

STEGE SANITARY DISTRICT

Sewer System Management Plan (SSMP)

(Attachments shown in parentheses)

INTRODUCTION

In October 2003, the San Francisco Bay Region Water Board, or “Regional Board” (RB), 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 RB 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 RB staff to develop the requirements of SSMPs that would meet the needs of the RB 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 RB to develop the core details of the plan. A similar effort was undertaken with the State Water Resources Control Board (State Board) staff, and on May 2, 2006 the State Board 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 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 ten 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)

(US Environmental Protection Agency (EPA) Stipulated Order)

DISTRICT OVERVIEW

The Stege Sanitary District (SSD) 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 SSD boundaries were similar to those of today, but service within the boundaries expanded such that the District currently serves about 33,000 people with a total of about 13,000 sewer connections. The present service area of the SSD comprises 5.3 square miles and includes the communities of El Cerrito, Kensington and that portion of Richmond Annex west of El Cerrito and south of Potrero Avenue. The sewage collection system includes 147 miles of collection lines and two small pump stations. The primary elements of this collection system are the public main sewers and the private lateral sewers. The SSD owns and has maintenance responsibility for the main sewers located in public rights-of-way or in easements on private land. Individual property owners own and have maintenance responsibility for their lateral sewers installed between the building plumbing and the main sewer. Wastewater collected in the SSD 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 expected growth of the District is through building on the few remaining vacant parcels and commercial area redevelopment. Average annual rainfall is 22.5 inches and generally occurs between November and April.

As of 2012, the average age of the collection system is about 57 years. The oldest lines in the District are 90 years old. District main lines are predominantly vitrified clay pipe (VCP) with cement mortar joints, and six inches 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.

The District has had a very active collection system management program since 1991, and has had a significant reduction in sanitary sewer overflows (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 replace every line defect which could 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, and there is continuous land movement in this region that affects District main sewer lines.

GOALS

The goals of the District's sewer system maintenance (operations and maintenance) program are:

- 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 East Bay I/I Correction Program (1986)
- Minimize the frequency of Sanitary Sewer Overflows SSOs
- Mitigate the impact of any SSOs
- Evaluate and analyze both current and potential maintenance practices in an on-going effort to operate effectively and efficiently

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ORGANIZATION

Reporting Structure

The Collection System and Engineering Departments independently report directly to the District Manager. The purpose is to ensure that the General Manager receives an unfiltered flow of information from both groups. In most cases, the two groups have consensus on the need for and progress on various pipeline projects. The District Manager reports directly to the five member, elected Board of Directors (Board).

District Manager

Ultimately responsible for all District operations and activities, including the reporting to regulatory agencies and other external organizations, including the updating and auditing of this SSMP.

Engineer

Responsible for the planning, design, construction and inspection of District lines, as well as the inspection and permitting of private sewer lines within the District boundaries.

Engineering Technician/Inspector

Responsible for permitting and inspection of both District and private sewer lines within District boundaries.

Collection System Supervisor

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

Responsible for the maintenance and cleaning of District main lines.

(Organizational Chart)

(Job Descriptions – All Employees)

(Contact List)

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OVERFLOW EMERGENCY RESPONSE PLAN

Overflow Response

The District has revised its overflow response procedures and submitted the new procedures to the United States Environmental Protection Agency (EPA) on April 15, 2010 for review and approval, in response to the EPA's November 18, 2009 Administrative Order (AO). The procedure outlines policies and procedures for handling service calls and response to all SSOs caused by problems in District facilities and lines. EPA approved the revisions on July 15, 2010. These procedures will be reviewed periodically and updated as needed, and include a system for overflow mitigation, emergency response, clean-up, spill recovery, internal and external resources and rehabilitation of damaged dwellings and buildings. They also include provisions for notification of and reporting to regulatory agencies and the public, and testing for contamination when necessary. Procedure M113-0607 covers the handling of overflows into homes and businesses and all associated claims, and was last revised in June 2007, and is included as Appendix 7.

Overflow Reporting Policy

The procedures includes a system to notify responders, a response time goal of sixty (60) minutes, estimate the need for overflow start time, three methods of overflow volume estimation, and training record documentation. The District defines an overflow as any time untreated sewage escapes from the sewer system onto public or private property due to problems in District lines. All SSOs are reported electronically in the State's (CIWQS) system within 30 days of their occurrence and SSOs that reach waters are reported within three days. As of March 2008, all SSOs that reach waters or drainage channels (including storm drains) are reported as soon as possible, no more than 2 hours after the District is aware of them, to the California Emergency Management Agency (CalEMA) and the County Public Health Department. All overflows, backups, etc., are investigated as to cause and corrective action to prevent future incidents. All SSOs are documented and reported to the Regional Water Board (RB) in an annual report that is due every March. District Procedure M103 includes reporting requirements to the RB, State, County Public Health, and other regulatory agencies as may be appropriate. Procedure M114 also contains some of these same reporting requirements. All information related to SSOs is documented on internal, service call report forms.

Service Calls

District offices are open Monday through Thursday, 8:00 a.m. to 5:00 p.m., Friday, 8:00 a.m. to 4:00 p.m., and all service calls are referred directly to the Collection System personnel. The District uses a “live person” after-hours 24-hour answering service to take emergency calls. Emergency calls to the District’s emergency phone line go directly to the service to ensure quick response. The service then relays the message to the primary standby worker by telephone. The standby worker makes a determination about the emergency, and, if necessary, summons the other Collections employee who is scheduled on 24-hour standby duty with the primary standby worker. These two standby Collection 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, significantly reducing the possibility of a missed call or misunderstanding about the nature of a problem. All Collection System Workers are provided funding for a cellular phone. The Collection System Supervisor is provided a District truck.

Overflow Reports

The Collection System Personnel prepares a report on every SSO. The Overflow Report Form (ORF) includes recommended actions and documents dates of actions taken to correct whatever condition caused the SSO. All ORFs are reviewed by the District Manager, who ensures that basic SSO information is reported to the District Board of Directors on a monthly basis (monthly Manager’s report), and is reported to appropriate regulators in accordance within time frames established by the regulatory agencies.

Emergency Operations Plan

The District has an emergency operations plan, or contingency plan, that summarizes how the District would respond to major emergencies.

(July 15, 2011 EPA Approval of Procedures)
(Sanitary Sewer Overflow Response Plan – April 15, 2010)
(Service Call & Overflow Report Form)
(Example Monthly Manager’s Report)
(Emergency Operations Plan)

FATS, OILS, AND GREASE (FOG) CONTROL PROGRAM

The FOG Control Program is operated by the EBMUD pretreatment group, in conjunction with District management. The program consists of inspections, and multiple language outreach to food service facilities (FSFs) in the District. The District Code of Regulations, or “Ordinance Code”, requires the installation of grease interceptors under certain circumstances, maintenance of all installed grease removal devices at facilities, and record-keeping of certain maintenance activities. The District recently negotiated an agreement with EBMUD, completed on February 2, 2011, that shifted final enforcement responsibilities to the District.

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 food service facilities upstream of the problem area, camera investigations, and 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 FSFs
- Inspections and Monitoring for FSFs
- Enforcement for FSFs
- FOG Disposal
- Public Education and Outreach

Source Identification is the pinpointing of the sources of grease introduced into the District sewer system. Sources typically include:

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

Sources are categorized as “Hotspots” – FSFs causing or contributing to grease-related sanitary sewer overflows (SSOs) and 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

Also, the District Ordinance Code contains similar provisions. The Uniform Plumbing Code and California Plumbing Code also contain provision related to grease, such as the sizing of interceptor facilities, and the District has adopted these Codes by reference through its Ordinance 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 District Ordinance Code has the following requirements for Food Service Facilities (FSFs):

- Installation of Grease interceptors for all new FSFs, remodels of \$75,000 or greater, and for all FSFs causing or contributing to a sanitary sewer overflow or blockage (hotspot).
- Grease removal device maintenance is also required, a minimum of every three months or more frequently to ensure FSFs 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 must be used.
- A residential FOG program has been developed which is essentially educational efforts by EBMUD staff to inform customers about best practices in disposal of grease.

Grease Removal Device Technology for FSFs

Grease interceptor installation, design and sizing is per the California and Uniform Plumbing Codes. Grease interceptor waivers and variances are considered depending upon the business type, the grease generating capability (& probability) of a FSF, 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 interceptors in instances where a grease interceptor cannot be installed (ex: space and

slope restrictions). The installation of these is coordinated with local health authority and building/planning departments.

Inspections/Monitoring – for FSFs

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

- All FSFs are inspected periodically
- Grease interceptors are inspected – a measurement of grease/water/solids is done
- Compliance with Permit requirements is determined
- Educational materials are distributed to managers/employees

Follow-up tasks (as needed) are performed, such as increasing grease interceptor pumping frequency and requiring grease interceptor repairs

Hotspots

EBMUD staff monitors 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 which establishments/residences are causing the grease problems. Actions in these investigations may include:

- Targeted inspections of FSFs upstream of a reported hotspot
- Grease interceptor inspections – measurement of grease/water/solids
- Determination of compliance with Permit requirements
- Video inspections of laterals
- Video inspections of main lines
- Distribution of educational materials

Follow-up tasks may be done as a result of these inspections, including requirements to install a grease interceptor, increase the frequency of grease interceptor pumping, and EBMUD verification that required grease interceptor repairs have been made.

Enforcement – for FSFs

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, and all approved haulers are informed about this.

Public Education and Outreach

Program brochures that describe best management practices (BMP) and a BMP chart are distributed to FSFs in English, Chinese, Spanish, Vietnamese, and Korean. Brochures and other literature for FSFs 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 related to FOG that contains useful FOG information, including the location of used cooking oil collection centers.

(Outreach Brochure)

(Hotspot Map)

(Grease Sanitary and Sewer Overflows (SSO) and Blockage Report Form)

(FOG Scope of Services – EBMUD for The District)

LEGAL AUTHORITY

District Ordinances

The District has an Ordinance Code (Code) that regulates the use of District wastewater facilities, their construction, permits required for work on these facilities, easements, charges, what materials can be placed into sewers, and the enforcement of these requirements. East Bay Municipal Utility District (EBMUD) operates a pretreatment program within District boundaries and works closely with District management and maintenance crews to ensure that their independent efforts are coordinated. EBMUD also has an ordinance, EBMUD Ordinance No. 311, that regulates the discharge of wastewater into its system in order to protect its treatment plant which District customers are subject to as well.

Backflow Prevention Devices The District ordinance requires backflow prevention devices (BPDs) to be installed on all new construction, and retrofitted to older homes and buildings when there are property sales and upon activities (such as remodeling) referred to the District as part of the Cities or County's building permit process.

Testing of Laterals Upon the Sale Of Property In September 2005, the District implemented the requirement for the testing of laterals upon the sale of property and repair or replacement if found to be defective. In October 2011, the District transitioned from this program into EBMUD's Regional Private Sewer Lateral (PSL) Program. District staff currently works with EBMUD to coordinate efforts of the regional program.

Control of Inflow/Infiltration (I/I) The ordinance prohibits the discharge of unpolluted water, I/I, to District sewers, either directly or indirectly.

Proper Design & Construction, Installation & Testing of Facilities The ordinance requires that District standards are followed in the design, construction and testing of all wastewater facilities. This includes laterals as well as District main lines and facilities.

Enforcement The District has many avenues of enforcement available through its Ordinance, including cease and desist orders, conduct of corrective work, termination of service, and assessment of civil and criminal penalties.

(District Ordinance Code)

(EBMUD Ordinance No. 311)

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MEASURES AND ACTIVITIES

Collection System Maps

The District has base maps of the District that are digitized and formatted into Computer Aided Drafting (CAD), and the current software used is AutoCad Map. Base maps include information on all District manholes, which are given a code identification number, line segments, which are identified by upstream manhole numbers, and other items like pipe material type, age, & diameter. These items are part of the Geographical Information System (GIS) mapping system, which is linked to the District maintenance program databases that include information on service calls, repairs, replacements, video inspections and images, permitting. Maps are updated by Engineering as facilities are constructed or modified by the District. Map corrections are also submitted by Collection System Personnel when discovered during routine maintenance. Engineering provides updated maps to staff 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 2011-12 is \$2.08 million for operations and \$1.68 million for capital. The budget is established on a “pay-as-you-go” basis and the current service rates support all operating concerns and the replacement of about 10,000 feet of mains. Rates are assessed to rate payers through the County property tax rolls. The District raised rates in July 2010 and rates will increase about 60% over the next 3 years. The increase will fund additional capital improvements, primarily main line replacements.

The District maintains its collection system with a supervisor/manager and a crew of four field maintenance, or collection system, workers. This group is generally split into two crews of two, but sometimes there are three person crews used in easement areas or other special situations. The Supervisor often acts as another (fifth) crew member. They have modern equipment including a hydroflusher truck, two rodding trucks, a TV van, three pickups, and a flatbed dump truck. The District’s primary cleaning activity is rodding, due to the nature of the area and the fact that roots in hilly areas are the biggest problem and concern associated with SSOs and the cleaning of District lines. The crew provides emergency standby service on a continuous, twenty four hour per day basis, so that all emergency calls can be handled within one hour’s response time.

A summary of important parts of the District annual budget for fiscal year 2011-12, which is typical of other years, is listed below:

Operations & Maintenance	\$1,555,750
Administration	\$523,875
Main Line Replacement	\$1,070,000
Capital Equipment	\$69,000
Pump Station Rehabilitation	\$90,000
Point Repairs	\$35,000
Root Foaming	\$65,000
Smoke Testing	\$32,000
Interceptor Cleaning	\$25,000
Total Operating Budget	\$2,079,625
Total Capital Budget	\$1,523,623

Preventive Maintenance

The collection system field maintenance crews rod and hydroflush (clean) and televise District main lines on a daily basis. They achieve an average monthly performance of a combined total of about 90,000 feet per month. Cleaning is followed by video inspection to ensure adequate cleaning and proper cleaning methods. District collection system workers note the condition of every line segment they clean 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 12 to 24 month basis, as follows:

High Frequency Main Lines	--	1, 3 and 6 Month Intervals
Main Lines	--	12 to 24 Months
New HDPE Lines	--	2 – 5 Years

The “work orders” used by collection system workers is actually 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.

The District also foams about 50,000 feet of lines annually to control excessive roots on a three year cycle. The lines that receive this foaming treatment are determined by the field

crews based on field observations and video inspection work. This program has proved to be very effective, in that SSOs have been reduced in the areas where treatment has occurred.

Staff is currently revising its work scheduling and sequencing procedures and this SSMP will be revised accordingly as changes are made.

Scheduled Inspections and Condition Assessment

Condition assessment is performed daily by collection system workers, through visual observation of manholes and other facilities as part of the preventive maintenance cleaning activities. The most significant assessment activity in terms of time and expense is the videoing of District main lines and manholes. This service was contracted until late 2005, when the District purchased a video van and camera system. All main lines were inspected during a six year period from 1997-2002. Staff believes the quality and consistency of the video work has drastically improved now that District staff has control. A new camera inspection system including a new camera was placed in service in September 2008.

Smoke testing has historically been performed on a periodic basis, and an annual program was initiated in fiscal year 2008-09. The intent is to smoke test about 10% of the system each year. A proposed Inflow Identification and Reduction plan was submitted for approval to US Environmental Protection Agency (EPA) in July 2010 and approved in December 2010. In August 2011, EPA approved the proposed schedule for the Inflow Identification and Reduction plan.

Rehabilitation Plan

The District began a sewer system rehabilitation plan in 1997, following the hydraulic upgrades to some of its major main lines subsequent to the East Bay I/I Study. The plan was revised in 2002 and updated again in late 2005. The District now replaces about 1.5 percent of its main lines annually through this rehabilitation plan and program. About 150,000 feet of main lines have been replaced and 100,000 feet since 1997 as part of the program. Engineering staff uses the condition assessment data to prioritize the main lines that will be replaced as part of the District's Rehabilitation plan. Maintenance staff also provides input about maintenance problems to add to the decision making when deciding the priority of lines to be replaced. The District utilizes an innovative, "standard pipeburst contract" for performing this work. This involves a "standard section" of line to be replaced and bids are received on the standard specification. The lowest responsible, responsive bidder (contractor) is contracted and can perform replacements for the District

throughout the year. This enables the District to replace problem lines in a timely manner. The typical bidding process takes months to complete. Changes and any flexibility of which lines can be replaced are somewhat limited. The “standard pipeburst contract” gives the District the flexibility to replace high priority lines promptly when they are discovered throughout the year.

The annual capital budget funds this replacement at a total of about \$1,000,000 per year, supported by the current rate structure in place. The rate increase approved by the District Board in July 2010 will enable an increase in annual main replacement up to a \$1,500,000 annual amount in FY 2013-14.

Repairs are made soon after the need is identified but only if determined to be more cost effective than replacement of the entire line. Repairs are budgeted at \$35,000 per year as an operating expense.

Maintenance Management System (MMS)

The District uses a maintenance management system that is a set 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 program also electronically interfaces with the District’s digitized mapping system. This system, including all the databases, were 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 and auto-dialers to transmit alarms to the District office and the answering service twenty four hours a day. Duties include changing fluids, checking batteries and battery chargers, exercising standby generators, cleaning wet wells, clearing bar screens, applying degreaser and changing odor control agents.

Training

The District participates in a risk pool, the California Sanitation Risk Management Authority (CSRMA), with 58 other sanitary districts. One of the services provided by CSRMA is an extensive set of on-line training modules. Collection system workers also participate in bi-monthly tailgate safety trainings, as well as on-going “on-the-job” training efforts. Training of District staff on standard procedures and other special programs like traffic safety and confined space entry are conducted on an on-going basis,

and as dictated by the specific program or issue. Collection System and Engineering staff also participate in CWEA programs and vendor-sponsored training courses.

Contingency Equipment and Replacement Inventories

The District also maintains two trailer-mounted portable electric generators, one 25 kw and one 45 kw capacity model. An emergency response trailer was put together in 2008, and it contains two portable submersible pumps, six hundred feet of collapsible hose, confined space entry equipment, plugs, and various other equipment and items that are used in response to SSOs and other emergency situations. This allows the staff to respond quickly to SSOs, including pumping SSO contents from storm drains or ditches if the need arises. An inventory of clay pipe, some fittings and couplings, in sufficient quantity to make emergency repairs, is maintained in the District storage yard. Contractors are used to make routine and emergency repairs and line replacements, and the District has agreements in place with contractors for these services if the need arises.

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 to plumbers and contractors that provide services to District customers. The brochure explains the potential impact on District sewers, including the cause of SSOs, if plumbers and building contractors do not follow appropriate practices when cleaning, repairing and constructing sewers and other wastewater facilities. The brochure is provided to contractors that work in the District, when they take out a permit at the District counter. District staff will also be mailing copies of the brochures to all plumbers registered to work in the District.

Awards

The District received the California Association of Sanitation Agencies (CASA) Innovation Award in 1999 for its development and use of its own Video Inspection Enhancement and Predictive Failure model. This model is essentially the program that was developed for use by District staff to evaluate all main line segments by video and to assign a numerical condition rating to each line segment. This establishes a priority of lines to be replaced.

The District was awarded the San Francisco Bay Section (of the California Water Environment Association, or CWEA) “Collection System of the Year” award for 2008. The District was consequently entered into the state competition for its system of the year award in 2009 and received recognition at the annual CWEA conference as a top performing collection system.

The District received an honorable mention award (August 2010) in public education and outreach for its partnership with Kids for the Bay during the 2009-10 school year.

(Quarterly Cleaning Map Book)

(Fiscal Year 2011-12 Budget)

(Root Foaming Map Book)

(Video Map Book)

(Smoke Testing Map Book)

(Rehabilitation Program Update – 2005)

(Plumbers & Building Contractors Brochure)

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

(Inflow Identification and Reduction Plan, July 2010)

(Inventory List)

(Training Records)

DESIGN AND CONSTRUCTION STANDARDS

Standards for Installation, Rehabilitation and Repair

The District, through its Engineering Department, maintains a manual that contains a set of wastewater and sewer system design standards (Steger Sanitary District Construction Specifications and Details or “Standard Specifications”). These standard specifications are a comprehensive set of standards that cover all sewage or wastewater facilities in the District. They are required, by the District’s Ordinance Code, for use in both new installations and replacement facilities. They are available to contractors and citizens at no charge and are updated periodically, as necessary.

The District has certain required standards that are of special interest; backflow prevention devices (BPDs), testing and potential replacement of private laterals upon the sale of property, and grease interceptors for all food service facilities.

Standards for Inspection and Testing of New and Rehabilitated Facilities

The District has a full-time inspector (Engineering Technician/Inspector) who inspects both new construction and repairs. The inspector ensures that all construction is safe and meets District 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.

(Steger Sanitary District Construction Specifications and Details)

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CAPACITY MANAGEMENT

Collection System Hydraulic Model

The District has a hydraulic model of the District's collection system and originally used HYDRA software for this model. 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 2.65 inches of precipitation with a 7 hour duration. 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 in 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. In September 2011, a draft technical memorandum was submitted and is currently in review.

System Evaluation and Capacity Assurance Plan

The District's capacity assurance efforts are based on its 1994 collection system master plan, as periodically updated with information from local planning agencies, its internal collection system long-term rehabilitation plan (last updated in 2006), and on-going use of the system hydraulic model.

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. These studies are kept on file by the District and are available for inspection.

Permit Activity

The Engineer uses 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 increase of any necessary capacity increases to downstream lines.

Flow Monitoring

The District has purchased, operates and maintains a total of six (6) 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 from the entire system going forward.

The District uses the information from flow monitoring and its capacity model to determine if there's a need to increase the capacity of lines. 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 State Revolving Fund (SRF) loans.

A Sub-basin Flow Monitoring Plan was submitted to EPA on July 15, 2010 and approved by EPA on October 14, 2011.

(HYDRA Hydraulic Model Output)

(AECOM DRAFT Technical Memorandum)

(October 14, 2010 EPA Approval of Subbasin flow monitoring plan for 2010-11)

(Subbasin Flow Monitoring Plan, July 2010)

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 monthly “Manager’s Report” is prepared and submitted to the District Board of Directors. This report provides detailed information every month on the number of overflows, service calls, repairs, footage of main lines cleaned and videoed, amount of lines 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 maintenance management system (MMS) previously described in the Measures and Activities element. The summary reports on system performance are reviewed monthly 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.

(Monthly Manager’s Report)

(Monthly Charts and Graphs of Performance)

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SSMP AUDITS

The District will conduct an annual 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 year. The audit will be under the supervision of the District Manager and be completed no later than March 15th. The audit will generally follow the format of the draft SSMP Annual Audit Report form developed by BACWA in 2007.

(Sewer System Management Plan Annual Audit Report – BACWA 2007)

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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. The District also has a web site, 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 current Board meeting agenda & current and past meeting minutes (archived for about three years), and many of the components that comprise the SSMP such as the District Ordinance 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 issues, 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 door hangers prior to repair or replacements of District main lines and lateral connections and sometimes provided verbally as well. Field crews also 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 District response to their call.

The District Board approved financial support of an 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's Board members host a District booth every year at the El Cerrito Fourth of July community fair. The 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 are present each year.

(Webpage Sample)
(Smoke Pamphlet)
(Door Hanger)
(Customer Feedback Form)
(Kids for the Bay Report)