



CITY OF OAKLAND

## AGENDA REPORT

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**TO:** Jestin D. Johnson  
City Administrator

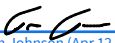
**FROM:** G. Harold Duffey  
Director, Oakland Public Works

**SUBJECT:** Compliance Status of the City's  
Sewer Consent Decree Program

**DATE:** March 1, 2024

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City Administrator  
Approval

  
Jestin Johnson (Apr 12, 2024 14:30 PDT)

Date: Apr 12, 2024

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### **RECOMMENDATION**

**Staff Recommends That The City Council Receive An Informational Report On The Status Of Compliance With The Sewer Consent Decree, Wastewater Discharge Requirements for Wastewater Sewer Systems, And National Pollutant Discharge Elimination System Permit, During The Reporting Period From September 30, 2021 Through September 30, 2023.**

### **EXECUTIVE SUMMARY**

This Informational Report provides an update regarding the status of the City of Oakland (City) compliance with the following regulatory mandates: 1) Final Consent Decree, Case No. 3:09-cv-00186-RS (CD); 2) National Pollutant Discharge Elimination System Permit, CA0038512 (NPDES); and 3) State Waste Discharge Requirements for Wastewater Sewer Systems, Order No. 2022-0103-DWQ (WDR). These three mandates (CD, NPDES and WDR requirements) represent the complete regulatory obligations under which the City operates its wastewater programs and wastewater sewer system. This compliance assessment covers a two-year reporting period from September 30, 2021 through September 30, 2023.

On September 30, 2022 and September 30, 2023, the submitted to the United States Environmental Protection Agency (EPA) and State Water Resources Control Board (Water Board), annual progress reports of all planning, reporting, and regional collaboration related to sewer infrastructure work mandated by the CD. The operational periods reported on covered fiscal year (FY) 2022 (July 1, 2021 – June 30, 2022) and FY 2023 (July 1, 2022 – June 30, 2023), respectively.

As certified, the City met all performance mandates and work requirements stipulated by the CD, for the operational periods reported.

In addition, on April 5, 2023, the City certified the continued regulatory coverage of its sewer system under the Water Board's re-issued General Order WDR. Accordingly, the City has maintained compliance with all operational and reporting requirements of the Water Board's newly re-issued regulation, effective as of June 5, 2023.

Substantial progress has been made with respect to ensuring that the sewer system has adequate operational capacity – particularly during wet-weather events. Increases in contract capacity, and effective contract administration, has significantly improved the City's ability to deliver capital improvements projects mandated by the CD and required under the WDR. There have been significant challenges, however, with preventing sewer system failures – largely caused by root intrusion and excessive fats, oils, and grease (FOG) loading into the City's older pipelines – that has resulted in sewer overflows which discharged into local waters in violation of the City's NPDES permit.

## **BACKGROUND / LEGISLATIVE HISTORY**

### ***Sewer Consent Decree***

The Federal Consent Decree (CD) is the result of several years of negotiations between the Cities of Alameda, Albany, Berkeley, Emeryville, Oakland, Piedmont; Stege Wastewater District (collectively, the Satellite Agencies); East Bay Municipal Utilities District (EBMUD); EPA and the State/Regional Water Boards; and local environmental non-government organizations (NGOs). The CD was finalized on September 22, 2014, and mandates that the Defendants (EBMUD and the seven Satellite Agencies) perform appropriate management, operation, and improvements to their respective sewer systems such that the occurrence of wastewater sewer spills that flow into US Waters (or waters of the State of California), and discharges of partially treated

**Map A: EBMUD Wet-Weather Facilities**



wastewater into San Francisco Bay from EBMUD's three (3) wet-weather facilities (see **Map A**), are eliminated by 2036. As a condition of compliance, the City must submit an annual progress report to the regulatory agencies and the Plaintiff NGOs by September 30 of each calendar year.

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

An NPDES permit for operation of a wastewater sewer system was initially issued to the City in 1976, and subsequently re-issued by the Water Board in 1984, 1987, 1992, 1998, 2005, 2009, 2014, and 2020. The permit functions as a federal regulatory mandate redundant to the State Water Board's WDR – but ties the City's obligation to reduce and/or eliminate excessive wet-weather inflow/infiltration into its wastewater sewer system, to the bypass or discharge of untreated/partially treated wastewater from EBMUD's wet-weather facilities.

### ***State Water Board Waste Discharge Requirements (WDR)***

The WDR functions as the statewide regulation for wastewater sewer systems. First issued in May 2006, the WDR was re-issued by the Water Board in December 2022 and the City extended its regulatory coverage in April 2023.

All entities – including municipalities – that own or operate wastewater sewer systems greater than one mile in length and convey wastewater to a publicly owned treatment facility in the State of California, are required as part of the WDR to develop and implement a system-wide operation, maintenance, and management plan to facilitate proper funding and management of its wastewater sewer system(s). Specifically, the WDR requires the development, implementation, review, and periodic update of a Sewer System Management Plan (SSMP).

Subsequent to the City's re-enrollment in the Water Board's regulatory program, on June 6, 2023, the City submitted its updated SSMP, as required.

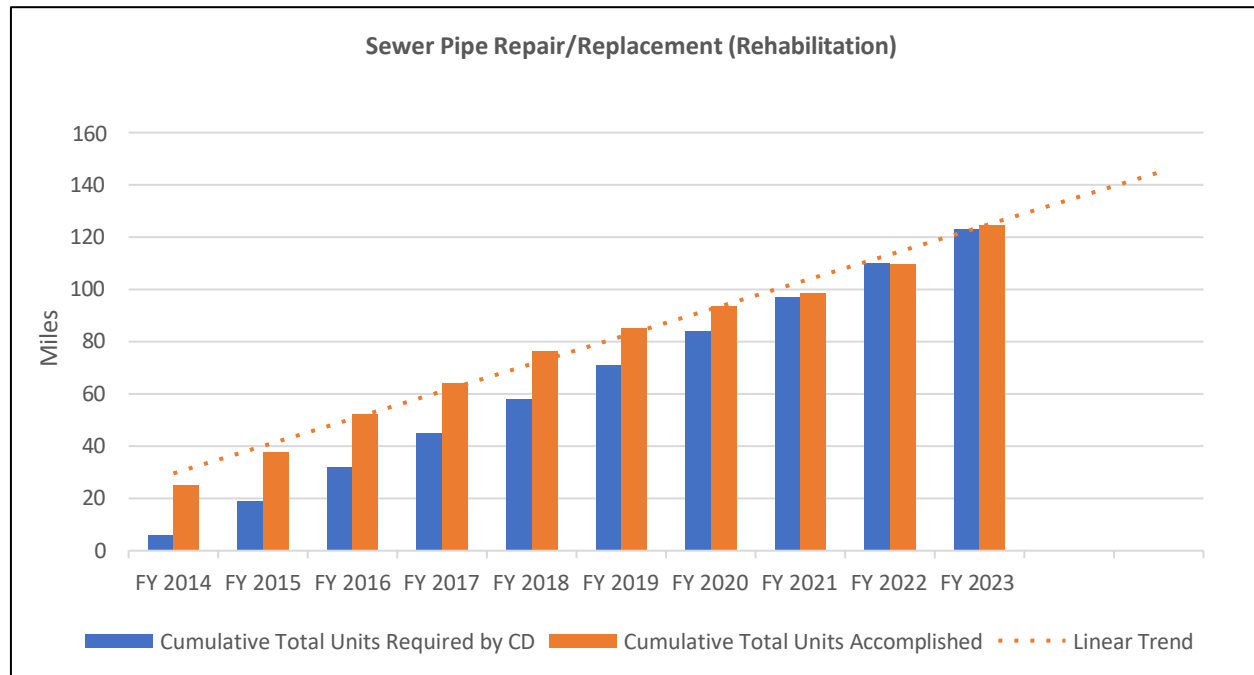
## **ANALYSIS AND POLICY ALTERNATIVES**

This report provides a detailed summary of the planning, implementation, and administration of the City's wastewater programs to achieve (or maintain) compliance with its primary regulatory obligations. Of particular focus, the report reviews and evaluates the efficacy of the City's wastewater programs in meeting the wastewater sewer system operation and management objectives specific to the CD.

### ***Sewer System Repair and Rehabilitation***

For the most recent reporting period from September 30, 2021 through September 30, 2023, the City reported full compliance with the pipeline assessment and improvement work mandated by the CD to reduce stormwater inflow and infiltration (I/I) into the wastewater sewer system. During the 24-month period, the City spent approximately \$45.5M on design and improvements to the sewer system and repaired or replaced approximately 26 miles of sewer pipelines. The cumulative total length of sewer pipe repaired or replaced exceeded the target minimum required by the CD (see **Figure 1**, Summary of Pipeline Rehabilitation (CIP)).

**Figure 1: Summary of Pipeline Rehabilitation (CIP)**



The total amount of pipeline renewed and improved since the inception of the CD increased to approximately 125 miles – just over thirteen percent (13%) of the entire sewer system.

The City anticipates completion of an additional 13.5 miles of sewer pipe replacement by the end of FY 2024 – at an estimated cost of \$24M. By the expiration of the CD in 2036, the City anticipates it will have repaired or replaced approximately thirty-three percent (33%) of the entire wastewater sewer system.

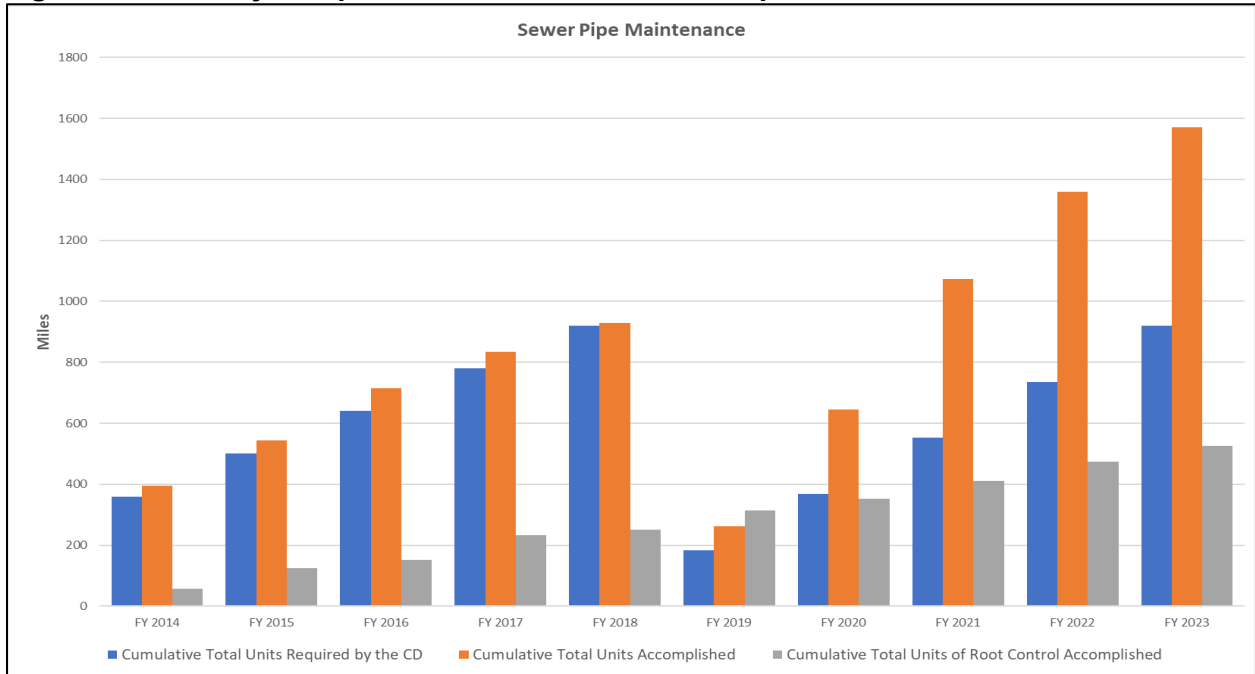
To date, completion of pipeline rehabilitation and repair work has resulted in a quantifiable reduction in the amount of stormwater inflow/infiltration and effluent flow volumes at the Oakport and San Antonio Creek wet-weather facilities. The wet-weather facilities are owned-operated by EBMUD and serve a substantial portion of Oakland residences and businesses. The facilities are activated when excessive stormwater I/I causes conditions exceeding the capacity of EBMUD's main wastewater treatment plant. Excess flow volume in the sewer system is re-routed to one or more of the wet-weather facilities, where it is minimally treated before being released to the San Francisco Bay. Reduction of stormwater I/I into the sewer system is critical to the primary objective of the CD to eliminate discharges from all three of EBMUD's wet-weather facilities by the end of 2036.

**Sewer System Maintenance and Inspection**

In an effort to reduce the number of blockages and overflows in the sewer system, the City cleared approximately 283 miles of sewer pipe during a two-year operational period – which exceeded the minimum amount of maintenance required cumulatively by more than 500 miles. In addition to clearing pipelines, the City used EPA-approved chemical pesticide treatment on approximately 115 miles of sewer pipelines in designated portions of the sewer system – primarily in heavily wooded and hard to access easement areas. The chemical root treatment is

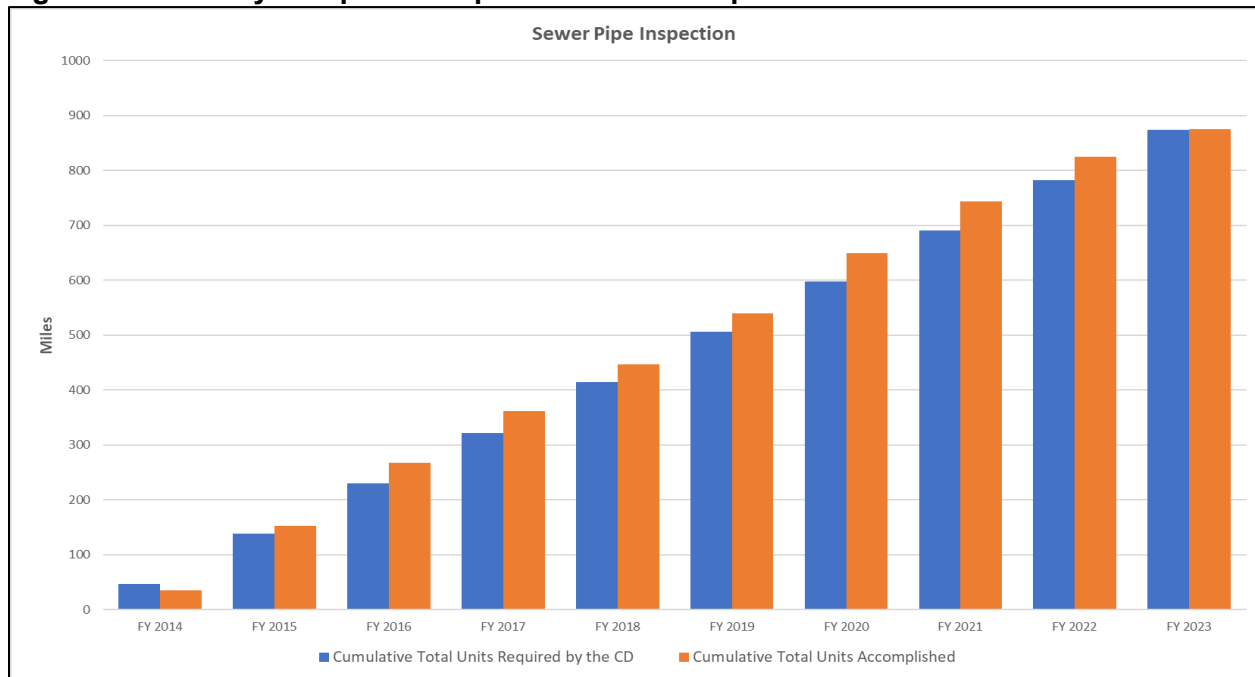
designed to prevent and retard plant root intrusion into the sewer system (see **Figure 2**, Summary of Pipeline Maintenance Work Completed).

**Figure 2: Summary of Pipeline Maintenance Work Completed**



In conjunction with the maintenance activity, the City inspected at least 132 miles of sewer pipe using closed-circuit televideo. The cumulative total footage for this activity was increased to 875 miles, and met the required amount stipulated by the CD. The inspection data collected as part of this activity is a critical driver of the capital sewer infrastructure work mandated by the CD (see **Figure 3**, Summary of Pipeline Inspection Work Completed).

**Figure 3: Summary of Pipeline Inspection Work Completed**



### **Operational Challenges**

Planned maintenance and inspection work was severely impacted by the ransomware attack that occurred on February 8, 2023. Specifically, loss of access to both the City's maintenance management program and digitized map of sewer assets disrupted execution of scheduled maintenance work. Although crews were actively deployed daily during the network outage, the bulk of the work performed was in response to sewer emergencies and other service requests from the community. City personnel were limited in their ability to plan and pursue *preventative* maintenance and inspection work on the sewer system for nearly 10 weeks. The situation significantly impacted the City's ability to complete previously planned work on pipelines with known condition and/or structural issues.

In addition, security concerns centered around occurrences of assault/robbery of both City personnel and contracted labor, further impacted the City's ability to effectively perform routine maintenance work and emergency response activity on the wastewater sewer system. More than one contractor employed by the City to complete critical maintenance, inspection, and repair work was impeded by incidents of theft and/or robbery that occurred during performance of work on behalf of the City. Consequently, pursuit and completion of additional work was significantly delayed until security arrangements between the City and affected contractors could be established.

### **Infiltration and Inflow Reduction**

The primary purpose of the CD is to facilitate the City's legal obligation to reduce I/I that contributes to discharges of partially treated wastewater from EBMUD's wet-weather facilities into the San Francisco Bay.

Replacement of sewer pipes and sealing of defective maintenance holes is the primary activity the City has pursued to reduce I/I into the sewer system. Staff estimate that the publicly-owned portion of the sewer system accounts for thirty-five to forty percent (35-40%) of the source I/I. An additional sixty to sixty-five percent (60-65%) of I/I comes from defective private sewer laterals or roof-leader and sump-pump connections to the sewer system.

Completion of sewer system capital improvement work prescribed to the City, in conjunction with enforcement of private lateral requirements, appears to be effective in moving the City toward meeting the regional flow reduction goals of the CD. Recent flow model output test data – which compares current wet-weather flow volumes to baseline flow volumes for each of EBMUD's regional wet-weather facilities – shows consistent reductions in wet-weather I/I, both annually and averaged over a three-year period<sup>1</sup>. A critical compliance objective of the City's I/I reduction program is to demonstrate regional wet-weather flow reductions that meet the target flow rates by the 2030 *Mid-Course Check-In* milestone (see **Table 1** and **Table 2** below, for flow output values). Similar data, and projected reduction values for each wet-weather facility, is presented graphically in **Figure(s) 4-6**.

**Table 1: FY 2023 Wet Weather Facility Output Ratio and Test Results**

FY23 Output Ratio and Test Results*					
Facility	FY23 Output Ratio			CD Benchmark	
	Baseline Flow Model Volume (MG)	Calibrated Flow Model Volume FY23 (MG)	3-Yr Average Facility Ratio (%)	2030	Final Compliance
<b>San Antonio Creek</b>	13.2	9.1	46%	NA**	0% by 2028
<b>Point Ysabel</b>	23.3	16.7	58%	18%	0% by 2034
<b>Oakport</b>	53.7	42.6	64%	31%	0% by 2036

\* Data provided by FY23 Flow Model Calibration Report prepared by EBMUD.  
 \*\* The compliance date for San Antonio Creek preceded 2030.

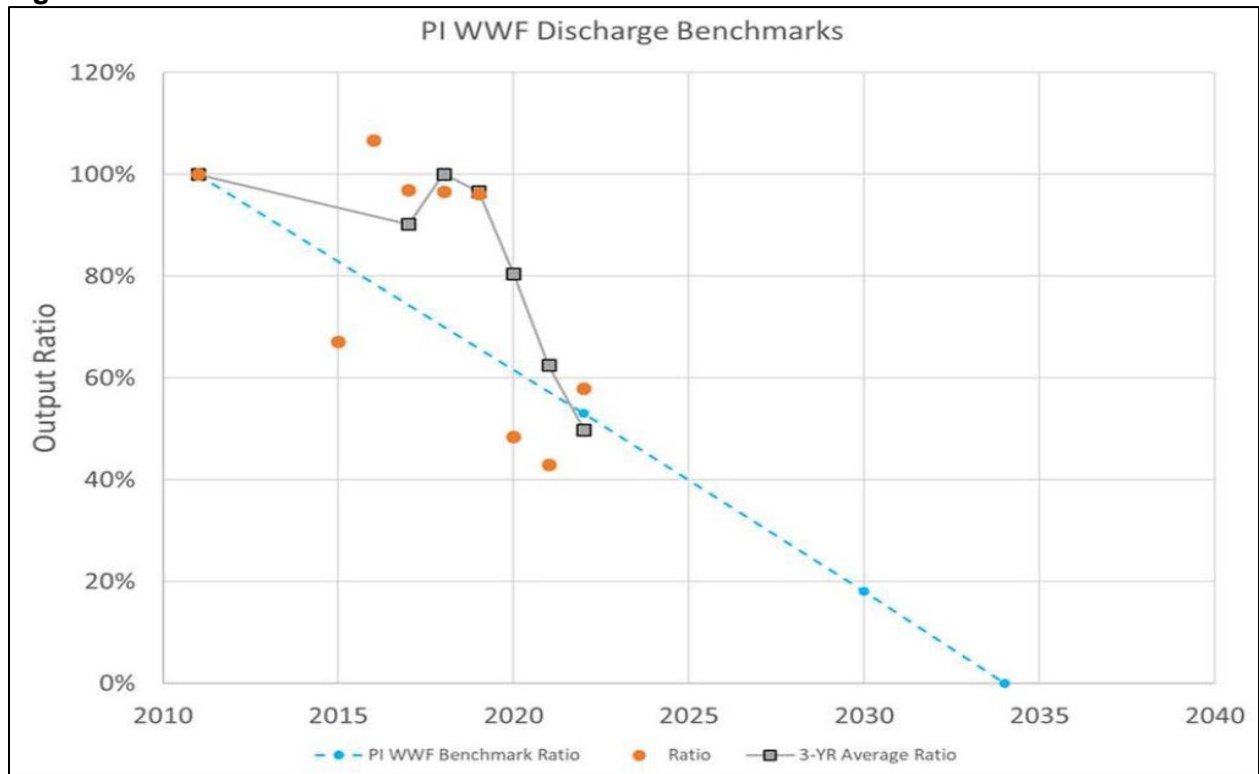
**Table 2: FY 2023 Wet Weather Facility Output Ratio Three-Year Average**

FY23 Three-Year-Average*			
Facility	Annual Output Ratio		
	FY21	FY22	FY23
<b>San Antonio Creek</b>	35%	34%	69%
<b>Point Ysabel</b>	43%	58%	72%
<b>Oakport</b>	54%	58%	79%

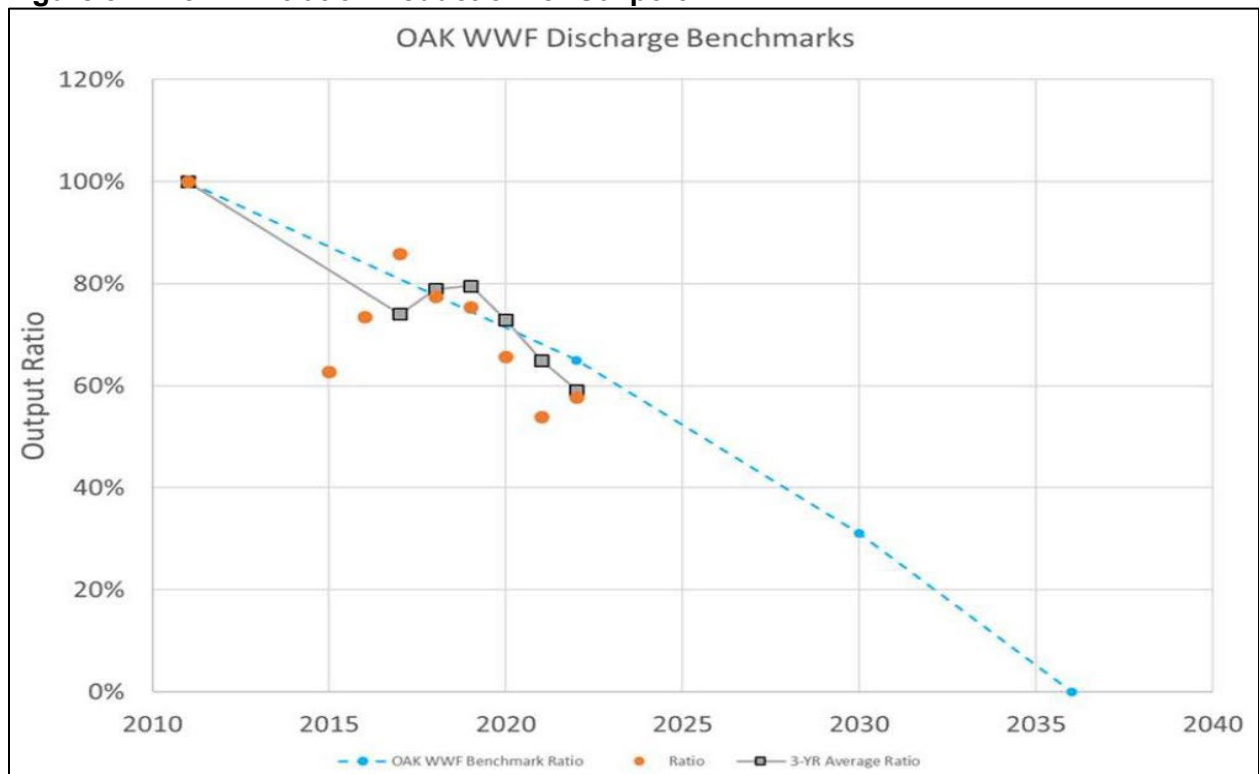
\* Data provided by FY23 Flow Model Calibration Report prepared by EBMUD.

<sup>1</sup> FY 2023 saw a significant increase in regional flows consistent with historic levels of regional precipitation. Further evaluation is under way to determine the impact of climatological change on the City's sewer system, regional sewer system, and the flow model used to evaluate compliance with the Consent Decree.

**Figure 4: Inflow/Infiltration Reduction for Point Isabel**

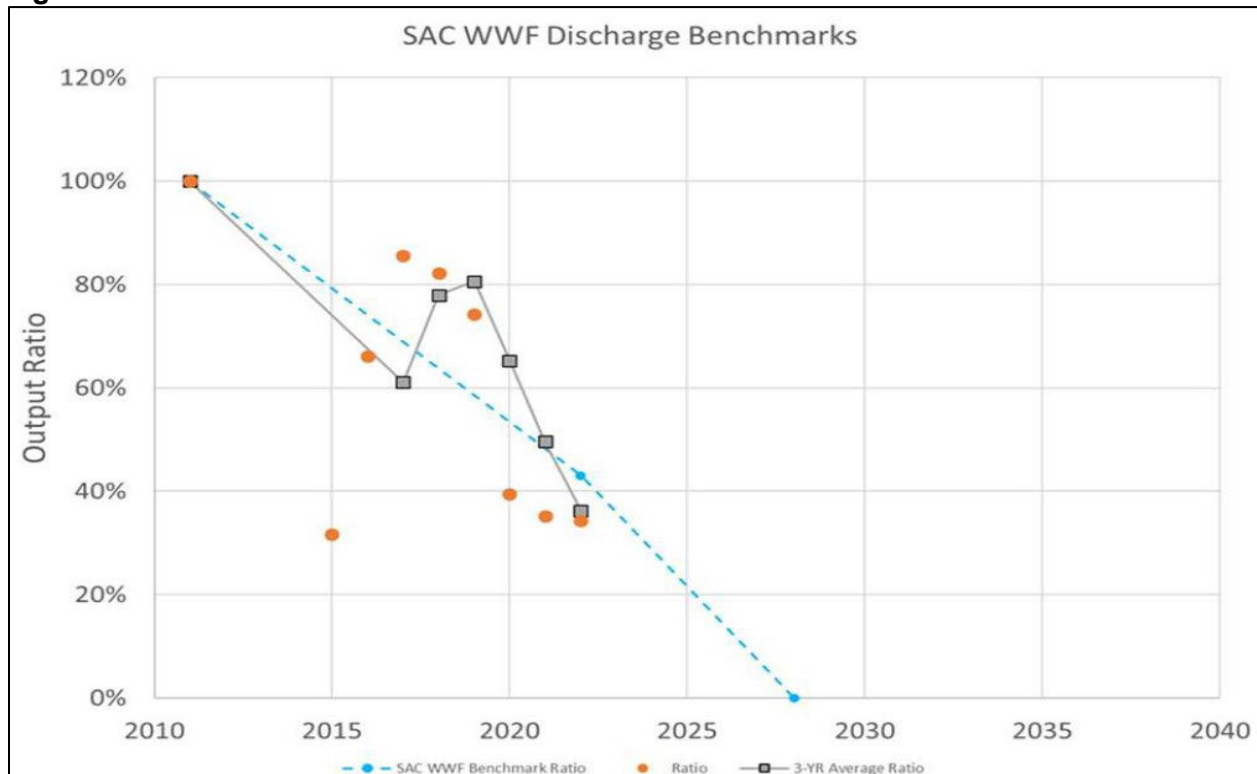


**Figure 5: Inflow/Infiltration Reduction for Oakport**





**Figure 6: Inflow/Infiltration Reduction for San Antonio Creek**



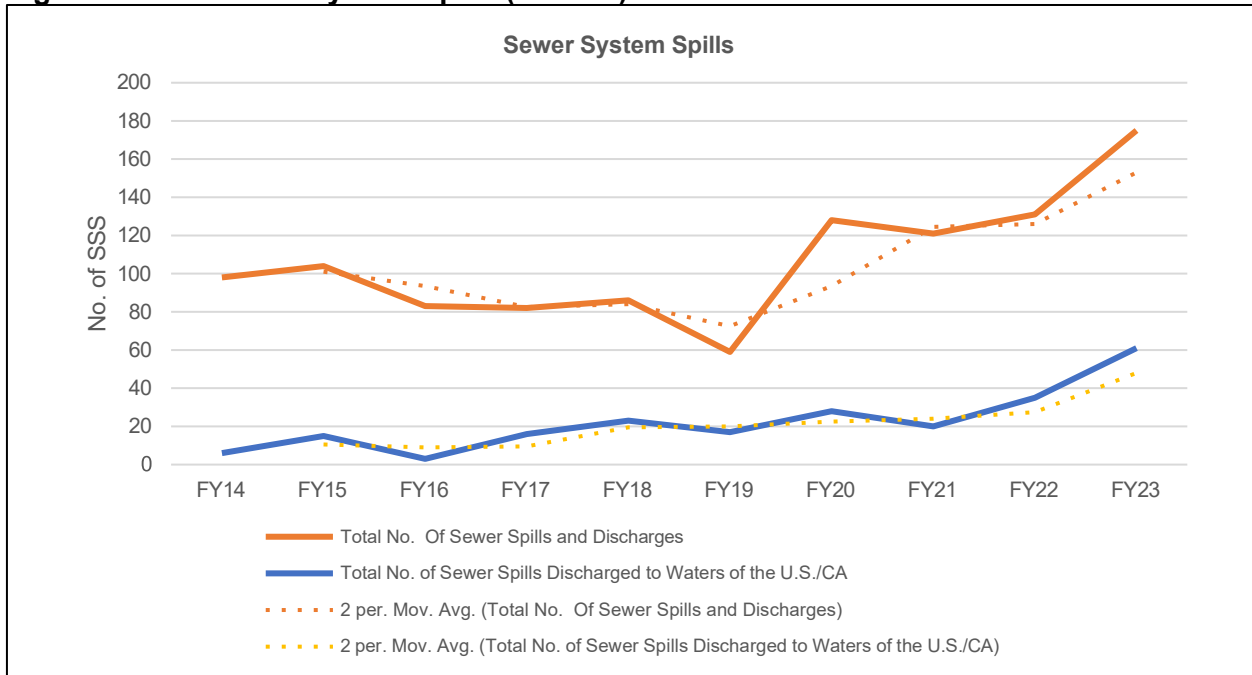
### **Sewer System Spills**

The disruptions to operations caused by the Citywide ransomware attack did not result in non-compliance with the CD. However, the network outage, coupled with a series of extreme precipitation and sustained wet-weather events, caused an acute increase in the occurrence of blockages and/or capacity constraints in the City's sewer system over the two-year reporting period. The City noted a thirteen percent (13%) increase in the number of sewer spills that resulted in wastewater discharges in violation of the City's NPDES permit. Sewer spills that reached surface water made up thirty-two (32%) of the total number of sewer spills that occurred during the reporting period. See **Figures 7** and **8**, for a ten-year histogram of sewer spills reported by the City, and the percent distribution of NPDES permit violation/non-violation of those sewer spills, respectively.

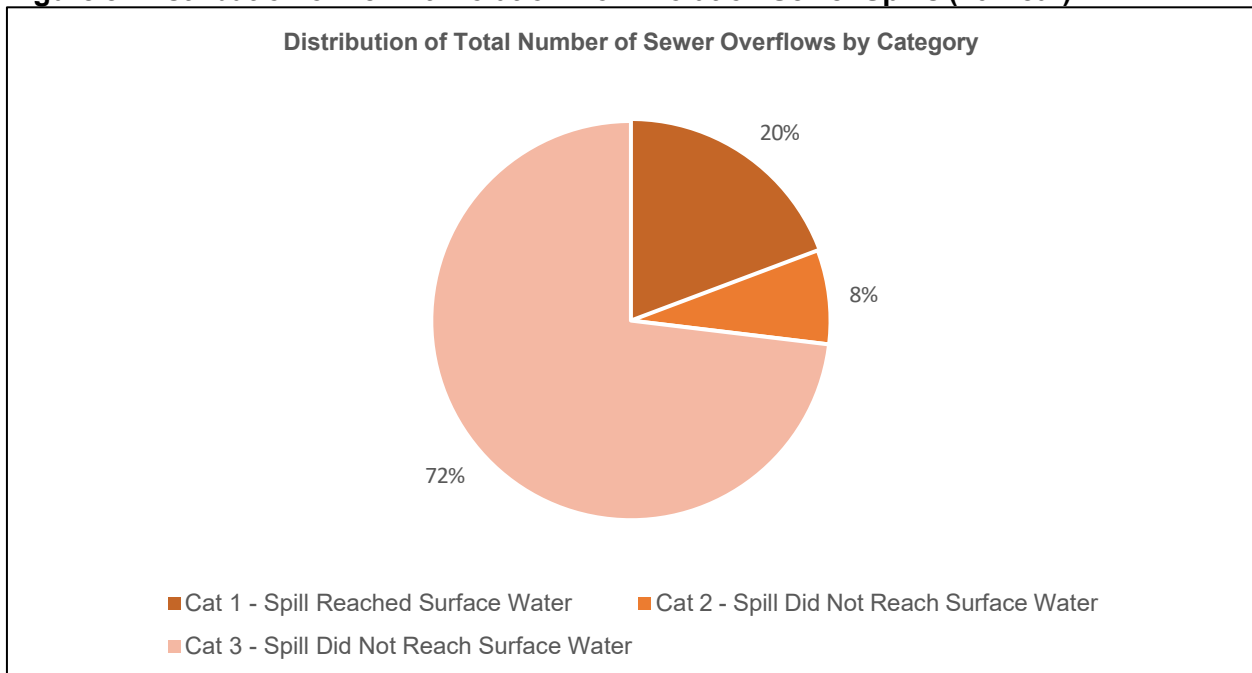
During dry weather the City generates an average of 46 million gallons of untreated wastewater per day (46 MGD) – which is transported through the sewer system to EBMUD's treatment facility. The prevalence of wet-weather I/I can result in as much as a ten-fold increase in the amount of untreated wastewater collected in the sewer system over a twenty-four-hour period. Sewer spills that resulted in discharges to waters of the US/CA during the two-year period between July 1, 2021 – June 30, 2023, totaled an 3,130,000 gallons – which is equivalent to approximately .007% of the estimated gross total flow for the two-year period. Nearly all of these sewer spills discharged into the stormwater drainage system prior to reaching local creeks or the San Francisco Bay. Five sewer spill events that discharged to surface waters were the direct result of damages caused by unstable soil/landslides. More than 90% of the violation sewer spills occurred during wet-weather events – and the largest volume of discharged wastewater

occurred during extreme precipitation (atmospheric river) conditions. See **Figure 9** for a two-year comparison of the total volume of untreated wastewater discharged to surface waters as a result sewer spills.

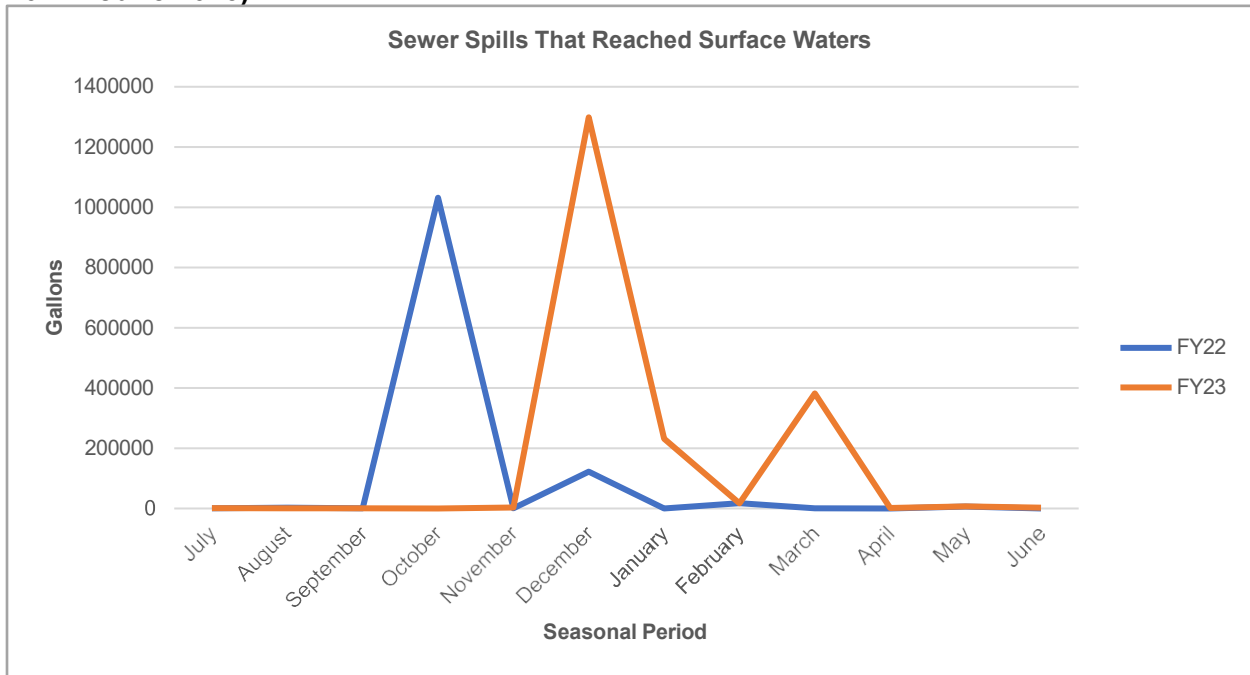
**Figure 7: Total Sewer System Spills (10-Year)**



**Figure 8: Distribution of Permit Violation/Non-Violation Sewer Spills (10-Year)**



**Figure 9: Total Volume of Untreated Wastewater Discharged To Surface Waters (July 2021 - June 2023)**

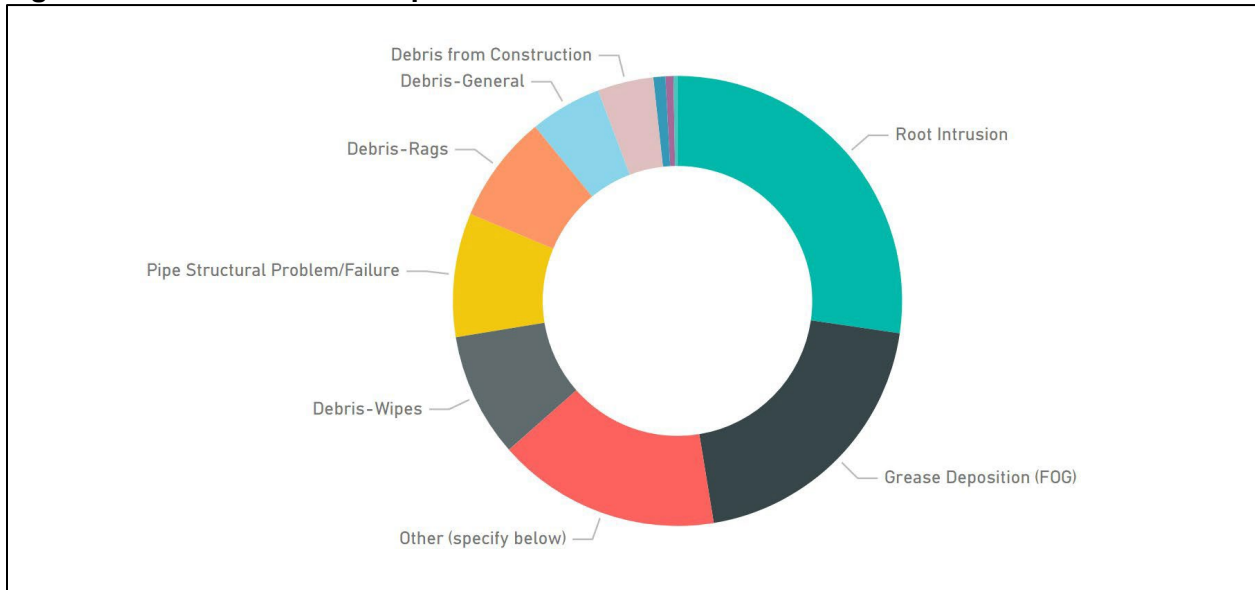


### ***Sewer System Spill Mitigation and Prevention***

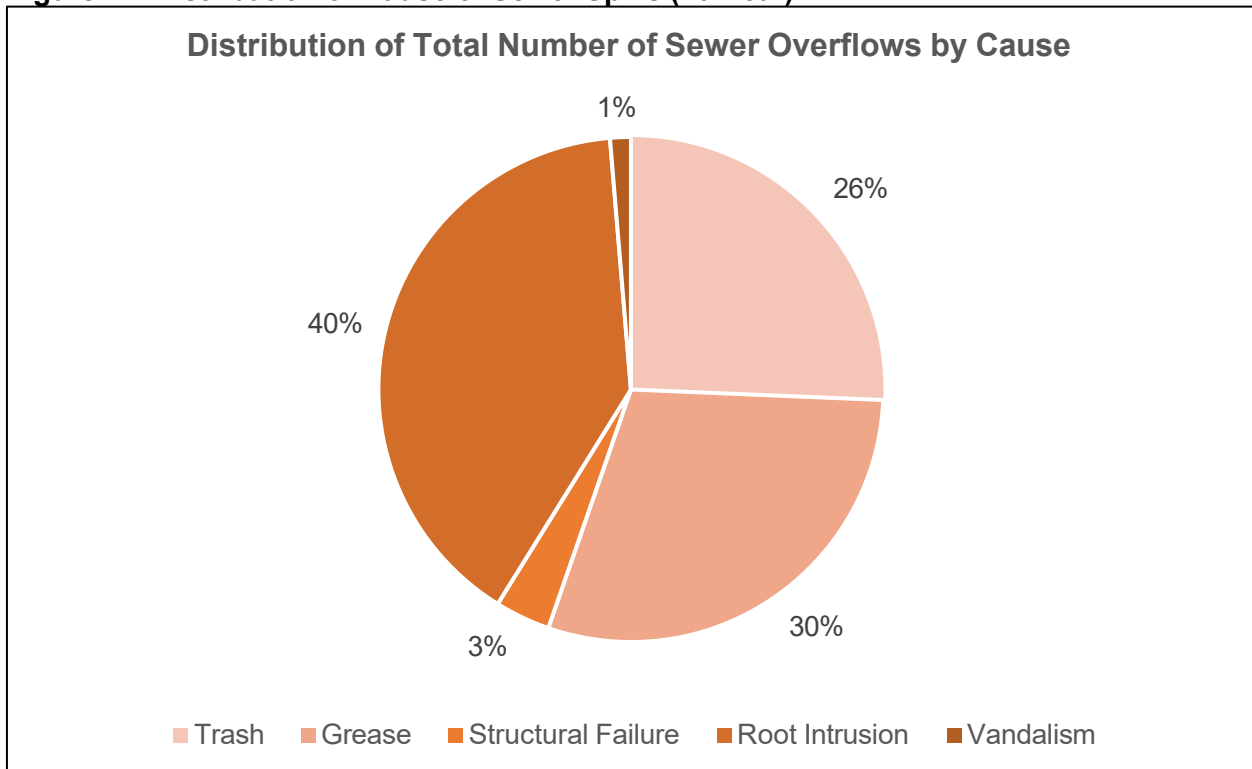
When sewer spills occur, any untreated wastewater is contained, captured, and returned to the sewer system, to the extent possible. Typically, this is accomplished by plugging the stormdrain inlet/system and using it as a detention buffer between untreated wastewater and surface waters downstream. This mitigation practice accounted for approximately 3% of the total amount of untreated wastewater discharged from the sewer system between July 2021 – June 2023. When spills occur during wet-weather, it is generally impractical and/or unsafe to plug the stormdrain system. Consequently, higher volumes of untreated wastewater in the sewer system during wet weather resulted in higher volumes of untreated wastewater discharged to surface waters when sewer spills occurred.

Preventive measures to reduce the occurrence and frequency of sewer blockages and spills were undertaken year-around. The City utilized an industry standard performance strategy of targeting sewer pipes with a known history of operational issues for aggressive maintenance. As prescribed by the CD, pipelines with observed defects, as well as those in which a blockage or an overflow had previously occurred, were placed on an accelerated schedule to be cleared. Despite being an industry-accepted and generally sound practice, the targeted approach to pipe cleaning was less effective than anticipated, and did not result in the sewer spill reduction goals set prior to the reporting period. A summary of the causes of sewer spills over the reporting period is shown in **Figure 10**, and the distribution of causes of sewer spills (by percent) over a ten-year period is shown in **Figure 11**.

**Figure 10: Causes of Sewer Spills**



**Figure 11: Distribution of Cause of Sewer Spills (10-Year)**

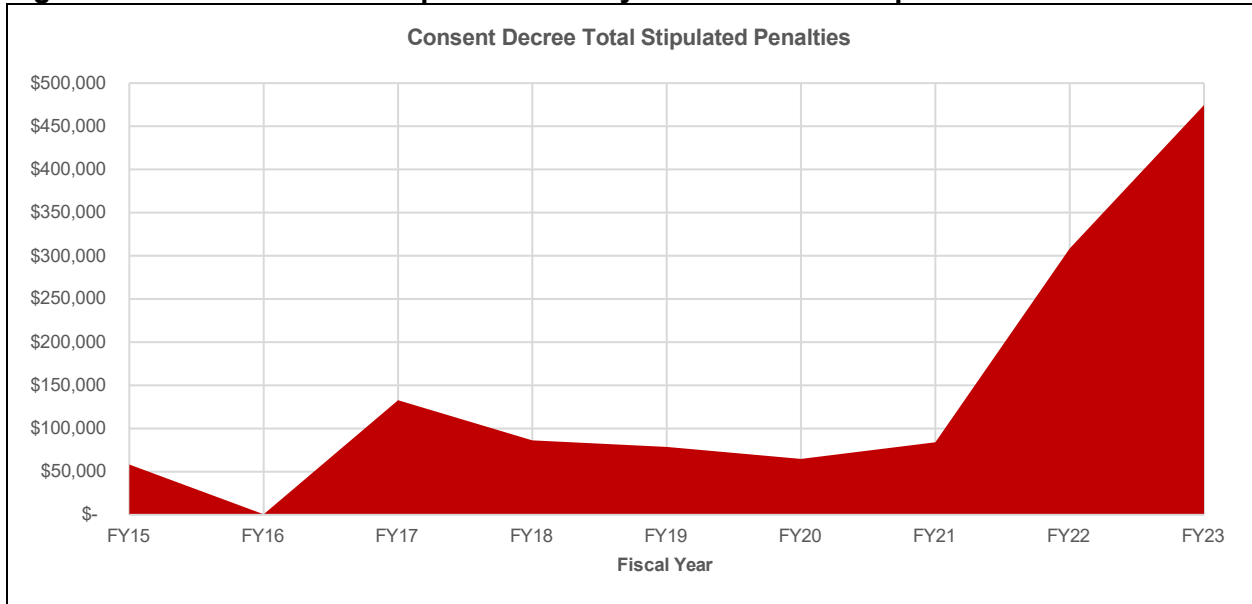


***Fines and Penalties***

Due to violations of the City's NPDES permit, and in accordance with the CD, the EPA/Water Board have issued stipulated damages on three previous occasions. A summary total of CD penalty fees accrued by the City – primarily for sewer system overflows in violation of the

NPDES permit – are shown in **Figure 12**. The City anticipates that stipulated damages in a maximum amount \$278,200 will be assessed by the EPA/Water Boards for sewer spills that occurred in violation of the Clean Water Act between July 1, 2021, and June 30, 2023.

**Figure 12: Consent Decree Stipulated Penalty Fees for Non-Compliance**



**Funding for Sanitary Sewer System**

Per the City Charter, the Sewer Service fund (Fund 3100) is used to construct, operate, and maintain the City's wastewater sewer infrastructure. This use includes all mandates placed on the City by the CD and/or the WDR to address wastewater sewer spills and to reduce stormwater I/I. All operational and administrative functions needed to manage the City's wastewater sewer assets and ensure that all compliance obligations are met were fully funded during the reporting period. **Table 3** below outlines the appropriation of Fund 3100 through FY 2021-23. It outlines how the Sewer Fund is distributed, and for what purpose.

**Table 3: Sanitary Sewer Budget Appropriation**

Department	FY21-23 Adopted Appropriation	Percentage
<b>City Administrator</b>	\$553,327	0.36%
<b>City Attorney</b>	\$1,931,307	1.26%
<b>Finance Department</b>	\$4,693,338	3.05%
<b>Fire Department</b>	\$729,109	0.47%
<b>Public Works Department</b>	\$69,526,038	45.22%
<b>Department of Transportation</b>	\$3,165,820	2.06%
<b>Information Technology Department</b>	\$262,424	0.17%

Department	FY21-23 Adopted Appropriation	Percentage
<i>Non-Departmental and Port of Oakland</i>	\$21,485,592	13.97%
<i>Capital Improvement Projects</i>	\$51,412,646	33.44%
<b>Total</b>	<b>\$153,759,601</b>	<b>100%</b>

### **FISCAL IMPACT**

This report is for informational purposes and has no direct costs or fiscal impacts.

### **PUBLIC OUTREACH/INTEREST**

Pursuant to Attachment D Element 11 of Water Board Order WQ 2022-0103-DWQ, this report must be presented to Oakland City Council, and made available to the public via the City's website.

### **COORDINATION**

The Office of the City Attorney and Budget Bureau were consulted in the preparation of this report.

### **SUSTAINABLE OPPORTUNITIES**

**Economic:** Continued compliance with the CD and WDR for Sanitary Sewer Systems will result in safe, reliable infrastructure to accommodate current residential and commercial use, and support future growth. It may also reduce the City's liability for personal and property damage claims due to sewer backups and flooding.

**Environmental:** Continued compliance with the CD and WDR for Sanitary Sewer Systems will result in less direct contamination of local creeks, waterways, and the San Francisco Bay.

**Race and Equity:** Continued compliance with the CD and WDR for Sanitary Sewer Systems will ensure adequate and reliable sewer service for underserved communities by incorporating social equity components in planning for both maintenance and capital improvement activity, as applicable.

**ACTION REQUESTED OF CITY COUNCIL**

Staff Recommends That The City Council Receive An Informational Report On The Status Of Compliance With The Federal Consent Decree; National Pollutant Discharge Elimination System Permit; and Waste Discharge Requirements For Sanitary Sewer Systems During The Past Two-Year Fiscal Year Period (July 2021 Through June 2023).

For questions regarding this report, please contact Tyree Jackson, Compliance Officer at (510) 238-3672.

Respectfully submitted,

  
G. Harold Duffey (Apr 12, 2024 12:42 PDT)

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G. HAROLD DUFFEY  
Director, Oakland Public Works

Prepared by:  
Tyree Jackson, Compliance Officer  
Oakland Public Works