



City and County of San Francisco

**Economic and Social Impact
Assessment in Support of a
Water Quality Standards
Variance**

REPORT / April 1, 2024

 **RAFTELIS**

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Appendix A: Economic Impact Assessment Results (2023 EPA Guidance)

Appendix B: Long-Term Financial Plan Model Inputs and Assumptions

List of Acronyms

ACS	American Community Survey
ALICE	Asset Limited, Income Constrained, and Employed
AR	Affordability Ratio
CCF	Hundred cubic feet
CIP	Capital Improvement Plan
COD	Chemical Oxygen Demand
CPI	Consumer Price Index
CPM	California Poverty Measure
CWA	Clean Water Act
DS	Debt Service
EPA	Environmental Protection Agency
EPI	Economic Policy Institute
FCA	Financial Capability Assessment
FCI	Financial Capability Indicators
F&I	Facilities and Infrastructure
FMR	Fair Market Rent
FPL	Federal Poverty Level
HUD	Housing and Urban Development
LQI	Lowest Quintile Income
LQPI	Lowest Quintile Poverty Indicator
LQRI	Lowest Quintile Residential Indicator
MGD	Million Gallons Per Day
MHI	Median Household Income
MIT	Massachusetts Institute of Technology
MSA	Metropolitan Statistical Area
O&M	Operation and Maintenance
PI	Poverty Indicator
RI	Residential Indicator
R&R	Renewal and Replacement
SFPUC	San Francisco Public Utilities Commission
SPM	Supplemental Poverty Measure
SRF	State Revolving Fund
SSIP	Sewer System Improvement Program
TSS	Total Suspended Solids
U.S.	United States

USDA	United States Department of Agriculture
WEF	Water Environment Federation
WIFIA	Water Infrastructure Finance and Innovation Act
WQS	Water Quality Standards
WW	Wastewater

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Executive Summary

Introduction

This report identifies the social and economic harms that would befall the City and County of San Francisco (“City” or “San Francisco”) if the City were to fund implementation of a series of pollution controls to meet the water quality standards from which the City is seeking a variance (referred to throughout this report as the “Base Standards”). Under applicable law, a variance from applicable water quality standards should be granted if the cost of controls necessary to meet those standards would cause widespread and substantial social and economic impacts.¹ The U.S. Environmental Protection Agency (“EPA”) has developed guidance for assessing some of these impacts, but EPA’s methodology is too narrow and inherently flawed. The agency’s methodology ignores multiple factors that are critical to assessing how the cost of pollution controls affects a community’s residents. These omitted factors fail to account for San Francisco’s unique circumstances, where high incomes mask a large economically distressed population that cannot bear the City’s famously high cost of living.

Our analysis accounts for the broader range of factors that EPA’s guidance omits and finds impacts that are both profound and far-reaching. In order to meet the Base Standards, San Francisco has estimated that it would need to install pollution controls costing approximately \$10.6 billion (in 2024 dollars) (the “Base Standards Costs”). Incurring the Base Standards Costs would require substantial increases to wastewater bills that are already among the highest in the country, driving residential wastewater and water costs to unsustainably high levels.

These increased costs would compound the City’s cost of living crisis, causing thousands more San Franciscans to earn less than enough to meet their basic needs and plunging them into poverty. The higher cost of living and increase in poverty would exacerbate racial income inequality in the City by disproportionately impacting people of color. This array of economic impacts, which will harm the City’s social fabric, would be substantial and widespread.

EPA’s Guidance Fails to Capture the Full Impact Picture

EPA’s 2023 *Clean Water Act Financial Capability Assessment Guidance* (the “EPA Guidance”) understates the economic and social burdens that implementing additional pollution controls would inflict on San Francisco. The EPA Guidance requires one to ignore San Francisco’s high cost of living and ignore the cost burdens that its population faces, resulting in an analysis that fails to capture actual economic and social impacts. The agency’s approach also understates the prevalence of poverty and fails to account for how increased wastewater bills necessary to fund controls to meet the Base Standards would disproportionately harm communities of color.

The EPA Guidance obscures the high cost of living and poverty burdens that San Francisco faces and presents an inherently incomplete picture of the social and economic impacts that would result from investing in controls to meet the Base Standards. Application of the EPA Guidance yields results that fall into the “Low Impact” category. The mechanistic application of the EPA’s flawed methods generates incomplete and skewed results.

¹ 40 C.F.R. §§ 131.10(g)(6), 131.14(b)(2)(i)(A)(1).

In San Francisco's case, considering additional factors is critical because the EPA Guidance obscures the severe economic and social burdens that funding additional pollution controls would impose on City residents. The EPA Guidance cannot adequately gauge economic and social impacts in San Francisco for multiple reasons:

- The EPA Guidance's comparison of median household income ("MHI") and lowest quintile income ("LQI") to the national MHI and LQI is misleading and inappropriate. These metrics do not account for what constitutes a living wage in the community and obscure how San Francisco's lowest earners bear a much higher cost of living than the national average.
- The Municipal Preliminary Screener and Lowest Quintile Poverty Indicator ("LQPI") do not account for the costs of other non-discretionary items besides wastewater costs that make up a household budget (e.g., housing, health care, energy, childcare, taxes, transportation). Therefore, these metrics do not capture the full economic burdens and associated affordability challenges that lower income households face in a high cost of living community like San Francisco.
- The poverty rate metrics used in the EPA Guidance falsely indicate that poverty is less prevalent in San Francisco than the rest of the country. The EPA Guidance relies on the Federal Poverty Level ("FPL"), which excludes San Francisco's high living costs and thus understates the prevalence of poverty in San Francisco.
- The Municipal Preliminary Screener provides an unrealistic "snapshot" of the residential customer wastewater utility cost that does not account for the timing of capital expenditures, realistic debt and cash funding mix, debt service coverage requirements, and the City's other fiscal policy targets and obligations.
- The Municipal Preliminary Screener and LQPI fail to account for social impacts, particularly the potential for people of color to disproportionately bear the burden of rate increases necessary to cover the Base Standards Costs. Non-White San Franciscans make up a majority of households in San Francisco that earn near or below a living wage. As a consequence, communities of color would be harmed to a greater degree by the cost of controls necessary to meet the Base Standards, further perpetuating income inequality and racial inequity.
- The Secondary Screener metrics included in the EPA Guidance are better suited for considering a City's General Fund financial capability and largely do not pertain to the City's Wastewater Enterprise Fund. The City's Wastewater Enterprise Fund is a self-supporting fund that is separate from, and independent of, the City's General Fund taxing authority. Further, the economic strength of the community as a whole is not relevant to the burdens that the City's low-income residents face.

Supplemental Economic Impact Analysis Shows Widespread and Substantial Impacts

The flaws of the EPA Guidance cause its impact assessment methodology to generate misleading conclusions that obscure social and economic impacts on San Francisco's population. Raftelis sought to correct these deficiencies by conducting a deeper assessment that provides a complete and more accurate picture of how implementation of pollution controls to meet the Base Standards would inflict significant and wide-reaching harm on San Francisco's residents.

Significant Wastewater Rate Impacts

The EPA Guidance allows the consideration of additional affordability and socioeconomic factors. Raftelis' use of supplemental metrics and indicators reveals the high and unacceptable burden that raising wastewater bills in order to cover the Base Standards Costs would inflict on the City. The San Francisco Public Utilities Commission's ("SFPUC's") wastewater and water rates are already among the highest in California and among other major metropolitan areas nationally. Lower income households (with income at or below the 20th percentile of income) already must spend 15% of annual income (after paying for other essential needs) on wastewater and water utility costs, a rate that falls considerably above the 10% threshold that ordinarily constitutes a high burden.

Raftelis prepared a comprehensive long-term financial plan analysis that shows how SFPUC will need to impose substantial wastewater rate increases in order to pay for SFPUC's existing long-term capital needs while maintaining a basic level of service, meeting current regulatory obligations, and maintaining the long-term financial health of the wastewater utility. Even if one excludes the costs necessary to meet the Base Standards, the annual residential wastewater bill as a percentage of MHI would approach EPA's 2.0% high financial impact threshold. In addition, the residential wastewater bill as a percentage of the LQI would also approach the level of high financial burden.

When one includes the costs of projects necessary to meet the Base Standards, these already high rate burdens become extreme. Residential customer wastewater bills would have to increase more than 10-fold over 30 years from their current levels, thereby placing a significant and unaffordable burden on residential customers. The annual residential wastewater bill as a percentage of MHI would rise to more than 2.9%, significantly higher than EPA's 2.0% high financial impact threshold. The wastewater bill as a percentage of LQI is anticipated to increase to 9.4%, which is higher than what is considered to be a very high burden. The projected wastewater rate increases in this scenario would result in residential wastewater bills that would cause excessive burdens. A three-person family in San Francisco making \$41,600 per year (approximately the LQI) would have only \$10,900 left over after paying for other essentials (i.e., housing, food, healthcare, and taxes). Wastewater and water bills would consume approximately 44%—or \$4,700—of this remaining amount, leaving that family with only \$6,200 in income to spare to cover other expenses.

Higher Wastewater Bills Will Increase an Exorbitant Cost of Living

Placing these rate increases in the context of San Franciscans' existing cost of living burdens underscores the harm that investing in controls to meet the Base Standards would visit on the City. Supplemental cost of living metrics, such as the Massachusetts Institute of Technology Living Wage, the United Way's Real Cost Measure, and the Economic Policy Institute's Family Budget Calculator all show that people living in San Francisco already bear extremely high costs of living. These metrics all show that San Francisco households require six-figure incomes just to cover their essential needs, like food and shelter. Nearly half of San Francisco's residents—47%—earn less than enough to cover these basic living costs.

Rate increases necessary to cover the Base Standards Costs would only make life in San Francisco more unaffordable, causing economic harm on thousands of families. The wastewater bill increases needed to fund projects to meet the Base Standards will cause thousands of families to no longer be able to cover their basic needs. Depending on which of the cost-of-living metrics one uses, between 8,100 and 10,600 more people or 3,400 to 4,500 households would no longer earn enough to cover their basic needs. For the 47% of San Francisco residents who already earn less than a living wage, the rate increases will cause these households to forego more of their essential needs in order to balance their household budgets.

Wastewater Bill Increases Will Decimate Low Income Households' Budgets

At the lowest end of the income spectrum, Raftelis found severe impacts that will decimate household budgets. Raftelis used the Affordability Ratio for the 20th percentile of incomes (“AR₂₀”), which quantifies the percent of a representative household’s income, after non-discretionary costs (like housing and other utilities) are removed, that is required to pay for water and wastewater service. Relevant literature recognizes an AR₂₀ of 10% as constituting a high burden. Even without incurring costs to meet the Base Standards, San Francisco’s AR₂₀ is 14.8%.

If the City were to raise rates to cover the Base Standards Costs, the City’s AR₂₀ would explode to 43.6%. In practical terms, this would mean that a three-person family in San Francisco making \$41,600 per year (approximately the LQI in 2022) would have only \$10,900 left over after paying for other essentials (i.e., housing, food, healthcare, and taxes). Wastewater and water bills would consume approximately 43%—or \$4,700—of this remaining amount, leaving that family with only \$6,200 in income to spare to cover other expenses.

Wastewater Bill Increases Would Put Thousands into Poverty

Raftelis also corrected the tendency of the EPA Guidance to obscure the true extent of poverty in San Francisco by relying on the FPL, which does not account for the cost of living. Using the Supplemental Poverty Measure (“SPM”), which takes into account the local cost of living, one finds that *real* poverty in San Francisco is higher than the national average.

Rate increases needed to cover the Base Standards Costs would also increase San Francisco’s SPM by 7.2%, from \$41,565 to approximately \$44,700. This increase in the income needed just to earn poverty-level wages would profoundly alter San Francisco’s economic landscape: 10,700 more people—or 4,570 households—would earn less than the SPM and be thrown into poverty.

Disproportionate Impacts to People of Color

All of these impacts—higher costs of living that force thousands more families into poverty—will fall disproportionately on people of color. Non-White households make up the majority of households currently earning close to or less than a living wage in San Francisco. Due to this inequitable distribution of income in the City, the rate increases needed to fund the controls necessary to meet the Base Standards will fall most heavily and disproportionately on people of color. Of the newly impoverished households, approximately 67% would be households with at least one individual identifying as non-White.

Overall Social and Economic Impacts

In total, wastewater bill increases necessary to cover the Base Standards Costs would have profound and far-reaching effects on San Francisco's economic and social fabric. Due to higher wastewater bills, an already unaffordable City will become that much more unaffordable. San Francisco will have to grapple with how to assist more than 10,000 newly impoverished residents, as well as manage circumstances in which nearly half the population earns incomes insufficient to cover basic needs. Worse, people of color will be harmed more than White San Franciscans, further exacerbating existing income and wealth gaps.

Investing in controls to meet the Base Standards would make San Francisco a poorer, more unequal City. San Francisco would experience these harms citywide, with nearly half of its population facing greater economic distress to one degree or another. At lower ends of the income spectrum, increased household burdens will be enormous and require families to make agonizing choices over cutting otherwise essential expenditures. Communities of color will be the hardest hit, causing the gap between White and non-White San Franciscans to grow more extreme. San Francisco seeks a variance to avoid this economic and social catastrophe.

1. Introduction and Background

1.1. Purpose and Objectives

This report assesses how the population of the City and County of San Francisco (“City” or “San Francisco”) would be harmed if the City were to implement controls necessary to provide a primary treatment, disinfection and deep-water discharge for all wet weather discharges from the City’s Bayside combined sewer system in a typical year. Providing this level of treatment is presumed to be sufficient to ensure that discharges from the Bayside system do not cause or contribute to exceedances of water quality standards (“WQS”) applicable to receiving waters into which the City is authorized to discharge (the “Base Standards”) identified in Table 1 of the technical memorandum titled Bayside Water Quality Standards Variance – Identification and Cost of Controls to Meet Existing Standards (“the Cost of Controls Memo”).

Meeting these Base Standards would require the City to implement a series of pollution control projects described in the technical memorandum, *Technical Memorandum on Projects to Achieve WQS*. That same memorandum estimates the capital costs of those pollution controls, and those cost estimates form the basis for our analysis.

Our approach seeks to characterize how the costs of meeting the Base Standards would actually impact San Franciscans—by increasing their wastewater bills. We analyze how the costs of meeting the Base Standards would increase wastewater rates and place those rates in the broader context of the cost burdens that San Franciscans’ already face. Doing so captures the true effects that investing in controls to meet that Base Standards would have on San Franciscans and shows that doing so would result in unacceptable, widespread, and substantial social and economic impacts.

1.2. Background

The San Francisco Public Utilities Commission (“SFPUC”) is a department of the City that is responsible for the maintenance, operation, and development of three utility enterprises: the Wastewater Enterprise, the Water Enterprise, and the Power Enterprise. The SFPUC operates and manages these enterprises as separate financial entities with separate enterprise funds.² The Wastewater Enterprise provides wastewater and stormwater collection, treatment and disposal services for the City. The Water Enterprise provides drinking water to retail customers in the City, certain retail customers outside of the City, and to wholesale customers in three other Bay Area counties.³

The Wastewater Enterprise provides sanitary wastewater and stormwater services across eight distinct urban watersheds, with the Southeast Treatment Plant providing all-weather wastewater treatment and the North Point Facility providing wet-weather treatment with effluent outfalls to the San Francisco Bay, and the Oceanside Treatment Plant providing all-weather wastewater treatment with an effluent outfall to the Pacific Ocean. When the three treatment facilities and other elements of the collection system are fully operational,

² An enterprise fund is a separate accounting and financial reporting fund for which revenues and expenditures are segregated into a fund with financial statements separate from all other governmental activities. The fund must be self-sufficient on its own.

³ 2022 Series B Wastewater Revenue Bond Official Statement for the Public Utilities Commission of the City and County of San Francisco.

the Wastewater Enterprise can provide up to 575 million gallons per day (“MGD”) of combined wastewater and stormwater treatment, including 193 MGD of secondary treatment and 272 MGD of primary treatment.

The service area of the Wastewater Enterprise encompasses approximately 29,773 acres and includes residents of San Francisco and of northern San Mateo County through arrangements with three municipal wastewater providers: North San Mateo County Sanitation District, the Bayshore Sanitary District, and the City of Brisbane. The SFPUC also provides wastewater treatment service on Treasure Island and Yerba Buena Island pursuant to a contract.

As of June 30, 2023, the SFPUC had 177,613 active retail wastewater accounts. Of these, approximately 85% are residential accounts, with the remainder being commercial, industrial, or municipal.⁴

The City’s fiscal year (“FY”) begins on July 1st each year and ends on June 30th.

1.3. Water Pollution Control Cost Assumptions

A separate document, the *Technical Memorandum on Projects to Achieve WQS*, describes the hypothetical pollution controls that the City would need to implement in order to meet the Base Standards. That memorandum assumes that meeting the Base Standards would require primary treatment, disinfection and deep-water discharge for all discharges from the combined sewer system in a typical year. The selected hypothetical projects for this scenario were the least-cost means to achieve that level of control for the Bayside systems. The projects include:

- expansion of capacity at the North Point Facility,
- pump stations with treatment, disinfection and deep-water outfalls to relocate and treat combined sewer discharges (“CSDs”) from Mission and Islais Channels,
- a CSD storage facility at CSD 029 (Mariposa Street) adjacent to the Mariposa Transport/Storage box,
- a CSD storage facility at CSD 037 (Evans Ave.), and
- replacement and upsizing of the Southeast Plant outfall and pump station.

The total un-escalated estimated project cost for these projects is \$10.6 billion (2024 dollars). The costs (the “Base Standards Costs”) are based on very preliminary conceptual layouts and do not include land acquisition costs, which are currently unknown but are expected to be significant. The City did not evaluate the feasibility of implementing these projects.

1.4. Report Content

The report contains the following assessment and analysis components:

1. Application of EPA Guidance Documents and Discussion of The Guidance’s Limitations – Section 2 summarizes our application of EPA’s 2023 *Clean Water Act Financial Capability Assessment Guidance* (the “EPA Guidance”) to yield a flawed, incomplete assessment of how incurring the Base Standards Costs would impact San Francisco. This section further explains why that assessment is flawed by

⁴Annual Comprehensive Financial Report for Fiscal Year Ended June 30, 2023 and 2022.

laying out the ways in which the EPA Guidance ignores or obscures the ways in which the Base Standards Costs would actually impact San Franciscans.

2. Long-Term Financial Projections and Rate Impacts – Section 3 provides a financial and rate impact analysis that shows how the Base Standards Costs would translate into an enormous burden that would be felt across San Francisco’s population. This section includes a forecast of various financial and affordability metrics, such as year-by-year costs for wastewater service, debt burden, and cash flows, comparisons of customer costs to income levels, and an assessment of how customers annual wastewater service bills are anticipated to change over time. This section demonstrates how funding the Base Standards Costs would require SFPUC to impose untenable increases in wastewater rates and residential customer bills. This section further shows how these increased bills would impose high-cost burdens on the City’s population.
3. Wastewater and Water Rates – Section 4 begins to correct for the deficiencies in EPA’s guidance by translating the Base Standards Costs into the increase in the wastewater bills paid by San Francisco residents that would be needed to fund those costs. This section analyzes the City’s current wastewater and water rates and the typical annual residential utility bills imposed on the residents of the City. The Section also shows how, even without taking on the Base Standards Costs, residents of the City already bear extremely high water and wastewater bills by comparing typical annual residential utility bills in the City to those of other service providers in California and across the country. Finally, this section shows how the wastewater bills in the City would increase substantially and to unacceptably high levels if the City had to incur the Base Standards Costs.
4. Supplemental Socioeconomic Metrics, Trends and Indicators – Section 5 shows how these higher cost burdens would cause widespread social and economic impacts in San Francisco. This part of the report summarizes important socioeconomic characteristics of the City’s service area to provide a more complete picture of socioeconomic conditions and impacts than the EPA Guidance. This section also shows the impact that the Base Standards Costs would have on San Franciscans, by putting those costs in the context of the current economic hardship and household financial burden related to wastewater costs and other essential needs. This section highlights various affordability metrics that consider the high local cost of living and other unique characteristics of the City and its wastewater service area and show that the rate increases necessary to pay for the Base Standards Costs would (a) plunge thousands more San Franciscans into poverty, (b) exacerbate the City’s already untenable cost of living crisis, and (c) visit these harms disproportionately on people of color.

2. Application and Limitations of the EPA Guidance

2.1. Application of the EPA Guidance to Assess Impacts

Raftelis first attempted to assess the Base Standards Costs’ impacts by applying the EPA Guidance document. The EPA Guidance provides potential methods for evaluating whether a variance from WQS is appropriate on the basis that the cost of implementing additional pollution controls to meet those standards would result in substantial and widespread economic and social impacts.⁵ This subsection summarizes our application the EPA Guidance and the flawed results it yielded. Subsection 2.2 explains why these results are flawed and incomplete.

2.1.1. Application of the 2023 Economic Guidance

Raftelis assessed the impacts associated with the capital improvement projects (“CIP”) costs by using the four steps outlined in the EPA Guidance.⁶ The first step is to calculate an average cost per household (“CPH”) and compare this cost to median household income (“MHI”), resulting in a percentage that is termed the Municipal Preliminary Screener in the EPA Guidance. The costs in the calculation include current and projected annual operations and maintenance (“O&M”) expenses and capital costs associated with the needs of the wastewater system. These costs are reflected in 2023 dollars. Once the CPH was estimated, the Municipal Preliminary Screener was calculated by dividing the CPH by the MHI for the City. The results of the CPH and cost as a percentage of MHI are presented in Table 2-1. Additional details regarding this calculation are provided in Appendix A.

Table 2-1. Municipal Preliminary Screener

Description	Amount	EPA Line No.
MHI Census Year	2022	201
Median Household Income ⁷	\$136,689	
MHI Adjustment Factor	1.030	202
Adjusted MHI (2024)	\$140,790	203
Annual WWT and CSO Control Cost per Household	\$4,456	204
Municipal Preliminary Screener:		
Cost per Household as a Percentage of Median Household Income	3.2%	205

⁵40 C.F.R. §§ 131.10(g)(6), 131.14(b)(2)(i)(A)(1).

⁶ EPA Guidance, p.34.

⁷ MHI data from US Census Table S1901 2022 5-Year Average for San Francisco County.

This result—a cost per household at 3.2% of MHI—exceeds the EPA Guidance’s 2.0% threshold for a “High” financial impact.⁸ The Base Standards Costs would, in short, impose a major financial burden on San Francisco households.

Raftelis then applied the EPA Guidance’s Secondary Test, which EPA intended to assess a community’s financial capability. The Secondary Test relies on three general categories of measures: (1) debt indicators, (2) socioeconomic indicators, and (3) financial management indicators. The results of applying the Secondary Test to San Francisco are summarized in Table 2-2 and indicate an overall Secondary Screener score of “Strong.” Additional details regarding this calculation are provided in Appendix A.

Table 2-2. Secondary Indicators

Indicator	Actual Value	Rating	Score
Bond Rating	Aa2	Strong	3
Overall Net Debt as a Percentage of Full Market Value	2.3%	Mid-Range	2
Unemployment Rate	5.4%	Mid-Range	2
Adjusted Median Household Income	\$140,790	Strong	3
Property Tax Revenues as a Percentage of Full Market Property Value	1.14%	Strong	3
Property Tax Revenue Collection Rate	98.8%	Strong	3
Secondary Score		Strong	2.7

*Secondary indicator values obtained from the City’s 2023 Annual Comprehensive Financial Report.

Raftelis then compared the results of the Municipal Preliminary Screener and the Secondary Score in the matrix shown in Table 2-3.

Table 2-3: Initial Economic Impact Matrix

Secondary Score (SS)	Municipal Preliminary Screener (MPS) (Cost as a Percent of Median Household Income)		
	Below 1%	1.0% to 2.0%	Above 2%
Below 1.5 (Weak)	Impact Unclear	Substantial Impact	Substantial Impact
1.5 to 2.5 (Mid-Range)	Impact Not Likely to be Substantial	Impact Unclear	Substantial Impact
Above 2.5 (Strong)	Impact Not Likely to be Substantial	Impact Not Likely to be Substantial	Impact Unclear

According to the EPA Guidance, the City’s score is “Impact Unclear,” which combined a “High” financial impact Municipal Preliminary Screener and a “Strong” Secondary Screener Score. For results that fall into the “Impact Unclear” category, the EPA Guidance suggests that other factors, such as other metrics, Financial Alternatives Analysis and rate models be used to assess the impact on low- or fixed-income

⁸ EPA Guidance, p.38

households. The presence of a failing local industry, and other projects the community would have to forgo in order to comply with WQS should also be considered.⁹

The next step in the EPA Guidance is to determine the Lowest Quintile Poverty Indicator (“LQPI”) score. The LQPI score aids in assessing the severity and prevalence of poverty in a community’s service area.

We present a summary of our results of the LQPI score in Table 2-4. We provide additional details in Appendix B.

Table 2-4. Lowest Quintile Poverty Indicator (LQPI) Score

Description	Strong (Score=3)	Mid-Range (Score=2)	Weak (Score=1)	Weight	National Value	Permittee Value	Score	Source
LQPI # 1 Upper Limit of Lowest Quintile Income Indicator	More than 25% above the national LQI	Within 25% of national LQI	More than 25% below national LQI	50%	\$31,709	\$42,913	3	U.S. Census 2022 5-Year, Adjusted to 2023. Table B19080.
LQPI # 2 Percent Population with Income Below 200% of Federal Poverty Level	More than 25% below national value	Within 25% of national value	More than 25% above national value	10%	28.8%	20.7%	3	S1701
LQPI # 3 Percent of Population Receiving Food Stamps/SNAP Benefits	More than 25% below national value	Within 25% of national value	More than 25% above national value	10%	11.5%	8.2%	3	S2201
LQPI # 4 Percent Vacant Households	More than 25% below national value	Within 25% of national value	More than 25% above national value	10%	10.8%	11.6%	2	B25002
LQPI # 5 Trend in Household Growth	>1%	0% - 1%	<0%	10%	0.8%	0.9%	2	B25002 (2015 to 2021 average)
LQPI # 6 Percent Unemployed Population 16 and Over in Civilian Labor Force	More than 25% below national value	Within 25% of national value	More than 25% above national value	10%	5.3%	5.4%	2	S2301
Score for LQPI #1							3.0	
Average Score for LQPI #2 to #6							2.4	Sum of 2 through 6 / 5
Initial Lowest Quintile Poverty Indicator Score							2.7	Sum of two lines above / 2
Residential Indicator Benchmark							Low Impact	Based on impact ranges
Low Impact (Above 2.5)								
Medium Impact (1.5 to 2.5)								
High Impact (Below 1.5)								

Based on the LQPI, San Francisco has a “low impact” score. As explained in greater detail below, this outcome ignores San Francisco’s high cost of living and obscures impacts on low-income households in the City. Although San Francisco’s low-income households earn more than in other parts of the country, they also pay extremely high costs for basic goods, services, and shelters that effectively offset these higher incomes. Section 5 of this report addresses this issue in detail.

We present a summary of the results of the Expanded Economic Impact Matrix in Table 2-5. We provide additional analysis details in Appendix B.

⁹ EPA Guidance, p.42.

Table 2-5: Expanded Economic Impact Matrix

Initial Economic Impact (MPS and SS)	Lowest Quintile Poverty Indicator Score		
	Low Impact	Mid-Range	High Impact
Impact Not Likely to be Substantial	Impact Not Likely to be Substantial	Impact Not Likely to be Substantial	Impact Unclear
Impact Unclear	Impact Not Likely to be Substantial	Impact Unclear	Substantial Impact
Substantial Impact	Impact Unclear	Substantial Impact	Substantial Impact

The results of the Expanded Economic Impact Matrix, which combines a “Strong” LQPI score and an “Impact Unclear” Initial Economic Impact score, indicate an Expanded Economic Impact of “Impact Not Likely to be Substantial” for the City.

We then performed a Financial Alternatives Analysis (required under the EPA Guidance), which is presented in Appendix B. The intent of this step is to document whether the community has considered all feasible steps to address the impacts to households with the lowest quintile income (“LQI”), including using variable rate structures, customer assistance programs, and applications for grants or subsidies from the Clean Water State Revolving Fund (“SRF”) Loan Program. The Checklist demonstrates that the City has done what it can to lower the economic burden of wastewater bills on its customers and that limited additional alternatives are available to further address this burden as the cost of utility service continues to rise.

The EPA Guidance notes that WQS decisions should not be rigidly determined according to the breakpoints between categories, and information on other metrics or analysis of financial and rate models are needed to support variance decisions.¹⁰ As such, we present additional information in the remaining sections of our report that paints a stark picture of the harm that would be inflicted on a significant portion of San Francisco’s population if the City were required to implement the controls necessary to meet current WQS.

2.2. Limitations of the EPA Guidance – Ignoring Costs of Living and Obscuring True Impacts

The remainder of this report presents additional metrics and analysis to assess the impact that the Base Standards Costs would have on San Francisco because the EPA Guidance paints an incomplete and misleading picture. The EPA Guidance fails to account for how the costs of meeting the Base Standards will impact real people through increases in their water and wastewater bills. These same real people will not bear these costs in isolation. Instead, San Franciscans will bear these additional costs while already grappling with one of the highest costs of living in the country. Additionally, many of the remedies suggested to manage affordability identified in the Financial Alternatives Analysis Checklist are unavailable to the City under California law.

Specifically, the EPA Guidance’s methodologies produce misleading and incomplete results for the following reasons:

¹⁰ EPA Guidance, p.41.

1. The EPA Guidance relies in part on MHI, which is a poor indicator of economic distress bearing little relationship to poverty or other measures of economic need across San Francisco households. As a consequence, the Municipal Preliminary Screener is not focused on the poor or the most economically vulnerable users within the City and fails to capture impacts across San Francisco's diverse population. As demonstrated further below, income levels in the City's service area span a wide income range and are concentrated at either end of the income spectrum, making MHI a less meaningful metric for San Francisco than for other municipalities.
2. The EPA Guidance's comparison of LQI to national figures to arrive at an LQPI is problematic for high cost of living communities like San Francisco. Although this metric can show whether low-income households in a particular community earn more or less income than the LQI household nationally, this indirect metric provides no information about the economic challenges that those households face, or how compliance costs would actually affect those households. In particular, this metric obscures how San Francisco's lowest earners bear a much higher cost of living than the national average. The use of comparisons to the national average are highly prejudicial for cities like San Francisco where the cost of living is dramatically higher than the national average.
3. The EPA Guidance largely fails to capture the substantial household economic burdens that San Franciscans already bear. Economic burdens are commonly measured by comparing the costs of necessities to available household income. The Municipal Preliminary Screener and LQPI score do not account for the costs of other non-discretionary items besides wastewater costs that make up a household budget (e.g. housing, health care, energy, childcare, taxes, transportation). Therefore, it does not capture the full economic burdens and associated affordability challenges that lower income households face. This is especially problematic in San Francisco, which has a high cost of living and high housing costs.
4. The Municipal Preliminary Screener and the LQPI provide unrealistic "snapshots" of residential customer wastewater utility costs that do not account for the timing of capital expenditures, realistic debt and cash funding mix, debt service coverage requirements, and other fiscal policy targets and requirements of the City. Without consideration of these factors, the EPA Guidance's methodology underestimates the impact on the City and its customers.
5. The EPA Guidance does not consider social impacts in any meaningful way. Among other things, neither guidance document accounts for how people of color or other environmental justice communities would be disproportionately impacted by increased compliance costs and higher wastewater bills. Income distribution and other economic measures vary widely across different populations. Thus, the economic hardship associated with increasing water and wastewater bills are concentrated in lower income populations and among Black and people of Asian descent. This will compound the economic hardship within these communities and raise equity concerns.
6. The Financial Alternatives Analysis included in the EPA Guidance requires consideration of options—such as reduced rates for vulnerable populations—that violate the California Constitution. Further, California prohibits publicly owned retail water and wastewater providers from subsidizing rates of low-income customers and limits the utility's ability to use rate revenues to fund customer assistance programs. The EPA Guidance incorrectly assumes that these options are feasible for all communities, including California utilities subject to Proposition 218.

In addition, the EPA Guidance uses indicators that do not adequately reflect the City's ability to finance investments necessary to meet WQS or otherwise comply with the Clean Water Act. These indicators are problematic for the following reasons:

1. The Secondary Screener indicators are metrics that are more suitable for considering a City's General Fund financial capability and largely do not pertain to the City's Wastewater Enterprise Fund. The City's Wastewater Enterprise Fund is a self-supporting fund that is separate from, and independent of, the City's General Fund taxing authority and does not receive funding from the City's General Fund. Further, the economic strength of the community as a whole is not relevant to the affordability concerns associated with the lower income population because the City does not have an ability to shift the wastewater burden away from the most vulnerable population that it serves.
2. The EPA Guidance uses property tax revenues as a percentage of full market property value as a sole measure of the local tax burden. This ignores California Proposition 13, which restricts local governments from raising tax assessments by more than 2.0 percent per year and requires properties to be assessed at market value at the time of sale. In addition, it ignores income and sales taxes, and other user fees charged for City services and results in an understatement of the local tax burden.
3. Comparisons of the City's MHI to the national average do not reflect differences in local cost of living between communities, such as the significant differences in housing cost burdens in high cost of living communities like San Francisco as compared to the national average.
4. The Secondary Screener indicators do not take into account trends in the ability of the City to continue to finance major capital improvements at favorable interest rates. As the debt burden increases, the City would likely face a diminished ability to borrow money at favorable interest rates.
5. The debt burden indicator does not take into account unfunded pension and healthcare commitments to active and retired employees.
6. The Secondary Screener indicators, such as the tax collection rate, do not account for magnitude and trends in delinquency rates in water and wastewater payments, which can be an indicator of economic hardship.
7. The Secondary Screener indicators do not consider other City-specific factors, such as the prevalence of homeless populations and other employment and housing cost issues.

These flaws in EPA's methodology result in misleading conclusions that do not portray a complete picture of social and economic impacts on San Francisco's population. The next three sections correct this misimpression by providing additional supplemental information to characterize these impacts more fully and accurately.

3. Long-Term Financial Projections and Rate Impacts

The EPA Guidance inadequately captures social and economic impacts by relying on only a “snapshot” that obscures year-by-year economic and customer affordability impacts. In order to correct for this blind spot in the guidance, we prepared a comprehensive long-term financial planning and affordability model based on the City’s latest 10-year financial forecast model evaluating budgets and setting wastewater rates and in accordance with the EPA Guidance Alternative 2 methodology. Our analysis extended the financial forecast over a 30-year period and projected average residential wastewater bills for City retail customers based on the City’s projected capital and operating needs of the wastewater system.

These projections show that the rate increases that would result from the Base Standards Costs would impose an enormous economic burden on San Francisco ratepayers. Funding controls necessary to meet the Base Standards would cause wastewater rates to rise to enormous levels: annual residential wastewater bills would rise to more than 2.9% of MHI and 9.4% of LQI, above the thresholds that relevant literature recognize as imposing high economic burdens.^{11,12}

The discussion in the remainder of this Section provides a summary of the methodology, key assumptions, and inputs used to develop the long-term financial planning and affordability model, followed by the resulting forecast for the City’s Wastewater Enterprise Fund and a discussion of forecasted rate increases.

3.1. General Modeling Methodology

We considered the current cost structure, needed system investments, City-established fiscal policies, as well as the costs necessary for continuing to fund existing O&M activities in the financial forecast prepared for the City’s Wastewater Enterprise Fund. We then used this financial forecast to provide insight into the likely wastewater rate adjustments needed to provide the basic level of service, meet current regulatory obligations, and maintain the long-term financial health of the SFPUC’s Wastewater Enterprise.

We incorporated three primary inputs related to the City’s future wastewater utility expenses into the financial forecast:

1. **Current cost structure:** we examined current recurring expenses incurred by the City’s Wastewater Enterprise Fund and escalated these expenses into the future in line with historical long-term trends with adjustments made for changes in expected operational costs tied to system upgrades.
2. **Existing Debt Service:** we incorporated the existing debt repayment obligations of the utility for bonds that have been issued in support of investments already made to the wastewater utility system. We carried the current principal and interest obligations in the financial forecast that we prepared.

¹¹ The EPA Guidance identifies a Municipal Preliminary Screener of 2.0% as the threshold for “high impact.”

¹² Developing a New Framework for Household Affordability and Financial Capability Assessment in the Water Sector, R. Raucher, J. Clements, E., Rothstein, J. Mastracchio, and Z. Green, prepared for the American Water Works Association, National Association of Clean Water Agencies, and the Water Environment Federation, April, 17, 2019, p.3-24.

3. Expenses associated with Future Capital Projects: we incorporated the SFPUC's estimates of wastewater utility capital needs (including stormwater needs funded from wastewater utility revenues) and how the SFPUC currently anticipates funding them. We incorporated SFPUC's identified capital needs over a 30-year timeframe in the financial projection.

Additional long-term financial model inputs and assumptions are discussed in Appendix B.

3.2. Financial Projection and Rate Impacts

Based on our comprehensive long-term financial plan, we forecast substantial wastewater rate increases necessary to pay for SFPUC's existing long-term capital needs while maintaining a basic level of service, meeting existing regulatory requirements, and maintaining a strong fiscal condition of the wastewater utility. The forecast also includes the costs of controls necessary to meet the Base Standards. Our analysis also shows that incurring the Base Standards Costs would result in an unacceptably high burden on the City's population.

We projected residential wastewater costs using two scenarios. The first projects anticipated wastewater revenue needs and rate increases necessary to pay for the projected capital and O&M revenue requirements of the wastewater utility, including SFPUC's existing long-term wastewater capital needs excluding the capital costs associated with pollution controls necessary to meet the Base Standards. The second scenario includes the Base Standards Costs.

Figures 3-1 and 3-2 and Table 3-1 present the results of this first scenario. These projections show that, even without incurring the Base Standards Costs, the SFPUC will need to make substantial rate increases to cover the utility's basic needs. The annual residential wastewater bill as a percentage of MHI would approach EPA's 2.0% threshold of high financial impact in 30 years (as shown in Figure 3-2 and Table 3-1). In addition, we estimated the annual residential wastewater bill as a percentage of the LQI to rise to nearly 7%. This level has been identified in the literature as a high financial burden threshold.¹³

The second scenario incorporates the Base Standards Costs and shows that the SFPUC will need to increase rates to even greater extent than in the first scenario. As shown in Figures 3-3 and 3-4 and Table 3-2, SFPUC's anticipated investments required over the long-term forecast to meet the Base Standards were added on top of the significant investment needs of the wastewater system accounted for in the first scenario. Under this second scenario, the annual residential wastewater bill as a percentage of MHI will rise to 2.9%, significantly higher than the EPA's 2.0% high financial impact threshold, and the residential wastewater bill as a percentage of LQI is anticipated to increase to more than 9.4%, far above the very high burden threshold identified in the literature (See Figure 3-3 and Table 3-2).

¹³ Ibid.

Figure 3-1: Projected Residential Wastewater Cost (Excl. Base Standards Costs)

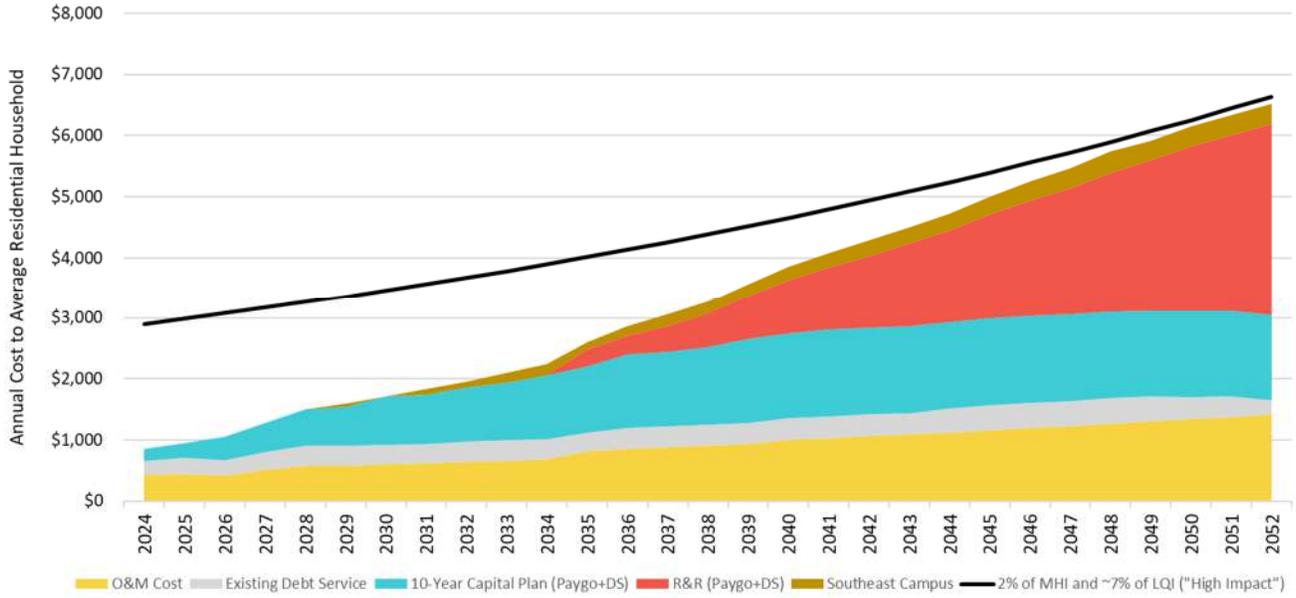


Figure 3-2 : Projected Residential Wastewater Cost as a % of MHI (Excl. Base Standards Costs)

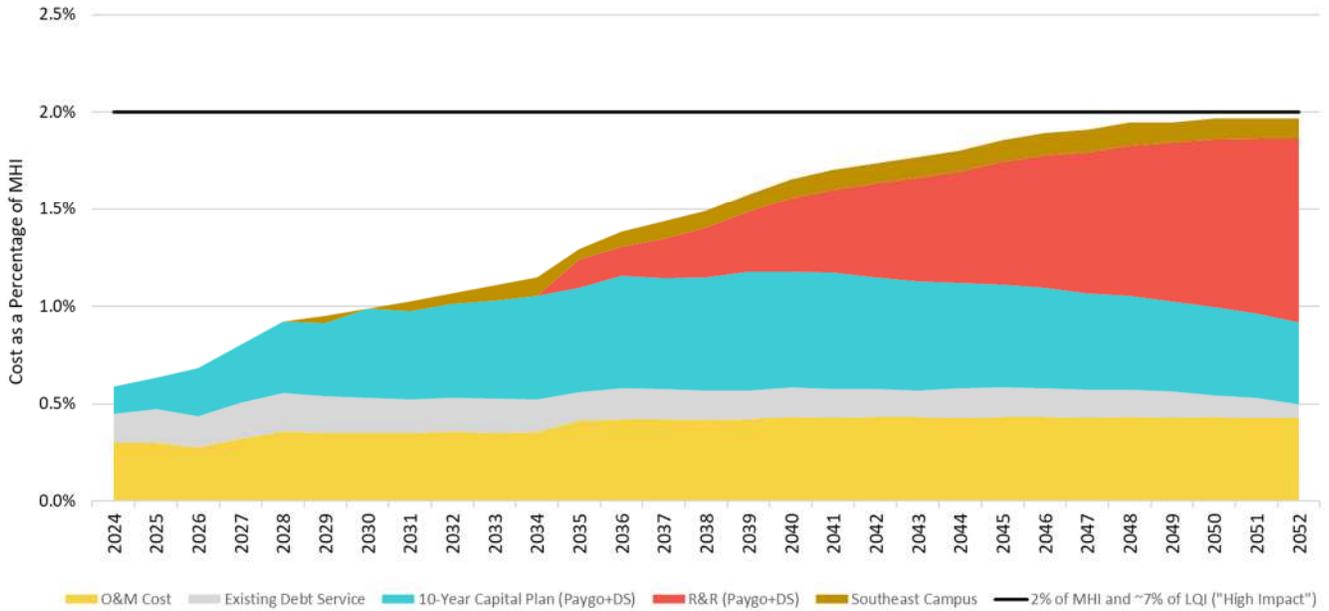


Figure 3-3: Projected Residential Wastewater Cost (Incl. Base Standards Costs)

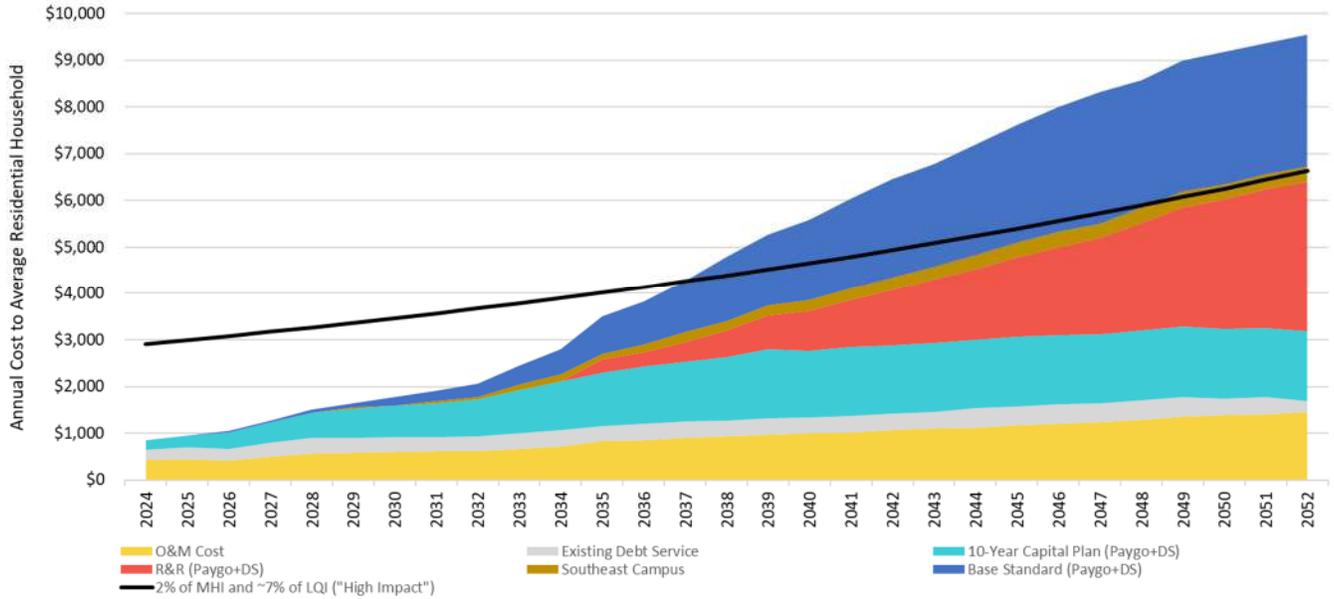


Figure 3-4 : Projected Residential Wastewater Cost as a % of MHI (Incl. Base Standards Costs)

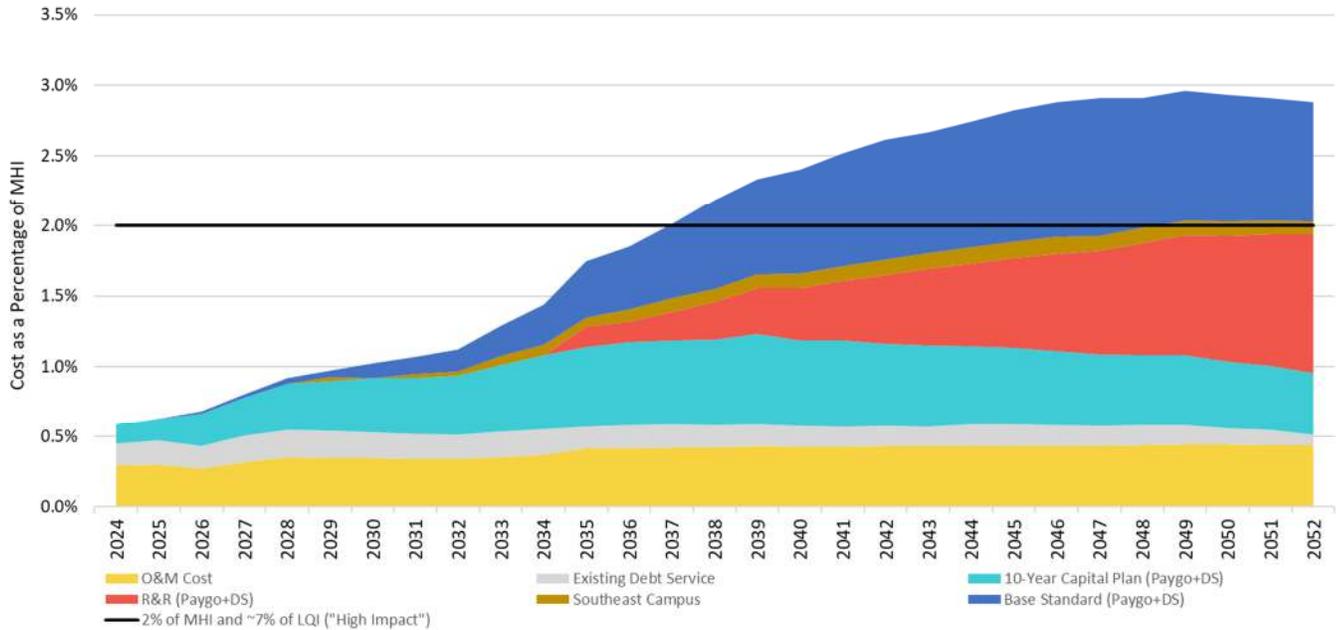


Table 3-1. Long-Term Financial Plan and Residential Customer Affordability Projection, Excluding Base Standards Costs

Description	1 2023	2 2024	3 2025	4 2026	5 2027	6 2028	7 2029	8 2030	9 2031	10 2032	15 2037	20 2042	25 2047	30 2052
Capital Project Funding														
Annual Wastewater (WW) CIP (\$ millions)	\$0	\$976	\$893	\$823	\$909	\$532	\$504	\$339	\$545	\$726	\$1,242	\$1,201	\$1,406	\$1,559
Cumulative Wastewater CIP (\$ millions)	\$0	\$976	\$1,868	\$2,691	\$3,600	\$4,132	\$4,636	\$4,976	\$5,520	\$6,246	\$11,923	\$18,600	\$25,137	\$32,485
Capital Financing - WW														
Debt (\$ millions)	\$0	\$877	\$775	\$684	\$807	\$447	\$432	\$254	\$443	\$616	\$1,050	\$1,015	\$1,189	\$1,319
Cash (\$ millions)	\$83	\$98	\$118	\$139	\$102	\$85	\$72	\$85	\$102	\$110	\$192	\$186	\$217	\$240
% Paygo		10.1%	13.2%	16.9%	11.3%	15.9%	14.3%	25.1%	18.7%	15.2%	15.5%	15.5%	15.4%	15.4%
Debt Service (DS) Coverage (All-In)	1.68	1.92	1.92	1.44	1.36	1.40	1.24	1.23	1.23	1.26	1.27	1.19	1.15	1.14
Cash Reserves (Days of O&M)	267	258	249	156	134	189	209	212	201	208	156	198	223	243
Total WW Annual Budget (\$ millions)	\$391	\$411	\$456	\$555	\$601	\$641	\$695	\$749	\$794	\$834	\$1,178	\$1,342	\$1,490	\$1,525
Debt Service (DS) (\$ millions)	\$106	\$109	\$127	\$198	\$264	\$313	\$373	\$406	\$426	\$449	\$615	\$722	\$764	\$689
DS as % of Total Budget	27.2%	26.4%	27.9%	35.7%	43.9%	48.9%	53.6%	54.2%	53.7%	53.8%	52.2%	53.8%	51.3%	45.2%
Rate Increase - Wastewater (WW) City	n/a	9.0%	9.0%	9.0%	20.0%	16.0%	6.0%	7.0%	7.0%	7.0%	7.0%	5.0%	4.0%	3.0%
Cumulative Rate Increase WW City		10.5%	22.8%	36.6%	65.3%	95.3%	107.0%	121.5%	137.0%	153.6%	296.4%	455.8%	609.2%	746.3%
Annual Residential WW & SW Bill ¹	\$771	\$851	\$947	\$1,053	\$1,274	\$1,505	\$1,596	\$1,707	\$1,827	\$1,955	\$3,056	\$4,284	\$5,467	\$6,523
Median Household Income (MHI)	\$140,790	\$145,014	\$149,364	\$153,845	\$158,460	\$163,214	\$168,111	\$173,154	\$178,349	\$183,699	\$212,958	\$246,876	\$286,197	\$331,781
Lowest Quintile Household Income (LQI)	\$42,913	\$44,200	\$45,526	\$46,892	\$48,299	\$49,748	\$51,240	\$52,778	\$54,361	\$55,992	\$64,910	\$75,248	\$87,233	\$101,127
Annual WW Bill as % of MHI	0.5%	0.6%	0.6%	0.7%	0.8%	0.9%	0.9%	1.0%	1.0%	1.1%	1.4%	1.7%	1.9%	2.0%
Annual WW& SW Bill as % of LQI	1.8%	1.9%	2.1%	2.2%	2.6%	3.0%	3.1%	3.2%	3.4%	3.5%	4.7%	5.7%	6.3%	6.5%

¹Annual Residential WW bill calculated based on 42 gpcd x 2.26 people per household for San Francisco x 1.05 non-drought stage x water consumption return factor of 90% x current and projected rates. SFPUC implemented a new stormwater charge effective July 2023 that will be implemented over 7 years.

The long-term financial plan projections shown in Table 3-1 differ from the City’s 10-year financial forecast due to differences in capital plan implementation and financing assumptions. The City’s 10-year financial forecast includes the use of commercial paper as short-term financing for some of the capital needs prior to converting the short-term financing into long-term debt. There is a cost associated with this practice but it provides the City with cash management flexibility, and the use of commercial paper is variable from one debt issue to the next making it difficult to incorporate into a long-term financial projection. The financial projection shown in Table 3-1 assumes long-term debt capital financing with conventional revenue bond debt without the use of short-term commercial paper. These assumptions result in timing differences in the wastewater rate increases that are presented in Table 3-1 and in the City’s 10-year financial forecast, but do not materially alter the estimated wastewater bill projected at the end of the forecast period.

Table 3-2. Long-Term Financial Plan and Residential Customer Affordability Projection, Including Base Standards Costs

Description	1 2023	2 2024	3 2025	4 2026	5 2027	6 2028	7 2029	8 2030	9 2031	10 2032	15 2037	20 2042	25 2047	30 2052
Capital Project Funding														
Annual Wastewater (WW) CIP (\$ millions)	\$0	\$982	\$907	\$919	\$1,038	\$704	\$719	\$880	\$1,216	\$1,373	\$2,309	\$2,454	\$2,303	\$1,559
Cumulative Wastewater CIP (\$ millions)	\$0	\$982	\$1,889	\$2,808	\$3,846	\$4,550	\$5,269	\$6,149	\$7,365	\$8,739	\$18,513	\$31,893	\$43,048	\$50,533
Capital Financing - WW														
Debt (\$ millions)	\$0	\$884	\$789	\$779	\$936	\$619	\$647	\$795	\$1,114	\$1,263	\$1,957	\$2,080	\$1,952	\$1,319
Cash (\$ millions)	\$83	\$98	\$118	\$139	\$102	\$85	\$72	\$85	\$102	\$110	\$352	\$374	\$351	\$240
% Paygo		10.0%	13.0%	15.2%	9.9%	12.1%	10.0%	9.7%	8.4%	8.0%	15.3%	15.2%	15.3%	15.4%
Debt Service (DS) Coverage (All-In)	1.68	1.92	1.92	1.44	1.35	1.36	1.23	1.20	1.18	1.15	1.35	1.21	1.13	1.11
Cash Reserves (Days of O&M)	267	258	249	155	131	174	195	194	170	127	179	204	197	407
Total WW Annual Budget (\$ millions)	\$391	\$411	\$456	\$556	\$603	\$649	\$713	\$780	\$840	\$920	\$1,662	\$2,236	\$2,665	\$2,707
Debt Service (DS) (\$ millions)	\$106	\$109	\$127	\$198	\$265	\$322	\$391	\$436	\$472	\$535	\$940	\$1,428	\$1,804	\$1,871
DS as % of Total Budget	27.2%	26.4%	27.9%	35.7%	44.0%	49.6%	54.8%	56.0%	56.2%	58.1%	56.5%	63.8%	67.7%	69.1%
Rate Increase - Wastewater (WW) City	n/a	9.0%	9.0%	9.0%	20.0%	16.0%	9.0%	8.0%	8.0%	8.0%	12.0%	7.0%	4.0%	2.0%
Cumulative Rate Increase WW City		10.5%	22.8%	36.6%	65.3%	95.3%	112.9%	129.9%	148.3%	168.2%	455.3%	738.0%	979.6%	1130.6%
Annual Residential WW & SW Bill ¹	\$771	\$851	\$947	\$1,053	\$1,274	\$1,505	\$1,641	\$1,772	\$1,914	\$2,067	\$4,280	\$6,460	\$8,322	\$9,486
Median Household Income (MHI)	\$140,790	\$145,014	\$149,364	\$153,845	\$158,460	\$163,214	\$168,111	\$173,154	\$178,349	\$183,699	\$212,958	\$246,876	\$286,197	\$331,781
Lowest Quintile Household Income (LQI)	\$42,913	\$44,200	\$45,526	\$46,892	\$48,299	\$49,748	\$51,240	\$52,777	\$54,361	\$55,992	\$64,910	\$75,248	\$87,233	\$101,127
Annual WW Bill as % of MHI	0.5%	0.6%	0.6%	0.7%	0.8%	0.9%	1.0%	1.0%	1.1%	1.1%	2.0%	2.6%	2.9%	2.9%
Annual WW& SW Bill as % of LQI	1.8%	1.9%	2.1%	2.2%	2.6%	3.0%	3.2%	3.4%	3.5%	3.7%	6.6%	8.6%	9.5%	9.4%

¹ Annual Residential WW bill calculated based on 42 gpcd x 2.26 people per household for San Francisco x 1.05 non-drought stage x water consumption return factor of 90% x current and projected rates. SFPUC implemented a new stormwater charge effective July 2023 that will be implemented over 7 years.

4. Wastewater and Water Rates

This section continues to correct the EPA Guidance’s failure to account for how the Base Standards Costs would have real world impacts on San Franciscans by explaining how San Francisco’s residents would bear these costs: through wastewater bill increases. This section of the report first shows how, even without the costs of meeting the Base Standards, SFPUC’s wastewater and water rates are already among the highest in California and across the country.

This section then shows how incurring the Base Standards Costs would cause these already high rates to skyrocket. SFPUC customers’ annual wastewater bills would increase dramatically, causing the typical San Francisco household to bear wastewater costs that are more than 10 times current levels. As a result, San Francisco’s residential water and wastewater bills would become multiples of those in other California communities and other large cities across the country.

4.1. Wastewater Rates

As of July 2023, SFPUC charges residential customers for wastewater service a fixed monthly service component of \$4.85, a volumetric component of \$16.91 per hundred cubic feet (“CCF”), and a stormwater component that varies based on permeable and impermeable parcel area resulting in an average single-family monthly bill of \$70.85.¹⁴ The stormwater component is being phased in over a period of seven years (commencing in July 2023) to minimize the immediate impact on customer bills. Monthly discharge units are determined for residential customer accounts by multiplying an account’s total monthly water consumption by a flow factor applicable to such account designed to approximate that portion of the account’s total water use returned to the sewer system as wastewater. Each discharge unit represents 100 cubic feet (748 gallons) of water discharged and the standard flow factor for single-family residential and multi-family residential accounts are 90% and 95%, respectively.

Non-residential customers pay a \$4.85 monthly service component, a \$9.74 per discharge unit volumetric component, plus a \$0.861 per pound surcharge for chemical oxygen demand (“COD”), a \$1.681 per pound surcharge for total suspended solids (“TSS”), and a \$1.053 per pound surcharge for oil and grease.

The FY 2023 stormwater component for customers with 6,000 square feet or less of net parcel area and with six or fewer dwelling units is \$2.31 per month for customers with a parcel area of 0 to 1,700 square feet, \$3.60 per month for customers with a parcel area of 1,701 to 3,300 square feet, and \$5.41 per month for customers with a parcel area of 3,301 to 6,000 square feet.

SFPUC also has a monthly sewer service component attributable to stormwater runoff for property owners who do not have water and wastewater accounts with the SFPUC. The service component is based on a tier classification of a parcel. The component rate for a Low Runoff parcel is \$22.16 per month, and for a Standard Runoff parcel is \$36.31 per month.

If the SFPUC adopts a resolution declaring a state of water delivery reduction in accordance with its Retail Water Shortage Allocation Plan, then drought surcharges of up to 10% are applied under Stage 1 drought, up

¹⁴ Based on typical residential monthly consumption of 4.1 hundred cubic feet. Rate Schedules & Fees for Water and Sewer Service, Effective with meter readings made on or after July 1, 2023 (FY 2023-24), San Francisco Water, Power, Sewer. Accessed at: https://sfpub.org/sites/default/files/accounts-and-services/Rates_Schedule_Water_Sewer_2023-24.pdf

to 20% are applied under Stage 2 drought, and up to 25% are applied under Stage 3 drought. The recent Stage 1 drought surcharge was lifted, effective May 1, 2023.

4.2. Water Rates

SFPUC's water rates consist of two components: (1) a fixed monthly service charge based on meter size, and (2) a variable charge based on water volumetric usage. The variable charge for residential customers is a two-tiered rate structure, while the non-residential customers are charged a uniform commodity rate. The monthly service charge in FY 2023-24 for customers with meter sizes of 5/8-inches and 3/4 -inches are \$16.64 and \$21.13 respectively. The variable charge for single-family residential customers is \$10.33 per unit for the first four units of consumption per month and is \$11.47 per unit for each additional unit per month where each unit is equal to 100 cubic feet.¹⁵

The fixed monthly service charges for multi-family customers vary by meter size and are the same as for single-family residential customers. The variable charge in FY 2023-24 for multi-family residential customers is \$10.19 per dwelling unit per month for the first three units and is \$10.94 per unit for each additional unit per month where each unit is equal to 100 cubic feet.

The fixed monthly service charges for non-residential customers vary by meter size and are the same as for single-family and multi-family residential customers. The variable charge for non-residential customers for FY 2022-23 is \$11.12 per unit per month where each unit is equal to 100 cubic feet.

4.3. Wastewater and Water Residential Bill Comparison

We compared San Francisco's residential wastewater and water bills to those of other communities in California to show how the City's utility rates compare to other service providers. We based the residential bill calculations for each community on the average residential usage in each location since the average residential monthly water and wastewater bill can vary in each community based on the localized average residential water usage. For example, the average residential water usage in San Francisco is approximately 4.1 CCF per month, which is the lowest usage among the communities that were surveyed.

¹⁵Rate Schedules & Fees for Water and Sewer Service, Citation 8, supra.

Figure 4-1. Monthly Residential Water and Sewer Bill Comparison (California Communities)

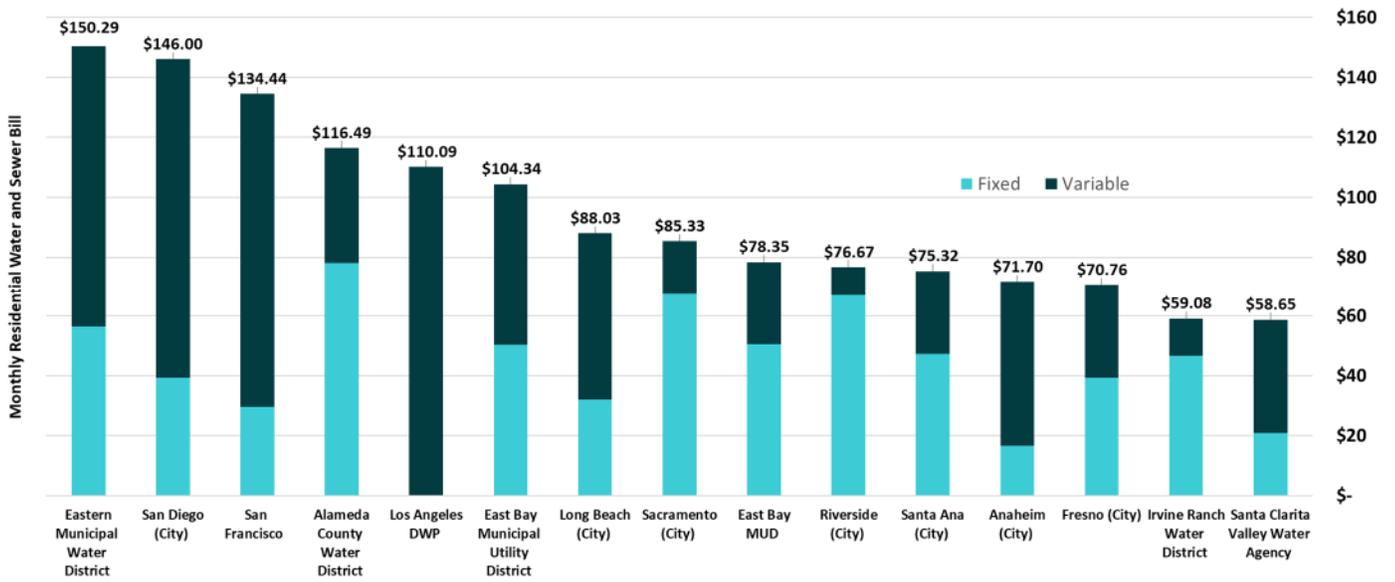
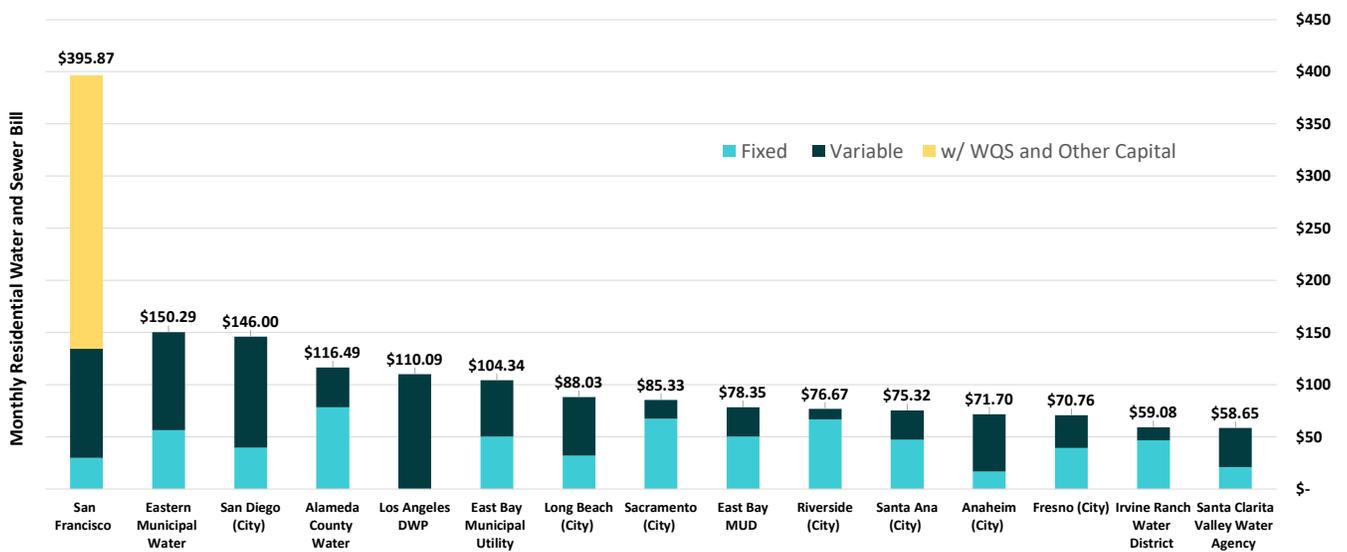


Figure 4-1 shows the results of this comparison, including how the typical residential customer in San Francisco currently bears some of the highest water and wastewater costs in the Bay Area and California communities that we surveyed.

Furthermore, if the City were required to implement the pollution controls necessary to meet the Base Standards, the wastewater cost to residential customers would likely be more than 10 times higher after 30 years than current costs, and this would place a significant and unaffordable burden on residential customers. The bill comparison with other California communities and with the present value of WQS compliance and other capital costs included for San Francisco (expressed in 2024 dollars) is presented in Figure 4-2.

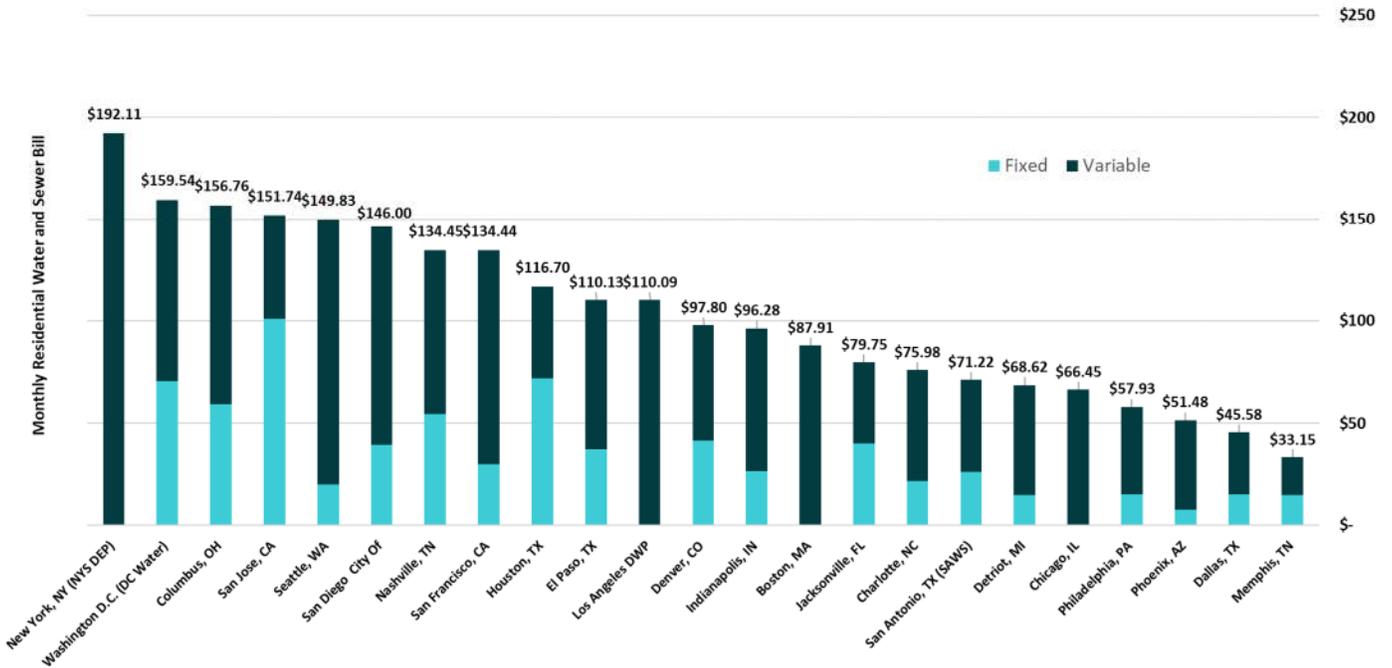
Figure 4-2. Monthly Residential Bill Comparison (California) Including WQS & Other Costs



We prepared similar monthly residential bill comparisons with other major metropolitan areas across the country, both excluding and including the cost of the investments that the City would be required to achieve the WQS along with other capital needs. The results of this comparison are summarized in Figure 4-3 and

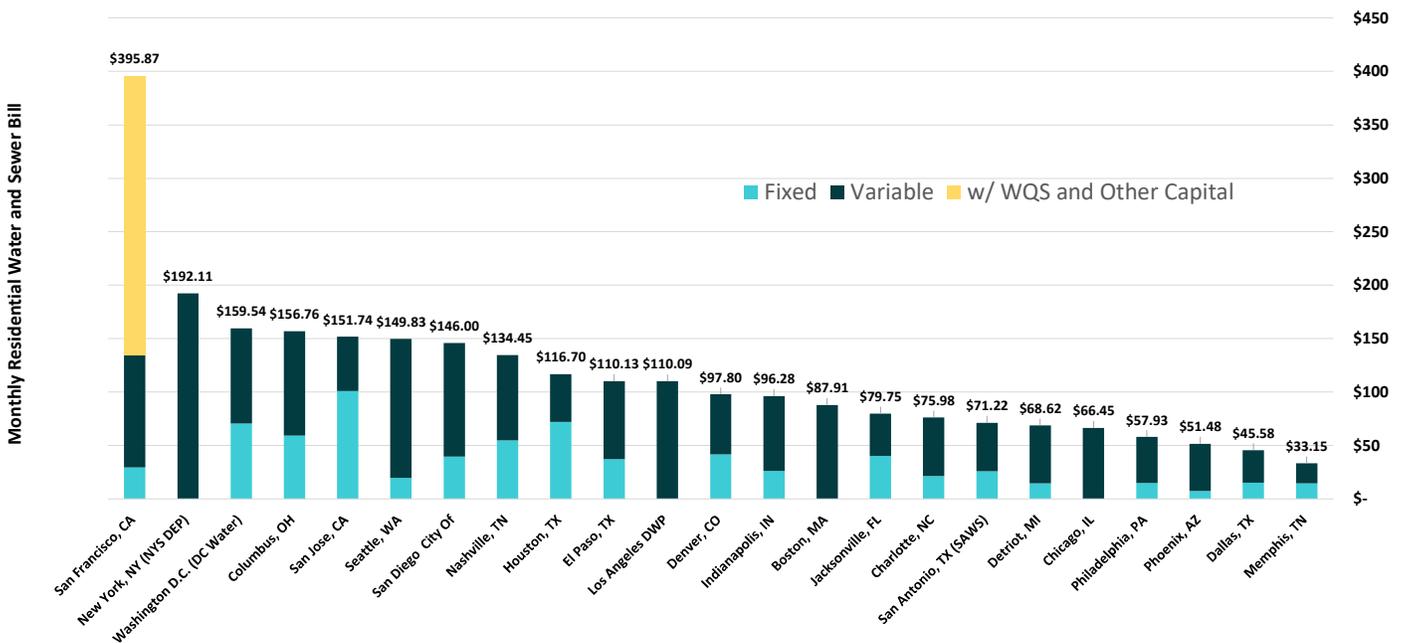
show that the water and wastewater costs to the typical residential customer in the City are also among the highest when compared to other metropolitan areas that were included the survey.

Figure 4-3. Monthly Residential Bill Comparison (Other Metropolitan Areas)



Furthermore, if the City were required to implement pollution controls necessary to meet the Base Standards, the monthly residential bill for the City would be the highest among the other metropolitan areas included in the survey. We present the bill comparison with other national metropolitan areas and with the present value of WQS compliance and other capital costs included for San Francisco (in 2024 dollars) in Figure 4-4.

Figure 4-4. Monthly Residential Bill Comparison (Other Metros) Including WQS & Other Costs



4.4. Customer Assistance Programs and Their Limits

San Francisco and other California cities are uniquely limited in their ability to blunt the impact of high water and wastewater bills. The SFPUC offers a 25% discount on water and wastewater bills to eligible low-income customers to partially offset the cost of water and wastewater services. The eligibility requirements for the customer assistance program include being a direct customer of the SFPUC and having a combined household gross income that does not exceed the Federal Poverty Guidelines.¹⁶ Only approximately 10% of eligible households are currently enrolled in the SFPUC customer assistance program. This low level of participation is common with customer assistance programs¹⁷ and similar to other utility assistance programs across the country.¹⁸

Under California law, specifically Proposition 218, the SFPUC is significantly limited in its ability to fund the customer assistance program. In November 1996, California voters approved Proposition 218, which amended the California Constitution by adding Article XIII D.¹⁹ This amendment to the California Constitution placed substantive limitations on the use of the revenue collected from property-related fees, including (as determined by the California Supreme Court) water and wastewater service rates, and it established procedural requirements for imposing new, or increasing existing, property-related fees.²⁰ The provisions require that a property-related fee must meet the following substantive requirements:

- Revenues cannot exceed the funds required to provide the related service;
- Revenues cannot be used for any purpose other than for which the fee was imposed;
- The amount of the fee charged any individual parcel cannot exceed the proportional cost of providing service to that parcel;
- The fee cannot be imposed unless the service is actually used by, or immediately available to, the owner of the property subject to the fee; and
- The fee cannot be imposed for general governmental services where the service is available to the public in substantially the same manner as it is to property owners.

The substantive requirements in Article XIII D are structured to place limitations on (1) the use of the revenue collected from property-related fees, (2) the amount of the fee, and (3) the circumstances under which the fee can be imposed. Additionally, Proposition 218 shifted the burden of proof in any legal challenge contesting the validity of any property-related charges to the assessing agency.

In addition to meeting the substantive requirements, California courts have held that Proposition 218 requires that water and wastewater rates not be “arbitrary, capricious, or lacking in evidentiary support” meaning that the rate-setting methodology must be sound, and that there must be a rational nexus between the costs and the rates charged. California Courts have also made clear that utility rates need to be established based on the cost-of-service principles, approaches, and methods. These are detailed in water sector manuals of practice.²¹

¹⁶ Customer Assistance Program information accessed at: <https://sfpuc.org/accounts-services/bill-relief/customer-assistance-program-waterwastewater>

¹⁷ For example, the Low-Income Home Energy Assistance Program (LIHEAP) has an eligible participation rate of 16%. Source: LIHEAP: Program and Funding. Congressional Research Service, June 22, 2018.

¹⁸ Based on Raftelis experience working in the water sector.

¹⁹ California Constitution Article XIII D.

²⁰ Ibid.

²¹ Such as the Principles of Water Rates, Fees, & Charges, Manual of Practice M1 published by the American Water Works Association and the Financing and Charges for Wastewater Systems, Manual 27 published by the Water Environment Federation.

In essence, to comply with Article XIII D, rate revenues are significantly restricted for the purposes of payment for services received by individual properties and utility rates should be charged at a level commensurate with the direct benefit received by each property. The requirements of Proposition 218 significantly limit the City's ability to modify its rate structure to lessen the burden on low-income customers, such as implementing wealth-based rates, and also generally precludes the City from using utility rate revenues to provide funding for low-income customer assistance programs.

5. Additional Indications of Widespread and Substantial Social and Economic Impacts

The previous two Sections show a portion of the economic impact—enormous wastewater bill increases—that implementing controls needed to meet the Base Standards would cause in San Francisco. This Section demonstrates that those increased wastewater bills would adversely affect a population that already bears one of the highest costs of living in the nation.

This analysis reveals social and economic impacts that are both widespread and substantial. If San Francisco were to incur the Base Standards Costs, thousands more San Francisco families would find that they no longer earn enough to cover their basic needs, and many more thousands of San Francisco residents would live in poverty. Our analysis further shows that passing the Base Standards Costs onto San Francisco ratepayers would—as measured by the Affordability Ratio metric—eviscerate the budgets of the City’s low-income families.

These enormous and far-reaching harms would fall most severely on people of color. In San Francisco, people of color—particularly Black and people of Asian descent—make up a large proportion of the City’s low-income earners. These populations will be disproportionately represented among those San Franciscans who would be put into poverty or no longer able to meet their basic needs. Meeting the Base Standards would exacerbate economic racial inequality in the City, further rending its social fabric.

5.1. Impact on San Francisco’s Cost of Living

Taking into account San Francisco’s high cost of living reveals that the funding controls to meet the Base Standards would have far-reaching and severe financial consequences for San Franciscans. The City already faces one of the highest costs of living in the country. Wastewater rate increases would only exacerbate this cost-of-living crisis, as illustrated using three metrics: (1) the Living Wage developed by the Massachusetts Institute of Technology (“MIT”); (2) the Real Cost Measure developed by United Way; and (3) the Family Budget Calculator developed by the Economic Policy Institute (“EPI”). These metrics show that people living in San Francisco already bear extremely high costs of living, and that thousands more people would be unable to bear the cost of living in San Francisco if the City had to fund controls to meet the Base Standards.

5.1.1. MIT Living Wage

MIT developed its Living Wage measure to estimate the amount of income that a household needs to pay for essential living expenses and to identify the percentage of service area households with income below or within a certain percentage of the Living Wage. MIT calculates its Living Wage based on the need to pay for essential expenditures in several categories, including food, housing (including utility costs), transportation, medical care, child care, and taxes, for different household sizes and arrangements.²² The housing component of this calculator uses the U.S. Department of Housing and Urban Development’s (“HUD’s”) Fair Market Rent (“FMR”), which relies on the U.S. Census American Community Survey (“ACS”) Rolling 5-Year

²² MIT Living Wage accessed at <http://livingwage.mit.edu>

Average Gross Rent statistics from three years prior, plus water and other utility costs, as well as consumer price index (“CPI”) based adjustments, and the recent mover adjustment, which is designed to survey newly leased rents to prevent biases from dated long-term rental agreements. Utility costs include electric, gas, water, and sewer.

MIT’s Living Wage metric shows the extent to which the City’s residents must manage a high cost of living compared to the rest of the Country. The Living Wage in the San Francisco metropolitan area (\$113,630) is highest among other major metropolitan areas as shown in Figure 5-1.

In the City itself, nearly half of its population *currently* earns less than the amount needed to cover basic needs. MIT estimated San Francisco’s living wage to be \$111,238 for a household with two adults (one working) and two children. Based on figure, more than 47% of households have income equal or less than the MIT Living Wage for San Francisco.²³

Figure 5-1. MIT Living Wage Comparison of Metropolitan Areas



²³ Based on data from U.S. Census, Table S1903, 2022 5-Year Average for San Francisco County.

If the City were required to incur the Base Standards Costs, San Francisco's Living Wage would rise and thousands more San Franciscans would earn incomes insufficient to cover their basic needs. We applied the present value of the rate increases that would be required to fund projects to meet the Base Standards—the second scenario in Section 3.2—to the current Living Wage, which increased the City's Living Wage from \$111,238 to approximately \$114,376. As a result, approximately 8,160 more people and 3,440 more households would find their incomes insufficient to cover their essential living expenses.

5.1.2. United Way's Real Cost Measure

The United Way's Real Cost Measure also illustrates the extent to which rate increases needed to fund the Base Standards Costs would adversely affect San Franciscans. The United Way's Real Cost Measure is a basic “survival” budget that includes the cost of five essential items (housing, childcare, food, transportation, and health care), adjusted for different household types.²⁴ The Real Cost Measure consists of two primary components:

- A household dignity budget, which estimates the cost of meeting basic needs for different households in each area, based on data that accounts for the variation in local cost of living, and
- Neighborhood-level demographic analysis to identify how many households have income below the household dignity budget.

Figure 5-2 shows that the “survival” budget for households in San Francisco of various compositions ranges from \$91,000 to \$127,000. These income levels fall just below the City's 2022 MHI of approximately \$136,689, indicating that San Francisco households at or below the median income have little to no income available to cover wastewater rate increases. As Figure 5-4 shows, San Francisco County's Real Cost Measure (for a four-person household) is also higher than those counties in multiple major metropolitan areas. This disparity highlights what the EPA Guidance's reliance on comparisons to national income averages obscures: how San Franciscans bear higher overall living costs compared to other major cities.

Adding the present value of the rate increases needed to cover the Base Standards Costs would only make San Francisco less affordable and force thousands of families to make hard choices about paying for essential needs. Funding projects to meet the Base Standards would cause San Francisco's Real Cost Measure to increase by approximately 2.5% to 3.4% from a range of \$91,000 to \$127,000 to a range of \$94,000 to \$130,500, as shown in Figure 5-3.²⁵ Between 8,150 and 9,340 more people and between 3,440 and 3,940 more households would have incomes insufficient to cover their basic living expenses.

²⁴ Accessed at: <https://www.unitedwaysca.org/the-real-cost-measure-in-california-2021>

²⁵ We applied the present value of the incremental residential wastewater costs associated with meeting the Base Standards and other capital costs to the Real Cost Measure for San Francisco.

Figure 5-2. United Way Real Cost Measure for San Francisco County



Figure 5-3. United Way Real Cost Measure for San Francisco County (Inc Base Standards Costs)

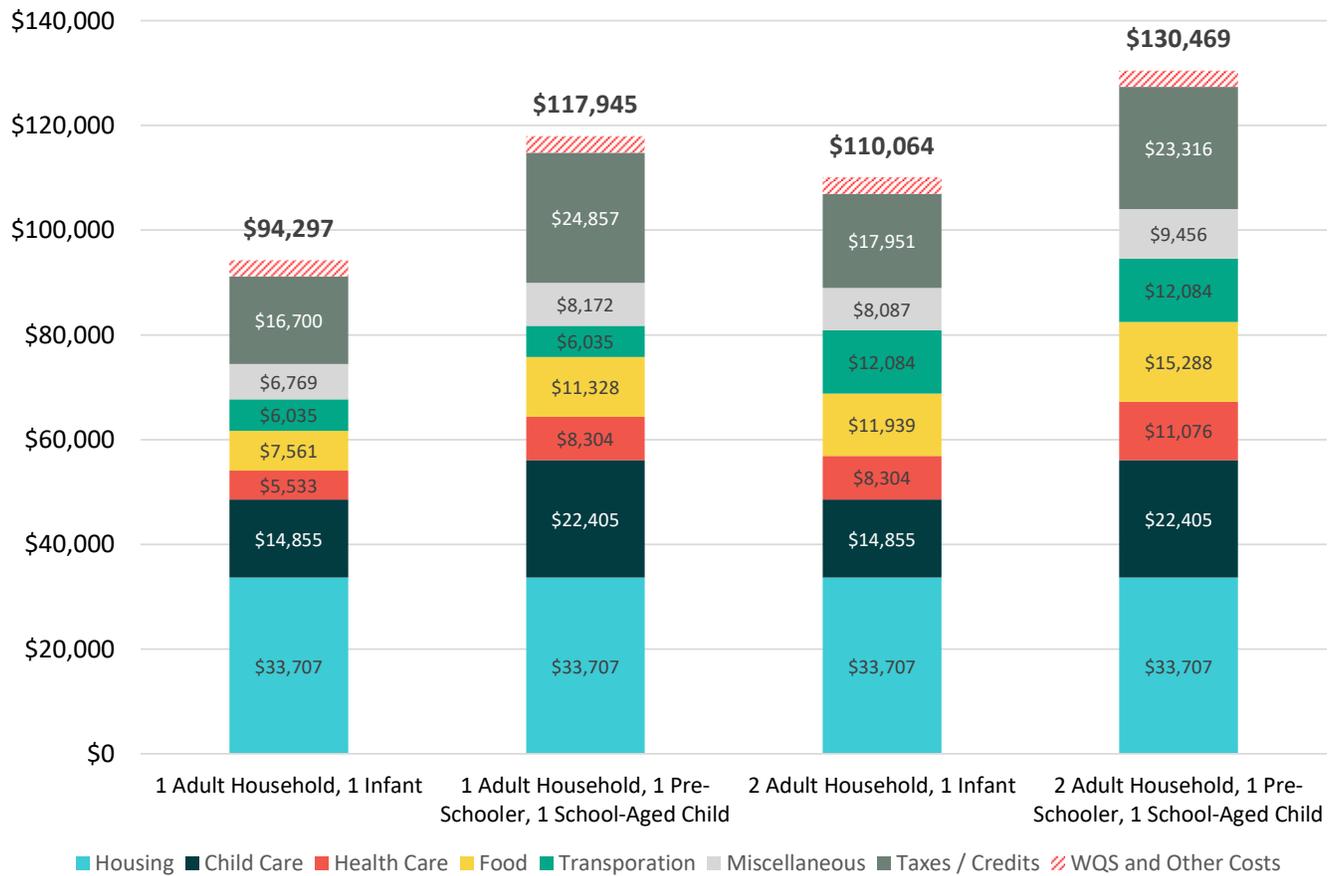
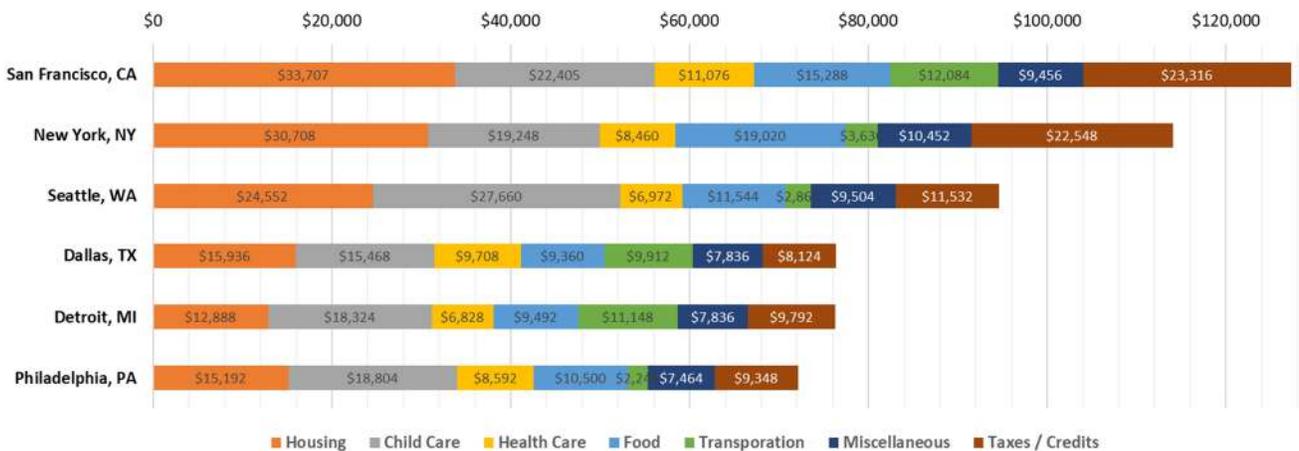


Figure 5-4. United Way’s Real Cost Measure Comparison for Major Metropolitan Area Counties



* Based on the Real Cost Measure for a family of two adults, one preschooler, and one school-aged child.

5.1.3. Family Budget Calculator

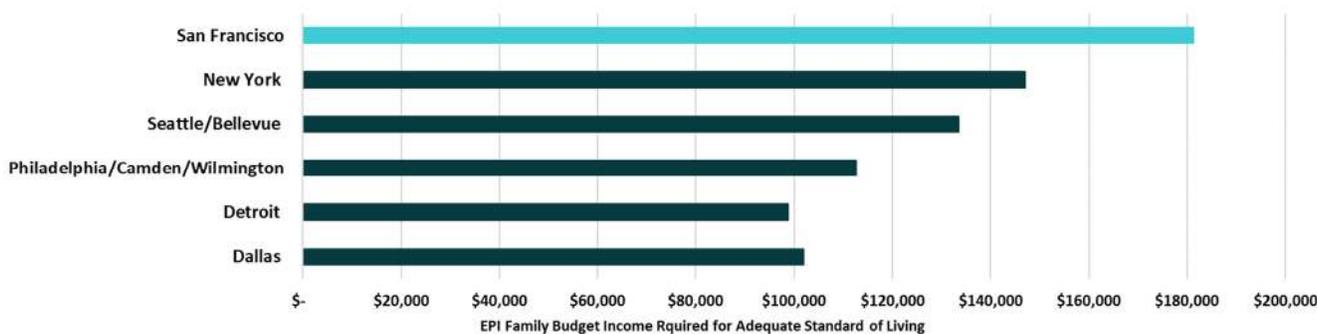
The final cost of living metric, EPI’s Family Budget Calculator, shows again how funding projects to meet the Base Standards would harm thousands of San Francisco families. This metric measures the income a family needs to attain a modest, yet adequate standard of living.²⁶ EPI has prepared budget estimates for community-specific costs for 10 family types in all counties and metro areas in the U.S. According to EPI, it costs a two-parent, two-child family in San Francisco \$181,277 per year to secure a modest, yet adequate standard of living. These costs break down as follows:

- Housing: \$38,256 per year
- Food: \$15,996 per year
- Child Care: \$34,800 per year
- Transportation: \$17,928 per year
- Health Care: \$20,184 per year
- Other Necessities: \$19,212 per year
- Taxes: \$34,908 per year

According to the EPI, the San Francisco metro area has the highest cost of living among the 100 largest metropolitan areas (see Figure 5-5 for a comparison of a subset of these metropolitan areas), and San Francisco County has the third highest cost of living among the 58 counties in California.²⁷

Funding the projects needed to meet the Base Standards would cause the Family Budget Indicator to jump 1.7%, from \$181,277 to \$184,414. As a result, approximately 8,150 more people and 3,440 more households would not earn enough to pay for an adequate standard of living.

Figure 5-5. EPI Family Budget Calculator for Select Metro Areas



5.2. Impacts on Low Income San Franciscans

San Francisco’s low-income households would most acutely feel the burdens imposed by the Base Standards Costs. As discussed in Section 2, however, EPA’s household affordability and community Secondary Screener fails to capture these impacts because the Screener ignores San Francisco’s high cost of living. The Affordability Ratio (“AR”) corrects this deficiency in EPA’s approach by accounting for the cost of essential needs, in addition to wastewater and water costs. Using the AR shows that lower income households would

²⁶ Accessed at <https://www.epi.org/resources/budget/>

²⁷ Ibid.

need to dedicate more than 43% of their income (net after paying for other essential needs) to paying their wastewater and water bills if the City were to invest in controls to meet the Base Standards.

The AR seeks to quantify the percent of a representative household's income that is required to pay for essential utility service, after non-discretionary costs, such as housing and other utility services are removed for the household's income. Basic, essential service costs are defined as indoor household water usage for drinking, cooking, health, and sanitation for a four-person household that uses 50 gallons per person per day. The AR may be calculated for any given income level. For example, the AR for a household at the 20th income percentile would be labeled the AR₂₀. Research indicates that communities with an AR₂₀ of 10% or more is highly burdened.²⁸

We calculated San Francisco's AR₂₀, including basic monthly water and wastewater utility costs and other essential costs, as follows:

$$\text{Basic Monthly Cost for Service} = ((\text{Wastewater Rate Per Gallon} + \text{Water Rate Per Gallon}) * 3 \text{ People Per Household} * 50 \text{ Gallons Per Person Per Day} * (365 \text{ Days Per Year} / 12 \text{ Months Per Year}))$$

$$\text{20th Income Percentile} = \text{Census Data 20th Income Percentile for the Service Area}$$

$$\text{Essential Costs} = \text{Housing} + \text{Food} + \text{Healthcare} + \text{Home Energy} + \text{Taxes.}$$

$$\text{AR}_{20} = \text{Basic Monthly Cost for Service} / ((\text{20th Income Percentile} - \text{Essential Costs}) / 12)$$

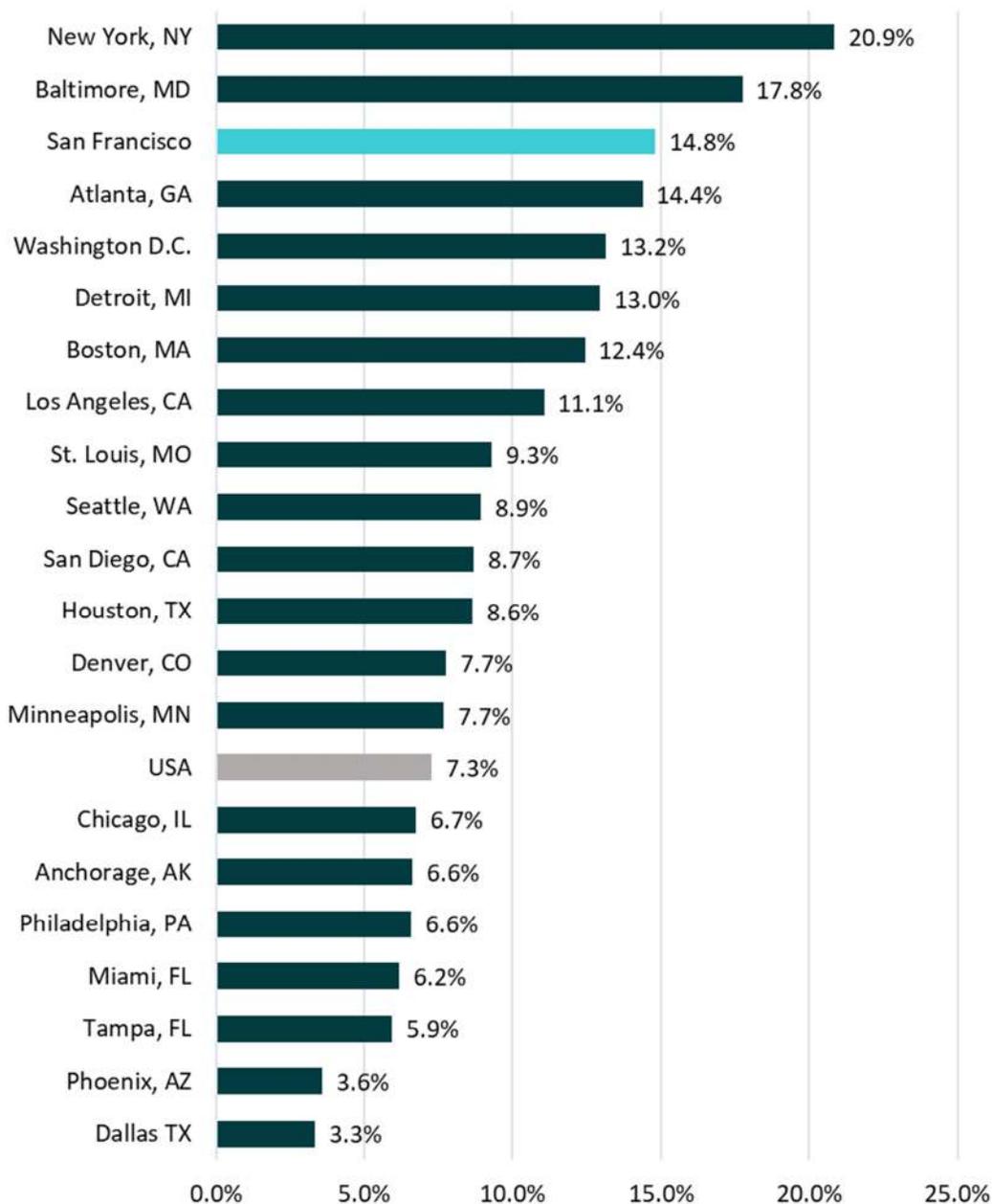
Our AR₂₀ analysis used the following additional assumptions and data sources:

- We utilized an estimate of the typical basic residential water and wastewater cost including approximately 6 CCF of monthly usage. This figure was obtained by multiplying 50 gallons per person per day for a three-person household in San Francisco.
- We completed a regression analysis to estimate the essential costs at the 20th percentile San Francisco income level. We utilized expenditure survey data for San Francisco from the ACS Public Use Microdata Sample ("PUMS") dataset for the 25 largest MSAs for the most recent available four quarters (last three quarters of 2022 and first quarter of 2023). Each regression analysis included survey data results for households with income up to approximately \$100,000 annually.
- We calculated a national AR₂₀ measure for comparison to San Francisco, using the entire essential cost expenditure dataset downloaded from ACS, and a regression analysis to estimate essential costs at the 20th percentile national income level. The typical water and wastewater bill for the national AR₂₀ measure utilized in our comparison was the average of the total water and wastewater cost of the largest 25 MSAs.

Our AR₂₀ analysis indicates that households at the 20th percentile (\$41,663 in 2022) in San Francisco currently spend nearly 15% of their household income on wastewater and water service, after paying for other essential needs. This percentage of discretionary income required to cover wastewater and water service is among the highest in the country, as shown in Figure 5-6, and well above the 10% high burden threshold.

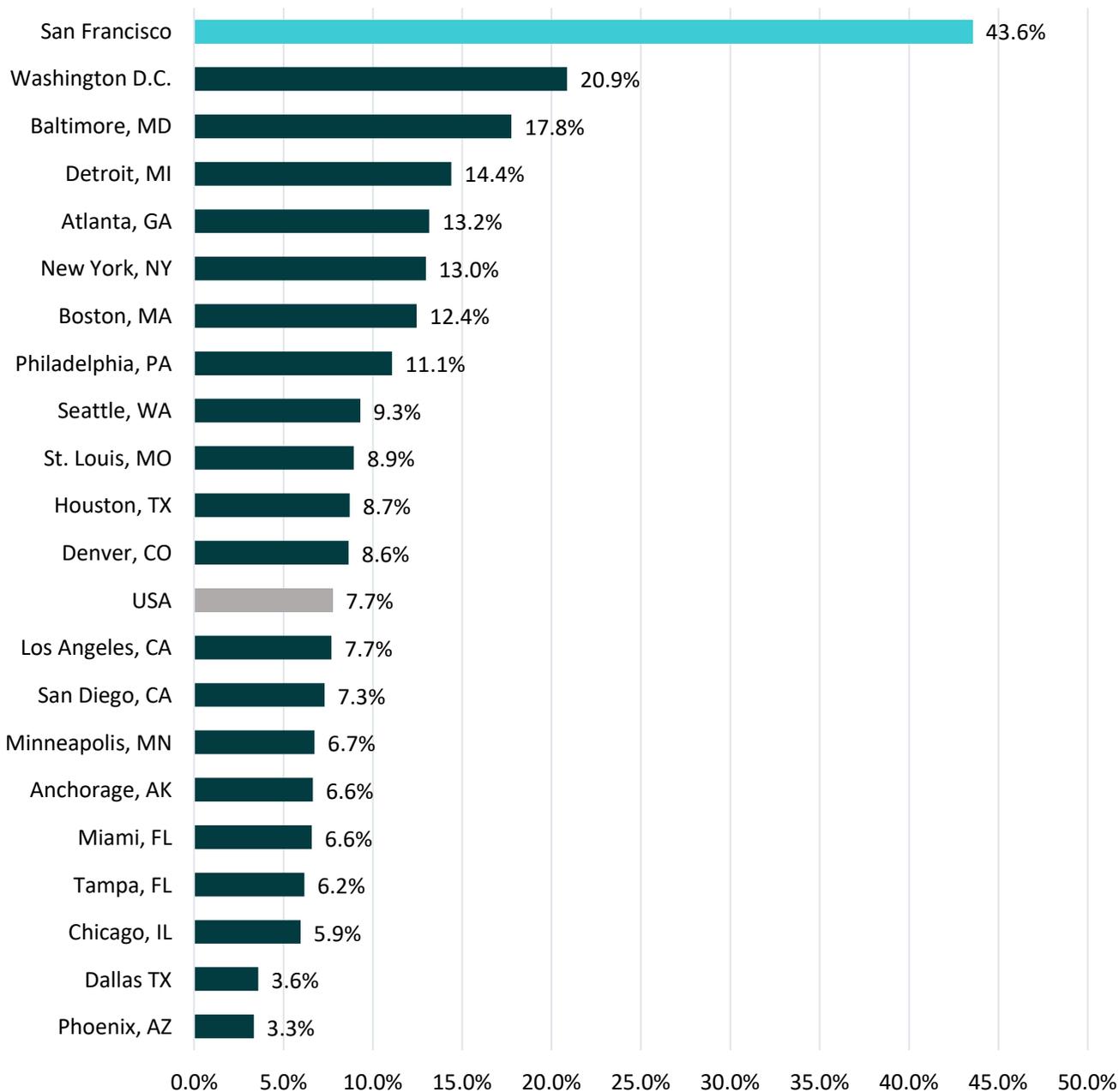
²⁸Teodoro, Manuel P. Measuring Household Affordability for Water and Sewer Utilities. Journal of the American Water Works Association, 110(1), 13-24. January 2018. Retrieved from: <http://mannyteodoro.com/wp-content/uploads/2014/03/Teodoro-JAWWA-2018-affordability-methology.pdf>

Figure 5-6. San Francisco AR₂₀ Affordability Measure Compared to Other Metro Areas



If the City were to build pollution controls needed to meet the Base Standards, the significant wastewater bill increases projected in Section 3 would decimate low-income households’ budgets and cause San Francisco’s AR₂₀ to skyrocket. San Francisco’s AR₂₀ would increase to 43%, more than four times the 10% high burden threshold and more than twice as high as that in any other American city. San Francisco’s AR₂₀ would be substantially higher than any other community included in the analysis as shown in 5-7. In practice these results show that a three-person family in San Francisco making \$41,600 per year (approximately the LQI in 2022) would have only \$10,900 left over after paying for other essentials (*i.e.*, housing, food, healthcare, and taxes). Water and wastewater bills would consume approximately 44% or \$4,700 of this remainder, leaving only \$6,200 to cover other expenses. Families earning less than \$41,600 per year—approximately one-fifth of San Francisco’s population—would have even less left over after covering the enormous water and wastewater bills necessary to pay the Base Standards Costs.

Figure 5-7. San Francisco AR₂₀ Affordability Measure Compared to Other Metro Areas (Including WQS Compliance and Other Costs)



5.3. Impacts on Poverty

The poverty metric used in the EPA Guidance obscures the true extent of poverty in San Francisco by relying on the Federal Poverty Level (“FPL”), which does not account for the cost of living. The Supplemental Poverty Measure (“SPM”), which takes into account the local cost of living, shows what the FPL and the EPA Guidance cannot: *real* poverty in San Francisco is higher than the national average. Replacing FPL with SPM in the EPA Guidance’s economic impact analysis and adjusting the lowest quintile income indicator for the higher cost of living in San Francisco would materially alter the outcome of the analysis under that guidance.

Our analysis shows that the City’s poverty rate, as measured by SPM, would increase substantially if the City were to pay for controls to meet the Base Standards. Thousands more San Francisco families would plunge into poverty, causing substantial economic and social impacts that would be felt throughout the City.

FPL and SPM are two of the most common measures of poverty that the federal government uses for subsidy eligibility and for comparing the prevalence of poverty among communities.²⁹ The FPL is a measure of household income that corresponds to a minimum standard of living for households of various sizes based on a historical survey of national—not local—essential living costs that is updated annually for inflation.³⁰ The FPL is reported by family size, is published annually by the U.S. Census, and is updated using the CPI index. According to federal guidelines, income comparisons to the FPL exclude capital gains, non-cash benefits (such as public housing, Medicaid, and food stamps), and tax credits. The FPL does not vary by geography.

Comparisons based on the percentages of households with incomes below the FPL, like those found in the 2023 EPA Guidance, will inherently understate poverty in San Francisco for two reasons. First, the FPL formula is primarily based on the cost of food, the cost of which has risen far more slowly than the costs of other necessities such as housing, transportation, childcare, healthcare, and other family necessities which have risen far more rapidly than food costs. Second, the FPL ignores regional variations in the cost of living and relies on 1955 national average cost of living statistics escalated by CPI rather than actual updated cost of living metrics. As a result, FPL hides the true extent to which San Francisco families contend with economic deprivation.

A comparison of San Francisco’s MIT Living Wage for various household sizes with the FPL, as depicted in Table 5-1, reveals the extent to which FPL understates poverty in the City. Due to San Francisco’s high cost of living, a living wage in San Francisco is nearly *four times* the FPL.

Table 5-1. Comparison of the Living Wage and the FPL For Various Household Sizes

Household Size	Federal Poverty Level (FPL) ¹	200% of the FPL	MIT Living Wage ²	San Francisco Living Wage as % of the FPL	San Francisco Living Wage as % of 200% of the FPL
One Person	\$15,060	\$30,120	\$5,390	368%	184%
Two People	20,440	40,880	83,158	407%	203%
Three People	25,820	51,640	102,419	397%	198%
Four People	31,200	62,400	112,902	362%	181%
Five People	36,580	73,160	131,290	359%	179%

¹Federal Poverty Guidelines from Federal Register Notice, January 17, 2024. Accessed at: Department of Health & Human Services.

²Source: <https://livingwage.mit.edu/metros/41860>

²⁹ Poverty is a state or condition in which a person lacks the financial resources and essential for a minimum standard of living. <https://www.britannica.com/topic/poverty>

³⁰ The original FPL measure was developed in 1963 and is still the base value used today prior to applying CPI adjustments. The FPL measure was based on the U.S. Department of Agriculture’s (“USDA”) 1961 economy food plan based on survey research from 1955. The economy food plan is essentially a sustaining but emergency level food diet for when funds are low. Other research from 1955 showed that a typical family of four spent about one third of their income on food and so the poverty level was set at three times the economy food plan.

The other common federal metric—SPM—resolves many of FPL’s failures by better accounting for local cost of living.³¹ The SPM defines poverty as the 33rd percentile of the distribution of household expenditures on food, shelter, clothing, and utilities and then multiplies this value by 1.2 times to allow for some extra expenditures. While there are cost components that comprise the SPM available at the county or MSA level, like the FPL, the SPM is calculated by the Federal Government at the national level. However, researchers at the Bureau of Labor Statistics (“BLS”) have published the SPM for metro areas across the country, including San Francisco.³²

Table 5-2. Comparison of the Percentage of Households Below the SPM

SPM (San Francisco)	SPM	% Households Below SPM
San Francisco	\$41,565	21.3%
U.S. Nation	\$29,613	20.9%

Using SPM shows that (a) poverty is more prevalent in San Francisco than FPL—or the EPA Guidance—would indicate, and rate increases needed to cover the Base Standards Costs would dramatically increase poverty in San Francisco. As shown in Table 5-2, the percentage of households in San Francisco that are below the SPM (21.3%) is higher than the national percentage (20.9%) indicating—unlike when one uses FPL—that poverty is slightly more prevalent in San Francisco than the country as a whole. If the City were to invest in controls needed to meet the Base Standards, the dramatic increases in wastewater residential customer bills would cause the SPM for San Francisco to increase by 7.6%, from \$41,565 to approximately \$44,700. An estimated 10,700 more people and 4,570 more households would be thrown into poverty and earn less than the SPM.

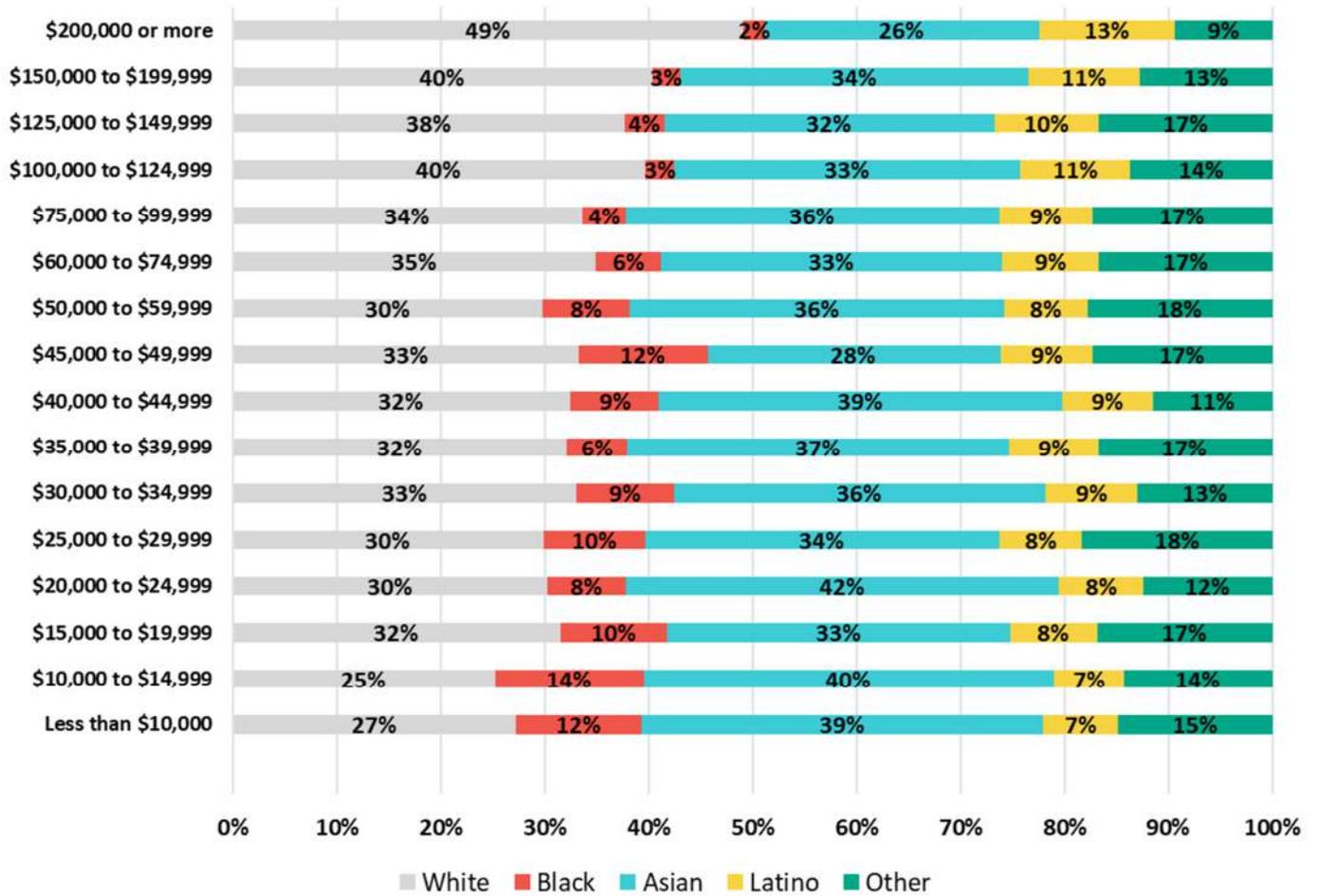
All of the impacts resulting from the Base Standards Costs—higher cost of living that causes thousands more families into poverty—will fall disproportionately on people of color. As Figure 5-8 shows, non-White households make up the majority of households currently earning close to or less than a living wage in San Francisco. Approximately 3,400 additional households will fall below the MIT living wage, out of which 67% are households with at least one member identifying as non-White. Due to this inequitable distribution of income in the City, the rate increases needed to fund the controls necessary to meet the Base Standards will fall most heavily and disproportionately on people of color.

These unevenly distributed impacts will further exacerbate racial wealth inequality and reinforce San Francisco’s highly inequitable distribution of income. The estimated 77,000 households in San Francisco that are already in poverty (as measured by the SPM) will be further burdened by the impacts associated with the costs of the Base Standards. Of these households, approximately 68% are households with at least one member identifying as non-White. Furthermore, of the approximately 4,600 additional households that would be thrown into poverty estimated using this measure, approximately 67% of these households would be non-White households, such as Black minorities and people of Asian descent.

³¹ The federal government developed SPM in order to create a more rigorous estimate of poverty prevalence, but it has not replaced the FPL as the official poverty measure for use in any federal programs to date. The SPM incorporates a variety of U.S. Census, Bureau of Labor Statistics, and other federal data sources for the expenditure data at the national level. However, unlike the FPL, federal guidelines specify that income comparisons to the SPM should include the value of non-cash benefits and exclude income for some expenses not accounted for such as taxes (or plus tax credits), work expenses, out-of-pocket medical expenses, and child support paid to another household.

³² SPM information accessed at: <https://www.census.gov/data/tables/2022/demo/income-poverty/p60-277.html>

Figure 5-8. Ethnic and Racial Makeup of Households by Income Range in San Francisco³³



³³ Income brackets by race data compiled from US Census Tables B19001A through B19001I 2023 5-Year Average Data

6. Conclusion

The economic assessment findings and conclusions from our analysis demonstrate that there would be substantial and widespread impacts on the City's population if the City needed to implement pollution controls to meet the Base Standards. Wastewater bill increases necessary to cover the Base Standards Costs would have profound and far-reaching effects on San Francisco's economic and social fabric. Due to higher wastewater bills, an already unaffordable City will become that much more unaffordable. San Francisco will have to grapple with how to assist more than 10,000 newly impoverished residents, as well as manage circumstances in which nearly half the population earns incomes insufficient to cover basic needs. Worse, people of color will be harmed more than White San Franciscans, further exacerbating existing income and wealth gaps.

Investing in controls to meet the Base Standards would make San Francisco a poorer, more unequal City. San Francisco would experience these harms City wide, with nearly half of its population facing greater economic distress to one degree or another. At lower ends of the income spectrum, increased household burdens will be enormous and require families to make agonizing choices over cutting expenses that are otherwise essential. Communities of color will be the hardest hit, causing the gap between White and non-White San Franciscans to grow only more extreme. San Francisco seeks a variance to avoid this economic and social catastrophe.

APPENDIX A:

EPA Economic Impact For WQS Results (Using the 2023 EPA Guidance)



Appendix A: Economic Impact Assessment (Using the 2023 EPA Guidance)

Raftelis completed an analysis consistent with the 2023 EPA Guidance. In this Appendix, we present the methodology and results of that analysis. The analysis was completed to determine if the capital and O&M costs of implementing the CIP will have a substantial impact by measuring the burden to households, the community’s ability to obtain financing, and the general economic health of the community. We document the estimate of economic impacts in accordance with the 2023 EPA Guidance below.

Step 1: Municipal Preliminary Screener

The Municipal Preliminary Screener (residential cost as a percentage of MHI) was calculated by first determining the total cost of wastewater service for City retail customers. A portion of the total City cost was then allocated to residential customers based on the percentage of total flow generated from these customers. Finally, the total residential cost was allocated among the total number of households in the service area to determine the wastewater service cost per household (“CPH”), including the full compliance costs. Once the CPH was estimated, the Municipal Preliminary Screener was calculated by dividing the CPH by the MHI for the City. We then compared the calculated Residential Indicator to the EPA defined criteria for classifying the financial impacts as “Low,” “Mid-range” or “High” as shown in Table A-1.

Table A-1. EPA Residential Indicator Financial Impacts

Financial Impact	Municipal Preliminary Screener (Cost as a Percent of MHI)
Low	Less than 1.0 percent
Mid-Range	1.0 percent to 2.0 percent
High	Greater than 2.0 percent

Worksheet 1: Total Annual Pollution Control Costs Per Household

Worksheet 1 develops the cost per residential household served by the City. The EPA defines current wastewater treatment costs as the current annual O&M expenses (excluding depreciation) plus current annual debt service payments (principal and interest). These costs are intended to represent the cash expenditures of current wastewater treatment, conveyance, and collection system operations. Lines 100 and 101 show the current FY 2022 O&M and debt service cost for the City.

Line 103 shows the amount of total future capital costs that could be incurred by the City to address aging infrastructure and for implementation of the costs needed for full compliance. The City’s residential share of the total current and projected costs was then estimated based on an analysis of residential billed volume compared to the total billed volume. The cost per household was then calculated by dividing the City customer’s residential share of the costs by the number households within the City. We provide a summary of this calculation in Table A-2.

Table A-2. Worksheet 1: Cost Per Household

Description		Amount	EPA Line No.
Current WWT Costs (2023):			
Annual Operations and Maintenance Expenses ¹		\$201,592,038	100
Annual Debt Service (Principal and Interest)		106,442,524	101
Less: Industrial Surcharges		<u>(36,219,650)</u>	
Net Total Current WWTP Costs		\$271,814,912	102
Projected WWT and Water Pollution Control Costs:			
Estimated Annual Operating and Maintenance Expenses		31,616,610	103
Projected Capital Cost ²		29,040,592,036	
Annual Debt Service (Principal and Interest) ³		<u>1,896,688,716</u>	104
Total Projected WWT and Water Pollution Control Costs		\$1,928,305,326	105
Total Current and Projected WWT and WPC Costs		\$2,200,120,239	106
City Customer Share of Total Costs ⁴	97.7%	\$2,150,178,650	
City Residential Share of WWT and WPC Costs ⁵	74.8%	\$1,607,933,612	107
Total Number of Households ⁶		360,842	108
Cost per Household		\$4,456	109

¹FY 2023 SFPUC wastewater expenses.

²Projected capital cost includes SFPUC's 10-year capital plan cost, plus renewal & replacement, facilities & infrastructure, sewer system improvement program costs, special project costs, the cost for the Southeast Campus Plan, and the estimated full compliance costs projected for years FY 2024 to FY 2053 (30 years).

³Assumes 5% interest per annum, a debt amortization period of 30-years, and issuance cost of 0.40%.

⁴Based on inside-city retail and wholesale customer share of revenues average for FY 2020 – FY 2022.

⁵Based on billed flows for residential and multi-family residential customers averaged for FY 2020 – FY 2022.

⁶American Community Survey for San Francisco, Five-Year ACS 2022, Table DP02.

Worksheet 2: Municipal Preliminary Screener

The Municipal Preliminary Screener for the City was calculated by dividing the CPH by the MHI. Multiple statistical sources were evaluated for MHI data for the City. The MHI was adjusted to 2023 dollars and the Municipal Preliminary Screener was then calculated by dividing the CPH by the adjusted MHI for the City. We provide a summary of these calculations in Table A-3.

Table A-3. Worksheet 2: Municipal Preliminary Screener

Description	Amount	EPA Line No.
MHI Census Year	2022	201
Median Household Income	\$136,689	
MHI Adjustment Factor	1.03	202
Adjusted MHI	\$140,790	203
Annual WWT and CSO Control Cost per Household	\$4,456	204
Municipal Preliminary Screener:		
Cost per Household as a Percentage of Household Income	3.2%	205

The Municipal Preliminary Screener was compared to the EPA financial impact ranges shown in Worksheet 2 provided in the EPA Guidance document to assess the financial impact that wastewater treatment costs may have on the community's residential customers. Based on the results of the analysis, the Municipal Preliminary Screener is above the "High" financial impact threshold of 2.0 percent.

The projected capital costs included in Worksheet 1 (Table A-2) totaling \$29.0 billion include both costs necessary to meet the WQS that are the subject of the requested variance, and other capital needs of the wastewater system to address aging infrastructure and asset replacement needs. These other capital-related costs to address aging infrastructure total approximately \$520 million per year (in 2024 dollars) and are planned to be implemented over the next 30 years. Other capital costs in the estimate include renewal & replacement, facilities & infrastructure, sewer system improvement program costs, nutrient control costs, Southeast Outfall Creek Crossing costs, and the Southeast Campus Plan costs in years 1-10 totaling \$5.9 billion (in 2024 dollars). SFPUC expects that some of the work on the projects started in the next 10 years will continue in the years beyond FY2033 at an estimated cost of an additional \$3.5 billion in 2024 dollars.

The capital cost estimate excludes capital needs to address other potential regulatory needs in the future as additional regulatory requirements are imposed.

Step 2: Secondary Screener Assessment

The second step of the EPA analysis is intended to assess the community's financial capability. There are three general categories of measures used to assess the community's financial capability: (1) debt indicators, (2) socioeconomic indicators, and (3) financial management indicators. The EPA has established guidelines for interpreting these indicators and their associated impact on the overall financial capability, and these guidelines are provided below.

Debt Indicators

Debt indicators assess the current debt burden of the community and their ability to issue additional debt to finance the planned future wastewater treatment and compliance projects. The indicators include bond rating and the overall net debt as a percentage of full market property value.

Worksheet 3: Bond Rating

Bond credit ratings measure a community’s credit worthiness and are assessed by one or more of the three major rating agencies. The City received a rating on its General Obligation Bonds from Moody’s Investors Service, Inc. as of June 30, 2023 of Aaa,³⁴ which places it in the “Strong” category of EPA’s indicator ranges.

Worksheet 4: Net Debt as a Percentage of Full Market Value of Taxable Property

Net debt as a percentage of the full market value of taxable property compares the level of debt with the full market value of the real property used to support that debt. The EPA defines overall net debt as debt repaid by property taxes. It includes the debt issued directly by the municipality as well as debt of overlapping entities, such as school districts. It excludes debt that is repaid by special user fees (e.g., revenue debt). This measure considers the debt burden on residents within the service area and the ability of the municipality to issue additional debt. Financial information for the City was used for this section of the analysis. We provide a summary of this measure in Table A-4.

Table A-4. Worksheet 4: Overall Net Debt as a Percentage of Full Market Property Value

Description	Amount
Direct Net Debt	\$5,433,880
Debt of Overlapping Entities	<u>2,794,933</u>
Overall Net Debt	\$8,228,813
Market Value of Property	\$353,060,525
Ratio	2.3%

Source: City and County 2023 ACFR.

As shown in the table, the City’s overall net debt as a percentage of the full market value of property is 2.3%. This results in the City being in the “Mid-Range” category, based on EPA indicator ranges shown in Table A-5.

Table A-5. EPA Indicator Ranges for Overall Net Debt as a % of Full Market Property Value

Rating	Ratio
Weak	Above 5 percent
Mid-Range	2 percent to 5 percent
Strong	Below 2 percent

Socioeconomic Indicators

Socioeconomic indicators are indicators of the economic well-being of residential customers. They offer additional insight into the economic conditions within the City. According to the EPA guidance document,

³⁴ City and County 2021 Annual Comprehensive Financial Report, p.22.

two socioeconomic indicators to be considered are the (1) unemployment rate and (2) MHI. A more extensive discussion of the socioeconomic conditions of the City’s service area and its customers was provided previously.

Worksheet 5: Unemployment Rates

We compared the unemployment rate (percent of service area residents who are on the unemployment rolls) for the City to the national average unemployment rate, as shown in Table A-6.

Table A-6. Worksheet 5: Unemployment Rates

Description	Percentage
City	5.4%
National (U.S.)	5.3%
Difference	0.1%

*From ACS Table S2301. 2022: ACS 5-Year Estimates.

The unemployment rate statistics show that the City’s unemployment rate is similar to, but higher than the national average. A comparison of the City’s unemployment rate with the national average places the City in the “Mid-Range” category for this measure based on the EPA indicator ranges shown in Table A-7.

Table A-7. EPA Indicator Ranges for the Unemployment Rate

Rating	Ratio
Weak	More than 1 percent above National Average
Mid-Range	+/- 1 percent of National Average
Strong	More than 1 percent below National Average

Worksheet 6: Median Household Income

We show the MHI for the City as compared to the national average MHI in Table A-8.

Table A-8. Worksheet 6: Median Household Income

Description	MHI (2022)	Adjusted MHI (2023)
City of San Francisco	\$136,689	\$140,790
National MHI (2021 adjusted to 2022)	\$75,149	\$77,403
MHI as % of National MHI		182%

*From ACS Table S1901 and B19013. 2022: ACS 5-Year Estimates.

The EPA has established indicator ranges for variation between national and permittee MHI in the Secondary Screener assessment. Based on these ranges, which are shown in Table A-9, the City’s adjusted 2023 MHI, as compared to the adjusted 2023 national MHI, places the City in the “Strong” range for this rating category. However, note that this comparison does not reflect the difference in cost of living in San Francisco as compared to the national average cost of living. As documented in this report, San Francisco is one of the highest costs of living cities in the country, and therefore, a comparison of MHI to the national MHI is not a relevant comparison.

Table A-9. EPA Indicator Ranges for MHI

Rating	Ratio
Weak	More than 25 percent below National Average
Mid-Range	Within 25 percent of National Average
Strong	More than 25 percent above National Average

Financial Management Indicators

The financial management indicators included in the EPA Guidance are: (1) property tax revenues as a percent of full market property value and (2) property tax revenue collection rate.

Worksheet 7: Property Tax Revenues as a Percent of Full Market Property Value

This indicator is referred to as the “property tax burden” since it indicates the funding capacity available to support debt based on the wealth of the service area. Property tax revenues as a percent of full market property value measures the capacity of the community to support additional debt. In other words, this figure estimates the ability of the local government to levy increased property taxes to fund additional borrowings. The value for the full market value of real property excludes the value of tax-exempt properties within the City, and property tax revenues include revenues from overlapping entities (County and School District property taxes).

Table A-10. Worksheet 7: Property Tax Revenues as a Percentage of Full Market Property Value

Description	Amount
Full Market Value of Real Property	\$353,060,525
Property Tax Revenues	\$4,019,937
Ratio	1.14%

Source: City and County 2023 ACFR, p.258.

As shown in the table, the City’s property tax revenues comprise approximately 1.1% of its taxable full market property value. The EPA has established the following indicator ranges for property tax revenues as a percentage of full market property value in the financial capability assessment. According to Table A-11, the City falls in the “Strong” category for this measure.

Table A-11. Property Tax Revenues as a Percentage of Full Market Property Value

Rating	Ratio
Weak	Above 4 percent
Mid-Range	2 percent to 4 percent
Strong	Below 2 percent

However, it is important to note that San Francisco property values are among the highest in the Country. For example, the median sales price for a single-family home as of December 2023 was \$1.2 million.³⁵ Applying a tax rate of 1.14% results in annual tax burden for the median single-family home of \$15,900. While this tax burden estimate is extremely high on a dollar basis, Proposition 13 limits this tax burden for some households.

Proposition 13 was adopted in 1978 and places restrictions on local governmental practices associated with the assessment of ad valorem taxes. There are two ways in which the Proposition constrains the application of property taxes. The first is to set a statutory limit on property taxes as a percentage of assessed valuation and the second is how taxes can be adjusted to reflect current market values of properties.

The first restriction caps property assessments at one percent (with additions to cover locally approved bonding) and requires that properties be assessed at market value at the time of sale. The second allows following assessments to rise by no more than 2 percent per year until the next sale. In practice, this means that if property values increase by more than 2% per year, municipalities are not allowed to regularly reflect property values in their ad valorem assessments to property owners. Due to these restrictions, the property tax bills which can be issued by a governing body, especially in the case of long-term property ownership, are statutorily prevented from increasing in line with real estate values until the property is sold.

³⁵ Market data from Redfin. Accessed at: <https://www.redfin.com/city/17151/CA/San-Francisco/housing-market>

Worksheet 8: Property Tax Revenue Collection Rate

The property tax revenue collection rate reveals inefficiencies in the tax collection system by reporting the difference between the levied tax amount and the collected tax amount. We show the collected tax revenue for the City in FY 2023, excluding overlapping tax revenue, in Table A-12.

Table A-12. Worksheet 8: Property Tax Revenue Collection Rate

Description	Amount (in \$000s)
Property Tax Revenue Collected	\$4,019,937
Property Tax Levied	\$4,067,270
Property Tax Collection Rate	98.8%

Source: City and County 2023 ACFR, p.258 and 285.

As shown in the table, the City’s property tax collection rate was 98.8% in FY 2023. The EPA has established the following indicator ranges for the property tax revenue collection rate in the Secondary Screener assessment. According to Table A-13, the City falls in the “Strong” category for this measure.

Table A-13. Property Tax Revenue Collection Rate Benchmarks

Rating	Ratio
Weak	Below 94%
Mid-Range	94% to 98%
Strong	Greater than 98%

Worksheet 9: Summary of Results of Financial Capability Indicators

Based on this analysis, we calculated an overall Secondary Screener Score of 2.7, which corresponds to a “Strong” Secondary Screener rating based on the EPA methodology. The following table summarizes the financial indicators, the rating associated with each indicator and the City’s score for each indicator. We used the average score for all indicators to determine the overall indicator score.

Table A-14. Worksheet 9: Financial Capability Indicators

Indicator	Actual Value	Rating	Score
Bond Rating (CRW)	Aa2	Strong	3
Overall Net Debt as a Percentage of Full Market Value	2.3%	Mid-Range	2
Unemployment Rate	5.4%	Mid-Range	2
Adjusted Median Household Income	\$142,157	Strong	3
Property Tax Revenues as a Percentage of Full Market Property Value	1.1%	Strong	3
Property Tax Revenue Collection Rate	98.8%	Strong	3
Overall FCI Score		Strong	2.7

Worksheet 10: Initial Economic Impact Matrix

Using the EPA methodology, the results of the Municipal Preliminary Screener scores and the Secondary Score are combined into a Initial Economic Impact Matrix as shown in Table A-15.

Table A-15. Worksheet 10: Initial Economic Impact Matrix

Secondary Score (SS)	Municipal Preliminary Screener (MPS) (Cost as a Percent of Median Household Income)		
	Below 1%	1.0% to 2.0%	Above 2%
Below 1.5 (Weak)	Impact Unclear	Substantial Impact	Substantial Impact
1.5 to 2.5 (Mid-Range)	Impact Not Likely to be Substantial	Impact Unclear	Substantial Impact
Above 2.5 (Strong)	Impact Not Likely to be Substantial	Impact Not Likely to be Substantial	Impact Unclear

According to the EPA Guidance, the City’s score is “Impact Unclear,” which combined a “High” financial impact Municipal Preliminary Screener and a “Strong” Secondary Screener Score. For results that fall into the “Impact Unclear” category, the EPA Guidance suggests that other factors, such as other metrics, Financial Alternatives Analysis and rate models be used to assess the impact on low- or fixed-income households, the presence of a failing local industry, and other projects the community would have to forgo in order to comply with WQS should be considered.”³⁶

³⁶ The 2023 EPA Guidance, p.42.

Step 3: Initial Lowest Quintile Poverty Indicator Score

The third step in the 2023 EPA Guidance is to calculate the Initial Lowest Quintile Poverty Indicator (“LQPI”) Score by using a list of indicators to benchmark the severity and prevalence of poverty within the community’s service area. The LQPI score aids in assessing the severity and prevalence of poverty in a community’s service area. Results are presented in Table A-16.

Table A-16. Lowest Quintile Poverty Indicator (LQPI) Score

Description	Strong (Score=3)	Mid-Range (Score=2)	Weak (Score=1)	Weight	National Value	Permittee Value	Score	Source
LQPI # 1 Upper Limit of Lowest Quintile Income Indicator	More than 25% above the national LQI	Within 25% of national LQI	More than 25% below national LQI	50%	\$31,709	\$42,913	3	U.S. Census 2022 5-Year, Adjusted to 2023. Table B19080.
LQPI # 2 Percent Population with Income Below 200% of Federal Poverty Level	More than 25% below national value	Within 25% of national value	More than 25% above national value	10%	28.8%	20.7%	3	S1701
LQPI # 3 Percent of Population Receiving Food Stamps/SNAP Benefits	More than 25% below national value	Within 25% of national value	More than 25% above national value	10%	11.5%	8.2%	3	S2201
LQPI # 4 Percent Vacant Households	More than 25% below national value	Within 25% of national value	More than 25% above national value	10%	10.8%	11.6%	2	B25002
LQPI # 5 Trend in Household Growth	>1%	0% - 1%	<0%	10%	0.8%	0.9%	2	B25002 (2015 to 2021 average)
LQPI # 6 Percent Unemployed Population 16 and Over in Civilian Labor Force	More than 25% below national value	Within 25% of national value	More than 25% above national value	10%	5.3%	5.4%	2	S2301
Score for LQPI #1 3.0 Average Score for LQPI #2 to #6 2.4 Initial Lowest Quintile Poverty Indicator Score 2.7							Sum of 2 through 6 / 5	Sum of two lines above / 2
Residential Indicator Benchmark Low Impact Low Impact (Above 2.5) Medium Impact (1.5 to 2.5) High Impact (Below 1.5)							Based on impact ranges	

Based on the LQPI, San Francisco has a “low impact” score. Although San Francisco’s low-income households earn more than in other parts of the country, they also pay extremely high costs for basic goods, services, and shelters that effectively offset these higher incomes. The results of the Expanded Economic Impact Matrix are provided in Table A-17.

Table A-17: Expanded Economic Impact Matrix

Initial Economic Impact (MPS and SS)	Lowest Quintile Poverty Indicator Score		
	Low Impact	Mid-Range	High Impact
Impact Not Likely to be Substantial	Impact Not Likely to be Substantial	Impact Not Likely to be Substantial	Impact Unclear
Impact Unclear	Impact Not Likely to be Substantial	Impact Unclear	Substantial Impact
Substantial Impact	Impact Unclear	Substantial Impact	Substantial Impact

Our results of the Expanded Economic Impact Matrix, which combines a “Strong” LQPI score and a “Mid-Range” Initial Economic Impact, indicate an Expanded Economic Impact of “Impact Not Likely to be Substantial” for the City.

Step 4: Financial Alternatives Analysis

The fourth step is to perform a Financial Alternatives Analysis if the Initial LQPI Score equals “medium” or “high” impact. The intent of this step is to document whether the community has considered all feasible steps to address the impacts to the lowest quintile, including using variable rate structures, customer assistance programs, and applications for grants or subsidies from the Clean Water State Revolving Loan Fund Program.³⁷ The results of the Financial Alternatives Analysis are presented in the checklist provided in Table B-5. Although, the LQPI Score is “Low Impact” for the City, as discussed previously in this report, this score is not a reasonable reflection of the economic burden of households in the City’s service area or of the community because the score does not reflect the high cost of living and high cost of essential needs associated with residing in San Francisco. Furthermore, as the Financial Alternatives Analysis Checklist illustrates, the City has done what it can to lower the economic burden of water and wastewater bills on its customers and limited additional alternatives are available to further address this burden as the cost of utility service continues to rise.

Table B-5: Financial Alternatives Checklist

Checklist Items	Response
Financing Options for Capital Costs	
a. Has the community discussed financing options, including timing, terms, and potential grants or forgiveness, with the responsible State Revolving Loan Fund?	Yes. SFPUC has discussed the use of Water Infrastructure Finance and Innovation Act (WIFIA) loans and State Revolving Loan Funds, and this low-cost debt is incorporated into SFPUC’s 10-year financial plan.
b. What additional funding sources beyond SRF, such as grants, low-cost loans, or extended term loans has the community considered?	SFPUC’s financial plan includes the use of low-cost loans for funding its capital projects. SFPUC plans to utilize fixed-rate revenue bonds, direct loans, and short-term notes. Fixed rate direct loans include WIFIA and State Revolving Loan funds. The SFPUC fixed rate debt is assumed to be amortized over a long-term, 30-year amortization period. In addition, SFPUC plans to utilize some variable-rate debt, including variable rate revenue bonds and commercial paper to help fund its capital program.
c. Has the community considered special assessment districts to finance geographically defined project work?	Yes. However, special assessment districts are not appropriate for San Francisco because the City is a dense urban environment and customers generally receive the same services. Wastewater charges are imposed on customers based on discharge volume and in the case of non-residential users, suspended solids, oil & grease, and chemical oxygen demand.
d. Has the community considered other revenue sources, such as sales or property taxes, rental income from water tower leases, or other potential sources of support?	Yes. SFPUC considers other revenue sources to reduce direct burden on ratepayers, within the

³⁷ The 2022 Proposed Guidance, p.14 of 50.

Checklist Items	Response
	context of the limitations imposed on rate setting by the California Constitution (Proposition 218).
<p>e. Has the community evaluated how it can reduce overall operating and program costs?</p>	<p>Yes. SFPUC has considered other financing approaches that conform to the City’s fiscal policies and targets. This is done regularly as part of its annual financial planning process. SFPUC has used a combination of commercial paper, WIFIA loans, state revolving loan funds, and revenue bonds to help fund its capital program and mitigate annual costs to customers.</p>
Rate Design	
<p>a. In what ways has the community evaluated modifications to its rate structure that could increase revenue and/or reduce burden on the lowest income residents?</p>	<p>As of July 2023, SFPUC charges residential customers for wastewater service a fixed monthly service component, a volumetric component, and a stormwater component that varies based on permeable and impermeable parcel area. The stormwater component is being phased in over a period of seven years to minimize the immediate impact on customer bills. This component will likely shift costs from low-income residential customers to commercial properties with large impervious areas.</p> <p>Non-residential wastewater rates include a fixed monthly service component and uniform rate for volume, plus per pound strength component.</p>
<p>b. Has the community prepared a forward-looking financial plan and rate analysis within the last five years? If so, was the plan implemented.</p>	<p>Yes. The last 10-year financial plan was prepared by SFPUC in February of 2023.</p>
<p>c. Does the community have identified separate rate structures for commercial, industrial, and wholesale customers reflecting their particular demands on the collection and treatment system?</p>	<p>See response to Rate Design Question a.</p>
<p>d. Does the community use inclining block rates that charge higher per gallon rates for higher increments of usage.</p>	<p>See response to Rate Design Question a.</p>
<p>e. If charging a flat fee, has the community considered switching to a volumetric fee so that high output customers pay for the wastewater they generate?</p>	<p>SFPUC’s wastewater rate structure, described in the response to Rate Design Question a. was established based on a customer cost-of-service analysis and recovers cost in proportion to the usage of the system. High output customers pay for the wastewater that they generate.</p>
Ratepayer Support Options for Low Income Residential Customers	
<p>a. Has the community looked into setting up a Customer Assistance Program?</p>	<p>Yes. SFPUC offers assistance on water and wastewater bills to eligible low-income customers to partially offset the cost of water and wastewater services, in the context of limitations on rate setting imposed by the California Constitution.</p>
<p>b. If you have a CAP, what is the enrollment rate? What efforts have been made to ensure low-income households are informed about the program and enroll? Are there ways to make the application process easier for customers</p>	<p>The City has approximately 5,500 customer accounts enrolled in its water and wastewater bill discount program.</p>

Checklist Items	Response
<p>to enroll, e.g., by providing for enrollment in-person, online, and mail, in multiple languages, if appropriate; partnering with local organizations to help with outreach and enrollment; allowing for automatic enrollment or using proof of eligibility for other income-qualified benefits?</p>	<p>The application for applying for customer assistance is available online or customers can submit an application by mail or call the customer service center.</p> <p>Income verification for online applications uses TransUnion. In addition, applicants receiving public assistance from San Francisco Human Services Agency may be authorized to verify income with HSA.</p> <p>Application information is available in seven languages besides English, including Spanish, Chinese, Filipina, Vietnamese, Arabic, Russian, and Samoan.</p>
<p>c. Has the community considered other types of customer support beyond a CAP for lower income residential customers?</p>	<p>The requirements of Proposition 218 generally preclude the City from using utility rate revenues to provide funding for low-income customer assistance programs. Therefore, SFPUC's program is limited due to funding restrictions. A similar bill discount program to SFPUC's program is offered to SFPUC's power customers and by PG&E's CARE programs.</p>
<p>d. Are there policies in place to protect customers, including vulnerable populations, from shutoffs?</p>	<p>Yes. Customers enrolled in the SFPUC customer assistance program are exempt from water service shutoffs and liens.</p>
<p>e. Does the community have reduced rates for vulnerable populations, such as seniors on fixed incomes?</p>	<p>SFPUC's discount program provides reduced rates for vulnerable populations that qualify based on income criteria.</p>
<p>Financial and Utility Management</p>	
<p>a. Is the utility accounted for as a proprietary/enterprise fund or a separate independent utility?</p>	<p>SFPUC's Wastewater Fund is managed as a separate enterprise fund.</p>
<p>b. Are all rate revenues or other user charges applied to fund the utility's purposes? Do rates charged recover the full cost of providing wastewater services (taking into consideration capital costs, operation and maintenance expenses, and environmental costs)?</p>	<p>Yes.</p>
<p>c. Does the utility have programs to optimize maintenance and asset management to reduce life cycle costs?</p>	<p>Yes. SFPUC utilizes an asset management approach that considers the current condition of the assets and the applicable risk of failure. The consequence of failure is calculated based on levels of service, including protection of the public, preservation and improvement of quality of life, cost efficiency, customer service, and environmental responsibility.</p>
<p>d. Are partnerships with other utilities, including joint procurement, or shared management and staffing arrangements, regionalization or consolidations options to provide economies of scale and reduce customer costs feasible in this community?</p>	<p>SFPUC currently provides wastewater services to several contract customers, including North San Mateo County Sanitation District, Bayshore Sanitary District, and the City of Brisbane. However, due to San Francisco's geography being a peninsula, there are no opportunities to share facilities with neighbors in a way that creates economies of scale other than SFPUC's current contractual relationships.</p>

Checklist Items	Response
<p>e. Has the utility or related municipality instituted a stormwater management program when evaluating long-term control plan schedules? If so, are impervious area-based stormwater fees used to fund the stormwater compliance costs?</p>	<p>As described in Section 4.1 of this report, as of July 2023, SFPUC charges residential customers for wastewater service a fixed monthly service component, a volumetric component and a stormwater component that varies based on permeable and impermeable parcel area. The stormwater component is being phased in over a period of seven years to minimize the immediate impact on customer bills.</p>
<p>f. Does the utility provide direct financial assistance (through rebates, upfront subsidies, or direct replacement of fixtures) for efficiency improvements including leak repairs or replacement of inefficient fixtures or appliances?</p>	<p>SFPUC offers customers free high performing water-efficient plumbing devices, such as kitchen/basin faucet aerators, water-efficient showerheads and timers, toilet flappers, toilet fill valves, garden spray nozzles and soil moisture meters, that can lead to significant water savings. SFPUC has a laundry to landscape rebate program that provides rebates for the purchase of graywater reuse appurtenances. SFPUC has a leak alert program that sends automated notifications to customers if automated meter readings indicate high or unusual water usage.</p>

APPENDIX B:

Long-Term Financial Plan Inputs and Assumptions



Appendix B: Long-Term Financial Plan Inputs and Assumptions

Key Financial Projection Inputs and Assumptions

The following key assumptions and estimates were incorporated into the financial projections. Any changes in these assumptions and estimates could have a material effect on the findings included in this section.

Fiscal Policy Considerations

The SFPUC has adopted various policies that set requirements and parameters guiding its financial activities and decision-making.³⁸ These policies demonstrate to ratepayers, credit markets, investors, and rating agencies that SFPUC is committed to financial sustainability and prudent stewardship of resources. The purpose of these policies is to ensure that SFPUC enterprise funds retain sufficient funds for future infrastructure needs, replacement of aging infrastructure, bond reserves, and operating expenses that mitigate unexpected rate changes. We incorporated into the financial projection four key financial policies of SFPUC, two capital financing policies and two risk management policies identified below. We assumed that these policies would continue throughout the entire long-term financial plan forecast period.

Capital Financing Policies

The SFPUC adopted a debt service coverage policy that requires each SFPUC enterprise to adopt budgets, rates, and financial plans to generate net revenues such that Bond Indenture Coverage shall equal a minimum of 1.35x annual debt service and Current Coverage shall equal a minimum of 1.10x annual debt service. The Indenture Coverage ratio includes the enterprise's unrestricted fund balance in net revenues, and Current Coverage includes only current year revenues.

The SFPUC adopted a Capital Financing Policy that requires a minimum amount of revenue-funded "pay-as-you-go" funding of capital needs of between 15% to 30%. Unlike debt financing, the use of revenue funding of capital investments minimizes financing costs and limits the debt burden on future ratepayers. Therefore, we have included revenue funding of capital investments in the financial forecast at the level corresponding to SFPUC's Capital Financing Policy to pay for a portion of recurring infrastructure repair and replacement projects, which is a prudent and sustainable approach to funding ongoing capital investments.

Risk Management Policies

The SFPUC adopted a Fund Balance Reserve Policy that requires each enterprise fund to maintain a minimum amount of fund balance reserve of 90 days or 25 percent of annual O&M expenses. We included this minimum Fund Balance Reserve Policy in our financial forecast.

The SFPUC adopted a Ratepayer Assurance Policy that provides guiding principles for prudent use of ratepayer funds, establishment of rates and charges, and transparency in budgeting and the rate-setting processes. The policy also ensures the prudent use of ratepayer funds through carrying out asset management

³⁸ SFPUC 10-Year Financial Plan for FY 2023-24 to FY 2032-33, February 2023.

in a cost-effective manner and structuring its workforce effectively and efficiently to minimize personnel costs. We included this policy in our financial forecast by incorporating SFPUC's capital improvement plan and its Capital Financing Policies described above in the financial projections that we prepared.

Utility Financial Projection Considerations

Projection of Future Wastewater Volumes

The wastewater revenues that we included in our financial forecast are based on projected wastewater rates and anticipated changes in customers and sales volumes. Over the next 10-years (FY 2024 – FY 2033), the SFPUC has forecasted per capita water usage to grow through FY 2026 from the fading impacts of the pandemic and recent drought, and then decline slightly over the rest of the 10 years.³⁹ Since SFPUC wastewater volumes are a fixed percentage of water volumes (i.e., flow factors), SFPUC is forecasting similar customer demands on the wastewater system as for water. Therefore, we assumed that there would be slightly declining then flat growth in wastewater billed flow over the 30-year financial forecast period. However, if wastewater billed flow were to be lower than forecasted, it would require wastewater utility rates to be higher than projected herein.

Operation and Maintenance Expense Escalation

In our financial forecast, we used the FY 2023 base year budget from which to forecast future O&M expenses and assume O&M expense execution factors that were included in SFPUC's rate model through FY 2026, and then assume that all budgeted dollars are expended thereafter. We incorporated SFPUC's assumption in its 10-year financial forecast that base year O&M expenses will increase at an average annual rate of 3.0% over the next 10 years.⁴⁰ We used this same assumption for the entire 30-year forecast period. In addition, we incorporated incremental O&M expenses associated with SFPUC's capital plan into the financial forecast. These estimates were provided by SFPUC and its other consultants. A summary of the incremental O&M expenses that we added to the base O&M expense forecast is provided in the following table.

Table B-1: Summary of Incremental Annual O&M Expense Assumptions

Description	Incremental Annual O&M Expenses
Due to Capital Plan in Years 1 – 10:	None Identified
Due to Capital Plan in Years 11 – 30:	None Identified
Associated with Nutrient Removal	\$27.0 million / year
Associated with WQS Compliance	None Yet Identified

*Expense projections are shown in FY 2022 dollars and were added to SFUC O&M costs beginning from the fiscal year in which the project is anticipated to be completed.

Existing Debt Service Obligations

SFPUC has approximately \$2.087 billion in outstanding wastewater parity revenue bond debt as of April 2, 2022.⁴¹ In addition, SFPUC has approximately \$400.5 million in outstanding wastewater parity SRF loan commitments, \$299 million in commercial paper notes, \$133.9 million in certificates of participation, and the EPA has agreed to make wastewater loans to SFPUC under the Water Infrastructure Finance and Innovation

³⁹ Ibid. p.13.

⁴⁰ SFPUC Rate Model supporting the 2023 Water and Wastewater Rate Study dated May 15, 2023.

⁴¹ 2022 Series B Wastewater Revenue Bond Official Statement, City and County of San Francisco, May 12, 2022.

Act (“WIFIA”) program in the amount of approximately \$1.213 billion. These bond and loan debt obligations require SFPUC to pay debt principal and interest until the current debt obligations are retired. The total amount of annual outstanding bond debt service in FY 2023 was approximately \$106.4 million, and the amount of debt service associated with existing debt obligations varies in each year of the forecast period based on the debt service payment schedules associated with each outstanding debt obligation. For our projection, we incorporated the SFPUC’s schedule of existing debt service obligations.

Future Capital Expenditures

SFPUC’s Wastewater Enterprise capital improvement plan from FY 2025 to FY 2034 includes the projects with a total cost of approximately \$5.00 billion (or \$6.04 billion in future escalated dollars) of total capital needs with approximately 18% being revenue-funded and 82% being debt financed. In addition to this amount, SFPUC expects that some of the work on the projects started in the next 10 years will continue in the years beyond FY2034 at an estimated cost of an additional \$1.40 billion in 2024 dollars (or \$2.40 billion in future escalated dollars).⁴² We include this deferred amount in years 11 through 20 in our financial forecast. These capital expenditures include approximately \$1.5 billion in capital investments to remove nutrients from the treated wastewater. The capital plan includes funding for wastewater system renewal and replacement (“R&R”), facilities and infrastructure (“F&I”) and the sewer system improvement program (“SSIP”). In years FY 2035 to FY 2054, SFPUC plans to spend an additional approximately \$520 million per year (in 2024 dollars) on R&R, F&I, and SSIP capital projects. In addition, SFPUC plans to spend an additional \$1.4 billion on the Southeast Campus Plan between FY 2029 and FY 2048. A summary of these capital project needs that were incorporated into our financial forecast is provided in Table B-2.

Table B-2: Summary of Projected Wastewater Capital Improvement Needs

Description	Capital Cost*
Years 1 – 10 (FY 2025 – FY 2034):	\$8.70 billion
SFPUC’s 10-Year Capital Plan (Non-Deferred Portion)**	\$5.00 billion
R&R, F&I, SSIP Capital Needs	Included in above
Base Standards Cost (Portion in First 10 Years)	\$2.82 billion
Campus Plan	0.88 billion
Years 11 – 30: (FY 2035 – FY 2054):	\$20.12 billion
SFPUC’s 10-Year Capital Plan (Deferred Portion)	\$1.40 billion
R&R, F&I, SSIP Capital Needs	\$0.52 billion / year
Base Standards Costs**	\$7.78 billion
Campus Plan	\$0.54 billion
Total With Base Standards Costs	\$28.82 billion

*Amounts shown in FY 2024 dollars.

**The FY 2025 to FY 2034 10-Year Capital Plan includes \$0.06 billion (in 2024 \$s) for a planning study for replacement of the Southeast Outfall and Booster Pump Station. The remaining \$1.89B (in 2024 \$s) associated with the design and construction of the project is included as a cost for meeting Base Standards.

⁴² SFPUC’s 10-year financial plan (Wastewater Finance Sheet CIP FY25-34_rev7.1) , as summarized in Table B-2. In addition, SFPUC’s financing plan included in the 10-year financial plan does not fund all of the capital needs in order to lower rate increases and help address affordability concerns. The long-term financial plan included in this report assumes SFPUC’s capital needs will be funded either with debt or on a pay-as-you-go basis.

For the R&R spending beyond SFPUC's 10-year planning period, an annual capital cost escalation rate of 4.0% per year was selected to reflect capital costs in future dollars.

Table B-3 presents a summarized version of the SFPUC's detailed 10-year CIP spending plan and represents the most recent version of the document available as of the date of this report that was used in the long-term financial plan projections.

SFPUC makes a variety of capital financing decisions each time it issues debt to finance capital projects, and SFPUC incorporated several assumptions into its 10-year wastewater capital financing plan. Raftelis incorporated SFPUC estimates for the amount of capital investment that are planned to be funded on a pay-as-you-go basis through FY2034. Within the initial 10 years of the projection, it was assumed that any project not funded on a pay-as-you-go basis would be debt financed. For the remainder of the projection, we assumed that approximately 15% of total capital projects would be funded on a pay-as-you-go basis and the remainder through the issuance of debt, in line with SFPUC guidelines.

We made debt financing cost assumptions based on current market conditions and SFPUC provided financing cost assumptions. As with any long-term financial plan, there are uncertainties associated with projecting future debt service costs given changing market conditions over time and SFPUC decisions regarding the amount of debt financing vs. cash funding, the mix debt financing utilized, and the repayment terms associated with the debt. Therefore, we made several capital financing assumptions.

SFPUC's 10-year wastewater capital financing plan includes the use of fixed rate debt, variable rate debt, commercial paper, SRF loans and WIFIA loans. SFPUC assumed that fixed rate debt would be financed over a 30-year period with the first three years with payment of interest only followed by amortization over the following 27 years. SFPUC assumed that the variable-rate debt would be amortized over a 25-year period at an interest rate below that of fixed-rate debt. SFPUC's debt management policies stipulate that no more than 25% of any enterprise's long-term debt be variable-rate debt. Commercial paper is a form of short-term variable rate debt that SFPUC uses and then this debt is refunded with revenue bonds. SFPUC assumed that the interest rate on commercial paper in the 10-year financial plan would carry an interest rate of 1% per annum.

Historically, SFPUC has assumed its fixed-rate debt to have a 5% annual interest rate for future debt financing. The SFPUC recently completed a rate study, which provided rate recommendations for the coming years. In the rate study, a 5% interest rate was assumed for the issuance of future debt associated with the 10-year financial plan and this assumption has been included in this projection.

Beyond the 10-year financial plan, we incorporated a debt interest rate estimate of 5% into the long-term 30-year plan to reflect the current higher interest rate environment and SFPUC's anticipated use of revenue bonds, SRF loans, and commercial paper. Our long-term financial plan also assumed that the new debt will be financed over a 30-year period, the first two and a half years with no payments and capitalization of accrued interest, followed by normal amortization over the remainder of the financing period. Bond issuance costs were assumed to total 0.4% of the par amount of each bond issue.

Wastewater Revenue Projections

The wastewater revenue projections needs are driven by the capital and O&M expense needs identified by the City over the 10-year financial plan and the extension of these expenses over the remaining 20-years of the 30-year financial forecast. The revenue projections reflect the future anticipated wastewater volumes and

customer growth assumptions as described above along with anticipated wastewater rate increases necessary cover the total annual revenue requirements and meet SFPUCs fiscal policy targets and debt service coverage limit obligations.

Household Income and Bill Projection Assumptions

We forecasted the annual typical residential wastewater bill and the annual cost per household for households with median income and at the LQI over the 30-year forecast period. We used current estimates of the MHI and LQI from the U.S. Census Bureau along with an estimate that income levels will increase at an annual rate of approximately 3.0% per year corresponding to SFPUC's labor expense cost inflation estimates. We estimated the projections of the household wastewater cost as a percentage of MHI and LQI by dividing the projected cost per household by the projected income levels over the forecast period.

Project	Proposed Start Date	Proposed Finish Date	Total Project Budget	Proposed Appropriation to Date	FY 24-25	FY 25-26	FY 26-27	FY27-28	FY 28-29	FY29-30	FY30-31	FY31-32	FY32-33	FY33-34
15730-WW Flood Resilience-hydraulic			78,961,679	78,961,679										
Flood Resilience														
67 CWWSPFCDB07 17th and Folsom Wet Weather Storage	4/1/2013	5/6/2016	898,623	898,623	-	-	-	-	-	-	-	-	-	-
68 CWWSPFCDB11 Flood Resilience analysis (Planning Phase Only)	6/30/2015	2/28/2017	2,178,246	2,178,246	-	-	-	-	-	-	-	-	-	-
69 CWWSPFCDB11 Flood Resilience - Early Projects (Planning Phase Only)	10/26/2015	12/30/2016	4,037,057	4,037,057	-	-	-	-	-	-	-	-	-	-
70 CWWSPFCDB11 Wawona Area Stormwater Improvements	7/1/2016	12/2/2024	28,382,249	28,382,249	-	-	-	-	-	-	-	-	-	-
71 CWWSPFCDB11 Cayuga Ave Stormwater Detention Project	7/1/2016	3/29/2019	453,576	453,576	-	-	-	-	-	-	-	-	-	-
72 CWWSPFCDB11 Folsom Area Stormwater Improvement Project	7/1/2016	12/31/2024	38,410,859	38,410,859	-	-	-	-	-	-	-	-	-	-
73 CWWSPFCDB11 17th and Folsom Permanent Barriers	5/20/2016	3/29/2019	175,540	175,540	-	-	-	-	-	-	-	-	-	-
74 CWWSPFCDB11 Hydraulic and Drainage Sewer Improvements	7/1/2016	12/30/2021	4,427,529	4,427,529	-	-	-	-	-	-	-	-	-	-
Watershed Assessment			17,409,222	17,409,222										
75 CWWSPFUW00 Watershed Assessment	7/1/2011	6/28/2013	17,409,222	17,409,222	-	-	-	-	-	-	-	-	-	-
Subtotal			96,370,901	96,370,901										
Phase 1 Subtotal			SSIP Phase 1 TOTAL	4,707,385,314	3,867,520,456	429,724,425	207,199,923	164,315,525	29,828,013	3,796,974	1,000,000	1,000,000	1,000,000	1,000,000
19142 - WW Sewer System Improvement Program Management														
15733-WW Ssp Program-wide Management														
Program Management														
76 PM02 Program Management 02	9/15/2023	6/30/2037	145,000,000	5,000,000	6,000,000	9,000,000	13,750,000	13,750,000	13,500,000	13,500,000	12,750,000	12,750,000	12,750,000	12,500,000
Subtotal			145,000,000	5,000,000	6,000,000	9,000,000	13,750,000	13,750,000	13,500,000	13,500,000	12,750,000	12,750,000	12,750,000	12,500,000
Treatment Facilities														
15735-WW Treatment Plant Improvement														
Southeast Plant Southeast Plant (SEP) Improvements			2,048,052,412	58,000,713	55,133,810	101,951,776	131,180,258	63,154,491	42,441,381	51,407,226	148,583,961	262,865,992	325,446,134	330,081,138
77 SEP-01 SEP 650 Boilers Condition Inspection & Interim	1/14/2021	6/30/2028	31,233,655	2,893,308	1,783,903	8,258,027	16,925,323	1,590,194	-	-	-	-	-	-
78 SEP-03 SEP, Booster Station, and BFS Security Enhancement	1/18/2022	3/1/2028	36,759,000	9,407,799	4,497,145	6,131,240	13,988,017	1,734,799	-	-	-	-	-	-
79 SEP-03 Primary Treatment (SEP 040/041) H&S Improvements	1/4/2021	3/31/2028	29,602,075	22,009,804	4,820,607	1,774,286	852,492	144,886	-	-	-	-	-	-
80 SEP-03 Secondary Clarifiers (SEP 230) Rehabilitation	10/3/2022	11/30/2029	51,952,231	5,356,564	4,511,904	16,848,406	16,419,673	7,428,258	1,387,426	-	-	-	-	-
81 SEP-05 New Ops, Engineering and Maintenance Buildings	11/1/2022	8/31/2028	171,879,356	12,238,706	17,270,845	46,419,448	70,135,354	25,815,003	-	-	-	-	-	-
82 SEP-05 SEP Condition Improvement Projects - Part 1	4/1/2023	10/30/2027	16,009,332	2,761,811	329,496	11,681,116	1,236,910	-	-	-	-	-	-	-
83 SEP-9 Pipe Gallery (SEP 980) Rehab	10/1/2026	4/3/2032	14,591,563	-	-	-	488,560	-	-	-	-	-	-	-
84 SEP-10A Aeration Tanks (SEP 200) Rehab-Condition Assess & P	1/2/2036	12/31/2036	-	-	-	-	-	799,059	808,939	11,061,709	836,230	597,059	-	-
85 SEP-11N SEP Condition Improvement Projects - Part 2	10/1/2030	4/4/2035	-	-	-	-	-	-	-	-	-	-	457,564	1,013,072
86 SEP-12 Treatment Plants DCS Support & Upgrades Project	1/2/2028	6/30/2033	2,841,923	-	-	-	-	2,115,552	168,048	168,048	168,723	169,398	52,154	-
87 SEP-13 Maintenance Building (SEP 940) Interim Improvements	11/2/2021	2/4/2028	20,896,966	3,332,721	14,559,657	1,322,518	1,322,517	359,573	-	-	-	-	-	-
88 SEP-10B Aeration Tanks (SEP 200) Rehab-Design and Crst Part	4/1/2037	10/4/2044	89,051,707	-	-	-	-	-	-	-	-	-	-	-
89 SEP-10C Aeration Tanks (SEP 200) Rehab-Design and Crst Part	4/1/2041	10/4/2048	103,019,741	-	-	-	-	-	-	-	-	-	-	-
90 TBD-04 SEP Mainstream Nutrient Reduction	10/1/2024	11/28/2039	1,470,264,149	-	7,360,053	9,506,735	9,813,404	23,367,167	40,076,968	40,177,469	147,121,444	261,086,463	323,366,109	323,366,109
Subtotal			2,048,052,412	58,000,713	55,133,810	101,951,776	131,180,258	63,154,491	42,441,381	51,407,226	148,583,961	262,865,992	325,446,134	330,081,138
15736-WW Treatment Plant Improvement														
North Point Fac North Point Facility (NPF) Improvements			201,803,151	11,392,825	12,073,294	17,811,136	21,241,476	19,798,736	20,056,396	11,795,283	6,911,557	8,745,799	3,644,434	1,264,109
91 NPF-01 Sedimentation (NPF 040/041) Tanks Condition Improv	11/14/2022	8/30/2029	52,448,649	1,750,000	1,930,447	2,287,333	503,764	18,684,424	18,965,379	10,107,302	-	-	-	-
92 NPF-02 Admin Bldg (NPF 930) Evaluation & Interim H&S Impr	3/1/2022	9/29/2028	22,691,088	1,265,358	674,470	6,752,995	13,030,056	913,466	54,743	-	-	-	-	-
93 NPF-3 Dechlorination Process (NPF 500) Evaluation & Inte	3/31/2025	11/3/2030	5,603,878	-	263,703	431,922	4,908,253	-	-	-	-	-	-	-
94 NPF-4 NPS & NSS Security Enhancements	1/18/2022	3/1/2028	17,848,746	3,480,063	5,912,310	6,158,771	2,096,736	200,846	-	-	-	-	-	-
95 NPF-5 NPF DCS Upgrades (Construction)	11/1/2021	12/30/2027	11,072,530	4,897,384	3,292,364	2,180,115	702,667	-	-	-	-	-	-	-
96 NPF-8 North Shore PS (WW) Improvements	10/1/2032	11/2/2037	20,982,362	-	-	-	-	-	-	-	-	-	780,138	1,264,109
97 NPF-9 North Point Outfall Diffuser Rehab	10/1/2034	4/1/2038	30,883,762	-	-	-	-	-	-	-	-	-	-	-
98 NPF-10 NPF Condition Improvement Projects	10/1/2028	4/4/2033	21,225,887	-	-	-	-	-	-	1,016,274	1,687,961	6,911,557	8,745,799	2,864,296
99 NPF-11 Sedimentation Tanks (NPF 040/041) Flushing System	10/1/2034	5/9/2039	17,246,249	-	-	-	-	-	-	-	-	-	-	-
Subtotal			201,803,151	11,392,825	12,073,294	17,811,136	21,241,476	19,798,736	20,056,396	11,795,283	6,911,557	8,745,799	3,644,434	1,264,109
Oceanside Plant Oceanside Plant (OSP) Improvements			725,982,565	49,995,488	30,932,882	40,102,175	70,480,879	76,744,849	22,004,227	7,646,719	24,985,705	9,897,623	91,819,239	35,783,514
100 OSP-01 Westside FM Reliability Project - Planning	1/2/2025	6/24/2026	1,091,800	545,900	-	-	-	-	-	-	-	-	-	-
101 OSP-02 OSP 011 Solids Thickening Process Upgrade	1/25/2022	3/10/2028	20,222,162	7,171,910	11,265,700	808,254	714,244	262,054	-	-	-	-	-	-
102 OSP-03 OSP Plant-wide Ventilation (HVAC) Upgrades	1/26/2022	7/16/2027	22,577,498	6,493,957	5,716,383	9,183,579	591,789	591,790	-	-	-	-	-	-
103 OSP-04 OSP Condition Improvement Projects - Phase 2	2/1/2022	6/30/2030	106,100,000	22,846,260	2,102,558	9,676,037	37,031,524	22,222,141	9,428,084	1,793,396	-	-	-	-
104 OSP-05 OSP Odor Control Upgrades	1/2/2026	5/7/2031	23,256,546	839,173	-	411,523	1,189,820	19,116,706	1,999,324	-	-	-	-	-
105 OSP-06 OSP Communication & Safety Monitoring Upgrades	10/2/2024	5/30/2030	27,449,748	600,000	-	1,097,879	1,479,711	21,578,418	1,831,687	-	-	-	-	-
106 OSP-07 OSP 030 Admin Bldg Health & Safety Improvements	1/18/2022	2/1/2028	16,949,216	4,697,295	4,427,277	3,337,949	186,024	-	-	-	-	-	-	-
107 OSP-8 OSP DCS Upgrade (Construction)	11/5/2025	7/31/2029	44,942,038	2,801,164	2,061,419	10,992,385	10,992,385	10,992,385	6,940,216	162,084	-	-	-	-
108 OSP-9 OSP & WSPS Security Enhancements	8/2/2021	3/1/2028	13,776,330	2,052,723	5,359,545	5,826,338	537,725	-	-	-	-	-	-	-
109 OSP-10 OSP Condition Improvement Projects - Part 3	10/1/2030	10/3/2039	188,739,934	-	-	-	-	-	-	-	-	1,983,938	3,328,742	7,717,404
110 OSP-11 OSP 011 Gaseous Oxygen System Upgrades	1/3/2023	5/8/2029	22,350,810	1,947,135	-	855,070	16,862,869	1,644,830	997,868	43,038	-	-	-	-
111 OSP-12A OSP 011 Grt Removal Upgrades-Planning	1/2/2026	6/30/2027	1,103,982	-	-	387,861	735,721	-	-	-	-	-	-	-
112 OSP-13 Bicolids Cake Hopper (OSP 011) Reliability Upgrad	10/1/2026	5/30/2031	4,152,466	-	-	-	-	157,067	336,525	163,068	3,202,423	280,803	12,520	-
113 OSP-15 Admin Bldg (OSP 930) Seismic Retrofit	10/1/2031	6/1/2036	13,443,787	-	-	-	-	-	-	-	-	-	499,817	824,424
114 OSP-16 Pretreat. & Solids Bldg (OSP 011) Struct. & Seismi	10/1/2034	11/2/2039	18,159,923	-	-	-	-	-	-	-	-	-	-	-
115 OSP-17 Primary Clarifier (OSP 042) Structural & Seismic R	10/1/2034	11/2/2039	55,398,799	-	-	-	-	-	-	-	-	-	-	-
116 OSP-18 Westside FM Reliability Project - Design & Construct	10/1/2024	9/30/2037	17,939,175	-	-	-	-	-	-	-	-	-	3,491,370	4,655,160
117 OSP-12B Grt Removal (OSP 011) Upgrades-Design and Constr	10/1/2034	4/3/2040	24,987,398	-	-	-	-	-	-	-	-	-	-	81,876,027
118 OSP-18 OSP Odor Control Upgrades - Part 2	10/1/2028	10/3/2033	24,910,353	-	-	-	-	-	-	943,980	1,583,725	19,229,534	1,401,384	1,401,384
Subtotal			725,982,565	49,995,488	30,932,882	40,102,175	70,480,879	76,744,849</						

