Exhibit A

CITY OF EMERYVILLE

SEWER SYSTEM MANAGEMENT PLAN

July 15, 2025

City of Emeryville
Department of Public Works
1333 Park Avenue
Emeryville, CA 94608

CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

INTRODUCTION

I-1. Background on the City's Sanitary Sewer System and Regional Issues Facing the Operations of the Collection System

The City of Emeryville, located between the Cities of Berkeley (to the north) and Oakland (to the south and east), with San Francisco Bay to the west, is a small community. It covers about 670 acres and harbors a population of about 13,000. Originally, Emeryville was an industrial community with meat packing plants, steel works, manufacturing, and a rail yard. In the 1960's, heavy industries began leaving the City, making way for the current mix of housing, commercial and retail properties, biotech research, and computer and graphic film industries.

The City of Emeryville's collection system serves the entire City. Figure 1 illustrates its sanitary sewer service area, and Figure 2 offers a schematic of Emeryville's estimated 15 miles of sanitary sewer system. Stemming from 370 acres of primarily residential property in the City of Oakland and 0.25 acres of residential property in the City of Berkeley, approximately 11 miles of sanitary sewer mains drain into Emeryville's sanitary sewer system.

The first sewers in Emeryville were constructed in the mid-1880s. They were generally small diameter pipes carrying sanitary flows of a combination of sanitary sewage and storm water to larger pipes directed at local creeks and the San Francisco Bay. Over the ensuing 50 years, the system rose to an extended network, better able to capture flow from the growing community. However, many of the early sewers, a drainage system combined of sanitary/storm water system, roof, basement, and area drains, were installed by private developers and not subject to uniform standards and inspection. Emeryville witnessed heavy industrialization in its early development, where canneries, paint production, wood processing, and steel manufacturing contributed to the wastewater load. In addition, much of the system was below the groundwater table for all or part of the year. The combination of these factors resulted in a sewer system still subject to frequent overflows during wet weather and to heavy pollution loads in the receiving streams and the San Francisco Bay.

In the late-1930's, construction of the San Francisco Bay Bridge first brought public awareness to odor and pollution caused by untreated sewage discharges aimed directly at the San Francisco Bay. In 1944, the East Bay Municipal Utility District (EBMUD) formed the Special Sewer District No. 1 to construct interceptor sewers through communities bordering the San Francisco Bay (from El Cerrito to the Oakland/San Leandro border), and to provide primary wastewater treatment at a centralized location near the eastern side of the Bay Bridge. In 1951, EBMUD brought these newly erected regional facilities online. Persistent overflows within the communities during wet weather prompted EBMUD to undertake a program to separate storm sewers from sanitary sewers. This program, begun in the 1940's and complete by 1975, accomplished finalization just three years before EBMUD upgraded its treatment plant to include a secondary facility with land-based sludge disposal.

High wet weather flows and associated overflows continued to plague the East Bay communities through the 1970's. Federal and State requirements called for the reduction and eventual

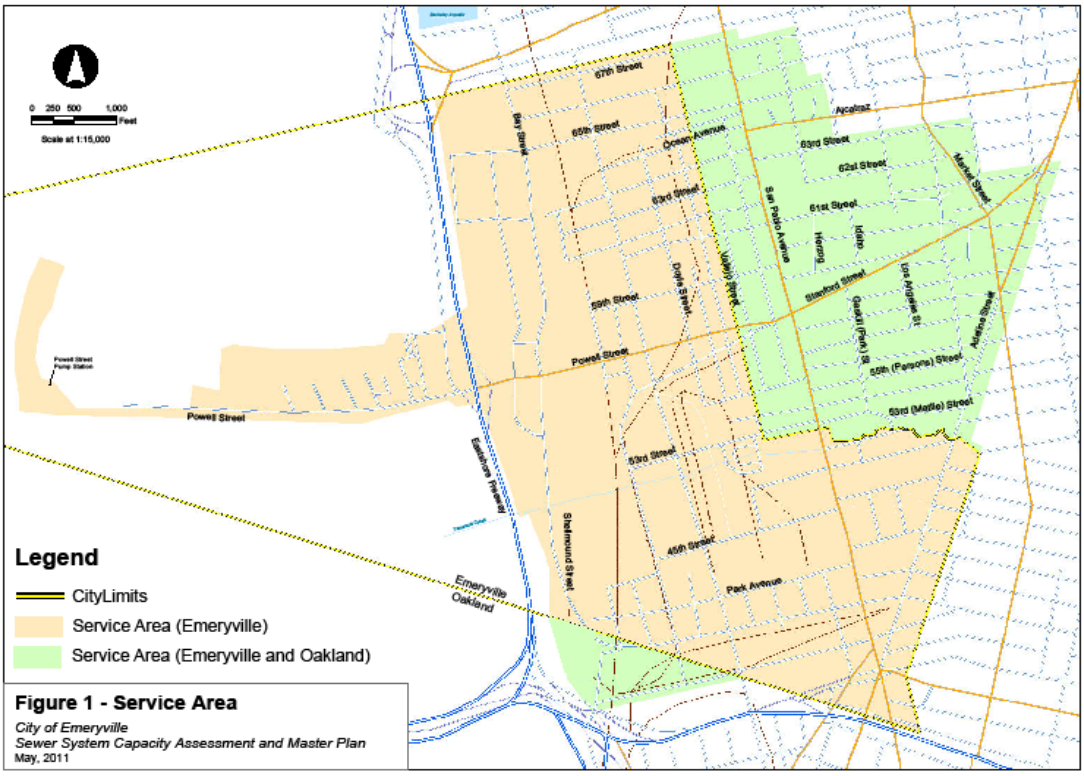

Figure 1 - Service Area
City of Emeryville
Sewer System Capacity Assessment and Master Plan
May, 2011

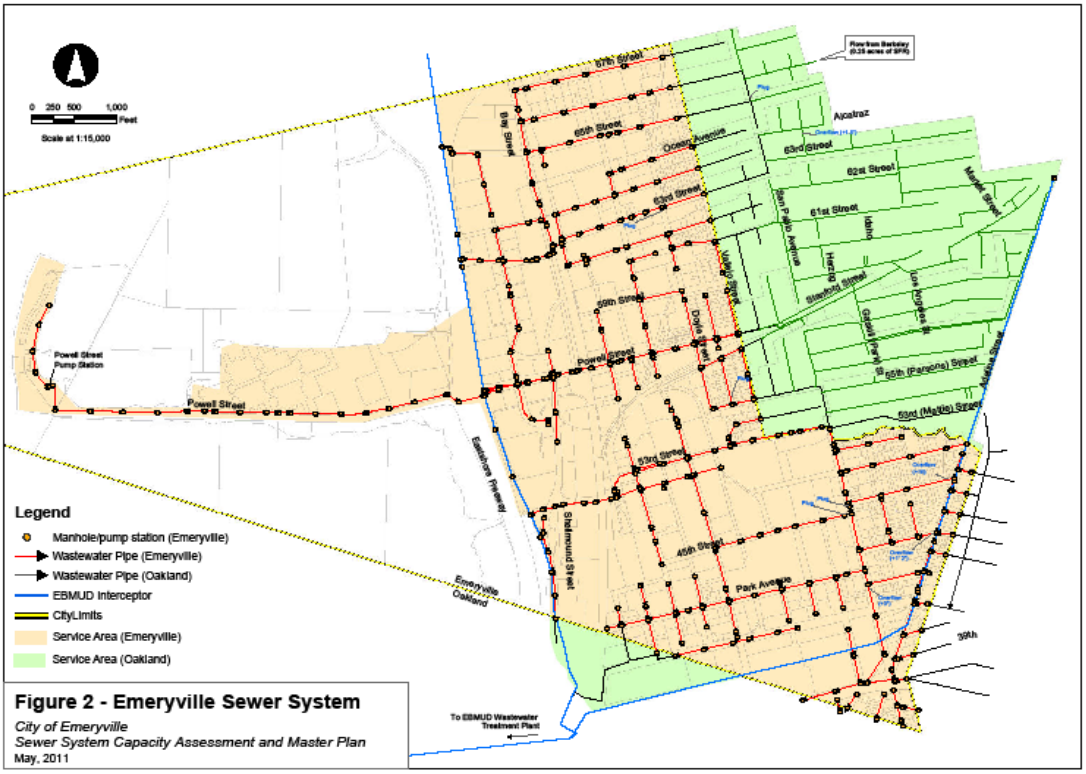

Figure 2 - Emeryville Sewer System
City of Emeryville
Sewer System Capacity Assessment and Master Plan
May, 2011

elimination of sewer overflows, prompting EBMUD and its service communities to undergo a systematic, system-wide capacity and condition assessment of the local sewer systems. At the same time, EBMUD undertook an assessment of its interceptor and treatment facilities.

In 1980, the City of Emeryville, the East Bay Communities, and EBMUD, coordinated their efforts and initiated a 6-year infiltration/inflow study (I/I Study) and a program to address reoccurring sanitary sewer overflows on City streets and in the Bay during periods of wet weather. EBMUD utilized the completed 1985 I/I Study to generate the East Bay I/I Correction Program (I/ICP), an outline of the long-range sanitary sewer improvements necessary to correct overflows within the collection system of each community and along the EBMUD Interceptor. The I/I Study also mapped the Compliance Plans, or schedules, for completing various sewer rehabilitation projects specified in the I/ICP.

In 1986, the Regional Board issued Cease and Desist Orders (CDOs) to the City of Emeryville, the East Bay Communities, and EBMUD to eliminate all sanitary sewer overflows and to reduce the overall I/I. The CDOs immediate objective targeted the elimination of overflow impacts on public health. In this enforcement order, the Regional Board accepted the proposed improvements outlined in the I/ICP. The Compliance Plans for each Community were incorporated into the CDOs. The City of Emeryville's Compliance Plan specified a 20-year program to correct its eight known overflow locations and to reduce the overall I/I.

In concurrence with the I/ICP, EBMUD amassed its own Wet Weather Program for the treatment plant. The Wet Weather Program equipped EBMUD's treatment plant and facilities with the capacity to convey peak flows from the East Bay Communities trunk sewers by the end of the I/ICP implementing period.

EBMUD anticipated that elimination of all I/I into the sanitary sewer collection system as part of the I/I Study would likely be cost-prohibitive. East Bay Communities instead performed a cost analysis to determine a cost-effective means of rehabilitation. Through the study, they settled on a more profitable solution involving the design of a treatment plant and collection system to accommodate peak I/I flows generated during a 5-year design storm. The design, however, did not account for storms larger than the 5-year design storm. This gave leeway for overflows to continue to develop, revealing some design deficiency.

The Wet Weather Program allotted each connection to EBMUD's interceptor with peak wet weather design flow as stated in the I/I Study. The cumulative design flows from all the connections in the East Bay communities formed the basis for sizing the capacity at the EBMUD treatment plant. Three components constituted the wet weather design flows: a 3-hour peak base flow; a groundwater infiltration flow; and a rain dependent I/I flow. Emeryville has five connections to the interceptor. The total peak wet weather flow contribution from Emeryville's system to EBMUD's overall design flow was 25.59 mgd as stated in the 1985 I/I Study. This design flow revealed about half of contributing discharge to come from Emeryville and half from Oakland. Of the total wet weather flow, only 4.36 mgd or 17% was owed to dry weather base flow. The dry weather base flows defined in the I/I Study were developed from flow metering in the early 1980's and included a growth factor projected at that time.

In 2006, the City of Emeryville reached the end of the I/ICP implementation period specified in the Compliance Plan. To date, the City has spent approximately $11,000,000 on the program and reconstructed approximately 75% of its sanitary sewer infrastructure. The City successfully performed projects as necessary to correct overflows at previously identified locations. In addition, EBMUD spent more than $310 million on its wet weather facilities in order to accommodate the wet weather flows as defined in the Wet Weather Program. These facilities are working as intended and as permitted by the Regulators.

Triggered by an update to the City's General Plan, between 2005 to 2010, the City of Emeryville conducted a Sewer System Capacity Analysis and Master Plan. Here, the City fashioned a model of the sanitary sewer system based on the upgrades made from prior I/CP implementation. The City performed the analysis using the same general approach taken in 1986, and calibrated results with wet weather flow data collected from FY 2005/06. Under design storm conditions with an allowance for an increase in flow from future land use modifications, the City estimated design wet weather flow to fall at 20.4 mgd. The contrast from 25.59 mgd in 1985, illustrated a modest reduction of 5.19 mgd of wet weather flow over the years. Of the flow contributions, the analysis highlighted a lesser discharge of 7.9 mgd stemming from Emeryville, and the remaining flow of 12.5 mgd from Oakland.

In 2009, the California Regional Water Quality Control Board, San Francisco Bay Region, adopted Order No. R2-2009-0004 reissuing an NPDES permit to EBMUD to operate its Wastewater Treatment Facilities. However, the new NPDES permit prohibited any discharge from its three wet weather sanitary sewage treatment facilities. This prohibition of discharge from the wet weather facilities was a direct consequence of the US Environmental Protection Agency (USEPA) change to provisions of the Clean Water Act dealing with heavy metals in the effluent of sanitary sewage treatment facilities. Given that the EBMUD wet weather facilities only provide primary treatment to the wet weather wastewater flow, the wet weather facilities do not treat the heavy metals as needed to meet the revised requirements. Elimination of discharge from these facilities requires further reduction of wet weather flows from the East Bay Communities, as well as an expansion of EBMUD's storage capacity.

Shortly after EBMUD received its reissued NPDES permit in 2009, the USEPA and the Regional and State Water Boards filed suit against EBMUD for discharges in violation of this prohibition, entering into a Stipulated Order (SO). One provision of the EBMUD SO required the passing of an ordinance that would implement a Regional Private Sanitary Sewer Lateral (PSL) Program. The objective of the PSL program sought to reduce the amount of wet weather sanitary sewage flow from old leaky private sewer laterals to their treatment facilities. Another product born of the EBMUD SO was the Flow Modeling and Limits Report (FMLR), a guideline that the USEPA plans to utilize as a future basis for imposing flow limits on each of the East Bay collection system agencies.

In November 2009, the California Regional Water Quality Control Board (RWQCB) issued the City of Emeryville NPDES Permit No. CA0038792 for the operation of the City's sanitary sewer system. The most notable difference in this renewed NPDES permit was a discharge prohibition stating "The Discharger shall not cause or contribute to discharges from EBMUD's Wet Weather Facilities that occur during wet weather or that are associated with wet weather."

On November 18, 2009, the USEPA issued an Administrative Order (AO) to the City of Emeryville and all other Collection System Agencies that form the service area of EBMUD treatment facilities. USEPA's AO sought to reduce Sanitary Sewer Overflows (SSOs) from its collection system, and to control I/I so as not to cause or contribute to overflows from the EBMUD wastewater facilities. The AO included various requirements for the City to implement immediately in order to improve on the current program for SSO control and to I/I reduction.

Then, on September 6, 2011, the United States District Court Northern District of California issued a Stipulated Order for Preliminary Relief (SO). Similar to the stipulated requirements in the 2009 AO, with the addition of penalties for failure to comply with the timeline and reporting requirements, the terms of the SO identified the following work to be performed by the City of Emeryville:

- Maintaining its current program for controlling SSOs and reducing I/I set forth in this SSMP (this document)
- Implementing improvements in its current programs
- Preparing an Asset Management Implementation Plan (AMIP) by July 15, 2012
- Participating in EBMUD's Regional PSL program
- Cooperating with EBMUD in the development of the Regional Flow Monitoring Data Assessment Program
- Formulating a program for inflow identification and reduction
- Providing SSO response, recordkeeping, notification, and reporting
- Implementing a Maintenance Management System by October 15, 2011
- Submitting a Sewer Pipe and Maintenance Hole Inspection plan
- Providing EPA with copies of annual SSO reports now provided to the Regional Water Board

On September 22, 2014, after several years of negotiation, the US District Court approved a final Consent Decree (CD). This CD supersedes the 2009 SO with slightly different requirements for the City of Emeryville, and more onerous penalties for failure to comply with its provisions. The CD remains in effect until December 15, 2036.

The CD contains the following "Work" requirements for the City of Emeryville:

- Implement programs set forth in its SSMP and AMIP for controlling SSOs and reducing I/I. The AMIP, originally required by the SO, has been updated based on the requirements of the CD and is attached hereto as Appendix B.
- By June 30, 2015, perform Collection System Rehabilitation of approximately 6,300 linear feet of sewer (including manholes and lower laterals as needed, and disconnecting abandoned sewer laterals)
- By June 30, 2016, in cooperation with EBMUD and the other Satellite Communities, develop Regional Standards for sewer installation, rehabilitation, and repair
- By June 30, 2017, repair approximately 35 discrete sewer defects
- CCTV inspect all sewer mains and associated manholes on a 10-year cycle

- Continue to enforce the City's sewer ordinance including the PSL requirements, and cooperate with EBMUD in the administration of its Regional Sewer Lateral Program
- By September 22, 2024, inspect and repair or rehabilitate as necessary, all Upper Sewer Laterals owned by the City
- Cooperate with EBMUD in in the implementation of the Regional Technical Support Program
- Provide information to EBMUD regarding the details of its sewer rehabilitation program for EBMUD's use in flow modeling
- Continue to perform a small amount of "Hot Spot" cleaning on an annual or semi-annual basis
- Clean trunk sewers designated by ID prefixes 20-000, 21-000, and 22-000 every 5 years
- Clean all other sewer mains in the collection system, besides designated trunk sewers, every ten (10) Fiscal Years starting July 01, 2022

I-2. Requirement from Regulators for Preparing Sanitary Sewer Management Plans

In a statewide effort to reduce the amount of pollution caused by poor management of sanitary sewer collection systems, the Regional and State Water Boards have developed very strict policies in recent years dealing with Sanitary Sewer Overflows (SSO). Some major causes of SSO's include grease blockages; root blockages; manhole structure failures; vandalism; pump station mechanical failures; power outages; excessive storm or ground water inflow/infiltration; debris blockages; sanitary sewer system material failures; improper operation and maintenance; insufficient capacity; and contractor-affiliated damages. Many SSOs are preventable with appropriate facilities, efficient source control, and diligent operation and maintenance measures.

In July 2005, in order to facilitate proper funding and management of sanitary sewer systems, the Regional Water Quality Board issued "New Requirements for Preparing Sewer System Management Plans (SSMP)" to all the sewer collection agencies in the San Francisco Bay Area. These requirements dictated a three-year phased compliance schedule, including exemptions from certain requirements for communities with populations less than 10,000. To be effective, the SSMPs must include provisions for proper management, operation, and maintenance of sanitary sewer system. It should consider risk management and cost benefit analysis. Additionally, it should contain a spill response plan establishing standard procedures for immediate response to an SSO in a manner designed to minimize water quality impacts and potential nuisance conditions. The City's SSO Response Plan has been updated concurrently with the update to the SSMP.

On May 2, 2006, the State Water Resources Control Board issued order No. 2006-0003 Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (WDR). The WDR mimics the Regional Board's SSMP requirements, save for some additional provisions. Per the WDR, the City Council must approve the SSMP at a public meeting, and it must be made available to the Public in the City's office or via the internet. The Water Board reviews and enforces amendments to the SSMP every five years, so that any significant program changes and its contents accordingly echo its companions, the AIMP and the Consent Decree. The City of Emeryville has implemented the latest iteration of this order (Order WQ 2022-0103-DWQ) into its Sewer Management Program.

SECTION 1. GOALS

The goals for the City's SSMP include the following six items:

- To properly manage, operate, and maintain all parts of the wastewater collection system.
- To use a GIS-based system for daily management and operation of all parts of the wastewater collection system.
- To work closely with EBMUD on the FOG program to reduce the amount of fats, oils, and grease in the wastewater collection system in order to prevent SSOs.
- To provide adequate capacity in the collection system to convey the peak wet weather flows and minimize the frequency of SSOs.
- To reduce wet weather I/I by working with EBMUD in the implementation of the Regional PSL Program and by eliminating I/I from pipe defects identified through field work.

To provide routine training for all personnel involved with the management, reporting, and cleanup of SSOs.

SECTION 2. ORGANIZATION

Figure 3 illustrates the City's organization chart in relationship to the SSMP requirements. The roles and responsibilities of the positions included in this chart are described below. The individuals currently holding key positions are listed in Table 1.

- City Manager - Implements policy; plans strategy; leads staff; allocates resources; delegates responsibility; authorizes outside contractors to perform services; recommends required budget to City Council; and arranges for emergency meetings of City Council if necessary.

- Public Works Director - Provides information updates to the City Council; oversees preparation of budget for SSMP; oversees Engineering, the Operations and Facilities Manager, and the Administrative Secretary; and is the City's authorized representative for the SSMP.

- City Engineer - Prepares wastewater collection system planning documents with the help of consultants, and coordinates development and implementation of SSMP.

- Senior/Associate Civil Engineer - Assists the City Engineer in the development and implementation of the Capital Improvement Program (CIP); oversees the design and construction of CIP projects; manages consulting Public Works Inspectors; ensures that the new and rehabilitated assets meet the agency standards; prepares monthly reports of SSOs in CIWQS database; submits SSO reports as stated in overflow response plan; and prepares written and electronic reports as required, including the annual SSO report.

- Public Works Inspector (Consultant) - Inspects construction of City sanitary sewer capital improvement projects, and construction of private sewer laterals.

- Public Works Operations and Facilities Manager - Manages field operations and maintenance activities; manages annual contract for routine and emergency sewer cleaning and closed circuit television (CCTV) inspection; prepares and implements contingency plans; leads emergency response; investigates and reports SSOs; and trains field crew.

- Public Works Administrative Secretary - Directly assists the Public Works Director, Engineering, and Public Works Operations and Facilities Manager with day-to-day efforts of the department; receives and responds to calls from the public, including SSO notifications.

- Sewer Cleaning/CCTV Contractor - Provides field services for routine and emergency sewer cleaning, CCTV inspection, and structure inspection.

- Public Works Supervisor - Staffs preventive maintenance activities; mobilizes and responds to notification of stoppages and SSOs (mobilizes sewer cleaning equipment, by-pass pumping equipment, and portable generators as needed when contract sewer cleaning firm is not able to respond); rotates on stand-by mode to respond to emergency call-outs during off hours.

- Public Works Maintenance Worker - Works under the direction of the Public Works Supervisor responding to notification of stoppages and SSOs, rotates on stand-by mode to respond to emergency call-outs during off hours.

FIGURE 3
CITY OF EMERYVILLE ORGANIZATION CHART
FOR SSMP

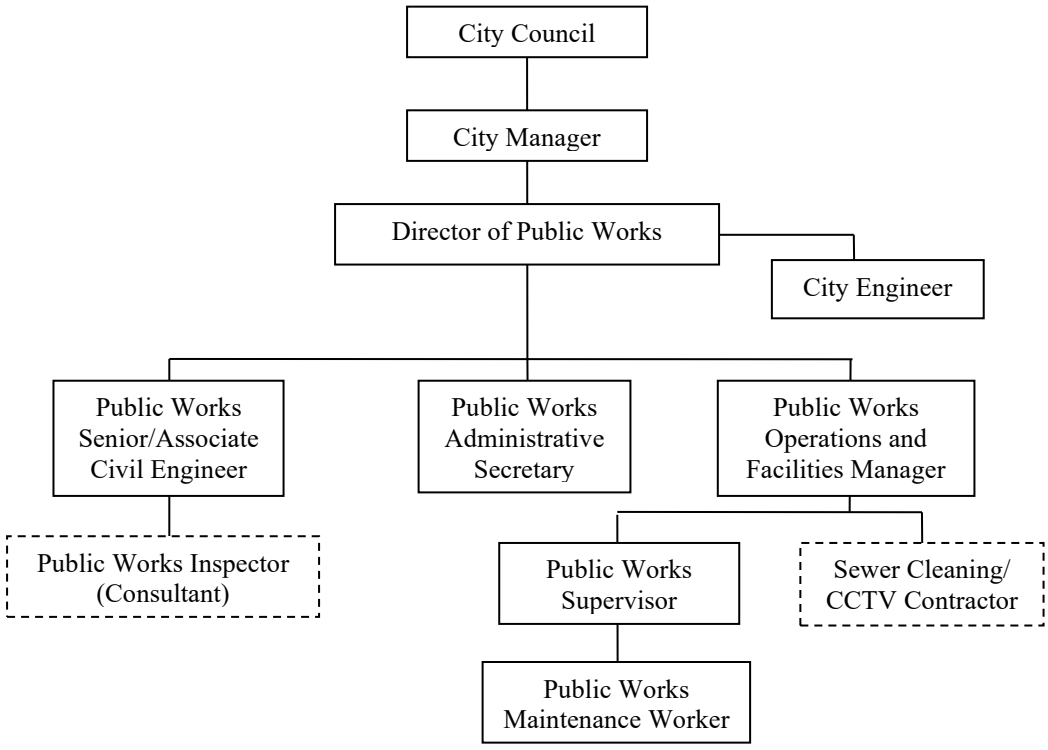

TABLE 1
CITY OF EMERYVILLE CONTACT INFORMATION

Position	Individual	Contact Phone No.	Email Address
City Manager	LaTanya Bellow	510-596-4371	latanya.bellow@emeryville.org
Director of Public Works	Mohamed Alaoui	510-596-4371	mohamed.alaoui@emeryville.org
Senior Civil Engineer	Michael Roberts	510-596-4333	mroberts@emeryville.org
Associate Civil Engineer	Nikolas Ignacio	510-596-4304	Nikolas.ignacio@emeryville.org
Public Works Operations and Facilities Manager	Saleh Aboutaleb	510-596-4344	Saleh.aboutaleb@emeryville.org
Public Works Supervisor	Jamall Hudson	510-596-4305	khudson@emeryville.org
Mayor	David Mourra	510-596-4376	David.mourra@emeryville.org
Vice Mayor	Sukhdeep Kaur	510-596-4376	Sukhdeep.kaur@emeryville.org
City Council Member	Courtney Welch	510-596-4376	cwelch@emeryville.org
City Council Member	Kalimah Priforce	510-596-4376	priforce@emeryville.org
City Council Member	Matthew Solomon	510-596-4376	Matthew.solomon@emeryville.org

SECTION 3. LEGAL AUTHORITY

The City of Emeryville Municipal Code contains the City's legal authority over the sanitary sewers in Chapter 8 of Title 7, Wastewater Collection System. This code was updated and adopted by the City Council on May 3, 2011. A copy of this ordinance is attached in Appendix B.

3-1. Illicit Discharges (Control I/I, FOG)

Article 4. of Chapter 8 of Title 7, "Sewer Use Regulations," addresses illicit discharges into the City's wastewater collection system. This article includes among other items: prohibited uses; requirements for food service establishments (FSEs) to control FOG discharges; the conditions for discharge of radioactive wastes into the City's collection system; and the permitting of industrial waste discharges.

3-2. Proper Design and Construction

Article 2. of Chapter 8 of Title 7, "Building Sewer Lateral," addresses the requirements for and design of privately-owned building sewer laterals or PSLs. The City has streamlined the permit process for the Public Works Encroachment and the Building Department into a single Sewer Lateral Permit that must be obtained before construction of a new building sewer lateral or the repair, replacement, or abandonment of an existing building sewer lateral. This section of the City's municipal code also adopts the EBMUD Regional PSL ordinance (359-13,7-23-2013) attached hereto in Appendix C) by reference (Municipal Code 7-8.211)

3-3. Installation, Testing, and Inspection

The requirements for installation, testing and inspection of Building Sewer Laterals are defined in Article 2. of Chapter 8 of Title 7. "Building Sewer Lateral," of the Municipal Code.

3-4. Enforcement of Sewer Ordinance

Enforcement of the Wastewater Collection system ordinance is described in Article 6 of Chapter 8 of Title 7.

SECTION 4. OPERATION AND MAINTENANCE PROGRAM

4-1. Resources and Budget

The Sewer Fund, an Enterprise Fund, supports the operation and maintenance of the City's sanitary sewer system. Sewer User Charges collected by EBMUD support the fund with water bill collections. In a November 15, 2016 public hearing, the City Council approved an increase to sewer fees, the first since January 1995. This change authorized a 9% annual increase to Sewer User fees each year through 2021. See Table 2 which maps fees by year and customer class.

In conjunction to user charges, the City also collects revenue via the Sewer Connection Fee Fund, generating capital funds for sewer improvements as new developments occur. New customers pay this one-time hookup connection fee with their building permit. The City's current residential sewer connection fee sits at $1,800.00 per single family dwelling unit. In comparison, non-residential developments are charged a connection fee of $358.00 per sewer trap. The City projects that much of future sewer rate revenues will fund improvements to benefit existing customers.

At this time, there is sufficient revenue generated by the current charges and fees to operate the sanitary sewer system. The City plans to conduct a Sanitary Sewer Master Plan update in the next few years to determine potential future Capital Improvement Projects. A sewer rate study will follow to determine whether changes in annual user fees are warranted.

TABLE 2 ANNUAL SEWER USER FEES

	Original	Projected
Customer Class	**1995-2016**	**2025 and on**
Single Family Residential		
Monthly ($ / Month)	$8.00	$12.31
Bimonthly ($ / Bimonthly)	$16.00	$24.62
Duplex / Triplex / Fourplex ($ / ccf)	$1.25	$1.92
All other Classes ($ / ccf)	$1.25	$1.92
Minimum Fees		
Daily ($ / day)	$0.2667	$0.4103
Daily ($ / month)	$8.00	$12.31
Daily ($ / bimonthly)	$16.00	$24.62

Both the Sewer Rehabilitation Fund and the Sewer Connection Fee Fund are addressed in the City's Operating Budget and Capital Improvement Program. Table 3 outlines the City's sewer operations funds, from FY20/21 through FY24/25. The projected budget for FY25/26 is expected to equal the expenses of FY24/25. The City plans to initiate an update to the Sanitary Sewer Master Plan in FY25/26, and will consider the results of the update to evaluate whether a Sewer Rate Study and budget adjustment will be necessary. The projected annual budget for potential spot repairs is $300,000 annually.

Total Current Assets as reported in the Comprehensive Annual Financial Report Year Ended June 30, 2025, the most recent report available, were $4,076,930. The City plans to begin an update to its Sanitary Sewer Master Plan in the 2025/2026 Fiscal Year. Based on the result of that update, the City may consider conducting a Sewer Rate Study if warranted.

TABLE 3 SEWER SYSTEM OPERATING BUDGET

	2020-21	2021-22	2022-23	2023-24	2024-25
Beginning Available Fund Balance	$ 3,795,865	$ 4,215,001	$ 4,901,053	$ 5,275,198	$ 4,662,240
Annual Activity					
Revenues					
Sewer Service Charges	960,493	1,043,084	1,046,700	1,000,000	1,000,000
Investment Income	20,401	9,545	5,000	50,000	50,000
	980,894	**1,052,629**	**1,051,700**	**1,050,000**	**1,050,000**
Expenditures					
Administration and Engineering					
Salaries and Benefits	198,472	129,213	236,033	254,252	265,869
Maintenance	1,200	1,200	-	-	-
Utilities	100	-	-	-	-
Insurance	50,000	50,000	55,125	57,881	59,618
Professional Services	-	166	65,000	115,000	118,450
Collection Fees and Charges	25,921	21,360	30,000	30,000	30,900
Transfer to Sewer Fund 511	-	-	-	850,000	852,000
Transfer to IT Fund	-	-	-	53,300	-
Transfer to General Fund	185,800	51,500	51,500	51,500	51,500
	461,493	**253,439**	**437,658**	**1,411,933**	**1,378,337**
Maintenance					
Salaries and Benefits	51,278	60,778	73,407	78,568	80,531
Utilities	1,982	1,982	1,590	1,638	1,687
Maintenance	23,435	31,129	145,400	150,818	154,454
General Fund Materials/Supplies	9,247	9,500	9,500	10,000	10,000
	85,942	**103,389**	**229,897**	**241,024**	**246,672**
Depreciation	-	9,750	10,000	10,000	10,300
	-	**9,750**	**10,000**	**10,000**	**10,300**
	547,435	**366,577**	**677,555**	**1,662,958**	**1,635,310**
Net Annual Activity	**433,459**	**686,052**	**374,145**	**(612,958)**	**(585,310)**
Ending Available Fund Balance	$ 4,229,324	$ 4,901,053	$ 5,275,198	$ 4,662,240	$ 4,076,930

4-2. Collection System Mapping

A map of Emeryville's entire sanitary sewer system is available as a comprehensive GIS database and basemap. The map includes locations and symbolic field configurations of all private sewer lateral connections, found via City-wide CCTV inspections. The City is in the process of updating the GIS collection system map to include maintenance, inspection, and rehabilitation data. Last activity dates, photos, and videos of structure inspection, pipeline cleaning, CCTV inspection, smoke testing, and pump station maintenance will all be accessible from the GIS database. The City currently uses a manual work-order system, however, the GIS database will ultimately drive future routine preventive operation and maintenance management activities.

4-3. Routine Preventive Operation and Maintenance Activities

Between 2011 and 2013, the City completed a system-wide cleaning and CCTV inspection program of the public sanitary sewer system. The City completed a more recent cleaning and CCTV inspection of the system in 2022.

Given that Emeryville's sanitary sewer system is so small, the system historically used for prioritizing preventative maintenance has been to clean the lines that are known to collect grease and debris. The most frequently cleaned main in Emeryville is the Powell Street main west of I-80. This main is cleaned every four to six months due to the large grease buildup in the line coupled with the irregular grade of the pipe. This issue is an on-going enforcement issue for the FOG program as the City deals with the various restaurants contributing to the grease problem.

There are no mains in Emeryville that have serious root control problems. However, recent CCTV inspection has uncovered a limited number of pipes with root intrusion. Odor control has not been a historical issue in the City.

The City's only pump station was reconstructed during Fiscal Year 2006/2007 and has weekly inspections. The station is equipped with a permanent backup generator.

4-4. Scheduled Inspections and Condition Assessment

During FY 2021/2022, the City saw its most recent CCTV inspection. Trunk sewer pipes underwent CCTV inspection as necessary based on their susceptibility to hairline cracks or root intrusion. CCTV inspection results identified sixteen significant defects, none of which were acute defects.

The City will continue these inspections on a 5-year cycle if necessary, as advised in the AMIP, monitoring select segments for rates of buildup of FOG or debris and possible deterioration of non-acute defects. Pursuant to the Consent Decree, the City is required to clean all other sewers in the Collection System every ten (10) Fiscal Years starting July 1, 2022. Concurrently, the City will continue to perform a small amount of "Hot Spot" cleaning on an annual and semi-annual basis to select sections of the system. The City completed the City-wide cleaning and CCTV inspection in 2022 as scheduled. The City's next major cleaning and CCTV inspection is

scheduled for 2027 and will consist of cleaning trunk sewers designated by ID prefixes 20-000, 21-000, and 22-000.

4-5. Rehabilitation and Replacement Plan

The CCTV inspection data-capture technology includes an automated rating system to identify condition-based rehabilitation and replacement needs within the sewer system. Using the results of condition inspections, the City can more readily identify and prioritize operation and maintenance projects. Consequently, the City analyzed the results of past CCTV inspections to formulate a capital improvement plan, including estimated costs, budgets, and schedules.

The Consent Decree required the City to rehabilitate an estimated 6,300 linear feet of sewer mains by June 30, 2015 in order to reduce sources of I/I into the City's sanitary sewer system. The City met its rehabilitation requirement in FY 2014/2015. The Spot Repair Rehabilitation Project to address defects in the collection system was completed in FY 2016/2017.

As an additional form of rehabilitation, the City is required to inspect and repair or rehabilitate all City-owned sewer laterals. To support this requirement, the City of Emeryville added a new capital improvement program project, the Rehabilitation of City Facilities' Sewer Laterals, which specifies funding for this work to take effect in FY 2019/2020 and FY 2020/2021. The City has completed inspection of these laterals, and the City is scheduled to complete rehabilitation work during FY 2025/2026.

4-6. Training

Emeryville's training program for the Public Works crew includes annual training led by the Public Works Operations and Facilities Manager on the use and operations of sanitary sewer maintenance equipment. As new crew members are hired, each member is required to complete SSO response training.

4-7. Outreach to Plumbers and Building Contractors

Sewer contractors must follow proper practices for ensuring private laterals are leak-free. The City's provisions for sewer lateral regulation, including information on installation, repair, and maintenance, are accessible via the Municipal Code on the City of Emeryville website:

https://www.codepublishing.com/CA/Emeryville/#!/Emeryville07/Emeryville078.html#7-8

The City's website also describes the Sanitary Sewer Lateral Program, with construction considerations, fees, and testing procedures. The page also includes specific compliancy requirements and re-certification processes for individually owned units in a multi-unit structure, and those of commercial properties with more than 1,000 linear feet of private sewer laterals.

http://www.emeryville.org/900/Sanitary-Sewer-Lateral-Program

4-8. Contingency Equipment and Replacement Inventories

The City maintains the following contingency equipment and replacement parts for its sanitary sewer system.

1. Personal Protective Equipment (i.e.: eye protection, gloves)
2. Vactor truck
3. Bypass pump with suction and discharge hose
4. Trash pump with suction and discharge hose
5. Water trailer
6. Portable hydrant meter
7. Fire hose and nozzle
8. Sand bags and rope
9. Plastic sheeting
10. Wattles
11. Hand tools (shovels, rakes, brooms)
12. Plastic bags
13. Signage appropriate to overflow area
14. Cones/Barricades/caution tape
15. Copy of SSMP with reporting forms

In addition to in-house staff, the City enlists private sewer service contractors to clean and inspect the collection system and to assist in emergency response to system blockages and SSOs.

SECTION 5. DESIGN AND PERFORMANCE STANDARDS

5-1. Standards for Installation, Rehabilitation, and Repair

The City of Emeryville uses the latest edition of the APWA Green Book for the design and construction standards for sanitary sewers.

As of July 1, 2016, all City of Emeryville capital improvement projects are in compliance with the Regional Standards developed by EBMUD and its Satellites as submitted on June 30, 2016 (Revised on June 30, 2021). The Regional Standards will continue to be reviewed for their effectiveness, potential revisions, and improvements.

5-2. Standards for Inspection and Testing of New and Rehabilitated Facilities

Emeryville Public Works uses the APWA Green Book standards for inspection and testing of new and rehabilitated facilities. Contractors perform the testing, and the City Public Works Inspector ensures that the proper testing procedures are met and that results are adequate prior to approval. Testing methods generally include air testing, video inspection, smoke testing, and dye testing.

In addition to the City's requirements for testing new and rehabilitated sewer facilities, the EBMUD Regional PSL ordinance requires that an EBMUD inspector witness a verification test (air or water pressure test) on all rehabilitated or repaired PSLs that are subject to the Regional PSL program requirements. Upon passing a verification test, EBMUD issues the property owner a certificate of compliance that is effective for 20 years if the entire lateral has been rehabilitated or for seven years if the existing lateral has been repaired.

SECTION 6. OVERFLOW EMERGENCY RESPONSE PLAN

6-1. Procedures

On July 15, 2010, the EPA approved the City's overflow emergency response plan, a stand-alone document meeting the requirements of the Administrative Order. The City now uses a revised and updated plan concurrently with this SSMP. Entitled "Sewer Emergency Response Procedure," the document is included as Appendix D. The procedure contains instructions for:

- Incident Notification
- Incident Operations
- Incident Reporting
- Staffing Resources
- Equipment List

6-2. Description of Procedure Elements

The City's "Overflow Response and Reporting Procedure" or "Sewer Emergency Response Plan" incorporates the following elements:

- Notification - This document outlines the procedures for internal notification of a spill including to the Public Works Superintendent as well as external notification to Cal-OES.

- Response - This document outlines how the City staff and contracted support staff are to follow the "Overflow Response and Reporting Procedure" when mitigating an overflow, correcting a sewer deficiency, warning the public, and cleaning up during the spill and after it has been stopped.

- Emergency Operations - This document includes instructions on isolating the spill site with barricades and caution tape, posting warning signs as appropriate. Traffic control may be issued as required depending on the size and location of the spill.

- Reporting - This document outlines the timeline and responsibility for incident reporting to local, regional, and state agencies.

- Mitigation - This document outlines the procedures for identifying the cause of the spill, the actions necessary to stop and contain the spill, the follow-up activities to prevent similar spills in the future, and necessary clean-up activities.

SECTION 7. FATS, OILS, AND GREASE (FOG) CONTROL PROGRAM

7-1. Purpose

FOG control programs seek to eliminate or minimize the discharge of fats, oils, and grease into the sanitary sewer system, thereby reducing the formation of blockages that could result in SSOs. The FOG control program addresses hot spots through identifying the need for more frequent cleaning, targeted outreach, and the additional regulation on FOG discharges. The City's legal authority and requirements for FOG control are included in Article 4 of Chapter 8 of Title 7 of the Municipal Code.

7-2. EBMUD Regional FOG Control Program

The City participates in the EBMUD Regional FOG Control Program. The program includes permits, inspections, and multiple-language outreach to food service establishments (FSEs) in the service area. It also requires the installation of a grease interceptor under defined circumstances, maintenance of all grease removal devices at a facility, and maintenance record keeping. The program consists of the following elements (outlined in Appendix E):

- Source identification
- Legal authority
- Program structure/requirements
- Grease removal device technology for FSEs
- Inspections and monitoring for FSEs
- Enforcement for FSEs
- FOG disposal
- Public Education and Outreach

SECTION 8. CAPACITY MANAGEMENT

8-1. Capacity Assessment

In June 2010, the City completed its "Sewer System Capacity Analysis and Master Plan." This plan includes a hydraulic capacity model of the City's sanitary sewer system and identifies line segments with existing and projected future capacity deficiencies under design wet weather flow conditions (5-year storm). Since the City has fixed boundaries, additional future flows in the system will stem from land use changes in Emeryville and upstream in Oakland, rather than expansion of the service area.

8-2. System Evaluation and Capacity Assurance Plan

The Sewer System Capacity Analysis and Master Plan identified 18 reaches of pipe within the City of Emeryville with deficient capacity. The City replaced 14 pipe segments in 2011 and the remaining four reaches in Fiscal Year 2014/2015. These last four pipe segments carried flow primarily from the City of Oakland, who participated in project cost-sharing for their replacement.

8-3. Capacity Improvement Projects

The City has addressed all its sewer capacity deficiencies along with its sewer rehabilitation projects. Future capacity improvement projects may be considered if there are significant increases of flows within the collection system, or if the upcoming Master Plan Updates identifies such a need. The City is planning to begin an update of the System Master Plan in the 2025/2026 Fiscal Year.

SECTION 9. MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS

In general, Emeryville's sanitary sewer system performs well since it is mostly new. The City is geographically small and strong communication between departments enables various staff to work together to report overflows quickly for rapid response times. The City reports to the State CIWQS website on a monthly basis to report SSOs should they occur. In the last ten years, there has only been one reportable SSO that occurred within the City. The City will continue to adhere to its scheduled inspection, cleaning, and maintenance programs.

The City's GIS-based mapping system will be used to track maintenance activities on the collection system and can also be used to determine if SSMP program modifications are necessary.

SECTION 10. SSMP AUDITS

Approximately every five years or if significant system changes warrant it, the SSMP will undergo a formal review and revision, which will be taken to the City Council for approval.

The audit report, first conducted in 2012, identifies the results of implementing the SSMP elements, necessary improvements to the SSMP, sewer system improvements undertaken during the reporting year, and planned improvements for the coming year.

The most recent audit of the SSMP was conducted in April 2024. The recent changes made to the SSMP include:

1. Section 2. Organization includes a revised Organization Chart reflecting the current staffing levels and membership

2. Section 4. Updated the schedule for Routine Cleaning to note that all work during the initial 10-year period was completed successfully. One additional length of sewer was added to the Select Annual Cleaning Schedule to address a minor defect that could not be repaired during the 2023 Spot Repair Project. The City was able to conduct but unable to pass verification tests for all City-Owned properties by the September 22, 2024 deadline. The laterals that did not pass the pressure verification test are slated to begin replacement in early 2025.

3. Section 6. The Overflow Emergency Response Plan has been replaced with the Sewer Emergency Response Plan (SERP) to comply with the latest WDR.

4. The SSO Response Plan has been updated in accordance with Order WQ 2022-0103-DWQ to be referred to as the Sewer Emergency Response Plan (SERP) and updated to reflect the new requirements of the plan.

5. In 2022, the City completed the system-wide cleaning and CCTV investigation of its Sanitary Sewer System in accordance with the requirements of the Consent Decree.

6. In 2023, the City completed a Spot Repair Project to address defects identified during the 2022 effort to clean and investigate the Sanitary Sewer System. All but (1) defect was addressed and that defect was added to the list of Select Sanitary Sewer Segments to be cleaned on an Annual Basis.

7. In 2024, the City was able to obtain the services of a Sewer Contractor to test and – where required – repair leaks in the sanitary sewer laterals serving properties owned by the City. Work will commence in September and continue into 2025. Long-term City Projects on some of these properties will include replacement of their laterals with new materials and layouts. The City will rehabilitate these laterals as part of these long-term projects. Documents that identify these laterals will be included in the appendix of the annual report.

8. In 2024, the City of Emeryville continued work to refine its collection system mapping and associated management system. Moving forward, the City will have a particular focus on monitoring CCTV footage from the Hot-Spot cleaning of Powell Street's gravity sewer mains to ascertain whether a reduced cleaning period would be warranted.

9. The City plans to update its Sanitary System Master Plan starting in the 2025/2026 Fiscal Year.

SECTION 11. COMMUNICATIONS

The City maintains a website (www.emeryville.org) to inform the public about all aspects of city government. As a member of the Collection Systems Technical Advisory Committee (CSTAC), the City communicates and works with other East Bay collection agencies on a regular basis.

APPENDIX A
City of Emeryville Wastewater Collection System
Asset Management Implementation Plan

CITY OF EMERYVILLE

WASTEWATER COLLECTION SYSTEM

ASSET MANAGEMENT IMPLEMENTATION PLAN

UPDATE: July 15, 2025

City of Emeryville
Department of Public Works
1333 Park Avenue
Emeryville, CA 94608

CONTENTS

CONTENTS
(Continued)

APPENDICES

SECTION 1
INTRODUCTION

This Asset Management Implementation Plan (AMIP) outlines the City of Emeryville's program for routine inspection, maintenance protocols, and condition-based repairs and replacement of its wastewater collection system. This document is a supplement to the City's Sewer System Management Plan (SSMP) mandated by the State Water Resources Control Board No. 2006-0003 Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (WDR).

Level of Service goals are included in the SSMP and performance measures will be documented in the annual report to the EPA. The SSMP with the following sections can be found for reference via the City of Emeryville's website at:
http://www.emeryville.org/915/Sewer-System-Management-Plan

Introduction
Section 1. Goals
Section 2. Organization
Section 3. Legal Authority
Section 4. Operation and Maintenance Program
Section 5. Design and Construction Standards
Section 6. Overflow Emergency Response Plan
Section 7. Fats, Oils and Grease (FOG) Control Plan
Section 8. Capacity Management
Section 9. Monitoring, Measurement, and Program Modifications
Section 10. SSMP Audits
Section 11. Communications

1-1. Regulatory Mandates

Stipulated Order

The original AMIP was prepared to satisfy EPA Case No. C 09-05684 RS Stipulated Order for Preliminary Relief Section IX Work-City of Emeryville, Paragraph 50. Asset Management Program, Part B.

The specific requirements for the AMIP contained in the Stipulated Order are as follows:

> By July 15, 2012, the City shall submit to EPA for review and approval pursuant to Section XIV an AMIP that uses the EPA comments provided pursuant to subparagraph A above. The City may tailor the EPA comments, and may omit portions of the EPA comments that do not apply to the City. The AMIP shall be updated as necessary to incorporate any revisions to the initial inspection and maintenance schedules, and to ensure that repair, renovation and replacement projects continue to be adequately identified and planned beyond the initial time frames specified in subparagraph 49.B.3. At a minimum, the AMIP shall include a description of the City of Emeryville's programs for:

1. **Routine inspection of the Collection System** according to a specified schedule, and that includes the following:

    a) Inspection methods to be used, including direct visual inspection and CCTV inspection, and whether CCTV equipment is owned, purchased, leased, or a combination;

    b) An inspection schedule, and protocol for determining the regular time interval on which repeat inspections will be performed; and

    c) A system for timely evaluation of inspection findings and documentation of the assessed condition.

2. **Collection system maintenance protocols, including:**

    a) A schedule for routine cleaning of the City of Emeryville's Collection System using standardized responses developed by the City to typical local problems that cause blockages such as debris, grease and roots. The City shall develop its routine cleaning schedule after evaluating the cleaning needs of the Collection System;

    b) A list of locations where pipe blockages and SSOs have frequently occurred (hot spots), a hot spot cleaning schedule, and procedures for adjusting the hot spot cleaning schedule based on changing conditions;

    c) Preventive measures to address blockage of sewer pipes by roots, including a description of root control methods; locations where root control methods may be used within the Collection System; and a schedule for application of root control methods; and

    d) A plan for staffing the sewer system cleaning and root control programs, indicating whether staffing duties will be carried out by agency staff, by staff from other agencies, or by private contractor(s). To the extent that any sewer cleaning or root control duties conducted under this program will be carried out by private contractor(s), the City of Emeryville shall retain on file and make available for inspection for a period of three years after the completion of work a description of each contractor and a copy of each contract, or a description of the procurement process.

    e) A Quality Assurance and Quality Control Program ("QA/QC Program") to ensure proper sewer cleaning. The QA/QC Program shall include a plan for inspecting the cleaning quality, which specifies a minimum percentage of cleaned pipe to be inspected at regular intervals and a schedule for inspections, the procedures for conducting the inspections, the time interval for any necessary re-cleaning, and criteria for increasing and decreasing the frequency of inspection.

3. **Condition based repair and replacement of sewer pipe plan.**

This plan shall include elimination of known improper flow connections, according to a schedule informed by the inspection results, and address both short-term (repairs of Acute Defects to occur within one year of completion of inspection and assessment) and long term repair, rehabilitation and replacement of sewer pipes. The plan shall include the following:

a) A schedule and 10 year financial plan for repair, rehabilitation, and replacement of sewer pipes. This schedule shall identify pipe reaches presently planned as priorities for rehabilitation or replacement over the next three years, with the understanding that the identified priorities are likely to be further developed and revised through the inspection and assessment process, and as a result of changed conditions. The City shall develop its schedule for repair, rehabilitation and replacement of sewer pipes using standardized responses developed by the City to observed defects, taking into account available peak flow rate data;

b) Measures to control the inflow and infiltration as needed to reduce flows in the Collection System and reduce the frequency of SSOs; and

c) The budget allocated for emergency repair and replacement of sewer pipe, the length of sewer pipe which underwent emergency repair and replacement during the previous year, and the cost thereof.

Beginning in 2013, as part of its Annual Report provided for in Section XIII, the City of Emeryville shall submit information to EPA summarizing the City's progress in implementing each element of the AMIP, and must include any proposed revisions to the maintenance and construction schedules along with any accompanying changes to the financial plan. If any Acute Defect has not been addressed within one year of the inspection and assessment identifying it, the City shall explain what new information or changed circumstances warrant not addressing the Acute Defect.

Consent Decree

On May 13, 2013, the USEPA granted approval of "the City's AMIP with the stipulation that further revisions may be needed, particularly with regard to the rates of sewer cleaning, inspections, and repair/rehabilitation, as a result of ongoing Consent Decree (CD) negotiations."

This updated AMIP has been prepared to reflect the requirements of the Consolidated Case Nos. C 09-00186-RS and C 09-05684 FINAL CONSENT DECREE, approved on September 22, 2014, as follows:

72. On May 13, 2013, after consultation with the Regional Water Board, EPA conditionally approved the City of Emeryville's AMIP. For the duration of the Consent Decree, the City shall implement the programs set forth in its SSMP and AMIP for controlling SSOs and reducing I&I. In addition, the City shall implement the Work set forth in this Section to accomplish the goal of eliminating SSOs and further reduce I&I. The City shall revise its AMIP as necessary, so that it is consistent with the requirements of this Section, and to ensure that Repair and Rehabilitation projects continue to be adequately identified and planned for.

The revisions to the AMIP reflect the requirements of the Final Consent Decree, modifications to work based on construction activities to date, and additional information obtained from field investigations and data review.

1-2. Maintenance Management System

A map of Emeryville's entire sanitary sewer system is available as a comprehensive GIS database and basemap. The map includes locations and symbolic field configurations of all private sewer lateral connections, found via City-wide CCTV inspections. The City is in the process of updating the GIS collection system map to include maintenance, inspection, and rehabilitation data. Last activity dates, photos, and videos of structure inspection, pipeline cleaning, CCTV inspection, smoke testing, and pump station maintenance will all be accessible from the GIS database. The City currently uses a manual work-order system, however, the GIS database will ultimately drive future routine preventive operation and maintenance management activities..

1-3. Collection System

Emeryville's sanitary sewer service area is shown on Figure 1 and a schematic of the wastewater collection system is shown on Figure 2. The collection system serves the entire city. In addition, approximately 11 miles of sanitary sewer mains from 370 acres of primarily residential property in the City of Oakland and 0.25 acres of residential property in the City of Berkeley drain into Emeryville's wastewater collection system.

The City of Emeryville's wastewater collection system consists of 15.3 miles of gravity sewers, ranging in size from 4 to 30 inches in diameter. Over 85% of the system has been replaced or fully rehabilitated (including manholes and in most cases lower laterals) in the past 25 years or was installed since 1970. This rehabilitation program has resulted in a reduction of modeled wet weather flows of about 10% based on Emeryville's peak wet weather flow allocation in the September 1987 *Final Cost Effectiveness Analysis Update* to the *Infiltration/ Inflow Correction Program*. In addition, all wet weather overflows have been eliminated from the wastewater collection system.

There are 365 manhole structures in Emeryville. The age and condition of these manholes generally tracks the age of the associated gravity sewers. There are approximately 1,100 PSLs, owned and maintained entirely by the property-owners from the building to the connection with the city main.

In addition, Emeryville owns and operates one pump station, equipped with two, 10-hp pumps having a rated capacity of 1600 gpm each. There is a 6-inch diameter, 1,886-foot long force main associated with this pump station.

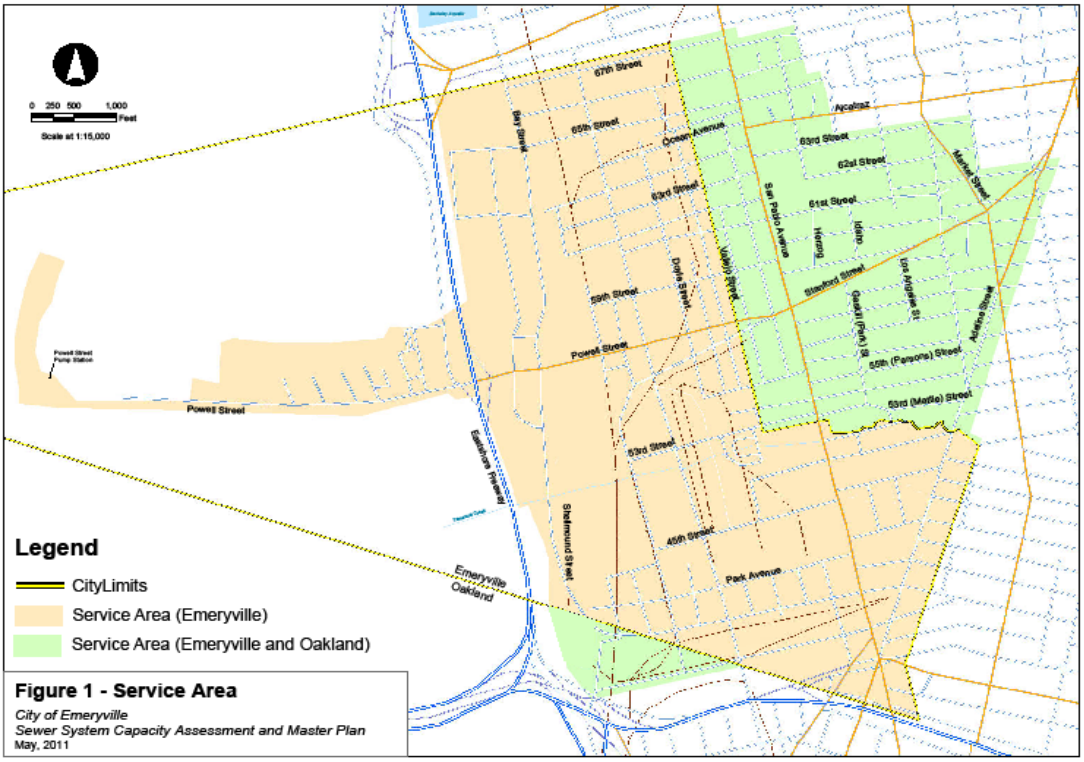

Figure 1 - Service Area
City of Emeryville
Sewer System Capacity Assessment and Master Plan
May, 2011

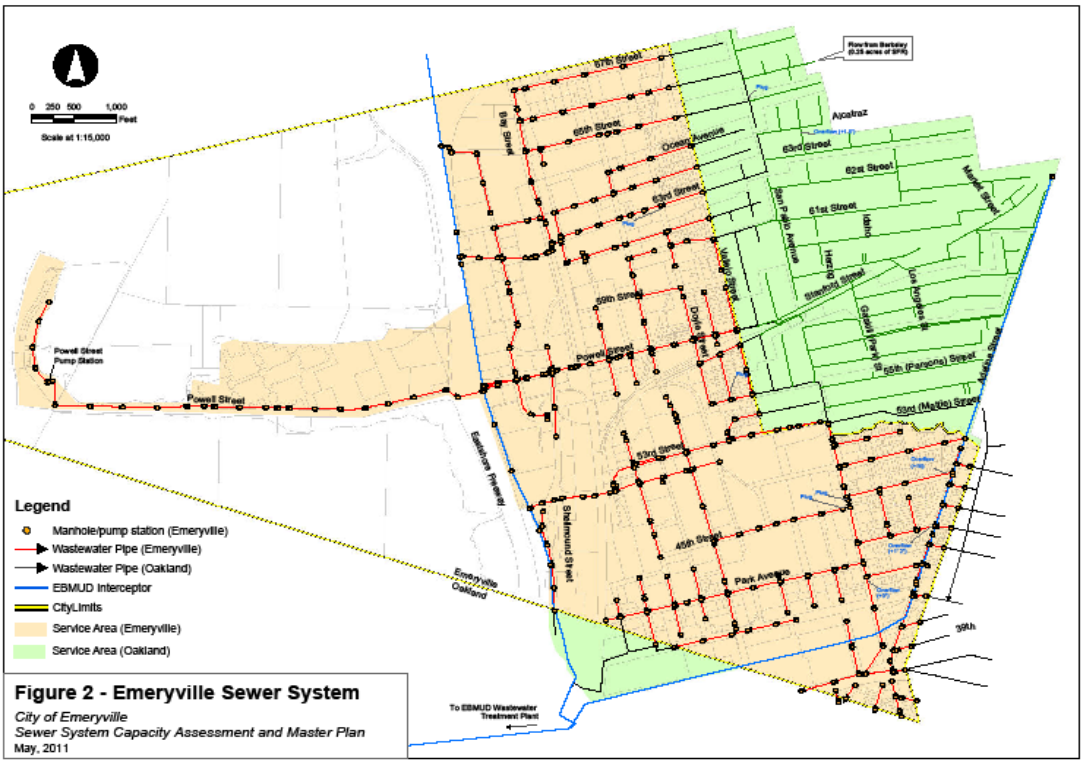

Figure 2 - Emeryville Sewer System
City of Emeryville
Sewer System Capacity Assessment and Master Plan
May, 2011

SECTION 2
ROUTINE INSPECTION OF THE COLLECTION SYSTEM

From FY2010/2011 through FY2011/2012, Emeryville implemented a comprehensive collection system inspection program in accordance with the EPA-approved *Inflow Identification and Elimination Plan* and the *Work Plan for Periodic Inspection and Assessment of Condition of Gravity Sewers and Maintenance Holes*. The preparation and implementation of these plans were a requirement of EPA AO, Docket No. CWA 309(a)-10-008. They are attached hereto as Appendix A and Appendix B.

The work performed on the system-wide inspection program as of August 31, 2013, included the following:

- Smoke testing to determine potential sources of inflow – 100% of system completed
- Mainline cleaning followed immediately with mainline CCTV inspection – 99% of pipes completed (inspection was not performed on some pipes that are scheduled for rehabilitation or that were difficult to access at the time the CCTV inspection field work was performed)
- Mainline structure inspection – 363 of 365 structure inspections completed

As part of this effort, Emeryville was able to verify and modify the collection system configuration and base map, have uniformity in the evaluation of pipe features and defects, and develop an accurate baseline condition database of the collection system.

2-1. Methods

The pipe cleaning and CCTV inspection work effort to date was performed by outside contractors using their own equipment. Emeryville owns a small push-camera that is used in cases where a lateral blockage is suspected, but it is not used on a routine basis for inspecting the sewer mains.

The CCTV inspection, performed using the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) standards, conforms to the EPA-approved *Work Plan for Periodic Inspection and Assessment of Condition of Gravity Sewers and Maintenance Holes*. All routine inspection is from manhole-to-manhole, for incorporation into the City's MMS.

2-2. Schedule for Routine Inspection

The system-wide comprehensive cleaning and CCTV inspection project was completed in FY2011/2012, with a small amount of follow-up work in 2013. Emeryville has since adopted the re-inspection schedule outlined below. Because of the limited scope of this work, re-inspection is generally planned during the wet weather season in order to help identify possible sources of infiltration into the wastewater collection system. Conversely, some sewers carrying hot industrial

flow are better inspected in the spring or summer when the ambient temperatures are higher and there is less vapor in the pipes. In addition, as part of any Capital Improvement Project (CIP), all new, repaired, or rehabilitated pipes will be CCTV inspected end-to-end and the data will be incorporated into the database.

- YEAR 2 (FY2013/2014) ***NOTE: This work has been completed***

  The pipes identified in the FY2011/2012 Cleaning and CCTV inspection project with the worst debris accumulation that are not currently subject to routine "hot spot" cleaning were inspected without prior cleaning to evaluate the level of debris build-up. The purpose of this inspection was to confirm that the proposed schedule for routine cleaning of these lines is adequate. These pipes, listed in Table 1 and shown on Figure 3, include the following sewers:

  - Basin 20 – Trunk Sewer on Shellmound Street between 67th Street and 63rd Street, through an easement (Emeryville Market Place) to the EBMUD Interceptor, and the trunk sewer extension beneath the Union Pacific Railroad at 63rd Street

  - Basin 21E – Trunk Sewer on 55th Street from Vallejo Street to Doyle Street, along Doyle Street to Powell Street, and along Powell Street to the EBMUD Interceptor, plus sewers on Shellmound Street to the north and south of Powell Street and on Peladeau Street south of Powell Street

  - Basin 22 – Trunk Sewer on 53rd Street from Boyer Street to Horton Street, through an easement (Temescal Creek alignment) to the EBMUD Interceptor

  Based on the results of this CCTV inspection, several reaches of pipe were identified as having closed cracks. These pipes were added to the YEAR 5 (FY2016/2017) program, discussed in the following paragraphs. In addition, several pipes were added to the routine cleaning program on an annual basis (see SECTION 3).

- YEAR 5 (FY 2016/2017) ***NOTE: This work has been completed***

  - The pipes with low priority hairline cracks revealed in the 2011/2012 CCTV inspection that were not identified as needing to be repaired (see Section 4.2 for rehabilitation program) were cleaned and CCTV inspected to determine if cracks were expanding and warranted repair work. Any pipes with hairline cracks that show an expanding movement after the FY2016/2017 reinspection were either put on a 5-year CCTV inspection cycle or added to the spot repair list in the Condition Based Repair and Replacement of Sewer Pipe Plan. Any pipes with hairline cracks that do not show appreciable change after the FY 2021/2022 system-wide CCTV inspection will be placed on a 10-year inspection cycle.

  - All pipes currently identified as having potential for root intrusion were scheduled for CCTV inspection and cleaning, if necessary, on a 5-year cycle unless circumstances indicated that a more or less frequent inspection cycle was justified. The next round

of inspection was completed by the end of FY 2016/2017. These pipe findings are listed in Table 2 and shown on Figure 4.

TABLE 1
LIST OF PIPES FOR YEAR 2 (FY2013/2014)
CCTV INSPECTION[1]
NOTE: This work has been completed

Basin 20 Trunk		Basin 21E Trunk		Basin 22 Trunk	
Line Segment	**Length, ft**	**Line Segment**	**Length, ft**	**Line Segment**	**Length, ft**
20.102.15-20.100.11	235	21.000.31-21.000.29	260	22.002.09D-22.002.08	237
20.100.11-20.102.01	154	21.000.29-21.000.27	229	22.002.08-22.002.06	31
20.102.01-20.100.09	381	21.000.27-21.000.27A	49	22.002.06-22.002.16	196
20.100.09-20.100.07	385	21.000.27A-21.000.25	544	22.002.16-22.000.21	338
20.100.07-20.100.06	273	21.000.25-21.000.23	298	22.000.21-22.001.09	293
20.100.06-20.100.05A	271	21.000.23-21.000.22[3]	231	22.001.09-22.000.17	349
20.100.05A-20.100.05	26	21.000.22-21.000.22A[3]	267	22.000.17-22.000.15	191
20.100.05-20.100.04B	56	21.000.22A-21.000.21[3]	15	22.000.15-22.000.11	299
20.100.04B-20.100.04A	55	21.000.21-21.000.20[3]	253	22.000.11-22.000.09	66
20.100.04A-20.100.04	32	21.000.20-21.001.14[3]	126	22.000.09-22.000.07	187
20.100.04-20.000.18	268	21.001.14-21.001.12	37	22.000.07-22.000.06	142
20.100.03-20.100.02	162	21.001.12-21.000.19	100	22.000.06-22.000.05	249
20.100.02-20.100.01	153	21.000.19-21.000.18	235	22.000.05-22.000.03	93
20.000.19-20.000.18	115	21.000.18-21.000.16	158	22.000.03-22.000.01	149
20.000.18-20.000.16[2]	10	21.000.16-21.000.15	19	**Total Length, ft**	**2,820**
20.000.16-20.000.15[2]	81	21.000.15-21.000.14	48		
20.000.15-20.000.13[2]	47	21.000.14-21.000.13	176		
20.000.13-20.000.12[2]	31	21.000.13-21.001.05	80		
20.000.12-20.000.11[2]	140	21.001.05-21.000.10	46		
20.000.11-20.000.10[2]	22	21.000.10-21.000.09	34		
20.000.10-20.000.09[2]	46	21.000.06-21.000.6A	35		
20.000.09-20.000.08[2]	72	21.000.06A-21.000.06B	359		
20.000.08-20.000.07[2]	280	21.000.06B-21.001.06	11		
20.000.07-20.000.05	56	~~21.000.12-21.000.11~~[4]	~~16~~		
20.000.05-20.000.03	222	~~21.000.11-21.001.05~~[4]	~~26~~		
20.000.03-20.000.01	197	21.001.10-21.001.13	310		
20.000.01-20.000.00	27	21.001.13-21.000.06	85		
20.001.20-20.000.07	15	21.001.19-21.000.10	82		
Total Length, ft	**3,812**	21.001.48-21.000.21	334		
		21.001.45-21.000.20	371		
		Total Length, ft	**4,792**		

[1] Performed to verify adequacy of 5-year cleaning cycle
[2] These pipes are scheduled to be relocated by the property owner within the next 5 years and may not require assessment in the future
[3] These pipes are scheduled to be rehabilitated in FY2014/2015 and may not require assessment in the future
[4] These pipes have been removed from the wastewater collection system

TABLE 2
LIST OF PIPES FOR YEAR 5 (FY2016/2017)
CCTV INSPECTION
NOTE: This work has been completed

Pipes with Closed Hairline Cracks[1]	
Line Segment	**Length, ft**
20.000.29-20.000.27	174
20.001.08-20.001.07	388
20.002.09-20.000.31	398
20.101.03-20.101.02	246
20.101.11-20.101.10	508
21.000.10-21.001.15	223
21.000.25-21.000.23	298
21.000.27-21.000.27A	16
21.000.27A-21.000.25	533
21.000.29-21.000.27	229
21.000.31-21.000.29	260
21.001.19-21.000.10	82
21.001.25-21.001.23	202
21.001.60-21.000.22A	43
21.001.61-20.001.60	241
21.002.10-21.002.09	558
21.003.10-21.000.31	276
22.001.05-22.001.04	19
22.001.09-22.000.17	349
22.001.17-22.001.10	482
22.001.27-22.001.26	241
22.001.31-22.001.30	272
22.002.01-22.002.00	84
22.002.02-22.002.03	123
22.002.16-22.000.21	338
23.001.04-23.001.03	259
23.001.10-23.000.21	150
23.002.03-23.002.02	229
23.002.10-23.002.29	126
24.000.04-24.000.03	183
50.001.89-50.001.91	31
50.001.95-50.001.89	119
52.701.20-52.701.20A	22
52.701.22-52.701.24	64
Total Length, ft	**7,766**

Pipes with Potential for Root Intrusion	
Line Segment	**Length, ft**
20.001.03-20.001.02	91
20.001.04-20.001.03	69
23.000.23-23.000.21	309
23.002.04-23.002.03	251
23.002.14-23.002.03	179
23.002.23-23.002.47	136
23.002.44-23.002.14	197
23.002.45-23.002.44	80
23.002.46-23.002.45	277
23.002.47-23.002.46	246
23.002.70-23.002.04	459
23.002.71-23.002.70	90
50.001.52-50.001.57	315
50.001.53-50.001.51	327
50.001.57-50.001.56	399
50.001.85-50.001.84	477
Total Length, ft	**3,902**
Additional Pipes for CCTV[2]	
Line Segment	**Length, ft**
22.002.07A-22.002.09D	127
Total Length, ft	**127**

[1]Cracks that do not appear to compromise the structural integrity of the pipe or be a source on infiltration
[2]Sewer main in front of the Emeryville Child Development Center (ECDC) added for CCTV

- YEAR 6 – YEAR 9 (FY2017/2018 – FY2020/2021)

  Re-inspection, as necessary. ***NOTE: This work has been completed.***

- YEAR 10 (FY2021/2022)

  Unless otherwise noted, the entire wastewater collection system will be cleaned and CCTV inspected on a 10-year cycle. The City will perform the CCTV inspection during the wet weather season in order to better identify infiltration sources. This work program will also include the inspection of all maintenance hole structures. The next round of inspection will be completed by the end of FY 2021/2022. ***NOTE: This work has been completed.***

- SUBSEQUENT YEARS

  The system-wide clean and inspection will continue on a 10-year cycle. Select Trunk Sewers will be cleaned on a 5-year cycle.

2-3. Evaluation

All CCTV inspection data must comply with NASCO PACP coding rules for uniform automated structure and operation and maintenance (O&M) rating. While the PAPC coding for "Structural Quick" and "O&M Quick" provides an overview of possible problems with the sewer mains, it is not fool-proof in rating pipe defects. For example, an offset joint or change in alignment may not allow the CCTV camera to advance through a pipe, however, this is not specifically identified as a problem in the PACP rating system. The PACP also does not allow for coding features that may be visible in front of the camera, but that are not be recorded because the camera could not advance in the pipe and actually encounter them.

Because there are some limitations to the PACP ratings, City Engineering staff perform detailed foot-by-foot review all CCTV inspection data completed in 2022. This level of review is possible because of the small size of the collection system (less than 2% of the pipes served by the EBMUD interceptor system are in Emeryville). The review of the CCTV data by an experienced professional engineer provides a more critical, and sometimes more accurate, assessment of the defects noted by the CCTV inspection technician. It is important to note, also, that the pipe defects identified as requiring repairs in this report might have a much lower priority in a larger collection system having many old pipes that require full rehabilitation. The CCTV inspection data collected in the future will be reviewed on the same basis.

The structure inspections conducted by private contractors in conjunction with the system-wide cleaning and CCTV inspection program are reviewed by Engineering staff for defects and signs of infiltration.

SECTION 3
COLLECTION SYSTEM MAINTENANCE PROTOCOLS

Collection system maintenance requires a combination of activities to maintain full flow capacity in the pipes. These activities include routine cleaning throughout the system, hot spot (grease- or root-related blockages or recurring spill locations that require increased maintenance) cleaning in conjunction with a FOG control program, and root control. The following section illustrates these maintenance procedures.

3-1. Schedule for Routine Cleaning

The entire wastewater collection system was cleaned prior to the CCTV inspections in FY2010/2011 and FY2011/2012. While a pipe typically was cleaned with one or two passes of a hydrojet, about one-third of the reaches in the collection system required much more aggressive cleaning to remove accumulated debris. The pipes requiring significant extra cleaning were typically the downstream trunk sewers. The normal rate of debris build-up in these pipes is not known at this time. Therefore, Emeryville performed CCTV inspection of the pipes listed previously in Table 1 in YEAR 2 (FY2013/2014) to determine an appropriate future cleaning schedule for them. Based on this CCTV evaluation several pipes have been placed on an annual cleaning program.

The City's cleaning activities by year:

- YEAR 1 – YEAR 4 (FY2012/2013 – FY2015/2016)
    - Completed routine "Hot Spot" Cleaning and Select Annual Cleaning (beginning in FY2014/2015)
- YEAR 5 (FY2016/2017)
    - Completed routine "Hot Spot" Cleaning
    - Completed cleaning of Basin 20, 21E, and 22 Trunk Sewer pipes, including the pipes added to the Select Annual Cleaning program
    - The pipes listed previously in Table 2 as having hairline cracks were cleaned prior to CCTV, while the pipes listed in Table 2 as having potential for root intrusion were cleaned after CCTV inspection as necessary.
- YEAR 6 – YEAR 9 (FY2017/2018 – FY2020/2021)
    - On-going routine "Hot Spot" Cleaning and Select Annual Cleaning

- YEAR 10 (FY2021/2022)

  - The City performed routine "Hot Spot" Cleaning

  - The entire wastewater collection system was cleaned and a CCTV inspection was conducted.

- YEARS 11 & 12 (FY2022/2023, FY2023/2024)

  - The CCTV inspection footage was analyzed and defects identified by the inspection were included in a Sanitary Sewer Spot Repair Project. The project was advertised for bidding, and a contract was awarded in FY22/23.

  - The Sanitary Sewer Spot Repair Project was completed in FY 23/24.

The above schedule for Routine "Hot Spot" Cleaning may be adjusted depending on the results of the CCTV inspection to be performed in YEAR 5. In addition, in the event that two or more spills are experienced in a reach of pipe, the City will evaluate the cause and consider placing the pipe on a more frequent cleaning cycle.

3-2. Hot Spots and Pipes Requiring Select Annual Cleaning

- Hot Spots

  In general, SSOs have not been a problem in Emeryville. With the exception of a few reaches of pipe, the wastewater collection system is relatively new, has sufficient capacity for modeled wet weather flows, and is not subject to heavy root intrusion. In the past ten calendar years, there have only been two reportable SSO that occurred within the City of Emeryville.

  The City participates in the EBMUD FOG program and requires all food service establishments (FSEs) to install and maintain grease control devices.

  There is only one portion of the wastewater collection system that is currently considered a "hot spot." Located downstream of the Emeryville Marina Pump Station force main and carries wastewater from public and private restrooms at the marina, two restaurants, a small commercial complex, and the Watergate Condominium complex (1,247 high-density residential units), this hot spot is twelve reaches of 10- and 16-inch diameter asbestos cement pipe (ACP) that is approximately 3,098 feet long. The line segments included in this hot spot are listed in Table 3 and shown on Figure 5. The pipes, along with all the private collection systems owned and maintained by the Watergate Condominium Homeowners Association and commercial property owners, exist at the site of an historic landfill. Consequentially, they have numerous sags due to settlement. The combination of grease discharged from the restaurants and housing, and the vertical alignment irregularities of the sewer main, necessitates that this pipe is cleaned every 4 to 6 months.

Emeryville has requested that EBMUD conduct a residential outreach program for Watergate Condominium Homeowners Association in an attempt to reduce the FOG load to this portion of the collection system.

It should be noted that no significant I/I has been identified specifically in these segments of pipe or generally in the entire drainage subbasin. These segments of pipe will remain a "hot spot" until Emeryville believes that it warrants a rehabilitation project in the area.

The criteria for changing the cleaning frequency of hot spots is based on the effort involved in cleaning a particular reach of pipe. Hot spots are currently on a 4- to 6-month cleaning cycle. It is anticipated that the cleaning cycle may be lengthened when upstream private laterals are rehabilitated and more aggressive FOG control is implemented in the high-density residential development tributary to the sewer main.

- Select Annual Cleaning

Based on the YEAR 2 CCTV Inspection, several reaches of pipe were added to a new Select Annual Cleaning category. These pipes showed debris accumulation that was greater than expected or that impeded CCTV camera travel through them. The pipes are listed in Table 3 and tend to be associated with alignment changes within the pipe reach or at points where the flow has a 90-degree change in horizontal alignment at a manhole.

Based on YEAR 12 Sanitary Sewer Spot Repair Project, there was short length of sewer main that could not be accessed to voluntarily excavate and repair due to the existence of multiple utilities obstructing access to the segment. To mitigate the possibility of flow obstructions due to the defect, the full length of the sewer has been added to the "Select Annual Cleaning" schedule. Significantly, the CCTV did not display any obstruction at the location of the defect (joint offset) and the City does not have a history of SSOs in sewer system upstream of the defect location.

TABLE 3
LIST OF HOT SPOTS AND SELECT ANNUAL CLEANING

Line Segment	Diameter, in.	Length, ft
Hot Spots (these trunk lines are cleaned every 4 to 6 months)		
21.100.05-21.100.03	16	391
21.100.07-21.100.05	16	311
21.100.09-21.100.07	16	280
21.100.11-21.100.09	16	295
21.100.13-21.100.11	16	304
21.100.15-21.100.13	16	303
21.100.17-21.100.15	12	135
21.100.19-21.100.17	12	152
21.100.21-21.100.19	12	308
21.100.23-21.100.21	10	289
21.100.25-21.100.23	10	130

21.100.27-21.100.25	10	200
	Length	**3,098**
Select Annual Cleaning (these trunk lines are cleaned once a year)		
21.000.27-21.000.27A	14	49
21.000.27A-21.000.25	14	494
21.000.25-21.000.23	14	298
22.000.17-22.000.15	18	191
22.002.16-22.000.21	15	338
	Length	**1,362**

3-3. Root Control

Emeryville does not currently have a notable root problem in its wastewater collection system. Most of the system is along paved streets or otherwise in the public right-of-way. Roots were identified and removed during the recent sewer cleaning and CCTV inspection project in a pipe segment that passes through a landscaped area on 65th Street upstream of the EBMUD Interceptor. Hairline roots were also observed in a few other pipes in the wastewater collection system. There is a possibility that roots may occur in the future in select reaches of pipe that are beneath roadway median strips landscaped with trees (see Figure 4 for these locations).

Part of the YEAR 5 CCTV inspection schedule outlined in Section 2.2 includes re-inspection of these pipes to observe the level of root intrusion that may develop over time. Emeryville does not anticipate the need for a large scale chemical root control program. However, if subsequent inspections reveal that root intrusion is becoming a problem or if other operational considerations dictate, then a chemical root control program will be developed and implemented.

3-4. Staffing

Because of the small size of the wastewater collection system, Emeryville does not have in-house staff dedicated to routine collection system cleaning. However, Emeryville has staff on-call to respond to wastewater collection system emergencies. All scheduled wastewater collection system maintenance is managed by the Public Works Department staff and performed by a private contractor.

A complete organization chart of Emeryville's wastewater collection system operations staff can be found online in the City's SSMP via the following link:
http://www.emeryville.org/915/Sewer-System-Management-Plan

3-5. QA/QC

Experienced field crews can judge the thoroughness of cleaning based on the resistance of the hydrojet, the sound of material being sucked through the hydrojet hose, and the contents of the "catch basket" inserted in the manholes of the pipes being cleaned. Routine post-cleaning CCTV inspection follows the cleaning within one week and is used to evaluate the quality of the cleaning work. If there is no scheduled manhole-to-manhole CCTV inspection after cleaning is performed, the City will spot-check 10% of the pipes included in the cleaning effort using its push-camera.

The City's routine sewer cleaning is typically performed by outside contractors with site supervision by the City's Public Works Supervisor. The crews are given immediate feedback if cleaning is not thorough based on the "catch basket" contents. Review of the CCTV inspection performed in conjunction with the cleaning will determine if immediate recleaning is required.

SECTION 4
CONDITION-BASED REPAIR AND REPLACEMENT OF SEWER PIPE PLAN

Given Emeryville's aggressive wastewater collection system replacement program over the past 25 years, the majority of the pipes in the system are in very good condition. This fact has been validated through the condition assessment program completed in 2012. There are just a few sewer mains within the system that are in need of manhole-to-manhole rehabilitation due to poor condition, and several pipes requiring repairs of isolated defects. In addition, as noted in the *City of Emeryville Sewer System Capacity and Analysis Master Plan* completed by the City in 2010 and conditionally approved by the EPA to satisfy the requirements of a Sub Basin Flow Monitoring/-I&I Assessment Plan Report, several pipe segments have been identified as being undersized relative to a wet weather design flow.

4-1. 10-year Financial Plan

Emeryville spent approximately $4.5 million through FY 2021/2022 for wastewater collection system capital improvements. The required projects included several sewer main rehabilitation projects and various repairs of the individual defects identified through CCTV inspection and smoke testing. Because the City has rehabilitated the vast majority of pipes in the wastewater collection system, these projects were identified based on condition rather than subbasin priority relative to significant infiltration. For the purposes of this discussion, "repair" refers to fixing a short, isolated portion of a pipe that is defective and may require inserting a new piece of pipe or merely realigning the pipe that is already in place, but has an alignment offset. "Rehabilitation" is manhole-to-manhole renewal or reconstruction of a reach of pipe and may involve any one of several technologies including, but not limited to, open cut trenching, pipe bursting, or cured-in-place pipe (CIPP).

Table 4 summarizes the capital improvement budget for the next through the 2021/2022 Fiscal Year, beginning in FY2012/13. The capital budgets for YEARS 4 and 5, and 7 through 10 dealt with repairs that were needed, but were not included in the YEARS 1 through 3 projects. The YEAR 6 annual capital budget was higher to provide for repairs were identified through the YEAR 5 CCTV inspection of pipes with cracks. It should be noted that this financial plan was incorporated into Emeryville's citywide capital improvement plan. Table 4-1 summarizes the actual expenditures through the FY2024/2025 SSMP update cycle, and Table 4-2 summarizes the projected expenditures through the next 10-year period.

The Sewer Fund is an Enterprise Fund that supports operation and maintenance of the City's wastewater collection system. The fund is supported by Sewer User Charges collected by EBMUD via water bills and by the Sewer Connection Fee, a one-time fee that is paid to the City when a property owner/developer pulls a building permit that includes new connections to the wastewater collection system. The funds generated by the Sewer Connection Fee are restricted for use on Capital Improvements to the collection system while the Sewer User Charges may be used for operations, maintenance, and capital improvements. There is a current fund balance of approximately $4,000,000 in the Sewer Fund that can be used on Capital Projects.

TABLE 4
SCHEDULE AND BUDGET FOR 10-YEAR FINANCIAL PLAN

TIME FRAME	ACTIVITY	BUDGET, $1,000
YEAR 1[1] (FY2012/2013) ***NOTE: This work has been completed***	• Rehabilitation of 307 linear feet of 24-inch diameter trunk sewer on Powell Street between Shellmound Street and Christie Avenue; 793 linear feet of 8-inch diameter pipe on Shellmound Street south Powell Street; and 295 linear feet of 8-inch diameter pipe on Shellmound Street north of Powell Street • Rehabilitation of 316 feet of 8-inch diameter pipe on Halleck Street north of Park Avenue • Emeryville Industrial Sewer Project, Phase 1 (538 feet) • Repairs of defects identified by CCTV inspection[2]	1,600
YEAR 3[3] (FY2014/2015) ***NOTE: This work has been completed***	• Rehabilitation of 2,072 linear feet of 10- and 18-inch diameter sewer on Powell Street between Vallejo Street and Hollis Street • Rehabilitation of 618 linear feet of 8-inch diameter sewer between the City Limits on 54th Street and 53rd Street east of Spur Alley • Rehabilitation of 1,110 linear feet of 6-inch diameter pipe in Subbasin 21-100 between the public restrooms at the end of the Powell Street by the Emeryville Marina and the Powell Street Pump Station • Rehabilitation of 615 linear feet of 10-inch diameter pipe on Horton Street north of Powell Street • Repairs of defects identified by CCTV inspection[2]	2,000
YEAR 5[4] (FY2016/2017) ***NOTE: This work has been completed***	• Repairs of pipes listed in Table 6 that have not been included in YEAR 1 and YEAR 3 • Completion of all Spot Repairs listed in Table 7	200
YEAR 8[5] (FY2019/2020) ***NOTE: This work has been completed***	• Annual repair budget for defects identified in the YEAR 5 CCTV inspection	300
YEAR 9 (FY2020/2021) ***NOTE: This work has been completed***	• Annual System Repairs	300
YEAR 10 (FY2021/2022) ***NOTE: This work has been completed***	• City-Wide System Clean and CCTV and Inspection	300
	TOTAL 10-YEAR BUDGET	**4,700**

[1] Manholes within the main replacement project boundaries will be rehabilitated as needed.
[2] The scheduling of repairs identified through CCTV inspection will be at the discretion of the City Engineer
[3] Previously identified YEAR 2 and YEAR 3 projects have been consolidated to reduce costs and were completed by June 30, 2015
[4] Previously identified YEAR 4 and YEAR 5 projects have been consolidated to reduce costs and were completed by June 30, 2017
[5] Previously identified YEARS 6, 7, and 8 projects have been consolidated to reduce engineering and administration costs and are planned to be completed by June 30, 2021.

TABLE 4-1
EXPENDITURE BETWEEN 2019 AND 2025 AMIP UPDATE

TIME FRAME	ACTIVITY	BUDGET, $1,000
YEAR 1[1] (FY2022/2023) ***NOTE: This work has been completed***	• **Annual system repairs** • **Analysis of system defects identified during FY2021/2022 CCTV inspection**	**300**
YEAR 2[3] (FY2023/2024) ***NOTE: This work has been completed***	• **Spot Repair of defects identified during FY2022/2023 Analysis**	**450**
BUDGET BETWEEN FY22/23 AND FY23/24		**750**

TABLE 4-2
SCHEDULE AND BUDGET FOR 10-YEAR FINANCIAL PLAN

TIME FRAME	ACTIVITY	BUDGET, $1,000
YEAR 1[1] (FY2025/2026)	• Annual Repair Budget • Powell Street Sewer Spot Repair Project	800
YEAR 2 (FY2026/2027)	• Clean and inspect trunk sewers designated by ID prefixes: 20-000, 21-000, and 22-000. • Annual Repair Budget	600
YEAR 3 (FY2027/2028)	• Annual Repair Budget	300
YEAR 4 (FY2028/2029)	• Annual Repair Budget	300
YEAR 5 (FY2028/2029)	• Annual Repair Budget	300
YEAR 6 (FY2029/2030)	• Annual Repair Budget	300
YEAR 7 (FY2030/2031)	• Clean and inspect entire sewer system. • Annual Repair Budget	800
YEAR 8 (FY2031/2032)	• Annual Repair Budget	300
YEAR 9 (FY2032/2033)	• Annual Repair Budget	300
YEAR 10 (FY2033/2034)	• Annual repair budget	300
	TOTAL 10-YEAR BUDGET	**4,600**

The proposed 10-year Capital Improvement Plan includes approximately $4,600,000 in projects. The Public Works operating budget for FY2012/2013 and FY2013/2014 included transfers of $145,000 and $95,000, respectively, from the Sewer User Charges into the Capital Fund. The anticipated revenue to be generated from the Sewer Connection Fees during the first three years of the Capital Improvement Program is dependent on the type of building permits that are approved. As previous years have shown, the annual amounts have varied from as little as $23,000 to over $400,000 over the past six years. The City will plan to budget up to $300,000 per year for potential spot repairs should severe deficiencies be identified. The City will increase the budget in YEAR 2 and YEAR 7 in anticipation of the 5-year and 10-year cleaning cycles of the "trunk" sewers and systemwide, respectively.

It is important for Emeryville to maintain a healthy reserve in its Sewer Fund in order to cover the cost of unanticipated construction. The last seven years of the 10-year CIP included a budget for $850,000 for necessary repairs to the system. Revenue collected from the current Sewer User Charges and Sewer Connection Fees covered this amount.

In addition, Emeryville has begun saving for a major rehabilitation of the sanitary sewer main on Powell Street west of I-80 adjacent to Watergate. This sewer main is in the landfill and is identified as a 3,098-linear foot "hot spot" that requires much more frequent cleaning than other sewer mains in the system due to sags in the pipe caused by settlement of the landfill. The City plans to do spot

rehabilitation work to this line following the conclusion of a pipe condition assessment that is in progress as of FY 2024/2025. NOTE: this pipe is not in the current program because it does not contribute I/I to the EBMUD regional interceptor.

Lastly, the City has 15.3 miles of sanitary sewer main in its collection system with a replacement value of approximately $30,000,000. In the event of a major earthquake that causes severe damage to multiple sewer mains, it is wise to maintain a healthy reserve in the sewer fund to perform emergency repairs. The Sewer User Charges and Sewer Connection Fees were last increased in 2021 in accordance with a 2016 Sewer Rate Study. Emeryville's Sewer User Charge is $12.31 per month per single family service or $1.92 per month for each 100 cubic feet of water use for multiple family connections. Future potential increases in the Sewer User Fee are subject to the requirements of California's Proposition 218.

In order to be proactive with maintaining an appropriate reserve in the Sewer Fund, in 2012, the City Council voted to raise the Sewer Connection Fee, which is not subject to the requirements of Proposition 218. The Sewer Connection Fee was raised from $746 to $1,185 per single family dwelling equivalent. This fee was raised again in 2014 to $1,245 per single family dwelling equivalent (SFDE). The fee was increased again to $1,800 SFDE.

4-2. List of Projects for 3 Years

The specific sewer main rehabilitation projects are listed by reach in Table 5 and Table 6 and are shown on Figure 6.

The YEAR 1 (FY 2012/2013) project, which has been completed, included rehabilitating an existing 24-inch diameter, 307-foot long corrugated metal pipe (CMP) and associated manholes on Powell Street between Shellmound Street and Christie Avenue, rehabilitating the 8-inch diameter pipe and associated manholes on Shellmound Street south of Powell Street, and rehabilitating the 8-inch diameter pipe and associated manholes on Shellmound Street north of Powell Street. It also includes rehabilitating an existing 8-inch diameter, 316-foot long pipe and associated manholes on Halleck Street north of Park Avenue. A third project was to add two manholes and replace a portion of the Emeryville Industrial Sewer in the vicinity of a future pedestrian/bicycle bridge project west of Horton Street at 53rd Street and to rehabilitate the remaining sections of pipe and associated manholes between MH 22.001.04 and MH 22.000.11. NOTE: this project was extended to include pipe 22.000.11-22.000.09 (49 feet).

TABLE 5
YEAR 1 (FY2012/2013) REHABILITATION PROJECT
NOTE: This work has been completed

Line Segment	Diameter, in.[1]	Length, ft[2]
Powell Street between Shellmound Street and Christie Avenue		
21.000.09-21.000.07	24	203
21.000.07-21.000.06	24	104
21.001.21-21.001.20	8	370

21.001.20-21.001.20A[3]	8	419
21.001.20A-21.001.19	8	4[4]
21.001.28-21.000.12[5]	14	295
Halleck Street		
23.001.02A-23.001.02	8	95
23.001.02-23.000.11[6]	8	221
Emeryville Industrial Sewer		
22.001.04-22.001.03[7]	12	365
22.001.03-22.001.02	12	37
22.001.02-22.001.01	12	62
22.001.01-22.000.11	15	25
22.000.11-22.000.09[8]	21	49
	Total Length, ft	**2,249**
Repairs of defects H5 and I7 listed in Table 7		

[1] Actual diameter
[2] Actual length
[3] New manhole installed between MH21.001.20 and MH21.001.20A
[4] This is not actually a pipe but a manhole structure with two lids
[5] MH 21.000.12 relocated; two pipes and MH 21.000.11 abandoned
[6] New manhole installed between MH23.000.11 and MH23.000.12 at Emeryville/Oakland City limits
[7] New manhole installed between MH22.001.04 and MH24.001.03
[8] Pipe added to rehabilitation project

TABLE 6
YEAR 3 (FY2014/2015) REHABILITATION PROJECT
NOTE: This work has been completed

Line Segment	Diameter, in.[1]	Length, ft[2]
Powell Street between Vallejo Street and Hollis Street		
21.002.09-21.002.06	16	259
21.002.06-21.000.23	16	271
21.000.23-21.000.22	22	200
21.000.22-21.000.22B	22	240
21.000.22B-21.000.22A	22	26
21.000.22A-21.000.21	22	48
21.000.21-21.000.20	22	255
20.000.20-21.001.14A	22	30
20.001.14A-21.001.12	22	128
~~21.002.02-21.002.04~~[3]	10	~~543~~
~~21.002.04-21.000.23~~[3]	10	~~12~~
Easement between 54th Street and 53rd Street east of Spur Alley		
22.002.22-22.002.21[4]	8	283
22.002.21-22.002.21A	8	146
22.001.21A-22.002.20	8	43
22.002.20-22.002.06	8	146
Powell Street from Emeryville Marina to the Powell Street Pump Station		
21.100.47-21.100.45	6	258
21.100.45-21.100.43	6	320
21.100.43-21.100.41	6	229
21.100.41-21.100.39	6	293
21.100.39-21.100.37	6	10
21.100.37-21.100.36[5]	6	n/a
Horton Street north of Powell Street		
21.001.31-21.001.30	12	300
21.001.30-21.000.19	12	315
	Total Length, ft	**3,800**
Repairs of defects listed in Table 7 at the discretion of the City Engineer		

[1] Design diameter
[2] Surveyed length from bid documents
[3] Pipes are no longer receiving flow and will be abandoned
[4] Pipe added to AMIP
[5] This is not actually a pipe but the inlet to the pump station

The YEAR 3 (FY 2014/2015) (*Note: Work has been completed*) project listed in Table 6 was completed by June 30, 2015. This project rehabilitated (by replacement) 1,457 linear feet of trunk sewer and associated manholes on Powell Street between Vallejo Street and Hollis Street. This pipe was identified in the *Sewer System Capacity Analysis and Master Plan* as having insufficient capacity to carry the wet weather design flows, including a sizable contribution of flow from the City of Oakland. There was a parallel pipe on Powell Street between Vallejo Street and Doyle Street that was in poor condition, and no longer receiving flow from Oakland, and was subsequently abandoned. Also included in YEAR 3 was the rehabilitation of four reaches of pipe in an easement between 54th Street and 53rd Street. These pipes run between residential properties on 54th Street and though a parking lot to the sewer on 53rd Street. The rehabilitation of the 6-inch

diameter, 1,110-foot long PVC gravity pipe and associated manholes serving the Emeryville Marina was completed. It was not possible to complete the CCTV inspection of this pipe because it is out-of-round. While the capacity of this pipe is not an issue at this time, if the deflection was allowed to continue, the pipe might become unserviceable or rupture. Also included in YEAR 3 were the rehabilitation of 615 linear feet of 10-inch diameter pipe and associated manholes on Horton Street north of Powell Street and 619 linear feet of 8-inch diameter pipe on 54th Street and Spur Alley

The completion of spot repairs listed in Table 7 and shown on Figure 7 were made by June 30, 2017. These projects included pipes with a variety of problems that do not typically require immediate or manhole-to-manhole rehabilitation. These projects were scheduled at the discretion of the City Engineer based on the severity of the problem, other underground work undertaken in vicinity of a particular project, and the pavement management program. It should be noted that Emeryville does not have any pipes in its wastewater collection system that meet the CD definition of "Acute Defect"; i.e. *"Acute Defect" shall mean a failing in a sewer pipe in need of an urgent response to address an imminent risk of an SSO*."

4-3. Measures to Control I/I

Emeryville completed smoke testing of its wastewater collection system in the summer of 2012. The smoke testing identified about 100 smoke returns. These included a variety of inflow and infiltration problems in both the public and private portions of the wastewater collection system. These defects are being addressed as appropriate. In the future, Emeryville will participate in the Regional Technical Support Program (RSTP) sponsored by EBMUD at part of the CD.

Emeryville also has some information about infiltration from the CCTV inspection of the mains. As indicated in Table 7, several of the repairs will address infiltration sources. There are limitations using CCTV inspections to identify infiltration if the groundwater table is below the pipe while the CCTV inspections are conducted. In order to maximize the capture of mainline infiltration, future CCTV inspection will be conducted in the wet weather season if possible. In addition, Emeryville has an ordinance to address I/I in PSLs and participates in EBMUD's Regional PSL program.

The City hired a contractor to pressure test the City Sewer Laterals and propose repairs to laterals that fail the tests during the FY23/24. The City amended the contract to fund rehabilitation of failed laterals and pass the pressure test during FY24/25. The work is scheduled to be completed during FY25/26. Upon completion of this, the City will meet it's obligation to the Final Consent Decree for all City-owned sewer laterals to pass a pressure test.

TABLE 7
PIPES WITH DEFECTS REQUIRING SPOT REPAIRS[1]
NOTE: This work has been completed

Project No.[2]	PIPE REACH	DISTANCE FROM UPSTREAM MANHOLE, ft	DEFECT
Defect Type: Hole			
H1	20.000.09-20.000.08	7	Hole in pipe with infiltration
H2	20.001.07-20.001.06	372	Hole on both sides of pipe immediately upstream of MH 20.001.06
H3	20.102.06-20.102.80	212	Hole at lateral tap with soil visible
H4	21.001.23-21.000.06	427	Hole impacted with grease
H5	22.000.09-22.000.07[3]	51	Hole in pipe with infiltration
H6	22.000.15-22.000.11	17, 205	Separated joint at alignment left with soil visible and broken pipe with soil visible
~~H7~~	~~22.001.07-22.001.05~~[4]	~~49,77~~	~~Cracked and quartered; soil visible~~
H8	22.001.28-22.001.27	31	Possible hole in invert at grade break
H9	22.001.30-22.001.29	320	Separated off-set joint with soil visible
H10	23.000.13-23.000.11	156	Hole at lateral tap; protruding lateral
H11	23.000.19A-23.000.17	29	Hole at lateral tap
H12	23.000.21-23.000.19	85	Hole at lateral tap
H13	23.001.03-23.001.03A	91	Seal or replace PVC patch in crown with infiltration
H14	23.001.06-23.000.15	348	Cracks at joint with infiltration spouts in crown of pipe
H15	50.001.52-50.001.57	5	Cracks and hole with soil visible
Defect Type: Open Crack			
C1	20.101.02-20.101.01	81	Crack and quartered pipe with infiltration
C2	20.101.05-20.101.04	79	Cracked and quartered
C3	20.102.11A-20.102.11	19	Chip at joint with soil visible
C4	21.000.06-21.001.03	12	Crack and quartered; piece missing
C5	21.000.29-21.000.27	79	Cracked and quartered
C6	22.002.16-22.000.21	11,255	Crack at separated joint with roots; tap defect with infiltration
C7	22.002.20-22.002.06[5]	10, 52	Cracks radiating from hammer tap at two locations
C8	50.001.72-50.001.70	5, 15	Large off-set joint with soil visible; cracked and quartered
C9	50.001.83A-50.001.83B	130	Cracked and quartered
Defect Type: Infiltration			
I1	20.001.10-20.000.07A	2	Circumferential crack with infiltration
I2	20.001.20-20.000.07	375	Infiltration though joint
I3	20.101.06-20.101.05	124, 197, 303	Lateral tap with infiltration; two joints with infiltration
I4	20.102.21-20.102.16	73	Infiltration gushing at lateral connection
I5	21.001.26-21.001.11	234	Infiltration gusher at joint
I6	22.000.05-22.000.03	25	Infiltration gusher at joint
I7	22.000.11-22.000.09[3]	1, 25	Infiltration dripper at joint; infiltration weeper at crack
I8	22.001.15-22.001.13	298	Infiltration from lateral cap
I9	23.000.15-23.000.13	143, 275	Broken lateral tap with infiltration
I10	23.000.23-23.000.21	213, 226	Protruding lateral tap; infiltration gusher at lateral tap
I11	24.000.02-24.000.01	3	Crack with infiltration

[1] Spot repairs typically involve one or two pipe segments about 10 to 15 feet in total length
[2] Sequential project ID for reference on Figure 7; not a rehabilitation priority
[3] Fixed YEAR 1 FY2012/2013
[4] Pipe is owned by Novartis and is included in their PSL program
[5] Fixed YEAR 3 FY2014/2015

TABLE 8
LATERALS SERVING CITY-OWNED BUILDINGS
(NOTE: This work will be completed FY 25/26)

BUILDING	ADDRESS	NUMBER OF LATERALS
Child Development Center	1220 53rd Street	1
City Hall	1333 Park Avenue	4
Community Swimming Pool	1100 47th Street	*
Corporation Yard	5679 Horton Street	1[1]
Doyle-Hollis Park Restroom	1379 62nd Street	4
Fire Station #34	2333 Powell Street	1
Fire Station #35	6303 Hollis Street	1
Hong Kong East Ocean	3199 Powell Street	1
Joseph Emery Park Skate Spot	1100 Park Avenue	1
Marina Offices	3310 Powell Street	1
Marina Park Restroom	3310 Powell Street	1
Police Station	2449 Powell Street	1
Recreation Center	4300 San Pablo Avenue	2[1]
Senior Center	4321 Salem Street	1

* Located on the Emeryville Center of Community Life (ECCL) site

1. The current building is slated for demolition to be replaced by a private development project. The existing lateral will be abandoned as part of that project.

4-4. Budget for Emergency Repairs

Given the fact that Emeryville has replaced a large part of its wastewater collection system in the past 25 years and has cleaned and inspected the vast majority of its mains, it is unlikely that emergency repairs to the system will be required in the foreseeable future. The few remaining pipes with documented structural issues will be addressed in by the end of FY2014/2015. Emeryville's pro-active approach to maintaining the integrity of the sewer mains has eliminated the need for any emergency repairs in recent years. Emeryville budgets $25,000 each fiscal year for emergency repairs and has the ability to increase this amount as needed given the existing sewer fund balance reserve.

APPENDIX A
Inflow Identification and Elimination Plan
(Revised January 26, 2011)

Inflow Identification and Elimination Plan
(Revised January 26, 2011)

With respect to item IV.A. Submit Inflow Identification and Elimination Plan, of the AO due on July 15, 2010, the City hereby submits the following:

1. *Description of the methods to be used for identifying cross connections...*

   The City of Emeryville plans to contract with a consulting firm to perform smoke testing of all the Sanitary Sewer Basins within the City. The work will involve smoke testing and visual inspections of the limits of the basin.

2. *Description of method to identify areas for routine testing.*

   Routine smoke testing will be conducted on a 10-to 15-year cycle.

3. *Schedule for routine testing*

   The schedule for smoke testing will be as follows:

Basin 20	Fiscal Year 2010/2011 (completed)
Basin 21E	Fiscal Year 2011/2012
Basin 23	Fiscal Year 2011/2012
Basins 22, 24 and remainder of the City	Fiscal Year 2012/2013

4. *List of manhole locations in areas of the collection system prone to wet weather flooding.*

   The two areas in the City of Emeryville that are prone to flooding during extreme wet weather are as follows:

   Overland Avenue from 62nd Street to 64th Street.
   Christie Avenue from Shellmound Way to Christie Avenue Park.

5. *Description of the system used to track locations tested, results of testing, and follow up actions.*

   The City plans to use a GIS based Maintenance Management System to keep track of the locations that are smoke tested, results of the testing, and any follow up actions.

6. *Copy of ordinance prohibiting illicit connections and legal authority to require and enforce disconnecting illicit connections.*

   Please see attached copy of Chapter 8 of Title 7 Emeryville Municipal Code, "Sanitary Sewer Use". In particular, see Section 7-8.305 "Prohibited Infiltration/Inflow Discharges", as well as Article 5 "Enforcement".

7. *Description of enforcement mechanisms including coordination with the applicable permitting entities within the City.*

   Please refer to Article 5 of Chapter 8 of Title 7 of the Emeryville Municipal Code regarding "Enforcement" of the "Sanitary Sewer Use" provisions of the Code.

APPENDIX B
Work Plan for Periodic Inspection and Assessment of Condition of Gravity Sewers and Maintenance Holes
(Revised April 15, 2010)

April 15, 2010

City of Emeryville
Department of Public Works

Work Plan for Periodic Inspection and Assessment of Condition of Gravity Sewers and Maintenance Holes

In April 2010, provide training for City Staff to implement use of ICOMMM GIS Software for Sanitary Sewer Infrastructure Asset Management.

Beginning in Fiscal Year 2010/11, issue a Request for Proposals and award a contract to a private company to perform annual sewer main cleaning in conjunction with CCTV inspection of the City's sanitary sewer collection system.

A minimum of 10% of the collection system will be cleaned and inspected each fiscal year such that the entire system is inspected within 10 years. In Fiscal Year 2010/11 and in 2011/12 a minimum of 1.56 miles of sewer main and corresponding manhole will be inspected each year.

The CCTV inspection will be performed using the following requirements:

- Collected by NASSCO PACP certified technician
- Defects captured/identified using NASSCO PACP 4.2/4.4 standard codeset and rules
- Inspection header information captured to NASSCO PACP 4.2/4.4 standard
- Inspection project delivered in a consolidated PACP 4.2/4.4 standard Access database
- Video of inspection run captured in MPEG-4 format
- A single video file per pipe segment inspection capturing the entire inspection footage
- Digital still image captured in JPEG format at each defect location
- All inspections reference upstream and downstream manhole identifiers for inspected pipe segment based on City GIS.
- Consolidated digital inspection files (Access database, video, still images, reports, etc.) will be delivered on a USB hard drive.

Upon receipt of the CCTV inspection files, the information will be loaded into the ICOMMM GIS system for reviewing. Reports will be run to determine the need for any emergency repairs to the system.

Following any blockage related overflow, the CCTV inspection firm will be directed to perform an inspection of the impacted sewer main to determine the condition of the pipe.

Repeat inspections would be performed at an interval of once every 10 years or immediately after a sewer rehabilitation project on the main is completed.

APPENDIX B
City of Emeryville Municipal Code Pertaining to Wastewater Collection

https://www.codepublishing.com/CA/Emeryville/#!/Emeryville07/Emeryville078.html

APPENDIX C
EBMUD Regional PSL Ordinance

http://www.eastbaypsl.com/eastbaypsl/doc/RegionalPSLOrdinance.pdf

APPENDIX D
Overflow Response and Reporting Procedure

CITY OF EMERYVILLE

SANITARY SEWER OVERFLOW REPORT

Remember to take detailed notes and photos throughout

OVERFLOW SPILL RESPONSE

Estimated Spill Start Date/Time: _____ Spill End Date/Time: _____

Estimated Volume of Overflow: _____ gal Estimated Volume Recovered: _____ gal

Spill Volume Estimated by:

□Area _____ (ft2) x Depth ____ (ft) x _____ (gal/ft3) = _____ total gallons □ Eyeball
□ Duration and Flow Rate

Spill/Blockage Appearance Point (select all that apply):

□ Main Line □ Manhole □ Lateral (circle all that apply): upper / lower / public / private
□ Other (specify): _____

Pipe Reach Sketch:

ID of nearest Upstream MH: _____ ID of nearest Downstream MH: _____

Final Destination of Overflow:

□ Building or Structure □ Paved Surface □ Unpaved Surface
□ Storm Drain □ Street/Curb/Gutter
□ Surface Water (Specify): _____

INVESTIGATION

Probable Findings/Cause (check all that apply):

□ Broken Main □ Debris in Main/Manhole □ Grease □ Roots
□ Operator Error □ Water Main/EBMUd □ PG&E □ Wipes/Rags
□ Vandalism (Specify): _____
□ Other (Specify): _____

Maintenance or Measures Performed (check all that apply):

□ Cleaned up
□ Restored flow
□ Returned all spill to sanitary sewer system
□ Returned portion of spill to sanitary sewer system
□ Other agency notified
□ Other Measure (Specify): _____
□ Mitigated effects of spill
□ Contained all of spill
□ Contained portion of spill
□ Property owner notified

CORRECTIVE ACTION

Work Order or Actions Taken:

□ Added sewer to preventative maintenance program
□ Enforcement action against FOG source
□ Plan rehabilitation *or* replacement of sewer
□ Adjusted schedule/method of preventative maintenance
□ Inspected sewer using CCTV
□ Repaired facilities *or* Replaced defect
□ Other (Specify): _____

Work Order Number .: _____
Date Opened: _____ Date Closed: _____

CALOES 800.852.7550

If 1,000 gallons or more of sewage has reached a storm drain, call within 2 hours

Notification Date/Time: _____

CalOES Control No: _____

EMERGENCY CONTACTS

Sewer Cleaning and CCTV

Presidio Systems Inc.
(925) 575-0175 Or (925) 575-0217

Roto Rooter
(510) 483-2324

Restoration Services

Restoration Management
(800) 400-5058

Four Star Cleaning & Restoration
(800) 255-3333

Analytical Laboratory

P&D Environmental
(510) 658-6916

Environmental Remediation

Hazmat, Inc.
(855) 242-9628

CITY OF EMERYVILLE

SANITARY SEWER OVERFLOW REPORT

FOLLOW-UP /CLOSE OUT

Field Reports/Notes by: _____ Date: _____

Form Completed by: _____ Date: _____

Entry Report to CIWQS by: _____ Date: _____
CIWQS Event ID: _____

Certification in CIWQS by: _____ Date: _____

Notified by: _____ Phone: _____
Address: _____ Email: _____

Initial Responder: _____
Notification Date/Time: _____ Arrival Date/Time: _____

Assisting Contractor: _____
Arrival Date/Time:

FIELD NOTES

CALOES 800.852.7550

If 1,000 gallons or more of sewage has reached a storm drain, call within 2 hours

Notification Date/Time:
_____

CalOES Control No:
_____

EMERGENCY CONTACTS

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APPENDIX E
EBMUD Regional Fog Control Program Outline

EBMUD Regional FOG Control Program Outline

The FOG Control Program consists of permitting, inspections, and multiple language outreach to food service facilities in the service area. The Permit requires the installation of a grease interceptor under defined circumstances, maintenance of all grease removal devices at a facility, and maintenance record keeping.

A key element of the program includes hotspot response, a targeted response to grease-related blockages and sanitary sewer overflows. Response activities include facility inspections at food service facilities upstream of the problem area, camera investigations, and corrective actions and enforcement procedures as needed.

The following program elements are outlined below

- Source identification
- Legal authority
- Program structure/requirements
- Grease removal device technology for FSFs
- Inspections and monitoring for FSFs
- Enforcement for FSFs
- FOG disposal
- Public Education and outreach

SSMP Outline

- Source identification
    - Non-hotspot discharges
        - Food Service Facilities (FSFs) (includes restaurants, hospitals, nursing homes, grocery stores, caterers & commissaries) not known to be causing or contributing to grease-related sanitary sewer overflows (SSOs) and blockages
        - Residential
        - Food manufacturing
    - Hotspots – FSFs causing or contributing to grease-related sanitary sewer overflows (SSOs) and blockages

- Legal Authority for FOG program requirements
    - EBMUD Wastewater Control Ordinance 311A-03

        - Prohibited substances – those that cause or threaten to cause obstruction of flows in community sewers or interceptors
        - Authority to require pretreatment prior to discharge to the community sewer
        - Authority to inspect dischargers and sample discharge
        - Enforcement and penalties
    - Individual agency codes and/or ordinances
    - Plumbing Codes (Uniform and State)
    - Other applicable local codes (ex: health)

- Program Structure/Requirements
    - FSFs
        - Wastewater Discharge Permit Requirements for Food Handling Facilities
            - Grease interceptor installation required
                - New facilities
                - Remodels $75,000 or greater
                - Facilities causing or contributing to a sanitary sewer overflow or blockage (hotspot)
            - Grease removal device maintenance
                - Minimum of every three months or more frequently to ensure discharge does not cause or contribute to SSOs or blockages for grease interceptors
                - Complete pump out of grease interceptor each time pumped
            - Maintenance records kept on site
            - Use of an EBMUD Approved Grease Hauler
    - Residential
        - Educational
    - Food manufacturing
        - EBMUD Wastewater Discharge Permit with requirements for FOG control elements

- Grease removal device technology – for FSFs
    - Grease interceptor installation, design and sizing
        - State Plumbing Code
        - Local agency requirements
        - Grease interceptor waivers and variance

        - Business type
        - Grease generating capability of FSF
        - Installation design restrictions
    - Grease trap installation, design and sizing
        - Alternative pretreatment in instances where grease interceptor cannot be installed (ex: space and slope restrictions)
        - Coordinate installation with local health authority and building/planning departments

- Inspections/Monitoring – for FSFs
    - Non-hotspot areas
        - Inspect all FSFs once during Permit period
            - Grease interceptor inspection – measurement of grease/water/solids
            - Determine compliance with Permit requirements
            - Distribution of educational materials
        - Perform follow-up tasks as needed
            - Increase grease interceptor pumping frequency
            - Require grease interceptor repairs
    - Hotspot areas
        - Identification of grease-related SSOs and blockage areas by collection system agencies
        - Investigation to determine potential to cause or contribute to grease hotspot
            - Targeted inspections of FSFs upstream of reported hotspot
            - Grease interceptor inspection – measurement of grease/water/solids
            - Determine compliance with Permit requirements
            - Lateral camera inspections
            - Main line camera inspections
            - Distribution of educational materials
        - Perform follow-up tasks as needed
            - Require grease interceptor installation
            - Increase grease interceptor pumping frequency
            - Verify required grease interceptor repairs

- Enforcement – for FSFs
    - Escalating (progressive) enforcement structure

- FOG Disposal (grease trap and grease interceptor waste)
    - EBMUD wastewater treatment plant is a receiving facility for waste grease from inside and outside of the EBMUD service area

- Public Education and Outreach
    - FSFs (available in Chinese, Spanish, Vietnamese, and Korean)
        - Program brochure
        - Best Management Practices (BMP) chart
        - "How to Maintain a Grease Interceptor" flyer
        - "Do Not Pour" poster
        - BMP poster
        - EBMUD FOG webpage
    - Residential
        - Brochure
        - Scrapers
        - Flyers
        - Used cooking oil collection centers
        - EBMUD residential FOG webpage
        - Public information events