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Abalone Cove Sewer System Management Plan

Prepared for the City of Rancho Palos Verdes

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ABBREVIATIONS/ACRONYMS

ACO	Accumulative Capital Outlay Program
APWA	American Public Works Association
CADD	Computer Aided Design and Drafting
CALOSHA	California Occupation, Safety and Health Administration
CCTV	Closed-Circuit Television
CSMD	Consolidated Sewer Maintenance District
DPW	County of Los Angeles Department of Public Works
FOG	Fats, Oils, and Grease
GIS	Geographical Information System
I/I	Infiltration Inflow
LACO CODE	Los Angeles County Code Title 20 - Utilities
LACO PLUMBING CODE	Los Angeles County Plumbing Code - Title 28
MMS	Maintenance Management System
OES	Office of Emergency Service
RWQCB	Regional Water Quality Control Board
SMD	Sewer Maintenance Districts
SSMP	Sewer System Management Plan
SSOs	Sanitary Sewer Overflows
WDRs	Statewide General Waste Discharge Requirements

DEFINITIONS

Backup - flows entering and confined to a private structure.

Geographic Information System (GIS) – A database linked with mapping, which includes various layers of information used by government officials and the public. Examples of information found on a GIS can include a sewer map and sewer features such as pipe location, diameter, material, condition, and last date cleaned or repaired. GIS also typically contains base information such as streets and parcels.

Infiltration/Inflow (I/I) – Infiltration is generally considered to be extraneous water that enters the sewer system over longer periods of time, such as groundwater seepage through cracks in the sewer. Inflow is generally considered to be extraneous water that enters the system as a direct result of a rain event, such as through defects in the sewer. While it is impossible to control all I/I, it is certainly desirable to reduce I/I when cost-effective.

Lateral – The portion of sewer that connects a home or business with the public sewer mainline in the street as further defined in the County Code, Title 20.20.130. Maintenance responsibility described in the County Code, Title 20.24.080.

Sanitary Sewer Overflow (SSO) – A flow out of public collection system and onto public or private property. Also called an Overflow.

Blockage – A buildup of debris in the sewer, which stops the flow of wastewater and allows the water to back up behind the stoppage, sometimes causing an overflow. Also called a stoppage.

Wastewater Collection System – All pipelines, pump stations, and other facilities upstream of the headworks of the wastewater treatment plant that transport wastewater from its source to the wastewater treatment plant.

INTRODUCTION

On May 2, 2006 the State Water Resources Control Board (SWRCB) adopted Statewide General Waste Discharge Requirements and a Monitoring and Reporting Program (WDRs), for sanitary sewer systems by issuing Order No. 2006-003 (Appendix A). The regulations in the Order were in response to growing public concern about the water quality impacts of Sanitary Sewer Overflows (SSOs), particularly those that cause beach closures, adverse effects to other bodies of water, or pose serious health and safety or nuisance problems. Two major components of the WDRs require the following:

(1) The requirement that owners/operators of publicly owned sewer collection systems, a mile long or greater, must apply for coverage under the WDRs; and,

(2) The owners/operators must develop and implement a System Management Plan (SSMP) specific to their sanitary sewer system.

The Abalone Cove Sewer Collection System (Collection System) is currently owned, operated, and maintained by the City of Rancho Palos Verdes (City) separately from the rest of the City's sewer system, which is operated and maintained by the LA County Sewer Maintenance District (CSMD). Maintenance of the Abalone Cove Sewer Collection System is jointly funded through the Abalone Cove Sewer Maintenance District and augmented with an annual City subsidy. The City of Rancho Palos Verdes Sewer System Management Plan (SSMP) for areas covered under the CSMD is available at the City's Department of Public Works (copy of the 2014/15 Annual Report for the Abalone Cove Sewer Maintenance Fee is included in Appendix F). Funding for the sewer system maintained by the CSMD is through an annual assessment, collected through the tax rolls, of each property that is connected to the system. The SSMP herein covers Abalone Cove Sewer Collection System (Collection System). This SSMP will serve to ensure that proper Operation and Maintenance (O&M) procedures are in place to reduce the frequency and severity of SSOs in this area. A map of the City's sewer systems including the Abalone Cove Collection System is included in Appendix B.

In compliance with the first WDR component above, the City filed a Notice of Intent (NOI) application form with the SWRCB for the Collection System on April 6, 2012 (Appendix C). The City subsequently received a Username and Password for electronic access to the California Integrated Water Quality System (CIWQS) database. Within the database-reporting program, the City completed a "collection system questionnaire" and will file all subsequent updates and all required SSO reporting.

In compliance with the second component, this document was prepared to meet the objectives contained in the 2006 WDR Order and 2013 WDR amendments (Appendix A).

This document is divided into 12 chapters, which closely align with the respective provisions contained in the WDR. Every section or subsection of each chapter addresses one of the key elements of the SSMP directive.

This document, along with other ordinances, code requirements and existing agency programs referenced herein, constitutes the City's SSMP for the Abalone Cove Sewer Collection System, which is a sewer maintenance assessment district funded through the Landslide Settlement Agreement of 1987. It is maintained and funded in accordance with the annual Engineer's report (a copy of the Municipal Code Title 13.06, the initial and most current Engineer's reports are attached in Appendix F). Additional information on funding of the system is presented in the Annual Reports in Appendix F. By

implementing the procedures contained in this SSMP, the occurrence of SSOs should decrease or possibly be avoided in this area.

1. GOALS AND ACTIONS

1.1. Goals

1. The Collection System is properly operated, maintained and managed to reduce the frequency and severity of sanitary sewer overflows (SSOs) and their potential impacts on public health, safety, and the environment.

2. When an SSO occurs, prompt action is taken to identify, contain, and remove the cause; report the event to the appropriate regulatory authorities; and notify the public in a timely manner.

3. All SSOs, system deficiencies, and remedial actions taken are well documented.

4. The Collection System operators, employees, contractors, responders, and other agents are adequately trained and equipped to address an SSO event.

5. The Collection System is designed, constructed and funded to provide adequate capacity to convey base flows and peak flows, while meeting or exceeding applicable regulations, laws and the generally accepted practices relative to sanitary sewer system operation and maintenance.

1.2. Actions

1. Conduct a planned and scheduled maintenance program to minimize the risk and occurrence of SSOs.

2. When an SSO occurs, respond to the incident in a timely manner and undertake feasible remedial actions to contain the overflow, including stopping the flow from reaching the storm drain, if possible.

3. Stop the sewer overflow as soon as possible and limit public access to the overflow area to prevent public contact with any wastewater contamination.

4. If possible, completely recover the overflow sewage, return it to the sewer system, and clean up the contaminated area.

5. Gather and compile all pertinent information regarding the sewer overflow incident, investigate as necessary to determine probable cause, document findings, report the incident to the appropriate regulatory agencies in a timely manner, and file a copy of the report.

2. DESCRIPTION OF THE ORGANIZATION

2.1. Management

The Collection System serves a population of approximately 270 people. The City's Public Works Department (PWD) manages the Collection System and is responsible for implementing this SSMP. Annually, the City spends approximately $105,000 for the maintenance and operation of the system, which consists of approximately 130 manholes, 1 diversion structure, 19,615 linear feet of low pressure pipe, 19,000 linear feet of gravity pipe, 44 grinder pumps, 4 lift stations, and 2,505 linear feet of force main. House laterals are maintained by property owners and extend to a mainline or grinder pump. The Collection System discharges into Los Angeles County Sanitation District facilities for conveyance, treatment and disposal.

The City has two budgeted management positions directly involved in sewer system responsibilities. The field operation and maintenance services are fulfilled by utilizing the services of three reputable sewer maintenance companies (see Appendix D). The distribution of the City's personnel and the contracted services are depicted in the organizational chart presented in Figure 1. City personnel administer the City's sewer collection system operation, provide engineering evaluation of proposed and existing sewer facilities, administer preventive maintenance and sewer construction programs, and oversee the maintenance of the sewer collection system facilities and related records and plans.

2.2. Authorized Representative

The City's Director of Public Works is the authorized representative who is responsible for the execution of compliance actions required under the WDRs. This includes, but is not limited to, execution and certification of all reports and correspondence as required under the Order.

2.3. Organization Chart and Responsibilities

The organization chart, showing the structure and relationship of the City DPW administrative, management and field positions relative to Sewer Operation and Maintenance (SO&M) is presented in Figure 1 and the descriptions of responsibilities and support are presented in Sections 2.3.1 and 2.3.2.

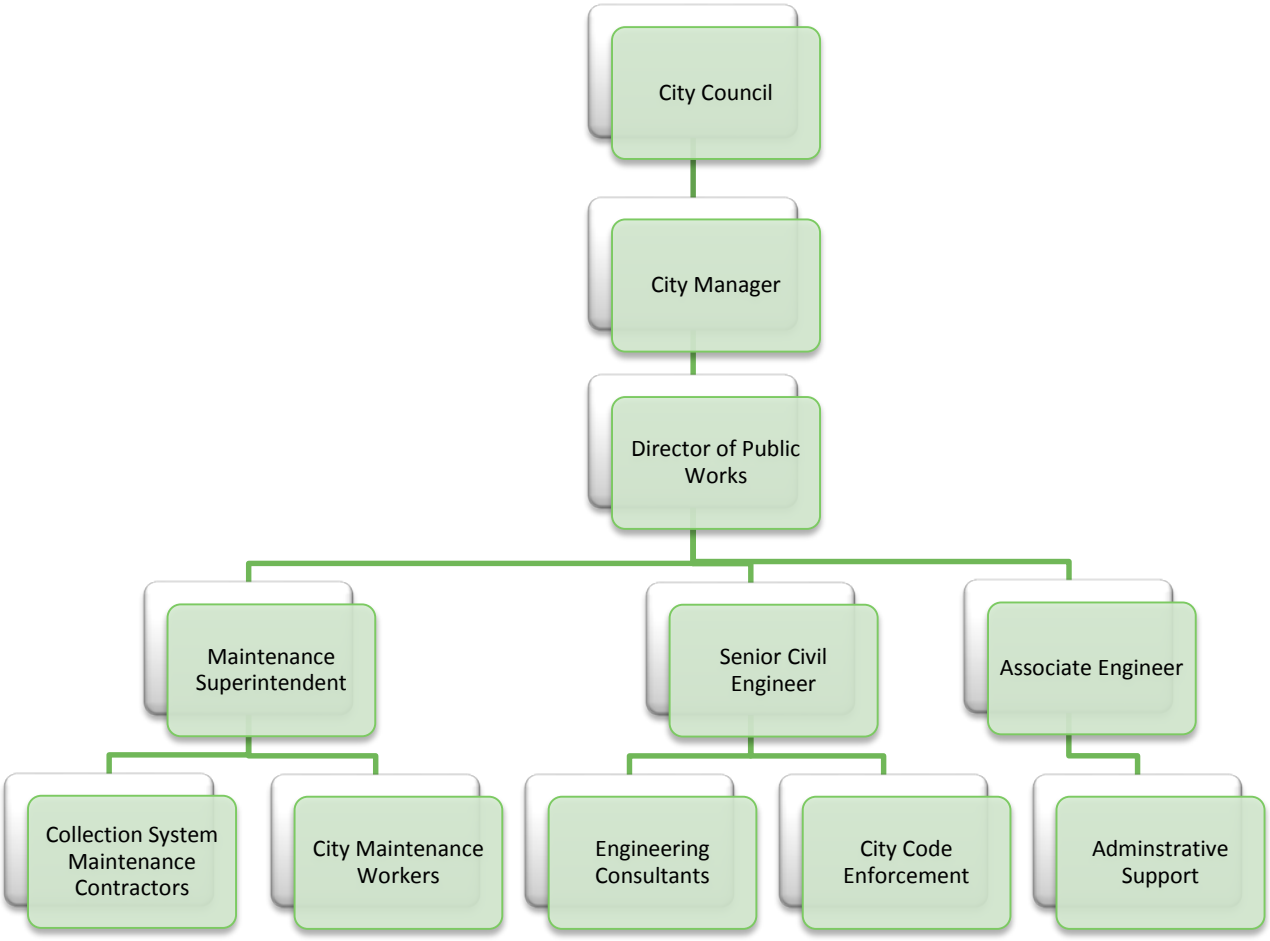

Figure 1 City of Rancho Palos Verdes Organization Chart for Sanitary Sewer System Management

2.3.1. Description of Responsibilities

The description of responsibilities or roles of each position especially as related to SSOs are as follows:

- City Council - Responsible for establishing new and amending existing ordinances and policies governing the municipal operations, and the operations of the City's sanitary sewer system including the approving of all O&M contracts and agreements to protect the community's interest.

- City Manager – Responsible for the overall management and application of all legal and policy directives that relate to the City's activities, including the O&M of the City's sanitary sewer system.

- Director of Public Works – Directs the accomplishment of statutory and policy criteria within the scope of the City Council's policy and legal requirements. Directs its execution, and evaluates work accomplished within his areas of responsibility, including the O&M program. Also directs the planning, budgeting, design for the construction of new sewer collection system and rehabilitation of existing sewer collection system. Facilitates all sewer collection system O&M activities. Responsible for the day-to-day management and operation oversight of the City's sewer collection system.

- Principal Engineer – Directs engineering and management activities relating to studies, design, investigations, and the preparation of reports, budget and contractual agreements with private firms for technical service projects. Performs special studies, investigations and reports concerning sewer infrastructure.

- Maintenance Superintendent - Has oversight of all contracted maintenance and repair services for City's facilities, collects data in the field, and completes reporting of forms.

- Senior Engineer, Administrative Support - Assist in the preparation of reports, budgets, and other correspondence; coordinate and facilitate City and contract personnel in addressing local citizen issues related to sewer service, report SSO and administer required monthly reporting.

2.3.2. City Divisions/Departments and Other Agencies

Other Divisions or Departments within the City, and specific contracted services, are currently and will continue to be responsible for carrying out some of the compliance actions called for by the WDR's for the City. The key support units and their responsibilities are described below:

- Administrative Support - Responsible for procuring equipment and as needed contract services for emergency sewer repair projects, printing and mailing of public education outreach program materials, and for procuring material and supplies needed for the day to day operation and maintenance activities, accounting services and training of personnel. Also responsible for investigating SSOs related claims and litigations against the city.

- Building and Safety Department - Responsible for reviewing various building permit applications, their relationship to public easements and facilities, and issuing permits for sewer connections. Also the enforcement of the Building and Plumbing Codes involving proper connection and discharge into the public sewer system and the property owner's

maintenance of their respective sewer laterals between the structure served and the public sewer collection main.

- Planning and Zoning Department - Responsible for subdivision or development project plan checks to ensure compliance with the City's standards for construction of new sewer collection systems. Coordinates plan checks for sewer capacity studies to size proposed sewer lines and sets requirements to ensure adequate capacity in existing systems.

- Public Works Department – The Public Works Department provides critical services needed for the City to address the required demands of the WDR. The City is responsible for operational maintenance services of the city's sewer collection system, including cleaning, closed circuit television (CCTV) inspection, manhole inspection, and minor urgency repairs. Public Works is responsible for the enforcement of the Health and Safety Codes regarding waste disposal such as the FOG program, point source control inspection of industrial and commercial waste and grease generating facilities, and investigation of cases of illicit discharge of chemicals, debris, etc. into the public sewer system. This is undertaken in concert with the LACDPW Environmental Programs Industrial Waste Unit. Responsible for preparing plans and specifications for sewer construction and rehabilitation projects, and the administration of contracts for accomplishing such projects and emergency sewer repair projects. Prepares easement documents or identifies and procures access rights for public sewer facilities located within private properties.

- Los Angeles County Fire Department – Responsible for assisting with protecting the public and crowd control in an emergency situation, such as in the event of an SSO expanding into high use public travel ways and posing a serious public health or safety risk.

- Los Angeles County Sheriff's Department - Responsible for assisting with protecting the public and crowd control in an emergency situation, such as in the event of an SSO expanding into high use public travel ways and posing a serious public health or safety risk.

2.3.3. Chain of Communication for SSO Reporting

The chain of communication for reporting SSOs, from receipt of a complaint or other reliable information source to reporting to the appropriate regulatory agencies, is presented in Figure 2 below. The City's contact directory for communicating with both internal and external parties involved in responding and reporting an SSO event is included in Appendix E. The SSO emergency response plan will be discussed in greater detail in Chapter 6 of this document.

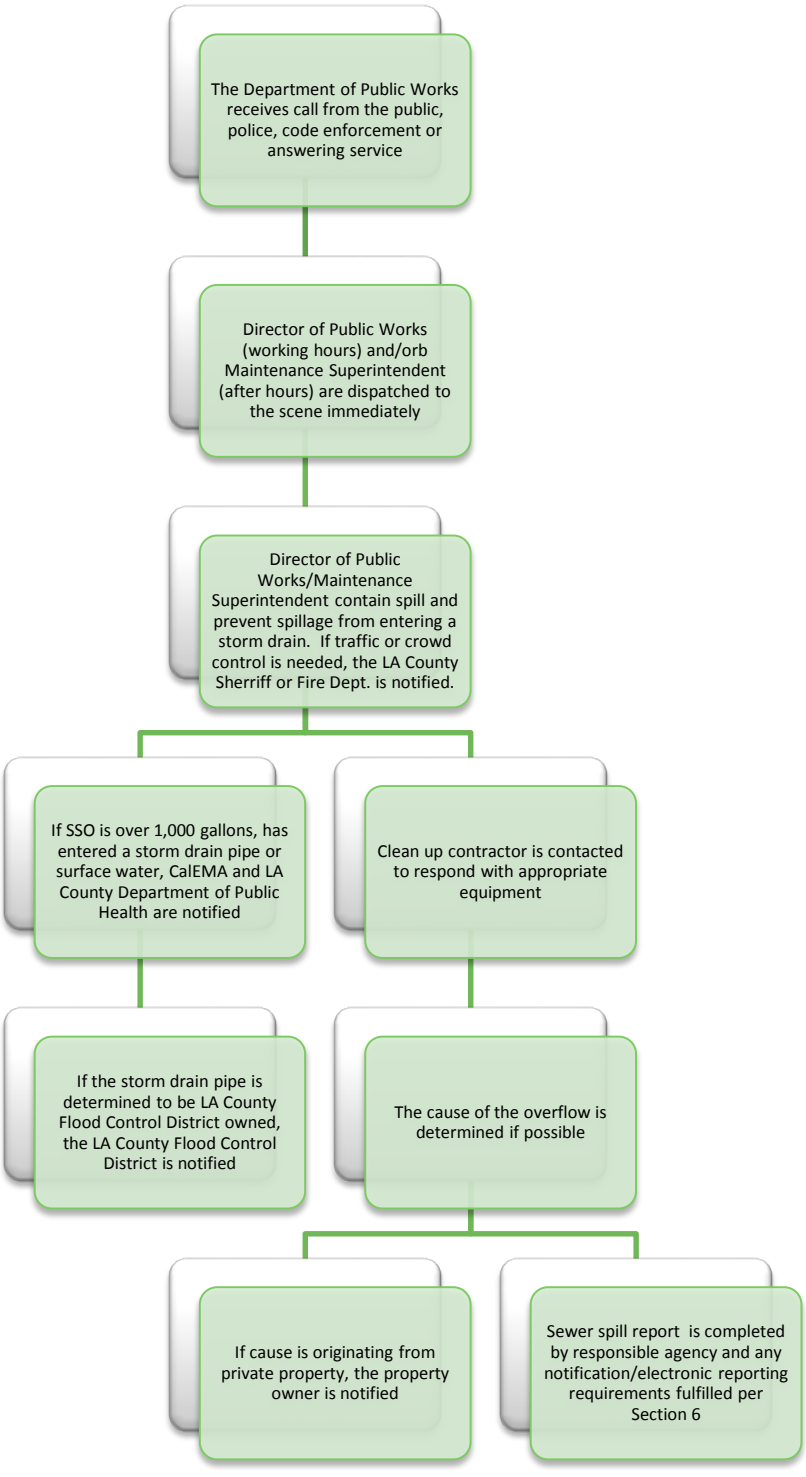

Figure 2 City's SSO Reporting Procedures Flow Chart

3. LEGAL AUTHORITY

3.1. Legal Authority

The City's legal authority to own and operate a sanitary sewer system is derived from its incorporation as a City. The City maintains ownership of the sewer system and is responsible for the management, operation, and maintenance of the public portions of the system in the Abalone Cove area.

In compliance with the WDR, this Chapter highlights the City's legal authority to: 1) prevent illicit discharges into the sanitary sewer system; 2) require that sewers and connections be properly designed and constructed; 3) ensure access for maintenance, inspection, or repairs; 4) limit the discharges of FOG and other debris that may cause blockage; and 5) enforce any violation of sewer ordinances or City Municipal Codes (CMC). The legal authorities for the specific areas stipulated in the WDRs are covered in various sections of the City Municipal code and Title 20 of the LACO Code, which has been adopted by the City.

3.1.1. Legal Authority to Prevent Illicit Discharges into the Sanitary Sewer System

In accordance with the City's Municipal Code (CMC), Chapter 15.12.010, the City has adopted the California Plumbing Code, 2013 Edition (Part 5 of Title 24 of the California Code of Regulations), which incorporates and amends the Uniform Plumbing Code, 2012 Edition, published by the International Association of Plumbing and Mechanical Officials. In addition, per Chapter 13.04.10 of the CMC, the City has adopted the latest edition of Title 20 – Utilities, Division 2 of the Los Angeles County (LACO) Code, which regulates sanitary sewers and industrial waste in the County. The LACO Sanitary Sewer and Industrial Waste Code Title 20, Division 2 applies to the discharge, deposit or disposal of all wastes, including any material which may cause pollution of underground or surface waters, in, upon or affecting the unincorporated territory of the county of Los Angeles; and the design, construction, alteration, use and maintenance of public sewers and house laterals, industrial connection sewers, water pollution control plants, sewage pumping plants, industrial liquid-waste pretreatment plants, dairy screen-chambers, sand and grease interceptors, and appurtenances; the issuance of permits and the collection of fees therefore, and fees to pay the cost of checking plans, inspecting the construction and making record plans of the facilities permitted hereunder; and providing penalties for violation of any of the provisions of this Division 2. LACO Title 20, Section 20.36.400 prohibits the discharge of waste and liquid waste that will interfere with the effective use thereof, including stormwater. In addition, LACO Title 20, Section 20.24.080, requires that property owners be responsible for maintenance of their house laterals, including the elimination of cracks, tree roots, and other debris. These laws combined constitute the City's legal authority to prevent illicit discharges into the Collection System.

3.1.2. Legal Authority to Require that Sewers and Connections be properly Designed and Constructed

The LACO Code Title 20, Sections 20.32.330 and 20.32.340 as adopted by the City, require that the design of new main-line sewers and pumping plants respectively in the City, comply with Part 3 of Chapter 20.32 of the Code. Section 20.32.350 of the Code requires that the design of new house laterals also conform to the requirements of Part 3, Chapter 20.32 of the Code unless otherwise covered by the LACO Plumbing Code Title 28. In accordance with LACO Code Title 20, Section 20.32.580, the construction of a sewer collection system is required to conform to all the requirements prescribed by Division 2, of the LACO Code, the Standard Specifications for Public Works Construction and by the Special Provisions and Standard Plans, on file in the office of the County Engineer. The inspection of new main-line sewers and

pumping plants to ensure proper construction is covered under Section 20.30.590 of the LACO Code and also regulated under the CMC.

3.1.3. Legal Authority to Ensure Access for Maintenance, Inspection, or Repairs

Title 20, Division 2, as adopted by the City gives the City the legal right to set requirements to allow unrestricted maintenance access to the public sewer infrastructure located in easements on private property. In accordance with Section 20.32.430 of the LACO Code, the access is secured through City's enforcement of the requirement for legally recorded sewer easements around all public sewer appurtenances located in private properties. Sewer easements are detailed on the sewer construction plans and are thoroughly reviewed by the City for adequacy in size and accuracy of alignment during the plan check process. Plan checkers take special care to ensure that maintenance crews will have sufficient access for the movement of equipment and materials for both routine and emergency repair or construction work on the system.

3.1.4. Legal Authority Limiting the Discharge of FOG and other Debris that may cause Blockage

The City by adopting the LACO Plumbing Code - Title 28 and the LACO Code - Title 20, has the legal authority to satisfy this element of the WDR. The LACO Plumbing Code - Title 28, requires the installation of grease interceptors at restaurants and other food establishments that generate grease in the City. LACO Code - Title 20, Section 20.36.560 gives the City Director of Public Works the authority to require the installation of treatment facilities, including grease interceptors, at any facility that generates FOG in the amount that will damage or increase the maintenance costs of the sewer collection system. In addition, Title 20, Section 20.24.080 requires property owners to maintain all house laterals in good working order and kept in a safe and sanitary condition.

3.1.5. Legal Authority to Enforce any Violation of Sewer Ordinances - The LACO Code

Section 20.24.090 gives the City Director of Public Works the legal authority to inspect main-line sewers, sewage pumping plants, interceptors etc., as often as he deems necessary, to ascertain whether such facilities are maintained and operated in accordance with the provisions of Division 2 of the LACO Code.

Under 20.24.100 of the LACO Code, the City Director of Public Works is empowered to enforce all the requirements prescribed in Division 2 – Sanitary Sewers and Industrial Waste of the Code and in accordance with Section 20.24.110 may delegate this authority. The LACO Code, Section 20.24.160 allows criminal penalties for any violations of the Sewer and Industrial Waste Ordinances.

The Codes, standard plans, specifications and other material cited in this Chapter are filed at the Office of the City's Director of Public Works.

4. OPERATION AND MAINTENANCE PROGRAM

4.1. Preventive Maintenance Program

The City is responsible for the Operation and Maintenance (O&M) of the Collection System. The City has contracted three sewer maintenance companies to assist in the operation and maintenance (See Appendix D). In the event of an emergency, residents/property owners are instructed to call an answering service. This service will contact the appropriate staff member for on-call maintenance. In the event that the first contact does not respond, the next contact on the list (included in Appendix E) will be called. Staff will be dispatched to the site for evaluation and appropriate actions will follow.

The maintenance program includes quarterly inspection and maintenance of all mainline above ground sewer pipe, periodic CCTV inspection, pressure cleaning for all underground gravity mainline pipes, quarterly inspections of the lift stations, and annual inspections of the grinder pumps.

To ensure a flow of funds for the on-going operation and maintenance for the sewer facilities in the Collection System, the City formed the Abalone Cove Sewer Maintenance District, which collects a fee. This Sewer Maintenance Fee ensures a fair and equitable levying of the necessary costs of operating and maintaining of facilities. The sewer flow rates used to calculate the User Fees are based on the Los Angeles County Sanitation District standards. Residential parcels with single family homes are assigned a flow rate of 260 Gallons Per Day (GPD). Therefore, 260 GPD is defined as 1 Equivalent Residential Unit (ERU) and all other parcels are charged based on the number of ERUs calculated on their property for their particular use. Appendix F provides a summary of the user categories, the assigned flow rates, and the ERU calculation for each. Also included in Appendix F are the ordinance establishing the legal authority to collect this fee, the Abalone Cove Sewer Fee Rate Analysis Report and a Sewer Maintenance Fee Annual Report from fiscal year 2013-14.

The sewer system is comprised of three types of subsystems:

- Gravity subsystem,
- Force main subsystem, and
- Low-pressure subsystem.

Each subsystem requires different levels of O&M and therefore, has different maintenance costs associated with it. The area has been divided into four zones shown in Table 2 of Appendix F. Each zone corresponds to the specific combination of subsystems used by or immediately available to the parcels located in that zone.

The following is a summary of the City's preventive maintenance activities:

4.1.1. Mainline Sewer (Low Pressure/Force Main)and Gravity Mainline Sewer Pipe Inspections

All mainline above ground sewer pipe, flex hose, and above ground lateral connections are visually inspected by a city contractor on a quarterly basis. Visual inspections focus on the following;

- Leak detection
- Signs of saturated soils in the vicinity
- Erosion of soils that are supporting the placement of the pipe

- Rust build-up
- Signs of tampering to sewer system
- Ensure that backflow valves are open properly and in proper working order
- Check steel flex hose for damage
- Inspect cleanouts that are located on sewer system
- Inspect all air relief valves and their red wood box housings

All underground gravity mainline sewer pipes are pressure cleaned with high pressure cleaning equipment and are inspected by means of CCTV on a 5-year cycle for any roots, cracks, blockage, or any other potential problems.

4.1.2. Manholes

On an annual basis, all manholes are inspected and maintained. All manholes are cleaned free of any deposits that could potentially block the sewer system and pressure-washed as needed to remove grease build-up.

4.1.3. Mainline Sewer Lift Stations Inspections

The City requires that the lift stations are visually inspected on a quarterly basis and serviced on an annual basis as a measure of preventative maintenance. Quarterly inspections are performed by a city contractor. The following is a list of required inspection activities:

- Cable Entry Flange
- Strain Relift Clamp
- External parts on pumps
- Debris in wet well
- Condition of floats
- All wiring that is supplied for the pumps
- Check for rusted and corroded materials such as the guide rails for the pumps
- Verify that the pumps in the lift station are alternating when cycling
- The lift stations are serviced annually and pumps replaced at 15 years of service.

4.1.4. Sewer Line Cleaning

Sewer lines are cleaned and inspected every five years and as needed. Sewer lines with grease buildup are cleaned and grease is removed along with all debris that has collected on the wet wells.

4.1.5. Vermin and Rodent Control

The City utilizes two contractors for vermin and rodent control. Contractor information is provided in Appendix D. Contractors respond to service calls generated by Public Works.

4.1.6. Sewage Pump Stations

All pumps in intermittent operation are inspected annually. Pumps and motors are lubricated, control mechanism and valves are checked and adjusted as necessary, and equipment is repaired or modified as required.

4.1.7. Work Scheduling

City work orders are generated and tracked by the Public Works Department. City field crew activities are recorded in various forms such as service requests, cleaning reports, sewer maintenance daily reports, manhole adjustments, overflow report forms etc. and finally stored at City Hall.

4.1.8. City Sewer Mapping System

The City maintains a complete Geographic Information System (GIS) asset database of the existing sewer collection system. Data on the plans, such as system location and alignment, pipe material, size etc, are also stored in the Department of Public Works office at 30940 Hawthorne Blvd., Rancho Palos Verdes, Ca 90275. A map of the Sewer Collection System can be found in Appendix B.

4.2. Rehabilitation and Replacement Plan

A consultant, Dudek and Associates, Inc., was contracted by the City to update the Sewer System Master Plan which utilized a hydraulic model of the collection system, based on observed flow data, and identified any capacity related issues. The Sewer System Master Plan can be found at the City of Rancho Palos Verdes Department of Public Works office at 30940 Hawthorne Blvd., Rancho Palos Verdes, Ca 90275.

4.2.1. Condition Assessment Program

There are approximately 3,600 LF (0.68 mile) of force mains and approximately 11,235 LF (2.13 miles) of low pressure lines making a total of 14,835 LF (2.81 miles) of sewer lines within the Collection System. The Collection System contains a large number of grinder pumps (44 grinder pumping stations) and gravity connections. For the low pressure service area of the Collection System, each connection is served by a single grinder pump and low pressure main connection. These are industry standard designs which reliably serve one to three connections. The receiving line is subject to periodic flows from each of the pumps connected to the system and it in turn feeds into a larger lift station serving both gravity and low pressure customers or feeds into the gravity system within Abalone Cove. The results of increasing flow into the lift station are that the lift station pump operates for a longer period of time.

Since the Collection System is located on shifting land, that is prone to landslides, the grinder pumps have been installed to transport household flows into the main sewer system. The existing sewer pipes, ranging from 8 to 15 inches in diameter, are predominantly made of PVC and vitrified clay pipe material. Naturally, as these vitrified clay pipe sewer lines age, structural problems such as cracks, joint separation, root intrusion, etc. may develop. To ensure that these problems are properly mitigated, the WDR requires that the City has a program in place to minimize and correct them and that the program is well funded.

As mentioned earlier in this document, in order to insure a flow of funds for the O&M of the Collection System, the City collects an Abalone Cove Sewer Maintenance Fee from property owners connected to the Collection System. This fee is in place to ensure a flow of funds for the ongoing operation and maintenance of the Collection System. The sewer flow rates used to calculate this user fee are based on the Los Angeles County Sanitation District (LACSD) standards. Using these standards, residential parcels with single family homes are assigned a flow rate of 260 Gallons Per Day (GPD). Therefore, 260 GPD is defined as 1 Equivalent Residential Unit (ERU) and all other parcels are charged based on the number of ERUs calculated on their property for their particular use. An ERU Calculation Summary Table is provided in Appendix F.

The Collection System is comprised of three types of subsystems. Each of these subsystems requires different levels of O&M and therefore, have different costs associated with them. Parcels that contribute flow to a subsystem will be charged for the operation and maintenance of that system. Because the entire Collection System flows into the Palos Verdes Drive mainline section of the system, all users of the Collection System will be charged for the operation and maintenance of that section as well.

The City Council annually reviews the current and projected year's cost for the O&M of the sewer facilities and sets the rates for the ensuing fiscal year. In setting the annual rates, the City Council will consider any new or updated maintenance costs, and any fund balances or shortages, provide subsidies to the fee if needed, and adjust the rates accordingly.

4.3. Equipment Maintenance and Replacement Policy

The equipment utilized in the maintenance of the City's sewer facilities is owned and maintained by contractors who perform maintenance on the collection system. Lift station pumps are purchased through funds collected through the annual assessment of property owners, so technically the property owners own the lift station equipment.

4.4. Training for Field Operations Personnel and Contractors

The City does not have any formalized training for contractors doing work within the City. Contractors must adhere to the code requirements in outlined in Section 3 and as required by the County and State mandates. In addition, the City's sewer construction projects are awarded to carefully selected contractors with well trained and qualified personnel for any given project. The designed plans and specifications for the City's sewer construction projects contain detailed instructions on the City's permitting requirements, standards and policies that must be adhered to by contractors doing work within the City.

5. DESIGN AND PERFORMANCE PROVISION

5.1. Design and Construction Standards and Specifications

The City requires that all sewers be designed in accordance with Los Angeles County standards. The American Public Works Association (APWA) and County DPW have Standard Plans and Specifications for Construction of Sanitary Sewers and appurtenances to ensure that sewer lines and connections are properly designed and constructed. The County DPW specifications, by reference, incorporate the Standard Plans and Specifications for Public Works Construction, Special Provisions, and Standard Drawings. In addition, County DPW has other publications such as the Private Contract Sanitary Sewer Procedural Manual, Guidelines for the Design of Pump Stations, etc. to ensure consistency in the design of collection systems within unincorporated County areas. The City requires that these publications also be followed in the design of sewer system within the City. To further assure that sewer facilities are properly designed and constructed, the City requires that plans are designed by licensed engineers and provides thorough review of plans, through the City's Building Department prior to approval for construction and inspection of the actual construction work.

5.2. Procedures and Standards for Inspection and Testing New and Rehabilitated Collection Sewer Facilities

The City provides inspection by utilizing its own staff or by outsourcing to a qualified consultant for the inspection of new sewer construction projects. The City requires that "As-Built" sewer plans of the completed projects be submitted prior to final approval for acceptance of sewer facilities for public use.

The City also requires that all newly constructed pumping stations be inspected by experienced staff or contractor.

6. OVERFLOW EMERGENCY RESPONSE PLAN

6.1. Overflow Response Procedure

This section outlines the Sewer System Overflow (SSO) Response Procedures employed by the City in the Abalone Cove Collection System area. Forms for SSO response are included in Appendix G. According to CIWQS, since 2007 there has been one (1) SSO in the Abalone Cove Collection System. A map showing the location of this SSO and the associated CIWQS report are included in Appendix H.

The City' Overflow Response Plan is as follows:

- Upon discovery or notification of an SSO, the Maintenance Supervisor and/or the Director of Public Works respond to the scene immediately.
- If it is suspected that the spill may contain hazardous materials, the Los Angeles County Fire Health Hazmat Division is notified. CSMD and the Los Angeles County Sanitation Districts are contacted to respond as appropriate.
- If any materials may have entered the storm drain system, or may reach State waters, the LA County Department of Public Health is notified.
- As soon as safety will allow, the overflow is contained using sandbags and/or earth dikes. All catch basins in the area are protected with sandbags.
- Cones and barricades are placed to prevent public vehicular and pedestrian access to the affected area.
- Once the cause of the spill has been identified and corrected, the overflow wastewater is collected using vactor trucks and disposed of back into the collection system downstream of the blockage.
- If the spill occurs in a City maintained area, the City's clean up contractor, Ocean Blue Environmental is contacted to clean and return the facility or area to normal operation as quickly as possible. The City's water quality consultant, John L. Hunter and Associates is contacted to oversee the cleanup.

The appropriate agencies are notified, and required reporting is completed as outlined below.

6.1.1. Regulatory Agencies Notification and Reporting Procedures

The following tables summarize notification monitoring and reporting procedures for SSOs in the City:

SSO Category	Type or Description	Agencies to be Notified	Type of Notification and Timeframe	
			Telephone/Fax	Written Report/*Online Database
1	Discharges of untreated or partially treated wastewater of <u>any volume</u> resulting from an enrollee's sanitary sewer	Within 2 hours of becoming aware of any Category 1 SSO <u>greater than or</u>	Cal EMA: (800) 852-7550	Submit Draft report within 3 business days of becoming aware of the SSO and certify within 15 calendar days of SSO end date. Enter data into the California

	system failure or flow condition that: Reach surface water and/or reach a drainage channel tributary to a surface water; or Reach a municipal separate storm sewer system and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the municipal separate storm sewer system is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or ground water infiltration basin (e.g., infiltration pit, percolation pond).	equal to 1,000 gallons, notify the California Emergency Management Agency (Cal EMA) and obtain a notification control number If any untreated or partially treated sewage may reach State waters, the LA County Department of Public Health should be notified	LA County Health Dept: (213) 974-1234	Integrated Water Quality System (CIWQS) Online SSO Database (http://ciwqs.waterboards.ca.gov/), certified by enrollee's Legally Responsible Official(s). SSO Technical Report: Certify within 45 calendar days after the end date of any Category 1 SSO in which 50,000 gallons or greater is spilled to surface waters.
2	Discharges of untreated or partially treated wastewater of 1,000 gallons or greater resulting from an enrollee's sanitary sewer system failure or flow condition that **do not** reach surface water, a drainage channel, or a municipal separate storm sewer system unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.	No notification requirements - only report on CIWQS	N/A	Submit Draft report within 3 business days of becoming aware of the SSO and certify within 15 calendar days of SSO end date. Enter data into the California Integrated Water Quality System (CIWQS) Online SSO Database (http://ciwqs.waterboards.ca.gov/), certified by enrollee's Legally Responsible Official(s).
3	All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer	If any untreated or partially treated sewage may reach State waters,	LA County Health Dept: (213) 974-1234	Category 3 SSO: Submit Certified report within 30 calendar days of the end of month in which SSO occurred. Enter data into the California Integrated Water Quality System (CIWQS) Online SSO

	system failure or flow condition.	the LA County Department of Public Health should be notified		Database (http://ciwqs.waterboards.ca.gov/), certified by enrollee's Legally Responsible Official(s).
Private Lateral Sewage Discharge (PLSD)	Discharges of untreated or partially treated wastewater resulting from blockages or other problems within a privately owned sewer lateral connected to the enrollee's sanitary sewer system or from other private sewer assets.	No notification requirements - responsible parties are encouraged to notify Cal EMA if discharges are greater than or equal to 1,000 gallons that result or may result in a discharge to surface water	Cal EMA: (800) 852-7550	PLSDs that the enrollee becomes aware of may be voluntarily reported to the CIWQS Online SSO Database.

Additional Requirements	Required Element(s)	Reporting
"No Spill" Monthly Certification	Certify that no SSOs occurred within 30 calendar days of the end of the month in which no SSOs occurred.	
Collection System Questionnaire	Update and Certify every 12 months in December	
Water Quality Monitoring	Conduct water quality sampling within 48 hours after initial SSO notification for Category 1 SSOs in which 50,000 gallons or greater is spilled to surface waters	Water quality results are required to be uploaded into CIWQS for Category 1 SSOs in which 50,000 gallons or greater is spilled to surface waters.
Record Keeping	SSO event records. Sanitary Sewer Management Plan (SSMP) implementation and changes/updates to SSMP. Records to document Water Quality Monitoring for SSOs of 50,000 gallons or greater spilled to surface waters. Collection system telemetry records if relied upon to document and/or estimate SSO Volume.	Self-maintained records shall be available during inspections or upon request.

*If the California Integrated Water Quality System (CIWQS) Online SSO Database is not available, fax required info to the appropriate agencies, and enter all relevant information into the online database as soon as practical.

6.1.2. Regulatory Agencies Notification and Time Frame

For any Category 1 SSO greater than or equal to 1000 gallons that results, or may result in a discharge to a surface water, either directly or by way of a drainage channel or municipal separate storm sewer system, the City notifies and obtains a notification control number from California Emergency Management Agency within two (2) hours after (A) gaining knowledge of the discharge by discovery or receipt of information from a public informant or other source(s), (B) notification is possible, and (C) notification can be provided without substantially impeding cleanup or other emergency measures.

To satisfy notification requirements for each applicable SSO, the following information, where possible, is provided to Cal EMA before receiving a control number:

- Name of person notifying Cal EMA and direct return phone number.
- Estimated SSO volume discharged (gallons).
- If ongoing, estimated SSO discharge rate (gallons per minute).
- SSO Incident Description:
- Brief narrative.
- On-scene point of contact for additional information (name and cell phone number).
- Date and time enrollee became aware of the SSO.
- Name of sanitary sewer system agency causing the SSO.
- SSO cause (if known).
- Indication of whether the SSO has been contained.
- Indication of whether surface water is impacted.
- Name of surface water impacted by the SSO, if applicable.
- Indication of whether a drinking water supply is or may be impacted by the SSO.
- Any other known SSO impacts.
- SSO incident location (address, city, state, and zip code).

Following the initial notification to Cal EMA and until such time that the City certifies the SSO report in the California Integrated Water Quality System (CIWQS) Online SSO Database, the City will provide updates to Cal EMA regarding substantial changes to the estimated volume of untreated or partially treated sewage discharged, and any substantial change(s) to known impact(s).

6.1.3. SSO Reporting to CIWQS

(1) Category 1 & Category 2 SSOs – All SSOs that meet the above criteria for Category 1 or Category 2 SSOs shall be reported to the CIWQS Online SSO Database:

a. The City will submit reports for Category 1 & Category 2 SSOs to the CIWQS Online SSO Database within 3 business days of becoming aware of the SSO by citizen complaint or discovery. Minimum information that shall be reported in a draft Category 1 SSO report which will include all information identified part 3 below.

b. Minimum information to be reported in a Category 2 SSO draft report will include all information identified in part 3 below.

c. A final Category 1 or Category 2 SSO report will be certified through the CIWQS Online SSO Database within 15 calendar days of the end date of the SSO. The final Category 1 and 2 SSO reports will include all information identified in part 3 below.

(2) All SSOs that meet the above criteria for Category 3 SSOs will be reported to the CIWQS Online SSO Database and certified within 30 calendar days after the end of the calendar month in which the SSO occurs (e.g., all Category 3 SSOs occurring in the month of February shall be entered into the database and certified by March 30th). The final Category 3 SSO report will include all information identified in part 3 below.

(3) The following information will be reported prior to finalizing and certifying an SSO report for each category of SSO:

Draft Category 1 SSO Report:

i. SSO Contact Information: Name and telephone number of enrollee contact person who can answer specific questions about the SSO being reported.
ii. SSO Location Name.
iii. Location of the overflow event (SSO) by entering GPS coordinates. If a single overflow event results in multiple appearance points, provide GPS coordinates for the appearance point closest to the failure point and describe each additional appearance point in the SSO appearance point explanation field.
iv. Whether or not the SSO reached surface water, a drainage channel, or entered and was discharged from a drainage structure.
v. Whether or not the SSO reached a municipal separate storm drain system.
vi. Whether or not the total SSO volume that reached a municipal separate storm drain system was fully recovered.
vii. Estimate of the SSO volume, inclusive of all discharge point(s).
viii. Estimate of the SSO volume that reached surface water, a drainage channel, or was not recovered from a storm drain.
ix. Estimate of the SSO volume recovered (if applicable).
x. Number of SSO appearance point(s).
xi. Description and location of SSO appearance point(s). If a single sanitary sewer system failure results in multiple SSO appearance points, each appearance point must be described.
xii. SSO start date and time.
xiii. Date and time the enrollee was notified of, or self-discovered, the SSO.
xiv. Estimated operator arrival time.
xv. For spills greater than or equal to 1,000 gallons, the Date and time Cal EMA was called.
xvi. For spills greater than or equal to 1,000 gallons, the Cal EMA control number.

Final Certified Category 1 SSO Report:

i. Description of SSO destination(s).
ii. SSO end date and time.
iii. SSO causes (mainline blockage, roots, etc.).
iv. SSO failure point (main, lateral, etc.).
v. Whether or not the spill was associated with a storm event.
vi. Description of spill corrective action, including steps planned or taken to reduce, eliminate, and prevent reoccurrence of the overflow; and a schedule of major milestones for those steps.
vii. Description of spill response activities.
viii. Spill response completion date.
ix. Whether or not there is an ongoing investigation, the reasons for the investigation and the expected date of completion.

x. Whether or not a beach closure occurred or may have occurred as a result of the SSO.
xi. Whether or not health warnings were posted as a result of the SSO.
xii. Name of beach(es) closed and/or impacted. If no beach was impacted, NA must be selected.
xiii. Name of surface water(s) impacted.
xiv. If water quality samples were collected, identify parameters the water quality samples were analyzed for. If no samples were taken, NA shall be selected.
xv. If water quality samples were taken, identify which regulatory agencies received sample results (if applicable). If no samples were taken, NA shall be selected.
xvi. Description of methodology(ies) and type of data relied upon for estimations of the SSO volume discharged and recovered.
xvii. SSO Certification: Upon SSO Certification, the CIWQS Online SSO Database will issue a final SSO identification (ID) number.

Draft Category 2 SSO Report:

i. Items1-14 of Draft Category 1 SSO Report above.
a. Final Certified Category 2 SSO Report:
i. Items 1-14 of Draft Category 1 SSO Report and Items 1-9 and17 of Final Certified Category 1 SSO Report above.
b. Certified Category 3 SSO Report:
i. Items 1-14 of Draft Category 1 SSO Report and Items 1-6 and 17 of Final Certified Category 1 SSO Report above.
c. If there are no SSOs during the calendar month, the City will certify, within 30 calendar days after the end of each calendar month, a "No Spill" certification statement in the CIWQS Online SSO Database certifying that there were no SSOs for the designated month.
d. The City will submit and certify an SSO Technical Report in the CIWQS Online SSO Database within 45 calendar days of the SSO end date for any SSO in which 50,000 gallons or greater is spilled to surface waters. This report will include all requirements outlined in the Water Resources Control Board WDR monitoring and reporting program amendments. Note: the City operated and maintained sewer infrastructure does not have the capacity to hold 50,000 gallons or more, therefore, the City will rely on LA County SMD to fulfill this requirement in parts of the system operated and maintained by SMD.
e. For reporting purposes, if one SSO event results in multiple appearance points, one SSO report will be completed in the CIWQS Online SSO Database which will include: the GPS coordinates for the location of the SSO appearance point closest to the failure point, blockage or location of the flow condition that caused the SSO, and descriptions of the locations of all other discharge points associated with the SSO event.

6.1.4. Agencies Telephone/Fax Numbers

Agency	Contacts	Hours of Operation
LA County Health Department	(213) 974-1234	Answered on a 24-hour, 7-day basis
California Emergency Management Agency	1-800-852-7550	Answered on a 24-hour, 7-day basis

Los Angeles Regional Water Quality Control Board (Region 4)	(213) 576-6600 (213) 576-6650	Answered only during normal working hours
Flood Maintenance Division East area	(626) 445-7630 (626) 798-6761	Answered only during normal working hours
South area	(562) 861-0316	Answered only during normal working hours
West area	(818) 896-0594 (818) 248-3842	Answered only during normal working hours
State Water Resource Control Board	http://ciwqs.waterboards.ca.gov/	

6.1.5. Procedure to ensure that Staff and Contractors are Aware and are appropriately trained to follow Emergency Response Plan

City staff is and its responding contractors are trained on emergency procedures for responding to an SSO. See Appendix G for more detail on SSO Response Procedures.

6.1.6. Procedure to Address Emergency Operations such as Crowd Control and other Necessary Response Activities

The City utilizes the services of LA County Fire and Sheriff Departments when needed to control and protect the general public during emergency SSO operations.

6.1.7. Program to Eliminate or Minimize the Discharge of SSO into waters of the United States

This is one of the main functions performed by the City. The roles played by the City are to ensure that the City's collection system has sufficient capacity for all operating conditions, ensuring that spills originating from the City maintained portion of the system do not impact receiving water bodies, and making sure that the SSO events are cleaned up and repaired properly.

In the event that an SSO 50,000 gallons or greater is spilled to surface waters, the City is required to implement an SSO Water Quality Monitoring Program. The City owned and operated portion of the Collection System does not have the capacity to hold 50,000 gallons, therefore, the City will rely on the LA County Consolidated Sewer Maintenance District to perform this function for spills originating in SMD operated portions of the collection system.

To date, there has been one Category 3 SSO (in 2007) originating from the Collection System. Appendix H contains a map of the SSO location along with the SSO CIWQS Report.

7. FOG CONTROL PROGRAM

The City has determined that a FOG control program is not needed, at this time, because the collection system connections are mainly residential (serving approximately serving 270 people). Their are currently no industrial or commercial facilities connected to the sewer system. Therefore, it is unnecessary to provide information pertaining to FOG inspections, grease trap installation, etc. However, the City may implement a public education outreach program to promote proper disposal of household FOG, to prevent blockages and FOG buildup if it is determined that this is needed. To date, there have been no FOG related capacity issues identified.

7.1. The Legal Authority to Prohibit Discharges to the System and Identify Measures to Prevent SSOs and Blockages Caused By Fog

The legal authority to prohibit discharges of FOG into the sewer system is discussed in Chapter 3 of this document. The City may implement a public education outreach program in efforts to prevent SSOs and blockages caused by FOG should these sources become a problem. If it is determined that FOG is contributing and/or causing collection system blockages or overflows, a FOG control program will be implemented.

7.2. Cleaning Schedule for Identified FOG Prone Sewer Segments

This function is performed by contractors working for the City. There are currently no known FOG "hot spots" within the residential areas of the Collection System.

8. SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN

8.1. System Evaluation and Capacity Assurance

The City is responsible for ensuring that the public sewer infrastructure is correctly designed, adequately sized and easily maintained. The City also reviews all proposed sewer plans for new developments in the City to ensure that they conform to County design standards and particularly to ensure that requirements for acceptability for maintenance are met.

8.2. Adequate Capacity and Correct Design

The Senior Engineer or hired qualified private company provides thorough review of all sewer plans for proposed development projects in the City to ensure that: 1) they are properly designed with sufficient capacity for current and future base, peak and wet weather flow demands; and 2) any impact of a proposed project on the existing sewer system is mitigated prior to being approved by the Senior Engineer. During construction, the projects are inspected by the Senior Engineer or hired construction inspectors to ensure that the sewer facilities are constructed in accordance with the approved plans and specifications.

8.3. Capacity Enhancement Plan

The City is responsible for the collection system capacity enhancement program through its Capital Improvement Program. A private consultant, Dudek and Assoc., Inc. recently developed a Sewer System Master Plan that applied data collected outside of the Abalone Cove sewer system to identify hydraulic deficiencies that may exist in the system. The Master Plan concluded that the current rate structure in place in the Abalone Cove area (See Appendix F) is sufficient to fund the maintenance of the current system and that the existing grinder pumps and low pressure main connections are adequate for current flow scenarios. However, hydraulic modeling identified potential capacity related deficiencies. An evaluation will be conducted which will be used as a basis of establishing a short and long term Collection System Capital Improvement Program to address potential deficiencies. This Program will include a prioritization and implementation schedule for the improvement of hydraulic capacity and replacement of deficient assets. As soon as the results of this evaluation are analyzed, a schedule of any needed projects will be drafted. The Capital Improvement Program Plan is expected to be completed during FY 2014-15 and will be available at the City's Public Works Office at 30940 Hawthorne Blvd., Rancho Palos Verdes, Ca 90275. The City has allocated approximately $500,000 in the adopted fiscal year 2014/15 budget for Capital Improvements to the Collection System.

9. MONITORING, MEASUREMENT, MODIFICATION PROGRAM

9.1. Monitoring

The City will document all relevant data on SSOs that occur in the City (see Appendix G for SSO response data collection information and appropriate forms). Each SSO will trigger analysis by staff to determine the effectiveness of the City's SSMP. Appropriate changes to the SSMP and Collection System will be made or brought forward to the City Council for consideration.

9.2. SSMP Program Effectiveness Evaluation

The evaluation of the City's SSMP Program Effectiveness will be based on such key performance indicators (Appendix I) as the total number of overflows, overflow response time, reduction in repeated incidents of SSO at some location, total overflow equal to or greater than 1,000 gallons or reaching the waters of the United States and reduction in number of overflows that are caused by sewer capacity-related problems. The City intends to maintain the system to perform as it has since the system was installed. The City of Rancho Palos Verdes has established a goal of having a response person on site at a SSO site within thirty minutes following notification of a SSO during working hours. After hours and weekends, the goal is to have a response person at the site of a reported SSO within two hours.

9.3. Program Modification

The City will continually update or modify key elements of its SSMP based on the results of the above mentioned monitoring and program effectiveness evaluations. The City will also make recommendations as necessary, on elements of the SSMP to be adjusted or revised within the City boundaries to better serve its residents.

10. SSMP PROGRAM AUDIT AND CERTIFICATION

10.1. SSMP Program Audit

The City will conduct an internal audit and prepare a report every two years. The audit will focus on evaluating the effectiveness of the SSMP and records of City's compliance actions during the audit period. The most recent report of the audit will be kept on file in the City's Director of Public Works office.

10.2. SSMP Certification

The SSMP will be certified by the City Director of Public Works or authorized representative to be in compliance with the requirements set forth in the WDRs and be presented to the City Council for approval at a public meeting. The City authorized representative will also complete the certification portion in the Online SSO Database Questionnaire (http://ciwqs.waterboards.ca.gov/) by checking the appropriate milestone box, printing and signing the automated form and sending the signed form to:

State Water Resources Control Board
Division of Water Quality
Attn: SSO Program Manager
P.O. Box 100
Sacramento, CA 95812

10.3. SSMP Modification and Re-certification

The SSMP will be updated every five years (commencing in 2020) to keep it current. When significant amendments are made to any portion or portions of the SSMP, it must be resubmitted to the City Council for approval and re-certification. The re-certification shall be in accordance with the certification process described in Section 10.2 above.

11. COMMUNICATION AND SSMP AVAILABILITY

11.1. Communication

The City will provide all stakeholders and interested parties such as the general public and other agencies, with status updates on the development and implementation of the SSMP and consider comments made by them. The City will utilize media such as letters, newsletters, brochures, notices in newspapers, social media platforms, and the City's web page for conveying this information.

11.2. SSMP Availability

Copies of the SSMP will be maintained in the City Director of Public Works' Office and posted on the City's web page. The document will also be made readily available to the Regional Water Quality Control Board (Region 4) upon request and to the operators of any collection system or treatment facility downstream of the City's system.

Appendix A Waste Discharge Requirements

Appendix B Collection System Map

Appendix C Notice of Intent

Appendix D Contractor Contact Information

Appendix E City SSO Response Contact Information

Appendix F Abalone Cove Fee Structure

Appendix G SSO Response Forms

Appendix H SSO Map and CIWQS Report

Appendix I Performance Indicators