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San Francisco Public Utilities Commission

2018 Water and Wastewater Cost of Service Study

San Francisco Water Power Sewer

Services of the San Francisco Public Utilities Commission

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GLOSSARY

TERM	DESCRIPTION
AAO	As All Others
AWSS	Auxiliary Water Supply System
AWWA	American Water Works Association
BABs	Build America Bonds
BMP	Best Management Practices
BAWSCA	Bay Area Water Supply and Conservation Agency
CABs	Capital Appreciation Bonds
Carollo	Carollo Engineers, Inc.
CCF	hundred cubic feet, 1 ccf = 748 gallons
CIP	Capital Improvement Plan
City	The City and County of San Francisco
COD	Chemical Oxygen Demand
EDU	Equivalent Dwelling Unit
ENRCCI	Engineering News-Record Construction Cost Index
Fixed Costs	Expenses that are not dependent on the level water production or water sold.
FOG	Fats, Oils, and Grease
FY	Fiscal Year SFPUC's fiscal year runs from July 1 to June 30. FY is the year in which the fiscal year ends (i.e. FY 2019 covers the fiscal year ending June 30, 2019).
lbs/gal	Pounds per gallon
M1 Manual	"Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices M1" published by the AWWA.
ME or MEU	Meter Equivalent Unit – Commonly used to account for the increasing capacity needed to serve large meters. A typical baseline meter size is 5/8 inches and calculations are based on the relative maximum flow rate of that meter, measured in gallons per minute.
MFR	Multifamily residential customer class
MGD	Million gallons per day
Mg/L	Milligrams per liter
MME	McGovern McDonald Engineers
O&M	Operations and Maintenance
Potable Water	Water suitable to be consumed for drinking and other uses.
Raw Water	Water in its natural state, prior to any treatment for drinking.
Recycled Water	Sewage that is treated to remove solids and impurities, and used for nonpotable irrigation and commercial and industrial water needs.
RFB	Rate Fairness Board
SFR	Single family residential customer class
SFPUC	San Francisco Public Utilities Commission
SIC	Standard Industrial Classification
SSIP	Sewer System Improvement Program
TSS	Total Suspended Solids
Variable Cost	Costs that change in proportion to volume of water sold or produced.

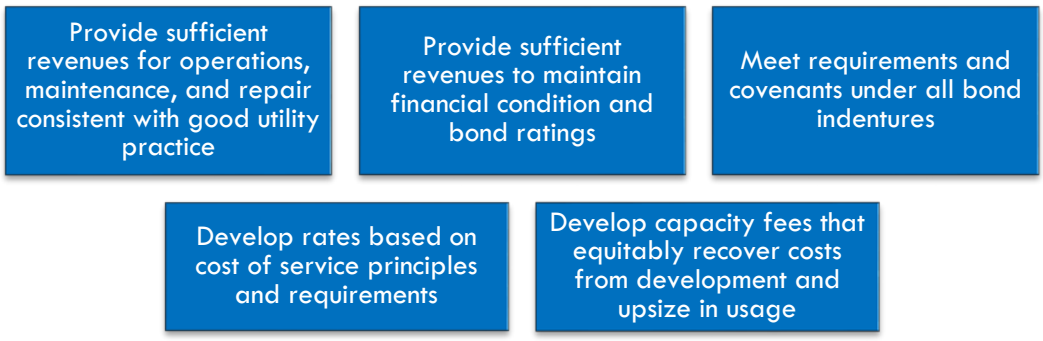
TERM	DESCRIPTION
WEF	Water Environment Federation
WRR	Wholesale Revenue Requirement
WSA	Water Supply Agreement
WSIP	Water System Improvement Program
WWTP	Wastewater Treatment Plant

1. Executive Summary

Introduction

The San Francisco Public Utilities Commission (SFPUC) maintains rates to equitably recover the costs from users to operate, maintain, and finance the water supply, conveyance, and treatment systems, and the wastewater collection and treatment systems. This executive summary documents the results of the cost of service study and identifies the recommended water and wastewater rates that are appropriate to meet the SFPUC funding needs and achieve pricing objectives. The focus of this report is to detail the process utilized to achieve cost recovery and substantiate that customers are paying their fair and proportionate share of the system costs.

Following a competitive proposal process, the SFPUC hired the Carollo Engineers (Carollo) to develop an updated cost of service study for the Water and Wastewater Enterprises. The objectives of the Study were to evaluate the financial impacts of the SFPUC's 10-year financial plan from fiscal years (FY) 2019 through FY 2028 and to provide water and wastewater rate structure and revenue adjustment recommendations for the next four years. The Study recommendations and resulting rate structures must comply with the City of San Francisco ("City") Charter based on the following objectives:



In accomplishing this scope, Carollo developed the financial projections, fiscal and rate policy review, cost allocations, rate and capacity charge design, and indirect cost study (with Ann Carey). This report summarizes the Carollo tasks with the exception of the indirect cost study, which is summarized in a separate report.

Background and System Overview

The SFPUC is an enterprise department of the City and County of San Francisco that provides water, wastewater, and municipal power services to San Francisco. The SFPUC is responsible for the maintenance, operation, and development of three utility enterprises: the Water Enterprise, the Wastewater Enterprise, and the Power Enterprise (which is a component of Hetch Hetchy Water and Power). The Water Enterprise provides potable water to retail customers within the City, to certain retail customers outside the City, and to wholesale customers in Alameda, San Mateo, and Santa Clara counties. The Wastewater Enterprise provides wastewater collection, treatment, and disposal services for the City, as well as treatment services for Brisbane, Bay Shore and North San Mateo County Sanitation Districts. The SFPUC operates a combined wastewater and stormwater system. The SFPUC's enterprises are operated and managed as separate financial entities with separate enterprise funds. Rates and charges are established within each enterprise fund to recover costs.

Retail rates are set by the SFPUC Commission pursuant to the authority and provisions set forth by the San Francisco Charter (Section 8B.125). All SFPUC budgets, rates, fees, and charges must conform to the SFPUC Ratepayer Assurance Policy, which is guided by six key principles:

- Revenue sufficiency
- Customer equity
- Environmental sustainability
- Affordability
- Predictability
- Simplicity

The SFPUC approves the wholesale water rate annually in accordance with the requirements of the Water Supply Agreement (WSA) with the SFPUC's wholesale water customers.

Water Enterprise

The wastewater collection, treatment, and disposal/reuse system consists of a combined sewer system, which collects both sanitary sewer and wet weather flows, three water pollution control plants, and effluent outfalls to the San Francisco Bay and Pacific Ocean. The combined sewer system reduces pollution in the San Francisco Bay and Pacific Ocean by treating wet weather flows and urban runoff that would otherwise discharge to the Bay and Ocean. The SFPUC treats all sanitary flows during dry weather months before discharging the treated effluent to the San Francisco Bay and the Pacific Ocean.

The SFPUC has developed and begun the implementation of the 20-year, $7 billion Sewer System Improvement Program (SSIP) in order to continue to meet the level of service goals for the Wastewater Enterprise and address aging infrastructure requirements. The SSIP will be implemented in three phases.

Wastewater Enterprise

The wastewater collection, treatment, and disposal/reuse system consists of a combined sewer system, which collects both sanitary sewer and wet weather flows, three water pollution control plants, and effluent outfalls to the San Francisco Bay and Pacific Ocean. The combined sewer system reduces pollution in the San Francisco Bay and Pacific Ocean by treating wet weather flows and urban runoff that would otherwise discharge to the Bay and Ocean. The SFPUC treats all sanitary flows during dry weather months before discharging the treated effluent to the San Francisco Bay and the Pacific Ocean.

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Cost of Service Approach and Findings

Carollo's review and analysis confirms the SFPUC rates and capacity charge structures are sound and adhere to industry best practices. This report documents the recommended updates to the rates and charges to remain compliant with cost of service requirements based on the unique nature of the SFPUC water and wastewater systems and customer demand patterns. In addition to achieving cost recovery and ratepayer equity objectives, the rate and capacity charge analyses presented within this report were developed to continue to promote efficient use of water and the City's natural resources.

The purpose of a cost of service analysis is to provide a rational basis for distributing the costs of the SFPUC water and wastewater systems to each customer class in proportion to the demands they place on the systems. A detailed cost allocation was developed for both the Water and Wastewater Enterprises based on the unique attributes of each system in order to meet the equity requirements of Proposition 218, the City Charter, and SFPUC policy. The Charter requires that the City perform a cost of service study at least every five years so that revenues from rates adequately fund utility operations, maintenance, and ongoing capital needs, and equitably recover costs from system users. Additionally, in California, water rates must adhere to the cost of service requirements imposed by Proposition 218 of the State Constitution.

Proposition 218 requires that property-related fees and charges, including water and wastewater rates, do not exceed the proportional cost of providing the service.

The rates presented within this report adhere to cost of service principles, as well as industry standards set by the American Water Works Association (AWWA) and the Water Environment Federation (WEF). Additionally, the SFPUC rate structures are conservation-oriented and conform to state regulatory standards, such as Best Management Practices (BMP) 1.4, for the efficient use of water.

Customer Demand Analyses

As California experiences some relief from the recent drought, some agencies within the State are currently seeing a water consumption bounce-back rather than further decline. Although a bounce-back would typically indicate a consistent, slight increase in consumption, it is not likely for water consumption to reach all-time highs for SFPUC even in a growth scenario. The primary reasons for this include shifts in public awareness. The drought enhanced public awareness of the importance of conservation and many households converted to high efficiency fixtures. Because of this significant increase in water use efficiency, it is plausible that this will offset additional demand from growth.

In addition to conducting a Time-Series trending analysis, Carollo applied a simple 0.5 percent annual reduction factor uniformly to all water and wastewater demand. This factor reflects price elasticity and helps to isolate certain likely demand drivers such as demand reductions driven by drought-related regulatory restrictions on water use, low-flow fixtures, or environmental consciousness.

Revenue Requirements Analysis

Water Enterprise

Carollo analyzed the revenue requirements of retail customers to test the fiscal health of the SFPUC's Water Enterprise, evaluate the adequacy of current rate levels, and set the basis for near- and long-term rate planning. The revenue requirement analysis covers the study period FY 2018 through FY 2028 with the primary focus for rate setting given to four years, FY 2019 through FY 2022, of the study period as the SFPUC already has an approved rate increase for FY 2018. Carollo recommends the Water Enterprise increase retail rates by an average of 7.5 percent over the four-year period from FY 2019 though FY 2022 in order to fund operational and capital needs, as well as to meet debt service obligations associated with the capital improvement plan (CIP).

Carollo recommends the annual rate increase with the resulting cash flow represented in Table 1 for the Water Enterprise. The recommended rate increases are aimed at ensuring that the SFPUC collects sufficient funds to pay operational and capital expenses, including the debt service obligations associated with the CIP.

TABLE 1 WATER ENTERPRISE REVENUE REQUIREMENT WITH RATE INCREASE[1]

COMPONENT	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Recommended Rate Increase [2]	--	8%	8%	7%	7%	7%	6%	6%	6%	5%	3%
Month of Adjustment	--	July 2018	July 2019	July 2020	July 2021	July 2022	July 2023	July 2024	July 2025	July 2026	July 2027
Beginning Fund Balance	$174	$224	$220	$197	$165	$134	$113	$109	$99	$94	$96
Retail Sales with Increase	255	275	297	318	340	364	386	409	434	455	469
Wholesale Sales [3]	264	264	265	264	264	282	316	331	349	360	380
Other Revenue	98	61	61	62	63	63	63	63	64	65	65
Total Revenues with Increase	617	600	624	644	667	709	765	803	846	880	914
Total Expenses	567	612	648	680	698	733	772	816	853	880	917
Ending Fund Balance	$224	$220	$197	$165	$134	$113	$109	$99	$94	$96	$95
Reserve Target (25%)	*$63*	*$68*	*$71*	*$73*	*$75*	*$77*	*$79*	*$81*	*$84*	*$86*	*$89*
% of O&M per Reserves Policy	*89%*	*81%*	*69%*	*57%*	*45%*	*37%*	*35%*	*30%*	*28%*	*28%*	*27%*
Cash Flow Test											
Cash Flow Surplus/ (Deficit)	$51	$(32)	$(47)	$(57)	$(54)	$(48)	$(28)	$(36)	$(32)	$(22)	$(17)
Debt Coverage Test											
Current	*1.33x*	*1.17x*	*1.12x*	*1.11x*	*1.12x*	*1.14x*	*1.18x*	*1.20x*	*1.22x*	*1.23x*	*1.25x*
Indenture	*2.00x*	*1.96x*	*1.84x*	*1.72x*	*1.61x*	*1.52x*	*1.48x*	*1.48x*	*1.45x*	*1.44x*	*1.46x*

Notes:

(1) Values are in million dollars and rounded. Values may not add up due to rounding.
(2) Prior to this study, SFPUC approved a 7% rate increase in FY 2018.
(3) Wholesale sales reflect previously adopted wholesale rate increases.

Many agencies use bonded indebtedness to fund a portion of their capital expenses. The debt service coverage test measures the ability of a utility to meet both legal and policy-driven revenue obligations associated with debt. To ensure that the SFPUC retains financial flexibility for contingencies, it has adopted and implemented financial policies that impose higher standards than the bond indenture minimum debt service coverage requirements of 1.00x (current) and 1.25x (indenture). The new financial policy requirements increase the minimum debt service coverage by 10 basis points to 1.10x (current) and 1.35x (indenture), which requires that the SFPUC raise enough revenue to cover all operations and maintenance (O&M) expenses. Similarly, the indenture coverage ratio requirement is an additional 10 basis points. As illustrated by Table 1, at the end of the FY 2022, the current coverage ratio is projected to be 1.12x and the indenture coverage ratio 1.61x.

As of December 2017, the Water System Improvement Program (WSIP) is approximately 95 percent complete. Eight regional projects are in construction and 39 projects are in close-out or have been completed. 40 out of 43 regional WSIP projects with specific level of service goals have been achieved to date. Besides the WSIP closeout projects, the only regional project that remains in pre-construction is the Alameda Creek Recapture Project. The CIP consists of projects that enhance the SFPUC's ability to provide drinking water in an environmentally sustainable manner to its 2.7 million residential, commercial, and industrial customers in the Bay Area. The WSIP is paid for by both retail customers in San Francisco and

wholesale customers and provides regional water supply reliability including supply, transmission, treatment, and regional storage.

Wastewater Enterprise

Similar to the Water Enterprise, the primary focus for rate setting was given to the four years, FY 2019 through FY 2022, since the SFPUC already has an approved rate increase of 11 percent for FY 2018. Based on the findings of this study, Carollo recommends the Wastewater Enterprise increase rate revenues by an average of 9 percent per year over the four years, FY 2019 through FY 2022, in order to fund operations and capital needs, as well as to meet debt service obligations associated with the SSIP and other capital projects. The recommended rates also support the Wastewater Enterprise's ability to continue meeting its level of service objectives and are summarized in Table 2.

TABLE 2 WASTEWATER ENTERPRISE REVENUE REQUIREMENT WITH RATE INCREASE [1]

COMPONENT	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Recommended Rate Increase [2]	--	9%	9%	9%	9%	9%	9%	8%	8%	8%	8%
Month of Adjustment	--	July 2019	July 2020	July 2021	July 2022	July 2023	July 2024	July 2025	July 2026	July 2027	July 2028
Beginning Fund Balance	$145	$199	$196	$206	$227	$251	$270	$286	$293	$291	$267
Retail Sales with Increase	$297	$323	$352	$384	$419	$456	$498	$537	$580	$627	$677
Wholesale Sales [3]	8	10	10	11	12	13	14	16	17	19	20
Other Revenue	17	17	16	17	18	19	20	20	20	21	20
Total Revenues with Increase	322	350	379	412	449	488	532	573	618	666	717
Total Expenses	$268	$353	$370	$391	$424	$469	$516	$567	$620	$690	$771
Ending Fund Balance	$199	$196	$206	$227	$251	$270	$286	$293	$291	$267	$213
Reserve Target (25%)	*$42*	*$44*	*$45*	*$47*	*$48*	*$49*	*$51*	*$52*	*$54*	*$55*	*$57*
% of O&M per Reserves Policy	*118%*	*111%*	*113%*	*121%*	*131%*	*137%*	*141%*	*140%*	*135%*	*121%*	*94%*
Cash Flow Test											
Cash Flow Surplus/(Deficit)	$54	$(2)	$9	$21	$24	$19	$16	$6	$(2)	$(24)	$(53)
Debt Coverage Test											
Current	*3.04x*	*2.75x*	*2.80x*	*2.75x*	*2.21x*	*1.94x*	*1.78x*	*1.63x*	*1.52x*	*1.38x*	*1.25x*
Indenture	*5.90x*	*5.90x*	*5.58x*	*5.27x*	*4.16x*	*3.62x*	*3.24x*	*2.91x*	*2.63x*	*2.28x*	*1.94x*

Notes:
(1) Values are in million dollars and rounded. Values may not add up due to rounding.
(2) Prior to this study, the SFPUC approved an 11% rate increase for FY 2018.
(3) Wholesale sales reflect previously adopted wholesale rate increases.

The annual rate increase recommended by Carollo is aimed at ensuring that the SFPUC's Wastewater Enterprise collects sufficient funds to pay operational and capital expenses, including the debt service obligations associated with the SSIP and other capital projects. As noted earlier, SFPUC policy sets coverage targets of 1.10x (current) and 1.35x (indenture) annual debt service. In FY 2022, the current coverage ratio is forecasted to be 2.21x and the indenture coverage ratio 4.16x.

The SSIP is a 20-year citywide investment to upgrade and replace vital sewer infrastructure. Annual capital expenditures will increase substantially in upcoming years due to the 20-year SSIP. The SSIP is divided into three overlapping phases. In 2012, the Phase 1 Capital Budget Plan was approved for a total budget of $2.91 billion and is 21.1 percent complete as of the end of FY 2017. The expected completion for SSIP Phase 1 is October 2026. All three phases are expected to total nearly $7 billion, funded through a combination of new debt issuances and cash sources including operating revenues, capacity charges, and other sources. At the beginning of FY 2018, the SFPUC's available reserves totaled approximately $144.7 million. The SFPUC currently exceeds the Fund Balance Reserve Policy requirement and has accordingly planned to cash fund a portion of ratepayers' share of future capital projects using available reserves.

Carollo recommends that the SFPUC review and update the financial plan and revenue requirements annually to recognize changes in customer billing data, operating expenditures, changing water demands and wastewater flows and loadings, and capital improvement needs.

Cost of Service Analysis

Water Enterprise

The cost of service analysis serves as a rational basis for distributing the full costs of SFPUC's services to each customer class in proportion to the demands placed on the system. Carollo developed a detailed cost allocation that serves as the basis for the proposed rate adjustments. This analysis yields an appropriate method for allocating costs, which could be sustained unless substantial changes in cost drivers or customer consumption patterns occur.

Functional Cost Allocation

The functional cost allocation assigns the annual revenue requirement for FY 2019 by major function. The water utility's primary functions are related to three commodity components (base, peak, and raw water), which are the basis of water commodity rates. The SFPUC's peaking factor averaged 1.31, which means that the maximum daily flow is 31 percent higher than average daily flow. This is determined by the peak day to average day ratio from the three years FY 2014 through FY 2016. Since FY 2012, SFPUC has experienced a decreasing peaking trend with a small increase in FY 2016. Until it can be supported that this increase will continue, the average peaking factor for the preceding three years prior to it were used.

The four customer-related costs (customer service, meter charges, public and private fire services) are the basis of the fixed water service and private fire protection charges. Together, these seven elements are referred to as functional cost categories. In addition to these seven, an As All Others (AAO) category is included for costs that cannot be directly allocated to one or more of the seven functional categories and so are reallocated across the functional categories based on the direct allocation of the other line items.

To account for possible annual fluctuations between cost categories, the forecasted expenditures were averaged over the four-year rate period of FY 2019 through FY 2022. Operating expenses, existing and future debt service, other expenses, and offsetting revenues are weighted based on their average annual expenditures over the rate-setting period to determine the overall percentage allocation. Once the overall percentage allocation to functional category has been defined, those percentages are applied to the four-year averaged revenue requirements for FY 2019 through FY 2022 in order to calculate the unit costs, as shown in Table 3.

TABLE 3 WATER ENTERPRISE ALLOCATION OF NET REVENUE REQUIREMENTS (FY 2019 – FY 2022 AVERAGE) [1]

		ALLOCATION VALUE ($)							
TOTAL	VALUE [1]	BASE USAGE	PEAK USAGE	METER CHARGES	CUSTOMER SERVICE	PRIVATE FIRE PROTECTION	RAW WATER	PUBLIC FIRE PROTECTION	AS ALL OTHERS [2]
Operating Expense	$256.0	$85.6	$34.4	$17.5	$12.5	$2.8	$55.9	$3.0	$44.1
Debt Service	309.0	217.8	77.7	4.0	0.1	0.0	9.1	0.3	0.0
Other Expense	402.0	248.2	98.1	4.4	0.1	0.0	22.1	2.9	26.3
Offsetting Revenues	(337.6)	(172.5)	(63.0)	(0.1)	(0.3)	0.0	(47.5)	(0.6)	(53.6)
Total Requirement	$320.4	$161.3	$69.5	$21.7	$12.4	$2.8	$30.5	$5.3	$16.8
AAO Reallocation		26.7	11.0	4.8	3.3	0.7	13.3	0.9	(16.8)
Requirement w/AAO		$170.2	$73.3	$22.9	$13.1	$3.0	$32.2	$5.6	$0.0
Total Percent	100%	53.1%	22.9%	7.2%	4.1%	0.9%	10.0%	1.8%	0.0%

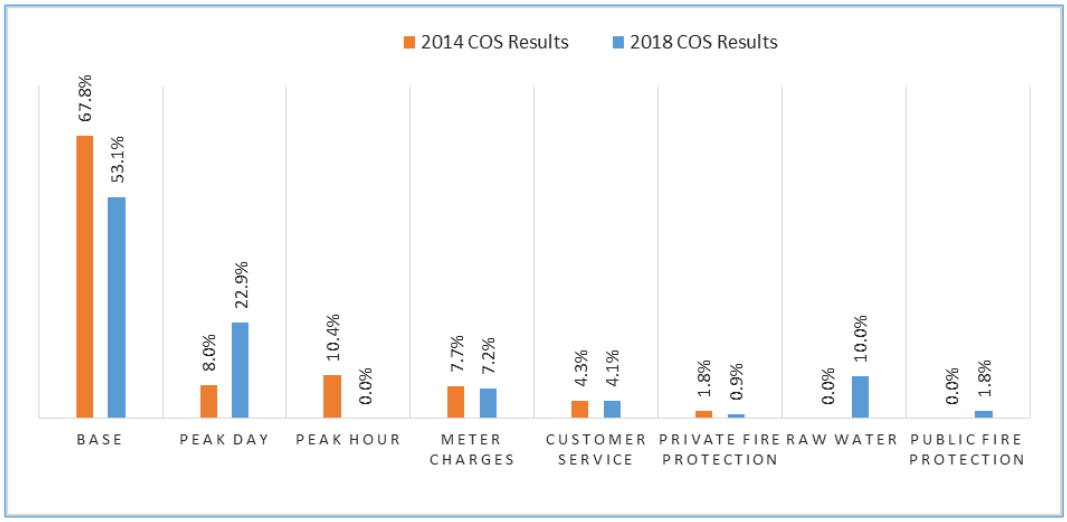
Notes:

(1) Values are rounded and expressed in million dollars. Some values may not add up due to rounding.
(2) As All Others allocation is reallocated across the other functional components.

The SFPUC has elected to maintain a lower fixed-to-variable ratio in order to provide some revenue stability (in the form of fixed charges) while still providing adequate conservation incentives. Although a greater fixed charge can lead to greater revenue stability, a lower fixed ratio promotes affordability for low-volume users less and allows users greater control over their monthly bills. However, while the per capita water demands within the City of San Francisco are among the lowest in the country, the SFPUC must consider the possibility of further water reductions within the annual financial forecast.

Based on the result of the functional allocation, as summarized in Table 3, there is no change in the overall fixed-to-variable ratio compared to the existing cost of service despite the additional functional categories in the current study. Figure 1 illustrates that, when compared to the results from the 2014 study, the recommended functional allocation costs of the fixed components (meter charges, customer service, and both public and private fire protection) remains at approximately 14 percent. This serves as the foundation for the recommended fixed monthly service charge. As a result, the remaining variable allocation remains at 86 percent and is allocated to the base, peak, and raw water components to serve as the basis for the recommended variable commodity rates.

FIGURE 1 SFPUC WATER ENTERPRISE CHANGE IN COST OF SERVICE ALLOCATION



Functional Allocation Results

Based on functional category, the units of service are volume of water consumed, meter equivalents, annual bills (based on customer accounts), and fire protection meters. In order to allocate the cost of service to various user classes, unit costs of service are developed for each functional cost component. As shown in Table 4, the total rate revenue requirements are allocated to each functional component for the four-year average. The total cost for each functional category is then divided by the total number of associated units of service to determine appropriate unit costs for the Water Enterprise. Table 4 shows the calculation of the unit costs for each functional component, which are then applied to each customer classes' projected use, accounts, and meter equivalents to derive customer class allocations for each year of the rate period.

TABLE 4 WATER SYSTEM UNIT COST (FY 2019) [1]

	BASE USAGE	PEAK USAGE [2]	METER CAPACITY CHARGE	CUSTOMER SERVICE	PRIVATE FIRE PROTECTION	RAW WATER	PUBLIC FIRE PROTECTION
Allocation Percent	53.1%	22.9%	7.2%	4.1%	0.9%	10.0%	1.8%
Value Allocable to Component (A)	$146.2	$63.0	$19.7	$11.3	$2.6	$27.6	$4.8
Total Units (B)	29,574,387	14,494,521	298,594	175,897	229,685	29,669,585	298,594
Allocation Basis[3]	Annual Use (ccf)	Annualized Max Day Excess Use (ccf)	Meter Equivalents	Customer Accounts	Hydrant Equivalents	Annual Use (ccf)	Meter Equivalents
Per Unit Cost = A ÷ B	$4.95	$4.35	$5.50	$5.34	$0.93	$0.93	$1.35

Notes:
(1) Allocable values are rounded to the nearest million and unit costs are rounded up to the nearest $0.01.
(2) The SFPUC peaking factor of 1.31 times the average day demand annualized (or times 365) yields max day excess use.
(3) Ccf is one hundred cubic feet, 1 ccf = 748 gallons.

Projections are based on current customer usage characteristics and account growth assumptions, respective to their base usage and peaking factors. Based on available consumption and customer records, Table 5 details the total units of service for each customer class and functional category in accordance with their percentage allocation. This customer data is then used to determine appropriate proportional allocation of revenue requirements to each customer class.

TABLE 5 WATER SYSTEM ALLOCATION OF REVENUE REQUIREMENTS BY CLASS (FY 2019 – FY 2022 AVERAGE) [1]

	PERCENT ALLOCATION (%)						
CUSTOMER CLASSES	BASE USAGE	PEAK USAGE	METER EQUIVALENTS	CUSTOMER ACCOUNTS	PRIVATE FIRE PROTECTION	RAW WATER	PUBLIC FIRE PROTECTION
Single Family Residential	$35.3	$13.9	$8.1	$7.1		$6.7	$1.1
Multifamily Residential	$53.8	$20.5	$6.3	$2.4		$10.1	$1.4
Residential Irrigation	$0.6	$0.8	$0.1	$0.02		$0.1	
Commercial/Industrial	$47.1	$18.5	$4.0			$8.9	$1.9
Municipal	$4.7	$2.1	$0.7	$1.1		$0.9	$0.3
Nonresidential Irrigation	$4.1	$6.1	$0.5	$0.1		$0.8	
Docks & Ships	$0.02	$0.1	$0.01	$0.0004		$0.0003	$0.0003
Builder & Contractors	$0.4	$0.8	$0.1	$0.01		$0.1	$0.05
Fire Service	$0.1	$0.1		$0.5	$2.6	$0.02	
Nonpotable (Raw Water)			$0.01	$0.0001		$0.1	
Total	$147.2	$63.0	$19.7	$11.3	$2.6	$27.6	$4.8

Notes:
(1) Values are rounded and expressed in million dollars. Values may not add up due to rounding.

The water rate design analysis determines how the costs are recovered from each customer through specified water rates. The focus of this analysis is to achieve full cost recovery and substantiate that

customers are paying their fair and proportionate share of system costs. The SFPUC's existing rate structure consists of two components: a commodity charge (variable) and a monthly service charge (fixed). The commodity component is assessed based on metered water usage per ccf and, by design, is intended to recover the cost incurred for delivering each unit of water. The monthly service charge is intended to recognize that the utility incurs fixed costs to provide the availability of water service, which must be recovered independent of monthly water demands and consumption.

Wastewater Enterprise

Carollo developed a detailed cost allocation that serves as the basis for the proposed rate adjustments. The allocation developed through this study provides an accurate method for allocating costs within the wastewater system. For the SFPUC wastewater facilities, these cost categories include flow and strengths — Chemical Oxygen Demand (COD), Total Suspended Solids (TSS), Fats, Oils, and Greases (FOG) — and Customer Service. The total flow is the sum of wet weather and dry weather volume. Wet weather is the condition when peak flow occurs such as a storm event with stormwater runoff.

Functional Cost Allocation

These five cost categories are referred to as billable constituents. In addition to these five, an AAO category is included for costs that are reallocated across every functional category. O&M expenditures and the capital costs for each debt service and future capital projects were assigned to the associated billable constituents. The SFPUC applies separate allocations for O&M and capital costs in order to more accurately reflect appropriate cost relationships. This process allows the SFPUC to recover a proportionate share of annual costs related to capital and O&M from each user through the annual user rate based on their individual flow and loading discharges.

Operating expenses, existing and future debt service, other expenses, and offsetting revenues are weighted based on their average annual expenditures over the four-year rate-setting period to determine the overall percentage allocations, as shown in Table 6. Once the overall percentage allocation to functional category has been defined, those percentages are applied to the full revenue requirements for FY 2019 in order to calculate the unit costs including $54.9 million for AAO.

TABLE 6 WASTEWATER SYSTEM ALLOCATION OF NET REVENUE REQUIREMENTS (FY 2019 - FY 2022 AVERAGE) (1)

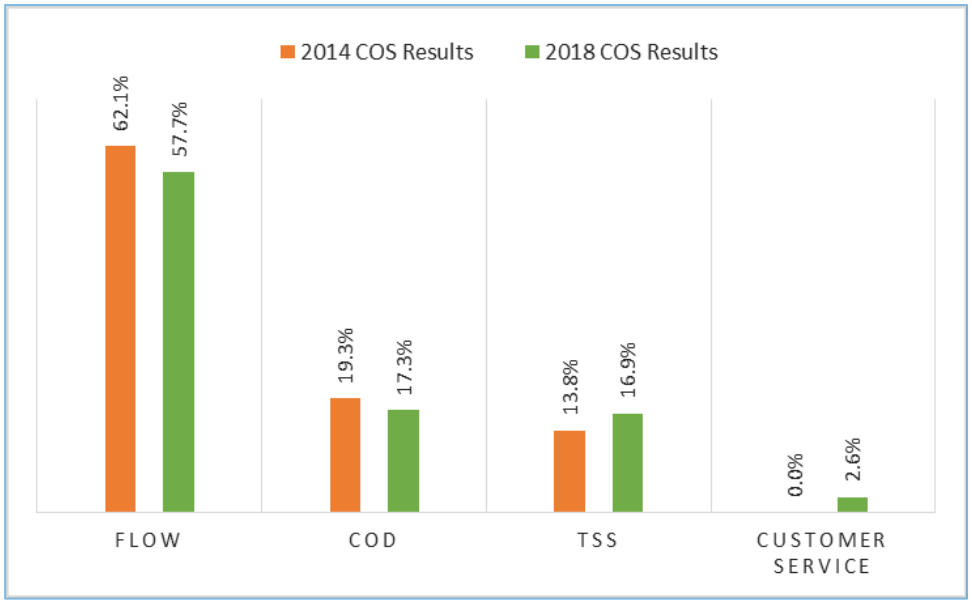
		ALLOCATION VALUE ($)					
CATEGORY	VALUE	FLOW (2)	COD	TSS	FOG	CUSTOMER SERVICE	AS ALL OTHERS (3)
Value	$356.6	$174.0	$52.3	$50.9	$16.7	$8.0	$54.9
AAO Reallocation Percent		31.6	9.5	9.2	3.0	1.5	(54.9)
Total Value w/ AAO		$205.6	$61.8	$60.1	$19.7	$9.4	$0.0
Total Percent	100%	57.7%	17.3%	16.9%	5.5%	2.6%	0.0%

Notes:

(1) Value expressed in million dollars. Values may not add up due to rounding.
(2) Flow includes the sum of dry weather and wet weather volumes.
(3) As All Others allocation is reallocated across the other functional components.

Based on the analysis described above and Figure 2, the customer service component, which includes administrative and billing activities, represents 2.6 percent of forecasted costs and is the foundation for the recommended monthly fixed charge. The remaining 97.4 percent of costs are allocated to flow and strength components and are the basis for the recommended commodity rates.

FIGURE 2 SFPUC WASTEWATER ENTERPRISE CHANGE IN COST OF SERVICE ALLOCATION



The SFPUC currently does not have a fixed charge for the wastewater system. As part of this cost of service study, Carollo recommends the introduction of a fixed charge in order to provide additional revenue stability, and to phase in this charge over the four-year period

In order to allocate the cost of service to various customer classes, unit costs of service are developed for each functional cost component. The total cost for each functional category is then divided by the total number of associated units of service to determine appropriate unit costs for the Wastewater Enterprise. Based on functional category, the units of service are wastewater billable volume, COD mass, TSS mass, FOG mass, and annual bills (based on accounts). As shown in Table 7, the unit costs of service are developed by dividing the total annual costs allocated to each functional component by the total annual service units of the respective category.

TABLE 7 WASTEWATER SYSTEM UNIT COST (FY 2019)

	FLOW [1]	COD	TSS	FOG	CUSTOMER SERVICE
Allocation Percent	57.7%	17.3%	16.9%	5.5%	2.6%
Value Allocable to Component (A)	$186.4	$56.0	$54.5	$17.9	$8.6
Total Units (B)	24,156,924	106,189,808	40,573,659	13,180,295	163,807
Allocation Basis [3]	Annual Volume (ccf)	Strength (lbs)	Strength (lbs)	Strength (lbs)	Customer Accounts/mo.[2]
Per Unit Cost [4] = A ÷ B	$7.72	$0.527	$1.343	$1.358	$4.355

Notes:
(1) Flow includes the sum of dry weather and wet weather volumes.
(2) Annual unit cost is divided by 12 months to get monthly unit cost.
(3) ccf is one hundred cubic feet, 1 ccf = 748 gallons.
(4) Flow unit costs are rounded up to the nearest $0.01 and strength unit costs are rounded up to the nearest $0.001.

The unit costs of each component are then applied to each customer classes' projected use, accounts, and loadings to derive customer class allocations. Based on available consumption and customer records, Table 8 details the proportional allocation of revenue requirements to the customer classes.

TABLE 8 WASTEWATER SYSTEM ALLOCATION OF REVENUE REQUIREMENTS BY CUSTOMER CLASS

CUSTOMER CLASSES	FLOW [1]	COD	TSS	FOG	CUSTOMER SERVICE
Single Family Residential	$48.1	$14.0	$14.6	$4.5	$5.8
Multifamily Residential	78.5	22.9	23.8	7.3	1.9
Nonresidential	59.8	19.1	16.1	6.1	0.8
Total	$186.4	$56.0	$54.5	$17.9	$8.6

Notes:

(1) Flow includes the sum of dry weather and wet weather volumes.

(2) Values are rounded and expressed in million dollars. Values may not add up due to rounding.

The wastewater rate design analysis determines how the costs are recovered by each customer through specified wastewater rates. The commodity rate is assessed based on discharge volume and strength. A fixed charge is recommended to recognize that the utility incurs fixed costs to provide service, which must be recovered independent of discharge characteristics. These two rate components serve as a basis for the rate design.

RATE DESIGN

As the SFPUC continues to refine its rate structure based on changing demands, legal guidelines, and regulatory changes, Carollo analyzed various rate structure adjustments. Once costs have been equitably allocated to each functional component, the SFPUC has some flexibility in designing the rate structure in order to meet its various policy objectives. Several criteria were considered and discussed at length with SFPUC staff. This study and recommendations follow industry best practices and adhere to the substantive requirements of Proposition 218.

Water Enterprise

The water rate design analysis determines rates required to achieve cost recovery, proportionately for each customer. The SFPUC's existing rate structure consists of two components: a commodity charge (variable) and a monthly service charge (fixed). The commodity component is assessed based on metered water usage per ccf and, by design, is intended to recover the cost incurred for delivering each unit of water. The monthly service charge is intended to recognize that the utility incurs fixed costs to provide the availability of water service, which must be recovered independent of monthly water demands and consumption.

In an effort to reduce rate shock as a result of adjustments to the cost of service allocations, Carollo recommends transitioning the residential commodity rates from the existing rates to the cost of service rates calculated for FY 2022 over the four-year period. For this reason, the recommended rates for FY 2019 differ from the calculated rates shown throughout the Rate Design chapter. Throughout the rate-setting process, Carollo worked closely with SFPUC staff to evaluate the impact of the recommended rate structure to water customers.

Monthly Service Charge

By design, the monthly service charge includes a customer service component and a capacity component based on meter size. The customer service component recovers expenses associated with billing, collection, and customer service. This component is the same for all customers regardless of meter size. The meter capacity component captures maintenance costs related to meters and services, as well as a portion of the Water Enterprise's capital costs. This component varies based on meter size to reflect the difference in potential demand that can be placed on the system by different sized meters.

The meter (capacity) charge is then added to the customer service unit cost to calculate the total monthly service charge. The overall percentage increase in the monthly service charge for larger meters is higher

than the increase for smaller meters because the customer service and meter charge components do not increase at the same rate. The overall service charge increase is a weighted average of the two components. Since the meter charge increases with meter size while the customer service cost does not, the meter portion becomes an increasingly significant portion of the overall charge as the meter size gets larger, which results in a larger overall increase for larger meters.

Table 9 summarizes the monthly service charge during the study period, by meter size.

TABLE 9 RECOMMENDED WATER MONTHLY SERVICE CHARGES BY METER SIZE [1]

METER SIZE	FY 2018 [2]	FY 2019	FY 2020	FY 2021	FY 2022
5/8 in.	$11.63	$12.19	$13.15	$14.06	$15.04
3/4 in.	14.64	15.62	16.85	18.01	19.27
1 in.	20.66	22.47	24.24	25.91	27.72
1-½ in.	35.71	39.59	42.71	45.66	48.84
2 in.	53.78	60.14	64.88	69.36	74.19
3 in.	95.95	114.94	124.00	132.56	141.79
4 in.	156.17	176.59	190.51	203.66	217.84
6 in.	306.76	347.84	375.26	401.16	429.09
8 in.	487.45	553.34	596.96	638.16	682.59
10 in.	698.25	861.59	929.51	993.66	1,062.84
12 in.	1,300.55	1,478.09	1,594.61	1,704.66	1,823.34
16 in.	2,264.24	2,574.09	2,777.01	2,968.66	3,175.34

Notes:
(1) Charge is rounded up to the nearest $0.01.
(2) FY 2018 already has an approved revenue increase.

Commodity Rates

Carollo recommends the SFPUC retain its existing water rate structure for residential customers as they are designed to encourage water conservation and are charged on an inclining block rate schedule. Table 10 summarizes the recommended commodity rates during the four-year study period.

TABLE 10 RECOMMENDED WATER COMMODITY RATES BY CUSTOMER CLASS [1]

CUSTOMER CLASS		FY 2018 [2]	FY 2019	FY 2020	FY 2021	FY 2022
Residential						
SFR	Tier 1 (0 - 4 ccf)	$6.42	$7.06	$7.77	$8.55	$9.40
	Tier 2 (over 4 ccf)	8.62	9.05	9.50	9.98	10.48
MFR	Tier 1 (0 - 3 ccf/DU)	6.57	7.18	7.85	8.58	9.39
	Tier 2 (over 3 ccf/DU)	8.81	9.21	9.62	10.05	10.50
Nonresidential						
Commercial/Industrial, Municipal, Nonresidential Irrigation, Docks & Ships, Builders & Contractors, Fire Service		$7.64	$8.33	$9.04	$9.72	$10.45
Nonpotable (Raw Water)		2.95	0.75	0.81	0.87	0.94

Notes:
(1) Rates are rounded up to the nearest $0.01.
(2) FY 2018 has already approved rate increase.

Based on the cost of service analysis and single family residential (SFR) usage, SFR consumption within Tier 1 is primarily non-peak water usage and is used consistently throughout the course of the year. The Tier 1 rate is set to recover the cost of non-peak water delivery and a minimal share of peak costs, accounting for the peak demand that does occur under 4 ccf. Tier 2 then accounts for the majority of costs associated

with peaking not accounted for in Tier 1, such as costs associated with water conservation programs, groundwater production, and recycled water production.

Similar to SFR customers, MFR consumption that falls within Tier 1 would be charged at the base unit cost which is set to recover the base (non-peak) costs and accounts for a small portion of costs related to peaking or extra capacity. Based on the tier break of 3 ccf, some peaking occurs within Tier 1, which is then reflected in the Tier 1 rate. Tier 2 would account for the majority of system peaking and, accordingly, is allocated the majority of peaking costs in the recommended rate structure. Peaking costs include those related to the oversizing of infrastructure to meet peak day demands. In addition, water conservation costs are included in the Tier 2 rate to reflect the effort to reduce the water consumption of high-volume users.

Carollo recommends a single nonresidential rate that retains the existing uniform commodity rate structure. Nonpotable (raw) water is provided to two customers outside of the City and County of San Francisco in its natural state prior to any treatment. Rates recover the costs associated with the infrastructure and supply of untreated water service when the customer furnishes all facilities necessary to convey the untreated water from the system's supply reservoirs to the customer's point of use.

Wastewater Enterprise

Similar to the water rates, the current wastewater rates consist of a uniform (non-tiered) flow-based rate with an additional separate charge for each unit associated with strength for nonresidential customers. However, retail wastewater revenues are currently based entirely on flow-based charges, as there is no monthly service charge associated with the wastewater rate structure. The rate is charged based on the assumed amount of metered water usage that is returned to the wastewater system.

Monthly Service Charge

Carollo recommends implementation of a wastewater fixed monthly service charge to recover costs associated with customer service and billing. Because these costs are not related to customer flow and strength characteristics, it is recommended to implement a flat monthly charge that does not vary by meter size or customer class. The recommended monthly service charges are shown in Table 11.

Commodity Rates

Wastewater customer classes are evaluated separately to determine unit costs more specific to their customer category. Units of wastewater discharge are determined based on metered water consumption and a return-to-sewer factor (flow factor) that accounts for that a portion of water usage which does not return to the wastewater system. The return-to-sewer factor varies by customer class, recognizing the greater level of outside irrigation by single family and nonresidential users compared to MFR users. For nonresidential customers, the rate is separated into strength- and flow-based rates. The strength charges are assessed based on the estimated effluent strength discharged to the wastewater system per ccf, which is specific to user categories.

Wastewater loading strength is assumed to be similar for all residential wastewater users at 684 mg/L COD, 279 mg/L TSS, and 85 mg/L FOG. Because of this standardized assumption, the costs associated with loadings may be rolled up into one rate applied to residential users based on discharge flow. The residential rate assessed for flow includes costs associated with loadings. However, nonresidential customer loadings vary greatly so their flow rate does not include costs associated with loadings. Separate loadings charges are applied to their assumed loadings by customer type to determine the total wastewater bill. Based on the flow factor, the amount discharged is assumed to be 90 percent of monthly water consumed for single family residential customers and 95 percent of monthly water consumed for multifamily residential customers.

Nonresidential users currently pay a uniform volume rate for each unit of wastewater flow, which is based on a 90 percent return factor applied to metered water usage for nonresidential customers. In addition,

nonresidential customers are assessed separately for each billable constituent. These charges are based on the assumed loading concentrations (strength parameter) that are returned per discharge unit for various types of nonresidential customers. Defined strengths are based on periodic sampling data on an individual customer basis or the customer's Standard Industrial Classification (SIC) code, if no sampling data is available.

The recommended rates are calculated by dividing the total annual costs associated with each cost component by their associated total annual units. Nonresidential customers are billed by applying the appropriate SIC code classification to the recommended unit costs to reflect the assumed loadings concentrations specific to commercial property type. The recommended rates for FY 2019 through FY 2022 are summarized in Table 11.

TABLE 11 RECOMMENDED WASTEWATER RATES [1]

DESCRIPTION	FY 2018 [2]	FY 2019	FY 2020	FY 2021	FY 2022
Monthly Service Charge ($/month)	None	$0.99	$2.27	$3.77	$5.51
Residential					
SFR ($/ccf)	$12.40	$13.28	$14.39	$15.58	$16.88
MFR ($/ccf)	12.40	13.28	14.39	15.58	16.88
Nonresidential					
Flow ($/ccf)	7.66	8.16	8.734	9.34	9.99
COD ($/lb)	0.548	0.574	0.609	0.645	0.684
TSS ($/lb)	1.033	1.164	1.334	1.525	1.740
FOG ($/lb)	1.082	1.221	1.380	1.558	1.757

Notes:

(1) Strength unit costs are rounded up to the nearest $0.001, other charges are rounded up to the nearest $0.01.
(2) FY 2018 has already approved rate increase.

Drought Surcharge

To enhance revenue stability for wastewater operations, Carollo recommends the SFPUC implement drought surcharges to be applied to both water and wastewater rates during periods of reduced water demand, and therefore reduced wastewater flows, associated with drought conditions. A drought surcharge will allow the SFPUC to address revenue shortfalls driven by sustained decreases in sales due to drought, supply limitations, or other circumstances, and would only be assessed if SFPUC declares water supply shortages while also continuing to incentivize water conservation.

Customer Impacts

Figure 3 illustrates the impact of the recommended rates on the combined water and wastewater bill for SFR customers with a 5/8-inch meter across various usage levels.

FIGURE 3 SINGLE FAMILY RESIDENTIAL MONTHLY COMBINED BILL IMPACT AT DIFFERENT USAGE LEVELS

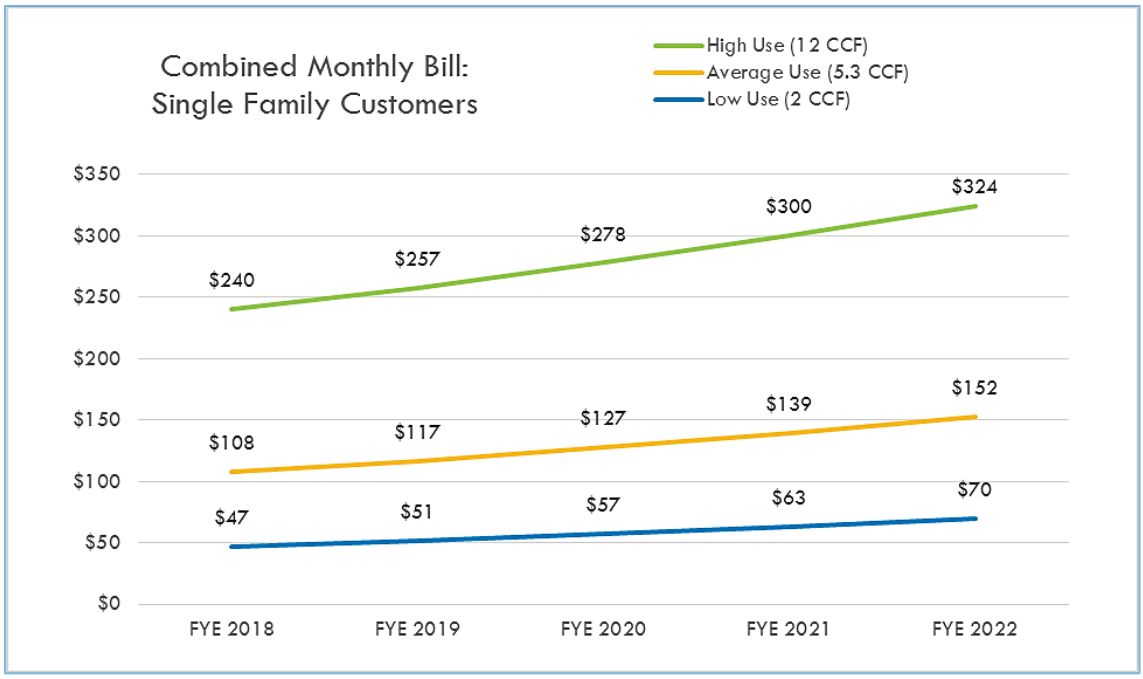


Figure 4 illustrates the impact of the recommended rates on the combined water and wastewater bill for MFR customers with a 5/8-inch meter across various usage levels.

FIGURE 4 MULTIFAMILY RESIDENTIAL MONTHLY COMBINED BILL IMPACT AT DIFFERENT USAGE LEVELS

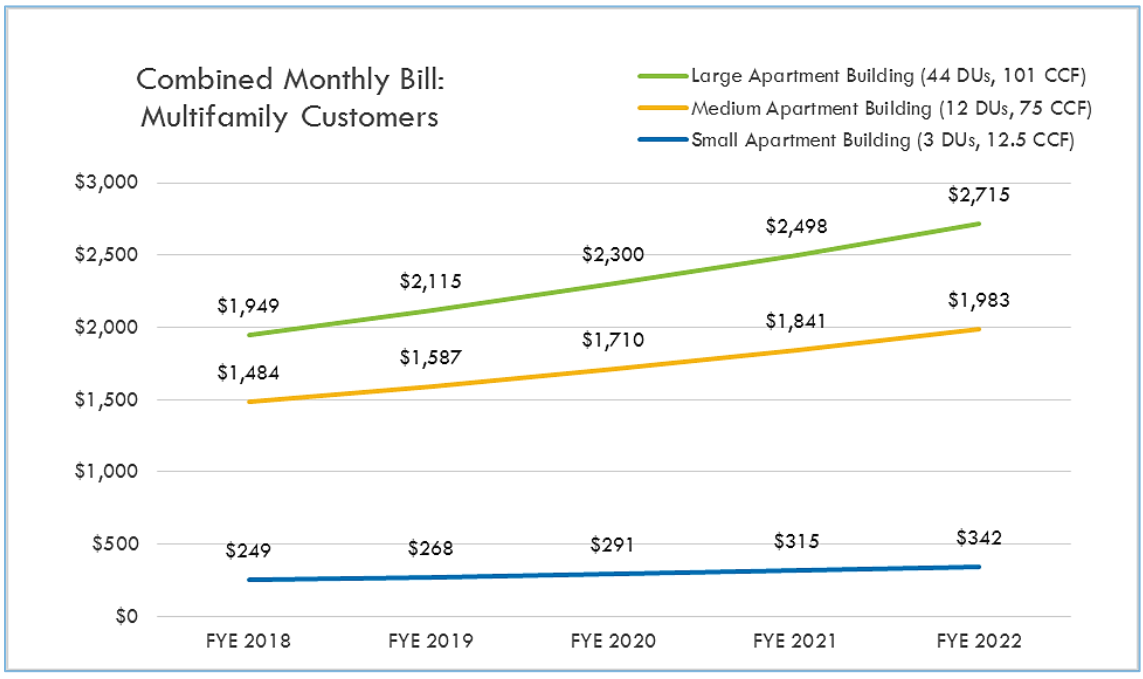
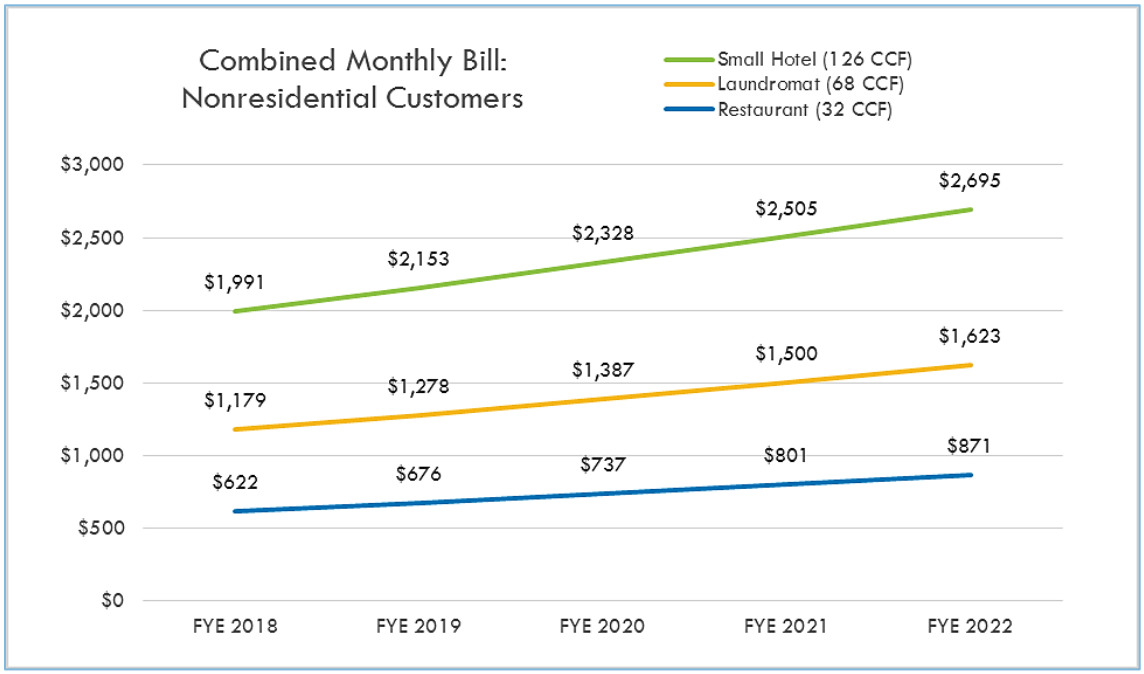


Figure 5 illustrates the impact of the recommended rates on the combined water and wastewater bill for nonresidential customers with a 5/8-inch meter across various usage levels and business types.

FIGURE 5 NONRESIDENTIAL MONTHLY COMBINED BILL IMPACT AT DIFFERENT USAGE LEVELS



Capacity Charges

A Capacity Charge is designed to recover a fair and proportionate share of the costs to provide capacity to serve future users, and is imposed as a condition of service for new wastewater usage, increase in usage, or change in usage. The SFPUC adopted a Wastewater Capacity Charge in July 2005 and a Water Capacity Charge in 2007. The capacity charge adopted by the SFPUC is based on the Equity Buy-In methodology. Conceptually, this methodology requires future users to buy into the system at a value commensurate to the equity contributed by existing users. Capacity Charges are calculated by dividing ratepayer equity by the total system capacity of the wastewater or water system. Ratepayer equity is defined as the value of the existing system, including construction work-in-progress and cash reserves, less outstanding debt principal and accumulated depreciation. Total system capacity is defined as the number of 5/8-inch meter equivalents (ME) that can be served by the existing system.

Capacity Charge Methodology

The equity buy-in approach requires that new users buy into the water or wastewater system on par with the average equity that existing users have funded through rates and charges. Ratepayer equity comprises two components: net capital asset equity and reserves. Net capital asset equity represents the current value of the physical water or wastewater assets funded by existing ratepayers, net of accumulated depreciation. Capital costs not funded by existing ratepayers, such as grant-funded assets, are excluded from the ratepayer equity component. Additionally, capital costs financed through bonds are reduced by the total of the outstanding debt principal to reflect those costs not yet paid for by ratepayers. The Capacity Charge calculation includes only the net capital assets associated with the portion of the SFPUC system that provides service to Inside City and suburban retail customers. Regional and wholesale assets are not included.

Recommended Capacity Charges

The water and wastewater capacity charges are calculated by dividing the ratepayer equity by total system capacity, as illustrated in Table 12. The significant increase in the water capacity charge is primarily due to the projects associated with the WSIP rolling onto the asset list. However, the accumulated depreciation is not increasing as much because a large number of assets that are fully depreciated.

TABLE 12 CAPACITY CHARGE CALCULATIONS

DESCRIPTION	WATER SYSTEM	WASTEWATER SYSTEM
Ratepayer Equity	$1,156,390,852	$2,237,148,517
Number of MEs	635,000	468,000
Calculated Capacity Charge per ME	**$1,821**	**$4,780**
Existing Capacity Charge per ME	$1,346	$4,583
Capacity Charge Increase (%)	35%	4%

The methodology described above results in a calculated maximum Water Capacity Charge of $1,821 for a 5/8-inch ME and a calculated Wastewater Capacity Charge of $4,780 for a 5/8-inch ME with SIC 4 classification. Carollo recommends adopting the maximum calculated Capacity Charges. Detailed calculations and recommended Capacity Charge schedules are provided in the Capacity Charge chapter of this report.

Water Capacity Charge

Based on the calculation shown in Table 12, Carollo recommends that the SFPUC adopt a water capacity charge of $1,821 per 5/8-inch ME. Table 13 shows the recommended water capacity charges for all meter sizes based on the ratio of the AWWA standard maximum flow rate through each meter size to the maximum flow rate through a 5/8-inch meter.

TABLE 13 EXISTING AND RECOMMENDED WATER CAPACITY CHARGES BY METER SIZE

METER SIZE	AWWA MAXIMUM FLOW RATE (GPM)	METER EQUIVALENT RATIO	EXISTING CAPACITY CHARGE	RECOMMENDED CAPACITY CHARGE
5/8 in.	20	1.0	$1,346	$1,821
3/4 in.	30	1.5	2,020	2,732
1 in.	50	2.5	3,369	4,553
1-½ in.	100	5.0	6,734	9,105
2 in.	160	8.0	10,776	14,569
3 in. (1)	320	16.0	20,204	29,137
4 in.	500	25.0	33,673	45,527
6 in.	1,000	50.0	67,349	91,055
8 in.	1,600	80.0	107,758	145,687
10 in.	2,500	125.0	154,821	227,636
12 in.	4,300	215.0	289,448	391,534
16 in.	7,500	375.0	504,852	682,909

Notes:

(1) Carollo gathered data from the meter group for meter type and size accuracy. Adjustments were made to the 3-inch meter and the 10-inch meter ratios, due to these clarifications.

Wastewater Capacity Charges

Carollo recommends that the SFPUC adopt a wastewater capacity charge of $4,780 per 5/8-inch ME based on the calculation in Table 14 and Table 15 present the recommended wastewater capacity charge by meter size and SIC Group, based on the calculated maximum capacity charge per ME.

TABLE 14 RECOMMENDED WASTEWATER CAPACITY CHARGE SCHEDULE UP TO SIC 6

METER SIZE	ME FACTOR	SIC 4 (1)	SIC 1	SIC 2	SIC 3	SIC 5	SIC 6
5/8 in	1.0	**$4,780**	$0	$3,902	$4,580	$4,716	$4,515
3/4 in	1.5	**7,170**	0	5,854	6,870	7,074	6,772
1 in	2.5	**11,951**	0	9,756	11,449	11,790	11,287
1 ½ in	5.0	**23,901**	0	19,512	22,899	23,580	22,573
2 in	8.0	**38,242**	0	31,219	36,638	37,728	36,118
3 in	16.0	**76,484**	0	62,439	73,275	75,456	72,235
4 in	25.0	**119,506**	0	97,561	114,493	117,900	112,867
6 in	50.0	**239,012**	0	195,122	228,986	235,800	225,735
8 in	80.0	**382,418**	0	312,195	366,377	377,281	361,176
10 in	125.0	**597,529**	0	487,805	572,464	589,501	564,337
12 in	215.0	**1,027,749**	0	839,024	984,638	1,013,941	970,659
16 in	375.0	**1,729,586**	0	1,463,414	1,717,393	1,768,503	1,693,011

Notes:
(1)SIC Group 4 contains all residential accounts. Group 4 concentrations are the assumed concentrations of a representative EDU.

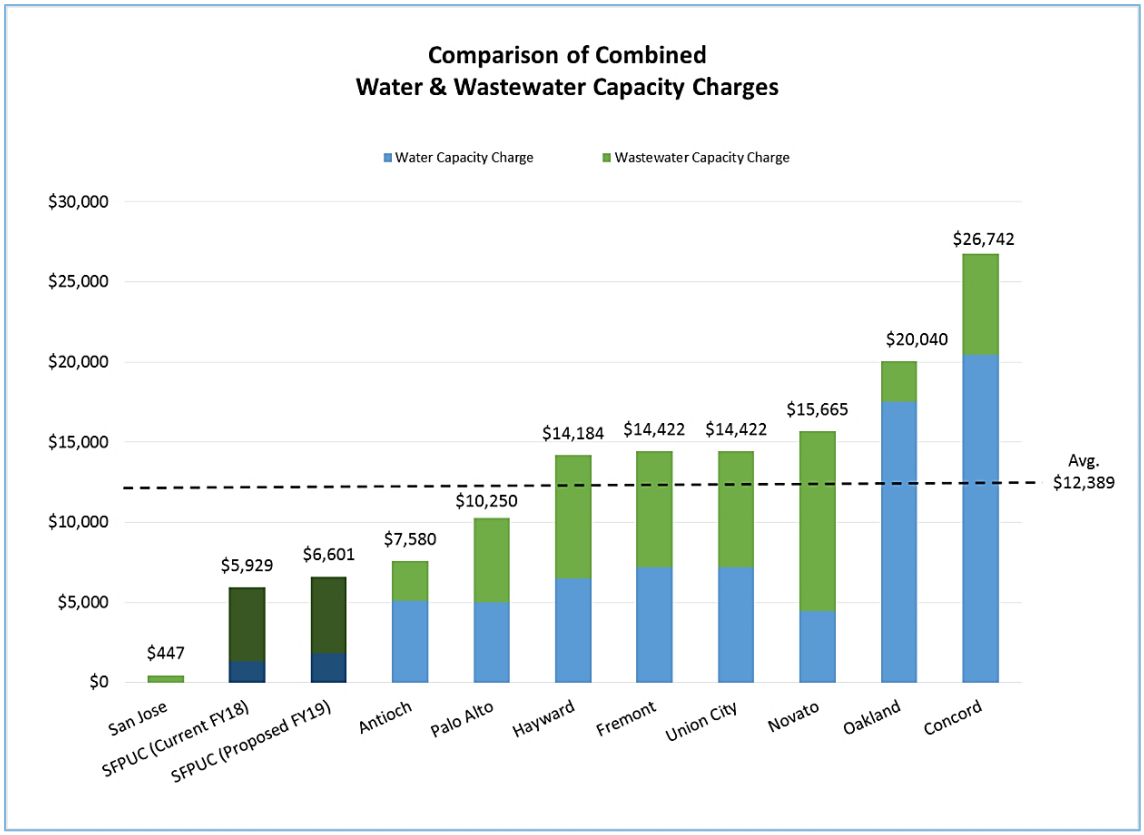
TABLE 15 RECOMMENDED WASTEWATER CAPACITY CHARGE SCHEDULE OVER SIC 6

METER SIZE	ME FACTOR	SIC 7	SIC 8	SIC 9	SIC 10	SIC 11	SIC 12
5/8 in	1.0	$5,350	$5,544	$5,750	$6,177	$11,511	$4,915
3/4 in	1.5	8,024	8,315	8,625	9,266	17,266	7,373
1 in	2.5	13,374	13,859	14,375	15,444	28,776	12,288
1 ½ in	5.0	26,748	27,718	28,750	30,887	57,553	24,576
2 in	8.0	42,797	44,348	46,000	49,420	92,084	39,321
3 in	16.0	85,593	88,696	92,000	98,839	184,168	78,643
4 in	25.0	133,739	138,588	143,750	154,436	287,763	122,879
6 in	50.0	267,479	277,175	287,499	308,873	575,526	245,758
8 in	80.0	427,966	443,481	459,999	494,196	920,841	393,213
10 in	125.0	668,697	692,938	718,748	772,182	1,438,815	614,396
12 in	215.0	1,150,159	1,191,854	1,236,246	1,328,153	2,474,761	1,056,760
16 in	375.0	2,006,092	2,078,815	2,156,243	2,316,546	4,316,444	1,843,187

Capacity Charge Comparison

Carollo conducted a survey of nearby utilities to gather information about their water and wastewater capacity charges. Although utilities are not always alike, it is common to examine comparisons between similar or neighboring utilities. Figure 6 summarizes combined typical water and wastewater capacity charges per equivalent dwelling unit (EDU) within the Bay Area. Care should be taken in drawing conclusions from such comparisons as factors including locations, customer profiles, age of the system, and various operational and capital-related needs vary from agency to agency. As illustrated, despite the recommended increase to customers, capacity charges are below the average of nearby agencies.

FIGURE 6 WATER CAPACITY CHARGE SURVEY OF BAY AREA UTILITIES



2. Background and System Overview

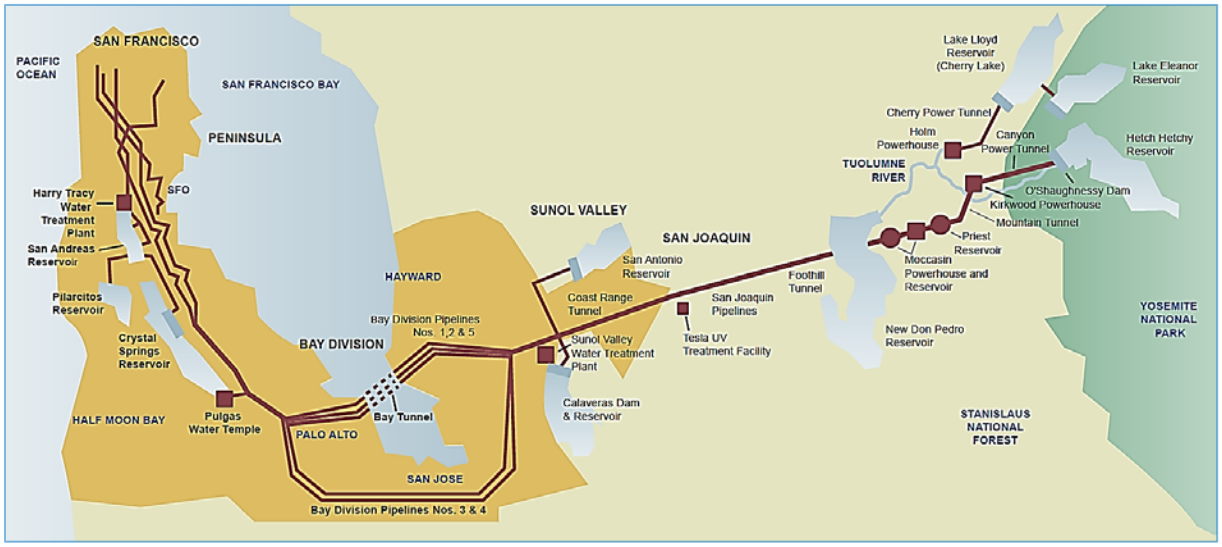
The SFPUC is an enterprise department of the City and County of San Francisco that provides water, wastewater, and municipal power services to San Francisco. The SFPUC is responsible for the maintenance, operation, and development of three utility enterprises: the Water Enterprise, the Wastewater Enterprise, and the Power Enterprise. The SFPUC's enterprises are operated and managed as separate financial entities with separate enterprise funds.

The Water Enterprise provides drinking water to retail customers in the City, to certain retail customers outside the City and to wholesale customers in three other Bay Area counties. This Enterprise is responsible for the daily O&M, and for the long-term planning of water supply, treatment, and distribution facilities for the City and County of San Francisco and contract wholesale customers. The Wastewater Enterprise provides wastewater and storm water collection, treatment and disposal services for the City. The Wastewater Enterprise is responsible for the daily O&M, and for the long-term planning of sewer collection, treatment, and disposal facilities for the City and County of San Francisco.

Water System

The SFPUC is the largest water purveyor in Northern California, serving a population of nearly 2.7 million people in over 30 cities. Customers are divided into three categories: retail customers in the City and County of San Francisco, wholesale customer agencies on the San Francisco Peninsula, in the South Bay and parts of the East Bay, and the retail customers outside of San Francisco. About one-third of SFPUC's water supply is served to retail customers, the remaining two-thirds is served to wholesale customers. Source water comes from three systems. These are the Hetch Hetchy system (Hetch Hetchy, Lake Lloyd, and Lake Eleanor Reservoirs), the Alameda Reservoirs (Calaveras and San Antonio), and the Peninsula Reservoirs (Crystal Springs, Pilarcitos, and San Andreas).

FIGURE 7 SFPUC HETCH HETCHY REGIONAL WATER SYSTEM



Average annual water production of the SFPUC is approximately 300 million gallons per day (MGD). About 85 percent is derived from the Hetch Hetchy system, 10 percent from the Alameda Reservoirs, and 5 percent from the Peninsula Reservoirs.

Water System Improvement Program

The Waster System Improvement Program is a $4.8 billion multi-year capital program to enhance SFPUC's ability to provide reliable, affordable, high quality drinking water to its 27 wholesale customers and regional retail customers in an environmentally sustainable manner. The recommended WSIP is structured to meet water quality regulatory requirements, improve seismic and delivery reliability, and meet water supply reliability goals.

Projects within the WSIP continue to incorporate key principles of SFPUC centered on sustainability, reliability, and quality. The objectives of the program are to:

- Improve the system to provide high-quality water that reliably meets all current and foreseeable local, State, and Federal requirements.
- Reduce vulnerability of the water system to damage from earthquakes.
- Increase system reliability to deliver water by providing the redundancy needed to accommodate outages.
- Provide improvements related to water supply/drought protection.
- Enhance sustainability through improvements that optimize protection of the natural and human environment.

As of December 2017, the WSIP is approximately 95 percent complete. Eight regional projects are in construction and 39 projects are in close-out or have been completed. 40 out of 43 regional WSIP projects with specific level of service goals have been achieved to date. Besides the WSIP closeout projects, the only regional project that remains in pre-construction is the Alameda Creek Recapture Project.

Wastewater System

The wastewater collection, treatment, disposal, and reuse system consists of a combined sewer system that treats both sanitary sewer and wet weather flows. It also includes three water pollution control plants, and effluent outfalls to the San Francisco Bay and Pacific Ocean. The combined sewer system reduces pollution in the San Francisco Bay and Pacific Ocean by treating wet weather flows, and urban runoff that would otherwise discharge to the Bay and Ocean. The collection system consists of approximately 900 miles of sewer system lines throughout the City. The SFPUC treats all sanitary flows during dry weather months before discharging the treated effluent to the Pacific Ocean and San Francisco Bay.

Dry weather flows, including street runoff, receive full secondary treatment at either the Oceanside or Southeast wastewater treatment plants. Wet weather flows receive either secondary treatment at Oceanside or Southeast facilities, or primary treatment at the North Point wet weather facilities.

FIGURE 8 SFPUC WASTEWATER FACILITIES

Sewer System Improvement Program

The SSIP is a 20-year citywide investment to upgrade and replace vital sewer infrastructure. Annual capital expenditures will increase substantially in upcoming years due to the 20-year SSIP. The SSIP is divided into three overlapping phases. In 2012, the Phase 1 Capital Budget Plan was approved for a total budget of $2.91 billion and is 21.1 percent complete as of the end of FY 2017. The expected completion for SSIP Phase 1 is October 2026. All three phases are expected to total nearly $7 billion, funded through a combination of new debt issuances and cash sources including operating revenues, capacity charges, and other sources.

In developing the SSIP, the SFPUC has endorsed specific, measureable goals and objectives that will guide project selection and will be utilized to evaluate program implementation and success. The level of funding needed to support the SSIP is the basis for the analysis of sewer system rates and charges developed in this study.

3. Water Enterprise Revenue Requirements

Carollo Engineers (Carollo) analyzed the revenue requirements of retail customers to test the fiscal health of the SFPUC Water Enterprise, evaluate the adequacy of current rate levels, and set the basis for near- and long-term rate planning. The revenue requirement analysis covers the study period FY 2018 through FY 2028. The primary focus for rate setting was given to four years, FY 2019 through FY 2022, of the study period as the SFPUC already has an approved rate increase for FY 2018. Based on the findings of this study, Carollo recommends the Water Enterprise increase retail rates by an average of 7.5 percent over the four-year period from FY 2019 though FY 2022 in order to fund operational and capital needs, and meet debt service obligations associated with the $4.8 billion WSIP and other infrastructure priorities. The proposed findings support the Water Enterprise's ability to continue meeting its level of service objectives.

Revenue Requirements Overview

The revenue requirement analysis compares the forecasted revenues of the utility to its forecasted operating and capital costs to determine the adequacy of the existing rates to recover the utility's costs of providing service. Should any deficits be identified, additional funding, either through rates or additional bond issuances, are reviewed and recommended based on strategic goals and available funding. Through its annual budgeting process, the SFPUC performs a detailed review of its costs, including operations expenses, capital needs, and reserve requirements. The revenue requirements analysis determines the annual retail revenue necessary to be recovered through water rates and charges in order to meet the Water Enterprise's expected financial obligations.

Carollo examined the SFPUC's FY 2019 budget expenses as the base year for operation and O&M costs and worked with the SFPUC to forecast total expenses. Carollo also collected information related to current reserve fund balances, budgeted CIP expenses, future expenses, future revenues, and miscellaneous financial information. Once the revenue requirement is established by compiling all of the SFPUC's cost drivers, two tests are utilized to determine whether the annual revenues are sufficient: cash flow test and debt coverage test. Should both tests "fail," the test with the larger deficiency is determined to be the primary driver. Based on the results of the baseline revenue requirement analysis, the main driver in the first few years is the debt coverage requirement, and in later years cash flow drives the need for additional revenue.

Cash Flow Test

The cash flow sufficiency test evaluates whether revenues exceed expenses for a net positive cash flow at the end of each fiscal year. When they do not, this test is not passed, and additional rate revenue is recommended. The cash flow test identifies the amount of annual revenues that must be generated in order to meet annual expenditure obligations. These obligations include O&M expenses, debt service payments, policy-driven minimum reserves, and rate-funded capital expenses. These expenses, less offsetting revenues from other sources, are compared to total annual projected retail rate revenues. Deficits are then used to estimate the need for rate revenue increases. The analysis also considers existing reserves and financial policies to help mitigate or smooth the need for rate adjustments in the short-term. Within the SFPUC's Fund Balance Reserve Policy, it states that excess reserve amounts will be considered for contingencies and rate stabilization. As such, the SFPUC has the ability to use unrestricted reserves, if available, to satisfy the annual cash flow test in order to minimize rate spikes.

Debt Coverage Test

The second test is the debt service coverage test, which measures the ability of a utility to meet both legal and policy-driven revenue obligations. Many agencies use bonded indebtedness to fund a portion of their capital expenses. Debt service coverage is dictated by each agency's bond covenants and establishes an amount that a borrower must raise in revenue in excess of operations and debt-related expenses. Debt issuance is a significant funding source for the SFPUC's capital programs.

Under the SFPUC water indenture, revenues pledged to cover debt service must meet two separate ratios: (1) current and (2) indenture.

1. Current coverage requires annual revenues to meet a minimum of 1.00x (times) the annual debt service. This measure looks at only current year revenues and may exclude certain revenues and expenditures, depending on the covenant.

$$Current\ Coverage = \frac{(Annual\ Revenues - Operating\ Expenses)}{Annual\ Debt\ Service}$$

2. By indenture, the SFPUC is required to collect sufficient net revenues to meet or exceed 1.25x the annual debt service. This measure includes current year revenues including the unappropriated fund balance for debt service coverage sufficiency.

$$Indenture\ Coverage = \frac{(Annual\ Revenues - Operating\ Expenses) + Unappropriated\ Fund\ Balance}{Annual\ Debt\ Service}$$

However, to ensure that the SFPUC retains financial flexibility for contingencies, the Commission has adopted and implemented a Debt Service Coverage Policy that targets higher metrics than the minimum debt service coverage requirements. The SFPUC has adopted a current coverage ratio of 1.10x and indenture coverage ratio of 1.35x. This means that the SFPUC must raise enough revenue to cover all operations and maintenance expenses, including debt service, plus an additional 10 basis points for debt service with revenues. Similarly, the indenture coverage ratio requirement, which includes revenues and unappropriated fund balance to cover all operations and maintenance including debt service, also was raised an additional 10 basis points over requirements.

Analysis Assumptions and Inputs

Water Enterprise Baseline Inputs

The Water Enterprise provides potable water to retail customers within the City, to certain retail customers outside the City, and to wholesale customers in Alameda, San Mateo, and Santa Clara counties. Customers are divided into three categories: 1) inside City and County of San Francisco retail customers; 2) wholesale customer agencies on the San Francisco Peninsula, in the South Bay, and parts of the East Bay; and 3) retail customers outside of San Francisco.

Table 16 summarizes the number of accounts and the demand for SFPUC's retail water customers by customer class.

Table 16 Water Enterprise Profile

CUSTOMER CLASS	NUMBER OF ACCOUNTS	FY 2017 DEMAND (1)
Single Family Residential (SFR)	110,951	6,897,757
Multifamily Residential (MFR)	37,002	10,497,591
Residential Irrigation	296	125,156
Commercial/Industrial	16,411	9,196,666
Municipal	1,174	914,093
Nonresidential Irrigation	1,269	802,897
Docks & Ships	7	3,585
Builders & Contractors	136	75,762
Fire Service	8,475	24,351
Nonpotable (Raw Water)	2	72,154
Total	175,723	28,610,013

Notes:
(1) Measured in billing units of one hundred cubic feet (ccf).

Forecast Assumptions

The SFPUC's FY 2019 operating budget served as the basis for forecasting future operating expenses for the Water Enterprise. The budget was compared to the current internal financial forecast and discussed with SFPUC staff to identify expenses that may need to be adjusted or are not appropriate to include when projecting into future years. This includes any incremental costs due to the WSIP. The escalation factors used in this analysis are based on input from the SFPUC staff and a review of both the long-term and recent cost escalation from the Engineering News-Record Construction Cost Index (ENRCCI), an industry benchmarking resource. The escalation factors are presented in Table 17.

Table 17 Water Enterprise Escalation Factors

ESCALATION FACTOR	DESCRIPTION	ESCALATION RATE
General Cost Inflation	Long-range O&M growth.	3.0%
Account Growth	Number of accounts will increase by this factor.	0.1%
Demand Growth/(Reduction)	Consumption per account will increase/(decrease) by this factor.	(0.5)%
Retail Rate Increase	Increase in water rate due to changes in revenue requirements.	Varies
Operating Expenses Increase	Increase in operating and maintenance costs.	Varies
Total Expenses Increase	Increase in all operating and non-operating expenses costs.	Varies

The SFPUC individual line item costs were assigned one of the escalation factors shown in Table 17 to account for variability among cost categories. These escalation factors were then applied to the appropriate categories of expenses to forecast costs incurred by the Water Enterprise.

Forecasting Water Enterprise Expenses

Operating expenses are costs that the utility incurs for daily operations, such as personnel salaries and benefits, system maintenance, fuel, and chemicals. As part of the budget process, an O&M forecast is developed for the Water Enterprise. The operating budget expenses include costs related to the following main categories listed below:

1. Administration: Much of the SFPUC's overhead cost allocation and related labor costs. These are labor costs that cannot be directly allocated to a function, such as treatment or pumping, but still support the daily operations.
2. Water Supply and Treatment: Raw surface water supply and water produced from the SFPUC's wells must be treated. Costs in this category cover the operational costs of plants involved in the treatment process.
3. Pumping and Transmission: Costs associated with the distribution of water outside the fence of the SFPUC's treatment facilities. Pumping covers the energy and maintenance costs.
4. Distribution and Storage: Distribution covers the O&M of below ground assets beyond the treatment plant. Storage covers the O&M of storage tanks, reservoirs, and other facilities to hold treated water throughout the year and allow consistent supply availability.

In future years, additional incremental O&M costs associated with capital assets from the WSIP are expected. These will be in addition to the escalated O&M costs discussed above. For FY 2019, the total O&M cost of the Water Enterprise, including Programmatic Expenses, is budgeted at $271.3 million. Costs for FY 2020 through FY 2028 were estimated using the FY 2019 budget and applying appropriate annual escalation factors presented in Table 17.

Table 18 presents a summary of the Water Enterprise's operating expenses.

Table 18 Water Enterprise Operating Expenses [1]

EXPENSES	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Administration	$64.8	$69.2	$71.5	$73.6	$75.8	$78.1	$80.4	$82.8	$85.3	$87.9	$90.5
City Distribution	43.4	45.4	48.7	50.2	51.7	53.2	54.8	56.5	58.2	59.9	61.7
Water Quality	19.2	20.0	21.6	22.2	22.9	23.6	24.3	25.0	25.8	26.6	27.4
Water Supply & Treatment	49.6	53.1	54.7	56.3	58.0	59.7	61.5	63.4	65.3	67.2	69.2
Natural Resources	11.4	12.0	12.8	13.2	13.6	14.0	14.4	14.8	15.3	15.7	16.2
Water Resources	8.2	8.6	9.2	9.4	9.7	10.0	10.3	10.6	11.0	11.3	11.6
Hetch Hetchy Assessment	31.4	33.6	34.6	35.6	36.7	37.8	38.9	40.1	41.3	42.5	43.8
Total Expenses	$228.0	$241.9	$253.0	$260.5	$268.4	$276.4	$284.7	$293.2	$302.0	$311.1	$320.4

Notes:

(1) Values are in million dollars and rounded. Values may not add up due to rounding.

Forecasting Water Demand and Supply

Per capita water use within San Francisco continues to be among the lowest in the State and below historic consumption. Both total consumption and per capita water use have been on a general decline over the recent decades. Many factors have contributed to this reduction in water use, including significant changes to the mix of industrial and commercial businesses and their associated water demand and the general characteristics of water use. Under the 2015 Urban Water Management Plan for the City and County of San Francisco, the SFPUC aims to diversify its water source portfolio.

To protect from disruption of supply due to climate change, drought, and natural disaster, the SFPUC is pursuing new local water sources through groundwater wells, recycled water for irrigation, and a continued water conservation program.

Water Demand

As part of this analysis, SFPUC requested that Carollo build a probabilistic demand forecast in order to project demands over the next several years. A time-series forecasting model was developed to review historical demand levels. The model was then used to project a range of potential demand levels. The forecast was developed using only historical water consumption data, and no additional data, such as population growth or climate impacts, was incorporated. Demand data from FY 2012 through FY 2017 was used to build the model. For FY 2018 and FY 2019, the model projected total demand of 28.5 and 27.2 million ccf, respectively, a decrease of approximately 5 and 10 percent from FY 2017 (30.1 million ccf). The 95 percent confidence interval for the FY 2019 projection was 23.9 to 30.9 million ccf.

After reviewing the results of the model, it was determined that the results were unrealistically low. The high end of the FY 2019 forecast is just on par with the FY 2017 actual demand. While it is possible that demands will continue to fall through FY 2019, given the post-drought bounce-back in demand seen by many California Water agencies, it is more likely that demands will either stay flat or increase modestly. With the forecast placing a low probability on that outcome, it is likely an unreliable model without adjustments. Furthermore, the overall trend line of the data feeding the model is downward sloping, with each year since FY 2013 lower than the prior year. From FY 2012 to FY 2017, overall demands fell by approximately 18 percent, before accounting for service area growth. As a result, the forecast model is heavily swayed by recent conservation.

However, our projections should include the possibility of the state of emergency reoccurring. If a new drought were to occur, as many of the easiest and most impactful changes have already been implemented, it would be less likely to see reductions of the same magnitude as those recently experienced without dramatic decreases in population or living standards which are not expected. Therefore, Carollo assumed a relatively flat trend line going forward.

In addition to the Time-Series trending, Carollo applied a simple 0.5 percent annual reduction factor uniformly to all demand to reflect price elasticity and isolate certain likely demand drivers such as demand reductions driven by drought-related regulatory restrictions on water use, low-flow fixtures, or environmental consciousness. The projected average annual demands for the FY 2019-FY 2022 rate period are shown in Table 19.

Table 19 Projected Water Demands

DEMAND	ANNUAL AVERAGE IN FY 2019 - FY 2022 (1)
In-City & Suburban Retail	
SFR	6,997,354
MFR	11,047,114
Municipal	1,314,882
Nonresidential	10,142,930
Treasure Island	196,116
Nonpotable	95,167
Recycled Water	34,011
Upcountry/Hetchy	
Groveland	175,691
Lawrence Livermore Lab	126,820
Miscellaneous Upcountry	1,571
Total	30,131,656

Notes:
(1) Measured in billing units of ccf.

Water Supply

The SFPUC's primary water sources are the Hetch Hetchy Regional Water System and the Alameda and Peninsula watersheds. Hetch Hetchy provides approximately 85 percent of San Francisco's total water needs. The surface water in the Hetch Hetchy Reservoir is treated but does not require filtration. The Alameda and Peninsula watersheds produce approximately 15 percent of the total water supply as summarized in Table 20.

Table 20 Projected Water Supply Summary

SUPPLY SOURCE	ANNUALLY IN FY 2019 - FY 2022 (1)
Hetch Hetchy (85%)	25,611,908
Alameda & Peninsula (15%)	4,519,748
Total (100%)	30,131,656

Notes:
(1) Measured in billing units of ccf.

In an effort to conserve the drinking water supply, the SFPUC has developed alternative water supplies to serve customers. The Harding Park Recycled Water Project was completed in 2012 and the Pacifica Recycled Water Project in 2014. Together they can produce and deliver over 2.8 MGD of recycled water for irrigation of golf courses. In early 2017, the San Francisco Groundwater Supply Project began blending local, sustainable groundwater into San Francisco's current drinking water supply. At the completion of the project in 2021, this supplemental supply will add up to 4 MGD to serve the City's water demands. Once completed in 2020, the Westside Recycled Water Project will deliver recycled water and save up to 2 MGD of drinking water that is currently used for non-drinking purposes such as irrigation and toilet flushing.

Capital Improvement Program

Charter Section 8B.123 requires the SFPUC Financial Services staff to develop a Long-Term Capital Improvement Program ("10-Year Capital Plan" or "Capital Plan") and a Long-Range Financial Plan ("10-Year Financial Plan" or "Financial Plan"). In addition, Charter Section 8B.123 requires that the Commission hold public hearings on an annual basis to review, update, and adopt the Capital Plan and the Financial Plan. The Capital Plan contains a list of projects to be executed during the planning horizon, including cost estimates and schedules. The Financial Plan contains estimates of operations and maintenance expenses, repair and replacement costs, debt costs, and rate increases. Together, these two plans serve as a basis and supporting documentation for the Commission's capital budget and issuance of revenue bonds and other indebtedness.

As of December 2017, the WSIP is approximately 95 percent complete. Eight regional projects are in construction and 39 projects are in close-out or have been completed. 40 out of 43 regional WSIP projects with specific level of service goals have been achieved to date. Besides the WSIP closeout projects, the only regional project that remains in pre-construction is the Alameda Creek Recapture Project. The CIP consists of projects that enhance the SFPUC's ability to provide drinking water in an environmentally sustainable manner to its 2.7 million residential, commercial, and industrial customers in the Bay Area. The WSIP is paid for by both retail customers in San Francisco and wholesale customers and provides regional water supply reliability including supply, transmission, treatment, and regional storage.

In the 10-year CIP, future capital projects are assumed to benefit local or regional customers. The wholesale customers only benefit from the regional projects and thus are only financially responsible for their portion of these projects. As defined by the SFPUC, these projects are funded either with revenues (non-debt capital) or through revenue bonds. Those that are funded via future revenue bonds are allocated to retail and wholesale customers in a similar manner to the existing debt payments. All debt associated with regional projects are allocated to retail and wholesale customers proportional to their assumed annual water consumption. The SFPUC's latest CIP covers FY 2019 though FY 2028 and identifies a range of capital needs. A summary of the estimated CIP during the study period is provided in Table 21.

Table 21 Projected Capital Improvement Program [1]

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Projects: Programmatic Uses										
Local	$19.6	$18.0	$16.6	$16.0	$16.2	$16.0	$15.6	$15.7	$15.8	$16.0
Regional	9.7	14.2	15.2	15.7	13.4	14.4	17.0	17.3	17.6	17.8
Projects: Capital Uses										
Local	$87.3	$77.8	$143.3	$126.5	$100.3	$64.0	$65.1	$66.3	$68.4	$71.8
Regional	180.3	113.2	181.6	66.4	63.6	67.0	56.4	52.4	50.5	61.7
Hetchy	29.0	60.4	49.8	105.0	69.2	49.2	34.7	52.3	15.6	14.2
Total	$325.9	$283.6	$406.5	$329.6	$262.7	$210.6	$188.8	$204.0	$167.9	$181.5

Notes:

(1) Values are in million dollars and rounded. Values may not add up due to rounding.

Programmatic (non-capital) projects differ from capital projects in that they primarily achieve a programmatic goal such as changing or improving an existing asset to meet new program requirements, or creating a new one to do so. Programmatic projects may also improve conditions, accommodate changes in services or customer base, or increase or maintain federal reimbursement.

Regional Project Wholesale Funding

Similar to operating costs, capital expenses are allocated between retail and wholesale customer categories. All local projects are funded solely through retail rates, while the regional projects are split between wholesale and retail customers proportionate to their total annual deliveries.

Policy Requirements and Debt Coverage

Policy and Legal Compliance

As of the beginning of FY 2018, the SFPUC Water Enterprise's available reserves totaled approximately $174 million. These reserves act in part as an operating reserve. Per SFPUC policy, the amount held in these reserves must be equal to or exceed 25 percent of operating expenses; however, the SFPUC currently exceeds this policy requirement and has accordingly planned to cash fund a portion of retail ratepayers' share of future capital projects using available reserves.

Based on existing debt covenants, the SFPUC is required to maintain at least 1.00x coverage ratio of annual debt service inclusive of current reserves. As described previously, this coverage is calculated as the ratio of net revenues available after O&M and debt service, including current reserves, to total annual debt service requirements. Per SFPUC policy, a target of 1.10x has been defined to allow greater flexibility and allowance for future debt issues. In addition, by indenture, the SFPUC maintains at least 1.25x coverage ratio of net revenues for operating expenses, including reserves, to total annual debt service requirements. Similarly, the SFPUC has a policy target of 1.35x. The actual coverage ratios, are expected to be 1.33x (current) and 2.00x (indenture) for FY 2018.

Debt Service

The SFPUC finances major capital improvements, in part, by issuing debt for two primary reasons. First, given the size of the capital program, the SFPUC does not have the available financial reserves that would otherwise be required to fund CIP, nor would it be reasonable to increase the water rates and charges in order to cash fund these improvements. Second, spreading the debt service costs for long-lasting projects over the repayment period provides intergenerational equity by effectively spreading the financial burden between both existing and future users of the system. This approach allows the SFPUC to better match the cost of improvements with the customers benefitting from the improvements. Table 22 summarizes the retail customer share of debt. Applying these percentages and using a weighted average, retail customers are responsible for 44 percent of the annual payment for existing debt for FY 2019.

Table 22 Retail Customer Annual Responsibility for Debt Service Payments on Outstanding Debt [1]

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Retail Debt	$119.4	$147.1	$162.2	$161.3	$168.3	$184.2	$200.7	$209.4	$220.4	$228.9	$231.7
Total Water Debt	256.0	283.7	306.3	320.5	332.0	355.4	383.7	399.9	422.1	439.0	451.1
Retail Percent	47%	52%	53%	50%	51%	52%	52%	52%	52%	52%	51%

Notes:
(1) Values are in million dollars and rounded.

Each capital project is allocated to either local retail or wholesale customers based on direct benefit, or it is considered a regional project and is allocated to retail and wholesale customers based on proportional benefit. Consequently, wholesale customers are only responsible for costs associated with direct wholesale projects and a portion of regional projects proportional to their water consumption.

In addition to issuing debt, the SFPUC funds a portion of improvement projects with current year revenues. The recently adopted Capital Financing Policy requires 15-30 percent of CIP to be funded with rate revenue (non-debt capital) over the 10-year capital and financial planning time horizon. The amount of

capital projects funded using current year revenues has been determined by the SFPUC, and the revenues are delineated as either local or regional, depending on the associated projects. Carollo recommends the SFPUC continue to maintain an active non-debt capital program, rather than relying exclusively on debt, which would spread replacement costs to future generations.

Revenue Requirements

Pre-Rate Increase Revenue Requirements

Based on the projections in this analysis, the SFPUC must increase rates annually in order to meet projected revenue needs due to annual increases in expenses. Beyond retail water rates and charges, the SFPUC collects revenues through other funding sources, such as capacity charges, Build America Bonds (BABs), capital interest earnings, connection charges, lease revenues, and revenues from wholesale customers.

Wholesale and Offsetting Revenue

These offsetting revenues reduce the total rate revenue that must be collected from retail customers. The SFPUC entered into a WSA in 2009 that details the annual wholesale revenue requirements to be collected from wholesale agencies. The revenues collected from the wholesale customers are based on calculations for determining the Wholesale Revenue Requirement (WRR) set forth in the WSA between the SFPUC and the Bay Area Water Supply Conservation Agency (BAWSCA). It is necessary to estimate projected wholesale revenues, as they are an offset to the retail revenue requirement. While other offsetting revenues may be adequately predicted by escalating current year revenues, because the wholesale revenues are based on actual annual demands, they can vary significantly each year. Table 23 shows the water enterprise revenue requirement shortfall assuming no retail rate increases.

Table 23 Water Enterprise Revenue Requirement without Rate Increase [1]

COMPONENT	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Beginning Fund Balance	$174	$224	$200	$134	$36	$(82)	$(218)	$(361)	$(537)	$(736)	$(955)
Retail Sales	$255	$255	$255	$255	$255	$255	$255	$255	$255	$255	$255
Wholesale Sales [2]	264	264	265	264	264	282	316	331	349	360	380
Other Revenue	98	61	61	60	60	58	56	54	52	49	46
Total Revenues	617	580	581	579	579	595	626	638	652	658	674
Operating Expenses [3]	$252	$271	$285	$292	$300	$306	$315	$326	$335	$345	$354
Debt Service	256	284	306	321	332	355	384	400	422	439	451
Other Expenses	59	57	57	67	66	71	73	90	96	96	112
Total Expenses	567	612	648	680	698	733	772	816	853	880	917
Ending Fund Balance	$224	$200	$134	$37	$(82)	$(218)	$(361)	$(537)	$(736)	$(955)	$(1,196)
Reserve Target (25%)	*$63*	*$68*	*$71*	*$73*	*$75*	*$77*	*$79*	*$81*	*$84*	*$86*	*$89*
% of O&M per Reserves Policy	*89%*	*74%*	*47%*	*13%*	*(27%)*	*(71%)*	*(115%)*	*(165%)*	*(220%)*	*(277%)*	*(338%)*
Cash Flow Test											
Cash Flow Surplus/ (Deficit)	$51	$(32)	$(67)	$(101)	$(120)	$(138)	$(145)	$(178)	$(201)	$(222)	$(243)
Debt Coverage Test											
Current	*1.33x*	*1.10x*	*0.98x*	*0.91x*	*0.85x*	*0.82x*	*0.82x*	*0.79x*	*0.76x*	*0.73x*	*0.72x*
Indenture	*2.00x*	*1.89x*	*1.63x*	*1.33x*	*0.96x*	*0.59x*	*0.25x*	*(0.11)x*	*(0.51)x*	*(0.95)x*	*(1.40)x*

Notes:
(1) Values are in million dollars and rounded. Values may not add up due to rounding.
(2) Wholesale sales reflect previously adopted wholesale rate increases.
(3) Operating Expenses includes Programmatic Expenses.

As illustrated, the current retail rates are not sufficient to fully fund all annual cash needs of the utility over the next ten years. Before considering rate smoothing, increases are generally calculated using the test (cash or debt) with the greatest deficiency.

Revenue Requirements with Rate Increase

Carollo recommends annual rate increases with the resulting cash flow represented in Table 24 for the Water Enterprise. The recommended rate revenue increases average 7.5 percent per year over the next five years, aimed at ensuring that the SFPUC collects sufficient funds to pay operational and capital expenses, including the debt service obligations associated with the CIP.

Table 24 Water Enterprise Revenue Requirement with Rate Increase [1]

COMPONENT	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Recommended Rate Increase [2]	--	8%	8%	7%	7%	7%	6%	6%	6%	5%	3%
Month of Adjustment	--	July 2018	July 2019	July 2020	July 2021	July 2022	July 2023	July 2024	July 2025	July 2026	July 2027
Beginning Fund Balance	$174	$224	$220	$197	$165	$134	$113	$109	$99	$94	$96
Retail Sales with Increase	255	275	297	318	340	364	386	409	434	455	469
Wholesale Sales [3]	264	264	265	264	264	282	316	331	349	360	380
Other Revenue	98	61	61	62	63	63	63	63	64	65	65
Total Revenues with Increase	617	600	624	644	667	709	765	803	846	880	914
Total Expenses	567	612	648	680	698	733	772	816	853	880	917
Ending Fund Balance	$224	$220	$197	$165	$134	$113	$109	$99	$94	$96	$95
Reserve Target (25%)	*$63*	*$68*	*$71*	*$73*	*$75*	*$77*	*$79*	*$81*	*$84*	*$86*	*$89*
% of O&M per Reserves Policy	*89%*	*81%*	*69%*	*57%*	*45%*	*37%*	*35%*	*30%*	*28%*	*28%*	*27%*
Cash Flow Test											
Cash Flow Surplus/ (Deficit)	$51	$(32)	$(47)	$(57)	$(54)	$(48)	$(28)	$(36)	$(32)	$(22)	$(17)
Debt Coverage Test											
Current	*1.33x*	*1.17x*	*1.12x*	*1.11x*	*1.12x*	*1.14x*	*1.18x*	*1.20x*	*1.22x*	*1.23x*	*1.25x*
Indenture	*2.00x*	*1.96x*	*1.84x*	*1.72x*	*1.61x*	*1.52x*	*1.48x*	*1.48x*	*1.45x*	*1.44x*	*1.46x*

Notes:

(1) Values are in million dollars and rounded. Values may not add up due to rounding.
(2) Prior to this study, SFPUC approved a 7% rate increase in FY 2018.
(3) Wholesale sales reflect previously adopted wholesale rate increases.

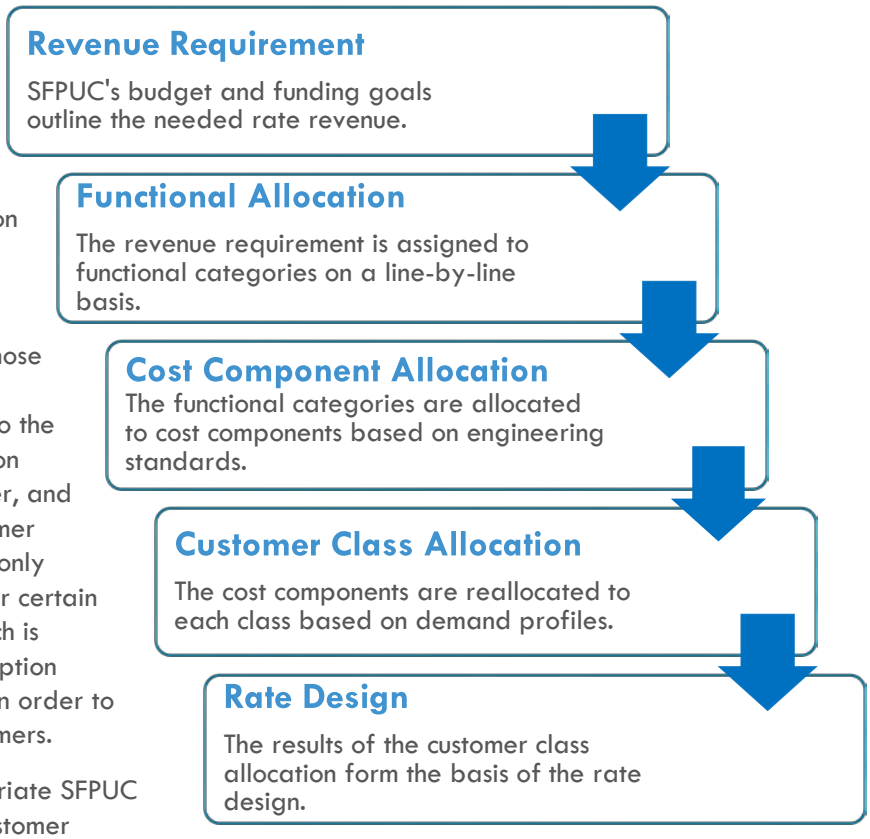
As noted earlier, the SFPUC will be required to revisit this forecast if revenues do not materialize as projected. It is important that the SFPUC maintain a 1.10x (current) and 1.35x (indenture) coverage ratio of annual debt service per its policy. If SFPUC revenues are insufficient to meet its debt coverage requirement of 1.00x (current) and 1.25x (indenture), its credit rating could be downgraded, which could have significant interest rate cost impacts due to the amount of debt expected to be issued in upcoming years. Table 24 also shows the resulting operating reserve fund from the cash flow for the Water Enterprise. SFPUC policy is for excess reserves (beyond the 25 percent target) to be considered for contingencies and rate stabilization.

The recommended revenue increases shown in Table 24 were determined using industry-accepted best practices and methodologies. SFPUC staff worked closely with Carollo to review all data, assumptions, and calculations that resulted in the recommendations outlined in this report. Carollo further recommends that the SFPUC review and update the financial plan and revenue requirements annually to recognize changes in customer billing data, operating expenditures, changing water sales demands, and capital improvement needs.

4. Water Cost of Service Analysis

The cost of service analysis serves as a rational basis for distributing the full costs of SFPUC's services to each customer class in proportion to the demands placed on the system. Carollo developed a detailed cost allocation that serves as the basis for the proposed rate adjustments. This analysis yields an appropriate method for allocating costs, based on the current operations of the SFPUC's system. All cost allocations are consistent with the legal proportionality requirements of Proposition 218 and were reviewed for compliance with recent legal decisions regarding water rates in California.

The cost of service analysis employs a tailored review of costs with a step-by-step approach. Based on the revenue requirement analysis outlined in its respective chapters, the functional allocation designates each budget item to an SFPUC functional category, which is then translated into a specific cost/rate component. Those functional categories and their associated costs are allocated to the distinct customer classes based on each class' unique account, meter, and demand characteristics. A customer class consists of users that commonly create or share responsibility for certain costs incurred by the utility, which is determined by customer consumption data (including peak demand) in order to combine similar groups of customers.



Carollo determined the appropriate SFPUC customer classes based upon customer peaking and usage characteristics. The rate design process establishes a rate structure that proportionately recovers costs from customer classes and customers within each customer class. The final rate structure and rate recommendations are designed to (1) fund the utility's projected costs of providing service, (2) proportionally allocate costs to system customers, and (3) provide a reasonable balance of revenue stability while encouraging conservation. The rate design will be further detailed in the next chapter of this study.

Functional Cost Allocation

Functional Cost Categories

The functional cost allocation assigns the revenue requirement averaged over the four-year period, FY 2019 - FY 2022, by major function. The study developed a list of functions specific to the SFPUC's water system. Each functional component is allocated to specific cost components, which can easily be assigned to rates. The functional components used for the SFPUC were:

Supply – Surface Water: Costs associated with raw water infrastructure up to the intake structure. This also includes traditional reservoirs and storage.

Supply – Other: Costs associated with pumping, treating, delivering, or monitoring recycled water, groundwater, or any other "alternative" water sources to customers.

Natural Resources: Costs associated with watershed protection to maintain surface water quality. Interpretive and recreational costs, as well as general maintenance of SFPUC lands not for source water protection, are allocated to General.

Pumping: Costs associated with treated water pump station infrastructure, pumps, motors, and associated equipment. Costs for raw water pumping facilities are allocated to Source of Supply.

Transmission: Costs associated with large water mains without service connections, including mains that serve wholesale customers.

Treatment: Costs associated with water treatment and production facilities, including intake structures.

Storage: Costs associated with treated water storage facilities, including reservoirs, ground storage tanks, and elevated storage tanks. Costs for raw water reservoirs are allocated to Source of Supply.

Distribution: Costs associated with small water mains with service connections that do not serve wholesale customers.

Meters: Costs associated with water meters and service connections.

Hydrants / AWSS: All infrastructure and costs associated solely with providing fire flow.

Customer Billing: All costs associated with producing customer bills, including billing system software, postage, credit card processing fees, etc.

Laboratory: Costs associated with sampling and laboratory analysis of samples. These costs may need to be further allocated between treatment and customer service (distribution system sampling).

Water Conservation: Costs associated with conservation incentive programs and communications aimed at encouraging or mandating customers to reduce water usage.

General: Costs associated with other treatment and administrative services that do not fit any of the other categories. Examples include electrical equipment, HVAC equipment, plant staff vehicles, lands not associated with supply protection or a specific asset, etc.

The SFPUC's budget was analyzed line-by-line. Details of how the O&M, debt service, and other expenditures were distributed among functional categories are shown in Appendix E.

Cost Components and Factors

The water utility's primary cost components are related to three commodity components (base, peak, and raw water), which are the basis of the water commodity rate. The four customer-related costs (customer service, meter charges, public and private fire services) are the basis of the fixed water service and private fire protection charges. Together, these seven elements are referred to as cost categories. In addition to these seven, an AAO category is included for costs that cannot be directly allocated to one or more of the seven cost categories and are therefore reallocated across the cost categories based on the direct allocation of the other line items.

This cost of services analysis eliminated the peak hour factor as a rate component because there was an insignificant difference between the peak hour and peak day factors, per SFPUC staff. Another change made to allocations within this study is the separation of fire protection costs into private and public. While private fire protection costs are only allocated to private fire customers through the private fire service charge, the public fire protection costs are reallocated back to all customer classes based on their fire flow requirements. The changes made to the cost of service allocations since the 2014 study, as well as changes to the operations and capital-related costs, shifted the overall allocation of revenue requirements slightly from base to peak.

The following describes each of the seven cost categories for SFPUC:

Base: Operating and capital costs incurred by the water system to provide a basic level of service to each customer. These costs include baseline supplies, treatment, distribution, and storage, up to a level that meets SFPUC's baseline (average day) demands throughout the year.

Peak: Costs incurred to meet peak day demands for water in excess of base demand. This cost includes capital costs related to oversizing the system to meet excess demand.

The peaking factor is determined by dividing the peak day demand by the average day demand. For the purpose of this study, the average peaking factor for the three year period FY 2014 through FY 2016 of 1.31 was used. This means that for the three-year period, the peak day demand was 31 percent higher than the average day demand. This ratio is used to allocate costs between base and peak.

Private Fire Protection: Capacity-related costs that are incurred based on the incremental, excess capacity that must be designed into the system in order to provide private fire protection service. In addition, this category includes operating costs associated with inspecting private fire systems.

Customer Service: Expenditures that relate to operational support activities including accounting, billing, customer service, administrative, and technical support. These expenditures are common to all customers and are reasonably uniform across the different customer classes.

Meter Charges: Meter and capacity-related costs, such as meter maintenance charges, are based on the meter's hydraulic capacity.

Raw Water: Costs associated with water supply and the infrastructure needed to transport it in its natural state, prior to any treatment for consumption. Raw water was isolated as a cost category in order to develop the nonpotable water rate.

Public Fire Protection: Costs associated with providing public fire protection services. Similar to private service, the distribution system must have sufficient hydraulic capacity to support the pressures and flow demands for public fire protection service. This also includes costs for the auxiliary water supply system (AWSS).

To account for possible annual fluctuations between cost categories, the forecasted expenditures were averaged over the four-year rate period of FY 2019 through FY 2022. A detailed functional allocation analysis was prepared by separately identifying expenditures (water assets, debt service, and O&M costs), and allocating a portion of costs to each functional component based on the specific function

provided. This allocation is derived from the SFPUC's actual base and peak factors, established on the base-extra capacity method as defined by the AWWA. This methodology separates costs between base costs and extra capacity costs, based on the actual operating history and design criteria of the SFPUC's system, which are used as the basis of the existing rates.

Carollo reviewed the SFPUC's existing water assets and allocated each to the representative function component. Beyond existing assets, each existing debt issue was reviewed and allocated based on the specific use of those funds. Finally, each of the individual operating budget line items was reviewed and its corresponding costs allocated based on the service provided. This functional allocation process provides a reasonable, appropriate basis for proportionately distributing costs to system customers based on their usage patterns and is grounded in cost of service principles and standards. This methodology and process also provides the basis for the tiered rate structure. As such, a larger portion of peak costs are allocated into the outer tier so that they are collected from the customers with higher usage, who are the drivers of peak consumption.

Water Allocations

Water Enterprise Assets

For some debt issues, the information required to allocate the debt service payments based on the projects funded with the proceeds is not available. For these debt issues, we substitute the overall allocation of the water system's fixed assets. First, we allocate the fixed assets' net book values to functional categories based on the various allocation, location, and class codes provided in the fixed asset register. The updated allocation of fixed assets resulted in a shift of the fixed asset capital allocation factors from peak, meter charges, customer service, and fire protection to base. Table 25 summarizes the allocation factors applied to system assets.

TABLE 25 WATER ENTERPRISE ASSET ALLOCATION

		PERCENT ALLOCATION (%)							
ASSET DESCRIPTION [1]	VALUE [2]	BASE USAGE	PEAK USAGE [3]	METER CHARGES	CUSTOMER SERVICE	PRIVATE FIRE PROTECTION	RAW WATER	PUBLIC FIRE PROTECTION	AS ALL OTHERS [4]
Source of Supply Surface Water	$119.5						100%		
Source of Supply Other [5]	$0.0		100%						
Pumping	$388.0	76.3%	23.7%						
Transmission	$1,398.7	76.3%	23.7%						
Treatment	$451.5	76.3%	23.7%						
Storage	$285.1	76.3%	23.7%						
Distribution	$383.8	76.3%	23.7%						
Meters	$0.3			100%					
Hydrant/AWSS[6]	$10.5							100%	
Customer Billing	$4.0				100%				
Laboratory	$1.1	100%							
General Plant	$801.9								100%
Total Value	$3,844.3	$2,220.2	$687.9	$0.3	$4.0	$0.0	$119.5	$10.5	$801.9
Total Percent	100%	57.8%	17.9%	0.01%	0.1%	0.0%	3.1%	0.3%	20.9%

Notes:
(1) Asset allocation to functional categories is completed in "Fixed Assets Master Classification.xlsx."
(2) Values represent net book value and are rounded and expressed in millions. Numbers may not add up due to rounding.
(3) Allocation of categories between base and peak is based on the peaking factor of 1.31 such that 1.00 is allocated to base and the remaining 0.31 is allocated to peak.
(4) As All Others allocation is reallocated across the other functional components.
(5) Other source of supply includes groundwater and recycled water and is allocated 100% to peak based on the SFPUC's policy of using these sources to meet peak demand.
(6) AWSS is the auxiliary water supply system.

These totals include the reallocation of the $801.9 million AAO value across all other functional categories. AAO is reallocated using the following formula:

$$\frac{As\ All\ Others}{Allocation} = \frac{(AAO\ total\ value\ \ x\ \ Component\ value\ )}{Sum\ of\ all\ component\ values}$$

Table 26 summarizes the total allocated value of assets based on the percentages above in Table 25.

TABLE 26 WATER ENTERPRISE ASSET TOTAL ALLOCATION TOTALS

		TOTAL ALLOCATION [1]							
TOTALS	VALUE	BASE USAGE	PEAK USAGE	METER CHARGES	CUSTOMER SERVICE	PRIVATE FIRE PROTECTION	RAW WATER	PUBLIC FIRE PROTECTION	AS ALL OTHERS [2]
Asset Value	$3,844.3	$2,220.2	$687.9	$0.3	$4.0	$0.0	$119.5	$10.5	$801.9
AAO Reallocation		$585.2	$181.3	$0.1	$1.0	$0.0	$31.5	$2.8	$(801.9)
Asset Value w/AAO		$2,805.3	$869.2	$0.4	$5.1	$0.0	$151	$13.3	$0.0
Total Percent	100%	73.0%	22.6%	0.01%	0.1%	0.0%	3.9%	0.3%	0.0%

Notes:

(1) Values represent net book value and are rounded and expressed in million dollars. Numbers may not add up due to rounding.

(2) As All Others allocation is reallocated across the other functional components.

Water Enterprise Debt Service

Similar to asset allocation, debt service payments are allocated to functional rate components based on the individual capital projects financed by each issuance. Table 27 provides the weighted average of the allocations for each debt issuance. The debt issued for the water system is split between retail and wholesale, with the percentage allocation between the two varying based on the projects funded in each bond series.

The BAWSCA issued revenue bonds to prepay (defease) the remaining capital cost recovery payments that the BAWSCA member agencies owed to the SFPUC as of June 2013. A portion of this prepayment was used to offset retail debt service, and is allocated as all others. Additional BAWSCA offsetting revenue details are in the Water Revenue Requirements chapter.

TABLE 27 WATER ENTERPRISE DEBT SERVICE ALLOCATION

DEBT ISSUE [1]	RETAIL VALUE [2]	WHOLESALE VALUE	PERCENT ALLOCATION (%)							
			BASE USAGE	PEAK USAGE	METER CHARGES	CUSTOMER SERVICE	PRIVATE FIRE PROTECTION	RAW WATER	PUBLIC FIRE PROTECTION	AS ALL OTHERS [3]
1991A	$1.4	$0.0	73.0%	22.6%	0.0%	0.1%		3.9%	0.3%	
2009A	$2.4	$1.5	73.9%	26.0%				0.1%	0.0%	
2009B	$1.7	$2.3	72.3%	24.4%				0.0%		3.2%
2010A	$1.0	$0.0			100%					
2010B	$13.0	$20.6	71.3%	25.6%				0.0%		3.1%
2010D	$4.8	$0.0	73.0%	22.6%	0.0%	0.1%		3.9%	0.3%	
2010D	$3.2	$5.8	74.0%	24.6%				0.0%		1.3%
2010E	$8.1	$14.4	70.5%	23.5%				0.5%		5.5%
2010F	$2.2	$4.2	76.3%	23.7%						0.1%
2010G	$8.3	$16.1	75.8%	23.5%						0.7%
2011A	$8.2	$13.2	66.8%	23.3%				0.3%		9.7%
2011B	$0.5	$0.9						100%		
2011C	$1.5	$0.0	76.3%	23.7%						
2011D	$2.1	$0.0	73.0%	22.6%	0.0%	0.1%		3.9%	0.3%	
2012A	$11.3	$9.5	62.5%	32.7%				0.1%		4.7%
2012B	$0.7	$0.0	73.0%	22.6%	0.0%	0.1%		3.9%	0.3%	
2012C	$3.6	$0.0	73.0%	22.6%	0.0%	0.1%		3.9%	0.3%	
2012D	$5.0	$0.0	73.0%	22.6%	0.0%	0.1%		3.9%	0.3%	
2015A	$19.3	$10.5	64.8%	25.0%				0.3%	0.4%	9.5%
2015A	$1.1	$0.7	73.9%	26.0%				0.1%	0.0%	
2016A	$12.0	$7.4	73.9%	26.0%				0.1%	0.0%	
2016A	$8.9	$12.1	72.3%	24.4%				0.0%		3.2%
2016A	$3.2	$6.3	76.3%	23.7%						0.1%
2016B	$9.0	$0.0	73.0%	22.6%	0.0%	0.1%		3.9%	0.3%	
2016B	$2.6	$0.0	73.0%	22.6%	0.0%	0.1%		3.9%	0.3%	
2016B	$2.6	$0.0			100%					
2016C	$4.9	$9.6	67.5%	24.2%				2.0%		6.3%
2017A	$1.4	$2.7	2.9%	11.0%				51.6%		34.6%
2017B	$3.5	$0.8	1.7%	1.7%	4.3%					92.3%
2017C	$0.9	$1.8						100%		
2017D	$4.6	$7.5	66.8%	23.3%				0.3%		9.7%
2017D	$3.3	$2.8	62.5%	32.7%				0.1%		4.7%
2017E	$2.5	$0.0	73.0%	22.6%	0.0%	0.1%		3.9%	0.3%	
2017F	$0.2	$0.4						100%		
2017G	$1.5	$2.4	66.8%	23.3%				0.3%		9.7%
BAWSCA	$(10.5)	$0.0								100%

Notes:

(1) Appendix B details which debts are refunding, BABs, or new issuances. Debt issue allocations are detailed in "Debt Service Allocations.xlsx" and "2017ABC Allocations.xlsx."

(2) Values are rounded and expressed in million dollars. Numbers may not add up due to rounding.

(3) As All Others allocation is reallocated across the other functional components based on the fixed asset allocation shown in Table 28.

Table 28 summarizes the total allocated value of debt service based on the percentages in Table 27. These totals include the reallocation of the AAO value across all other functional categories based on the allocation of fixed assets shown in Table 26. The debt service allocations are split between retail and wholesale, as shown below.

TABLE 28 WATER ENTERPRISE DEBT SERVICE ALLOCATION TOTALS [1]

DEBT ISSUE	RETAIL VALUE	WHOLESALE VALUE	ALLOCATION [2] BASE USAGE	PEAK USAGE	METER CHARGES	CUSTOMER SERVICE	PRIVATE FIRE PROTECTION	RAW WATER	PUBLIC FIRE PROTECTION	AS ALL OTHERS [3]
Retail ($)	$150.2		$105.9	$37.8	$3.8	$0.04		$3.8	$0.2	$(1.3)
AAO Reallocation			$(1.0)	$(0.3)	$(0.0)	$(0.0)		$(0.0)	$(0.0)	$1.3
Total w/AAO			$104.9	$37.5	$3.8	$0.04		$3.8	$0.2	$0.0
Retail (%)	49%		69.9%	24.9%	2.6%	0.03%		2.5%	0.1%	0.0%
Wholesale ($)		$153.7	$103.4	$37.1	$0.0	$0.0		$4.9	$0.0	$8.2
AAO Reallocation			$5.9	$1.8	$0.0	$0.01		$0.3	$0.0	$(8.2)
Total w/AAO			$109.4	$38.9	$0.0	$0.01		$5.2	$0.1	$0.0
Wholesale (%)		51%	71.2%	25.3%	0.02%	0.01%		3.4%	0.04%	0.0%

Notes:

(1) Appendix B provides more details of the value and percentage totals for the Water System debt allocation.
(2) Values are rounded and expressed in million dollars. Numbers may not add up due to rounding.
(3) As All Others allocation is reallocated across the other functional components.

Water Enterprise O&M Costs

The Water Enterprise's operating expenses were separated by operating division and, where necessary, further subdivided by type of cost. Carollo worked with SFPUC staff to identify the services provided by each department and the appropriate associated functional categories. The allocations percentages are estimates based on discussions with SFPUC staff. Table 29 summarizes the allocation of the four-year average from FY 2019 through FY 2022 in order to account for changes in expenditures

TABLE 29 WATER ENTERPRISE OPERATING EXPENSES FUNCTIONAL ALLOCATION (FY 2019 – FY 2022 AVERAGE)

		PERCENT ALLOCATION (%)														
CATEGORY	VALUE [1]	SOS- SURFACE WATER	SOS - OTHER [2]	PUMPING	TRANSMISSION	TREATMENT	STORAGE	DISTRIBUTION	METERS	HYDRANTS/ AWSS [3]	PRIVATE FIRE	CUSTOMER BILLING	LAB	GENERAL PLANT	WATER CONSERVATION	AS ALL OTHERS [4]
WTR0101/0102 - Administration [5]																
Services of SFPUC Bureaus	$50.5								25.0%			20.0%				55.0%
Services of Other Departments	$9.3															100%
All Other Expenses	$12.6								25.0%			20.0%				55.0%
WTR0301- CDD Shops	$8.7			20.0%	22.5%		15.0%	30.0%	5.0%	5.0%	2.5%					
WTR0302- CDD Admin [6]	$5.3			28.4%	16.7%		17.2%	28.6%	3.5%	3.7%	1.9%					
WTR0303- CDD Buildings and Grounds																
Electricity	$3.7			100%												
All Other Expenses	$7.6			30.0%			35.0%	35.0%								
WTR0304- CDD Engineering	$2.0			20.0%	22.5%		15.0%	35.0%		5.0%	2.5%					
WTR030501/030505 – Operation & Maintenance	$20.3			20.0%	22.5%		15.0%	30.0%	5.0%	5.0%	2.5%					
WTR030505	$1.3			20.0%	22.5%		15.0%	30.0%	5.0%	5.0%	2.5%					
WTR0401- Water Quality Admin [7]	$3.0		11.2%			43.9%				1.4%	6.9%		36.5%			
WTR0402- Engineering	$6.5		32.5%			47.5%					20.0%					
WTR0403- Environmental Services	$5.4					95.0%				5.0%						
WTR0404- Labs	$6.8												100%			
WTR0501- Supply Admin [8]																
Taxes, Licenses, and Permits	$2.0					100%										
All Other Expenses	$2.9	12.0%			30.0%	55.0%				2.0%	1.0%					

CATEGORY	VALUE [1]	PERCENT ALLOCATION (%)														
		SOS- SURFACE WATER	SOS – OTHER [2]	PUMPING	TRANSMISSION	TREATMENT	STORAGE	DISTRIBUTION	METERS	HYDRANTS/ AWSS [3]	PRIVATE FIRE	CUSTOMER BILLING	LAB	GENERAL PLANT	WATER CONSERVATION	AS ALL OTHERS [4]
WTR0502- Supply O&M	$21.8	12.0%			30.0%	55.0%				2.0%	1.0%					
WTR0503- Supply Maintenance Engineering	$3.3	12.0%			30.0%	55.0%				2.0%	1.0%					
WTR0505- Supply Systems Operation																
Chemicals	$5.6					100%										
Electricity	$6.5	25.0%				75.0%										
All Other Expenses	$13.3	12.0%			30.0%	55.0%				2.0%	1.0%					
WTR06- Natural Resources	$12.9	100%														
WTR0701 - Water Resources Planning	$2.7	50.0%	50.0%													
WTR0703 - Water Conservation																
Grant Program	$2.8														100%	
All Other Expenses	$3.8														100%	
Hetch Hetchy Assessment	$35.1	100%														
Total	$256.0	$55.9	$3.8	$13.9	$20.6	$44.8	$8.4	$14.0	$17.5	$3.0	$2.8	$12.6	$7.9	$-	$6.6	$44.1
		21.9%	1.5%	5.4%	8.0%	17.5%	3.3%	5.5%	6.8%	1.2%	1.1%	4.9%	3.1%	0.0%	2.6%	17.2%

Notes:

(1) Values are rounded and expressed in million dollars. Numbers may not add up due to rounding.

(2) Other source of supply includes ground water and recycled water.

(3) AWSS is the auxiliary water supply system.

(4) As All Others allocation is reallocated across the other functional components.

(5) A portion of Administration costs are allocated to Meters and Customer Billing to reflect Customer Service and billing activities, including meter services.

(6) CDD costs are allocated based on the services provided by CDD staff and an estimate of the division of labor among functional categories. CDD Admin is allocated based on the weighte allocation of all other CDD costs.

(7) Water Quality costs are allocated based on the services provided by Water Quality staff and an estimate of the division of labor among functional categories, including inspection non-potable systems (SOS - Other) and replacing swing check valves (Private Fire). WQ Admin is allocated based on the weighted allocation of all other Water Quality costs.

(8) Water Supply costs are allocated based on the services provided by Water Supply staff and an estimate of the division of labor among functional categories.

Each operating budget line item was allocated to its appropriate functional rate component. Table 30 summarizes the allocation for the four-year expenditures average from FY 2019 through FY 2022. The O&M allocation percentages are detailed in Appendix B.

TABLE 30 WATER ENTERPRISE O&M ALLOCATION (FY 2019 – FY 2022 AVERAGE)

		PERCENT ALLOCATION (%)							
CATEGORY	VALUE [1]	BASE USAGE	PEAK USAGE	METER CHARGES	CUSTOMER SERVICE	PRIVATE FIRE PROTECTION	RAW WATER	PUBLIC FIRE PROTECTION	AS ALL OTHERS [2]
Source of Supply Surface Water	$55.9						100%		
Source of Supply Other [3]	$3.8		100%						
Pumping	$13.9	76.3%	23.7%						
Transmission	$20.6	76.3%	23.7%						
Treatment	$44.8	76.3%	23.7%						
Storage	$8.4	76.3%	23.7%						
Distribution	$14.0	76.3%	23.7%						
Meters	$17.5			100%					
Hydrant/AWSS [4]	$3.0							100%	
Private Fire	$2.8					100%			
Customer Billing	$12.6				100%				
Laboratory	$7.9	100%							
Conservation	$6.6		100%						
As All Others	$44.1								100%
Total Value	$256.0	$85.6	$34.4	$17.5	$12.5	$2.8	$55.9	$3.0	$44.1
Total Percent	100%	33.4%	13.4%	6.8%	4.9%	1.1%	21.9%	1.2%	17.2%

Notes:
(1) Values are rounded and expressed in million dollars. Numbers may not add up due to rounding.
(2) As All Others allocation is reallocated across the other functional components.
(3) Other source of supply includes ground water and recycled water.
(4) AWSS is the auxiliary water supply system.

Table 31 summarizes the total allocated costs for O&M. These totals include the reallocation of the $44.1 million AAO value across all other functional categories.

TABLE 31 WATER ENTERPRISE O&M COST ALLOCATION TOTALS (FY 2019 – FY 2022 AVERAGE)

		ALLOCATION [1]							
TOTAL	VALUE	BASE USAGE	PEAK USAGE	METER CHARGES	CUSTOMER SERVICE	PRIVATE FIRE PROTECTION	RAW WATER	PUBLIC FIRE PROTECTION	AS ALL OTHERS [2]
Total Costs	$256.0	$85.6	$34.4	$17.5	$12.5	$2.8	$55.9	$3.0	$44.1
AAO Reallocation		$17.8	$7.2	3.6	2.6	0.6	11.6	0.6	$(44.1)
Costs w/AAO		$103.4	$41.6	21.1	15.3	3.4	67.6	3.6	$0.0
Total Percent	100%	40.4%	16.2%	8.3%	6.0%	1.3%	26.4%	1.4%	0.0%

Notes:
(1) Values are rounded and expressed in million dollars. Numbers may not add up due to rounding.
(2) As All Others allocation is reallocated across the other functional components.

Other Water Enterprise Expenses

In addition to O&M expenses, the Water Enterprise budget includes other expenses, including Programmatic Expenses and Non-Debt Capital Expenses. To obtain an overall percentage allocation, operating expenses, existing and future debt service, other expenses and offsetting revenues are

weighted based on their average annual expenditures over the rate-setting period. Once the overall percentage allocation to functional category has been defined, those percentages are applied to the four-year averaged revenue requirements for FY 2019 through FY 2022 in order to calculate the unit costs, as shown in later in Table 34.

Table 32 summarizes the allocation of these other expenses using the four-year average from FY 2019 through FY 2022 in order to account for changes in expenditures. Programmatic and Non-Debt Capital Expenses are allocated by individual project.

TABLE 32 WATER ENTERPRISE OTHER EXPENSES ALLOCATION (FY 2019 – FY 2022 AVERAGE)

		PERCENT ALLOCATION (%)							
CATEGORY	VALUE [1]	BASE USAGE	PEAK USAGE	METER CHARGES	CUSTOMER SERVICE	PRIVATE FIRE PROTECTION	RAW WATER	PUBLIC FIRE PROTECTION	AS ALL OTHERS [2]
Programmatic									
Retail	$22.1		11.6%				2.4%	3.7%	82.3%
Wholesale	$9.1						11.8%		88.2%
Non-Debt Capital									
Retail	$41.8	51.7%	31.2%	0.7%			11.9%	4.5%	
Wholesale	$20.0	44.0%	23.9%	0.1%			32.0%		
Total Value	$93.0	$30.4	$20.4	$0.3	$0.0	$0.0	$13.0	$2.7	$26.3
Total Percent	100%	32.7%	21.9%	0.3%	0.0%	0.0%	13.9%	2.9%	28.2%

Notes:
(1) Values are rounded and expressed in million dollars. Numbers may not add up due to rounding.
(2) As All Others allocation will be reallocated across the other functional components based on the total revenue requirements.

Offsetting Revenue

Wholesale water sales revenue and other non-rate revenue are used to offset the revenue requirements and reduce the required increase in rate revenue. These offsetting revenues are also allocated to the cost components line-by-line. Wholesale sales revenue is allocated based on the allocation used to develop wholesale rates so that wholesale rate revenue truly offsets costs associated with providing wholesale water service. This allocation adjustment is a significant change and improvement over the previous manner of allocating wholesale revenue based on AAO allocation. Similar to the wholesale revenue offset, other revenues that directly fund specific expenses are allocated the same as that expense. For example, programmatic revenue is allocated the same as programmatic expenses.

Table 33 summarizes the allocation of offsetting revenues using the four-year average from FY 2019 through FY 2022.

TABLE 33 WATER ENTERPRISE OFFSETTING REVENUES ALLOCATION (FY 2019 – FY 2022 AVERAGE)

CATEGORY	VALUE [1]	PERCENT ALLOCATION (%)							
		BASE USAGE	PEAK USAGE	METER CHARGES	CUSTOMER SERVICE	PRIVATE FIRE PROTECTION	RAW WATER	PUBLIC FIRE PROTECTION	AS ALL OTHERS [2]
Wholesale Sales									
Operating Expenses [3]	$(106.9)	50.8%	16.7%		0.2%		32.2%		
Programmatic Expenses [4]	$(9.4)						11.8%		88.2%
Debt Service - Existing [5]	$(151.5)	71.2%	25.3%				3.4%		
Debt Service - Proposed [6]	$(0.1)	44.0%	23.9%	0.1%			32.0%		
Federal Bond Interest Subsidy [7]	$13.9	72.5%	24.3%				0.2%		3.0%
Water Revenue Funded Capital [6]	$(19.8)	44.0%	23.9%	0.1%			32.0%		
K-5 Schedule Payment [5]	$(1.2)	71.2%	25.3%				3.4%		
WRR Below-the-Line [5]	$10.6	71.2%	25.3%				3.4%		
Interest Income	$(3.3)								100%
Rental Revenue	$(13.2)								100%
Federal Bond Interest Subsidy [7]	$(21.7)	72.5%	24.3%				0.2%		3.0%
Other Misc. Income	$(10.7)								100%
Programmatic Revenue [8]	$(7.9)		11.6%				2.4%	3.7%	82.3%
Non-Debt Capital Revenue [9]	$(5.0)	51.7%	31.2%	0.7%			11.9%	4.5%	
Reserves Increase/ (Decrease)	$(11.4)								100%
Total Value	$(337.6)	$(172.5)	$(63.0)	$(0.1)	$(0.3)	$0.0	$(47.5)	$(0.6)	$(53.6)
Total Percent	100%	51.1%	18.7%	0.03%	0.1%	0.0%	14.1%	0.2%	15.9%

Notes:
(1) Values are rounded and expressed in million dollars. Numbers may not add up due to rounding.
(2) As All Others allocation will be reallocated across the other functional components based on the total revenue requirements.
(3) Wholesale operating expenses are allocated as shown in "Wholesale Revenue Allocation.xlsx."
(4) Wholesale programmatic expenses are allocated based on the wholesale share of the individual programmatic projects.
(5) Wholesale existing debt service is allocated based on the wholesale share of existing debt.
(6) Wholesale future capital is allocated based on the wholesale share of the individual future capital projects.
(7) Federal Bond Interest Subsidy is allocated based on the allocation of the BABs.
(8) Programmatic revenue is allocated based on the allocation of the individual programmatic projects.
(9) Non-debt capital revenue is allocated based on the retail share of the individual future capital projects.

Water Enterprise Revenue Requirements Allocation

To obtain an overall percentage allocation, operating expenses, existing and future debt service, other expenses and offsetting revenues are weighted based on their average annual expenditures over the rate-setting period. Once the overall percentage allocation to functional category has been defined, those

percentages are applied to the four-year averaged revenue requirements for FY 2019 through FY 2022 in order to calculate the unit costs, as shown in Table 34.

TABLE 34 WATER ENTERPRISE ALLOCATION OF REVENUE REQUIREMENTS (FY 2019 – FY 2022 AVERAGE)

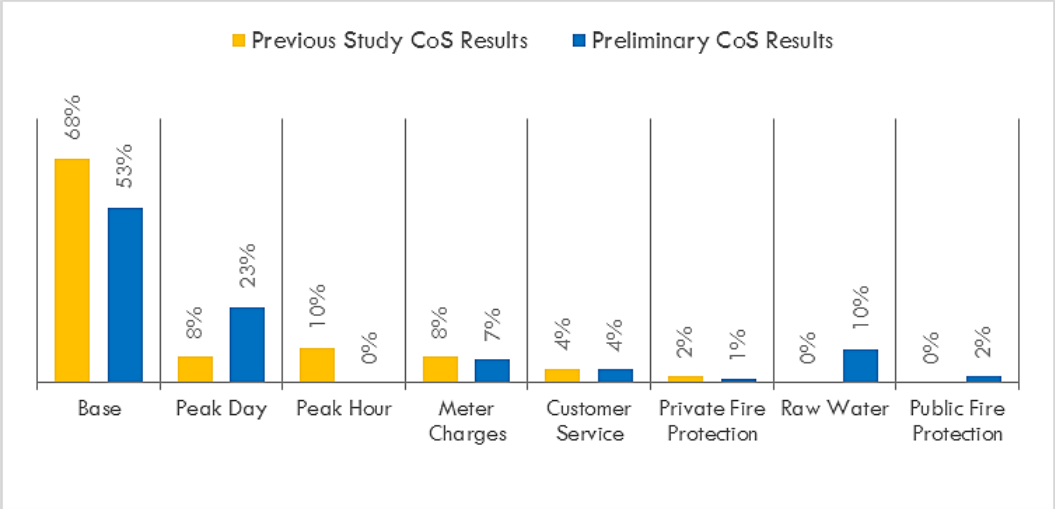
TOTAL	VALUE	ALLOCATION [1]							
		BASE USAGE	PEAK USAGE	METER CHARGES	CUSTOMER SERVICE	PRIVATE FIRE PROTECTION	RAW WATER	PUBLIC FIRE PROTECTION	AS ALL OTHERS [2]
Operating Expenses	$256.0	$85.6	$34.4	$17.5	$12.5	$2.8	$55.9	$3.0	$44.1
Debt Service	309.0	217.8	77.7	4.0	0.1	0.0	9.1	0.3	0.0
Other Expense	402.0	248.2	98.1	4.4	0.1	0.0	22.1	2.9	26.3
Offsetting Revenues	(337.6)	(172.5)	(63.0)	(0.1)	(0.3)	0.0	(47.5)	(0.6)	(53.6)
Total Requirement	$320.4	$161.3	$69.5	$21.7	$12.4	$2.8	$30.5	$5.3	$16.8
AAO Reallocation		26.7	11.0	4.8	3.3	0.7	13.3	0.9	(16.8)
Requirement w/AAO		$170.2	$73.3	$22.9	$13.1	$3.0	$32.2	$5.6	$0.0
Total Percent	100%	53.1%	22.9%	7.2%	4.1%	0.9%	10.0%	1.8%	0.0%

Notes:
(1) Values are rounded and expressed in million dollars. Numbers may not add up due to rounding.
(2) As All Others allocation is reallocated across the other functional components.

The SFPUC has elected to maintain the low fixed-to-variable ratio in order to provide some revenue stability (in the form of fixed charges) while still providing adequate conservation incentives. Although a high fixed charge ratio can lead to greater revenue stability, a low fixed ratio promotes affordability for low volume users and allows users greater control over their monthly bills. Based on the result of the functional allocation, as summarized in Table 34, there is no change in the overall fixed-to-variable ratio (14 percent fixed and 86 percent variable) compared to the existing cost of service study despite the additional functional categories in the current study.

Figure 9 illustrates that, when compared to the results from the 2014 study, the recommended functional allocation costs of the fixed components (meter charges, customer service, and each fire protection) remains at approximately 14 percent. This serves as the foundation for the recommended fixed monthly service charge. As a result, the remaining variable allocation remains at 86 percent and is allocated to the base, peak, and raw water components to serve as the basis for the recommended variable commodity rates.

FIGURE 9 COST OF SERVICE REVENUE REQUIREMENTS ALLOCATION COMPARISON



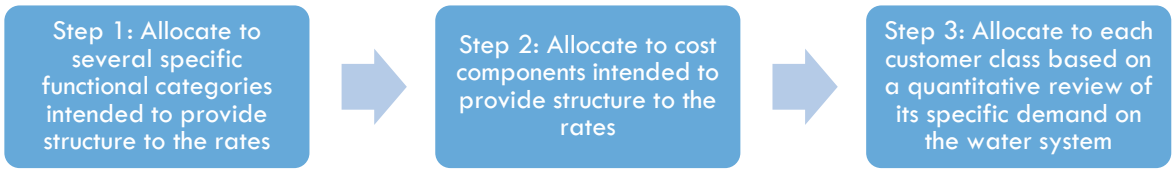
Additionally, the SFPUC does not experience a significant amount of seasonal water demand variability, resulting in stable annual revenues despite recovering most costs through the commodity portion of the rates. We must account for the long-term downward trend that the SFPUC continues to experience within the annual financial forecast.

Carollo worked with SFPUC to ensure that this conservative fixed charge is appropriate for the next four years of rate adjustments. SFPUC does not currently charge a wastewater fixed monthly service charge. This current study's recommended introduction of a wastewater fixed charge while the water system's fixed charge remains at a relatively low percentage maintains a balance between customer affordability and revenue stability. The Wastewater Cost of Service section further details the introduction of the recommended wastewater fixed monthly charge.

Functional Allocation Results

Unit Cost and Customer Allocation

The unit costs of service are developed by dividing the total annual costs allocated to each of the seven cost components by the total annual service units of the respective component. The total annual costs allocated to each cost component are determined by applying the percent allocations summarized in Table 34. Ultimately, the revenue requirement is allocated in three steps:



Following these steps, the revenue requirements for each customer class form a reasonable and cost of service-driven basis for developing rates.

Units of Service

Based on functional category, the units of service are water consumed, meter equivalents, annual bills (based on customer accounts), and fire protection meters.

The following describes the quantifiable analysis of the units of service:

Base Costs: Allocated by total annual sales volume or annual water consumption in ccf.

Peaking Costs: Based on the customer class' peak ratio developed from the ratio between annualized winter consumption and annual consumption. Peak units are based on the extra capacity needed to serve beyond base demand to meet maximum day demand in ccf.

Meter Equivalents: The meter equivalents are derived based on the meter's hydraulic capacity. The total number of meter equivalents is the sum of all customers, excluding private fire.

Customer Service: For the fixed charge, the customer component unit cost is based on the number of accounts.

For the meter capacity charges and fire protection, equivalent meters are used, as opposed to accounts, in order to recognize the fact that larger meters have a higher water flow potential and utilize greater system capacity. The meter maintenance portion of the monthly fixed charge also accounts for meter size, as it is more expensive to install, maintain, and replace larger meters. Meter equivalents are derived based on the hydraulic capacity (gallons per minute) respective to the size of the meter. Meter equivalents are set relative to the hydraulic flow of a 5/8-inch meter.

Unit Cost Development

In order to allocate the cost of service to various user classes, unit costs of service are developed for each cost component. As shown in Table 34, the total rate revenue requirements are allocated to each cost component for the four-year average. The total cost for each functional category is then divided by the total number of associated units of service to determine appropriate unit costs for the Water Enterprise. Table 35 shows the calculation of the unit costs for each cost component, which are then applied to each customer classes' projected use, accounts, and meter equivalents to derive customer class allocations for each year of the rate period.

TABLE 35 WATER ENTERPRISE UNIT COSTS (FY 2019)

	BASE USAGE (1)	PEAK USAGE (2)	METER CAPACITY CHARGE	CUSTOMER SERVICE	PRIVATE FIRE PROTECTION	RAW WATER	PUBLIC FIRE PROTECTION
Allocation Percent	53.1%	22.9%	7.2%	4.1%	0.9%	10.0%	1.8%
Value Allocable to Component (A)	$146.2	$63.0	$19.7	$11.3	$2.6	$27.6	$4.8
Total Units (B)	29,574,387	14,494,521	298,594	175,897	229,685	29,669,585	298,594
Allocation Basis(3)	Annual Use (ccf)	Annualized Max Day Excess Use (ccf)	Meter Equivalents	Customer Accounts	Hydrant Equivalents	Annual Use (ccf)	Meter Equivalents
Per Unit Cost = A ÷ B	$4.95	$4.35	$5.50	$5.34	$0.93	$0.93	$1.35

Notes:
(1) Allocable values are rounded to the nearest million. Unit costs are rounded up to the nearest $0.01.
(2) The SFPUC peaking factor of 1.31 times the average day demand annualized (or times 365) yields max day excess use.
(3) Ccf is one hundred cubic feet. 1 ccf = 748 gallons.

Projections are based on current customer usage characteristics and account growth assumptions. As such, costs are allocated to each customer class based on their respective base usage and peaking factors to reflect their proportionate use of the overall system.

Customer Allocation

Carollo worked with the SFPUC to develop appropriate consumption-based customer classes from the SFPUC's customer service and billing system. This data was analyzed to determine the number of accounts by meter size and customer class, as well as the usage characteristics of each customer class. Table 36 details the results of the cost allocation by customer class based on FY 2016 consumption data.

TABLE 36 WATER SYSTEM UNIT ALLOCATION BY CUSTOMER CLASS (1)

CUSTOMER CLASSES	PERCENT ALLOCATION (%)						
	BASE USAGE	PEAK USAGE	METER EQUIVALENTS	CUSTOMER ACCOUNTS	PRIVATE FIRE PROTECTION	RAW WATER	PUBLIC FIRE PROTECTION
Single Family Residential	24.2%	22.1%	41.2%	63.1%		24.1%	23.0%
Multifamily Residential	36.8%	32.5%	31.9%	21.1%		36.7%	29.7%
Residential Irrigation	0.4%	1.3%	0.5%	0.2%		0.4%	
Commercial/Industrial	32.2%	29.4%	20.1%	9.3%		32.1%	39.3%
Municipal	3.2%	3.4%	3.6%	0.7%		3.2%	7.0%
Nonresidential Irrigation	2.8%	9.8%	2.3%	0.7%		2.8%	
Docks & Ships		0.2%	0.03%	0.004%		0.01%	0.1%
Builder & Contractors	0.3%	1.3%	0.5%	0.1%		0.3%	1.0%
Fire Service	0.1%	0.1%		4.8%	100%	0.1%	
Nonpotable (Raw Water)			0.03%	0.001%		0.3%	
Total	100%	100%	100%	100%	100%	100%	100%

Notes:
(1) FY 2016 is the most recent full fiscal year billing data received for water.

Based on available consumption and customer records, Table 37 details the total units of service for each customer class and functional category in accordance with the percentages in Table 36. This customer data is then used to determine appropriate proportional allocation of revenue needs to each customer class.

TABLE 37 WATER ENTERPRISE ALLOCATION OF REVENUE REQUIREMENTS BY CUSTOMER CLASS (FY 2019 – FY 2022 AVERAGE)

		ALLOCATION [1]						
CUSTOMER CLASSES	TOTAL	BASE USAGE	PEAK USAGE	METER EQUIVALENTS	CUSTOMER ACCOUNTS	PRIVATE FIRE PROTECTION	RAW WATER	PUBLIC FIRE PROTECTION
Single Family Residential	$72.2	$35.3	$13.9	$8.1	$7.1		$6.7	$1.1
Multifamily Residential	$94.4	$53.8	$20.5	$6.3	$2.4		$10.1	$1.4
Residential Irrigation	$1.7	$0.6	$0.8	$0.1	$0.02		$0.1	
Commercial / Industrial	$81.4	$47.1	$18.5	$4.0			$8.9	$1.9
Municipal	$8.8	$4.7	$2.1	$0.7	$1.1		$0.9	$0.3
Nonresidential Irrigation	$11.6	$4.1	$6.1	$0.5	$0.1		$0.8	
Docks & Ships	$0.1	$0.02	$0.1	$0.01	$0.0004		$0.0003	$0.0003
Builder & Contractors	$1.5	$0.4	$0.8	$0.1	$0.01		$0.1	$0.05
Fire Service	$3.3	$0.1	$0.1		$0.5	$2.6	$0.02	
Nonpotable (Raw Water)	$0.1			$0.01	$0.0001		$0.1	
Total	$275.1	$147.2	$63.0	$19.7	$11.3	$2.6	$27.6	$4.8

Notes:

(1) Values are rounded and expressed in million dollars. Numbers may not add up due to rounding.

The water rate design analysis determines how the costs are recovered from each customer through specified water rates. The focus of this process is to achieve cost recovery and substantiate that customers are paying their fair and proportionate share of system costs. The SFPUC's existing rate structure consists of two components: a commodity charge (variable) and a monthly service charge (fixed). The commodity component is assessed based on metered water usage per ccf and, by design, is intended to recover the cost incurred for delivering each unit of water. The monthly service charge is intended to recognize that the utility incurs fixed costs to provide the availability of water service, which must be recovered independent of monthly water demands and consumption. These two rate components serve as a basis for the following rate design chapters.

5. Water Rate Design

Carollo's review and analysis confirms that the SFPUC rates are sound and adhere to industry best practices. In addition to achieving cost recovery and ratepayer equity objectives, the rate analysis presented within this chapter is developed to continue to promote efficient use of water and the City's natural resources.

The purpose of a cost of service analysis was to provide a rational basis for distributing the costs of the SFPUC water and wastewater systems to each customer class in proportion to the demands they place on the system. A detailed cost allocation was developed for both the Water and Wastewater Enterprises based on the unique attributes of each system in order to meet the equity requirements of Proposition 218, the Charter, and SFPUC policy. The Charter requires that the City perform a cost of service study at least every five years so that revenues from rates are adequately funding utility operations, maintenance, and ongoing capital needs, and equitably recover costs from system users. Additionally, in California, water rates must adhere to the cost of service requirements imposed by Proposition 218 of the State Constitution. Proposition 218 requires that property-related fees and charges, including water rates, do not exceed the proportional cost of providing the service.

Existing Water Rate Structure

The water rate design analysis determines rates required to achieve full cost recovery, proportionately for each customer class. The SFPUC's existing rate structure consists of two components: a commodity charge (variable) and a monthly service charge (fixed). This is a commonly applied rate structure throughout California and nationally. The commodity component is assessed based on metered water usage per ccf and, by design, is intended to recover the cost incurred for delivering each unit of water. The monthly service charge is intended to recognize that the utility incurs fixed costs to provide the availability of water service, which must be recovered independent of monthly water demands and consumption.

The existing water rate structure was reviewed to determine its efficacy in addressing the desired objectives identified throughout the rate study process. As the SFPUC continues to refine its rate structure based on changing demands, legal guidelines, and regulatory changes, Carollo analyzed various rate structure adjustments.

Table 38 and Table 39 summarize the existing approved FY 2018 water rates and charge (effective July 1, 2017) to the various customer classes in order to recover the forecasted revenues needs and achieve the policy objectives of the SFPUC. The monthly service charges are detailed for residential and nonresidential retail customers and private fire service. Retail commodity water rates are detailed for residential customers — single family residential (SFR) and multifamily residential (MFR) — and nonresidential customers.

TABLE 38 EXISTING MONTHLY WATER CHARGES BY METER SIZE

METER SIZE	MONTHLY RETAIL SERVICE CHARGE	MONTHLY FIRE SERVICE CHARGE
5/8 in.	$11.63	--
3/4 in.	$14.64	--
1 in.	$20.66	$10.36
1-½ in.	$35.71	$15.05
2 in.	$53.78	$20.70
3 in.	$95.95	$33.86
4 in.	$156.17	$52.67
6 in.	$306.76	$99.67
8 in.	$487.45	$156.09
10 in.	$698.25	$221.90
12 in.	$1,300.55	$409.95
16 in.	$2,264.24	--

TABLE 39 EXISTING WATER RATES BY CUSTOMER CLASS

CUSTOMER CLASS	TIER BLOCK	COMMODITY RATE ($/CCF)
Residential		
SFR Tier 1	0 - 4 ccf (1)	$6.42
SFR Tier 2	Over 4 ccf	$8.62
MFR Tier 1	0 - 3 ccf/DU (2)	$6.57
MFR Tier 2	Over 3 ccf/DU	$8.81
Nonresidential		
Commercial, Industrial, General Use	All	$7.64
Interruptible	All	$6.93
Docks & Ships	All	$10.10
Builders & Contractors	All	$9.17

Notes:
(1) ccf is one hundred cubic feet. 1 ccf = 748 gallons.
(2) DU is dwelling unit.

Selecting Rate Structures

Once costs have been equitably allocated to each functional component, the SFPUC has some flexibility in designing the rate structure in order to meet its various policy objectives. In determining the appropriate rate level and structure, Carollo analyzed various rate design alternatives and the corresponding customer and utility implications. Beyond the identified study objectives, several additional criteria were considered and discussed at length with SFPUC staff.

PARTIAL LIST OF THE ADDITIONAL ELEMENTS DESIRED IN THE RATE STRUCTURE:

- Be clear and understandable
- Encourage conservation and water efficiency
- Follow cost of service principles
- Provide revenue stability
- Maintain affordability
- Comply with legal and regulatory requirements
- Abide by policy objectives

Given the numerous and, at times, competing elements, selection of an appropriate rate structure is complex. There is no single structure that meets all objectives equally, nor are all objectives or elements valued the same by the utility or customers.

Each criteria or element has merit and plays an important role in the rates implementation and overall effectiveness. These elements and competing objectives were discussed and evaluated at length throughout the financial and rate study process.

Monthly Service Charge

Retail Monthly Service Charge

By design, the monthly service charge includes a customer service component and a capacity component based on meter size. The customer service component recovers expenses associated with billing, collection, and customer service. This component is the same for all customers regardless of meter size. The meter capacity component captures maintenance costs related to meters and services, as well as a portion of the

Water Enterprise's capital costs. This component varies based on meter size to reflect the difference in potential demand that can be placed on the system by different sized meters.

Similar to the existing charge, the recommended monthly service charge is a combination of the customer service and meter charges functional components. To determine this charge, the meter charges unit cost presented in Table 40 is multiplied by the appropriate meter capacity ratios, based on maximum flow rates published by the AWWA, to calculate the meter (capacity) charge. These ratios reflect a reasonable cost and benefit factor associated with greater hydraulic flow capacity. Carollo gathered data from the meter group for meter type and size accuracy. Adjustments were made to some meter ratios, i.e. the 3-inch meter and the 10-inch meter, due to these clarifications.

The meter (capacity) charge is then added to the customer service unit cost to calculate the total monthly service charge. The overall percentage increase in the monthly service charge for larger meters is higher than the increase for smaller meters because the customer service and meter charge components do not increase at the same rate. The overall service charge increase is a weighted average of the two components. Since the meter charge increases with meter size while the customer service cost does not, the meter portion becomes an increasingly significant portion of the overall charge as the meter size gets larger, which results in a larger overall increase for larger meters.

The recommended monthly service charge and calculation of components are detailed in Table 40.

TABLE 40 RECOMMENDED FY 2019 WATER MONTHLY SERVICE CHARGE BY METER SIZE

METER SIZE	METER RATIO	CUSTOMER SERVICE COST	METER CHARGE (METER SIZE X RATIO)	MONTHLY SERVICE CHARGE (METER + CUSTOMER SERVICE)
5/8 in.	1.0	$5.34	$6.85	$12.19
3/4 in.	1.5	5.34	10.28	15.62
1 in.	2.5	5.34	17.13	22.47
1-½ in.	5.0	5.34	34.25	39.59
2 in.	8.0	5.34	54.80	60.14
3 in.	16.0	5.34	109.60	114.94
4 in.	25.0	5.34	171.25	176.59
6 in.	50.0	5.34	342.50	347.84
8 in.	80.0	5.34	548.00	553.34
10 in.	125.0	5.34	856.25	861.59
12 in.	215.0	5.34	1,472.75	1,478.09
16 in.	375.0	5.34	2,568.75	2,574.09

Private Fire Protection Monthly Service Charge

Private fire protection service is available for use by the customer, upon election. Although most public or private fire service connections are rarely used, the SFPUC must be ready to provide the necessary water quantities and pressures at all times throughout the distribution system. Utilities generally provide public fire protection through hydrants owned by that agency. Further, utilities typically provide individual customers additional fire protection through private hydrants, standpipes, or sprinkler connections. Although private fire protection connections do not use water except in case of fire, they do consume available capacity within the system. In addition to the adjustments to the potable retail rate structure, Carollo analyzed the costs associated with providing private fire protection service. Following the cost of service principles, this analysis isolated costs related to providing system capacity to store and deliver water for fire suppression to privately-owned and operated fire sprinkler systems.

The private fire protection charge is designed to recover a proportionate share of system costs for non-public fire system requirements and excludes any costs of the AWSS that are funded through non-rate

revenue such as property taxes or general obligation (GO) bond proceeds. In addition to funding fire system costs, the monthly fire protection rates include a customer service component, which is charged to each water utility bill regardless of service type. Table 41 shows the calculation of the monthly service charge for private fire protection customers.

TABLE 41 RECOMMENDED FY 2019 WATER MONTHLY PRIVATE FIRE SERVICE CHARGE BY METER SIZE

METER SIZE	METER RATIO	CUSTOMER SERVICE COST	METER CHARGE (METER SIZE X RATIO)	MONTHLY SERVICE CHARGE (METER + CUSTOMER SERVICE)
1 in.	2.5	$5.34	$2.33	$7.67
1-½ in.	5.0	5.34	4.65	9.99
2 in.	8.0	5.34	7.44	12.78
3 in.	16.0	5.34	14.88	20.22
4 in.	25.0	5.34	23.25	28.59
6 in.	50.0	5.34	46.50	51.84
8 in.	80.0	5.34	74.40	79.74
10 in.	125.0	5.34	116.25	121.59
12 in.	215.0	5.34	199.95	205.29

Commodity Rates

In addition to the monthly service charge, residential customers pay a commodity rate per unit of water consumed. Carollo worked with SFPUC staff to discuss, review, and analyze various recommended commodity rate structures. Based on these discussions, Carollo recommends the SFPUC retain its existing water rate structure for residential customers. Existing residential commodity rates are designed to encourage water conservation and are charged on an inclining block rate schedule.

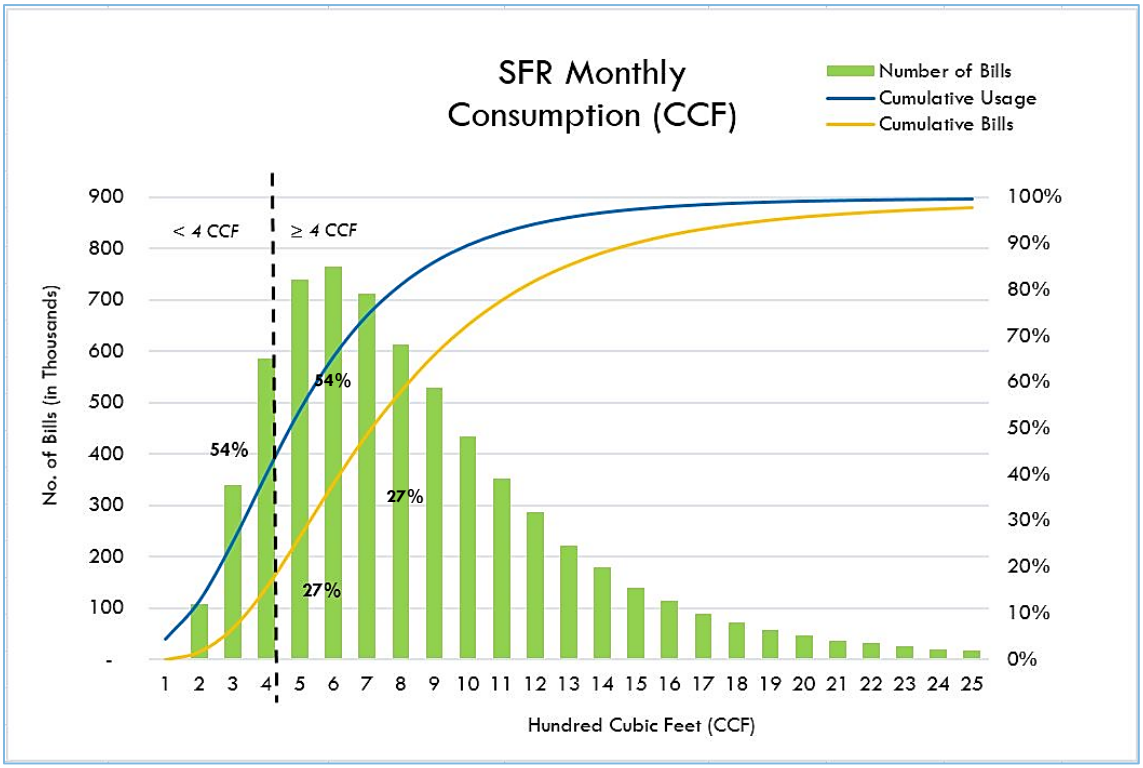
The existing tier structure is determined based on the SFPUC's residential monthly use pattern over the course of a year. The existing residential tiers were derived by evaluating all residential water usage throughout the retail water system. For SFR customers, usage above 4 ccf per month is charged a higher per unit charge to reflect the added cost to supply peak water demands. The charge assessed to MFR customers is similar but for usage above 3 ccf per month per dwelling unit. All monthly water usage occurring in the first tier is charged at the first tier commodity rate of $6.42 per ccf for SFR and $6.57 per ccf for MFR. For each unit in the second tier, SFR and MFR customers are charged at a rate of $8.62 and $8.81, respectively. In order to proportionally meet the cost of service requirements, the tiered rates for SFR and MFR individually must reflect the demand placed on the system and the cost to serve those customers.

Because water consumption patterns differ between SFR and MFR within the retail area, Carollo evaluated each class separately to determine the appropriate tier break (usage allowance) at which to transition from Tier 1 to Tier 2.

Single Family Residential

Figure 10 provides a detailed histogram of monthly SFR usage based on an average year. The vertical bars represent the number of monthly bills at each unit of consumption. Based on the detailed consumption analysis, Carollo does not recommend changing the tier break for SFR customers. The first tier (0-4 ccf per month) encompasses 27 percent of SFR bills and 54 percent of SFR customers' annual water demands as indicated by Figure 10.

FIGURE 10 SINGLE FAMILY RESIDENTIAL MONTHLY CONSUMPTION



Based on the cost of service analysis and SFR usage, SFR consumption that falls within Tier 1 is primarily non-peak water usage and is used consistently throughout the course of the year. The Tier 1 rate is set to recover the cost of non-peak water delivery and a minimal share of peak costs, accounting for the peak demand that does occur under 4 ccf. Tier 2 then accounts for the majority of costs associated with peaking not accounted for in Tier 1. As such, the existing break point between Tier 1 and Tier 2 is appropriate to distinguish between typical base demand customers and peaking customers.

Base costs are allocated to the two tiers based on the projected demand in each tier, as shown in the equation below. Peak costs are allocated between the two tiers based on the minimum month ratio (Tier 1) and the maximum month ratio (Tier 2), applied to the appropriate tier demand over the sum of the weighted tier demands, as shown in the second equation below. In addition, water conservation costs are included in the Tier 2 rate to reflect the effort to reduce the water consumption of high-volume users. Table 42 details the method for calculating rates for SFR users.

$$Base\ Cost\ Allocation = Total\ Base\ Cost * \frac{Tier\ Demand}{Total\ Demand}$$

$$Peak\ Cost\ Allocation = Total\ Peak\ Cost * Peak\ Ratio_n * \frac{Tier\ Demand_n}{\sum_{n=1}^{2}(Tier\ Demand_n * Peak\ Ratio_n)}$$

TABLE 42 SINGLE FAMILY RESIDENTIAL FY 2019 WATER COMMODITY RATE CALCULATION

	TIER 1	TIER 2	TOTAL
Base Costs (A)	$26,379,555	$15,609,627	$41,989,182
Peak Ratio (minimum/maximum month)	0.91	1.13	---
Peak Costs (B)	$7,298,313	$5,362,714	$12,661,027
Conservation Costs (C)	$0	$1,243,332	$1,243,332
Projected Consumption (ccf) (D)	4,457,229	2,637,485	7,094,714
SFR Unit Cost ($/ccf) = (A + B + C) ÷ D	$7.56	$8.43	

Multifamily Residential

A similar analysis was completed for MFR customers. A detailed histogram of MFR usage is shown in Figure 11. Based on this analysis, the existing tier break at 3 ccf is appropriate for MFR customers because it captures most of the base consumption with most of the peak consumption included in the second tier. Carollo does not recommend any adjustments to the tier break for MFR customers. Similar to SFR customers, MFR consumption that falls within Tier 1 would be charged at the base unit cost or commodity rate, which is set to recover the base (non-peak) costs and accounts for a small portion of costs related to peaking or extra capacity.

Based on the tier break of 3 ccf, some peaking occurs within Tier 1, which is then reflected in the Tier 1 rate. Tier 2 would account for the majority of system peaking and, accordingly, is allocated the majority of peaking costs in the recommended rate structure according to the formula previously shown. In addition, water conservation costs are included in the Tier 2 rate to reflect the effort to reduce the water consumption of high-volume users.

The first tier (0-3 ccf per month) encompasses 39 percent of SFR bills and 65 percent of MFR customers' annual water demands as indicated by Figure 11.

FIGURE 11 MULTIFAMILY RESIDENTIAL MONTHLY CONSUMPTION

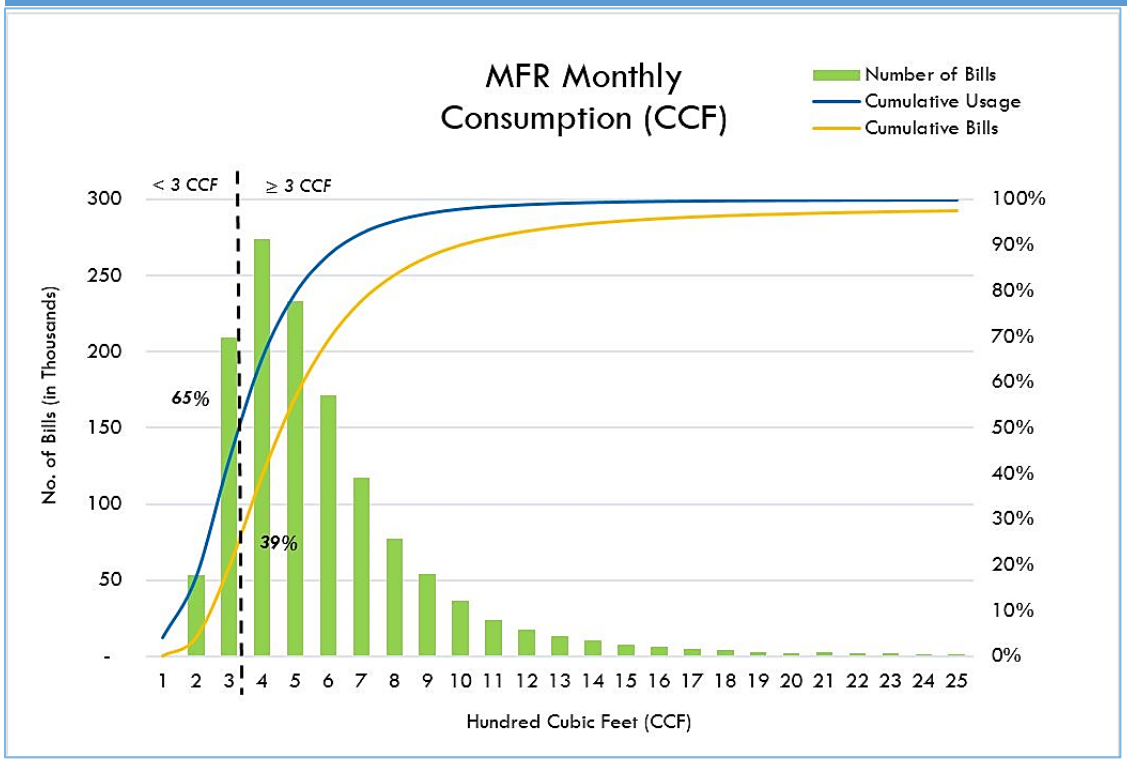


Table 43 details the method for calculating rates for MFR users.

TABLE 43 MULTIFAMILY RESIDENTIAL FY 2019 WATER COMMODITY RATE CALCULATION

	TIER 1	TIER 2	TOTAL
Base Costs (A)	$45,661,696	$18,240,999	$63,902,695
Peak Ratio (minimum/maximum month)	0.94	1.11	---
Peak Costs (B)	$12,660,506	$5,972,317	$18,632,823
Conservation Costs (C)	$0	$1,829,771	$1,829,771
Projected Consumption (ccf) (D)	7,717,070	3,082,827	10,799,896
MFR Unit Cost ($/ccf) = (A + B + C) ÷ D	$7.56	$8.45	

Nonresidential

Existing commercial, industrial, and general use customers pay a uniform commodity rate of $7.64 per ccf. Existing irrigation customers also pay a uniform rate of $7.64 per ccf. Existing docks and ships customers pay a uniform rate of $10.10 per ccf, and existing builder and contractor customers pay a uniform rate of $9.17 per ccf. Unlike residential customers whose use is relatively homogeneous, nonresidential users are diverse and vary significantly in size and usage, even between similar businesses. As the SFPUC continues to gain additional data through its Automated Metering Infrastructure (AMI) system, it is able to better identify unique customer demand patterns and costs which allows the creation of more specific rate sub-classes within the nonresidential class. The AMI system automatically collects frequent data to accurately monitor water consumption and detect leaks faster than conventional, manually-read water meters.

Carollo recommends a single nonresidential rate that retains the existing uniform commodity rate structure. However, according to the updated cost of service analysis, we recommend that the FY 2019 rate be increased to $8.33 per ccf. The methodology for calculating the nonresidential rate is shown in Table 44.

TABLE 44 NONRESIDENTIAL FY 2019 WATER COMMODITY RATE CALCULATION

	ALL
Base Costs (A)	$67,828,556
Peak Costs (B)	$28,609,412
Consumption (ccf) (C)	11,592,776
Unit Cost ($/ccf) = (A + B) ÷ C	$8.33

Interruptible Rate

The SFPUC has an existing rate of $6.93 per ccf for occasions when maximum water demands consistently approach the limitations of supply or treatment capacity, or when peak load growth projections show a rapid increase in peak demands on the system. This rate, known as an interruptible rate, covered costs to provide interruptible service to some large customers. Although this provided benefits to customers by keeping rates low, Carollo recommends eliminating this rate and charging existing interruptible customers the nonresidential rate as calculated in Table 46. Ultimately, the interruptible users must pay both their share of operational costs and capital costs. A demand analysis confirmed the existing assumption that all irrigation users used this rate, and further proved that irrigation consumption was its largest use. Based on this analysis, Carollo recommends that the interruptible rate be replaced with the nonresidential rate for FY 2019.

Nonpotable Rate

Nonpotable (raw) water is available to customers inside and outside the City and County of San Francisco in its natural state prior to any treatment. Rates recover the costs associated with the infrastructure and supply of untreated water service when the customer furnishes all facilities necessary to convey the

untreated water from the system's supply reservoirs to the customer's point of use. Table 45 shows the calculation of the nonpotable water rate. The most notable driver for the reduction of the non-potable water rate is this study's detailed allocation of wholesale revenue offset, which reduced the retail portion of raw water costs substantially.

TABLE 45 NONPOTABLE FY 2019 WATER COMMODITY RATE CALCULATION

	ALL
Base Costs (A)	$69,635
Consumption (ccf) (B)	94,722
Unit Cost ($/ccf) = A ÷ B	$0.75

Recommended SFPUC Rates

In an effort to reduce rate shock as a result of adjustments to the peaking factors used to determine the differential between the tiers, Carollo recommends transitioning the residential commodity rates from the existing rates to the cost of service rates calculated for FY 2022 over the next four-year period. For this reason, some of the recommended rates for FY 2019 differ from the calculated rates shown previously in this section. The recommended rates for FY 2019 through FY 2022, including phasing in the differences between tiers, are summarized below in Table 46 and Table 47. Throughout the rate-setting process, Carollo worked closely with SFPUC staff to evaluate the impact of the recommended rate structure to water customers.

Proposed Service Charges

Similar to the existing charge, the recommended monthly service charge is a combination of the customer service and meter charges functional components. Table 46 summarizes the annual increase in the monthly service charge during the four-year study period.

TABLE 46 RECOMMENDED WATER MONTHLY SERVICE CHARGES BY METER SIZE [1]

	CURRENT	PROPOSED			
METER SIZE	FY 2018 [2]	FY 2019	FY 2020	FY 2021	FY 2022
5/8 in.	$11.63	$12.19	$13.15	$14.06	$15.04
3/4 in.	14.64	15.62	16.85	18.01	19.27
1 in.	20.66	22.47	24.24	25.91	27.72
1-½ in.	35.71	39.59	42.71	45.66	48.84
2 in.	53.78	60.14	64.88	69.36	74.19
3 in.	95.95	114.94	124.00	132.56	141.79
4 in.	156.17	176.59	190.51	203.66	217.84
6 in.	306.76	347.84	375.26	401.16	429.09
8 in.	487.45	553.34	596.96	638.16	682.59
10 in.	698.25	861.59	929.51	993.66	1,062.84
12 in.	1,300.55	1,478.09	1,594.61	1,704.66	1,823.34
16 in.	2,264.24	2,574.09	2,777.01	2,968.66	3,175.34

Notes:
(1) Charge is rounded up to the nearest $0.01.
(2) FY 2018 already has an approved revenue increase.

Table 47 summarizes the recommended commodity rates during the study period.

TABLE 47 RECOMMENDED WATER COMMODITY RATES BY CUSTOMER CLASS [1]

CUSTOMER CLASS		CURRENT FY 2018 [2]	PROPOSED FY 2019	FY 2020	FY 2021	FY 2022
Residential						
SFR	Tier 1 (0 - 4 ccf)	$6.42	$7.06	$7.77	$8.55	$9.40
	Tier 2 (over 4 ccf)	8.62	9.05	9.50	9.98	10.48
MFR	Tier 1 (0 - 3 ccf/DU)	6.57	7.18	7.85	8.58	9.39
	Tier 2 (over 3 ccf/DU)	8.81	9.21	9.62	10.05	10.50
Nonresidential						
Commercial/Industrial, Municipal, Nonresidential Irrigation, Docks & Ships, Builders & Contractors, Fire Service		$7.64	$8.33	$9.04	$9.72	$10.45
Nonpotable (Raw Water)		2.95	0.75	0.81	0.87	0.94

Notes:
(1) Charge is rounded up to the nearest $0.01.
(2) FY 2018 already has an approved rate increase.

CUSTOMER IMPACTS

Figure 12 illustrates the impact of the recommended water rates to SFR customers with a 5/8-inch meter across various usage levels.

FIGURE 12 SINGLE FAMILY RESIDENTIAL MONTHLY WATER BILL IMPACT AT DIFFERENT USAGE LEVELS

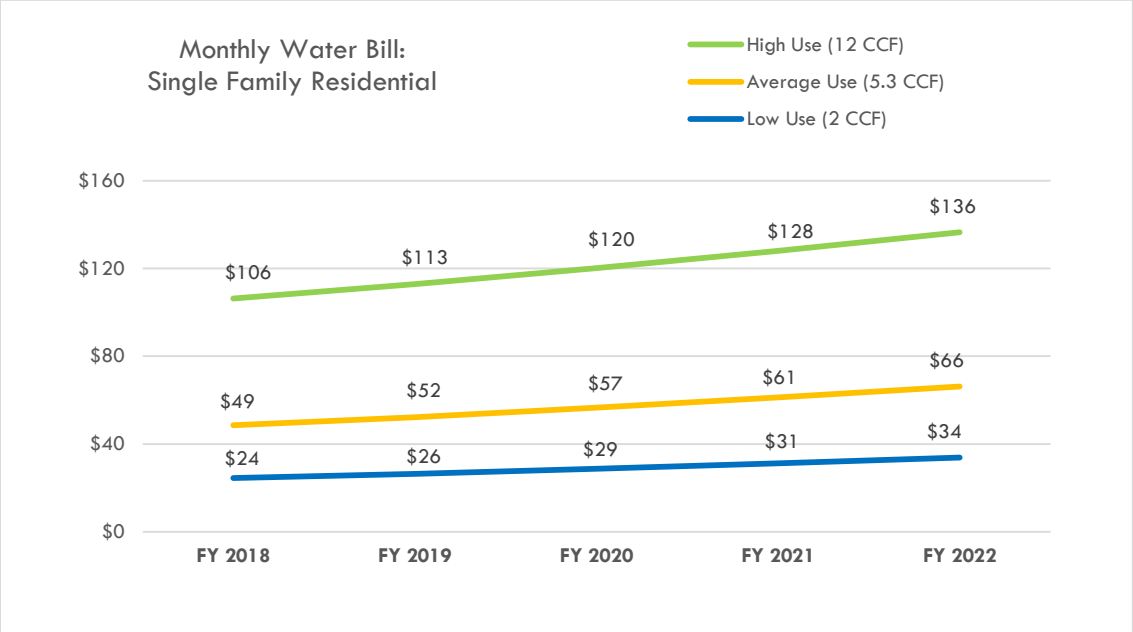


Figure 13 illustrates the impact of these recommended water rates to MFR customers with a 5/8-inch meter across various usage levels.

FIGURE 13 MULTIFAMILY FAMILY RESIDENTIAL MONTHLY WATER BILL IMPACT AT DIFFERENT USAGE LEVELS

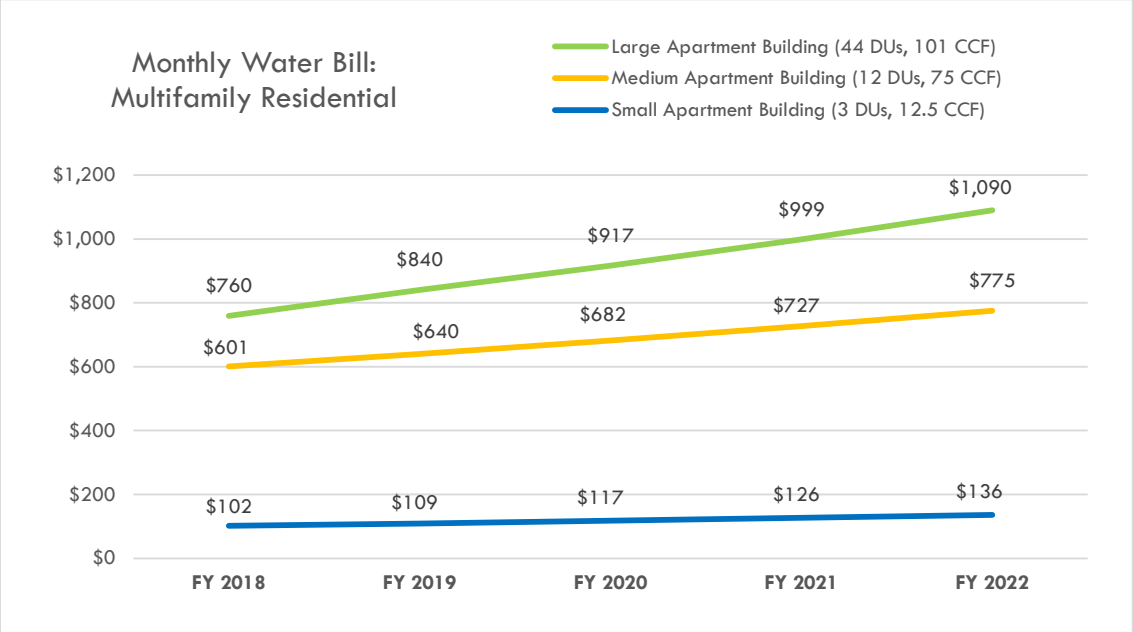
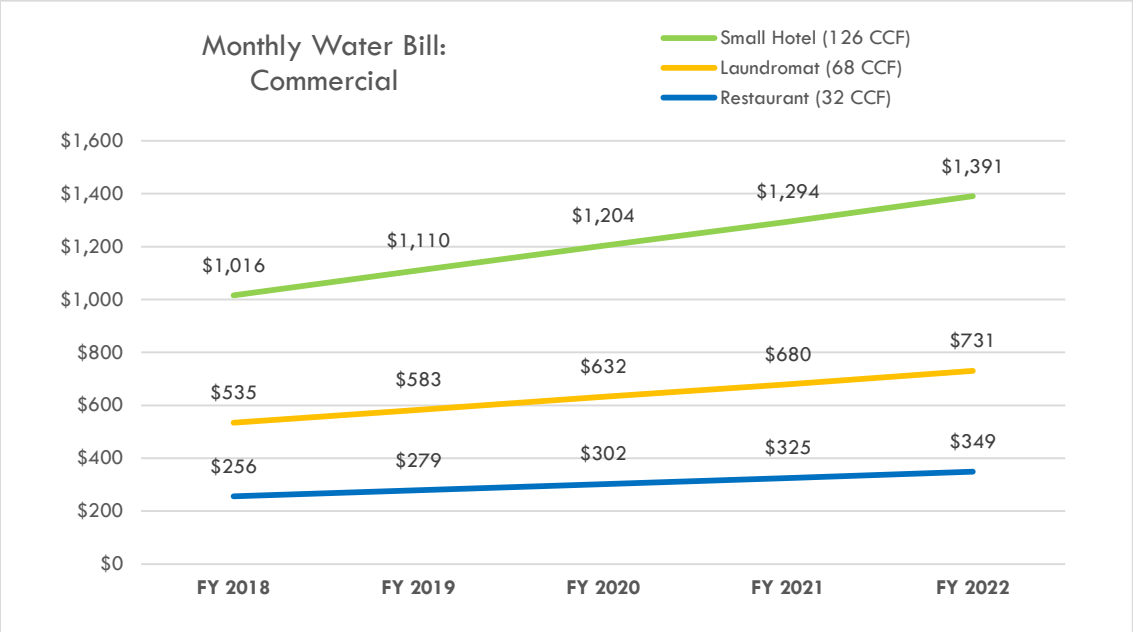


Figure 14 illustrates the impact of these recommended water rates to nonresidential customers with a 5/8-inch meter across various usage levels and business types.

FIGURE 14 NONRESIDENTIAL MONTHLY WATER BILL IMPACT AT DIFFERENT USAGE LEVELS



Drought Surcharge

To enhance revenue stability for water operations, Carollo recommends that SFPUC implement surcharges to retail water rates to be applied during periods of reduced water demand associated with drought conditions. As discussed in the Water Cost of Service chapter, 86 percent of SFPUC's revenues are variable in that they fluctuate with changes in water demands. A drought surcharge allow the SFPUC to react to revenue shortfalls driven by sustained decreases in sales due to drought, supply limitations, or other circumstances, and would only be assessed if the SFPUC declares water supply shortages while continuing to incentivize conservation.

For residential customers, recommended surcharges are based on the assumption that an overall demand reduction is split evenly between Tier 1 and Tier 2 and that the recommended surcharge is applied to all rates. Each nonresidential customer would incur the recommended percent drought surcharge uniformly. The overall required surcharge is based on the final formula:

$$Surcharge\ (\$\ per\ ccf) = \frac{Water\ Revenue\ Shortfall\ from\ reduced\ demand}{Reduced\ demand}$$

The proposed drought surcharge aims to give SFPUC the flexibility to adapt to changes in usage, revenues, and costs.

6. Wastewater Enterprise Revenue Requirements

Carollo conducted a revenue requirements analysis to determine the annual system revenue necessary to be recovered through wastewater rates and charges in order to meet the Wastewater Enterprise's expected financial obligations. The revenue requirement analysis covers the study period FY 2018 through FY 2028. The primary focus for rate setting was given to the four years, FY 2019 through FY 2022, since the SFPUC already has an approved rate increase of 11 percent for FY 2018. Based on the findings of this study, Carollo recommends the Wastewater Enterprise increase rate revenues by an average of 9 percent per year over the four years, FY 2019 through FY 2022, in order to fund operations and capital needs, and meet debt service obligations associated with the SSIP and other infrastructure priorities. The proposed findings support the Wastewater Enterprise's ability to continue meeting its level of service objectives.

Revenue Requirements Overview

The revenue requirement analysis compares the forecasted revenues of the utility to its forecasted operating and capital costs to determine the adequacy of the existing rates to recover the utility's costs of providing service. Should any deficits be identified, additional funding is reviewed and recommended based on strategic goals and available funding. Through its annual budgeting process, the SFPUC performs a detailed review of its costs, including operations and maintenance expenditures, annual debt service, capital expenditures, policy requirements, and reserve requirements.

Carollo examined the SFPUC's FY 2019 budget expenses as the base year for O&M costs and worked with the SFPUC to forecast total expenses. Carollo also collected information related to current reserve fund balances, budgeted CIP expenses, other expenses, revenues, and miscellaneous financial information. Once the revenue requirement is established by compiling all of the SFPUC's cost drivers, two tests are utilized to determine whether the annual revenues are sufficient: a cash flow test and a debt coverage test. Should both tests "fail," the test with the larger deficiency is determined to be the primary driver. Based on the results of the baseline revenue requirement analysis, the main driver in the first few years is the debt coverage requirement, and in later years cash flow drives the need for additional revenue.

Cash Flow Test

The cash flow sufficiency test evaluates whether revenues exceed expenses for a net positive cash flow at the end of each fiscal year. When they do not, this test is not passed, and additional rate revenue is recommended. The cash flow test identifies the amount of annual revenues that must be generated in order to meet annual expenditure obligations. These obligations include O&M expenses, debt service payments, policy-driven minimum reserve, and rate-funded capital expenses. These expenses, less offsetting revenues from other sources, are compared to total annual projected retail rate revenues. Deficits are then used to estimate the need for rate revenue increases. The analysis also considers existing reserves and financial policies to help mitigate or smooth the need for rate adjustments in the short-term. Within the SFPUC's Fund Balance Reserve Policy, it is stated that excess reserve amounts will be considered for contingencies and rate stabilization. As such, the SFPUC has the ability to use unrestricted reserves, if available, to satisfy the annual cash flow test in order to minimize rate spikes.

Debt Coverage Test

Many agencies use bonded indebtedness to fund a portion of their capital expenses. The debt service coverage test measures the ability of a utility to meet both legal and policy-driven revenue obligations associated with debt. Debt service coverage is dictated by each agency's bond covenants and establishes an amount that a borrower must raise in revenue in excess of operations and debt-related expenses. Debt issuance is a significant funding source for the SFPUC's capital programs.

Under the SFPUC wastewater indenture, revenues pledged to cover debt service must meet two separate ratios: (1) current and (2) indenture.

1. Current coverage requires annual revenues to meet a minimum of 1.00x (times) the annual debt service. This measure looks at only current year revenues and may exclude certain revenues and expenditures, depending on the covenant.

$$Current\ Coverage = \frac{(Annual\ Revenues - Operating\ Expenses)}{Annual\ Debt\ Service}$$

2. By indenture, the SFPUC is required to collect sufficient net revenues to meet or exceed 1.25x the annual debt service. This measure includes current year revenues plus the unappropriated fund balance for debt service coverage sufficiency.

$$Indenture\ Coverage = \frac{(Annual\ Revenues - Operating\ Expenses) + Unappropriated\ Fund\ Balance}{Annual\ Debt\ Service}$$

However, to ensure that the SFPUC retains financial flexibility for contingencies, the Commission has adopted and implemented a debt service coverage policy that targets higher metrics than the minimum debt service coverage requirements. The SFPUC has adopted a current coverage ratio of 1.10x and indenture coverage ratio of 1.35x. This means that the SFPUC must raise enough revenue to cover all operations and maintenance expenses, including debt service, plus an additional 10 basis points. Similarly, the indenture coverage ratio requirement is an additional 10 basis points.

Analysis Assumptions and Inputs

Wastewater Enterprise Baseline Inputs

As of FY 2016, the SFPUC is responsible for providing wastewater collection and treatment service to over 163,000 residential, commercial, industrial, and institutional customers. Table 48 summarizes the SFPUC's accounts and billable wastewater flow by customer class. The billable flow includes both dry weather (sanitary) and wet weather (rain) flows. These customer accounts and billable flow volumes are used as the basis for projected customer use within this study.

TABLE 48 WASTEWATER ENTERPRISE FY 2016 PROFILE

CUSTOMER CLASS	NUMBER OF ACCOUNTS	BILLABLE FLOW (1)
SFR	111,072	5,995,178
MFR	36,171	9,794,389
Nonresidential	16,075	7,885,080
Total	163,319	23,674,647

Notes:
(1) Measured in billing units of one hundred cubic feet (ccf).

Forecast Assumptions

The SFPUC's FY 2019 operating budget served as the basis for forecasting future operating expenses for the Wastewater Enterprise. The budget was compared to the current internal financial forecast and discussed with SFPUC staff to identify expenses that may need to be adjusted or are not appropriate to include when projecting into future years. This includes any incremental costs due to the SSIP. The escalation factors used in this analysis are based on input from the SFPUC staff and a review of both the long-term and recent cost escalation from the Engineering News-Record (ENR) Index, an industry benchmarking resource. The escalation factors are presented Table 49.

TABLE 49 WASTEWATER ENTERPRISE ESCALATION FACTORS

ESCALATION FACTOR	DESCRIPTION	ESCALATION RATE
General Cost Inflation 3%	Long-range O&M cost growth.	3.0%
Account Growth	Number of accounts will increase by this factor.	0.1%
Retail Rate Increase	Increase in wastewater rate due to changes in revenue requirements.	Varies
SSIP Capital Inflation	Increase in costs related to the SSIP.	Varies
Total Expenses Increase	Increase in all operating and non-operating expenses costs.	Varies

The SFPUC individual line item costs were each assigned one of the escalation factors shown in Table 49 to account for variability among cost categories. These escalation factors were then applied to the appropriate categories of expenses to forecast costs incurred by the Wastewater Enterprise.

Forecasting Wastewater Enterprise Expenses

Operating expenses are costs that the utility incurs for daily operations, such as personnel salaries and benefits, system maintenance, fuel, and chemicals. As part of the budget process, an O&M forecast is developed for the Wastewater Enterprise. The operating budget expenditures include costs related to administration, maintenance, operations, environmental engineering, planning and regulations, collection systems, wastewater labs, and other miscellaneous expenses. These expenditures can be summarized in the following main categories listed below:

1. Administration: Covers non-allocated administrative costs that support the strategic goals and operations of the combined sewer system.
2. Collection: The SFPUC service area relies on an extensive network of pipelines and lift stations to convey wastewater to treatment facilities.
3. O&M: Costs in this category support ongoing operations, maintenance, and repair.
4. Treatment: Chemicals and other direct supply costs for treatment of conveyed wastewater.
5. Energy: Sewer collection, treatment, and disposal are energy-intensive processes. As a result, the SFPUC incurs significant energy expenses in order to operate its treatment facilities.

In future years, additional incremental O&M costs associated with capital assets from the SSIP are expected. These will be in addition to the escalated O&M costs discussed above. For FY 2019, the total O&M cost of the Wastewater Enterprise, including Programmatic Expenses, is budgeted at $176.7 million. Costs for FY 2020 through FY 2028 were estimated using the FY 2019 budget and applying the appropriate annual escalation factors.

Table 50 presents a summary of the Wastewater Enterprise's operating expenses.

TABLE 50 WASTEWATER ENTERPRISE OPERATING EXPENSES (1)

EXPENSES	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Administration	$40.1	$41.9	$43.2	$44.5	$45.8	$47.2	$48.6	$50.0	$51.5	$53.1	$54.6
Maintenance	28.9	30.1	31.3	32.2	33.2	34.2	35.2	36.3	37.4	38.5	39.7
Operations	65.0	68.3	69.8	71.8	73.8	75.8	77.9	80.1	82.3	84.6	87.0
Environmental Engineering	5.9	6.1	6.5	6.7	6.9	7.1	7.3	7.5	7.7	8.0	8.2
Planning and Regulations	9.2	9.6	10.0	10.3	10.6	10.9	11.3	11.6	12.0	12.3	12.7
Collection Systems	7.2	7.5	7.7	7.9	8.2	8.4	8.7	8.9	9.2	9.5	9.8
Wastewater Labs	4.7	4.9	5.1	5.3	5.5	5.6	5.8	6.0	6.1	6.3	6.5
Incremental SSIP Expenses	1.4	1.4	1.4	1.5	1.5	1.6	1.6	1.7	1.7	1.8	1.8
Total Expenses	$162.5	$169.9	$175.1	$180.2	$185.4	$190.8	$196.4	$202.1	$208.0	$214.1	$220.3

Notes:
(1) Values are in million dollars and rounded. Values may not add up due to rounding.

Wastewater Discharge Characteristics

The Wastewater Enterprise maintains the 900-mile long combined sewer system and 17 pump stations that collect sewage and stormwater, moving the wastewater to the three treatment plants for treatment and discharge to the San Francisco Bay and Pacific Ocean. On a non-rainy day an average of 80 million gallons of wastewater is collected and transported to one of the two dry-weather treatment plants: the Southeast Treatment Plant or the Oceanside Treatment Plant. During a storm, the North Point Wet Weather Facility is activated to treat additional flow. Overall, the sewer system can collect and treat over 500 MGD when it rains. In addition to flows, wastewater facility operations involve strength-related treatment for COD; TSS; and FOG.

Projected annual wastewater discharge characteristics for the FY 2018 through FY 2028 study period are based on the FY 2016 consumption data as shown in Table 51. The total flow volume equals the billable flow in Table 48, separated into dry weather flow and wet weather flow (23.1 percent of total flow) based on precipitation patterns and North Point Wet Weather Facility activation for the period FY 2013 through FY 2017[1].

TABLE 51 WASTEWATER DISCHARGE VOLUME FY 2016

CUSTOMER CLASS	WET WEATHER (1) (FLOW)	DRY WEATHER (FLOW)	COD (2) (LBS)	TSS (3) (LBS)	FOG (4) (LBS)
SFR	1,384,886	4,610,292	25,599,859	10,442,047	3,181,269
MFR	2,262,504	7,531,885	41,822,776	17,059,289	5,197,275
Nonresidential	1,821,453	6,063,627	36,758,773	12,207,135	4,551,904
Total	5,468,843	18,205,804	104,181,408	39,708,471	12,930,448

Notes:
(1) Flow measurements are in ccf.
(2) COD is the chemical oxygen demand.
(3) TSS is the total suspended solids.
(4) FOG is fats, oils, and grease.

[1] FY 2014 is excluded because the data was unavailable.

Capital Improvement Program

Charter Section 8B.123 requires the SFPUC Financial Services staff to develop a Long-Term Capital Improvement Program ("10-Year Capital Plan" or "Capital Plan") and a Long-Range Financial Plan ("10-Year Financial Plan" or "Financial Plan"). In addition, Charter Section 8B.123 requires that the Commission hold public hearings on an annual basis to review, update, and adopt the Capital Plan and the Financial Plan. The Capital Plan contains a list of projects to be executed during the planning horizon, including cost estimates and schedules. The Financial Plan contains estimates of operations and maintenance expenses, repair and replacement costs, debt costs, and rate increases. Together, these two plans serve as a basis and supporting documentation for the Commission's capital budget and issuance of revenue bonds and other indebtedness.

The SSIP is a 20-year citywide investment to upgrade and replace vital sewer infrastructure. Annual capital expenditures will increase substantially in upcoming years due to the 20-year SSIP. The SSIP is divided into three overlapping phases. In 2012, the Phase 1 Capital Budget was approved for a total of $2.91 billion and is 21.1 percent complete as of the end of FY 2017. The expected completion for SSIP Phase 1 is October 2026. All three phases are expected to total nearly $7 billion, funded through a combination of new debt issuances and cash sources including operating revenues, capacity charges, and other sources.

Some of the non-SSIP capital expenses include repair and replacement of the collection system, treatment plant improvements, condition assessments, and capital services to other City departments. In the 10-year CIP, capital needs from FY 2018 through FY 2028 were identified, and the summary of the estimated CIP during the study period is provided in Table 52.

TABLE 52 PROJECTED CAPITAL IMPROVEMENT PROGRAM FY 2018 – FY 2028 [1]

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Programmatic Uses											
Programmatic	$6	$7	$6	$6	$7	$7	$7	$7	$7	$7	$7
Capital Uses											
Non-SSIP	$140	$199	$167	$154	$214	$138	$144	$137	$155	$148	$155
SSIP	671	432	292	892	807	697	276	137	168	153	153
Total	$817	$638	$465	$1,053	$1,027	$842	$427	$281	$329	$307	$314

Notes:
(1) Values are in million dollars and rounded. Values may not add up due to rounding.

In addition to annual payments for existing debt, the SFPUC anticipates issuing additional bonds to finance SSIP projects, as well as a portion of repair and replacement projects. Projected annual payments for new debt issuances were calculated assuming a loan term of 30 years with an annual interest rate of 5 percent and 30 months of capitalized interest. Because the SFPUC uses 30 months of capitalized interest, debt service payments begin three years following the date of issuance. This delays the impact to annual rate revenue requirements, until an asset is placed in service. This use of long-term debt is a reasonable approach as it also allows the SFPUC to align the capital expenses with the ratepayers benefitting from the projects by having both existing and future customers pay for these improvements.

Policy Requirements and Debt Coverage

Policy and Legal Compliance

At the beginning of FY 2018, the SFPUC's available reserves totaled approximately $144.7 million. Per SFPUC policy, the amount held in these reserves must be equal to or exceed 25 percent of operating expenses. The SFPUC currently exceeds this policy requirement and has accordingly planned to cash fund a portion of future capital projects using available reserves.

Based on existing debt covenants, the SFPUC is required to maintain a coverage ratio of at least 1.00x based on current revenues and 1.25x based on current year revenues and indentured reserves. As detailed previously, this coverage is calculated as the ratio of net revenues available after O&M and debt service, including current or indentured reserves, respectively, to total annual debt service requirements. Per SFPUC debt service coverage policy, a current coverage target of 1.10x has been defined to allow greater flexibility and allowance for future debt issues. An indenture coverage target at least 1.35x net revenues for operating expenses, including reserves, to total annual debt service requirements must be maintained. The actual coverage ratios are expected to be 3.04x (current) and 5.90x (indenture) for FY 2018.

Debt Service

The SFPUC finances major capital improvements, in part, by issuing debt for two primary reasons. First, given the size of the capital program, the SFPUC does not have the available financial reserves or annual revenues necessary to fund a CIP, nor would it be reasonable to increase the wastewater rates and charges in order to cash fund these improvements. Second, spreading the debt service costs for long-lasting projects over the repayment period provides intergenerational equity by effectively spreading the financial burden among existing and future users of the system. This approach allows the SFPUC to better match the cost of improvements with the customers benefitting from the improvements.

The SFPUC has existing debt obligations from past capital projects that were debt financed. The annual payments for existing debt are calculated on a fiscal year basis and were provided by the SFPUC. The recently adopted Capital Financing Policy requires 15-30 percent of CIP to be funded with rate revenue (non-debt capital). As noted earlier, the SFPUC will be required to revisit this forecast if revenues do not materialize as projected. It is important that the SFPUC maintain a 1.10x (current) and 1.35x (indenture) coverage ratio of annual debt service per its policy. If SFPUC revenues are insufficient to meet its debt coverage requirement of 1.00x (current) and 1.25x (indenture), its credit rating could be downgraded, which could have significant interest rate cost impacts due to the amount of debt expected to be issued in upcoming years.

Revenue Requirements

Pre-Rate Increase Revenue Requirements

Based on the study projections, current revenues will not be sufficient in future years to fund necessary expenses due to the aforementioned increases in annual capital expenditures. In the absence of any annual rate increases, revenues are not anticipated to increase. Although additional customers are expected to connect to the system, consumption and thus the number of discharge units from associated customers is projected to decrease by 0.5 percent annually. As discussed earlier in this chapter, the SFPUC must meet both the cash flow test and bond coverage test for any given year in order to achieve adequate collection of revenues. Retail rate revenue increases are required to meet funding obligations of the utility.

Although the recommended rate increases result in excess cash flow within the four-year rate-setting time frame, beyond this period, expenditures are projected to increase with annual debt service payments

related to funding of the SSIP and other capital projects. These investments and associated debt service, along with inflationary operational costs, result in annual increases in revenue needs in future years.

Wholesale and Offsetting Revenue

Beyond volumetric rates and charges, the SFPUC collects revenues through other funding sources, such as capacity charges, interest earnings, lease revenues, and revenues from wholesale customers. These offsetting revenues reduce the total rate revenue that must be collected from retail customers. Table 53 shows the revenue requirement for the Wastewater Enterprise without a rate increase.

TABLE 53 WASTEWATER ENTERPRISE REVENUE REQUIREMENT WITHOUT RATE INCREASE (1)

COMPONENT	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Beginning Fund Balance	$145	$199	$169	$121	$51	$(53)	$(204)	$(404)	$(660)	$(973)	$(1,365)
Retail Sales	$297	$297	$297	$297	$297	$297	$297	$297	$297	$297	$297
Wholesale Sales (2)	8	9	9	9	9	10	10	10	11	11	12
Other Revenue	17	17	16	15	14	12	9	4	(2)	(10)	(19)
Total Revenues	322	323	322	321	320	319	315	311	306	298	289
Operating Expenses (3)	$169	$177	$182	$187	$192	$197	$203	$209	$215	$221	$227
Debt Service	50	63	71	82	116	150	185	224	264	323	390
Other Expenses	48	113	118	123	116	122	128	134	141	146	154
Total Expenses	268	353	370	391	424	469	516	567	620	690	771
Ending Fund Balance	$199	$169	$121	$51	$(53)	$(204)	$(404)	$(660)	$(973)	$(1,365)	$(1,847)
Reserve Target (25%)	*$42*	*$44*	*$45*	*$47*	*$48*	*$49*	*$51*	*$52*	*$54*	*$55*	*$57*
% of O&M per Reserves Policy	*118%*	*95%*	*66%*	*27%*	*(28%)*	*(104%)*	*(199%)*	*(316%)*	*(453%)*	*(618%)*	*(814%)*
Cash Flow Test											
Cash Flow Surplus/ (Deficit)	$54	$(30)	$(48)	$(70)	$(104)	$(151)	$(200)	$(255)	$(314)	$(392)	$(481)
Debt Coverage Test											
Current	*3.04x*	*2.32x*	*1.99x*	*1.65x*	*1.11x*	*0.81x*	*0.61x*	*0.46x*	*0.35x*	*0.24x*	*0.16x*
Indenture	*5.90x*	*5.47x*	*4.38x*	*3.12x*	*1.54x*	*0.45x*	*(0.49)x*	*(1.35)x*	*(2.15)x*	*(2.77)x*	*(3.34)x*

Notes:

(1) Values are in million dollars and rounded. Values may not add up due to rounding.
(2) Wholesale sales reflect previously adopted wholesale rate increases.
(3) Operating Expenses includes Programmatic Expenses.

As illustrated, the current retail rates are not sufficient to fully fund all annual cash needs of the utility over the next ten years. Before considering rate smoothing, increases are generally calculated using the test (cash or debt) with the greatest deficiency.

Revenue Requirements with Rate Increase

Carollo recommends annual rate increases with the resulting cash flow and operating reserve fund balances represented in Table 54 for the Wastewater Enterprise. The recommended rate revenue increases average 9 percent per year over the four years, FY 2019 through FY 2022, and are aimed at ensuring that the SFPUC collects sufficient funds to pay operational and capital expenses, including debt service obligations. The Wastewater Enterprise fund balance is above minimum policy levels during this period to help manage risks associated with the complex, multi-billion dollar SSIP program.

TABLE 54 WASTEWATER ENTERPRISE REVENUE REQUIREMENT (WITH RATE INCREASE) [1]

COMPONENT	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Recommended Rate Increase [2]	--	9%	9%	9%	9%	9%	9%	8%	8%	8%	8%
Month of Adjustment	--	July 2019	July 2020	July 2021	July 2022	July 2023	July 2024	July 2025	July 2026	July 2027	July 2028
Beginning Fund Balance	$145	$199	$196	$206	$227	$251	$270	$286	$293	$291	$267
Retail Sales with Increase	$297	$323	$352	$384	$419	$456	$498	$537	$580	$627	$677
Wholesale Sales [3]	8	10	10	11	12	13	14	16	17	19	20
Other Revenue	17	17	16	17	18	19	20	20	20	21	20
Total Revenues with Increase	322	350	379	412	449	488	532	573	618	666	717
Total Expenses	$268	$353	$370	$391	$424	$469	$516	$567	$620	$690	$771
Ending Fund Balance	$199	$196	$206	$227	$251	$270	$286	$293	$291	$267	$213
Reserve Target (25%)	*$42*	*$44*	*$45*	*$47*	*$48*	*$49*	*$51*	*$52*	*$54*	*$55*	*$57*
% of O&M per Reserves Policy	*118%*	*111%*	*113%*	*121%*	*131%*	*137%*	*141%*	*140%*	*135%*	*121%*	*94%*
Cash Flow Test											
Cash Flow Surplus/(Deficit)	$54	$(2)	$9	$21	$24	$19	$16	$6	$(2)	$(24)	$(53)
Debt Coverage Test											
Current	*3.04x*	*2.75x*	*2.80x*	*2.75x*	*2.21x*	*1.94x*	*1.78x*	*1.63x*	*1.52x*	*1.38x*	*1.25x*
Indenture	*5.90x*	*5.90x*	*5.58x*	*5.27x*	*4.16x*	*3.62x*	*3.24x*	*2.91x*	*2.63x*	*2.28x*	*1.94x*

Notes:

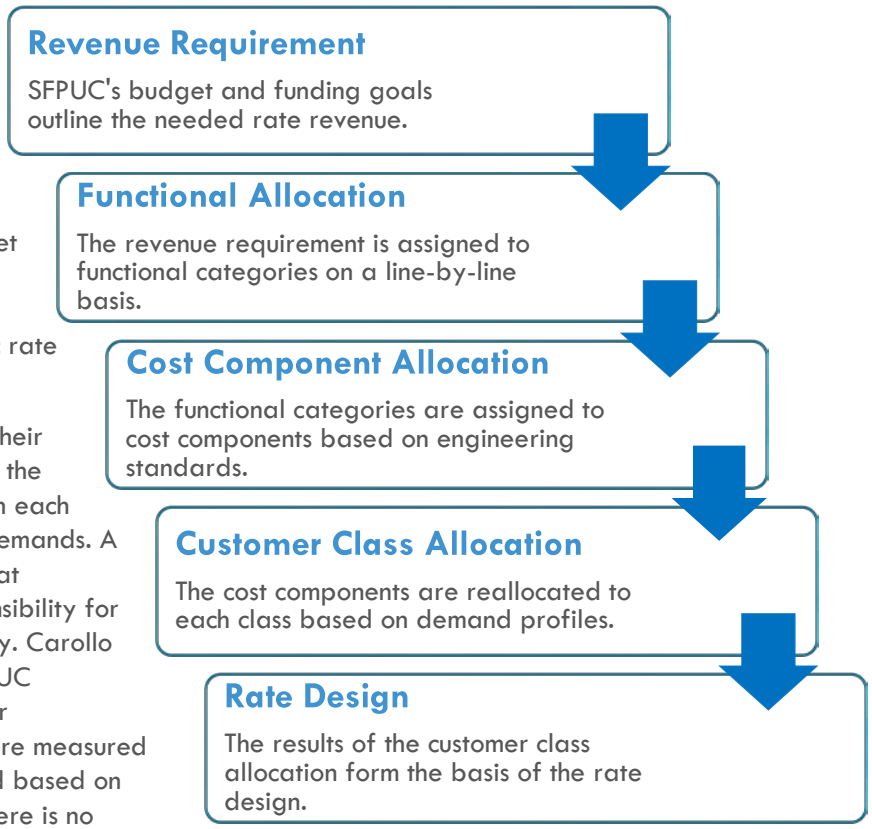
(1) Values are in million dollars and rounded. Values may not add up due to rounding.
(2) Prior to this study, the SFPUC approved an 11% rate increase for FY 2018.
(3) Wholesale sales reflect previously adopted wholesale rate increases.

The recommended revenue increases shown in Table 54 were determined using industry-accepted best practices and methodologies. SFPUC staff worked closely with Carollo to review all data, assumptions, and calculations that resulted in the recommendations outlined in this report. Carollo further recommends that the SFPUC review and update the financial plan and revenue requirements annually to recognize changes in customer billing data, operating expenditures, changing wastewater flows and loadings, and capital improvement needs..

7. Wastewater Cost of Service Analysis

The cost of service analysis serves as a rational basis for distributing the full costs of SFPUC's services to each customer class in proportion to the demands placed on the system. Carollo developed a detailed cost allocation that serves as the basis for the proposed rate adjustments. The allocation developed through this study provides a stable method for allocating costs within the wastewater system.

The cost of service analysis employs a tailored review of costs with a step-by-step approach. Based on the revenue requirement analysis outlined in its respective chapters, the functional allocation designates each budget item to an SFPUC functional category, which is intended to translate each cost into a specific rate component.



Those functional categories and their associated costs are allocated to the distinct customer classes based on each class' unique flow and strength demands. A customer class consists of users that commonly create or share responsibility for certain costs incurred by the utility. Carollo determined the appropriate SFPUC customer classes based upon their discharge characteristics, which are measured through a meter (flow), estimated based on water consumption (flow when there is no wastewater meter), sampled (loadings), or assumed based on typical characteristics of similar residence or business types (loadings where sampling data is unavailable).

The rate design process establishes a rate structure that proportionately recovers costs from customer classes and customers within each customer class. The final rate structure and rate recommendations are designed to (1) fund the utility's projected costs of providing service, (2) proportionally allocate costs to system customers, and (3) provide a reasonable balance of revenue stability. The rate design will be further detailed in the next chapter of this study.

Functional Cost Allocation

Functional Cost Categories

The SFPUC applies separate allocations for O&M and capital costs in order to more accurately reflect appropriate cost relationships. This process allows the SFPUC to recover a proportionate share of annual costs related from each customer through the user rate based on their individual flow and loading discharges, as well as more general expenses that apply to all customers.

The functional components used for the SFPUC were:

Influent Pumping/Headworks: Costs associated with pumps used to move the wastewater from an influent wet well to the headworks facility.

Primary Clarifiers: Costs associated with the initial treatment of wastewater to reduce the content of suspended solids and their embedded pollutants.

Secondary Treatment: Costs associated with treating wastewater to achieve a certain degree of effluent quality with physical separation processes and biological processes to remove organic compounds.

Chlorination/Dechlorination: Costs associated with the introduction of chlorine as a disinfectant and its subsequent removal.

Solids Thickening: Costs associated with increasing the solids concentration and reducing free water content.

Biosolids Thickening: Costs associated with condensing Biosolids to produce a concentrated supernatant. Thickening overall helps reduce the volume of residuals and improves transfer, storage, disposal, etc.

Effluent Discharge: Costs associated with managing and controlling treated wastewater outflow.

Tertiary Treatment: Costs associated with the final treatment process before treated wastewater is reused, recycled, or discharged into the environment.

Pump/Lift Stations: Costs associated with pumping wastewater within the system.

Collection Systems - General: Costs associated with collection infrastructure that carries all wastewater generated by customers to the treatment plant. Benefits the system during both dry and wet weather.

Collection Systems – Wet Weather: All costs associated with collecting wastewater during heavy rain events or flooding, green infrastructure or other collection functions that manage wet weather flow.

Cogeneration: Costs associated with the use of digester gas by-product as a method of power generation.

Laboratory: Costs associated with sampling and laboratory analysis of samples. These costs may need to be further allocated between treatment and customer service (collection system sampling).

Customer Billing: All costs associated with producing customer bills, including billing system software, postage, credit card processing fees, etc.

General: Costs associated with other treatment and administrative services that do not fit any of the other categories. Examples include electrical equipment, HVAC equipment, plant staff vehicles, etc.

Carollo determined the wet weather flow in three steps that involved analyzing treatment plant flows and weather patterns. First, we received daily flow data for each of the three treatment plants and matched it with daily rainfall data. For each treatment plant, we summed the days with no rainfall then divided by the number of days with no rainfall to calculate the average daily dry weather flow.

Second, we applied the average daily dry weather flow to the total number of days of recorded data to determine what portion of the total flow is considered to be dry weather flow. Finally, we subtracted the total dry weather flow from the total flow to determine the remaining portion that is considered to be wet weather flow.

$$\frac{Dry\ weather}{flow\ allocation} = \frac{Total\ flow\ on\ days\ with\ no\ rainfall}{Total\ number\ of\ days\ with\ no\ rainfall}\ x\ \frac{Total\ number\ of\ days}{Total\ flow}$$

This process was completed for the sum of the three plants to determine the allocation between wet weather flow and dry weather flow for the combined system. It was also completed for the two wastewater plants, excluding flows from the North Point Plant, to determine the split between wet weather and dry weather for the flow through the wastewater treatment process.

The SFPUC's budget was analyzed line-by-line. Details of how the O&M, debt service, and other expenditures were distributed among functional categories are shown in Appendix C.

Cost Components and Factors

It is necessary to allocate costs to cost categories that can be both measured at the treatment facilities and estimated or measured for each user. For the SFPUC wastewater facilities, these cost categories include flow and strength — COD, TSS, FOG — and Customer Service. These four cost categories are referred to as billable constituents. In addition to these five, an AAO category is included for costs that are reallocated across every functional category.

The SFPUC's budget was analyzed line-by-line. Details of how the O&M expenditures, debt service, and other expenditures were distributed between cost categories are shown in the functional allocation in Appendix C. The following describes the functional cost categories primarily related to flow, strength, and customer service:

Flow: Operating and capital costs incurred by the wastewater system to handle the quantity of flows discharged to or collected by the system. The total flow is the sum of wet weather and dry weather volume. Wet weather is the condition when peak flow occurs such as a storm event with stormwater runoff. Dry weather flows average 73 MGD, whereas wet-weather flows average 255 MGD, as determined by cross-referencing treatment plant inflow data with rainfall data.

Total Suspended Solids (TSS): TSS measures the quantity of suspended solids or non-filterable residue in the wastewater. Costs include those associated with removing and disposing of small particles in the wastewater. Activities that have a larger allocation to TSS include sludge thickening, digestion, and solids handling and disposal processes.

Fats, Oils, and Grease (FOG): Cost for cleaning the collection system and treating, and disposing of fats, oils, and grease discharged to the sewer system. FOG can coat the lining of sewers and restrict the performance of the collection system.

Chemical Oxygen Demand (COD): During treatment, microbial organisms consume dissolved oxygen while oxidizing the organic matter present in wastewater. COD measures the quantity of oxygen required for that process. Expenses include costs incurred to remove and dispose of organic compounds.

Customer Service: Costs that relate to operational support activities including accounting, billing, customer service, administrative, and technical support. These are common to all customers.

Over time, the expenditures associated with each billable constituent change, but the process-specific percentage allocations to billable constituent should remain constant, absent a significant process change. To account for the variability in costs, the functional cost allocation apportions the annual revenue requirement over an average of the forecasted expenditures from FY 2019 through FY 2022 by major function of the wastewater utility. Utilizing the four-year average accounts for slight annual shifts in costs over the course of the study period.

This functional allocation process provides a reasonable, appropriate, and industry-standard basis for proportionately distributing costs to system customers and is grounded in cost of service principles and standards. This methodology and process also provides the basis for the rate structure detailed in the Wastewater Rate Design chapter. For this study, Carollo separated out specific allocations to customer service with the goal of recommending a new monthly service charge for the SFPUC Wastewater Enterprise. The Wastewater Rate Design chapter also introduces the new monthly service charge. The changes made to the cost of service allocations since the 2014 study, as well as changes to the operations and capital-related costs, shifted the overall allocation of revenue requirements slightly from flow, COD, and FOG, to TSS and customer service.

Wastewater Allocations

Wastewater Enterprise Assets

For some debt issues, the information required to allocate the debt service payments based on the projects funded with the proceeds is not available. For these debt issues, we substitute the overall allocation of the wastewater system's fixed assets. As with the water assets, we first allocate the wastewater fixed assets to functional categories based on the various allocation, location, and class codes provided in the fixed asset register. The updated allocation of fixed assets resulted in a shift of the fixed asset capital allocation factors from flow to COD and FOG.

Table 55 summarizes the allocation factors applied to system assets.

TABLE 55 WASTEWATER ENTERPRISE ASSET ALLOCATION

ASSET DESCRIPTION [1]	VALUE [2]	PERCENT ALLOCATION (%)					
		FLOW [3]	COD	TSS	FOG	CUSTOMER SERVICE	AS ALL OTHERS [4]
Influent Pumping / Headworks	$34.1	82.5%		17.5%			
Primary Clarifiers	$17.1	79.0%		19.0%	2.0%		
Secondary Treatment	$51.4	40.0%	55.0%	5.0%			
Chlorination / Dechlorination	$19.8	100%					
Solids Thickening	$109.3		77.0%	19.0%	4.0%		
Biosolids Handling	$13.6		45.0%	45.0%	10.0%		
Effluent Discharge	$127.7	100%					
Recycled Water	$0.0	100%					
Lift Stations	$118.1	100%					
Collection System – General	$940.8	85.0%			15.0%		
Collection System – Wet Weather	$104.9	100%					
Cogeneration	$11.7		51.0%	34.0%	15.0%		
Laboratory	$4.6		33.3%	33.3%	33.3%		
Customer Billing	$0.0					100%	
General Plant	$122.6						100%
Total Value	$1,675.7	$1,232.3	$126.0	$44.2	$150.5	$0.0	$122.6
Total Percent	100%	73.5%	7.5%	2.6%	9.0%	0.0%	7.3%

Notes:
(1) Asset allocation to functional categories is completed in "Fixed Assets Master Classification.xlsx."
(2) Values are rounded and expressed in million dollars. Numbers may not add up due to rounding.
(3) Flow includes the sum of dry weather and wet weather volumes.
(4) As All Other allocation is reallocated across the other functional components.

Throughout this chapter, AAO is reallocated across the other functional components according to the following formula:

$$As\ All\ Others\ Allocation = \frac{(AAO\ total\ value\ \ x\ \ Component\ value)}{Sum\ of\ all\ component\ values}$$

The totals include the reallocation of $122.6 million AAO across the other functional categories, as shown in Table 56.

TABLE 56 WASTEWATER ENTERPRISE ASSET TOTAL ALLOCATION TOTALS

TOTALS	VALUE	TOTAL ALLOCATION [1]					
		FLOW [2]	COD	TSS	FOG	CUSTOMER SERVICE	AS ALL OTHERS [2]
Asset Value	$1,675.7	$1,232.3	$126.0	$44.2	$150.5	$0.0	$122.6
AAO Reallocation		$97.3	$10.0	$3.5	$11.9	$0.0	$(122.6)
Asset Value w/AAO		$1,329.6	$136.0	$47.7	$162.4	$0.0	$0.0
Total Percent	100%	79.3%	8.1%	2.8%	9.7%	0.0%	0.0%

Notes:
(1) Values are rounded and expressed in million dollars. Numbers may not add up due to rounding.
(2) As All Others allocation is reallocated across the other functional components.

Wastewater Enterprise Debt Service

Similar to asset allocation, debt service payments are allocated to functional rate components based on the individual capital projects financed by each issuance. Table 57 provides the weighted average of the allocations for each debt issuance.

TABLE 57 WASTEWATER ENTERPRISE DEBT SERVICE ALLOCATION

		PERCENT ALLOCATION (%)					
DEBT ISSUE	VALUE [1]	FLOW [2]	COD	TSS	FOG	CUSTOMER SERVICE	AS ALL OTHERS
2010A	$7.2	78.4%	10.5%	8.8%	2.4%		
2010B (BABs) [3]	$12.1	78.4%	10.5%	8.8%	2.4%		
2013A	$15.6	79.3%	8.1%	2.8%	9.7%		
2013B	$14.4	84.1%	6.0%	6.4%	3.5%		
2016A	$10.3	51.2%	25.6%	19.4%	3.9%		
2016B	$2.9	100%					
SRF Lake Merced	$0.1	100%					
SRF SE Clarifiers	$1.0	40.0%		60.0%			
SRF 521 / Disinfection	$0.9	100%					
SRF NP Outfall	$0.6	100%					
Value	$65.2	$49.9	$6.8	$5.6	$2.9	$0.0	$0.0
Percentage	100%	76.5%	10.4%	8.7%	4.4%	0.0%	0.0%

Notes:

(1) Values are rounded and expressed in million dollars. Numbers may not add up due to rounding. Debt issue allocations are detailed in "Debt Service Allocations.xlsx."

(2) Flow includes the sum of dry weather and wet weather volumes.

(3) BABs are Build America Bonds.

Function-specific capital allocations are applied to both annual debt service payments on existing debt and projected future debt service required to fund planned capital project expenditures. To allocate future capital expenses – both debt service and revenue-funded capital – a separate "future capital" allocation was developed. The $6.9 billion, 20-year SSIP and the repair and replacement projects of the 10-Year Capital Plan outline the planned capital improvement projects and are the basis of the future capital expenditures. Projects outlined in the SSIP were categorized by the associated assets and subsequently allocated to the billable constituents. As the SSIP is currently in Phase I, only the planned projects for Phase I were used to allocate costs to the billable constituents to account for costs incurred during the upcoming four-year rate period. Similarly, only the first four years of R&R capital projects were allocated to functions for this rate package.

Wastewater Enterprise O&M Costs

Operating expenses incurred by the SFPUC result from materials, power, chemical costs, and labor. These expenses were separated by categories and, where applicable, subcategories. Carollo worked with SFPUC staff to identify the services provided by each department and the appropriate associated functional categories. The allocations percentages are estimates based on discussions with SFPUC staff. Table 58 summarizes the allocation of the four-year average from FY 2019 through FY 2022 in order to account for changes in expenditures.

TABLE 58 WASTEWATER ENTERPRISE OPERATING EXPENSES FUNCTIONAL ALLOCATION (FY 2019 – FY 2022 AVERAGE)

		PERCENT ALLOCATION (%)															
CATEGORY	VALUE [1]	INFLUENT PUMPING/ HEADWORKS	PRIMARY CLARIFIER	SECONDARY TREATMENT	CHLORINATION/ DECHLORINATION	SOLIDS THICKENING	BIOSOLIDS HANDLING	EFFLUENT DISCHARGE	TERTIARY TREATMENT	LIFT STATION	COLLECTION SYSTEM - GENERAL	COLLECTION SYSTEM - WET WEATHER	CO-GENERATION	LAB	CUSTOMER BILLING	GENERAL	AAO [2]
CWP0101-Administration																	
Services of SFPUC Bu. [3]	$32.0														25.0%		75.0%
All Other Expenses	$11.9																100%
CWP0102-Southeast Community Facilities	$1.5																100%
CWP0103-Planning & Regulation [4]	$10.1	4.6%	8.4%	8.0%	5.2%	14.1%	6.1%	0.0%	0.0%	0.0%	0.0%	27.6%	7.7%	0.0%	0.0%	0.0%	18.5%
CWP03-Maintenance [5]																	
Personnel	$21.8	10.0%	7.0%	10.0%	3.0%	11.0%	11.0%	3.0%		10.0%	10.0%	1.0%		1.0%		19.0%	4.0%
Materials & Supplies	$2.9	4.0%	3.0%	6.0%	1.0%	8.0%	7.0%	1.0%		7.0%	10.0%	1.0%				48.0%	4.0%
All Other Expenses	$7.0	9.3%	6.5%	9.5%	2.8%	10.6%	10.5%	2.8%	0.0%	9.6%	10.0%	1.0%	0.0%	0.9%	0.0%	22.5%	4.0%

CATEGORY	VALUE [1]	PERCENT ALLOCATION (%)															
		INFLUENT PUMPING/ HEADWORKS	PRIMARY CLARIFIER	SECONDARY TREATMENT	CHLORINATION/ DECHLORINATION	SOLIDS THICKENING	BIOSOLIDS HANDLING	EFFLUENT DISCHARGE	TERTIARY TREATMENT	LIFT STATION	COLLECTION SYSTEM - GENERAL	COLLECTION SYSTEM - WET WEATHER	CO-GENERATION	LAB	CUSTOMER BILLING	GENERAL	AAO [2]
CWP04-Operations [6]																	
Personnel	$19.8	7.8%	14.1%	13.5%	8.7%	23.7%	10.2%					9.0%	12.9%				
Chemicals	$6.5		20.0%	20.0%	20.0%	20.0%			20.0%								
Electricity	$11.4	40.0%		60.0%													
Biosolids Removal	$5.4						100%										
All Other Expenses	$6.5	14.2%	9.5%	25.1%	7.0%	13.9%	17.2%	0.0%	3.0%	0.0%	0.0%	4.1%	5.9%	0.0%	0.0%	0.0%	0.0%
CWP06-Environmental Engineering	$6.5																100%
CWP1001-Sewer Operations																	
Street Cleaning	$5.1	50.0%										50.0%					
All Other Expenses	$20.9										100%						
CWP1003-Source Control [7]	$7.8						29.8%				26.0%	4.6%					39.6%
CWP11-Wastewater Lab	$5.2													100%			
Total	$177.7	$12.3	$7.2	$15.1	$4.5	$11.1	$14.0	$0.9	$1.4	$3.1	$26.1	$7.9	$3.4	$5.5	$8.0	$7.1	$50.1
		6.9%	4.0%	8.5%	2.6%	6.2%	7.9%	0.5%	0.8%	1.7%	14.7%	4.4%	1.9%	3.1%	4.5%	4.0%	28.2%

Notes:

(1) Values are rounded and expressed in million dollars. Numbers may not add up due to rounding.

(2) As All Others allocation is reallocated across the other functional components.

(3) A portion of Administration costs are allocated to Customer Billing to reflect Customer Service and billing activities.

(4) Planning and Regulation costs are allocated based on assignment of FTEs to functional allocations from "Wastewater Ops Labor assignments.xlsx."

(5) Maintenance costs are allocated based on assignment of labor and purchase orders to functional allocations from "WWE Maintenance Percentages" email from E. Butawan to E. Franks date November 14, 2017.

(6) Operations costs are allocated based on the services provided by Operations staff and an estimate of the division of labor among functional categories ("Wastewater Ops Lab assignment.xlsx"). Operations All Other Expenses are allocated based on the weighted allocation of all other Operations costs.

(7) Source Control costs are allocated based on assignment of FTEs to functional allocations from "Collection System FTE Allocations Filled In.xlsx."

Each operating budget line item was allocated to its appropriate functional rate components. Table 59 summarizes the allocation of the functionalized costs from Table 58 to the rate components. O&M cost allocations differ from capital cost allocations because billing parameters influencing the costs to operate and maintain a process are not always the same as the parameters influencing the design and construction of a process.

TABLE 59 WASTEWATER ENTERPRISE O&M ALLOCATION (FY 2019 - FY 2022 AVERAGE)

		PERCENT ALLOCATION (%)					
CATEGORY	VALUE [1]	FLOW [2]	COD	TSS	FOG	CUSTOMER SERVICE	AS ALL OTHERS [3]
Influent Pumping / Headworks	$12.3	70.0%		30.0%			
Primary Clarifiers	$7.2	40.0%		60.0%			
Secondary Treatment	$15.1	20.0%	80.0%				
Chlorination / Dechlorination	$4.5	100%					
Solids Thickening	$11.1		45.0%	45.0%	10.0%		
Biosolids Handling	$14.0		42.0%	50.0%	8.0%		
Effluent Discharge	$0.9	100%					
Tertiary Treatment	$1.4	100%					
Lift Stations	$3.1	92.0%		5.0%	3.0%		
Collection System – General	$26.1	85.0%			15.0%		
Collection System – Wet Weather	$7.9	100%					
Cogeneration	$3.4		51.0%	34.0%	15.0%		
Laboratory	$5.5		33.3%	33.3%	33.3%		
Customer Billing	$8.0					100%	
General Plant	$7.1						100%
As All Others	$50.1						100%
Value	$177.7	$54.2	$26.5	$23.1	$8.6	$8.0	$57.2
Total Percent	100%	30.5%	14.9%	13.0%	4.8%	4.5%	32.2%

Notes:
(1) Value expressed in million dollars. Numbers may not add up due to rounding.
(2) Flow includes the sum of dry weather and wet weather volumes.
(3) As All Other allocation is reallocated across the other functional components.

Table 60 summarizes the total allocated costs for O&M. These totals include the reallocation of the $57.2 million AAO value across all other functional categories.

TABLE 60 WASTEWATER ENTERPRISE O&M COST ALLOCATION TOTALS (FY 2019 - FY 2022 AVERAGE)

		PERCENT ALLOCATION (%)					
TOTAL	VALUE [1]	FLOW [2]	COD	TSS	FOG	CUSTOMER SERVICE	AS ALL OTHERS [3]
Total Costs	$177.7	$54.2	$26.5	$23.1	$8.6	$8.0	$57.2
AAO Reallocation		$25.8	$12.6	$11.0	$4.1	$3.8	$(57.2)
Total Value w/ AAO		$80.0	$39.1	$34.1	$12.7	$11.8	$0.0
Total Percent	100%	45.0%	22.0%	19.2%	7.1%	6.6%	0.0%

Notes:
(1) Value expressed in million dollars. Numbers may not add up due to rounding.
(2) Flow includes the sum of dry weather and wet weather volumes.
(3) As All Other allocation is reallocated across the other functional components.

Other Wastewater Enterprise Expenses

In addition to O&M expenses, the Wastewater Enterprise budget includes other expenses, including Programmatic Expenses and Non-Debt Capital Expenses. Table 61 summarizes the allocation of these other expenses using the four-year average from FY 2019 through FY 2022 in order to account for changes in expenditures. Programmatic and Non-Debt Capital Expenses are allocated by individual project.

TABLE 61 WASTEWATER ENTERPRISE OTHER EXPENSES ALLOCATION (FY 2019 - FY 2022 AVERAGE)

		PERCENT ALLOCATION (%)					
CATEGORY	VALUE [1]	FLOW [2]	COD	TSS	FOG	CUSTOMER SERVICE	AS ALL OTHERS [3]
Programmatic Expenses	$6.6	10.4%					89.6%
Non-Debt Capital Expenses	$117.3	55.6%	19.0%	21.0%	4.3%		
Total Value	$123.9	$65.9	$22.3	$24.7	$5.1	$0.0	$5.9
Total Percent	100%	53.2%	18.0%	19.9%	4.1%	0.0%	4.8%

Notes:

(1) Value expressed in million dollars. Numbers may not add up due to rounding.
(2) Flow includes the sum of dry weather and wet weather volumes.
(3) As All Other allocation will be reallocated across the other functional components based on the total revenue requirements.

Offsetting Revenue

Wholesale sales revenue and other non-rate revenue are used to offset the revenue requirements and reduce the required increase in rate revenue. These offsetting revenues are also allocated to the cost components line-by-line. If the revenue directly offsets an expense, it is allocated the same as that expense. For example, programmatic revenue is allocated the same as programmatic expenses. Table 62 summarizes the allocation of offsetting revenue using the four-year average from FY 2019 through FY 2022.

TABLE 62 WASTEWATER ENTERPRISE OFFSETTING REVENUES ALLOCATION (FY 2019 - FY 2022 AVERAGE)

		PERCENT ALLOCATION (%)					
CATEGORY	VALUE [1]	FLOW [2]	COD	TSS	FOG	CUSTOMER SERVICE	AS ALL OTHERS [3]
Wholesale Wastewater Charges [4]	$(10.8)	35.0%	36.0%	26.0%	3.0%		
Interest Income	$(3.4)						100%
Rental Revenue	$(0.7)						100%
Federal Bond Interest Subsidy [5]	$(3.5)	78.4%	10.5%	8.8%	2.4%		
Other Miscellaneous Income	$(0.7)						100%
Programmatic Revenue [6]	$(3.8)	10.4%					89.6%
Non-Debt Capital Revenue [7]	$(5.0)	55.6%	19.0%	21.0%	4.3%		
Total Value	$(27.9)	$(9.7)	$(5.2)	$(4.2)	$(0.6)	$0.0	$(8.2)
Total Percent	100%	34.7%	18.6%	14.9%	2.2%	0.0%	29.5%

Notes:

(1) Value expressed in million dollars. Numbers may not add up due to rounding.
(2) Flow includes the sum of dry weather and wet weather volumes.
(3) As All Other allocation will be reallocated across the other functional components based on the total revenue requirements.
(4) Wholesale wastewater revenue is allocated based on the allocation of treatment plant operating costs.
(5) Federal Bond Interest Subsidy is allocated based on the allocation of the BABs.
(6) Programmatic revenue is allocated based on the allocation of the individual programmatic projects.
(7) Non-debt capital revenue is allocated based on the retail share of the individual future capital projects.

Wastewater Enterprise Revenue Requirements Allocation

To obtain an overall percentage allocation, operating expenses, existing and future debt service, other expenses and offsetting revenues are weighted based on their average annual expenditures over the four-year rate-setting period. Once the overall percentage allocation to functional category has been defined, those percentages, as shown in Table 63, are applied to the revenue requirements for the four-year rate period FY 2019 through FY 2022 in order to calculate the unit costs.

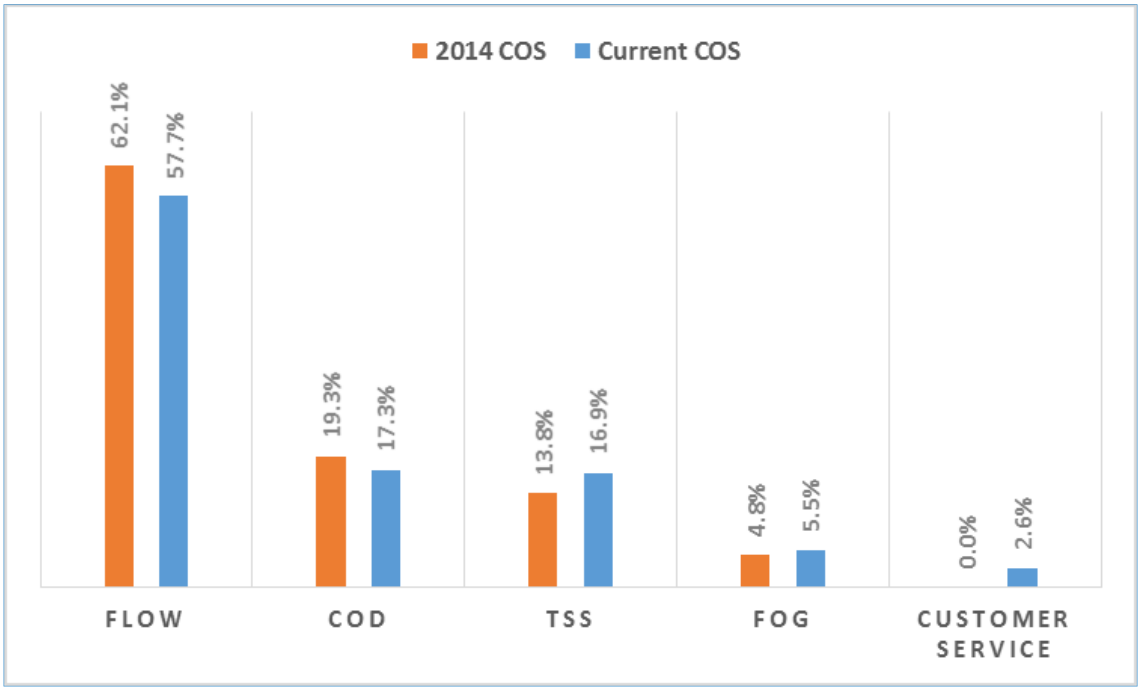
TABLE 63 WASTEWATER ENTERPRISE ALLOCATION OF REVENUE REQUIREMENTS (FY 2019 - FY 2022 AVERAGE)

CATEGORY	VALUE	ALLOCATION (1)					
		FLOW (2)	COD	TSS	FOG	CUSTOMER SERVICE	AS ALL OTHERS (3)
Operating Expenses	$177.7	$54.2	$26.5	$23.1	$8.6	$8.0	$57.2
Debt Service	83.0	63.5	8.7	7.2	3.7	0.0	0.0
Other Expenses	123.9	65.9	22.3	24.7	5.1	0.0	5.9
Offsetting Revenues	(27.9)	(9.7)	(5.2)	(4.2)	(0.6)	(0.0)	(8.2)
Value	$356.6	$174.0	$52.3	$50.9	$16.7	$8.0	$54.9
AAO Reallocation		31.6	9.5	9.2	3.0	1.5	(54.9)
Total Value w/ AAO		$205.6	$61.8	$60.1	$19.7	$9.4	$0.0
Total Percent	100%	57.7%	17.3%	16.9%	5.5%	2.6%	0.0%

Notes:
(1) Value expressed in million dollars. Numbers may not add up due to rounding.
(2) Flow includes the sum of dry weather and wet weather volumes.
(3) As All Other allocation is reallocated across the other functional components.

Based on the analysis described above, the customer service component, which includes administrative and billing activities, represents 2.6 percent of forecasted costs and is the foundation for the recommended new monthly fixed charge. The remaining 97.4 percent of costs are allocated to flow and strength components and are the basis for the recommended commodity rates. This is illustration by Figure 15.

FIGURE 15 SFPUC WASTEWATER SYSTEM CHANGE IN COST OF SERVICE ALLOCATION

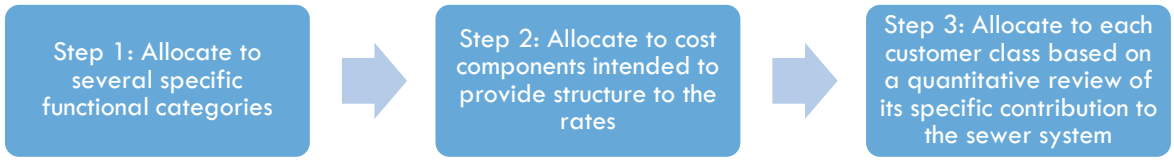


The SFPUC currently does not have a fixed charge for the wastewater system. As part of this cost of service study, Carollo recommends the introduction of a fixed charge in order to provide additional revenue stability and to recover costs that do not vary with wastewater flows.

Functional Allocation Results

Unit Cost and Customer Allocation

The unit costs of service are developed by dividing the total annual costs allocated to each of the five cost components by the total annual service units of the respective component. The total annual costs allocated to each cost component are determined by applying the percent allocation summarized in Table 63 to the annual revenue requirement. Ultimately, the revenue requirement is allocated in three steps:



Following these steps, the revenue requirements for each customer class form a reasonable and cost of service-driven basis for developing rates.

Units of Service

In order to allocate the cost of service to various customer classes, unit costs of service are developed for each functional cost component. As shown in Table 63, the total FY 2019 rate revenue requirements are allocated to each functional component using the allocation presented in Figure 15. The total cost for each functional category is then divided by the total number of associated units of service to determine appropriate unit costs for the Wastewater Enterprise. Based on functional category, the units of service are wastewater billable volume, COD mass, TSS mass, FOG mass, and the number of accounts. The following describes the quantifiable analysis of the units of service:

Flow: Allocated based on the assumed discharge or return to the SFPUC sewer collection system in ccf of discharge flow.

COD: Allocated based on pounds of COD returned to the system.

TSS: Allocated based on pounds of TSS returned to the system.

FOG: Allocated based on pounds of FOG returned to the system.

Customer Service: For this fixed component, the customer component unit cost is based on the number of accounts.

Similar to the water system's demand analysis, minimal account growth is expected during this four-year rate study. Additionally, account growth is expected to be offset by continued conservation so that the annual discharge volume is assumed to remain at existing levels throughout the study's forecast. SFR and MFR customer classes share wastewater strength assumptions due to the similarity in the residential wastewater characteristics.

However, nonresidential wastewater strength characteristics vary greatly within the class, depending on the type of business. For the duration of the rate period, it is assumed that total loadings by customer class remains consistent. Based on available historical customer data and these forecasting assumptions, Table 64 details the total units of service for each customer class and functional category predicted for FY 2019. This customer data is then used to determine appropriate proportional allocation of revenue needs to customer classes.

TABLE 64 WASTEWATER ENTERPRISE UNITS OF SERVICE [1]					
CUSTOMER CLASS	FLOW (CCF)	COD (LBS)	TSS (LBS)	FOG (LBS)	CUSTOMER SERVICE (ACCOUNTS)
Single Family Residential	5,995,178	25,599,859	10,442,047	3,181,269	111,072
Multifamily Residential	9,794,389	41,822,776	17,059,289	5,197,275	36,171
Nonresidential	7,885,080	36,758,773	12,207,135	4,551,904	16,075
Total	23,674,647	104,181,408	39,708,471	12,930,448	163,319

Note:
(1) FY 2016 units of service.

Unit Cost Development

In order to allocate costs of service to the different user classes, unit costs of service were developed for each functional component. As shown in Table 65, the unit costs of service are developed by dividing the total annual costs allocated to each functional component by the total annual service units of the respective category. The unit costs of each component are then applied to each customer classes' projected flow, loadings, and accounts to derive customer class allocations. Projections are based on current use and account growth assumptions. As such, costs are allocated to each customer class based on their respective discharge characteristics.

TABLE 65 WASTEWATER ENTERPRISE UNIT COST (FY 2019)					
	FLOW [1]	COD	TSS	FOG	CUSTOMER SERVICE
Allocation Percent	57.7%	17.3%	16.9%	5.5%	2.6%
Value Allocable to Component (A) [2]	$186.4	$56.0	$54.5	$17.9	$8.6
Total Units (B)	24,156,924	106,189,808	40,573,659	13,180,295	163,807
Allocation Basis	Annual Volume (ccf)[3]	Strength (lbs)	Strength (lbs)	Strength (lbs)	Customer Accounts/mo[4]
Per Unit Cost [5] = A ÷ B	$7.72	$0.53	$1.35	$1.36	$4.36

Notes:
(1) Flow includes the sum of dry weather and wet weather volumes.
(2) Values are rounded to the nearest million dollar.
(3) Annual unit cost is divided by 12 months to get monthly unit cost.
(4) ccf is one hundred cubic feet. 1 ccf = 748 gallons.
(5) Unit costs are rounded up to the nearest $0.01.

Customer Allocation

Table 66 details the results of the functional cost allocation analysis based on FY 2016 wastewater characteristics provided in Table 65.

TABLE 66 WASTEWATER SYSTEM UNIT OF SERVICE ALLOCATION BY CUSTOMER CLASS					
	PERCENT ALLOCATION (%)				
CUSTOMER CLASSES	FLOW [1]	COD	TSS	FOG	CUSTOMER SERVICE
Single Family Residential	25.8%	25.1%	26.8%	25.1%	68.0%
Multifamily Residential	42.1%	40.9%	43.7%	40.9%	22.1%
Nonresidential	32.1%	34.0%	29.6%	34.0%	9.8%
Total	100%	100%	100%	100%	100%

Notes:
(1) Flow includes the sum of dry weather and wet weather volumes.

Based on available consumption and customer records, Table 67 details the proportional allocation of revenue requirements to the customer classes.

TABLE 67 WASTEWATER SYSTEM ALLOCATION OF REVENUE REQUIREMENTS BY CUSTOMER CLASS [1]

CUSTOMER CLASSES	FLOW [2]	COD	TSS	FOG	CUSTOMER SERVICE
Single Family Residential	$48.1	$14.0	$14.6	$4.5	$5.8
Multifamily Residential	78.5	22.9	23.8	7.3	1.9
Nonresidential	59.8	19.1	16.1	6.1	0.8
Total	$186.4	$56.0	$54.5	$17.9	$8.6

Notes:

(1) Values are rounded and expressed in million dollars. Numbers may not add up due to rounding.

(2) Flow includes the sum of dry weather and wet weather volumes.

The wastewater rate design analysis determines how the costs are recovered by each customer through specified wastewater rates. The focus of this process is to achieve cost recovery and substantiate that customers are paying their fair and proportionate share of system costs. The SFPUC's existing rate structure consists of a commodity rate (variable) only. The commodity rate is assessed based on discharge volume and strength. A fixed charge is recommended to recognize that the utility incurs fixed costs to provide service, which must be recovered independent of discharge characteristics. These two rate components serve as a basis for the next chapter's rate design.

8. Wastewater Rate Design

Carollo's rate review and analysis confirms that the SFPUC rate structures are sound and adhere to industry best practices. This chapter discusses the recommended updates to the rates and charges to remain compliant with cost of service requirements based on the unique nature of the SFPUC wastewater system and customer demand patterns. The purpose of a cost of service analysis is to provide a rational basis for distributing the costs of the SFPUC water and wastewater systems to each customer class in proportion to the demands they place on the systems. A detailed cost allocation was developed for the Wastewater Enterprise based on the unique attributes of the system in order to meet the equity requirements of Proposition 218, the San Francisco City Charter, and SFPUC policy. The Charter requires that the City perform a cost of service study at least every five years so that revenues from rates are adequately funding utility operations, maintenance, and ongoing capital needs, and equitably recover costs from system users. Additionally, in California, wastewater rates must adhere to the cost of service requirements imposed by Proposition 218 of the State Constitution. Proposition 218 requires that property-related fees and charges, including wastewater rates, do not exceed the proportional cost of providing the service.

The rates presented within this chapter adhere to cost of service principles, as well as industry standards set by the WEF. The wastewater rate design determines how the revenue requirements are recovered by each customer through specific wastewater rates. The focus of this process is to achieve full cost recovery and substantiate that customers are paying their fair and proportionate share of system costs.

Existing Wastewater Rate Structure

As part of this analysis, the existing wastewater rate structure was reviewed to assess its effectiveness in addressing the SFPUC's utility cost of service objectives. The SFPUC last performed a cost of service rate analysis in 2014. Based on the recommendations at that time, the SFPUC transitioned from a two-tiered rate structure, which was implemented in 2009, to the current uniform structure for residential customers. Unlike water rates, retail wastewater revenues are currently recovered entirely on flow-based charges, as there is currently no monthly fixed service charge associated with the wastewater rate structure. The rate is charged based on the assumed amount of metered water usage that is returned to the wastewater system. The current uniform (non-tiered) flow-based rate is comprised of elements that reflect the volume (flow) and strength of sewer discharge as summarized in Table 68. Residential rates are based on the assumption that residential customers have a standard strength for domestic sewage. Nonresidential customers incur a rate related to flow and separate rates for each unit associated with three strength characteristics.

Wastewater service charges cover the cost of collecting, transporting, treating, and disposing of each unit of wastewater discharged into the sewer system. Wastewater service charges are calculated by multiplying water consumption by an assigned flow factor. The flow factor is the percentage of metered water use returned to the sewer system as wastewater. For purposes of determining applicable charges, the percentage of water use returned to the sewers (flow factor) is assumed to be 90% for single family residential users and nonresidential users and 95% for multifamily residential users.

TABLE 68 EXISTING WASTEWATER RATES BY CUSTOMER CLASS

CUSTOMER CLASS	WASTEWATER RATE
Residential:	
SFR ($/ccf)	$12.40
MFR ($/ccf)	$12.40
Nonresidential:	
Flow ($/ccf)	$7.664
COD ($/lb)	$0.548
TSS ($/lb)	$1.033
FOG ($/lb)	$1.082

Notes:
(1) ccf is one hundred cubic feet. 1 ccf = 748 gallons.

Selecting Rate Structures

Once costs have been equitably allocated to each functional component, the SFPUC has flexibility in designing the rate structure in order to meet its various policy objectives. In determining the appropriate rate level and structure, Carollo analyzed various rate design alternatives and the corresponding customer and utility implications. Beyond the identified study objectives, Carollo identified additional criteria for consideration and discussed them at length with SFPUC staff.

PARTIAL LIST OF THE ADDITIONAL ELEMENTS DESIRED IN THE RATE STRUCTURE:

- Be clear and understandable
- Encourage conservation and water efficiency
- Follow cost of service principles
- Provide revenue stability
- Maintain affordability
- Comply with legal and regulatory requirements
- Abide by policy objectives

Given the numerous and, at times, competing elements, selection of an appropriate rate structure is complex. There is no single rate structure that meets all objectives equally, nor are all objectives or elements valued the same by the utility or customers.

Each criteria or element has merit and plays an important role in the rates implementation and overall effectiveness. These elements and competing objectives were discussed and evaluated at length throughout the financial and rate study process.

Monthly Service Charge

Carollo recommends implementation of a fixed monthly service charge to recover costs associated with customer service and billing. Because these costs are not related to customer flow and strength characteristics, we recommend a flat monthly charge that does not vary by meter size or customer class. Table 69 shows the calculation of the recommended monthly service charge for FY 2019. This cost recovery will be removed from the current commodity rate to keep this change cost neutral for the overall enterprise revenue requirement.

TABLE 69 WASTEWATER MONTHLY SERVICE CHARGE CALCULATION

DESCRIPTION	VALUE
Service Costs (A)	$8,387,888
Number of Monthly Bills (B)	1,965,684
Monthly Service Charge = A ÷ B	$4.27

Commodity Rates

Similar to water customers, wastewater customer classes are evaluated separately to determine unit costs more specific to their customer category. Units of wastewater discharge are determined based on metered water consumption. To recognize that a portion of water usage does not return to the wastewater system, a standard customer return factor is applied to metered water usage. The return to sewer factor varies by customer class, recognizing the greater level of outside irrigation by single family and nonresidential users compared to multifamily users. Individual customers may appeal the default flow factor based on their actual water use characteristics.

Wastewater loading strength is assumed to be commensurate for all residential wastewater users at 684 mg/L COD, 279 mg/L TSS, and 85 mg/L FOG. Because of this standardized assumption, the costs associated with loadings may be rolled up into one rate applied to residential users based on discharge flow. In other words, the residential rate assessed for flow includes costs associated with loadings. However, nonresidential customer loadings vary greatly so their flow rate does not include costs associated

with loadings. Separate loadings charges are applied to their assumed loadings by customer type to determine the total wastewater bill.

Residential

Residential customers are charged a uniform rate of $12.40 per ccf of estimated wastewater flow. Again, the amount discharged is assumed to be 90 percent of monthly water consumed for single family residential customers and 95 percent of monthly water consumed for multifamily residential customers. This flat per unit charge continues to encourage conservation as it is directly tied to the customer's water demands. Table 70 and Table 71 show the calculation of the FY 2019 volumetric rate for single family and multifamily residential wastewater customers, respectively. As shown, the calculated rate is the same for both types of residential customers because the assumed loadings per unit of flow are the same.

TABLE 70 SINGLE FAMILY RESIDENTIAL WASTEWATER RATE CALCULATION

DESCRIPTION	VALUE
Flow Costs (A)	$48,097,343
COD Costs (B)	$14,036,267
TSS Costs (C)	$14,581,993
FOG Costs (D)	$4,484,975
Consumption (ccf) (E)	6,232,637
Rate = (A+B+C+D) ÷ E	$13.03

TABLE 71 MULTIFAMILY RESIDENTIAL WASTEWATER RATE CALCULATION

DESCRIPTION	VALUE
Flow Costs (A)	$78,476,546
COD Costs (B)	$22,901,841
TSS Costs (C)	$23,792,257
FOG Costs (D)	$7,317,771
Consumption (ccf) (E)	10,169,290
Rate = (A+B+C+D) ÷ E	$13.03

Nonresidential

Nonresidential users currently pay a uniform volume rate of $7.66 for each unit of wastewater flow, which is based on a 90 percent return factor applied to metered water usage for nonresidential customers. In addition, nonresidential customers are assessed separately for each billable constituent. These charges are based on the assumed loading concentrations (strength parameter) that are returned per discharge unit for various types of nonresidential customers. For COD, the current charge is $0.548 per pound. The strength charges for TSS and FOG are $1.033 and $1.082 per pound, respectively. Nonresidential strengths can vary significantly between users. Defined strengths are based on periodic sampling data on a customer-by-customer basis or the customer's standard industrial classification code, if no sampling data is available.

As discussed, the recommended rates are calculated by dividing the total annual costs associated with each cost component by their associated total annual units. Nonresidential customers are billed by applying the appropriate SIC code classification to the recommended unit costs. This means the cost per unit (ccf) of water discharged to the system will vary by SIC code to reflect the assumed loadings concentrations specific to commercial property type.

Table 72 through Table 75 show the calculation of the nonresidential rates.

TABLE 72 NONRESIDENTIAL WASTEWATER FLOW RATE CALCULATION

DESCRIPTION	VALUE
Flow Costs (A)	$59,845,415
Consumption (B)	7,754,997
Flow Rate = A ÷ B	$7.72

TABLE 73 NONRESIDENTIAL WASTEWATER COD RATE CALCULATION

DESCRIPTION	VALUE
COD Costs (A)	$19,066,933
COD Loadings (lbs) (B)	36,152,352
COD Rate = A ÷ B	$0.528

TABLE 74 NONRESIDENTIAL WASTEWATER TSS RATE CALCULATION

DESCRIPTION	VALUE
TSS Costs (A)	$16,126,894
TSS Loadings (lbs) (B)	12,005,750
TSS Rate = A ÷ B	$1.344

TABLE 75 NONRESIDENTIAL WASTEWATER FOG RATE CALCULATION

DESCRIPTION	VALUE
FOG Costs (A)	$6,070,977
FOG Loadings (lbs) (B)	4,476,810
FOG Rate = A ÷ B	$1.357

RECOMMENDED SFPUC WASTEWATER RATES

In an effort to reduce rate shock as a result of introducing the wastewater monthly sewer service charge, Carollo recommends phasing in the wastewater monthly service charge to the cost of service monthly service charges calculated for FY 2022 over the next four years. For this reason, the recommended rates for FY 2019 differ from the calculated rates shown previously in this section. The recommended rates for FY 2019 through FY 2022 are summarized in Table 76. Throughout the rate-setting process, Carollo worked closely with SFPUC staff to evaluate the impact of the recommended rate structure to wastewater customers.

TABLE 76 RECOMMENDED WASTEWATER RATES[1]

	CURRENT				
DESCRIPTION	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Monthly Service Charge ($/month)	None	$0.99	$2.27	$3.77	$5.51
Residential:					
SFR ($/ccf)	$12.40	$13.28	$14.39	$15.58	$16.88
MFR ($/ccf)	$12.40	$13.28	$14.39	$15.58	$16.88
Nonresidential:					
Flow ($/ccf)	$7.66	$8.16	$8.73	$9.34	$9.99
COD ($/lb)	$0.548	$0.574	$0.609	$0.645	$0.684
TSS ($/lb)	$1.033	$1.164	$1.334	$1.525	$1.740
FOG ($/lb)	$1.082	$1.221	$1.380	$1.558	$1.757

Notes:

(1) Charge is rounded up to the nearest $0.01 ($0.001 for nonresidential commodity loadings).
(2) ccf is one hundred cubic feet. 1 ccf = 748 gallons.

Customer Impacts

Figure 16 illustrates the impact of the recommended wastewater rates to SFR customers across various usage levels.

FIGURE 16 SINGLE FAMILY RESIDENTIAL MONTHLY WASTEWATER BILL IMPACT AT DIFFERENT USAGE LEVELS

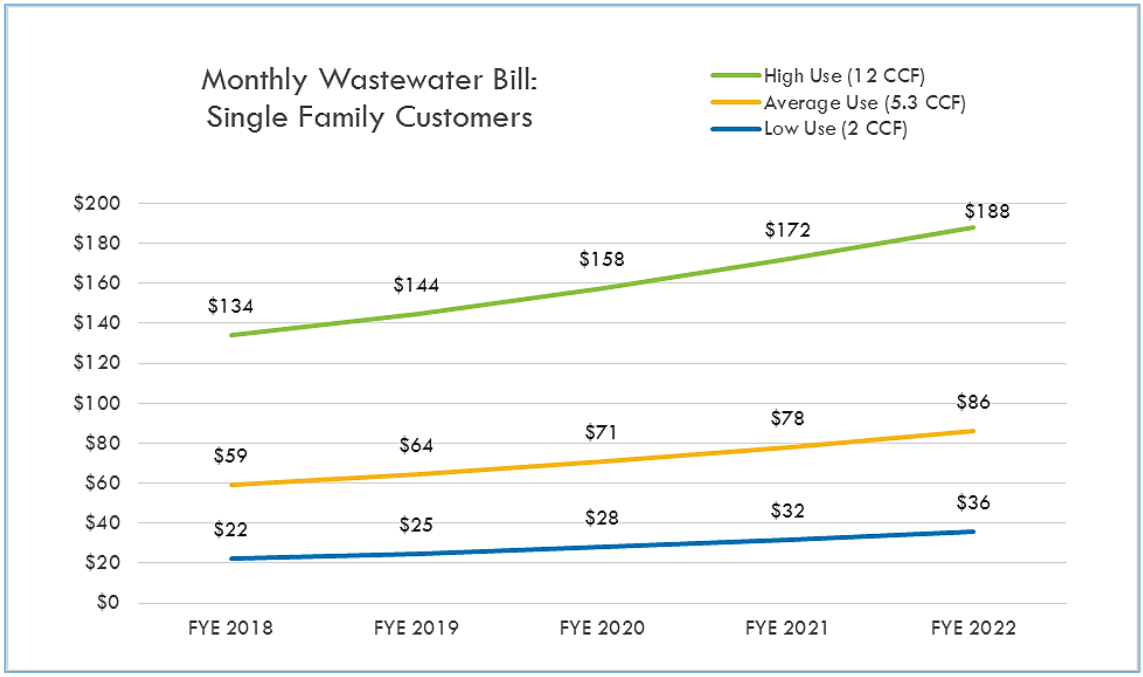


Figure 17 illustrates the impact of these recommended wastewater rates to MFR customers across various usage levels.

FIGURE 17 MULTIFAMILY RESIDENTIAL MONTHLY WASTEWATER BILL IMPACT AT DIFFERENT USAGE LEVELS

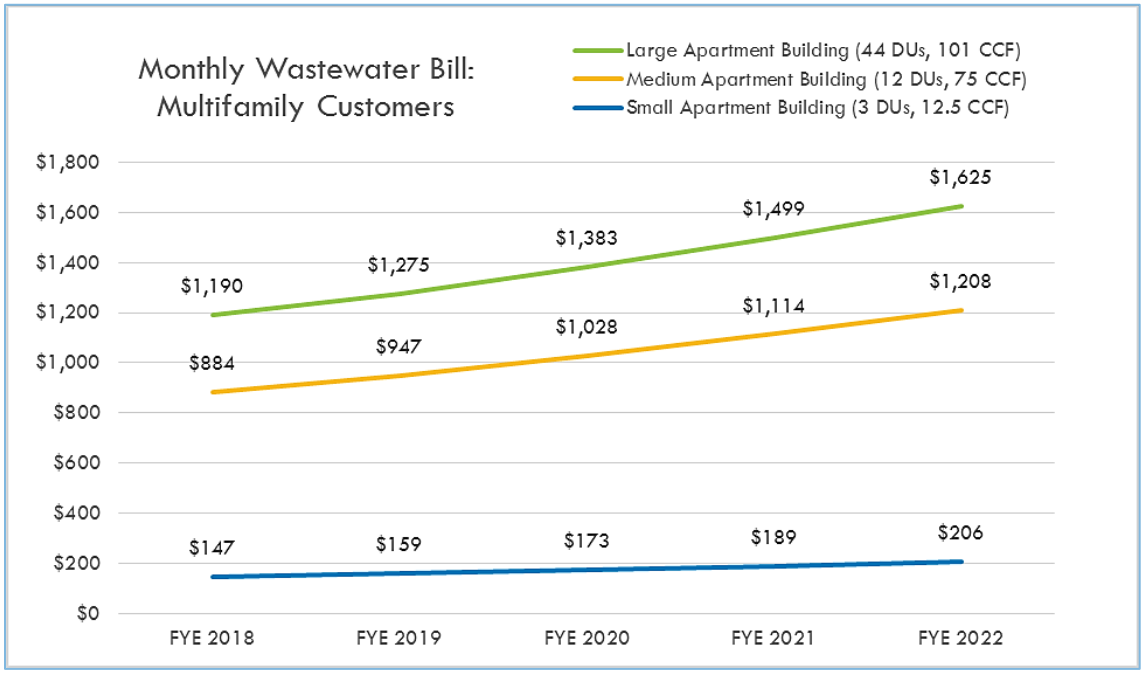
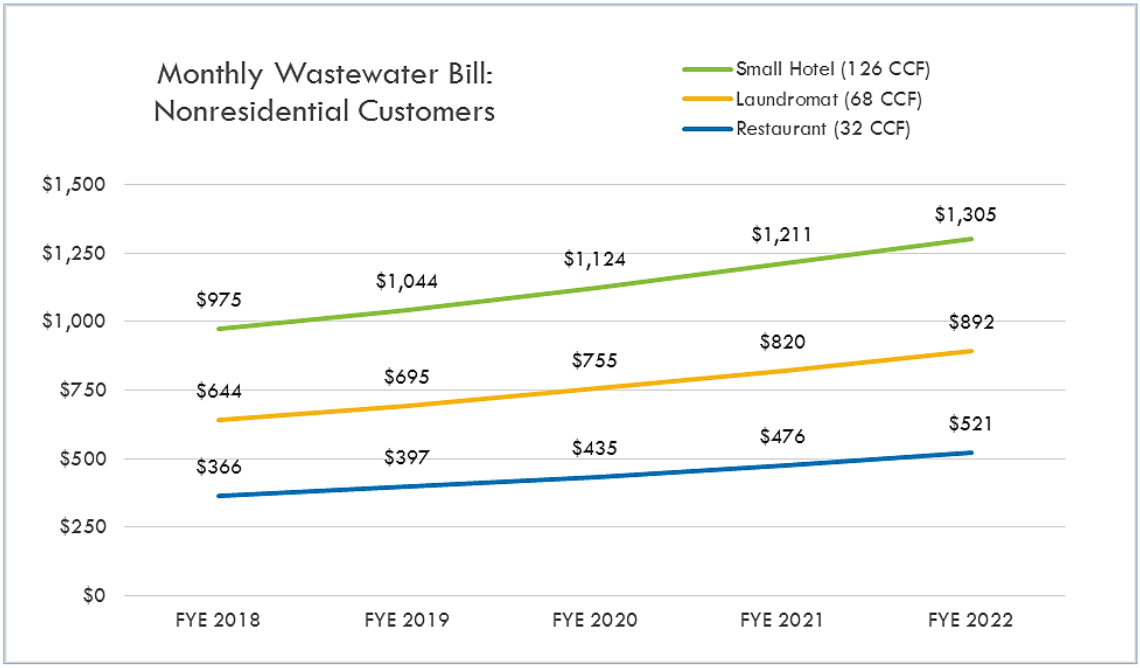


Figure 18 illustrates the impact of these recommended wastewater rates to nonresidential customers across various usage levels and business types.

FIGURE 18 NONRESIDENTIAL MONTHLY WASTEWATER BILL IMPACT AT DIFFERENT USAGE LEVELS



Drought Surcharge

To enhance revenue stability for wastewater operations, Carollo recommends the SFPUC implement drought surcharges to be applied to wastewater rates during periods of reduced water demand, and therefore reduced wastewater flows, associated with drought conditions. As discussed in the Wastewater Cost of Service chapter, over 97 percent of SFPUC's revenues are variable in that they fluctuate with changes in water demands. A drought surcharge will allow the SFPUC to react to revenue shortfalls driven by sustained decreases in sales due to drought, supply limitations, or other circumstances, and would only be assessed if SFPUC declares water supply shortages. The overall required surcharge is based on the final formula:

$$Surcharge\ (\$\ per\ ccf) = \frac{Wastewater\ Revenue\ Shortfall\ from\ reduced\ flow}{Reduced\ Wastewater\ Flow}$$

The proposed drought surcharge aims to give SFPUC the flexibility to adapt to changes in usage, revenues, and costs.

9. Capacity Charges

A capacity charge is designed to recover a fair and proportional share of the cost to provide capacity to serve future users and is imposed as a condition of service for new usage, an increase in usage, or a change in usage. The SFPUC adopted a wastewater capacity charge in July 2005 and a water capacity charge in 2007. The capacity charge adopted by the SFPUC is based on a buy-In methodology. Conceptually, this methodology requires future users to buy into the value of the existing systems. Existing customers have invested in the SFPUC water and wastewater systems and as a result these systems have adequate capacity to meet the needs of future customers or additional needs of existing customers. This chapter delineates the methodology for the existing water and wastewater capacity charges and the calculation of the recommended updated capacity charges.

Background

Water System

The water capacity charge went into effect January 1, 2009, pursuant to City and County of San Francisco Public Utilities Commission Resolution No. 07-0099 adopted on June 12, 2007. The resolution requires any user requesting a new connection to the water distribution system, or requiring additional capacity as a result of any addition, improvement, modification, or change in use of an existing connection, to pay a capacity charge. The capacity charge is adjusted annually based on ENRCCI values.

The current water capacity charge is $1,346 per 5/8-inch meter as of July 1, 2017.

Wastewater System

The wastewater capacity charge went into effect July 1, 2005, in accordance with Resolution No. 05-0045. On January 1, 2009, the Resolution No. 05-0045 was updated pursuant to City and SFPUC Resolution No. 07- 0100 adopted on June 12, 2007. The resolutions require any user requesting a new connection or requiring additional wastewater collection and treatment capacity to pay a wastewater capacity charge. The capacity charge is adjusted annually based on ENRCCI values.

The current wastewater capacity charge is $4,583 per 5/8-inch meter as of July 1, 2017.

Methodology

Two general approaches are used to calculate capacity charges sufficient to recover system investments from new users. The first approach, the buy-in methodology, is based on the existing system's capacity and is designed to recover costs from development investments made by existing users to provide available capacity for future users. The second approach, the incremental cost method, recovers costs of planned investments that the utility will undertake to add capacity necessary to serve future development.

The City of San Francisco has experienced minimal projected growth in flow since the last capacity charge study completed in 2014, and the population is projected to grow at 0.1 percent per year through the rate projection period ending in FY 2022, whereas, water use is projected to decrease slightly given ongoing conservation initiatives and price elasticity based on recommended rate adjustments.

Planned capital investments are primarily to repair or replace existing system infrastructure for both the wastewater and inside City water system (portion of the SFPUC water system designed to provide potable water service to users residing within or immediately adjacent to the city limits). Moreover, excess capacity is available in both systems to serve the projected growth. The buy-in approach is most appropriate when the existing system has adequate capacity to serve both existing and future users and no significant capacity-related capital improvements are planned. Consequently, we consider that the buy-in approach best reflects the cost of providing available capacity to new customers in the retail service area.

Under the buy-in methodology, future users are required to reimburse existing users for equity that they have contributed over time through rates and fees. This is determined by dividing the total ratepayer system equity by the total system capacity. Ratepayer equity is defined as the replacement value of the existing system less outstanding debt principal and accumulated depreciation plus current assets such as cash reserves. System capacity is defined as the total capacity within the water or wastewater system available to serve system users.

Ratepayer Equity

The buy-in capacity charge approach requires that new users buy into the water or wastewater system equity that existing users have funded through rates and charges. Ratepayer equity is comprised of two components – net capital asset equity and reserves.

Net Capital Asset Equity

Net Capital Asset Equity represents the current value of the physical water or wastewater systems funded by existing ratepayers, net of accumulated depreciation[2]. Capital costs not funded by existing ratepayers, such as grant-funded or developer-contributed assets, are excluded from the ratepayers' equity calculation. Additionally, capital costs financed through bonds are reduced by the total of the outstanding debt principal, to reflect those costs not yet incurred by ratepayers.

This analysis includes only the net capital assets associated with the portion of the SFPUC system that provides service to the inside City service area and suburban retail customers. Regional and wholesale assets are not included in the calculations. The following are components that are considered in the calculation of the recommended capacity charges:

Capacity Charge Cost Component

Trended Existing Plant-In-Service: Current value of the existing water or wastewater system. Original costs are escalated to December 2017 dollars using the ENRCCI.

Construction Work-In-Progress: Capital projects currently under construction, not captured in the Existing Plant-In-Service asset records.

Accumulated Depreciation: Represents the loss in value of the system as the useful life of that asset is exhausted.

Outstanding Debt Principal: Represents amortized capital project costs not yet funded by existing ratepayers. As debt is retired, through the use of either user rates or capacity charge revenues, the retired debt principal becomes part of the asset equity.

Unamortized Grants: Grant-funded assets are excluded from the capital asset equity, because these are system assets not funded by ratepayers.

Reserves

Reserves and funds contributed by existing ratepayers are also included when calculating ratepayer equity. Some examples of reserves include:

Deposits with Fiscal Agent: Reserve funds held by a fiscal agent as a condition of the bond indenture.
Cash in Capital Projects Fund: Reserve funds available for capital only projects.
Cash in Unrestricted Funds: Reserve funds available to meet Enterprise expenditure needs.

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[2] Due to the naming convention used on the SFPUC's asset list, Carollo was unable to identify replacement assets on an asset-by-asset basis. Assets replaced by newly acquired assets were not removed from the Existing Plant-In-Service calculation. However, because the calculation accounts for accumulated depreciation of assets, only the monetary value associated with the remaining useful life of each asset is considered in the calculation.

Ratepayer equity is calculated for the water Enterprise and wastewater Enterprise in Table 77 and Table 78, respectively.

TABLE 77 WATER SYSTEM RETAIL RATEPAYER EQUITY

DESCRIPTION	ADJUSTED ORIGINAL COST
Net Capital Asset Equity	
Land, Building, and Equipment	$6,124,521,137
Construction Work-in-Progress	666,989,000
Less: Accumulated Depreciation	(3,428,913,375)
Less: Outstanding Bonds and Loans	(2,394,017,000)
Less: Unamortized Grants	(60,911)
Total Net Capital Asset Equity(1)	**$968,518,852**
Reserves	
Deposits with Fiscal Agent	21,057,000
Cash in Capital Projects Fund	(1,692,000)
Unrestricted Reserves	211,978,000
Wholesale Balancing Account	(43,471,000)
Total Reserves	**$187,872,000**
Total Ratepayer Equity	**$1,156,390,852**

Notes:

(1) Total Net Capital Asset Equity is calculated based on escalating original values using the ENRCCI 20-City Average as of December 2017; it is not a generally accepted account principles (GAAP) balance sheet calculation.

TABLE 78 WASTEWATER SYSTEM RATEPAYER EQUITY

DESCRIPTION	ADJUSTED ORIGINAL COST
Net Capital Asset Equity	
Land, Building, and Equipment	$8,499,486,536
Construction Work-in-Progress	548,179,000
Less: Accumulated Depreciation	(5,140,812,814)
Less: Outstanding Bonds and Loans	(1,185,349,000)
Less: Unamortized Grants	(724,886,206)
Total Net Capital Asset Equity(1)	**$1,996,617,517**
Reserves	
Deposits with Fiscal Agent	20,205,000
Cash in Capital Projects Fund	24,767,000
Unrestricted Reserves	195,559,000
Total Reserves	**$240,531,000**
Total Ratepayer Equity	**$2,237,148,517**

Notes:

(1) Total Net Capital Asset Equity is calculated based on escalating original values using the ENRCCI 20-City Average as of December 2017; it is not a generally accepted account principles (GAAP) balance sheet calculation.

System Capacity

Water System

The SFPUC provides water to nearly 2.7 million people in the San Francisco Bay Area. The water system supplies water to in-City customers, as well as suburban retail and wholesale customers. The capacity charge presented in this report will be levied only on in-City customers and suburban retail customers. When analyzing demands placed on the system, its capacity is typically distinguished used, available, or total. The available capacity within the system does not adequately reflect the water demands that the system was designed to provide.

Consequently, total system capacity expressed in MEs is the most appropriate capacity basis of the system. A hydraulic analysis of the in-City and suburban retail system in 2007 found the maximum system capacity to be 127 million gallons per day, equivalent to 635,000 MEs. Capital improvements since 2007 have not increased the capacity of the in-City and suburban retail system. Therefore, this analysis will retain the maximum system capacity of 635,000 MEs for the calculation of capacity charges.

Wastewater System

The SFPUC provides wastewater service to the customers within the City of San Francisco and adjacent communities. The wastewater treatment facilities have a total average dry weather flow capacity of 85.4 MGD at the Southeast Wastewater Treatment Plant (WWTP) and 21.0 MGD at the Oceanside WWTP for a total of 106.4 MGD. This capacity serves both customer discharges, as well as groundwater infiltration. The current capacity charge is calculated based on the total system capacity available to serve customers, 93.5 MGD. Assuming 200 gallons per day (gpd) demand per 5/8" ME, this translates to 468,000 MEs.

Recommended Capacity Charges

Currently, the water and wastewater capacity charges are assessed by meter size. Carollo recommends that the SFPUC continue to assess water capacity charges based on the size of the installed water meter, increasing the charge commensurate to the increase in flow rate above a 5/8-inch meter. Meter size is commensurate with flow rate and reflects the potential capacity demand on the system. It is assumed that the greater the size of the meter, the greater the capacity demand that the user can place on the water and wastewater systems.

The water and wastewater capacity charges are calculated by dividing the ratepayer equity by total system capacity, as illustrated in Table 79. The significant increase in the water capacity charge is primarily due to the projects associated with the WSIP rolling onto the asset list. However, the accumulated depreciation is not increasing at the same rate because of the large number of assets that are fully depreciated.

TABLE 79 CAPACITY CHARGE CALCULATIONS

DESCRIPTION	WATER SYSTEM	WASTEWATER SYSTEM
Ratepayer Equity	$1,156,390,852	$2,237,148,517
Number of MEs	635,000	468,000
Calculated Capacity Charge per ME	**$1,821**	**$4,780**
Existing Capacity Charge per ME	$1,346	$4,583
Capacity Charge Increase (%)	35%	4%

Water Capacity Charge

Based on the calculation shown in Table 79, Carollo recommends that the SFPUC adopt a water capacity charge of $1,821 per 5/8-inch ME. Table 80 shows the recommended water capacity charges for all meter sizes based on the ratio of the AWWA standard maximum flow rate through each meter size to the maximum flow rate through a 5/8-inch meter.

TABLE 80 EXISTING AND RECOMMENDED WATER CAPACITY CHARGES BY METER SIZE

METER SIZE	AWWA MAXIMUM FLOW RATE (GPM)	METER EQUIVALENT RATIO	EXISTING CAPACITY CHARGE	RECOMMENDED CAPACITY CHARGE
5/8 in.	20	1.0	$1,346	$1,821
3/4 in.	30	1.5	2,020	2,732
1 in.	50	2.5	3,369	4,553
1-½ in.	100	5.0	6,734	9,105
2 in.	160	8.0	10,776	14,569
3 in. (1)	320	16.0	20,204	29,137
4 in.	500	25.0	33,673	45,527
6 in.	1,000	50.0	67,349	91,055
8 in.	1,600	80.0	107,758	145,687
10 in.	2,500	125.0	154,821	227,636
12 in.	4,300	215.0	289,448	391,534
16 in.	7,500	375.0	504,852	682,909

Notes:

(1) Carollo gathered data from the meter group for meter type and size accuracy. Adjustments were made to the 3-inch meter and the 10-inch meter ratios, due to these clarifications.

Wastewater Capacity Charges

Carollo recommends that the SFPUC adopt a wastewater capacity charge of $4,780 per 5/8-inch ME based on the calculation in Table 79. Wastewater capacity charges vary by water meter size, similar to water capacity charges, but they also vary by SIC code, which accounts for assumed wastewater flows and strengths by property type.

Carollo recommends continuing to assess wastewater capacity charges based on both water meter size and SIC code. Properties with mixed use would be assessed wastewater capacity charges Based on water meter size and SIC code of 8812 (mixed use 50% + Residential) or 9993 (mixed use 50% + Non Residential), which are categorized under SIC Group 4.

Functional Allocation of Wastewater Capacity Charges

The first step in the development of the capacity fees is to complete a functional allocation of the wastewater ratepayer equity. The functional allocation breaks down the capacity charge by allocating asset values and liabilities (adjustments) to the following four functional cost components:

- Flow
- Chemical Oxygen Demand (COD)
- Total Suspended Solids (TSS)
- Fats, Oils, and Grease (FOG)

Table 81 shows the percentage allocations for each asset and liability group. The physical assets are allocated using the fixed asset allocation factors from the wastewater cost of service analysis. The construction work-in-progress is allocated using the future capital allocation factors from the cost of service analysis. The existing debt is allocated using the debt service allocation factors from the cost of service analysis. Finally, the non-physical assets are allocated using an As All Others allocation based on the allocation of the first three line items in Table 81.

TABLE 81 FUNCTIONAL COST COMPONENT ALLOCATION FACTORS

	FUNCTIONAL COST COMPONENT			
RATEPAYER EQUITY COMPONENT	FLOW	COD	TSS	FOG
Physical Assets	79.3%	8.1%	2.9%	9.7%
Construction Work-in-Progress	55.6%	19.0%	21.0%	4.3%
Existing Debt	76.5%	10.4%	8.7%	4.4%
Non-Physical Assets	74.5%	9.7%	4.4%	11.4%

Using the functional allocation percentages in Table 81, Carollo allocated the values from Table 78 across the functional cost components. Then the total ratepayer equity for each functional cost component was divided by the total number of MEs to develop the wastewater capacity charge components, as shown in Table 82.

TABLE 82 FUNCTIONAL ALLOCATION OF WASTEWATER RATEPAYER EQUITY

		FUNCTIONAL COST COMPONENT			
RATEPAYER EQUITY COMPONENT	TOTAL	FLOW	COD	TSS	FOG
Land, Building, and Equipment	$8,499,487	$6,744,141	$689,817	$214,936	$823,592
Construction Work-in-Progress	548,179	304,998	104,125	115,351	23,705
Less: Accumulated Depreciation	(5,140,813)	(4,079,113)	(417,227)	(146,332)	(498,140)
Less: Outstanding Bonds and Loans	(1,185,349)	(906,926)	(123,573)	(102,680)	(52,170)
Less: Unamortized Grants	(724,886)	(575,180)	(58,832)	(20,634)	(70,241)
Net Capital Asset Equity	**$1,996,618**	**$1,487,919**	**$194,309**	**$87,642**	**$226,746**
Deposits with Fiscal Agent	20,205	15,057	1,966	887	2,295
Cash in Capital Projects Fund	24,767	18,457	2,410	1,087	2,813
Unrestricted Reserves	195,559	145,734	19,032	8,584	22,209
Total Ratepayer Equity	**$2,237,149**	**$1,667,168**	**$217,718**	**$98,200**	**$254,062**
Number of EDUs	468,000	468,000	468,000	468,000	468,000
Capacity Charge Component per EDU	**$4,780**	**$3,562**	**$465**	**$210**	**$543**

The SFPUC has assumed varying loading concentrations to customer groups based on SIC code. Consequently, component capacity charges per ME must be adjusted for each SIC group's unique loading assumptions. Table 83 presents the loading assumptions for each SIC group designated by the SFPUC.

TABLE 83 ASSUMED LOADING CONCENTRATIONS FOR DESIGNATED SIC GROUPS

	FUNCTIONAL COST COMPONENT		
SIC GROUP	COD (MG/L)	TSS (MG/L)	FOG (MG/L)
SIC Group 4 (1)	**684**	**279**	**85**
SIC Group 1	0	0	0
SIC Group 2	194	56	26
SIC Group 3	640	239	63
SIC Group 5	641	224	86
SIC Group 6	396	59	100
SIC Group 7	1,387	171	112
SIC Group 8	1,539	181	125
SIC Group 9	1,616	284	137
SIC Group 10	1,153	303	251
SIC Group 11	4,921	1,371	559
SIC Group 12	715	303	100

Notes:

(1) SIC Group 4 contains all residential accounts. Group 4 concentrations are the assumed concentrations of a representative EDU.

To simplify the process of adjusting loading component capacity charges, ratios comparing each loading component in each SIC group, to that of a residential account have been calculated. Those ratios are used to scale the loading component capacity charges based on each SIC group's loading assumptions and are presented in Table 84.

TABLE 84 SIC GROUP WASTEWATER LOADING RATIOS

	FUNCTIONAL COST COMPONENT		
SIC GROUP	COD (MG/L)	TSS (MG/L)	FOG (MG/L)
SIC Group 4 (1)	**1.0**	**1.0**	**1.0**
SIC Group 1	0.0	0.0	0.0
SIC Group 2	0.3	0.2	0.3
SIC Group 3	0.9	0.9	0.7
SIC Group 5	0.9	0.8	1.0
SIC Group 6	0.6	0.2	1.2
SIC Group 7	2.0	0.6	1.3
SIC Group 8	2.3	0.6	1.5
SIC Group 9	2.4	1.0	1.6
SIC Group 10	1.7	1.1	3.0
SIC Group 11	7.2	4.9	6.6
SIC Group 12	1.0	1.1	1.2

Notes:
(1) SIC Group 4 contains all residential accounts. Group 4 concentrations are the assumed concentrations of a representative EDU.

Wastewater Capacity Charges for Industrial Customers

If a new customer does not fall within one of the established SIC Groups, the wastewater capacity charge may need to be assessed based on the customer's specific flow and loadings. In such a case, the capacity charge can be calculated by multiplying the customer's expected flow (gpd) and loadings (COD, TSS, and FOG in pounds (lb) per day) times the unit capacity charge for each component and then summing the products. Calculations of the unit capacity charges for each component are shown in Table 85.

TABLE 85 CALCULATION OF WASTEWATER UNIT CAPACITY CHARGES FOR INDUSTRIAL CUSTOMERS BY COMPONENT

	FUNCTIONAL COST COMPONENT			
DESCRIPTION	FLOW	COD	TSS	FOG
Capacity Charge per ME (A)	$3,562	$465	$210	$543
Assumed Units per ME (B)	200 gpd	1.14 lbs/day	0.47 lbs/day	0.14 lbs/day
Unit Capacity Charge = (A / B)	$17.81	$407.54	$450.65	$3,826.96

Table 86 provides an example calculation of the wastewater capacity charge for an assumed industrial customer.

TABLE 86 EXAMPLE CALCULATION OF WASTEWATER CAPACITY CHARGE FOR ASSUMED INDUSTRIAL CUSTOMER

CAPACITY CHARGE COMPONENT		EXPECTED FLOW/LOADING		UNIT CAPACITY CHARGE		COMPONENT CAPACITY CHARGE
Flow	gpd	1,000	X	$17.81	=	$17,810
COD	lbs/day	10	X	$407.54	=	$4,075
TSS	lbs/day	20	X	$450.65	=	$9,013
FOG	lbs/day	1	X	$3,826.96	=	$3,827
			Total Wastewater Capacity Charge		=	$34,725

Wastewater Capacity Charge Schedule

Table 87 and Table 88 present the recommended wastewater capacity charge by meter size and SIC Group, based on the calculated maximum capacity charge per ME.

TABLE 87 RECOMMENDED WASTEWATER CAPACITY CHARGE SCHEDULE UP TO SIC 6

METER SIZE	ME FACTOR	SIC 4 (1)	SIC 1	SIC 2	SIC 3	SIC 5	SIC 6
5/8 in	1.0	**$4,780**	$0	$3,902	$4,580	$4,716	$4,515
3/4 in	1.5	**7,170**	0	5,854	6,870	7,074	6,772
1 in	2.5	**11,951**	0	9,756	11,449	11,790	11,287
1 ½ in	5.0	**23,901**	0	19,512	22,899	23,580	22,573
2 in	8.0	**38,242**	0	31,219	36,638	37,728	36,118
3 in	16.0	**76,484**	0	62,439	73,275	75,456	72,235
4 in	25.0	**119,506**	0	97,561	114,493	117,900	112,867
6 in	50.0	**239,012**	0	195,122	228,986	235,800	225,735
8 in	80.0	**382,418**	0	312,195	366,377	377,281	361,176
10 in	125.0	**597,529**	0	487,805	572,464	589,501	564,337
12 in	215.0	**1,027,749**	0	839,024	984,638	1,013,941	970,659
16 in	375.0	**1,729,586**	0	1,463,414	1,717,393	1,768,503	1,693,011

Notes:

(1) SIC Group 4 contains all residential accounts. Group 4 concentrations are the assumed concentrations of a representative EDU.

TABLE 88 RECOMMENDED WASTEWATER CAPACITY CHARGE SCHEDULE UP OVER SIC 6

METER SIZE	ME FACTOR	SIC 7	SIC 8	SIC 9	SIC 10	SIC 11	SIC 12
5/8 in	1.0	$5,350	$5,544	$5,750	$6,177	$11,511	$4,915
3/4 in	1.5	8,024	8,315	8,625	9,266	17,266	7,373
1 in	2.5	13,374	13,859	14,375	15,444	28,776	12,288
1 ½ in	5.0	26,748	27,718	28,750	30,887	57,553	24,576
2 in	8.0	42,797	44,348	46,000	49,420	92,084	39,321
3 in	16.0	85,593	88,696	92,000	98,839	184,168	78,643
4 in	25.0	133,739	138,588	143,750	154,436	287,763	122,879
6 in	50.0	267,479	277,175	287,499	308,873	575,526	245,758
8 in	80.0	427,966	443,481	459,999	494,196	920,841	393,213
10 in	125.0	668,697	692,938	718,748	772,182	1,438,815	614,396
12 in	215.0	1,150,159	1,191,854	1,236,246	1,328,153	2,474,761	1,056,760
16 in	375.0	2,006,092	2,078,815	2,156,243	2,316,546	4,316,444	1,843,187

Use of Capacity Charge Revenue

Existing reserves from previously assessed capacity charges and all future revenues collected from capacity charges should only be used for funding of capital projects. Due to the nature of the SFPUC's system, the capacity charge acts as a reimbursement to existing customers that have funded the system over time through rates. Accordingly, it would be appropriate to fund rehabilitation and replacement projects for the long-term benefit of future and existing ratepayers.

CAPACITY CHARGE COMPARISON

Carollo conducted a survey of nearby utilities to gather information about their water and wastewater capacity charges. Although utilities are not always alike, it is common to examine comparisons between similar or neighboring utilities. Figure 19 and Figure 20 compare typical water and wastewater capacity charges per equivalent dwelling unit, respectively, within the Bay Area.

Care should be taken in drawing conclusions from such comparisons as factors including locations, customer profiles, age of the system, and various operational and capital-related needs vary from agency to agency. As illustrated, despite the recommended increase to customers, capacity charges are below the average of nearby agencies.

FIGURE 19 WATER CAPACITY CHARGE SURVEY OF BAY AREA UTILITIES

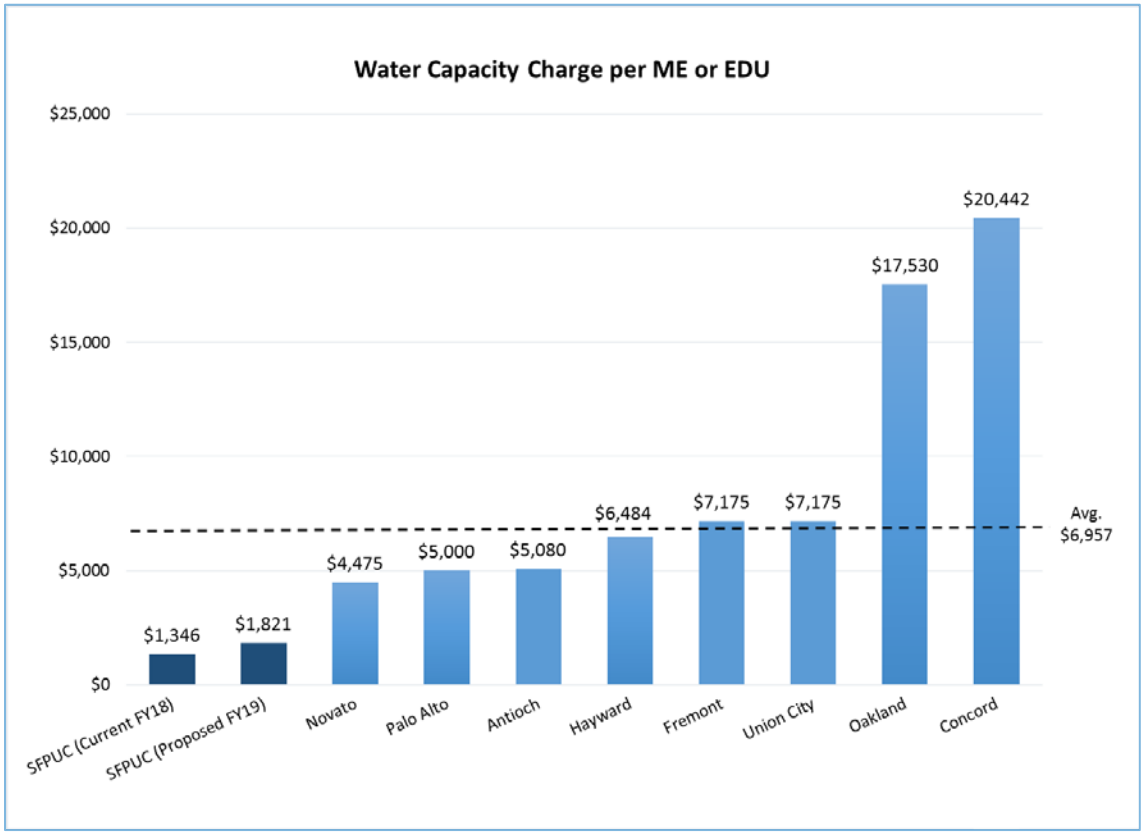
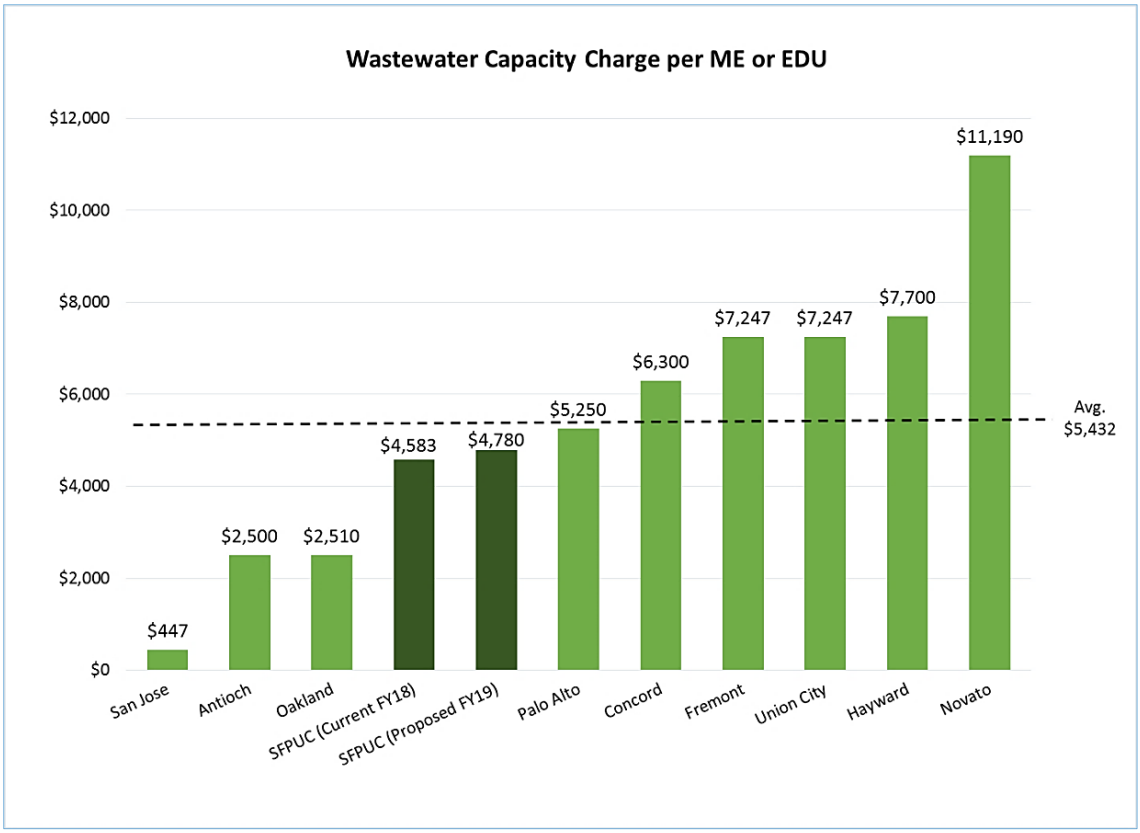


FIGURE 20 WASTEWATER CAPACITY CHARGE SURVEY OF BAY AREA UTILITIES



APPENDIX A – AGENCY COMPARISON

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San Francisco Public Utilities Commission

Agency Bill Comparison

DRAFT

San Francisco Water Power Sewer

Services of the San Francisco Public Utilities Commission

Contents

INTRODUCTION

As a part of the Water and Wastewater Cost of Service Study, Carollo conducted a survey of the typical monthly water and wastewater bills for single family residential (SFR) customers across 28 agencies to compare to the San Francisco Public Utilities Commission (SFPUC) current and proposed rates.

A comparison survey is an important tool to gauge how rates align with those of other agencies and also allow for opportunities to explore best management practices. The SFPUC is a system with a distinctive retail customer base and substantial capital improvement program. Care should be taken in drawing conclusions from comparisons as factors including locations, source of supply, customer profiles, age of the system, and various operational and capital-related needs vary by agency.

San Francisco Public Utilities Commission

The SFPUC Water Enterprise has two monthly charges: 1) a fixed service charge based on meter size and 2) a variable volumetric charge based on usage by customer class. The existing monthly service charge is a combined meter charge and customer service charge. For customers with a 5/8-inch meter, the monthly service charge is $11.63. For residential customers, the variable volumetric charge is assessed by tier. Tier 1 single family residential (SFR) customers are charged $6.42 for the first 4 hundred cubic feet (ccf)[1] of water consumed and $8.62 for each additional ccf. Existing residential rates for the Wastewater Enterprise are based on flow and assumed typical discharge characteristics. The SFPUC does not have an existing wastewater fixed monthly charge. Residential customers are charged $12.40 per ccf of wastewater flow.

For water, Carollo recommends maintaining the same tiered residential rate structure with increases to both fixed and variable rates. In FY 2019, residential customers with a 5/8-inch meter will incur a monthly service charge of $12.19; the variable volumetric charge will be $7.06 for Tier 1 usage and $9.05 for Tier 2 usage. For wastewater, Carollo recommends introducing a flat, fixed monthly service charge of $0.99 that does not vary by meter size or customer class. Residential customers will be charged $13.28 per ccf.

RATE SURVEY APPROACH

Water and wastewater utility agencies in 28 cities were selected for the survey including ten California Bay Area cities, eight greater California cities, and ten cities in the US outside of California. The survey presents data on water rates and wastewater rates. The following sections describe the survey content and methodology.

Agencies

The survey summarizes fixed service charges and volumetric consumption charges for water and wastewater from agencies within the California Bay Area, the State of California, and nationally. The ten California Bay Area cities include San Francisco, Antioch, Concord, Fremont, Hayward, Novato, Oakland, Palo Alto, San Jose, and Union City. The eight greater California cities—in addition to San Francisco— include data from Bakersfield, Fresno, Los Angeles, Riverside, Sacramento, San Diego, Santa Cruz, and Stockton. For the ten national cities, the survey includes Cincinnati, Houston, Las Vegas, New York City, Philadelphia, Phoenix, Portland, San Antonio, Washington DC, and Seattle.

[1] ccf is one hundred cubic feet, 1 ccf = 748 gallons

Assumptions

The following are assumptions used during the survey:

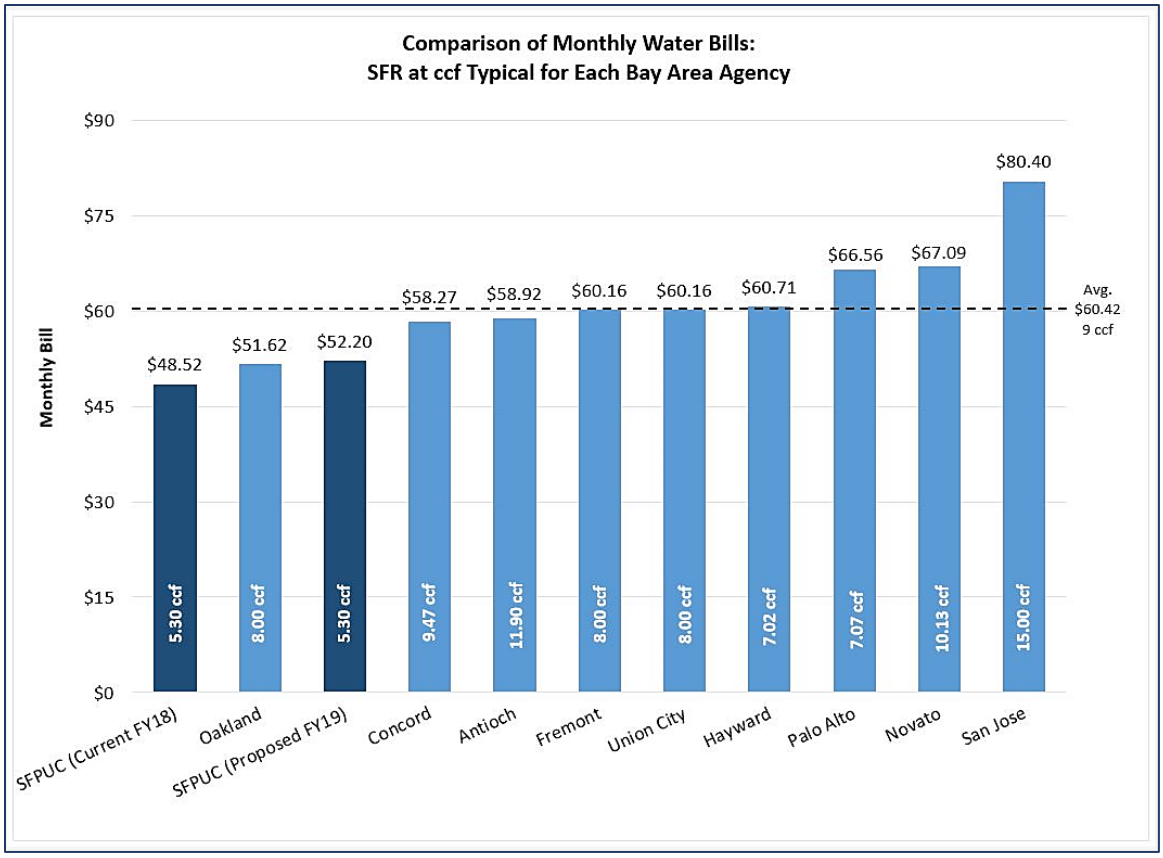
- All billing rates frequency is reported as monthly charges, regardless of the billing schedule, to provide a uniform cost comparison.
- Ccf is used as the common volume measurement. Conversions were made where necessary.
- Each agencies typical monthly usage (in ccf) was used. This varies by agency and is indicated on the figures in the following sections.
- If a typical SFR monthly wastewater flow was not provided, a 90 percent return to sewer factor was applied to the typical SFR monthly consumption to determine the typical wastewater discharge volume unless otherwise indicated.
- The survey reports residential billing rates for SFR households with a 5/8- or a 3/4-inch meter, depending on what is typical for each agency.
- Rates are primarily comprised of two components: (1) a base/fixed monthly service charge plus (2) the commodity rates. Conservation incentives, low-income rate assistance and other opportunities for bill adjustments were excluded from this survey.
- Private fire service charges and some miscellaneous charges were excluded, as well as elevation surcharges since they were often $0.00 for the initial elevation level or zone.
- If rates varied by season or household details other than water consumption, as assumption was made and noted during the monthly bill calculation.

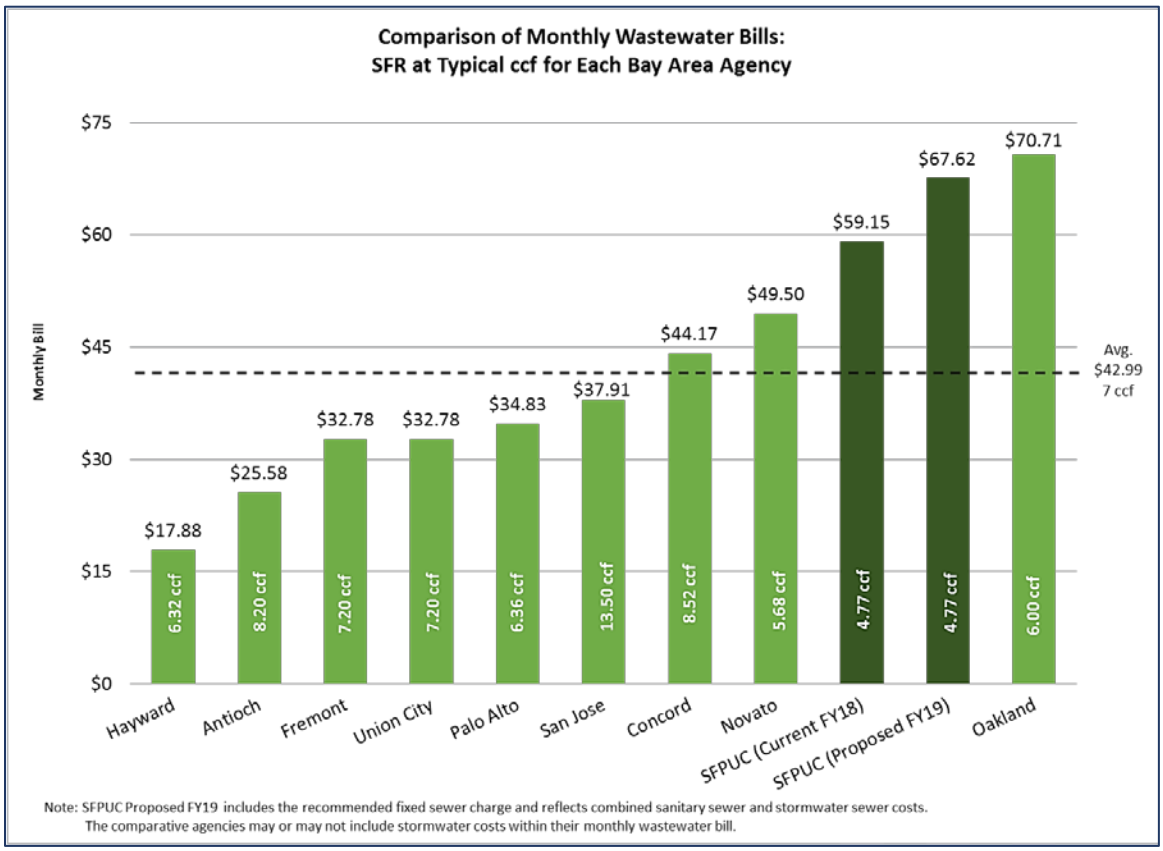
Methodology and Limitations

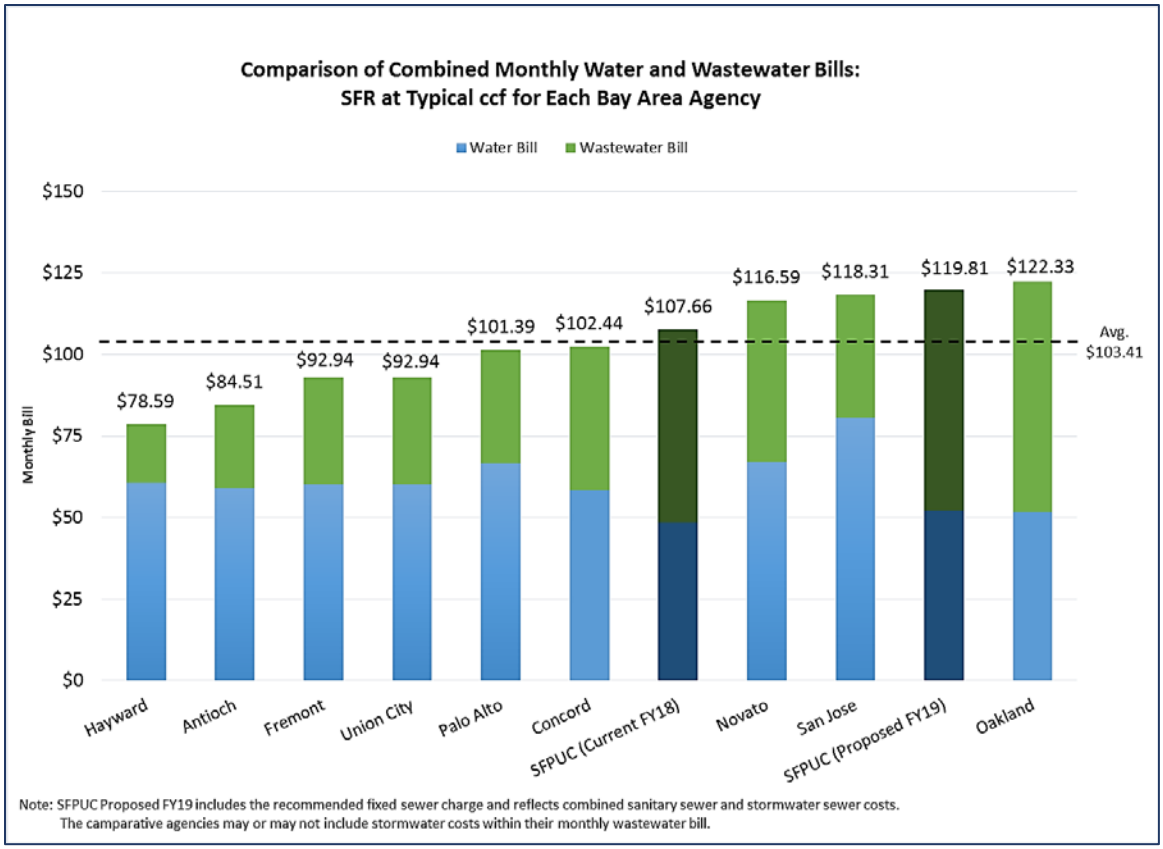
Compiling data began with the website of each city, district, or agency to obtain basic information on the service area, the water services provided, and the rates. The majority of the information gathered for this survey is based on the information accessible on these websites including Master Fee Schedules, Operations Reports, Comprehensive Annual Financial Reports (CAFRs) , and monthly bill calculators where provided. Urban water supplier data that is available on the California Water Resources Control Board website was used to average water use when the information was not specifically provided on each city, district, or agency website (Stockton City, City of Sacramento, and Concord).

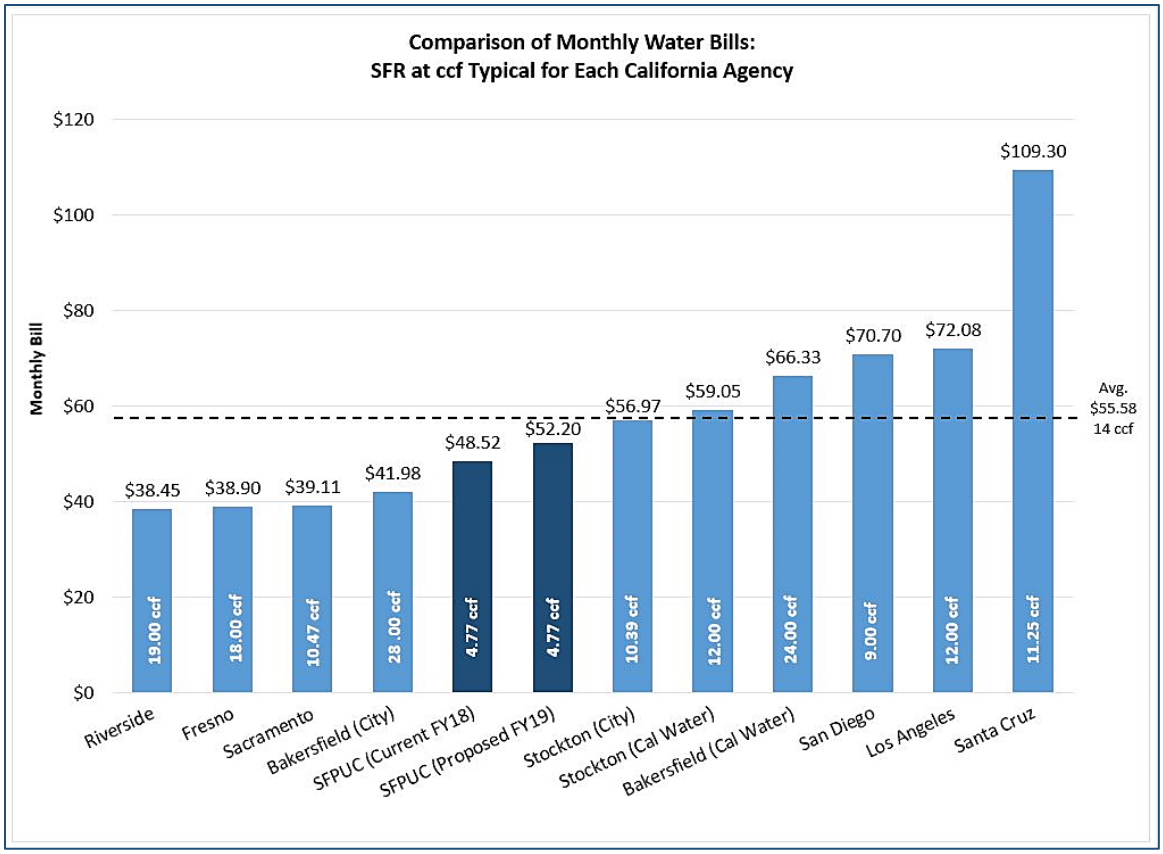
It is important to note that the charges included in the rates tables are not exhaustive in that not all agencies listed fees which make up comparable bills beyond their fixed service charge and volumetric rates. For example, stormwater charges are reflected in a multitude of ways from property tax bills, to assessments to wastewater bills and explicit stormwater charge dollar values were challenging to identify for most agencies. Due to this, stormwater charges were not isolated from wastewater charges in the rates table. However, as the SFPUC operates a combined system and stormwater charges are included in the overall wastewater bill, the SFPUC wastewater bill (and subsequent combined bill) may be skewed to the right in the comparison against other agencies.

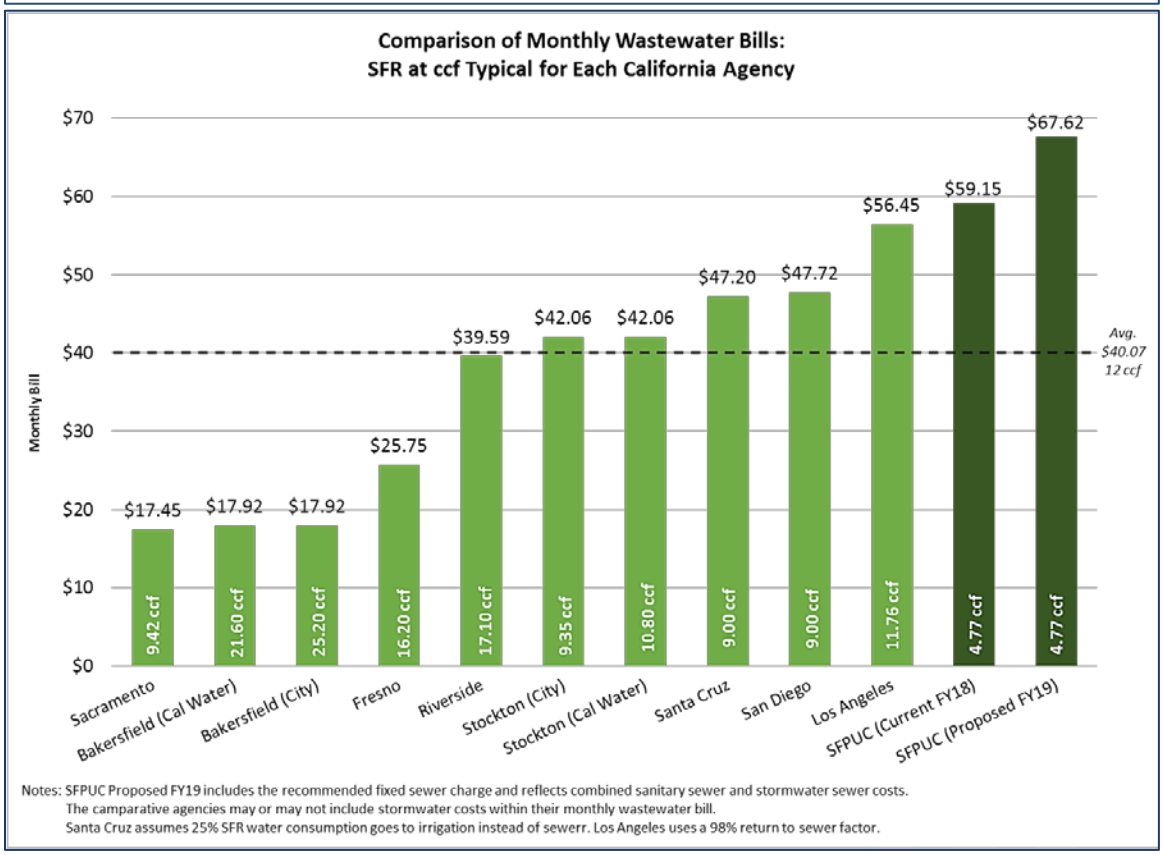
Most of the data collected involved rates with an approved effective date of the fiscal year ending (FYE) 2018 (typically begins July 1, 2017) or January 2018. Notes were made where rates had not been updated within this range. The following figures are the results of the survey.


Comparison of Monthly Water Bills:
SFR at ccf Typical for Each Bay Area Agency
Monthly Bill
$90
$75
$60
$45
$30
$15
$0
$48.52
$51.62
$52.20
$58.27
$58.92
$60.16
$60.16
$60.71
$66.56
$67.09
$80.40
Avg. $60.42 9 ccf
5.30 ccf
8.00 ccf
5.30 ccf
9.47 ccf
11.90 ccf
8.00 ccf
8.00 ccf
7.02 ccf
7.07 ccf
10.13 ccf
15.00 ccf
SFPUC (Current FY18)
Oakland
SFPUC (Proposed FY19)
Concord
Antioch
Fremont
Union City
Hayward
Palo Alto
Novato
San Jose

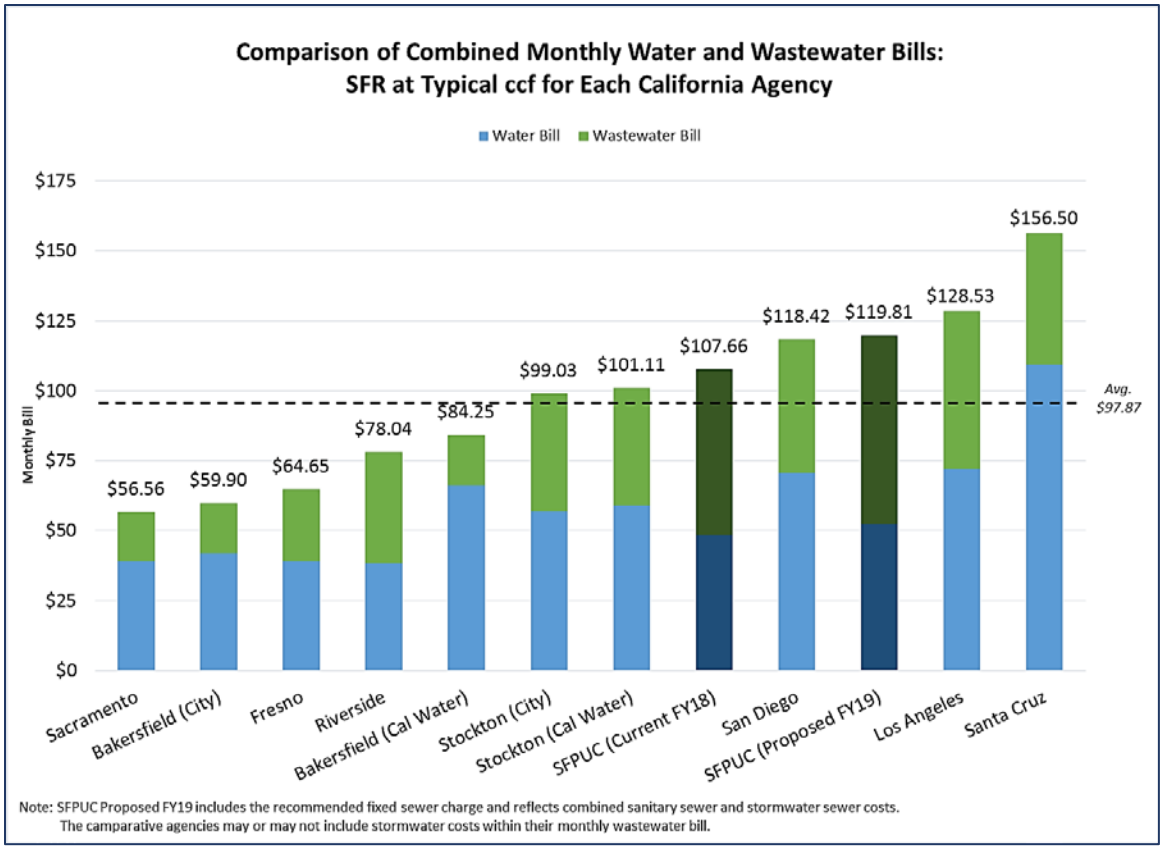

Comparison of Monthly Wastewater Bills:
SFR at Typical ccf for Each Bay Area Agency
Monthly Bill
$75
$60
$45
$30
$15
$0
$17.88
$25.58
$32.78
$32.78
$34.83
$37.91
$44.17
$49.50
$59.15
$67.62
$70.71
Avg. $42.99 7 ccf
6.32 ccf
8.20 ccf
7.20 ccf
7.20 ccf
6.36 ccf
13.50 ccf
8.52 ccf
5.68 ccf
4.77 ccf
4.77 ccf
6.00 ccf
Hayward
Antioch
Fremont
Union City
Palo Alto
San Jose
Concord
Novato
SFPUC (Current FY18)
SFPUC (Proposed FY19)
Oakland
Note: SFPUC Proposed FY19 includes the recommended fixed sewer charge and reflects combined sanitary sewer and stormwater sewer costs.
The comparative agencies may or may not include stormwater costs within their monthly wastewater bill.


Comparison of Combined Monthly Water and Wastewater Bills:
SFR at Typical ccf for Each Bay Area Agency
Water Bill
Wastewater Bill
Monthly Bill
$150
$125
$100
$75
$50
$25
$0
$78.59
$84.51
$92.94
$92.94
$101.39
$102.44
$107.66
$116.59
$118.31
$119.81
$122.33
Avg.
$103.41
Hayward
Antioch
Fremont
Union City
Palo Alto
Concord
SFPUC (Current FY18)
Novato
San Jose
SFPUC (Proposed FY19)
Oakland
Note: SFPUC Proposed FY19 includes the recommended fixed sewer charge and reflects combined sanitary sewer and stormwater sewer costs.
The camparative agencies may or may not include stormwater costs within their monthly wastewater bill.

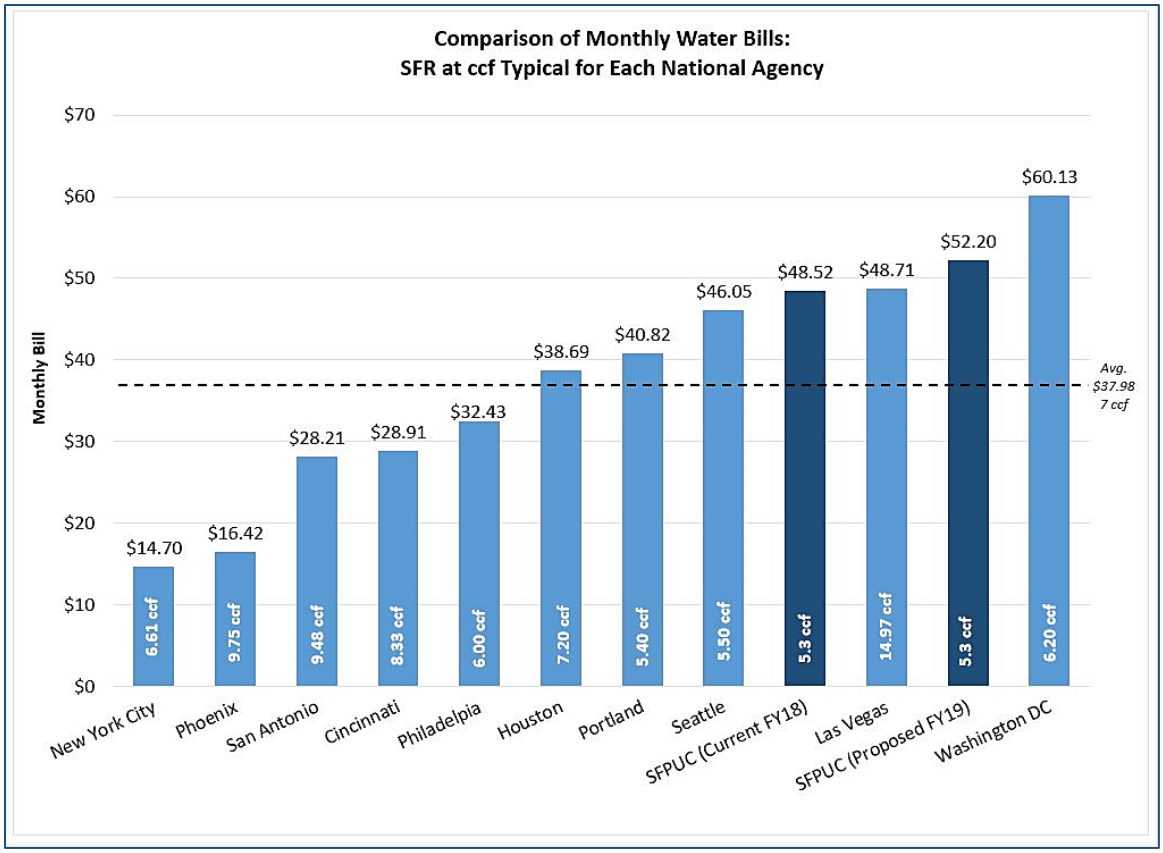


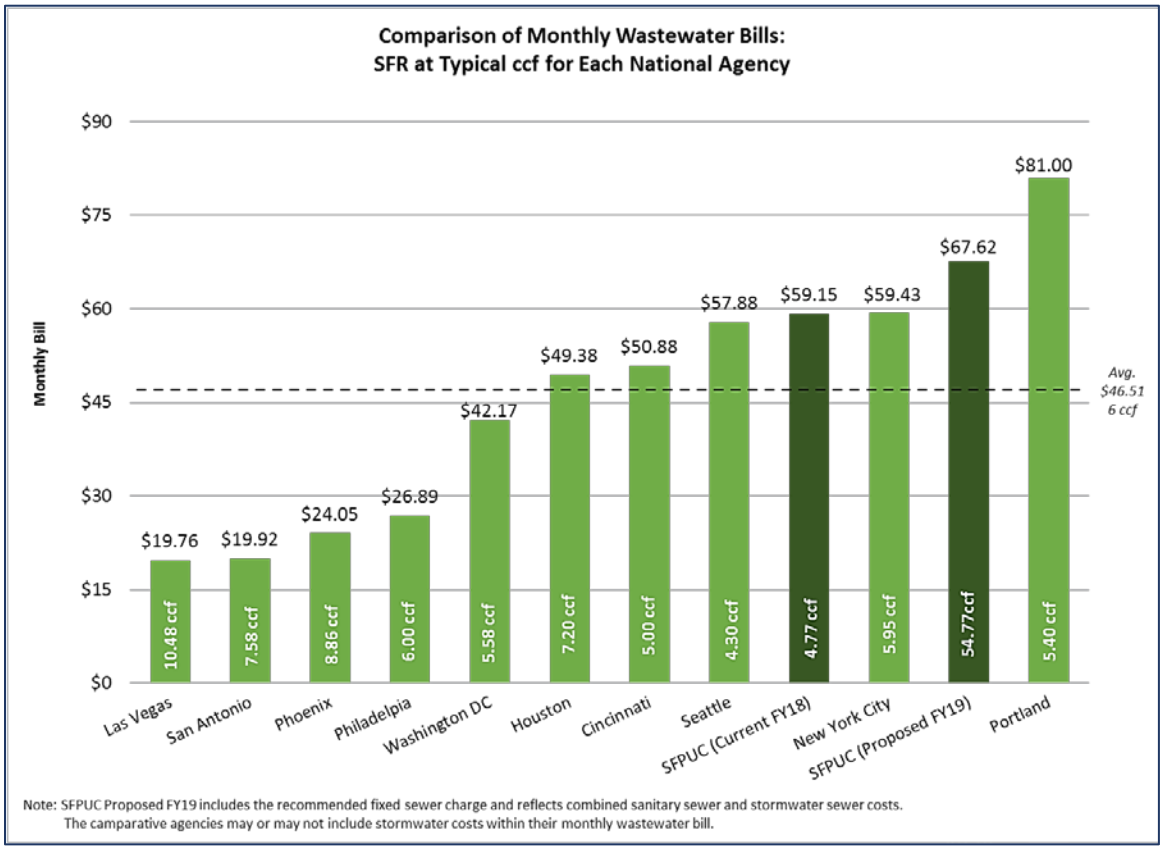


Notes: SFPUC Proposed FY19 includes the recommended fixed sewer charge and reflects combined sanitary sewer and stormwater sewer costs.
The camparative agencies may or may not include stormwater costs within their monthly wastewater bill.
Santa Cruz assumes 25% SFR water consumption goes to irrigation instead of sewerr. Los Angeles uses a 98% return to sewer factor.

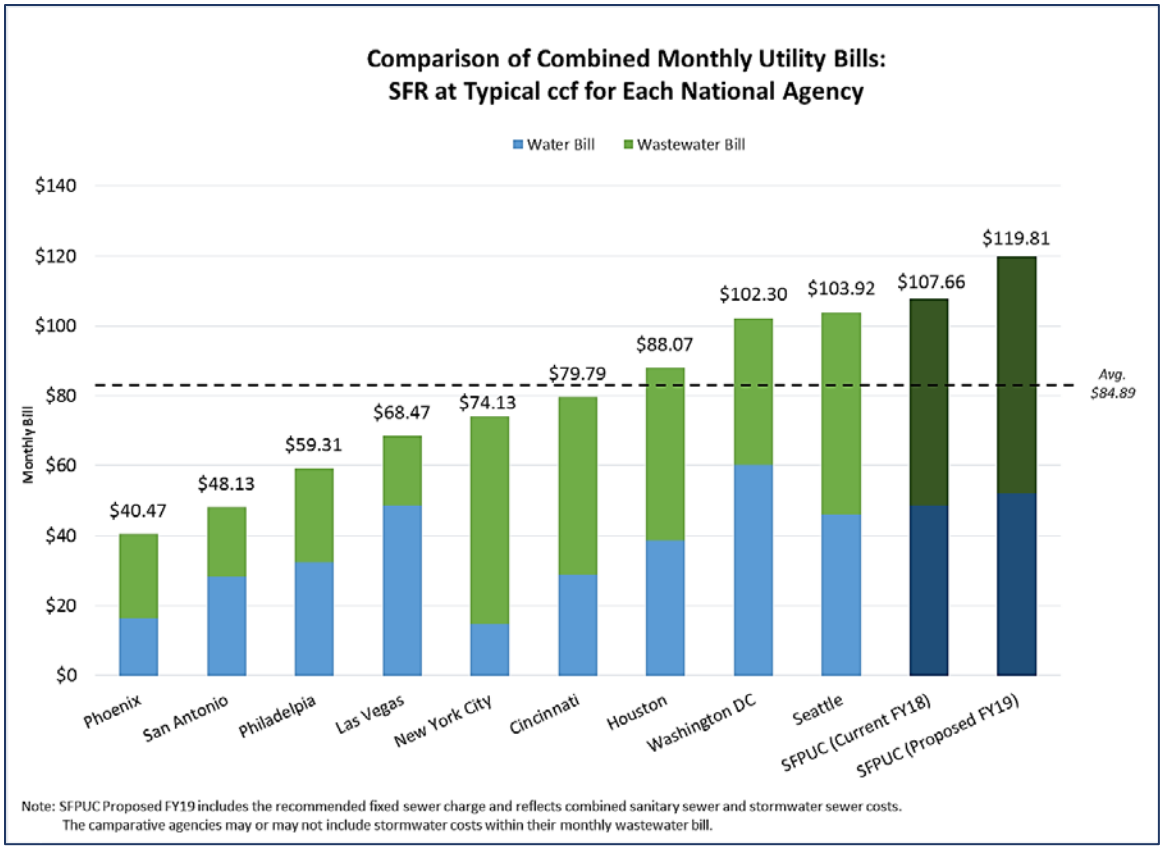


Note: SFPUC Proposed FY19 includes the recommended fixed sewer charge and reflects combined sanitary sewer and stormwater sewer costs. The camparative agencies may or may not include stormwater costs within their monthly wastewater bill.





Note: SFPUC Proposed FY19 includes the recommended fixed sewer charge and reflects combined sanitary sewer and stormwater sewer costs.
The camparative agencies may or may not include stormwater costs within their monthly wastewater bill.


Comparison of Combined Monthly Utility Bills:
SFR at Typical ccf for Each National Agency
Water Bill
Wastewater Bill
Monthly Bill
$140
$120
$100
$80
$60
$40
$20
$0
$40.47
$48.13
$59.31
$68.47
$74.13
$79.79
$88.07
$102.30
$103.92
$107.66
$119.81
Avg.
$84.89
Phoenix
San Antonio
Philadelpia
Las Vegas
New York City
Cincinnati
Houston
Washington DC
Seattle
SFPUC (Current FY18)
SFPUC (Proposed FY19)
Note: SFPUC Proposed FY19 includes the recommended fixed sewer charge and reflects combined sanitary sewer and stormwater sewer costs.
The camparative agencies may or may not include stormwater costs within their monthly wastewater bill.

UTILITY AGENCY RATES

The following tables summarize the SFR customer class water and wastewater rates for each of the 28 utility agencies.

		Fixed Charge		Variable Charges		
Utility Agency	State	Fixed Water Charge Type	Monthly Fixed Charge ($)	Residential Water Rate Structure	Tier Breaks	SFR Water Rate ($)
SFPUC (Existing 2018)	CA	Service Charge	$11.63	Tiered	Less than 4 ccf / DU Over 4 ccf / DU	$6.42 per ccf $8.62 per ccf
SFPUC (Proposed 2019)	CA	Service Charge	$12.19	Tiered	Less than 4 ccf / DU Over 4 ccf / DU	$7.06 per ccf $9.05 per ccf
Hayward	CA	Service Charge	$20.00	Tiered	Less than 8 ccf 9 - 25 ccf Over 25 ccf	$5.80 per ccf $7.14 per ccf $8.41 per ccf
Fremont (Alameda County Water District)	CA	Service Charge	$26.17	Uniform	N/A	$4.25 per ccf
Union City (Alameda County Water District)	CA	Service Charge	$26.17	Uniform	N/A	$4.25 per ccf
Antioch	CA	Service Charge	$21.20	Tiered	Less than 12 ccf / DU Over 12 ccf / DU	$3.17 per ccf $5.24 per ccf
Oakland (East Bay Municipal Utility District)	CA	Service Charge	$22.60	Tiered	Less than 172 gpd 173-392 gpd over 393 gpd	$3.45 per ccf $4.74 per ccf $6.27 per ccf
San Jose	CA	Service Charge	$26.70	Uniform depends on zone/region	N/A	$3.58 per hcf
Concord (Contra Costa Water District)	CA	Service Charge	$18.30	Uniform	N/A	$4.22 per hcf
Novato (North Marin Water District)	CA	Service Charge	$15.75	Tiered	Less than 615 gpd 616 - 1,845 gpd over 1,845 gpd	$5.01 per kgal $7.99 per kgal $13.91per kgal
				Tiered Elevation Zone Charge	Less than 60 feet 60 - 200 feet Over 200 feet	$0.00 per kgal $0.60 per kgal $1.92 per kgal
Palo Alto	CA	Service Charge	$16.77	Tiered	Less than 6 ccf Over 6 ccf	$6.66 per ccf $9.18 per ccf

		Fixed Charge		Variable Charges			
Utility Agency	State	Fixed Water Charge Type	Monthly Fixed Charge ($)	Residential Water Rate Structure	Tier Breaks	SFR Water Rate ($)	
Bakersfield (City)	CA	Service Charge	$11.46	Uniform	N/A	$1.09 per ccf	
Fresno	CA	Service Charge	$11.90	Uniform	N/A	$1.50 per hcf	
Riverside	CA	Service Charge	$13.99	Tiered and Seasonal	Less than15 hcf 16-35 hcf 36-60 hcf Over 60 hcf	Winter $1.13 per hcf $1.64 per hcf $2.26 per hcf $2.75 per hcf	Summer $1.14 per hcf $1.83 per hcf $2.85 per hcf $4.10 per hcf
Sacramento	CA	Service Charge	$39.11	Uniform	N/A	$1.21 per hcf	
City of Stockton	CA	Service Charge	$31.00	Tiered	Less than 15 ccf over 16 ccf	$2.23 per ccf $2.66 per ccf	
				Drought Surcharge/ Residential	Stage 1	$0.27 per ccf	
Los Angeles	CA	N/A	N/A	Tiered *(* Only Tier 1 listed) Other tiers have additional blocks by lot size and season*	Less than 16 hcf 17-22 hcf 23-34 hcf Over 34 hcf	$6.20 per hcf $8.36 per hcf $9.48 per hcf $9.82 per hcf	
Bakersfield (Cal Water)	CA	Service Charge	$16.26	Tiered	Less than 13 per ccf 14-34 per ccf Over 34 ccf	$2.01 per ccf $2.18 per ccf $2.54 per ccf	
Stockton (Cal Water)	CA	Service Charge	$18.42	Tiered	Less than 9 ccf 10-20 ccf Over 20 ccf	$3.32 per ccf $3.59 per ccf $4.08 per ccf	
San Diego	CA	Service Charge	$24.22	Tiered	Less than 4 hcf 5-12 hcf 13-18 hcf Over 18 hcf	$4.84 per hcf $5.42 per hcf 7.75 per hcf $10.90 per hcf	
Santa Cruz	CA	Ready to Serve Charge, Rate Stabilization Fee	$9.53, $1.00	Tiered	Less than 5 ccf 6-7 ccf 8-9 ccf Over 10 ccf	$6.24 per ccf $6.97 per ccf $8.05 per ccf $9.54 per ccf	Infrastructure Reinvestment Fee $1.73 per ccf $2.59 per ccf $3.20 per ccf $4.30 per ccf

		Fixed Charge		Variable Charges		
Utility Agency	State	Fixed Water Charge Type	Monthly Fixed Charge ($)	Residential Water Rate Structure	Tier Breaks	SFR Water Rate ($)
Las Vegas (Southern Nevada Water Authority)	NV	Meter Service Charge, Infrastructure Charge, Reliability Charge (.25%) Commodity Charge	$12.29, $12.92, $0.09, $0.48	Tiered	Less than 167 gal 168 - 334 gal 335 -667 gal Over 667	$1.23 per kgal $2.20 per kgal $3.28 per kgal $4.86 per kgal
San Antonio	TX	Service Charge, EAA Fee, TCEQ Fee, Water Supply Fee	$12.77, $2.51, $0.26, $11.97	Tiered	Less than 4 ccf 5-10 ccf 11-18 ccf 19-28 ccf 29-42 ccf 43-62 ccf 63-89 ccf Over 89 ccf	$0.07 per ccf $0.13 per ccf $0.17 per ccf $0.20 per ccf $0.24 per ccf $0.28 per ccf $0.33 per ccf $0.48 per ccf
Phoenix	AZ	Service Charge, Environmental Charge	$5.50, $0.28 per ccf	Seasonal	Low Season Medium Season High Season	$3.09 per ccf $3.63 per ccf $4.08 per ccf
Houston	TX	Service Charge	$5.24	Tiered	Less than 1 kgal 2 -3 kgal 4 -6 kgal 7 -10 kgal 11 -15 kgal 16 - 21 kgal Over 21 kgal	$5.38 per kgal S12.27 per kgal $12.68 per kgal $23.99 per kgal $28.76 per kgal $33.52 per kgal * see website
Washington	DC	Payment in Lieu of Taxes fee, Right of Way fee Metering Fee, Water System Replacement fee, Clean Rivers Impervious Area Charge	$0.48, $0.18, $3.86, $6.30, $25.18	Tiered	Less than 4 ccf Over 4 ccf	$3.39 per ccf $4.26 per ccf
Philadelphia	PA	Service Charge	$6.58	Tiered	Less than 2 MCF [3] 2 -100 MCF 101 - 2,000 MCF Over 2,000 MCF	$43.08 per MCF $37.67 per MCF $29.31 per MCF $28.51 per MCF
Cincinnati	OH	Service Charge	$6.50	Tiered	Less than 20 ccf 21 - 600 ccf Over 600 ccf	$2.69 per ccf $2.26 per ccf $2.01 per ccf

		Fixed Charge		Variable Charges		
Utility Agency	State	Fixed Water Charge Type	Monthly Fixed Charge ($)	Residential Water Rate Structure	Tier Breaks	SFR Water Rate ($)
New York City	NY	Service Charge	$14.70	Uniform	N/A	$3.81 per ccf
Portland	OR	Service Charge	$40.82	Uniform	N/A	$4.50 per ccf
Seattle	WA	Service Charge	$16.10	Uniform if off-peak Tiered and Seasonal from Sept 16 - May 15	Off-peak Usage Less than 5 ccf 6 - 18 ccf Over 18 ccf	$5.20 per ccf $5.33 per ccf $6.59 per ccf $11.80 per ccf

Notes:
(1) one hundred cubic feet (1 ccf) = 748 gallons
(2) DU = dwelling unit
(3) MCF = million cubic feet

		Fixed Charge		Variable Charges		
Utility Agency	State	Fixed Wastewater Charge Type	Monthly Fixed Charge ($)	Variable Residential Wastewater Rate Structure	Tier Breaks	SFR Wastewater Rate ($)
SFPUC (Existing 2018)	CA	N/A	N/A	Tiered	Less than 4 ccf / DU	$12.40 per ccf
					Over 4 ccf / DU	$12.40 per ccf
SFPUC (Proposed 2019)	CA	Service Charge	$4.27	Uniform	N/A	$13.28 per ccf
Hayward	CA	Service Charge	$31.29	Uniform (unless automatic Lifeline or Economy)	Automatic Lifeline if less than 4 ccf	$8.94 per ccf
					Automatic if Economy 5 - 8 ccf	$17.88 per ccf
					Uniform over 9 ccf	$31.29 per ccf
Fremont (Union Sanitary District)	CA	Service Charge	$32.78	N/A	N/A	N/A
Union City	CA	Service Charge	$32.78	N/A	N/A	N/A
Antioch	CA	Service Charge Account/DU Charge	$12.80 $4.01	Uniform	N/A	$1.07 per ccf
Oakland (East Bay Municipal Utility District)	CA	Service Charge, Wet Weather Fac. Charge, Pollution Prevention Charge, Agency Fee	$5.83 $8.23 $.20 $38.58	Uniform (WWFC for small lot)	N/A	$1.139 per ccf
San Jose	CA	Service Charge	$37.91	N/A	N/A	N/A
Concord (Contra Costa Sanitary District)	CA	Service Charge	$44.17	N/A	N/A	N/A
Novato	CA	Service Charge	$49.50	N/A	N/A	N/A
Palo Alto	CA	Service Charge	$34.83	N/A	N/A	N/A
Bakersfield (City)	CA	Services Charge	$17.92	N/A	N/A	N/A
Fresno	CA	Service Charge, Pretreatment Charge	$25.75 $0.06	N/A	N/A	N/A

		Fixed Charge		Variable Charges		
Utility Agency	State	Fixed Wastewater Charge Type	Monthly Fixed Charge ($)	Variable Residential Wastewater Rate Structure	Tier Breaks	SFR Wastewater Rate ($)
Riverside	CA	Service Charge	$39.59	N/A	N/A	N/A
Sacramento	CA	Service Charge	$17.45	Uniform	N/A	$1.09 per ccf
City of Stockton	CA	Service Charge	$42.06	N/A	N/A	N/A
Los Angeles	CA	N/A	N/A	Uniform	N/A	$4.80 per ccf
Bakersfield (Cal Water)	CA	Service Charge	$17.92	N/A	N/A	N/A
Stockton	CA	Service Charge	$42.06	N/A	N/A	N/A
San Diego	CA	Service Charge	$15.33	Uniform	N/A	$3.60 per ccf
Santa Cruz	CA	Service Charge	$47.20	N/A	N/A	N/A
Las Vegas (Clark County Water Reclamation District)	NV	Service Charge, Account Charge	$18.42, $1.33	N/A	N/A	N/A
San Antonio	TX	Service Charge	$13.45	Tiered	Less than 2 ccf 3 - 4 ccf Over 4 ccf	$0.00 per ccf $0.29 per ccf $0.43 per ccf
Phoenix	AZ	Service Charge, User Charge, Environmental Charge, Other Charges	$1.00 per ccf $0.87 per ccf $0.55 per ccf $1.60 per ccf	Uniform	N/A	N/A
Houston	TX	Service Charge	$11.14	Tiered	Less than 1 kgal 2 -3 kgal 4 -6 kgal 7 -10 kgal 11 -15 kgal 16 - 21 kgal Over 21 kgal	$11.32 per kgal S11.69 per kgal $11.99 per kgal $27.48 per kgal $33.08 per kgal $41.23 per kgal * see website

		Fixed Charge		Variable Charges		
Utility Agency	State	Fixed Wastewater Charge Type	Monthly Fixed Charge ($)	Variable Residential Wastewater Rate Structure	Tier Breaks	SFR Wastewater Rate ($)
Washington	DC	Sewer Charge, Groundwater Sewer Charge	$6.00 per ccf, $2.33 per ccf	N/A	N/A	N/A
Philadelphia	PA	Service Charge	$7.41	Uniform	N/A	$32.46 per MCF
Cincinnati (Metropolitan Sewer District)	OH	Minimum Base Charge	$39.12	Tiered	Less than 3 ccf 3 - 50 ccf Over 50 ccf	$0.00 per ccf 5.88 per ccf $4.70 per ccf
New York City	NY	Service Charge	$23.40	Uniform	N/A	$6.06 per ccf
Portland	OR	Service Charge	$31.68	Uniform	N/A	$10.19 per ccf
Seattle	WA	N/A	N/A	Uniform	N/A	$13.46 per ccf

Note:
As of 2015, City of Stockton stormwater and sewer bills are issued for customers in the Stockton Cal Water District.

APPENDIX B – WATER MODEL

San Francisco

Assumptions & Inputs

Projection Inflation Factors

Name	Constant	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
No Inflation (Flat)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
No Projection (Zero)	-100%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%
Constant 0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Constant 1%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Constant 2%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Constant 3%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Constant 4%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Constant 5%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Consumer Price Index	2.9%	2.5%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%
Account Growth	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Retail Sales Change	0.0%	3.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Wholesale Sales Change	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Retail Rate Increase		7.0%	8.0%	8.0%	7.0%	7.0%	7.0%	6.0%	6.0%	6.0%	5.0%	3.0%
Wholesale Rate Increase		0.0%	-4.9%	16.4%	0.7%	5.7%	2.5%	0.4%	4.4%	7.1%	3.8%	-1.6%
Retail Volume & Rate Change		10.77%	8.0%	8.0%	7.0%	7.0%	7.0%	6.0%	6.0%	6.0%	5.0%	3.0%
Wholesale Volume & Rate Change		0.0%	-4.9%	16.4%	0.7%	5.7%	2.5%	0.4%	4.4%	7.1%	3.8%	-1.6%
Operating Expenses Increase		7.6%	6.1%	4.6%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Total Expenses Increase		2.1%	7.3%	5.9%	5.0%	2.7%	4.9%	5.4%	5.7%	4.6%	3.1%	4.2%

Wholesale Allocation Rates

Name	Constant	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
Local	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Regional PAU	64.0%	66.1%	66.1%	66.1%	66.1%	66.1%	66.1%	66.1%	66.1%	66.1%	66.1%	66.1%
Regional Adj PAU	63.9%	65.9%	65.9%	65.9%	65.9%	65.9%	65.9%	65.9%	65.9%	65.9%	65.9%	65.9%
Shared 525GG		8.8%	8.8%	8.8%	8.8%	8.8%	8.8%	8.8%	8.8%	8.8%	8.8%	8.8%
Shared WTR Res. Plan.												

Other Assumptions

Name	Constant	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
Sequestration Rate	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
Retail % Volumetric Charges	84.9%	84.9%	84.9%	84.9%	84.9%	84.9%	84.9%	84.9%	84.9%	84.9%	84.9%	84.9%
Wholesale Allocation Rate		66.05%	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%
Hetchy Reduction Factor	99.82%	99.82%	99.82%	99.82%	99.82%	99.82%	99.82%	99.82%	99.82%	99.82%	99.82%	99.82%
Interest Rates		1.24%	1.41%	1.60%	1.60%	1.93%	1.93%	2.19%	2.19%	2.19%	2.35%	2.35%

Financing Assumptions

Budget Year (FYE)	2019
Interest Rate (Earnings)	2%
Bond Issuance Costs	2%
Interest Rate	5%
Loan Term (Yrs)	30
Debt Coverage Ratio (Current)	1.10x
Debt Coverage Ratio (Indenture)	1.35x
Minimum Fund Balance (% of O&M)	25%

San Francisco

Water Revenue Requirements

	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
Beginning Unappropriated Fund Balance	**$ 174,179,302**	**$ 223,914,164**	**$ 220,345,225**	**$ 197,077,460**	**$ 164,592,114**	**$ 134,416,417**	**$ 112,514,969**	**$ 109,186,602**	**$ 98,585,488**	**$ 93,907,047**	**$ 95,818,783**
Available Fund Balance - Current Basis	1,451,864	0	0	0	0	0	0	0	0	0	0
Available Fund Balance - Indenture Basis	172,727,438	223,914,164	220,345,225	197,077,460	164,592,114	134,416,417	112,514,969	109,186,602	98,585,488	93,907,047	95,818,783
Minimum Fund Balance	**$ 63,032,369**	**$ 67,814,641**	**$ 71,279,365**	**$ 73,097,286**	**$ 75,034,665**	**$ 76,512,705**	**$ 78,771,404**	**$ 81,457,286**	**$ 83,770,488**	**$ 86,138,147**	**$ 88,544,900**
Cash Flow Test											
Revenues											
Operating Revenues											
Retail Water Sales											
Inside City	233,146,000	233,146,000	233,146,000	233,146,000	233,146,000	233,146,000	233,146,000	233,146,000	233,146,000	233,146,000	233,146,000
Inside City Additional Required Increase	0	0	18,652,000	38,796,000	57,832,000	78,200,000	99,994,000	119,982,000	141,170,000	163,629,000	183,468,000
Municipal Workorders	8,510,000	8,510,000	8,510,000	8,510,000	8,510,000	8,510,000	8,510,000	8,510,000	8,510,000	8,510,000	8,510,000
Muni WO Additional Required Increase	0	0	681,000	1,416,000	2,111,000	2,854,000	3,650,000	4,380,000	5,153,000	5,973,000	6,697,000
Municipal Non-Workorders	3,350,000	3,350,000	3,350,000	3,350,000	3,350,000	3,350,000	3,350,000	3,350,000	3,350,000	3,350,000	3,350,000
Muni Non-WO Additional Required Increase	0	0	268,000	557,000	831,000	1,124,000	1,437,000	1,724,000	2,028,000	2,351,000	2,636,000
Suburban Retail	9,739,000	9,739,000	9,739,000	9,739,000	9,739,000	9,739,000	9,739,000	9,739,000	9,739,000	9,739,000	9,739,000
Suburban Additional Required Increase	0	0	779,000	1,620,000	2,415,000	3,266,000	4,176,000	5,011,000	5,896,000	6,834,000	7,663,000
Wholesale Water Sales	264,214,570	264,214,570	264,926,687	264,214,570	264,214,570	281,965,380	316,417,930	330,780,106	348,530,916	359,942,151	379,987,365
Other Operating Revenues	58,174,724	48,014,249	48,880,965	49,010,760	49,536,422	49,353,614	49,527,914	49,759,116	49,832,203	50,171,435	50,489,019
Programmatic Revenues											
525GG Infrastructure Recovery - O&M	1,046,000	1,477,000	1,134,000	1,142,000	1,176,000	1,211,000	1,248,000	1,248,000	1,248,000	1,285,000	1,324,000
Other Programmatic Revenues	6,627,375	6,453,928	6,601,928	6,741,928	6,891,928	7,051,928	7,164,960	7,251,614	7,344,372	7,415,085	7,428,606
Non-Debt Capital Revenues											
Capacity Charges	1,901,119	1,767,000	1,511,000	1,554,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,644,000	1,726,000
Custom Work	3,143,357	3,238,000	3,335,000	3,435,000	3,538,000	3,644,000	3,753,000	3,866,000	3,982,000	4,101,000	4,224,000
Other Non-Debt Capital Revenues	27,000,000	-	-	-	-	-	-	-	-	-	-
TOTAL REVENUES	**$ 616,852,146**	**$ 579,909,747**	**$ 601,514,580**	**$ 623,232,258**	**$ 644,810,921**	**$ 684,934,922**	**$ 743,633,804**	**$ 780,266,837**	**$ 821,449,491**	**$ 858,090,671**	**$ 900,387,990**
Expenses											
Operating Expenses	227,993,878	241,935,259	252,963,176	260,546,000	268,359,000	276,406,000	284,693,000	293,229,000	302,020,000	311,077,000	320,402,000
Programmatic Expenses											
Treasure Island Facilities Maintenance	1,236,000	1,273,000	1,311,000	1,350,000	1,390,000	1,431,000	1,474,000	1,518,000	1,560,000	1,600,000	1,650,000
525 Golden Gate Lease Payment	9,169,000	9,168,303	9,169,285	9,167,143	9,168,660	9,169,820	9,130,617	9,054,144	8,975,953	8,895,589	8,812,600
Other Programmatic Expenses	13,730,596	18,882,000	21,674,000	21,326,000	21,221,000	19,044,000	19,788,000	22,028,000	22,526,000	22,980,000	23,315,000
Debt Service	256,014,452	283,657,090	306,250,013	320,531,941	332,025,372	355,380,816	383,722,005	399,938,049	422,127,217	439,031,005	451,147,458
Non-Debt Capital Expenses	58,973,357	56,809,000	56,650,000	67,371,000	66,207,000	71,073,000	72,940,000	90,126,000	96,254,000	96,385,000	111,821,000
More/(Fewer) Expenses Plug for Fund Balance	0	0	0	0	0	0	0	0	0	0	0
Operating Carryforwards	3,004,793	-	-	-	-	-	-	-	-	-	-
Total Expenses	**$ 567,117,284**	**$ 611,724,652**	**$ 648,017,474**	**$ 680,292,084**	**$ 698,371,032**	**$ 732,504,637**	**$ 771,747,622**	**$ 815,893,193**	**$ 853,463,169**	**$ 879,968,594**	**$ 917,148,058**
Total Expenditures for Cash Flow Test	**$ 567,117,284**	**$ 611,724,652**	**$ 648,017,474**	**$ 680,292,084**	**$ 698,371,032**	**$ 732,504,637**	**$ 771,747,622**	**$ 815,893,193**	**$ 853,463,169**	**$ 879,968,594**	**$ 917,148,058**
Cash Flow Surplus (Deficit) - Current	**$ 51,186,726**	**$ (31,814,905)**	**$ (46,502,894)**	**$ (57,059,826)**	**$ (53,560,111)**	**$ (47,569,714)**	**$ (28,113,818)**	**$ (35,626,356)**	**$ (32,013,678)**	**$ (21,877,923)**	**$ (16,760,067)**
Cash Flow Surplus (Deficit) - Indenture	**$ 159,429,932**	**$ 124,284,619**	**$ 102,562,966**	**$ 66,920,348**	**$ 35,997,338**	**$ 10,333,998**	**$ 5,629,746**	**$ (7,897,040)**	**$ (17,198,679)**	**$ (14,109,023)**	**$ (9,486,184)**
Debt Coverage Test											
Debt Coverage Revenues	**$ 583,224,771**	**$ 573,455,819**	**$ 594,912,652**	**$ 616,490,330**	**$ 637,918,992**	**$ 677,882,994**	**$ 736,468,843**	**$ 773,015,223**	**$ 814,105,119**	**$ 850,675,586**	**$ 892,959,384**
Expenditures											
Debt Coverage Expenditures	244,729,267	260,817,259	274,637,176	281,872,000	289,580,000	295,450,000	304,481,000	315,257,000	324,546,000	334,057,000	343,717,000
Debt Service	256,014,452	283,657,090	306,250,013	320,531,941	332,025,372	355,380,816	383,722,005	399,938,049	422,127,217	439,031,005	451,147,458
Coverage Requirement (Current)	25,601,445	28,365,709	30,625,001	32,053,194	33,202,537	35,538,082	38,372,200	39,993,805	42,212,722	43,903,101	45,114,746
Total Expenditures	**$ 526,345,165**	**$ 572,840,058**	**$ 611,512,190**	**$ 634,457,135**	**$ 654,807,909**	**$ 686,368,898**	**$ 726,575,205**	**$ 755,188,854**	**$ 788,885,938**	**$ 816,991,106**	**$ 839,979,204**
Bond Coverage Surplus (Deficit) - Current	**$ 58,331,470**	**$ 615,761**	**$ (16,599,539)**	**$ (17,966,806)**	**$ (16,888,917)**	**$ (8,485,904)**	**$ 9,893,638**	**$ 17,826,369**	**$ 25,219,181**	**$ 33,684,480**	**$ 52,980,180**
Pre-adjustment Coverage (Current)	*1.33x*	*1.10x*	*1.05x*	*1.04x*	*1.05x*	*1.08x*	*1.13x*	*1.14x*	*1.16x*	*1.18x*	*1.22x*
Coverage Requirement (Indenture)	89,605,058	99,279,981	107,187,505	112,186,179	116,208,880	124,383,286	134,302,702	139,978,317	147,744,526	153,660,852	157,901,610
Bond Coverage Surplus (Deficit) - Indenture	**$ 165,603,431**	**$ 153,615,653**	**$ 127,183,183**	**$ 98,977,669**	**$ 64,696,855**	**$ 37,085,309**	**$ 26,478,106**	**$ 27,028,459**	**$ 18,272,865**	**$ 17,833,776**	**$ 36,012,098**
Pre-adjustment Coverage (Indenture)	*2.00x*	*1.89x*	*1.77x*	*1.66x*	*1.54x*	*1.45x*	*1.42x*	*1.42x*	*1.39x*	*1.39x*	*1.43x*

San Francisco

Water Revenue Requirements

	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
Revenue Requirement Calculation											
Surplus / (Shortfall) - Pre Increase	**$ 58,331,470**	**$ 615,761**	**$ (16,599,539)**	**$ (17,966,806)**	**$ (16,888,917)**	**$ (8,485,904)**	**$ 5,629,746**	**$ (7,897,040)**	**$ (17,198,679)**	**$ (14,109,023)**	**$ (9,486,184)**
	Surplus	*Surplus*	*Need Additional Coverage*	*Need Additional Coverage*	*Need Additional Coverage*	*Need Additional Coverage*	*Surplus*	*Need Cash Flow*	*Need Cash Flow*	*Need Cash Flow*	*Need Cash Flow*
Month of Revenue Adjustment	July	July	July	July	July	July	July	July	July	July	July
Pre-Increase Rate Revenue	*$ 254,745,000*	*$ 254,745,000*	*$ 275,125,000*	*$ 297,134,000*	*$ 317,934,000*	*$ 340,189,000*	*$ 364,002,000*	*$ 385,842,000*	*$ 408,992,000*	*$ 433,532,000*	*$ 455,209,000*
Calculated Revenue Increase	**0%**	**0%**	**7%**	**7%**	**6%**	**3%**	**0%**	**3%**	**5%**	**4%**	**3%**
Revenue Increase Overide	**0%**	**8%**	**8%**	**7%**	**7%**	**7%**	**6%**	**6%**	**6%**	**5%**	**3%**
Utilized Revenue Increase	**0%**	**8%**	**8%**	**7%**	**7%**	**7%**	**6%**	**6%**	**6%**	**5%**	**3%**
Cumulative Rate Increase (%)	*0%*	*8%*	*17%*	*25%*	*34%*	*43%*	*51%*	*61%*	*70%*	*79%*	*84%*
Resulting Cash Flows											
Revenues before revenue adjustment	$ 254,745,000	$ 254,745,000	$ 275,125,000	$ 297,134,000	$ 317,934,000	$ 340,189,000	$ 364,002,000	$ 385,842,000	$ 408,992,000	$ 433,532,000	$ 455,209,000
Revenues from revenue adjustment	0	20,380,000	22,009,000	20,800,000	22,255,000	23,813,000	21,840,000	23,150,000	24,540,000	21,677,000	13,656,000
Less: Revenue increase delay	-	-	-	-	-	-	-	-	-	-	-
Other revenues	362,107,146	325,164,747	326,389,580	326,098,258	326,876,921	344,745,922	379,631,804	394,424,837	412,457,491	424,558,671	445,178,990
Less: Expenditures (from cash flow)	(567,117,284)	(611,724,652)	(648,017,474)	(680,292,084)	(698,371,032)	(732,504,637)	(771,747,622)	(815,893,193)	(853,463,169)	(879,968,594)	(917,148,058)
Cash Flow	**49,734,862**	**(11,434,905)**	**(24,493,894)**	**(36,259,826)**	**(31,305,111)**	**(23,756,714)**	**(6,273,818)**	**(12,476,356)**	**(7,473,678)**	**(200,923)**	**(3,104,067)**
Debt Coverage - Current	*1.33x*	*1.17x*	*1.12x*	*1.11x*	*1.12x*	*1.14x*	*1.18x*	*1.20x*	*1.22x*	*1.23x*	*1.25x*
Debt Coverage - Indenture	*2.00x*	*1.96x*	*1.84x*	*1.72x*	*1.61x*	*1.52x*	*1.48x*	*1.48x*	*1.45x*	*1.44x*	*1.46x*
Fund Balance Summary											
Starting Fund Balance	$ 174,254,638	$ 223,989,501	$ 220,420,561	$ 197,152,796	$ 164,668,450	$ 134,493,753	$ 112,594,305	$ 109,267,938	$ 98,668,824	$ 93,992,383	$ 95,906,119
Cash flows	49,734,862	(11,434,905)	(24,493,894)	(36,259,826)	(31,305,111)	(23,756,714)	(6,273,818)	(12,476,356)	(7,473,678)	(200,923)	(3,104,067)
Wholesale Share of Coverage	0	7,865,965	1,226,128	3,775,481	1,130,414	1,857,266	2,947,451	1,877,242	2,797,238	2,114,659	2,312,296
Ending Fund Balance	**$ 223,989,501**	**$ 220,420,561**	**$ 197,152,796**	**$ 164,668,450**	**$ 134,493,753**	**$ 112,594,305**	**$ 109,267,938**	**$ 98,668,824**	**$ 93,992,383**	**$ 95,906,119**	**$ 95,114,347**
Fund Target Min	*$ 63,032,369*	*$ 67,814,641*	*$ 71,279,365*	*$ 73,097,286*	*$ 75,034,665*	*$ 76,512,705*	*$ 78,771,404*	*$ 81,457,286*	*$ 83,770,488*	*$ 86,138,147*	*$ 88,544,900*
Rate Revenue	*$ 254,745,000*	*$ 275,125,000*	*$ 297,134,000*	*$ 317,934,000*	*$ 340,189,000*	*$ 364,002,000*	*$ 385,842,000*	*$ 408,992,000*	*$ 433,532,000*	*$ 455,209,000*	*$ 468,865,000*

San Francisco Water Power Sewer

San Francisco

Operations & Maintenance

Item	Budget FYE 2018	Budget FYE 2019	Budget FYE 2020	Forecasted ---> FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
BEGINNING FUND BALANCE											
Carryforwards											
Operations & Maintenance	$ 21,234,274										
Programmatic	7,911,801										
Revenue-Funded Capital Projects	239,082,887										
Carryforwards Total	**$ 268,228,961**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Wholesale Coverage Reserve	26,937,593	26,937,593	34,803,558	36,029,687	39,805,168	40,935,581	42,792,848	45,740,299	47,617,541	50,414,779	52,529,438
Unappropriated Fund Balance	147,241,709	196,976,571	185,541,667	161,047,773	124,786,947	93,480,835	69,722,121	63,446,303	50,967,947	43,492,268	43,289,345
Beginning Available Fund Balance	**$ 174,179,302**	**$ 223,914,164**	**$ 220,345,225**	**$ 197,077,460**	**$ 164,592,114**	**$ 134,416,417**	**$ 112,514,969**	**$ 109,186,602**	**$ 98,585,488**	**$ 93,907,047**	**$ 95,818,783**
Fund Balance Budgeted as Revenue	1,451,864										
Unappropriated Fund Balance after Budget	145,789,845	196,976,571	185,541,667	161,047,773	124,786,947	93,480,835	69,722,121	63,446,303	50,967,947	43,492,268	43,289,345
Available Fund Balance - Current Basis	***$ 1,451,864***	***$ 0***	***$ 0***	***$ 0***	***$ 0***	***$ 0***	***$ 0***	***$ 0***	***$ 0***	***$ 0***	***$ 0***
Available Fund Balance - Indenture Basis	***$ 172,727,438***	***$ 223,914,164***	***$ 220,345,225***	***$ 197,077,460***	***$ 164,592,114***	***$ 134,416,417***	***$ 112,514,969***	***$ 109,186,602***	***$ 98,585,488***	***$ 93,907,047***	***$ 95,818,783***
WHOLESALE CASH FLOW											
Wholesale											
Operating Costs	$ 95,227,392	$ 101,050,362	$ 105,656,449	$ 108,823,607	$ 112,086,903	$ 115,447,936	$ 118,909,210	$ 122,474,486	$ 126,146,269	$ 129,929,153	$ 133,823,975
Programmatic Expenses	4,487,364	6,801,059	9,676,478	10,349,906	10,718,717	9,196,748	9,855,955	11,539,325	11,784,062	11,996,111	12,127,611
Debt Service - Existing	136,581,418	139,214,234	144,118,747	159,220,671	163,246,201	162,500,744	162,319,875	161,978,482	164,273,818	163,571,111	166,086,013
Debt Service - Proposed	0	0	0	0	496,125	8,670,648	20,641,322	28,491,681	37,385,297	46,546,640	53,280,922
Federal Bond Interest Subsidy	(14,124,574)	(14,029,679)	(13,924,578)	(13,811,549)	(13,685,553)	(13,481,745)	(13,203,377)	(12,911,095)	(12,604,895)	(12,275,678)	(11,920,412)
Water Revenue Funded Capital	18,381,715	26,420,000	26,420,000	13,210,000	13,210,000	15,191,500	15,852,000	16,512,500	19,815,000	18,494,000	26,420,000
Hetchy Revenue Funded Capital	0	0	0	0	0	0	0	0	0	0	0
K-5 Schedule Payment	1,159,258	1,159,258	1,159,258	1,159,258	1,159,258	1,159,258	1,159,258	0	0	0	0
Wholesale Revenue Requirement Subtotal	$ 241,712,575	$ 260,615,234	$ 273,106,354	$ 278,951,893	$ 287,231,651	$ 298,685,088	$ 315,534,243	$ 328,085,379	$ 346,799,551	$ 358,261,337	$ 379,818,108
Starting Balancing Account	(42,595,150)	(65,959,351)	(63,002,569)	(55,161,671)	(38,107,930)	(15,464,158)	2,024,302	3,195,236	1,446,014	1,500,731	785,096
7.06 Adjustments	0	0	0	0	0	0	0	0	0	0	0
M3 Adjustment	0	0	0	0	0	0	0	0	0	0	0
Interest on Balancing Account & Coverage Rese	(862,206)	(1,309,847)	(1,564,898)	(1,459,062)	(1,503,723)	(1,088,515)	(892,831)	(931,737)	(1,011,156)	(1,149,480)	(1,215,992)
Wholesale Share of Coverage	0	7,865,965	1,226,128	3,775,481	1,130,414	1,857,266	2,947,451	1,877,242	2,797,238	2,114,659	2,312,296
Balancing Account Deferral	0	63,000,000	55,000,000	38,000,000	15,500,000						
WRR Below-the-Line Subtotal	$ (43,457,356)	$ 3,596,767	$ (8,341,339)	$ (14,845,252)	$ (22,981,239)	$ (14,695,407)	$ 4,078,922	$ 4,140,741	$ 3,232,096	$ 2,465,910	$ 1,881,400
Wholesale Revenue Requirement Total	**$ 198,255,219**	**$ 264,212,001**	**$ 264,765,016**	**$ 264,106,640**	**$ 264,250,412**	**$ 283,989,682**	**$ 319,613,166**	**$ 332,226,120**	**$ 350,031,647**	**$ 360,727,247**	**$ 381,699,508**
Wholesale Water Sales (CCF)	63,395,749	63,395,749	63,569,436	63,395,749	63,395,749	63,395,749	63,569,436	63,395,749	63,395,749	63,395,749	63,569,436
Wholesale Rate Increases	0.0%	0.0%	0.0%	0.0%	0.0%	7.6%	12.5%	4.2%	5.4%	3.1%	5.7%
Wholesale Rate ($/CCF)	$ 4.10	$ 4.10	$ 4.10	$ 4.10	$ 4.10	$ 4.41	$ 4.96	$ 5.17	$ 5.45	$ 5.62	$ 5.94
Wholesale Blended Rate ($/CCF)	$ 4.10	$ 4.10	$ 4.10	$ 4.10	$ 4.10	$ 4.38	$ 4.91	$ 5.15	$ 5.43	$ 5.61	$ 5.91
Wholesale Service Charges	$ 4,292,000	$ 4,292,000	$ 4,292,000	$ 4,292,000	$ 4,292,000	$ 4,292,000	$ 4,292,000	$ 4,292,000	$ 4,292,000	$ 4,292,000	$ 4,292,000
Wholesale Volumetric Charges	259,922,570	259,922,570	260,634,687	259,922,570	259,922,570	277,673,380	312,125,930	326,488,106	344,238,916	355,650,151	375,695,365
Charge Corrections & Adjustments	0	0	0	0	0	0	0	0	0	0	0
Wholesale Water Sales Revenue	**$ 264,214,570**	**$ 264,214,570**	**$ 264,926,687**	**$ 264,214,570**	**$ 264,214,570**	**$ 281,965,380**	**$ 316,417,930**	**$ 330,780,106**	**$ 348,530,916**	**$ 359,942,151**	**$ 379,987,365**
Revenue Over/(Under) Collection	**$ (23,364,201)**	**$ 2,956,782**	**$ 7,840,898**	**$ 17,053,741**	**$ 22,643,772**	**$ 17,488,460**	**$ 1,170,934**	**$ (1,749,222)**	**$ 54,717**	**$ (715,635)**	**$ 927,046**
Starting Balancing Account	**(42,595,150)**	**(65,959,351)**	**(63,002,569)**	**(55,161,671)**	**(38,107,930)**	**(15,464,158)**	**2,024,302**	**3,195,236**	**1,446,014**	**1,500,731**	**785,096**
Ending Balancing Account	**$ (65,959,351)**	**$ (63,002,569)**	**$ (55,161,671)**	**$ (38,107,930)**	**$ (15,464,158)**	**$ 2,024,302**	**$ 3,195,236**	**$ 1,446,014**	**$ 1,500,731**	**$ 785,096**	**$ 1,712,142**

San Francisco

Operations & Maintenance

Item	Budget FYE 2018	Budget FYE 2019	Budget FYE 2020	Forecasted ---> FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
REVENUES											
Operating Revenues											
Retail Water Sales											
Inside-City	$ 233,146,000	$ 251,798,000	$ 271,942,000	$ 290,978,000	$ 311,346,000	$ 333,140,000	$ 353,128,000	$ 374,316,000	$ 396,775,000	$ 416,614,000	$ 429,112,000
Municipal Workorders	8,510,000	9,191,000	9,926,000	10,621,000	11,364,000	12,159,000	12,889,000	13,662,000	14,482,000	15,206,000	15,662,000
Municipal Non-Workorders	3,350,000	3,618,000	3,907,000	4,180,000	4,473,000	4,786,000	5,073,000	5,377,000	5,700,000	5,985,000	6,165,000
Suburban Retail	9,739,000	10,518,000	11,359,000	12,154,000	13,005,000	13,915,000	14,750,000	15,635,000	16,573,000	17,402,000	17,924,000
Retail Water Sales Total	**$ 254,745,000**	**$ 275,125,000**	**$ 297,134,000**	**$ 317,933,000**	**$ 340,188,000**	**$ 364,000,000**	**$ 385,840,000**	**$ 408,990,000**	**$ 433,530,000**	**$ 455,207,000**	**$ 468,863,000**
Wholesale Water Sales Total	**$ 264,214,570**	**$ 264,214,570**	**$ 264,926,687**	**$ 264,214,570**	**$ 264,214,570**	**$ 281,965,380**	**$ 316,417,930**	**$ 330,780,106**	**$ 348,530,916**	**$ 359,942,151**	**$ 379,987,365**
Interest Income	**2,001,269**	**3,157,000**	**3,526,000**	**3,153,000**	**3,177,000**	**2,594,000**	**2,464,000**	**2,391,000**	**2,159,000**	**2,207,000**	**2,252,000**
Rental Revenue	**12,308,711**	**12,671,000**	**13,040,000**	**13,419,000**	**13,809,000**	**14,211,000**	**14,625,000**	**15,051,000**	**15,489,000**	**15,940,000**	**16,404,000**
Federal Bond Interest Subsidy	**22,129,901**	**21,975,249**	**21,803,965**	**21,619,760**	**21,414,422**	**21,086,614**	**20,641,914**	**20,175,116**	**19,686,203**	**19,160,435**	**18,593,019**
Other Misc Income											
Settlements, Fines & Penalties	1,650	0	0	0	0	0	0	0	0	0	0
Sale of Scrap & Fixed Assets	3,250,947	0	0	0	0	0	0	0	0	0	0
Water Service Installation Charges	5,470,344	5,631,000	5,795,000	5,964,000	6,138,000	6,317,000	6,501,000	6,690,000	6,885,000	7,085,000	7,291,000
Other Non-Operating Revenue	11,018,078	2,526,000	2,600,000	2,676,000	2,754,000	2,834,000	2,916,000	3,001,000	3,088,000	3,178,000	3,270,000
Non-Utility Services to Other Departments	1,993,825	2,054,000	2,116,000	2,179,000	2,244,000	2,311,000	2,380,000	2,451,000	2,525,000	2,601,000	2,679,000
Other Misc Income Total	$ 21,734,844	$ 10,211,000	$ 10,511,000	$ 10,819,000	$ 11,136,000	$ 11,462,000	$ 11,797,000	$ 12,142,000	$ 12,498,000	$ 12,864,000	$ 13,240,000
Operating Revenues Total	$ 577,134,294	$ 587,353,819	$ 610,941,652	$ 631,158,330	$ 653,938,992	$ 695,318,994	$ 751,785,843	$ 789,529,223	$ 831,893,119	$ 865,320,586	$ 899,339,384
Programmatic Revenues											
Treasure Island Water Sales	1,715,577	1,853,000	2,001,000	2,141,000	2,291,000	2,451,000	2,598,000	2,754,000	2,919,000	3,065,000	3,157,000
525GG Infrastructure Recovery - O&M	1,046,000	1,477,000	1,134,000	1,142,000	1,176,000	1,211,000	1,248,000	1,248,000	1,248,000	1,285,000	1,324,000
525GG Infrastructure Recovery - Lease	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000
525GG COPS Bond Interest Subsidy	1,950,928	1,950,928	1,950,928	1,950,928	1,950,928	1,950,928	1,916,960	1,847,614	1,775,372	1,700,085	1,621,606
City Grants & Add-Backs	100,000	0	0	0	0	0	0	0	0	0	0
State Grants	210,870	0	0	0	0	0	0	0	0	0	0
Federal Grants	0	0	0	0	0	0	0	0	0	0	0
Programmatic Revenues Total	**$ 7,673,375**	**$ 7,930,928**	**$ 7,735,928**	**$ 7,883,928**	**$ 8,067,928**	**$ 8,262,928**	**$ 8,412,960**	**$ 8,499,614**	**$ 8,592,372**	**$ 8,700,085**	**$ 8,752,606**
Non-Debt Capital Revenues											
Capacity Charges	1,901,119	1,767,000	1,511,000	1,554,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,644,000	1,726,000
Capital Services to Other City Departments	0	0	0	0	0	0	0	0	0	0	0
Custom Work	3,143,357	3,238,000	3,335,000	3,435,000	3,538,000	3,644,000	3,753,000	3,866,000	3,982,000	4,101,000	4,224,000
City Grants & Add-Backs	0	0	0	0	0	0	0	0	0	0	0
CCSF General Obligation Bonds	0	0	0	0	0	0	0	0	0	0	0
State Grants	0	0	0	0	0	0	0	0	0	0	0
Federal Grants	0	0	0	0	0	0	0	0	0	0	0
Use of External Fund Balance/Reserves	27,000,000	0	0	0	0	0	0	0	0	0	0
Non-Debt Capital Revenues Total	**$ 32,044,476**	**$ 5,005,000**	**$ 4,846,000**	**$ 4,989,000**	**$ 5,058,000**	**$ 5,164,000**	**$ 5,273,000**	**$ 5,386,000**	**$ 5,502,000**	**$ 5,745,000**	**$ 5,950,000**
TOTAL REVENUES	**$ 616,852,146**	**$ 600,289,747**	**$ 623,523,580**	**$ 644,031,258**	**$ 667,064,921**	**$ 708,745,922**	**$ 765,471,804**	**$ 803,414,837**	**$ 845,987,491**	**$ 879,765,671**	**$ 914,041,990**
Total Operating & Programmatic Revenues	*$ 584,807,670*	*$ 595,284,747*	*$ 618,677,580*	*$ 639,042,258*	*$ 662,006,921*	*$ 703,581,922*	*$ 760,198,804*	*$ 798,028,837*	*$ 840,485,491*	*$ 874,020,671*	*$ 908,091,990*
Total Revenues - Coverage Calculation	*$ 583,224,771*	*$ 593,835,819*	*$ 616,921,652*	*$ 637,289,330*	*$ 660,172,992*	*$ 701,693,994*	*$ 758,306,843*	*$ 796,163,223*	*$ 838,643,119*	*$ 872,350,586*	*$ 906,613,384*

San Francisco Water Power Sewer

San Francisco

Operations & Maintenance

Item	Budget FYE 2018	Budget FYE 2019	Budget FYE 2020	Forecasted ---> FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
EXPENSES											
Operating Expenses											
WTR0101 - Administration											
Services of SFPUC Bureaus	45,075,234	48,079,991	49,763,262	$ 51,256,000	$ 52,794,000	$ 54,378,000	$ 56,009,000	$ 57,689,000	$ 59,420,000	$ 61,203,000	$ 63,039,000
Services of Other Departments	8,355,839	8,930,056	9,207,674	9,484,000	9,769,000	10,062,000	10,364,000	10,675,000	10,995,000	11,325,000	11,665,000
No Inflation Expenses	56,525	61,348	61,348	61,000	61,000	61,000	61,000	61,000	61,000	61,000	61,000
All Other Expenses	11,284,200	12,126,817	12,367,406	12,738,000	13,120,000	13,514,000	13,919,000	14,337,000	14,767,000	15,210,000	15,666,000
Subtotal WTR0101 - Administration	$ 64,771,797	$ 69,198,212	$ 71,399,690	$ 73,539,000	$ 75,744,000	$ 78,015,000	$ 80,353,000	$ 82,762,000	$ 85,243,000	$ 87,799,000	$ 90,431,000
WTR0102	25,055	0	54,386	56,000	58,000	60,000	62,000	64,000	66,000	68,000	70,000
WTR0301 - CDD - Shops	7,857,408	8,483,937	8,571,868	8,829,000	9,094,000	9,367,000	9,648,000	9,937,000	10,235,000	10,542,000	10,858,000
WTR0302 - CDD - Admin	4,644,648	4,763,440	5,318,536	5,478,000	5,642,000	5,811,000	5,985,000	6,165,000	6,350,000	6,541,000	6,737,000
WTR0303 - CDD - Buildings and Grounds											
Electricity	3,274,052	3,493,464	3,613,408	3,722,000	3,834,000	3,949,000	4,067,000	4,189,000	4,315,000	4,444,000	4,577,000
No Inflation Expenses	116,093	126,000	126,000	126,000	126,000	126,000	126,000	126,000	126,000	126,000	126,000
All Other Expenses	6,693,107	7,211,499	7,316,998	7,537,000	7,763,000	7,996,000	8,236,000	8,483,000	8,737,000	8,999,000	9,269,000
Subtotal WTR0303 - CDD - Bldgs & Grnds	$ 10,083,253	$ 10,830,963	$ 11,056,406	$ 11,385,000	$ 11,723,000	$ 12,071,000	$ 12,429,000	$ 12,798,000	$ 13,178,000	$ 13,569,000	$ 13,972,000
WTR0304 - CDD - Engineering	1,792,335	1,890,710	1,999,850	2,060,000	2,122,000	2,186,000	2,252,000	2,320,000	2,390,000	2,462,000	2,536,000
WTR030501	17,775,274	18,138,785	20,445,388	21,059,000	21,691,000	22,342,000	23,012,000	23,702,000	24,413,000	25,145,000	25,899,000
WTR030505	1,200,264	1,277,218	1,328,155	1,368,000	1,409,000	1,451,000	1,495,000	1,540,000	1,586,000	1,634,000	1,683,000
WTR0401 - Water Quality Admin	2,593,430	2,585,533	3,043,935	3,135,000	3,229,000	3,326,000	3,426,000	3,529,000	3,635,000	3,744,000	3,856,000
WTR0402 - Engineering	5,742,014	6,046,050	6,417,941	6,610,000	6,808,000	7,012,000	7,222,000	7,439,000	7,662,000	7,892,000	8,129,000
WTR0403 - Environmental Services	4,880,184	5,308,716	5,284,531	5,443,000	5,606,000	5,774,000	5,947,000	6,125,000	6,309,000	6,498,000	6,693,000
WTR0404 - Labs	5,971,762	6,108,179	6,854,517	7,060,000	7,272,000	7,490,000	7,715,000	7,946,000	8,184,000	8,430,000	8,683,000
WTR0501 - Supply - Admin											
Taxes, Licenses, and Permits	1,842,753	2,000,000	2,000,000	2,060,000	2,122,000	2,186,000	2,252,000	2,320,000	2,390,000	2,462,000	2,536,000
All Other Expenses	2,511,898	2,435,328	3,017,162	3,108,000	3,201,000	3,297,000	3,396,000	3,498,000	3,603,000	3,711,000	3,822,000
Subtotal WTR0501 - Supply - Admin	$ 42,517,578	$ 43,899,810	$ 48,391,629	$ 49,843,000	$ 51,338,000	$ 52,878,000	$ 54,465,000	$ 56,099,000	$ 57,782,000	$ 59,516,000	$ 61,301,000
WTR0502 - Supply - O&M	19,505,747	20,862,875	21,477,577	22,122,000	22,786,000	23,470,000	24,174,000	24,899,000	25,646,000	26,415,000	27,207,000
WTR0503 - Supply - Maintenance Engineering	2,937,539	3,199,640	3,176,774	3,272,000	3,370,000	3,471,000	3,575,000	3,682,000	3,792,000	3,906,000	4,023,000
WTR0505 - Supply - Systems Operations											
Chemicals	5,067,853	5,500,613	5,500,000	5,665,000	5,835,000	6,010,000	6,190,000	6,376,000	6,567,000	6,764,000	6,967,000
Electricity	5,803,044	6,193,291	6,403,177	6,595,000	6,793,000	6,997,000	7,207,000	7,423,000	7,646,000	7,875,000	8,111,000
All Other Expenses	11,969,837	12,901,725	13,080,787	13,473,000	13,877,000	14,293,000	14,722,000	15,164,000	15,619,000	16,088,000	16,571,000
Subtotal WTR0505 - Supply - Systems Ops	$ 49,638,671	$ 53,093,472	$ 54,655,476	$ 56,295,000	$ 57,984,000	$ 59,724,000	$ 61,516,000	$ 63,362,000	$ 65,263,000	$ 67,221,000	$ 69,237,000
WTR06 - Natural Resources	11,435,131	12,048,382	12,773,462	13,157,000	13,552,000	13,959,000	14,378,000	14,809,000	15,253,000	15,711,000	16,182,000
WTR0701 - Water Resources Planning	2,322,502	2,330,388	2,710,987	2,792,000	2,876,000	2,962,000	3,051,000	3,143,000	3,237,000	3,334,000	3,434,000
WTR0703 - Water Conservation											
Grant Program	2,470,026	2,605,121	2,756,480	2,839,000	2,924,000	3,012,000	3,102,000	3,195,000	3,291,000	3,390,000	3,492,000
All Other Expenses	3,388,234	3,648,153	3,706,569	3,818,000	3,933,000	4,051,000	4,173,000	4,298,000	4,427,000	4,560,000	4,697,000
Subtotal WTR0703 - Water Conservation	$ 39,535,906	$ 42,174,039	$ 43,645,186	$ 44,954,000	$ 46,303,000	$ 47,692,000	$ 49,123,000	$ 50,597,000	$ 52,114,000	$ 53,678,000	$ 55,288,000
Hetch Hetchy Assessment	31,401,891	33,578,000	34,585,000	35,623,000	36,692,000	37,793,000	38,927,000	40,095,000	41,298,000	42,537,000	43,813,000
Operating Expenses Total	**$ 227,993,878**	**$ 241,935,259**	**$ 252,963,176**	**$ 260,546,000**	**$ 268,359,000**	**$ 276,406,000**	**$ 284,693,000**	**$ 293,229,000**	**$ 302,020,000**	**$ 311,077,000**	**$ 320,402,000**

San Francisco

Operations & Maintenance

Item	Budget FYE 2018	Budget FYE 2019	Budget FYE 2020	Forecasted ----> FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
Programmatic Expenses											
Local Projects											
Water Resource Planning & Development	0	300,000	300,000	300,000	300,000	300,000	0	0	0	0	0
Landscape Conservation Program	1,500,000	2,000,000	2,000,000	1,000,000	0	0	0	0	0	0	0
AWSS Maintenance	1,500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
Treasure Island Facilities Maintenance	1,236,000	1,273,000	1,311,000	1,350,000	1,390,000	1,431,000	1,474,000	1,518,000	1,560,000	1,600,000	1,650,000
Retrofit Grant Program	637,000	1,134,000	637,000	257,000	488,000	507,000	435,000	0	0	0	0
525 Golden Gate O&M	3,719,000	5,277,000	4,050,000	4,064,000	4,186,000	4,311,000	4,441,000	4,575,000	4,710,000	4,851,000	4,995,000
525 Golden Gate Lease Payment	9,169,000	9,168,303	9,169,285	9,167,143	9,168,660	9,169,820	9,130,617	9,054,144	8,975,953	8,895,589	8,812,600
Local Projects Total	$ 17,761,000	$ 19,652,303	$ 17,967,285	$ 16,638,143	$ 16,032,660	$ 16,218,820	$ 15,980,617	$ 15,647,144	$ 15,745,953	$ 15,846,589	$ 15,957,600
Regional Projects											
Natural Resources Planning	500,000	600,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
Long Term Monitoring & Permit Program	3,124,596	6,585,000	11,201,000	12,219,000	12,761,000	10,440,000	11,426,000	13,967,000	14,330,000	14,643,000	14,834,000
Youth Employment Project	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000
Watershed Protection	710,000	1,196,000	1,196,000	1,196,000	1,196,000	1,196,000	1,196,000	1,196,000	1,196,000	1,196,000	1,196,000
Community Benefits	750,000	0	0	0	0	0	0	0	0	0	0
Regional Projects Total	$ 6,374,596	$ 9,671,000	$ 14,187,000	$ 15,205,000	$ 15,747,000	$ 13,426,000	$ 14,412,000	$ 16,953,000	$ 17,316,000	$ 17,629,000	$ 17,820,000
Programmatic Expenses Total	**$ 24,135,596**	**$ 29,323,303**	**$ 32,154,285**	**$ 31,843,143**	**$ 31,779,660**	**$ 29,644,820**	**$ 30,392,617**	**$ 32,600,144**	**$ 33,061,953**	**$ 33,475,589**	**$ 33,777,600**
Debt Service											
Debt Service - Existing Bonds	274,084,152	294,177,028	306,250,013	320,531,941	324,126,225	326,731,173	326,604,770	326,073,683	330,054,180	328,625,338	326,566,438
BAWSCA Prepayment Defeasance	(18,069,700)	(10,519,938)	0	0	0	0	0	0	0	0	0
Debt Service - Existing SRF Loans	0	0	0	0	6,632,026	6,632,026	6,632,026	6,632,026	6,632,026	6,632,026	6,632,026
Debt Service - Proposed Bonds	0	0	0	0	1,267,121	22,017,618	50,485,209	67,232,340	85,441,011	103,773,642	117,948,995
Debt Service Total	**$ 256,014,452**	**$ 283,657,090**	**$ 306,250,013**	**$ 320,531,941**	**$ 332,025,372**	**$ 355,380,816**	**$ 383,722,005**	**$ 399,938,049**	**$ 422,127,217**	**$ 439,031,005**	**$ 451,147,458**
Non-Debt Capital Expenses											
Hetchy Water Projects	0	0	0	0	0	0	0	0	0	0	0
Local Projects Total	4,143,357	16,809,000	16,650,000	47,371,000	46,207,000	48,073,000	48,940,000	65,126,000	66,254,000	68,385,000	71,821,000
Regional Projects	54,830,000	40,000,000	40,000,000	20,000,000	20,000,000	23,000,000	24,000,000	25,000,000	30,000,000	28,000,000	40,000,000
Non-Debt Capital Expenses Total	**$ 58,973,357**	**$ 56,809,000**	**$ 56,650,000**	**$ 67,371,000**	**$ 66,207,000**	**$ 71,073,000**	**$ 72,940,000**	**$ 90,126,000**	**$ 96,254,000**	**$ 96,385,000**	**$ 111,821,000**
More/(Fewer) Expenses Plug for Fund Balance	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Operating Carryforwards	**$ 3,004,793**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
TOTAL EXPENSES	**$ 570,122,077**	**$ 611,724,652**	**$ 648,017,474**	**$ 680,292,084**	**$ 698,371,032**	**$ 732,504,637**	**$ 771,747,622**	**$ 815,893,193**	**$ 853,463,169**	**$ 879,968,594**	**$ 917,148,058**
Total O&M & Programmatic Expenses	*$ 252,129,474*	*$ 271,258,562*	*$ 285,117,461*	*$ 292,389,143*	*$ 300,138,660*	*$ 306,050,820*	*$ 315,085,617*	*$ 325,829,144*	*$ 335,081,953*	*$ 344,552,589*	*$ 354,179,600*
Total Expenses - Coverage Calculation	*$ 244,729,267*	*$ 260,817,259*	*$ 274,637,176*	*$ 281,872,000*	*$ 289,580,000*	*$ 295,450,000*	*$ 304,481,000*	*$ 315,257,000*	*$ 324,546,000*	*$ 334,057,000*	*$ 343,717,000*
ENDING FUND BALANCE											
NET REVENUES	**$ 46,730,069**	**$ (11,434,905)**	**$ (24,493,894)**	**$ (36,260,826)**	**$ (31,306,111)**	**$ (23,758,714)**	**$ (6,275,818)**	**$ (12,478,356)**	**$ (7,475,678)**	**$ (202,923)**	**$ (3,106,067)**
Net O&M & Programmatic Revenues	*$ 332,678,196*	*$ 324,026,185*	*$ 333,560,119*	*$ 346,653,115*	*$ 361,868,261*	*$ 397,531,102*	*$ 445,113,186*	*$ 472,199,693*	*$ 505,403,538*	*$ 529,468,082*	*$ 553,912,391*
Net Revenues - Coverage Calculation	*$ 338,495,504*	*$ 333,018,560*	*$ 342,284,476*	*$ 355,417,330*	*$ 370,592,992*	*$ 406,243,994*	*$ 453,825,843*	*$ 480,906,223*	*$ 514,097,119*	*$ 538,293,586*	*$ 562,896,384*
Wholesale Coverage Reserve	26,937,593	34,803,558	36,029,687	39,805,168	40,935,581	42,792,848	45,740,299	47,617,541	50,414,779	52,529,438	54,841,734
Unappropriated Fund Balance	196,976,571	185,541,667	161,047,773	124,786,947	93,480,835	69,722,121	63,446,303	50,967,947	43,492,268	43,289,345	40,183,278
ENDING UNAPPROPRIATED FUND BALANCE	**$ 223,914,164**	**$ 220,345,225**	**$ 197,077,460**	**$ 164,592,114**	**$ 134,416,417**	**$ 112,514,969**	**$ 109,186,602**	**$ 98,585,488**	**$ 93,907,047**	**$ 95,818,783**	**$ 95,025,011**

San Francisco Water Power Sewer

San Francisco

Operations & Maintenance

Item	Budget FYE 2018	Budget FYE 2019	Budget FYE 2020	Forecasted ---> FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
RESERVE & COVERAGE CALCULATIONS											
Debt Service Coverage Calculations											
Current Basis	1.33	1.17	1.12	1.11	1.12	1.14	1.18	1.20	1.22	1.23	1.25
Indenture Basis	2.00	1.96	1.84	1.72	1.61	1.52	1.48	1.48	1.45	1.44	1.46
Fund Balance Reserve as a % of…											
O&M & Programmatic Revenues	38.3%	37.0%	31.9%	25.8%	20.3%	16.0%	14.4%	12.4%	11.2%	11.0%	10.5%
O&M & Programmatic Expenses	88.8%	81.2%	69.1%	56.3%	44.8%	36.8%	34.7%	30.3%	28.0%	27.8%	26.8%
BILL IMPACTS											
Retail Rate Increases	7.0%	8.0%	8.0%	7.0%	7.0%	7.0%	6.0%	6.0%	6.0%	5.0%	3.0%
Adopted Single Family Rates											
Service Charge - 5/8"	$ 11.63	$ 12.19	$ 13.15	$ 14.06	$ 15.04						
Tier 1	$ 6.42	$ 7.06	$ 7.77	$ 8.55	$ 9.40						
Tier 2	$ 8.62	$ 9.05	$ 9.50	$ 9.98	$ 10.48						
Average Single Family Water Usage (CCF)	5.28	5.28	5.29	5.28	5.27	5.27	5.28	5.27	5.27	5.27	5.28
Average Single Family Water Bill	**$ 48.34**	**$ 52.01**	**$ 56.49**	**$ 61.03**	**$ 65.95**	**$ 70.57**	**$ 74.80**	**$ 79.29**	**$ 84.05**	**$ 88.25**	**$ 90.90**
San Francisco Median Household Income	$ 93,000	$ 95,800	$ 98,700	$ 101,700	$ 104,800	$ 107,900	$ 111,100	$ 114,400	$ 117,800	$ 121,300	$ 124,900
Water Bill as a % of Median Income	**0.6%**	**0.7%**	**0.7%**	**0.7%**	**0.8%**	**0.8%**	**0.8%**	**0.8%**	**0.9%**	**0.9%**	**0.9%**
Pennies per Gallon	**1.22**	**1.32**	**1.43**	**1.55**	**1.67**	**1.79**	**1.89**	**2.01**	**2.13**	**2.24**	**2.30**

San Francisco
Water Capital Planning

Forecasted ---->

Item	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
% of Projects Revenue-Financed											
Local	0.0%	14.3%	16.2%	30.7%	33.9%	45.1%	74.4%	100.0%	100.0%	100.0%	100.0%
Regional	40.5%	22.2%	35.3%	11.0%	30.1%	31.5%	29.8%	35.5%	38.2%	39.6%	32.4%
Hetchy Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SOURCES (REVENUES)											
Programmatic Sources											
Non-Rate Revenue											
525GG Infrastructure Recovery - O&M	1,046,000	1,477,000	1,134,000	1,142,000	1,176,000	1,211,000	1,248,000	1,248,000	1,248,000	1,285,000	1,324,000
525GG Infrastructure Recovery - Lease	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000
525GG COPS Bond Interest Subsidy	1,950,928	1,950,928	1,950,928	1,950,928	1,950,928	1,950,928	1,916,960	1,847,614	1,775,372	1,700,085	1,621,606
City Grants & Add-Backs	100,000	0	0	0	0	0	0	0	0	0	0
State Grants	210,870	0	0	0	0	0	0	0	0	0	0
Federal Grants	0	0	0	0	0	0	0	0	0	0	0
Non-Rate Revenue Total	**5,957,798**	**6,077,928**	**5,734,928**	**5,742,928**	**5,776,928**	**5,811,928**	**5,814,960**	**5,745,614**	**5,673,372**	**5,635,085**	**5,595,606**
Rate Revenue											
Treasure Island Water Charges	1,715,577	1,853,000	2,001,000	2,141,000	2,291,000	2,451,000	2,598,000	2,754,000	2,919,000	3,065,000	3,157,000
Other Rate Revenue	17,326,019	21,392,000	24,418,000	23,967,000	23,707,000	21,387,000	21,987,000	24,007,000	24,474,000	24,775,504	25,024,993
Rate Revenue Appropriated Total	**19,041,596**	**23,245,000**	**26,419,000**	**26,108,000**	**25,998,000**	**23,838,000**	**24,585,000**	**26,761,000**	**27,393,000**	**27,840,504**	**28,181,993**
Programmic Sources Total	**24,999,394**	**29,322,928**	**32,153,928**	**31,850,928**	**31,774,928**	**29,649,928**	**30,399,960**	**32,506,614**	**33,066,372**	**33,475,589**	**33,777,600**
Sources Greater/(Less) than Appropriated Uses	*863,798*	*(375)*	*(356)*	*7,786*	*(4,732)*	*5,108*	*7,343*	*(93,530)*	*4,419*	*0*	*0*
Capital Sources											
Grants & Non-Rate Revenue											
Capacity Charges	1,901,119	1,767,000	1,511,000	1,554,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,644,000	1,726,000
Capital Services to Other City Departments	0	0	0	0	0	0	0	0	0	0	0
Custom Work	3,143,357	3,238,000	3,335,000	3,435,000	3,538,000	3,644,000	3,753,000	3,866,000	3,982,000	4,101,000	4,224,000
City Grants & Add-Backs	0	0	0	0	0	0	0	0	0	0	0
CCSF General Obligation Bonds	0	0	0	0	0	0	0	0	0	0	0
State Grants	0	0	0	0	0	0	0	0	0	0	0
Federal Grants	0	0	0	0	0	0	0	0	0	0	0
Use of External Fund Balance/Reserves	27,000,000	0	0	0	0	0	0	0	0	0	0
Grants & Non-Rate Revenue Total	**32,044,476**	**5,005,000**	**4,846,000**	**4,989,000**	**5,058,000**	**5,164,000**	**5,273,000**	**5,386,000**	**5,502,000**	**5,745,000**	**5,950,000**
Rate Revenue Appropriated											
Local Water Rate Revenue	0	11,804,000	11,804,000	42,382,000	41,149,000	42,909,000	43,667,000	59,740,000	60,752,000	62,640,000	65,871,000
Regional Water Rate Revenue	27,830,000	40,000,000	40,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000
Hetch Hetchy Water Rate Revenue	0	0	0	0	0	0	0	0	0	0	0
Rate Revenue Appropriated Total	**27,830,000**	**51,804,000**	**51,804,000**	**62,382,000**	**61,149,000**	**62,909,000**	**63,667,000**	**79,740,000**	**80,752,000**	**82,640,000**	**85,871,000**
Local SRF Loans	**6,500,000**	**6,500,000**	**272,000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Revenue Bonds											
Local Bonds (Non-WSIP)	59,600,000	64,005,000	60,924,000	95,877,400	80,279,500	52,221,200	15,062,200	400	100	300	200
Regional Bonds (Non-WSIP)	13,809,000	140,273,000	73,204,000	161,638,000	46,371,000	40,578,000	43,041,000	31,399,000	22,361,000	22,462,000	21,722,000
Regional Bonds (WSIP)	0	0	0	0	0	0	0	0	0	0	0
Wholesale Bonds	0	0	0	0	0	3,000,000	4,000,000	5,000,000	10,000,000	8,000,000	20,000,000
Hetchy Water Bonds	22,783,150	28,988,650	60,426,500	49,781,150	104,961,750	69,140,800	49,213,150	34,669,950	52,346,400	15,579,900	14,205,250
Revenue Bonds Total	**96,192,150**	**233,266,650**	**194,554,500**	**307,296,550**	**231,612,250**	**164,940,000**	**111,316,350**	**71,069,350**	**84,707,500**	**46,042,200**	**55,927,450**
Total Capital Sources	**162,566,626**	**296,575,650**	**251,476,500**	**374,667,550**	**297,819,250**	**233,013,000**	**180,256,350**	**156,195,350**	**170,961,500**	**134,427,200**	**147,748,450**

San Francisco
Water Capital Planning

Item	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
	Forecasted —>										
PROGRAMMATIC USES											
Local Projects											
Water Resource Planning & Development	0	300,000	300,000	300,000	300,000	300,000	0	0	0	0	0
Landscape Conservation Program	1,500,000	2,000,000	2,000,000	1,000,000	0	0	0	0	0	0	0
AWSS Maintenance	1,500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
Treasure Island Facilities Maintenance	1,236,000	1,273,000	1,311,000	1,350,000	1,390,000	1,431,000	1,474,000	1,518,000	1,560,000	1,600,000	1,650,000
Retrofit Grant Program	637,000	1,134,000	637,000	257,000	488,000	507,000	435,000	0	0	0	0
525 Golden Gate O&M	3,719,000	5,277,000	4,050,000	4,064,000	4,186,000	4,311,000	4,441,000	4,575,000	4,710,000	4,851,000	4,995,000
525 Golden Gate Lease Payment	9,169,000	9,168,303	9,169,285	9,167,143	9,168,660	9,169,820	9,130,617	9,054,144	8,975,953	8,895,589	8,812,600
Local Projects Total	**17,761,000**	**19,652,303**	**17,967,285**	**16,638,143**	**16,032,660**	**16,218,820**	**15,980,617**	**15,647,144**	**15,745,953**	**15,846,589**	**15,957,600**
Regional Projects											
Natural Resources Planning	500,000	600,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
Long Term Monitoring & Permit Program	3,124,596	6,585,000	11,201,000	12,219,000	12,761,000	10,440,000	11,426,000	13,967,000	14,330,000	14,643,000	14,834,000
Youth Employment Project	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000
Watershed Protection	710,000	1,196,000	1,196,000	1,196,000	1,196,000	1,196,000	1,196,000	1,196,000	1,196,000	1,196,000	1,196,000
Community Benefits	750,000	0	0	0	0	0	0	0	0	0	0
Regional Projects Total	**6,374,596**	**9,671,000**	**14,187,000**	**15,205,000**	**15,747,000**	**13,426,000**	**14,412,000**	**16,953,000**	**17,316,000**	**17,629,000**	**17,820,000**
Total Programmatic Uses - Appropriation	**24,135,596**	**29,323,303**	**32,154,285**	**31,843,143**	**31,779,660**	**29,644,820**	**30,392,617**	**32,600,144**	**33,061,953**	**33,475,589**	**33,777,600**
Retail Programmatic Expenses	*19,648,232*	*22,522,244*	*22,477,807*	*21,493,237*	*21,060,943*	*20,448,072*	*20,536,663*	*21,060,819*	*21,277,890*	*21,479,479*	*21,649,989*
Wholesale Programmatic Expenses	*4,487,364*	*6,801,059*	*9,676,478*	*10,349,906*	*10,718,717*	*9,196,748*	*9,855,955*	*11,539,325*	*11,784,062*	*11,996,111*	*12,127,611*
CAPITAL USES - APPROPRIATION											
Water Enterprise											
Automated Water Meter Program	1,000,000	1,800,000	0	0	0	0	0	0	0	0	0
Local Water Conveyance /Distribution S	56,100,000	56,100,000	56,100,000	57,000,000	58,000,000	59,000,000	60,000,000	61,000,000	62,000,000	64,000,000	67,300,000
Sunset Pipeline - Potable AWSS	0	2,000,000	10,000,000	10,450,000	10,920,300	11,411,700	0	0	0	0	0
Buildings & Grounds Improvements - Loc	1,000,000	260,000	200,000	0	0	0	0	0	0	0	0
Town of Sunol Fire Suppression System	0	0	0	0	0	0	0	0	0	0	0
Pacific Rod & Gun Club Remediation Pr	0	0	0	0	0	0	0	0	0	0	0
Systems Monitoring & Control	500,000	200,000	209,000	218,400	228,200	238,500	249,200	260,400	272,100	284,300	297,200
Other Recycled Water Projects - Local	0	0	0	700,000	0	0	0	0	0	0	0
520 John Muir Drive Rehabilitation	0	2,441,000	0	0	0	0	0	0	0	0	0
Treasure Island Capital Upgrades	0	0	0	0	0	0	0	0	0	0	0
Local Tanks/Reservoir Improvements	500,000	10,100,000	3,000,000	300,000	200,000	0	0	0	0	0	0
Pump Station Improvements	1,500,000	932,000	2,250,000	17,500,000	600,000	0	0	0	0	0	0
ESER1 & ESER2	0	0	0	0	0	0	0	0	0	0	0
Fire Response GO Bond Funded	0	0	0	50,000,000	40,000,000	0	0	0	0	0	0
AWSS: 25% share of Co-Benefiting Pro	0	0	0	0	0	0	0	0	0	0	0
San Francisco Groundwater Supply (Nor	0	0	0	0	0	0	0	0	0	0	0
SF Westside Recycled Water Project (N	6,500,000	6,500,000	500,000	0	0	0	0	0	0	0	0
New Service Connection Process Improv	0	968,000	1,377,000	645,000	0	0	0	0	0	0	0
Town of Sunol Pipeline	0	2,700,000	700,000	0	0	0	0	0	0	0	0
Lombard Geotechnical Improvements	0	75,000	175,000	2,000,000	0	0	0	0	0	0	0
Newcomb Yard Improvements	0	0	0	1,000,000	13,000,000	26,000,000	0	0	0	0	0
Capital Services to Other City Departm	0	0	0	0	0	0	0	0	0	0	0
Custom Work	3,143,357	3,238,000	3,335,000	3,435,000	3,538,000	3,644,000	3,753,000	3,866,000	3,982,000	4,101,000	4,224,000
Local Projects Total	**70,243,357**	**87,314,000**	**77,846,000**	**143,248,400**	**126,486,500**	**100,294,200**	**64,002,200**	**65,126,400**	**66,254,100**	**68,385,300**	**71,821,200**

San Francisco

Water Capital Planning

Forecasted ---->

Item	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
Regional Projects											
Water Treatment Program	0	0	0	0	0	0	0	0	0	0	0
Tesla UV Facility	280,000	1,272,000	1,272,000	280,000	280,000	280,000	280,000	305,000	305,000	305,000	337,000
SVWTP & East Bay Fields	902,000	3,033,000	3,550,000	700,000	450,000	350,000	350,000	350,000	350,000	350,000	350,000
HTWTP & West Bay Fields	2,709,000	2,214,000	1,221,000	1,228,000	1,234,000	1,234,000	1,248,000	1,275,000	1,317,000	1,324,000	1,340,000
SVWTP Ozone	0	4,000,000	8,000,000	103,000,000	0	0	0	0	0	0	0
SVWTP Powder Activated Carbon (PAC)	0	4,745,000	440,000	280,000	0	0	0	0	0	0	0
Reg. GW Storage and Recovery Project	0	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Water Transmission Program	0	0	0	0	0	0	0	0	0	0	0
Corrosion Protection Capital Upgrades	1,900,000	2,750,000	4,060,000	1,940,000	1,475,000	1,475,000	1,690,000	1,690,000	1,690,000	1,690,000	1,890,000
Pipeline Inspection and Repair Project	1,080,000	3,460,000	2,120,000	2,120,000	1,560,000	1,560,000	1,560,000	1,560,000	1,560,000	1,560,000	1,560,000
Pump Station Upgrades	1,180,000	1,180,000	3,680,000	2,180,000	3,280,000	3,680,000	21,216,000	6,230,000	1,278,000	1,285,000	1,290,000
Pipeline Improvement Program	13,250,000	22,250,000	900,000	1,150,000	500,000	500,000	1,500,000	1,500,000	2,500,000	2,500,000	5,500,000
CS2 in Hillsborough Improvements (Reach	0	1,750,000	27,120,000	27,130,000	0	0	0	0	0	0	0
Palo Alto Pipeline Replacement	0	0	0	0	0	3,000,000	4,000,000	5,000,000	10,000,000	28,000,000	40,000,000
Valve Replacement	3,350,000	7,700,000	6,300,000	4,700,000	1,700,000	1,350,000	1,390,000	1,398,000	1,450,000	1,465,000	1,476,000
Vault Upgrades	675,000	675,000	675,000	675,000	675,000	675,000	694,000	707,000	740,000	750,000	757,000
Calaveras Micro Turbine	0	0	0	0	0	0	0	0	0	0	0
Metering Upgrades	200,000	200,000	200,000	200,000	200,000	200,000	206,000	206,000	220,000	224,000	226,000
BDPL 1&@ Decommissioning	0	0	0	2,250,000	2,250,000	0	0	0	0	0	0
Water Supply & Storage Program	0	0	0	0	0	0	0	0	0	0	0
Dam Structural Upgrades (w/geotech)	1,817,000	3,800,000	2,300,000	15,400,000	1,998,000	1,848,000	972,000	583,000	598,000	598,000	550,000
Potable Reuse & Other Supplies	4,500,000	2,600,000	1,000,000	3,500,000	4,300,000	4,000,000	4,000,000	20,000,000	20,000,000	0	0
Merced Manor Reservoir Facilities Repair	591,000	6,432,000	0	0	0	0	0	0	0	0	0
Daly City Recycled Water Expansion	0	0	0	0	29,750,000	35,000,000	20,250,000	0	0	0	0
San Andreas Dam Facility Improvements	0	2,100,000	3,300,000	32,000	32,000	32,000	33,000	10,033,000	5,035,000	5,035,000	40,000
Turner Dam and Reservoir Improvements	0	450,000	450,000	1,100,000	8,500,000	650,000	0	0	0	0	0
Watersheds & Land Management	0	0	0	0	0	0	0	0	0	0	0
Long Term Monitoring & Permit Program	0	10,076,000	11,521,000	4,119,000	3,924,000	3,457,000	3,374,000	1,782,000	1,538,000	1,596,000	1,621,000
Watershed Structures Upgrades	0	0	0	0	0	0	0	0	0	0	0
Watershed Roads and ROW Manageme	1,504,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Watershed Cottage/Buildings Upgrades	486,000	0	0	0	0	0	0	0	0	0	0
EBRPD Water System	0	0	0	0	0	0	0	0	0	0	0
Communication & Monitoring Program	0	0	0	0	0	0	0	0	0	0	0
Microwave Backbone Upgrade	450,000	450,000	0	0	0	0	0	0	0	0	1,000,000
WST Security System	544,000	500,000	500,000	500,000	500,000	500,000	515,000	515,000	515,000	515,000	520,000
Buildings and Grounds Programs	0	0	0	0	0	0	0	0	0	0	0
Sunol Yard	3,703,000	286,000	295,000	304,000	313,000	322,000	333,000	335,000	335,000	335,000	335,000
Millbrae Yard Upgrade	2,518,000	1,500,000	1,500,000	500,000	500,000	515,000	530,000	530,000	530,000	530,000	530,000
Sunol Long Term (Watershed Center)	0	28,750,000	2,500,000	2,500,000	0	0	0	0	0	0	0
Buildings & Grounds All Locations	0	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,000,000	1,000,000	1,000,000	1,000,000
Millbrae Long Term	0	2,700,000	27,000,000	2,800,000	0	0	0	0	0	0	0
Rollins Road Building	0	850,000	750,000	500,000	400,000	400,000	350,000	350,000	350,000	350,000	350,000
Calaveras Dam	20,000,000	34,000,000	0	0	0	0	0	0	0	0	0
Alameda Creek Diversion Dam	7,000,000	5,000,000	0	0	0	0	0	0	0	0	0
Alameda Creek	0	3,000,000	0	0	0	0	0	0	0	0	0
Regional Groundwater Storage & Recov	0	7,000,000	0	0	0	0	0	0	0	0	0
WSIP Closeout - Bay Division	0	2,000,000	0	0	0	0	0	0	0	0	0
WSIP Closeout - Peninsula (WSIP)	0	7,000,000	0	0	0	0	0	0	0	0	0
WSIP Closeout - San Joaquin Region	0	2,000,000	0	0	0	0	0	0	0	0	0
Joint Infrastructure	0	2,000,000	0	0	0	0	0	0	0	0	0
Regional Projects	**68,639,000**	**180,273,000**	**113,204,000**	**181,638,000**	**66,371,000**	**63,578,000**	**67,041,000**	**56,399,000**	**52,361,000**	**50,462,000**	**61,722,000**
Water Enterprise Total	**138,882,357**	**267,587,000**	**191,050,000**	**324,886,400**	**192,857,500**	**163,872,200**	**131,043,200**	**121,525,400**	**118,615,100**	**118,847,300**	**133,543,200**

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Item	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
Hetchy Water											
Water Projects											
Water Infrastructure - Project Developme	0	460,000	474,000	488,000	505,000	523,000	541,000	560,000	580,000	600,000	621,000
Water Conveyance (Water)	0	7,922,000	14,314,000	8,641,000	8,944,000	9,604,000	8,743,000	9,985,000	10,334,000	10,695,000	10,018,000
Dams & Reservoirs (Water)	0	0	0	0	0	0	0	0	0	0	0
San Joaquin Pipeline Rehabilitation	10,000,000	0	0	0	0	0	0	0	0	0	0
Lower Cherry Aqueduct	0	0	0	0	0	0	0	0	0	0	0
Priest Reservoir Lining, Water Quality	0	0	0	0	0	0	0	0	0	0	0
SJPL Valve and Safe Entry Improvement	0	3,575,000	2,691,000	2,445,000	34,102,000	26,567,000	25,904,000	0	0	0	0
Priest-Moccasin Water Transmission Line	0	0	5,600,000	5,768,000	31,326,000	0	0	0	0	0	0
Moccasin Reservoir Perimeter Security Fe	0	1,400,000	3,755,000	0	0	0	0	0	0	0	0
Water Projects Total	**10,000,000**	**13,357,000**	**26,834,000**	**17,342,000**	**74,877,000**	**36,694,000**	**35,188,000**	**10,545,000**	**10,914,000**	**11,295,000**	**10,639,000**
Water's Share of Joint Projects											
Infrastructure - Project Development	0	900,000	927,000	954,900	988,200	1,022,850	1,058,400	1,095,750	1,134,000	1,173,600	1,215,000
Cherry Spillway	0	0	0	0	0	0	0	0	0	0	0
Dam Condition Assessment & Repair/Dams	0	3,369,150	7,925,400	485,100	503,100	519,750	538,200	557,550	576,450	596,700	617,400
Early Intake Dam Rehabilitation	0	0	0	0	0	0	0	0	0	0	0
Facilities Security	0	0	0	0	0	0	0	0	0	0	0
Hetchy Fiber Projects	0	0	0	0	0	0	0	0	0	0	0
Remote Terminal Unit Replacement	0	0	0	0	0	0	0	0	0	0	0
Tunnels (Joint)	0	0	396,000	3,150,000	0	0	0	0	0	0	0
Cherry Dam Outlet Works	0	0	0	0	0	0	0	0	0	0	0
Hetch Hetchy Facilities New Construction	0	0	0	0	0	0	0	0	0	0	0
Hetch Hetchy Facilities - Upgrades	0	0	0	0	0	0	0	0	0	0	0
Microwave System	0	0	0	0	0	0	0	0	0	0	0
Moccasin Wastewater Treatment Plant	0	0	0	0	0	0	0	0	0	0	0
O'Shaughnessy Outlet Works	0	0	0	0	0	0	0	0	0	0	0
Mountain Tunnel Access/Adit Improvement	186,750	0	0	0	0	0	0	0	0	0	0
Mountain Tunnel Inspection and Repair	5,072,400	0	0	0	0	0	0	0	0	0	0
Mountain Tunnel Improvement Project	6,714,000	8,804,700	18,693,000	22,500,000	22,500,000	22,500,000	0	0	0	0	0
Roads & Bridges Improvements	810,000	810,000	842,850	877,050	907,650	939,600	972,450	1,117,800	1,447,200	1,497,150	681,750
Communication Systems Upgrades	0	135,000	140,400	146,250	150,750	156,150	161,550	2,791,800	173,700	179,550	184,950
Utilities (Joint)	0	0	0	0	0	0	0	0	0	0	0
O'Shaughnessy Dam Outlet Works Phase II	0	0	0	0	0	0	6,507,000	6,701,850	37,291,500	0	0
Eleanor Dam Rehabilitation	0	0	0	0	0	0	4,032,000	11,078,100	0	0	0
Bridge Replacement	0	1,162,800	4,203,900	3,650,850	4,333,050	6,578,550	0	0	0	0	0
R&R Power Distribution Improvements	0	450,000	463,950	675,000	702,000	729,900	755,550	782,100	809,550	837,900	867,150
Water's Share of Joint Projects Total	**12,783,150**	**15,631,650**	**33,592,500**	**32,439,150**	**30,084,750**	**32,446,800**	**14,025,150**	**24,124,950**	**41,432,400**	**4,284,900**	**3,566,250**
Hetchy Water Total	**22,783,150**	**28,988,650**	**60,426,500**	**49,781,150**	**104,961,750**	**69,140,800**	**49,213,150**	**34,669,950**	**52,346,400**	**15,579,900**	**14,205,250**
Total Capital Uses - Appropriation	**161,665,507**	**296,575,650**	**251,476,500**	**374,667,550**	**297,819,250**	**233,013,000**	**180,256,350**	**156,195,350**	**170,961,500**	**134,427,200**	**147,748,450**

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Item	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
CAPITAL USES - DEBT ISSUANCE											
Authorized, Unissued Debt											
Local Bonds (Non-WSIP)	124,118,000	74,515,637	138,520,637	162,186,819	188,803,900	206,618,900	180,439,400	107,423,150	41,173,200	7,531,600	600
Local Bonds (WSIP)	288,218,764	136,576,764	136,576,764	68,288,382	0	0	0	0	0	0	0
Regional Bonds (Non-WSIP)	40,163,000	13,174,363	153,447,363	220,064,181	304,978,500	244,611,000	167,768,000	106,804,500	94,729,000	75,280,500	60,522,500
Regional Bonds (WSIP)	392,242,542	266,478,087	266,478,087	133,239,044	0	0	0	0	0	0	0
Wholesale Bonds	0	0	0	0	0	0	3,000,000	7,000,000	10,500,000	17,000,000	20,500,000
Hetchy Water Bonds	80,243,550	27,761,245	56,749,895	103,295,773	124,701,975	184,956,150	198,993,125	170,834,825	118,453,500	111,622,925	85,261,275
Authorized, Unissued Debt Total	**924,985,856**	**518,506,096**	**751,772,746**	**687,074,198**	**618,484,375**	**636,186,050**	**550,200,525**	**392,062,475**	**264,855,700**	**211,435,025**	**166,284,375**
New Debt Appropriation											
Local Bonds (Non-WSIP)	59,600,000	64,005,000	60,924,000	95,877,400	80,279,500	52,221,200	15,062,200	400	100	300	200
Local Bonds (WSIP)	0	0	0	0	0	0	0	0	0	0	0
Regional Bonds (Non-WSIP)	13,809,000	140,273,000	73,204,000	161,638,000	46,371,000	40,578,000	43,041,000	31,399,000	22,361,000	22,462,000	21,722,000
Regional Bonds (WSIP)	0	0	0	0	0	0	0	0	0	0	0
Wholesale Bonds	0	0	0	0	0	3,000,000	4,000,000	5,000,000	10,000,000	8,000,000	20,000,000
Hetchy Water Bonds	22,783,150	28,988,650	60,426,500	49,781,150	104,961,750	69,140,800	49,213,150	34,669,950	52,346,400	15,579,900	14,205,250
New Debt Appropriation Total	**96,192,150**	**233,266,650**	**194,554,500**	**307,296,550**	**231,612,250**	**164,940,000**	**111,316,350**	**71,069,350**	**84,707,500**	**46,042,200**	**55,927,450**
(Less) De-Appropriation											
Local Bonds (Non-WSIP)	0	0	0	0	0	0	0	0	0	0	0
Local Bonds (WSIP)	(151,642,000)	0	0	0	0	0	0	0	0	0	0
Regional Bonds (Non-WSIP)	0	0	0	0	0	0	0	0	0	0	0
Regional Bonds (WSIP)	0	0	0	0	0	0	0	0	0	0	0
Wholesale Bonds	0	0	0	0	0	0	0	0	0	0	0
Hetchy Water Bonds	0	0	0	0	0	0	0	0	0	0	0
Less Debt Appropriation Total	**(151,642,000)**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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Item	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
Authorized, Unissued Debt											
Local											
Local Bonds (Non-WSIP)	183,718,000	138,520,637	199,444,637	258,064,219	269,083,400	258,840,100	195,501,600	107,423,550	41,173,300	7,531,900	800
Local Bonds (WSIP)	136,576,764	136,576,764	136,576,764	68,288,382	0	0	0	0	0	0	0
Local Bonds Total	**320,294,764**	**275,097,401**	**336,021,401**	**326,352,601**	**269,083,400**	**258,840,100**	**195,501,600**	**107,423,550**	**41,173,300**	**7,531,900**	**800**
Regional											
Regional Bonds (Non-WSIP)	53,972,000	153,447,363	226,651,363	381,702,181	351,349,500	285,189,000	210,809,000	138,203,500	117,090,000	97,742,500	82,244,500
Regional Bonds (WSIP)	392,242,542	266,478,087	266,478,087	133,239,044	0	0	0	0	0	0	0
Regional Bonds Total	**446,214,542**	**419,925,450**	**493,129,450**	**514,941,225**	**351,349,500**	**285,189,000**	**210,809,000**	**138,203,500**	**117,090,000**	**97,742,500**	**82,244,500**
Wholesale Bonds	**0**	**0**	**0**	**0**	**0**	**3,000,000**	**7,000,000**	**12,000,000**	**20,500,000**	**25,000,000**	**40,500,000**
Hetchy Water	**103,026,700**	**56,749,895**	**117,176,395**	**153,076,923**	**229,663,725**	**254,096,950**	**248,206,275**	**205,504,775**	**170,799,900**	**127,202,825**	**99,466,525**
Total Authorized, Unissued Debt	**869,536,006**	**751,772,746**	**946,327,246**	**994,370,748**	**850,096,625**	**798,126,050**	**654,516,875**	**451,131,825**	**329,063,200**	**232,477,225**	**181,711,825**
Debt Issuance											
Toggle - More Debt to Issue this Fiscal Year (1=Y, 0=N)											
Local											
Local Bonds (Non-WSIP)	109,202,363	0	37,257,819	69,260,319	62,464,500	78,400,700	88,078,450	66,250,350	33,641,700	7,531,300	250
Local Bonds (WSIP)	0	0	68,288,382	68,288,382	0	0	0	0	0	0	0
Local Debt Total	**109,202,363**	**0**	**105,546,201**	**137,548,701**	**62,464,500**	**78,400,700**	**88,078,450**	**66,250,350**	**33,641,700**	**7,531,300**	**250**
Regional											
Regional Bonds (Non-WSIP)	40,797,637	0	6,587,181	76,723,681	106,738,500	117,421,000	104,004,500	43,474,500	41,809,500	37,220,000	26,880,000
Regional Bonds (WSIP)	125,764,455	0	133,239,044	133,239,044	0	0	0	0	0	0	0
Regional Debt Total	**166,562,092**	**0**	**139,826,225**	**209,962,725**	**106,738,500**	**117,421,000**	**104,004,500**	**43,474,500**	**41,809,500**	**37,220,000**	**26,880,000**
Wholesale Bonds	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,500,000**	**3,500,000**	**4,500,000**	**7,500,000**
Hetchy Water	**75,265,455**	**0**	**13,880,623**	**28,374,948**	**44,707,575**	**55,103,825**	**77,371,450**	**87,051,275**	**59,176,975**	**41,941,550**	**43,508,175**
Total Debt Issued (Project Fund)	**351,029,910**	**0**	**259,253,048**	**375,886,373**	**213,910,575**	**250,925,525**	**269,454,400**	**198,276,125**	**138,128,175**	**91,192,850**	**77,888,425**

Debt Service

	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
REVENUES											
Federal Bond Interest Subsidy - Senior Lien Debt											
Retail Share	8,005,327	7,945,570	7,879,387	7,808,211	7,728,870	7,604,869	7,438,537	7,264,022	7,081,308	6,884,757	6,672,607
Wholesale Share of Subsidy	14,124,574	14,029,679	13,924,578	13,811,549	13,685,553	13,481,745	13,203,377	12,911,095	12,604,895	12,275,678	11,920,412
Federal Bond Interest Subsidy	**$ 22,129,901**	**$ 21,975,249**	**$ 21,803,965**	**$ 21,619,760**	**$ 21,414,422**	**$ 21,086,614**	**$ 20,641,914**	**$ 20,175,116**	**$ 19,686,203**	**$ 19,160,435**	**$ 18,593,019**
Junior Lien Debt											
Series 2009D COPs	1,950,928	1,950,928	1,950,928	1,950,928	1,950,928	1,950,928	1,916,960	1,847,614	1,775,372	1,700,085	1,621,606
Junior Lien Debt Revenues Total	**$ 1,950,928**	**$ 1,950,928**	**$ 1,950,928**	**$ 1,950,928**	**$ 1,950,928**	**$ 1,950,928**	**$ 1,916,960**	**$ 1,847,614**	**$ 1,775,372**	**$ 1,700,085**	**$ 1,621,606**
EXPENSES											
Existing Debt Service											
Senior Lien - Revenue Bonds											
Principal Payment	66,095,000	86,950,000	100,970,000	108,390,000	113,425,000	121,410,000	127,045,000	132,580,000	143,180,000	149,010,000	154,610,000
Interest Payment	214,497,002	224,204,028	220,490,138	215,835,066	210,701,225	205,321,173	199,559,770	193,493,683	186,874,180	179,615,338	171,956,438
(Less) Capitalized Interest	(6,507,850)	(16,977,000)	(15,210,125)	(3,693,125)	0	0	0	0	0	0	0
Revenue Bonds Total	**$ 274,084,152**	**$ 294,177,028**	**$ 306,250,013**	**$ 320,531,941**	**$ 324,126,225**	**$ 326,731,173**	**$ 326,604,770**	**$ 326,073,683**	**$ 330,054,180**	**$ 328,625,338**	**$ 326,566,438**
Wholesale Share	***136,581,418***	***139,214,234***	***144,118,747***	***159,220,671***	***163,246,201***	***162,500,744***	***162,319,875***	***161,978,482***	***164,273,818***	***163,571,111***	***166,086,013***
BAWSCA Defeasement	18,069,700	10,519,938									
Retail Share	***119,433,034***	***144,442,856***	***162,131,266***	***161,311,271***	***160,880,024***	***164,230,429***	***164,284,895***	***164,095,201***	***165,780,362***	***165,054,226***	***160,480,425***
Senior Lien - SRF Loans											
Principal Payments	0	0	0	0	4,983,065	4,969,656	5,019,353	5,069,547	5,120,242	5,171,444	5,223,159
Interest Payments	0	0	0	0	1,648,961	1,662,369	1,612,673	1,562,479	1,511,784	1,460,581	1,408,867
SRF Loans Total	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 6,632,026**	**$ 6,632,026**	**$ 6,632,026**	**$ 6,632,026**	**$ 6,632,026**	**$ 6,632,026**	**$ 6,632,026**
Wholesale Share	***0***	***0***	***0***	***0***	***4,983,065***	***4,969,656***	***5,019,353***	***5,069,547***	***5,120,242***	***5,171,444***	***5,223,159***
Retail Share	***0***	***0***	***0***	***0***	***1,648,961***	***1,662,369***	***1,612,673***	***1,562,479***	***1,511,784***	***1,460,581***	***1,408,867***
Junior Lien - COPS											
Principal Payments	2,431,177	2,556,128	2,688,218	2,823,879	2,970,249	3,123,760	3,266,560	3,402,220	3,545,021	3,694,961	3,852,042
Interest Payments	6,736,858	6,612,175	6,481,067	6,343,264	6,198,411	6,046,061	5,864,057	5,651,923	5,430,932	5,200,628	4,960,558
(Less) Capitalized Interest	0	0	0	0	0	0	0	0	0	0	0
COPS Total	**$ 9,168,035**	**$ 9,168,303**	**$ 9,169,285**	**$ 9,167,143**	**$ 9,168,660**	**$ 9,169,820**	**$ 9,130,617**	**$ 9,054,144**	**$ 8,975,953**	**$ 8,895,589**	**$ 8,812,600**
Proposed Debt Service - All Revenue Bonds											
Regional											
Principal Payments	0	0	0	0	0	2,752,021	7,025,579	9,486,664	12,284,207	14,961,154	16,584,046
Interest Payments	0	0	4,783,888	15,384,427	24,167,336	30,724,339	36,907,741	40,523,987	42,472,575	44,086,590	45,127,187
Less: Capitalized Interest	0	0	(4,783,888)	(15,384,427)	(23,483,923)	(21,565,977)	(16,183,807)	(13,900,325)	(9,571,896)	(6,062,920)	(5,350,462)
Total Regional	0	0	0	0	683,413	11,910,383	27,749,513	36,110,326	45,184,885	52,984,824	56,360,772
Wholesale Share	0	0	0	0	451,394	7,866,808	18,328,554	23,850,870	29,844,617	34,996,476	37,226,290
Retail Share	0	0	0	0	232,019	4,043,575	9,420,960	12,259,456	15,340,269	17,988,348	19,134,482
Local											
Principal Payments	0	0	0	0	0	2,077,331	4,891,057	6,371,290	7,899,871	9,437,075	10,964,707
Interest Payments	0	0	3,611,063	10,896,360	16,394,870	19,958,635	23,244,626	26,182,971	28,273,069	28,919,448	28,593,461
Less: Capitalized Interest	0	0	(3,611,063)	(10,896,360)	(15,879,003)	(13,147,894)	(8,907,703)	(8,470,843)	(7,353,568)	(5,081,749)	(2,250,421)
Total Local	0	0	0	0	515,866	8,888,072	19,227,980	24,083,417	28,819,372	33,274,774	37,307,748
Wholesale											
Principal Payments	0	0	0	0	0	0	0	0	0	0	29,523
Interest Payments	0	0	0	0	0	0	0	51,320	207,722	447,214	813,045
Less: Capitalized Interest	0	0	0	0	0	0	0	(51,320)	(207,722)	(439,883)	(708,700)
Total Wholesale	0	0	0	0	0	0	0	0	0	7,331	133,868

Debt Service

	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
Hetchy											
Principal Payments	0	0	0	0	0	273,195	845,673	1,768,963	2,944,217	4,618,006	6,568,146
Interest Payments	0	0	474,899	1,784,908	4,007,917	6,978,920	10,944,689	15,748,415	19,782,566	22,474,623	24,708,484
Less: Capitalized Interest	0	0	(474,899)	(1,784,908)	(3,940,074)	(6,032,953)	(8,282,646)	(10,478,780)	(11,290,030)	(9,585,917)	(7,130,022)
Total Regional	0	0	0	0	67,843	1,219,162	3,507,716	7,038,598	11,436,753	17,506,713	24,146,608
Wholesale Share	0	0	0	0	44,731	803,840	2,312,769	4,640,811	7,540,681	11,542,833	15,920,764
Retail Share	0	0	0	0	23,111	415,323	1,194,947	2,397,786	3,896,073	5,963,880	8,225,843
Total Proposed Debt Service	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 1,267,121**	**$ 22,017,618**	**$ 50,485,209**	**$ 67,232,340**	**$ 85,441,011**	**$ 103,773,642**	**$ 117,948,995**
Wholesale Share	***0***	***0***	***0***	***0***	***496,125***	***8,670,648***	***20,641,322***	***28,491,681***	***37,385,297***	***46,546,640***	***53,280,922***
Retail Share	***0***	***0***	***0***	***0***	***770,996***	***13,346,970***	***29,843,887***	***38,740,659***	***48,055,714***	***57,227,002***	***64,668,073***

WHOLESALE ALLOCATION FACTORS

Wholesale Proportion of Regional Debt	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%
Adjusted Proportional Annual Use	65.93%	65.93%	65.93%	65.93%	65.93%	65.93%	65.93%	65.93%	65.93%	65.93%	65.93%
Percentage Regional Projects											
2006 Bond, Series A	53.19%	53.19%	53.19%	53.19%	53.19%	53.19%	53.19%	53.19%	53.19%	53.19%	53.19%
2009 Bond, Series A	57.92%	57.92%	57.92%	57.92%	57.92%	57.92%	57.92%	57.92%	57.92%	57.92%	57.92%
2009 Bond, Series B	87.37%	87.37%	87.37%	87.37%	87.37%	87.37%	87.37%	87.37%	87.37%	87.37%	87.37%
2010 Bond, Series B	92.90%	92.90%	92.90%	92.90%	92.90%	92.90%	92.90%	92.90%	92.90%	92.90%	92.90%
2010 Bond, Series D	97.24%	97.24%	97.24%	97.24%	97.24%	97.24%	97.24%	97.24%	97.24%	97.24%	97.24%
2010 Bond, Series E	96.85%	96.85%	96.85%	96.85%	96.85%	96.85%	96.85%	96.85%	96.85%	96.85%	96.85%
2011 Bond, Series A	93.53%	93.53%	93.53%	93.53%	93.53%	93.53%	93.53%	93.53%	93.53%	93.53%	93.53%
2012 Bond, Series A	69.34%	69.34%	69.34%	69.34%	69.34%	69.34%	69.34%	69.34%	69.34%	69.34%	69.34%
2017 Bond, Series B	27.20%	27.20%	27.20%	27.20%	27.20%	27.20%	27.20%	27.20%	27.20%	27.20%	27.20%
Percentage Wholesale Debt											
No Share	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
100% Regional	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%
Hetchy Water	65.93%	65.93%	65.93%	65.93%	65.93%	65.93%	65.93%	65.93%	65.93%	65.93%	65.93%
2006 Bond, Series A	35.13%	35.13%	35.13%	35.13%	35.13%	35.13%	35.13%	35.13%	35.13%	35.13%	35.13%
2009 Bond, Series A	38.26%	38.26%	38.26%	38.26%	38.26%	38.26%	38.26%	38.26%	38.26%	38.26%	38.26%
2009 Bond, Series B	57.71%	57.71%	57.71%	57.71%	57.71%	57.71%	57.71%	57.71%	57.71%	57.71%	57.71%
2010 Bond, Series B	61.36%	61.36%	61.36%	61.36%	61.36%	61.36%	61.36%	61.36%	61.36%	61.36%	61.36%
2010 Bond, Series D	64.23%	64.23%	64.23%	64.23%	64.23%	64.23%	64.23%	64.23%	64.23%	64.23%	64.23%
2010 Bond, Series E	63.97%	63.97%	63.97%	63.97%	63.97%	63.97%	63.97%	63.97%	63.97%	63.97%	63.97%
2011 Bond, Series A	61.78%	61.78%	61.78%	61.78%	61.78%	61.78%	61.78%	61.78%	61.78%	61.78%	61.78%
2012 Bond, Series A	45.80%	45.80%	45.80%	45.80%	45.80%	45.80%	45.80%	45.80%	45.80%	45.80%	45.80%
2017 Bond, Series B	17.97%	17.97%	17.97%	17.97%	17.97%	17.97%	17.97%	17.97%	17.97%	17.97%	17.97%

Debt Service

		FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
DEBT SERVICE BY FISCAL YEAR												
Senior Lien Debt - Revenue Bonds												
1991 Series A CABs												
Principal Payment		-	5,000,000	2,100,000	-	-	-	-	-	-	-	-
Interest Payment		-	-	-	-	-	-	-	-	-	-	-
1991 Series A CABs Total	**Total Payme**	**-**	**5,000,000**	**2,100,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Wholesale Share	No Share	-	-	-	-	-	-	-	-	-	-	-
2009 Series A												
Principal Payment		8,715,000	9,160,000	9,635,000	-	-	-	-	-	-	-	-
Interest Payment		926,100	568,600	192,700	-	-	-	-	-	-	-	-
2009 Series A Total	**Total Payme**	**9,641,100**	**9,728,600**	**9,827,700**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
WSIP												
Wholesale Share	2009 Bond, S	3,688,315	3,721,789	3,759,701	-	-	-	-	-	-	-	-
2009 Series B												
Principal Payment		8,720,000	9,165,000	9,635,000	-	-	-	-	-	-	-	-
Interest Payment		1,158,000	710,875	240,875	-	-	-	-	-	-	-	-
2009 Series B Total	**Total Payme**	**9,878,000**	**9,875,875**	**9,875,875**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
WSIP												
Wholesale Share	2009 Bond, S	5,700,385	5,699,159	5,699,159	-	-	-	-	-	-	-	-
2010 Series A												
Principal Payment		2,285,000	2,405,000	2,530,000	-	-	-	-	-	-	-	-
Interest Payment		303,875	186,625	63,250	-	-	-	-	-	-	-	-
2010 Series A Total	**Total Payme**	**2,588,875**	**2,591,625**	**2,593,250**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Wholesale Share	No Share	-	-	-	-	-	-	-	-	-	-	-
2010 Series B (BABs)												
Principal Payment		10,905,000	11,215,000	11,555,000	11,920,000	12,330,000	12,780,000	13,245,000	13,725,000	14,225,000	14,765,000	15,355,000
Interest Payment		23,208,078	22,734,991	22,211,026	21,647,535	21,019,400	20,328,875	19,613,188	18,871,513	18,102,888	17,268,750	16,365,150
(Less) Capitalized Interest		-	-	-	-	-	-	-	-	-	-	-
2010 Series B (BABs) Total	**Total Payme**	**34,113,078**	**33,949,991**	**33,766,026**	**33,567,535**	**33,349,400**	**33,108,875**	**32,858,188**	**32,596,513**	**32,327,888**	**32,033,750**	**31,720,150**
Wholesale Share	2010 Bond, S	20,931,938	20,831,867	20,718,986	20,597,191	20,463,342	20,315,755	20,161,932	20,001,367	19,836,537	19,656,053	19,463,627
Federal Bond Interest Subsidy		7,586,721	7,432,069	7,260,784	7,076,579	6,871,242	6,645,509	6,411,551	6,169,097	5,917,834	5,645,154	5,349,768
Wholesale Share of Subsidy	2010 Bond, S	*4,655,246*	*4,560,351*	*4,455,250*	*4,342,221*	*4,216,225*	*4,077,714*	*3,934,157*	*3,785,386*	*3,631,210*	*3,463,892*	*3,282,641*

FYE 2019 Ten Year Financial Plan

Debt Service

		FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
2010 Series D (Refunding)												
Principal Payment		4,845,000	5,090,000	5,350,000	5,625,000	5,850,000	-	-	-	-	-	-
Interest Payment		1,099,875	851,500	590,500	316,125	87,750	-	-	-	-	-	-
2010 Series D (Refunding) Total	**Total Payme**	**5,944,875**	**5,941,500**	**5,940,500**	**5,941,125**	**5,937,750**	**-**	**-**	**-**	**-**	**-**	**-**
WSIP												
Wholesale Share	No Share	-	-	-	-	-	-	-	-	-	-	-
2010 Series D (New Money)												
Principal Payment		10,340,000	10,875,000	11,430,000	12,015,000	7,500,000	-	-	-	-	-	-
Interest Payment		2,199,500	1,669,125	1,111,500	525,375	112,500	-	-	-	-	-	-
2010 Series D (New Money) Total	**Total Payme**	**12,539,500**	**12,544,125**	**12,541,500**	**12,540,375**	**7,612,500**	**-**	**-**	**-**	**-**	**-**	**-**
WSIP												
Wholesale Share	2010 Bond, S	8,053,747	8,056,718	8,055,032	8,054,309	4,889,282	-	-	-	-	-	-
2010 Series E (BABs)												
Principal Payment		-	-	-	-	-	12,745,000	13,165,000	13,610,000	14,080,000	14,585,000	15,125,000
Interest Payment		20,060,998	20,060,998	20,060,998	20,060,998	20,060,998	19,748,745	19,104,076	18,417,800	17,690,820	16,916,613	16,084,463
(Less) Capitalized Interest		-	-	-	-	-	-	-	-	-	-	-
2010 Series E (BABs) Total	**Total Payme**	**20,060,998**	**20,060,998**	**20,060,998**	**20,060,998**	**20,060,998**	**32,493,745**	**32,269,076**	**32,027,800**	**31,770,820**	**31,501,613**	**31,209,463**
WSIP												
Wholesale Share	2010 Bond, S	12,832,905	12,832,905	12,832,905	12,832,905	12,832,905	20,786,062	20,642,343	20,488,000	20,323,611	20,151,400	19,964,514
Federal Bond Interest Subsidy		6,557,940	6,557,940	6,557,940	6,557,940	6,557,940	6,455,865	6,245,123	6,020,779	5,783,129	5,530,041	5,258,011
Wholesale Share of Subsidy	2010 Bond, S	*4,195,077*	*4,195,077*	*4,195,077*	*4,195,077*	*4,195,077*	*4,129,780*	*3,994,969*	*3,851,458*	*3,699,434*	*3,537,535*	*3,363,519*
2010 Series F												
Principal Payment		4,910,000	4,745,000	5,175,000	5,405,000	13,395,000	-	-	-	-	-	-
Interest Payment		1,356,400	1,187,850	989,450	777,850	334,875	-	-	-	-	-	-
2010 Series F Total	**Total Payme**	**6,266,400**	**5,932,850**	**6,164,450**	**6,182,850**	**13,729,875**	**-**	**-**	**-**	**-**	**-**	**-**
WSIP												
Wholesale Share	100% Region	4,138,957	3,918,647	4,071,619	4,083,772	9,068,582	-	-	-	-	-	-
2010 Series G (BABs)												
Principal Payment		-	-	-	-	-	-	-	-	-	-	-
Interest Payment		24,427,165	24,427,165	24,427,165	24,427,165	24,427,165	24,427,165	24,427,165	24,427,165	24,427,165	24,427,165	24,427,165
(Less) Capitalized Interest		-	-	-	-	-	-	-	-	-	-	-
2010 Series G (BABs) Total	**Total Payme**	**24,427,165**	**24,427,165**	**24,427,165**	**24,427,165**	**24,427,165**	**24,427,165**	**24,427,165**	**24,427,165**	**24,427,165**	**24,427,165**	**24,427,165**
WSIP												
Wholesale Share	100% Region	16,134,142	16,134,142	16,134,142	16,134,142	16,134,142	16,134,142	16,134,142	16,134,142	16,134,142	16,134,142	16,134,142
Federal Bond Interest Subsidy		7,985,240	7,985,240	7,985,240	7,985,240	7,985,240	7,985,240	7,985,240	7,985,240	7,985,240	7,985,240	7,985,240
Wholesale Share of Subsidy	100% Region	*5,274,251*	*5,274,251*	*5,274,251*	*5,274,251*	*5,274,251*	*5,274,251*	*5,274,251*	*5,274,251*	*5,274,251*	*5,274,251*	*5,274,251*

FYE 2019 Ten Year Financial Plan

Debt Service

		FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
2011 Series A												
Principal Payment		-	-	-	15,760,000	16,550,000	-	-	-	-	-	-
Interest Payment		22,577,550	15,571,675	15,571,675	15,177,675	14,369,925	13,956,175	13,956,175	13,956,175	13,956,175	13,956,175	13,956,175
2011 Series A Total	**Total Payme**	**22,577,550**	**15,571,675**	**15,571,675**	**30,937,675**	**30,919,925**	**13,956,175**	**13,956,175**	**13,956,175**	**13,956,175**	**13,956,175**	**13,956,175**
WSIP												
Wholesale Share	2011 Bond, S	13,947,635	9,619,646	9,619,646	19,112,233	19,101,268	8,621,646	8,621,646	8,621,646	8,621,646	8,621,646	8,621,646
2011 Series B												
Principal Payment		655,000	675,000	700,000	730,000	755,000	-	-	-	-	-	-
Interest Payment		1,121,238	870,613	844,800	816,200	786,500	771,400	771,400	771,400	771,400	771,400	771,400
2011 Series B Total	**Total Payme**	**1,776,238**	**1,545,613**	**1,544,800**	**1,546,200**	**1,541,500**	**771,400**	**771,400**	**771,400**	**771,400**	**771,400**	**771,400**
Wholesale Share	Hetchy Water	1,171,140	1,019,080	1,018,545	1,019,468	1,016,369	508,613	508,613	508,613	508,613	508,613	508,613
2011 Series C												
Principal Payment		710,000	735,000	760,000	795,000	825,000	-	-	-	-	-	-
Interest Payment		1,205,413	948,788	920,725	889,625	857,225	840,725	840,725	840,725	840,725	840,725	840,725
2011 Series C Total	**Total Payme**	**1,915,413**	**1,683,788**	**1,680,725**	**1,684,625**	**1,682,225**	**840,725**	**840,725**	**840,725**	**840,725**	**840,725**	**840,725**
Wholesale Share	No Share	-	-	-	-	-	-	-	-	-	-	-
2011 Series D												
Principal Payment		-	-	-	-	-	6,060,000	6,375,000	6,700,000	-	-	-
Interest Payment		1,619,900	956,750	956,750	956,750	956,750	805,250	494,375	167,500	-	-	-
2011 Series D Total	**Total Payme**	**1,619,900**	**956,750**	**956,750**	**956,750**	**956,750**	**6,865,250**	**6,869,375**	**6,867,500**	**-**	**-**	**-**
Wholesale Share	No Share	-	-	-	-	-	-	-	-	-	-	-
2012 Series A												
Principal Payment		-	-	-	-	-	-	-	-	-	-	-
Interest Payment		24,111,225	20,807,350	20,807,350	20,807,350	20,807,350	20,807,350	20,807,350	20,807,350	20,807,350	20,807,350	20,807,350
2012 Series A Total	**Total Payme**	**24,111,225**	**20,807,350**	**20,807,350**	**20,807,350**	**20,807,350**	**20,807,350**	**20,807,350**	**20,807,350**	**20,807,350**	**20,807,350**	**20,807,350**
Wholesale Share	2012 Bond, S	11,042,717	9,529,573	9,529,573	9,529,573	9,529,573	9,529,573	9,529,573	9,529,573	9,529,573	9,529,573	9,529,573
2012 Series B												
Principal Payment		-	-	-	-	-	-	-	-	-	-	-
Interest Payment		683,450	683,450	683,450	683,450	683,450	683,450	683,450	683,450	683,450	683,450	683,450
2012 Series B Total	**Total Payme**	**683,450**	**683,450**	**683,450**	**683,450**	**683,450**	**683,450**	**683,450**	**683,450**	**683,450**	**683,450**	**683,450**
Wholesale Share	No Share	-	-	-	-	-	-	-	-	-	-	-

FYE 2019 Ten Year Financial Plan

Debt Service

		FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
2012 Series C												
Principal Payment		-	-	-	-	-	-	-	-	7,275,000	7,650,000	8,040,000
Interest Payment		4,010,625	3,617,750	3,617,750	3,617,750	3,617,750	3,617,750	3,617,750	3,617,750	3,435,875	3,062,750	2,670,500
2012 Series C Total	**Total Payme**	**4,010,625**	**3,617,750**	**3,617,750**	**3,617,750**	**3,617,750**	**3,617,750**	**3,617,750**	**3,617,750**	**10,710,875**	**10,712,750**	**10,710,500**
Wholesale Share	No Share	-	-	-	-	-	-	-	-	-	-	-
2012 Series D												
Principal Payment		-	11,825,000	12,215,000	-	-	-	-	-	-	-	-
Interest Payment		780,225	610,654	220,542	-	-	-	-	-	-	-	-
2012 Series D Total	**Total Payme**	**780,225**	**12,435,654**	**12,435,542**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Wholesale Share	No Share	-	-	-	-	-	-	-	-	-	-	-
2015 Series A - Ref. 06A												
Principal Payment		-	3,220,000	14,000,000	14,635,000	15,325,000	16,045,000	16,835,000	17,675,000	18,570,000	19,525,000	20,530,000
Interest Payment		18,299,144	18,250,844	17,912,544	17,279,844	16,586,069	15,864,094	15,079,569	14,234,319	13,338,444	12,386,069	11,384,694
2015 Series A - Ref. 06A Total	**Total Payme**	**18,299,144**	**21,470,844**	**31,912,544**	**31,914,844**	**31,911,069**	**31,909,094**	**31,914,569**	**31,909,319**	**31,908,444**	**31,911,069**	**31,914,694**
WSIP												
Wholesale Share	2006 Bond, S	6,428,854	7,543,136	11,211,513	11,212,321	11,210,995	11,210,301	11,212,225	11,210,380	11,210,073	11,210,995	11,212,269
2015 Series A - Ref. 09A												
Principal Payment		-	-	-	-	-	-	11,235,000	11,810,000	12,420,000	1,420,000	-
Interest Payment		1,844,250	1,844,250	1,844,250	1,844,250	1,844,250	1,844,250	1,563,375	987,250	381,500	35,500	-
2015 Series A - Ref. 09A Total	**Total Payme**	**1,844,250**	**1,844,250**	**1,844,250**	**1,844,250**	**1,844,250**	**1,844,250**	**12,798,375**	**12,797,250**	**12,801,500**	**1,455,500**	**-**
WSIP												
Wholesale Share	2009 Bond, S	705,539	705,539	705,539	705,539	705,539	705,539	4,896,167	4,895,736	4,897,362	556,818	-
2016 Series A - Ref. 09A												
Principal Payment		-	-	-	9,980,000	10,485,000	11,030,000	730,000	765,000	805,000	11,620,000	14,155,000
Interest Payment		13,619,750	13,619,750	13,619,750	13,370,250	12,858,625	12,320,750	12,026,750	11,989,375	11,950,125	11,639,500	10,995,125
2016 Series A - Ref. 09A Total	**Total Payme**	**13,619,750**	**13,619,750**	**13,619,750**	**23,350,250**	**23,343,625**	**23,350,750**	**12,756,750**	**12,754,375**	**12,755,125**	**23,259,500**	**25,150,125**
WSIP												
Wholesale Share	2009 Bond, S	5,210,393	5,210,393	5,210,393	8,932,909	8,930,375	8,933,100	4,880,243	4,879,334	4,879,621	8,898,192	9,621,472
2016 Series A - Ref. 09B												
Principal Payment		-	-	-	9,725,000	10,225,000	10,745,000	11,300,000	11,940,000	12,670,000	13,380,000	14,065,000
Interest Payment		15,294,250	15,294,250	15,294,250	15,051,125	14,552,375	14,028,125	13,477,000	12,896,000	12,280,750	11,629,500	10,943,375
2016 Series A - Ref. 09B Total	**Total Payme**	**15,294,250**	**15,294,250**	**15,294,250**	**24,776,125**	**24,777,375**	**24,773,125**	**24,777,000**	**24,836,000**	**24,950,750**	**25,009,500**	**25,008,375**
WSIP												
Wholesale Share	2009 Bond, S	8,825,988	8,825,988	8,825,988	14,297,778	14,298,499	14,296,046	14,298,283	14,332,330	14,398,550	14,432,453	14,431,804

FYE 2019 Ten Year Financial Plan

Debt Service

		FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
2016 Series A - Ref. 10F												
Principal Payment		-	-	-	250,000	2,605,000	11,015,000	11,560,000	12,095,000	12,575,000	13,150,000	18,085,000
Interest Payment		6,845,000	6,845,000	6,845,000	6,838,750	6,767,375	6,426,875	5,862,500	5,271,125	4,654,375	4,011,250	3,230,375
	Total Payme	**6,845,000**	**6,845,000**	**6,845,000**	**7,088,750**	**9,372,375**	**17,441,875**	**17,422,500**	**17,366,125**	**17,229,375**	**17,161,250**	**21,315,375**
WSIP												
Wholesale Share	100% Region	4,521,123	4,521,123	4,521,123	4,682,119	6,190,454	11,520,358	11,507,561	11,470,326	11,380,002	11,335,006	14,078,805
2016 Series B - Ref. 06B												
Principal Payment		6,135,000	4,585,000	6,305,000	9,825,000	7,400,000	7,785,000	8,175,000	8,520,000	2,330,000	2,420,000	-
Interest Payment		2,547,513	2,432,725	2,210,100	1,816,625	1,392,000	1,024,975	644,275	317,800	143,400	48,400	-
	Total Payme	**8,682,513**	**7,017,725**	**8,515,100**	**11,641,625**	**8,792,000**	**8,809,975**	**8,819,275**	**8,837,800**	**2,473,400**	**2,468,400**	**-**
Wholesale Share	No Share	-	-	-	-	-	-	-	-	-	-	-
2016 Series B - Ref. 06C												
Principal Payment		2,110,000	1,090,000	2,300,000	3,655,000	1,585,000	1,655,000	1,745,000	1,815,000	1,875,000	1,945,000	-
Interest Payment		802,775	770,600	696,750	547,875	416,875	335,875	250,875	180,025	115,300	38,900	-
	Total Payme	**2,912,775**	**1,860,600**	**2,996,750**	**4,202,875**	**2,001,875**	**1,990,875**	**1,995,875**	**1,995,025**	**1,990,300**	**1,983,900**	**-**
Wholesale Share	No Share	-	-	-	-	-	-	-	-	-	-	-
2016 Series B - Ref. 10A												
Principal Payment		300,000	305,000	315,000	975,000	1,030,000	3,090,000	3,255,000	3,385,000	3,510,000	3,650,000	3,815,000
Interest Payment		1,566,750	1,559,925	1,547,475	1,515,225	1,465,100	1,362,100	1,203,475	1,071,325	950,350	807,150	638,775
	Total Payme	**1,866,750**	**1,864,925**	**1,862,475**	**2,490,225**	**2,495,100**	**4,452,100**	**4,458,475**	**4,456,325**	**4,460,350**	**4,457,150**	**4,453,775**
Wholesale Share	No Share	-	-	-	-	-	-	-	-	-	-	-
2016 Series C												
Principal Payment		5,465,000	5,525,000	5,605,000	5,705,000	5,820,000	5,955,000	6,105,000	6,275,000	6,455,000	6,645,000	6,850,000
Interest Payment		9,107,254	9,047,569	8,966,816	8,866,352	8,748,164	8,614,139	8,463,314	8,297,667	8,117,789	7,924,516	7,718,666
	Total Payme	**14,572,254**	**14,572,569**	**14,571,816**	**14,571,352**	**14,568,164**	**14,569,139**	**14,568,314**	**14,572,667**	**14,572,789**	**14,569,516**	**14,568,666**
WSIP												
Wholesale Share	100% Region	9,624,974	9,625,181	9,624,684	9,624,378	9,622,272	9,622,916	9,622,371	9,625,247	9,625,327	9,623,165	9,622,604
2017 Series A												
Principal Payment		-	-	-	-	-	2,325,000	2,445,000	2,570,000	2,705,000	2,840,000	2,990,000
Interest Payment		2,321,850	6,057,000	6,057,000	6,057,000	6,057,000	5,998,875	5,879,625	5,754,250	5,622,375	5,483,750	5,338,000
(Less) Capitalized Interest		(2,321,850)	(6,057,000)	(6,057,000)	-	-	-	-	-	-	-	-
	Total Payme	**-**	**-**	**-**	**6,057,000**	**6,057,000**	**8,323,875**	**8,324,625**	**8,324,250**	**8,327,375**	**8,323,750**	**8,328,000**
WSIP												
Wholesale Share	100% Region	-	-	-	4,000,649	4,000,649	5,497,919	5,498,415	5,498,167	5,500,231	5,497,837	5,500,644

Debt Service

		FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
2017 Series B												
Principal Payment		-	-	-	-	-	2,835,000	2,985,000	3,135,000	3,295,000	3,465,000	3,645,000
Interest Payment		2,831,396	7,386,250	7,386,250	7,386,250	7,386,250	7,315,375	7,169,875	7,016,875	6,856,125	6,687,125	6,509,375
(Less) Capitalized Interest		(2,831,396)	(7,386,250)	(7,386,250)	(3,693,125)	-	-	-	-	-	-	-
	Total Payme	**-**	**-**	**-**	**3,693,125**	**7,386,250**	**10,150,375**	**10,154,875**	**10,151,875**	**10,151,125**	**10,152,125**	**10,154,375**
WSIP												
Wholesale Share	2017 Bond, S	-	-	-	663,492	1,326,984	1,823,576	1,824,384	1,823,845	1,823,711	1,823,890	1,824,294
2017 Series C												
Principal Payment		-	-	-	-	-	1,355,000	1,425,000	1,500,000	1,575,000	1,660,000	1,745,000
Interest Payment		1,354,604	3,533,750	3,533,750	3,533,750	3,533,750	3,499,875	3,430,375	3,357,250	3,280,375	3,199,500	3,114,375
(Less) Capitalized Interest		(1,354,604)	(3,533,750)	(1,766,875)	-	-	-	-	-	-	-	-
	Total Payme	**-**	**-**	**1,766,875**	**3,533,750**	**3,533,750**	**4,854,875**	**4,855,375**	**4,857,250**	**4,855,375**	**4,859,500**	**4,859,375**
WSIP												
Wholesale Share	Hetchy Water	-	-	1,164,967	2,329,934	2,329,934	3,201,001	3,201,331	3,202,567	3,201,331	3,204,051	3,203,968
2017 Series D - Ref. 11A												
Principal Payment		-	835,000	860,000	890,000	925,000	1,455,000	1,270,000	10,230,000	20,515,000	21,540,000	22,615,000
Interest Payment		3,838,762	11,227,050	11,205,800	11,175,100	11,138,800	11,083,925	11,015,800	10,728,300	9,959,675	8,908,300	7,804,425
	Total Payme	**3,838,762**	**12,062,050**	**12,065,800**	**12,065,100**	**12,063,800**	**12,538,925**	**12,285,800**	**20,958,300**	**30,474,675**	**30,448,300**	**30,419,425**
WSIP												
Wholesale Share	2011 Bond, S	2,371,455	7,451,520	7,453,837	7,453,404	7,452,601	7,746,117	7,589,745	12,947,318	18,826,207	18,809,914	18,792,076
2017 Series D - Ref. 12A												
Principal Payment		-	-	-	-	-	-	-	-	-	-	-
Interest Payment		2,089,206	6,114,750	6,114,750	6,114,750	6,114,750	6,114,750	6,114,750	6,114,750	6,114,750	6,114,750	6,114,750
	Total Payme	**2,089,206**	**6,114,750**	**6,114,750**	**6,114,750**	**6,114,750**	**6,114,750**	**6,114,750**	**6,114,750**	**6,114,750**	**6,114,750**	**6,114,750**
WSIP												
Wholesale Share	2012 Bond, S	956,837	2,800,499	2,800,499	2,800,499	2,800,499	2,800,499	2,800,499	2,800,499	2,800,499	2,800,499	2,800,499
2017 Series E												
Principal Payment		-	-	-	-	-	765,000	795,000	835,000	7,425,000	7,830,000	6,630,000
Interest Payment		818,377	2,395,250	2,395,250	2,395,250	2,395,250	2,376,125	2,337,125	2,296,375	2,089,875	1,708,500	1,347,000
	Total Payme	**818,377**	**2,395,250**	**2,395,250**	**2,395,250**	**2,395,250**	**3,141,125**	**3,132,125**	**3,131,375**	**9,514,875**	**9,538,500**	**7,977,000**
WSIP												
Wholesale Share	No Share	-	-	-	-	-	-	-	-	-	-	-
2017 Series F												
Principal Payment		-	-	-	-	-	700,000	735,000	770,000	875,000	920,000	965,000
Interest Payment		148,710	435,250	435,250	435,250	435,250	417,750	381,875	344,250	303,125	258,250	211,125
	Total Payme	**148,710**	**435,250**	**435,250**	**435,250**	**435,250**	**1,117,750**	**1,116,875**	**1,114,250**	**1,178,125**	**1,178,250**	**1,176,125**
WSIP												
Wholesale Share	Hetchy Water	98,050	286,977	286,977	286,977	286,977	736,975	736,398	734,667	776,782	776,864	775,463
2017 Series G												
Principal Payment		-	500,000	500,000	500,000	820,000	13,070,000	13,665,000	5,225,000	-	-	-
Interest Payment		317,797	925,058	914,648	903,573	887,705	706,430	343,558	75,919	-	-	-
	Total Payme	**317,797**	**1,425,058**	**1,414,648**	**1,403,573**	**1,707,705**	**13,776,430**	**14,008,558**	**5,300,919**	**-**	**-**	**-**
WSIP												
Wholesale Share	2011 Bond, S	196,324	880,352	873,921	867,079	1,054,961	8,510,605	8,654,006	3,274,726	-	-	-

FYE 2019 Ten Year Financial Plan

Debt Service

		FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
Revenue Bonds Total		**$ 274,084,152**	**$ 294,177,028**	**$ 306,250,013**	**$ 320,531,941**	**$ 324,126,225**	**$ 326,731,173**	**$ 326,604,770**	**$ 326,073,683**	**$ 330,054,180**	**$ 328,625,338**	**$ 326,566,438**
Wholesale Share		***136,581,418***	***139,214,234***	***144,118,747***	***159,220,671***	***163,246,201***	***162,500,744***	***162,319,875***	***161,978,482***	***164,273,818***	***163,571,111***	***166,086,013***
Retail Share		***137,502,734***	***154,962,794***	***162,131,266***	***161,311,271***	***160,880,024***	***164,230,429***	***164,284,895***	***164,095,201***	***165,780,362***	***165,054,226***	***160,480,425***
Senior Lien Debt - SRF Loans												
Westside Recycled Water												
Principal Payments		0	0	0	0	4,983,065	4,969,656	5,019,353	5,069,547	5,120,242	5,171,444	5,223,159
Interest Payments		0	0	0	0	1,648,961	1,662,369	1,612,673	1,562,479	1,511,784	1,460,581	1,408,867
Westside Recycled Water Total		**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 6,632,026**	**$ 6,632,026**	**$ 6,632,026**	**$ 6,632,026**	**$ 6,632,026**	**$ 6,632,026**	**$ 6,632,026**
Wholesale Share	No Share	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
SRF Loans Total		**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 6,632,026**	**$ 6,632,026**	**$ 6,632,026**	**$ 6,632,026**	**$ 6,632,026**	**$ 6,632,026**	**$ 6,632,026**
Wholesale Share		***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***
Retail Share		***0***	***0***	***0***	***0***	***6,632,026***	***6,632,026***	***6,632,026***	***6,632,026***	***6,632,026***	***6,632,026***	***6,632,026***
Senior Lien Debt Total		**$ 274,084,152**	**$ 294,177,028**	**$ 306,250,013**	**$ 320,531,941**	**$ 330,758,250**	**$ 333,363,198**	**$ 333,236,796**	**$ 332,705,709**	**$ 336,686,206**	**$ 335,257,363**	**$ 333,198,463**
Wholesale Share		***136,581,418***	***139,214,234***	***144,118,747***	***159,220,671***	***163,246,201***	***162,500,744***	***162,319,875***	***161,978,482***	***164,273,818***	***163,571,111***	***166,086,013***
Retail Share		***137,502,734***	***154,962,794***	***162,131,266***	***161,311,271***	***167,512,050***	***170,862,454***	***170,916,921***	***170,727,227***	***172,412,388***	***171,686,252***	***167,112,450***
Junior Lien Debt - Certificates of Participation												
COPS are in the programmatic plan and are included here only for reference and to fill in past year 10. Do not include COPS debt service in the debt service total!												
Series 2009C (COPs)												
Principal Payments		2,431,177	2,556,128	2,688,218	2,823,879	2,970,249	3,123,760	0	0	0	0	0
Interest Payments		768,891	644,208	513,100	375,297	230,444	78,094	0	0	0	0	0
(Less) Capitalized Interest		0	0	0	0	0	0	0	0	0	0	0
Series 2009C Total		**$ 3,200,069**	**$ 3,200,336**	**$ 3,201,318**	**$ 3,199,176**	**$ 3,200,693**	**$ 3,201,854**	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 0**
Series 2009D (COPs)												
Principal Payments		0	0	0	0	0	0	3,266,560	3,402,220	3,545,021	3,694,961	3,852,042
Interest Payments		5,967,967	5,967,967	5,967,967	5,967,967	5,967,967	5,967,967	5,864,057	5,651,923	5,430,932	5,200,628	4,960,558
(Less) Capitalized Interest		0	0	0	0	0	0	0	0	0	0	0
Series 2009D Total		**$ 5,967,967**	**$ 5,967,967**	**$ 5,967,967**	**$ 5,967,967**	**$ 5,967,967**	**$ 5,967,967**	**$ 9,130,617**	**$ 9,054,144**	**$ 8,975,953**	**$ 8,895,589**	**$ 8,812,600**
Junior Lien Debt - Commercial Paper												
Commercial paper is currently treated as a non-expense, as it will eventually be refunded by a bond, and the debt service on the bond will capture the expense at that time												
Commercial Paper												
Principal Payments												
Interest Payments												
Commercial Paper Total												
Junior Lien Debt Total		**$ 9,168,035**	**$ 9,168,303**	**$ 9,169,285**	**$ 9,167,143**	**$ 9,168,660**	**$ 9,169,820**	**$ 9,130,617**	**$ 9,054,144**	**$ 8,975,953**	**$ 8,895,589**	**$ 8,812,600**

San Francisco Water Power Sewer

San Francisco
Water Sales Volumes

	Budget FYE 2018	*Budget* FYE 2019	*Budget* FYE 2020	*Forecasted ---->* FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
J-TABLE VOLUME DATA											
Retail In-City Usage (MGD)	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6
Retail Suburban Usage (MGD)	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
City Usage (MGD)	**66.8**	**66.8**	**66.8**	**66.8**	**66.8**	**66.8**	**66.8**	**66.8**	**66.8**	**66.8**	**66.8**
Upountry/Hetchy (MGD)	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**
Wholesale Usage (MGD)	**129.9**	**129.9**	**129.9**	**129.9**	**129.9**	**129.9**	**129.9**	**129.9**	**129.9**	**129.9**	**129.9**
System Usage Total	**196.7**	**196.7**	**196.7**	**196.7**	**196.7**	**196.7**	**196.7**	**196.7**	**196.7**	**196.7**	**196.7**
Upcountry Deliveries (Above Oakdale)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Retail In-City Usage (CCF)	28,214,577	28,214,577	28,291,877	28,214,577	28,214,577	28,214,577	28,291,877	28,214,577	28,214,577	28,214,577	28,291,877
Retail Suburban Usage (CCF)	1,592,582	1,592,582	1,596,945	1,592,582	1,592,582	1,592,582	1,596,945	1,592,582	1,592,582	1,592,582	1,596,945
City Usage (CCF)	**29,807,159**	**29,807,159**	**29,888,822**	**29,807,159**	**29,807,159**	**29,807,159**	**29,888,822**	**29,807,159**	**29,807,159**	**29,807,159**	**29,888,822**
Upcountry/Hetchy (CCF)	**177,140**	**177,140**	**177,625**	**177,140**	**177,140**	**177,140**	**177,625**	**177,140**	**177,140**	**177,140**	**177,625**
Wholesale Usage (CCF)	**66,016,206**	**66,016,206**	**66,197,072**	**66,016,206**	**66,016,206**	**66,016,206**	**66,197,072**	**66,016,206**	**66,016,206**	**66,016,206**	**66,197,072**
System Usage Total	**95,823,365**	**95,823,365**	**96,085,895**	**95,823,365**	**95,823,365**	**95,823,365**	**96,085,895**	**95,823,365**	**95,823,365**	**95,823,365**	**96,085,895**
In-City Losses	2,693,813	2,693,813	2,701,193	2,693,813	2,693,813	2,693,813	2,701,193	2,693,813	2,693,813	2,693,813	2,701,193
Wholesale Allocation Rate	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%	66.05%
City Usage Percent Change	*3.3%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Wholesale Usage Percent Change	*12.5%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
CUSTOMER SERVICE VOLUME DATA											
Original Data Source: CC&B MGT 892 Report											
Full Data: https://worksites.ad1.sfwater.org/dept/fin/plan/SalesMemo/Water Sales Data.xlsx											
Last Update: June 2017 actuals											
Retail Sales											
Single Family Residential (MGD)	14.26	14.26	14.26	14.26	14.26	14.26	14.26	14.26	14.26	14.26	14.26
Multifamily Residential (MGD)	22.62	22.62	22.62	22.62	22.62	22.62	22.62	22.62	22.62	22.62	22.62
Municipal (MGD)	2.64	2.64	2.64	2.64	2.64	2.64	2.64	2.64	2.64	2.64	2.64
Non-residential (MGD)	17.89	17.89	17.89	17.89	17.89	17.89	17.89	17.89	17.89	17.89	17.89
Treasure Island (MGD)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
In-City Retail Paying Subtotal	**57.8**	**57.8**	**57.8**	**57.8**	**57.8**	**57.8**	**57.8**	**57.8**	**57.8**	**57.8**	**57.8**
Single Family Residential (MGD)	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Municipal (MGD)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Non-Residential (MGD)	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88
Nonpotable (MGD)	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Recycled Water (MGD)	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Suburban Retail Paying Subtotal	**3.3**	**3.3**	**3.3**	**3.3**	**3.3**	**3.3**	**3.3**	**3.3**	**3.3**	**3.3**	**3.3**
Retail Paying Total	**61.1**	**61.1**	**61.1**	**61.1**	**61.1**	**61.1**	**61.1**	**61.1**	**61.1**	**61.1**	**61.1**
In-City Retail Non-paying (MGD)	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Suburban Retail Non-paying (MGD)	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
In-City Losses	5.52	5.52	5.52	5.52	5.52	5.52	5.52	5.52	5.52	5.52	5.52
Retail Non-Paying Total	**5.8**	**5.8**	**5.8**	**5.8**	**5.8**	**5.8**	**5.8**	**5.8**	**5.8**	**5.8**	**5.8**
Upcountry/Hetchy											
Groveland (MGD)	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36

San Francisco Water Power Sewer

San Francisco

Water Sales Volumes

	Budget FYE 2018	*Budget* FYE 2019	*Budget* FYE 2020	*Forecasted ---->* FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
Lawrence Livemore National Labs (MGD)	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Misc Upcountry Retail (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Upcountry Total	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
Wholesale											
Wholesale Paying Sales (MGD)	129.92	129.92	129.92	129.92	129.92	129.92	129.92	129.92	129.92	129.92	129.92
Wholesale Non-paying (MGD)	5.37	5.37	5.37	5.37	5.37	5.37	5.37	5.37	5.37	5.37	5.37
Wholesale Sales Total	**135.3**	**135.3**	**135.3**	**135.3**	**135.3**	**135.3**	**135.3**	**135.3**	**135.3**	**135.3**	**135.3**
Total Sales	**141.7**	**141.7**	**141.7**	**141.7**	**141.7**	**141.7**	**141.7**	**141.7**	**141.7**	**141.7**	**141.7**
Retail Paying											
Single Family Residential (CCF)	6,960,496	6,960,496	6,979,566	6,960,496	6,960,496	6,960,496	6,979,566	6,960,496	6,960,496	6,960,496	6,979,566
Multifamily Residential (CCF)	11,039,552	11,039,552	11,069,798	11,039,552	11,039,552	11,039,552	11,069,798	11,039,552	11,039,552	11,039,552	11,069,798
Municipal (CCF)	1,287,851	1,287,851	1,291,379	1,287,851	1,287,851	1,287,851	1,291,379	1,287,851	1,287,851	1,287,851	1,291,379
Non-residential (CCF)	8,730,696	8,730,696	8,754,615	8,730,696	8,730,696	8,730,696	8,754,615	8,730,696	8,730,696	8,730,696	8,754,615
Treasure Island (CCF)	195,982	195,982	196,519	195,982	195,982	195,982	196,519	195,982	195,982	195,982	196,519
In-City Retail Paying Subtotal	**28,214,577.0**	**28,214,577.0**	**28,291,877.2**	**28,214,577.0**	**28,214,577.0**	**28,214,577.0**	**28,291,877.2**	**28,214,577.0**	**28,214,577.0**	**28,214,577.0**	**28,291,877.2**
Single Family Residential (CCF)	32,069	32,069	32,156	32,069	32,069	32,069	32,156	32,069	32,069	32,069	32,156
Municipal (CCF)	26,131	26,131	26,203	26,131	26,131	26,131	26,203	26,131	26,131	26,131	26,203
Non-Residential (CCF)	1,405,292	1,405,292	1,409,142	1,405,292	1,405,292	1,405,292	1,409,142	1,405,292	1,405,292	1,405,292	1,409,142
Nonpotable (CCF)	95,102	95,102	95,363	95,102	95,102	95,102	95,363	95,102	95,102	95,102	95,363
Recycled Water (CCF)	33,988	33,988	34,081	33,988	33,988	33,988	34,081	33,988	33,988	33,988	34,081
Suburban Retail Water Subtotal	**1,592,582**	**1,592,582**	**1,596,945**	**1,592,582**	**1,592,582**	**1,592,582**	**1,596,945**	**1,592,582**	**1,592,582**	**1,592,582**	**1,596,945**
Retail Paying Total	**29,807,159**	**29,807,159**	**29,888,822**	**29,807,159**	**29,807,159**	**29,807,159**	**29,888,822**	**29,807,159**	**29,807,159**	**29,807,159**	**29,888,822**
In-City Retail Non-paying (CCF)	106,446	106,446	106,738	106,446	106,446	106,446	106,738	106,446	106,446	106,446	106,738
Suburban Retail Non-paying (CCF)	12,159	12,159	12,192	12,159	12,159	12,159	12,192	12,159	12,159	12,159	12,192
In-City Losses (CCF)	2,693,813	2,693,813	2,701,193	2,693,813	2,693,813	2,693,813	2,701,193	2,693,813	2,693,813	2,693,813	2,701,193
Retail Non-Paying Total	**2,812,418**	**2,812,418**	**2,820,123**	**2,812,418**	**2,812,418**	**2,812,418**	**2,820,123**	**2,812,418**	**2,812,418**	**2,812,418**	**2,820,123**
Retail Sales Total	**32,619,577**	**32,619,577**	**32,708,946**	**32,619,577**	**32,619,577**	**32,619,577**	**32,708,946**	**32,619,577**	**32,619,577**	**32,619,577**	**32,708,946**
Upcountry/Hetchy											
Groveland (CCF)	175,570	175,570	176,051	175,570	175,570	175,570	176,051	175,570	175,570	175,570	176,051
Lawrence Livemore National Labs (CCF)	126,734	126,734	127,081	126,734	126,734	126,734	127,081	126,734	126,734	126,734	127,081
Misc Upcountry Retail (CCF)	1,570	1,570	1,574	1,570	1,570	1,570	1,574	1,570	1,570	1,570	1,574
Upcountry Subtotal	**303,874**	**303,874**	**304,706**	**303,874**	**303,874**	**303,874**	**304,706**	**303,874**	**303,874**	**303,874**	**304,706**
Wholesale Paying Sales (CCF)	63,395,749	63,395,749	63,569,436	63,395,749	63,395,749	63,395,749	63,569,436	63,395,749	63,395,749	63,395,749	63,569,436
Wholesale Non-paying (CCF)	2,620,457	2,620,457	2,627,636	2,620,457	2,620,457	2,620,457	2,627,636	2,620,457	2,620,457	2,620,457	2,627,636
Wholesale Sales Total	**66,016,206**	**66,016,206**	**66,197,072**	**66,016,206**	**66,016,206**	**66,016,206**	**66,197,072**	**66,016,206**	**66,016,206**	**66,016,206**	**66,197,072**
Total Sales	**98,939,657**	**98,939,657**	**99,210,724**	**98,939,657**	**98,939,657**	**98,939,657**	**99,210,724**	**98,939,657**	**98,939,657**	**98,939,657**	**99,210,724**

San Francisco

Water Functional Allocation

O&M Cost Allocation Basis: 4 Year Average

	FYE 2019	4 Year Average	10 Year Average	Allocation Basis	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Private Fire Protection	Raw Water	Public Fire Protection	As All Others
EXPENSES													
Operating expenses:													
Source of Supply - Surface Water	$ 52,863,303	$ 55,925,738	$ 61,434,647	Raw Water	$ -	$ -	$ -	$ -	$ -	$ -	$ 55,925,738	$ -	$ -
Source of Supply - Other	3,571,764	3,778,680	4,150,895	Peak Only	-	3,778,680	-	-	-	-	-	-	-
Pumping	13,173,750	13,936,922	15,309,764	Max Day	10,638,871	3,298,050	-	-	-	-	-	-	-
Transmission	19,459,740	20,587,066	22,614,974	Max Day	15,715,317	4,871,748	-	-	-	-	-	-	-
Treatment	42,356,258	44,810,007	49,223,972	Max Day	34,206,112	10,603,895	-	-	-	-	-	-	-
Storage	7,970,982	8,432,751	9,263,410	Max Hour	6,437,214	1,995,536	-	-	-	-	-	-	-
Distribution	13,235,801	14,002,567	15,381,876	Max Hour	10,688,982	3,313,585	-	-	-	-	-	-	-
Meters	16,538,788	17,496,900	19,220,415	Meter Charges	-	-	-	17,496,900	-	-	-	-	-
Hydrants / AWSS	2,797,523	2,959,587	3,251,118	Public Fire Protection	-	-	-	-	-	-	-	2,959,587	-
Private Fire Protection	2,669,730	2,824,390	3,102,604	Private Fire Protection	-	-	-	-	-	2,824,390	-	-	-
Customer Billing	11,941,162	12,632,928	13,877,322	Customer Service	-	-	-	-	12,632,928	-	-	-	-
Laboratory	7,483,954	7,917,508	8,697,415	Base Only	7,917,508	-	-	-	-	-	-	-	-
General Plant	-	-	-	As All Others	-	-	-	-	-	-	-	-	-
Water Conservation	6,198,494	6,557,581	7,203,529	Peak Only	-	6,557,581	-	-	-	-	-	-	-
As All Others	41,674,009	44,088,234	48,431,102	As All Others	-	-	-	-	-	-	-	-	44,088,234
Operating Expenses Subtotal	$ 241,935,259	$ 255,950,859	$ 281,163,043		$ 85,604,006	$ 34,419,075	$ -	$ 17,496,900	$ 12,632,928	$ 2,824,390	$ 55,925,738	$ 2,959,587	$ 44,088,234
Reallocation of As All Others					17,814,041	7,162,548	-	3,641,074	2,628,890	587,751	11,638,046	615,885	(44,088,234)
Total Dollar Allocation					$ 103,418,047	$ 41,581,623	$ -	$ 21,137,974	$ 15,261,818	$ 3,412,141	$ 67,563,784	$ 3,575,472	$ -
Total Percent Allocation					40.4%	16.2%	0.0%	8.3%	6.0%	1.3%	26.4%	1.4%	0.0%
				Previous Study Allocations	*66.6%*	*6.5%*	*14.8%*	*4.3%*	*4.6%*	*3.2%*	*0.0%*	*0.0%*	*0.0%*
Other expenses:													
Programmatic Expenses													
Retail Share of Programmatic Expen:	$ 22,875,970	$ 22,140,098	$ 21,647,578	Programmatic	$ -	$ 2,573,321	$ -	$ -	$ -	$ -	$ 531,715	$ 813,518	$ 18,221,544
Wholesale Share of Programmatic E:	6,447,333	9,135,000	10,157,733	WS Programmatic	-	-	-	-	-	-	1,074,885	-	8,060,115
Debt Service													
Retail Share of Existing Debt	144,442,856	157,191,354	161,269,095	RT Existing Debt	109,804,441	39,209,691	-	4,001,659	42,019	-	3,951,372	182,173	-
Wholesale Share of Existing Debt	139,214,234	151,449,963	158,652,990	WS Existing Debt	107,859,333	38,354,588	0	33,247	10,609	0	5,127,548	64,638	-
Retail Share of Future Debt	-	192,749	25,265,330	RT Future Capital	99,691	60,201	-	1,341	-	-	22,861	8,655	-
Wholesale Share of Future Debt	-	124,031	19,551,264	WS Future Capital	54,548	29,665	-	180	-	-	39,638	-	-
Non-Debt Capital Expenses													
Retail Share of Non-Debt Capital Exp	30,142,333	41,759,250	59,230,267	RT Future Capital	21,598,236	13,042,612	-	290,433	-	-	4,952,853	1,875,115	-
Wholesale Share of Non-Debt Capita	26,666,667	20,000,000	19,333,333	WS Future Capital	8,795,887	4,783,438	-	29,006	-	-	6,391,670	-	-
Total Other Expenses	$ 369,789,393	$ 401,992,445	$ 475,107,590		$ 248,212,136	$ 98,053,515	$ 0	$ 4,355,866	$ 52,629	$ 0	$ 22,092,543	$ 2,944,099	$ 26,281,658
OFFSETTING REVENUES													
Wholesale Water Sales Revenue													
Operating Expenses	$ (101,051,344)	$ (106,928,225)	$ (117,037,989)	Wholesale O&M	$ (54,341,392)	$ (17,862,228)	$ -	$ (14,334)	$ (240,964)	$ -	$ (34,469,307)	$ -	$ -
Programmatic Expenses	(6,801,125)	(9,388,638)	(10,369,437)	WS Programmatic	-	-	-	-	-	-	(1,104,730)	-	(8,283,908)
Debt Service - Existing	(139,215,587)	(151,483,814)	(158,116,856)	WS Existing Debt	(107,883,441)	(38,363,161)	(0)	(33,254)	(10,612)	(0)	(5,128,694)	(64,652)	-
Debt Service - Proposed	-	(124,059)	(19,485,194)	WS Future Capital	(54,560)	(29,671)	-	(180)	-	-	(39,647)	-	-
Federal Bond Interest Subsidy	14,029,815	13,865,938	13,140,301	Federal Bond	10,051,885	3,374,116	-	-	-	-	21,177	-	418,759
Water Revenue Funded Capital	(26,420,257)	(19,819,429)	(19,089,771)	WS Future Capital	(8,716,473)	(4,740,250)	-	(28,744)	-	-	(6,333,962)	-	-
K-5 Schedule Payment	(1,159,269)	(1,159,517)	(693,204)	WS Existing Debt	(825,783)	(293,647)	(0)	(255)	(81)	(0)	(39,257)	(495)	-
WRR Below-the-Line Subtotal	(3,596,802)	10,645,144	4,132,727	WS Existing Debt	7,581,238	2,695,875	0	2,337	746	0	360,406	4,543	-
Interest Income	(3,157,000)	(3,253,250)	(2,708,000)	As All Others	-	-	-	-	-	-	-	-	(3,253,250)
Rental Revenue	(12,671,000)	(13,234,750)	(14,465,900)	As All Others	-	-	-	-	-	-	-	-	(13,234,750)
Federal Bond Interest Subsidy	(21,975,249)	(21,703,349)	(20,615,670)	Federal Bond	(15,733,489)	(5,281,260)	-	-	-	-	(33,147)	-	(655,454)
Other Misc Income	(10,211,000)	(10,669,250)	(11,668,000)	As All Others	-	-	-	-	-	-	-	-	(10,669,250)
Programmatic Revenues	(7,930,928)	(7,904,678)	(8,283,928)	Programmatic	-	(918,753)	-	-	-	-	(189,838)	(290,450)	(6,505,637)
Non-Debt Capital Revenues	(5,005,000)	(4,974,500)	(5,291,800)	RT Future Capital	(2,572,853)	(1,553,679)	-	(34,597)	-	-	(590,000)	(223,370)	-
Increase/(Decrease) in Reserves	(11,434,905)	(11,434,905)	(11,434,905)	As All Others	-	-	-	-	-	-	-	-	(11,434,905)
Total Offsetting Revenues	$ (336,599,652)	$ (337,567,281)	$ (381,987,627)		$ (172,494,867)	$ (62,972,658)	$ (0)	$ (109,027)	$ (250,911)	$ (0)	$ (47,547,000)	$ (574,424)	$ (53,618,394)
Total Rate Revenue to be Collected	$ 275,125,000	$ 320,376,023	$ 374,283,007		$ 161,321,275	$ 69,499,932	$ 0	$ 21,743,738	$ 12,434,645	$ 2,824,390	$ 30,471,281	$ 5,329,262	$ 16,751,499
Reallocation as "As All Others"					8,900,378	3,834,433	0	1,199,640	686,041	155,827	1,681,154	294,025	
Total Revenue Requirements	$ 275,125,000	$ 320,376,023	$ 374,283,007		$ 170,221,654	$ 73,334,366	$ 0	$ 22,943,379	$ 13,120,687	$ 2,980,217	$ 32,152,435	$ 5,623,287	
Total Revenue Requirements Allocation					53.1%	22.9%	0.0%	7.2%	4.1%	0.9%	10.0%	1.8%	0.0%
				Previous Study Allocations	*67.8%*	*8.0%*	*10.4%*	*7.7%*	*4.3%*	*1.8%*	*0.0%*	*0.0%*	*0.0%*

San Francisco

Water Functional Allocation

O&M Cost Allocation Basis: 4 Year Average

FYE 2019	4 Year Average	10 Year Average	Allocation Basis

Allocation Index	Notes:	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Private Fire Protection	Raw Water	Public Fire Protection	As All Others
Fixed Assets	*Based on allocation of fixed assets*	73.0%	22.6%	0.0%	0.0%	0.1%	0.0%	3.9%	0.3%	0.0%
Raw Water	*Costs associated with raw water supply and infrastructure*							100.0%		0.0%
Base Only	*Water costs that are common across all unit of demand*	100.0%								0.0%
Max Day	*Assumes Peak Day to Average Day ratio of 1.31 (0.31/1.31 = 0.237)*	76.3%	23.7%				0.0%		0.0%	0.0%
Max Hour	*Assumes Peak Hour to Peak Day ratio of 1.00*	76.3%	23.7%	0.0%			0.0%		0.0%	0.0%
Peak Only	*Water costs that increase based on peak or demand*		100.0%	0.0%			0.0%		0.0%	0.0%
Customer Service	*Water costs that are associated with providing customer service*					100.0%				0.0%
Meter Charges	*Water costs that are associated with installation/replacement/maintenance of meters*				100.0%					0.0%
Private Fire Protection	*Costs associated with providing private fire protection services*						100.0%			0.0%
Public Fire Protection	*Costs associated with providing public fire protection services, including AWSS*								100.0%	0.0%
Programmatic	*Based on allocation of programmatic expenses*	0.0%	11.6%	0.0%	0.0%	0.0%	0.0%	2.4%	3.7%	82.3%
RT Existing Debt	*Based on allocation of debt service payments*	69.9%	24.9%	0.0%	2.5%	0.0%	0.0%	2.5%	0.1%	0.0%
RT Future Capital	*Based on allocation of retail share of future capital projects*	51.7%	31.2%	0.0%	0.7%	0.0%	0.0%	11.9%	4.5%	0.0%
Wholesale O&M	*Based on allocation of wholesale share of O&M*	50.8%	16.7%	0.0%	0.0%	0.2%	0.0%	32.2%	0.0%	0.0%
WS Programmatic	*Based on allocation of wholesale share of programmatic expenses*	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.8%	0.0%	88.2%
WS Existing Debt	*Based on allocation of wholesale share of existing debt*	71.2%	25.3%	0.0%	0.0%	0.0%	0.0%	3.4%	0.0%	0.0%
WS Future Capital	*Based on allocation of wholesale share of future capital projects*	44.0%	23.9%	0.0%	0.1%	0.0%	0.0%	32.0%	0.0%	0.0%
Federal Bond	*Interest Subsidy based on allocation of BABs*	72.5%	24.3%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	3.0%
As All Others	*Catch all basis that uses the weighted average of the system allocation*									100.0%

Asset Category	Notes:	Value	Allocation Basis	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Private Fire Protection	Raw Water	Public Fire Protection	As All Others
Source of Supply - Surface Water	*Raw water facilities*	$ 119,500,567	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Source of Supply - Other	*Raw water facilities to meet peak demands*	-	Peak Only	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pumping	*Treated water pumping*	388,006,167	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Transmission	*Treated water trans mains wo svc conn*	1,398,690,293	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Treatment	*Surface water trtmt and groundwater prod*	451,479,338	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Storage	*Treated water storage tanks and reservoirs*	285,089,565	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Distribution	*Treated water dist mains w/svc conn*	383,768,699	Max Hour	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Meters	*Water meters and associated equipment*	318,626	Meter Charges	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hydrants / AWSS	*Fire hydrants and related assets and equip*	10,510,988	Public Fire Protection	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
Customer Billing	*Customer billing and collections assets*	4,019,479	Customer Service	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%
Laboratory	*Assets associated w/water sample analysis*	1,051,946	Base Only	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
General Plant	*Assets and equipment not described above*	801,889,930	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Asset Allocation Subtotal		$ 3,844,325,598		$ 2,220,161,917	$ 687,924,091	$ -	$ 318,626	$ 4,019,479	$ -	$ 119,500,567	$ 10,510,988	$ 801,889,930
Reallocation of As All Other				585,164,545	181,315,059	-	83,980	1,059,408	-	31,496,574	2,770,364	(801,889,930)
Total Dollar Allocation		**$ 3,844,325,598**		**$ 2,805,326,462**	**$ 869,239,149**	**$ -**	**$ 402,606**	**$ 5,078,887**	**$ -**	**$ 150,997,141**	**$ 13,281,352**	**$ -**
Total Percent Allocation				**73.0%**	**22.6%**	**0.0%**	**0.0%**	**0.1%**	**0.0%**	**3.9%**	**0.3%**	**0.0%**
	Previous Study Allocations			*58.9%*	*8.4%*	*22.4%*	*3.2%*	*5.3%*	*1.8%*	*0.0%*	*0.0%*	*0.0%*

San Francisco Water Power Sewer

San Francisco

Water Functional Allocation

O&M Cost Allocation Basis: 4 Year Average

Debt Issue	Notes:	FYE 2019 Retail	4 Year Average Wholesale	10 Year Average Allocation Basis	Allocation Basis	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Private Fire Protection	Raw Water	Public Fire Protection	As All Others
						Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Private Fire Protection	Raw Water	Public Fire Protection	As All Others
1991A (CABs)	*Refunding bond - Assu*	$ 1,420,000	$ -		Fixed Assets	73.0%	22.6%	0.0%	0.0%	0.1%	0.0%	3.9%	0.3%	0.0%
2009A	*Debt allocated based c*	2,414,962	1,496,298			73.9%	26.0%	0.0%	0.0%	0.0%		0.1%	0.0%	0.0%
2009B	*Debt allocated based c*	1,670,687	2,279,663			72.3%	24.4%	0.0%	0.0%	0.0%		0.0%	0.0%	3.2%
2010A	*AMI project*	1,036,975	-		Meter Charges	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2010B (BABs)	*Debt allocated based c*	12,962,937	20,585,428			71.3%	25.6%	0.0%	0.0%	0.0%		0.0%	0.0%	3.1%
2010D (Refunding)	*Refunding bond - Assu*	4,752,175	-		Fixed Assets	73.0%	22.6%	0.0%	0.0%	0.1%	0.0%	3.9%	0.3%	0.0%
2010D (New Money)		3,236,632	5,811,068			74.0%	24.6%	0.0%	0.0%	0.0%		0.0%	0.0%	1.3%
2010E (BABs)	*Debt allocated based c*	8,124,011	14,423,536			70.5%	23.5%	0.0%	0.0%	0.0%		0.5%	0.0%	5.5%
2010F	*Debt allocated based c*	2,173,481	4,228,524			76.3%	23.7%	0.0%	0.0%	0.0%		0.0%	0.0%	0.1%
2010G (BABs)	*Debt allocated based c*	8,293,023	16,134,142			75.8%	23.5%	0.0%	0.0%	0.0%		0.0%	0.0%	0.7%
2011A	*Debt allocated based c*	8,176,537	13,214,888			66.8%	23.3%	0.0%	0.0%	0.0%		0.3%	0.0%	9.7%
2011B	*Debt issued for Hetch H*	473,488	916,415		Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
2011C	*Debt issued for local m*	1,514,418	-		Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2011D	*Refunding bond - Assu*	2,138,450	-		Fixed Assets	73.0%	22.6%	0.0%	0.0%	0.1%	0.0%	3.9%	0.3%	0.0%
2012A	*Debt allocated based c*	11,277,777	9,529,573			62.5%	32.7%	0.0%	0.0%	0.0%		0.1%	0.0%	4.7%
2012B		683,450	-		Fixed Assets	73.0%	22.6%	0.0%	0.0%	0.1%	0.0%	3.9%	0.3%	0.0%
2012C	*Refunding bond - Assu*	3,617,750	-		Fixed Assets	73.0%	22.6%	0.0%	0.0%	0.1%	0.0%	3.9%	0.3%	0.0%
2012D	*Refunding bond - Assu*	4,974,239	-		Fixed Assets	73.0%	22.6%	0.0%	0.0%	0.1%	0.0%	3.9%	0.3%	0.0%
2015A (Refunding 2006A)		19,346,026	10,477,653			64.8%	25.0%	0.0%	0.0%	0.0%		0.3%	0.4%	9.5%
2015A (Refunding 2009A)		1,138,711	705,539			73.9%	26.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
2016A (Refunding 2009A)		12,013,391	7,443,434			73.9%	26.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
2016A (Refunding 2009B)		8,874,165	12,108,860			72.3%	24.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.2%
2016A (Refunding 2010F)		3,231,565	6,287,035			76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
2016B (Refunding 2006B)		8,955,285	-		Fixed Assets	73.0%	22.6%	0.0%	0.0%	0.1%	0.0%	3.9%	0.3%	0.0%
2016B (Refunding 2006C)		2,610,595	-		Fixed Assets	73.0%	22.6%	0.0%	0.0%	0.1%	0.0%	3.9%	0.3%	0.0%
2016B (Refunding 2010A)		2,632,965	-		Meter Charges	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2016C		4,946,721	9,623,886			67.5%	24.2%	0.0%	0.0%	0.0%	0.0%	2.0%	0.0%	6.3%
2017A		1,387,732	2,699,843			2.9%	11.0%	0.0%	0.0%	0.0%	0.0%	51.6%	0.0%	34.6%
2017B		3,483,140	762,810			1.7%	1.7%	0.0%	4.3%	0.0%	0.0%	0.0%	0.0%	92.3%
2017C	*Hetch Hetchy*	932,683	1,805,167		Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
2017D (Refunding 2011A)		4,647,639	7,511,496			66.8%	23.3%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	9.7%
2017D (Refunding 2012A)		3,314,251	2,800,499			62.5%	32.7%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	4.7%
2017E	*Refunding 2011C, 201*	2,544,425	-		Fixed Assets	73.0%	22.6%	0.0%	0.0%	0.1%	0.0%	3.9%	0.3%	0.0%
2017F	*Upcountry Hetchy expe*	194,774	376,976		Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
2017G	*Refunded 2011A*	1,508,099	2,437,384			66.8%	23.3%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	9.7%
BAWSCA Defeasement		(10,519,938)	-		As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Debt Allocation Subtotals		$ 150,183,219	$ 153,660,119											
Retail Debt Allocation Subtotal						$ 105,864,099	$ 37,757,534	$ -	$ 3,823,388	$ 41,875	$ -	$ 3,826,615	$ 178,573	$ (1,308,866)
Reallocation of As All Others					Fixed Assets	(955,121)	(295,947)	-	(137)	(1,729)	-	(51,410)	(4,522)	1,308,866
Total Dollar Allocation - Retail			**$ 150,183,219**			**$ 104,908,978**	**$ 37,461,587**	**$ -**	**$ 3,823,251**	**$ 40,146**	**$ -**	**$ 3,775,206**	**$ 174,051**	**$ -**
Total Percent Allocation - Retail						**69.9%**	**24.9%**	**0.0%**	**2.5%**	**0.0%**	**0.0%**	**2.5%**	**0.1%**	**0.0%**
				Previous Study Allocations		*68.9%*	*9.3%*	*6.4%*	*10.8%*	*4.0%*	*0.6%*	*0.0%*	*0.0%*	*0.0%*
Wholesale Debt Allocation Subtotal						$ 103,487,839	$ 37,072,071	$ -	$ 32,878	$ -	$ -	$ 4,882,358	$ 37,433	$ 8,147,541
Reallocation of As All Others					Fixed Assets	5,945,519	1,842,238	-	853	10,764	-	320,019	28,148	(8,147,541)
Total Dollar Allocation - Wholesale			**$ 153,660,120**			**$ 109,433,358**	**$ 38,914,309**	**$ 0**	**$ 33,732**	**$ 10,764**	**$ 0**	**$ 5,202,376**	**$ 65,581**	**$ -**
Total Percent Allocation - Wholesale						**71.2%**	**25.3%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**3.4%**	**0.0%**	**0.0%**

San Francisco

Water Functional Allocation

O&M Cost Allocation Basis: 4 Year Average

Wholesale Share of Operating Expenses b Notes:	FYE 2019	4 Year Average	10 Year Average	Allocation Basis	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Private Fire Protection	Raw Water	Public Fire Protection	As All Others
			4-Year Average	Allocation Basis	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Private Fire Protection	Raw Water	Public Fire Protection	As All Others
Supply - Natural Resources			$ 6,348,084	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Supply - Environmental Compliance			$ 6,348,084	WS Future Capital	44.0%	23.9%	0.0%	0.1%	0.0%	0.0%	32.0%	0.0%	0.0%
Pumping			-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Treatment			24,860,053	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Transmission			17,204,635	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Customer Service			154,766	Customer Service	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%
Hetchy Water Expenses			13,762,064	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Admin & General			25,933,776	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Wholesale O&M Allocation Subtotal			$ 94,611,461		$ 34,902,300	$ 11,472,522	$ -	$ 9,207	$ 154,766	$ -	$ 22,138,890	$ -	$ 25,933,776
Reallocation of As All Others					13,179,658	4,332,205	-	3,477	58,442	-	8,359,994	-	$ (25,933,776)
Total Dollar Allocation			**$ 94,611,461**		**$ 48,081,958**	**$ 15,804,727**	**$ -**	**$ 12,683**	**$ 213,208**	**$ -**	**$ 30,498,884**	**$ -**	**$ -**
Total Percent Allocation					**50.8%**	**16.7%**	**0.0%**	**0.0%**	**0.2%**	**0.0%**	**32.2%**	**0.0%**	**0.0%**

Programmatic Projects	Project Number	4-Year Total	Allocation Basis	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Private Fire Protection	Raw Water	Public Fire Protection	As All Others
Local Projects												
Water Resource Planning & Development	PUW502	$ 600,000	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Landscape Conservation Program	CUW265	5,500,000	Peak Only	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AWSS Maintenance	FUW101	2,500,000	Public Fire Protection	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
Treasure Island Facilities Maintenance	PUW511	3,820,000	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Retrofit Grant Program	PUW517	2,408,000	Peak Only	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
525 Golden Gate - Operations & Maintenance	PUW514	13,046,000	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
525 Golden Gate - Lease Payment	PUW515	27,506,588	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Youth Employment Project	PYEAES06	3,870,000	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Regional Projects												
Natural Resources Planning	CUW257	1,600,000	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Long Term Monitoring & Permit Program	CUW271	20,910,596	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Watershed Protection	FUW102	3,102,000	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Community Benefits - Water	PUW518	750,000	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Total Dollar Allocation - Retail		**$ 68,038,120**		**$ -**	**$ 7,908,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 1,634,000**	**$ 2,500,000**	**$ 55,996,120**
Total Percent Allocation - Retail				**0.0%**	**11.6%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**2.4%**	**3.7%**	**82.3%**
Total Dollar Allocation - Wholesale		**$ 17,575,064**		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 2,068,000**	**$ -**	**$ 15,507,064**
Total Percent Allocation - Wholesale				**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**11.8%**	**0.0%**	**88.2%**

Future Capital Projects - Retail	Project Number	4-Year Total	Allocation Basis	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Private Fire Protection	Raw Water	Public Fire Protection	As All Others
Local Projects												
General Local Projects												
Automated Water Meter Program	CUW686	$ 1,778,669	Meter Charges	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Local Water Conveyance/Distribution System	CUW280	285,530,411	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Systems Monitoring & Control	CUW282	7,355,600	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Other Recycled Water Projects - Local	CUW278	167,720	Peak Only	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Local Tanks/Reservoir Improvements	CUW283	19,920,000	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pump Station Improvements	CUW284	25,640,000	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Sunset Pipeline - Potable AWSS		33,370,300	Public Fire Protection	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
520 John Muir Drive - Site Rehabilitation		2,441,000	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
New Service Connection Improvement Program		2,990,000	Meter Charges	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Town of Sunol Pipeline		3,400,000	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Lombard Geotechnical Improvements		2,250,000	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Additional Newcomb Yard Improvements		12,354,062	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Fire Response GO Bond Funded		-	Public Fire Protection	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
San Francisco Groundwater Supply - (Non - WSIP)	CUW30102	4,995,000	Peak Only	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
WSIP + WSIP Augmentation (Local)												
SUMMIT RES REHAB/SEISMIC UPGRADE	CUW307	1,324,187	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
STANFORD HEIGHTS RES REHAB/UPGRADE	CUW334	14,223	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
POTRERO HEIGHTS RES REHAB/UPGRADE	CUW335	85,355	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SUTRO RES - REHAB/SEISMIC UPGRADE	CUW337	188,336	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CROCKER AMAZON PUMP STATION UPGRADE	CUW306	783,342	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
LAKE MERCED PUMP STATION UPGRADE	CUW309	632,700	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
LA GRANDE TANK REHAB/SEISMIC UPGRADE	CUW314	847,409	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
FOREST HILL PUMP STATION UPGRADE	CUW320	22,338	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
LINCOLN PARK PUMP STATION UPGRADE	CUW322	260,646	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MCLAREN PARK PUMP STATION UPGRADE	CUW323	23,675	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

San Francisco Water Power Sewer

San Francisco

Water Functional Allocation

O&M Cost Allocation Basis: 4 Year Average

	FYE 2019	4 Year Average	10 Year Average	Allocation Basis	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Private Fire Protection	Raw Water	Public Fire Protection	As All Others
POTRERO HEIGHTS TANK REHAB/UPGRADE	CUW329		495,584	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
LINCOLN PARK TANK REHAB/SEISMIC UPGRADE	CUW331		101,146	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NORTH UNIVERSITY MOUND SYSTEM UPGRADE	CUW304		11,702	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SUNSET CIRCULATION IMPROVEMENTS	CUW311		2,259,011	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
LINCOLN WAY TRANSMISSION LINE	CUW312		835,598	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
LAKE MERCED WATER LEVEL RESTORATION	CUW30101		26,343,383	Peak Only	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SAN FRANCISCO GROUNDWATER SUPPLY	CUW30102		29,342,526	Peak Only	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
HARDING PARK RECYCLED WATER	CUW30204		2,673,800	Peak Only	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SAN FRANCISCO EASTSIDE RECYCLED WATER	CUW30205		21,071,475	Peak Only	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Retail Share of Regional Projects													
Water Treatment Program													
Water Treatment Program	CUW27200		$ -	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Tesla UV Facility	CUW27201		1,328,000	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SVWTP & East Bay Fields	CUW27202		1,710,000	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
HTWTP & West Bay Fields	CUW27203		3,719,333	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SVWTP Ozone			38,333,333	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SVWTP Powder Activated Carbon Units			1,821,667	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Reg. GW Storage and Recovery Project (Post WSIP)			66,667	Peak Only	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Water Transmission Program													
Water Transmission Program	CUW27300		(8,595,667)	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Corrosion Protection Capital Upgrades	CUW27301		4,658,333	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pipeline Inspection and Repair Project	CUW27302		3,783,333	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pump Station Upgrades	CUW27304		4,970,000	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pipeline Improvement Program	CUW27305		14,221,000	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Valve Replacement	CUW27306		8,921,000	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Vault Upgrades	CUW27307		1,237,667	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Calaveras Micro Turbine	CUW27308		-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Metering Upgrades	CUW27309		400,000	Meter Charges	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CS2 in Hillsborough Improvements (Reaches 2 & 3)			18,666,667	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Palo Alto Pipeline Replacement			-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BDPL 1&2 Decommissioning			1,500,000	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Water Supply & Storage Program													
Water Supply & Storage Program	CUW27400		-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Dam Structural Upgrades (w/geotech)	CUW27401		7,832,667	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Potable Reuse & Other Supplies			3,800,000	Peak Only	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Merced Manor Reservoir Facilities Repairs			2,234,000	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Daly City Recycled Water Expansion			9,916,667	Peak Only	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
San Andreas Dam Facility Improvement			1,821,333	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Turner Dam and Reservoir Improvements			3,500,000	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Watersheds & Land Management													
Long Term Monitoring & Permit Program (Capital)	CUW28600		8,115,824	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Buildings and Grounds Programs													
Buildings and Grounds Programs	CUW27700		(4,042,667)	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Sunol Yard	CUW27701		12,269,333	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Millbrae Yard Upgrade	CUW27703		3,499,333	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Sunol Long Term (Watershed Center)			4,033,333	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Buildings & Grounds All Locations			1,722,888	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Millbrae Long Term			10,833,333	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Rollins Road Building			833,333	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
WSIP + WSIP Augmentation - Regional Projects													
LAWRENCE LIVERMORE SUPPLY IMPROVEMENTS	CUW364		-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
SAN JOAQUIN PIPELINE SYSTEM	CUW373		-	Max Hour	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TESLA TREATMENT FACILITY	CUW384		115,825	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TESLA PORTAL DISINFECTION STATION	CUW387		351,386	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
San Joaquin Water System Improvement	CUWSJI		546,667	Max Hour	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
ALAMEDA CREEK FISHERY ENHANCEMENT	CUW352		581,822	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
STANDBY POWER FAC VARIOUS LOCATIONS	CUW355		12,936	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
IRVINGTON TUNNEL ALTERNATIVES	CUW359		-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PIPELINE REPAIR & READINESS IMPROVEMENTS	CUW370		38,303	Max Hour	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CALAVERAS DAM REPLACEMENT	CUW374		36,092,312	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SVWTP EXPANSION/TREATED WATER RESERVOIR	CUW381		-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SVWTP TREATED WATER RES PRE PLAN/DESIGN	CUW382		10,718	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SAN ANTONIO PUMP STATION UPGRADE	CUW386		9,080	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Sunol Valley Water System Improvement	CUWSVI		1,081,667	Max Hour	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

San Francisco
Water Functional Allocation

O&M Cost Allocation Basis: 4 Year Average

	FYE 2019	4 Year Average	10 Year Average	Allocation Basis	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Private Fire Protection	Raw Water	Public Fire Protection	As All Others
SEISMIC UPGRADE BDPL @ HAYWARD FAULT		CUW353	3,458,646	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
INSTALLATION OF SCADA SYSTEM PH II		CUW363_01	-	Max Hour	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BDPL HYDRAULIC RELIABILITY UPGRADE		CUW368	-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BDPL NO 3&4 CROSS CONNECTION		CUW380	4,361	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
EBMUD INTERTIE		CUW389	389,099	Peak Only	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BDPL#4 CONDITION ASSESSMENT PCCP SECTION		CUW393	-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bay Division Water System Improvement		CUWBDP	365,000	Max Hour	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
LOWER CRYSTAL SPRINGS DAM IMPROVEMENTS		CUW354	294,434	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NEW CRYSTAL SPRINGS BYPASS TUNNEL		CUW356	1,085,676	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
ADIT LEAK REPAIRS (CS/CALV RES)		CUW357	-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PULGAS BALANCING RESERVOIR REHAB		CUW361	120,697	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CROSS CONNECTION CONTROLS		CUW365	-	Peak Only	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
HTWTP SHORT TERM IMPROVEMENTS PH A		CUW366	59,009	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
HTWTP LONG TERM IMPROVEMENTS		CUW36701	-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PENINSULA PIPELINE SEISMIC UPGRADE		CUW36702	408,932	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CAPUCHINO VALVE LOT CAPACITY IMPROVEMENT		CUW369	-	Max Hour	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CRYSTAL SPRINGS/SAN ANDREAS UPGRADE		CUW371	969,946	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CRYSTAL SPRINGS PL #2 REPLACE (IN City)		CUW378	-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SAN ANDREAS #3 PIPELINE INSTALLATION		CUW379	-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BADEN AND SAN PEDRO VALVE LOT		CUW391	4,662	Max Hour	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Peninsula Water System Improvement		CUWPWI	1,630,000	Max Hour	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
REGIONAL GROUNDWATER STORAGE/RECOVERY		CUW30103	14,190,226	Peak Only	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SUNSET RES - UPGRADE/REHAB NORTH BASIN		CUW358	532,234	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
U MOUND RES - UPGRADE (NORTH Basin)		CUW372	57,889	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
San Francisco Regional Water System		CUWSFR	-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SYSTEM SECURITY UPGRADE		CUW363_02	595,446	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
ENVIRONMENTAL IMPACT PROJECT (PEIR)		CUW388_01	-	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
HABITAT RESERVE PROGRAM		CUW388_02	3,495,180	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
VEGETATION RESTORATION WSIP SITES		CUW388_03	29,489	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
LONG TERM MANAGEMENT FUND		CUW388_04	-	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
PROGRAM MANAGEMENT SERVICES - WSIP		CUW392	-	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
WATERSHED ENVIRONMENTAL IMPROVEMENTS		CUW394	1,661,347	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
WSIP Closeout - Bay Division			666,667	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
WSIP Closeout - Peninsula (WSIP)			2,333,333	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
WSIP Closeout - San Joaquin Region			666,667	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Joint Infrastructure			666,667	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Retail Share of Hetchy Projects													
Water Projects													
Water Infrastructure		CUH100	-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Water Infrastructure - Project Development		CUH100PD	623,947	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
SCADA for Water Assets		CUH100	-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
San Joaquin Pipeline Rehabilitation		CUH10001	999,382	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Lower Cherry Aqueduct		CUH10003	2,661,175	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Priest Reservoir Lining, Water Quality		CUH10005	700,000	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Water Conveyance (Water)			10,111,297	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
SJPL Valve and Safe Entry Improvement			14,271,000	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Priest-Moccasin Water Transmission Line			14,199,570	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Moccasin Reservoir Perimeter Security Fence			1,718,333	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Early Intake Dam Rehabilitation			-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%

San Francisco

Water Functional Allocation

O&M Cost Allocation Basis: 4 Year Average

	FYE 2019	4 Year Average	10 Year Average	Allocation Basis	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Private Fire Protection	Raw Water	Public Fire Protection	As All Others
Water's Share of Joint Projects													
Infrastructure - Unallocated		CUH10200	-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Infrastructure - Project Development		CUH102PD	1,087,087	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Cherry Spillway		CUH10222	600,000	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Dam Condition Assessment & Repair		CUH10203	-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Early Intake Dam Rehabilitation		CUH10218	295,341	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Facilities Security		CUH10211	-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Hetchy Fiber Projects		CUH10210	959,626	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Remote Terminal Unit Replacement		CUH10208	-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Canyon Tunnel Rehabilitation		CUH10215	-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Cherry Dam Outlet Works		CUH10216	61,953	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Hetch Hetchy Facilities New Construction		CUH10214	-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Hetch Hetchy Facilities - Upgrades		CUH10202	-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Microwave System		CUH10201	0	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Moccasin Wastewater Treatment Plant		CUH10217	-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
O'Shaughnessy Outlet Works		CUH10206	130,728	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Mountain Tunnel Lining		CUH10002	-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Mountain Tunnel Access/Adit Improvement		CUH10219	-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Mountain Tunnel Inspection and Repair		CUH10220	-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Mountain Tunnel Improvement Project		CUH10221	25,365,921	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Road Improvements		CUH10209	1,615,839	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Communication Systems Upgrades		CUH10213	190,800	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Dams & Reservoirs (Joint)			4,094,250	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
O'Shaughnessy Dam Outlet Works Phase II			-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Eleanor Dam Rehabilitation			-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Bridge Replacement			4,267,882	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Tunnels (Joint)			1,182,000	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
R&R Power Distribution Improvements			763,650	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Retail Future Capital Allocation Subtotal			$ 811,046,017		$ 384,370,820	$ 232,111,516	$ -	$ 5,168,669	$ -	$ -	$ 88,142,953	$ 33,370,300	$ 67,881,759
Reallocation of As All Others					35,109,018	21,201,421	-	472,114	-	-	8,051,112	3,048,094	(67,881,759)
Total Dollar Allocation			**$ 811,046,017**		**$ 419,479,838**	**$ 253,312,937**	**$ -**	**$ 5,640,783**	**$ -**	**$ -**	**$ 96,194,065**	**$ 36,418,394**	**$ -**
Total Percent Allocation					**51.7%**	**31.2%**	**0.0%**	**0.7%**	**0.0%**	**0.0%**	**11.9%**	**4.5%**	**0.0%**

San Francisco

Water Functional Allocation

O&M Cost Allocation Basis: 4 Year Average

Future Capital Projects - Wholesale	FYE 2019 Project Number	4 Year Average 10 Year Average 4-Year Total	Allocation Basis Allocation Basis	Base Base	Peak Day Peak Day	Peak Hour Peak Hour	Meter Charges Meter Charges	Customer Service Customer Service	Private Fire Protection Private Fire Protection	Raw Water Raw Water	Public Fire Protection Public Fire Protection	As All Others As All Others
Wholesale Share of Regional Projects												
Water Treatment Program												
Water Treatment Program	CUW27200	$ -	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Tesla UV Facility	CUW27201	2,656,000	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SVWTP & East Bay Fields	CUW27202	3,420,000	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
HTWTP & West Bay Fields	CUW27203	7,438,667	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SVWTP Ozone		76,666,667	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SVWTP Powder Activated Carbon Units		3,643,333	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Reg. GW Storage and Recovery Project (Post WSIP)		133,333	Peak Only	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Water Transmission Program												
Water Transmission Program	CUW27300	(17,191,333)	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Corrosion Protection Capital Upgrades	CUW27301	9,316,667	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pipeline Inspection and Repair Project	CUW27302	7,566,667	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pump Station Upgrades	CUW27304	9,940,000	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pipeline Improvement Program	CUW27305	28,442,000	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Valve Replacement	CUW27306	17,842,000	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Vault Upgrades	CUW27307	2,475,333	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Calaveras Micro Turbine	CUW27308	-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Metering Upgrades	CUW27309	800,000	Meter Charges	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CS2 in Hillsborough Improvements (Reaches 2 & 3)		37,333,333	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Palo Alto Pipeline Replacement		-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BDPL 1&2 Decommissioning		3,000,000	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Water Supply & Storage Program												
Water Supply & Storage Program	CUW27400	-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Dam Structural Upgrades (w/geotech)	CUW27401	15,665,333	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Potable Reuse & Other Supplies		7,600,000	Peak Only	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Merced Manor Reservoir Facilities Repairs		4,468,000	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Daly City Recycled Water Expansion		19,833,333	Peak Only	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
San Andreas Dam Facility Improvement		3,642,667	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Turner Dam and Reservoir Improvements		7,000,000	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Watersheds & Land Management												
Long Term Monitoring & Permit Program (Capital)	CUW28600	16,231,649	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Buildings and Grounds Programs												
Buildings and Grounds Programs	CUW27700	(8,085,333)	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Sunol Yard	CUW27701	24,538,667	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Millbrae Yard Upgrade	CUW27703	6,998,667	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Sunol Long Term (Watershed Center)		8,066,667	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Buildings & Grounds All Locations		3,445,777	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Millbrae Long Term		21,666,667	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Rollins Road Building		1,666,667	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
WSIP + WSIP Augmentation - Regional Projects												
LAWRENCE LIVERMORE SUPPLY IMPROVEMENTS	CUW364	-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
SAN JOAQUIN PIPELINE SYSTEM	CUW373	-	Max Hour	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TESLA TREATMENT FACILITY	CUW384	231,650	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TESLA PORTAL DISINFECTION STATION	CUW387	702,773	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
San Joaquin Water System Improvement	CUWSJI	1,093,333	Max Hour	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
ALAMEDA CREEK FISHERY ENHANCEMENT	CUW352	1,163,645	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
STANDBY POWER FAC VARIOUS LOCATIONS	CUW355	25,871	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
IRVINGTON TUNNEL ALTERNATIVES	CUW359	-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PIPELINE REPAIR & READINESS IMPROVEMENTS	CUW370	76,605	Max Hour	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CALAVERAS DAM REPLACEMENT	CUW374	72,184,625	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SVWTP EXPANSION/TREATED WATER RESERVOIR	CUW381	-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SVWTP TREATED WATER RES PRE PLAN/DESIGN	CUW382	21,436	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

San Francisco

Water Functional Allocation

O&M Cost Allocation Basis: 4 Year Average

	FYE 2019	4 Year Average	10 Year Average	Allocation Basis	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Private Fire Protection	Raw Water	Public Fire Protection	As All Others
SAN ANTONIO PUMP STATION UPGRADE		CUW386	18,160	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Sunol Valley Water System Improvement		CUWSVI	2,163,333	Max Hour	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SEISMIC UPGRADE BDPL @ HAYWARD FAULT		CUW353	6,917,293	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
INSTALLATION OF SCADA SYSTEM PH II		CUW363_01	-	Max Hour	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BDPL HYDRAULIC RELIABILITY UPGRADE		CUW368	-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BDPL NO 3&4 CROSS CONNECTION		CUW380	8,722	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
EBMUD INTERTIE		CUW389	778,198	Peak Only	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BDPL#4 CONDITION ASSESSMENT PCCP SECTION		CUW393	-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bay Division Water System Improvement		CUWBDP	730,000	Max Hour	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
LOWER CRYSTAL SPRINGS DAM IMPROVEMENTS		CUW354	588,868	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NEW CRYSTAL SPRINGS BYPASS TUNNEL		CUW356	2,171,351	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
ADIT LEAK REPAIRS (CS/CALV RES)		CUW357	-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PULGAS BALANCING RESERVOIR REHAB		CUW361	241,393	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CROSS CONNECTION CONTROLS		CUW365	-	Peak Only	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
HTWTP SHORT TERM IMPROVEMENTS PH A		CUW366	118,019	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
HTWTP LONG TERM IMPROVEMENTS		CUW36701	-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PENINSULA PIPELINE SEISMIC UPGRADE		CUW36702	817,864	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CAPUCHINO VALVE LOT CAPACITY IMPROVEMENT		CUW369	-	Max Hour	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CRYSTAL SPRINGS/SAN ANDREAS UPGRADE		CUW371	1,939,893	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CRYSTAL SPRINGS PL #2 REPLACE (IN City)		CUW378	-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SAN ANDREAS #3 PIPELINE INSTALLATION		CUW379	-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BADEN AND SAN PEDRO VALVE LOT		CUW391	9,325	Max Hour	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Peninsula Water System Improvement		CUWPWI	3,260,000	Max Hour	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
REGIONAL GROUNDWATER STORAGE/RECOVERY		CUW30103	28,380,451	Peak Only	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SUNSET RES - UPGRADE/REHAB NORTH BASIN		CUW358	1,064,468	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
U MOUND RES - UPGRADE (NORTH Basin)		CUW372	115,777	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
San Francisco Regional Water System		CUWSFR	-	Max Day	76.3%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SYSTEM SECURITY UPGRADE		CUW363_02	1,190,893	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
ENVIRONMENTAL IMPACT PROJECT (PEIR)		CUW388_01	-	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
HABITAT RESERVE PROGRAM		CUW388_02	6,990,360	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
VEGETATION RESTORATION WSIP SITES		CUW388_03	58,979	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
LONG TERM MANAGEMENT FUND		CUW388_04	-	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
PROGRAM MANAGEMENT SERVICES - WSIP		CUW392	-	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
WATERSHED ENVIRONMENTAL IMPROVEMENTS		CUW394	3,322,694	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
WSIP Closeout - Bay Division			1,333,333	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
WSIP Closeout - Peninsula (WSIP)			4,666,667	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
WSIP Closeout - San Joaquin Region			1,333,333	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Joint Infrastructure			1,333,333	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

San Francisco
Water Functional Allocation

O&M Cost Allocation Basis: 4 Year Average

		FYE 2019	4 Year Average	10 Year Average	Allocation Basis	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Private Fire Protection	Raw Water	Public Fire Protection	As All Others
Wholesale Share of Hetchy Projects														
Water Projects														
Water Infrastructure	CUH100			-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Water Infrastructure - Project Development	CUH100PD			1,247,895	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
SCADA for Water Assets	CUH100			-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
San Joaquin Pipeline Rehabilitation	CUH10001			1,998,765	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Lower Cherry Aqueduct	CUH10003			5,322,350	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Priest Reservoir Lining, Water Quality	CUH10005			1,400,000	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Water Conveyance (Water)				20,222,595	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
SJPL Valve and Safe Entry Improvement				28,542,000	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Priest-Moccasin Water Transmission Line				28,399,140	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Moccasin Reservoir Perimeter Security Fence				3,436,667	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Early Intake Dam Rehabilitation				-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Water's Share of Joint Projects														
Infrastructure - Unallocated	CUH10200			-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Infrastructure - Project Development	CUH102PD			2,174,175	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Cherry Spillway	CUH10222			1,200,000	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Dam Condition Assessment & Repair	CUH10203			-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Early Intake Dam Rehabilitation	CUH10218			590,681	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Facilities Security	CUH10211			-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Hetchy Fiber Projects	CUH10210			1,919,252	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Remote Terminal Unit Replacement	CUH10208			-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Canyon Tunnel Rehabilitation	CUH10215			-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Cherry Dam Outlet Works	CUH10216			123,905	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Hetch Hetchy Facilities New Construction	CUH10214			-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Hetch Hetchy Facilities - Upgrades	CUH10202			-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Microwave System	CUH10201			0	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Moccasin Wastewater Treatment Plant	CUH10217			-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
O'Shaughnessy Outlet Works	CUH10206			261,457	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Mountain Tunnel Lining	CUH10002			-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Mountain Tunnel Access/Adit Improvement	CUH10219			-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Mountain Tunnel Inspection and Repair	CUH10220			-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Mountain Tunnel Improvement Project	CUH10221			50,731,843	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Road Improvements	CUH10209			3,231,678	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Communication Systems Upgrades	CUH10213			381,600	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Dams & Reservoirs (Joint)				8,188,500	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
O'Shaughnessy Dam Outlet Works Phase II				-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Eleanor Dam Rehabilitation				-	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Bridge Replacement				8,535,764	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Tunnels (Joint)				2,364,000	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
R&R Power Distribution Improvements				1,527,300	Raw Water	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Wholesale Future Capital Allocation Subtotal				$ 643,073,638		$ 242,595,589	$ 131,929,949	$ -	$ 800,000	$ -	$ -	$ 176,285,905	$ -	$ 91,462,195
Reallocation of As All Others						40,224,555	21,875,186	-	132,647	-	-	29,229,807	-	(91,462,195)
Total Dollar Allocation				**$ 643,073,638**		**$ 282,820,144**	**$ 153,805,134**	**$ -**	**$ 932,647**	**$ -**	**$ -**	**$ 205,515,712**	**$ -**	**$ -**
Total Percent Allocation						**44.0%**	**23.9%**	**0.0%**	**0.1%**	**0.0%**	**0.0%**	**32.0%**	**0.0%**	**0.0%**

San Francisco

Multi-Year Functional Cost Allocation

			Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Private Fire Protection	Raw Water	Public Fire Protection
		% Allocation								
	Preliminary CoS Results		53.1%	22.9%	0.0%	7.2%	4.1%	0.9%	10.0%	1.8%
	Previous Study CoS Results		67.8%	8.0%	10.4%	7.7%	4.3%	1.8%	0.0%	0.0%
	Years to implement adjustment to Cost of Service based Allocation					1				
1	FYE 2019	*100%*	53%	23%	0%	7%	4%	1%	10%	2%
2	FYE 2020	*100%*	53%	23%	0%	7%	4%	1%	10%	2%
3	FYE 2021	*100%*	53%	23%	0%	7%	4%	1%	10%	2%
4	FYE 2022	*100%*	53%	23%	0%	7%	4%	1%	10%	2%
5	FYE 2023	*100%*	53%	23%	0%	7%	4%	1%	10%	2%

		$ Allocation	**Amount to Allocable Functions**							
1	FYE 2019	$ 275,125,000	$ 146,178,956	$ 62,976,365	$ 0	$ 19,702,776	$ 11,267,475	$ 2,559,281	$ 27,611,113	$ 4,829,034
2	FYE 2020	$ 297,134,000	157,872,741	68,014,245	0	21,278,927	12,168,832	2,764,014	29,819,902	5,215,339
3	FYE 2021	$ 317,934,000	168,924,162	72,775,384	0	22,768,496	13,020,676	2,957,501	31,907,357	5,580,424
4	FYE 2022	$ 340,189,000	180,748,652	77,869,574	0	24,362,263	13,932,108	3,164,522	34,140,834	5,971,047
5	FYE 2023	$ 364,002,000	193,400,935	83,320,392	0	26,067,605	14,907,346	3,386,037	36,530,670	6,389,016
6	FYE 2024	$ 385,842,000	205,004,927	88,319,588	0	27,631,653	15,801,782	3,589,198	38,722,498	6,772,355
7	FYE 2025	$ 408,992,000	217,304,947	93,618,644	0	29,289,515	16,749,867	3,804,545	41,045,795	7,178,687
8	FYE 2026	$ 433,532,000	230,343,498	99,235,873	0	31,046,920	17,754,879	4,032,822	43,508,591	7,609,417
9	FYE 2027	$ 455,209,000	241,860,886	104,197,758	0	32,599,295	18,642,639	4,234,467	45,684,061	7,989,895
10	FYE 2028	$ 468,865,000	249,116,569	107,323,629	0	33,577,254	19,201,907	4,361,498	47,054,556	8,229,587

San Francisco

Allocation Year 2018

Distribution of Costs

Allocation Factor	Total Allocation	Single Family Residential	Multifamily Residential	Residential Irrigation	Commercial/Industrial	Municipal	Nonresidential Irrigation	Docks & Ships	Builders & Contractors	Fire Service	Nonpotable (Raw Water)
Base											
% of Treated Water	*100%*	24%	37%	0%	32%	3%	3%	0%	0%	0%	0%
FYE 2019	$ 146,178,956	$ 35,332,256	$ 53,771,620	$ 641,082	$ 47,107,916	$ 4,682,244	$ 4,112,666	$ 18,363	$ 388,073	$ 124,735	$ -
FYE 2020	$ 157,872,741	38,158,708	58,073,155	692,366	50,876,378	5,056,806	4,441,664	19,832	419,118	134,713	-
FYE 2021	$ 168,924,162	40,829,897	62,138,397	740,833	54,437,831	5,410,793	4,752,590	21,221	448,457	144,143	-
FYE 2022	$ 180,748,652	43,687,941	66,488,010	792,691	58,248,414	5,789,543	5,085,265	22,706	479,849	154,233	-
FYE 2023	$ 193,400,935	46,746,067	71,142,126	848,179	62,325,763	6,194,807	5,441,231	24,296	513,438	165,029	-
FYE 2024	$ 205,004,927	49,550,816	75,410,630	899,069	66,065,289	6,566,493	5,767,703	25,753	544,244	174,931	-
Peak Day											
Peak Day Excess Use	*100%*	22%	32%	1%	29%	3%	10%	0%	1%	0%	0%
FYE 2019	$ 62,976,365	$ 13,904,359	$ 20,462,595	$ 809,234	$ 18,504,013	$ 2,133,581	$ 6,147,430	$ 103,580	$ 839,142	$ 72,431	$ -
FYE 2020	$ 68,014,245	15,016,657	22,099,528	873,969	19,984,267	2,304,260	6,639,203	111,866	906,270	78,226	-
FYE 2021	$ 72,775,384	16,067,854	23,646,541	935,149	21,383,207	2,465,563	7,103,961	119,697	969,711	83,702	-
FYE 2022	$ 77,869,574	17,192,585	25,301,770	1,000,608	22,880,006	2,638,149	7,601,229	128,076	1,037,590	89,561	-
FYE 2023	$ 83,320,392	18,396,054	27,072,877	1,070,650	24,481,591	2,822,818	8,133,310	137,041	1,110,220	95,830	-
FYE 2024	$ 88,319,588	19,499,811	28,697,241	1,134,889	25,950,478	2,992,186	8,621,306	145,263	1,176,833	101,580	-
Meter Charges											
% of MEUs	*100%*	41%	32%	0%	20%	4%	2%	0%	1%	0%	0%
FYE 2019	$ 19,702,776	$ 8,109,831	$ 6,278,015	$ 89,961	$ 3,953,594	$ 703,175	$ 453,999	$ 6,671	$ 100,925	$ -	$ 6,605
FYE 2020	$ 21,278,927	8,758,588	6,780,233	97,158	4,269,867	759,427	490,317	7,205	108,999	-	7,133
FYE 2021	$ 22,768,496	9,371,707	7,254,864	103,959	4,568,766	812,588	524,641	7,709	116,629	-	7,633
FYE 2022	$ 24,362,263	10,027,715	7,762,696	111,236	4,888,574	869,468	561,365	8,249	124,793	-	8,167
FYE 2023	$ 26,067,605	10,729,649	8,306,079	119,022	5,230,771	930,330	600,660	8,826	133,529	-	8,739
FYE 2024	$ 27,631,653	11,373,424	8,804,441	126,163	5,544,616	986,150	636,699	9,356	141,540	-	9,263
Customer Service											
% of Accounts	*100%*	63%	21%	0%	9%	1%	1%	0%	0%	5%	0%
FYE 2019	$ 11,267,475	$ 7,114,252	$ 2,372,593	$ 18,980	$ 1,052,284	$ 75,278	$ 81,369	$ 449	$ 8,720	$ 543,423	$ 128
FYE 2020	$ 12,168,832	7,683,366	2,562,392	20,498	1,136,463	81,300	87,878	485	9,418	586,894	139
FYE 2021	$ 13,020,676	8,221,218	2,741,764	21,933	1,216,018	86,991	94,030	519	10,077	627,978	148
FYE 2022	$ 13,932,108	8,796,693	2,933,685	23,468	1,301,138	93,080	100,612	555	10,783	671,936	159
FYE 2023	$ 14,907,346	9,412,456	3,139,040	25,111	1,392,216	99,596	107,655	594	11,537	718,971	170
FYE 2024	$ 15,801,782	9,977,200	3,327,382	26,618	1,475,749	105,571	114,114	629	12,230	762,109	180

San Francisco

Allocation Year 2018

Distribution of Costs

Allocation Factor	Total Allocation	Single Family Residential	Multifamily Residential	Residential Irrigation	Commercial/Industrial	Municipal	Nonresidential Irrigation	Docks & Ships	Builders & Contractors	Fire Service	Nonpotable (Raw Water)
Private Fire Protection											
Fire	*100%*	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%
FYE 2019	$ 2,559,281	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,559,281	$ -
FYE 2020	$ 2,764,014	-	-	-	-	-	-	-	-	2,764,014	-
FYE 2021	$ 2,957,501	-	-	-	-	-	-	-	-	2,957,501	-
FYE 2022	$ 3,164,522	-	-	-	-	-	-	-	-	3,164,522	-
FYE 2023	$ 3,386,037	-	-	-	-	-	-	-	-	3,386,037	-
FYE 2024	$ 3,589,198	-	-	-	-	-	-	-	-	3,589,198	-
Raw Water											
% of Raw Water	*100%*	24%	37%	0%	32%	3%	3%	0%	0%	0%	0%
FYE 2019	$ 27,611,113	$ 6,656,926	$ 10,131,075	$ 120,786	$ 8,875,571	$ 882,178	$ 774,865	$ 3,460	$ 73,117	$ 23,501	$ 69,635
FYE 2020	$ 29,819,902	7,189,456	10,941,524	130,448	9,585,584	952,749	836,851	3,737	78,966	25,381	75,206
FYE 2021	$ 31,907,357	7,692,733	11,707,453	139,580	10,256,595	1,019,444	895,432	3,998	84,493	27,158	80,470
FYE 2022	$ 34,140,834	8,231,215	12,526,961	149,350	10,974,544	1,090,804	958,111	4,278	90,408	29,059	86,103
FYE 2023	$ 36,530,670	8,807,395	13,403,840	159,805	11,742,755	1,167,159	1,025,179	4,578	96,736	31,093	92,130
FYE 2024	$ 38,722,498	9,335,836	14,208,066	169,393	12,447,316	1,237,189	1,086,689	4,852	102,541	32,959	97,658
Public Fire Protection											
Public Fire	*100%*	23%	30%	0%	39%	7%	0%	0%	1%	0%	0%
FYE 2019	$ 4,829,034	$ 1,111,045	$ 1,433,478	$ -	$ 1,895,746	$ 337,172	$ -	$ 3,199	$ 48,394	$ -	$ -
FYE 2020	$ 5,215,339	1,199,925	1,548,151	-	2,047,399	364,145	-	3,455	52,265	-	-
FYE 2021	$ 5,580,424	1,283,922	1,656,525	-	2,190,721	389,636	-	3,697	55,924	-	-
FYE 2022	$ 5,971,047	1,373,795	1,772,480	-	2,344,069	416,910	-	3,955	59,838	-	-
FYE 2023	$ 6,389,016	1,469,960	1,896,552	-	2,508,152	446,093	-	4,232	64,027	-	-
FYE 2024	$ 6,772,355	1,558,157	2,010,345	-	2,658,640	472,858	-	4,486	67,868	-	-

San Francisco

Water Customer Data

Meter Size (excludes Fire)	Accounts (A)	AWWA Ratio (B)	Meter Equivalents (A * B)
5/8"	124,610	*1.0*	124,610
3/4"	17,434	*1.5*	26,151
1"	10,778	*2.5*	26,945
1 1/2"	4,999	*5.0*	24,995
2"	8,499	*8.0*	67,992
3"	315	*16.0*	5,040
4"	366	*25.0*	9,150
6"	222	*50.0*	11,100
8"	18	*80.0*	1,440
10"	7	*125.0*	875
12"	-	*215.0*	-
16"	-	*375.0*	-
Total	167,248		298,298

Summary (Excludes Fire)	Accounts	Meter Equivalents
Single Family Residential	110,951	122,782
Multifamily Residential	37,002	95,049
Residential Irrigation	296	1,362
Commercial/Industrial	16,411	59,857
Municipal	1,174	10,646
Nonresidential Irrigation	1,269	6,874
Docks & Ships	7	101
Builders & Contractors	136	1,528
Fire Service	8,475	-
Nonpotable (Raw Water)	2	100
Total	175,723	298,298

San Francisco

Customer Forecast

	Existing	*Forecasted -->*			
	2018	2019	2020	2021	2022
Customer Accounts	*Growth factors can be changed on the Assumptions & Inputs Module*				
Single Family Residential	110,951	111,062	111,173	111,284	111,395
Multifamily Residential	37,002	37,039	37,076	37,113	37,150
Residential Irrigation	296	296	296	296	296
Commercial/Industrial	16,411	16,427	16,443	16,459	16,475
Municipal	1,174	1,175	1,176	1,177	1,178
Nonresidential Irrigation	1,269	1,270	1,271	1,272	1,273
Docks & Ships	7	7	7	7	7
Builders & Contractors	136	136	136	136	136
Fire Service	8,475	8,483	8,491	8,499	8,507
Nonpotable (Raw Water)	2	2	2	2	2
Total	**175,723**	**175,897**	**176,071**	**176,245**	**176,419**
Total Excluding Fire	167,248	167,414	167,580	167,746	167,912
Meter Equivalents	298,298	298,594	298,890	299,186	299,482
ccf /Acct/yr	*Growth factors can be changed on the Assumptions & Inputs Module*				
Single Family Residential	64	64	64	64	64
Multifamily Residential	292	292	292	292	292
Residential Irrigation	441	441	441	441	441
Commercial/Industrial	584	584	585	586	587
Municipal	812	813	814	815	816
Nonresidential Irrigation	659	660	661	662	663
Docks & Ships	534	534	535	536	537
Builders & Contractors	580	581	582	583	584
Fire Service	3	3	3	3	3
Nonpotable (Raw Water)	47,551	47,599	47,647	47,695	47,743
Demand Forecast					
Single Family Residential	7,096,557	7,107,968	7,115,072	7,122,176	7,129,280
Multifamily Residential	10,800,213	10,815,388	10,826,192	10,836,996	10,847,800
Residential Irrigation	130,402	130,536	130,536	130,536	130,536
Commercial/Industrial	9,582,194	9,593,368	9,619,155	9,644,974	9,670,825
Municipal	953,230	955,275	957,264	959,255	961,248
Nonresidential Irrigation	836,555	838,200	840,131	842,064	843,999
Docks & Ships	3,735	3,738	3,745	3,752	3,759
Builders & Contractors	78,938	79,016	79,152	79,288	79,424
Fire Service	24,351	25,449	25,473	25,497	25,521
Nonpotable (Raw Water)	95,102	95,198	95,294	95,390	95,486
Total	**29,601,277**	**29,644,136**	**29,692,014**	**29,739,928**	**29,787,878**

San Francisco

Fixed Charge Design

Retail Customer Classes			Eff Aug 1/16 FYE 2018	Forecasted --> FYE 2019	FYE 2020	FYE 2021	FYE 2022
Number of Accounts	*Excludes Fire*		167,248	167,414	167,580	167,746	167,912
Number of Meter Equivalents	*Excludes Fire*		298,298	298,594	298,890	299,186	299,482
Customer Revenue to Recover	95%			$ 10,724,053	$ 11,581,938	$ 12,392,698	$ 13,260,172
Capacity Revenue to Recover	100%	*$*	*32,782,285*	$ 24,531,810	$ 26,494,266	$ 28,348,920	$ 30,333,310
Monthly Component Charge per Account				$ 5.34	$ 5.76	$ 6.16	$ 6.59
Monthly Component Charge per MEU				$ 6.85	$ 7.39	$ 7.90	$ 8.45

Meter Size	Meter Ratios						
5/8"	1.00	$	11.63	$ 12.19	$ 13.15	$ 14.06	$ 15.04
3/4"	1.50		14.64	$ 15.62	$ 16.85	$ 18.01	$ 19.27
1"	2.50		20.66	$ 22.47	$ 24.24	$ 25.91	$ 27.72
1 1/2"	5.00		35.71	$ 39.59	$ 42.71	$ 45.66	$ 48.84
2"	8.00		53.78	$ 60.14	$ 64.88	$ 69.36	$ 74.19
3"	16.00		95.95	$ 114.94	$ 124.00	$ 132.56	$ 141.79
4"	25.00		156.17	$ 176.59	$ 190.51	$ 203.66	$ 217.84
6"	50.00		306.76	$ 347.84	$ 375.26	$ 401.16	$ 429.09
8"	80.00		487.45	$ 553.34	$ 596.96	$ 638.16	$ 682.59
10"	125.00		698.25	$ 861.59	$ 929.51	$ 993.66	$ 1,062.84
12"	215.00		1,300.55	$ 1,478.09	$ 1,594.61	$ 1,704.66	$ 1,823.34
16"	375.00		2,264.24	$ 2,574.09	$ 2,777.01	$ 2,968.66	$ 3,175.34

San Francisco

Commodity Rate Design

Single Family Residential

		Existing	Forecasted -->			
		FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022
Pre-adjusted Demand (ccf)		7,096,557	7,107,968	7,115,072	7,122,176	7,129,280
Base Revenue to Recover		$ 51,382,156	$ 41,989,182	$ 45,348,164	$ 48,522,630	$ 51,919,157
Peak Revenue to Recover			$ 12,661,027	$ 13,673,863	$ 14,631,062	$ 15,655,219
Conservation Revenue to Recover			$ 1,243,332	$ 1,342,794	$ 1,436,792	$ 1,537,366
Base Rate ($/ccf)			$ 5.92	$ 6.41	$ 6.87	$ 7.36
Peak Rate ($/ccf)			$ 1.79	$ 1.94	$ 2.07	$ 2.22
Conservation Rate ($/ccf)			$ 0.48	$ 0.52	$ 0.55	$ 0.59

Tier	% Demand	FY2016				
Tier 1		63%	63%	63%	63%	63%
Tier 2		37%	37%	37%	37%	37%
Tier 3		0%	0%	0%	0%	0%

Tier	Demand Reduction					
Tier 1	0%	4,450,074	4,457,229	4,448,918	4,440,623	4,432,343
Tier 2	-0.5%	2,646,483	2,637,485	2,632,567	2,627,658	2,622,759
Tier 3	0%	-	-	-	-	-
Tier 4	0%		-	-	-	-
Tier 5	0%		-	-	-	-
Total Adjusted Demand		7,096,557	7,094,714	7,081,485	7,068,281	7,055,101

Tier	Peak Factor						
							10.0%
Tier 1	0.91	$ 6.42	$ 7.06	$ 7.77	$ 8.55	$ 9.40	
Tier 2	1.13	8.62	$ 9.05	$ 9.50	$ 9.98	$ 10.48	
							5.0%

Multifamily Residential

Pre-adjusted Demand (ccf)	10,800,213	10,815,388	10,826,192	10,836,996	10,847,800
Base Revenue to Recover	$ 77,887,893	$ 63,902,695	$ 69,014,678	$ 73,845,850	$ 79,014,971
Peak Revenue to Recover		$ 18,632,823	$ 20,123,381	$ 21,532,060	$ 23,039,279
Conservation Revenue to Recover		$ 1,829,771	$ 1,976,146	$ 2,114,481	$ 2,262,492
Base Rate ($/ccf)		$ 5.92	$ 6.40	$ 6.86	$ 7.35
Peak Rate ($/ccf)		$ 1.73	$ 1.87	$ 2.00	$ 2.15
Conservation Rate ($/ccf)		$ 0.60	$ 0.65	$ 0.69	$ 0.74

Tier	% Demand					
Tier 1		71%	71%	71%	71%	71%
Tier 2		29%	29%	29%	29%	29%
Tier 3		0%	0%	0%	0%	0%

Tier	Demand Reduction					
Tier 1	0%	7,706,242	7,717,070	7,706,016	7,694,978	7,683,956
Tier 2	-0.5%	3,093,971	3,082,827	3,078,411	3,074,002	3,069,599
Tier 3	0%	-	-	-	-	-
Total Adjusted Demand		10,800,213	10,799,896	10,784,427	10,768,980	10,753,555

Tier	Peak Factor						
							9.3%
Tier 1	0.94	$ 6.57	$ 7.18	$ 7.85	$ 8.58	$ 9.39	
Tier 2	1.11	8.81	$ 9.21	$ 9.62	$ 10.05	10.50	

San Francisco

Commodity Rate Design

		Existing	Forecasted -->			
		FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022
Residential Irrigation						
Pre-adjusted Demand (ccf)		130,402	130,536	130,536	130,536	130,536
Base Revenue to Recover		$ 996,272	$ 641,082	$ 692,366	$ 740,833	$ 792,691
Peak Revenue to Recover			$ 809,234	$ 873,969	$ 935,149	$ 1,000,608
Base Rate ($/ccf)			$ 4.94	$ 5.36	$ 5.77	$ 6.20
Peak Rate ($/ccf)			$ 6.24	$ 6.77	$ 7.28	$ 7.83
Tier	% Demand					
Tier 1		100%	100%	100%	100%	100%
Tier 2		0%	0%	0%	0%	0%
Tier 3		0%	0%	0%	0%	0%
Tier	Demand Reduction					
Tier 1	-0.5%	130,402	129,883	129,234	128,588	127,945
Tier 2	0%	-	-	-	-	-
Tier 3	0%	-	-	-	-	-
Total Adjusted Demand		130,402	129,883	129,234	128,588	127,945
Tier	Peak Factor					
Tier 1	1.00	$ 7.64	$ 11.18	$ 12.13	$ 13.05	$ 14.03

Commercial/Industrial						
Pre-adjusted Demand (ccf)		9,606,545	9,618,817	9,644,628	9,670,471	9,696,346
Base Revenue to Recover		$ 73,394,007	$ 47,107,916	$ 50,876,378	$ 54,437,831	$ 58,248,414
Peak Revenue to Recover			$ 18,504,013	$ 19,984,267	$ 21,383,207	$ 22,880,006
Base Rate ($/ccf)			$ 4.93	$ 5.35	$ 5.75	$ 6.18
Peak Rate ($/ccf)			$ 1.94	$ 2.10	$ 2.26	$ 2.43
Tier	% Demand					
Tier 1		100%	100%	100%	100%	100%
Tier 2				0%	0%	0%
Tier 3				0%	0%	0%
Tier	Demand Reduction					
Tier 1	-0.5%	9,606,545	9,570,723	9,522,869	9,475,255	9,427,879
Tier 2	0%	-	-	-	-	-
Tier 3	0%	-	-	-	-	-
Total Adjusted Demand		9,606,545	9,570,723	9,522,869	9,475,255	9,427,879
Tier	Peak Factor					
Tier 1	1.00	$ 7.64	$ 6.87	$ 7.45	$ 8.01	$ 8.61

San Francisco

Commodity Rate Design

		Existing FYE 2018	*Forecasted -->* FYE 2019	FYE 2020	FYE 2021	FYE 2022
Municipal						
Pre-adjusted Demand (ccf)		953,230	955,275	957,264	959,255	961,248
Base Revenue to Recover		*$ 7,282,677*	$ 4,682,244	$ 5,056,806	$ 5,410,793	$ 5,789,543
Peak Revenue to Recover			$ 2,133,581	$ 2,304,260	$ 2,465,563	$ 2,638,149
Base Rate ($/ccf)			$ 4.93	$ 5.35	$ 5.75	$ 6.19
Peak Rate ($/ccf)			$ 2.25	$ 2.44	$ 2.63	$ 2.82
Tier	% Demand					
Tier 1		100%	100%	100%	100%	100%
Tier 2						
Tier 3						
Tier	Demand Reduction					
Tier 1	-0.5%	953,230	950,499	945,746	941,017	936,312
Tier 2	0%	-	-	-	-	-
Tier 3	0%	-	-	-	-	-
Total Adjusted Demand		953,230	950,499	945,746	941,017	936,312
Tier	Peak Factor					
Tier 1	1.00	$7.64	$ 7.18	$ 7.79	$ 8.38	$ 9.01
Nonresidential Irrigation						
Pre-adjusted Demand (ccf)		836,555	838,200	840,131	842,064	843,999
Base Revenue to Recover		*$ 6,391,280*	$ 4,112,666	$ 4,441,664	$ 4,752,590	$ 5,085,265
Peak Revenue to Recover			$ 6,147,430	$ 6,639,203	$ 7,103,961	$ 7,601,229
Base Rate ($/ccf)			$ 4.94	$ 5.36	$ 5.76	$ 6.19
Peak Rate ($/ccf)			$ 7.38	$ 8.01	$ 8.61	$ 9.26
Tier	% Demand					
Tier 1		100%	100%	100%	100%	100%
Tier 2				0%	0%	0%
Tier 3				0%	0%	0%
Tier	Demand Reduction					
Tier 1	-0.5%	836,555	834,009	829,839	825,690	821,561
Tier 2	0%	-	-	-	-	-
Tier 3	0%	-	-	-	-	-
Total Adjusted Demand		836,555	834,009	829,839	825,690	821,561
Tier	Peak Factor					
Tier 1	1.00	$ 7.64	$ 12.32	$ 13.37	$ 14.37	$ 15.45

San Francisco

Commodity Rate Design

		Existing FYE 2018	*Forecasted -->* FYE 2019	FYE 2020	FYE 2021	FYE 2022
Docks & Ships						
Pre-adjusted Demand (ccf)		3,735	3,738	3,745	3,752	3,759
Base Revenue to Recover		*$ 37,726*	$ 18,363	$ 19,832	$ 21,221	$ 22,706
Peak Revenue to Recover			$ 103,580	$ 111,866	$ 119,697	$ 128,076
Base Rate ($/ccf)			$ 4.94	$ 5.36	$ 5.77	$ 6.20
Peak Rate ($/ccf)			$ 27.85	$ 30.23	$ 32.51	$ 34.96
Tier	% Demand					
Tier 1		100%	100%	100%	100%	100%
Tier 2				0%	0%	0%
Tier 3				0%	0%	0%
Tier	Demand Reduction					
Tier 1	-0.5%	3,735	3,719	3,701	3,682	3,664
Tier 2	0%	-	-	-	-	-
Tier 3	0%	-	-	-	-	-
Total Adjusted Demand		3,735	3,719	3,701	3,682	3,664
Tier	Peak Factor					42.1%
Tier 1	1.00	$ 10.10	$ 14.35	$ 20.39	$ 28.97	$ 41.16
Builders & Contractors						
Pre-adjusted Demand (ccf)		78,938	79,016	79,152	79,288	79,424
Base Revenue to Recover		*$ 723,860*	$ 388,073	$ 419,118	$ 448,457	$ 479,849
Peak Revenue to Recover			$ 839,142	$ 906,270	$ 969,711	$ 1,037,590
Base Rate ($/ccf)			$ 4.94	$ 5.36	$ 5.77	$ 6.20
Peak Rate ($/ccf)			$ 10.68	$ 11.59	$ 12.46	$ 13.40
Tier	% Demand					
Tier 1		100%	100%	100%	100%	100%
Tier 2				0%	0%	0%
Tier 3				0%	0%	0%
Tier	Demand Reduction					
Tier 1	-0.5%	78,937.80	78,621	78,228	77,837	77,447
Tier 2	0%	-	-	-	-	-
Tier 3	0%	-	-	-	-	-
Total Adjusted Demand		78,938	78,621	78,228	77,837	77,447
Tier	Peak Factor					20.9%
Tier 1	1.00	$ 9.17	$ 11.09	$ 13.41	$ 16.21	$ 19.60

San Francisco

Commodity Rate Design

		Existing	Forecasted -->			
		FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022
Fire Service						
Pre-adjusted Demand (ccf)		24,351	25,449	25,473	25,497	25,521
Base Revenue to Recover		*$ 186,045*	$ 124,735	$ 134,713	$ 144,143	$ 154,233
Peak Revenue to Recover			$ 72,431	$ 78,226	$ 83,702	$ 89,561
Base Rate ($/ccf)			$ 4.93	$ 5.35	$ 5.75	$ 6.19
Peak Rate ($/ccf)			$ 2.87	$ 3.11	$ 3.34	$ 3.60
Tier	% Demand					
Tier 1		100%	100%	100%	100%	100%
Tier 2				0%	0%	0%
Tier 3				0%	0%	0%
Tier	Demand Reduction					
Tier 1	-0.5%	24,351.39	25,322	25,195	25,069	24,944
Tier 2	0%	-	-	-	-	-
Tier 3	0%	-	-	-	-	-
Total Adjusted Demand		24,351	25,322	25,195	25,069	24,944
Tier	Peak Factor					
Tier 1	1.00	$ 7.64	$ 7.80	$ 8.46	$ 9.09	$ 9.79

San Francisco

Commodity Rate Design

Nonresidential & Irrigation

		Existing FYE 2018	Forecasted --> FYE 2019	FYE 2020	FYE 2021	FYE 2022
Pre-adjusted Demand (ccf)		11,633,757	11,651,031	11,680,929	11,710,863	11,740,833
Base Revenue to Recover		$ 88,881,903	$ 67,828,556	$ 73,254,594	$ 78,382,569	$ 83,869,255
Peak Revenue to Recover			$ 28,609,412	$ 30,898,061	$ 33,060,989	$ 35,375,219
Base Rate ($/ccf)			$ 5.86	$ 6.36	$ 6.83	$ 7.35
Peak Rate ($/ccf)			$ 2.47	$ 2.68	$ 2.89	$ 3.10
Tier	% Demand					
Tier 1		100%	100%	100%	100%	100%
Tier 2				0%	0%	0%
Tier 3				0%	0%	0%
Tier	Demand Reduction					
Tier 1	-0.5%	11,633,757	11,592,776	11,534,812	11,477,138	11,419,752
Tier 2	0%	-	-	-	-	-
Tier 3	0%	-	-	-	-	-
Total Adjusted Demand		11,633,757	11,592,776	11,534,812	11,477,138	11,419,752
Tier	Peak Factor					
Tier 1	1.00	$ 7.64	$ 8.33	$ 9.04	$ 9.72	$ 10.45

Nonpotable (Raw Water)

Pre-adjusted Demand (ccf)		95,102	95,198	95,294	95,390	95,486
Base Revenue to Recover		$ 280,552	$ 69,635	$ 75,206	$ 80,470	$ 86,103
Base Rate ($/ccf)			$ 0.74	$ 0.80	$ 0.86	$ 0.93
Tier	% Demand					
Tier 1		100%	100%	100%	100%	100%
Tier 2				0%	0%	0%
Tier 3				0%	0%	0%
Tier	Demand Reduction					
Tier 1	-0.5%	95,102	94,722	94,248	93,777	93,308
Tier 2	0%	-	-	-	-	-
Tier 3	0%	-	-	-	-	-
Total Adjusted Demand		95,102	94,722	94,248	93,777	93,308
Tier	Peak Factor					
Tier 1	1.00	$ 2.95	$ 0.75	$ 0.81	$ 0.87	$ 0.94

Water Enterprise FY 2018 - 2027 Ten Year CIP

San Francisco Public Utilities Commission

USES	2019 FY 18-19	2020 FY 19-20	2021 FY 20-21	2022 FY 21-22	2023 FY 22-23	2024 FY 23-24	2025 FY 24-25	2026 FY 25-26	2027 FY 26-27	2028 FY 27-28	FY 18-27	FY 19-28	Change
REGIONAL WATER													
Water Treatment Program													
All Water Treatment Program											0	0	0
Tesla UV Facility	1,272,000	1,272,000	280,000	280,000	280,000	280,000	305,000	305,000	305,000	337,000	4,579,000	4,916,000	337,000
SVWTP & East Bay Fields	3,033,000	3,550,000	700,000	450,000	350,000	350,000	350,000	350,000	350,000	350,000	9,483,000	9,833,000	350,000
HTWTP & West Bay Fields	2,214,000	1,221,000	1,228,000	1,234,000	1,234,000	1,248,000	1,275,000	1,317,000	1,324,000	1,340,000	12,295,000	13,635,000	1,340,000
SVWTP Ozone - NEW	4,000,000	8,000,000	103,000,000	0	0	0	0	0	0	0	115,280,000	115,000,000	(280,000)
SVWTP Powder Activated Carbon Units - NEW	4,745,000	440,000	280,000	0	0	0	0	0	0	0	6,367,000	5,465,000	(902,000)
Reg. GW Storage and Recovery Project (Post WSIP) - NEW	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	3,159,000	500,000	(2,659,000)
Subtotal	**15,314,000**	**14,533,000**	**105,538,000**	**2,014,000**	**1,914,000**	**1,928,000**	**1,980,000**	**2,022,000**	**2,029,000**	**2,077,000**	**151,163,000**	**149,349,000**	**(1,814,000)**
Water Transmission Program													
All Water Transmission Program											0	0	0
Corrosion Protection Capital Upgrades	2,750,000	4,060,000	1,940,000	1,475,000	1,475,000	1,690,000	1,690,000	1,690,000	1,690,000	1,890,000	20,360,000	20,350,000	(10,000)
Pipeline Inspection and Repair Project	3,460,000	2,120,000	2,120,000	1,560,000	1,560,000	1,560,000	1,560,000	1,560,000	1,560,000	1,560,000	18,140,000	18,620,000	480,000
Pump Station Upgrades	1,180,000	3,680,000	2,180,000	3,280,000	3,680,000	21,216,000	6,230,000	1,278,000	1,285,000	1,290,000	45,189,000	45,299,000	110,000
Pipeline Improvement Program	22,250,000	900,000	1,150,000	500,000	500,000	1,500,000	1,500,000	2,500,000	2,500,000	5,500,000	46,550,000	38,800,000	**(7,750,000)**
CS2 in Hillsborough Improvements (Reaches 2 & 3)	1,750,000	27,120,000	27,130,000	0	0	0	0	0	0	0	59,350,000	56,000,000	(3,350,000)
Palo Alto Pipeline Replacement	0	0	0	0	3,000,000	4,000,000	5,000,000	10,000,000	28,000,000	40,000,000	50,000,000	90,000,000	40,000,000
Valve Replacement	7,700,000	6,300,000	4,700,000	1,700,000	1,350,000	1,390,000	1,398,000	1,450,000	1,465,000	1,476,000	27,453,000	28,929,000	1,476,000
Vault Upgrades	675,000	675,000	675,000	675,000	675,000	694,000	707,000	740,000	750,000	757,000	6,941,000	7,023,000	82,000
Metering Upgrades	200,000	200,000	200,000	200,000	200,000	206,000	206,000	220,000	224,000	226,000	1,856,000	2,082,000	226,000
BDPL 1&2 Decommissioning - NEW			2,250,000	2,250,000							4,700,000	4,500,000	(200,000)
Subtotal	**39,965,000**	**45,055,000**	**42,345,000**	**11,640,000**	**12,440,000**	**32,256,000**	**18,291,000**	**19,438,000**	**37,474,000**	**52,699,000**	**280,539,000**	**311,603,000**	**31,064,000**
Water Supply & Storage Program													
All Water Supply and Storage Program											0	0	0
Dam Structural Upgrades (w/ geotech)	3,800,000	2,300,000	15,400,000	1,998,000	1,848,000	972,000	583,000	598,000	598,000	550,000	29,914,000	28,647,000	(1,267,000)
Desalination	0	0	0	0	0	0	0	0	0	0	0	0	0
Purified Water & Other Supplies	2,600,000	1,000,000	3,500,000	4,300,000	4,000,000	4,000,000	20,000,000	20,000,000	0	0	59,400,000	59,400,000	0
Daly City Recycled Water Expansion Project - NEW				29,750,000	35,000,000	20,250,000	0	0	0	0	85,000,000	85,000,000	0
San Andreas Dam Facility Improvement	2,100,000	3,300,000	32,000	32,000	32,000	33,000	10,033,000	5,035,000	5,035,000	40,000	30,132,000	25,672,000	(4,460,000)
Turner Dam and Reservoir Improvements	450,000	450,000	1,100,000	8,500,000	650,000	0	0	0	0	0	11,741,000	11,150,000	(591,000)
Merced Manor Reservoir Facilities Repairs	6,432,000	0	0	0	0	0	0	0	0	0	6,432,000	6,432,000	0
Subtotal	**15,382,000**	**7,050,000**	**20,032,000**	**44,580,000**	**41,530,000**	**25,255,000**	**30,616,000**	**25,633,000**	**5,633,000**	**590,000**	**222,619,000**	**216,301,000**	**(6,318,000)**
Watersheds & Land Management													
All Watersheds and Land Management											0	0	0
Watershed Cottages/Buildings Upgrade	0	0	0	0	0	0	0	0	0	0	0	0	0
Bay Area Watershed and ROW Protection Program	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	9,000,000	10,000,000	1,000,000
Long Term Monitoring & Permit Program (Capital) - NEW	10,076,000	11,521,000	4,119,000	3,924,000	3,457,000	3,374,000	1,782,000	1,538,000	1,596,000	1,621,000	42,891,000	43,008,000	117,000
Subtotal	**11,076,000**	**12,521,000**	**5,119,000**	**4,924,000**	**4,457,000**	**4,374,000**	**2,782,000**	**2,538,000**	**2,596,000**	**2,621,000**	**51,891,000**	**53,008,000**	**1,117,000**
Communication & Monitoring Program													
All Communication and Monitoring Program											0	0	0
Microwave Backbone Upgrade	450,000	0	0	0	0	0	0	0	0	1,000,000	900,000	1,450,000	550,000
WST Security System	500,000	500,000	500,000	500,000	500,000	515,000	515,000	515,000	515,000	520,000	5,104,000	5,080,000	(24,000)
Subtotal	**950,000**	**500,000**	**500,000**	**500,000**	**500,000**	**515,000**	**515,000**	**515,000**	**515,000**	**1,520,000**	**6,004,000**	**6,530,000**	**526,000**
Buildings and Grounds Programs													
All Buildings and Grounds Program											0	0	0
Sunol Yard Upgrade	286,000	295,000	304,000	313,000	322,000	333,000	335,000	335,000	335,000	335,000	2,858,000	3,193,000	335,000
Millbrae Yard Upgrade	1,500,000	1,500,000	500,000	500,000	515,000	530,000	530,000	530,000	530,000	530,000	6,635,000	7,165,000	530,000
Sunol Long Term (Watershed Center)	28,750,000	2,500,000	2,500,000	0	0	0	0	0	0	0	33,750,000	33,750,000	0
Buildings & Grounds All Locations	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,000,000	1,000,000	1,000,000	1,000,000	12,000,000	13,000,000	1,000,000
Millbrae Long Term	2,700,000	27,000,000	2,800,000	0	0	0	0	0	0	0	36,203,000	32,500,000	(3,703,000)
Rollins Road Building	850,000	750,000	500,000	400,000	400,000	350,000	350,000	350,000	350,000	350,000	6,818,000	4,650,000	(2,168,000)
Subtotal	**35,586,000**	**33,545,000**	**8,104,000**	**2,713,000**	**2,737,000**	**2,713,000**	**2,215,000**	**2,215,000**	**2,215,000**	**2,215,000**	**98,264,000**	**94,258,000**	**(4,006,000)**
Base Funded by WSIP													
Regional Groundwater Storage and Recovery (WSIP)	7,000,000	0	0	0	0	0	0	0	0	0	7,000,000	7,000,000	0
Alameda Creek Recapture (WSIP)	3,000,000	0	0	0	0	0	0	0	0	0	3,000,000	3,000,000	0
Alameda Creek Diversion Dam (WSIP)	5,000,000	0	0	0	0	0	0	0	0	0	5,000,000	5,000,000	0
Calaveras Dam (WSIP)	34,000,000	0	0	0	0	0	0	0	0	0	34,000,000	34,000,000	0
WSIP Closeout - Bay Division	2,000,000	0	0	0	0	0	0	0	0	0	2,000,000	2,000,000	0
WSIP Closeout - Peninsula (WSIP)	7,000,000	0	0	0	0	0	0	0	0	0	7,000,000	7,000,000	0
WSIP Closeout - San Joaquin Region	2,000,000	0	0	0	0	0	0	0	0	0	5,703,000	2,000,000	(3,703,000)
Joint Infrastructure	2,000,000	0	0	0	0	0	0	0	0	0	4,518,000	2,000,000	(2,518,000)
Subtotal	**62,000,000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**68,221,000**	**62,000,000**	**(6,221,000)**
REGIONAL WATER TOTAL	**180,273,000**	**113,204,000**	**181,638,000**	**66,371,000**	**63,578,000**	**67,041,000**	**56,399,000**	**52,361,000**	**50,462,000**	**61,722,000**	**878,701,000**	**893,049,000**	**14,348,000**

Water Enterprise FY 2018 - 2027 Ten Year CIP

San Francisco Public Utilities Commission

USES	2019 FY 18-19	2020 FY 19-20	2021 FY 20-21	2022 FY 21-22	2023 FY 22-23	2024 FY 23-24	2025 FY 24-25	2026 FY 25-26	2027 FY 26-27	2028 FY 27-28	FY 18-27	FY 19-28	Change
LOCAL WATER													
Local Water Conveyance / Distribution System	56,100,000	56,100,000	57,000,000	58,000,000	59,000,000	60,000,000	61,000,000	62,000,000	64,000,000	67,300,000	2,000,000	601,500,000	599,500,000
Sunset Pipeline - Potable AWSS	2,000,000	10,000,000	10,450,000	10,920,300	11,411,700	0	0	0	0	0	559,400,000	100,882,000	(458,518,000)
Automated Water Meter Program	1,800,000	0	0	0	0	0	0	0	0	0	20,775,000	2,800,000	(17,975,000)
Other Recycled Water Projects - Local	0	0	700,000	0	0	0	0	0	0	0	20,775,000	700,000	(20,075,000)
520 John Muir Drive - Site Rehabilitation	2,441,000	0	0	0	0	0	0	0	0	0	20,775,000	2,441,000	(18,334,000)
Systems Monitoring & Control	200,000	209,000	218,400	228,200	238,500	249,200	260,400	272,100	284,300	297,200	20,775,000	2,457,300	(18,317,700)
Local Tanks/Reservoir Improvements	10,100,000	3,000,000	300,000	200,000	0	0	0	0	0	0	20,775,000	13,600,000	(7,175,000)
Pump Station Improvements	932,000	2,250,000	17,500,000	600,000	0	0	0	0	0	0	20,775,000	21,282,000	507,000
SF Westside Recycled Water (Non WSIP)	6,500,000	500,000	0	0	0	0	0	0	0	0	20,775,000	7,000,000	(13,775,000)
Buildings and Grounds Improvements - Local	260,000	200,000	0	0	0	0	0	0	0	0	7,600,000	960,000	(6,640,000)
New Service Connection Improvement Program - NEW	968,000	1,377,000	645,000	0	0	0	0	0	0	0	0	2,990,000	2,990,000
Town of Sunol Pipeline - NEW	2,700,000	700,000	0	0	0	0	0	0	0	0	0	3,400,000	3,400,000
Lombard Geotechnical Improvements - NEW	75,000	175,000	2,000,000	0	0	0	0	0	0	0	10,000,000	2,750,000	(7,250,000)
Additional Newcomb Yard Improvements - NEW	0	0	1,000,000	13,000,000	26,000,000	0	0	0	0	0	19,500,000	41,500,000	22,000,000
Local Water Subtotal	**84,076,000**	**74,511,000**	**89,813,400**	**82,948,500**	**96,650,200**	**60,249,200**	**61,260,400**	**62,272,100**	**64,284,300**	**67,597,200**	**619,275,000**	**804,262,300**	**60,337,300**
Auxiliary Water Supply System													
ESER 2020	0	0	50,000,000	40,000,000	0	0	0	0	0	0	0	90,000,000	90,000,000
AWSS - Subtotal	**0**	**0**	**50,000,000**	**40,000,000**	**0**	**0**	**0**	**0**	**0**	**0**	**110,000,000**	**90,000,000**	**90,000,000**
LOCAL WATER TOTAL	**84,076,000**	**74,511,000**	**139,813,400**	**122,948,500**	**96,650,200**	**60,249,200**	**61,260,400**	**62,272,100**	**64,284,300**	**67,597,200**	**729,275,000**	**894,262,300**	**164,987,300**
Total USES	**264,349,000**	**187,715,000**	**321,451,400**	**189,319,500**	**160,228,200**	**127,290,200**	**117,659,400**	**114,633,100**	**114,746,300**	**129,319,200**	**1,607,976,000**	**1,787,311,300**	**179,335,300**

SOURCES	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 26-27	FY 17-26	FY 18-27	Change
Revenue Funding													
Regional Revenue	40,000,000	40,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	227,830,000	267,830,000	40,000,000
Local Revenue	11,804,000	11,804,000	27,055,200	27,594,100	42,908,875	43,666,900	59,740,400	60,752,100	62,704,300	65,953,200	285,325,575	413,983,075	128,657,500
Total Revenue Sources	**51,804,000**	**51,804,000**	**47,055,200**	**47,594,100**	**62,908,875**	**63,666,900**	**79,740,400**	**80,752,100**	**82,704,300**	**85,953,200**	**513,155,575**	**681,813,075**	**168,657,500**
Debt Funding													
Regional Bonds	140,273,000	73,204,000	161,638,000	46,371,000	40,578,000	43,041,000	31,399,000	22,361,000	22,462,000	21,722,000	599,674,000	643,858,000	44,184,000
Regional Bonds - Wholesale Only	0	0	0	0	3,000,000	4,000,000	5,000,000	10,000,000	8,000,000	20,000,000	22,000,000	50,000,000	28,000,000
Local Bonds	70,505,000	61,196,000	61,204,200	53,834,400	52,221,325	15,062,300	0	0	0	0	380,123,225	380,123,225	0
General Obligation Bonds - ESER 2020 & Beyond	0	0	50,000,000	40,000,000	0	0	0	0	0	0	90,000,000	90,000,000	0
Total Debt Sources	**210,778,000**	**134,400,000**	**272,842,200**	**140,205,400**	**95,799,325**	**62,103,300**	**36,399,000**	**32,361,000**	**30,462,000**	**41,722,000**	**1,091,797,225**	**1,163,981,225**	**72,184,000**
Other Funding													
Capacity Fee - Fund Balance	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Fee - New Development	1,767,000	1,511,000	1,554,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,580,000	1,644,000	13,432,000	16,656,000	3,224,000
Total Other Sources	**1,767,000**	**1,511,000**	**1,554,000**	**1,520,000**	**1,520,000**	**1,520,000**	**1,520,000**	**1,520,000**	**1,580,000**	**1,644,000**	**13,432,000**	**16,656,000**	**3,224,000**
Total SOURCES	**264,349,000**	**187,715,000**	**321,451,400**	**189,319,500**	**160,228,200**	**127,290,200**	**117,659,400**	**114,633,100**	**114,746,300**	**129,319,200**	**1,414,261,500**	**1,862,450,300**	**448,188,800**

Hetch Hetchy Enterprise FY 2018 - 2027 Ten Year CIP

San Francisco Public Utilities Commission

USES	2019 FY 18-19	2020 FY 19-20	2021 FY 20-21	2022 FY 21-22	2023 FY 22-23	2024 FY 23-24	2025 FY 24-25	2026 FY 25-26	2027 FY 26-27	2028 FY 27-28	FY 18-27	FY 19-28	Change
Hetch Hetchy Power													
Streetlights													
Various Streetlighting Replacements and Repairs	550,000	550,000	550,000	550,000	550,000	550,000	550,000	550,000	550,000	550,000	5,500,000	5,500,000	0
Various Streetlighting Area Improvements	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	10,000,000	10,000,000	0
High Voltage 5 KV Series Loop Conversion	1,500,000	1,500,000	1,500,000	1,500,000	0	0	0	0	0	0	6,000,000	6,000,000	0
Pedestrian Lighting Project	960,000	960,000	960,000	960,000	960,000	960,000	960,000	960,000	960,000	960,000	8,640,000	9,600,000	960,000
Holiday and Festivity Pole Use	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	1,800,000	2,000,000	200,000
Street and Pedestrian Light Pole Assessment	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	4,500,000	5,000,000	500,000
Streetlights Pole Rehabilitation	1,000,000	1,000,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	5,700,000	6,000,000	300,000
Distributed Antenna System	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	3,160,000	3,000,000	(160,000)
Subtotal	**6,010,000**	**6,010,000**	**5,510,000**	**5,510,000**	**4,010,000**	**4,010,000**	**4,010,000**	**4,010,000**	**4,010,000**	**4,010,000**	**42,570,000**	**47,100,000**	**1,800,000**
Transmission/Distribution													
Transbay Transit Center	3,100,000	0	0	0	0	0	0	0	0	0	3,100,000	3,100,000	0
Subtotal	**3,100,000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3,100,000**	**3,100,000**	**0**
Renewable/Generation													
GoSolarSF Program (Sustainable Energy Account)	0	0	0	0	0	0	0	0	0	0	1,000,000	0	(1,000,000)
Renewable/Generation - Small Renewables	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	9,100,000	10,000,000	900,000
Renewable/Generation - Small Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	**1,000,000**	**1,000,000**	**1,000,000**	**1,000,000**	**1,000,000**	**1,000,000**	**1,000,000**	**1,000,000**	**1,000,000**	**1,000,000**	**10,100,000**	**10,000,000**	**(100,000)**
Energy Efficiency													
Cap and Trade	0	0	0	0	0	0	0	0	0	0	300,000	0	(300,000)
Civic Center Sustainability District	0	0	0	0	0	0	0	0	0	0	700,000	0	(700,000)
Energy Efficiency General Fund	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	9,000,000	10,000,000	0
Subtotal	**1,000,000**	**1,000,000**	**1,000,000**	**1,000,000**	**1,000,000**	**1,000,000**	**1,000,000**	**1,000,000**	**1,000,000**	**1,000,000**	**10,000,000**	**10,000,000**	**(1,000,000)**
Redevelopment													
New Underground 12 kV Distribution System in TI and YBI	1,894,844	1,707,065	1,482,543	1,482,543	1,482,543	1,482,543	1,482,543	1,482,543	1,204,034	1,204,034	15,801,201	14,905,235	(895,966)
New Underground 12 kV Distribution System in Oakland	0	0	3,100,000	2,850,000	0	0	0	0	0	0	5,950,000	5,950,000	0
Treasure Island Utility Setup Cost	0	0	0	0	0	1,250,000	0	0	0	0	1,250,000	1,250,000	0
HP Phase 2 - Alice Griffith/Candlestick Point	8,673,908	7,814,332	5,566,778	5,566,778	5,566,778	5,566,778	5,566,778	1,116,901	1,116,901	1,116,901	46,555,932	47,672,833	1,116,901
SFO Substation Improvements	2,070,000	8,550,000					0	0	0		10,620,000	10,620,000	0
Intervening Facilities	9,950,000	9,950,000	9,950,000	9,950,000	9,950,000	9,950,000	9,950,000	9,950,000	9,950,000	9,950,000	89,550,000	99,500,000	9,950,000
Bay Corridor Transmission Distribution (BCTD)	20,000,000	21,000,000	5,000,000	5,000,000	5,000,000	0	0	0	0	0	56,000,000	56,000,000	0
Distribution Interface - New Customers	7,800,000	7,000,000	4,633,222	4,633,222	4,633,222	4,633,222	4,633,222	9,083,099	9,083,099	9,083,099	56,132,308	65,215,407	9,083,099
EE Programs for New Retail Customers	0	0	0	0	0	0	0	0	0	0	5,000,000	0	0
Subtotal	**50,388,752**	**56,021,397**	**29,732,543**	**29,482,543**	**26,632,543**	**22,882,543**	**21,632,543**	**21,632,543**	**21,354,034**	**21,354,034**	**286,859,441**	**301,113,475**	**19,254,034**
Approved Candidates - Hetchy Power													
Distribution Services for Retail Customers	0	0	0	0	0	0	0	0	0	0	20,000,000	0	(20,000,000)
HETCHY POWER TOTAL	**61,498,752**	**64,031,397**	**37,242,543**	**36,992,543**	**32,642,543**	**28,892,543**	**27,642,543**	**27,642,543**	**27,364,034**	**27,364,034**	**372,629,441**	**371,313,475**	**(45,966)**
Hetch Hetchy Water													
Water Infrastructure													
Water Conveyance (Water)	7,922,000	14,314,000	8,641,000	8,944,000	9,604,000	8,743,000	9,985,000	10,334,000	10,695,000	10,018,000	89,182,000	99,200,000	10,018,000
Dams & Reservoirs (Water)	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Infrastructure Project Development	460,000	474,000	488,000	505,000	523,000	541,000	560,000	580,000	600,000	621,000	4,731,000	5,352,000	621,000
NEW - SJPL Valve and Safe Entry Improvement	3,575,000	2,691,000	2,445,000	34,102,000	26,567,000	25,904,000	0	0	0	0	95,284,000	95,284,000	0
NEW - Priest-Moccasin Water Transmission Line	0	5,600,000	5,768,000	31,326,000	0	0	0	0	0	0	52,694,000	42,694,000	(10,000,000)
NEW - Moccasin Reservoir Perimeter Security Fence	1,400,000	3,755,000	0	0	0	0	0	0	0	0	5,155,000	5,155,000	0
Subtotal	**13,357,000**	**26,834,000**	**17,342,000**	**74,877,000**	**36,694,000**	**35,188,000**	**560,000**	**580,000**	**600,000**	**621,000**	**157,864,000**	**247,685,000**	**639,000**

Hetch Hetchy Enterprise FY 2018 - 2027 Ten Year CIP

San Francisco Public Utilities Commission

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028			
USES	**FY 18-19**	**FY 19-20**	**FY 20-21**	**FY 21-22**	**FY 22-23**	**FY 23-24**	**FY 24-25**	**FY 25-26**	**FY 26-27**	**FY 27-28**	**FY 18-27**	**FY 19-28**	**Change**
Power Infrastructure													
Water Conveyance (Power)	0	0	0	0	0	0	0	0	0	0	0	0	0
Dams & Reservoirs (Power)	0	0	0	0	0	0	0	0	0	0	0	0	0
Powerhouse	1,000,000	1,039,000	1,080,000	1,119,000	1,158,000	1,198,000	1,239,000	1,282,000	1,327,000	1,373,000	10,442,000	11,815,000	1,373,000
Roads & Bridges (Power)	0	0	0	0	0	0	0	0	0	0	0	0	0
Switchyard & Substations	3,320,000	0	0	0	0	0	0	0	0	0	3,320,000	3,320,000	0
Transmission Lines	2,134,000	2,219,000	2,306,000	2,387,000	2,472,000	2,558,000	2,647,000	2,737,000	2,834,000	2,933,000	22,294,000	25,227,000	2,933,000
Power Infrastructure - Project Development	750,000	773,000	796,000	824,000	852,000	882,000	913,000	945,000	978,000	1,012,000	7,713,000	8,725,000	1,012,000
NEW - Moccasin Powerhouse and GSU Rehabilitation	10,000,000	6,751,000	49,932,000	0	0	0	0	0	0	0	66,683,000	66,683,000	0
NEW - Moccasin Penstock Condition Assessment & AAR	0	1,000,000	0	0	0	0	0	0	0	0	15,000,000	1,000,000	(14,000,000)
NEW - Priest Cond Assessment & Monitoring Project	0	0	2,000,000	0	0	0	0	0	0	0	2,000,000	2,000,000	0
NEW - Cherry-Eleanor Pumps	0	0	1,500,000	21,833,000	0	0	0	0	0	0	23,333,000	23,333,000	0
Subtotal	**17,204,000**	**11,782,000**	**57,614,000**	**26,163,000**	**4,482,000**	**4,638,000**	**4,799,000**	**4,964,000**	**5,139,000**	**5,318,000**	**150,785,000**	**142,103,000**	**(8,682,000)**
Joint Projects													
Buildings											0	0	0
Communications (Joint)	300,000	312,000	325,000	335,000	347,000	359,000	6,204,000	386,000	399,000	411,000	8,967,000	9,378,000	411,000
Dams & Reservoirs (Joint)	7,487,000	17,612,000	1,078,000	1,118,000	1,155,000	1,196,000	1,239,000	1,281,000	1,326,000	1,372,000	33,492,000	34,864,000	1,372,000
Mountain Tunnel	19,566,000	41,540,000	50,000,000	50,000,000	50,000,000	0	0	0	0	0	211,106,000	211,106,000	0
Roads & Bridges (Joint)	1,800,000	1,873,000	1,949,000	2,017,000	2,088,000	2,161,000	2,484,000	3,216,000	3,327,000	1,515,000	20,915,000	22,430,000	1,515,000
Tunnels (Joint)	0	880,000	7,000,000	0	0	0	0	0	0	0	7,880,000	7,880,000	0
Utilities (Joint)	0	0	0	0	0	0	0	0	0	0	0	0	0
Joint Infrastructure Project Development	2,000,000	2,060,000	2,122,000	2,196,000	2,273,000	2,352,000	2,435,000	2,520,000	2,608,000	2,700,000	20,566,000	23,266,000	2,700,000
NEW - O'Shaughnessy Dam Outlet Works Phase II	0	0	0	0	0	14,460,000	14,893,000	82,870,000	0	0	112,223,000	112,223,000	0
NEW - Eleanor Dam Rehabilitation	0	0	0	0	0	8,960,000	24,618,000	0	0	0	33,578,000	33,578,000	0
NEW - Bridge Replacement	2,584,000	9,342,000	8,113,000	9,629,000	14,619,000	0	0	0	0	0	44,287,000	44,287,000	0
NEW - R&R Power Distribution Improvements	1,000,000	1,031,000	1,500,000	1,560,000	1,622,000	1,679,000	1,738,000	1,799,000	1,862,000	1,927,000	13,791,000	15,718,000	1,927,000
Subtotal	**34,737,000**	**74,650,000**	**72,087,000**	**66,855,000**	**72,104,000**	**31,167,000**	**53,611,000**	**92,072,000**	**9,522,000**	**7,925,000**	**506,805,000**	**514,730,000**	**7,925,000**
HETCHY WATER TOTAL	**65,298,000**	**113,266,000**	**147,043,000**	**167,895,000**	**113,280,000**	**70,993,000**	**58,970,000**	**97,616,000**	**15,261,000**	**13,864,000**	**815,454,000**	**904,518,000**	**(118,000)**
Total Uses	**126,796,752**	**177,297,397**	**184,285,543**	**204,887,543**	**145,922,543**	**99,885,543**	**86,612,543**	**125,258,543**	**42,625,034**	**41,228,034**	**1,188,083,441**	**1,275,831,475**	**87,748,034**
Total USES - Water	28,988,650	60,426,500	49,781,150	104,961,750	69,140,800	49,213,150	24,684,950	42,012,400	4,884,900	4,187,250	444,094,250	438,281,500	(5,812,750)
Total USES - Power	97,808,102	116,870,897	134,504,393	99,925,793	76,781,743	50,672,393	61,927,593	83,246,143	37,740,134	37,040,784	804,887,191	796,517,975	(8,369,216)
Total USES	**126,796,752**	**177,297,397**	**184,285,543**	**204,887,543**	**145,922,543**	**99,885,543**	**86,612,543**	**125,258,543**	**42,625,034**	**41,228,034**	**1,248,981,441**	**1,234,799,475**	**(14,181,966)**

SOURCES	**FY 18-19**	**FY 19-20**	**FY 20-21**	**FY 21-22**	**FY 22-23**	**FY 23-24**	**FY 24-25**	**FY 25-26**	**FY 26-27**		**FY 17-26**	**FY 19-28**	**Change**
Revenue Funding													
Power Revenue	42,168,752	38,221,397	26,538,543	26,253,543	21,867,543	18,081,543	16,788,543	16,744,543	16,417,034	16,365,034	204,861,998	254,081,441	49,219,443
Distributed Antenna System	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	204,861,998	2,700,000	(202,161,998)
Power Fund Balance (Project close outs)	0	0	0	0	0	0	0	0	0	0	4,000,000	2,000,000	(2,000,000)
Total Revenue Sources	**42,468,752**	**38,521,397**	**26,838,543**	**26,553,543**	**22,167,543**	**18,381,543**	**17,088,543**	**17,044,543**	**16,717,034**	**16,665,034**	**413,723,996**	**258,781,441**	**(154,942,555)**
Debt Funding													
Power Bonds (Re-appropriation)	0	0	0	0	0	0	0	0	0		11,332,750	0	(11,332,750)
Power Bonds	54,339,350	77,349,500	107,211,850	72,883,250	54,089,200	31,729,850	44,235,050	65,553,600	20,326,100	19,626,750	381,988,166	556,751,600	174,763,434
Water Bonds	28,988,650	60,426,500	49,781,150	104,961,750	69,140,800	49,213,150	34,669,950	52,346,400	15,579,900	14,205,250	443,900,750	487,891,400	43,990,650
Total Debt Sources	**83,328,000**	**137,776,000**	**156,993,000**	**177,845,000**	**123,230,000**	**80,943,000**	**78,905,000**	**117,900,000**	**35,906,000**	**33,832,000**	**825,888,916**	**1,044,643,000**	**207,421,334**
Other Funding													
Developer Fees	0	0	0	0	0	0	0	0	0		5,937,594	0	(5,937,594)
Power - Cap and Trade Auction Revenue	1,000,000	1,000,000	454,000	489,000	525,000	561,000	604,000	648,000	697,000	749,000	10,200,000	8,078,000	(2,122,000)
Total Other Sources	**1,000,000**	**1,000,000**	**454,000**	**489,000**	**525,000**	**561,000**	**604,000**	**648,000**	**0**	**0**	**0**	**8,078,000**	**(2,122,000)**
Total SOURCES	**126,796,752**	**177,297,397**	**184,285,543**	**204,887,543**	**145,922,543**	**99,885,543**	**96,597,543**	**135,592,543**	**52,623,034**	**50,497,034**	**1,062,221,258**	**1,311,502,441**	**249,281,183**

Water Enterprise FY 2017 - 2026 Ten Year Programmatic Plan

San Francisco Public Utilities Commission

USES	Available Balance as of 12/31/15	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 18-27	FY 19-28	Change
Project																	
Watershed Protection	874,107	330,000	500,000	500,000	600,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	5,100,000	5,100,000	0
WSIP-Related Mitigation & Monitoring	1,194,185	4,458,000	1,997,500	3,124,596	6,585,000	11,201,000	12,219,000	12,761,000	10,440,000	11,426,000	13,967,000	14,330,000	14,643,000	14,834,000	110,696,596	122,406,000	11,709,404
Watershed Structures Upgrades	590,167	445,000	710,000	710,000	1,196,000	1,196,000	1,196,000	1,196,000	1,196,000	1,196,000	1,196,000	1,196,000	1,196,000	1,196,000	11,474,000	11,960,000	486,000
Landscape Conservation Program	5,804,405	1,320,000	1,500,000	1,500,000	2,000,000	2,000,000	1,000,000	0	0	0	0	0	0	0	6,500,000	5,000,000	(1,500,000)
AWSS Maintenance	220,081	500,000	1,250,000	1,500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	6,000,000	5,000,000	(1,000,000)
Water Resource Planning and Development	2,234,651	1,165,000	0	0	300,000	300,000	300,000	300,000	300,000	0	0	0	0	0	1,500,000	1,500,000	0
Treasure Island Facilities Maintenance	93,382	1,290,000	1,200,000	1,236,000	1,273,000	1,311,000	1,350,000	1,390,000	1,431,000	1,474,000	1,518,000	1,560,000	1,600,000	1,650,000	14,143,000	14,557,000	414,000
Retrofit Grant Program	4,070,000	790,000	715,000	637,000	1,134,000	637,000	257,000	488,000	507,000	435,000	0	0	0	0	4,095,000	3,458,000	(637,000)
Youth Employment Project	0	1,052,000	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000	1,290,000	12,900,000	12,900,000	0
Community Benefits-Water	740,366	2,640,000	1,000,000	750,000	0	0	0	0	0	0	0	0	0	0	750,000	0	(750,000)
Subtotal	**15,821,344**	**13,990,000**	**10,162,500**	**11,247,596**	**14,878,000**	**18,935,000**	**18,612,000**	**18,425,000**	**16,164,000**	**16,821,000**	**18,971,000**	**19,376,000**	**19,729,000**	**19,970,000**	**173,158,596**	**181,881,000**	**8,722,404**
525 Golden Gate - Operations & Maintenance	141,170	3,505,000	3,611,000	3,719,000	5,277,000	4,050,000	4,064,000	4,186,000	4,311,000	4,441,000	4,575,000	4,710,000	4,851,000	4,995,000	44,184,000	45,460,000	1,276,000
525 Golden Gate - Lease Payment	2,719,323	9,166,000	9,167,000	9,169,000	9,168,000	9,169,000	9,169,000	9,167,000	9,169,000	9,131,000	9,055,000	8,975,000	8,895,000	8,812,000	91,067,000	90,710,000	(357,000)
Subtotal	**2,860,493**	**12,671,000**	**12,778,000**	**12,888,000**	**14,445,000**	**13,219,000**	**13,233,000**	**13,353,000**	**13,480,000**	**13,572,000**	**13,630,000**	**13,685,000**	**13,746,000**	**13,807,000**	**135,251,000**	**136,170,000**	**919,000**
Total USES	**18,681,837**	**26,661,000**	**22,940,500**	**24,135,596**	**29,323,000**	**32,154,000**	**31,845,000**	**31,778,000**	**29,644,000**	**30,393,000**	**32,601,000**	**33,061,000**	**33,475,000**	**33,777,000**	**308,409,596**	**318,051,000**	**9,641,404**
SOURCES																	
Infrastructure - Recovery Capital (O&M)		987,000	1,016,000	1,046,000	1,477,000	1,134,000	1,142,000	1,176,000	1,211,000	1,248,000	1,248,000	1,248,000	1,285,000	1,324,000	12,215,000	12,493,000	278,000
Infrastructure - Recovery Capital (Lease)		2,903,000	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000	2,650,000	26,500,000	26,500,000	0
Federal Bond Interest Subsidy		1,938,000	1,938,000	1,938,000	1,951,000	1,951,000	1,945,000	1,954,000	1,945,000	1,910,000	1,942,000	1,770,000	1,695,000	1,616,000	19,001,000	18,679,000	(322,000)
Revenue		20,833,000	17,626,500	19,041,596	23,245,000	26,419,000	26,108,000	25,998,000	23,838,000	24,585,000	26,761,000	27,393,000	27,845,000	28,187,000	251,233,596	260,379,000	9,145,404
Total SOURCES		**26,661,000**	**23,230,500**	**24,675,596**	**29,323,000**	**32,154,000**	**31,845,000**	**31,778,000**	**29,644,000**	**30,393,000**	**32,601,000**	**33,061,000**	**33,475,000**	**33,777,000**	**308,949,596**	**318,051,000**	**9,101,404**
Surplus / Shortfall		0	290,000	540,000	0	0	0	0	0	0	0	0	0	0	540,000	0	(540,000)

San Francisco

Water Capacity Charges

CALCULATION OF WATER RATEPAYER EQUITY	2013 Equity		2018 Equity	
	Original Cost as of 11/06/2012	Trended Original Cost	Original Cost as of 9/20/2017	Adjusted Original Cost
Physical Assets				
Land, Building & Equipment	$ 1,059,532,683	$ 3,747,151,725	$ 2,549,528,124	$ 6,124,521,137
Construction Work-in-Progress	$ 427,455,364	$ 427,455,364	666,989,000	666,989,000
Accumulated Depreciation	$ 470,496,912	$ 2,575,874,063	777,255,484	3,428,913,375
Net Capital Assets	**$ 1,016,491,135**	**$ 1,598,733,026**	**$ 2,439,261,640**	**$ 3,362,596,763**
Less Debt Liabilities				
Less Outstanding Bonds & Loans	$ 1,262,807,199	$ 1,262,807,199	$ 2,394,017,000	2,394,017,000
Less Unamortized Grants	$ 136,340	$ 136,340	$ 52,143	$ 60,911
Capital Assets Net of Related Debt	**$ (246,316,064)**	**$ 335,789,487**	**$ 45,192,497**	**$ 968,518,852**
Plus Cash Assets				
Plus Deposits with Fiscal Agent	$ 44,194,978	$ 44,194,978	21,057,000	21,057,000
Plus Cash in Capital Projects Fund	$ 303,759,730	$ 303,759,730	(1,692,000)	(1,692,000)
Plus Unrestricted Reserves	$ 102,876,633	$ 102,876,633	211,978,000	211,978,000
Less Wholesale Balancing Account		$ -	(43,471,000)	(43,471,000)
Ratepayer Equity	**$ 204,378,937**	**$ 786,620,828**	**$ 233,064,497**	**$ 1,156,390,852**
Number of EDUs	635,000	635,000	635,000	635,000
Ratepayer Equity/EDU	**$ 322**	**$ 1,239**	**$ 367**	**$ 1,821**

Calculation of System Capacity expressed as EDUs

Total System Capacity (Gallons per Day)	127,000,000
Demand per EDU (Gallons per Day)	200
Available System Capacity (EDUs)	**635,000**

PROPOSED CAPACITY CHARGES

Meter Size	Capacity Factor	Proposed Capacity Charge
5/8 in	1	$1,821
3/4 in	1.5	$2,732
1 in	2.5	$4,553
1-1/2 in	5	$9,105
2 in	8	$14,569
3 in	16	$29,137
4 in	25	$45,527
6 in	50	$91,055
8 in	80	$145,687
10 in	125	$227,636
12 in	215	$391,534
16 in	375	$682,909

APPENDIX C – WASTEWATER MODEL

San Francisco Water Power Sewer

San Francisco

Assumptions & Inputs

Projection Inflation Factors

Name	Constant	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
No Inflation (Flat)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
No Projection (Zero)	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%
Constant 3%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Constant 4%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Constant 5%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Consumer Price Index	2.9%	2.5%	2.94%	2.91%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%
Account Growth	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Retail Discharge Volume Change	0.0%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SFR Volume Change	0.0%	2.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MFR Volume Change	0.0%	2.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Nonresidential Volume Change	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Retail Rate Increase	-	11.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	8.0%	8.0%	8.0%	8.0%
Volume & Rate Change	-	13.3%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	8.0%	8.0%	8.0%	8.0%
SSIP Capital Inflation	-	4.0%	4.0%	4.0%	4.0%	4.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Total Expenses Increase	-	1.2%	31.8%	4.8%	5.7%	8.6%	10.5%	9.9%	9.9%	9.3%	11.3%	11.7%

Other Assumptions

Name	Constant	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
Sequestration Rate	6.6%	6.60%	6.60%	6.60%	6.60%	6.60%	6.60%	6.60%	6.60%	6.60%	6.60%	6.60%
Interest Rate	-	1.24%	1.41%	1.60%	1.60%	1.93%	1.93%	2.19%	2.19%	2.19%	2.35%	2.35%

Financing Assumptions

Budget Year (FYE)	2019
Interest Rate (Earnings)	2%
Bond Issuance Costs	2%
Interest Rate	5%
Loan Term (Yrs)	30
Debt Coverage Ratio (Current)	1.10x
Debt Coverage Ratio (Indenture)	1.35x
Minimum Fund Balance (% of O&M)	25%

San Francisco

Wastewater Revenue Requirements

	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
Beginning Unappropriated Fund Balance	**$ 144,716,309**	**$ 198,814,303**	**$ 196,493,960**	**$ 205,833,947**	**$ 226,799,293**	**$ 251,127,973**	**$ 270,255,765**	**$ 286,298,132**	**$ 292,646,585**	**$ 290,671,380**	**$ 266,888,755**
Available Fund Balance - Current Basis	0	0	0	0	0	0	0	0	0	0	0
Available Fund Balance - Indenture Basis	144,716,309	198,814,303	196,493,960	205,833,947	226,799,293	251,127,973	270,255,765	286,298,132	292,646,585	290,671,380	266,888,755
Minimum Fund Balance	**$ 42,188,479**	**$ 44,174,340**	**$ 45,388,447**	**$ 46,670,950**	**$ 47,999,575**	**$ 49,368,275**	**$ 50,764,375**	**$ 52,189,725**	**$ 53,657,650**	**$ 55,169,725**	**$ 56,727,300**
CASH FLOW TEST											
Revenues											
Operating Revenues											
Retail Wastewater Charges											
Single Family Residential	$ 75,598,000	$ 75,598,000	$ 75,598,000	$ 75,598,000	$ 75,598,000	$ 75,598,000	$ 75,598,000	$ 75,598,000	$ 75,598,000	$ 75,598,000	$ 75,598,000
SFR Additional Required Increase	0	0	6,804,000	14,220,000	22,304,000	31,115,000	40,719,000	51,188,000	61,331,000	72,285,000	84,116,000
Multifamily Residential	124,811,000	124,811,000	124,811,000	124,811,000	124,811,000	124,811,000	124,811,000	124,811,000	124,811,000	124,811,000	124,811,000
MFR Additional Required Increase	0	0	11,233,000	23,477,000	36,823,000	51,370,000	67,226,000	84,510,000	101,256,000	119,341,000	138,873,000
Municipal Workorders	5,427,000	5,427,000	5,427,000	5,427,000	5,427,000	5,427,000	5,427,000	5,427,000	5,427,000	5,427,000	5,427,000
Muni WO Additional Required Increase	0	0	488,000	1,020,000	1,600,000	2,233,000	2,922,000	3,674,000	4,402,000	5,188,000	6,037,000
Municipal Non-Workorders	1,728,000	1,728,000	1,728,000	1,728,000	1,728,000	1,728,000	1,728,000	1,728,000	1,728,000	1,728,000	1,728,000
Muni Non-WO Additional Required Increase	0	0	156,000	326,000	511,000	712,000	932,000	1,171,000	1,403,000	1,653,000	1,923,000
Non-Residential	89,094,000	89,094,000	89,094,000	89,094,000	89,094,000	89,094,000	89,094,000	89,094,000	89,094,000	89,094,000	89,094,000
NR Additional Required Incrase	0	0	8,018,000	16,758,000	26,285,000	36,669,000	47,988,000	60,325,000	72,279,000	85,189,000	99,132,000
Suburban (Watershed)	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700
Suburban Additional Required Increase	0	0	200	500	800	1,100	1,400	1,800	2,200	2,600	3,000
Wholesale Wastewater Charges	8,359,958	9,544,000	10,299,000	11,141,000	12,131,000	13,268,000	14,493,000	15,722,000	17,032,000	18,540,000	20,204,000
Other Operating Revenues	6,778,691	7,638,066	8,018,066	8,208,066	9,334,066	9,791,735	10,795,136	11,070,838	11,128,774	11,462,450	10,809,006
Programmatic Revenues											
525GG Infrastructure Recovery - O&M	225,000	327,320	250,352	246,000	253,000	265,000	268,000	268,000	268,000	276,000	284,000
Other Programmatic Revenues	3,333,874	3,418,857	3,512,857	3,612,857	3,722,857	3,842,857	3,964,876	4,073,539	4,191,437	4,319,530	4,458,779
Non-Debt Capital Revenues											
Capacity Charges	6,429,921	6,000,000	4,500,000	4,500,000	4,500,000	4,500,000	4,500,000	4,500,000	4,500,000	4,500,000	4,500,000
Custom Work	0	0	0	0	0	0	0	0	0	0	0
Other Non-Debt Capital Revenues	0	115,000	118,000	122,000	126,000	130,000	134,000	138,000	142,000	146,000	150,000
TOTAL REVENUES	**$ 321,788,143**	**$ 323,703,943**	**$ 350,058,175**	**$ 380,292,123**	**$ 414,251,423**	**$ 450,558,392**	**$ 490,604,111**	**$ 533,302,877**	**$ 574,596,111**	**$ 619,563,280**	**$ 667,150,485**
Expenses											
Operating Expenses	162,471,916	169,908,759	175,110,030	180,193,800	185,428,300	190,820,100	196,374,500	202,095,900	207,988,600	214,057,900	220,310,200
Programmatic Expenses											
Treasure Island Facilities Maintenance	1,331,000	1,350,000	1,390,000	1,432,000	1,475,000	1,519,000	1,519,000	1,519,000	1,519,000	1,519,000	1,519,000
525 Golden Gate Lease Payment	2,424,000	2,424,000	2,424,000	2,425,000	2,424,000	2,424,000	2,414,000	2,394,000	2,373,000	2,352,000	2,330,000
Other Programmatic Expenses	2,527,000	3,014,600	2,629,760	2,633,000	2,671,000	2,710,000	2,750,000	2,750,000	2,750,000	2,750,000	2,750,000
Debt Service	50,496,301	63,146,126	70,669,698	81,848,777	116,277,368	149,690,158	184,612,169	223,710,725	264,013,807	322,775,930	390,164,654
Non-Debt Capital Expenses	47,500,000	112,880,000	117,597,000	122,516,500	116,223,375	121,955,643	127,971,475	134,286,199	140,911,309	146,316,475	153,628,748
More/(Fewer) Expenses Plug for Fund Balance	0	0	0	0	0	0	0	0	0	0	0
Operating Carryforwards	939,933	0	0	0	0	0	0	0	0	0	0
TOTAL EXPENSES	**$ 267,690,150**	**$ 352,723,485**	**$ 369,820,488**	**$ 391,049,077**	**$ 424,499,043**	**$ 469,118,901**	**$ 515,641,144**	**$ 566,755,824**	**$ 619,555,716**	**$ 689,771,305**	**$ 770,702,602**
Total Expenditures for Cash Flow Test	**$ 267,690,150**	**$ 352,723,485**	**$ 369,820,488**	**$ 391,049,077**	**$ 424,499,043**	**$ 469,118,901**	**$ 515,641,144**	**$ 566,755,824**	**$ 619,555,716**	**$ 689,771,305**	**$ 770,702,602**
Net Revenues Before Rate Adjustment	**$ 54,097,993**	**$ (29,019,542)**	**$ (19,762,313)**	**$ (10,756,954)**	**$ (10,247,620)**	**$ (18,560,509)**	**$ (25,037,033)**	**$ (33,452,947)**	**$ (44,959,605)**	**$ (70,208,025)**	**$ (103,552,116)**
Ending Fund Balance Before Rate Adjsutment	**$ 156,625,824**	**$ 125,620,421**	**$ 131,343,200**	**$ 148,406,043**	**$ 168,552,098**	**$ 183,199,190**	**$ 194,454,357**	**$ 200,655,460**	**$ 194,029,330**	**$ 165,293,630**	**$ 106,609,339**

San Francisco
Wastewater Revenue Requirements

	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
DEBT COVERAGE TEST											
Debt Coverage Revenues	**$ 318,454,269**	**$ 320,170,086**	**$ 346,427,318**	**$ 376,557,266**	**$ 410,402,566**	**$ 446,585,535**	**$ 486,505,236**	**$ 529,091,338**	**$ 570,262,674**	**$ 615,097,750**	**$ 662,541,706**
Expenditures											
Debt Coverage Expenditures	164,998,916	172,923,359	177,739,790	182,826,800	188,099,300	193,530,100	199,124,500	204,845,900	210,738,600	216,807,900	223,060,200
Debt Service	50,496,301	63,146,126	70,669,698	81,848,777	116,277,368	149,690,158	184,612,169	223,710,725	264,013,807	322,775,930	390,164,654
Coverage Requirement (Current)	5,049,630	6,314,613	7,066,970	8,184,878	11,627,737	14,969,016	18,461,217	22,371,072	26,401,381	32,277,593	39,016,465
Total Expenditures	**$ 220,544,847**	**$ 242,384,098**	**$ 255,476,458**	**$ 272,860,455**	**$ 316,004,405**	**$ 358,189,273**	**$ 402,197,886**	**$ 450,927,697**	**$ 501,153,788**	**$ 571,861,423**	**$ 652,241,319**
Bond Coverage Surplus (Deficit) - Current	**$ 97,909,422**	**$ 77,785,988**	**$ 90,950,860**	**$ 103,696,811**	**$ 94,398,161**	**$ 88,396,261**	**$ 84,307,350**	**$ 78,163,641**	**$ 69,108,886**	**$ 43,236,327**	**$ 10,300,387**
Pre-adjustment Coverage (Current)	*3.04x*	*2.33x*	*2.39x*	*2.37x*	*1.91x*	*1.69x*	*1.56x*	*1.45x*	*1.36x*	*1.23x*	*1.13x*
Coverage Requirement (Indenture)	17,673,705	22,101,144	24,734,394	28,647,072	40,697,079	52,391,555	64,614,259	78,298,754	92,404,833	112,971,576	136,557,629
Bond Coverage Surplus (Deficit) - Indenture	**$ 230,001,657**	**$ 260,813,759**	**$ 269,777,395**	**$ 289,068,564**	**$ 292,128,112**	**$ 302,101,695**	**$ 308,410,072**	**$ 308,534,091**	**$ 295,752,019**	**$ 253,213,724**	**$ 179,647,979**
Pre-adjustment Coverage (Indenture)	*5.90x*	*5.48x*	*5.17x*	*4.88x*	*3.86x*	*3.37x*	*3.02x*	*2.73x*	*2.47x*	*2.13x*	*1.81x*
REVENUE REQUIREMENT CALCULATION											
Surplus / (Shortfall) - Pre Increase	**$ 97,909,422**	**$ 77,785,988**	**$ 90,950,860**	**$ 103,696,811**	**$ 94,398,161**	**$ 88,396,261**	**$ 84,307,350**	**$ 78,163,641**	**$ 69,108,886**	**$ 43,236,327**	**$ 10,300,387**
	Surplus	*Surplus*	*Surplus*	*Surplus*	*Surplus*	*Surplus*	*Surplus*	*Surplus*	*Surplus*	*Surplus*	*Surplus*
Month of Revenue Adjustment	July	July	July	July	July	July	July	July	July	July	July
Pre-Increase Rate Revenue	*$ 296,660,700*	*$ 296,660,700*	*$ 323,359,900*	*$ 352,462,200*	*$ 384,184,500*	*$ 418,760,800*	*$ 456,449,100*	*$ 497,530,500*	*$ 537,333,900*	*$ 580,319,300*	*$ 626,744,700*
Calculated Revenue Increase	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**
Revenue Increase Overide	**0%**	**9%**	**9%**	**9%**	**9%**	**9%**	**9%**	**8%**	**8%**	**8%**	**8%**
Utilized Revenue Increase	**0%**	**9%**	**9%**	**9%**	**9%**	**9%**	**9%**	**8%**	**8%**	**8%**	**8%**
Cumulative Rate Increase (%)	*0%*	*9%*	*19%*	*30%*	*41%*	*54%*	*68%*	*81%*	*96%*	*111%*	*128%*
RESULTING CASH FLOWS											
Revenues before revenue adjustment	$ 296,660,700	$ 296,660,700	$ 323,359,900	$ 352,462,200	$ 384,184,500	$ 418,760,800	$ 456,449,100	$ 497,530,500	$ 537,333,900	$ 580,319,300	$ 626,744,700
Revenues from revenue adjustment	0	26,699,200	29,102,300	31,722,300	34,576,300	37,688,300	41,081,400	39,803,400	42,985,400	46,425,400	50,139,500
Less: Revenue increase delay	0	0	0	0	0	0	0	0	0	0	0
Other revenues	25,127,443	27,043,243	26,698,275	27,829,923	30,066,923	31,797,592	34,155,011	35,772,377	37,262,211	39,243,980	40,405,785
Less: Expenditures (from cash flow)	(267,690,150)	(352,723,485)	(369,820,488)	(391,049,077)	(424,499,043)	(469,118,901)	(515,641,144)	(566,755,824)	(619,555,716)	(689,771,305)	(770,702,602)
Cash Flow	**$ 54,097,993**	**$ (2,320,342)**	**$ 9,339,987**	**$ 20,965,346**	**$ 24,328,680**	**$ 19,127,791**	**$ 16,044,367**	**$ 6,350,453**	**$ (1,974,205)**	**$ (23,782,625)**	**$ (53,412,616)**
Debt Coverage - Current	*3.04x*	*2.75x*	*2.80x*	*2.75x*	*2.21x*	*1.94x*	*1.78x*	*1.63x*	*1.52x*	*1.38x*	*1.25x*
Debt Coverage - Indenture	*5.90x*	*5.90x*	*5.58x*	*5.27x*	*4.16x*	*3.62x*	*3.24x*	*2.91x*	*2.63x*	*2.28x*	*1.94x*
FUND BALANCE SUMMARY											
Starting Fund Balance	$ 144,716,309	$ 198,814,302	$ 196,493,960	$ 205,833,947	$ 226,799,293	$ 251,127,973	$ 270,255,765	$ 286,300,132	$ 292,650,585	$ 290,676,380	$ 266,893,755
Cash flows	54,097,993	(2,320,342)	9,339,987	20,965,346	24,328,680	19,127,791	16,044,367	6,350,453	(1,974,205)	(23,782,625)	(53,412,616)
Ending Fund Balance	**$ 198,814,302**	**$ 196,493,960**	**$ 205,833,947**	**$ 226,799,293**	**$ 251,127,973**	**$ 270,255,765**	**$ 286,300,132**	**$ 292,650,585**	**$ 290,676,380**	**$ 266,893,755**	**$ 213,481,139**
Fund Target Min	*$ 42,188,479*	*$ 44,174,340*	*$ 45,388,447*	*$ 46,670,950*	*$ 47,999,575*	*$ 49,368,275*	*$ 50,764,375*	*$ 52,189,725*	*$ 53,657,650*	*$ 55,169,725*	*$ 56,727,300*

San Francisco Water Power Sewer

San Francisco
Operations & Maintenance

Budget *Forecasted —>*

Item	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
BEGINNING FUND BALANCE											
Carryforwards											
Operations & Maintenance	$ 12,736,471										
Programmatic	4,891,564										
Non-Debt-Funded Capital Projects	61,840,156										
Carryforwards Total	**$79,468,191**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Beginning Available Fund Balance	**$ 144,716,309**	**$ 198,814,303**	**$ 196,493,960**	**$ 205,833,947**	**$ 226,799,293**	**$ 251,127,973**	**$ 270,255,765**	**$ 286,298,132**	**$ 292,646,585**	**$ 290,671,380**	**$ 266,888,755**
Fund Balance Budgeted as Revenue	0	0	0	0	0	0	0	0	0	0	0
Unappropriated Fund Balance after Budget	**$ 144,716,309**	**$ 198,814,303**	**$ 196,493,960**	**$ 205,833,947**	**$ 226,799,293**	**$ 251,127,973**	**$ 270,255,765**	**$ 286,298,132**	**$ 292,646,585**	**$ 290,671,380**	**$ 266,888,755**
Available Fund Balance - Current Basis	***$ 0***	***$ 0***	***$ 0***	***$ 0***	***$ 0***	***$ 0***	***$ 0***	***$ 0***	***$ 0***	***$ 0***	***$ 0***
Available Fund Balance - Indenture Basis	***$ 144,716,309***	***$ 198,814,303***	***$ 196,493,960***	***$ 205,833,947***	***$ 226,799,293***	***$ 251,127,973***	***$ 270,255,765***	***$ 286,298,132***	***$ 292,646,585***	***$ 290,671,380***	***$ 266,888,755***
REVENUES											
Operating Revenues											
Retail Wastewater Charges											
Single Family Residential	$ 75,598,000	$ 82,402,000	$ 89,818,000	$ 97,902,000	$ 106,713,000	$ 116,317,000	$ 126,786,000	$ 136,929,000	$ 147,883,000	$ 159,714,000	$ 172,491,000
Multifamily Residential	124,811,000	136,044,000	148,288,000	161,634,000	176,181,000	192,037,000	209,320,000	226,066,000	244,151,000	263,683,000	284,778,000
Municipal Workorders	5,427,000	5,915,000	6,447,000	7,027,000	7,659,000	8,348,000	9,099,000	9,827,000	10,613,000	11,462,000	12,379,000
Municipal Non-Workorders	1,728,000	1,884,000	2,054,000	2,239,000	2,441,000	2,661,000	2,900,000	3,132,000	3,383,000	3,654,000	3,946,000
Non-Residential	89,094,000	97,112,000	105,852,000	115,379,000	125,763,000	137,082,000	149,419,000	161,373,000	174,283,000	188,226,000	203,284,000
Suburban (Watershed)	2,700	2,900	3,200	3,500	3,800	4,100	4,500	4,900	5,300	5,700	6,200
Retail Wastewater Charges Total	**$ 296,660,700**	**$ 323,359,900**	**$ 352,462,200**	**$ 384,184,500**	**$ 418,760,800**	**$ 456,449,100**	**$ 497,528,500**	**$ 537,331,900**	**$ 580,318,300**	**$ 626,744,700**	**$ 676,884,200**
Wholesale Wastewater Charges											
Presidio	$ 2,409,636	$ 2,627,000	$ 2,863,000	$ 3,121,000	$ 3,402,000	$ 3,708,000	$ 4,042,000	$ 4,365,000	$ 4,714,000	$ 5,091,000	$ 5,498,000
Brisbane	920,300	1,213,000	1,272,000	1,345,000	1,460,000	1,613,000	1,773,000	1,949,000	2,131,000	2,373,000	2,651,000
Bayshore	969,646	1,278,000	1,340,000	1,417,000	1,538,000	1,700,000	1,869,000	2,054,000	2,245,000	2,499,000	2,792,000
Daly City	3,335,375	3,636,000	3,963,000	4,320,000	4,709,000	5,133,000	5,595,000	6,043,000	6,526,000	7,048,000	7,612,000
Misc Construction Discharges	725,001	790,000	861,000	938,000	1,022,000	1,114,000	1,214,000	1,311,000	1,416,000	1,529,000	1,651,000
Wholesale Wastewater Charges Total	**$ 8,359,958**	**$ 9,544,000**	**$ 10,299,000**	**$ 11,141,000**	**$ 12,131,000**	**$ 13,268,000**	**$ 14,493,000**	**$ 15,722,000**	**$ 17,032,000**	**$ 18,540,000**	**$ 20,204,000**
Interest Income	**$ 1,480,436**	**$ 2,803,000**	**$ 3,144,000**	**$ 3,293,000**	**$ 4,377,000**	**$ 4,847,000**	**$ 5,919,000**	**$ 6,270,000**	**$ 6,409,000**	**$ 6,831,000**	**$ 6,272,000**
Rental Revenue	**$ 615,879**	**$ 634,000**	**$ 652,000**	**$ 671,000**	**$ 690,000**	**$ 710,000**	**$ 731,000**	**$ 752,000**	**$ 774,000**	**$ 796,000**	**$ 819,000**
Federal Bond Interest Subsidy	**$ 3,493,066**	**$ 3,493,066**	**$ 3,493,066**	**$ 3,493,066**	**$ 3,493,066**	**$ 3,437,735**	**$ 3,324,136**	**$ 3,203,838**	**$ 3,075,774**	**$ 2,939,450**	**$ 2,795,006**
Other Misc Income											
Settlements	$ 141,116	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Sale of Scrap & Fixed Assets	20,609	0	0	0	0	0	0	0	0	0	0
Biofuel Revenue	340,873	0	0	0	0	0	0	0	0	0	0
Other Non-Operating Revenue	183,212	189,000	194,000	200,000	206,000	212,000	218,000	224,000	230,000	237,000	244,000
Non-Utility Services to Other Departments	503,500	519,000	535,000	551,000	568,000	585,000	603,000	621,000	640,000	659,000	679,000
Other Misc Income Total	**$ 1,189,310**	**$ 708,000**	**$ 729,000**	**$ 751,000**	**$ 774,000**	**$ 797,000**	**$ 821,000**	**$ 845,000**	**$ 870,000**	**$ 896,000**	**$ 923,000**
Operating Revenues Total	**$ 311,799,348**	**$ 340,541,966**	**$ 370,779,266**	**$ 403,533,566**	**$ 440,225,866**	**$ 479,508,835**	**$ 522,816,636**	**$ 564,124,738**	**$ 608,479,074**	**$ 656,747,150**	**$ 707,897,206**

San Francisco

Operations & Maintenance

Budget *Forecasted —>*

Item	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
Programmatic Revenues											
Treasure Island Wastewater Charges	$ 946,016	$ 1,031,000	$ 1,124,000	$ 1,225,000	$ 1,335,000	$ 1,455,000	$ 1,586,000	$ 1,713,000	$ 1,850,000	$ 1,998,000	$ 2,158,000
525GG Infrastructure Recovery - O&M	225,000	327,320	250,352	246,000	253,000	265,000	268,000	268,000	268,000	276,000	284,000
525GG Infrastructure Recovery - Lease	1,872,000	1,872,000	1,873,000	1,872,000	1,872,000	1,872,000	1,872,000	1,872,000	1,872,000	1,872,000	1,872,000
525GG COPS Bond Interest Subsidy	515,857	515,857	515,857	515,857	515,857	515,857	506,876	488,539	469,437	449,530	428,779
City Grants & Add-Backs	0	0	0	0	0	0	0	0	0	0	0
State Grants	0	0	0	0	0	0	0	0	0	0	0
Federal Grants	0	0	0	0	0	0	0	0	0	0	0
Programmatic Revenues Total	**$ 3,558,874**	**$ 3,746,177**	**$ 3,763,209**	**$ 3,858,857**	**$ 3,975,857**	**$ 4,107,857**	**$ 4,232,876**	**$ 4,341,539**	**$ 4,459,437**	**$ 4,595,530**	**$ 4,742,779**
Non-Debt Capital Revenues											
Capacity Charges	$ 6,429,921	$ 6,000,000	$ 4,500,000	$ 4,500,000	$ 4,500,000	$ 4,500,000	$ 4,500,000	$ 4,500,000	$ 4,500,000	$ 4,500,000	$ 4,500,000
Capital Services to Other City Departments	0	115,000	118,000	122,000	126,000	130,000	134,000	138,000	142,000	146,000	150,000
Custom Work	0	0	0	0	0	0	0	0	0	0	0
City Grants & Add-Backs	0	0	0	0	0	0	0	0	0	0	0
State Grants	0	0	0	0	0	0	0	0	0	0	0
Federal Grants	0	0	0	0	0	0	0	0	0	0	0
Non-Debt Capital Revenues Total	**$ 6,429,921**	**$ 6,115,000**	**$ 4,618,000**	**$ 4,622,000**	**$ 4,626,000**	**$ 4,630,000**	**$ 4,634,000**	**$ 4,638,000**	**$ 4,642,000**	**$ 4,646,000**	**$ 4,650,000**
TOTAL REVENUES	**$ 321,788,143**	**$ 350,403,143**	**$ 379,160,475**	**$ 412,014,423**	**$ 448,827,723**	**$ 488,246,692**	**$ 531,683,511**	**$ 573,104,277**	**$ 617,580,511**	**$ 665,988,680**	**$ 717,289,985**
Total Operating & Programmatic Revenues	*$ 315,358,222*	*$ 344,288,143*	*$ 374,542,475*	*$ 407,392,423*	*$ 444,201,723*	*$ 483,616,692*	*$ 527,049,511*	*$ 568,466,277*	*$ 612,938,511*	*$ 661,342,680*	*$ 712,639,985*
Total Revenues - Coverage Calculation	*$ 318,454,269*	*$ 346,869,286*	*$ 375,529,618*	*$ 408,279,566*	*$ 444,978,866*	*$ 484,273,835*	*$ 527,584,636*	*$ 568,892,738*	*$ 613,247,074*	*$ 661,523,150*	*$ 712,681,206*
EXPENSES											
Operating Expenses											
CWP0101 - Administration											
Services of SFPUC Bureaus	$ 29,179,869	$ 30,473,541	$ 31,491,648	32,436,000	33,409,000	34,411,000	35,443,000	36,506,000	37,601,000	38,729,000	39,891,000
No Inflation Expenses	248,003	263,325	263,325	263,000	263,000	263,000	263,000	263,000	263,000	263,000	263,000
All Other Expenses	10,650,172	11,182,384	11,433,891	11,777,000	12,130,000	12,494,000	12,869,000	13,255,000	13,653,000	14,063,000	14,485,000
Subtotal CWP0101 - Administration	$ 40,078,045	$ 41,919,250	$ 43,188,864	$ 44,476,000	$ 45,802,000	$ 47,168,000	$ 48,575,000	$ 50,024,000	$ 51,517,000	$ 53,055,000	$ 54,639,000
CWP0102 - Southeast Community Facilities	1,353,163	1,425,740	1,447,783	1,491,000	1,536,000	1,582,000	1,629,000	1,678,000	1,728,000	1,780,000	1,833,000
CWP0103 - Planning & Regulation	9,240,741	9,613,651	10,009,613	10,310,000	10,619,000	10,938,000	11,266,000	11,604,000	11,952,000	12,311,000	12,680,000
CWP03 - Maintenance											
Personnel	19,829,059	20,635,639	21,472,549	22,117,000	22,781,000	23,464,000	24,168,000	24,893,000	25,640,000	26,409,000	27,201,000
Materials & Supplies	2,703,340	2,846,343	2,894,361	2,981,000	3,070,000	3,162,000	3,257,000	3,355,000	3,456,000	3,560,000	3,667,000
All Other Expenses	6,403,205	6,659,819	6,937,768	7,146,000	7,360,000	7,581,000	7,808,000	8,042,000	8,283,000	8,531,000	8,787,000
Subtotal CWP03 - Maintenance	$ 28,935,604	$ 30,141,801	$ 31,304,678	$ 32,244,000	$ 33,211,000	$ 34,207,000	$ 35,233,000	$ 36,290,000	$ 37,379,000	$ 38,500,000	$ 39,655,000
CWP04 - Operations											
Personnel	18,083,641	18,844,596	19,557,092	20,144,000	20,748,000	21,370,000	22,011,000	22,671,000	23,351,000	24,052,000	24,774,000
Chemicals	5,978,381	6,347,724	6,347,724	6,538,000	6,734,000	6,936,000	7,144,000	7,358,000	7,579,000	7,806,000	8,040,000
Electricity	10,498,793	11,147,406	11,147,406	11,481,800	11,826,300	12,181,100	12,546,500	12,922,900	13,310,600	13,709,900	14,121,200
Sludge/Biosolids Removal	4,955,228	5,236,361	5,286,361	5,445,000	5,608,000	5,776,000	5,949,000	6,127,000	6,311,000	6,500,000	6,695,000
All Other Expenses	1,601,586	1,608,374	1,792,690	1,846,000	1,901,000	1,958,000	2,017,000	2,078,000	2,140,000	2,204,000	2,270,000
Subtotal CWP04 - Operations	$ 41,117,629	$ 43,184,461	$ 44,131,273	$ 45,454,800	$ 46,817,300	$ 48,221,100	$ 49,667,500	$ 51,156,900	$ 52,691,600	$ 54,271,900	$ 55,900,200
CWP06 - Environmental Engineering	5,923,499	6,106,038	6,472,865	6,667,000	6,867,000	7,073,000	7,285,000	7,504,000	7,729,000	7,961,000	8,200,000
CWP1001 - Sewer Operations											
Street Cleaning	4,839,045	5,138,000	5,138,000	5,138,000	5,138,000	5,138,000	5,138,000	5,138,000	5,138,000	5,138,000	5,138,000
No Inflation Expenses	235,454	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000
All Other Expenses	18,852,554	19,726,829	20,307,692	20,917,000	21,545,000	22,191,000	22,857,000	23,543,000	24,249,000	24,976,000	25,725,000
Subtotal CWP1001 - Sewer Operations	$ 23,927,052	$ 25,114,829	$ 25,695,692	$ 26,305,000	$ 26,933,000	$ 27,579,000	$ 28,245,000	$ 28,931,000	$ 29,637,000	$ 30,364,000	$ 31,113,000
CWP1003 - Source Control	7,154,235	7,480,299	7,712,145	7,944,000	8,182,000	8,427,000	8,680,000	8,940,000	9,208,000	9,484,000	9,769,000
CWP11 - Wastewater Lab	4,741,947	4,922,690	5,147,118	5,302,000	5,461,000	5,625,000	5,794,000	5,968,000	6,147,000	6,331,000	6,521,000
Operating Expenses Total	**$ 162,471,916**	**$ 169,908,759**	**$ 175,110,030**	**$ 180,193,800**	**$ 185,428,300**	**$ 190,820,100**	**$ 196,374,500**	**$ 202,095,900**	**$ 207,988,600**	**$ 214,057,900**	**$ 220,310,200**
Programmatic Expenses											
Treasure Island Facilities Maintenance	$ 1,331,000	$ 1,350,000	$ 1,390,000	$ 1,432,000	$ 1,475,000	$ 1,519,000	$ 1,519,000	$ 1,519,000	$ 1,519,000	$ 1,519,000	$ 1,519,000
Low Impact Development	681,000	681,000	681,000	681,000	681,000	681,000	681,000	681,000	681,000	681,000	681,000
Youth Employment Project	697,000	697,000	697,000	697,000	697,000	697,000	697,000	697,000	697,000	697,000	697,000
Community Benefits	0	0	0	0	0	0	0	0	0	0	0
525 Golden Gate O&M	1,149,000	1,636,600	1,251,760	1,255,000	1,293,000	1,332,000	1,372,000	1,372,000	1,372,000	1,372,000	1,372,000
525 Golden Gate Lease Payment	2,424,000	2,424,000	2,424,000	2,425,000	2,424,000	2,424,000	2,414,000	2,394,000	2,373,000	2,352,000	2,330,000
Flood Claims	0	0	0	0	0	0	0	0	0	0	0
Programmatic Expenses Total	**$ 6,282,000**	**$ 6,788,600**	**$ 6,443,760**	**$ 6,490,000**	**$ 6,570,000**	**$ 6,653,000**	**$ 6,683,000**	**$ 6,663,000**	**$ 6,642,000**	**$ 6,621,000**	**$ 6,599,000**

San Francisco Water Power Sewer

San Francisco
Operations & Maintenance

Budget *Forecasted —>*

Item	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
Debt Service											
Existing Bonds	$ 50,496,301	$ 62,191,513	$ 64,286,401	$ 64,358,276	$ 62,895,276	$ 59,366,766	$ 61,871,262	$ 61,748,691	$ 61,649,463	$ 61,541,918	$ 61,386,933
Existing SRF Loans	0	0	2,129,023	3,023,248	3,882,937	4,081,547	4,081,546	4,081,546	4,081,492	4,081,547	4,081,547
Proposed Bonds	0	0	0	14,467,253	49,499,155	86,241,845	118,659,361	157,880,488	198,282,852	257,152,465	324,696,174
Proposed BAN	0	954,613	4,254,275	0	0	0	0	0	0	0	0
Proposed WIFIA Loan	0	0	0	0	0	0	0	0	0	0	0
Debt Service Total	**$ 50,496,301**	**$ 63,146,126**	**$ 70,669,698**	**$ 81,848,777**	**$ 116,277,368**	**$ 149,690,158**	**$ 184,612,169**	**$ 223,710,725**	**$ 264,013,807**	**$ 322,775,930**	**$ 390,164,654**
Non-Debt Capital Expenses	**$ 47,500,000**	**$ 112,880,000**	**$ 117,597,000**	**$ 122,516,500**	**$ 116,223,375**	**$ 121,955,643**	**$ 127,971,475**	**$ 134,286,199**	**$ 140,911,309**	**$ 146,316,475**	**$ 153,628,748**
Other Adjustments											
More/(Fewer) Expenses Plug for Fund Balance	$ -	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Operating Carryforwards	939,933	0	0	0	0	0	0	0	0	0	0
Other Adjustments Total	**$ 939,933**	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 0**
TOTAL EXPENSES	**$ 267,690,150**	**$ 352,723,485**	**$ 369,820,488**	**$ 391,049,077**	**$ 424,499,043**	**$ 469,118,901**	**$ 515,641,144**	**$ 566,755,824**	**$ 619,555,716**	**$ 689,771,305**	**$ 770,702,602**
Total O&M & Programmatic Expenses	*$ 168,753,916*	*$ 176,697,359*	*$ 181,553,790*	*$ 186,683,800*	*$ 191,998,300*	*$ 197,473,100*	*$ 203,057,500*	*$ 208,758,900*	*$ 214,630,600*	*$ 220,678,900*	*$ 226,909,200*
Total Expenses - Coverage Calculation	*$ 165,938,849*	*$ 172,923,359*	*$ 177,739,790*	*$ 182,826,800*	*$ 188,099,300*	*$ 193,530,100*	*$ 199,124,500*	*$ 204,845,900*	*$ 210,738,600*	*$ 216,807,900*	*$ 223,060,200*
ENDING FUND BALANCE											
NET REVENUES	**$ 54,097,993**	**$ (2,320,342)**	**$ 9,339,987**	**$ 20,965,346**	**$ 24,328,680**	**$ 19,127,791**	**$ 16,042,367**	**$ 6,348,453**	**$ (1,975,205)**	**$ (23,782,625)**	**$ (53,412,616)**
Net O&M & Programmatic Revenues	*$ 146,604,306*	*$ 167,590,784*	*$ 192,988,685*	*$ 220,708,623*	*$ 252,203,423*	*$ 286,143,592*	*$ 323,992,011*	*$ 359,707,377*	*$ 398,307,911*	*$ 440,663,780*	*$ 485,730,785*
Net Revenues - Coverage Calculation	*$ 152,515,420*	*$ 173,945,926*	*$ 197,789,828*	*$ 225,452,766*	*$ 256,879,566*	*$ 290,743,735*	*$ 328,460,136*	*$ 364,046,838*	*$ 402,508,474*	*$ 444,715,250*	*$ 489,621,006*
ENDING UNAPPROPRIATED FUND BALANCE	**$ 198,814,303**	**$ 196,493,960**	**$ 205,833,947**	**$ 226,799,293**	**$ 251,127,973**	**$ 270,255,765**	**$ 286,298,132**	**$ 292,646,585**	**$ 290,671,380**	**$ 266,888,755**	**$ 213,476,139**
RESERVE & COVERAGE CALCULATIONS											
Debt Service Coverage Calculations											
Current Basis	3.02	2.75	2.80	2.75	2.21	1.94	1.78	1.63	1.52	1.38	1.25
Indenture Basis	5.89	5.90	5.58	5.27	4.16	3.62	3.24	2.91	2.63	2.28	1.94
Reserve Requirements											
O&M & Programmatic Expenses	118%	111%	113%	121%	131%	137%	141%	140%	135%	121%	94%
BILL IMPACTS											
Retail Rate Increases	**0%**	**9%**	**9%**	**9%**	**9%**	**9%**	**9%**	**8%**	**8%**	**8%**	**8%**
Adopted Single Family Rates											
Fixed Charge		$ 0.99	$ 2.27	$ 3.77	$ 5.51						
Tier 1	$ 12.40	$ 13.28	$ 14.39	$ 15.58	$ 16.88						
Tier 2	12.40										
Average Single Family Wastewater Discharge (CCF)	4.66	$ 4.66	$ 4.66	$ 4.65	$ 4.64	$ 4.64	$ 4.65	$ 4.63	$ 4.62	$ 4.62	$ 4.63
Average Single Family Wastewater Bill	**$ 57.78**	**$ 62.87**	**$ 69.33**	**$ 76.22**	**$ 83.83**	**$ 91.38**	**$ 99.60**	**$ 107.57**	**$ 116.18**	**$ 125.47**	**$ 135.51**
$1M Expense Increase Monthly Impact	$ 0.19	$ 0.19	$ 0.19	$ 0.19	$ 0.19	$ 0.19	$ 0.19	$ 0.19	$ 0.19	$ 0.19	$ 0.19
San Francisco Median Household Income	$ 88,800	$ 91,500	$ 94,200	$ 97,000	$ 99,900	$ 102,900	$ 106,000	$ 109,200	$ 112,500	$ 115,900	$ 119,400
Wastewater Bill as a % of Median Income	**0.8%**	**0.8%**	**0.9%**	**0.9%**	**1.0%**	**1.1%**	**1.1%**	**1.2%**	**1.2%**	**1.3%**	**1.4%**
$ per Gallon	**$1.66**	**$1.80**	**$1.99**	**$2.19**	**$2.42**	**$2.63**	**$2.86**	**$3.11**	**$3.36**	**$3.63**	**$3.91**

San Francisco

Wastewater Capital Planning

Item	FYE 2015	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
% of Non-SSIP Capital Revenue-Financed			54%	68%	77%	52%	85%	86%	95%	88%	96%	96%
SOURCES (REVENUES)												
Programmatic Sources												
Non-Rate Revenue												
525GG Infrastructure Recovery - O&M	206,000	225,000	327,320	250,352	246,000	253,000	265,000	268,000	268,000	268,000	276,000	284,000
525GG Infrastructure Recovery - Lease	1,190,000	1,872,000	1,872,000	1,873,000	1,872,000	1,872,000	1,872,000	1,872,000	1,872,000	1,872,000	1,872,000	1,872,000
525GG COPS Bond Interest Subsidy	511,991	515,857	515,857	515,857	515,857	515,857	515,857	506,876	488,539	469,437	449,530	428,779
City Grants & Add-Backs	0	0	0	0	0	0	0	0	0	0	0	0
State Grants	0	0	0	0	0	0	0	0	0	0	0	0
Federal Grants	204,814	0	0	0	0	0	0	0	0	0	0	0
Non-Rate Revenue Total	$ 2,112,805	$ 2,612,857	$ 2,715,177	$ 2,639,209	$ 2,633,857	$ 2,640,857	$ 2,652,857	$ 2,646,876	$ 2,628,539	$ 2,609,437	$ 2,597,530	$ 2,584,779
Rate Revenue												
Treasure Island Wastewater Charges	641,032	946,016	1,031,000	1,124,000	1,225,000	1,335,000	1,455,000	1,586,000	1,713,000	1,850,000	1,998,000	2,158,000
Other Rate Revenue	6,436,681	2,726,984	3,044,280	2,682,408	2,633,000	2,596,000	2,547,000	2,452,000	2,323,000	2,184,000	2,027,000	1,858,000
Rate Revenue Appropriated Total	$ 7,077,713	$ 3,673,000	$ 4,075,280	$ 3,806,408	$ 3,858,000	$ 3,931,000	$ 4,002,000	$ 4,038,000	$ 4,036,000	$ 4,034,000	$ 4,025,000	$ 4,016,000
Total Programmatic Sources	**$ 9,190,518**	**$ 6,285,857**	**$ 6,790,457**	**$ 6,445,617**	**$ 6,491,857**	**$ 6,571,857**	**$ 6,654,857**	**$ 6,684,876**	**$ 6,664,539**	**$ 6,643,437**	**$ 6,622,530**	**$ 6,600,779**
Capital Sources												
Grants & Non-Rate Revenue												
Capacity Charges	6,455,062	6,429,921	6,000,000	4,500,000	4,500,000	4,500,000	4,500,000	4,500,000	4,500,000	4,500,000	4,500,000	4,500,000
Capital Services to Other City Departments	67,807	0	115,000	118,000	122,000	126,000	130,000	134,000	138,000	142,000	146,000	150,000
Custom Work	0	0	0	0	0	0	0	0	0	0	0	0
City Grants & Add-Backs	0	0	0	0	0	0	0	0	0	0	0	0
State Grants	869,678	0	0	0	0	0	0	0	0	0	0	0
Federal Grants	0	0	0	0	0	0	0	0	0	0	0	0
Grants & Non-Rate Revenue Total	$ 7,392,547	$ 6,429,921	$ 6,115,000	$ 4,618,000	$ 4,622,000	$ 4,626,000	$ 4,630,000	$ 4,634,000	$ 4,638,000	$ 4,642,000	$ 4,646,000	$ 4,650,000
Rate Revenue Appropriated	$ 39,000,000	$ 45,000,000	$ 106,765,000	$ 112,979,000	$ 117,894,500	$ 111,597,375	$ 117,325,643	$ 123,337,475	$ 129,648,199	$ 136,269,309	$ 141,670,475	$ 148,978,748
WIFIA Loan - Biosolids Digesters (SSIP)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
SRF Loan - SSIP Projects Total	$ 7,435,000	$ 85,780,000										
Revenue Bonds												
SSIP Bonds	199,785,000	584,780,000	432,032,348	292,439,653	892,254,446	806,530,328	696,592,872	276,019,087	137,338,679	167,795,733	153,078,283	152,869,731
Non-SSIP Bonds	47,422,000	92,698,000	86,578,834	48,936,847	31,542,994	97,706,308	16,523,514	16,213,292	2,572,421	13,660,333	1,260,486	1,324,537
Revenue Bonds Total	$ 247,207,000	$ 677,478,000	$ 518,611,182	$ 341,376,500	$ 923,797,440	$ 904,236,636	$ 713,116,386	$ 292,232,379	$ 139,911,100	$ 181,456,066	$ 154,338,769	$ 154,194,268
Total Capital Sources	**$ 293,599,547**	**$ 814,687,921**	**$ 631,491,182**	**$ 458,973,500**	**$ 1,046,313,940**	**$ 1,020,460,011**	**$ 835,072,029**	**$ 420,203,854**	**$ 274,197,299**	**$ 322,367,375**	**$ 300,655,244**	**$ 307,823,016**
Beginning Authorized, Unissued Debt												
SSIP Bonds	214,670,125	754,097,058	1,024,877,058	944,470,877	980,691,266	1,400,710,273	1,845,004,601	1,949,250,423	1,375,877,123	761,654,202.00	443,143,956	389,543,356
Non-SSIP Bonds	59,279,514	148,376,320	185,074,320	179,115,994	181,784,261	123,769,258	153,717,726	130,001,319	81,589,960	27,047,470	24,339,400	16,207,030
Total Beginning Authorized, Unissued Debt	$ 273,949,639	$ 902,473,378	$ 1,209,951,378	$ 1,123,586,871	$ 1,162,475,526	$ 1,524,479,531	$ 1,998,722,326	$ 2,079,251,742	$ 1,457,467,083	$ 788,701,672	$ 467,483,356	$ 405,750,385
New Debt Appropriation												
SSIP Bonds	199,785,000	584,780,000	432,032,348	292,439,653	892,254,446	806,530,328	696,592,872	276,019,087	137,338,679	167,795,733	153,078,283	152,869,731
Non-SSIP Bonds	47,422,000	92,698,000	86,578,834	48,936,847	31,542,994	97,706,308	16,523,514	16,213,292	2,572,421	13,660,333	1,260,486	1,324,537
Total New Debt Appropriation	$ 247,207,000	$ 677,478,000	$ 518,611,182	$ 341,376,500	$ 923,797,440	$ 904,236,636	$ 713,116,386	$ 292,232,379	$ 139,911,100	$ 181,456,066	$ 154,338,769	$ 154,194,268
Authorized, Unissued Debt												
SSIP Bonds	414,455,125	1,338,877,058	1,456,909,406	1,236,910,530	1,872,945,712	2,207,240,601	2,541,597,473	2,225,269,510	1,513,215,802	929,449,935	596,222,239	542,413,087
Non-SSIP Bonds	106,701,514	241,074,320	271,653,154	228,052,841	213,327,255	221,475,566	170,241,240	146,214,611	84,162,381	40,707,803	25,599,886	17,531,567
Total Authorized, Unissued Debt	$ 521,156,639	$ 1,579,951,378	$ 1,728,562,560	$ 1,464,963,371	$ 2,086,272,966	$ 2,428,716,167	$ 2,711,838,712	$ 2,371,484,121	$ 1,597,378,183	$ 970,157,738	$ 621,822,125	$ 559,944,653
Debt Issuance												
SSIP Bonds	0	314,000,000	512,438,529	256,219,265	472,235,439	362,236,001	592,347,050	849,392,387	751,561,600	486,305,980	206,678,883	152,567,206
Non-SSIP Bonds	0	56,000,000	92,537,160	46,268,580	89,557,997	67,757,841	40,239,921	64,624,651	57,114,911	16,368,403	9,392,857	8,116,377
Total Debt Issued (Project Fund)	**$ -**	**$ 370,000,000**	**$ 604,975,689**	**$ 302,487,844**	**$ 561,793,435**	**$ 429,993,841**	**$ 632,586,970**	**$ 914,017,038**	**$ 808,676,511**	**$ 502,674,383**	**$ 216,071,740**	**$ 160,683,583**

San Francisco

Wastewater Capital Planning

Item	FYE 2015	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
USES (EXPENSES)												
Programmatic Uses												
Treasure Island Facilities Maintenance	1,200,000	1,331,000	1,350,000	1,390,000	1,432,000	1,475,000	1,519,000	1,519,000	1,519,000	1,519,000	1,519,000	1,519,000
Low Impact Development	681,000	681,000	681,000	681,000	681,000	681,000	681,000	681,000	681,000	681,000	681,000	681,000
Youth Employment Project	697,000	697,000	697,000	697,000	697,000	697,000	697,000	697,000	697,000	697,000	697,000	697,000
Community Benefits - Wastewater	1,150,000	0	0	0	0	0	0	0	0	0	0	0
525 Golden Gate O&M	1,052,000	1,149,000	1,636,600	1,251,760	1,255,000	1,293,000	1,332,000	1,372,000	1,372,000	1,372,000	1,372,000	1,372,000
525 Golden Gate Lease Payments	2,424,000	2,424,000	2,424,000	2,424,000	2,425,000	2,424,000	2,424,000	2,414,000	2,394,000	2,373,000	2,352,000	2,330,000
Flood Claims	1,750,000	0	0	0	0	0	0	0	0	0	0	0
Total Programmatic Uses	**$ 8,954,000**	**$ 6,282,000**	**$ 6,788,600**	**$ 6,443,760**	**$ 6,490,000**	**$ 6,570,000**	**$ 6,653,000**	**$ 6,683,000**	**$ 6,663,000**	**$ 6,642,000**	**$ 6,621,000**	**$ 6,599,000**
CAPITAL USES - APPROPRIATION												
Non-SSIP Capital												
Collection System R&R - Condition Assessment	3,530,000	3,327,000	3,443,000	3,563,000	3,685,000	3,809,000	3,942,000	4,080,000	4,223,000	4,370,000	4,524,000	4,750,200
Collection System R&R - Salt Water Intrusion	0	1,139,000	1,179,000	1,219,000	1,262,000	1,306,000	1,351,000	1,399,000	1,449,000	1,499,000	0	0
Collection System R&R - Sewer Improvements	52,499,000	59,902,000	62,299,000	64,790,000	67,382,000	70,077,000	73,582,000	77,260,000	81,124,000	85,179,000	89,438,000	93,910,000
Collection System R&R - Spot Sewer	19,251,000	21,965,000	22,844,000	23,757,000	24,708,000	14,280,000	14,994,000	15,744,000	16,530,000	17,358,000	18,227,000	19,138,000
Treatment Plant Improvements	12,442,000	14,402,000	23,000,000	24,150,000	25,357,500	26,625,375	27,956,643	29,354,475	30,822,199	32,363,309	33,981,475	35,680,548
Treasure Island Wastewater Treatment Facility	0	20,463,000	6,373,000	23,957,000	13,000,000	0	0	0	0	0	0	0
Collection System Division Consolidation	0	0	0	0	0	0	0	0	0	0	0	0
Ocean Beach Protection	2,700,000	4,000,000	8,149,557	5,381,319	2,986,550	95,567,606	4,299,263	0	0	0	0	0
Southeast Community Center Improvements	7,000,000	5,000,000	66,000,000	3,500,000	3,500,000	0	0	0	0	0	0	0
Islais Creek Outfall	0	10,000,000	5,000,000	15,000,000	0	0	0	0	0	0	0	0
SWOO Condition Assessment & Rehab	0	0	0	0	913,975	950,534	10,988,556	1,088,855	1,143,298	12,159,754	1,260,486	1,324,537
Southeast Outfall Condition Assessment & Rehab	0	0	1,056,277	1,098,528	11,142,469	1,188,168	1,235,695	15,124,437	1,429,123	1,500,579	0	0
Capital Services to Other City Departments	72,888	0	115,000	118,000	122,000	126,000	130,000	134,000	138,000	142,000	146,000	150,000
Custom Work	0	0	0	0	0	0	0	0	0	0	0	0
Non-SSIP Capital Total	$ 97,494,888	$ 140,198,000	$ 199,458,834	$ 166,533,847	$ 154,059,494	$ 213,929,683	$ 138,479,157	$ 144,184,767	$ 136,858,620	$ 154,571,642	$ 147,576,961	$ 154,953,285
Sewer System Improvement Program												
Program Wide Efforts	23,000,000	6,000,000	16,500,000	16,590,000	16,500,000	16,500,000	12,500,000	11,500,000	11,500,000	17,590,652	10,140,652	8,910,849
Land Reuse	5,000,000	0	483,000	0	0	0	0	0	0	0	0	0
Biofuel/Alternative Energy Studies	0	0	0	0	0	0	0	0	0	0	0	0
Biosolids/Digester Project	42,600,000	257,552,000	181,201,650	0	191,201,650	209,429,750	128,708,760	7,177,190	0	0	0	0
Southeast Plant - New 250 MGD Grit Improvements	9,900,000	76,427,000	90,133,139	92,204,646	48,343,247	0	0	0	0	0	0	0
Southeast Plant	32,520,000	95,433,000	45,168,983	20,267,522	72,199,496	38,514,899	27,998,803	17,290,909	54,134,398	71,118,359	42,277,757	45,794,577
North Point Facility	7,550,000	57,287,000	7,350,097	8,416,672	33,904,181	85,684,598	9,467,612	24,631,368	12,335,765	7,322,338	30,876,873	8,486,098
Treatment Plant Improvements	0	0	0	0	0	0	0	0	0	0	0	0
Westside Pump Station and Force Main	2,700,000	47,118,000	0	0	3,212,844	0	0	0	0	0	0	0
Oceanside Plant	11,850,000	39,191,000	17,345,380	48,219,969	16,193,726	12,830,831	125,699,321	14,140,955	20,365,902	4,975,901	22,910,947	4,920,244
Central Bayside System Improvements	14,000,000	38,069,000	0	20,350,000	194,746,666	294,786,666	265,183,333	2,666,666	2,666,666	2,000,000	0	0
Collection System - Interceptors/Tunnels/Odor Control	11,000,000	4,407,000	10,533,611	24,669,310	63,805,618	64,065,113	9,306,135	23,960,109	3,338,432	19,901,544	3,680,621	3,862,783
Transport/Storage & Combined Sewer Discharge Structures	5,500,000	7,738,000	3,012,118	2,698,199	21,497,627	20,054,467	1,795,517	1,909,007	7,728,450	7,166,597	5,415,346	21,531,122
Pump Stations/Force Main Improvements	1,300,000	20,105,000	15,926,996	21,567,369	43,018,659	16,810,856	17,151,365	3,666,143	6,180,455	5,847,497	14,007,462	14,509,549
Drainage Basin/Early Implementation Projects	25,600,000	0	2,216,255	0	0	0	0	0	0	0	0	0
Flood Resilience	0	14,400,000	18,843,401	30,762,194	159,990,420	18,979,131	69,335,743	161,362,370	9,878,305	12,508,848	18,190,883	39,277,236
Collection System - Hydraulic Improvements	0	4,376,000	0	0	0	0	0	0	0	0	0	0
Low Impact Design Program	0	165,000	0	0	0	0	0	0	0	0	0	0
Green Infrastructure Projects	0	993,000	21,317,718	4,693,772	25,640,312	26,874,017	27,446,283	4,714,370	6,210,306	16,363,997	2,577,742	2,577,273
GI for Stormwater Management (Grant)	0	0	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000
Advance Rainfall Predictions Decision System	11,700,000	1,299,000	0	0	0	0	0	0	0	0	0	0
Watershed Assessment	3,000,000	0	0	0	0	0	0	0	0	0	0	0
Sewer System Improvement Program Total	**$ 207,220,000**	**$ 670,560,000**	**$ 432,032,348**	**$ 292,439,653**	**$ 892,254,446**	**$ 806,530,328**	**$ 696,592,872**	**$ 276,019,087**	**$ 137,338,679**	**$ 167,795,733**	**$ 153,078,283**	**$ 152,869,731**
Total Capital Uses - Appropriation	**$ 304,714,888**	**$ 810,758,000**	**$ 631,491,182**	**$ 458,973,500**	**$ 1,046,313,940**	**$ 1,020,460,011**	**$ 835,072,029**	**$ 420,203,854**	**$ 274,197,299**	**$ 322,367,375**	**$ 300,655,244**	**$ 307,823,016**

San Francisco

Existing Debt Service

	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
REVENUES											
Senior Lien Debt											
Series 2010B	3,493,066	3,493,066	3,493,066	3,493,066	3,493,066	3,437,735	3,324,136	3,203,838	3,075,774	2,939,450	2,795,006
Senior Lien Debt Revenues Total	**$3,493,066**	**$3,493,066**	**$3,493,066**	**$3,493,066**	**$3,493,066**	**$3,437,735**	**$3,324,136**	**$3,203,838**	**$3,075,774**	**$2,939,450**	**$2,795,006**
Junior Lien Debt											
Series 2009D COPs	515,857	515,857	515,857	515,857	515,857	515,857	506,876	488,539	469,437	449,530	428,779
Junior Lien Debt Revenues Total	**$515,857**	**$515,857**	**$515,857**	**$515,857**	**$515,857**	**$515,857**	**$506,876**	**$488,539**	**$469,437**	**$449,530**	**$428,779**
EXPENSES											
Senior Lien Debt - Revenue Bonds											
Series 2003A											
Principal Payments	0	0	0	0	0	0	0	0	0	0	0
Interest Payments	0	0	0	0	0	0	0	0	0	0	0
Series 2003A Total	0	0	0	0	0	0	0	0	0	0	0
Series 2010A											
Principal Payments	7,295,000	7,630,000	7,980,000	8,390,000	8,820,000	0	0	0	0	0	0
Interest Payments	1,747,075	1,412,100	1,060,000	650,750	220,500	0	0	0	0	0	0
Series 2010A Total	9,042,075	9,042,100	9,040,000	9,040,750	9,040,500	0	0	0	0	0	0
Series 2010B											
Principal Payments	0	0	0	0	0	7,280,000	7,505,000	7,745,000	8,000,000	8,270,000	8,560,000
Interest Payments	10,685,426	10,685,426	10,685,426	10,685,426	10,685,426	10,516,166	10,168,662	9,800,666	9,408,913	8,991,893	8,550,033
(Less) Capitalized Interest	0	0	0	0	0	0	0	0	0	0	0
Series 2010B Total	10,685,426	10,685,426	10,685,426	10,685,426	10,685,426	17,796,166	17,673,662	17,545,666	17,408,913	17,261,893	17,110,033
Series 2013A											
Principal Payments	12,720,000	13,380,000	14,105,000	14,850,000	14,060,000	13,090,000	575,000	610,000	1,260,000	0	0
Interest Payments	3,620,800	3,018,300	2,381,175	1,707,300	1,034,550	405,800	89,175	62,600	25,200	0	0
Series 2013A Total	16,340,800	16,398,300	16,486,175	16,557,300	15,094,550	13,495,800	664,175	672,600	1,285,200	0	0
Series 2013B											
Principal Payments	0	0	0	0	0	0	8,835,000	9,280,000	9,130,000	10,915,000	11,475,000
Interest Payments	14,428,000	14,428,000	14,428,000	14,428,000	14,428,000	14,428,000	14,207,125	13,754,250	13,294,000	12,792,875	12,233,125
(Less) Capitalized Interest	0	0	0	0	0	0	0	0	0	0	0
Series 2013B Total	14,428,000	14,428,000	14,428,000	14,428,000	14,428,000	14,428,000	23,042,125	23,034,250	22,424,000	23,707,875	23,708,125
Series 2016A											
Principal Payments	0	0	0	0	0	0	5,475,000	5,760,000	6,055,000	6,365,000	6,690,000
Interest Payments	10,645,750	10,645,750	10,645,750	10,645,750	10,645,750	10,645,750	10,508,875	10,228,000	9,962,900	9,682,675	9,356,300
(Less) Capitalized Interest	(10,645,750)	(1,567,291)	0	0	0	0	0	0	0	0	0
Series 2016A Total	0	9,078,459	10,645,750	10,645,750	10,645,750	10,645,750	15,983,875	15,988,000	16,017,900	16,047,675	16,046,300

San Francisco

Existing Debt Service

	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
Series 2016B											
Principal Payments	0	0	0	0	0	0	1,545,000	1,625,000	1,705,000	1,795,000	1,885,000
Interest Payments	3,001,050	3,001,050	3,001,050	3,001,050	3,001,050	3,001,050	2,962,425	2,883,175	2,808,450	2,729,475	2,637,475
(Less) Capitalized Interest	(3,001,050)	(441,821)	0	0	0	0	0	0	0	0	0
Series 2016B Total	0	2,559,229	3,001,050	3,001,050	3,001,050	3,001,050	4,507,425	4,508,175	4,513,450	4,524,475	4,522,475
Revenue Bonds Total	**$50,496,301**	**$62,191,513**	**$64,286,401**	**$64,358,276**	**$62,895,276**	**$59,366,766**	**$61,871,262**	**$61,748,691**	**$61,649,463**	**$61,541,918**	**$61,386,933**
Senior Lien Debt - SRF Loans											
Lake Merced GI											
Principal Payments	0	0	0	0	195,034	198,154	201,325	204,546	207,819	211,144	214,522
Interest Payments	0	0	0	0	118,960	115,839	112,669	109,448	106,175	102,850	99,472
Lake Merced GI Total	0	0	0	0	313,994	313,994	313,994	313,994	313,994	313,994	313,994
Southeast Plant Clarifiers											
Principal Payments	0	0	569,650	763,312	877,414	955,367	954,039	971,212	988,640	1,006,490	1,024,607
Interest Payments	0	0	215,707	415,037	505,955	561,713	563,040	545,867	528,385	510,590	492,473
Southeast Plant Clarifiers Total	0	0	785,357	1,178,349	1,383,368	1,517,080	1,517,079	1,517,079	1,517,025	1,517,080	1,517,080
SEP Bldg 521 & Disinfection											
Principal Payments	0	0	623,551	715,733	822,855	848,200	857,794	873,234	888,952	904,954	921,243
Interest Payments	0	0	254,143	410,770	476,281	515,834	506,240	490,800	475,082	459,080	442,791
SEP Bldg 521 & Disinfection Total	0	0	877,693	1,126,503	1,299,136	1,364,034	1,364,034	1,364,034	1,364,034	1,364,034	1,364,034
Northpoint Outfall System											
Principal Payments	0	0	337,675	482,021	555,022	547,594	557,451	567,485	577,700	588,099	598,684
Interest Payments	0	0	128,297	236,376	331,417	338,845	328,988	318,954	308,739	298,341	287,755
Northpoint Outfall System Total	0	0	465,973	718,397	886,439	886,439	886,439	886,439	886,439	886,439	886,439
SRF Loans Total	**$0**	**$0**	**$2,129,023**	**$3,023,248**	**$3,882,937**	**$4,081,547**	**$4,081,546**	**$4,081,546**	**$4,081,492**	**$4,081,547**	**$4,081,547**
Senior Lien Debt Total	**$50,496,301**	**$62,191,513**	**$66,415,423**	**$67,381,524**	**$66,778,213**	**$63,448,312**	**$65,952,808**	**$65,830,236**	**$65,730,955**	**$65,623,465**	**$65,468,480**
Junior Lien Debt - Certificates of Participation											
Series 2009C (COPs)											
Principal Payments	642,843	675,882	710,809	746,680	785,383	825,973	0	0	0	0	0
Interest Payments	203,307	170,339	135,672	99,235	60,933	20,649	0	0	0	0	0
(Less) Capitalized Interest	0	0	0	0	0	0	0	0	0	0	0
Series 2009C Total	846,151	846,222	846,481	845,915	846,316	846,623	0	0	0	0	0
Series 2009D (COPs)											
Principal Payments	0	0	0	0	0	0	863,732	899,603	937,362	977,008	1,018,543
Interest Payments	1,578,028	1,578,028	1,578,028	1,578,028	1,578,028	1,578,028	1,550,553	1,494,461	1,436,028	1,375,131	1,311,653
(Less) Capitalized Interest	0	0	0	0	0	0	0	0	0	0	0
Series 2009D Total	1,578,028	1,578,028	1,578,028	1,578,028	1,578,028	1,578,028	2,414,285	2,394,064	2,373,389	2,352,140	2,330,196
Junior Lien Debt Total	**$2,424,179**	**$2,424,250**	**$2,424,510**	**$2,423,943**	**$2,424,344**	**$2,424,651**	**$2,414,285**	**$2,394,064**	**$2,373,389**	**$2,352,140**	**$2,330,196**

San Francisco Water Power Sewer

San Francisco

Wastewater Volumes

	Forecasted ---->										
	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028
SEWER BILLED DISCHARGE VOLUME											
Retail Discharge Billed Volume											
In-City Retail											
Single Family Residential (MGD)	12.7	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8
Multifamily Residential (MGD)	20.8	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9
Municipal	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Non-residential (MGD)	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
In-City Retail Subtotal	49.3	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5
Suburban Retail Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Retail Paying Total	49.3	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5
Retail Non-paying Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Retail Billed Volume Total (MGD)	**49.4**	**49.5**	**49.5**	**49.5**	**49.5**	**49.5**	**49.5**	**49.5**	**49.5**	**49.5**	**49.5**
Wholesale											
Presidio - Residential	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Presidio - Non-Residential	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Bayshore	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brisbane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daly City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wholesale Billed Volumes Total	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
Total Billed Volumes (MGD)	**49.7**	**49.8**	**49.8**	**49.8**	**49.8**	**49.8**	**49.8**	**49.8**	**49.8**	**49.8**	**49.8**
In-City Retail											
Single Family Residential (CCF)	6,230,357	6,230,357	6,247,426	6,230,357	6,230,357	6,230,357	6,247,426	6,230,357	6,230,357	6,230,357	6,247,426
Multifamily Residential (CCF)	10,176,749	10,176,749	10,204,630	10,176,749	10,176,749	10,176,749	10,204,630	10,176,749	10,176,749	10,176,749	10,204,630
Municipal	542,068	542,068	543,553	542,068	542,068	542,068	543,553	542,068	542,068	542,068	543,553
Non-residential (CCF)	7,193,231	7,193,231	7,212,939	7,193,231	7,193,231	7,193,231	7,212,939	7,193,231	7,193,231	7,193,231	7,212,939
In-City Retail Subtotal	24,142,404	24,142,404	24,208,548	24,142,404	24,142,404	24,142,404	24,208,548	24,142,404	24,142,404	24,142,404	24,208,548
Suburban Retail Subtotal	344.2	344.2	344.2	344.2	344.2	344.2	344.2	344.2	344.2	344.2	344.2
Retail Paying Total	24,142,749	24,142,749	24,208,892	24,142,749	24,142,749	24,142,749	24,208,892	24,142,749	24,142,749	24,142,749	24,208,892
Retail Non-paying Total	9,818	9,818	9,845	9,818	9,818	9,818	9,845	9,818	9,818	9,818	9,845
Retail Billed Volume Total (CCF)	**24,152,566**	**24,152,566**	**24,218,737**	**24,152,566**	**24,152,566**	**24,152,566**	**24,218,737**	**24,152,566**	**24,152,566**	**24,152,566**	**24,218,737**
Wholesale											
Presidio - Residential	60,799	60,799	60,966	60,799	60,799	60,799	60,966	60,799	60,799	60,799	60,966
Presidio - Non-Residential	93,915	93,915	94,172	93,915	93,915	93,915	94,172	93,915	93,915	93,915	94,172
Bayshore		0	0	0	0	0	0	0	0	0	0
Brisbane		0	0	0	0	0	0	0	0	0	0
Daly City		0	0	0	0	0	0	0	0	0	0
Wholesale Billed Volumes Total	**154,714**	**154,714**	**155,137**	**154,714**	**154,714**	**154,714**	**155,137**	**154,714**	**154,714**	**154,714**	**155,137**
Total Billed Volumes (CCF)	**24,307,280**	**24,307,280**	**24,373,874**	**24,307,280**	**24,307,280**	**24,307,280**	**24,373,874**	**24,307,280**	**24,307,280**	**24,307,280**	**24,373,874**

San Francisco

Wastewater Rate Design

	Existing FYE 2018	Forecasted --> FYE 2019	FYE 2020	FYE 2021	FYE 2022
FIXED CHARGE DESIGN					
Number of Accounts	163,644	163,807	163,970	164,134	164,298
Customer Revenue to Recover	$ -	$ 2,140,172	$ 4,665,574	$ 7,628,227	$ 11,086,348
(Less) Stormwater Revenues		$ (202,080)	$ (209,400)	$ (216,480)	$ (223,080)
Adjusted Fixed Charge RR		$ 1,938,092	$ 4,456,174	$ 7,411,747	$ 10,863,268
Monthly Component Charge per Account	0	$ 0.99	$ 2.27	$ 3.77	$ 5.51
COMMODITY RATE DESIGN					
Single Family Residentail					
Wet Weather Flow (ccf)	6,232,637	6,232,637	6,232,637	6,232,637	6,232,637
Dry Weather Flow (ccf)	6,232,637	6,232,637	6,232,637	6,232,637	6,232,637
COD (lbs)	26,613,827	26,613,827	26,613,827	26,613,827	26,613,827
TSS (lbs)	10,855,640	10,855,640	10,855,640	10,855,640	10,855,640
FOG (lbs)	3,307,274	3,307,274	3,307,274	3,307,274	3,307,274
Wet Weather Flow Revenue to Recover		$ 17,078,955	$ 17,716,397	$ 18,330,277	$ 18,911,101
Dry Weather Flow Revenue to Recover		$ 33,771,531	$ 36,710,311	$ 39,904,604	$ 43,376,405
COD Revenue to Recover		$ 15,251,748	$ 16,182,776	$ 17,157,886	$ 18,177,388
TSS Revenue to Recover		$ 12,626,716	$ 14,473,534	$ 16,550,537	$ 18,884,120
FOG Revenue to Recover		$ 4,035,279	$ 4,561,842	$ 5,150,513	$ 5,808,178
Wet Weather Rate ($/ccf)		$ 2.75	$ 2.85	$ 2.95	$ 3.04
Dry Weather Rate ($/ccf)		$ 5.42	$ 5.90	$ 6.41	$ 6.96
COD Rate ($/lb)		$ 0.58	$ 0.61	$ 0.65	$ 0.69
TSS Rate ($/lb)		$ 1.17	$ 1.34	$ 1.53	$ 1.74
FOG Rate ($/lb)		$ 1.23	$ 1.38	$ 1.56	$ 1.76
Uniform Volumetric Rate per ccf	$ 12.40	$ 13.28	$ 14.39	$ 15.58	$ 16.88
Multifamily Residentail					
Wet Weather Flow (ccf)	10,169,290	10,169,290	10,169,290	10,169,290	10,169,290
Dry Weather Flow (ccf)	10,169,290	10,169,290	10,169,290	10,169,290	10,169,290
COD (lbs)	43,423,629	43,423,629	43,423,629	43,423,629	43,423,629
TSS (lbs)	17,712,269	17,712,269	17,712,269	17,712,269	17,712,269
FOG (lbs)	5,396,211	5,396,211	5,396,211	5,396,211	5,396,211
Wet Weather Flow Revenue to Recover		$ 27,866,351	$ 28,906,413	$ 29,908,031	$ 30,855,714
Dry Weather Flow Revenue to Recover		$ 55,102,278	$ 59,897,247	$ 65,109,117	$ 70,773,774
COD Revenue to Recover		$ 24,885,043	$ 26,404,127	$ 27,995,135	$ 29,658,573
TSS Revenue to Recover		$ 20,601,991	$ 23,615,294	$ 27,004,171	$ 30,811,689
FOG Revenue to Recover		$ 6,584,037	$ 7,443,189	$ 8,403,674	$ 9,476,734
Wet Weather Rate ($/ccf)		$ 2.75	$ 2.85	$ 2.95	$ 3.04
Dry Weather Rate ($/ccf)		$ 5.42	$ 5.90	$ 6.41	$ 6.96
COD Rate ($/lb)		$ 0.58	$ 0.61	$ 0.65	$ 0.69
TSS Rate ($/lb)		$ 1.17	$ 1.34	$ 1.53	$ 1.74
FOG Rate ($/lb)		$ 1.23	$ 1.38	$ 1.56	$ 1.76
Uniform Volumetric Rate per ccf	$ 12.40	$ 13.28	$ 14.39	$ 15.58	$ 16.88

San Francisco

Wastewater Rate Design

	Existing FYE 2018	Forecasted --> FYE 2019	FYE 2020	FYE 2021	FYE 2022
Nonresidential					
Wet Weather Flow (ccf)	7,754,997	7,754,997	7,754,997	7,754,997	7,754,997
Dry Weather Flow (ccf)	7,754,997	7,754,997	7,754,997	7,754,997	7,754,997
COD (lbs)	36,152,352	36,152,352	36,152,352	36,152,352	36,152,352
TSS (lbs)	12,005,750	12,005,750	12,005,750	12,005,750	12,005,750
FOG (lbs)	4,476,810	4,476,810	4,476,810	4,476,810	4,476,810
Wet Weather Flow Revenue to Recover		$ 21,250,595	$ 22,043,736	$ 22,807,560	$ 23,530,254
Dry Weather Flow Revenue to Recover		$ 42,020,436	$ 45,677,030	$ 49,651,549	$ 53,971,360
COD Revenue to Recover		$ 20,718,048	$ 21,982,761	$ 23,307,356	$ 24,692,252
TSS Revenue to Recover		$ 13,964,464	$ 16,006,945	$ 18,303,998	$ 20,884,814
FOG Revenue to Recover		$ 5,462,256	$ 6,175,026	$ 6,971,864	$ 7,862,097
Wet Weather Rate ($/ccf)		$ 2.75	$ 2.85	$ 2.95	$ 3.04
Dry Weather Rate ($/ccf)		$ 5.42	$ 5.90	$ 6.41	$ 6.96
COD Rate ($/lb)		$ 0.574	$ 0.609	$ 0.645	$ 0.684
TSS Rate ($/lb)		$ 1.164	$ 1.334	$ 1.525	$ 1.740
FOG Rate ($/lb)		$ 1.221	$ 1.380	$ 1.558	$ 1.757
Uniform Volumetric Rate per ccf	$ 7.664	$ 8.159	$ 8.733	$ 9.344	$ 9.994
COD Rate per lb.	$ 0.548	$ 0.574	$ 0.609	$ 0.645	$ 0.684
TSS Rate per lb.	$ 1.033	$ 1.164	$ 1.334	$ 1.525	$ 1.740
FOG Rate per lb.	$ 1.082	$ 1.221	$ 1.380	$ 1.558	$ 1.757
Stormwater-Only					
Total Existing Customer Wet Weather Flow to Recover		$ 66,195,901	$ 68,666,545	$ 71,045,869	$ 73,297,068
Number of Existing Customers (Excluding Stormwater-Only)		163,807	163,970	164,134	164,298
Number of Stormwater-Only Customers		500	500	500	500
Monthly Stormwater-Only Charge		$ 33.68	$ 34.90	$ 36.08	$ 37.18

San Francisco

Multi-Year Functional Cost Allocation

		Wet Weather	Dry Weather	COD	TSS	FOG	Customer Service
	% Allocation						
	Preliminary CoS Results	18%	40%	17%	17%	6%	3%
	Existing Based on Billings	21%	41%	19%	14%	5%	0%
	Years to implement adjustment to Cost of Service based Allocation				4		
FYE 2019	*100%*	20.5%	40.5%	18.8%	14.6%	5.0%	0.7%
FYE 2020	*100%*	19.5%	40.4%	18.3%	15.3%	5.2%	1.3%
FYE 2021	*100%*	18.5%	40.3%	17.8%	16.1%	5.3%	2.0%
FYE 2022	*100%*	17.5%	40.1%	17.3%	16.9%	5.5%	2.6%
FYE 2023	*100%*	17.5%	40.1%	17.3%	16.9%	5.5%	2.6%

	$ Allocation	Amount to Allocable Functions					
FYE 2019	$ 323,359,900	$ 66,195,901	$ 130,894,246	$ 60,854,838	$ 47,193,171	$ 16,081,571	$ 2,140,172
FYE 2020	$ 352,462,200	$ 68,666,545	$ 142,284,587	$ 64,569,664	$ 54,095,773	$ 18,180,057	$ 4,665,574
FYE 2021	$ 384,184,500	$ 71,045,869	$ 154,665,270	$ 68,460,378	$ 61,858,706	$ 20,526,051	$ 7,628,227
FYE 2022	$ 418,760,800	$ 73,297,068	$ 168,121,539	$ 72,528,213	$ 70,580,622	$ 23,147,009	$ 11,086,348
FYE 2023	$ 456,449,100	$ 79,893,775	$ 183,252,408	$ 79,055,722	$ 76,932,849	$ 25,230,231	$ 12,084,115
FYE 2024	$ 497,530,500	$ 87,084,386	$ 199,745,519	$ 86,170,907	$ 83,856,971	$ 27,501,006	$ 13,171,711
FYE 2025	$ 537,333,900	$ 94,051,305	$ 215,725,546	$ 93,064,746	$ 90,565,691	$ 29,701,139	$ 14,225,473
FYE 2026	$ 580,319,300	$ 101,575,180	$ 232,983,063	$ 100,509,698	$ 97,810,725	$ 32,077,158	$ 15,363,477
FYE 2027	$ 626,744,700	$ 109,701,169	$ 251,621,650	$ 108,550,449	$ 105,635,558	$ 34,643,322	$ 16,592,551
FYE 2028	$ 676,884,200	$ 118,477,249	$ 271,751,352	$ 117,234,472	$ 114,086,390	$ 37,414,784	$ 17,919,953

San Francisco Water Power Sewer

San Francisco

Allocation Year 2018

Distribution of Costs

Allocation Factor	Total Allocation	Single Family Residential	Multifamily Residential	Non-residential
Wet Weather				
Percent of Charge	*100%*	26%	42%	32%
FYE 2019	$ 66,195,901	$ 17,078,955	$ 27,866,351	$ 21,250,595
FYE 2020	$ 68,666,545	17,716,397	28,906,413	22,043,736
FYE 2021	$ 71,045,869	18,330,277	29,908,031	22,807,560
FYE 2022	$ 73,297,068	18,911,101	30,855,714	23,530,254
FYE 2023	$ 79,893,775	20,613,092	33,632,716	25,647,967
FYE 2024	$ 87,084,386	22,468,315	36,659,733	27,956,339
Dry Weather				
Percent of Charge	*100%*	26%	42%	32%
FYE 2019	$ 130,894,246	$ 33,771,531	$ 55,102,278	$ 42,020,436
FYE 2020	$ 142,284,587	36,710,311	59,897,247	45,677,030
FYE 2021	$ 154,665,270	39,904,604	65,109,117	49,651,549
FYE 2022	$ 168,121,539	43,376,405	70,773,774	53,971,360
FYE 2023	$ 183,252,408	47,280,264	77,143,385	58,828,760
FYE 2024	$ 199,745,519	51,535,589	84,086,455	64,123,475

San Francisco Water Power Sewer

San Francisco

Allocation Year 2018

Distribution of Costs

Allocation Factor	Total Allocation	Single Family Residential	Multifamily Residential	Non-residential
COD				
Percent of Charge	*100%*	25%	41%	34%
FYE 2019	$ 60,854,838	$ 15,251,748	$ 24,885,043	$ 20,718,048
FYE 2020	$ 64,569,664	16,182,776	26,404,127	21,982,761
FYE 2021	$ 68,460,378	17,157,886	27,995,135	23,307,356
FYE 2022	$ 72,528,213	18,177,388	29,658,573	24,692,252
FYE 2023	$ 79,055,722	19,813,345	32,327,833	26,914,544
FYE 2024	$ 86,170,907	21,596,589	35,237,407	29,336,911
TSS				
Percent of Charge	*100%*	27%	44%	30%
FYE 2019	$ 47,193,171	$ 12,626,716	$ 20,601,991	$ 13,964,464
FYE 2020	$ 54,095,773	14,473,534	23,615,294	16,006,945
FYE 2021	$ 61,858,706	16,550,537	27,004,171	18,303,998
FYE 2022	$ 70,580,622	18,884,120	30,811,689	20,884,814
FYE 2023	$ 76,932,849	20,583,683	33,584,728	22,764,438
FYE 2024	$ 83,856,971	22,436,258	36,607,426	24,813,287
FOG				
Percent of Charge	*100%*	25%	41%	34%
FYE 2019	$ 16,081,571	$ 4,035,279	$ 6,584,037	$ 5,462,256
FYE 2020	$ 18,180,057	4,561,842	7,443,189	6,175,026
FYE 2021	$ 20,526,051	5,150,513	8,403,674	6,971,864
FYE 2022	$ 23,147,009	5,808,178	9,476,734	7,862,097
FYE 2023	$ 25,230,231	6,330,912	10,329,636	8,569,683
FYE 2024	$ 27,501,006	6,900,708	11,259,325	9,340,973
Customer Service				
Percent of Charge	*100%*	68%	22%	10%
FYE 2019	$ 2,140,172	$ 1,455,527	$ 473,994	$ 210,651
FYE 2020	$ 4,665,574	3,173,048	1,033,306	459,219
FYE 2021	$ 7,628,227	5,187,944	1,689,459	750,824
FYE 2022	$ 11,086,348	7,539,806	2,455,345	1,091,197
FYE 2023	$ 12,084,115	8,218,385	2,676,325	1,189,404
FYE 2024	$ 13,171,711	8,958,058	2,917,200	1,296,453

San Francisco Water Power Sewer

San Francisco

Wastewater Functional Allocation

Cost Allocation Basis: 4 Year Average

	FYE 2019	4 Year Average	10 Year Average	Allocation Basis	Total Flow	Wet Weather	Dry Weather	COD	TSS	FOG	Customer Service	As All Others
EXPENSES												
Operating expenses:												
Influent Pumping/Headworks	$ 11,806,073	$ 12,344,682	$ 13,495,947	Influent/Headworks - O	$ 8,641,277	$ 1,296,192	$ 7,345,086	$ -	$ 3,703,405	$ -	$ -	$ -
Primary Clarifiers	6,869,915	7,183,330	7,853,247	Primary Clarifiers - O	2,873,332	430,999.80	2,442,332	-	4,309,998	-	-	-
Secondary Treatment	14,440,222	15,099,004	16,507,136	Secondary Treatment - O	3,019,801	452,970	2,566,831	12,079,203	-	-	-	-
Chlorination/Dechlorination	4,350,856	4,549,348	4,973,620	Combined System Flow	4,549,348	682,402	3,866,946	-	-	-	-	-
Solids Thickening	10,569,265	11,051,449	12,082,107	Solids Thickening - O	-	-	-	4,973,152	4,973,152	1,105,145	-	-
Biosolids Handling	13,398,486	14,009,742	15,316,291	Biosolids - O	0	0	0	5,884,092	7,004,871	1,120,779	-	-
Effluent Discharge	837,810	876,032	957,730	Combined System Flow	876,032	131,405	744,627	-	-	-	-	-
Recycled Water	1,293,196	1,352,193	1,478,299	Combined System Flow	1,352,193	202,829	1,149,364	-	-	-	-	-
Lift Stations	2,925,478	3,058,943	3,344,219	Pumping/Lift Stations	2,814,227	422,134	2,392,093	-	152,947	91,768	-	-
Collection System - General	24,947,491	26,085,628	28,518,373	CS - General	22,172,784	3,325,918	18,846,866	-	-	3,912,844	-	-
Collection System - Wet Weather	7,554,529	7,899,176	8,635,853	CS - Wet Weather	7,899,176	7,899,176	-	-	-	-	-	-
Cogeneration	3,291,502	3,441,665	3,762,635	Cogeneration	-	-	-	1,755,249	1,170,166	516,250	-	-
Laboratory	5,248,163	5,487,591	5,999,363	Laboratory	-	-	-	1,829,197	1,829,197	1,829,197	-	-
Customer Billing	7,639,608	7,988,137	8,733,110	Customer Service	-	-	-	-	-	-	7,988,137	-
General Plant	6,814,990	7,125,899	7,790,460	As All Others	-	-	-	-	-	-	-	7,125,899
As All Others	47,921,176	50,107,404	54,780,418	As All Others	-	-	-	-	-	-	-	50,107,404
Operating Expenses Subtotal	**$ 169,908,759**	**$ 177,660,222**	**$ 194,228,809**		**$ 54,198,170**	**$ 14,844,025**	**$ 39,354,145**	**$ 26,520,893**	**$ 23,143,736**	**$ 8,575,984**	**$ 7,988,137**	**$ 57,233,303**
Reallocation of As All Others						7,054,673	18,703,191	12,604,145	10,999,139	4,075,765	3,796,389	(57,233,303)
Total Dollar Allocation						**$ 21,898,699**	**$ 58,057,336**	**$ 39,125,038**	**$ 34,142,875**	**$ 12,651,749**	**$ 11,784,526**	**$ -**
Total Percent Allocation					**45.0%**	**12.3%**	**32.7%**	**22.0%**	**19.2%**	**7.1%**	**6.6%**	**0.0%**
				Previous Study Allocations	*52.9%*	*15.3%*	*37.6%*	*23.2%*	*17.3%*	*6.6%*	*0.0%*	*0.0%*
Other expenses:												
Programmatic Expenses	$ 6,788,600	$ 6,573,090	$ 6,615,336	Programmatic	$ 681,000	$ 681,000	$ -	$ -	$ -	$ -	$ -	$ 5,892,090
Debt Service	63,146,126	82,985,492	186,690,941	Debt Service	63,493,307	21,323,379	42,169,929	8,651,272	7,188,529	3,652,384	-	-
Non-Debt Capital Expenses	112,880,000	117,304,219	129,428,672	Future Capital	65,266,164	19,073,491	46,192,673	22,281,560	24,683,917	5,072,578	-	-
Total Other Expenses	**$ 182,814,726**	**$ 206,862,801**	**$ 322,734,950**		**$ 129,440,471**	**$ 41,077,869**	**$ 88,362,602**	**$ 30,932,832**	**$ 31,872,446**	**$ 8,724,962**	**$ -**	**$ 5,892,090**
OFFSETTING REVENUES												
Wholesale Wastewater Charges	$ (9,544,000)	$ (10,778,750)	$ (14,237,400)	Treatment Plant - O	$ (3,772,563)	$ (871,462)	$ (2,901,101)	$ (3,880,350)	$ (2,802,475)	$ (323,363)	$ -	$ -
Interest Income	(2,803,000)	(3,404,250)	(5,016,500)	As All Others	-	-	-	-	-	-	-	(3,404,250)
Rental Revenue	(634,000)	(661,750)	(722,900)	As All Others	-	-	-	-	-	-	-	(661,750)
Federal Bond Interest Subsidy	(3,493,066)	(3,493,066)	(3,274,820)	Federal Bond	(2,738,055)	(1,027,449)	(1,710,605)	(365,198)	(306,543)	(83,270)	-	-
Other Misc Income	(708,000)	(740,500)	(811,400)	As All Others	-	-	-	-	-	-	-	(740,500)
Programmatic Revenues	(3,746,177)	(3,836,025)	(4,182,412)	Programmatic	(397,429)	(397,429)	-	-	-	-	-	(3,438,597)
Non-Debt Capital Revenues	(6,115,000)	(4,995,250)	(4,782,100)	Future Capital	(2,779,276)	(812,220)	(1,967,056)	(948,832)	(1,051,133)	(216,009)	-	-
Total Offsetting Revenues	**$ (27,043,243)**	**$ (27,909,591)**	**$ (33,027,532)**		**$ (9,687,322)**	**$ (3,108,560)**	**$ (6,578,762)**	**$ (5,194,380)**	**$ (4,160,151)**	**$ (622,642)**	**$ -**	**$ (8,245,097)**
Total Rate Revenue to be Collected	$ 325,680,242	$ 356,613,432	$ 483,936,226		$ 173,951,319	$ 52,813,335	$ 121,137,984	$ 52,259,345	$ 50,856,032	$ 16,678,304	$ 7,988,137	$ 54,880,296
Reallocation as "As All Others"					31,638,885	9,605,877	22,033,007	9,505,116	9,249,876	3,033,509	1,452,911	
Total Allocation	**$ 325,680,242**	**$ 356,613,432**	**$ 483,936,226**		**$ 205,590,204**	**$ 62,419,212**	**$ 143,170,992**	**$ 61,764,461**	**$ 60,105,908**	**$ 19,711,813**	**$ 9,441,048**	
Revenue Requirements Allocation					**57.7%**	**17.5%**	**40.1%**	**17.3%**	**16.9%**	**5.5%**	**2.6%**	**0.0%**
				Previous Study Allocations	*62.1%*	*21.5%*	*40.6%*	*19.3%*	*13.8%*	*4.8%*	*0.0%*	*0.0%*

San Francisco Water Power Sewer

San Francisco

Wastewater Functional Allocation

Cost Allocation Basis: 4 Year Average

	FYE 2019	4 Year Average	10 Year Average	Allocation Basis	Total Flow	Wet Weather	Dry Weather	COD	TSS	FOG	Customer Service	As All Others
Allocation Index	**Notes:**				**Total Flow**	**Wet Weather**	**Dry Weather**	**COD**	**TSS**	**FOG**	**Customer Service**	**As All Others**
Fixed Assets	*Based on allocation of fixed assets*				79.3%	18.3%	61.1%	8.1%	2.8%	9.7%	0.0%	0.0%
Total System Flow	*Includes NPP (see "Treatment Plant Flows and Strengths Summary 2012-2016.xlsm")*				100.0%	23.1%	76.9%					0.0%
Combined System Flow	*Excludes NPP (see "Treatment Plant Flows and Strengths Summary 2012-2016.xlsm")*				100.0%	15.0%	85.0%					0.0%
Treatment Plant - O	*Based on allocation of O&M costs for all treatment plant processes*				35.0%	8.1%	26.9%	36.0%	26.0%	3.0%		0.0%
Treatment Plant - C	*Based on allocation of capital costs for all treatment plant processes*				70.5%	10.6%	59.9%	18.0%	10.0%	1.5%		0.0%
Influent/Headworks - O	*O&M costs associated with influent pumping and headworks*				70.0%	10.5%	59.5%		30.0%			0.0%
Influent/Headworks - C	*Capital costs associated with influent pumping and headworks*				82.5%	12.4%	70.1%		17.5%			0.0%
Primary Clarifiers - O	*O&M costs associated with primary clarifiers*				40.0%	6.0%	34.0%		60.0%			0.0%
Primary Clarifiers - C	*Capital costs associated with primary clarifiers*				79.0%	11.9%	67.2%	0.0%	19.0%	2.0%		0.0%
Secondary Treatment - O	*O&M costs associated with secondary treatment, including aeration*				20.0%	3.0%	17.0%	80.0%				0.0%
Secondary Treatment - C	*Capital costs associated with secondary treatment, including aeration*				40.0%	6.0%	34.0%	55.0%	5.0%			0.0%
Solids Thickening - O	*O&M costs associated with solids thickening*				0.0%	0.0%	0.0%	45.0%	45.0%	10.0%		0.0%
Solids Thickening - C	*Capital costs associated with solids thickening*				0.0%	0.0%	0.0%	77.0%	19.0%	4.0%		0.0%
Biosolids - O	*O&M costs associated with biosolids handling*				0.0%	0.0%	0.0%	42.0%	50.0%	8.0%		0.0%
Biosolids - C	*Capital costs associated with biosolids handling*				0.0%	0.0%	0.0%	45.0%	45.0%	10.0%		0.0%
CS - General	*Costs associated with the combined collection system*				85.0%	12.8%	72.3%			15.0%		0.0%
CS - Wet Weather	*Costs associated with the wet weather collection system*				100.0%	100.0%						0.0%
Pumping/Lift Stations	*Costs associated with pumping and lift stations*				92.0%	13.8%	78.2%		5.0%	3.0%		0.0%
Cogeneration	*Costs associated with cogeneration system*				0.0%	0.0%	0.0%	51.0%	34.0%	15.0%		0.0%
Laboratory	*Costs associated with the laboratory and sampling*				0.0%			33.3%	33.3%	33.3%		0.0%
Customer Service	*Wastewater costs that are associated with providing customer service*				0.0%						100.0%	0.0%
Programmatic	*Based on allocation of programmatic expenses*				10.4%	10.4%	0.0%	0.0%	0.0%	0.0%	0.0%	89.6%
Debt Service	*Based on allocation of debt service payments*				76.5%	25.7%	50.8%	10.4%	8.7%	4.4%	0.0%	0.0%
Non-Debt Capital	*Based on allocation of non-debt capital projects*				94.3%	14.1%	80.1%	3.5%	1.9%	0.3%	0.0%	0.0%
Future Capital	*Based on allocation of capital improvement projects*				55.6%	16.3%	39.4%	19.0%	21.0%	4.3%	0.0%	0.0%
Federal Bond	*Interest Subsidy based on allocation of BABs*				78.4%	29.4%	49.0%	10.5%	8.8%	2.4%	0.0%	0.0%
As All Others	*Catch all basis that uses the weighted average of the system allocation*				0.0%							100.0%

Asset Category	Notes	Value	Allocation Basis	Total Flow	Wet Weather	Dry Weather	COD	TSS	FOG	Customer Service	As All Others
Influent Pumping and Headworks		$ 34,113,040	Influent/Headworks - C	82.5%	12.4%	70.1%	0.0%	17.5%	0.0%	0.0%	0.0%
Primary Clarifiers		17,119,187	Primary Clarifiers - C	79.0%	11.9%	67.2%	0.0%	19.0%	2.0%	0.0%	0.0%
Secondary Treatment		51,357,562	Secondary Treatment - C	40.0%	6.0%	34.0%	55.0%	5.0%	0.0%	0.0%	0.0%
Chlorination/Dechlorination		19,803,020	Combined System Flow	100.0%	15.0%	85.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Solids Thickening		109,295,917	Solids Thickening - C	0.0%	0.0%	0.0%	77.0%	19.0%	4.0%	0.0%	0.0%
Biosolids Handling		13,602,923	Biosolids - C	0.0%	0.0%	0.0%	45.0%	45.0%	10.0%	0.0%	0.0%
Effluent Discharge		127,677,942	Combined System Flow	100.0%	15.0%	85.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Tertiary Treatment		-	Combined System Flow	100.0%	15.0%	85.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Lift Stations		118,065,987	Total System Flow	100.0%	23.1%	76.9%	0.0%	0.0%	0.0%	0.0%	0.0%
Collection System - General		940,751,702	CS - General	85.0%	12.8%	72.3%	0.0%	0.0%	15.0%	0.0%	0.0%
Collection System - Wet Weather		104,934,153	CS - Wet Weather	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cogeneration		11,714,315	Cogeneration	0.0%	0.0%	0.0%	51.0%	34.0%	15.0%	0.0%	0.0%
Laboratory		4,642,179	Laboratory	0.0%	0.0%	0.0%	33.3%	33.3%	33.3%	0.0%	0.0%
Customer Billing		-	Customer Service	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
General		122,621,309	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Asset Allocation Subtotal		$ 1,675,699,237			$ 283,606,948	$ 948,723,542	$ 126,047,524	$ 44,208,105	$ 150,491,808	$ -	$ 122,621,309
Reallocation of As All Other					22,391,829	74,905,270	9,951,923	3,490,395	11,881,891	-	(122,621,309)
Total Dollar Allocation		**$ 1,675,699,237**			**$ 305,998,777**	**$ 1,023,628,813**	**$ 135,999,448**	**$ 47,698,501**	**$ 162,373,699**	**$ -**	**$ -**
Total Percent Allocation				**79.3%**	**18.3%**	**61.1%**	**8.1%**	**2.8%**	**9.7%**	**0.0%**	**0.0%**
			Previous Study Allocations	*90.5%*	*34.6%*	*55.9%*	*5.7%*	*3.0%*	*0.5%*	*0.0%*	*0.3%*

San Francisco Water Power Sewer

San Francisco

Wastewater Functional Allocation

Cost Allocation Basis: 4 Year Average

	FYE 2019	4 Year Average	10 Year Average	Allocation Basis	Total Flow	Wet Weather	Dry Weather	COD	TSS	FOG	Customer Service	As All Others
Debt Issue	**Notes:**		**Value**	**Allocation Basis**	**Total Flow**	**Wet Weather**	**Dry Weather**	**COD**	**TSS**	**FOG**	**Customer Service**	**As All Others**
2010A	*Bond list of projects (2014 study)*		$ 7,232,670		78.4%	29.4%	49.0%	10.5%	8.8%	2.4%		0.0%
2010B (BABs)	*Bond list of projects (2014 study)*		12,107,574		78.4%	29.4%	49.0%	10.5%	8.8%	2.4%		0.0%
2013A	*Refunding 2003A (2014 study)*		15,606,425	Fixed Assets	79.3%	18.3%	61.1%	8.1%	2.8%	9.7%	0.0%	0.0%
2013B	*Bond list of projects (2014 study)*		14,428,000		84.1%	32.1%	52.0%	6.0%	6.4%	3.5%		0.0%
2016A	*Bond list of projects ("Debt Service Allocations.xls*		10,332,292		51.2%	21.7%	29.5%	25.6%	19.4%	3.9%	0.0%	0.0%
2016B	*Bond list of projects ("Debt Service Allocations.xls*		2,912,686	Combined System Flow	100.0%	15.0%	85.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SRF Lake Merced	*Bond list of projects ("Debt Service Allocations.xls*		125,597	CS - Wet Weather	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SRF SE Clarifiers	*Bond list of projects ("Debt Service Allocations.xls*		972,831	Primary Clarifiers - O	40.0%	6.0%	34.0%	0.0%	60.0%	0.0%	0.0%	0.0%
SRF 521/Disinfection	*Bond list of projects ("Debt Service Allocations.xls*		933,473	Combined System Flow	100.0%	15.0%	85.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SRF NP Outfall	*Bond list of projects ("Debt Service Allocations.xls*		591,450	CS - Wet Weather	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
			$ 65,242,997			$ 16,764,390	$ 33,153,898	$ 6,801,610	$ 5,651,605	$ 2,871,496	$ -	$ -
Reallocation of As All Others						-	-	-	-	-	-	-
Total Dollar Allocation			**$ 65,242,997**			**$ 16,764,390**	**$ 33,153,898**	**$ 6,801,610**	**$ 5,651,605**	**$ 2,871,496**	**$ -**	**$ -**
Total Percent Allocation					**76.5%**	**25.7%**	**50.8%**	**10.4%**	**8.7%**	**4.4%**	**0.0%**	**0.0%**
				Previous Study Allocations	*84.9%*	*32.3%*	*52.6%*	*7.3%*	*5.8%*	*1.9%*	*0.0%*	*0.0%*

Programmatic Projects	**Project Number**	**4-Year Total**	**Allocation Basis**	**Total Flow**	**Wet Weather**	**Dry Weather**	**COD**	**TSS**	**FOG**	**Customer Service**	**As All Others**
Treasure Island Facilities Maintenance	PUW511	$ 5,647,000	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Low Impact Development	PWW100	2,724,000	CS - Wet Weather	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Youth Employment Project	PYEAES06	2,788,000	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
525 Golden Gate - Operations & Maintenance	PUW514	5,436,360	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
525 Golden Gate - Lease Payments	PUW515	9,697,000	As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Total Dollar Allocation		**$ 26,292,360**			**$ 2,724,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 23,568,360**
Total Percent Allocation					**10.4%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**89.6%**

San Francisco Water Power Sewer

San Francisco

Wastewater Functional Allocation

Cost Allocation Basis: 4 Year Average

Capital Improvement Projects (Future Capital)	Project Number	FYE 2019	4 Year Average	10 Year Average	Allocation Basis	Total Flow	Wet Weather	Dry Weather	COD	TSS	FOG	Customer Service	As All Others
			4-Year Total		Allocation Basis	Total Flow	Wet Weather	Dry Weather	COD	TSS	FOG	Customer Service	As All Others
Sewer System Improvement Program													100.0%
Program Wide Efforts	CWWSIPPR/PL	$	13,229,531		As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Land Reuse	CWWSIPPR/PL		44,909,494		As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Biofuel/Alternative Energy Studies	CWWBAE		-		Cogeneration	0.0%	0.0%	0.0%	51.0%	34.0%	15.0%	0.0%	0.0%
Treatment Facilities													100.0%
Biosolids/Digester Project	CWWSIPDP		1,158,018,655		Biosolids - C	0.0%	0.0%	0.0%	45.0%	45.0%	10.0%	0.0%	0.0%
Southeast Plant - New 250 MGD Grit Improvements	CWWSIPSE02		459,137,753		Primary Clarifiers - C	79.0%	11.9%	67.2%	0.0%	19.0%	2.0%	0.0%	0.0%
Southeast Plant	CWWSIPSE		136,580,368		Treatment Plant - C	70.5%	10.6%	59.9%	18.0%	10.0%	1.5%	0.0%	0.0%
North Point Facility	CWWSIPTPNP		66,953,241		CS - Wet Weather	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Treatment Plant Improvements - SSIP	CWWSIPTP00		-		Treatment Plant - C	70.5%	10.6%	59.9%	18.0%	10.0%	1.5%	0.0%	0.0%
Westside Pump Station and Force Main	CWWSIPTPOP		59,161,638		Pumping/Lift Stations	92.0%	13.8%	78.2%	0.0%	5.0%	3.0%	0.0%	0.0%
Oceanside Plant	CWWSIPTPOP		54,270,099		Treatment Plant - C	70.5%	10.6%	59.9%	18.0%	10.0%	1.5%	0.0%	0.0%
Sewer/Collection System													100.0%
Central Bayside System Improvements	CWWSIPCT		71,949,961		Total System Flow	100.0%	23.1%	76.9%	0.0%	0.0%	0.0%	0.0%	0.0%
Collection System - Interceptors/Tunnels/Odor Control	CWWSIPCSSR		79,118,125		Combined System Flow	100.0%	15.0%	85.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Transport/Storage & Combined Sewer Discharge Structures	CWWSIPCSCD		28,011,345		Total System Flow	100.0%	23.1%	76.9%	0.0%	0.0%	0.0%	0.0%	0.0%
Pump Stations / Force Main Improvements	CWWSIPCSPS		23,173,012		Pumping/Lift Stations	92.0%	13.8%	78.2%	0.0%	5.0%	3.0%	0.0%	0.0%
Stormwater Management/Flood Control													100.0%
Collection System - Hydraulic Improvements	CWWSIP		8,584,000		CS - Wet Weather	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Drainage Basin / Early Implementation Projects	CWWSIPFCDB		(294,337)		CS - Wet Weather	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Low Impact Design Program	CWWSIPFCDB		508,000		CS - Wet Weather	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Green Infrastructure Projects	CWWSIPFCGI		1,332,309		CS - Wet Weather	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Advance Rainfall Predictions Decision System	CWWSIPFCRP		19,425,104		CS - Wet Weather	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Flood Resilience	CWWSIPFR		59,610,028		CS - Wet Weather	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Watershed Assessment	CWWSIPUW		2,918,873		CS - Wet Weather	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Renewal and Replacement													100.0%
Collection System - Salt Water Intrusion	CWWRNR		7,205,000		Combined System Flow	100.0%	15.0%	85.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Collection System - Sewer Improvements	CWWRNRCS		311,486,692		Combined System Flow	100.0%	15.0%	85.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Collection System - Condition Assessment	CWWRNROI		28,863,000		Combined System Flow	100.0%	15.0%	85.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Collection System - Spot Sewer	VARIOUS		167,851,000		Combined System Flow	100.0%	15.0%	85.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Treatment Plant Improvements - CIP	CWWRNRTF		99,132,875		Treatment Plant - C	70.5%	10.6%	59.9%	18.0%	10.0%	1.5%	0.0%	0.0%
Treasure Island													100.0%
New Wastewater Treatment Facility	CWP110		63,793,000		Treatment Plant - C	70.5%	10.6%	59.9%	18.0%	10.0%	1.5%	0.0%	0.0%
Wastewater Facilities & Infrastructure													100.0%
Ocean Beach Protection	CWWFAC01		118,085,032		CS - Wet Weather	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Collection System Division Consolidation	CWWFAC02		2,469,780		CS - General	85.0%	12.8%	72.3%	0.0%	0.0%	15.0%	0.0%	0.0%
Southeast Community Center Improvements	CWWFAC03		86,464,985		As All Others	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
SW Ocean Outfall Condition Assessment & Rehab	CWWFAC03		1,864,509		Combined System Flow	100.0%	15.0%	85.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Southeast Outfall Condition Assessment & Rehab	CWWFAC03		14,485,442		Combined System Flow	100.0%	15.0%	85.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NEW - Islais Creek Outfall			35,000,000		Combined System Flow	100.0%	15.0%	85.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		$	3,223,298,513				$ 500,591,127	$ 1,212,344,533	$ 584,788,136	$ 647,838,934	$ 133,131,772	$ -	$ 144,604,010
Reallocation of As All Other							23,512,396	56,942,929	27,467,067	30,428,517	6,253,101	-	(144,604,010)
Total Dollar Allocation		**$**	**3,223,298,513**				**$ 524,103,523**	**$ 1,269,287,462**	**$ 612,255,204**	**$ 678,267,451**	**$ 139,384,873**	**$ -**	**$ -**
Total Percent Allocation						**55.6%**	**16.3%**	**39.4%**	**19.0%**	**21.0%**	**4.3%**	**0.0%**	**0.0%**
					Previous Study Allocations	*34.6%*	*17.4%*	*17.2%*	*36.0%*	*23.3%*	*6.1%*	*0.0%*	*0.0%*

San Francisco

Customer Forecast

Forecasted -->

	2017	2018	2019	2020	2021	2022
SUMMARY						
Customer Accounts	163,481	163,644	163,807	163,970	164,134	164,298
Impermeable Area	458,039,300	458,039,300	458,039,300	458,039,300	458,039,300	458,039,300
Flow	23,659,539	24,156,924	24,156,924	24,156,924	24,156,924	24,156,924
COD	104,032,545	106,189,808	106,189,808	106,189,808	106,189,808	106,189,808
TSS	39,723,846	40,573,659	40,573,659	40,573,659	40,573,659	40,573,659
FOG	12,912,387	13,180,295	13,180,295	13,180,295	13,180,295	13,180,295
Customer Accounts						
Single Family Residential	111,183	111,294	111,405	111,516	111,628	111,740
Multifamily Residential	36,207	36,243	36,279	36,315	36,351	36,387
Non-residential	16,091	16,107	16,123	16,139	16,155	16,171
Total	**163,481**	**163,644**	**163,807**	**163,970**	**164,134**	**164,298**
Impermeable Area						
Single Family Residential	164,095,981	164,095,981	164,095,981	164,095,981	164,095,981	164,095,981
Multifamily Residential	116,094,335	116,094,335	116,094,335	116,094,335	116,094,335	116,094,335
Non-residential	177,848,984	177,848,984	177,848,984	177,848,984	177,848,984	177,848,984
Total	**458,039,300**	**458,039,300**	**458,039,300**	**458,039,300**	**458,039,300**	**458,039,300**
Flow						
Single Family Residential	6,060,407	6,232,637	6,232,637	6,232,637	6,232,637	6,232,637
Multifamily Residential	9,929,375	10,169,290	10,169,290	10,169,290	10,169,290	10,169,290
Non-residential	7,669,757	7,754,997	7,754,997	7,754,997	7,754,997	7,754,997
Total	**23,659,539**	**24,156,924**	**24,156,924**	**24,156,924**	**24,156,924**	**24,156,924**
COD						
Single Family Residential	25,878,393	26,613,827	26,613,827	26,613,827	26,613,827	26,613,827
Multifamily Residential	42,399,174	43,423,629	43,423,629	43,423,629	43,423,629	43,423,629
Non-residential	35,754,978	36,152,352	36,152,352	36,152,352	36,152,352	36,152,352
Total	**104,032,545**	**106,189,808**	**106,189,808**	**106,189,808**	**106,189,808**	**106,189,808**
TSS						
Single Family Residential	10,555,660	10,855,640	10,855,640	10,855,640	10,855,640	10,855,640
Multifamily Residential	17,294,399	17,712,269	17,712,269	17,712,269	17,712,269	17,712,269
Non-residential	11,873,787	12,005,750	12,005,750	12,005,750	12,005,750	12,005,750
Total	**39,723,846**	**40,573,659**	**40,573,659**	**40,573,659**	**40,573,659**	**40,573,659**
FOG						
Single Family Residential	3,215,882	3,307,274	3,307,274	3,307,274	3,307,274	3,307,274
Multifamily Residential	5,268,903	5,396,211	5,396,211	5,396,211	5,396,211	5,396,211
Non-residential	4,427,602	4,476,810	4,476,810	4,476,810	4,476,810	4,476,810
Total	**12,912,387**	**13,180,295**	**13,180,295**	**13,180,295**	**13,180,295**	**13,180,295**

Wastewater Enterprise FY 2018 - 2027 Ten Year CIP

San Francisco Public Utilities Commission

USES	Project	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 18-27	FY 19-28	Change
Sewer System Improvement Program														
Program Wide Efforts	CWWSIPPR/PL	16,500,000	16,590,000	16,500,000	16,500,000	12,500,000	11,500,000	11,500,000	17,590,652	10,140,652	8,910,849	129,321,304	138,232,153	8,910,849
Land Reuse	CWWSIPPR/PL	483,000	0	0	0	0	0	0	0	0	0	483,000	483,000	0
Biofuel/Alternative Energy Studies	CWWBAE	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal		**16,983,000**	**16,590,000**	**16,500,000**	**16,500,000**	**12,500,000**	**11,500,000**	**11,500,000**	**17,590,652**	**10,140,652**	**8,910,849**	**153,108,000**	**138,715,153**	**8,910,849**
Treatment Facilities														
Biosolids/Digester Project	CWWSIPDP	181,201,650	0	191,201,650	209,429,750	128,708,760	7,177,190	0	0	0	0	717,719,000	717,719,000	0
Southeast Plant - New 250 MGD Grit Improvements	CWWSIPSE02	90,133,139	92,204,646	48,343,247	0	0	0	0	0	0	0	230,681,032	230,681,032	0
Southeast Plant	CWWSIPSE	45,168,983	20,267,522	72,199,496	38,514,899	27,998,803	17,290,909	54,134,398	71,118,359	42,277,757	45,794,577	388,971,126	434,765,703	45,794,577
North Point Facility	CWWSIPTPNP	7,350,097	8,416,672	33,904,181	85,684,598	9,467,612	24,631,368	12,335,765	7,322,338	30,876,873	8,486,098	219,989,504	228,475,602	8,486,098
Treatment Plant Improvements	CWWSIPTP00	0	0	0	0	0	0		0			0	0	0
Westside Pump Station and Force Main	CWWSIPTPOP	0	0	3,212,844	0	0	0		0			3,212,844	3,212,844	0
Oceanside Plant	CWWSIPTPOP	17,345,380	48,219,969	16,193,726	12,830,831	125,699,321	14,140,955	20,365,902	4,975,901	22,910,947	4,920,244	282,682,932	287,603,176	4,920,244
Subtotal		**341,199,249**	**169,108,809**	**365,055,144**	**346,460,078**	**291,874,496**	**63,240,422**	**86,836,065**	**83,416,598**	**96,065,577**	**59,200,919**	**2,457,645,000**	**1,902,457,357**	**59,200,919**
Sewer/Collection System														
Central Bayside System Improvements	CWWSIPCT	0	20,350,000	194,746,666	294,786,666	265,183,333	2,666,666	2,666,666	2,000,000	0	0	782,399,997	782,399,997	0
Collection System - Interceptors/Tunnels/Odor Control	CWWSIPCSSR	10,533,611	24,669,310	63,805,618	64,065,113	9,306,135	23,960,109	3,338,432	19,901,544	3,680,621	3,862,783	223,260,493	227,123,276	3,862,783
Transport/Storage & Combined Sewer Discharge Structures	CWWSIPCSCD	3,012,118	2,698,199	21,497,627	20,054,467	1,795,517	1,909,007	7,728,450	7,166,597	5,415,346	21,531,122	71,277,328	92,808,450	21,531,122
Pump Stations / Force Main Improvements	CWWSIPCSPS	15,926,996	21,567,369	43,018,659	16,810,856	17,151,365	3,666,143	6,180,455	5,847,497	14,007,462	14,509,549	144,176,802	158,686,351	14,509,549
Subtotal		**29,472,725**	**69,284,878**	**323,068,570**	**395,717,102**	**293,436,350**	**32,201,925**	**19,914,003**	**34,915,638**	**23,103,429**	**39,903,454**	**1,167,511,000**	**1,261,018,074**	**39,903,454**
Stormwater Management/Flood Control														
Collection System - Hydraulic Improvements	CWWSIP	0	0	0	0	0	0	0	0	0	0	0	0	0
Drainage Basin / Early Implementation Projects	CWWSIPFCDB	2,216,255	0	0	0	0	0	0	0	0	0	2,216,255	2,216,255	0
Low Impact Design Program	CWWSIPFCDB	0	0	0	0	0	0	0	0	0	0	0	0	0
Green Infrastructure Projects	CWWSIPFCGI	21,317,718	4,693,772	25,640,312	26,874,017	27,446,283	4,714,370	6,210,306	16,363,997	2,577,742	2,577,273	135,838,517	138,415,790	2,577,273
GI for Stormwater Management (Grant)		2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	22,000,000	25,000,000	3,000,000
Advance Rainfall Predictions Decision System	CWWSIPFCRP	0	0	0	0	0	0	0	0	0	0	0	0	0
Flood Resilience	CWWSIPFR	18,843,401	30,762,194	159,990,420	18,979,131	69,335,743	161,362,370	9,878,305	12,508,848	18,190,883	39,277,236	499,851,295	539,128,531	39,277,236
Watershed Assessment	CWWSIPUW	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal		**44,377,374**	**37,455,966**	**187,630,732**	**47,853,148**	**98,782,026**	**169,076,740**	**19,088,611**	**31,872,845**	**23,768,625**	**44,854,509**	**470,755,000**	**704,760,576**	**44,854,509**
SSIP TOTAL		**432,032,348**	**292,439,653**	**892,254,446**	**806,530,328**	**696,592,872**	**276,019,087**	**137,338,679**	**167,795,733**	**153,078,283**	**152,869,731**	**3,854,081,429**	**4,006,951,160**	**152,869,731**
Renewal and Replacement														
Collection System - Salt Water Intrusion	CWWRNR	1,179,000	1,219,000	1,262,000	1,306,000	1,351,000	1,399,000	1,449,000	1,499,000	0	0	10,664,000	10,664,000	0
Collection System - Sewer Improvements	CWWRNRCS	62,299,000	64,790,000	67,382,000	70,077,000	73,582,000	77,260,000	81,124,000	85,179,000	89,438,000	93,910,000	671,131,000	765,041,000	93,910,000
Collection System - Condition Assessment	CWWRNROI	3,443,000	3,563,000	3,685,000	3,809,000	3,942,000	4,080,000	4,223,000	4,370,000	4,524,000	4,750,200	35,639,000	40,389,200	4,750,200
Collection System - Spot Sewer	VARIOUS	22,844,000	23,757,000	24,708,000	14,280,000	14,994,000	15,744,000	16,530,000	17,358,000	18,227,000	19,138,000	168,442,000	187,580,000	19,138,000
Subtotal		**89,765,000**	**93,329,000**	**97,037,000**	**89,472,000**	**93,869,000**	**98,483,000**	**103,326,000**	**108,406,000**	**112,189,000**	**117,798,200**	**915,949,000**	**1,003,674,200**	**117,798,200**
Treatment Plant Improvements	CWWRNRTF	23,000,000	24,150,000	25,357,500	26,625,375	27,956,643	29,354,475	30,822,199	32,363,309	33,981,475	35,680,548	253,610,976	289,291,524	35,680,548
Renewal and Replacement Total		**112,765,000**	**117,479,000**	**122,394,500**	**116,097,375**	**121,825,643**	**127,837,475**	**134,148,199**	**140,769,309**	**146,170,475**	**153,478,748**	**1,088,471,000**	**1,292,965,724**	**204,494,724**
Treasure Island														
New Wastewater Treatment Facility	CWP110	6,373,000	23,957,000	13,000,000	0	0	0	0	0	0	0	43,330,000	43,330,000	0
Subtotal		**6,373,000**	**23,957,000**	**13,000,000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**63,793,000**	**43,330,000**	**0**
Wastewater Facilities & Infrastructure														
Ocean Beach Protection	CWWFAC01	8,149,557	5,381,319	2,986,550	95,567,606	4,299,263	0	0	0	0	0	116,384,295	116,384,295	0
Collection System Division Consolidation	CWWFAC02	0	0	0	0	0	0	0	0	0	0	0	0	0
Southeast Community Center Improvements	CWWFAC03	66,000,000	3,500,000	3,500,000	0	0	0	0	0	0	0	73,000,000	73,000,000	0
SWOO Condition Assessment & Rehab	CWWFAC03	0	0	913,975	950,534	10,988,556	1,088,855	1,143,298	12,159,754	1,260,486	1,324,537	28,505,458	29,829,995	1,324,537
Southeast Outfall Condition Assessment & Rehab	CWWFAC03	1,056,277	1,098,528	11,142,469	1,188,168	1,235,695	15,124,437	1,429,123	1,500,579	0	0	33,775,276	33,775,276	0
NEW - Islais Creek Outfall		5,000,000	15,000,000	0	0	0	0	0	0	0	0	20,000,000	20,000,000	0
Subtotal		**80,205,834**	**24,979,847**	**18,542,994**	**97,706,308**	**16,523,514**	**16,213,292**	**2,572,421**	**13,660,333**	**1,260,486**	**1,324,537**	**106,000,000**	**272,989,566**	**1,324,537**
Total USES		**631,376,182**	**458,855,500**	**1,046,191,940**	**1,020,334,011**	**834,942,029**	**420,069,854**	**274,059,299**	**322,225,375**	**300,509,244**	**307,673,016**	**5,507,283,000**	**5,616,236,450**	**108,953,450**

SOURCES	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 17-26	FY 18-27	Change
Revenue Funding													
Revenue	106,765,000	112,979,000	117,894,500	111,597,375	117,325,643	123,337,475	129,648,199	136,269,309	141,670,475	148,978,748	1,097,486,976	1,246,465,724	148,978,748
Total Revenue Sources	**106,765,000**	**112,979,000**	**117,894,500**	**111,597,375**	**117,325,643**	**123,337,475**	**129,648,199**	**136,269,309**	**141,670,475**	**148,978,748**	**819,366,000**	**1,246,465,724**	**148,978,748**
Debt Funding													
Revenue Bonds	518,611,182	341,376,500	923,797,440	904,236,636	713,116,386	292,232,379	139,911,100	181,456,066	154,338,769	154,194,268	4,169,076,458	4,323,270,726	154,194,268
Total Debt Sources	**518,611,182**	**341,376,500**	**923,797,440**	**904,236,636**	**713,116,386**	**292,232,379**	**139,911,100**	**181,456,066**	**154,338,769**	**154,194,268**	**4,653,317,000**	**4,323,270,726**	**154,194,268**
Other Funding													
Capacity Fee - Fund Balance	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Fees	6,000,000	4,500,000	4,500,000	4,500,000	4,500,000	4,500,000	4,500,000	4,500,000	4,500,000	4,500,000	42,000,000	46,500,000	4,500,000
Total Other Sources	**6,000,000**	**4,500,000**	**4,500,000**	**4,500,000**	**4,500,000**	**4,500,000**	**4,500,000**	**4,500,000**	**4,500,000**	**4,500,000**	**34,600,000**	**46,500,000**	**4,500,000**
Total SOURCES	**631,376,182**	**458,855,500**	**1,046,191,940**	**1,020,334,011**	**834,942,029**	**420,069,854**	**274,059,299**	**322,225,375**	**300,509,244**	**307,673,016**	**5,507,283,000**	**5,616,236,450**	**307,673,016**

Wastewater Enterprise FY 2017 - 2026 Ten Year Programmatic Plan

San Francisco Public Utilities Commission

USES	Available Balance as of 6/30/2017	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 18-27	FY 19-28	Change
Program/Project															
Treasure Island Facilities Maintenance	7,728	1,331,000	1,350,000	1,390,000	1,432,000	1,475,000	1,519,000	1,519,000	1,519,000	1,519,000	1,519,000	1,519,000	14,573,000	14,761,000	188,000
Low Impact Development	323,587	681,000	681,000	681,000	681,000	681,000	681,000	681,000	681,000	681,000	681,000	681,000	6,810,000	6,810,000	0
Youth Employment Project		697,000	697,000	697,000	697,000	697,000	697,000	697,000	697,000	697,000	697,000	697,000	6,970,000	6,970,000	0
Subtotal	**331,315**	**2,709,000**	**2,728,000**	**2,768,000**	**2,810,000**	**2,853,000**	**2,897,000**	**2,897,000**	**2,897,000**	**2,897,000**	**2,897,000**	**2,897,000**	**28,353,000**	**28,541,000**	**188,000**
525 Golden Gate - Operations & Maintenance	141,170	1,149,000	1,636,600	1,251,760	1,255,000	1,293,000	1,332,000	1,372,000	1,372,000	1,372,000	1,372,000	1,372,000	13,405,360	13,628,360	223,000
525 Golden Gate - Lease Payments	2,719,323	2,424,000	2,424,000	2,424,000	2,425,000	2,424,000	2,424,000	2,414,000	2,394,000	2,373,000	2,352,000	2,330,000	24,078,000	23,984,000	(94,000)
Subtotal	**2,860,493**	**3,573,000**	**4,060,600**	**3,675,760**	**3,680,000**	**3,717,000**	**3,756,000**	**3,786,000**	**3,766,000**	**3,745,000**	**3,724,000**	**3,702,000**	**37,483,360**	**37,612,360**	**129,000**
Total USES	**3,191,808**	**6,282,000**	**6,788,600**	**6,443,760**	**6,490,000**	**6,570,000**	**6,653,000**	**6,683,000**	**6,663,000**	**6,642,000**	**6,621,000**	**6,599,000**	**65,836,360**	**66,153,360**	**317,000**

SOURCES	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 15-24	FY 17-26	Change
Infrastructure - Recovery Capital (O&M)	225,000	327,320	250,352	246,000	253,000	265,000	268,000	268,000	268,000	276,000	284,000	2,646,672	2,705,672	59,000
Infrastructure - Recovery Capital (Lease)	1,872,000	1,872,000	1,873,000	1,872,000	1,872,000	1,872,000	1,872,000	1,872,000	1,872,000	1,872,000	1,872,000	18,721,000	18,721,000	0
Federal Bond Interest Subsidy	512,000	514,000	514,000	514,000	514,000	514,000	505,000	487,000	468,000	448,000	427,000	4,990,000	4,905,000	(85,000)
Revenue	3,673,000	4,075,280	3,806,408	3,858,000	3,931,000	4,002,000	4,038,000	4,036,000	4,034,000	4,025,000	4,016,000	39,478,688	39,821,688	343,000
Total SOURCES	**6,282,000**	**6,788,600**	**6,443,760**	**6,490,000**	**6,570,000**	**6,653,000**	**6,683,000**	**6,663,000**	**6,642,000**	**6,621,000**	**6,599,000**	**65,836,360**	**66,153,360**	**317,000**

San Francisco

Wastewater Capacity Charges

CALCULATION OF WASTEWATER RATEPAYER EQUITY	2013 Equity		2018 Equity	
In City	*Original Cost as of 11/06/2012*	*Trended Original Cost*	Original Cost as of 9/20/2017	Adjusted Original Cost
Physical Assets				
Land, Building & Equipment	*$ 2,393,789,307*	*$ 8,465,894,331*	$ 2,916,140,896	$ 8,499,486,536
Construction Work-in-Progress	*$ 176,711,000*	*$ 176,711,000*	$ 548,179,000	$ 548,179,000
Accumulated Depreciation	*$ 994,354,532*	*$ 5,443,887,049*	$ 1,240,441,659	$ 5,140,812,814
Net Capital Assets	***$ 1,576,145,775***	***$ 3,198,718,282***	**$ 2,223,878,237**	**$ 3,906,852,722**
Less Debt Liabilities				
Less Outstanding Bonds & Loans	*$ 852,294,000*	*$ 852,294,000*	$ 1,185,349,000	1,185,349,000
Less Unamortized Grants	*$ 348,811,793*	*$ 755,023,383*	$ 303,551,401	$ 724,886,206
Capital Assets Net of Related Debt	***$ 723,851,775***	***$ 2,346,424,282***	**$ 1,038,529,237**	**$ 2,721,503,722**
Plus Cash Assets				
Plus Deposits with Fiscal Agent	*$ 31,305,000*	*$ 31,305,000*	20,205,000	20,205,000
Plus Cash in Capital Projects Fund	*$ 251,439,000*	*$ 251,439,000*	24,767,000	24,767,000
Plus Unrestricted Reserves	*$ 91,561,000*	*$ 91,561,000*	195,559,000	195,559,000
Ratepayer Equity	***$ 749,344,982***	***$ 1,965,705,899***	**$ 975,508,836**	**$ 2,237,148,517**
Number of EDUs	*466,000*	*466,000*	468,000	468,000
Ratepayer Equity/EDU	***$ 1,608***	***$ 4,218***	**$ 2,084**	**$ 4,780**

Calculation of System Capacity expressed as EDUs	
Total System Capacity (Gallons per Day)	106,400,000
Groundwater Infiltration (percent of treated water)	12%
Capcity Available for Users (Gallons Per Day)	93,500,000
Demand per EDU (Gallons per Day)	200
Available System Capacity (EDU's)	**468,000**

	20,205,000
	24,767,000
	195,559,000
	$ 240,531,000
Total Number of EDUs	468,000
Non-Physical Component Charge per EDU	**$ 514**

San Francisco

Wastewater Capacity Charges

CAPACITY CHARGE COMPONENTS

		Allocation Percentages					
		Wet Weather Flow	Dry Weather Flow	COD	TSS	FOG	Total
Physical Assets		18.3%	61.1%	8.1%	2.8%	9.7%	100%
Construction in Progress		16.3%	39.4%	19.0%	21.0%	4.3%	100%
Existing Debt		25.7%	50.8%	10.4%	8.7%	4.4%	100%
Physical Assets							
Land, Building & Equipment	Physical Assets	$ 1,552,087,885	$ 5,192,053,036	$ 689,816,794	$ 241,936,474	$ 823,592,348	$ 8,499,486,536
Construction Work-in-Progress	Construction in Progress	89,133,087	215,864,813	104,124,841	115,351,393	23,704,866	548,179,000
Accumulated Depreciation	Physical Assets	938,761,801	3,140,351,204	417,227,440	146,332,384	498,139,985	5,140,812,814
Net Capital Assets		**$ 702,459,171**	**$ 2,267,566,645**	**$ 376,714,194**	**$ 210,955,483**	**$ 349,157,229**	**$ 3,906,852,722**
Less Debt Liabilities							
Less Outstanding Bonds & Loans	Existing Debt	$ 304,579,086	$ 602,347,245	$ 123,573,127	$ 102,679,583	$ 52,169,959	$ 1,185,349,000
Less Unamortized Grants	Physical Assets	132,371,184	442,808,823	58,831,634	20,633,766	70,240,800	724,886,206
Capital Assets Net of Related Debt		**$ 265,508,900**	**$ 1,222,410,578**	**$ 194,309,433**	**$ 87,642,134**	**$ 226,746,471**	**$ 1,996,617,517**
Plus Cash Assets							
Plus Deposits with Fiscal Agent	As all Others	$ 2,686,848	$ 12,370,324	$ 1,966,337	$ 886,905	$ 2,294,587	$ 20,205,000
Plus Cash in Capital Projects Fund	As all Others	3,293,500	15,163,366	2,410,307	1,087,155	2,812,672	24,767,000
Plus Unrestricted Reserves	As all Others	26,005,309	119,729,186	19,031,666	8,584,122	22,208,717	195,559,000
Non-Physical Assets		**$ 31,985,656**	**$ 147,262,876**	**$ 23,408,310**	**$ 10,558,182**	**$ 27,315,976**	**$ 240,531,000**
Total Ratepayer Equity per Component		**$ 297,494,557**	**$ 1,369,673,454**	**$ 217,717,744**	**$ 98,200,316**	**$ 254,062,446**	**$ 2,237,148,517**
Total Number of EDUs		468,000	468,000	468,000	468,000	468,000	468,000
Loading Component Charge per EDU		**$ 636**	**$ 2,927**	**$ 465**	**$ 210**	**$ 543**	**$ 4,780**
		13.3%	61.2%	9.7%	4.4%	11.4%	100.0%

San Francisco

Wastewater Capacity Charges

PROPOSED WASTEWATER CAPACITY CHARGES

Meter Size	Capacity Factor	**SIC 4**	SIC 1	SIC 2	SIC 3	SIC 5	SIC 6
5/8 in	1	**$4,780**	$0	$3,902	$4,580	$4,716	$4,515
3/4 in	1.5	**$7,170**	$0	$5,854	$6,870	$7,074	$6,772
1 in	2.5	**$11,951**	$0	$9,756	$11,449	$11,790	$11,287
1-1/2 in	5	**$23,901**	$0	$19,512	$22,899	$23,580	$22,573
2 in	8	**$38,242**	$0	$31,219	$36,638	$37,728	$36,118
3 in	16	**$76,484**	$0	$62,439	$73,275	$75,456	$72,235
4 in	25	**$119,506**	$0	$97,561	$114,493	$117,900	$112,867
6 in	50	**$239,012**	$0	$195,122	$228,986	$235,800	$225,735
8 in	80	**$382,418**	$0	$312,195	$366,377	$377,281	$361,176
10 in	125	**$597,529**	$0	$487,805	$572,464	$589,501	$564,337
12 in	215	**$1,027,749**	$0	$839,024	$984,638	$1,013,941	$970,659
16 in	375	**$1,792,586**	$0	$1,463,414	$1,717,393	$1,768,503	$1,693,011

Meter Size	Capacity Factor	**SIC 7**	SIC 8	SIC 9	SIC 10	SIC 11	SIC 12
5/8 in	1	$5,350	$5,544	$5,750	$6,177	$11,511	$4,915
3/4 in	1.5	$8,024	$8,315	$8,625	$9,266	$17,266	$7,373
1 in	2.5	$13,374	$13,859	$14,375	$15,444	$28,776	$12,288
1-1/2 in	5	$26,748	$27,718	$28,750	$30,887	$57,553	$24,576
2 in	8	$42,797	$44,348	$46,000	$49,420	$92,084	$39,321
3 in	16	$85,593	$88,696	$92,000	$98,839	$184,168	$78,643
4 in	25	$133,739	$138,588	$143,750	$154,436	$287,763	$122,879
6 in	50	$267,479	$277,175	$287,499	$308,873	$575,526	$245,758
8 in	80	$427,966	$443,481	$459,999	$494,196	$920,841	$393,213
10 in	125	$668,697	$692,938	$718,748	$772,182	$1,438,815	$614,396
12 in	215	$1,150,159	$1,191,854	$1,236,246	$1,328,153	$2,474,761	$1,056,760
16 in	375	$2,006,092	$2,078,815	$2,156,243	$2,316,546	$4,316,444	$1,843,187