

**EAST BAY MUNICIPAL UTILITY DISTRICT
WASTEWATER DEPARTMENT**

Sewer System Management Plan


**Effective Date:
February 10, 2009**

Approved by:

**EBMUD Board of Directors
at April 14, 2009 Board Meeting**

Last Updated: March 3, 2022



	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 4/9/2021	Document Name: Overview
Supercedes: Version 6	Document ID: SSMP overview.doc
Version 7	Approved by: Director of Wastewater


Introduction

The East Bay Municipal Utility District (EBMUD), 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 1.1 below identifies the elements of the SSMP that are included in this version of the SSMP.

Table 1.1 – 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	√	• Scheduled Inspections and Condition Assessment
6e	√	• Contingency Equipment and Replacement Inventory
6f	√	• O & M 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 EBMUD'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, and 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 EBMUD's collection system. Approximately 1,600 miles of community-owned sewers discharge to the EBMUD's collection system. The population presently served by the Wastewater Department is approximately 740,000.

Collection System

EBMUD'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 million gallons per day (MGD), lift wastewater throughout the collection system as it travels to the MWWTP. Figure 1.1 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 discharged into San Francisco Bay, approximately one mile off the East Bay shore.

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



SEWER SYSTEM MANAGEMENT PLAN

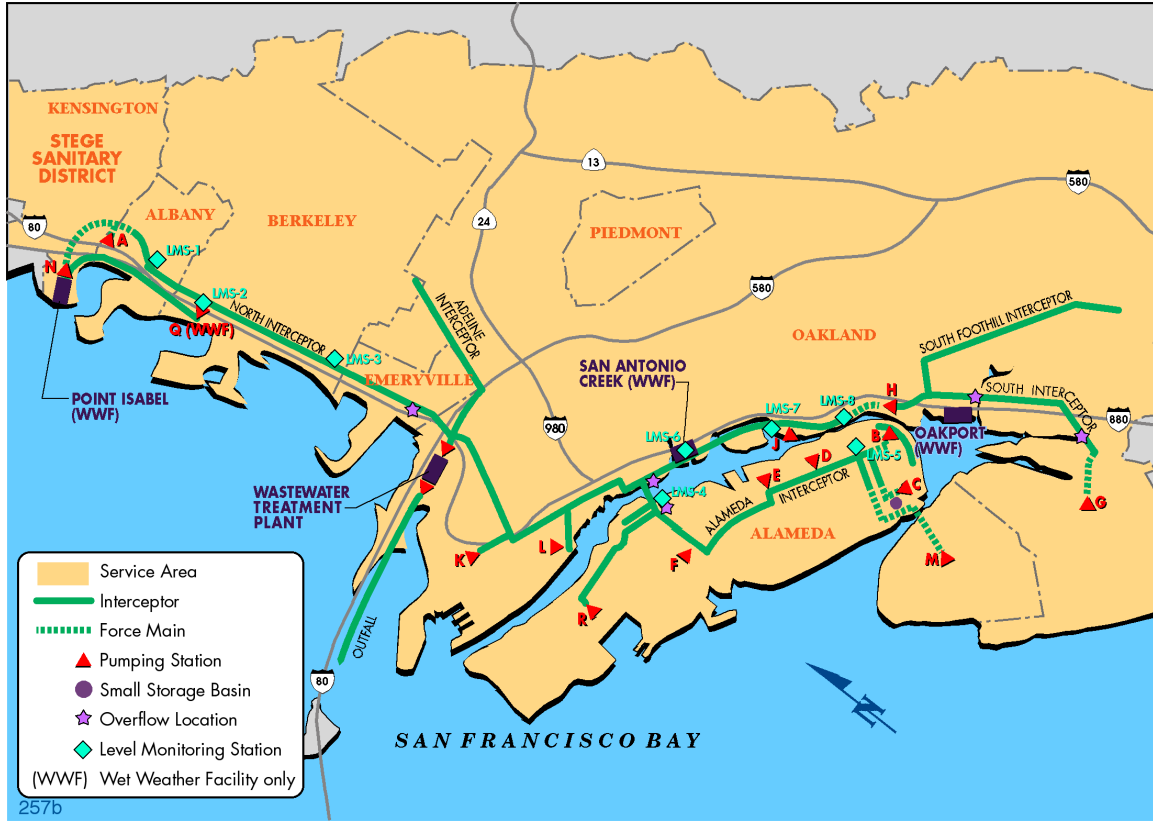
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Figure 1.1 - EBMUD Wastewater Service Area



	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 9/4/2018	Document Name: Goals
Supercedes: Version 2	Document ID: E1 - SSMP goals.doc
Version 3	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 sanitary sewer overflows (SSOs) on EBMUD’s collection system.
4. Mitigate impact of SSOs on EBMUD’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:

- EBMUD 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.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 3/3/2022	Document Name: Organization
Supercedes: Version 12	Document ID: E2 - SSMP organization.docx
Version 13	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), the Laboratory Services Division (LSD), the 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 Plan	WTD – Emergency Preparedness Program Manager
Fats, Oils and Grease (FOG) Control Program	ESD – Supervising WW Control Representative
Legal Authority	Wastewater Department Director
Measures and Activities	
a. Collection System Maps	WED – Wastewater Planning Senior Civil Engineer
b. Resources and Budgets	WED – Division Manager (Capital) WTD – Division Manager (Operating)
c. Preventive Maintenance	WTD – Maintenance Superintendent
d. Rehabilitation and Replacement Plan (Scheduled Inspections and Condition Assessment)	WED – Division Manager
e. Contingency Equipment and Replacement Inventory	WTD – Maintenance Superintendent
f. O&M Training	WTD – SSMP Coordinator
g. Outreach to Plumbers and Contractors	ESD – Supervising Wastewater Control Representative



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Element	Division and Position
Design and Construction Standards	WED – Wastewater Design Senior Civil Engineer
Capacity Management	Wastewater I/I Control Program Senior Civil Engineer
Monitoring, Measurement, and Program Modifications	WTD – SSMP Coordinator
SSMP Audits	WTD – SSMP Coordinator
Communication Plan	WTD – SSMP Coordinator

See also the organizational chart in Figure 2.1. A listing of the names and phone numbers of each person on the organizational chart is included in Table 2.1. 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 No. 1 Service Area.

In addition to the Wastewater Division Managers, the Infiltration/Inflow (I/I) Control Program Senior Civil Engineer, the Wastewater Emerging Issues Manager, and the Principal Management Analyst report directly to the Director of Wastewater.

Reporting to the ESD Manager are the Industrial Discharger, Field Services, and Resource Recovery sections.

Reporting to the WED Manager are the Wastewater Planning, Project and Construction Management, Wastewater Design, and Electrical and Control Engineering sections.

Reporting to the WTD Manager are the Emergency Preparedness Program Manager, the Wastewater Maintenance section, the Wastewater Operations section, and the Control Systems Management section. The SSMP Coordinator reports to the WTD Manager.

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

Chain of Communication

The chain of communication 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.


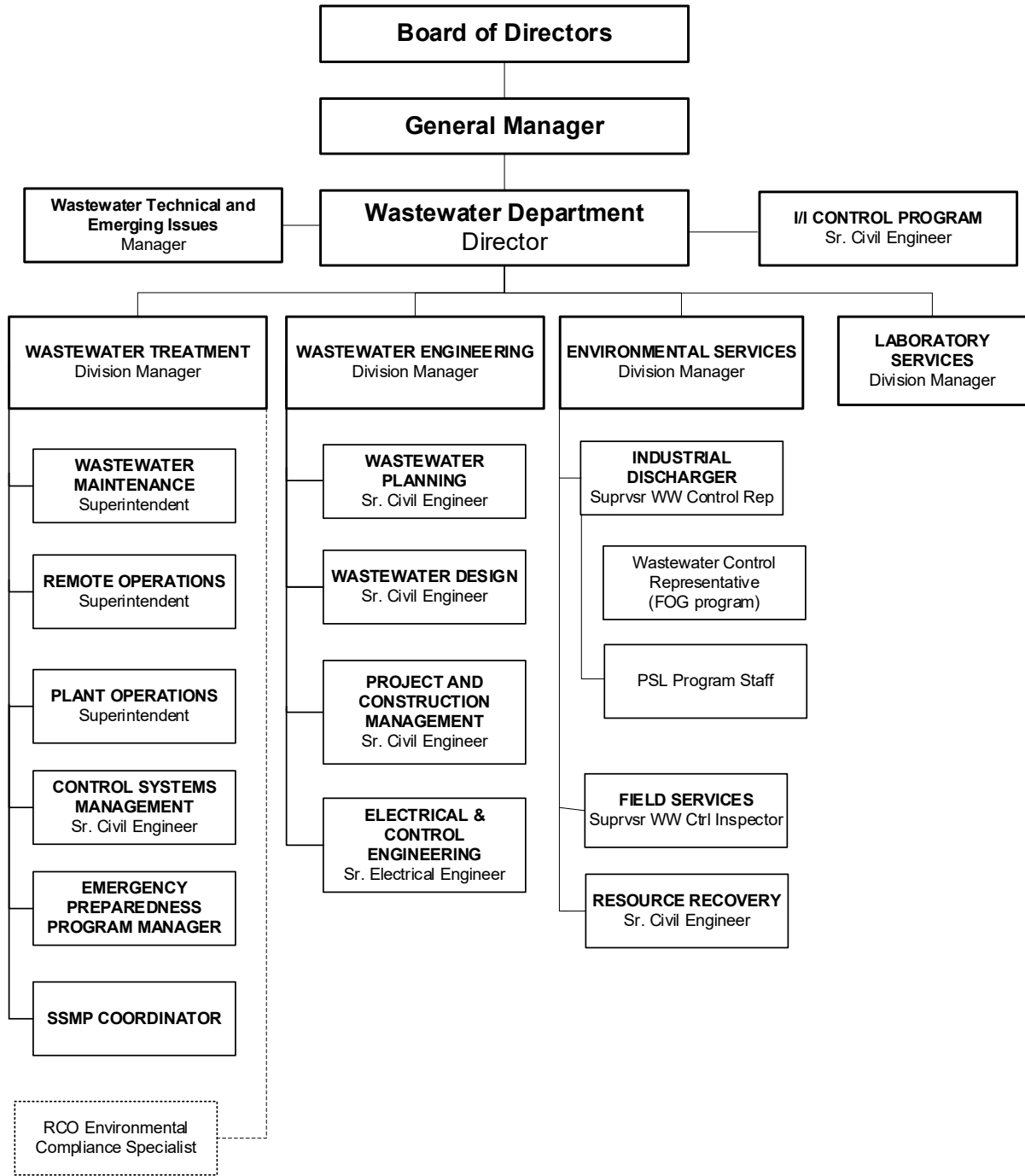
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Figure 2.1 – SSMP Organizational Chart

SSMP Organization





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Table 2.1 – SSMP Organization Contact Information

Name	Title	Desk Phone	Cell Phone	Email
John Coleman	Director	510-287-0404		john.coleman@ebmud.com
Andy Katz	Director	510-287-0404		andy.katz@ebmud.com
Douglas Linney	Director	510-287-0404		douglas.linney@ebmud.com
Lesa McIntosh	Director	510-287-0404		lesa.mcintosh@ebmud.com
Frank Mellon	Director	510-287-0404		frank.mellon@ebmud.com
William Patterson	Director	510-287-0404		william.patterson@ebmud.com
Marguerite Young	Director	510-287-0404		marguerite.young@ebmud.com
Clifford Chan	General Manager	510-287-0101		clifford.chan@ebmud.com
Eileen White	Wastewater Department Director	510-287-1149	510-290-9165	eileen.white@ebmud.com
Glenn Dombeck (temp)	Wastewater Treatment Division Manager	510-287-0726	707-479-4704	glenn.dombeck@ebmud.com
John Kyser	Wastewater Maintenance Superintendent	510-287-1450	510-377-1959	john.kyser@ebmud.com
Eric Fukuda	Remote Operations Superintendent	510-287-7213	510-774-6121	eric.fukuda@ebmud.com
Joseph Barge (temp)	Shift Supervisor (Remote)	510-287-1898	510-774-6137	joseph.barge@ebmud.com
Kevin Dickison	Plant Operations Superintendent	510-287-1502	510-453-7377	kevin.dickison@ebmud.com
William Loconte	Shift Supervisor (Day)	510-287-1522	510-912-0215	william.loconte@ebmud.com
Mark Schmitz	Shift Supervisor (Swing)	510-287-2043	510-385-6146	mark.schmitz@ebmud.com
Robert Spencer	Shift Supervisor (Grave)	510-287-1522	510-774-5972	robert.spencer@ebmud.com
Glenn Dombeck (temp)	Emergency Preparedness Program Manager	510-287-0726	707-479-4704	glenn.dombeck@ebmud.com
Rebecca Overacre	Asset Management Program Manager	510-287-1251		Rebecca.overacre@ebmud.com
Eric Fukuda	SSMP Coordinator	510-287-7213	510-774-6121	eric.fukuda@ebmud.com
Chris Dembiczak	RCO Environmental Compliance Specialist	510-287-0509	925-640-4738	chris.dembiczak@ebmud.com
Doug Higashi	Wastewater Engineering Division Manager	510-287-1677	510-774-5037	douglas.higashi@ebmud.com
Matt Hoeft	Wastewater Planning Sr. Civil Engineer	510-287-0214		matthew.hoeft@ebmud.com
Gary Warren	Wastewater Design Sr. Civil Engineer	510-287-1980		garin.warren@ebmud.com
Brian Dunstan (temp)	Project and Construction Management Sr. Civil Engineer	510-287-7037	510-609-5353	brian.dunstan@ebmud.com
Chris Dinsmore	I/I Control Program Sr. Civil Engineer	510-287-0522	510-918-8353	christopher.dinsmore@ebmud.com
Alicia Chakrabarti	Environmental Services Division Manager	510-287-2059	510-912-8240	alicia.chakrabarti@ebmud.com
Phoebe Grow	Industrial Dischargers Supervising Wastewater Control Representative	510-287-0205	415-828-2464	phoebe.grow@ebmud.com
Adam Kern	Wastewater Control Representative (FOG program)	510-287-1622		adam.kern@ebmud.com
Angelee Strawder (temp)	Field Services Supervisor	510-287-1621	510-715-6019	angelee.strawder@ebmud.com

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 3/2/2022	Document Name: Overflow Emergency Response Plan
Supercedes: Version 8	Document ID: E3 - OverflowEmergResp.doc
Version 9	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 EBMUD 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 EBMUD forces, regulatory and public notifications, and implementation of best practices for abatement and mitigation. The procedures can be found on the Wastewater Department’s WIKI under the category “Emergency Response.”

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 the Environmental Compliance Specialist, all receive annual refresher training in SSO response and their specific responsibilities as outlined in the Wastewater Emergency Operations Plan SSO Response Plan. In addition, several SSO Table Top Exercises are conducted each year to reinforce the training.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 3/3/2022	Document Name: FOG Control Program
Supercedes: Version 11	Document ID: E4 - SSMP FOG - IDS and FSS edits - 08MAR2022.docx
Version 12	Approved by: Director of Wastewater

Background


The EBMUD collection system consists of a regional interceptor system with large diameter pipes that receive wastewater from six cities and one community satellite collection system 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 EBMUD’s interceptor system. The EBMUD system has no private lateral connections and has not had any FOG-related SSOs. As such, a FOG control program is not needed for the EBMUD collection system.

Since 2008, EBMUD has 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 (FSEs). In July 2019, the City of Oakland elected to discontinue their participation in the regional program. At present, the regional program 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, and inspect grease generating FSEs that discharge to 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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Effective Date: 3/3/2022	Document Name: FOG Control Program
Version 12	Document ID: E4 - SSMP FOG - IDS and FSS edits - 08MAR2022.docx

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 participating 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 participating collection system agencies with a Regional FOG Program Annual Report which documents 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 promote 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.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 3/3/2022	Document Name: FOG Control Program
Version 12	Document ID: E4 - SSMP FOG - IDS and FSS edits - 08MAR2022.docx

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

Residential Cooking Oil Collection Sites

EBMUD maintains a residential cooking oil collection site outside the front gate of its Main Wastewater Treatment Plant. EBMUD also continues to promote the El Cerrito Recycling Center, Richmond’s West County Resource Recovery facility, and Central Contra Costa Sanitary District’s household hazardous waste facility as additional collection sites for residential cooking oil. Collected residential cooking oil is used by third parties to make biofuel.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 9/4/2018	Document Name: Legal Authority
Supersedes: Version 3	Document ID: E5 - legal authority
Version 4	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 EBMUD 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 EBMUD's collection system facilities are located within EBMUD-owned property, public right-of-ways, or easements that allow EBMUD access for maintenance, inspections, and repairs.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 3/3/2022	Document Name: Collection System Maps
Supercedes: Version 5	Document ID: E6a - SSMP Collection System Map
Version 6	Approved by: Director of Wastewater

Collection System Maps

EBMUD relies on two types of collection system maps:

- A GIS database map
- Facility drawings of the interceptors

GIS Database Map

EBMUD 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 EBMUD 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>. Users need ArcGIS access to open this file.

Facility Drawings

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

<\\win.ebmud\district\sites\AB\drafters\PDF Sets for Projects\Facility Documents\Interceptors ForceMains>

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 3/2/2022	Document Name: Resources and Budgets
Supercedes: Version 6	Document ID: E6b - Resources and Budget.doc
Version 7	Approved by: Director of Wastewater


Overview

The following EBMUD 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
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 Programs Administration
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 EBMUD’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 → Billing Questions → Budget and Rates → Wastewater Rates.” The rates are evaluated and adopted every two years.

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Effective Date: 3/3/2022	Document Name: Resources and Budget
Version 7	Document ID: E6b - Resources and Budget.doc

Budget

EBMUD 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> on the menu bar under “About Us→ Bond Investors → 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 – Scheduled Inspections and Condition Assessment 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 EBMUD’s salary schedule and staffing plan, historical data, trending/projections, and inflation factors.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 9/4/2018	Document Name: Preventive Maintenance
Supercedes: Version 2	Document ID: E6c - Preventive Maintenance
Version 3	Approved by: Director of Wastewater

Introduction

EBMUD conducts routine maintenance and preventive maintenance (PM) activities by dedicated multi-skilled Operations 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 accurate 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 Section performs 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 – Scheduled Inspections and Condition Assessment). The interceptors historically have not exhibited problems with debris accumulation that could lead to SSOs. EBMUD does not have a

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Version 3	Document ID:E6c - Preventive Maintenance

routine interceptor cleaning program, or equipment and personnel to perform sewer cleaning. EBMUD 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: 3/2/2022	Document Name: Scheduled Inspections and Condition Assessment
Supercedes: Version 6	Document ID: E6d - ConditionAssess.doc
Version 7	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 EBMUD’s CIP. Funding for projects, once incorporated into EBMUD’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, EBMUD 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 projects into EBMUD’s CIP. This master plan was updated in 2008. It is scheduled to be updated again in the 2022-2023 timeframe.

Pump Stations

In 1998, EBMUD completed its Wastewater Pump Stations Master Plan. This plan is used to prioritize pump station rehabilitation projects for inclusion in EBMUD’s CIP. An update to the 1998 Pump Station Master Plan was completed in 2015.


Interceptor System Asset Management Plan

On July 22, 2009, EPA, SWRCB, and RWQCB issued a Stipulated Order for Preliminary Relief (SO) that required EBMUD to develop an Asset Management Plan for the Interceptor System. This included performing inspections of the

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Effective Date: 3/2/2022	Document Name: Scheduled Inspections and Condition Assessment
Version 7	Document ID: E6d - ConditionAssess.doc

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 station 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: 3/3/2022	Document Name: Contingency Equipment and Replacement Inventory
Supercedes: Version 3	Document ID: E6e - ContigEquip&SparePartd
Version 4	Approved by: Director of Wastewater

Contingency Equipment


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

EBMUD budgets for new equipment through the capital budget process (see Element 6b – Resources and Budgets).

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

Replacement Inventories

EBMUD maintains a spare parts inventory of approximately 100 spare parts for the pump stations. These parts are selected based on manufacturers’ recommendations and EBMUD’s own experience with the parts that are likely to fail, i.e., critical parts. The spare parts inventory records are kept in EBMUD’s online financial system and can be retrieved by the Maintenance staff.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 3/3/2022	Document Name: O & M Training
Supercedes: 3	Document ID: E6f - O & M Training.doc
Version 4	Approved by: Director of Wastewater

General

EBMUD'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 Operations and Maintenance staff are kept current with annual refresher training. Training records are maintained by WHS.

Maintenance Training

EBMUD 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

EBMUD 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 a core team of 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 Is 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 who rotate into the Remote 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. Training materials are posted on the WTD WIKI

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https://wiki.ebmud.com/applications/index.php5/Interceptor_Pump_Stations.

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 standard operating procedures (SOPs) and unusual operating conditions that may be encountered. Also included are debriefs on abnormal conditions handled by operators over the previous month.

Wet Weather Support Operator Training

Since the wet weather facilities are infrequently operated, operators are given a core refresher course in the operation of the wet weather facilities, pump stations, and general collection system operations. This training includes an assessment at the end of the training to ensure key concepts were retained. Then Operators are provided monthly refresher sessions throughout the year on the operation of the wet weather facilities. The Remote Operations Supervisor maintains the training material and records in the WTD WIKI pages under http://wiki/applications/index.php5/Remote_Operations_Training.

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: 9/4/2018	Document Name: Outreach to Plumbers and Contractors
Supercedes: Version 1	Document ID: E6g - Outreach Plumbers Contr
Version 2	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: 9/4/2018	Document Name: Design and Construction Standards
Supercedes: Version 2	Document ID: E7 - Design&Constr Stds
Version 3	Approved by: Director of Wastewater


Introduction

EBMUD’s Wastewater Design Section maintains a document titled “Standards and Guidelines for Design and Construction of Wastewater Facilities,” which contains information on resources that EBMUD 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 EBMUD wastewater projects. The contents of this document include generally the following:

- EBMUD’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

EBMUD does not maintain standards for all types of collection system design and construction work. EBMUD 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) require review by EBMUD Wastewater staff prior to implementation.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 9/4/2018	Document Name: Capacity Management
Supersedes: Version 5	Document ID: E8 - Capacity Management
Version 6	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”). Each owns and operates 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 MGD, in addition to 15 pump stations, over 8 miles of pressure pipeline, 5 emergency overflow structures, and storage facilities at 1 pump station and 2 of EBMUD’s 3 wet weather facilities.

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 I/I studies and facilities planning efforts to develop an integrated approach to reducing 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 assessments. 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 RWQCB issued an order prohibiting discharges from EBMUD’s wet weather facilities with an accompanying Cease and Desist Order that includes requirements for actions to be taken if discharges occur. On July 22, 2009, an SO issued by EPA, SWRCB, and RWQCB became effective. The SO required EBMUD to perform a variety of work, including additional flow monitoring and modeling by 2012, to lay the groundwork for future efforts to eliminate discharges from the wet weather facilities. On September 22, 2014, a Consent Decree (CD) became effective, mandating work activities to reduce I/I to a level that, by 2036, the wet weather facilities would not be utilized for storm events less than design conditions.

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Design Criteria for Collection Systems


Design flows for components of the EBMUD collection system (interceptors, pump stations, and wet weather facilities) were established based on the National Pollutant Discharge Elimination System (NPDES) permit requirements for both the MWWTP and wet weather facilities prior to the 2009 prohibition of discharges from the wet weather facilities. 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 wet weather facilities 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 CIP for its collection systems. See Element E6b – Resources and Budgets for more information.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 9/4/2018	Document Name: Monitoring, Measurement, and Program Modifications
Supercedes: Version 3	Document ID: E9-Monitoring-Measurement
Version 4	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 – SSMP Audits).

Preventative Maintenance Program


The effectiveness of the 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 PM 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 EBMUD

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

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 9/4/2018	Document Name: SSMP Audits
Supercedes: Version 4	Document ID: E10-SSMP Audits
Version 5	Approved by: Director of Wastewater

Internal Audit Process


Internal audits are performed by the SSMP Coordinator and team 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 and 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 EBMUD in the Wastewater WIKI pages.

	SEWER SYSTEM MANAGEMENT PLAN
Effective Date: 5/5/2020	Document Name: Communication Plan
Supercedes: Version 3	Document ID: E11-Communication Plan
Version 4	Approved by: Director of Wastewater

EBMUD-wide Public Communications and Outreach

EBMUD maintains active public outreach and communications efforts with its customers and the public-at-large to provide timely information on EBMUD 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 EBMUD’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 EBMUD projects and programs. Further, EBMUD 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 EBMUD’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 EBMUD representatives who can address questions and provide additional information on the any current advisories or EBMUD’s SSMP.
- Participation in the Collection Systems Technical Advisory Committee (CSTAC), which includes all of the collection system agencies that are tributary to EBMUD’s collection system excluding the City of Oakland. The CSTAC meets regularly to discuss and coordinate system issues such as flow monitoring, wet weather flow management, SSMP issues, and system improvements. The CSTAC is organized under a Joint Powers Authority of which EBMUD is the Lead Agency.