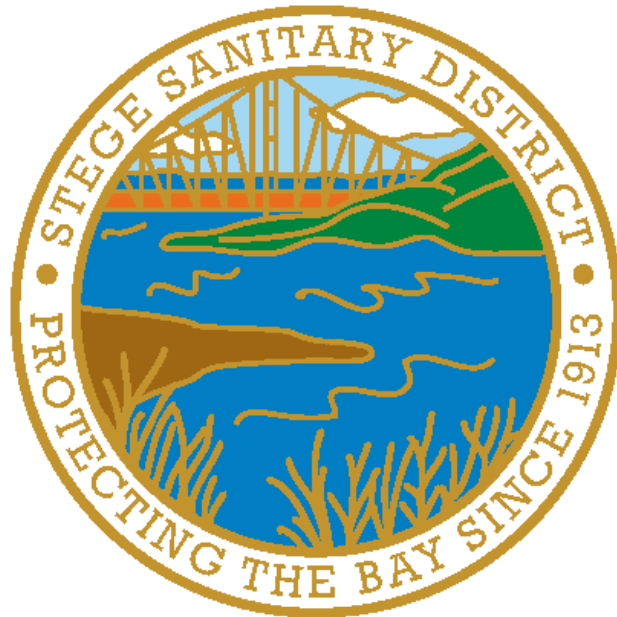


# **STEGE SANITARY DISTRICT SEWER SYSTEM MANAGEMENT PLAN (SSMP)**



**MARCH 2018**

WDID: 2SSO10198

ADOPTED: AUGUST 2009

RE-CERTIFIED: AUGUST 2014

# TABLE OF CONTENTS

	<u>PAGE</u>
INTRODUCTION	1
DISTRICT OVERVIEW	3
ELEMENT I - GOALS	5
ELEMENT II - ORGANIZATION	7
ELEMENT III - LEGAL AUTHORITY	11
ELEMENT IV - OPERATION AND MAINTENANCE PROGRAM	13
ELEMENT V - DESIGN AND PERFORMANCE PROVISIONS	21
ELEMENT VI - OVERFLOW EMERGENCY RESPONSE PLAN (OERP)	23
ELEMENT VII - FATS, OILS, AND GREASE (FOG) CONTROL PROGRAM	25
ELEMENT VIII - SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN	29
ELEMENT IX - MONITORING, MEASUREMENT, AND PROGRAM MODIFICATION	31
ELEMENT X - SSMP PROGRAM AUDITS	33
ELEMENT XI - COMMUNICATION PROGRAM	35
CHANGE LOG	37

# **STEGE SANITARY DISTRICT**

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

*(Attachments shown in parentheses)*

### **INTRODUCTION**

In October 2003, the San Francisco Regional Water Quality Control Board (RWQCB) passed a resolution that stated its intent to implement new regulations that would uniformly address sanitary sewer overflows (SSOs). The resolution also included a reference to a requirement that all agencies prepare a collection system planning document called a sewer system management plan (SSMP). In July 2005, the RWQCB transmitted a Water Code Section 13267 request to the District, and all other collection systems in the region, that formally required the preparation of SSMPs.

The Bay Area Clean Water Agencies (BACWA), with a broad base of collection system management experience, worked cooperatively with the RWQCB staff to develop the requirements of SSMPs that would meet the needs of the RWQCB while retaining a common sense approach to the practicalities of operating and managing collection systems. District staff actively participated on the BACWA Collection Systems Committee that worked with the RWQCB to develop the core details of the plan. A similar effort was undertaken with the State Water Resources Control Board (SWRCB) staff, and on May 2, 2006 the SWRCB adopted Waste Discharge Requirements (WDR) for all collection systems in California that also require the preparation of SSMPs, but on a later schedule than is required in the San Francisco Bay Region.

During the past two and a half decades, the District has successfully developed, refined and implemented numerous processes and practices to improve the management of its collection system. The actual processes and procedures are voluminous, so the District has used this document to summarize its activities and core documents as they relate to each of the elements required to be addressed in the SSMP.

*(District Map Book)*

*(State Water Resources Control Board - Waste Discharge Requirements)*

*(National Pollutant Discharge Elimination System (NPDES) Permit)*

*(United States Environmental Protection Agency (USEPA) Stipulated Order)*

## **DISTRICT OVERVIEW**

The Stege Sanitary District (District) was organized in 1913 to provide for the collection, treatment and disposal of wastewater from the developed area in southwest Contra Costa County. The area remained relatively rural until experiencing significant residential growth in the late 1920s and 1930s. Extensive development took place again following the end of World War II. The original District boundaries were similar to those of today, but service within the boundaries expanded such that the District currently serves about 35,000 people with a total of about 13,000 sewer connections. The present service area of the District comprises 5.3 square miles and includes the communities of El Cerrito, Kensington and the portion of Richmond Annex west of El Cerrito and south of Potrero Avenue. The sewage collection system includes 148 miles of collection lines and two small pump stations. The primary elements of this collection system are the public main sewers and the private sewer laterals. The District owns and has maintenance responsibility for the main sewers located in the public right-of-way and in easements on private property. Individual property owners own and have maintenance responsibility for their private sewer laterals that connect the plumbing in a home or business up to and including the connection at the main sewer. Wastewater collected in the District system flows to the Special District #1 Interceptor sewer and is then conveyed to the East Bay Municipal Utility District (EBMUD) Wastewater Treatment Facility in Oakland. The only areas of expected growth within the District are through commercial area redevelopment and on the few remaining vacant parcels. Average annual rainfall is 22.5 inches and generally occurs between November through April.

As of 2018, the average age of the collection system is about 58 years. The oldest lines in the District are about 96 years old. District main lines are predominantly vitrified clay pipe (VCP) with cement mortar joints, and six inches in diameter. Over 90% of the VCP sewers were installed prior to the introduction of modern pipe joints such as compression gaskets, which were not available until the 1960's and the introduction of improved VCP manufacturing standards initiated in the mid 1950's. Twenty-six percent (26%) of the District main lines are located within easements.

The District has had a very active collection system management program since 1991, and has had a significant reduction in SSOs since that time. Stoppages and overflows have been on a steady decline since 1992 when the District focused its efforts on aggressive line cleaning, continuous video inspection (implemented in 1997), and began to dedicate

funds to repair or rehabilitate every line defect that could potentially result in a service interruption.

A significant challenge for the District is ground movement caused by several active earthquake faults, including the Hayward Fault that essentially bisects the District. Frequent seismic movement and periodic earthquakes can crack pipes and loosen joints, particularly with clay pipe. In a severe earthquake, major pipelines can be sheared and/or severely offset. There is also a significant, well-known active slide area in the District known as the Blakemont Slide. There is continuous land movement in this region that impacts all utilities including District main sewer lines.

*(Summary Table of the Age of District Main Sewers)*

*(Map of Hayward Fault and Blakemont Slide)*

## ELEMENT I - GOALS

The goals of the District are as follows:

- Employ best practices to manage, operate and maintain all parts of the wastewater collection system
- Provide adequate capacity to convey peak flows associated with the design storm identified in the 1986 East Bay I/I Correction Program
- Reduce and prevent SSOs and mitigate their impact
- Comply with all applicable state and federal regulations, including its National Pollutant Discharge Elimination System (NPDES) permit and the California General Waste Discharge Requirements (WDR) for Sanitary Sewer Systems.

The District will also meet or exceed the minimum requirements of the United States Environmental Protection Agency (USEPA) Consent Decree as follows:

- Rehabilitation of sewer main and maintenance holes on a cumulative total of no less than the feet of Sewer Main as indicated in Appendix E of the USEPA Consent Decree (e.g., 29,040 feet by June 30, 2016; 39,707 feet by June 30, 2017; 50,700 feet by June 30, 2018; etc.)
- CCTV sewer main and maintenance holes at a cumulative total of 77,616 feet per Fiscal Year
- Repair acute defects as soon as possible but no later than within one (1) year of identification
- Clean a total of at least 211,200 feet of sewer main per fiscal year, including repeats
- Chemically treat with foam a minimum of 31,240 feet of sewer main annually on a three year rolling fiscal year average
- Clean hot spot sewer main lines of six-month or less interval a minimum of 100,000 feet annually, including repeats

*(USEPA Consent Decree)*

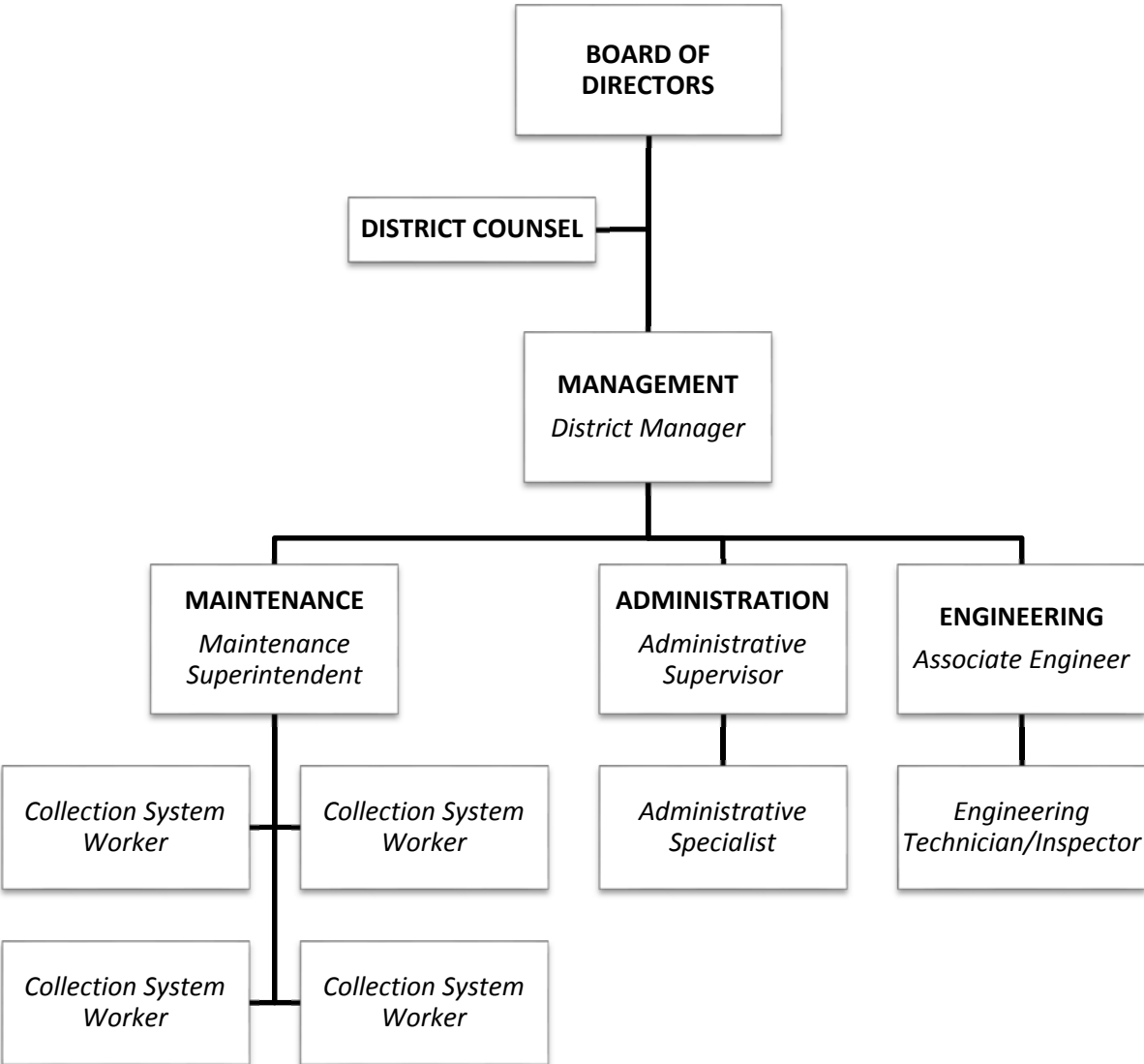
(This page left blank intentionally)



## ELEMENT II - ORGANIZATION

### Reporting Structure

The administrative, engineering and maintenance supervisory staff report directly to the District Manager to ensure the Manager receives an unfiltered flow of information from each group. The District Manager reports directly to the five member elected Board of Directors.



**District Manager**

The District Manager is the primary Legally Responsible Official (LRO) and ultimately responsible for all District operations and activities, including reporting to regulatory agencies and other external organizations.

**Associate Engineer**

The Associate Engineer is the secondary LRO and responsible for the planning, design, construction and inspection of District lines, as well as the inspection and permitting of private sewer lines within District boundaries.

**Engineering Technician/Inspector**

The Engineering Technician/Inspector is responsible for permitting and inspection of both District and private sewer lines within District boundaries.

**Collection System Maintenance Superintendent**

The Collection System Maintenance Superintendent is responsible for all field maintenance work and activities including line cleaning, video work, SSO and emergency response, immediate reporting (when necessary) to regulatory agencies, and recordkeeping of all maintenance activities.

**Collection System Workers**

The Collection System Workers are responsible for the maintenance and cleaning of District main lines and recordkeeping of all maintenance activities.

**STAFF RESPONSIBLE FOR IMPLEMENTING SSMP ELEMENT**

<b>ELEMENT</b>	<b>TITLE</b>	<b>NAME</b>	<b>PHONE</b>
I. Goals	District Manager	Rex Delizo	(510) 524-4668
II. Organization	District Manager	Rex Delizo	(510) 524-4668
III. Legal Authority	District Manager	Rex Delizo	(510) 524-4668
IV. Operation and Maintenance Program	District Manager	Rex Delizo	(510) 524-4668
V. Design and Performance Provisions	Associate Engineer	Paul Soo	(510) 524-4668
VI. Overflow Emergency Response Plan	Collection System Maintenance Superintendent	Dennis Wright	(510) 524-4668
VII. Fats, Oils, and Grease (FOG) Control Program	Associate Engineer	Paul Soo	(510) 524-4668
VIII. System Evaluation and Capacity Assurance Plan	Associate Engineer	Paul Soo	(510) 524-4668
IX. Monitoring, Measurement, and Program Modifications	District Manager	Rex Delizo	(510) 524-4668
X. SSMP Audits	District Manager	Rex Delizo	(510) 524-4668
XI. Communication Program	District Manager	Rex Delizo	(510) 524-4668

*(Organizational Chart)*

*(Job Descriptions – All Employees)*

(This page left blank intentionally)

## **ELEMENT III - LEGAL AUTHORITY**

### **District Ordinances**

The District Ordinance Code (Code) regulates the use of District wastewater facilities, their construction, permits required for work on these facilities, easements, charges, what can be discharged into sewers, and the enforcement of these requirements. In order to protect the wastewater treatment plant, East Bay Municipal Utility District (EBMUD) operates a pretreatment program within District boundaries and regulates discharge of wastewater into the system through EBMUD Wastewater Control Ordinance No. 311. Both the District and EBMUD staff work together to coordinate these independent efforts.

### **Control of Inflow and Infiltration (I/I)**

The Code prohibits the discharge of unpolluted water, I/I, to District sewers, either directly or indirectly. (See Code Section 3.9 Unpolluted Water)

### **Proper Design & Construction, Installation & Testing of Facilities**

The Code requires that District standards are followed in the design, construction and testing of all wastewater facilities. This includes private sewer laterals as well as District main lines and facilities. (See Code Section 4.2 Standard Specifications and Other Regulations)

### **Responsibility of Side Sewer Laterals**

The property owner is responsible for the operation and maintenance of the side sewer lateral from the building plumbing to and including the connection at the main sewer. (See Code Section 4.4.7 Responsibility for the Maintenance and Operation of the Laterals)

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

As discussed in Element VII – Fats, Oils and Grease Control Program, the District has the legal authority to control the discharge of fats, oils, grease and other substances and participates in the Regional FOG Control Program operated by the EBMUD pretreatment group. (See Code Section 3.11 Grease Device Required)

### **Backflow Prevention Devices**

Backflow prevention devices (BPDs) are required to be installed on all new construction and on all existing buildings having plumbing drain outlet elevations of 12” or less above the ground surface elevation of the next upstream manhole. Building permit applicants

are referred to the District for BPD and general Code compliance as part of the preliminary plan check review of the City of El Cerrito, City of Richmond and Contra Costa County (for Kensington) building permit process. (See Code Section 4.4.5 Backflow Protective Device)

**Testing of Laterals Upon the Sale Of Property, and Other Regional Private Sewer Lateral Program Triggers**

In September 2005, the District implemented lateral testing requirements upon the sale of property. All laterals found to be defective were required to be repaired or rehabilitated. On October 17, 2011, the District transitioned from implementation of this program into participation in EBMUD's Regional Private Sewer Lateral (PSL) Program. The regional PSL program triggers include buying or selling a property, remodeling in excess of \$100,000, or changing the size of the water meter. District staff currently works with EBMUD to coordinate efforts of the regional PSL program. (See Code Section 4.6 Testing Existing Laterals)

**Enforcement**

The District has several avenues of enforcement available through its Code including levying of fines, revocation of Permits, correction of violations, cease and desist orders, termination of service, assessment of civil and criminal penalties, and civil and criminal court actions. (See Code Section 9 Enforcement)

*(District Ordinance Code)*

*(EBMUD Ordinance No. 311)*

## **ELEMENT IV - OPERATION AND MAINTENANCE PROGRAM**

### **Collection System Maps**

The District maintains a map of its service area that is digitized and formatted into a Computer Aided Drafting (CAD) system known as AutoCAD Map. The maps and associated database include information on all District manholes, which are given a code identification number, line segments, which are identified by the upstream manhole number, and other items like pipe size, length, and year of construction/rehabilitation. These items are part of the Geographical Information System (GIS) mapping system, which is linked to the other District databases that include information on service calls, repairs, rehabilitation, video inspections, and permitting. Maps are updated by engineering staff as facilities are constructed or modified by the District. Map corrections are also submitted by Maintenance staff when discovered during routine maintenance. Engineering staff provides updated map books on a regular basis.

### **Resources and Budget**

The District develops and uses an annual Operations & Capital Improvement budget to guide its on-going operations and capital expenses and projects. The operating budget for fiscal year 2017-18 is \$2.49 million for operations and \$2.65 million for capital. The budget is established on a “pay-as-you-go” basis and the current service rates support all operating expenses and the sewer rehabilitation target of about \$2.37 million. Rates are assessed to rate payers through the Contra Costa County property tax roll. In July 2014, the District scheduled sewer service rate increases over 5 years to fund capital improvements, primarily main line rehabilitation, as required by the USEPA Consent Decree.

The District maintains its collection system with one Collection System Maintenance Superintendent and four Collection System Workers. This group is typically split into two crews of two workers, but a three person crew may be used in easement areas or in other special situations. The Superintendent often acts as an additional (fifth) crew member, as needed. Maintenance crews utilize several types of equipment including a combination hydro flush/vacuum truck, rodding trucks, CCTV vans, pickups, and a flatbed dump truck. The Maintenance crew provides emergency standby service on a continuous, twenty four hour per day basis, so that all emergency calls can be handled with a sixty (60) minute response time goal.

A summary of important parts of the District annual budget for fiscal year 2017-18, which is typical of other years, is listed below:

Operations & Maintenance	\$1,719,980
Administration	\$690,150
Point Repairs	\$61,000
<u>Pump Stations</u>	<u>\$18,660</u>
<b>Total Operating Budget</b>	<b>\$2,489,790</b>
Main Line Replacement	\$2,365,000
Debt Repayment	\$148,200
Manhole Adjustments	\$25,000
Interceptor Cleaning	\$50,000
Pump Station Rehabilitation	\$16,000
<u>Capital Equipment</u>	<u>\$46,000</u>
<b>Total Capital Budget</b>	<b>\$2,650,200</b>

**Preventive Maintenance**

The Maintenance staff maintains an average of approximately 100,000 feet of pipe per month through a combination of CCTV, rodding and/or hydro-flushing activities. Cleaning is followed by CCTV inspection to ensure that crews perform cleaning activities properly and thoroughly. Maintenance staff notes the condition of every line segment they maintain on a cleaning report form and schedule future line cleaning depending upon what they find along with the history of the line. Frequencies are generally on a 1 to 36 month basis, as follows:

High Frequency (Hot Spot)	up to 6 Months
Regular Frequency	9 to 36 Months

Maintenance staff are encouraged to include all observations about unusual or irregular items associated with District assets on their cleaning report form. Maintenance staff are also encouraged to bring these items up in direct conversation with Engineering staff and the Manager, particularly if the items may be significant or need attention or correction in the near future. Included in the cleaning report is a section at the bottom of the form where field crews can record recommended future actions including rodding, hydro flushing, CCTV inspection, chemical root foaming, “fats, oils, and grease” (FOG)



enforcement, proper “flushable” wipe disposal notice, repair and/or rehabilitation. This information is typically communicated to appropriate staff on a daily basis but can also be queried from the data and reports produced as needed.

The “work order” used by collection system workers is a District system map printed by the Engineering group. The map indicates the lines to be maintained and is color-coded by the cleaning frequency set by the crews. These maps are published quarterly and provided to the crews at the beginning of each quarter.

High frequency or “hot spot” cleaning is line cleaning that is done at a 6 month interval or less in areas with an increased potential for an SSO. Cleaning is done as described in the routine cleaning section above. The cleaning schedules change as Maintenance staff are continuously evaluating line conditions and updating frequencies as they clean and inspect lines. Also, lines in this high frequency category can be on a priority list to be repaired or rehabilitated and subsequently move off this list once the work is completed.

The District chemically treats with foam about 40,000 feet of lines annually to control excessive roots on a three year cycle for a total of 120,000 feet. The lines that receive this foaming treatment are determined by the field crews based on field observations and CCTV inspection work. The root control treatment is done on a contract basis and accomplished every year typically in July and August. This program has proved to be very effective, in that SSOs due to roots have been reduced in these areas where root control treatment has occurred.

### **Scheduled Inspections and Condition Assessment**

Condition assessment is performed daily by Maintenance staff, through visual observation of manholes and other facilities as part of the proactive and preventive maintenance activities. The most significant assessment or inspection activity in terms of time and expense is the closed-circuit television (CCTV) inspection of District main lines and manholes. All main lines throughout the District were CCTV inspected over a six year contract period from 1997-2002. Inspection work continued on a contract basis until late 2005, when the District purchased a van and CCTV system. District staff now performs this task as part of its routine maintenance work. The consistency and quality of CCTV work has improved now that District staff controls this work closely. An improved camera inspection system was placed into service in 2017 in an effort to further increase production.

Pipe line segments are rated using the District-developed CCTV rating system. This system is very similar to the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment & Certification Program (PACP) system, but has a more detailed scoring criterion. A “damage severity index” (DSI), which is the total rating for a line segment divided by the line length, is calculated for each segment and is very similar to a PACP rating. The DSI is used to rank line segments in order of the severity of their defects and serves to help prioritize which lines will be repaired or rehabilitated in Capital Improvement Projects.

An annual smoke testing program was initiated in fiscal year 2004-05, with the intent to smoke test about 10% of the system each year. A proposed Inflow Identification and Reduction plan was submitted for approval to the USEPA in July 2010 and approved in December 2010. In August 2011, the USEPA approved the proposed schedule for the Inflow Identification and Reduction plan which was followed until 2014. As required by the USEPA Consent Decree beginning in 2014, in lieu of further implementation of the Inflow Identification portions of the District’s Inflow Identification and Reduction Plan, the District began cooperating with the East Bay Municipal Utility District (EBMUD) implementation of the Regional Technical Support Program (RTSP) to identify and characterize sources of Inflow and Rapid Infiltration and eliminate the High Priority Sources.

### **Sewer Rehabilitation Plan**

In 1997, following the hydraulic capacity upgrades to major main lines subsequent to the East Bay I/I Study, the District began a sewer system rehabilitation plan. The plan was last revised and updated in November 2017. Per the USEPA Consent Decree, in order to maximize and accelerate I/I reduction, the District now targets rehabilitation of sewer main lines with the highest DSI ratings that are located in District sub-basins that have high I/I contribution rates (“R” values). Engineering staff uses condition assessment data to determine the priority in which main lines are rehabilitated. In addition, Maintenance staff also provides input on main lines that pose maintenance and access difficulties, which supplements the decision making process. The District utilizes an innovative “Standard Sewer Rehabilitation Project” for performing this work. This project involves a bid schedule of typical rehabilitation work without a specific location. Bids are received on the typical work and the lowest responsible, responsive bidder (Contractor) is contracted. They then perform the rehabilitation work at locations directed by the District throughout the year. This enables the District to address any newly found problem lines in a timely manner. Unlike the District’s procedure, the typical bidding process for

traditional capital improvement projects takes months to complete. For these traditional projects, the flexibility to change the priority in which lines are rehabilitated is somewhat limited once awarded. The “Standard Sewer Rehabilitation Project” gives the District the flexibility to replace newly discovered high priority lines promptly even when they are introduced mid-course within the construction contract period.

For fiscal year 2017-18, the annual capital budget for Main Line Rehabilitation totals \$2,365,000. In the event that it is determined that it is more timely or cost effective to repair a main line rather than replace it, \$61,000 is budgeted as an operating expense under Point Repairs for this purpose.

### **Maintenance Management System (MMS)**

The District uses a maintenance management system comprised of a network of Microsoft Access databases that are used to electronically store and manage all maintenance system data such as cleaning reports, line conditions, repairs, service calls, and cleaning schedules. This District MMS also electronically interfaces with the District’s digitized mapping system. This system, including all the databases, was developed in-house by the District engineering staff. There is daily interaction between the field crews and engineering staff in discussions about system information. The databases are easily queried by engineering staff for any information contained in the databases.

Pump stations are monitored 24/7 using an alarm system. Auto-dialers transmit alarms to the District office and the answering service twenty-four hours a day in case of emergency.

### **Training**

The District is a member of the California Sanitation Risk Management Authority (CSRMA), a risk pool with 62 other districts. One of the services provided by CSRMA is an extensive set of on-line training modules. In addition, collection system workers participate in bi-monthly tailgate safety trainings, as well as on-going “on-the-job” training efforts. District staff regularly train on standard procedures and other special programs on an ongoing basis including traffic safety, bypass pumping, CPR/First Aid, and confined space entry. Collection System and Engineering staff also participate in CWEA programs and vendor-sponsored training courses.

### **Contingency Equipment and Replacement Inventories**

The District maintains two trailer-mounted portable electric generators, one 25 KW and one 45 KW capacity model. An emergency response trailer was assembled in 2008 that contains pumps, hose, plugs, a portable generator, shop-vacs, lights, confined space entry equipment, and various other equipment and items that are used in response to SSOs and other emergency situations. This allows staff to respond to SSOs quickly and, if needed, contain and recover spills from storm drains or ditches. An inventory of clay pipe, fittings and couplings is maintained in the District storage yard to allow timely and efficient emergency repairs. Contractors are hired to make routine and emergency repairs and rehabilitations on an ongoing basis.

### **Outreach to Plumbers and Building Contractors**

The District has worked cooperatively with the Bay Area Clean Water Agencies (BACWA) in the development of an outreach brochure that is distributed to plumbing contractors that provide services to District customers. The brochure explains the potential impact of their work on District sewers. This includes likely causes of SSOs, if plumbing contractors do not follow appropriate practices when cleaning sewers, repairing sewers and/or otherwise performing work in close proximity to District maintained facilities. The brochure is provided to plumbing contractors at the District front counter and is also mailed to all plumbers registered to work in the District on a regular basis.

### **Awards**

The District received the California Association of Sanitation Agencies (CASA) Innovation Award in 1999 for the in-house development of its own Video Inspection Enhancement and Predictive Failure model. This model was developed and is used by District staff to evaluate all CCTV inspected main line segments as described by the Sewer Inspection and Condition Assessment Program.

The Stege Sanitary District was the California Water Environment Association (CWEA), San Francisco Bay Section, 2015 Collection System of the Year Award winner for the Small System Category (0-250 Miles). This award is presented to the collection system that has demonstrated the highest compliance and excellence in the programs and procedures of wastewater collection based on regulatory compliance, special accomplishments, emergency response procedures, administrative procedures, maintenance, safety, and training programs. This was the seventh time the District has won this award.

*(Fiscal Year Budget)*

*(Quarterly Cleaning Map Book)*

*(Root Foaming Map Book)*

*(Smoke Testing Map Book)*

*(Check for Surcharging in Heavy Rain Map Book)*

*(Sanitary Sewer Master Plan – November 2017) (Plumbers & Building Contractors Brochure)*

*(Smoke Testing Brochure)*

*(Proper Wipe Disposal Brochure)*

*(December 6, 2010 Approval of Inflow Identification and Reduction Plan)*

*(Inflow Identification and Reduction Plan, July 2010)*

*(Inventory List)*

*(Training Records)*

(This page left blank intentionally)

## **ELEMENT V - DESIGN AND PERFORMANCE PROVISIONS**

### **Standards for Installation, Rehabilitation and Repair**

Engineering staff maintains and enforces the Stege Sanitary District Construction Specifications and Details (Standard Specifications). The Standard Specifications govern the requirements, design, and the manner in which all work in connection with sewer construction within the jurisdiction of the Stege Sanitary District are performed. The Standard Specifications are required by the District's Ordinance Code for use in both new installations and replacement of existing facilities. They are available online to contractors and citizens at no charge and are updated periodically, as necessary.

The District has certain required standards that are of special interest such as the installation of backflow prevention devices (BPDs), the testing and potential replacement of private laterals upon the sale of property through the EBMUD's Regional PSL Program, and the requirements for grease interceptors for food service establishments.

### **Standards for Inspection and Testing of New and Rehabilitated Facilities**

The District employs a full-time inspector (Engineering Technician/Inspector) who inspects construction and repairs. The inspector ensures that all construction is safe and meets the District's Standard Specifications and other applicable codes. The Engineer fulfills this role in the absence of the inspector. Permits are required for all work on wastewater facilities in the District. No facility is accepted unless it is permitted, inspected and tested in accordance with the Standard Specifications.

*(Stege Sanitary District Construction Specifications and Details)*

(This page left blank intentionally)



## **ELEMENT VI - OVERFLOW EMERGENCY RESPONSE PLAN (OERP)**

### **Overflow Response**

In response to the USEPA's November 18, 2009 Administrative Order (AO), the District revised its overflow response procedures and submitted the new OERP to the USEPA on April 15, 2010 for review and approval. The plan outlines policies and procedures for handling service calls and SSOs caused by problems in District facilities and sewer main lines. The USEPA approved the revisions on July 15, 2010. The plan will be reviewed periodically and updated as needed. The plan includes procedures for overflow mitigation, emergency response, clean-up, spill recovery, and remediation of damaged dwellings and buildings. The plan also includes internal resources, external resources and provisions for state regulatory agency notification/reporting. Public notification and contamination testing procedures, when necessary, are also outlined. District Maintenance Procedure M113-0607 provides response and claims handling guidance to Maintenance crew and Administrative staff in the event of a District main sewer line backup into a home or business.

### **Overflow Reporting Policy**

The OERP includes a system to notify responders, a response time goal of sixty (60) minutes, instructions to determine overflow start time, methods of overflow volume estimation, and training record documentation. The District defines an overflow as untreated sewage escaping from the sewer system onto public or private property due to a problem in District main sewer lines. All SSOs are reported electronically in the California Integrated Water Quality System (CIWQS) by the deadlines established in the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (Order 2005-0D03-DWQ). All overflows are investigated as to cause and corrective action required to prevent future incidents. District Maintenance Procedure M103-0995 provides guidance for overflow response, and for state regulatory agency overflow reporting procedures. District Maintenance Procedure M114-0200 defines a procedure to document and to correct conditions that may have caused the SSOs, in accordance with applicable regulations. All information related to SSOs is documented on comprehensive service call/overflow report forms.

### **Service Calls**

District offices are open Monday through Thursday, from 8:00 a.m. to 5:00 p.m., and Friday, from 8:00 a.m. to 4:00 p.m. During these working hours, service calls are referred

directly to Maintenance staff. After working hours, service calls are taken by a 24-hour answering service that relays the information to the primary standby Collection System Worker by text or telephone. The standby Collection System Worker makes a determination about the service call, and, if necessary, summons the other worker who is scheduled on standby duty with the primary Collection System Worker. These two workers summon additional help if necessary. The ability of the police, fire department, or citizen to be able to talk to a live person 24 hours per day adds the positive benefits of human interaction and significantly reduces the possibility of a missed call or a misunderstanding about the nature of a problem. All Collection System Workers are provided funding for a cellular phone and the Collection System Maintenance Superintendent is also provided a District truck.

### **Service Call/Overflow Reports**

Collection System Workers prepare reports for every SSO. The Service Call/Overflow Report form documents the probable cause of the SSO and any steps taken by the District to correct or prevent subsequent SSOs in that location. All reports are reviewed by the District Manager who reports it to the appropriate regulatory agencies in accordance with applicable regulations and to the District Board of Directors on a monthly basis (Monthly Manager's Report).

### **Emergency Operations Plan**

The District follows an emergency operations plan, or contingency plan, that summarizes how the District responds to major emergencies.

*(July 15, 2011 USEPA Approval of Overflow Response Procedures)*

*(Overflow Emergency Response Plan)*

*(Service Call/Overflow Report Form)*

*(Example of Monthly Manager's Report)*

*(Emergency Operations Plan)*

## **ELEMENT VII - FATS, OILS, AND GREASE (FOG) CONTROL PROGRAM**

The Regional FOG Control Program is operated by the EBMUD pretreatment group in conjunction with District management. The program was established to reduce FOG related blockages and consists of FOG hotspot investigations, food service establishment (FSE) reviews, gravity grease interceptor (GI) inspections, enforcement support, hotspot reporting, FOG information database management, and outreach. The District Ordinance Code (Code) requires FSEs to install grease interceptors under certain circumstances, and maintain such grease removal devices at their facilities including the retention of records for certain maintenance activities.

A key element of the program includes hotspot response which is a targeted response to grease-related blockages and consequent SSOs. Response activities include facility inspections at FSEs upstream of the problem area, camera investigations, recommendations for corrective actions and enforcement procedures, as needed. Similar response activities are also undertaken by EBMUD for residential hotspots.

### **Program Elements**

The following program elements are outlined below:

- Source Identification
- Legal Authority
- Program Structure/requirements
- Grease Removal Device Technology for FSEs
- Inspections and Monitoring for FSEs
- Enforcement for FSEs
- FOG Disposal
- Public Education and Outreach

**Source Identification** investigates and locates the origin of any FOG related event that causes a maintenance issue or event within the District sewer system. Sources typically include:

- Food Service Establishments (FSEs) (includes restaurants, hospitals, nursing homes, grocery stores, caterers & commissaries)
- Residential Properties
- Food Manufacturing Facilities

Sources are categorized as “Hotspots” (FSEs causing or contributing to grease-related SSOs or blockages) and “Non-hotspots”.

### **Legal Authority**

EBMUD Wastewater Control Ordinance 311A-03 includes the following provisions:

- Prohibited substances – those that cause or threaten to cause obstruction of flows in community sewers or interceptors
- Authority to require pretreatment prior to discharge to the community sewer
- Authority to inspect dischargers and sample discharge
- Enforcement and penalties for failure to adhere to the Ordinance

The District has similar provisions in Code Chapter 3 – Regulations Governing the Use of Wastewater Facilities. The Uniform Plumbing Code (UPC) also contains provisions related to grease, such as the sizing of interceptor facilities. The District has adopted the UPC by reference through its Code. Additionally, there are local health codes that may be applicable in cases where FOG blockages cause overflows that might affect public health.

### **Program Structure/Requirements**

The Code has the following requirements for FSEs:

- Installation of grease interceptors for all new FSEs, remodels of \$75,000 or greater, and for all FSEs causing or contributing to an SSO or blockage (hotspot).
- Maintenance is required, at a minimum of every three months, or more frequently as necessary, to ensure FSE discharges do not cause or contribute to SSOs or blockages. Also, a complete pump out of grease interceptor is required each time an interceptor is pumped.
- Maintenance records are required to be kept on site, and only EBMUD-approved grease haulers shall be used.
- A residential FOG program has been developed which includes educational outreach efforts by EBMUD staff to inform customers about best practices for the disposal of household grease.

### **Grease Removal Device Technology for FSEs**

Grease interceptor installation, design and sizing shall be as per the Uniform Plumbing Code. Grease interceptor waivers and variances may be considered depending upon the business type, the grease generating capability (and/or probability) of a FSE, and difficulties with interceptor installations due to conflicts with site conditions.

Grease removal device installation, design and sizing may be used as an alternative to grease interceptors in instances where a grease interceptor cannot be installed (ex: space and slope restrictions). The installation of these shall be coordinated with local health authorities and building/planning departments.

### **Inspections/Monitoring for FSEs**

EBMUD staff monitors “Non-hotspot” areas as follows:

- All FSEs are inspected periodically.
- Grease interceptors are inspected – a measurement of grease/water/solids is done and maintenance documentation is reviewed.
- Educational materials are distributed to managers/employees.

Follow-up tasks (as needed) are performed by EBMUD to determine if the grease interceptor pumping frequency needs to be increased and/or if grease interceptor repairs are required.

EBMUD staff monitors “Hotspot” areas (identified by District staff) that have a history of grease-related SSOs and blockages, based upon field experience and maintenance records. EBMUD also investigates conditions in these areas in an effort to determine the origin of any FOG discharges. Actions in these investigations may include:

- Targeted inspections of FSEs upstream of a reported hotspot.
- Video inspections of main lines.
- Video inspections of laterals.
- Distribution of educational outreach materials.

Follow-up tasks may be done as a result of these inspections. If it is determined that an FSE is the source of the grease related SSO or blockage, then EBMUD shall determine if the grease interceptor pumping frequency needs to be increased and/or if grease interceptor repairs are required. If it is determined that the source is a residential property, then educational outreach materials may be distributed or targeted meetings with property owners and/or homeowners’ associations may be scheduled.

### **Enforcement for FSEs**

EBMUD will assist the District to utilize an escalating (progressive) enforcement structure.

### **FOG Disposal** (grease trap and grease interceptor waste)

The EBMUD wastewater treatment plant is a receiving facility for waste grease from both inside and outside of the EBMUD service area. All approved haulers are informed about EBMUD's FOG disposal policies.

**Public Education and Outreach**

Program brochures that describe best management practices (BMP) and include a BMP chart are distributed to FSEs in English, Chinese, Spanish, Vietnamese, and Korean. Brochures and other literature for FSEs include a "How to Maintain a Grease Interceptor" flyer, a "Do Not Pour" poster, and BMP posters and charts.

Materials for use in residential situations include informational brochures, scrapers that can be used to clean cooking ware, and informational flyers. Staff and Board members also present FOG materials and information at public events and fairs.

EBMUD also hosts a web site (<http://www.ebmud.com/fats-oils-and-grease>) related to FOG that contains useful FOG information, including the location of used cooking oil collection centers.

*(FOG Outreach Brochure)*

*(FOG Sanitary Sewer Overflow (SSO) and Blockage Report Form)*

*(FOG Annual Report)*

## **ELEMENT VIII - SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN**

### **Collection System Hydraulic Model**

The original hydraulic model of the District's collection system was developed using HYDRA Sanitary Sewer Modeling software. The model was established based on extensive flow monitoring of all District sub-basins and makes use of a 5-year design storm which was defined in the East Bay Inflow/Infiltration (I/I) Study as a rainfall event with 1.57 inches of precipitation over a 7 hour event. The East Bay I/I Study used this storm for its design purposes because it fit with the area's topography and collection system characteristics.

In 2010, the District contracted with AECOM Engineering for the development of a revised and updated system model. The hydrologic/hydraulic model was developed using Innowyze's InfoWorks CS 11.0 software, a fully dynamic, hydrologic and hydraulic modeling software package. Development efforts included dry and wet weather flow inputs, data and model assumptions, and model calibration and validation against historical (November 2005 – January 2006 and October 2010 – April 2011) flow monitoring data.

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

The District's system evaluation and capacity assurance efforts are based on the latest system hydraulic model and continually monitored as described in the requirements of USEPA Consent Decree Paragraph 13. Further efforts are outlined in the District's Sewer System Master Plan – November 2017.

### **Capacity Studies**

Developers are required to hire an independent engineer to conduct a hydraulic capacity study for residential developments of ten units or more, and for commercial developments of 10,000 square feet or more. This is also required for restaurants over 1000 square feet and for all laundromats and industrial laundries. These studies are required to examine both existing downstream line capacity and capacity at projected build-out. The capacity study requirement is outlined in the handout *Sanitary Sewer Capacity Study Criteria* which is distributed by the District to interested applicants.

### **Permit Activity**

The Engineer can use the model information to check downstream line capacity anytime a permit is written for new residential or commercial connections, except for the situations noted above when developers are responsible for this study. The permittees are responsible for the construction of any necessary capacity increases outlined by the Sanitary Sewer Capacity Study results.

### **Flow Monitoring**

The District purchased, operates and maintains a total of four (4) flow meters to measure both dry and wet weather flow at strategic locations throughout the district. In November 2011, three (3) of the flow meters were moved to specific locations with the intent of monitoring the flow into the EBMUD interceptor. This gives the District the ability to track the flow of most of the system while working towards the goals as outlined in the USEPA Consent Decree.

The District uses flow data in conjunction with its capacity model to determine sewer system capacity and adequacy. The District completed several capacity improvements in the 1990s as a result of its capacity investigations. The last such project was the 2001 Capacity Upgrade project that was funded by a State Revolving Fund (SRF) loan.

A Sub Basin Flow Monitoring Plan was submitted to the USEPA on July 15, 2010 and approved by the USEPA on October 14, 2010. A Sub Basin Flow Monitoring/I&I Assessment Plan was subsequently submitted and accepted by the USEPA on November 29, 2012.

*(Hydraulic Model Output)*

*(AECOM DRAFT Technical Memorandum)*

*(Steger Sanitary District Sanitary Sewer Capacity Study Criteria)*

*(October 14, 2010 USEPA Approval of Sub Basin Flow Monitoring Plan for 2010-11)*

*(Sub Basin Flow Monitoring Plan, July 2010)*

*(Sub Basin Flow Monitoring/I&I Assessment Plan, November 2012)*



## **ELEMENT IX - MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS**

District administrative staff monitors the effectiveness and implementation of its SSMP through various measures and activities. Effectiveness is measured by tracking performance indicators on a regular basis. A “Manager’s Report” is prepared and reviewed by the District Board of Directors each month. This report provides detailed information on overflows, service calls, footage of main lines cleaned and videoed, and amount of lines repaired and/or replaced. This information is also depicted on several charts and graphs that show historical as well as current information.

The data used for these summary reports is obtained from the MMS previously described in the Operation and Maintenance Program section. The summary reports on system performance are reviewed by Management, Engineering and Maintenance staff to determine the effectiveness of district activities and operations. Staff uses this information on a “real-time” basis to assess its operations and make changes to maintenance practices and capital activities, as determined from the results of its programs.

At the beginning of each calendar year, a Performance Report is presented to the District Board of Directors which gives a good sense of how well the District is performing its mission to “plan and operate a safe, efficient and economical wastewater collection and transfer system for the present and future customers of the District.” The Report includes sections on Awards & Recognition, Sanitary Sewer Overflows (SSOs), Sanitary Sewer Maintenance, Condition Assessment & Rehabilitation, Service Call Response, Employee Retention/Longevity and Finances. The report is prepared by management for use by the District’s Board of Directors to help evaluate the value and effectiveness of the service being delivered to the customers of the District.

*(Monthly Manager’s Report)*

*(Monthly Charts and Graphs of Performance)*

*(Performance Report)*

(This page left blank intentionally)

## **ELEMENT X. SSMP AUDITS**

The District will conduct a biennial audit of its SSMP and will identify any deficiencies and take subsequent actions to correct them. This audit will be performed early in the calendar year and be done for the previous 2 years. The audit will be under the supervision of the District Manager and be completed no later than May. The audit will generally follow the format of the draft SSMP Annual Audit Report form developed by BACWA in 2014.

LAST SSMP AUDIT COMPLETED: MARCH 2018

*(Sewer System Management Plan Audit Report)*

(This page left blank intentionally)

## **ELEMENT XI. COMMUNICATION PROGRAM**

The District has an active communication program to inform the public about its SSMP, as well as other District activities. The District publishes newsletters on various District activities and mails the letters to every property owner in the District's service area. The District also has a web site ([www.stegesan.org](http://www.stegesan.org)) to inform its customers about District business, events, meetings, regulations, and programs. The SSMP is available for all to read and review through a link on the web site. Similarly, there are links to the latest Board meeting agenda, meeting minutes (archived for about three years), and many of the components that comprise the SSMP such as the Code and District Standard Specifications and Details. All Board meetings are open to the public and the public is invited to comment on any District business issue, including the SSMP.

District staff routinely informs customers and citizens in affected areas about future work activities. For example, pamphlets and letters are provided to residents of potentially affected properties prior to smoke testing. The initial notice is provided about two to three weeks in advance of work, and a second notice is given one to two days prior to the work. Engineering staff and contractors provide notice in a similar manner by using door hangers prior to the repair or replacement of District main lines and lateral connections. Notices are provided verbally as well. Field crews make an effort to inform residents about line cleaning activities that are about to occur on or about the residents' properties. Every customer that places a call for service is provided a customer feedback form and asked to return it with a rating of various items and any comments they may have about the District's response to their call.

The District has been a longtime financial supporter of the education program, Kids for the Bay. The District supported two classes of watershed education in a local elementary school each year since 2009-10. The program has both classroom and field sessions, and includes issues specific to wastewater collection systems.

The District hosts a booth every year at the El Cerrito Fourth of July community fair. Board members take shifts at the booth and are available to answer questions or concerns, as well as explain District activities and programs with the thousands of fair attendees that attend each year.

*(Newsletter)*

*(Webpage Sample)*

*(Sample Construction Notice to Residents)*

*(Door Hanger)*

*(Customer Feedback Form)*

*(Kids for the Bay Report)*

## CHANGE LOG

DATE	DESCRIPTION	SSMP Element	BY
MAR 2018	Updated USEPA Consent Decree minimum requirement for chemical root foam treatment.	I	Delizo
	Updated maximum cleaning frequency interval to 36 months (down from 60 months).	IV	
	Updated to include reference to the District Sewer System Master Plan.	IV and VIII	
	Updated with latest 2017 Performance Report.	IX	
	Update and revised language throughout.	All	
AUG 2017	Updated budget amounts with fiscal year 2017-18 figures.	IV	Delizo
	Added 2016 Performance Report.	IX	
AUG 2016	Updated USEPA Consent Decree minimum requirement for chemical foam treatment.	I	Delizo
	Updated organizational chart.	II	
	Updated budget amounts with fiscal year 2016-17 figures.	IV	
	Update and revised language throughout.	All	
MAR 2016	Updated budget amounts with fiscal year 2015-16 figures.	IV	Delizo
	Added 2015 Performance Report.	IX	
AUG 2014	Updated and revised to include changes due to implementation of the USEPA Consent Decree signed on July 28, 2014.	I	Delizo
	Updated budget amounts with fiscal year 2014-15 figures.	IV	
	Rearranged and renamed sections to be consistent with State Water Resources Control Board SSMP elements.	All	
	Updated SSMP re-approved by the Board by Resolution 2033-0814 on August 14, 2014.	All	
OCT 2013	Updated and revised to reflect the amended Statewide Monitoring and Reporting Program (MRP) requirements of the Statewide General	All	Delizo

	Waste Discharge for Sanitary Sewer Systems that took effect on September 9, 2013 and the District's Asset Management Implementation Plan (AMIP) approved by the USEPA on May 14, 2013.		
--	--	--	--

*(Resolution 2033-0814)*