	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 3/12/2015	Document Name: Overview
Supersedes: Version 3	Document ID: SSMP overview
Version 4	Approved by: Director of Wastewater


Introduction

The District, as a sanitary sewer system collection agency, is required to develop a Sewer System Management Plan (SSMP) pursuant to Section 13267 of the California Water Code as directed by the Regional Water Quality Control Board (RWQCB), and pursuant to the Statewide General Waste Discharge Requirements, set forth by the State Water Quality Control Board (SWQCB) order no. 2006-003.

Table 1 below identifies the elements of the SSMP that are included in this version of the SSMP.

Table 1 – Elements of the SSMP

Element No.	Included in this version of the SSMP	Element Name
1	√	Goals
2	√	Organization
3	√	Overflow Emergency Response Plan
4	√	FOG Control Program
5	√	Legal Authority
		Measures and Activities
6a	√	• Collection System Maps
6b	√	• Resources and Budgets
6c	√	• Preventive Maintenance
6d	√	• Inspections and Condition Assessment
6e	√	• Contingency Equipment and Replacement Inventory
6f	√	• Training
6g	√	• Outreach to Plumbers and Contractors
7	√	Design and Construction Standards
8	√	Capacity Management
9	√	Monitoring, Measurement, and Program Modifications
10	√	SSMP Audits
11	√	Communication Plan

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System Overview

EBMUD Wastewater Treatment System


Special District No. 1, a separate district within EBMUD governed by the same Board of Directors, was established in 1944 and is administered by the District's Wastewater Department. The Main Wastewater Treatment Plant (MWWTP) treats the domestic, commercial, and industrial wastewater for an 83-square mile area which includes the cities of Alameda, Albany, Berkeley, Emeryville, Oakland, Piedmont, and Stege Sanitary District, which includes El Cerrito, Kensington and part of Richmond. The community collection systems are individually owned and operated, and only through community sewer connections are discharges allowed to the District's collection system. Approximately 1,800 miles of community-owned sewers discharge to the District's collection system. The population presently served by the Wastewater Department is approximately 650,000.

Collection System

The District's collection system includes approximately 29 miles of interceptor sewer pipeline and 15 pump stations. The interceptors, ranging in size from 12 inches to 9 feet in diameter, parallel the bay-shore and extend into portions of Oakland and Alameda. The 15 pump stations, ranging in capacity from 1.5 to 60 MGD, lift wastewater throughout the collection system as it travels to the MWWTP. Figure 1 below illustrates EBMUD's service area and the facilities that it owns and operates.

Wastewater Treatment Facilities

The MWWTP, located near the foot of West Grand Avenue in Oakland (adjacent to the San Francisco-Oakland Bay Bridge approach), is designed to provide primary treatment for a flow of up to 320 MGD and secondary treatment for a maximum flow of 168 MGD. Average daily flow is 60 MGD. Treatment processes include prechlorination, screening, grit removal, scum disposal, primary sedimentation, secondary treatment using high purity oxygen activated sludge, final clarification, sludge digestion, and power cogeneration utilizing digester gas. The treated effluent is disinfected and dechlorinated before being


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discharged into San Francisco Bay, approximately one mile off the East Bay shore.

The Wastewater Department's also operates three wet weather treatment facilities that are used to store and manage flows during wet weather events.

Figure 1- EBMUD Wastewater Service Area



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Effective Date: 8/31/07	Document Name: Goals
Supersedes: Version 1	Document ID: E1 - SSMP goals update.doc
Version 2	Approved by: Director of Wastewater

Goals


EBMUD's goal for the SSMP is to:

1. Properly manage, operate and maintain all parts of the wastewater collection system.
2. Provide adequate capacity to convey flows consistent with secondary treatment capacities.
3. Minimize frequency of SSOs on the District's collection system.
4. Mitigate impact of SSOs on the District's collection system.

EBMUD develops specific SSMP goals that follow the SMART criteria (i.e, specific, measurable, achievable, relevant, and time-bounded) and considers the following:

- District Strategic Plan;
- previous year's program performance and areas identified for improvements;
- legal and other applicable requirements;
- best management practices; and
- financial and operational requirements.

The goals are reviewed and updated as needed.

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Version 8	Approved by: Director of Wastewater


Authorized Representative

The Director of Wastewater is the legally responsible officer responsible for signing and certifying all applicable SSMP documents. The Director of Wastewater is also responsible for designating the SSMP Coordinator and assigning staff from the Environmental Services Division (ESD), Wastewater Engineering Division (WED) and the Wastewater Treatment Division (WTD) to implement the SSMP.

Responsibilities within the SSMP

The SSMP Coordinator is responsible for the overall implementation, management, and updating of the SSMP. The following staff is responsible for implementation of specific requirements within each Element, as follows:

Element	Division and Position
Goals	WTD – SSMP Coordinator
Overflow Emergency Response	WTD – Emergency Preparedness Program Manager
Fats, Oils and Grease	ESD – Supervising WW Control Representative
Legal Authority	ESD - Manager
Measures and Activities	
a. Maps	WED – Wastewater Planning Senior Civil Engineer
b. Resources and Budgets	WED – Wastewater Planning Senior Civil Engineer (Capital) WTD – Manager (Operating)
c. Preventative Operations and Maintenance	WTD – Asset Management Program Manager
d. Rehabilitation and Replacement Plan (Inspection and Condition Assessment)	WTD – Asset Management Program Manager
e. Contingency Equipment and Replacement Parts	WTD – Asset Management Program Manager
f. Training	WTD – SSMP Coordinator
g. Outreach to Plumbers and Contractors	ESD – Supervising WW Control Representative
Design and Construction	WED – Wastewater Design Senior Civil

	SEWER SYSTEM MANAGEMENT PLAN
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Standards	Engineer
Capacity Management	ESD – Wastewater I/I Control Program Senior Civil Engineer
Monitoring Plan for SSMP	WTD – SSMP Coordinator
Audits for SSMP	WTD – SSMP Coordinator
Communications Program	WTD – SSMP Coordinator

See also the organizational chart in Figure 1. A listing of the names and phone numbers of each person on the organizational chart is included in Table 1. A narrative of the organization chart is below.

All divisions in the Wastewater Department report to the Director of Wastewater. The Director of Wastewater reports to the General Manager. The General Manager reports to the elected Board of Directors.

The Director of Wastewater, with input from the Division Managers, determines allocation of resources and budget. The Director of Wastewater is ultimately responsible for preparation and implementation of the SSMP for the EBMUD Wastewater Special District 1 Service Area.


In addition the Wastewater Division Managers, the I/I Control Program Senior Civil Engineers reports directly to the Director of Wastewater.

Reporting to the ESD Manager are the Industrial Discharges and Field Services sections.

Reporting to the WED Manager are the Wastewater Planning and Wastewater Design sections.

Reporting to the WTD Manager are the Asset Management Program Manager, the Emergency Preparedness Program Manager, and the Wastewater Maintenance and Plant Operation sections. The SSMP Coordinator reports to the Asset Management Program Manager. The Remote Operations group and Shift Supervisors report to the Plant Operations superintendent.

The Regulatory Compliance Office (RCO) provides support to the Wastewater Department on regulatory compliance issues through the WTD Manager

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Chain of Communication

The chain of communications for responding to and reporting SSOs are contained in EBMUD's Sanitary Sewer Overflow Response Plan which is a section of the Wastewater Emergency Operations Plan.


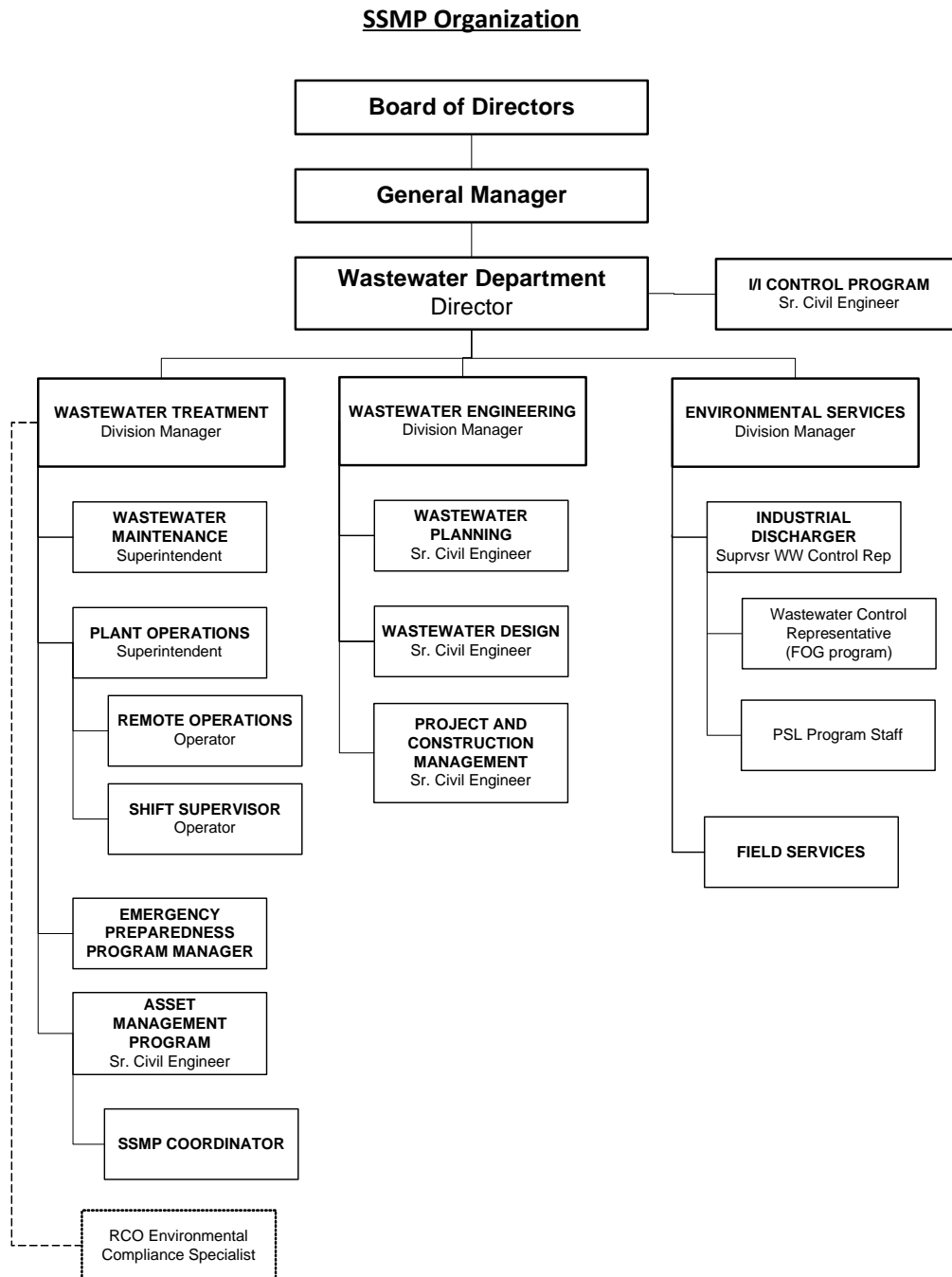
	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 4/08/2014	Document Name: Organization
Version: 7	Document ID: E2 - SSMP organization

Figure 1 – SSMP Organizational Chart





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Table 1 – SSMP Organization Contact Information

Name	Title	Desk Phone	Cell Phone	Email
John Coleman	Director	510-287-0404	-	coleman@ebmud.com
Andy Katz	Director	510-287-0404	-	akatz@ebmud.com
Douglas Linney	Director	510-287-0404	-	dlinney@ebmud.com
Lesa McIntosh	Director	510-287-0404	-	lmcintos@ebmud.com
Frank Mellon	Director	510-287-0404	-	fmellon@ebmud.com
William Patterson	Director	510-287-0404	-	wpatters@ebmud.com
Marguerite Young	Director	510-287-0404	-	mryoung@ebmud.com
Alex Coate	General Manager	510-287-0101	-	acoate@ebmud.com
Ben Horenstein	Wastewater Department Director	510-287-1846	510-867-7580	bhorenst@ebmud.com
Kurt Haunschild	Wastewater Treatment Division Manager	510-287-1407	510-774-7692	khaunsch@ebmud.com
Ike Bell	Wastewater Maintenance Superintendent	510-287-1450	510-385-6118	ibell@ebmud.com
Dave Freitas	Plant Operations Superintendent	510-287-1502	925-351-9282	dfreitas@ebmud.com
Michael Purcell	Remote Operations Supervisor	510-287-1772	510-385-6143	mpurcell@ebmud.com
John Cloak	Shift Supervisor (Day)	510-287-1503	510-385-6146	jcloak@ebmud.com
Linda Winters	Shift Supervisor (Swing)	510-287-1412	510-715-6030	lwinters@ebmud.com
Robert Ciernik	Shift Supervisor (Grave)	510-287-2043	510-774-6246	rciernik@ebmud.com
Maura Bonnarens	Emergency Preparedness Program Manager	510-287-1023	510-867-7613	mbonnare@ebmud.com
Maura Bonnarens	Asset Management Program Manager	510-287-1023	510-867-7613	mbonnare@ebmud.com
Maura Bonnarens	SSMP Coordinator	510-287-1023	510-867-7613	mbonnare@ebmud.com
Chris Dembiczak	RCO Environmental Compliance Specialist	510-287-0509	925-640-4738	cdembicz@ebmud.com
Vince De Lange	Wastewater Engineering Division Manager	510-287-1141	510-551-8346	vdelange@ebmud.com
Alicia Chakrabarti	Wastewater Planning Sr. Civil Engineer	510-287-2059	-	achakrab@ebmud.com
Gary Warren	Wastewater Design Sr. Civil Engineer	510-287-1980	-	gwarren@ebmud.com
Joe Wong	Project and Construction Management Sr. Civil Engineer	510-986-7932	510-867-4233	jwong@ebmud.com
Chris Dinsmore	I/I Control Program Sr. Civil Engineer	510-287-0522	-	cdinsmor@ebmud.com
Jackie Kepke	Environmental Services Division Manager	510-287- 1608	510-206-3820	jkepke@ebmud.com
Karen Hurst	Industrial Dischargers Supervising Wastewater Control Representative	510-287-0345	415-710-9875	khurst@ebmud.com
Nadia Borisova	Wastewater Control Representative (FOG program)	510-287-1065	-	nborisov@ebmud.com
Flo Gonzalez	Field Services Supervisor	510-287-1655	510-385-6156	fgonzale@ebmud.com

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 3/12/2015	Document Name: Emergency Response
Supersedes: Version 5	Document ID: E3 - OverflowEmergResp
Version 6	Approved by: Director of Wastewater

SSO Notification


For proper and timely notification of an SSO to primary responders and regulatory agencies, an overflow emergency response chain of communication has been developed and the responsible individuals have participated in its development and training. Remote monitoring, inspections, and the District call center are the backbone for receiving initial reports of a potential SSO.

SSO Response Mobilization, Public Agency Notification, Abatement and Mitigation

EBMUD's Wastewater Emergency Operations Plan documents the procedures for responding to reported SSOs, including mobilization of District forces, regulatory and public notifications, and implementation of best practices for abatement and mitigation. The procedures can be found at the District's intranet site on the Wastewater Emergency Preparedness page.

SSO Response Training

Staff in the Remote Operations Section and Field Services Section, as well as Environmental Services Division Supervisors, Division Managers, the Department Director, and Environmental Compliance Specialist all receive annual refresher training in SSO response and their specific responsibilities as outlined in the Wastewater Emergency Operations Plan SSO Procedure.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 3/12/2015	Document Name: FOG Program
Supersedes: Version 8	Document ID: E4 - SSMP FOG
Version 9	Approved by: Director of Wastewater


Background

The East Bay Municipal Utility District (EBMUD) collection system consists of a regional interceptor system with large diameter pipes that receive wastewater from seven city and community satellite collection systems including the cities of Alameda, Albany, Berkeley, Emeryville, Oakland, Piedmont, and Stege Sanitary District. These collection system agencies individually own the upstream collection systems that collect and transport wastewater to the EBMUD's interceptor system. The EBMUD system has no private lateral connections and has not had any fats, oils and grease (FOG) related sanitary sewer overflows (SSOs). As such, a FOG control program is not needed for the EBMUD collection system. As a service to the satellite collection systems, EBMUD worked closely with the wastewater collection system agencies in its wastewater service area and established a regional FOG control program to control grease discharges from restaurants and other food service establishments (FSE). This regional FOG control program was established to reduce FOG related SSOs and consists of FOG hotspot investigations, FSE and gravity grease interceptor inspections, enforcement support, hotspot reporting, database management, and outreach. These components are summarized below.

Regional FOG Control Program

Source Identification: Targeted Hotspot Investigation

Discharges from FSEs, residential sites and food manufacturing facilities are potential sources for causing grease-related SSOs and blockages in the satellite agencies' sewer collection systems. The collection system agencies report locations of grease-related SSOs or blockages and areas of increased maintenance due to grease build up, known as hotspots, to EBMUD. In response, EBMUD performs hotspot investigations to identify the sewer drainage basin contributing to the location of the reported blockage/SSO or increased sewer maintenance, also known as FOG hotspot area, and inspect grease generating FSEs that discharge in the sewer drainage basin. Those FSEs that generate grease and are found to cause or contribute to grease-related blockages or SSOs are required to install grease control devices (GCD) approved by the regulating collection system agency.

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Gravity Grease Interceptor Inspections

EBMUD performs gravity grease interceptor inspections for FSEs in hotspots as well as for FSEs that are not in hotspots. FSEs with gravity grease interceptors are inspected to determine their operating condition and the adequacy of their pumping schedule or maintenance. More frequent servicing/maintenance and repairs may be required if necessary.

Enforcement Support

An escalating (progressive) enforcement support structure is established for FSEs by the regulating collection system agency. EBMUD provides enforcement support to agencies based on agency-specific requirements.

Hotspots Reporting

EBMUD provides the collection system agencies with quarterly FOG hotspot investigation reports. These reports provide the number of hotspots reported and inspections performed, FSEs identified to cause or contribute to FOG related blockages/SSOs, GCD installation status, and a summary of residential outreach materials distributed during a given quarter. EBMUD also provides the collection system agencies with a Regional FOG Program Annual Report which documents all of the efforts and progress over the course of the year to address FOG-related issues service-area wide.


FOG Control Database

EBMUD maintains a FOG control database to manage the information about FSEs and their grease generating capability, inspections, FOG hotspots, GCDs, requirements and agency enforcement status information for FSEs, as well as residential outreach distributed.

Outreach

Public education and outreach that promotes proper handling and disposal of FOG is an ongoing effort through various methods and media. EBMUD provides education and outreach materials for FSEs in multiple languages as a component of the overall program.


EBMUD also provides information to residents on how to properly dispose of household cooking oil. This outreach effort includes partnerships with other

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 3/12/2015	Document Name: FOG Program
Version 9	Document ID: E4 - SSMP FOG

organizations such as regional non-governmental organizations, and local retail outlets. Residential hotspot response includes targeted outreach materials in multiple languages. Additional outreach information for businesses and residents, including residential grease drop off locations, is available on EBMUD's website: <http://www.ebmud.com/fog>

FOG Disposal (GCD waste and residential cooking oil)

EBMUD's Main Wastewater Treatment Plant serves as a receiving facility for GCD waste from both inside and outside of the EBMUD's service area and as a residential cooking oil collection site. In addition, EBMUD established residential cooking oil drop-off sites at the El Cerrito Recycling Center and the Oakland Whole Foods grocery store located in the wastewater service area. EBMUD continues to work with the satellite agencies to establish new drop off locations for residents. EBMUD also continues to promote Richmond's West County Resource Recovery facility and Central Contra Costa Sanitary District's household hazardous waste facility to conduct outreach about their acceptance of residential cooking oil. All collected residential cooking oil is diverted away from the sanitary sewer collection systems and converted into biofuel.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 03/08/2011	Document Name: Legal Authority
Supersedes: Version 2	Document ID: E5 - legal authority.doc
Version 3	Approved by: Director of Wastewater


Legal Authority

EBMUD's Wastewater system, known as Special District No. 1, was authorized by East Bay voters in 1944. As a Special District under the Municipal Utility District Act of the State of California (Article 5.5), the EBMUD Board may make and enforce such regulations for the control of quantity, quality, and flow of wastewater within the boundaries of the Special District No. 1.

EBMUD Ordinance No. 311 further stipulates the EBMUD legal authority in:

- a) allowing only community sewer connections to its collection system (Title I, Section 4);
- b) prohibiting the discharge of storm, drainage, and groundwater to community sewer systems (Title I, Section 5, and Title II, Section 2.c);
- c) setting discharge limits on Fats, Oils, and Grease, and other substances (Title II, Section 2.b, and 5);
- d) requiring application to and approval by the District for all connection to its collection system (Title I, Section 4);
- e) gaining access to facilities of any discharger for inspections (Title V, Section 2.I), and
- f) establishing regulations, charges, permit requirements, and enforcement and penalty requirements for violations (Titles II to VI).
- g) requiring maintenance of private sewer laterals, establishing testing protocols for integrity of private sewer laterals, and requiring repair or replacement of private sewer laterals as needed (Title VIII).

All of the District's collection system facilities are located within District owned property, public right-of-ways, or easements that allow District access for maintenance, inspections, and repairs.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 3/12/2015	Document Name: Collection System Map
Supersedes: Version 3	Document ID: E6a - SSMP Collection System Map
Version 4	Approved by: Director of Wastewater

Collection System Maps

The District relies on two types of collection system maps:

- A GIS database map
- Facility drawings of the interceptors

GIS Database Map

The District has developed a collection system map using a GIS database. The GIS map contains information on the manholes, pipelines, pump stations and wet weather facilities. Also included for reference in the database are an aerial photo of the wastewater service area and a map of streets and property boundaries.

The GIS database was built from the following information sources:


- GPS data – The GPS locations of the manholes were collected by the District Survey Section.
- Interceptor Damage Assessment Project (IDAP) – The IDAP was completed in 1997. The IDAP created a database of all the pressure and gravity lines in the collection system. This database contains information on the size, length and material type of the pipe.
- As-built drawings – The rim and invert elevations of the manholes were added from as-built drawings to the IDAP database.
- Aerial photo – Locations of the pump stations and wet weather facilities were established based on an aerial photo of the wastewater service area.

The GIS database for the collection system is currently located at <G:\projects\WasteWater\mxd\Interceptors w city data 9-21-09.mxd>.

Facility Drawings

The Wastewater Drafting Section maintains current facility drawings of the Interceptor System facilities at the following location:

\\win.ebmud\ww\drafters\PDF\Facility Documents\Interceptors_ForceMains

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 4/08/14	Document Name: Resources and Budget
Supersedes: Version 3	Document ID: E6b - Resources and Budget
Version 4	Approved by: Director of Wastewater

Overview

The following District policies and procedures are in place to ensure that there is adequate funding and budgetary support for operating, maintaining, and repairing the collection system:


- Policy 4.02 – Cash Reserves and Debt Management
Maintain operating reserves at a level sufficient to meet working capital and unanticipated needs while maintaining a reasonable balance between debt and current revenue financing of capital projects
- Policy 4.04 – Financial Planning and Budgetary Control
Establish a financial plan and biennial budget for the Wastewater System
- Procedure 417 – Financial Planning and Budgetary Control
Establish responsibility for preparing the budget and revisions, preparing financial projects and revising schedule of rates
- Procedure 801, Wastewater Revenue Program System
Outline the process for establishing rates, classifying user groups, collecting fees, and demonstrating that revenues are sufficient to cover the costs of providing services.

Resources

The main source of revenue for operating, maintaining, and repairing the collection system is a user-supported rate paying structure. Rates are based on flow, strength charges, and the type of discharger/industry. Additional funds are collected on the property tax bill and through permit, connection, and other fees, and generated through the District's Resource Recovery (trucked waste) program. The schedule of current rates, charges, and fees is available at <http://www.ebmud.com> on the menu bar under "Customers → Rates and Charges → Wastewater Rates". The rates are evaluated and adopted every two years.

Budget

The District develops a 10-year Capital Improvement Program (CIP) and an annual operating budget. The CIP and operating budget are prepared as part of the District's biennial budget process and are available at <http://www.ebmud.com>

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 4/08/14	Document Name: Resources and Budget
Version 4	Document ID:E6b - Resources and Budget

via the “Popular Pages” list on the Home Page → Finance/Investor Relations → Budget and Rates.


Capital

Capital projects for the collection system include interceptor, pump station and capacity related projects. Master planning efforts for each part are used to identify deficiencies (see Element 6d – Inspections and Condition Assessments and Element 8 – Capacity Management), and to develop prioritized recommendations for improvements. Deficiencies may include, but are not limited to, current and future capacity needs, regulatory requirements, and infrastructure conditions. Additional prioritization of projects occurs during the CIP development process.

Operating

The operating budget consists of resources necessary to operate and maintain the collection system. Such resources include staff, energy, chemicals, parts and materials, vehicles, fuel, and outside contracts.

Labor costs and other expenses are tracked continuously. The budget for these resources is established based on the District’s salary schedule and staffing plan, and historical data, trending/projections, and inflation factors.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 4/8/14	Document Name: Preventive Maintenance
Supersedes: Version 1	Document ID: E6c - Preventive Maintenance
Version 2	Approved by: Director of Wastewater

Introduction

EBMUD conducts routine maintenance and preventative maintenance activities by dedicated multi-skilled Operation and Maintenance staff for its sewer collection system.

Computerized Maintenance Management System (CMMS)

A CMMS (Maximo) (<http://wastewater/maximo/>) is used by Operations and Maintenance to:

- Request maintenance services and manage both planned and unplanned maintenance activities
- Track equipment
- Plan and prioritize maintenance work
- Maintain timely and accurately activity records which can be easily accessible and used for appropriate analysis and reporting


The CMMS covers EBMUD's entire wastewater collection and treatment system. Components specific to the sewer collection system included in the CMMS are:

- Pump Stations
- Level Monitor Stations (LMS)
- Overflow Structure Monitors (OSM)
- Cathodic Protection Systems

Preventive Maintenance Inspections and Activities

Remote Operations perform routine inspections, cleaning, and other preventive maintenance activities for all pump stations using Station checklists. The procedures are documented in the Operations Readings and Rounds Procedures.

Inspection for debris accumulation in the interceptors is performed with condition assessment inspections (See SSMP Element 6d). The interceptors historically have not exhibited problems with debris accumulation that could lead to SSO's. The District does not have a routine interceptor cleaning program, or equipment and personnel to perform sewer cleaning. The District performs cleaning based on inspection results and uses contractors to perform the work. Cleaning has been undertaken on an as-needed basis on the flattest portions of the system where debris levels have either inhibited inspection efforts or there was a concern that the levels may impact capacity.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 3/12/2015	Document Name: Scheduled Inspections and Condition Assessment
Supersedes: Version 3	Document ID: E6d - ConditionAssess
Version 4	Approved by: Director of Wastewater

Overview

Master plans are maintained for both the interceptor gravity system and the pump stations, and generally updated every 10 years. The master plans provide prioritized recommendations for capital improvements that are then considered for incorporation into the District's Capital Improvement Program (CIP). Funding for projects, once incorporated into the District's CIP, is provided through wastewater rate structure fees and bonds.

In 2014, EBMUD completed development of its asset management plans for the interceptor system gravity system (manholes and pipes), pump stations, and pump station force mains. These plans provide risk-based recommendations for future inspection frequencies. They also provide data to inform updates to the Interceptor System and Pump Station Master Plans regarding recommended capital investments.


Summary of Existing Interceptor System Master Plans

Interceptor System

In 1995, the District embarked on a system-wide master plan survey of its 29-mile interceptor system. The scope included inspection of all manholes and portions of pipelines. This Interceptor Damage Assessment Project (IDAP) was completed in 1997. The report serves as a baseline master plan for the interceptor and is used to incorporate rehabilitation project into the District's CIP. This master plan was updated in 2008.

Pump Stations


In 1998, the District completed its latest Wastewater Pump Stations Master Plan. This plan is used to prioritize pump station rehabilitation projects for inclusion in the District's CIP. An update to the 1998 Pump Station Master Plan was initiated in 2013 and is expected to be completed by 2016.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 3/12/2015	Document Name: Scheduled Inspections and Condition Assessment
Version 4	Document ID:E6d - ConditionAssess

Interceptor System Asset Management Plan

On July 22, 2009, EPA, SWRCB, and RWQCB issued a Stipulated Order (SO) that required EBMUD to develop an Asset Management Plan for the Interceptor System. This included performing inspections of the Interceptor System assets and developing schedules for repairs and replacement of the assets as needed based on the inspections. It also included development of recommendations for future inspection frequencies for the assets.

EBMUD completed the inspections required by the SO in 2014. The inspection data was used to evaluate conditions, assign condition ratings, and identify rehabilitation or replacement requirements based on a risk assessment process. This information was used to inform updates to the interceptor and pump stations master plans and associated recommendations for CIP budgeting. The data from the risk assessment process was also used to develop future inspection frequencies for the assets.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 2/10/09	Document Name: Contingency Equipment and Spare Parts
Supersedes: Version 1	Document ID: E6e - ContigEquip&SparePartd.doc
Version 2	Approved by: Director of Wastewater

Contingency Equipment


The District owns and maintains a limited supply of emergency response equipment, such as pumps, generators, piping, etc.

The District budgets for new equipment through the capital budget process (see Element 6b.)

In addition, the District maintains contracts with local vendors to provide emergency equipment to supplement the District's inventory on an as-needed basis.

Replacement Inventories

The District maintains a spare parts inventory of approximately 100 spare parts for the pump stations. These parts are selected based on manufacturers' recommendations and the District's own experience with the parts that are likely to fail, i.e. critical parts. The spare parts inventory records are kept in the District's MMIS (Maintenance Management Information System) and can be retrieved by the maintenance staff.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 3/06/2012	Document Name: O & M Training
Supersedes: 1	Document ID: E6f - O & M Training.doc
Version 2	Approved by: Director of Wastewater

General

The District's Workplace Health and Safety (WHS) Section conducts safety training covering confined space entry, lock-out/tag-out, competent person training and other safety related training, and also ensures that the operation and maintenance staff are kept current with annual refresher training. Training records are maintained by WHS.

Maintenance Training

The District retains a dedicated multi-skilled maintenance staff and provides ongoing training programs which cover skill-based and site-specific training. Prior to journey-level employment, an individual must meet basic defined requirements by job classification. A probationary employment period is used to assess skill and competency levels.


There are several platforms on which training is conducted. The platforms include on-the-job training, independent study, meetings, classroom lectures, vendor presentations, and orientations on new equipment/facility.

Maintenance Trades Training Program

The District also has a Maintenance Trades Training Program (MTTP) which offers development opportunities for job classifications at the worker-levels. It provides a structured training program for individuals to acquire trade-specific skills, knowledge, and applicable licenses and certifications through a combination of on-the-job training, outside coursework, and independent study.

Operations Training

The collection system is operated by core remote operators and supported by additional wastewater plant operators during the wet weather season. In addition, in 2011 EBMUD started a program to supplement the core team throughout the year by rotating staff of Wastewater Operator I's and Operator Trainees on the remote routes. This rotating staff is assigned to 3 month rotations. In addition to the general training mentioned above, those that rotate into the remote

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 3/06/2012	Document Name: O & M Training
Version 2	Document ID: E6f - O & M Training.doc

operations staff receive enhanced training using a training manual developed for them as well as hands on experience under the supervision of the core team.

Remote Operator Training


In addition to the training for the rotating staff as noted above, training is provided each month for all staff assigned to remote operations in conjunction with the Tailgate Program. At each meeting, time is dedicated to refresher training on SOPs and unusual operating conditions that may be encountered. Also included are debriefs on abnormal conditions handled by operators over the previous month. The Remote Operations Supervisor maintains the training material and records.

Wet Weather Support Operator Training

Prior to the wet weather season each year, support operators are given a refresher course in the operation of the wet weather facilities, pump stations, and general collection system operations. Specific emphasis is put on the operating strategies for the wet weather facilities. The Remote Operations Supervisor maintains the training material and records.

Contractor Training


Contractors are not used for routine maintenance and operation of the collection system. When contractors are used for specific projects, appropriate training and qualifications are required.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 8/31/07	Document Name: Outreach to Plumbers and Bldg Contractors
Supersedes:	Document ID:E6g - Outreach Plumbers Contr.doc
Version 1	Approved by: Director of Wastewater

Outreach to Plumbers and Building Contractors

Collectively through the Bay Area Clean Water Agencies (BACWA) Collection System Committee, a brochure was developed to provide outreach information to plumbers and building contractors on the subject of preventing SSOs. EBMUD participated in the development and review of the brochure, and has promoted it amongst its satellite collection system agencies.

EBMUD operates only large diameter interceptor sewers, and only allows connections directly from community sewers. EBMUD does not work directly with plumbers and building contractors who work on private laterals and smaller community sewer lines. For these reasons, EBMUD has not used the outreach brochure directly, but rather has contacted its satellite collection systems to promote use of the brochure.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 2/10/09	Document Name: Design and Construction Standards
Supersedes: Version 1	Document ID: E7 - Design&Constr Stds.doc
Version 2	Approved by: Director of Wastewater


Introduction

The District's Wastewater Design Section maintains a document titled "Standards and Guidelines for Design and Construction of Wastewater Facilities", which contains information on resources that the District uses in the wastewater design, construction, testing, and inspection process. These standards and guidelines are applicable to both new installations and rehabilitation of existing facilities, and are regularly used in the implementation of District wastewater projects. The contents of this document include generally the following:

- District's wastewater ordinance
- Standard specifications and practices
- Design criteria
- Standard drawings and typical details
- Data on rehabilitation methods
- Construction control and procedure requirements
- Inspection and testing standards

Approach

The District does not maintain standards for all types of collection system design and construction work. The District manages a collection system of approximately 29 miles of interceptor pipeline and 15 pump stations. Most of the facilities are not similar in size or features, and new or expanded facilities are uncommon. For these reasons, a full line of standards have not been developed since they would be of minimal use. All design and construction done by outside forces (staff from waterside, consultants, or contractors) requires review by District wastewater staff prior to implementation.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 3/12/2015	Document Name: Capacity Management
Supersedes: Version 3	Document ID: E8 - Capacity Management
Version 4	Approved by: Director of Wastewater

EBMUD Interceptor System


EBMUD serves six cities and one sanitary district in the East Bay (referred to as “Satellite communities”), which each own and operate wastewater collection systems that convey wastewater to the EBMUD interceptor system. This interceptor system consists of nearly 29 miles of gravity pipelines with a capacity of 760 million gallons per day (MGD), in addition to 15 pump stations, over 8 miles of pressure pipeline, five emergency overflow structures, and storage facilities at one pump station and two of EBMUD’s three wet weather facilities (WWFs) .

Capacity

EBMUD does not own and operate a typical sewer system with private lateral connections. Capacity for the EBMUD system is provided by (1) the Interceptor System, (2) Pump Stations and (3) Wet Weather Facilities. Capacity assessments were completed as part of the East Bay Wet Weather Program, which was developed out of a comprehensive EBMUD planning process between 1975 and 1987. This program combined the results from previous inflow and infiltration (I/I) studies and facilities planning efforts to develop an integrated approach to reducing sanitary sewer overflows (SSOs) in the East Bay through construction by EBMUD and the Satellite communities of facilities to manage wet weather flows.

Since the completion of the 1980s studies, EBMUD has conducted additional flow monitoring and capacity assessment. Between 2005 and 2007, extensive flow monitoring was conducted as part of the Wet Weather Infrastructure Improvement Studies. Based on the flow monitoring data collected, a refined hydraulic model of the EBMUD interceptor system was developed and capacity assessment was undertaken. Capacity constraints under design storm conditions were analyzed.

On January 14, 2009, the Regional Water Quality Control Board (RWQCB) issued an order prohibiting discharges from EBMUD’s WWFs with an accompanying Cease and Desist Order that includes requirements for actions to be taken if discharges occur. On July 22, 2009 a Stipulated Order for Preliminary Relief (SO) issued by EPA, SWRCB, and RWQCB became effective. This order required EBMUD to perform a variety of work, including additional flow monitoring and modeling by 2012, to lay the groundwork for future efforts to

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eliminate discharges from the WWFs. On September 22, 2014, a Consent Decree (CD) became effective, mandating work activities to reduce inflow and infiltration to a level that, by 2036, the WWFs are not utilized for storm events less than design conditions.

Design Criteria for Collection Systems


Design flows for components of the EBMUD collection system (interceptors, pump stations, and WWFs) were established based on the National Pollutant Discharge Elimination System (NPDES) permit requirements for both the MWWTP and WWFs prior to the 2009 prohibition of discharges from the WWFs. Capacity requirements are based on the East Bay design storm event, which utilizes a five year return period rainfall event, combined with additional assumptions such as seasonally-elevated groundwater levels. As mentioned above, EBMUD is required by the CD to perform certain activities, in concert with work performed by the Satellite agencies, to reduce I/I flows such that discharges are eliminated from the WWFs by 2036..

Capacity Enhancement Measures

EBMUD began implementing its component of the East Bay Wet Weather Program in 1987 and completed it in 1998. EBMUD spent over \$310 million in capital funds and \$3 million per year in operating funds on the program. Facilities constructed include the three wet weather storage and treatment facilities, two relief interceptors, and additional system storage and pumping facilities.

Capital Improvement Program

EBMUD maintains a Capital Improvement Program (CIP) for its collection systems. See Element E6b – Resources and Budget for more information.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 3/06/2012	Document Name: Monitoring, Measurement & Program Modifications
Supersedes: Version 2	Document ID: E9-Monitoring-Measurement.doc
Version 3	Approved by: Director of Wastewater

Performance Measures and Reporting

The effectiveness of the SSMP is tracked through the annual audit and reported in the annual summary report (See Element 10).

Preventative Maintenance Program


The effectiveness of the preventative maintenance (PM) program is tracked through the Asset Management Program, by reviewing scheduled and completed PM work and breakdown and corrective maintenance work orders. The root cause of any SSO that occurred in the past year is determined and if preventative maintenance could have prevented the occurrence, the PM program is modified accordingly.

SSMP Program Updates

Individual elements within the SSMP or documents referenced by the SSMP are updated as needed based on the findings of the annual audit or in the event of an SSO or other event that triggers a review of the SSMP or referenced documents (e.g., SSO Response Plan.)

Reporting SSO trends for District

SSO events are reported through California Integrated Water Quality System (CIWQS). The frequency, volume, location and trends are tracked by the District and assessed on an annual basis.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 4/24/2013	Document Name: SSMP Audits
Supersedes: Version 3	Document ID: E10-SSMP Audits.doc
Version 4	Approved by: Director of Wastewater

Internal Audit Process


Internal audits are performed on an annual basis to determine relevance and effectiveness of each element of the SSMP. Audits include a review of progress on deficiencies identified in the previous year audit report

Correcting Deficiencies

If deficiencies or modifications are identified as part of the annual audit, the SSMP shall be updated accordingly or items shall be cataloged, assigned a lead individual, and a proposed schedule for implementation.

Report Submittal and Record Keeping

A copy of the internal audit will be kept on file at the District.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 2/10/09	Document Name: Communication Plan
Supersedes: Version 1	Document ID: E11-Communication Plan.doc
Version 2	Approved by: Director of Wastewater

District-wide Public Communications and Outreach

The District maintains active public outreach and communications efforts with its customers and the public-at-large to provide timely information on District projects, improvements, and emergency situations.

Communications outlets range from public meetings and representation at community groups to time-critical posting of signage in emergency situations, and updates and postings to the District's public website and 24-hour telephone reporting systems. Additionally, newsletters are developed and distributed to outside agency contacts, communities, and customers. Flyers are often included with customer bills to update the rate payers on District projects and programs. Further, District public affairs representatives maintain routine contacts with news outlets and publications to transmit news briefs in a timely manner.

SSMP related Communication Program

Efforts which support SSMP requirements include:

- Posting of the SSMP on the District's website with contact information to facilitate questions and comments.
- Emergency response posting in the field backed up by telephone hotline and web posting of advisories. Additionally the hotline provides access to District representatives that can address questions and provide additional information on the any current advisories or EBMUD's SSMP.
- Participation in the Technical Advisory Board (TAB) which includes all of the collection system agencies that are tributary to the District's collection system. The TAB meets regularly to discuss and coordinate system issues such as flow monitoring, wet weather flow management, SSMP issues, and system improvements. The TAB is organized under a Joint Powers Authority of which EBMUD is the Lead Agency.