in three (3) separate master plans that collectively address the City's complete wastewater collection system. The Master Plans include *The Combined Central Anaheim Area Master Plan of Sanitary Sewers* and *The Combined West Anaheim Area Master Plan of Sanitary Sewers,* both prepared by CH2MHill, and *The East Anaheim Area Master Plan of Sanitary Sewers* prepared by PSOMAS. The following provides a brief description of the areas evaluated in each Master Plan.

Combined Central Area Master Plan

The Master Plan was completed in September 2006. The Central Area Master Plan includes the evaluation of the area located east of Euclid Street and west of the Santa Ana River. The study area consists of residential, commercial, and industrial land uses, as well as limited portions of the cities of Fullerton and Garden Grove. The areas encompass approximately 10,627 gross acres (16.6 square miles). The Master Plan incorporates nine (9) studies previously completed and for which sewer system needs were identified to address existing and future peak dry weather flows (PDWF). The studies incorporated include the following:

- South Central Area Sewer Deficiency Study – Second Revision
- Old Town / Basin 8 Sewer Deficiency Study
- North City Area 1 Sewer Deficiency Study
- Remaining Central City Area 1 Sewer Deficiency Study
- Remaining Central City Areas Sewer Deficiency Study
- Platinum Triangle Sewer Study – First Revision and Addendum to First Revision
- Stadium Area Sewer Deficiency Study (East of State College Blvd.)
- Downtown Redevelopment Sewer Study – Revised May 2005
- Analysis of Southern Resort Area Sewer Study

The reports were used as a basis to create new models for the City's Central Anaheim area. The data used in creating the models was updated and incorporated into the models to more accurately reflect existing conditions.

Combined West Area Master Plan

The Master Plan was updated in March 2005. The Combined West Area Master Plan includes the evaluation of the area located west of Euclid Street. The area, which includes residential, commercial and industrial land uses, encompasses portions of Fullerton, Garden Grove, Cypress, and unincorporated areas of Orange County with an approximate total area of 7,450 gross acres (11.65 square miles).

The Master Plan incorporates four (4) studies previously completed and for which sewer system needs were identified to address existing and future peak dry weather flows (PDWF). The studies incorporated include the following:

- Anaheim Plaza and Remaining Central City Areas (AP/RCCA), December 1993
- South Brookhurst Corridor Area and The Remaining Anaheim Plaza Area 1 (SBCA/RAPA1), March 1995
- North Central Area (NCA), November 1993
- Remaining Central City Area 1 (RCCA1), July 1995 (areas west of Euclid Street)

The reports were used as a basis to create new models for the City's West Anaheim area. The data used in creating the models was updated and incorporated into the models to more accurately reflect existing conditions.

Combined East Area Master Plan

The Master Plan was completed in December 2005. The objectives of this Master Plan was to evaluate the sewer system within the eastern portion of the City of Anaheim, generally located east of the Orange Freeway (SR-57) and Riverside Freeway (SR-91) and identify sewer system needs for existing and build-out peak dry weather flows (PDWF). The area, which includes residential, commercial and industrial land uses, encompasses approximate total area of 12,658 gross acres (20 square miles). The study and additional areas incorporated in this Master Plan include the following:

- Northeast Industrial Area Sewer Deficiency Study (NIASDS), May 1998
- The remaining area located in the East Area
- Mountain Park East and Mountain Park West (separated by SR-241)

Each Master Plan presents an assessment of the hydraulic capacity of the major sewer pipelines located in the each study area at the time the study was completed. The improvement projects identified were considered to be required to correct system deficiencies under existing and build-out peak dry weather flow (PDWF) conditions. Additionally, facilities necessary to provide sewer service to undeveloped areas based on the designated land use, accommodate the anticipated increase in flows, and ensure sufficient capacity in the existing sanitary sewer system were identified.

The following subsections provide a brief summary of the modeled systems, flow estimates, and evaluation criteria used for the City's sewer system capacity evaluation to address the components listed in Section 9.1 and as required by the WDRs.

9.2.1 Evaluation

The capacity assessment completed as part of each Master Plan was based on the results of the hydraulic modeling performed for the collection system in each study area under current and future estimated peak dry weather design flows. The hydraulic capacity of major City facilities was determined based on the quantity of wastewater flows generated and expected to be generated within each of the specific study areas. The estimated flows were determined based on the developed land use, planned development and wastewater generation factors for dry weather conditions. The system evaluation was performed to identify improvements necessary to adequately convey existing wastewater discharges and support future development flows through build-out conditions. The Master Plans adequately address the dry weather capacity issues for the system limits at the time. Additionally, the Master Plans include a summary of improvement projects and planned sewer facilities to accommodate planned growth, improve hydraulic capacity, and service previously undeveloped areas.

To date, the City has not experienced any SSOs due to hydraulic deficiencies in the sewer system. As the City implements the identified projects, this will aid in maintaining this record.

Additionally, updating the hydraulic model to include significant system improvements and additions as they occur will help identify potential capacity problems in the wastewater collection system.

9.2.2 Design Criteria

The City established hydraulic design criteria used in updating each area Master Plan. The following paragraphs summarize the process and the results.

Hydraulic Model Development

The hydraulic model for each study area was developed based upon the City's prior studies and/or master planning efforts and available data. The models focused on the City's main sewer trunk lines and tributary sewer pipes that were 8-inches in diameter and larger. This is typical within the industry for hydraulic modeling as these facilities convey the highest flows and are generally more likely to experience future increases in flow from new development. The City's trunk sewers serve to collect and ultimately convey the wastewater flows to the Orange County Sanitation District's trunk sewers.

The models for each study area were originally developed using InterFlow. InterFlow is a static hydraulic computer model developed and provided to the City by CH2M Hill. For each study area, the existing models were converted to Hydra. Hydra is a hydraulic analysis computer model developed by Pizer that simulates flow conditions, such as wastewater flow depth, flow rate, and velocity, within pipes and manholes in the City's wastewater collection system. The model provides a representation of hydraulic flow conditions over an extended period of time whereas the calculations generated by the steady state model represents an instant in time in the sewer's capacity and is typically considered conservative for smaller collection mains.

The following provides a brief summary of the method used for developing the models for each study area.

Combined West Area Master Plan

The model developed for the Combined West Area Master Plan was based on the models prepared as part of the previous sewer studies. The models developed with the previous studies used InterFlow. InterFlow is a static hydraulic computer model developed and provided to the City by CH2M HILL. For the Combined West Area Master Plan, the existing models were converted to Hydra. Converting to the dynamic model, Hydra, allowed for the analysis of the pipelines at varying flows over an extended period of time to determine the City's long-term capacity needs for the next 30 years as indicated in the City's 2004 General Plan. New pipelines constructed since the completion of previous studies were included in the Hydra models. Additionally, the areas not previously modeled, were created directly in Hydra.

The sewer basin boundaries were delineated in AutoCAD and the land use types within each basin were identified using existing land use maps. The distribution of land uses was matched to the actual net acreage for each land use type and the areas were calculated for wastewater producing land uses within each sewer basin. Density factors for residential land uses were included in the models. Unit flow factors were used for nonresidential land uses.

Combined Central Area Master Plan

The sewer modeling was completed using Hydra and GIS data provided by the City of Anaheim. Using the GIS Layer Transfer Wizard provided by Hydra, GIS data was extracted from the City's database and used for modeling. Missing data necessary for modeling was input manually. Converting to the dynamic model, Hydra, allowed for the analysis of the pipelines at varying flows over an extended period of time to determine the City's long-term capacity needs for the next 30 years as indicated in the City's 2004 General Plan.

The distribution of land use types within each subarea was determined using existing land use data in ArcMap. Subareas were delineated in ArcMap for different wastewater producing land use areas within each model. Density factors for residential land uses were included in the models. Unit flow factors were used for nonresidential land uses.

Combined East Area Master Plan

The sewer modeling was completed using InterFlow as part of the previous sewer master plan studies. Converting to the dynamic model, Hydra, allowed for the analysis of the pipelines at varying flows over an extended period of time to determine the City's long-term capacity needs for the next 30 years as indicated in the City's 2004 General Plan. Also, new pipelines constructed since the completion of previous studies were included in the Hydra models. For the areas not previously modeled, the models were created directly in Hydra.

The sewer basin boundaries were delineated in ArcGIS and the land use types within each basin were identified. The distribution of land uses was matched to the actual dwelling units or net acreage for each land use type. Density factors for residential land uses were utilized in the models. Unit flow factors were used for nonresidential land uses.

Estimated Wastewater Generation Rates

Estimates for wastewater generation rates are typically prepared using population and/or land use data. As part of consolidating the studies previously prepared and updating each Master Plan, population growth was projected and residential and non-residential flow factors were reviewed and evaluated.

Population data was obtained from the City's Planning Department and reflected state census data that was used to estimate the projected population growth for each study area. Based on the projected population growth, land use data obtained from the City's General Plan prepared in 2004, a review of the factors used in the previous sewer studies, and model calibration based on flow monitoring data, the data was collectively used to determine the density and unit flow factors for each study area. As well, unit flow factors were compared to unit flow factors provided by Orange County Sanitation District. The following provides a summary of the methodology used in each study area to develop the wastewater generations rates used to update the Master Plan for each study area.

Combined Central Area Master Plan

Residential

The density factors and the unit flow factors used for existing and build-out land use conditions in previous studies were reviewed and evaluated. Additionally, flow monitoring was conducted at twenty-three (23) sites within the study area. Table 6 in the Master Plan includes a summary of the thirteen (13) sites selected from which data was obtained and used for use in the Master Plan. The flow monitoring data was used to calibrate the computer model to determine existing residential unit flow factors for the areas monitored. Based on the review and evaluation, the average residential flow factor was determined to be 105 gpcd which was greater than the 100 gpcd used in the previous studies and the flow rate provided by OCSD. The recommended residential flow contribution of 105 gpcd was used to develop the model. This factor is generally within the range of typical values for cities and agencies in Southern California.

The average dwelling units per acre for existing residential land use was determined by calculating the average density of various land uses from several representative basins to reflect the localized existing land use condition. The average number of persons per dwelling unit was obtained from the City's Planning Department. For build-out conditions, the number of dwelling units per acre was taken from the City's General Plan and the average number of persons per dwelling unit was obtained from the City's Planning Department. When compared to previous studies, the density factors determined were similar.

Non-Residential

Unit flow factors for non-residential land uses were obtained from the previous City of Anaheim deficiency studies and OCSD. Based on the review and evaluation of the unit flow factors, it was determined that flow factors used in previous sewer studies were higher than the flow factors provided by OCSD. As the OCSD flow factors were considered to be more representative of the existing conditions, they were incorporated into the model. For build-out conditions, 100 percent of the non-residential land use acreage within the study area was assumed to be contributing to the flows. Table 5 of the Master Plan includes a summary of the recommended non-residential unit flow factors used to develop the model.

Combined West Area Master Plan

Residential

The density factors and the unit flow factors used for existing and build-out land use conditions in previous studies were reviewed and evaluated. Additionally, flow monitoring was conducted at sixteen (16) sites within the study area. Table 5 in the Master Plan includes a summary of the sixteen (16) sites from which data was obtained and used in the Master Plan. The flow monitoring data was used to calibrate the computer model to determine existing residential unit flow factors for the areas monitored. Based upon the review of previously used density and unit flow factors and flow monitoring data, the recommended residential unit flow factor used to develop the model was 100 gpcd.

The average dwelling units per acre for existing residential land use was determined by calculating the average density of various land uses from several representative basins to reflect the localized existing land use condition. The average number of persons per dwelling

unit was obtained from the City's Planning Department. For build-out conditions, the number of dwelling units per acre was taken from the City's General Plan and the average number of persons per dwelling unit was obtained from the City's Planning Department. When compared to previous studies, the density factors determine were similar.

Non-Residential

Unit flow factors for non-residential land uses were obtained from the previous City of Anaheim deficiency studies and OCSD. Based on the review and evaluation of the unit flow factors, it was determined that flow factors used in previous sewer studies were higher than the flow factors provided by OCSD. As the OCSD flow factors were considered to be more representative of the existing conditions, they were incorporated into the model. For build-out conditions, 100 percent of the non-residential land use acreage within the study area was assumed to be contributing to the flows.

Table 3 and Table 4 of The Combined West Area Master Plan include a summary of the Residential Density Factors and Non-Residential Unit Flow Factors, respectively, used for developing the model for the study area.

Combined East Area Master Plan

Residential

The density factors and the unit flow factors used for existing and build-out land use conditions in previous studies were reviewed. Additionally, flow monitoring was conducted at fifteen (15) sites within the study area. Table 6 in the Master Plan includes a summary of the fifteen (15) sites from which data was obtained and used in the Master Plan. The flow monitoring data was used to calibrate the computer model to determine existing residential unit flow factors for the areas monitored. Based upon the review, the recommended residential unit flow factors used were 80 gpcd and 100 gpcd for existing and build-out flow conditions, respectively. These factors are generally within the range of typical values for cities and agencies in Southern California.

Table 2 and Table 3 of The Combined East Area Master Plan include a summary of the Existing Residential Density and Unit Flow Factors and the Build-Out Residential Density and Unit Flow Factors, respectively, used for developing the model for the study area.

Non-Residential

Flow monitors were sited is areas of homogeneous non-residential land use classifications to calibrate existing non-residential unit flow factors. The flow factors were calculated by dividing the total homogenous basin average daily flow by the total parcel areas in acres which resulted in gpd/acre. For build-out conditions, the unit flow factors used in previous studies were used as they were determined to be more conservative.

Table 4 and Table 5 of The Combined East Area Master Plan include a summary of the Non-Residential Existing Unit Flow Factors and Non-Residential Build-Out Unit Flow Factors, respectively, used for developing the model for the study area.

System Capacity Analysis

To calibrate the hydraulic model and establish the estimated flow within the pipes for dry weather conditions, the consultant used the flow data from the temporary flow monitoring program. The dry weather flow calibration involved adjusting unit flow rates and hourly diurnal profiles. The hourly diurnal profiles were developed based on flow meter data.

Design flows for the build-out dry weather condition were developed and input into the model to identify capacity deficiencies and develop capital improvement projects (CIPs). Future dry weather peak flows were developed by applying the future flow estimates to the future unit generation rates and diurnal flow patterns. The build-out (design) flow conditions were then run in the model and results were compared to threshold criteria to determine capacity deficiencies.

The threshold criteria, for the build-out dry weather condition was a depth-to-diameter ratio (d/D) at the design flow (Design Q) designated as d/D. This d/D ratio was calculated in the Hydra program and was used to identify pipes needing improvement. The City's criteria consists of a maximum allowable d/D = 0.75 for pipe with diameters equal to or greater than twelve inches and d/D = 0.67 for pipe with diameters less than twelve inches. Thus, pipes with d/D ratios greater than these values were identified as needing improvement. In addition to the d/D calculations, the Hydra program calculates three flow values in terms of cubic feet per second (cfs). These values are Q_{full}, Q_{max}, and Q_{excess}. Q_{full} is defined as the capacity of the pipe at full flow conditions. Q_{max} is the capacity of the pipe at a specified d/D. And, Q_{excess} is the difference between Q_{max} and the Design Q.

Design flows are typically based on a calibrated or extrapolated wet weather events or an applied allotment to dry weather flows to account for I/I. Although specific wet weather flow data for each study area is not included in the Master Plans, according to the City's criteria, the recommended pipe sizes for the improvements identified account for wet weather flow conditions.

9.2.3 Capacity Enhancement Measures

Based on the threshold criteria discussed above, a CIP for the replacement of sewer pipelines is each study area was developed. The pipelines that require replacement for insufficient capacity were identified.

9.2.4 Schedule

The projects identified in the Master Plan for each study area address capacity limitations for dry weather flow conditions for both existing and build-out conditions. Projects are summarized and presented according to the number assigned to the model during its development. Also included for each study area were estimated costs for the recommended improvements. Sources of funding for the CIP projects are identified in the associated Financial Implementation Plan prepared for each Master Plan.

9.3 City's Continuing Capacity Assurance Plan Efforts

The City is on schedule to update the Master Plans on a 3-5 year cycle to ensure changes in demands, populations, and land uses are incorporated. Additionally, the wastewater collection system capacity assessment should be updated for each Master Plan, if planned development or re-development plans change significantly, if there are changes in contracts with the Orange County Sanitation District, or if other conditions arise that are expected to have significant capacity impacts on the system.

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Chapter 10
Public Education and Outreach

The primary objective of a Public Education / Outreach Program is to increase public awareness of sanitary sewer system issues, to promote a sense of stewardship for the City's system and facilitate the City's efforts towards the effective and efficient management, operation, and maintenance of the sanitary sewer system. This chapter of the SSMP discusses the City's efforts to educate and inform the public and affected agencies regarding the proper use of the City's sanitary sewer system.

10.1 Regulatory Requirements for Public Education and Outreach

The WDRs require the City to 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 City as the program is developed and implemented.

10.2 Discussion of Public Education and Outreach

The City's Public Education and Outreach Program to communicate its efforts to comply with the WDRs and address the development and implementation of this SSMP will serve to educate, inform, and engage key stakeholders, such as agencies that may be affected by an SSO, and businesses, developers, contractors, vendors, and plumbers whose business could be impacted by specific requirements or elements of this SSMP.

Through the City's Public Information Office (PIO), the City should coordinate external communications between the City and the public regarding the implementation and on-going development of this SSMP and its various elements. The PIO is responsible for preparing and providing pertinent information for news releases, articles, and the website. Additionally, the PIO can work closely with the City Council, City departments, news media, the public and affected agencies to assist in promoting an open and frequent exchange of information necessary for the systematic and effective implementation of the various SSMP elements.

The following includes a summary of the City's efforts to educate, inform and engage the public's support and participation in the proper utilization of the City's sanitary sewer system and comply with the WDR requirements.

City of Anaheim Official Website

The City's current outreach efforts include maintaining a website (http://www.anaheim.net/) to inform the public about City activities. The City's website is an effective communication channel for providing alerts and news to the public. The main page of the website provides access to various City departments including the PIO, and links to diverse information, important announcements, and agendas for City Council meetings, and other key information for City

residents. The City can utilize the website to publish its SSMP to provide the public the opportunity to view and offer input to the City as the SSMP elements are implemented. As well, the City can utilize the website to notify the public of important upcoming activities related to sewer system management.

City of Anaheim FOG Control Program

The public outreach element included in the FOG Control Program has included a concentrated effort to educate FSE staff regarding proper management of FOG generated on site. During the regularly performed site inspections, City staff provides information to FSE staff that results in the reduction of FOG discharged into the City's wastewater collection system. Additionally, providing information via various forms of media is an effective way to engage the public in recognizing the importance of reducing the quantity of FOG introduced to the sanitary sewer system and the threat of excessive quantities to the potential and actual occurrence of SSOs.

City of Anaheim Sanitary Sewer Overflow Emergency Response Plan

The SSOERP includes a Public Advisory of Sewage Contamination Procedures which includes a description of the action that City staff must take to limit public access to surface waters and other areas that may have been impacted by an SSO as well as notify the public of potential hazardous conditions. Examples of signs that may be posted to provide a warning of potential public health risk are included in Attachment H of the SSOERP. Additionally, pre-scripted notices are included in Attachment I of the SSOERP which may be modified to accurately reflect the conditions at the time of publication and/or airing.

Should additional notification of sewage contamination be deemed necessary, City staff is required to, in cooperation with the City's PIO, provide further notices through the use of pre-scripted notices made available to the printed or electronic news media for immediate publication or airing, or by other measures, such as door hangers.

Public Meetings

Public meetings to discuss City related issues are held regularly in the City Council Chambers located at Anaheim City Hall at 200 South Anaheim Boulevard, Anaheim, California, 92805. The City encourages residents to attend City Council meetings to become better informed about how the City works and various issues. The council meetings provide the residents and concerned citizens a forum to provide the council with input on particular programs through the Public Hearing process, and through the Citizen Participation portion of each City Council meeting. During Citizen Participation, each person who wishes to address the City Council on an item not on the agenda may do so. Copies of the Council Agenda are made readily available to the public from the City's website or the City Clerk's Office. Certification of the completed SSMP is required by the City Council during a public City Council meeting.

Project specific meetings may also be convened with community leaders and other citizens to discuss the impacts, schedule and criteria of sewer related projects and efforts. These meetings give citizens a forum to learn about the City's activities, voice their concerns, and receive clarification on a variety of issues. Often, the project managers arrange these meetings.

10.3 Public Education and Outreach Media

A variety of means exist to educate and inform the public regarding impacts to the City's sanitary sewer system facilities. The following list identifies several forms of media available for the City to use to educate and inform the public:

- Bi-annual inserts in water and/or sewer bills;
- Press releases;
- Direct mailers;
- Door hangers;
- Brochures distributed at City locations and kiosks;
- Posters and flyers displayed prominently in public areas, such as on buses, libraries, recreational centers, and so on;
- Announcements and notices placed on the City's web site;
- Announcements and notices place in the City's bi-annual Recycle Anaheim Newsletter; and
- Specific events to educate the public on the effects of SSOs to the public and environment such as at an earth day fair, open house events, and other appropriate venues.

Included in Appendix G are examples of educational campaigns, which includes a flyer advertising that the drain is not a dump for FOG, a door hanger presented in both English and Spanish that can be left with residents, and best kitchen practices for businesses. Additionally, an example of text that may be included on a postcard and mailed to residents soon after a FOG related SSO has occurred to alert people to the effort required to clear a blockage and to reinforce not to put FOG down the drain. Translation services may be required and anticipated during any educational campaign.

Educating the public to reduce FOG is an important task that should have a specific amount of time dedicated to its success. Investment up front in educating the public, will reduce the financial expenditure in responding to and mitigating FOG related SSOs as they will be effectively reduced. Staff from the Public Works Operations Division and other affected departments should work closely with the City's PIO to develop appropriate messages and with which media the messages should be disseminated.

Additionally, the City intends to communicate on a regular basis with interested parties on the implementation and performance of this SSMP. The Public Education and Outreach Program will allow interested parties to provide input as the SSMP and its elements are developed and implemented.

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Chapter 11
Monitoring, Measurement, and Program Modifications

This chapter of the SSMP discusses the parameters the City will utilize to track and monitor the progress of implementing elements of the SSMP, the effectiveness of the SSMP, and how the City intends to update and revise the SSMP to keep it current.

11.1 Regulatory Requirements for Monitoring, Measurement, and Program Modifications

The WDRs require the City to:

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

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

c) Assess the success of the Preventative Maintenance Program;

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

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

11.2 Discussion of Monitoring, Measurement, and Program Modifications

To date, the City has effectively managed and maintained information pertaining to the wastewater infrastructure by means of manually recording preventive maintenance activities and documenting notifications received regarding potential and actual SSO occurrences. The City has tracked performance measures through logs and reports including, but not limited to, the length of pipe cleaned, the quantity, cause and location of stoppages, SSOs, and the scheduled maintenance of high frequency maintenance locations. The City will continue to monitor the performance measures it currently tracks.

To address the components listed in Section 11.1 and as required by the WDRs, the following subsections provide a summary of the procedures to properly monitor program progress and implement necessary modifications.

11.2.1 Maintain Information Pertaining to SSMP Activities

The City has designated the Public Works Contracts Specialist as the individual responsible to continually monitor the SSMP provisions to ensure that the system is maintained in conformance with the document. As improvements or modifications are identified, the City will implement the necessary adjustments to the program at the earliest practical time.

11.2.2 Monitor and Measure SSMP Elements

As the SSMP elements are implemented and evolve, the City will modify the elements due to new technology, equipment, code changes, specific program enhancements, and the collection system's rehabilitation through implementation of the CIP. The Public Works Contracts Specialist should identify and recommend updates to this SSMP as part of the City's regular performance measurement assessments.

The following performance parameters may be utilized along with other typical industry and EPA performance indicators for the City's system:

1) Pipe age
2) O&M cost/mile/year
3) O&M staff/100 miles
4) Percent of system each year
5) Total annual percent cleaned
6) System cleaning cycle frequency
7) FOG program activities
8) Percent CCTV per year
9) I&I monitoring
10) Planning goals status

11.2.3 Assessment of Preventative Maintenance Program

The City developed the O&M Program that includes a summary of the City's current procedures and practices as they pertain to the O&M activities. On a regular basis, at least once every two (2) years, the City should evaluate the effectiveness of the O&M Program elements and staffing levels. Recommendations for appropriate adjustments and an implementation schedule should be developed. Implementation of any changes should be based on urgency of the need, coordination with other program elements, and management approvals.

11.2.4 Update Program Elements

The City must review this SSMP on a regular basis and update the document with any significant changes. The SSMP must be reviewed, updated, and re-certified at least once every five (5) years. The City's process should include distributing the SSMP to appropriate City staff for review to ensure the most current legal authority, response plans, organizational charts, equipment lists, and contact/notification information is included. Once the City makes operational, maintenance, management, and administrative changes, the City may consider distributing the SSMP to other agencies to perform a peer review of the document. Once recommendations are incorporated into the document, the SSMP will be ready for public dissemination and ultimately for recertification by the City Council. The City is responsible for maintaining the SSMP program as required by the Santa Ana RWQCB and will make the SSMP accessible to the public.

11.2.5 Identify and Illustrate SSO Trends

The City currently maintains a spreadsheet with information pertaining to actual SSOs. The City also submits SSO information on the CIWQS website which is accessible to the public. The City will continue to document SSO trends. Finally, the City is efficiently and effectively implementing the measures to properly document and report any SSOs as required by the WDRs.

11.3 SSMP Modifications

The City must update the SSMP periodically to maintain current information, and modify the programs as necessary to ensure program effectiveness and continual compliance with the WDRs. Information that will be routinely updated includes, but is not limited to, contact names and phone numbers for City staff responsible for implementation of specific SSMP programs, staff on stand-by rotational schedule for SSO response, and approved contractors and vendors.

As modifications to elements of this SSMP are deemed necessary, the City will implement them at the earliest practical time. However, changes will be officially made to this SSMP during the annual or bi-annual update to the document. A comprehensive SSMP update and recertification will occur every five (5) years or as necessary and will include any significant program changes.

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Chapter 12
SSMP Program Audits

This chapter of the SSMP discusses the City's SSMP Auditing Program.

12.1 Regulatory Requirements for SSMP Program Audits

The WDRs require that the City 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 (2) years and a report must be prepared and kept on file. This audit shall focus on evaluating the effectiveness of the SSMP and the City's compliance with the SSMP requirements identified, including identification of any deficiencies in the SSMP and steps to correct them.

12.2 Discussion of SSMP Program Audits

The City must complete bi-annual audits of its SSMP. Any modifications identified while monitoring the implementation of this SSMP will be officially noted during the SSMP bi-annual audit to ensure this SSMP is up to date. The audit will be completed internally, and the City has the option to have the audit performed by an appropriate third party auditor or a neighboring agency. The audit may include, but not be limited to:

- Reviewing the progress made on the development of SSMP elements
- Reviewing the status of the SSMP programs implemented
- Identifying the success of various SSMP programs implemented
- Identifying the improvements necessary to various SSMP programs
- Describing system improvements within the two (2) year audit period
- Describing system improvements planned for the upcoming two (2) years
- Reviewing data related to SSO occurrences

Upon completion of the audit, the City must memorialize the process and results in a written document. The City must retain the audit report on file in compliance with the WDRs. A copy of the report must be submitted to the RWQCB and to the SWRCB.

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Appendix A
City of Anaheim
Legal Ordinances

Appendix B
City of Anaheim
Operations and Maintenance Program

Appendix C
City of Anaheim
Fats, Oils, and Grease Control Program

Appendix D
City of Anaheim
Sanitary Sewer Overflow Emergency Response Plan

Appendix E
City of Anaheim
Sewer Design Manual and Standard Details

Appendix F
Contract Documents and Standard Specification Supplement

Appendix G
Public Outreach