San Francisco Water Power Sewer

Services of the San Francisco Public Utilities Commission

April 2014

SFPUC Water and Wastewater Cost of Service Study

carollo

Engineers...Working Wonders With Water®

IN JOINT VENTURE WITH

Patricia McGovern Engineers

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

San Francisco Public Utilities Commission

Water and Wastewater Cost of Service Study | Table of Contents

This page intentionally left blank.

Introduction

CHAPTER 1
Executive Summary

The San Francisco Public Utilities Commission (SFPUC) maintains rates to equitably recover the costs from users to operate, service debt, and perform repairs and replacements for 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 rate revenue requirements and structures that are appropriate to meet the SFPUC funding needs and achieving 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.

BACKGROUND

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 and Bay Shore Districts. The SFPUC operates a combined wastewater and storm water system. The SFPUC's enterprises are operated and managed as separate financial entities with separate enterprise funds.

Cost of Service Requirements

The SFPUC activities are supported through monthly rates for service; miscellaneous installment and service fees and capacity charges; and non-operating revenues, such as interest earnings. In 1999, San Francisco voters passed Proposition H, which restricted the City's abilities to increase rates without voter approval. In November 2002, San Francisco voters passed a Charter amendment (Proposition E) that repealed a rate freeze on water and sewer rates and established a Rate Fairness Board (RFB) to facilitate public input regarding water and sewer rate setting. The passing of this amendment allows the City to fund the repair and upgrade of the system through the issuance of revenue bonds without voter approval, while at the same time also protecting ratepayers by requiring that at least every five years an independent rate study be completed. This study satisfies that requirement for water and sewer rates.

Retail rates are set by the SFPUC Commission (Commission) pursuant to the authority and provisions set forth by the San Francisco Charter (Section 8B.125). All budgets, rates, fees, and charges presented by SFPUC staff to the Commission must conform to the SFPUC Rates Policy, which is guided by four key principles: affordability; compliance; sufficiency; and transparency. The SFPUC also approves the wholesale rate in accordance with the requirements of the Water Supply Agreement with the SFPUC's wholesale water customers.

SCOPE OF SERVICES

Following a competitive proposal process, the SFPUC hired the Carollo Engineers (Carollo) – Patricia McGovern Engineers (PME) Joint Venture (Carollo/PME JV) 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 ending ("FYE") 2015 through FYE 2024 and to provide water and wastewater rate structure and revenue adjustment recommendations for the next five years.

The Study recommendations and resulting rate structures need to be in compliance with the City of San Francisco ("City") Charter based on the following objectives:

- Provide sufficient revenues for the operations, maintenance, and repair of the enterprise consistent with good utility practice;
- Provide sufficient revenues to maintain financial condition and bond ratings;
- Meet requirements and covenants under all bond indentures;
- Develop rates based on cost of service principles and requirements; and
- Develop capacity fees that equitably recover costs from new development and upsize in usage.

In accomplishing this scope, Carollo, the lead firm, led the development of the financial projections, fiscal and rate policy review, and the rate and capacity charge design. In addition, Carollo led policy discussions, which included weekly meetings with SFPUC staff. PME led the development of the wastewater cost allocation and indirect cost study. This included working with the SFPUC to explore and vet allocations and charges based on SFPUC costs.

SYSTEM OVERVIEW

Water System

The SFPUC is the largest water purveyor in Northern California, serving a population of 2.6 million people in more than 30 cities. Customers are divided into three categories: 1) retail customers in the City and County of San Francisco; 2) wholesale customer agencies on the San Francisco Peninsula, in the South Bay, and parts of the East Bay; and 3) the retail customers outside of San Francisco. Approximately one-third of the SFPUC water supply is served to retail customers; the remaining two-thirds is served to wholesale customers.

The SFPUC is nearing completion of the Water System Improvement Program (WSIP). The WSIP is a $4.6 billion multi-year capital program to enhance SFPUC's ability to provide reliable, affordable, high-quality drinking water to its 27 wholesale customers and retail customers in an environmentally sustainable manner. The WSIP is structured to meet water quality regulatory requirements, improve seismic and delivery reliability, and meet water supply reliability goals.

Wastewater System

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 began the implementation of the 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. The Commission approved the levels of service and authorized staff to commence planning and development of the first phase in August 2012. This phase consists of $2.7 billion of capital projects through the year 2021.

FINDINGS AND RECOMMENDATIONS

Carollo/PME JV'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.

On January 17th, 2014, the Governor of California declared a drought emergency, calling for voluntary water demand reductions. The City and County of San Francisco in turn requested a 10 percent voluntary reduction in water usage from its water customers. The analysis presented within this report was developed prior to the drought emergency declaration. Consequently, Carollo/PME JV recommends that the SFPUC continue to monitor rate revenues over the five-year rate period and make any necessary rate adjustments as revenues do not materialize as originally projected. Additionally, the SFPUC is required to fund a proportionate share of regional water operational and maintenance (O&M) costs. The SFPUC per capita retail water demands are amongst the lowest in California, resulting in a higher conservation potential by Bay Area Water Supply and Conservation Agency (BAWSCA) member agencies, which exhibit greater per capita water demands and outdoor irrigation usage. As a result, the SFPUC might be required to fund a greater share of costs in the future, which could also impact the study forecast.

Cost of Service Analysis

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 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 of San Francisco 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 and wastewater rates, do not exceed the proportional cost of providing the service. Article X (2) of the State Constitution establishes the need to preserve the State's water supplies and discourages the wasteful or unreasonable use of water by encouraging conservation. 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 water and wastewater rate structures are conservation oriented, conforming with regulatory standards such as BMP 1.4, and designed to promote the efficient use of water.

Water Rates

Carollo/PME JV analyzed the revenue requirements of SFPUC retail water customers, net of payments from the wholesale customers. This analysis has two main purposes: 1) it serves as

Table 1.1 | **SFPUC Water Enterprise Revenues and Expenditures**[1]

FYE	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Revenues										
Rate Revenues (prior to rate increase)	$178.9	$191.5	$215.6	$242.7	$268.3	$291.2	$316.0	$343.0	$372.3	$392.9
Wholesale Revenues	156.0	241.5	242.2	241.7	251.3	293.0	316.6	297.6	300.6	314.7
Other Non-Rate Revenues	22.0	22.6	23.3	24.0	24.7	25.5	26.2	27.0	27.8	28.7
Total Revenues	**$356.9**	**$455.7**	**$481.0**	**$508.4**	**$544.3**	**$609.6**	**$658.8**	**$667.6**	**$700.7**	**$736.2**
Expenditures										
Operations	$210.1	$217.7	$225.7	$233.9	$242.5	$251.3	$260.5	$270.1	$280.0	$290.3
Debt Service	144.7	212.3	238.1	249.9	283.5	329.1	349.3	369.8	377.3	402.0
Revenue Funded Capital	99.1	114.3	57.2	44.3	39.5	88.7	93.8	69.1	77.7	67.4
Total Expenditures	**$453.8**	**$544.3**	**$521.0**	**$528.1**	**$565.4**	**$669.1**	**$703.6**	**$709.0**	**$734.9**	**$759.7**
Annual Rate Increases										
Operating Cash Flow Surplus (Deficiency) Before Rate Increase	$(96.9)	$(88.6)	$(40.0)	$(19.7)	$(21.1)	$(59.5)	$(44.8)	$(41.4)	$(34.2)	$(23.5)
Recommended Rate Increase	6.5%	12.0%	12.0%	10.0%	8.0%	8.0%	8.0%	8.0%	5.0%	5.0%
Additional Revenue from Rate Increase	$11.6	$23.0	$25.9	$24.3	$21.5	$23.3	$25.3	$27.4	$18.6	$19.6
Operating Cash Flow Surplus (Deficiency) After Rate Increase	(85.3)	(65.6)	(14.1)	4.5	0.3	(36.2)	(19.5)	(13.9)	(15.6)	(3.8)

Note:
(1) Presented in million dollars, calculations in tables may not foot due to rounding.

a means to evaluate the fiscal health of the Water Enterprise and adequacy of current rate levels; and 2) it sets the basis for near- and long-term rate planning. The foundation of the analysis of revenues is based on relevant financial information provided by the SFPUC, including existing debt service and future payments, current reserve ending fund balances, future expenses, future revenues, and other financial information.

Based on the findings of this study, the Water Enterprise must increase retail rates by an average of 10.0 percent over the next five years in order to fund operational needs, to meet debt service obligations associated with the $4.6 billion WSIP, and to continue to meet levels of service objectives. This results in five-year annual increases of 12 percent, 12 percent, 10 percent, 8 percent, and 8 percent for FYE 2015 through FYE 2019.

The resulting revenues, expenditures, and cash flows are illustrated in Table 1.1.

The recommended rate increases are necessary to collect sufficient revenues to pay operational and capital expenditures, including the debt service obligations associated with the WSIP. As illustrated in Table 1.1, these annual increases are not sufficient to fully fund capital projects in FYE 2015 and 2016 and later years. The deficiencies represent the amount of reserves used to fund the remaining portion of capital projects. The reserves used are primarily derived from a prepayment by BAWSCA for remaining capital cost of assets in existence as of the effective date of the 2009 WSA. The prepayment is available to mitigate retail rate increases through the funding of capital projects, as the SFPUC attempts to balance rate increases with annual expenditure needs.

Existing Water Rates

The SFPUC's existing rate structure consists of two components: a commodity charge and a monthly service charge. This is a commonly applied rate structure throughout the State of California and the United States. The commodity component (volumetric) is assessed based on metered water usage per hundred cubic feet (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 and customer service functions, which must be recovered independent of monthly water demands and consumption.

For single-family residential (SFR) customers, the commodity component comprises a two-tier, inclining block rate structure. Under the current rate structure, usage above 3 Ccf is charged a higher per unit charge to reflect the added cost to supply peak water demands. Multi-family residential (MFR) is similar; however, the commodity component is per dwelling unit rather than SFR's per account. For example, a MFR complex with 10 units would have 10 times the water allotment for Tier 1 (10 units x 3 Ccf = 30 units). Non-residential customers pay a uniform commodity rate, due to the large demand and use disparity among users within that customer class. In addition to the commodity charge, all customer classes pay a monthly service charge based on the size of the meter. The SFPUC also assesses private fire protection service rates according to meter size.

Table 1.2 summarizes the current monthly water rates and charges to the various customer classes.

Recommended Water Rates

The water rate design analysis determines how the costs are recovered by each customer class through specified water 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.

The SFPUC water system comprises various facilities each designed and operated to perform a necessary function. The SFPUC's budget was analyzed line-item by line-item and operations and maintenance (O&M) expenditures, debt service, and other expenditures were distributed between the available cost categories.

Table 1.2 | **SFPUC Retail Water Rate Charges (Effective 7/1/2013)**

Meter Size	Monthly Service Charge	Monthly Fire Service Charge
5/8 in	$8.40	-
3/4 in	$10.30	-
1 in	$13.50	$1.90
1-1/2 in	$21.80	$2.40
2 in	$32.20	$5.00
3 in	$55.80	$13.80
4 in	$89.50	$29.50
6 in	$173.80	$85.40
8 in	$275.60	$182.00
10 in	$393.70	$327.50
12 in	$731.70	$528.80
16 in	$1,272.70	-

Customer Class	Tier Block (Ccf)	Commodity Rate ($/Ccf)
Residential		
Single Family	0-3	$4.20
	>3	$5.50
Multi Family	0-3	$4.50
	>3	$5.90
Non-Residential		
General Uses	All Usage	$5.40
Public Uses	All Usage	$5.40
Interruptible	All Usage	$3.25
Docks and Shipping	All Usage	$5.40
Builders and Contractors	All Usage	$5.40

- **Base**: Operating and capital costs incurred by the water system to provide a basic level of service to each customer.
- **Peak Day**: Costs incurred to meet peak day demands for water in excess of basic demand (base). This cost also includes capital costs related to sizing the system to meet excess demand. This allocation also includes basic water supply and distribution costs.
- **Peak Hour**: Similar to peak day, peak hour represents those operating and capital related costs incurred to meet peak hour demands. The size of the SFPUC's water system is designed to meet peak hour demands. This cost includes capital costs related to sizing the system to meet excess demand.
- **Customer Service**: Fixed expenditures that relate to operational support activities, including accounting, billing, customer service, and administrative and technical support. These expenditures are essentially common to all customers and are reasonably uniform across the different customer classes.
- **Meter Charges**: Meter and capacity-related costs, such as meter maintenance and peaking charges, that are included based on the meters hydraulic capacity. Additionally, as the system's facilities are designed to meet peaking requirements, a portion of the capacity-related costs, including debt service, are allocated to meter charges.
- **Fire Service**: Capacity-related costs that are incurred based on the excess capacity that must be designed into the system in order to provide private fire service.

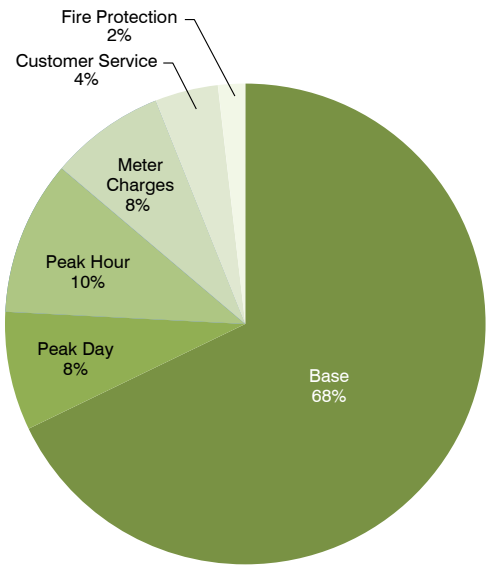


Figure 1.1 | **SFPUC Water Enterprise Functional Cost Allocation**

To account for possible year-to-year fluctuations between cost categories, the forecasted expenditures were averaged over the five-year rate period between FYE 2015 and FYE 2019.

Based on the analysis described within this report, the result of the functional allocation is presented in Figure 1.1. This allocation is built from the SFPUC's existing base and peak factors, which are used as the basis of the existing rates. The meter charges, customer service, and fire service components collectively represent 14 percent of forecasted costs. These components will be the foundation for the recommended monthly service charge. The remaining 86 percent of costs are allocated to the base and peak compo-

Table 1.3 | **Recommended Commodity Rates**

	Existing Rates	Recommended Rates				
Annual Increase		12%	12%	10%	8%	8%
Customer Class	Effective 7/1/2013	Effective 7/1/2014	Effective 7/1/2015	Effective 7/1/2016	Effective 7/1/2017	Effective 7/1/2018
Single Family Residential[1]						
Tier 1 (0-4 Ccf)	$ 4.20	$4.86	$5.45	$6.00	$6.48	$7.00
Tier 2 (>4 Ccf)	5.50	6.53	7.32	8.06	8.71	9.41
Multi-Family Residential						
Tier 1 (0-3 Ccf)	4.50	4.98	5.58	6.14	6.64	7.18
Tier 2 (>3 Ccf)	5.90	6.69	7.50	8.25	8.91	9.63
Non-Residential						
Commercial, Industrial, General	5.40	5.80	6.50	7.15	7.73	8.35
Public Uses	5.40	5.57	6.24	6.87	7.42	8.02
Interruptible	3.25	5.26	5.90	6.49	7.01	7.58
Docks and Shipping	5.40	7.67	8.59	9.45	10.21	11.03
Builders and Contractors	5.40	6.97	7.81	8.60	9.29	10.04

Note:
(1) Based on detailed analysis of usage by single family residential users, it is recommended that the tier break be increased from 3 Ccf (the current structure) to 4 Ccf. This is discussed in detail in Chapter 4.

Table 1.4 | **Recommended Monthly Service Charge**

	Existing Rates	Recommended Rates				
Annual Increase		12%	12%	10%	8%	8%
Meter Size	Effective 7/1/2013	Effective 7/1/2014	Effective 7/1/2015	Effective 7/1/2016	Effective 7/1/2017	Effective 7/1/2018
5/8 in	$8.40	$ 8.81	$9.87	$0.86	$11.73	$ 12.67
3/4 in	10.30	11.09	12.43	13.68	14.78	15.97
1 in	13.50	15.66	17.54	19.30	20.85	22.52
1-1/2 in	21.80	27.08	30.33	33.37	36.04	38.93
2 in	32.20	40.79	45.69	50.26	54.29	58.64
3 in	55.80	72.77	81.51	89.67	96.85	104.60
4 in	89.50	118.46	132.68	145.95	157.63	170.25
6 in	173.80	232.69	260.62	286.69	309.63	334.41
8 in	275.60	369.76	414.14	455.56	492.01	531.38
10 in	393.70	529.67	593.24	652.57	704.78	761.17
12 in	731.70	986.57	1,104.96	1,215.46	1,312.70	1,417.72
16 in	1,272.70	1,717.61	1,923.73	2,116.11	2,285.40	2,468.24

Table 1.5 | **Recommended Monthly Fire Service Charge**

	Existing Rates	Recommended Rates				
Annual Increase		12%	12%	10%	8%	8%
Meter Size	Effective 7/1/2013	Effective 7/1/2014	Effective 7/1/2015	Effective 7/1/2016	Effective 7/1/2017	Effective 7/1/2018
1 in	$1.90	$7.77	$8.71	$9.59	$10.36	$11.19
1-1/2 in	2.40	11.30	12.66	13.93	15.05	16.26
2 in	5.00	15.54	17.41	19.16	20.70	22.36
3 in	13.80	25.44	28.50	31.35	33.86	36.57
4 in	29.50	39.57	44.32	48.76	52.67	56.89
6 in	85.40	74.90	83.89	92.28	99.67	107.65
8 in	182.00	117.30	131.38	144.52	156.09	168.58
10 in	327.50	166.76	186.78	205.46	221.90	239.66
12 in	528.80	308.09	345.07	379.58	409.95	442.75

nents, and are the basis for the recommended commodity rates. For context, the BMP 1.4 defines rate structures that promote conservation having 70% or more revenue generated from the variable rate component.

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/PME JV analyzed various rate design alternatives and the corresponding customer and utility implications. Several criteria were considered and discussed at length with SFPUC staff.

Table 1.3 shows the recommended water commodity rates for FYE 2015 through 2019. Table 1.3 and Table 1.4 show the recommended monthly fixed service charges for FYE 2015 through 2019.

Figure 1.2 compares a typical SFR user with the current rate structure and the

recommended rates against the current rate structures of nearby utilities.

Wastewater Rates

Similar to the analysis completed for the Water Enterprise, Carollo/PME JV analyzed the revenue requirements of SFPUC wastewater customers. The following elements were analyzed in order to determine the necessary rate increases for the Wastewater Enterprise: Operation and Maintenance Expenditures; Annual Debt Service; Capital Expenditures; Policy Requirements and Coverage; and Offsetting Revenues. These components were reviewed to determine the overall revenue requirements of the utility.

Based on the findings of this study, the Wastewater Enterprise must increase rate revenues by an average of 7.6 percent over the next five years in order to fund operations and capital obligations, and to begin to fund the SSIP. Annual capital expenditures are expected to increase substantially in upcoming years with the start of the SSIP. Most notably, FYE 2018 is projected to require more than $1.4 billion in investments, and funded primarily using bonds. This increase in capital spending is one of the main driving factors for future projected rate increases. To counteract the variability and sharp increases in capital spending from year to year, the magnitude of annual rate increases has been smoothed so that the impact to customers is realized gradually over multiple years. These recommended wastewater annual rate increases are illustrated in Table 1.6.

Although the recommended rate increases result in a surplus within

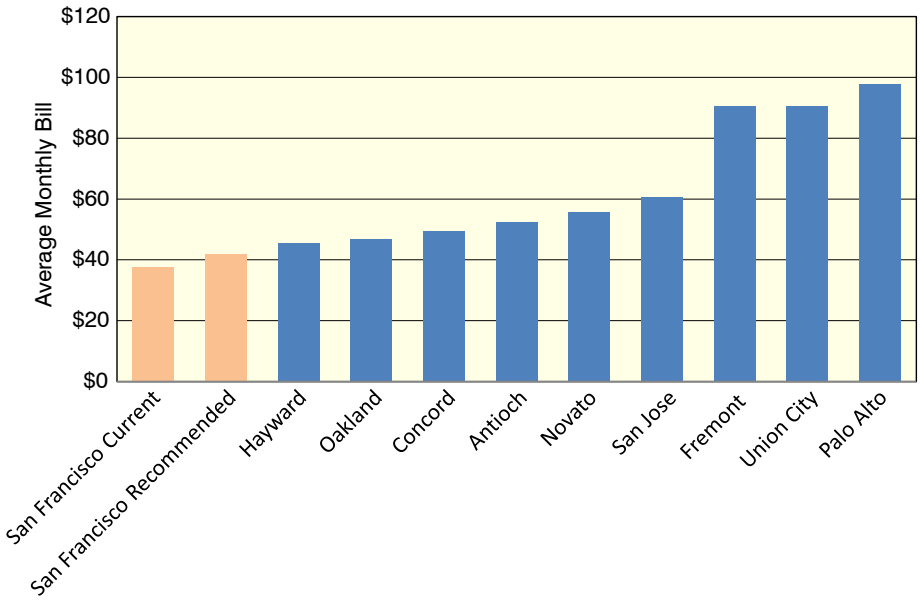


Figure 1.2 | **Local Monthly Water Bill Comparison Survey for a SFR Customer**

Table 1.6 | **SFPUC Wastewater Enterprise Revenues and Expenditures with Smoothed Rate Increases**

FYE	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Revenues										
Rate Revenue Prior to Rate Increase	$236.1	$247.9	$260.3	$273.3	$289.7	$321.6	$357.0	$396.2	$439.8	$488.2
Non-Rate Revenues	9.8	10.1	10.5	10.9	11.3	12.3	13.3	14.4	15.7	17.1
Total Revenues	**$245.9**	**$258.1**	**$270.8**	**$284.2**	**$301.1**	**$333.9**	**$370.3**	**$410.7**	**$455.5**	**$505.3**
Expenditures										
Operations	$146.4	$151.8	$157.5	$163.3	$169.4	$175.7	$182.2	$189.0	$196.1	$203.4
Debt Service	48.7	48.6	73.8	79.2	96.0	129.6	159.8	240.0	293.0	347.5
Revenue Funded Capital	41.8	42.4	44.0	45.9	47.9	50.9	53.0	55.1	58.1	57.8
Total Expenditures	**$236.8**	**$242.9**	**$275.3**	**$288.4**	**$313.3**	**$356.3**	**$395.0**	**$484.0**	**$547.2**	**$608.6**
Annual Rate Increases										
Operating Cash Flow Surplus (Deficiency) Before Rate Increase	$9.1	$15.2	$(4.5)	$(4.2)	$(12.2)	$(22.4)	$(24.8)	$(73.4)	$(91.6)	$(103.3)
Recommended Rate Increase	5.0%	5.0%	5.0%	6.0%	11.0%	11.0%	11.0%	11.0%	11.0%	12.0%
Additional Revenue From Rate Increase	$11.8	$12.4	$13.0	$16.4	$31.9	$35.4	$39.3	$43.6	$48.4	$58.6
Operating Cash Flow Surplus (Deficiency) After Rate Increase	20.9	27.6	8.5	12.2	19.6	12.9	14.5	(29.8)	(43.3)	(44.7)

Note:
(1) Presented in million dollars, calculations in tables may not foot due to rounding.

the five-year rate-setting timeframe, beyond this period expenditures are projected to increase with annual debt service payments related to funding of the SSIP. These investments and associated debt service, along with inflationary operational costs result in the annual increases in revenue needs in future years. To account for this increase and reduce the need for a rapid rate increase in a single year, it is recommended that rates are increased in advance of this requirement. For this reason, Carollo/PME JV is recommending revenue increases in FYE 2015 through 2019 slightly above the annual need in each of the respective years in order to more evenly spread the total increase over the five years of projected rate increases.

Existing Wastewater Rates

The SFPUC last performed a cost of service rate analysis in 2009. Based on the recommendations at that time, the SFPUC transitioned from a three-tiered rate structure, which was implemented in 2005, to the current two-tiered structure for residential customers. Similar to the water rates, the current wastewater rates consist of a flow-based tiered rate structure for residential customers and a uniform (non-tiered) flow-based rate for non-residential customers with an additional separate charge for each unit associated with strength. Unlike water rates, retail wastewater revenues are 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. To calculate this amount, the customer's water usage is adjusted by a return-to-sewer factor (flow factor), which represents the assumed discharge units. For non-residential 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 hundred Ccf, which is specific to user category.

Table 1.7 | **SFPUC Wastewater Enterprise Current Rates**

Single-Family Residential	
Tier 1 (0-3 units)	$7.90 per Ccf
Tier 2 (>3 units)	10.53 per Ccf
Multi-Family Residential	
Tier 1 (0-3 units)	$8.25 per Ccf
Tier 2 (>3 units)	11.01 per Ccf
Non-Residential	
Flow	$6.6203 per Ccf
COD	0.2178 per lb
TSS	0.8907 per lb
FOG	1.1145 per lb

Table 1.7 summarizes the current monthly wastewater rates and charges to the various customer classes.

Recommended Wastewater Rates

The purpose of a cost of service analysis is to provide a rational basis for the distribution of system expenditures to each customer in proportion to the demands they place on the system.

It is necessary to allocate costs to billable constituents that can both be measured at the treatment facilities and estimated or measured for each user. The O&M expenditures and the capital costs for each debt service and future capital projects were assigned to each associated billable constituents: flow and strength. 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 O&M and capital from each user through the annual user rate, based on their individual flow and loading discharges.

The SFPUC's budget was analyzed on a per line-item basis, and annual costs were attributed to the following components:

- **Flow**: Operating and capital costs incurred by the wastewater system to handle the quantity of flows discharged to or collected by the system.
- **Strength**:
  - **Chemical Oxygen Demand (COD)**: Costs incurred to remove and dispose of organic compounds.
  - **Total Suspended Solids (TSS)**: Costs associated with removing and disposing of small particles in the wastewater.
  - **Fats, Oils, and Grease (FOG)**: Costs for cleaning collection system and treating and disposing of fats, oils, and greases discharged to the sewer system.

A detail cost allocation was developed, which is discussed in detail in Chapter 6. The result of the functional allocation is presented in Figure 1.3.

Residential Rates

Residential rates are based on water consumption with a return to sewer factor and recovered through a tiered rate structure. It is recommended that the Wastewater Enterprise remove the tier structure from both SFR and MFR rates. This is explained in more detail in Chapter 6. Because the wastewater rates are based on water demands, a return to sewer factor is applied to the water consumption records to account for water used for irrigation. The return to sewer factor varies between SFR and MFR customers, recognizing the greater level of outside irrigation by SFR users. Finally, the wastewater loading strength is assumed to be commensurate for all residential wastewater users at 684 mg/L COD, 279 mg/L

SS, and 85 mg/L FOG.

Non-Residential Rates

Non-residential rates are calculated by dividing the total annual costs associated with each loading by their associated total annual loadings.

Non-residential rates are based on quantity of flow and the strength characteristics. Non-residential rates are assigned by SIC code and are derived using the same loading assumptions used as the basis of the existing rates. The cost per unit (measured in Ccf) of water discharged to the system will vary by SIC code to reflect the assumed loadings concentrations based on the commercial property type.

Recommended Rate Schedule

The annual wastewater rates from FYE 2015 through FYE 2019 are determined using the annual rate increases defined by the revenue requirement analysis. These rates are summarized in Table 1.8.

Figure 1.4 compares a typical SFR user's total combined monthly bill (water and wastewater) with the current rate structure and the recommended rates against the current rate structures of other agencies.

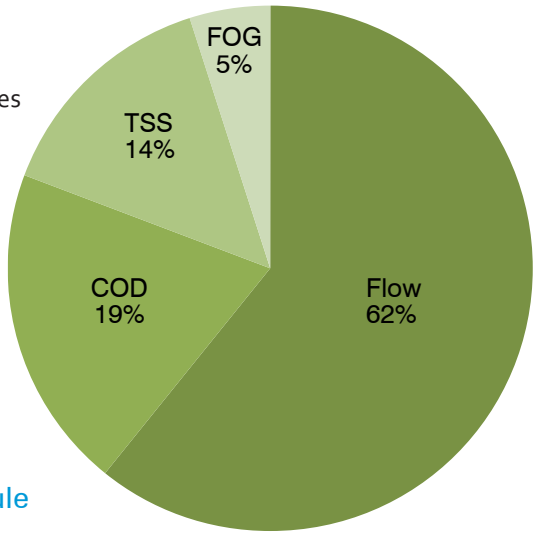


Figure 1.3 | **SFPUC Wastewater Enterprise Functional Cost Allocation**

FUTURE CONSIDERATIONS

Although it is recommended that the SFPUC implement the wastewater rates presented in Chapter 6, it is also recommended that the SFPUC continue to collect data and evaluate the feasibility and benefit of modifying the wastewater rate to include a wet weather component. Additionally, Carollo/PME JV recommends that the SFPUC implement a grant program that incents onsite mitigation of wet weather flows, which could also serve as the next step in completing the necessary analyses and assessment for implementing a wet weather related charge.

Further refinement of the parcel data will be necessary and can be conducted in parallel with defining the suitable rate structures in order to obtain an

Table 1.8 | **SFPUC Wastewater Enterprise Recommended Annual Rates**

Annual Increase		5.0%	5.0%	6.0%	11.0%	11.0%
	Effective 7/1/2013	Effective 7/1/2014	Effective 7/1/2015	Effective 7/1/2016	Effective 7/1/2017	Effective 7/1/2018
	Existing Unit Charge	Recommended Unit Charge				
Single Family Residential[(1),(2)]						
Tier 1 (per Ccf 0-4 Ccf)	$7.90	$8.77	$9.21	$9.77	$10.85	$12.05
Tier 2 (per Ccf >4 Ccf)	10.53	11.66	12.25	12.99	14.42	16.01
SFR Non-Tiered Rate (Recommended)						
All Discharge (per Ccf)	N/A	$9.93	$10.43	$11.06	$12.28	$13.64
Multi-Family Residential Tiered Rates[(1)]						
Tier 1 (per Ccf 0-3 Ccf)	$8.25	$9.01	$9.47	$10.04	$11.15	$12.38
Tier 2 (per Ccf >3 Ccf)	11.01	11.99	12.59	13.35	14.82	16.46
MFR Non-Tiered Rate (Recommended)						
All Discharge (per Ccf)	N/A	$9.93	$10.43	$11.06	$12.28	$13.64
Non-Residential Rates						
Volume of Wastewater Discharged (per Ccf)	$6.6203	$6.1452	$6.4525	$6.8397	$7.5921	$8.4273
COD (per lb)	0.2178	0.4395	0.4615	0.4892	0.5431	0.6029
Suspended Solids (per lb)	0.8907	0.8282	0.8697	0.9219	1.0234	1.1360
Oil/Grease (per lb)	1.1145	0.8671	0.9105	0.9652	1.0714	1.1893

Note:
(1) If two-tier structure is continued.
(1) The tier break at 4 Ccf is shown to remain consistent with the recommended single family residential water commodity rate structure.

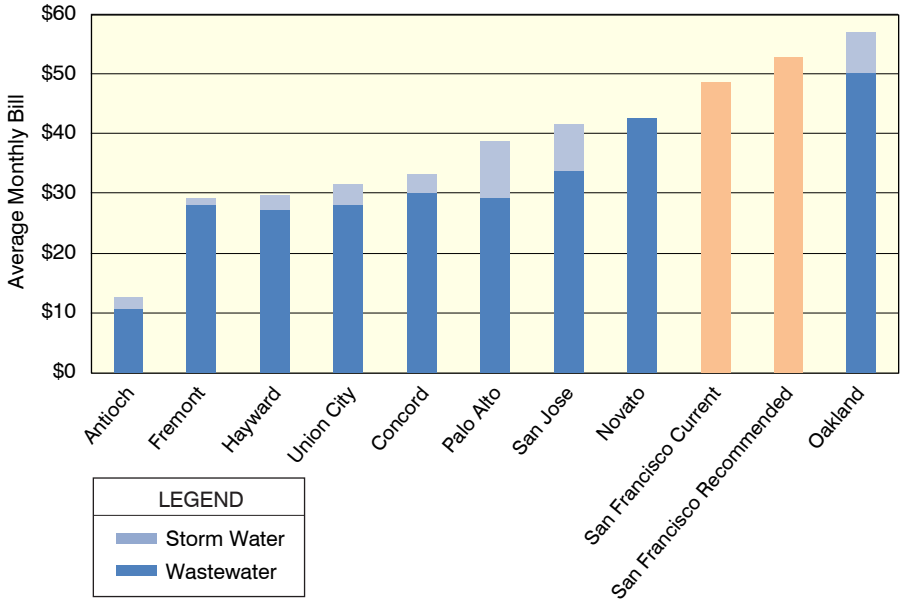


Figure 1.4 | **Single Family Residential Monthly Wastewater and Storm Water Bill Comparison Survey**

accurate depiction of the impacts to all customers. A public outreach campaign will be necessary to understand the public's receptiveness for separate wet and dry weather rate components, and to educate them on the benefits received. Finally, the customer data system must be updated to accommodate the new billing structure.

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 available capacity of the wastewater or water system. Ratepayer equity is defined as the value of the existing system, less outstanding debt principal and accumulated depreciation. Available capacity is defined as the total capacity available to be served by the system.

Existing Water Capacity Charges

The water capacity charge became effective on January 1, 2009 pursuant to Resolution No. 07-0099. 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 current water capacity charge is $1,191 per 5/8-inch meter as of July 1, 2013.

Existing Wastewater Capacity Charges

The wastewater capacity charge became effective in 2005. On January 1, 2009, the Resolution No. 05-0045 was updated and requires any user requesting a new connection or requiring additional wastewater collection and treatment capacity to pay a wastewater capacity charge. The current wastewater capacity charge is $3,514 per equivalent dwelling unit (EDU) as of July 1, 2013.

Capacity Charge Methodology

The equity buy-in capacity charge approach requires that new users buy into the wastewater or water 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

Net capital asset equity represents the current value of the physical wastewater or water systems funded by existing ratepayers, net of accumulated depreciation. Capital costs not funded by existing ratepayers, such as grant-funded 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 paid for by ratepayers. This analysis includes only the net capital assets associated with the portion of the SFPUC system that provides service to inside-City service area and suburban retail customers. Regional and wholesale assets are not included in the calculations.

Recommended Capacity Charges

The recommended capacity charge is calculated by dividing the ratepayer equity by available capacity. These calculations are illustrated in Table 1.9 and discussed in detail in Chapter 8.

Based on the methodology delineated within Chapter 8, it is recommended that the SFPUC adopt a water capacity charge of $1,239 per 5/8-inch meter equivalent (ME) and wastewater capacity charge of $4,218 per 5/8-inch ME.

It is recommended that the SFPUC impose both the water capacity charge and wastewater capacity charge based on the size of the assessed water meter. For the water system, meter size is commensurate with capacity, as well as water flow rates and pressure requirements, and is considered a reasonable estimation of a new customer's potential demand on the system. It is assumed that the greater the size of the meter, the greater the capacity demand that the user will place on the water system. Meter Equivalents also provide a reasonable estimation of wastewater discharged back into the system, which provides a sound basis for imposing the wastewater capacity charge. This approach is addressed in detail in Chapter 8. As with the existing wastewater capacity charge, non-residential capacity charges will also reflect the assumed discharge strength.

Table 1.9 | **SFPUC Recommended Capacity Charge Calculation for FYE 2015**

	Water Capacity Charge	Wastewater Capacity Charge
Ratepayer Equity	$786,620,828	$1,965,705,899
Number of ME's or EDU's	635,000	466,000
Recommended Ratepayer Equity per EDU or ME	$1,239	$4,218
Existing Ratepayer Equity per EDU or 200 gpd of Flow	$1,191	$3,514
Recommended Percentage Increase	4.0%	20.0%

This page intentionally left blank.

CHAPTER 2
Background

Introduction

The San Francisco Public Utilities Commission (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 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. The Wastewater Enterprise provides wastewater and storm water collection, treatment and disposal services for the City. Hetch Hetchy Water and Power operates the Hetch Hetchy Project, comprised of dams (including O'Shaughnessy Dam), reservoirs (including Hetch Hetchy Reservoir), hydroelectric generator and transmission facilities and water transmission facilities from Hetch Hetchy Valley to the connection with the Water Enterprise and, through the SFPUC's Power Enterprise, provides hydroelectric, solar and other power for municipal and public infrastructure, services and facilities (the "Power Enterprise"). The SFPUC's enterprises are operated and managed as separate financial entities with separate enterprise funds.

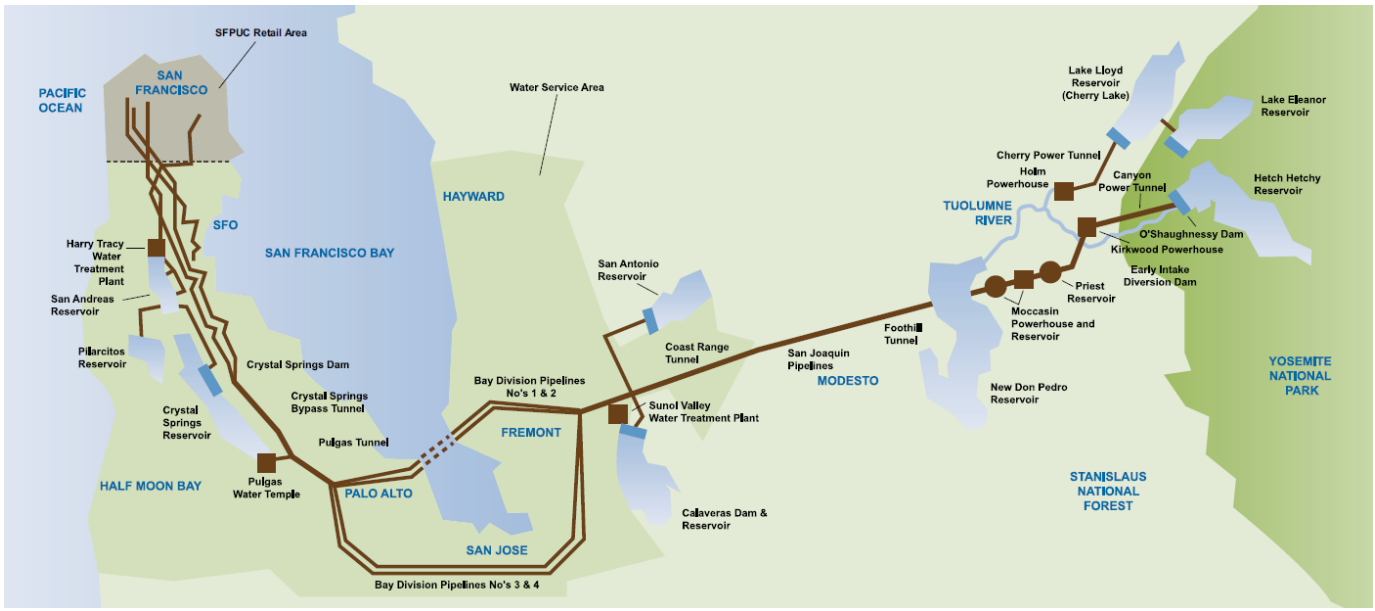


Figure 2.1 | **The SFPUC Water Service Area**

ORGANIZATIONAL STRUCTURE

The SFPUC is organized along specific functional enterprise activities, and includes separate common support services divisions and is headed by the General Manager. The General Manager reports directly to the five-member Commission, and has overall responsibility for providing high quality and reliable services, and with meeting present and future needs in an environmentally responsible and fiscally prudent manner. Each functional enterprise activity is headed by an Assistant General Manager. The specific enterprise divisions include: water, wastewater, and power. The common support bureaus include: infrastructure, external affairs, and the Business Services Bureau. The Infrastructure Division is responsible for managing the major capital construction programs for the enterprise divisions. The External Affairs Bureau is responsible for the external public outreach services, policy development, and alignment. Business Services has the responsibility for financial services, customer support, Information Technology, Human Resources, Assurance of Internal Controls, Fleet and Records Management for the SFPUC.

Within the SFPUC, the Water Enterprise is responsible for the day-to-day operation and maintenance, 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 (WWE) is responsible for the day-to-day operation and maintenance, and for the long-term planning of sewer collection, treatment, and disposal facilities for the City and County of San Francisco. The Hetch Hetchy Water and Power Enterprise is responsible for the generation, transmission, and distribution of hydro-power from Hetch Hetchy to selected municipal customers within San Francisco and the Modesto and Turlock Irrigation Districts.

WATER ENTERPRISE FACILITIES

The SFPUC is the largest water purveyor in Northern California, serving a population of nearly 2.6 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.

The SFPUC Water Service Area is shown in Figure 2.1. 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). Average annual water production of the SFPUC is approximately 300 million gallons per day (mgd). About 85 percent (255 mgd) is derived from the Hetch Hetchy system, 10 percent (29 mgd) from the Alameda Reservoirs, and 5 percent (15 mgd) from the Peninsula Reservoirs.

The Water System Improvement Program (WSIP)

The WSIP is a $4.6 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, including sustainability and environmental stewardship policies. The objectives of the program are to:

- Furnish system improvements to provide high quality water that reliably meets current and foreseeable local, state, and federal requirements.
- Reduce vulnerability of the water system to damage from earthquakes.
- Increase reliability of the system to deliver water by improving redundancy needed to accommodate planned outages for maintenance and unplanned outages resulting from facility failure.
- Provide near-term improvement of water supply/drought protection.
- Set forth long-term water supply/drought management options for technical evaluation, cost analysis, and environmental review.
- Enhance sustainability through improvements that optimize protection of the natural and human environment.

As of June 30, 2013, more than two thirds of all projects have been completed. Rate increases are recommended to accommodate the remaining $1.1 billion to be spent on the WSIP, as will be discussed in Chaper 3.

Figure 2.2 | **Wastewater Facilities and Dry Weather Capacities**

WASTEWATER ENTERPRISE FACILITIES

The wastewater collection, treatment and disposal/reuse system consists of a combined sewer system (which treats 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 collection system consists of approximately 900 miles of sewer system piping 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 (Figure 2.2). Wet weather flows receive either secondary treatment at Oceanside or Southeast facilities, or primary treatment at the North Point wet weather facilities.

As shown in Figure 2.3, wet weather flows receive an equivalent of primary treatment within the transport storage structures that surround the perimeter of San Francisco before being discharged to the Bay and/or Pacific Ocean.

As a result from the last major wastewater system upgrade in the 1970s, the transport storage structures were designed to capture, store, and treat combined sanitary and wet weather flows. They were designed to allow for some overflows of wet weather primary treated flow while still protecting receiving waters.

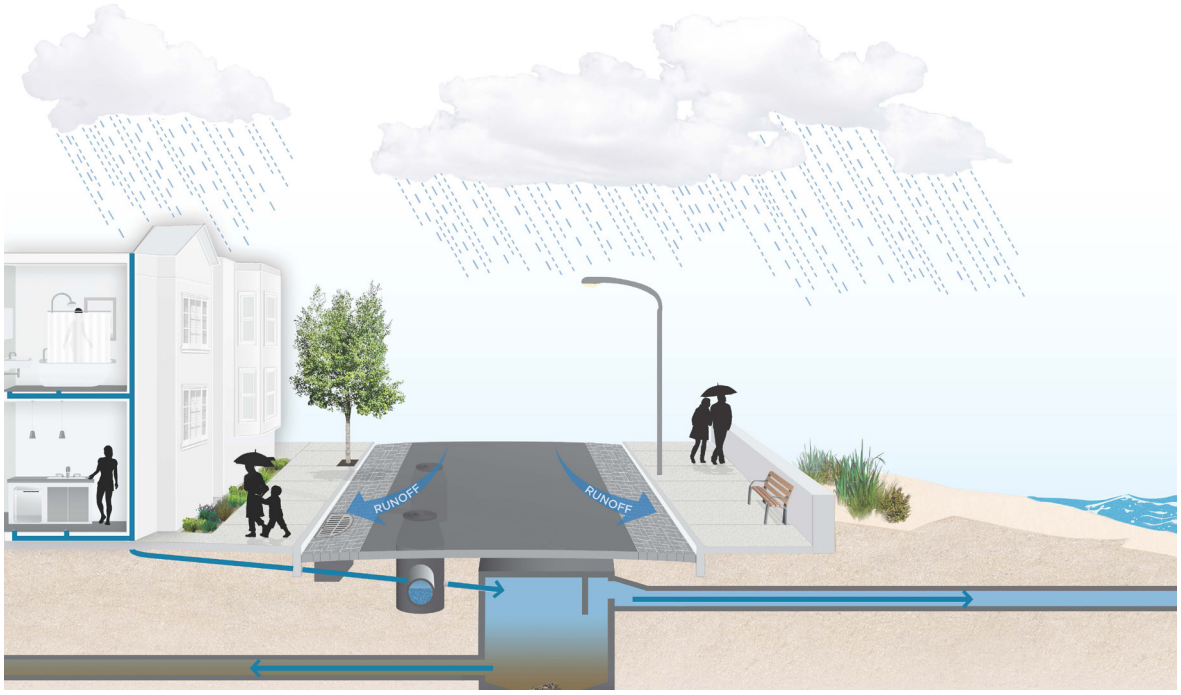


Figure 2.3 | **San Francisco Combined System and Transport Storage Structures Illustration**

The Sewer System Improvement Program (SSIP)

Due primarily to aging infrastructure requirements, but also to meet anticipated regulatory requirements and future capacity needs, the SFPUC is developing the Sewer System Improvement Program (SSIP). The SSIP will help the SFPUC to meet the level of service goals for the WWE.

The SSIP has been organized for future implementation in three phases. The Commission approved the levels of service and authorized staff to commence planning an development of the first phase in August 2012 by unanimous vote . This phase consists of $2.7 billion of capital projects through the year 2021.

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. These goals and objectives are presented in Table 2.1.

This level of funding is the basis for the analysis of sewer system rates and charges developed in this report.

Provide a Compliant, Reliable, Resilient, and Flexible System that can Respond to Catastrophic Events	Integrate Green and Grey Infrastructure to Manage Storm Water and Minimize Flooding	Provide Benefits to Impacted Communities
The SSIP will ensure treatment of flows within 72 hours of a major earthquake.	The use of innovative green storm water projects together with upgrades to sewer pipelines (grey) will minimize storm water impacts on neighborhoods and the sewer system.	SSIP projects will provide both economic and job benefits to the communities it serves.
Modify the System to Adapt to Climate Change	**Achieve Economic and Environmental Sustainability**	**Maintain Ratepayer Affordability**
New facilities will be built using a climate change design criterion so that the sewer system will be better able to respond to rising sea levels and other impacts.	The SFPUC will beneficially reuse and conserve the by-products of our wastewater and storm water treatment systems.	Through the multi-phased SSIP implementation approach, the SFPUC will keep the average customer bills less than 2.5% of an average household income for a single-family residence.

Table 2.1 SFPUC Wastewater SSIP Goals and Objectives

COST RECOVERY

The SFPUC activities are supported through monthly rates for service; miscellaneous fees and capacity charges; and non-operating revenues, such as interest earnings. In 1999, San Francisco voters passed Proposition H, which restricted the City's abilities to increase rates without voter approval. In November 2002, San Francisco voters passed a Charter amendment (Proposition E) that repealed a rate freeze on water and sewer rates and established a Rate Fairness Board (RFB) to facilitate public input regarding water and sewer rate setting. The passing of this amendment allows the City to fund the repair and upgrade of the system through the issuance of revenue bonds without voter approval.

Retail rates are set by the SFPUC Commission (Commission) pursuant to the authority and provisions set forth by the San Francisco Charter (Section 8B.125). All budgets, rates, fees, and charges presented by SFPUC staff to the Commission must conform to the SFPUC Rates Policy, which is guided by four key principles: affordability; compliance; sufficiency; and transparency. The SFPUC also approves the wholesale rate in accordance with the requirements of the Water Supply Agreement with the SFPUC's wholesale water customers.

RATEPAYER ASSURANCE SCORECARD

The SFPUC attempts to balance efficient use of rate payer revenues with environmental and safety concerns. In order to do so, the office of the controller developed a Ratepayer Assurance Scorecard, which determines the effectiveness of the current rates using tangible metrics. The scorecard evaluates the following nine key benchmark measures from the SFPUC strategic sustainability plan in order to assess the needs of the utility:

1. Preventative maintenance ratio
2. Number of incidents of fines/ sanctions
3. Average residential bill as a percentage of SF median income
4. Cost per person per day
5. Credit rating
6. Percent of calls answered within 20 seconds
7. Amount of water sold to SF residential customers and unauthorized discharges from combined sewer system
8. Percent of local hire employee hours
9. Recordable injury rate

These measures used are categorized as either asset management, mission management sustainability, or personal management and average together to give an overall score.

This scorecard is an innovate means to evaluate the utility's performance; it is recommended that this scorecard be continuously updated to reflect an accurate depiction of the success of the Enterprises. An example of this scorecard is presented in the appendix of this report.

This page intentionally left blank.

CHAPTER 3

Water Enterprise Revenue Requirements

Introduction

The San Francisco Public Utilities Commission (SFPUC) is the third largest municipal utility in California and provides retail and wholesale water service to nearly 2.6 million residential, commercial, and industrial customers in the Bay Area. Approximately one-third of delivered water is sent to retail customers in San Francisco, while wholesale deliveries to 27 suburban agencies comprise the other two-thirds. These wholesale agencies are collectively represented by the Bay Area Water Supply and Conservation Agency (BAWSCA). The SFPUC entered into a Water Supply Agreement (WSA) in 2009 that details the annual wholesale revenue requirements to be collected from wholesale agencies.

Carollo/PME JV analyzed the revenue requirements of SFPUC retail water customers, net of payments from the wholesale customers. This analysis has two main purposes: 1) it serves as a means to evaluate the fiscal health of the Water Enterprise and adequacy of current rate levels; and 2) it sets the basis for near- and long-term rate planning. The foundation of the analysis of revenues is based on relevant financial information provided by the SFPUC, including existing debt service and future payments, current reserve ending fund balances, future expenses, future revenues, and other financial information.

Based on the findings of this study, it is recommended that the Water Enterprise increase retail rates by an average of 10.0 percent over the next five years in order to fund operational and capital needs, to meet debt service obligations associated with the $4.6 billion Water System Improvement Program (WSIP), and to continue to meet levels of service objectives. These recommended rate increases are discussed in detail within this chapter.

On January 17th, 2014, the Governor of California declared a drought emergency, calling for voluntary water demand reductions. The City and County of San Francisco in turn requested a 10 percent voluntary reduction in water usage from its water customers. The analysis presented within this report was developed prior to the drought emergency declaration. Consequently, Carollo/PME JV recommends that the SFPUC continue to monitor rate revenues over the five-year rate period and make any necessary rate adjustments as revenues do not materialize as originally projected. Additionally, retail customers of the SFPUC are required to fund a proportionate share of regional water operational and maintenance (O&M), relative to wholesale customers. The SFPUC per capita retail water demands are amongst the lowest in California, resulting in a higher conservation potential by Bay Area Water Supply and Conservation Agency (BAWSCA) member agencies, which exhibit greater per capita water demands and outdoor irrigation usage. As a result, the SFPUC might be required to fund a greater share of costs in the future, which could also impact the study forecast.

REVENUE REQUIREMENTS OVERVIEW

A revenue requirements analysis determines the annual system revenue necessary to be recovered through water rates and charges in order to meet the Water Enterprise's expected financial obligations. The revenue requirement comprises five components: 1) Operations and Maintenance Expenditures; 2) Annual Debt Service; 3) Capital Expenditures; 4) Policy Requirements and Coverage; and 5) Offsetting Revenues.

The revenue requirement analysis considered the following two tests to determine whether rates are sufficient:

- **Cash Flow Test** - The Water Enterprise must generate annual utility revenues adequate to meet general cash needs.
- **Bond Coverage Test** - Annual rate revenues must satisfy debt coverage obligations, as required by indenture.

The cash flow test identifies the amount of annual revenues that must be generated in order to meet annual expenditure obligations. These obligations include operations and maintenance (O&M) expenses, debt service payments, policy-driven additions to working capital, replacement funding, and rate-funded capital expenditures. These expenses, less offsetting revenues from other sources, are compared to total annual projected retail revenues. Shortfalls are then used to estimate the need for rate increases.

The bond coverage test measures the ability of a utility to meet both legal and policy-driven revenue obligations. The SFPUC is required to collect sufficient funds through rates so that the annual net revenues for operational expenditures plus available reserves meet or exceeds 1.25 times total annual debt service. This coverage factor is set by indenture in order to maintain compliance with the SFPUC's legal obligations. In addition, the SFPUC must maintain net revenues alone at 1.00 times total annual debt service.

While Carollo/PME JV analyzed the annual cash flow of the Water Enterprise, the main driver was the indenture requirement. The SFPUC has the ability to use reserves to satisfy the annual cash flow test in order to minimize rate spikes.

The following section explains the cost categories included in the annual revenue requirement analysis for the Water Enterprise.

DATA AND ASSUMPTIONS

Operating Needs

Operating needs are expenditures that the utility incurs in the day-to-day operations of its systems, such as employee salaries and benefits, system maintenance, fuel, and chemicals. As part of the multi-year budget, an operating forecast is developed for the Water Enterprise. The operating budget expenditures include costs related to administration, retail distribution, water quality, water supply and treatment, natural resources, water resources, and other miscellaneous expenses.

The SFPUC's FYE 2014 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 any anomalies or one-time expenditures not appropriate to include when projecting into future years. Staff also reviewed the budget to identify costs that may need to be adjusted due to future operational changes. This includes any incremental costs due to the WSIP. Unless adjusted based on specifically known future changes, costs incurred in future years were projected using escalation factors that were reviewed with SFPUC staff. In the past, costs of the SFPUC have been escalated at 3.0 percent annually, regardless of cost category. To refine this broad assumption, individual line item costs were assigned one of the escalation factors shown in Table 3.1 to better account for variability between cost categories. These escalation factors were then applied to the appropriate categories of expenditures to forecast costs incurred by the utility.

Table 3.1 | **SFPUC Cost Escalation Factors**

Cost Escalator[(1)]	Description
Labor Cost Inflation	Labor and fringe benefit rates are assumed to increase at 4.0%.
Construction Cost Inflation	Although capital cost inflation is commonly linked to the Engineering News Record (ENR) Construction Cost Index (CCI), the inflation rate assumes a long-term average of 3.5%.
General Cost Inflation	This rate applies to most expenses in the operating expense forecast, and the City's expected long-term inflation rate of 3.0%.
Power and Chemicals Inflation	Costs associated with power and chemicals are assumed to increase by 5% annually. In general, power and chemical costs tend to increase more rapidly than general costs.
Customer Account Growth	Customer accounts are projected to increase at an annualized rate of 0.5%. Fixed monthly charges will increase based on this growth rate.
Demand Change	The SFPUC projects continued conservation and per capital water demand reductions. Coupled with customer account growth, the annualized aggregate water demand is projected to remain flat for the forecast period.

Note:
(1) Sources were reviewed with SFPUC staff for concurrence of escalation factors.

Table 3.2 | **SFPUC Water Enterprise Operating Expenditures**

Department	Expenditures[1]									
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Administration	$91.8	$94.9	$98.2	$101.5	$105.0	$108.6	$112.4	$116.2	$120.2	$124.4
City Distribution	36.0	37.3	38.7	40.2	41.7	43.2	44.8	46.5	48.3	50.1
Water Quality	15.2	15.8	16.3	16.9	17.6	18.2	18.9	19.6	20.3	21.1
Water Supply and Treatment	48.1	50.0	52.0	54.1	56.3	58.5	60.8	63.3	65.8	68.5
Natural Resources	10.7	11.1	11.6	12.0	12.5	12.9	13.4	14.0	14.5	15.0
Water Resources	8.3	8.6	8.9	9.2	9.5	9.8	10.2	10.5	10.9	11.2
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Expenditures	$210.0	$217.7	$225.7	$233.9	$242.5	$251.3	$260.5	$270.1	$280.0	$290.3

Note:
(1) Presented in million dollars, calculations in tables may not foot due to rounding.

In future years, there will be additional incremental O&M costs associated with capital assets from the WSIP. These will be in addition to the escalated O&M costs discussed above. For FYE 2015, the total operating costs of the utility are projected to be $217.7 million. These costs, along with costs for FYE 2016 through 2023 were estimated using the FYE 2014 budget and applying appropriate annual escalation factors presented in Table 3.1. The details of these costs are shown in Table 3.2.

Capital Funding

The WSIP is one of the largest water infrastructure programs in the nation and the largest infrastructure program ever undertaken by the City of San Francisco, since the initial building of the water system. The WSIP reached the peak of construction in 2012 with 18 projects valued at $2.6B in construction with all major projects launched. Currently, more than two thirds of the 81 WSIP projects have been completed. The program is funded by bond measures approved by San Francisco voters in November 2002, and will be paid for by both retail customers in San Francisco and the 27 wholesale customers. The WSIP provides regional water supply reliability including supply, transmission, treatment, and regional storage. These costs are shared by both retail and wholesale users. In addition to the regional system, the SFPUC also operates a retail distribution system that solely benefits the retail customers and, as a result, costs associated with this system are fully borne by retail customers.

BAWSCA Prepayment

In FYE 2013, the SFPUC received a prepayment from BAWSCA in the amount of $356 million, paying off debt service obligations on assets in service as of the effective date of the 2009 WSA, as permitted by section 5.03.F thereof. A portion of this payment, $109 million, was used to reduce principal payments on existing debt as a benefit to retail water customers only. This is applied to specific bonds and reduces the annual debt service payment required of retail customers until FYE 2019, which results in an aggregate reduction of $111 million, which includes the resulting decrease in interest of $2 million. Another portion of the prepayment will be used to fund anticipated capital projects to reduce the need for funding directly from rate revenues. The remaining $247 million reflects reserves to be used at a future time.

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 the capital improvement program, 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. The source of funding for routine or annual repair and replacement (R&R) projects should more appropriately be funded on a pay-as-you-go basis.

Table 3.3 | **SFPUC Water Enterprise Debt Service**

FYE	Original Annual Payment[(1)]	Less Defeasance from BAWSCA[(1)]	Adjusted Annual Payment[(1)]
2014	170.6	(25.9)	144.7
2015	235.5	(23.2)	212.3
2016	257.3	(19.1)	238.1
2017	267.7	(17.8)	249.9
2018	296.8	(13.3)	283.5
2019	332.7	(3.6)	329.1
2020	349.3	-	349.3
2021	369.8	-	369.8
2022	377.3	-	377.3
2023	402.0	-	402.0

Source: SFPUC provided schedule of annual payments on existing debt.
Note:
(1) Presented in million dollars, calculations in tables may not foot due to rounding.

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. As noted above, a portion of the prepayment received from BAWSCA was used to reduce debt obligations of the retail customers.

In addition to annual payments for existing debt, the SFPUC anticipates issuing additional bonds to finance WSIP projects, as well as a portion of R&R projects. The following assumptions were made to calculate projected annual payments necessary on new debt issuances:

- Term of 30 years.
- Annual interest rate of 5 percent.
- Three years of capitalized interest.

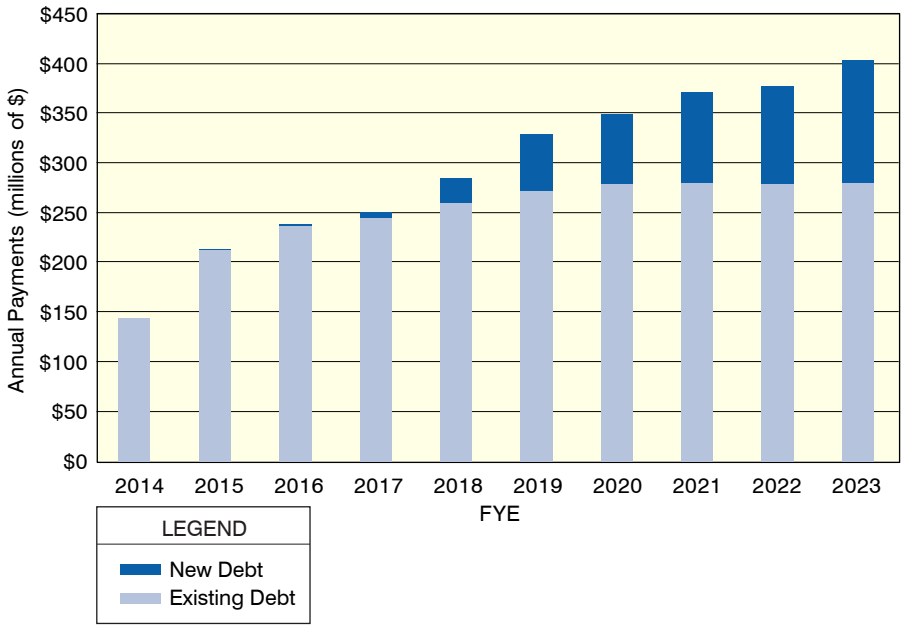


Figure 3.1 | **SFPUC Water Enterprise Projected Annual Debt Service Payments**

Because the SFPUC uses three years of capitalized interest, debt service payments begin three years following the date of issuance. This delays the impact to annual rate revenue requirements, which allows the SFPUC to increase rates over a multi-year period ahead of forecasted payments, instead of implementing increases in a single year. This use of long-term debt is a reasonable approach as it also allows the SFPUC to more accurately match the capital expenditures with the ratepayers benefitting from the projects by having both existing and future customers pay for these improvements. Table 3.3 summarizes the assumed total debt schedule of the utility including both existing and future debt after the BAWSCA prepayment is applied to the existing debt. This amount also includes a portion of Hetch Hetchy debt for which the Water Enterprise is responsible.

Revenue Funded Capital

In addition to issuing debt, the SFPUC funds a portion of R&R projects through current year revenues. 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. All local projects are funded solely through retail rates, while the regional projects are split between wholesale and retail revenues proportional to their total annual deliveries. These amounts are summarized in Table 3.4 and shown in Figure 3.2.

Carollo/PME JV recommendeds the SFPUC maintain an active pay-as-you-go program, rather than relying exclusively on debt, which would spread replacement costs to future generations. The pay-as-you-go funding strategy would also tie to the SFPUC Asset Management Program. Based on the rate increase recommendations presented later in Table 3.9, the SFPUC would have some financial capacity to increase annual funding in FYE 2017 and 2018.

Policy Requirements and Coverage

As of the beginning of FYE 2014, the SFPUC's available reserves totaled approximately $252 million. The SFPUC's available reserves act in part as an operating reserve. Per SFPUC policy, the amount held in these reserves must be equal to or exceed 15 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.

In addition, by indenture, the SFPUC is required to maintain at least 1.25 times coverage ratio of annual debt service inclusive of reserves. This coverage is calculated as the ratio of net revenues available, including reserves, to total annual debt service requirements. In addition, the SFPUC maintains at least 1.00 times coverage ratio of net revenues for operating expenditures, excluding reserves, to total annual debt service requirements. The actual coverage ratio, including and excluding reserves, is expected to be 2.27 times and 1.10 times, respectively for FYE 2014.

Due to the remainder of the BAWSCA prepayment being placed in these unrestricted reserves, no additional revenue must be collected to meet these requirements during the five year rate-setting time frame. However, in future years, this prepayment may be applied to rate-funded capital or be used to reduce the need for future revenue bonds. As a result, this prepayment will no longer be available to meet these reserve requirements, which could trigger the need to collect additional revenue to meet the operating reserve and debt coverage requirements.

Table 3.4 | **SFPUC Annual Revenue Funded Capital**

FYE	Regional Revenue[1]	Local Revenue[1]	BAWSCA Prepayment[1]	Total[1]
2014	35.1	2.3	61.7	99.1
2015	48.9	1.0	64.4	114.3
2016	53.3	3.9	-	57.2
2017	44.3	-	-	44.3
2018	39.5	-	-	39.5
2019	68.7	20.0	-	88.7
2020	68.8	25.0	-	93.8
2021	28.9	30.0	-	58.9
2022	28.4	35.0	-	63.4
2023	11.4	40.0	-	51.4

Source: 10-year CIP provided by SFPUC staff. The BAWSCA Prepayment column benefits only the retail ratepayers.
Note:
(1) Presented in million dollars, calculations in tables may not foot due to rounding.

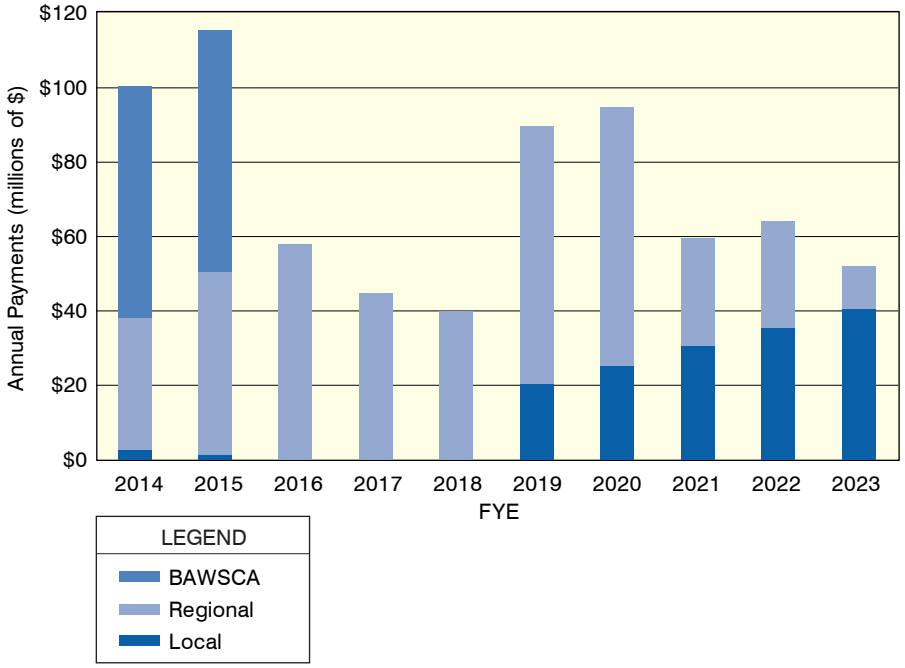


Figure 3.2 | **SFPUC Water Enterprise Projected Revenue Funded Capital**

Offsetting Revenues

Beyond retail water rates and charges, the SFPUC collects revenues through other funding sources, such as capacity charges, interest earnings, late payments, lease revenues, and most notably, revenues from wholesale

customers. These offsetting revenues reduce the total rate revenue that must be collected from retail customers. Similar to the operating costs, most offsetting revenues are escalated from FYE 2013 revenues, by applying factors discussed with and approved by the SFPUC. These factors were discussed in Table 3.1. Additionally, the Water Enterprise collects revenue from wholesale customers that receive service from the SFPUC. 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 BAWSCA, and are outside the scope of this study. It is, however, 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 from one year to the next. Consequently, wholesale revenues must be calculated and monitored on an annual basis, as wholesale customer payments represent a significant portion of the Water Enterprise revenues, which could result in a need to adjust the retail rate projections if wholesale revenues do not materialize as projected, particularly in light of the 2014 drought declaration.. The determination of the wholesale revenue is discussed in more detail below.

Allocation of Costs to BAWSCA Customers

While operating costs have historically been recovered from wholesale customers on a cash basis, as of FYE 2009, the contract between the SFPUC and BAWSCA was modified from a utility basis to a cash-basis for capital cost recovery as well. As a result, wholesale customers are now responsible for all expenses incurred by the SFPUC, based on their proportional annual use of Regional Water enterprise assets. The WRR, calculated annually, consists of a portion of operating and general expenses, and capital costs of the regional water system. The revenue collected from wholesale customers is dependent upon the cost split between direct retail, direct wholesale, and shared regional costs, as well as the proportion of annual water deliveries to wholesale customers relative to retail customers.

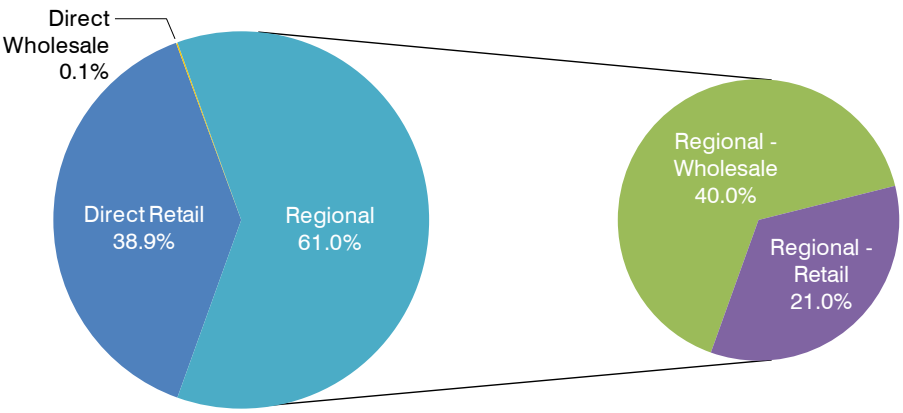


Figure 3.3| **SFPUC Water Enterprise Allocation of FYE 2015 O&M Costs to Wholesale and Retail Customers**

Operating Costs

Direct retail costs are recovered solely from retail customers; likewise, direct wholesale costs are recovered solely from wholesale customers. Both retail and wholesale customers are responsible for costs associated with the regional system, based on their proportional annual water usage. Using SFPUC assumptions, O&M expenses can be attributed to systems according to the following percentages: for FYE 2015, O&M costs are projected to benefit direct retail (38.9 percent), direct wholesale (0.1 percent), and regional (61.0 percent). Of this 61.0 percent that benefits regional customers, the costs are allocated to wholesale and retail customers based on their proportional annual water usage. For FYE 2015, wholesale customers are expected to receive 65.6 percent of total water deliveries. In total, wholesale customers are responsible for 40.1 percent (the portion attributed to direct wholesale and regional wholesale) of operating costs in FYE 2015. Carollo/PME JV evaluated the reasonableness of these allocations provided by the SFPUC. However, the SFPUC's detailed allocation serves as the basis for this revenue requirement analysis.

Capital Costs

Similar to operating costs, capital expenditures are allocated between retail and wholesale customer categories. Each capital project is allocated to either the local retail or wholesale based on direct benefit, or are considered regional projects and are 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.

Each water revenue bond issuance has a defined list of projects for which the debt was issued, which is used to split costs between retail and regional projects. These splits were detailed by SFPUC staff and are based on the wholesale contract.

Table 3.5 | **SFPUC Capital Cost Allocated to Regional Water System**

Bond Issuance	Allocable to the Regional System (Percent)
2006 Water Bond, Series A	53.19
2009 Water Bond, Series A	57.92
2009 Water Bond, Series B	87.37
2010 Water Bond, Series B	92.90
2010 Water Bond, Series D	97.24
2010 Water Bond, Series E	93.38
2010 Water Bond, Series F	100.00
2010 Water Bond, Series G	100.00
2011 Water Bond, Series A	92.12
2011 Water Bond, Series B	100.00
2012 Water Bond, Series A	69.34

Table 3.5 summarizes the portion of each bond issuance that is allocated to regional water supply. Applying these percentages and using a weighted average, wholesale customers are responsible for 44.5 percent of the annual payment for existing debt for FYE 2015. It is important to note that only the retail customers' share of existing debt will receive a benefit from the BAWSCA prepayment. The wholesale customers do not benefit from this reduction of debt, apart from lower interest payments obtained through BAWSCA's refinancing of the debt. Thus, the proportional split is applied to pre-defeasance debt to determine the appropriate contribution required from wholesale customers. A similar method is applied to future projects costs listed in the 10- year CIP. Future capital projects are assumed to benefit local or regional customers. Again, 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 pay-go 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. Table 3.6 identifies the total annual forecasted O&M and capital needs of the system and the calculated allocations to retail and wholesale customers.

In addition to paying a portion of operating and capital costs, wholesale customers are also responsible for their share of debt coverage, according to the contractual agreement between the SFPUC and the wholesale customers. This amount required for this coverage is determined in a similar way as that for the retail customers. Annual revenue plus reserves less expenditures must equal or exceed 1.25 times the annual debt service. This, along with their share of operating costs and capital costs delineated in Table 3.6 makes up the expected wholesale revenue offset. What remains is the retail revenue requirement to be fully recovered through retail water rates.

PROJECTED REVENUE REQUIREMENTS

Based on the study projections, the SFPUC must increase rates annually in order to meet projected revenue needs due to annual increases in expenditures. In addition to revenue from these recommended rate increases, the SFPUC will experience some increase in revenues due to projected customer growth. The fixed charges recovered on a per account basis will increase. As discussed earlier, the annual consumption is projected to remain constant and thus, no additional revenue is projected from the variable consumption charges.

As discussed earlier in this chapter, in order to achieve adequate collection of revenues, both the cash flow test and bond coverage test must be met for each given year. Table 3.7 summarizes the costs and offsetting revenues of the Water Enterprise for FYE 2015. In FYE 2015, the rate increase is driven by the annual cash needs of the utility. This is in large part due to the increase in debt service payments associated with the funding of the WSIP, as well as revenue funded capital. The amount of capital funding required directly from revenues in FYE 2015 is more than double the amount that was revenue funded in FYE 2014.

This process was repeated for a ten-year forecast and the resulting revenue needs, as well as the unsmoothed rate increases, are presented in Table 3.8.

Table 3.6 | **SFPUC Water Enterprise Annual Expenditure Allocation Summary**[1]

FYE	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
O&M Allocated to Wholesale	$85.8	$88.4	$91.0	$93.7	$96.5	$99.4	$102.4	$105.5	$108.7	$111.9
Capital and Debt Allocated to Wholesale	66.3	144.0	148.1	146.5	152.8	189.4	209.2	190.2	191.6	200.5
Wholesale Share of Coverage	3.9	9.1	3.1	1.5	2.0	4.1	4.9	1.9	0.4	2.2
Total Wholesale Revenue Offset	**156.0**	**241.5**	**242.2**	**241.7**	**251.3**	**293.0**	**316.6**	**297.6**	**300.6**	**314.7**

Note: (1)
Presented in million dollars, calculations in tables may not foot due to rounding.

Table 3.7 | **SFPUC Water Enterprise FYE 2015 Revenue Requirement**

Revenue Component	FYE 2015 Total[1]	Description
Operating Costs	$217.7	The Operating Budget funds the day-to-day operations of the SFPUC.
Debt Service	212.3	The SFPUC uses debt to fund capital and refund previous debt (long-term debt only).
Revenue Funded Capital	49.9	The SFPUC funds R&R projects through current year revenues. (This excludes contributions from the BAWSCA prepayment).
Offsetting Revenues	(264.1)	Additional non-operating revenues generated from sources outside traditional water rates and charges are applied as a credit to reduce required rates and charges revenues. Includes the revenue collected from wholesale customers, property taxes refunds, lease revenues, interest earnings, and other revenues.
Remaining Coverage and Reserve Driven Needs	-	Revenue requirements associated with meeting the SFPUC's Financial Management Policies. This requirement is already met for FYE 2015.
Water Sales Revenue Requirement	$215.7	Total revenue requirements associate with SFPUC's operating costs, debt service, and offsetting revenues. This also includes coverage and reserves needs.
Less Current Projected Revenues	$(191.5)	Projected revenue prior to rate increase
Additional Revenue Required	$24.2	Additional revenue required from rate increase (Revenue requirement less projected revenues)

Note:
(1) Presented in million dollars, calculations in tables may not foot due to rounding.

As illustrated in Table 3.8, there is a need for significant rate increases in order to meet all obligations of the utility. Although Carollo/PME JV is only recommending the next five years of rate increases, it is important to plan for expenditure increases beyond this time frame in order to mitigate sudden rate increases, which could otherwise occur following the five-year rate period.

Toward the end of the ten-year forecast, there are more local revenue funded capital projects than regional. While the overall amount of revenue funded capital decreases, the increase in local revenue funding responsibility shifts the burden more heavily on retail customers and away from wholesale customers. This is the cause for divergence of expenditures from

Table 3.8 | **SFPUC Water Enterprise Revenues and Expenditures[1]**

FYE	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Revenues										
Rate Revenue (prior to rate increase)	$178.9	$191.5	$216.8	$256.8	$263.7	$290.8	$352.4	$362.6	$376.0	$394.2
Wholesale Revenues	156.0	241.5	242.2	241.7	251.3	293.0	316.6	297.6	300.6	314.7
Non-Rate Revenues	22.0	22.6	23.3	24.0	24.7	25.5	26.2	27.0	27.8	28.7
Total Revenues	$356.9	$455.7	$482.3	$522.6	$539.7	$609.2	$695.3	$687.2	$704.5	$737.5
Expenditures										
Operations	210.1	217.7	225.7	233.9	242.5	251.3	260.5	270.1	280.0	290.3
Debt Service	144.7	212.3	238.1	249.9	283.5	329.1	349.3	369.8	377.3	402.0
Pay-As-You-Go	99.1	114.3	57.2	44.3	39.5	88.7	93.8	58.9	63.4	51.4
Total Expenditures	$453.8	$544.3	$521.0	$528.1	$565.4	$669.1	$703.6	$698.8	$720.7	$743.7
Annual Rate Increases										
Operating Cash Flow Surplus (Deficiency) Before Rate Increase	$(96.9)	$(88.6)	$(38.7)	$(5.6)	$(25.7)	$(59.9)	$(8.4)	$(11.6)	$(16.2)	$(6.1)
Unsmoothed Rate Increase	6.5%	12.6%	17.9%	2.2%	9.7%	20.6%	2.4%	3.2%	4.3%	1.6%
Additional Revenue from Rate Increase	$11.6	$24.2	$38.7	$5.6	$25.7	$59.9	$8.4	$11.6	$16.2	$6.1
Operating Cash Flow Surplus (Deficiency) After Rate Increase	(85.3)	(64.4)[2]	-	-	-	-	-	-	-	-

Note:
(1) Presented in million dollars, calculations in tables may not foot due to rounding.
(2) This deficiency represents amount of BAWSCA prepayment used to fund capital projects as projected by SFPUC's 10-year CIP.

revenues seen in the later years of the projected expenditures. Although the expenditures begin to plateau toward the end of the five years, beyond this time frame, expenditures are projected to increase with annual debt service payments related to funding of system rehabilitation and reliability associated with the WSIP. These investments and associated debt service results in the annual increases in revenue needs with annual debt service payments and inflationary operational costs. The five year rate recommendations, in part, attempt to plan for future projected expenditures by accounting for this increase and reduce the need for a rapid rate increase in a single year.

While the Water Enterprise has available cash in its operating reserve due to the BAWSCA prepayment, it is recommended that these rate increases be less than that shown in Table 3.8 and smoothed so that one year alone does not have an abrupt increase. Carollo/PME JV reviewed the publicly-available Commission-approved rate increases that have been proposed by the SFPUC and concur that these increases are adequate and appropriate based on projected expenditures. Table 3.9 shows the recommended annual rate increases and resulting cash flow.

The rate increases recommended in Table 3.9 are the recommended annual increases that the Water Enterprise should implement in order to collect sufficient funds to pay operational and capital expenditures, including the debt service obligations associated with the WSIP. As illustrated in Table 3.9 and Figure 3.4, these rate increases are not sufficient to fully fund all annual cash needs of the utility in FYE 2015 and 2016 and 2019. The SFPUC attempts to balance rate increases with annual expenditure needs. The prepayment from BAWSCA discussed earlier is available to mitigate rate increases through the funding of capital projects. The negative cash flow in Table 3.9 illustrates the amount of reserves used to fund capital expenditures. It is important to note that the amount in reserves is still adequate for the bond coverage, despite the negative cash flow. This is shown in the last two rows of Table 3.9. Both bond coverage tests are met annually. As noted earlier, the SFPUC will be required to revisit this forecast if wholesale revenues do not materialize as projected.

Table 3.9 | **SFPUC Water Enterprise Revenues and Expenditures**[1]

FYE	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Revenues										
Rate Revenues (prior to rate increase)	$178.9	$191.5	$215.6	$242.7	$268.3	$291.2	$316.0	$343.0	$372.3	$392.9
Wholesale Revenues	156.0	241.5	242.2	241.7	251.3	293.0	316.6	297.6	300.6	314.7
Other Non-Rate Revenues	22.0	22.6	23.3	24.0	24.7	25.5	26.2	27.0	27.8	28.7
Total Revenues	**$356.9**	**$455.7**	**$481.0**	**$508.4**	**$544.3**	**$609.6**	**$658.8**	**$667.6**	**$700.7**	**$736.2**
Expenditures										
Operations	$210.1	$217.7	$225.7	$233.9	$242.5	$251.3	$260.5	$270.1	$280.0	$290.3
Debt Service	144.7	212.3	238.1	249.9	283.5	329.1	349.3	369.8	377.3	402.0
Revenue Funded Capital	99.1	114.3	57.2	44.3	39.5	88.7	93.8	69.1	77.7	67.4
Total Expenditures	**$453.8**	**$544.3**	**$521.0**	**$528.1**	**$565.4**	**$669.1**	**$703.6**	**$709.0**	**$734.9**	**$759.7**
Annual Rate Increases										
Operating Cash Flow Surplus (Deficiency) Before Rate Increase	$(96.9)	$(88.6)	$(40.0)	$(19.7)	$(21.1)	$(59.5)	$(44.8)	$(41.4)	$(34.2)	$(23.5)
Recommended Rate Increase	6.5%	12.0%	12.0%	10.0%	8.0%	8.0%	8.0%	8.0%	5.0%	5.0%
Additional Revenue from Rate Increase	$11.6	$23.0	$25.9	$24.3	$21.5	$23.3	$25.3	$27.4	$18.6	$19.6
Operating Cash Flow Surplus (Deficiency) After Rate Increase	(85.3)	(65.6)	(14.1)	4.5	0.3	(36.2)	(19.5)	(13.9)	(15.6)	(3.8)
Debt Service Coverage										
With Reserves	2.27	1.73	1.57	1.60	1.51	1.38	1.37	1.29	1.31	1.33
Without Reserves	1.10	1.23	1.18	1.20	1.14	1.16	1.21	1.15	1.16	1.16

Note:
(1) Presented in million dollars, calculations in tables may not foot due to rounding.

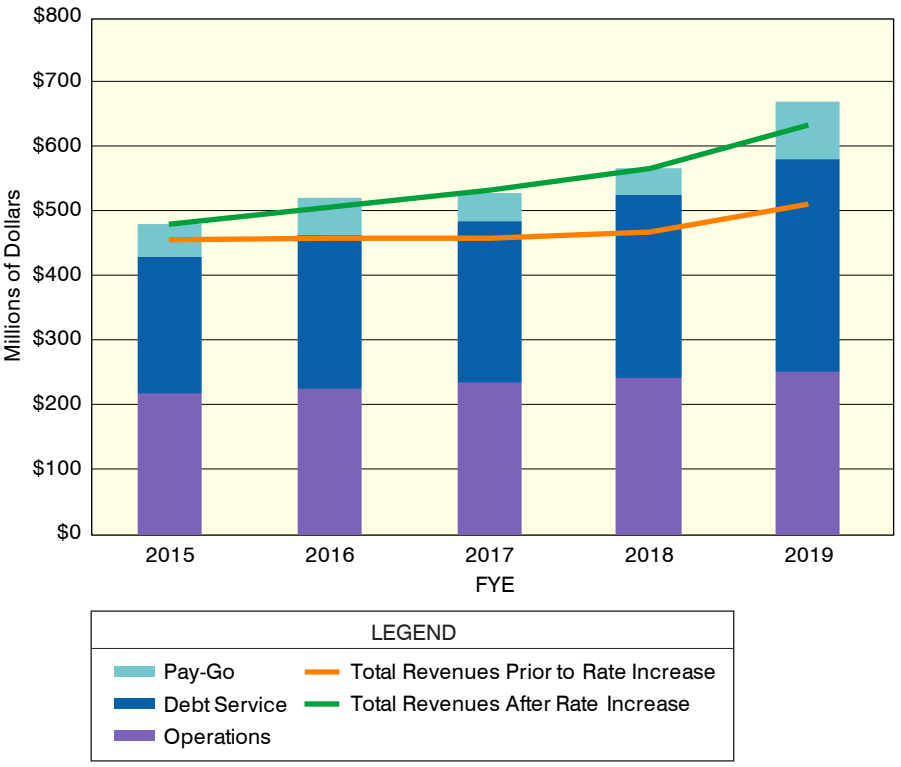


Figure 3.4 | **SFPUC Water Enterprise Projected Expenditure**

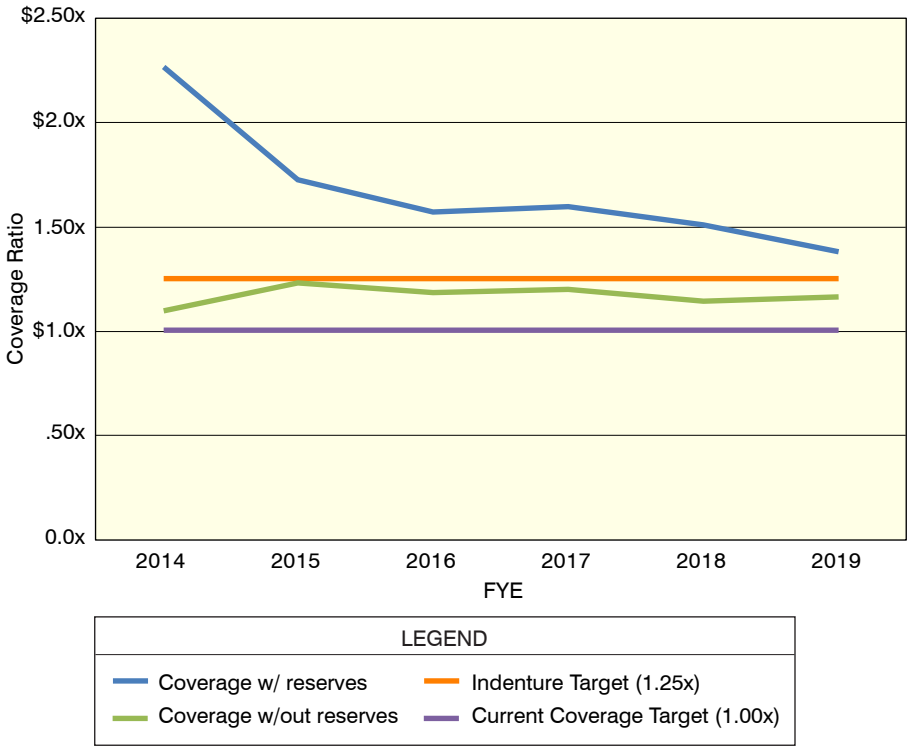


Figure 3.6 | **SFPUC Water Enterprise Resulting Annual Coverage Factor from Recommended Rate Increases**

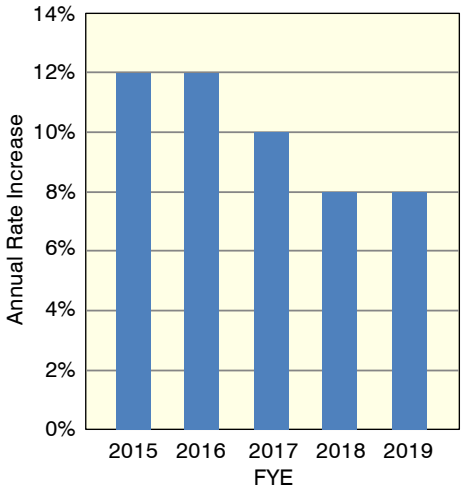


Figure 3.5 | **SFPUC Water Enterprise Recommended Annual Rate Increases**

Figure 3.5 summarizes the recommended annual retail rate increases for the five-year rate-setting period. With the successful completion of the $4.6 billion WSIP, the need for significant annual water rate increases will attenuate; however, as the SFPUC has and will continue to use three years of capitalized interest, increases in annual debt service payments will continue to increase over and just beyond the forecast period. With the successful completion of the WSIP, the SFPUC will focus on implementation of the Sewer System Improvement Program and other miscellaneous capital projects not associated with the WSIP. As shown later in the wastewater forecast, wastewater rate increases will continue as water rate increases attenuate.

ADDITIONAL CONSIDERATIONS

As mentioned earlier in the report, it is crucial that the SFPUC maintain a 1.25 times coverage ratio of annual debt service. Failure to meet this requirement could result in a damaged credit rating, which could have significant interest rate cost impacts due to the amount of debt expected

Table 3.10 | **SFPUC Water Enterprise Operating Reserve Cash Flow[1]**

FYE	2014	2015	2016	2017	2018	2019
Beginning Fund Balance	$251.8	$169.5	$105.9	$93.1	$100.4	$103.8
Net Cash Flow	(85.3)	(65.6)	(14.1)	4.5	.3	(36.2)
Interest Earnings	3.0	2.0	1.3	2.8	3.0	4.2
Ending Fund Balance	**$169.5**	**$105.9**	**$93.1**	**$100.4**	**$103.8**	**$71.7**
Percent of O&M Expenditures	74%	50%	42%	44%	44%	29%
Percent of Debt Service	117%	50%	39%	40%	37%	22%

Note:
(1) Presented in million dollars, calculations in tables may not foot due to rounding.

to be issued in upcoming years. Figure 3.6 shows the debt coverage with and without reserves resulting from the recommended rate increases. Table 3.10 and Figure 3.7 show the resulting operating reserve fund from the cash flow presented in Table 3.9. As shown in Figure 3.7, it is recommended that the Water Enterprise use available reserves to fund annual expenditures in order to lessen the annual rate increase for retail customers.

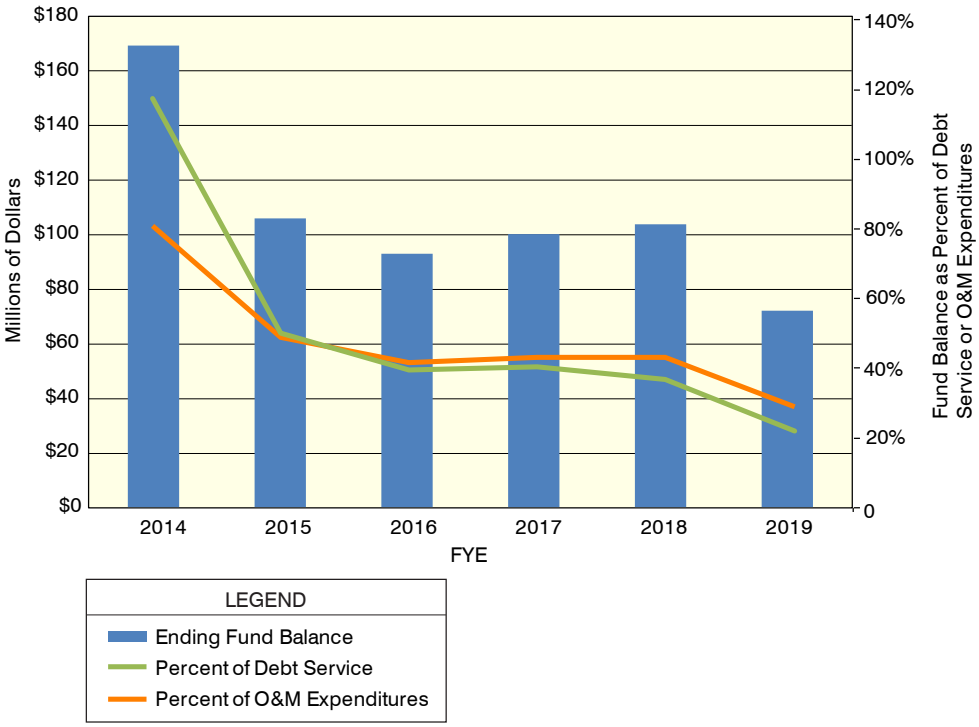


Figure 3.7 | **SFPUC Water Enterprise Operating Reserve Fund**

This page intentionally left blank.

CHAPTER 4

Water Rates

Introduction

The San Francisco Public Utilities Commission (SFPUC) maintains rates to equitably recover the costs from users to operate, service debt, and perform repairs and replacements for the overall water system. The focus of this chapter is to detail the process utilized to set rates to achieve full cost recovery and substantiate that customers are paying their fair and proportionate share of the system costs.

The SFPUC retail service area has among the lowest per capita water consumption in the State of California. In addition to achieving cost recovery and ratepayer equity objectives, several rate alternatives were analyzed to evaluate the impact of price on water consumption and to encourage further conservation. Based on available information, Carollo/PME JV analyzed consumption and billing records in order to best understand customer demands, potential of additional conservation, and expected price sensitivities. The findings and recommendations for the SFPUC water rates are detailed within this chapter.

OVERVIEW OF RATE SETTING PROCESS

The City Charter Section 8B.125 requires that the SFPUC perform a cost of service study at least every five years. This provision is designed to maintain revenues from rates to adequately fund utility operations, maintenance, and ongoing capital needs, and equitably recover costs from system users. Additionally, in the State of California, water rates must adhere to the cost of service proportionality 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. Article X (2) of the State Constitution establishes the need to preserve the State's water supplies and discourages the wasteful or unreasonable use of water by encouraging conservation. To achieve these requirements, Carollo/PME JV conducted the following study elements shown In Figure 4.1.

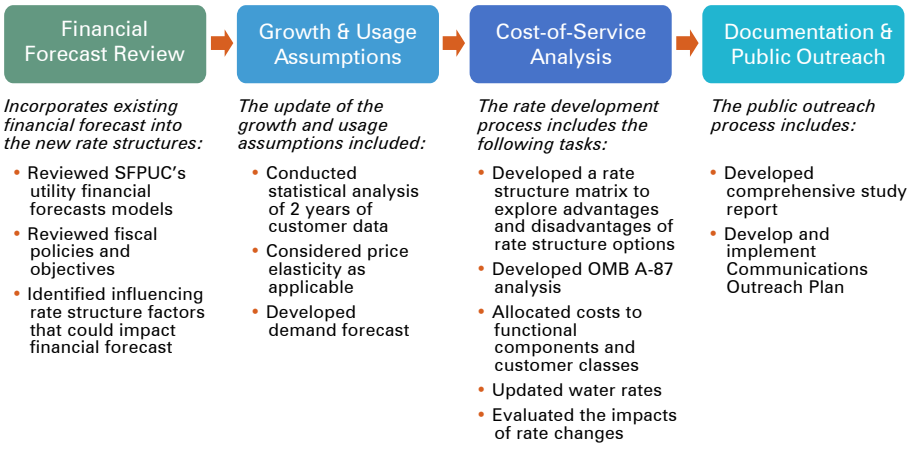


Figure 4.1 | **Flowchart for Cost of Service Rate-Setting Process**

When meeting proportionality requirements of Proposition 218 and the requirements of the City Charter, the SFPUC has some flexibility to develop rates that also achieve the City's policy objectives and promote community values. These policies do include water conservation to promote the efficient use of the City's natural resources. The recommended rate structure is designed to account for the unique nature of the SFPUC's water system, as well as the demand and usage characteristics of an ecologically-minded service population.

Future Considerations

In performing this water rate structure analysis, Carollo/PME JV worked in close collaboration with SFPUC staff to gather and validate study data. As part of this process, Carollo/PME JV reviewed the SFPUC customer and financial data for reasonableness. However, Carollo/PME JV did not independently audit nor verify the accuracy of the SFPUC's customer billing or financial records used as the foundation of this analysis. In particular, summary-level customer data was provided and used as the basis for the findings presented within this report. The projections and forecasts of this analysis are based on reasonable expectation of future events. Should cost escalation, operating expenditures, capital needs, or customer demands vary from projected levels prior to Fiscal Year Ending (FYE) 2019, the SFPUC might require an additional Proposition 218 process to adjust rates above currently projected levels. The SFPUC might similarly be required to begin a new Proposition 218 process should revenues not materialize as projected. As the SFPUC continues to gather additional data through its recently implemented automated meter infrastructure (AMI) system, it might be possible in future rate efforts to create additional or more specific rate subclasses within non-residential customer classes for greater transparency.

COST OF SERVICE ANALYSIS

The purpose of a cost-of-service analysis is to provide a rational basis for distributing the full retail costs of the SFPUC water system (identified in Chapter 3) to each customer class in proportion to the demands they place on the system. A detailed cost allocation was developed by assigning costs to one of six functional categories, and then allocating costs to each customer class based on its respective demand on the system. The allocation developed through this study provides a stable method for allocating costs within the water system, which could be sustained unless substantial changes in cost drivers or customer consumption patterns occur.

The cost of service allocation completed in this study was established on the base-extra capacity method as defined by the American Water Works Association (AWWA)[1]. 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. Based on this methodology, revenue requirements are allocated based on the demand placed on the water system.

Functional Cost Allocation Components

This functional cost allocation assigns the annual revenue requirement, outlined in Chapter 3, for FYE 2015, by major function. The water utility's primary functions are related to three flow or commodity components (base, peak day, and peak hour), which will be the basis of the water commodity rate, and three customer-related costs (customer service, meter charges, and fire service), which will be the basis of the fixed water service and fire protection charges. These six elements are referred to as functional cost categories.

[1] Manual of Water Supply Practices M1 - Principles of Water Rates, Fees, and Charges, Sixth Edition

The SFPUC's budget was analyzed line-item by line-item and operations and maintenance (O&M) expenditures, debt service, and other expenditures were distributed between the available cost categories. The details of this allocation are shown in the functional allocation in Appendix E.

- **Base:** Operating and capital costs incurred by the water system to provide a basic level of service to each customer.
- **Peak Day:** Costs incurred to meet peak day demands for water in excess of basic demand (base). This cost also includes capital costs related to oversizing the system to meet excess demand. This allocation also includes basic water supply and distribution costs.
- **Peak Hour:** Similar to peak day, peak hour represents those operating and capital related costs incurred to meet peak hour demands. The size of the SFPUC's water system is designed to meet peak hour demands. This cost includes capital costs related to oversizing the system to meet excess demand. This allocation also includes basic water supply and distribution costs.
- **Customer Service:** Fixed expenditures that relate to operational support activities including accounting, billing, customer service, and administrative and technical support. These expenditures are essentially common to all customers and are reasonably uniform across the different customer classes.
- **Meter Charges:** Meter and capacity-related costs, such as meter maintenance and peaking charges, that are included based on the meter's hydraulic capacity. Additionally, as the system's facilities are designed to meet

peaking requirements, a portion of the capacity-related costs, including debt service, are allocated to meter charges.

- **Fire Service:** 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. Additional information on private fire service will be discussed later in this chapter.

To account for possible year-to-year fluctuations between cost categories, the forecasted expenditures were averaged over the five-year rate period between FYE 2015 and FYE 2019.

Allocation of Costs to Functional Components

The SFPUC water system comprises both regional and local facilities, which are both necessary to deliver water to retail water customers. A detailed functional allocation analysis was prepared by separately identifying line-item expenditures (water assets, debt service, and operation and maintenance 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 existing base and peak factors, which are used as the basis of the existing rates. Carollo/PME JV discussed these factors with SFPUC staff for reasonableness based on existing system conditions. The SFPUC should revisit these factors during the next cost of service study once new AMI data becomes available and the SFPUC can evaluate account level peak demand factors.

Carollo/PME JV first reviewed the SFPUC's existing water assets and allocated each to the representative function component. Beyond existing assets, each existing debt service 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.

Table 4.1 summarizes the allocation factors applied to system assets. Similarly, bond debt service was allocated to functional rate components based on the individual capital projects financed by each issuance. Table 4.2 provides the weighted average of these allocations for each debt issuance. Based on the recommended rate structure, an additional 10 percent of the annual debt service is reallocated to Meter Capacity Charges and recovered through the fixed portion of each bill. In doing so, the SFPUC recovers a portion of its fixed capital expenditures through the fixed monthly charge based on meter size. This approach appropriately requires customers to fund a small portion of system infrastructure costs through the fixed monthly component of the rates based on their share of reserved system capacity whether or not water is consumed.

Each operating budget line item was allocated to its appropriate functional rate components. Table 4.3 provides the allocation summarized by category to each of the functional rate components for the rate period from FYE 2015 through FYE 2019. In order to account for changes in expenditures, it is important to average the expenditures over the entire rate forecast period. The expenditures shown in Table 4.3 are the average annual expenditures for this five-year period.

Table 4.1 | **SFPUC Water System Asset Allocation**

Water Assets	Value	Percent Allocation (%)						
		Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Private Fire Protection	Total
Source of Supply	$34,585,201	100	-	-	-	-	-	100
Pumping Plant	44,109,606	86	14	-	-	-	-	100
Transmission	42,422,271	86	14	-	-	-	-	100
Treatment	30,059,154	86	14	-	-	-	-	100
Storage	65,102,794	46	8	41	-	-	5	100
Distribution	138,720,574	46	8	43.5	-	-	2.5	100
Meters	12,266,961	-	-	-	100	-	-	100
Services	20,694,286	-	-	-	-	100	-	100
Laboratory	-	86	14	-	-	-	-	100
General Plant	3,754,239	59	8	22	3	5	3	100
Total Dollar Allocation	$391,715,086	$230,824,483	$32,944,356	$87,662,891	$12,385,667	$20,894,542	$7,003,148	$391,715,086
Total Percent Allocation	100%	59%	8%	22%	3%	5%	3%	100%

Table 4.2 | **SFPUC Water Enterprise Debt Service Allocation**

Debt Service	Average Annual Payment for FYE 2015 to FYE 2019	Percent Allocation (%)						
		Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Private Fire Protection	Total
1991A	$1,280,000	53	8	20	13	5	2	100
2006A	20,981,728	77	14	-	10	-	-	100
2006B	10,047,966	53	8	20	13	5	2	100
2006C	3,754,622	53	8	20	13	5	2	100
2009A	16,850,223	77	8	5	10	-	-	100
2009B	11,456,551	78	10	2	10	-	-	100
2010A	4,514,479	-	-	-	10	90	-	100
2010B	23,261,027	79	11	-	10	-	-	100
2010C	1,135,367	53	8	20	13	5	2	100
2010D	6,159,903	79	11	1	10	-	-	100
2010E	5,052,361	78	12	-	10	-	-	100
2010F	3,976,520	78	12	-	10	-	-	100
2010G	5,462,497	82	8	-	10	-	-	100
2011A	11,654,917	82	8	-	10	-	-	100
2011B	593,237	73	13	-	10	-	5	100
2011C	2,210,023	73	13	-	10	-	5	100
2011D	3,471,237	53	8	20	13	5	2	100
2012A	13,949,115	53	8	20	13	5	2	100
2012B	683,450	53	8	20	13	5	2	100
2012C	4,403,500	53	8	20	13	5	2	100
2012D	4,728,675	53	8	20	13	5	2	100
BAWSCA Defeasement	(15,406,241)	69	9	6	11	4	1	100
Total Dollar Allocation	$140,221,155	$107,300,283	$14,541,976	$9,953,713	$16,799,315	$6,149,126	$882,983	$140,221,155
Total Percent Allocation		69%	9%	6%	11%	4%	1%	100%

Table 4.3 | **SFPUC Water Enterprise Average O&M Cost Allocation FYE 2015 Through FYE 2018**

Category	Average Cost for FYE 2015 to FYE 2019	Percent Allocation (%)						
		Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Private Fire Protection	Total
Administration	$101,640,206	37	-	-	8	8	-	100
City Distribution	$40,221,573	62	10	23	-	-	5	100
Water Quality	$16,966,243	62	10	23	-	-	5	100
Water Supply and Treatment	$54,185,846	62	10	23	-	-	5	100
Natural Resources	$12,027,208	100	-	-	-	-	0	100
Water Resources	$9,186,969	62	10	23	-	-	5	100
Total Dollar Allocation	$234,228,045	$155,916,098	$15,122,485	$34,781,716	$10,091,620	$10,754,883	$7,561,243	100
Total Percent Allocation	100%	67%	6%	15%	4%	5%	3%	100%

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 five year rate-setting period, as shown in Table 4.4. Once the overall percentage allocation to functional category has been defined, those percentages are applied to the full revenue requirements for FYE 2015 in order to calculate the unit costs.

Based on the analysis described above, the result of the functional allocation is summarized in Table 4.4 and presented in Figure 4.2. The meter charges, customer service, and fire service components collectively represent 14 percent of forecasted costs, and will be the foundation for the recommended monthly service charge. The remaining 86 percent of costs are allocated to the base and peak components, and are the basis for the recommended commodity rates.

There is significant debate over the proper allocation ratio between fixed and variable costs in rate design. The California Urban Water Conservation Council (CUWCC) has historically promoted a target of at least a 70/30 split (variable/fixed) of revenues as defined in Best Management Practice 1.4. This split is thought to provide sufficient revenue stability (in the form of fixed charges), while still providing adequate conservation incentives. However, many retail agencies have moved to a higher fixed-to-variable ratio due to revenue fluctuations caused by unpredictable consumption patterns. The CUWCC has shifted its requirement, allowing agencies to establish specific water reduction and usage targets, rather than apply a one-size-fits-all solution.

Based on discussions with staff, the SFPUC maintains a lower fixed ratio to give users greater control over their monthly bills. Although a greater fixed charge can lead to greater revenue stability, a lower fixed ratio provides for greater affordability and a greater incentive to conserve. Additionally, the SFPUC does not experience a significant amount of seasonal water demand variability, resulting in stable year-over-year revenues despite recovering most costs through the commodity portion of the rates. However, while the per capita water demands within the City of San Francisco are among the lowest in the country, the SFPUC continues to experience water reductions, which must be accounted for within the annual financial forecast. When compared to the results from the 2009 study, the recommended functional allocation slightly shifts costs to the fixed component, from 10 to 14 percent. As a result, the remaining variable allocation is reduced from 90 to 86 percent.

UNIT COST AND CUSTOMER ALLOCATION

The unit costs of service are developed by dividing the total annual costs allocated to each of the six functional 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 Figure 4.2 to the annual revenue requirement for FYE 2015 of $214.5 million as presented in Chapter 3. The annual service units are based on data from customer billing.

Table 4.4 | **SFPUC Water Enterprise Allocation of Net Revenue Requirements**

	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Private Fire Protection	Total
Operating Expense	$155,916,098	$15,122,485	$34,781,716	$10,091,620	$10,754,883	$7,561,243	$234,228,045
Debt Service	181,042,199	24,535,922	16,794,383	28,344,613	10,375,102	1,489,811	262,582,030
Other Expense	31,497,428	3,707,099	4,821,114	3,592,855	1,975,141	846,054	46,439,692
Offsetting Revenues	(188,446,309)	(22,179,245)	28,844,298)	21,495,735)	(11,817,093)	(5,061,866)	(277,844,546)
Total Allocation	$180,009,416	$21,186,262	$27,552,916	$20,533,353	$11,288,032	$4,835,242	$265,405,222
Total Percent Allocation	68	8	10	8	4	2	100

Note: The numbers presented in this table are averaged over FYE 2015 through FYE 2019.

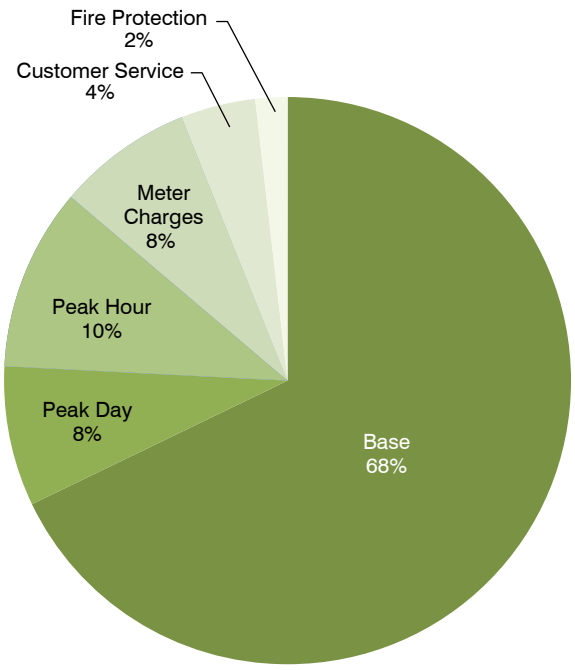


Figure 4.2 | **SFPUC Water Enterprise Functional Cost Allocation**

Consumption and Billing Analysis

Carollo/PME JV worked with the SFPUC to develop appropriate consumption and customer billing data sets taken from the SFPUC's customer service and billing system. These data sets were analyzed to determine the number of accounts by meter size and customer class, as well as the usage characteristics of each customer class. Based on available consumption and customer records, Table 4.5 details the total units of service for each customer class and functional category. This customer data is then used to determine appropriate proportional allocation of revenue needs to customer classes.

Unit Cost Development

In order to allocate the cost of service to various user classes, unit costs of service are developed for each functional cost component. Table 4.6 shows the unit costs by functional category. As shown in the table, the total FYE 2015 rate revenue requirements are allocated to each functional component using the allocation presented in Figure 4.2. 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. Based on functional category, the units of service are water consumed, meter equivalents, annual bills (based on accounts), and fire protection meters.

- **Base Costs** – The base component is allocated by total sales volume. Base units of service are founded on annual water consumption in hundred cubic feet (Ccf).
- **Peaking Costs** – The peaking component cost is based on the system's peak ratio developed from the ratio between annualized winter consumption and annual consumption. Peak day units are based on the extra capacity needed to serve beyond base demand to meeting maximum day demand. Peak hour units are based on the extra capacity needed to serve maximum hour demands in excess maximum day demands, in Ccf.
- **Customer and Service** – For the fixed components, the customer component unit cost is based on the number of accounts, and the service component is based on equivalent meters, which is a measure of the maximum flow rate by meter size. The unit of service for meter charges is established from the total annual meter equivalents. The Customer Services units of service are derived from the annual number of accounts.

Table 4.5 | **SFPUC Water Enterprise Unit of Service by Customer Class**

	Base	Peak Day	Peak Hour	Meter Capacity Charges	Customer Services	Private Fire Protection
	Annual Usage[1]	Max Day Usage[1]	Max Hour Usage[1]	Meter Equivalents	Customer Accounts	Hydrant Equivalents
Single Family	7,848,355	2,354,507	11,144,664	123,882	112,870	-
Multi-family	10,778,776	3,233,633	15,305,861	94,366	37,669	-
Commercial, Industrial, General	10,529,786	4,211,914	16,847,658	61,537	17,041	-
Public Uses	1,163,145	348,944	1,646,050	15,339	1,704	-
Interruptible	1,075,849	322,755	1,522,511	4,789	1,518	-
Docks and Shipping	281,798	338,158	870,756	51	3	-
Fire Service	22,709	9,084	36,334	-	8,578	230,428
Builders and Contractors	76,582	68,924	193,752	1,906	202	-
Contract	134,945	121,451	341,393	260	14	-
Airport	575,054	517,549	1,454,887	550	6	-
Total	32,486,998	11,459,443	49,238,386	302,679	179,604	230,428

Note:
(1) Units is Ccf (1 Ccf = 748 gallons).

- **Fire Meter Equivalents** – Similar to the service charges, fire meter equivalents are derived based on meter equivalents. The total number of meter equivalents is based on private fire protection meters.

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 minutes) respective to the size of the meter. Meter equivalents are set based on the hydraulic flow of a 5/8 inch meter.

Customer Class Allocation

The unit costs of each component shown in Table 4.6 are then applied to each customer classes' projected use, accounts, and meter equivalents to derive customer class allocations. Projections are based on current use and accounts with assumed growth. As such, costs are allocated to each customer class based on their respective base usage and peaking factors to reflect the use of the overall system.

Table 4.7 details the proportional cost allocation for each customer class based on the information in Table 4.5 and Table 4.6.

RATE DESIGN

The water rate design analysis determines how the costs are recovered by each customer through specified water 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.

The SFPUC's existing rate structure consists of two components: a commodity charge (variable) and a monthly service charge (fixed).

Table 4.6 | **SFPUC Water Enterprise FYE 2015 Unit Costs**

	Base	Peak Day	Peak Hour	Meter Capacity Charges	Customer Services	Private Fire Protection
Allocation Percentages	68%	8%	10%	8%	4%	2%
Allocable to Component	$145,484,954	$17,122,895	$22,268,472	$16,595,210	$9,123,072	$3,907,879
Total Units	32,486,998	11,459,443	49,238,386	302,679	179,604	230,428
Allocation Basis	Annual Usage	Max Day Usage	Max Hour Usage	Meter Equivalents	Customer Accounts	Hydrant Equivalents
Per Unit Cost	$4.48	$1.49	$0.45	$4.57	$4.23	$1.41

Table 4.7 | **SFPUC Water Enterprise Allocation of Revenue Requirements by Customer Class**

	Base	Peak Day	Peak Hour	Meter Capacity Charges	Customer Services	Private Fire Protection	Total
Single Family	$35,146,909	$3,518,144	$5,040,268	$6,792,165	$5,733,270	-	$56,230,756
Multi-family	48,270,069	4,831,749	6,922,204	5,173,884	1,913,400	-	67,111,306
Commercial, Industrial, General	47,155,032	6,293,514	7,619,494	3,373,936	865,615	-	65,307,592
Public Uses	5,208,856	521,397	744,440	840,999	86,551	-	7,402,243
Interruptible	4,817,922	482,265	688,568	262,567	77,107	-	6,328,429
Docks and Shipping	1,261,962	505,281	393,807	2,769	171	-	2,163,990
Fire Service	101,697	13,573	16,433	-	435,708	3,907,879	4,475,289
Builders and Contractors	342,953	102,987	87,626	104,502	10,252	-	648,321
Contract	604,318	80,655	97,648	14,232	693	-	797,545
Airport	2,575,237	773,330	657,985	30,155	305	-	4,037,011
Total	$145,484,954	$17,122,895	$22,268,472	$16,595,210	$9,123,072	$3,907,879	$214,502,482

This is a commonly applied rate structure throughout the State of California and the United States. 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.

As part of this analysis, the current water rate structure was reviewed to determine its current 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/PME JV analyzed various rate structure adjustments in order to recover the forecasted revenues needs and achieve the policy objectives of the SFPUC. Table 4.8 summarizes the current water rates and charges to the various customer classes.

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/PME JV 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.

Table 4.8 | **Current SFPUC Retail Water Rate Charges** (Effective 7/1/2013)

Meter Size	Monthly Service Charge	Monthly Fire Service Charge	Customer Class	Tier Block (Ccf)	Commodity Rate ($/Ccf)
5/8 in	$8.40	-	Residential		
3/4 in	$10.30	-	Single Family	0-3	$4.20
1 in	$13.50	$1.90		>3	$5.50
1-1/2 in	$21.80	$2.40			
2 in	$32.20	$5.00	Multi Family	0-3	$4.50
3 in	$55.80	$13.80		>3	$5.90
4 in	$89.50	$29.50	Non-Residential		
6 in	$173.80	$85.40	General Uses	All Usage	$5.40
8 in	$275.60	$182.00	Public Uses	All Usage	$5.40
10 in	$393.70	$327.50	Interruptible	All Usage	$3.25
12 in	$731.70	$528.80	Docks and Shipping	All Usage	$5.40
16 in	$1,272.70	-	Builders and Contractors	All Usage	$5.40

The following is a partial list of the additional elements desired in the rate structure:

- Clear and understandable.
- Encourage conservation and water efficiency.
- Follow cost of service principles.
- Provide revenue stability.
- Affordable.
- 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

By design, the current monthly service charge includes a customer service component and a fixed-capacity cost 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 4.6 is multiplied by the meter capacity ratios previously utilized by the SFPUC to calculate the meter capacity cost. These ratios mirror the ratios identified in the AWWA M22 Manual Sizing Water Service Lines and Meters . The ratios reflect a reasonable cost and benefit factor associated with greater hydraulic flow capacity. The meter capacity cost is then added to the customer service unit cost to calculate the total monthly service charge.

The recommended monthly service charge and calculation of components are detailed in Table 4.9.

Residential Commodity Rates

In addition to the monthly service charge, residential customers pay a commodity rate per unit of water. Carollo/PME JV worked with SFPUC staff to discuss, review, and analyze various recommended commodity rate structures. Based on these discussions, Carollo/PME JV recommends the SFPUC retain its current water rate structure for residential customers, but modify the tier break for SFR customers to better reflect current usage patterns.

Current residential commodity rates are designed to encourage water conservation. Single-family residential (SFR) and multi-family residential (MFR) commodity rates are charged on an inclining block rate schedule. Currently, usage above 3 Ccf per month is charged a higher per unit charge to reflect the added cost to supply peak water demands for SFR customers. The charged assessed MFR customers is similar; however, the commodity component is per dwelling unit, rather than SFR's per account. For example, a MFR complex with 10 units would have 10 times the water allotment for Tier 1 (10 units x 3 Ccf = 30 units).

All monthly water usage occurring in the first tier is charged at the first tier commodity rate of $4.20 or $4.50 per Ccf, for SFR and MFR respectively. For each unit in the second, SFR and MFR customers are charged at a rate of $5.50 and $5.90, respectively.

In order to meet the proportionality requirements of cost of service, the tiered rates for SFR and MFR individually must reflect the demand placed on the system and the cost to serve those customers.

Table 4.9 | **SFPUC Water Enterprise Calculation of Recommended FYE 2015 Monthly Service Charge**

Meter Size	Meter Ratio	Meter Charge (Unit x Ratio)	Customer Service Cost	Monthly Service Charge
A	B	C = B * $4.57	D	E = C + D
5/8 in	1.0	$4.57	$4.23	$8.81
3/4 in	1.5	$6.85	$4.23	$11.09
1 in	2.5	$11.42	$4.23	$15.66
1-1/2 in	5.0	$22.84	$4.23	$27.08
2 in	8.0	$36.55	$4.23	$40.79
3 in	15.0	$68.53	$4.23	$72.77
4 in	25.0	$114.22	$4.23	$118.46
6 in	50.0	$228.45	$4.23	$232.69
8 in	80.0	$365.52	$4.23	$369.76
10 in	115.0	$525.43	$4.23	$529.67
12 in	215.0	$982.33	$4.23	$986.57
16 in	375.0	$1,713.37	$4.23	$1,717.61

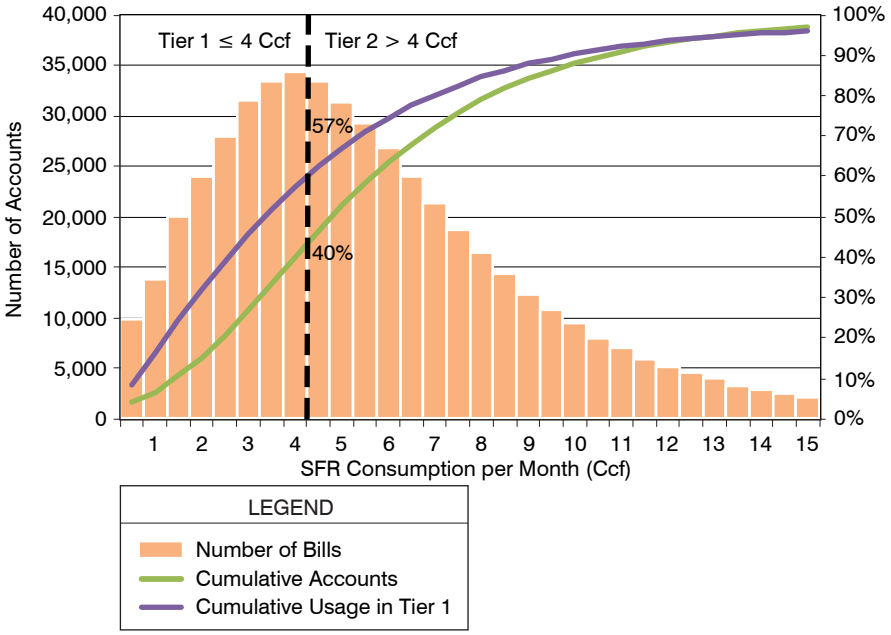


Figure 4.3 | **SFPUC Water Enterprise Single-Famliy Residential Monthly Consumption Profile**

Table 4.10 | **SFPUC Water Enterprise SFR Recommended Rates**

	Base Costs	Peak Costs	Total Commodity Costs	Consumption (Ccf)	Unit Cost ($/Ccf)
	A	B	C	D	E
Basis of Calculation			A + B		C/D
Tier 1	$20,170,699	$1,711,682	$21,882,381	$4,504,146	$4.86
Tier 2	14,976,210	6,846,729	21,822,939	3,344,209	$6.53
Total	$35,146,909	$8,558,411	$43,705,320	$7,848,355	

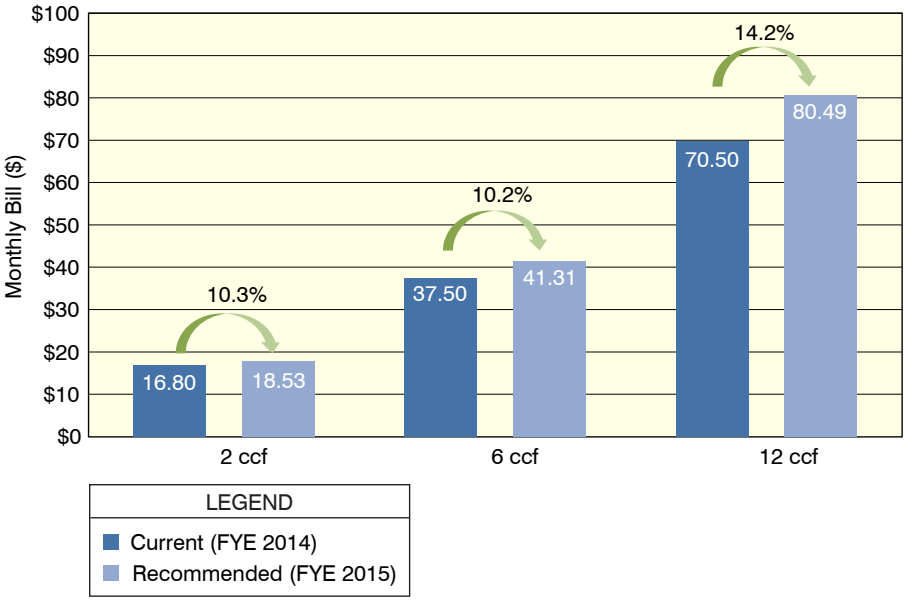


Figure 4.4 | **Single-Family Residential Customer Impacts**

The current tier structure is determined based on SFPUC residential users' monthly use pattern over the course of a year. The existing residential tiers were derived by evaluating all residential water usage throughout the retail system. Consistent with this current rate structure, a tier break at 3 Ccf for SFR would result in a unit charge for Tier 1 usage and Tier 2 usage of $4.48 and $6.49, respectively.

Because water consumption patterns differ between SFR and MFR within the retail area, Carollo/PME JV evaluated each class separately to determine the appropriate tier break (usage allowance) at which to transition from Tier 1 to Tier 2. Figure 4.3 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, it is recommended that the tier break for SFR customers be moved to 4 Ccf to accommodate the typical SFR non-peak usage. This first tier (0-4 Ccf per month) would encompass 40 percent of SFR bills and 57 percent of SFR customers' annual water demands.

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.

Table 4.10 details the method for determining rates for SFR users. Figure 4.4 illustrates the impact of these recommended water rate to SFR customers with a 5/8-inch meter across various usage levels.

A similar analysis was completed for MFR customers. A detailed histogram of MFR usage is shown in Figure 4.5. Based on this analysis, the current tier break at 3 Ccf is appropriate for MFR customers.

Similar to SFR, 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 peak day and peak hour costs in the recommended rate structure. Table 4.11 details the method for determining rates for MFR users. Figure 4.6 illustrates the impact of these recommended water rates to MFR customers with a 5/8-inch meter across various usage levels.

Adjustment for Large Households

The passage of California Assembly Bill (AB) 2882 in 2008 permitted the implementation of water budget rate structures. Specifically, it states, "The use of allocation-based conservation water pricing by public entities that sell and distribute water is one effective means by which waste or unreasonable use of water can be prevented." While this bill allows utilities to adopt a conservation charge in excess of base usage, the revenues collected must still meet the cost-of-service requirements imposed by Proposition 218.

The SFPUC's current tiered rate structure is intended to equitably recover peak and non-peak usage, as well as incentivize conservation. However, the current structure is based on class average water demands and does not specifically account for household size and the potential

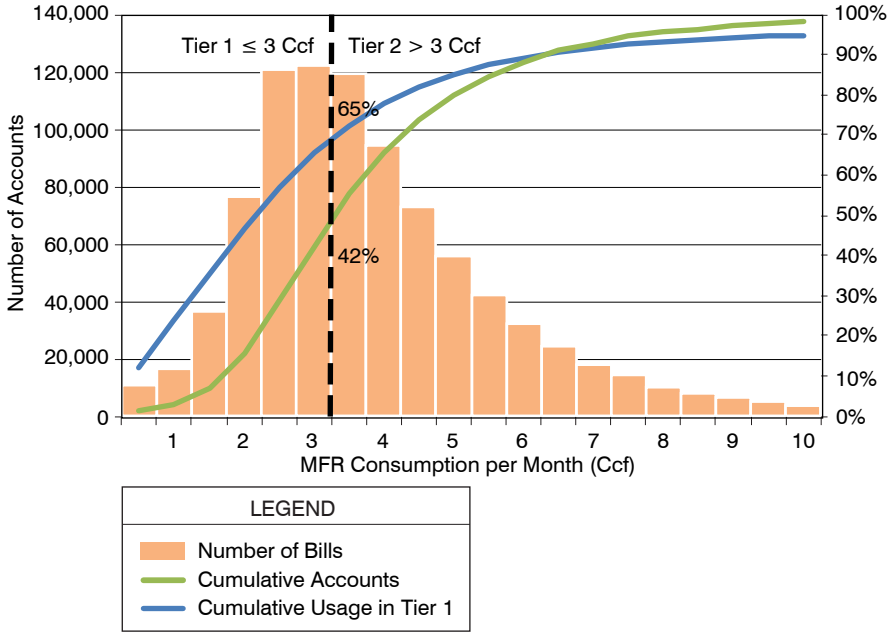


Figure 4.5 | **SFPUC Water Enterprise Multi-Family Residential Monthly Consumption Profile**

Table 4.11 | **SFPUC Water Enterprise MFR Recommended Rates**

	Base Costs	Peak Costs	Total Commodity Costs	Consumption (Ccf)	Unit Cost ($/Ccf)
	A	B	C	D	E
Basis of Calculation			A + B		C/D
Tier 1	$31,566,866	$3,526,186	$35,093,052	$7,048,926	$4.98
Tier 2	16,703,204	8,227,767	24,930,971	3,729,849	$6.69
Total	$48,270,069	$11,753,953	$60,024,022	$10,778,776	

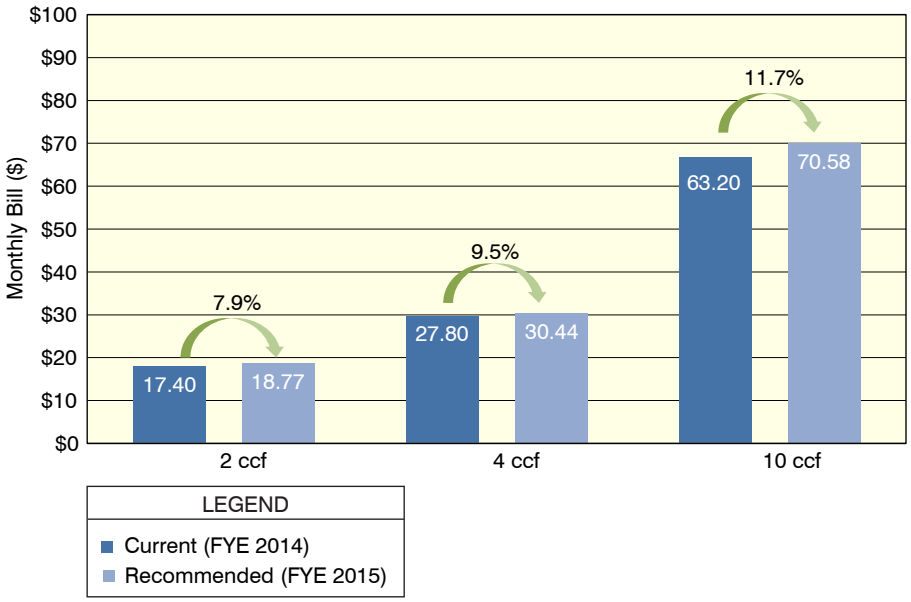


Figure 4.6 | **Multi-Family Residential Customer Impacts**

for higher base (non-peak) water demands due to a greater number of occupants. As a result, the SFPUC could consider adjusting the first tier for SFR customers to include additional units of water for those customers with a higher number of occupants. This adjustment would be premised on the idea that these households will have a higher base (non-peak) water demand due to higher occupancy levels, rather than incidental (peak) water demands. A recommended approach would be to extend the first tier for large households, based on the number of residents. This increase in the usage allowance would recognize the reduced cost to serve non-peak water compared to peak water demands.

Based on preliminary occupancy information provided by the SFPUC and corresponding water demands, an adjusted tier structure could be established as illustrated in Table 4.12.

Table 4.12 | **Adjustment to Tiers Based on Number of Occupants**

Number of Occupants	Tier 1 Usage	Tier 2 Usage
1-5	0-4 Ccf	5+ Ccf
6-7	0-5 Ccf	6+ Ccf
8-9	0-6 Ccf	7+ Ccf
10+	0-7 Ccf	8+ Ccf

This rate structure adjustment accounts for incremental non-peak water demands with additional occupants. Consequently, the increase in the Tier 1 allowance accounts for water demand overlaps by occupants in larger households, such as water for cooking, rather than increasing the tier allowance proportionally from the base Tier 1 usage allowance. These adjustments are based on preliminary data collected and provided by the SFPUC. However, due to limited available data, the SFPUC should continue to collect information on household size and corresponding water demands and adjust the tier allowance as necessary based on refined data.

Currently, the SFPUC has limitations in restructuring tiers based on household size. The first limitation is the availability of data. The SFPUC does not currently have a comprehensive database of household size for all single-family residential customers. Collecting and analyzing this data is a time intensive process. Additionally, the SFPUC's billing system would need to be altered to incorporate the additional information on household size and be able in order to appropriately extend the first tier based on this information.

A grant program could be established to begin collecting data regarding household size. Such a program would offer customers a grant in exchange for data. The program would be open to all single-family residential customers and would initially be a voluntary program. The phased-implementation of the program would lend itself to data gathering on performance and costs in the early demonstration phase of the program in order to collect data, and to obtain better estimates of costs and benefits before rolling out the full program.

Once implemented, the SFPUC would need a verification process. While a simple self-verification process would be easier to maintain, as shown by the CAP program audit, the SFPUC might need a more stringent process to verify the information provided by customers to avoid integrating false information into the billing system.

This program would likely be provided to SFR customers only. When considering MFR users, given the existing rate structure and the use of a master meter, the program would benefit the landlord, as opposed to the individual tenant. This would likely not provide the desired incentive to encourage tenants to conserve.

Commercial/General Use Commodity Rates

Currently, non-residential users pay a uniform commodity rate ($5.40 per Ccf) for general usage due to the large disparity in usage among customers in this class. Unlike residential customers who are relatively homogeneous, non-residential users are diverse and vary significantly in size and usage, even between similar businesses. As the SFPUC continues to gain additional data through its AMI system, it might be possible in future rate efforts to create additional or more specific rate sub-classes within the non-residential class, as system data can demonstrate unique customer demand patterns and costs. No change is recommended in rate structure at this time. The recommended non-residential rate retains the existing uniform commodity rate structure. According to the updated cost of service analysis, it is recommended that the rate be increased to $5.80 for FYE 2015. The methodology for determining this rate is shown in Table 4.13.

Interruptible Rates

In general, interruptible service and rates are most appropriate for occasions when maximum-day or maximum-hour water demands consistently approach the physical limitations of supply or treatment capacity, or when peak load growth projections show a rapid increase in peak demands on the utility's system. In such cases, providing interruptible service to some large customers might allow the utility to postpone investment in new supply, treatment, and delivery facilities. A utility may avoid or defer installing capacity to meet the portion of load that is served on an interruptible basis, which will reduce capital outlays and may also avoid or delay a potential rate increase, thereby providing benefits to all customers.

Table 4.13 | **SFPUC Water Enterprise Recommended Rates for General Use**

	Consumption (Ccf)	Base Costs	Peak Costs	Total Commodity Costs	Unit Cost ($/Ccf)
	A	B	C	D	E
Basis of Calculation				B + C	D/A
All Usage	10,529,786	$47,155,032	$13,913,008	$61,068,040	$5.80

Table 4.14 | **SFPUC Water Enterprise Recommended Rates for Interruptable Use**

	Consumption (Ccf)	Total Commodity Costs	Unit Cost ($/Ccf)
	A	B	C
Basis of Calculation			B/A
All Usage	1,142,108	$6,003,111	$5.26

The SFPUC's water system is designed to meet potable water demands, including peak usage. The dry period between 1986 and 1992 and more recent drought conditions indicated that the supply was less reliable than previously projected[2]. Measures were taken to reduce demands where possible, including continued conservation. During water shortages, reducing the quantity of water delivered might be required in order to provide adequate water service to system customers.

The SFPUC implemented an interruptible water rate in 2007. Currently, interruptible users do not pay for capital costs associated with system capacity reserved to provide water during drought conditions, and instead, pay O&M costs only. The rate is currently available for municipal irrigation users at a rate of $3.25 per Ccf.

Recommended Interruptible Rate

Capacity has been built into the system to provide water service for all customers at all times, including times of water shortages. During non-shortage periods, unused capacity can be utilized to serve interruptible users. Because interruptible users are served with reserve in-system storage capacity, the interruptible service rate would not include capital-related costs associated with this reserve capacity within the regional storage system. The capital cost component to maintain this capacity should be borne by those users reserving the capacity. Thus, this cost would be recovered from retail customers. However, interruptible users would still be required to pay for all capital costs associated with the treatment and delivery of water[3]. The operational costs for treatment and delivery of water would be borne by the users consuming the water. There is an assumed nexus between the quantity of water taken and the cost to provide that water. This means the interruptible users must pay their share of operational costs in addition to the aforementioned capital costs.

As a conservative approach, it has been assumed that all irrigation users will use this rate. Based on these assumptions, the recommended interruptible rate for FYE 2015 is $5.26 per Ccf.

Implementation Process

Interruptible service carries some potential risks to the end users. Consequently, the Water Enterprise should implement a process for interruptible users, whereby they would sign a contract acknowledging that water service can be turned off during water shortages or in other cases where available water resources are limited. Additionally, users would agree that the interruption of service would not endanger public health and safety. The SFPUC had previously restricted the subscription to the interruptible water rates to municipal irrigation customers, because of the concern of ensuring that water service interruption does not cause public health and safety issues. However, through discussions with SFPUC staff, it is believed that additional private customers, such as golf courses, that use the water service for non-potable, irrigation purposes only, could become eligible for the interruptible water service. Moreover, users, such as hospitals, schools, and other critical non-irrigation accounts should not be provided interruptible service because of their services' direct link to public health and safety. Finally, because users who agree to participate in the interruptible service might not receive water service or could receive a reduced quantity of water during water shortages, the SFPUC must require evidence that provisions have been made to deal with potential interruptions.

Private Fire Protection Rates

Fire protection service is a service that the SFPUC makes 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

[2] 2000 Water Supply Master Plan, pg. 5

[3] The SFPUC treats all water and does not have a separate transmission or distribution system to provide untreated water to irrigation customers.

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/PME JV has analyzed the costs associated with providing private fire protection service. Following the cost of service principles outlined above, 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 Auxiliary Water System that are funded through property taxes.

In addition to the 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. This component was not included in the current rates, which is one of the main drivers for the increase in monthly fire service charge. The application of the monthly billing charge results in a different monthly charge ratio between meter sizes than currently exists. This customer service charge component is consistent with the other rates and cost of service principles. In addition to this charge, costs for storage and delivery to private fire service is recovered based on meter equivalent basis.

Other Commodity Rates

Non-residential commodity rates are calculated using the base-extra capacity method, consistent with the AWWA M1 manual. As shown in Table 4.15, it is recommended that customers be assessed a unit charge specific to customer class, which in some cases is different from the general use unit rate. This methodology leads to an increase in some rates, such as those for docks and shipping, for example. The main reason for the divergence from the general use rate is due to the difference in peak day and peak hour factors, also known as peaking factors. These peaking factors are based on a customer's peak day and peak hour consumption relative to their average base usage. The current water rate schedule assumes all customer classes have equivalent peaking factors, meaning their consumption profiles are, on average, the same. The recommended rates utilize the SFPUC's peaking factor assumptions specific to customer class. Customer classes that peak on the system more often are assessed a greater unit charge per Ccf to reflect the extra capacity that must be reserved for these customers' peak usage.

SFPUC Water Enterprise Recommended Retail Rate Schedule

The individual rates discussed above are summarized in Table 4.15, which provides the overall recommended rate schedule for FYE 2015.

These rates for FYE 2015 are then escalated annually based on the revenue requirement findings in Chapter 3. The resulting recommended rates for FYE 2015 through 2019 are summarized in Tables 4.16, 4.17, and 4.18.

Throughout the rate-setting process, Carollo/PME JV worked closely with SFPUC staff to evaluate the impact

Table 4.15 | **Recommended Water Rate Charges (Effective 7/1/2014)**

Meter Size	Monthly Service Charge	Monthly Fire Service Charge	Customer Class	Tier Block (Ccf)	Commodity Rate ($/Ccf)
5/8 in	$8.81	-	Residential		
3/4 in	11.09	-	Single Family	0-4	$4.86
1 in	15.66	$7.77		>4	6.53
1-1/2 in	27.08	11.30			
2 in	40.79	15.54	Multi Family	0-3	$4.98
3 in	72.77	25.44		>3	6.69
4 in	118.46	39.57	Non-Residential		
6 in	232.69	74.90	General Uses	All Usage	$5.80
8 in	369.76	117.30	Public Uses	All Usage	5.57
10 in	529.67	166.76	Interruptible	All Usage	5.26
12 in	986.57	308.09	Docks and Shipping	All Usage	7.67
16 in	1,717.61	-	Builders and Contractors	All Usage	6.97

Note:
These rates also apply to retail customers outside the City and County of San Francisco.

Table 4.16 | **Recommended Monthly Service Charge**

	Existing Rates	Recommended Rates				
Annual Increase		12%	12%	10%	8%	8%
Meter Size	Effective 7/1/2013	Effective 7/1/2014	Effective 7/1/2015	Effective 7/1/2016	Effective 7/1/2017	Effective 7/1/2018
5/8 in	$8.40	$ 8.81	$9.87	$10.86	$11.73	$ 12.67
3/4 in	10.30	11.09	12.43	13.86	14.78	15.97
1 in	13.50	15.66	17.54	19.30	20.85	22.52
1-1/2 in	21.80	27.08	30.33	33.37	36.04	38.93
2 in	32.20	40.79	45.69	50.26	54.29	58.64
3 in	55.80	72.77	81.51	89.67	96.85	104.60
4 in	89.50	118.46	132.68	145.95	157.63	170.25
6 in	173.80	232.69	260.62	286.69	309.63	334.41
8 in	275.60	369.76	414.14	455.56	492.01	531.38
10 in	393.70	529.67	593.24	652.57	704.78	761.17
12 in	731.70	986.57	1,104.96	1,215.46	1,312.70	1,417.72
16 in	1,272.70	1,717.61	1,923.73	2,116.11	2,285.40	2,468.24

Table 4.17 | **Recommended Monthly Fire Service Charge**

	Existing Rates	Recommended Rates				
Annual Increase		12%	12%	10%	8%	8%
Meter Size	Effective 7/1/2013	Effective 7/1/2014	Effective 7/1/2015	Effective 7/1/2016	Effective 7/1/2017	Effective 7/1/2018
1 in	$1.90	$7.77	$8.71	$9.59	$10.36	$11.19
1-1/2 in	2.40	11.30	12.66	13.93	15.05	16.26
2 in	5.00	15.54	17.41	19.16	20.70	22.36
3 in	13.80	25.44	28.50	31.35	33.86	36.57
4 in	29.50	39.57	44.32	48.76	52.67	56.89
6 in	85.40	74.90	83.89	92.28	99.67	107.65
8 in	182.00	117.30	131.38	144.52	156.09	168.58
10 in	327.50	166.76	186.78	205.46	221.90	239.66
12 in	528.80	308.09	345.07	379.58	409.95	442.75

of the recommended rate structure's impact to water customers. Based on the new cost of service analysis and recommended rates, there will be a shift between customer classes. This shift is shown in Figure 4.6. In this figure, the recommended customer class allocation is compared to the current rate structure's allocation applied to the revenue requirements of FYE 2015. This change, although slight, is due to the shift between cost components that resulted from the detailed functional allocation.

Other Service Charges

There are a number of service charges that the SFPUC charges for special water service, such as special shipping service for docks and shipping, and builders and contractors. It is recommended that the SFPUC charge a service fee comparable to the 8-inch meter monthly service charge for docks and shipping. This is an assumed meter size for these customers. For FYE 2015, this recommended charge is $369.76. For builders and contractors, it is recommended that the SFPUC impose a charge based on the size of the meter, according to the monthly service charge presented in Table 4.16.

Table 4.18 | **Recommended Commodity Rates**

	Existing Rates	Recommended Rates				
Annual Increase		12%	12%	10%	8%	8%
Customer Class	Effective 7/1/2013	Effective 7/1/2014	Effective 7/1/2015	Effective 7/1/2016	Effective 7/1/2017	Effective 7/1/2018
Single Family Residential						
Tier 1 (0-4 Ccf)	$ 4.20	$4.86	$5.45	$6.00	$6.48	$7.00
Tier 2 (>4 Ccf)	5.50	6.53	7.32	8.06	8.71	9.41
Multi-Family Residential						
Tier 1 (0-3 Ccf)	4.50	4.98	5.58	6.14	6.64	7.18
Tier 2 (>3 Ccf)	5.90	6.69	7.50	8.25	8.91	9.63
Non-Residential						
Commercial, Industrial, General	5.40	5.80	6.50	7.15	7.73	8.35
Public Uses	5.40	5.57	6.24	6.87	7.42	8.02
Interruptible	3.25	5.26	5.90	6.49	7.01	7.58
Docks and Shipping	5.40	7.67	8.59	9.45	10.21	11.03
Builders and Contractors	5.40	6.05	6.78	7.46	8.06	8.71

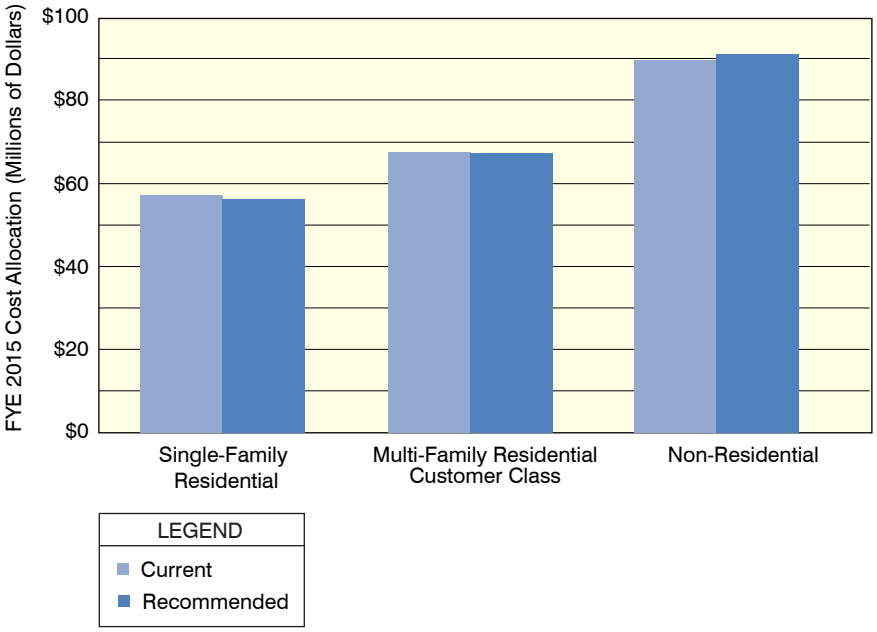


Figure 4.7 | **Comparison of Customer Allocation by Rate Structure**

Additionally, the Water Enterprise offers a number of other services, such as meter installation and relocation. For such services, the customer is charged based on the actual cost to the SFPUC to provide the service. These rates are described in more detail in the Appendix.

ADDITIONAL CONSIDERATIONS

Sustainability Charges

The SFPUC Water Enterprise maintains watersheds and other natural resources as a means of supplying and storing water. Currently, the costs associated with maintaining these natural assets are being recovered through the SFPUC potable water supply. The SFPUC expressed interest in evaluating a separate charge to recover costs specifically associated with green infrastructure.

A natural resources surcharge was discussed as a potential method to better communicate the fact that the SFPUC is the steward of a limited natural asset. It was determined that the current rate structure does provide an economic incentive to use water and these natural resources efficiently. A natural resources surcharge was discussed and many forms considered, including implementing a surcharge that would be additive to the second tier of the residential rates, effectively creating a third tier, as well as a charge per account to acknowledging that all SFPUC customers benefit from these natural systems. At this time, Carollo/PME JV recommends the SFPUC further examine the rationale of a natural resources surcharge.

Low-Income Discounts

The SFPUC currently provides low-income discounts for SFR customers in order to make SFPUC services affordable to low-income households. The SFPUC has a number of assistance programs in place, including the Community Assistance Program (CAP), the Low-Income Non-Profit Housing (LINPH) discount, and the Mayor's Community House Program.

The CAP, implemented in 2004, provides a 15 percent discount on water and 35 percent discount on wastewater service charges to eligible SFRs based on income limitations. The CAP income requirements range from a maximum annual income of $31,020 for a one- or two-person household to $79,260 for an eight-person household. Additionally, CAP applicants are required to participate in a free water conservation home evaluation. This program was evaluated by the Controller's Office in 2013. The findings were that many program participants could not verify eligibility. The SFPUC subsequently removed these ineligible customers from this program and established an income verification requirement. The LINPH discount, implemented in 2006, provides rate relief to low-income multi-family residential residents in housing owned and operated by non-profit organizations. The LINPH discount provides a 15 percent discount on all water and sewer service charges to qualified low-income multi-family housing developments registered with the Mayor's Office of Housing.

The SFPUC provides a discount on sewer service charges to single room occupancy boarding houses, motels, and hotels participating in the Mayor's Community House Program, implemented in 1994. This program provides transitional housing to homeless individuals and general assistance recipients. Participants enrolled in the program receive a 15 percent discount on water charges and a 50 percent discount on sewer charges based on the percentage of rooms occupied by eligible individuals.

While Proposition 218 limits recovery and adjustments to cost recovery, the SFPUC is exploring various means to continue to fund these low-income discounts. These discussions included the possibility of using revenue from the utility tax as a funding source. One possible option would be to request voter approval to extend the utility tax, as well as request incremental utility tax revenue from the rate increases to become available to fund these low-income programs. Other possibilities for funding low-income programs include collecting donations or usage of the general fund.

A survey of low-income programs of neighboring jurisdictions was conducted and is discussed in more detail in the appendix of this report.

Water Rate Comparison

Carollo/PME JV conducted a water rate survey of nearby utilities. Although utilities are not always alike, it is common to examine comparisons between similar or neighboring utilities. Figure 4.7 compares a typical SFR user with the current rate structure and the recommended rates against the current rate structures of nearby utilities.

It is necessary to highlight that the SFPUC is a system with a distinctive retail customer base. Care should be taken in drawing conclusions from such comparisons as factors including locations, source of supply, customer profiles, age of the system, and various operational and capital-related needs vary from agency to agency. As illustrated in Figure 4.8, despite the recommended increase to customers, water rates are in line with the average of nearby agencies. Additional information regarding other agencies is presented in the appendix of this report.

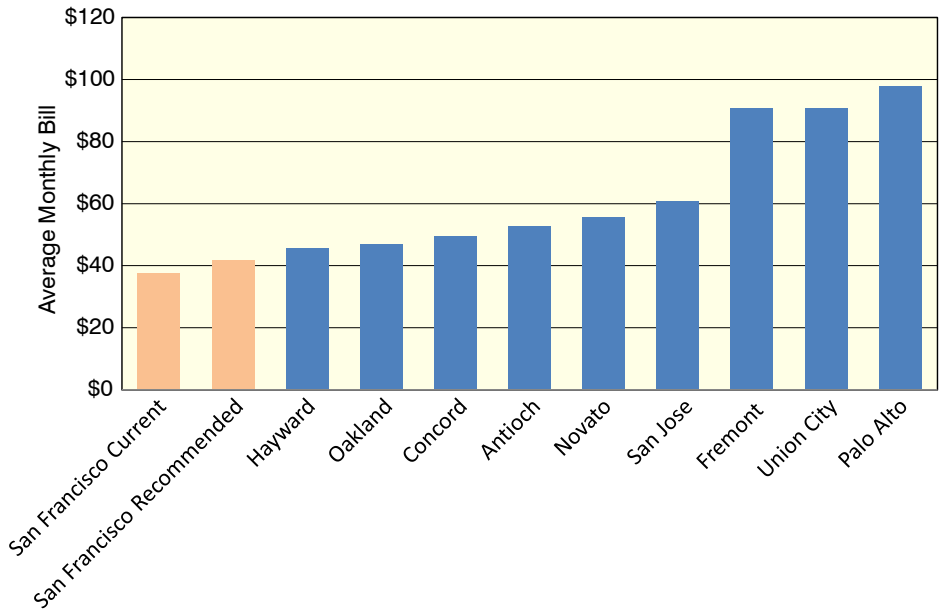


Figure 4.8 | **Local Monthly Water Bill Comparison Survey for a SFR Customer Based on Average Water Demands by Agency**

This page intentionally left blank.

CHAPTER 5

Wastewater Enterprise Revenue Requirements

Introduction

The wastewater collection, treatment and disposal/reuse system consists of a combined sewer system (which treats 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 collection system is comprised of approximately 900 miles of sewer system piping throughout the City.

Similar to the analysis completed for the Water Enterprise, Carollo/PME JV analyzed the revenue requirements of the Wastewater Enterprise. The following elements were analyzed in order to determine the necessary cost of service adjustments for the Wastewater Enterprise: operations and maintenance expenditures; annual debt service; capital expenditures; policy requirements and coverage; and offsetting revenues. These components were reviewed to determine the overall revenue requirements of the utility. Based on the findings of this study, Carollo/PME JV recommends the Wastewater Enterprise increase rate revenues by an average of 7.6 percent over the next five years in order to fund operations and debt service obligations, and to begin to fund the Sewer System Improvement Plan (SSIP) program. Annual capital expenditures will increase substantially in upcoming years with the start of the SSIP. Most notably, FYE 2018 is projected to require over $1.4 billion in investments, funded primarily using bonds. This increase in capital spending is one of the main driving factors for future projected rate increases. To counteract the variability and sharp increases in capital spending from year to year, the magnitude of annual rate increases has been smoothed so that the impact to customers is realized gradually over multiple years instead of implemented at once. The recommended rate increases for the Wastewater Enterprise are discussed in detail within this chapter.

REVENUE REQUIREMENTS OVERVIEW

A revenue requirements analysis determines the annual system revenue necessary to be recovered through wastewater rates and charges in order to meet a the Wastewater Enterprise's expected financial obligations. The revenue requirement is derived of five components: 1) Operations and Maintenance Expenditures; 2) Annual Debt Service; 3) Capital Expenditures; 4) Policy Requirements and Coverage; and, 5) Offsetting Revenues.

The revenue requirement analysis considered the following two tests to determine whether rates are sufficient:

- Cash Flow Test - The Wastewater Enterprise must generate annual utility revenues adequate to meet general cash needs.
- Bond Coverage Test - Annual rate revenues must satisfy debt coverage obligations as required by indenture.

The cash flow test identifies the amount of annual revenues that must be generated in order to meet annual expenditure obligations. These obligations include operations and maintenance expenses, debt service payments, policy-driven additions to working capital, replacement funding, and revenue funded capital expenditures. These expenses are compared to total annual projected revenues. Shortfalls are then used to estimate the need for rate increases.

The bond coverage test measures the ability of a utility to meet both legal and policy-driven revenue obligations. The SFPUC is required to collect sufficient funds through rates so that the annual net revenues for operational expenditures plus reserves meet or exceed 1.25 times total annual debt service. This coverage factor is set by indenture in order to maintain compliance with the SFPUC's current bond legal obligations. In addition, the SFPUC's must maintain net revenues alone at 1.00 times total annual debt service.

While Carollo/PME JV analyzed the SFPUC's annual cash flow, the main driver was the indenture requirement. The SFPUC has the ability to use reserves to satisfy the annual cash flow test in order to avoid increasing user rates.

The following section explains the cost categories included in the annual revenue requirement analysis for the Wastewater Enterprise.

DATA AND ASSUMPTIONS

Operating Needs

Operating needs are expenditures that the utility incurs in the day-to-day operations of its systems – for example: employee salaries and benefits, system maintenance, fuel, and chemicals. The operating budget expenditures include costs related to administration, maintenance, operations, environmental engineering, planning and regulations, collection systems, wastewater labs, and other miscellaneous expenses.

The SFPUC's FYE 2014 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 any anomalies or one-time expenditures not appropriate to include when projecting into future years. Staff also reviewed the budget to identify costs that may need to be adjusted due to future operational changes resulting from the implementation of the SSIP program. Unless adjusted based on specifically known future changes, costs incurred in future years were projected using escalation factors that were reviewed with SFPUC staff. In the past, costs incurred by

Table 5.1 | **SFPUC Cost Escalation Factors**

Cost Escalator	Description
Labor Cost Inflation	Labor rates are assumed to increase at 4.0%.
Construction Cost Inflation	Although capital cost inflation is commonly linked to the Engineering News Record (ENR) Construction Cost Index (CCI), the inflation rate assumes a long-term average of 3.5%.
General Cost Inflation	This rate applies to most expenses in the operating expense forecast, and the City's expected long-term inflation rate of 3.0%.
Power and Chemicals Inflation	Costs associated with power and chemicals are assumed to increase by 5% annually. In general, power and chemical costs tend to increase more rapidly than general costs.
Customer Account Growth	Customer accounts are projected to increase at an annualized rate of 0.5%.
Demand Change	The SFPUC projects continued conservation and per capital wastewater flow reductions. Coupled with customer account growth, the annualized aggregate wastewater discharge is projected to remain flat for the forecast period.

Table 5.2 | **SFPUC Wastewater Enterprise Operating Expenditures**

Department	Expenditures[1]									
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Administration	$36.1	$37.4	$38.7	$40.1	$41.5	$43.	$44.5	$46.1	$47.8	$49.5
Maintenance	26.6	27.6	28.7	29.8	30.9	32.1	33.4	34.7	36.	37.4
Operations	36.3	37.6	39.0	40.5	42.0	43.6	45.2	46.9	48.6	50.5
Environmental Engineering	4.1	4.3	4.5	4.7	4.8	5.0	5.2	5.4	5.7	5.9
Planning and Regulations	7.3	7.6	7.8	8.1	8.5	8.8	9.1	9.5	9.8	10.2
Collection Systems	31.5	32.6	33.8	35.1	36.4	37.7	39.1	40.6	42.0	43.6
Wastewater Labs	4.5	4.7	4.9	5.0	5.2	5.4	5.7	5.9	6.1	6.4
Incremental SSIP Expenditures	0.3	0.4	0.4	0.5	2.0	3.8	8.0	8.3	8.6	8.9
Total Expenditures	**$146.7**	**$152.2**	**$157.9**	**$163.8**	**$171.4**	**$179.5**	**$190.2**	**$197.3**	**$204.7**	**$212.3**

Note:
(1) Presented in million dollars, calculations in tables may not foot due to rounding.

the SFPUC have been escalated at 3.0 percent annually, regardless of cost category. To refine this broad assumption, individual line-item costs were assigned escalation factors in Table 5.1 to better account for variability between specific costs. These escalation factors were then applied to the appropriate categories of expenditures to forecast costs incurred by the utility. By escalating costs from the FYE 2014 budget using the escalation factors discussed in Table 5.1, operating costs are projected to be $152.2 million in FYE 2015. This includes incremental costs associated with the SSIP program in addition to the escalated operating expenses. The details of these expenditures are shown in Table 5.2.

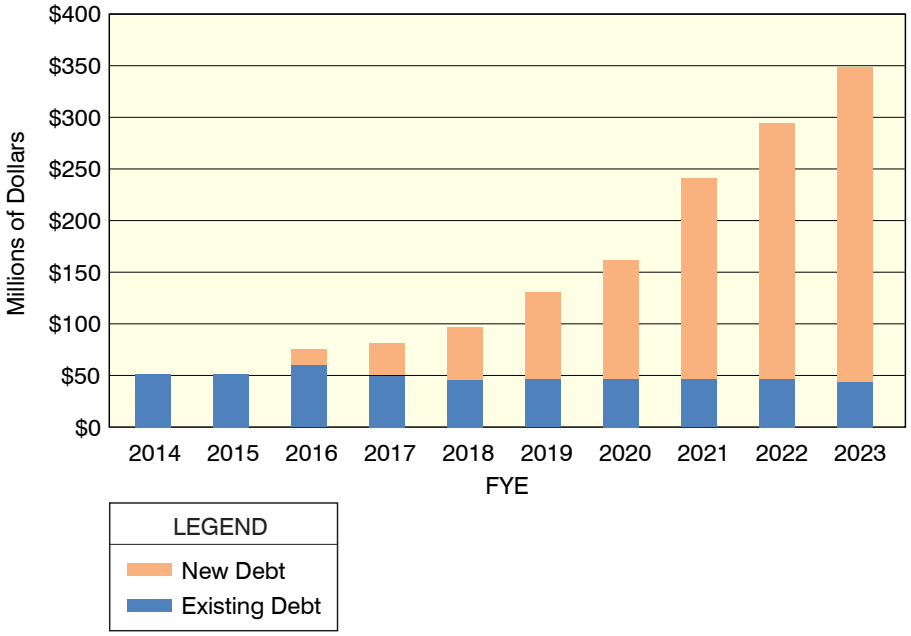


Figure 5.1 | **SFPUC Wastewater Enterprise Annual Debt Service Payments**

Capital Funding

As described in detail in Chapter 2 (Background), the Sewer System Improvement Plan (SSIP) is in place to improve the reliability and performance of the SFPUC's current combined sewer system. It is funded through annual payments to debt service and current year revenues. Unlike the WSIP program, the 20-year SSIP has just begun and has yet to reach its peak of construction. On the contrary, there is a significant increase in capital funding requirements within a ten-year forecast.

Debt Service

The SFPUC finances major capital improvements, in part, by issuing debt for two primary reasons. First, given the size of SSIP program, the SFPUC does not have available the financial reserves that would otherwise be required to fund the capital improvement program nor would it be reasonable to increase the wastewater rates and charges in order to cash fund these improvements. Secondly, spreading the debt service costs for the project over the repayment period provides

Table 5.3 | **SFPUC Wastewater Enterprise Debt Obligations Through FYE 2024**

FYE	Annual Payment (millions of dollars)
2014	48.7
2015	48.6
2016	73.8
2017	79.2
2018	96.0
2019	129.6
2020	159.8
2021	240.0
2022	293.0
2023	347.5

Source: SFPUC provided schedule of annual payments on existing debt.

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 those benefitting from the improvements. The SFPUC has existing 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. Due to the increasing costs of the SSIP program in the near future, the SFPUC anticipates issuing additional bonds to finance capital projects as well as a portion of rehabilitation and replacement (R&R) projects. The following assumptions were made to calculate annual payments necessary on new debt issuances:

- Term of 30 years
- Annual interest rate of 5 percent
- Two years of capitalized interest

Because the SFPUC uses two years of capitalized interest, the debt service payments begin two years following the date of issuance. This delays the impact to annual revenue requirements, which allows the SFPUC to increase rates over a multi-year period ahead of forecasted payments, instead of implementing increases in a single year. This use of long-term debt is a reasonable approach as it also allows the SFPUC to more accurately match the capital expenditures with the ratepayers benefitting from the projects by requiring both existing and future customers to pay for these improvements.

Table 5.3 and Figure 5.1 show the projected annual payments for both existing and future debt: With annual expenditures for the SSIP program increasing significantly in the near future, debt service will continue to increase as well. In the next ten years, annual payments related to debt are projected to increase sevenfold. This considerable increase in debt service is one of the main drivers for the recommended rate increases.

Revenue Funded Capital

In addition to issuing debt, the SFPUC funds a portion of rehabilitation and replacement (R&R) projects through current year revenues. These annual amounts are determined by the SFPUC and are summarized in Table 5.4 and Figure 5.2.

Policy Requirements and Coverage

The SFPUC's unrestricted reserves act as an operating reserve. For debt service coverage, the SFPUC is required to maintain at least a 1.25 times coverage ratio of annual debt service. This coverage is calculated as the ratio of net revenues after operating expenditures, including reserves, to total annual debt service requirements. In addition, the SFPUC maintains at least 1.00 times coverage ratio of net revenues, excluding reserves, to total annual debt service requirements.

Offsetting Revenues

Beyond revenue collected from rates and charges, the SFPUC collects revenues through other non-operating funding sources, which are used as a credit against the rate revenue needed to be collected. Most notably, these revenues include service payments collected from Brisbane and Bayshore Sanitary Districts, determined by contract separately, and other miscellaneous revenues, such as interest earnings. For FYE 2015, the service payments from Brisbane and Bayshore are projected to total $7.2 million.

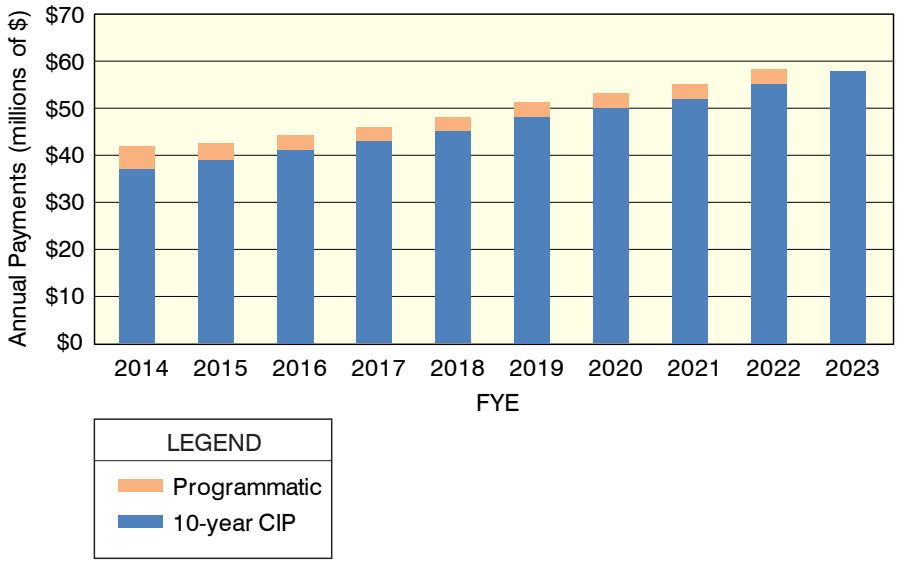


Figure 5.2 | **SFPUC Wastewater Enterprise Annual Revenue Funded Capital**

Table 5.4 | **SFPUC Wastewater Enterprise Annual Revenue Funded Capital**

Revenue Funded (millions of dollars)			
FYE	10-year CIP	Programmatic	Total
2014	37.0	4.8	41.8
2015	39.0	3.4	42.4
2016	41.0	3.0	44.0
2017	43.0	2.9	45.9
2018	45.0	2.9	47.9
2019	48.0	2.9	50.9
2020	50.0	3.0	53.0
2021	52.0	3.1	55.1
2022	55.0	3.1	58.1
2023	57.8	0.0	57.8

Offsetting revenues are escalated from FYE 2013 revenues by applying factors discussed with and approved by the SFPUC. Most offsetting revenues are escalated by general inflation. Revenues collected from providing service to special districts are escalated based on the discharge forecast, as well as the annual rate increase.

PROJECTED 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 remain constant on an annual basis. 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. Shown in Table 5.5 is a summary of costs and offsetting revenues associated with the wastewater enterprise for FYE 2015. This process was repeated for the ten-year forecast and the resulting revenue needs are presented in Table 5.6.

Table 5.6 shows revenues before and after adjustments from unsmoothed rate increases. As seen in this table, rate increases are required to meet funding obligations of the utility. While the Wastewater Enterprise has available cash in its operating reserve, it is recommended that these rate increases be smoothed so that one year alone does not have an abrupt increase. Carollo/PME JV reviewed the publicly-available Commission-approved rate increases that have been proposed by the SFPUC and concur that these increases are adequate and appropriate based on projected expenditures. Table 5.7 shows the recommended annual rate increases and resulting cash flow. Although the recommended rate increases result in excess cash flow within the five year rate-setting time frame, beyond this period, expenditures are projected to increase with annual debt service payments related to funding of the SSIP, as shown in Figure 5.3. These investments and associated debt service, along with inflationary operational costs result in the annual increases in revenue needs in future years. To account for this increase and

Table 5.5 | **SFPUC Wastewater Enterprise FYE 2015 Revenue Requirement**

Revenue Component	FYE 2015 Total[(1)]	Description
Operating Costs	151.8	The Operating Budget funds the day-to-day operations of the SFPUC.
Debt Service	48.6	The SFPUC uses debt to fund capital and refund previous debt (long-term debt only).
Pay-Go	42.4	The SFPUC funds R&R projects through current year revenues
Offsetting Revenues	(10.1)	Additional revenues generated from sources, outside traditional wastewater rates and charges are applied as a credit to reduce required rates and charges revenues. Includes the revenue collected from property taxes, interest earnings, and miscellaneous revenues.
Remaining Coverage and Reserve Driven Needs	-	Revenue requirements associated with meeting the SFPUC's Financial Management Policies.
Wastewater Sales Revenue Requirement	232.7	Total revenue requirements associate with SFPUC's operating costs, debt service, and offsetting revenues. This also includes coverage and reserves needs.
Less Current Projected Revenue	(247.9)	Projected revenue prior to rate increase
Additional Revenue Required	-	Additional revenue required from rate increase (Revenue requirement less projected revenues)

Note:
(1) Presented in million dollars, calculations in tables may not foot due to rounding.

Table 5.6 | **SFPUC Wastewater Enterprise Revenues and Expenditures[1]**

FYE	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Revenues										
Rate Revenue Prior to Rate Increase	$236.1	$247.9	$247.9	$265.2	$277.8	$302.3	$344.6	$382.1	$470.0	$530.6
Non-Rate Revenues	9.8	10.1	10.1	10.6	11.0	11.7	12.9	14.0	16.6	18.3
Total Revenues	**$245.9**	**$258.1**	**$258.1**	**$275.8**	**$288.8**	**$314.0**	**$357.5**	**$396.1**	**$486.6**	**$548.9**
Expenditures										
Operations	$146.4	$151.8	$157.5	$163.3	$169.4	$175.7	$182.2	$189.0	$196.1	$203.4
Debt Service	48.7	48.6	73.8	79.2	96.0	129.6	159.8	240.0	293.0	347.5
Revenue Funded Capital	41.8	42.4	44.0	45.9	47.9	50.9	53.0	55.1	58.1	57.8
Total Expenditures	**$236.8**	**$242.9**	**$275.3**	**$288.4**	**$313.3**	**$356.3**	**$395.0**	**$484.0**	**$547.2**	**$608.6**
Annual Rate Increases										
Operating Cash Flow Surplus (Deficiency) Before Rate Increase	$9.1	$15.2	($17.2)	($12.6)	($24.5)	($42.3)	($37.5)	($87.9)	($60.6)	($59.7)
Unsmoothed Rate Increases	5.00%	0.00%	6.96%	4.76%	8.82%	13.99%	10.89%	23.01%	12.89%	11.25%
Additional Revenue From Rate Increase	11.8	-	17.2	12.6	24.5	42.3	37.5	87.9	60.6	59.7
Operating Cash Flow Surplus (Deficiency) After Rate Increase	20.9	15.2	-	-	-	-	-	-	-	-

Note:
(1) Presented in million dollars, calculations in tables may not foot due to rounding.

Table 5.7 | **SFPUC Wastewater Enterprise Revenues and Expenditures with Smoothed Rate Increases**

FYE	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Revenues										
Rate Revenue Prior to Rate Increase	$236.1	$247.9	$260.3	$273.3	$289.7	$321.6	$357.0	$396.2	$439.8	$488.2
Non-Rate Revenues	9.8	10.1	10.5	10.9	11.3	12.3	13.3	14.4	15.7	17.1
Total Revenues	**$245.9**	**$258.1**	**$270.8**	**$284.2**	**$301.1**	**$333.9**	**$370.3**	**$410.7**	**$455.5**	**$505.3**
Expenditures										
Operations	$146.4	$151.8	$157.5	$163.3	$169.4	$175.7	$182.2	$189.0	$196.1	$203.4
Debt Service	48.7	48.6	73.8	79.2	96.0	129.6	159.8	240.0	293.0	347.5
Revenue Funded Capital	41.8	42.4	44.0	45.9	47.9	50.9	53.0	55.1	58.1	57.8
Total Expenditures	**$236.8**	**$242.9**	**$275.3**	**$288.4**	**$313.3**	**$356.3**	**$395.0**	**$484.0**	**$547.2**	**$608.6**
Annual Rate Increases										
Operating Cash Flow Surplus (Deficiency) Before Rate Increase	$9.1	$15.2	$(4.5)	$(4.2)	$(12.2)	$(22.4)	$(24.8)	$(73.4)	$(91.6)	$(103.3)
Recommended Rate Increase	5.0%	5.0%	5.0%	6.0%	11.0%	11.0%	11.0%	11.0%	11.0%	12.0%
Additional Revenue From Rate Increase	11.8	12.4	13.0	16.4	31.9	35.4	39.3	43.6	48.4	58.6
Operating Cash Flow Surplus (Deficiency) After Rate Increase	20.9	27.6	8.5	12.2	19.6	12.9	14.5	(29.8)	(43.3)	(44.7)

Note:
(1) Presented in million dollars, calculations in tables may not foot due to rounding.

reduce the need for a significant rate increase in a single year, it is recommended that rates are increased in advance of this requirement. For this reason, Carollo is recommending revenue increases in FYE 2015 through 2019 slightly above the annual need in each of the respective years by spreading the total increase evenly over the five years of projected rate increases in order to dampen large annual rate increases. These recommended annual rate increases are shown in Figure 5.4. Additionally, the short-term cash flows will help to mitigate future debt issuance costs by allowing the SFPUC to cash fund a portion of the SSIP.

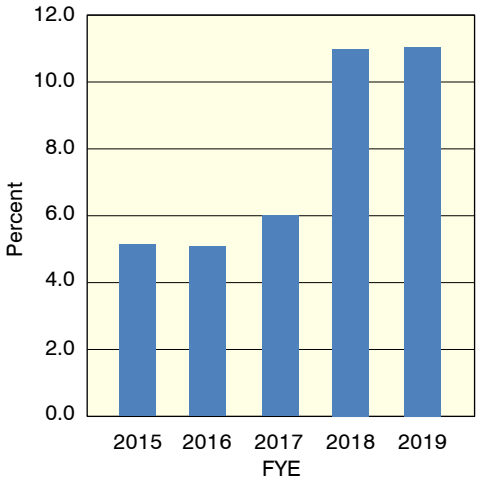


Figure 5.4 | **SFPUC Wastewater Enterprise Recommended Annual Rate Increases**

ADDITIONAL CONSIDERATIONS

As noted above, it is crucial that the SFPUC maintain a 1.25 times coverage ratio of annual debt service. Failure to meet this requirement could result in a damaged credit rating, which could have significant interest rate cost impacts due to the amount of debt expected to be issued in upcoming years. Figure 5.5 shows the forecasted debt coverage ratios with and without reserves resulting from the recommended rate increases.

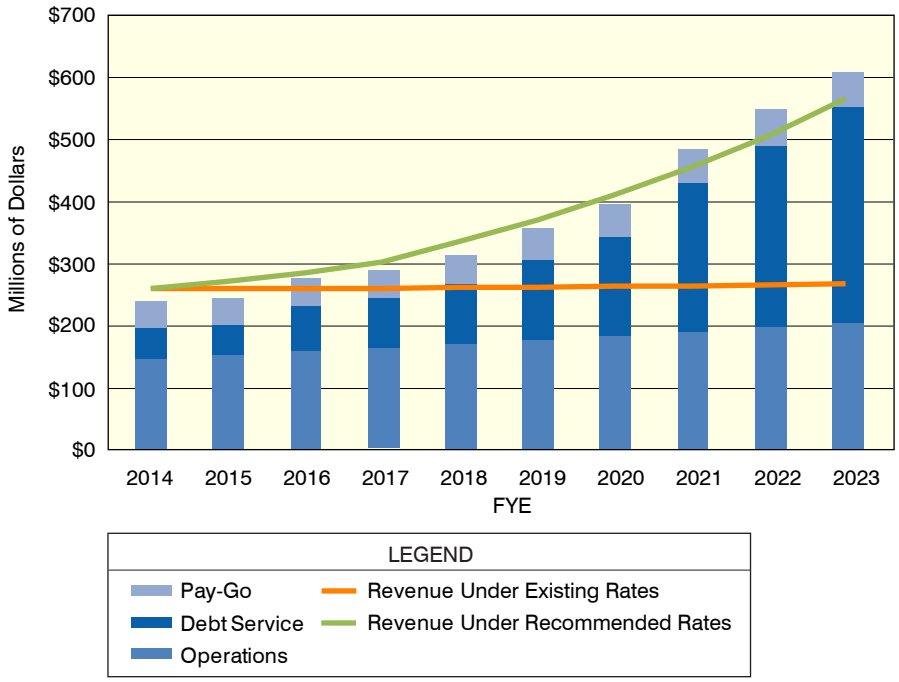


Figure 5.3 | **SFPUC Wastewater Enterprise Projected Expenditures**

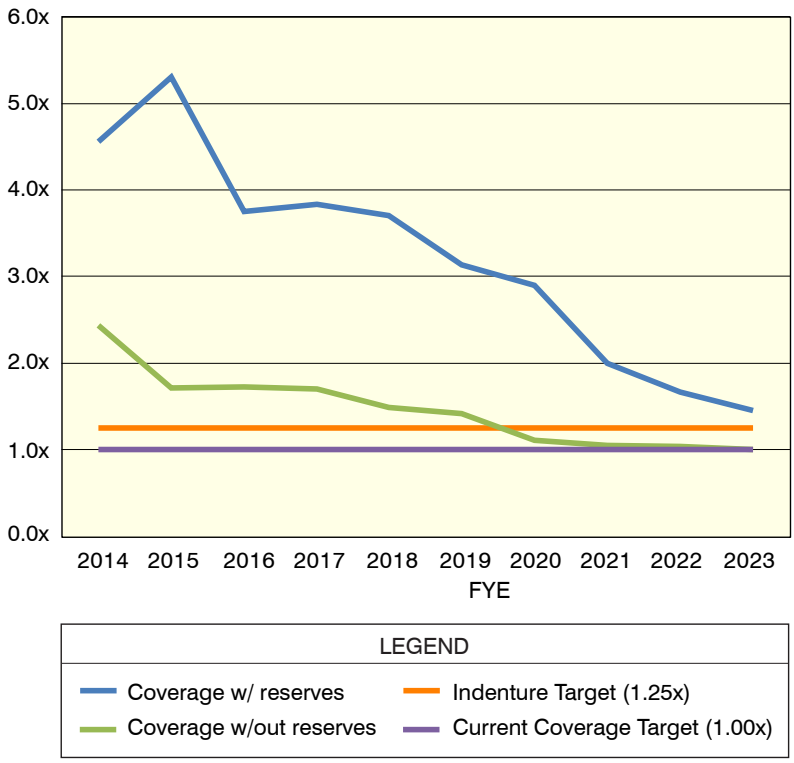


Figure 5.5 | **SFPUC Wastewater Enterprise Recommended Annual Rate Increases**

Table 5.8 and Figure 5.6 show the resulting operating reserve fund from the cash flow presented in Table 5.7 for the rate-setting period. As shown in Figure 5.6, it is recommended that the Wastewater Enterprise build-up the balance of the operating reserve in order to mitigate the later annual rate increases that would otherwise be needed for future expenditures.

Table 5.8 | **SFPUC Wastewater Enterprise Operating Fund Balance**

FYE	Expenditures[1]					
	2014	2015	2016	2017	2018	2019
Beginning Fund Balance	**$88.2**	**$110.1**	**$139.1**	**$150.4**	**$167.0**	**$191.7**
Net Cash Flow	20.9	27.6	8.5	12.2	19.6	12.9
Interest Earnings	1.1	1.4	2.8	4.5	5.0	7.7
Ending Fund Balance	**$110.1**	**$139.1**	**$150.4**	**$167.0**	**$191.7**	**$212.3**
Percent of O&M Expenditures	75%	91%	95%	102%	112%	118%
Percent of Debt Service	226%	286%	204%	211%	200%	164%

Note:
(1) Presented in million dollars, calculations in tables may not foot due to rounding.

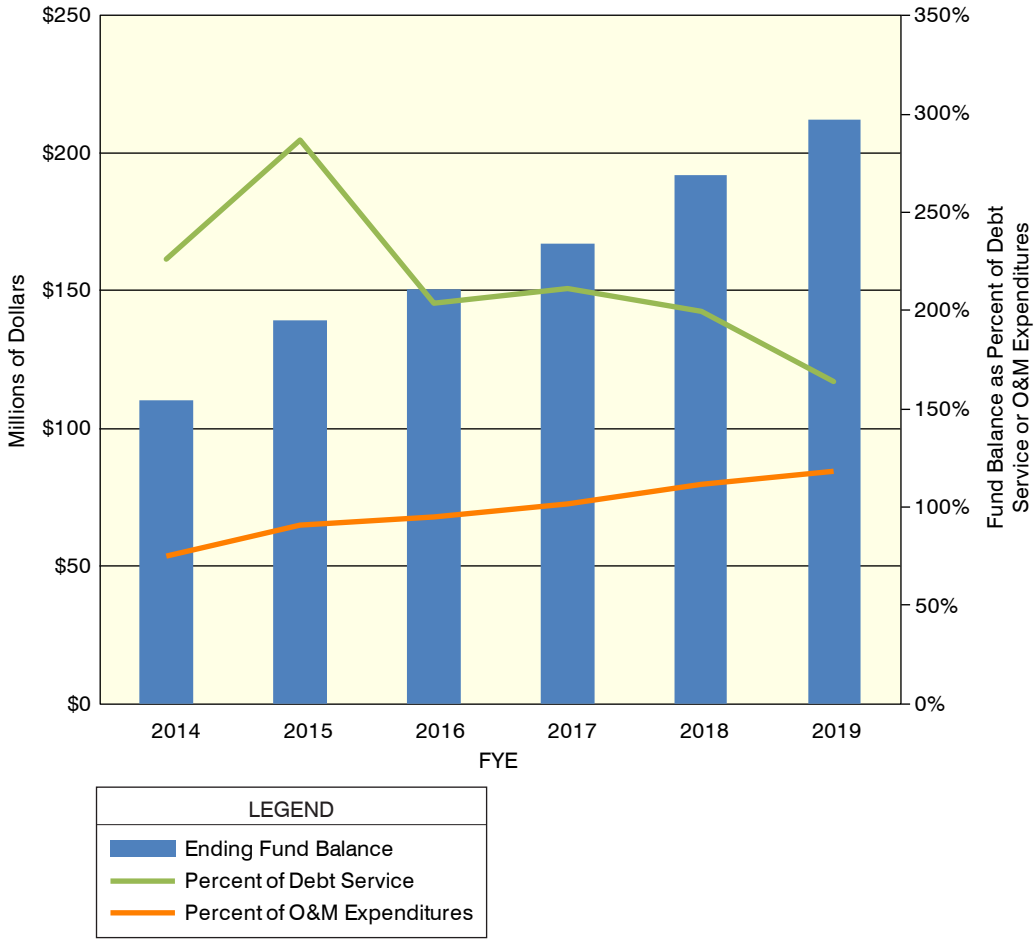


Figure 5.6 | SFPUC Wastewater Enterprise Operating Fund Balance

CHAPTER 6

Wastewater Rates

Introduction

The SFPUC maintains rates to equitably recover the costs from users to operate, service debt, and perform repairs and replacements for wastewater collection and treatment systems. The focus of this chapter is to detail the process utilized to achieve full cost recovery and substantiate that customers are paying their fair and proportionate share of the system costs.

OVERVIEW OF RATE SETTING PROCESS

The City Charter Section 8B.125 requires that the SFPUC perform a cost of service study at least every five years. This provision is designed to maintain that revenues from rates are adequately funding utility operations, maintenance, and ongoing capital needs, while equitably recovering costs from system users. Additionally, in the State of California, utility 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. To achieve these requirements, Carollo/PME JV conducted the following study elements, shown in Figure 6.1.

As the SFPUC can demonstrate that it has met the proportionality requirements of Proposition 218 and the requirements of the City Charter, the SFPUC has some flexibility to develop rates that also achieve the City's policy objectives and promote community values. The recommended rate structure is designed to account for the unique nature of the SFPUC's wastewater system as well as the discharge characteristics of an ecologically minded service population.

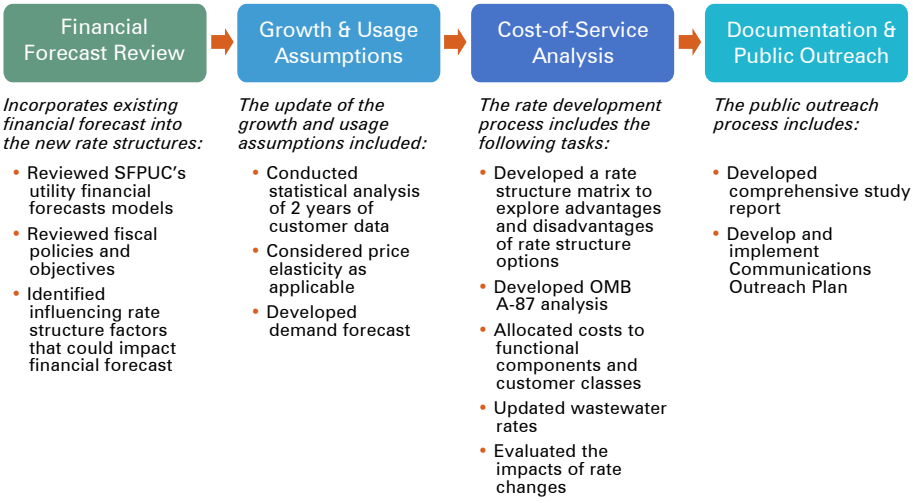


Figure 6.1 | **Flowchart for Cost of Service Rate-Setting Process**

Future Considerations

In performing this wastewater rate structure analysis, Carollo/PME JV worked in close collaboration with SFPUC staff to gather and validate study data. Carollo/PME JV reviewed the SFPUC customer and financial data for reasonableness; however, Carollo/PME JV did not independently audit nor verify the accuracy of the SFPUC's customer billing or financial records used as the foundation of this analysis. In particular, summary level customer data was provided and used as the basis for the findings presented within this report. The projections and forecasts of this analysis are based on reasonable expectation of future events. Should cost escalation, operating expenditures, or capital needs vary from projected levels prior to Fiscal Year Ending (FYE) 2019, the SFPUC may require an additional Proposition 218 process to increase rates above currently projected levels. The SFPUC may similarly be required to begin a new Proposition 218 process should revenues not materialize as projected. As the SFPUC continues to gather additional customer data and evaluates the impacts of wet weather cost drivers, it might be possible in future rate efforts to create additional or more specific rate sub-classes within the non-residential customer class for greater transparency.

COST OF SERVICE ANALYSIS

The purpose of a cost of service analysis is to provide a rational basis for the distribution of system expenditures to each customer in proportion to the demands they place on the system. A detailed cost allocation was developed by assigning costs to one of four functional categories, and then allocating costs to each customer class based on its respective demand on the system.

The allocation developed through this study provides a stable method for allocating costs within the wastewater system

Functional Cost Allocation Components

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 – Chemical Oxygen Demand (COD), Total Suspended Solids (TSS), and Fats, Oils, and Greases (FOG). These cost categories are referred to as billable constituents. O&M expenditures and the capital costs for each debt service and future capital projects were assigned to each 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.

The SFPUC's budget was analyzed on a per line-item basis and annual costs were attributed to the billable constituents:

- **Flow**: Operating and capital costs incurred by the wastewater system to handle the quantity of flows discharged to or collected by the system.
- **Chemical Oxygen Demand (COD)**: Costs incurred to remove and dispose of organic compounds.
- **Suspended Solids (TSS)**: Costs associated with removing and disposing of small particles in the wastewater.
- **Fats, Oils, and Grease (FOG)**: Costs for cleaning collection system and treating and disposing of fats, oils, and greases discharged to the sewer system.

The details of this are presented in Appendix D. 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 FYE 2015 through FYE 2019 by major function of the wastewater utility. Utilizing the five-year average accounts for slight annual shifts in costs over the course of the study period.

Allocation of Costs to Functional Components

Operations and maintenance (O&M) costs incurred by the SFPUC result from materials, power, chemical costs, and labor. These costs were identified and allocated to constituents for each process within each treatment facility. The allocation percentages for O&M costs, by unit process, are presented in Table 6.1.

Capital costs include the costs of planning, engineering, and constructing treatment and collection facilities for the purpose of providing additional capacity, replacing existing facilities, or for improving the level of service through either higher levels of treatment or more efficient treatment systems. Capital cost allocations differ from O&M cost allocations because billing parameters influencing the costs to construct a process are not always the same as the parameters influencing the operations of a process. The allocation percentages for capital costs, by unit process, are presented in Table 6.2.

Table 6.1 | **SFPUC Wastewater Enterprise Operation and Maintenance Cost Allocation**

Treatment Process	COD	TSS	FOG	Flow
SOUTHEAST PLANT (SEP)				
Influent Pumping	-	5%	-	95%
Headworks and Grit Removal	-	60%	-	40%
Primary Sedimentation	-	60%	-	40%
Secondary Aeration	80%	-	-	20%
Secondary Clarifiers	80%	-	-	20%
Disinfection	-	-	-	100%
Solids Thickening	77%	19%	4%	-
Solids Blending	51%	34%	15%	-
Digester and Gas Management	51%	34%	15%	-
Centrifuge	60%	40%	-	-
SEP Effluent (Booster) Pump Station	-	-	-	100%
Hauling	60%	40%	-	-
OCEANSIDE PLANT (OSP)				
Influent Pumping	-	5%	-	95%
Screening and Vortex Grit Tanks	-	60%	-	40%
Primary Clarifiers	-	60%	-	40%
Secondary Aeration	80%	-	-	20%
Secondary Clarifiers	80%	-	-	20%
Gravity Belt Thickener	26%	60%	15%	-
Anaerobic Digesters	26%	60%	15%	-
Belt Filter Press	30%	70%	-	-
Cyclone Classifier	30%	70%	-	-
NORTH POINT FACILITY (NPF)				
Screening	-	-	-	100%
Grit Chambers	-	-	-	100%
Primary Clarifiers	-	50%	-	50%
Hypochlorite Storage & Dosing System	-	-	-	100%
Dechlorination	-	-	-	100%
COLLECTION SYSTEM				
Collection System	-	-	15%	85%
Channel Pump Station	-	5%	3%	92%
All Other Pump Stations	-	5%	3%	92%
Grease Recovery and Recycle	-	-	100%	-

Table 6.2 | **SFPUC Wastewater Enterprise Capital Cost Allocation**

	COD	TSS	FOG	Flow
SOUTHEAST PLANT (SEP)				
Influent Pumping	-	-	-	100%
Headworks	-	20%	-	80%
Primary Sedimentation	-	19%	2%	79%
Secondary Aeration	95%	-	-	5%
Secondary Clarifiers	32%	8%	-	60%
Disinfection	-	-	-	100%
Solids Thickening	77%	19%	4%	-
Biosolids Handling	54%	36%	10%	-
SEP Effluent (Booster) Pump Station	-	-	-	100%
OCEANSIDE PLANT (OSP)				
Influent Pumping	-	-	-	100%
Screening and Vortex Grit Tanks	-	20%	-	80%
Primary Sedimentation	-	19%	2%	79%
Secondary Aeration	95%	-	-	5%
Secondary Clarifiers	32%	8%	-	60%
Biosolids Processing	27%	63%	100%	-
OSP Effluent Discharge	-	-	-	100%
NORTH POINT FACILITY (NPF)				
Influent Pumping	-	-	-	100%
Screening	-	-	-	100%
Grit Chambers	-	-	-	100%
Primary Clarifiers	-	-	-	100%
Hypochlorite Storage and Dosing System	-	-	-	100%
Dechlorination	-	-	-	100%
Effluent Discharge	-	-	-	100%
COLLECTION SYSTEM				
Collection System	-	-	-	100%
Channel PS	-	-	-	100%
All Other PSs	-	-	-	100%
Green infrastructure (Early Imp Projects)	-	-	-	100%
Grease Recovery and Recycle	-	-	100%	-

These process-specific capital allocations are applied to annual debt service payments on existing debt, as well as projected future debt service required to fund planned capital project expenditures.

The Sewer System Improvement Program (SSIP) outlines the capital improvement projects that are planned through FYE 2032, 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. The planned projects for the entire SSIP (Phase I, II, and II) were used to allocate costs to the billable constituents to account for all of these future investments, not just costs incurred during the upcoming five-year rate period. For example, the SFPUC will soon begin construction of the new digesters, which are primarily associated with COD and TSS. Taken in isolation, near-term projects would result in a temporary cost allocation shift to the loading parameters. Over time, the allocation would then shift back towards flow as the SFPUC completes the SSIP. Taking into account the allocation of total SSIP avoids large annual swings in costs from one billable constituent to another and reduces temporary cost shifts between customer classes.

The resulting allocation to be applied to the annual revenue requirement is presented in Table 6.3 and Figure 6.2.

Table 6.3 | **SFPUC Wastewater Enterprise Allocation of Average Net Revenue Requirements**

	Flow	COD	TSS	FOG	Total
Operating Expenses	$86,755,907	$38,058,097	$28,362,233	$10,798,453	$163,974,690
Existing Debt	54,785,619	16,406,209	11,148,842	3,126,737	$85,467,407
Rate Funded Capital	51,880,689	5,757,666	3,634,494	1,001,445	$62,274,294
Other Non-Rate Revenues	(6,837,902)	(2,128,980)	(1,525,291)	(527,689)	$(11,019,863)
Total Allocation ($)	$186,584,313	$58,092,993	$41,620,277	$14,398,945	$300,696,5287
Total Allocation (%)	62%	19%	14%	5%	100%

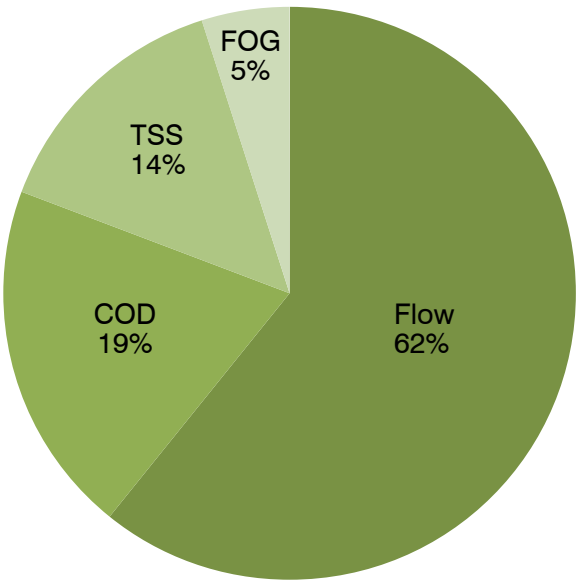


Figure 6.2 | **SFPUC Wastewater Enterprise Functional Cost Allocation**

UNIT COST AND CUSTOMER ALLOCATION

The unit costs of service are determined by dividing the total annual costs allocated to each parameter by the total annual service units of the respective component. The total annual costs allocated to each parameter are determined by applying the percent allocation summarized in Figure 6.2 to the annual revenue requirement as presented in Chapter 5. The annual service units are based on data from customer billing.

Wastewater Data and Discharge Characteristics

The customer data for this rate analysis relied solely on the summary level data provided by the SFPUC. Consistent with the assumptions made for the water system, account growth is expected to increase at 0.5 percent annually. Despite account growth, the annual number of discharge units is assumed to remain at existing levels throughout the study's forecast. This assumption is consistent with the forecasted water demand analyzed earlier in Chapter 4 of this report.

Given the similarity in residential wastewater characteristics, Single Family Residential (SFR) and Multi-Family Residential (MFR) share wastewater strength assumptions. In contrast to residential customers, non-residential wastewater strength characteristics vary greatly within the class, depending on the type of business. For example, restaurants, office buildings, hotels, etc. have different levels of strength, and are thus assigned different standard industrial classification (SIC) codes.

Based on available historical customer data and these forecasting assumptions, Table 6.4 details the total units of service for each customer class and functional category predicted for FYE 2015. This customer data is then used to determine appropriate proportional allocation of revenue needs to customer classes.

Table 6.4 | **SFPUC Wastewater Enterprise Forecasted FYE 2015 Units of Service by Customer Class**

Customer Class	Flow (Ccf)	COD (lbs)	TSS (lbs)	FOG (lbs)
Single Family Residential	6,690,708	28,550,165	11,645,463	3,547,902
Multi-Family Residential	10,946,136	46,719,799	19,056,758	5,988,422
Non-Residential	8,648,705	39,174,555	12,804,370	4,840,860
Total	**26,285,549**	**114,444,520**	**43,506,591**	**14,377,184**

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 below in Table 6.5, 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 flow unit cost is billed based on the assumed discharge or return to the SFPUC sewer collection system. The calculated commodity unit represents 100 cubic feet (1 Ccf) of discharge flow, which is derived by adjusting metered water usage by a standard discharge factor (90 percent for SFR, 95 percent for MFR, and 90 percent for non-residential). The strength-based unit costs are billed based on the pounds of COD, TSS, and FOG returned to the system.

Customer Class Allocation

The unit costs of each component shown in Table 6.5 are then applied to each customer classes' projected discharge flow and loadings from Table 6.4 to derive customer class allocations (Table 6.6). This allows for costs to be allocated to each customer class based on their respective proportional use of the overall system.

Table 6.5 | **SFPUC Wastewater Enterprise – Functional Unit Costs**

	Functional Component			
	Flow	COD	TSS	FOG
Allocation Percentage	62%	19%	14%	5%
Allocable to Component	$161,527,944	$50,291,697	$36,031,099	$12,465,314
Total Units	26,285,549	114,444,520	43,506,591	14,377,184
Allocation Basis	Discharge Units (Ccf)	Total Pounds of COD	Total Pounds of TSS	Total Pounds of FOG
Unit Cost	$6.1451 Per Ccf	$0.4394 Per lb COD	$0.8282 Per lb TSS	$0.8670 Per lb FOG

Table 6.6 | **SFPUC Wastewater Enterprise Allocation of Revenue Requirements by Customer Class**

Customer Class	Flow	COD	TSS	FOG	Total
Single Family Residential	$41,115,225	12,546,134	9,644,488	3,076,104	$66,381,951
Multi-Family Residential	$67,265,358	20,530,629	15,782,343	5,192,085	$108,770,415
Non-Residential	$53,147,361	17,214,934	10,604,268	4,197,125	$85,163,688
Total	$161,527,944	$50,291,697	$36,031,099	$12,465,314	$260,316,0533

Throughout the rate-setting process, Carollo/PME JV worked closely with SFPUC staff to evaluate the impact of the recommended rate structure's impact to wastewater customers. Based on the new cost of service analysis and recommended rates, there will be a shift between customer classes. This shift is shown in Figure 6.3. In this figure, the recommended customer class allocation is compared to the current rate structure's allocation applied to the revenue requirements of FYE 2015.

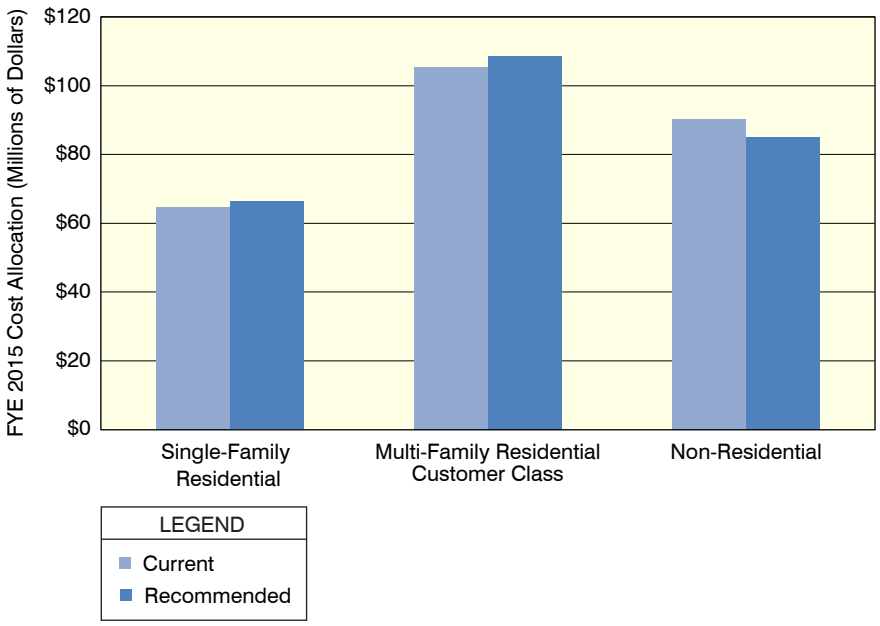


Figure 6.3 | **Comparison of Cost Allocation by Rate Structure**

RATE DESIGN

The rate design determines how the costs, identified in Table 6.6, 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.

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 and conservation objectives. The SFPUC last performed a cost of service rate analysis in 2009. Based on the recommendations at that time, the SFPUC transitioned from a three-tiered rate structure, which was implemented in 2005, to the current two-tiered structure for residential customers. Similar to the water rates, the current wastewater rates consist of a flow-based tiered rate structure for residential customers and a uniform (non-tiered) flow-based rate for non-residential customers with an additional separate charge for each unit associated with strength. Unlike water rates, retail wastewater revenues are recovered 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. To calculate the monthly wastewater discharge, the customer's water usage is adjusted by a return-to-sewer factor and represents the assumed discharge units. For non-residential 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 hundred cubic feet (Ccf), which is specific to user category.

Table 6.7 | **SFPUC Wastewater Enterprise Current Rates**

Single-Family Residential	
Tier 1 (0-3 units)	$7.90 per Ccf
Tier 2 (>3 units)	10.53 per Ccf
Multi-Family Residential	
Tier 1 (0-3 units)	$8.25 per Ccf
Tier 2 (>3 units)	11.01 per Ccf
Non-Residential	
Flow	$6.6203 per Ccf
COD	0.2178 per lb
TSS	0.8907 per lb
FOG	1.1145 per lb

Table 6.7 shows the current wastewater rates for residential and non-residential users.

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/PME JV analyzed various rate design alternatives and the corresponding customer and utility implications. Beyond the identified study objectives, Carollo/PME JV identified additional criteria for considerations and discussed them at length with SFPUC staff. The following is a partial list of the additional elements desired in the rate structure:

- Clear and Understandable.
- Encourage Conservation and Water Efficiency.
- Follow Cost of Service Principles.
- Provide Revenue Stability.
- Affordable.
- 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.

Residential Wastewater Rates

Similar to residential water customers, SFR and MFR wastewater customers are evaluated separately to determine unit costs more specific to their customer category. The existing residential rates consist of a two-tier rate structure. For single-family residential, the current rate for each of the first three discharge units is $7.90 and $10.53 for each additional discharge unit. Likewise, multi-family residential customers are charged $8.25 per unit for the first three units and $11.01 for any additional unit. Residential rates are tiered to further encourage efficient use of water.

Units of wastewater discharge are determined based on metered water consumption. To recognize that a portion of residential water usage does not return to the wastewater system, a standard customer return factor of 90 percent and 95 percent are applied to water usage of SFR and MFR, respectively. The return to sewer factor varies between SFR and MFR customers, recognizing the greater level of outside irrigation by single-family users. Customers may dispute this flow factor.

Finally, the 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 charge assessed for flow include costs associated with loadings. This is standard industry practice.

Single-Family Residential

Residential rates have two tiers. Tier 1 is applied to up to three discharge units per month. The Tier 2 rate is applied to all units thereafter. For SFR users, a tier break at 4 Ccf results in 48 percent of discharge flow in the first tier and the remaining 52 percent of flow is charged in the second tier. Consistent with the current rate structure and the SFPUC's policy to encourage conservation, if the rate at the second tier is set to be 1.33 times the rate of a unit within the first tier, dividing the costs amongst the two tiers accordingly results in a charge of $8.47 per Ccf for Tier 1 and $11.27 for each additional Ccf that falls in Tier 2. To be consistent with the recommended water tier structure, if the tier break were to be moved to 4 Ccf, the resulting rates for Tier 1 and Tier 2 would be $8.77 and $11.66, respectively.

However, the SFPUC wastewater system and peak capacity requirements are driven primarily by wet weather flows into the system, rather than strictly incremental dry weather customer discharges. As a result, Carollo/PME JV recommends transitioning from the current tiered rate structure to a flat per Ccf rate for all wastewater discharged to the system. This rate is determined by taking the full amount of costs allocate to SFR customers and dividing by all discharge units. This would result in a rate of $9.93 per Ccf for all Ccf discharged to the system. Again, the amount discharged is assumed to be 90% of monthly water consumed. This flat per unit charge continues to encourage conservation as it is directly tied to the customer's water demands.

Figure 6.4 illustrates the impact of transitioning away from a tiered rate structure for SFR customers.

Multi-Family Residential

Although multi-family users have the same wastewater characteristics in terms of loadings, they generally produce less flow than a typical SFR account. This is due to a lower number of residents per MFR unit than SFR unit. As a result and given the same tier allotments, less MFR discharge is realized in the second tier. The majority of discharge units falls within Tier 1, accounting for 69 percent of units. Consistent with the current rate structure, if the rate at the second tier is set to be 1.33 times the rate of a unit within the first tier, the resulting rates would be $9.01 for discharge within the first year and $11.99 for all other discharge. The 1.33 price differential is based on the SFPUC's objective of encouraging efficient use of water resources and to reflect the incremental cost of higher discharge. When compared to the SFR recommended rate, MFR are higher per discharge unit. All customer classes share the same unit cost per flow, developed in Table 6.5. Given MFR's greater amount of discharge within Tier 1 and a higher discharge factor, the MFR rates for both Tier 1 and Tier 2 would be greater than the those for SFR. However, similar to SFR, it is recommended that the tiers be removed from the wastewater rates. Because SFR and MFR customers have the same loadings assumptions, their per unit rates would be equivalent at $9.93 per Ccf.

Figure 6.5 illustrates the impact of transitioning away from a tiered rate structure for MFR customers.

Non-Residential Wastewater Rates

Non-residential users currently pay a uniform volume rate of $6.6203 for each unit of wastewater flow, which

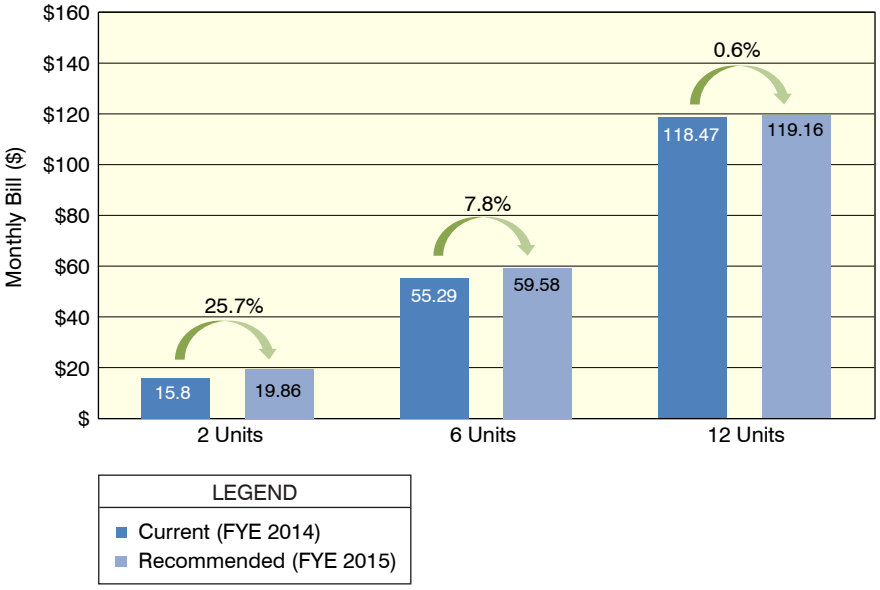


Figure 6.4 | **SFPUC Wastewater Enterprise Single-Family Residential Customer Impacts**

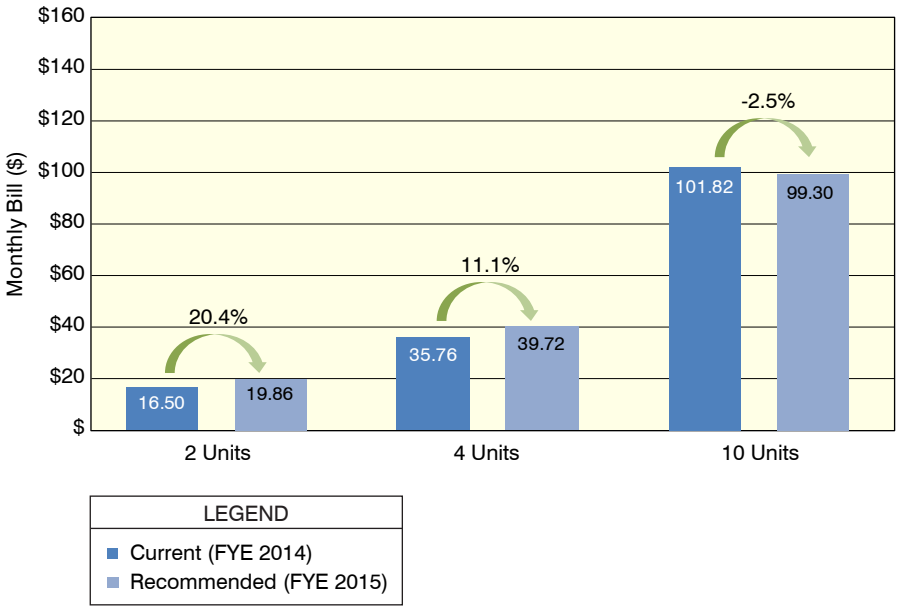


Figure 6.5 | **SFPUC Wastewater Enterprise Multi-Family Residential Customer Impacts**

is based on a 90 percent return factor applied to metered water usage for non-residential customers. In addition, non-residential 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 non-residential customers. For COD, the current charge is $0.2178 per pound. The strength charges for TSS and FOG are $0.8907 and $1.1145 per pound, respectively. Non-residential 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 (SIC) code, if no sampling data is available.

As discussed, the recommended rates are calculated by dividing the total annual costs associated with each loading by their associated total annual units. Non-residential 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. Figure 6.6 shows the monthly impact to a sample of various non-residential customers, comparing the current rates in FYE 2014 to the recommended rates in FYE 2015.

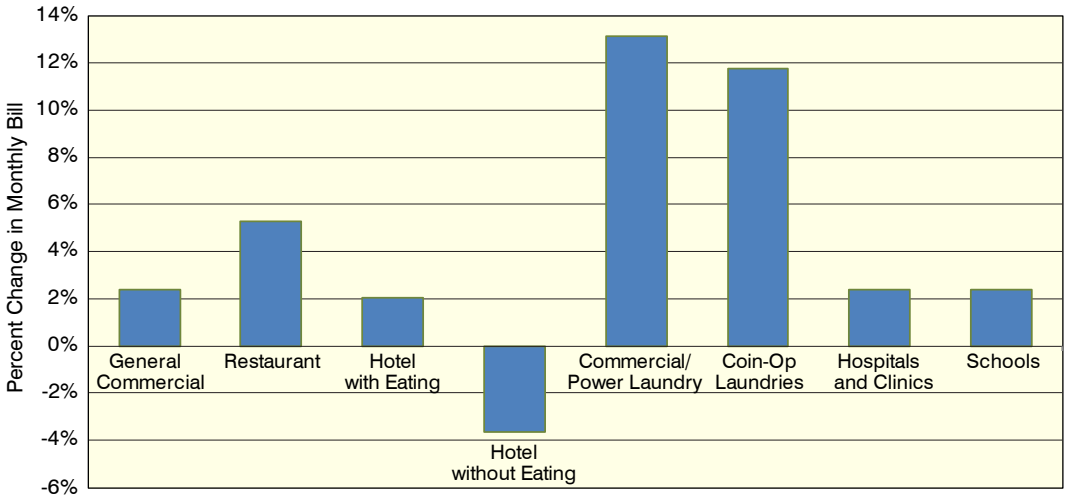


Figure 6.6 | **Change in Monthly Bill for Non-Residential Customers from FYE 2014 Current Rates to FYE 2015 Recommended rates**

SFPUC Wastewater Enterprise Recommended Rate Schedule

The annual wastewater rates through FYE 2019 are determined using the annual rate increases defined by the revenue requirement analysis, which was described in detail in Chapter 5. These increases are applied to the FYE 2015 rates to escalate rates for later years. These are summarized in Table 6.8.

Table 6.8 | **SFPUC Wastewater Enterprise Recommended Annual Rates**

Annual Increase		5.0%	5.0%	6.0%	11.0%	11.0%
	Effective 7/1/2013	Effective 7/1/2014	Effective 7/1/2015	Effective 7/1/2016	Effective 7/1/2017	Effective 7/1/2018
	Existing Unit Charge	Recommended Unit Charge				
Single Family Residential[(1),(2)]						
Tier 1 (per Ccf 0-4 Ccf)	$7.90	$8.77	$9.21	$9.77	$10.85	$12.05
Tier 2 (per Ccf >4 Ccf)	10.53	11.66	12.25	12.99	14.42	16.01
SFR Non-Tiered Rate (Recommended)						
All Discharge (per Ccf)	N/A	$9.93	$10.43	$11.06	$12.28	$13.64
Multi-Family Residential Tiered Rates[(1)]						
Tier 1 (per Ccf 0-3 Ccf)	$8.25	$9.01	$9.47	$10.04	$11.15	$12.38
Tier 2 (per Ccf >3 Ccf)	11.01	11.99	12.59	13.35	14.82	16.46
MFR Non-Tiered Rate (Recommended)						
All Discharge (per Ccf)	N/A	$9.93	$10.43	$11.06	$12.28	$13.64
Non-Residential Rates						
Volume of Wastewater Discharged (per Ccf)	$6.6203	$6.1452	$6.4525	$6.8397	$7.5921	$8.4273
COD (per lb)	0.2178	0.4395	0.4615	0.4892	0.5431	0.6029
Suspended Solids (per lb)	0.8907	0.8282	0.8697	0.9219	1.0234	1.1360
Oil/Grease (per lb)	1.1145	0.8671	0.9105	0.9652	1.0714	1.1893

Note:
(1) If two-tier structure is continued.
(1) The tier break at 4 Ccf is shown to remain consistent with the recommended single family residential water commodity rate structure.

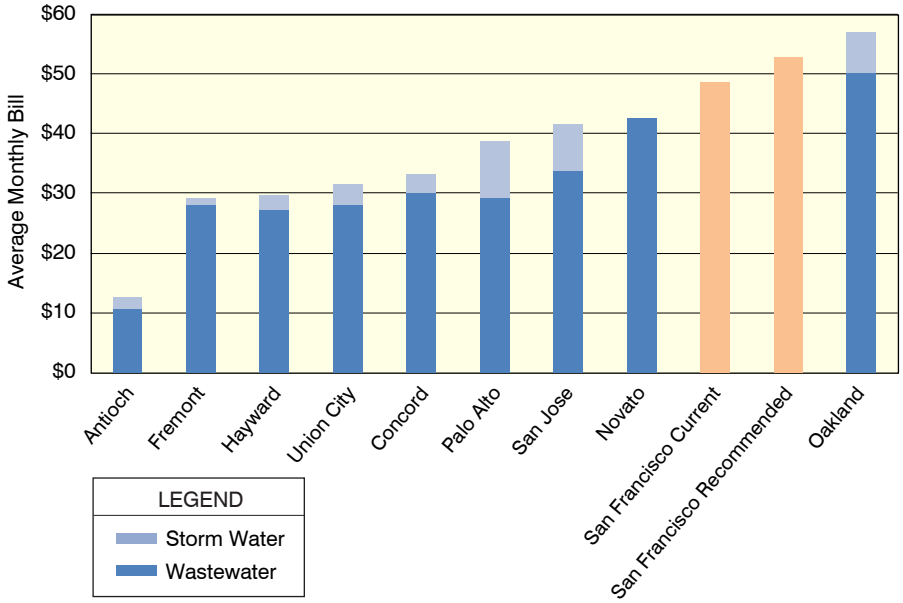


Figure 6.7 | **Local Monthly Wastewater and Storm Water Bill Comparison Survey for a SFR Customer**

ADDITIONAL CONSIDERATIONS

Customer Data and Discharge Characteristics

Although the existing rate structure is reasonable, the SFPUC has not updated its flow and loading assumptions for residential or commercial customers in several years. In order to do so, the SFPUC would need an extensive sampling program. As no better data or existing standards are available, there is not a strong basis for changing the customer loading assumptions at this point in time. However, we do acknowledge that this could create a continued or growing cost-of-service gap and recommend that a flow and loading study be prepared in the future to confirm the appropriateness of these assumptions. Although the wastewater system is largely unchanged since the 2009 cost-of-service study, aggressive conservation and other factors might cause a shift in the concentration assumptions. In addition, as of January 17, 2014, Governor Jerry Brown declared a drought emergency in California. As he has asked all citizens to reduce water use by at least 20%, there might be a further shift in concentration due to constant amount of loadings discharged to the system with reduced flow.

Wastewater Rate Comparison

Carollo/PME JV conducted a rate survey of nearby utilities. Although utilities are not always alike, it is common to examine comparisons between similar or neighboring utilities.

Figure 6.7 compares a typical single-family residential user's overall monthly bill with those of nearby utilities. This comparison shows the total combined average monthly bill (including costs associated with water, wastewater, and storm water) to account for San Francisco's combined system. This comparison also accounts for the different water use patterns of other cities.

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, wastewater rates are in line with the average of nearby agencies.

Wet Weather Considerations

Because the SFPUC operates a combined sanitary and storm sewer system, the SFPUC might wish to investigate the benefits of a separate wet weather rate component. This would result in a separate dry weather rate based on discharged flow and wet weather rate based on contributions to non-point source runoff. This separation of rates would provide transparency and better communicate to the ratepayers the benefit received by treating wet weather runoff. This approach also allows the SFPUC the ability to show the importance of treating wet weather flows due to street pollutants. Although not recommended at this time due to administrative and data limitations and a desire for extensive stakeholder outreach and input, Carollo/PME JV's preliminary analysis discusses the benefits of enhanced transparency and, with that, the ability to encourage green stormwater reduction incentives. These benefits are discussed in more detail in the following chapter.

This page intentionally left blank.

CHAPTER 7
Future Considerations

Introduction

As described in the Background section of this report, the SFPUC operates a combined sanitary and wet weather sewer system that was designed and constructed to protect receiving waters. This wastewater system is one of two combined systems within California and represents a higher level of service than other wastewater providers within the state. The SFPUC is a pioneer of wet weather management, and the agency's policies helped shape EPA's Combined System Overflow (CSO) Control Policy, which regulates combined systems nationwide. The SFPUC implemented a wet weather management system and constructed a transport storage system, which has helped the SFPUC comply with the CSO Control Policy and drastically decrease the number of combined sewer overflows.[1] Many large combined systems such as Portland, Philadelphia, and Washington D.C. are now challenged with meeting the requirements of the CSO Control Policy and are in the process of building similar types of wet weather facilities for their combined systems.

The SFPUC primarily funds all activities of the wastewater enterprise, including wet weather management and infrastructure investments, through the wastewater user fees (rates). Although minimal or cyclical, some additional revenues are generated by capacity charges, interest earnings, and miscellaneous revenues. Wastewater rates are assessed based on a customer's water consumption – the actual flow through the water meter, most of which is discharged to the sewer system. This rate structure is premised on an underlying assumption that there is a strong correlation between a customer's water consumption and the quantity of wastewater discharged back into the sewer system. This is a reasonable and widely applied approach to determining a customer's dry weather impact to the system; however, the SFPUC could continue to explore the increasingly common practice of separately assessing a customer's wet weather flow contributions to the system.

In the future, following the completion of necessary engineering and fiscal analyses not yet complete, policy maker consideration of a wet weather rate component based on specific wet weather contributions might create greater incentives for customers to implement wet weather management techniques. If warranted by the engineering and fiscal analyses, the SFPUC could provide a cost-of-service rate adjustment for low impact design (LID) and other mitigation efforts. Such an adjustment might incent customers to implement wet weather management techniques such as green roofs, pervious pavement, and bioretention and provide recognition of the customer's contribution to greening the City. Based on these findings, Carollo/PME JV recommends that the SFPUC continue to explore cost-of-service rate adjustments and refine the necessary data to fully evaluate a separate wet

1 For example, on the Westside, the construction of the transport storage system has resulted in a decrease in the average overflows from 114 per year to eight per year. Wet-weather flows receive equivalent-to primary treatment before being discharging to the receiving waters.

weather rate component. Additionally, Carollo/PME JV recommends that the SFPUC implement a grant program that will allow the agency to collect information regarding the benefit of green programs and could serve as the next step in completing the necessary analyses and assessment for implementing a wet weather related charge.

WET WEATHER COST ALLOCATION

The current SFPUC wastewater rate structure, which recovers all wastewater costs based on metered water, is common throughout California and the United States. This structure meets all legal requirements as the rates presented within Chapter 6 were developed based on cost-of-service principles. Agencies have broad authority to impose cost-of-service based wastewater, water, and solid waste user fees under Proposition 218 through a public notification and commission/council/board approval process. Because the SFPUC collects and treats wet weather flows in a combined system, costs for addressing these flows may be collected through a wastewater rate without the requirement of a public vote.

When developing a rate structure, there are three general steps that are required, which are consistent with the approaches described in Chapter 4 and Chapter 6, for water and wastewater rate setting, respectively. These steps are as follows:

1. **Functional Allocation:** The first step is the functional cost allocation. In the case of implementing a separate wastewater rate component for wet weather, flow related costs are allocated between wet or dry weather cost categories.
2. **Cost Recovery Method:** The next step is to determine the metric for allocating and recovering costs to customer classes. Common allocation factors include the gross area of the parcel, the impervious area of the parcel, the pollutant contribution, a flat fee per account, or a combination of these.
3. **User Charges:** Finally, user charges are calculated. Residential customers are often charged a flat monthly rate based on a class average or can be subject to a tier based on property size (e.g., <> 5,000 square feet). Non-residential customers are often charged based on their specific parcel characteristics.

The following sections illustrate how the SFPUC could develop a separate wet weather cost allocation component.

1. Wet Weather Functional Allocation

During the rate setting process, a functional allocation was developed to track costs back to the billable constituents; flow, Chemical Oxygen Demand (COD), Total Suspended Solids (TSS), and Fats, Oils, and Greases (FOG). This process is discussed in Chapter 6. To implement a separate wet weather cost component, the flow could be broken down into wet and dry weather related costs. An allocation between dry and wet weather flow could be calculated based on the wastewater system design and operational parameters. This analysis also accounts for historical flow during both dry weather conditions and wet weather conditions. Separate allocations could be applied to Operations and Maintenance (O&M) costs and capital costs to accurately reflect cost relationships.

O&M costs incurred by the SFPUC result from materials, power, chemical costs, and labor. These costs identified as being related to flow in Chapter 6 would be allocated to wet or dry weather for each process within each treatment facility. Variable costs such as those associated with energy for pumping and chemical addition are directly related to the volume of water treated. Therefore, associated costs would be allocated based upon dry and wet weather average annual flows.

A capital cost allocation could be developed, accounting for existing and projected capital expenditures and debt service. Wastewater facilities are designed to accommodate both base and peak wastewater flows, as discussed in Chapter 6. Certain processes, such as the headworks, are designed to accommodate peak wet weather flows. Conversely, other treatment processes within the wastewater system are operated on a steady state basis and are designed based on average flows. The dry weather portion would be allocated using the base flow and the wet weather portion would be allocated using the incremental peak flow.

Applying the overall wet and dry weather allocations to total flow revenue requirements would result in the wet weather revenue requirement.

2. Cost Recovery Method

As discussed in detail in Chapter 6, unit costs of service are calculated by dividing the total annual costs allocated to each billable constituent by the total annual service units of the respective constituent. The unit costs for loadings (COD, TSS, FOG) from this process would remain unchanged; however, following the functional allocation outlined above for wet weather, the flow component would be separated into two components: wet weather flow and dry weather flow. This would allow wet weather and dry weather costs to be recovered from customers based on different metrics.

There are a number of accepted cost recovery methods for wet weather related costs. The three cost recovery mechanisms that would be most applicable to the SFPUC are the following:

- **Flat Fee Per Account:** Every like parcel City-wide, or within a designated user category, is charged the same amount ($/account).
- **Impervious Surface Area:** Every like parcel City-wide, or within a designated user category, is charged a uniform unit cost per impervious square footage ($/sf).
- **Gross Surface Area:** Every like parcel City-wide, or within a designated user category, is charged a uniform unit cost per gross square footage ($/sf).

The resulting rate could be implemented based on a single metric or a combination of these metrics. However, it is critical that the chosen metrics provide a sound nexus between the SFPUC expenditures and the service provided. The resulting rates must also be understandable to the public and supported through a comprehensive public outreach process.

3. User Charges

The SFPUC's wastewater rate categories include single-family residential, multi-family residential, and non-residential and industrial customers based upon standard industrial classification (SIC) code. These existing rate categories provide a reasonable basis for imposing a wet weather rate component, but could be adjusted as necessary during the implementation process, if a more refined classification is required to equitably recover wet weather costs.

The SFPUC could implement the wet weather charges based on a class average or individual parcel information. For example, many agencies impose a flat charge for single-family based on a class average and bill large commercial customers based on the site-specific data, such as the impervious square footage of the parcel. Residential and commercial customer charges could also be tiered based on impervious or gross area of the parcel so that smaller, more uniform customers are charged based on class averages, while larger parcels are charged on site-specific conditions. For example, anything greater than 10,000 square feet of gross area could be given a site-specific charge based on a rate per square feet of impervious surface area.

COST ALLOCATION ADJUSTMENT

As discussed, the separated wet weather cost component could be assessed based on wet weather metrics such as land use, impervious area, or development type. Any such rate structure should account for a customer's actions to reduce stormwater runoff.

Cost-of-service based adjustments should account for two factors: (1) avoided variable costs; and (2) reduction in a proportionate share of system costs due to reduced capacity requirements.

As the SFPUC reduces variable operational costs due to the reduction in wastewater volumes because of action by customers, a direct offset could be recognized through a flow adjustment. As an example, reducing flows would also reduce power required for treatment and pumping and chemicals for wastewater treatment, as well as increase the longevity of mechanical equipment due to reduced wear associated with lower usage. This cost savings is a relatively small amount. With respect to the SFPUC, the proportional shift of costs would provide the greater rate reduction impact and be the main driver.

The SFPUC incurs fixed costs, such as staffing, regardless of the level of onsite mitigation provided by an individual customer. Cost-of-service principles require costs to be appropriately allocated to customers based on their proportional use of the system. As a customer reduces wastewater contributions to the system due to stormwater management practices, that customer's proportionate share of system costs would be reduced, which would be recognized on the customer's bill.

Types of Adjustments

A flow factor adjustment, or "GreenFactor", could be made on a customer's bill based on wet weather management techniques implemented by that customer. For example, if a customer were to implement pervious pavement or a green roof, then the customer's billing flow factor could be adjusted to reflect the shift in proportional cost responsibilities due to avoided wet weather flows to the sewer system. The Urban Watershed Management Program evaluated the technical aspects of a flow factor adjustment, or "GreenFactor," and the wet weather flows diverted from the combined system and the wet weather flows diverted from the combined system.

A flat dollar credit could be given to customers each month on their bill who have installed LID measures, such as rainbarrels or greenroofs, or for those that exceed the Stormwater Design Guidelines. The program could incent individuals to implement LID measures. Implementing the GreenFactor as an adjustment to the monthly bill could also incent customers to maintain the project and extend its useful life past the originally estimated value.

Table 7.1 | **Comparison of Adjustment Alternatives**

Alternatives	Description	Ease of Adminis-tration	Ease of Communi-cating to Public	Cost-of-service Requirement	Incents Ongoing Maintenance	Incents Customer to Install Mitiga-tion Measure	Provides Customer Funding For Initial Capital
Fixed Monthly Credit	Flat amount for all qualifying customers	✓	✓	✓	✓	✓	
Variable Green Factor Credit	Monthly credit based on degree of impact	✓	✓	✓	✓	✓	
One-Time Grant	Upfront credit based on initial investment	✓	✓			✓	✓
Ongoing Grant	Credit for duration of program based on maintaining system	✓	✓		✓	✓	

A one-time payment could be provided to system users that implement new LID measures. The advantage to this one-time grant program is that it could provide funding to customers for the initial capital costs of the project. The disadvantage with a one-time grant is that the customer does not have an incentive to maintain the LID project nor extend its useful life. On-bill messaging with any of these alternatives could inform customers how to save every month.

At first, the program could be limited to a defined number of applicants in order to evaluate the effectiveness of the program. As part of this initial phase, the program would be voluntary, rather than being administered as an automatic rate adjustment and would have a minimum wet weather reduction threshold, limiting the financial adjustment to larger mitigation projects.

Table 7.1 above summarizes available cost adjustments, including rate credits and grant programs, and some considerations of each adjustment.

Existing Programs

The SFPUC's Wastewater Enterprise Urban Watershed Management Program administers two incentive programs for residences to implement green infrastructure – the Watershed Stewardship Grant Program and the Rainwater Harvesting Subsidy Program. The Watershed Stewardship Grant Program offers grants for community-based green infrastructure projects. The Rainwater Harvesting Subsidy Program provides discounts on rain barrel and cisterns. Further use of these could be considered under a grant-based wet weather incentive.

IMPLEMENTATION

There are several steps that need to be taken prior to the implementation of a separate wet weather charge. The basis of the wet weather charge, such as impervious versus gross square footage would need to be determined through a public outreach and input process. Parcel data would also need to be refined. Programs might need to be developed to assist customers with high wet-weather contributions to mitigate their runoff. A major public outreach campaign will be essential to the success of this effort. Finally, the billing system will need to be modified to bill wastewater under two separate methods. The following sections describe these implementation challenges in more detail.

Data Requirements

In order to implement a cost component based on surface area, City-wide parcel data is necessary to identify square footage of impervious or gross surface area. The Department of Public Works holds an extensive Geographical Information System (GIS) database of City surface area based on multispectral satellite imagery. This database could likely be used as the basis of the parcel information when establishing wet weather charges.

The GIS data needs to be refined using logic specific to the area of wet weather contributions. For instance, the boundary conditions of the study area would need to be defined. Considerations include the following:

- Areas outside of the City that runoff into the City system
- Customer parcels that do not drain to the City system, but still benefit from the system at large
- Separate sewered areas with their own Municipal Separate Storm Sewer Systems (MS4) permits

Additionally, the SFPUC will need to obtain more site-specific information to refine estimates of runoff, and might also provide information for mitigation possibilities.

Obtaining and validating site-specific gross and impervious surface area data can be administratively burdensome. This data collection process can occur as part of the development process for new construction and through a verification process for existing customers, by regularly updating multispectral satellite imagery.

Billing System Modifications

Implementing a wet weather cost allocation component would require substantial modifications to the billing system. Based on previous reconfiguration efforts to the billing system, the process could take several months to achieve final implementation. In addition to modifying the billing system, the SFPUC will need to add customers that do not currently receive wastewater service, but contribute wet weather runoff into the system.

Customer Impacts

Before implementing any change to the rate structure, it is important to identify and evaluate shifts not only between overall user categories, but between specific sub-categories. Implementing a wet weather component allocated based on assumed runoff contributions may affect users differently and will result in a cost allocation adjustment between customers. A significant consideration to implementing a wet weather rate component is the financial impact to large land-based customers such as schools and parks. Contribution of wet weather runoff from parks is unique due to their large total property size and pervious area. Further analysis on this issue is needed.

Schools, Parks and Other Large Land-based Landowners

San Francisco schools are amongst the largest landowners within the City and County of San Francisco. Much of this land is covered in hardscape, contributing wet weather flows to the SFPUC's wastewater system. A programmatic wet weather mitigation program for large land-based customers could have significant and tangible benefits for reducing wet weather flows into the SFPUC combined wastewater system. The SFPUC could consider implementing joint project and grant programs for large land-based customers. The programs would evaluate the overall wet weather reductions that could be achieved through onsite mitigation measures and locations and property attributes, and the potential to co-locate SFPUC stormwater control facilities.

Beyond infrastructure investments, the SFPUC currently partners with local schools to assist with public outreach and education. As the SFPUC considers implementing a wet weather rate component, it is essential to have a strong public outreach program in order to garner public support. The SFPUC could consider expanding the teaming partnership with local schools for these efforts, shifting some public outreach costs to the schools.

In developing a wet weather rate component, it is important to accurately account for runoff contributions by customer class. Many agencies create a separate rate class for the park system due to the unique runoff characteristics typically associated with open spaces. For example, with the City and County of San Francisco, the average runoff of Golden Gate Park per 1,000 square feet is roughly half that of the average City-wide runoff due to the ground infiltration rates. More detailed site-specific analysis would be necessary for the park system and other large land customers to refine the assumptions for their site-specific characteristics.

New Customers

Some parcel owners, such as parking lot owners who currently do not have metered service, do not currently receive wastewater services, but do contribute wet weather flows to the system. These properties would become customers of the wastewater enterprise with the implementation of a wet weather associated fee. The SFPUC would need to identify and account for such properties.

Rate Resolution

If the SFPUC proceeds with the implementation of a wet weather recovery charge, the SFPUC Rules and Regulations Governing Water Service to Customers, Resolution No. 19.786,[2] will need to be updated to reflect any new rate changes. The resolution should account for the parameters by which rates are imposed and costs assigned, as well as the adjustment process. The resolution would also need to clearly define who owns, and who is responsible for the maintenance of, wet weather management facilities. Finally, the resolution should define any enforcement mechanisms available to the SFPUC to recover unpaid wet weather utility bills, including suspension of water service or a lien against the property.

Public Outreach

As the SFPUC considers incorporating a wet weather rate component, it is vital that the SFPUC develop a public outreach program that promotes community involvement through each stage of the decision-making process. Communicating the service requirements associated with the SFPUC's unique combined system will play a large role in gaining public understanding of allocating wet weather costs separately from dry weather costs.

The importance of establishing a sound public outreach program is heightened by the requirement to communicate the system and opportunities to derive customer savings related to wet weather investments and costs. The SFPUC's public outreach program has been successful in the public's understanding of the system reliability and resiliency, as well as the required funding to achieve its level of service objectives. At the outset of a program to potentially implement a wet-weather

2 SFPUC Rules and Regulations Governing Water Service to Customers (http://www.sfwater.org/modules/showdocument.aspx?documentid=8).

related cost allocation plan, it is prudent to incorporate major stakeholders early on in the process in order to give the community a voice to influence decision-making and rate structure alternatives, by working with established citizens' groups, such as the Citizens' Advisory Committee and Rate Fairness Board, to champion the project and the need for new or expanded programs. These advisory groups are comprised of a cross-section of the community, including a representative from commercial properties with large impervious areas.

The SFPUC Communications Division has been integral to the Rate Study process. The outreach program for any wet weather rate component should build on the successes of the SFPUC communications program. In discussions with the Communications Division, identifying impacted customers and having a proposed mitigation plan for these customers is vital before going public.

Timing and Costs

It is estimated to take upwards of two years to work through these aforementioned engineering study, assessment, and implementation requirements. Table 7.2 summarizes these tasks, identifies challenges, and provides a preliminary estimated budget for each task.

There are two critical time-intensive elements essential to implementing a successful wet weather rate – meaningful public engagement and participation, and accurate customer data. The latter requires the collection and confirmation of data. Prior to implementing separated rate components, the SFPUC could consider providing initial monetary incentives to customers with on-site mitigation measures in an effort to gather more data about these customer's characteristics and, at the same time, immediately provide incentives for low impact development.

FINDINGS AND RECOMMENDATION

It is our recommendation that the SFPUC implement the wastewater rates presented in Chapter 6, but continue to collect data and evaluate the feasibility and benefit of modifying the wastewater rate to include a wet weather component. Additionally, Carollo/PME JV recommends that the SFPUC implement a grant program that incents onsite mitigation of wet weather flows, which could also serve as a first step to collect flow impact information and study the implementation of a more comprehensive wet weather allocation. The implementation of a separate wet weather rate component meets the rate policies outlined by the SFPUC, including the following:

1. Provide a high level of transparency of costs for dry and wet weather collection, treatment and disposal as the SFPUC implements the SSIP.

Table 7.2 | **Implementation and Continued Costs**

	Requirements	Challenges	Estimated Budget
Data Collection	Establish task orders with DPW to create repository of citywide parcel data and impervious runoff coefficients	Will require extensive parcel data reconciliation and analysis to match parcel data with SFPUC billing data	$500K-$700K
Engineering Analyses	Establish a defensible method for cost recovery; Integrate research with LID/stormwater planning	May require individual parcel surveys for large landowners (big lot retail)	$200K
Customer Service and Billing	Convert billing system to account for impervious surface area; enroll new sewer (wet weather-only) customers	Requires significant modification to billing system, new data integration, and new customer accounts	$2.5M
Public Outreach and Education	Create public outreach and education plan	Will require extensive public outreach and education on the combined system and wet weather costs; may require cost mitigations programs and/or credits	$1M
Incentive Programs	Create incentive programs to mitigate bill impacts and promote LID through rate adjustments and/or credits	Will require a detailed implementation plan to be phased-in and revisited over several years	Unknown

2. Communicate the high level of service provided by the SFPUC's combined system, and identifying a dry weather charge that is comparable to other separate systems.
3. Create an avenue to incent customers to implement wet weather management practices.

Further refinement of the parcel data will be necessary and can be conducted in parallel with defining the suitable rate structures in order to obtain an accurate depiction of the impacts to all customers. A public outreach campaign will be necessary to understand the public's receptiveness for separate wet and dry weather rate components, and to educate them on the benefits received. Finally, the customer data system must be updated to accommodate the new billing structure.

This page intentionally left blank.

CHAPTER 8

Water and Wastewater Capacity Charges

Introduction

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, increase in usage, or change in usage. The San Francisco Public Utilities Commission (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, which recognizes the fact the SFPUC water and wastewater systems have adequate capacity to serve both existing and future customers.

This Report Chapter delineates the methodology for the existing Water and Wastewater Capacity Charges and the calculation of the recommended updated Capacity Charges.

EXISTING WASTEWATER CAPACITY CHARGE

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 $3,514 per equivalent dwelling unit (EDU) as of July 1, 2013.

EXISTING WATER CAPACITY CHARGE

The Water Capacity Charge went into effect January 1, 2009 pursuant to City and County of San Francisco Public Utilities Commission (SFPUC) 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 $1,191 per 5/8-inch meter as of July 1, 2013.

METHODOLOGY

Two general types of Capacity Charges are used to recover system investments from new users. The first approach, the buy-in methodology, is designed to recover costs from development for past 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 2007 and the population is projected to grow at 0.5% per year through the rate projection period ending in FYE 2019, whereas, water use is projected to be flat given ongoing conservation initiatives. Planned capital investments will be undertaken primarily to repair or replace existing system infrastructure for both the wastewater and in-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, the buy-in approach best reflects the cost of providing available capacity for the City of San Francisco.

CAPACITY CHARGE CALCULATION

Capacity Charges are calculated by dividing existing ratepayer equity by the total available capacity of the wastewater or water system. Ratepayer equity is defined as the value of the existing system less outstanding debt principal and accumulated depreciation. Available capacity is defined as the total number of equivalent dwelling units (EDUs) serviceable or to be served by the system.

Ratepayer Equity

The buy-in capacity charge approach requires that new users buy into the wastewater or water 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 wastewater or water systems funded by existing ratepayers, net of accumulated depreciation. Capital costs not funded by existing ratepayers, such as grant funded 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 in-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:

- Trended Existing Plant-In-Service – Current value of the existing water or wastewater system. Original costs are escalated to December 2013 dollars using Engineering News Record Construction Cost Index (ENRCCI).
- Construction Work-In-Progress – Capital projects currently under construction, not captured in the Existing Plant-In-Service asset records.
- Depreciation – Represents the loss in value of the system as the useful life of that asset is exhausted.
- Outstanding Debt Principal – 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.
- The calculations of ratepayer equity for the Wastewater and Water Enterprise are illustrated in Table 8.1 and 8.2, respectively.

Note on Physical Assets

Due to the naming convention used on the SFPUC's asset list, Carollo/PME JV 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 asset depreciation, only the monetary value associated with the remaining useful life of each asset is considered in the calculation.

System Capacity

Under the buy-in methodology, future users are required to reimburse existing users for equity that they had contributed over time through rates and fees. This is determined by dividing the total ratepayer equity by the system capacity. System capacity is defined as the total capacity within the wastewater or water system available to serve system users.

Wastewater Capacity

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 (ADWF) capacity of 85 mgd at the Southeast WWTP, and 21 mgd at the Oceanside WWTP, for a total of 106 mgd. This capacity serves both customer discharges, as well as groundwater infiltration. An analysis of the wastewater system in 2007 found that 12.8 mgd of groundwater was infiltrating the wastewater collection system, and subsequently being treated at the Southeast and Oceanside WWTPs. This level of infiltration will vary by year and weather patterns. Taking groundwater infiltration into account, the treatment capacity available to serve wastewater customers is 93.2 mgd.

The current Capacity Charge is calculated based on the total system capacity available to serve customers, 93.2 mgd. Assuming 200 gpd demand per 5/8" meter equivalent (ME), this translates to 466,000 MEs.

Water Capacity

The SFPUC provides water to roughly 2.6 million people in the San Francisco Bay Area. The water system is comprised of five supply reservoirs, two treatment plants plus the UV treatment facilities, 233 miles of transmission pipelines, 21 pump stations, 26 distribution reservoirs and tanks, and 1,250 miles of in-city distribution mains. This 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. 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 meter equivalents (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 Meter Equivalents (MEs). Capital improvements since 2007 have not increased the capacity of the in-City and suburban retail system.

Table 8.1 | SFPUC Wastewater Capacity Charge Calculation of Ratepayer Equity

	Trended Original Cost[(1)]
Land, Building and Equipment	$8,465,894,331
plus: Construction Work-in-Progress	176,711,000
less: Accumulated Depreciation	(5,443,887,049)
less: Outstanding Bonds and Loans	(852,294,000)
less: Unamortized Grants	(755,023,383)
Net Capital Assets	1,591,400,899
plus: Deposits with Fiscal Agent	31,305,000
plus: Cash in Capital Projects Fund	251,439,000
plus: Unrestricted Reserves	91,561,000
Fund Balances	374,305,000
Total Wastewater Ratepayer Equity (as of FYE 2013)	$1,965,705,899

Notes:
(1) ENRCCI 20-City Average December 2013.

Table 8.2 | SFPUC Water Capacity Charge Calculation of Ratepayer Equity

	Trended Original Cost[(1)]
Land, Building and Equipment	$3,747,151,725
plus: Construction Work-in-Progress	427,455,364
less: Accumulated Depreciation	(2,575,874,063)
less: Outstanding Bonds and Loans	(1,262,807,199)
less: Unamortized Grants	(136,340)
Net Capital Assets	335,789,487
plus: Deposits with Fiscal Agent	44,194,978
plus: Cash in Capital Projects Fund	303,759,730
plus: Unrestricted Reserves	102,876,633
Fund Balances	450,831,341
Total Wastewater Ratepayer Equity (as of FYE 2013)	$786,620,828

Notes:
(1) ENRCCI 20-City Average December 2013.

Therefore, this analysis will retain the maximum system capacity of 635,000 MEs for the calculation of capacity charges.

FINDINGS AND RECOMMENDATIONS

The final Capacity Charge is calculated by dividing the ratepayer equity by available capacity. These calculations are illustrated in Table 8.3.

Table 8.3 | SFPUC Recommended Capacity Charge Calculation for FYE 2015

	Water Capacity Charge	Wastewater Capacity Charge
Ratepayer Equity	$786,620,828	$1,965,705,899
Number of ME's	635,000	466,000
Recommended Ratepayer Equity per EDU or ME	$1,239	$4,218
Existing Ratepayer Equity per ME	$1,191	$3,514
Recommended Percentage Increase	4.0%	20.0%

Based on the methodology delineated above, it is recommended that the SFPUC adopt a residential wastewater capacity charge of $4,218 per 5/8 inch meter equivalent and a water capacity charge of $1,239 per 5/8 inch meter equivalent. It is recommended that the SFPUC impose a water capacity charge based on the size of the assessed 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 will place on the water system.

IMPLEMENTATION

As discussed above, Capacity Charges are calculated based on an average single-family residential customer system demands. The SFPUC then imposes the charge based on capacity requirements of each individual new development or upsize in capacity of an existing connection.

Water Capacity Charges

Currently, the Water Capacity Charge for single-family and multi-family dwellings is assessed based upon the individual units square footage and meter size requirement, the charge imposed is the lesser of the two. For commercial users, the charge is based on the meter size. Carollo recommends the Water Capacity Charge be imposed based solely on meter size for all customer classes. Meter sizing, for non-irrigation customers, accounts for required water flows and system pressure, which is based on the number of installed fixture units. As such, meter size provides an accurate estimate of the amount of demand placed on the system and can be used as a measure for imposing and streamlining the assessment of capacity charges.

Wastewater Capacity Charges

Currently, all Wastewater Capacity Charges are imposed based on square footage by Standard Industrial Classification (SIC) code, which accounts for assumed wastewater flows and strength by property type. The SFPUC could consider imposing the Wastewater Capacity Charge based upon Water MEs , rather than square footage. While square footage is a commonly and readily accepted method for determining system capacity requirements for developments, it is based on an average system demand within the customer class. MEs, which provide a reasonable estimation of wastewater discharged back to the system based on conversations with the SFPUC staff, is also a sound basis for imposing the Wastewater Capacity Charge. Wastewater strength and concentration assumptions would continue to be imposed by property type or SIC code. Properties with mixed use would be a assigned a loading ratio based on proportional square footage of each use.

For example, for a building that is 700 sq ft. of residential use and 300 sq ft. used for a restaurant (with a factor of 1.2), the resulting loading ratio would be 70% * (1.0) + 30% * (1.2) = 1.06.

The following section presents the development and assessment of MEs based Wastewater capacity charges.

Functional Allocation of Wastewater Capacity Charges

The first step in the development of the capacity fees was to perform a functional allocation of wastewater capacity charges. In-depth evaluation of the assets and capacity charge provides a simple and useful method of analyzing system assets, and the subsequent capacity fee that they pass on to each user. The Functional Allocation breaks down the capacity charge by allocating asset values and liabilities based on the following functional cost components:

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

Table 8.4 shows the percentage allocations for each distinct asset and liability group.

Table 8.5 shows net assets and capacity charge per ME broken down by functional component.

Table 8.4 | Functional Components of Wastewater Capacity Charge

	Functional Component			
	Dry Weather Flow	COD	TSS	FOG
Physical Assets[1]	76%	13%	9%	2%
Construction in Progress[2]	78%	10%	9%	2%
Existing Debt[3]	85%	7%	6%	2%
Non-physical Assets[4]	72%	16%	10%	2%

Notes:
(1) Based on asset list provided by SFPUC.
(2) Based on allocation of 2010 A and B Bonds.
(3) Based on allocation of all existing debt (2010 A and B Bonds and 2013 A and B Bonds).
(4) Allocated "As All Others", the weighted average allocation of all other categories.

Table 8.6 | Loading Concentration Assumptions for SFPUC Designated SIC Groups

	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	1387	171	112
SIC Group 8	1539	181	125
SIC Group 9	1616	284	137
SIC Group 10	1153	303	251
SIC Group 11	4921	1371	559

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

Table 8.7 | SIC Group Wastewater Loading Ratios

	COD	TSS	FOG
SIC Group 4[1]	**1**	**1**	**1**
SIC Group 1	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	8.2	4.9	6.6

Note:
(1) Because group 4 concentrations are the assumed concentrations of a representative EDU, all group 4 SIC Group Loading Ratios are equal to one.

Table 8.5 | Functional Components of Wastewater Capacity Charge

Functional Component	Net of Assets	Charge per ME
Flow	$1,407,469,287	$3,020
COD	313,669,857	673
TSS	197,438,690	424
FOG	47,128,065	101
Total	**$1,965,705,899**	**$4,218**

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 8.6 presents the loading assumptions for each SIC group designated by the SFPUC.

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 groups loading assumptions. SIC Group Loading Ratios are presented in Table 8.7.

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 loading. In such a case, the capacity charge can be calculated based on the customer's expected flow (gpd) and loadings (COD, TSS, and FOG in lbs/day), and the unit Capacity Charge for each component. Unit capacity charges are shown in Table 8.8.

The capacity charge is calculated by multiplying the Flow and Non Loading component unit charges by the expected flow in gpd, and multiplying each loading component unit charge by its respective expected loading. The products are then summed to calculate

Table 8.8 | Wastewater Unit Capacity Charges for Industrial Customers – For FYE 2015

Capacity Charge Component	Unit Capacity Charge	Units
Flow	$15.10	GPD
COD	591.68	lbs/day
TSS	913.06	lbs/day
FOG	715.35	lbs/day

Table 8.9 | Example Capacity Charges for Assumed Industrial Customer

Capacity Charge Component		Expected Flow/ Loading[1]		Unit Capacity Charge		Component Capacity Charge
Flow	GPD	1000	X	$15.10	=	$15,102
COD	lbs/day	10	X	591.68	=	5,917
TSS	lbs/day	20	X	913.06	=	18,261
FOG	lbs/day	1	X	715.35	=	715
				Total Capacity Charge		**$39,995**

the total capacity charge. Table 8.9 provides an example calculation for an assumed industrial customer.

Wastewater Capacity Charge Schedule

Based on the recommended charge per ME, Table 8.10 shows the resulting charge by meter size and SIC code.

Possible Usage Based Adjustments

The wastewater capacity charges developed in this study assume full discharge to the wastewater system by any new or changed connections requiring increased capacity. The SFPUC may consider adjusting the wastewater capacity charge based on projected customer usage patterns, particularly for customers who choose to install sustainable technologies that serve to reduce the burden that they place on the wastewater system. As sustainable design and LEED certification have become increasingly central concerns for developers, property owners, and tenants, the SFPUC expects the installation of such technologies to become more widespread.

Onsite treatment and reuse installations such as graywater systems, blackwater systems, and onsite uses of storm water prevent wet weather flows from entering the combined sewer system and help to reduce the flow demand on the wastewater system. Adjusting capacity charges to reflect decreased demand may prove to be an effective way of incentivizing the installation of onsite treatment and reuse systems. This adjustment would be specific to the customer and would require analysis of the avoided demand.

Table 8.10 | Recommended Wastewater Capacity Charge Schedule

Meter Size	Capacity Factor	SIC 4	SIC 1	SIC 2	SIC 3	SIC 5	SIC 6	SIC 7	SIC 8	SIC 9	SIC 10	SIC 11
5/8 in	1	$4,218	$ -	$3,327	$4,088	$4,094	$3,619	$4,778	$4,958	$5,205	$4,914	$10,610
3/4 in	1.5	6,327	-	4,991	6,132	6,140	5,428	7,167	7,438	7,807	7,371	15,915
1 in	2.5	10,546	-	8,318	10,220	10,234	9,046	11,945	12,396	13,012	12,284	26,525
1-1/2 in	5	21,091	-	16,636	20,440	20,468	18,093	23,891	24,792	26,024	24,569	53,050
2 in	8	33,746	-	26,618	32,704	32,749	28,949	38,225	39,667	41,639	39,310	84,880
3 in	15	63,274	-	49,908	61,320	61,404	54,279	71,673	74,376	78,073	73,706	159,151
4 in	25	105,456	-	83,180	102,201	102,340	90,465	119,454	123,960	130,122	122,843	265,251
6 in	50	210,913	-	166,360	204,402	204,680	180,929	238,909	247,920	260,244	245,687	530,503
8 in	80	337,460	-	266,177	327,043	327,488	289,487	382,254	396,672	416,390	393,098	848,804
10 in	115	485,099	-	382,629	470,124	470,764	416,138	549,490	570,217	598,560	565,079	1,220,156
12 in	215	906,924	-	715,349	878,927	880,124	777,997	1,027,307	1,066,057	1,119,048	1,056,452	2,281,162

Although onsite mitigation may reduce demands placed on the system, the adjusted charge should still recognize that the SFPUC system as a backstop in the case of onsite system failure. This still requires a reservation of capacity of the system and thus, requires some portion of a capacity charge to be paid, regardless of amount of avoidance.

USE OF CAPACITY CHARGE REVENUE

Currently, the SFPUC has roughly $30 million in reserves from previously assessed capacity charges. This 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 replacements projects for the long-term benefit of future and existing ratepayers.

CAPACITY CHARGE COMPARISON

Carollo/PME JV conducted a survey of nearby utilities. Although utilities are not always alike, it is common to examine comparisons between similar or neighboring utilities.

Figure 8.1 and Figure 8.2 compare a typical capacity charge per equivalent dwelling unit for water and wastewater capacity charges, respectively, within California. 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 in line with the average of nearby agencies.

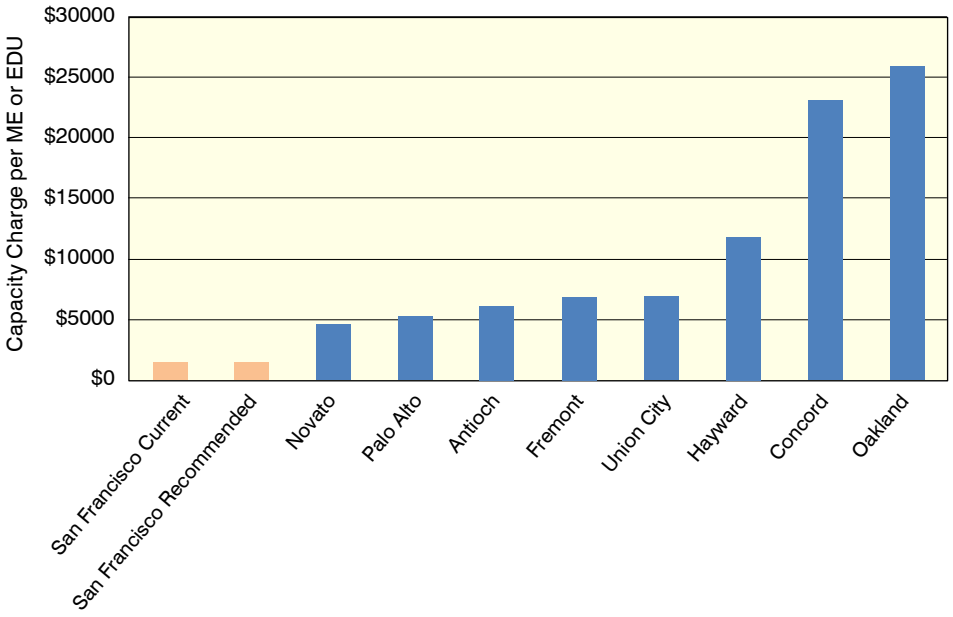


Figure 8.1 | **Water Capacity Charge Survey of Nearby Agencies**

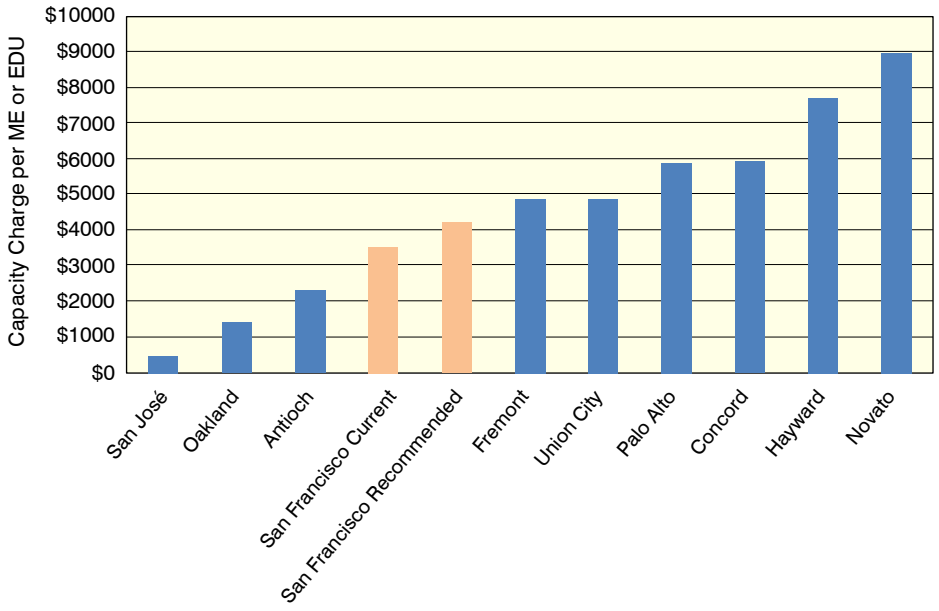


Figure 8.2 | **Wastewater Capacity Charge Survey of Nearby Agencies**

Appendix A:
Example Scorecard

SFPUC Ratepayer Assurance Scorecard
CITY AND COUNTY OF SAN FRANCISCO
OFFICE OF THE CONTROLLER

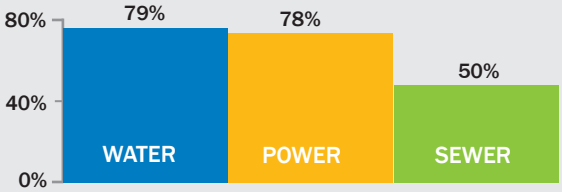
A-

FY 2012-13

ASSET MANAGEMENT

1. Preventative Maintenance — B-

Combined Utility Avg Benchmark = 80%



STEWARDSHIP

2. Regulatory Compliance — A

Meets or Exceeds the Standard

0 Zero fines or sanctions for **WATER POWER** or **SEWER** Enterprises

STEWARDSHIP

MISSION MANAGEMENT SUSTAINABILITY

3. Average Monthly Bill — A

Phone Land line **$32.81**

Garbage Collection **$34.51**

SFPUC Electric Power **$66.32***

SFPUC Water Sewer $37.50/$48.97 **$86.47**

AT&T Cell Phone Nat'l Plan 1350 **$103.83**

Comcast Internet Cable $52.95/$74.81 **$127.76**

PG&E Gas Electric $63.21/$77.26 **$140.47**

CA Average Combined Utility Bills = **$178.89**

* SFPUC provides electricity to Hunter's Point and Treasure Island.

SERVICE

4. Cost of Service — B+

$1.70 per person/day

CA Average Cost/Person/Day = **$1.99**

$1.70	$1.80	$2.00	$3.33	$3.59
Power =74¢ W & S= 96¢				
SFPUC W, S & P	Avg Coffee	MUNI Adult Fare	Cell Phone Cost/Day	Avg BART Fare

SERVICE

5. Credit Ratings — A

Maintained Low Risk

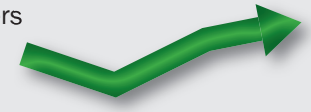
AA- WATER
Aa3 SEWER

Investment Grade rated by S&P/Moody's

STEWARDSHIP

6. Customer Service Quality — B

% of Retail Customers that rate SFPUC good or better



86% YTD

SERVICE

7. Environmental Stewardship - All Enterprises Exceed Standards — A

California Average **100** gallons per person/day

San Francisco **49** gallons per person/day

SF residential use is well under the CA average

SFPUC **100%** Renewable Energy, Retail/Municipal

20% California Requirement

0 SEWER Zero unauthorized discharges in 3 years

ENVIRONMENTAL STEWARDSHIP

PERSONNEL MANAGEMENT

8. Contracted Hours — A

Exceeds Minimum Local Hire Ordinance by 4%

29% WATER POWER SEWER Local Hires

25% 2010 Local Hire Ordinance Requirement

RESPECT/EQUAL OPPORTUNITY

9. Lost Time Incidents — C

Per 100 Employees

Needs Improvement

3.2 out of 100

SAFETY

SFPUC Ratepayer Assurance Scorecard
CITY AND COUNTY OF SAN FRANCISCO
OFFICE OF THE CONTROLLER

A-

FY 2012-13

PURPOSE

The San Francisco Public Utilities Commission (SFPUC) is an agency of the City and County of San Francisco that provides high-quality drinking water to a population of approximately 2.6 million people, including retail customers in San Francisco and wholesale customers located in San Mateo, Santa Clara, and Alameda Counties. The SFPUC provides wastewater services to over 800,000 residents of San Francisco and green hydroelectric solar power to the City's municipal departments.

The SFPUC's Ratepayer Assurance Policy was adopted on October 23, 2012 and is reviewed annually as part of the budget process to ensure measureable, verifiable, wise use of ratepayer resources for all enterprises- **Water (W), Power (P),** and **Sewer (WW).** The policy promotes accountability and transparency with an annual scorecard developed and performed by the Office of the Controller, City Services Auditor (CSA).

This scorecard provides useful information to the ratepayers and the Commission using metrics that measure the performance of ratepayer strategies and policies in mitigating risk and taking advantage of opportunities to yield positive outcomes. Each metric addresses one of the following policy categories of Asset Management, Mission Management & Sustainability, and Personnel Management in line with the Effective Utility Management (EUM) initiative and model. For further information, please refer to the SFPUC Ratepayer Assurance Scorecard Manual.

GRADING SCALE

The measures are graded based on the standard academic scale illustrated below. Grades are based on comparison to a relevant industry standard, best practice, comparison to peer jurisdictions, or comparison to SFPUC standard or policy:

Grade	Description	Score Range
A	Exceptionally Above Standard	3.8 - 4.0
A-		3.4 - 3.7
B+	Slightly Above or Meets Standard	3.1 - 3.3
B		2.8 - 3.0
B-		2.4 - 2.7

Grade	Description	Score Range
C+	Slightly Below Standard	2.1 - 2.3
C		1.8 - 2.0
C-		1.4 - 1.7

Grade	Description	Score Range
D+	Below Standard	1.1 - 1.3
D		0.8 - 1.0
D-		0.4 - 0.7
F	Critically Below Standard	0.0 - 0.3

FY13 SUMMARY

The SFPUC in the aggregate scored slightly above average or a letter grade A-. The SFPUC exceeded benchmarks for five (56%) of the measures and met industry benchmarks for three (33%) of measures. One measure (11%) were slightly below the standard and need improvement.

Policy Category	#	Measure	W	P	WW	Average Score	Grade
Asset Management	1	**Stewardship:** Preventive maintenance ratio	B	B	C	2.7	B-
	2	**Regulatory Compliance:** Number of incidents of fines/sanctions	A	A	A	4.0	A
Mission Management & Sustainability	3	**Service:** Average monthly combined water, power, and sewer residential bill	A	A	A	4.0	A
	4	**Service:** Cost per person per day	A	B	B	3.3	B+
	5	**Stewardship:** Credit rating	A	NA	A	4.0	A
	6*	**Service:** Percent of retail customers that rate SFPUC as good or better	B	B	B	3.0	B
	7	**Environmental Stewardship:** Amount of water sold to SF residential customers; Emissions-free municipal and retail electricity supplied; Unauthorized discharges from combined sewer system	A	A	A	4.0	A
Personnel Management	8*	**Respect/Equal Opportunity:** Percent of local hire hours	A	A	A	4.0	A
	9*	**Safety:** Recordable lost time rate	C	C	C	2.0	C
		Overall	A-	A-	B+	3.4	A-

**Measures are rated such that the corresponding enterprise grade is the same as the overall grade.*

San Francisco Water Power Sewer

Appendix B:
Miscellaneous Fees

PROJECT MEMORANDUM

Project Name:	Utility Rate Study	**Date:**	November 22, 2013
Client:	San Francisco Public Utilities Commission	**Project Number:**	09194A.00
Prepared By:			
Reviewed By:			
Subject:	Miscellaneous Charges		
Distribution:	SFPUC Staff		

1.0 INTRODUCTION

The SFPUC imposes user fees for services ranging from meter installations to account setups. These services are not of general system benefit and are therefore recovered directly from individual users through a fee. As is appropriate, the SFPUC establishes these fees based on the actual costs incurred to provide these services.

As part of the 2014 Cost of Service Study, Carollo/PME JV reviewed and updated the SFPUC's miscellaneous charges and user fees. Carollo/PME JV also reviewed the SFPUC's installation charges for consistency with industry practices and proportionate cost recovery. The charges presented within this memorandum are applicable to retail water and wastewater customers.

Tables 1 and 2 list the SFPUC installation charges and miscellaneous fees.

SIZE	TYPE	12/13
1"	STANDARD SERVICE	$7,310
1 -1/2"	STANDARD SERVICE	$9,900
2"	STANDARD SERVICE	$9,900
3"	STANDARD SERVICE	$23,120
4"	STANDARD SERVICE	$23,120
6"	STANDARD SERVICE	$27,140
8"	STANDARD SERVICE	$31,110
1 -1/2"	FIRE SERVICE	$9,420
2"	FIRE SERVICE	$9,420
4"	FIRE SERVICE	$15,190
6"	FIRE SERVICE	$17,990
8"	FIRE SERVICE	$20,640
V	COMBINATION SERVICE	$7,310
1 -1/2"	COMBINATION SERVICE	$9,900
2"	COMBINATION SERVICE	$9,900
1"	NON-STANDARD SERVICE	$7,310
1 -1/2"	NON-STANDARD SERVICE	$9,900
2"	NON-STANDARD SERVICE	$9,900

Table 1. Current Installation Rates

	Fee	Current Fee ($)
I.	Return Check Charge	85.00
II.	New Account Fee	35.00
III.	48 Hour Notice	36.00
IV.	Shut-Off/Turn-On Fee	36.00
V.	Lock-Charge	14.00
VI.	Guaranteed Deposit (New Customer)	$50/Minimum
VII.	Builder's & Contractor's	125.00
VIII.	Flow Restricting Installations 5/8"-1" Meter 1-1/2 - 2" Meter	 205.00 295.00
IX.	Dock & Shipping Supply	290.00
X.	Lien Fee	$50 or 10% of balance owing whichever is greater plus 1% for each month delinquent.

Table 2. Current Service Fees

2.0 INSTALLATION CHARGES

The SFPUC recently updated its installation charges.1 The SFPUC prepared an analysis (included as an appendix to this memorandum) that outlined the methodology and calculations for determining the FYE 2014 installation charges. As the analysis details, the updated charges were determined based on actual labor and material expenditures as reported by the SFPUC work order system, Maximo, from the previous three (3) years of new service installations, FYE 2010 through 2013. Based on this review, rates were adjusted to recover the average calculated full cost associated with providing this service.

Rates include labor, equipment, materials and supplies for excavation, plating, piping, backfill, and pavement restoration from the tap into the main up to and including the installation of the water meter and meter box. The recommended rates are 18-50% higher than FYE 2013 reflecting increasing costs of construction labor, materials, and equipment.

Based on the results of the SFPUC's analysis, Table 3 provides the recommended rates for FYE 2014.

SIZE	TYPE	12/13	Recommended 13/14	% CHANGE TOTAL
1"	STANDARD SERVICE	$7,310	$8,630	18.1%
1 -1/2"	STANDARD SERVICE	$9,900	$12,130	22.5%
2"	STANDARD SERVICE	$9,900	$12,130	22.5%
3"	STANDARD SERVICE	$23,120	$34,680	50.0%
4"	STANDARD SERVICE	$23,120	$34,680	50.0%
6"	STANDARD SERVICE	$27,140	$40,710	50.0%
8"	STANDARD SERVICE	$31,110	$46,670	50.0%
1 -1/2"	FIRE SERVICE	$9,420	$11,540	22.5%
2"	FIRE SERVICE	$9,420	$11,540	22.5%
4"	FIRE SERVICE	$15,190	$22,790	50.0%
6"	FIRE SERVICE	$17,990	$26,990	50.0%
8"	FIRE SERVICE	$20,640	$30,960	50.0%
V	COMBINATION SERVICE	$7,310	$8,630	18.1%
1 -1/2"	COMBINATION SERVICE	$9,900	$12,130	22.5%
2"	COMBINATION SERVICE	$9,900	$12,130	22.5%

[1] Water Service Installation Charges Memorandum

1"	NON-STANDARD SERVICE	$7,310	$8,630	18.1%
1 -1/2"	NON-STANDARD SERVICE	$9,900	$12,130	22.5%
2"	NON-STANDARD SERVICE	$9,900	$12,130	22.5%

Table 3. Recommended Installation Charges

In addition to the costs of installing new meters, the SFPUC also prepared recommendations for meter decrease, increase, reset or relocation charges, found in the attached memo.

The recommended rates are a result of three years of installation records. As the SFPUC has not update these rates in some time, this approach best allows theis recommended over a applying an escalator to account for possible changes in processes (timing) or materials. Based on our review, Carollo/PME JV concurs that this is an appropriate calculation and that the fees be adjusted to reflect current information.

3.0 MISCELLANEOUS CHARGES

For other services where actual cost data were not readily available or applicable, a unit cost "build-up" approach was utilized. This approach calculates various cost components for individual fees. These components then build upon each other to comprise the total cost for providing the service. This methodology is appropriate for services with a relatively uniform level of effort, time, and materials.

There are three steps associated with developing the updated user fees. The first step is to calculate a position's fully burdened hourly rate. This is accomplished through a variety of steps utilizing information from the recently completed Cost Allocation Plan. To account for various staff that may perform the service, an average hourly cost (non-loaded) is adjusted by the indirect cost allocation rate. This adjustment accounts for overhead costs related to program management, materials, and other indirect services. Additionally, to recover costs associated with benefits, the hourly rate is adjusted by the calculated benefits multiplier.

The second step is to estimate the amount of time required to perform the requested service. Although the time might vary slightly for each occurrence, it is appropriate to define an average estimated time. Once the estimated time is defined, the total labor cost is calculated by multiplying the calculated fully-burdened hourly rate by the estimated staff time.

The third and final step is to define other direct costs associated with performing the activities necessary to support the service. Once these three steps are completed, the costs are added together and define the agency's full cost of provide the service. Table 4 provides the cost build-up results analyzed for this review.

	Fee	Title	Hourly Rate ($)	Estimated Hours	Subtotal Labor ($)	Overhead & Fringes ($)	Other Costs ($)	Calculated Full Cost ($)
I.	Return Check Charge	Sr. Water Ser Clerk	32.45	0.65	21.09	24.89	50.00	96.00
II.	New Account Fee							
		Sr. Water Ser Clerk	32.45	0.15	4.87	5.74	0.00	
		Water Ser Inspector	47.21	0.45	21.25	25.07	0.00	
		Subtotal			**26.11**	**30.81**	**0.00**	57.00
III.	48 Hour Notice							
		Water Ser Inspector	47.21	0.45	21.25	25.07	0.00	
		Sr. Water Ser. Clerk	32.45	0.05	1.62	1.91	0.00	
		Subtotal			**22.87**	**26.98**	**0.00**	50.00
IV.	Shut-Off/Turn-On Fee							
		Water Ser Inspector	47.21	0.45	21.25	25.07	0.00	
		Sr. Water Ser. Clerk	32.45	0.05	1.62	1.91	0.00	
		Subtotal			**22.87**	**26.98**	**0.00**	50.00
V.	Lock-Charge						14.00	14.00
VI.	Guaranteed Deposit (New Customer)							N/A
VII.	Builder's & Contractor's Supply for Metered Service							
		Sr. Water Ser. Clerk	32.45	0.50	16.23	19.15	0.00	
		Water Meter Repair	35.59	1.00	35.59	41.99	0.00	
		Subtotal			**51.81**	**61.14**	**0.00**	113.00
VIII.	Flow Restricting Installations							
	5/8"-1" Meter	Sr. Water Ser Clerk	32.45	2.00	64.90	76.58	0.00	
		Water Ser Inspector	47.21	1.00	47.21	55.71	0.00	
		Subtotal			**112.11**	**132.29**	**0.00**	245.00
	1-1/2 - 2" Meter	Sr. Water Ser Clerk	32.45	2.00	64.90	76.58	0.00	
		Utility	46.29	2.00	92.58	109.24	0.00	

		Plumber					
		Subtotal			**157.48**	**185.82**	**0.00**	344.00
IX.	Dock & Shipping Supply							
		Sr. Water Ser. Clerk	32.45	0.35	11.36	13.40	0.00	
		Water Ser. Inspector	47.21	1.00	94.43	111.42	0.00	
		Subtotal			**105.78**	**124.82**	**0.00**	231.00

Table 4: Miscellaneous Fee Build-Up Analysis

Based on the results of the analysis above, Table 5 presents the recommended rates for each miscellaneous charge. It should be noted that penalty charges may differ from the SFPUC costs to perform these services as they are intended to be punitive.

	Fee	**Recommended Fee ($)**	**Basis of Charge**
I.	Return Check Charge	96.00	Research and collection of account. Note: Other Cost of $50 is the cost that the CCSF Treasurer's Office charge SFPUC for each NSF check.
II.	New Account Fee	57.00	Administrative processing and field (read/turn on meter) labor costs related to setting up new account.
III.	48 Hour Notice	50.00	Administrative processing (i.e. issue work order and process payment) and field labor costs (i.e. post shut-off notice or collect payment).
IV.	Shut-Off/Turn-On Fee	50.00	Administrative processing (i.e. issue work order and process payment) and field labor costs (i.e. read meter and shut-off or turn on service).
V.	Lock-Charge	14.00	Cost of meter lock.
VI.	Guaranteed Deposit (New Customer)	N/A	Consumption history of prior account (twice monthly consumption bill), or on current number of occupants (if no history available).
VII.	Builder's & Contractor's	113.00	Supply for Metered Service. Administrative costs for connection of meter at $125 plus deposit of $800 for 1" meter and $2,700 for 3" meter that is refundable when account is closed.
VIII.	Flow Restricting Installations 5/8"-1" Meter 1-1/2 - 2" Meter	 245.00 344.00	Material, labor, equipment and overhead charges.
IX.	Dock & Shipping Supply	231.00	Administrative costs for setting up billing account and field work to provide connecting equipment.
X.	Lien Fee	$50 or 10% of balance owing whichever is greater plus 1% for each month delinquent.	Administrative labor to process lien. Fee set by Administrative Code.

Table 5. Recommended Miscellaneous Rates

4.0 IMPLEMENTATION

To provide cost recovery in future years, it is recommended that the SFPUC adjust the proposed installation and miscellaneous charges using CPI for annual inflation or adjust the assumed average hourly rate. Unless there are changes in specific processes, the estimated staff time should remain consistent from year to year. Additionally, while there may be minor fluctuations in the SFPUC cost allocation plan, unless there are significant budget or structural changes, the cost allocation factor used in the above analysis should not require annual adjustments, and thus the charges should continue to be an accurate representation of cost incurred.

San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

CITY DISTRIBUTION DIVISION
1990 Newcomb Avenue
San Francisco, CA 94124

INTEROFFICE MEMORANDUM

DATE: July 31, 2013

TO: Marge Vizcarra, Customer Service Bureau Manager

FROM: David A. Briggs, Local and Regional Water System Manager

SUBJECT: FY 2013/2014 WATER SERVICE INSTALLATION CHARGES

Attached please find our recommended FY13/14 flat rate schedule for new water service installations. This schedule has been reviewed by the Finance Department. Please implement the new rate schedule effective July 1, 2013.

The rates on this schedule are 18-50% higher (rounded up to the nearest $10) than FY12/13 reflecting increasing cost of construction labor, materials and equipment.

Should you have any questions, please do not hesitate to call me at (415) 550-4901.

DB:na

Attachments: Flat Rates FY 2013-2014

Cc: Harlan Kelly Jr., SFPUC General Manager w/o attachments
Mike Carlin, Deputy General Manager of Water w/o attachments
Amy Javelosa-Rio, Rate Administrator w/attachments
Carlos Jacobo, Finance w/ attachments
Richard Gonzales, Superintendent of Construction and Maintenance CDD w/attachments
Katie Miller, CDD Engineering Manager w/attachments
Tami Gowan, CSB w/attachments
Virginia Sarmiento, CSB w/attachments
John Cretan, Principal Administrative Analyst w/attachments
Patricia Mattias, Estimator CDD w/attachments

TABLE OF CONTENTS
FLAT RATES FY 2012-2013

PART I: SUMMARIES

PART II: APPENDICES

FY 2013-2014
Water Installation Service Charges
For Single Services

SIZE	TYPE	RATE
1"	STANDARD SERVICE	$8,630
1 -1/2"	STANDARD SERVICE	$12,130
2"	STANDARD SERVICE	$12,130
3"	STANDARD SERVICE	$34,680
4"	STANDARD SERVICE	$34,680
6"	STANDARD SERVICE	$40,710
8"	STANDARD SERVICE	$46,670
1 -1/2"	FIRE SERVICE	$11,540
2"	FIRE SERVICE	$11,540
4"	FIRE SERVICE	$22,790
6"	FIRE SERVICE	$26,990
8"	FIRE SERVICE	$30,960
1'	COMBINATION SERVICE	$8,630
1 -1/2"	COMBINATION SERVICE	$12,130
2"	COMBINATION SERVICE	$12,130
1"	NON-STANDARD SERVICE	$8,630
1 -1/2"	NON-STANDARD SERVICE	$12,130
2"	NON-STANDARD SERVICE	$12,130

NOTES:

1. RATES INCLUDE LABOR, EQUIPMENT, MATERIALS AND SUPPLIES FOR EXCAVATION, PLATING, PIPING, BACKFILL, AND PAVEMENT RESTORATION FROM THE TAP INTO THE MAIN UP TO AND INCLUDING THE INSTALLATION OF THE WATER METER AND METER BOX.

2. THERE WILL BE $2,200 ADDITIONAL PAVING COST FOR TRENCHES IN STREETS UNDER PAVING MORATORIUM OR THAT ARE CONCRETE.

FY 2013-2014
Water Installation Service Charges
For Multiple Services

A) FEE CALCULATION FOR MULTIPLE SERVICES WILL BE THE SUM OF THE FOLLOWING:

**Applications with 3 services maximum and no more than one service 4" or larger. Other applications will be custom priced.*

1. THE RATE OF THE APPLICATION'S MOST COSTLY SERVICE AS SHOWN IN THE TABLE BELOW.

2. THE SECONDARY RATE(S) OF REMAINING SERVICE(S).

B) FEE TABLE

SIZE	TYPE	FY 13/14 PRIMARY RATE	FY 13/14 SECONDARY RATE
1"	STANDARD SERVICE	$7,060	$3,440
1 -1/2"	STANDARD SERVICE	$8,430	$4,610
2"	STANDARD SERVICE	$8,430	$4,610
3"	STANDARD SERVICE	$36,030	$29,520
4"	STANDARD SERVICE	$36,030	$29,520
6"	STANDARD SERVICE	$42,470	$36,030
8"	STANDARD SERVICE	$48,740	$41,910
1 -1/2"	FIRE SERVICE	$9,410	$5,580
2"	FIRE SERVICE	$9,410	$5,580
4"	FIRE SERVICE	$23,340	$17,000
6"	FIRE SERVICE	$27,780	$21,440
8"	FIRE SERVICE	$32,070	$25,710
1'	COMBINATION SERVICE	$7,060	$3,440
1 -1/2"	COMBINATION SERVICE	$8,430	$4,610
2"	COMBINATION SERVICE	$8,430	$4,610
1"	NON-STANDARD SERVICE	$7,060	$3,440
1 -1/2"	NON-STANDARD SERVICE	$8,430	$4,610
2"	NON-STANDARD SERVICE	$8,430	$4,610

C) Example

A Customer submits an application for a new 6" Fire, one 2" Standard, and one 1" Non-Standard services

The rate of the most costly service is for the 6" Fire service	**$27,780**
The secondary rate for 2" Standard service	**$4,610**
The secondary rate for 1" Non-Standard service	**$3,440**
Total Fee	**$35,830**

NOTES:

1. RATES INCLUDE LABOR, EQUIPMENT, MATERIALS AND SUPPLIES FOR EXCAVATION, PLATING, PIPING, BACKFILL, AND PAVEMENT RESTORATION FROM THE TAP INTO THE MAIN UP TO AND INCLUDING THE INSTALLATION OF THE WATER METER AND METER BOX.

2. THERE WILL BE $2,200 ADDITIONAL PAVING COST FOR TRENCHES IN STREETS UNDER PAVING MORATORIUM OR THAT ARE CONCRETE.

FY 2013-2014
Meter Decrease, Increase, Reset OR Relocation Charges Summary

1. The Customer Service Bureau shall investigate the request and establish that a meter size change is warranted based on the present fixture count for the property being served, and that the service will deliver adequate flow to support the meter size required. The City Distribution Division shall establish the new location of the meter.

2. All requests for meter **DECREASE** for services 3-inches and larger will be transmitted to the City Distribution Division for estimate. The estimate will be either for the cost to revise the metering device or for the recommendation for installation of a new service based on the age, location, and meter configuration of the existing service.

3. On existing 2-inch and smaller service pipes, all meter **DECREASES** shall be $1,460

4. On existing adequate 2-inch copper service, meter **INCREASE** from 1-1/2 inch to 2-inch $1,460

5. On existing adequate 3/4 –inch copper service, meter **INCREASE** from 5/8-inch or ¾-inch to either ¾-inch or 1-inch $1,460

6. On existing adequate 1-inch copper or plastic service, meter **INCREASE** from 5/8-inch or ¾-inch to either ¾-inch or 1-inch $1,460

7. On existing 2-inch or less copper or plastic service, a meter **RESET** $1,110

8. On existing 2-inch copper service, a meter **RELOCATION** of no more than 2 feet $3,370

9. On existing 1-inch copper or plastic services, Meter **RELOCATION** of no more than 2 feet $2,050

NOTE: If meter increase or decrease is done in conjunction with meter relocation, use the relocation fee only. If a service line change is required, new service installation flat rate charges apply.

APPENDIX A
DETERMINATION OF FY 13/14 FLAT RATES

The FY 13-14 Flat Rates for Water Service Installations were determined by comparing actual expenditures, as reported by Maximo, to actual fees collected by the Customer Service Bureau. The data gathered was from the previous three (3) years of new service installations, FY 10-13. The past 3 years of data was used to increase the sample size with the goal of extrapolating more statistically significant data that somewhat follows a bell curve (95% of data points within 2 standard deviations from avg.) Unfortunately, due to the unique nature of each data point, we were unable to come to any statistically based conclusion. However, with a large enough sample size we believe the average data tells us, with a certain level of confidence, how to change the rates to truly reflect the costs incurred by the SFPUC. Below is a breakdown of each category of new water service installation and the recommended rate change.

1" Standard Service Installations

		Labor Cost	Material Cost	Equipment	Total	
	Maximo Data	$184,022	$53,351	$25,458	$262,831	
Total 126 SVCS	75% OH	$138,016				
	24.75% handling and taxes		$13,204			
26 Outliers	Subtotal	$322,038	$66,555	$25,458		
	15% admin	$48,306	$9,983	$3,819		
	Total	$370,344	$76,539	$29,277	$476,160	
	Per svc avg				$4,762	
	Paving				$3,000	
	Top and Bottom 10% (26 svcs) excluded	FY 10-13 Actual 75%OH			$7,762	
		FY 10-13 Actual 116%OH			$8,629	
		FY 12-13 Flat Rate			$7,310	
		Actual as % of Flat Rate			75% OH	106.2%
					116% OH	**118.0%**

Our current Fringe and Benefit factor is 116% therefore the increase for FY13-14 should be 18%. Since there was insufficient data for 1" Non-Standard and Combo services, we will apply the same increase to all categories of 1" diameter.

Flat Rate	FY 12-13	Factor	FY 13-14	Rounded
1" Standard	$7,310.00	118%	**$8,625.80**	**$8,630.00**
1" Combination	$7,310.00	118%	**$8,625.80**	**$8,630.00**
1" Non-Standard	$7,310.00	118%	**$8,625.80**	**$8,630.00**

APPENDIX A
DETERMINATION OF FY 13/14 FLAT RATES

2" Fire Service Installations

		Labor Cost	Material Cost	Equipment	Total	
	Maximo Data	$140,476	$79,069	$18,689	$238,234	
Total 72 SVCS	75% OH	$105,357				
	24.75% handling and taxes		$19,570			
14 Outliers	Subtotal	$245,832	$98,639	$18,689		
	15% admin	$36,875	$14,796	$2,803		
	Total	$282,707	$113,435	$21,492	$417,634	
	Per svc avg				$7,201	
	Paving				$3,200	
	Top and Bottom 10% (26 svcs) excluded	FY 10-13 Actual 75%OH			$10,401	
		FY 10-13 Actual 116%OH			$11,543	
		FY 12-13 Flat Rate			$9,420	
		Actual as % of Flat Rate			75% OH	110.4%
					116% OH	122.5%

Our current Fringe and Benefit factor is 116% therefore the increase for FY13-14 should be 22.5%. Since there was insufficient data for 2" Standard, Non-Standard and Combo services, we will apply the same increase to all categories of 2" and 1-1/2" diameter.

Flat Rate	FY 12-13	Factor	FY 13-14	Rounded
1-1/2" Standard	$9,900.00	122.5%	**$12,127.50**	**$12,130.00**
1-1/2" Combination	$9,900.00	122.5%	**$12,127.50**	**$12,130.00**
1-1/2" Non-Standard	$9,900.00	122.5%	**$12,127.50**	**$12,130.00**
1-1/2" Fire	$9,420.00	122.5%	**$11,539.50**	**$11,540.00**
2" Standard	$9,900.00	122.5%	**$12,127.50**	**$12,130.00**
2" Combination	$9,900.00	122.5%	**$12,127.50**	**$12,130.00**
2" Non-Standard	$9,900.00	122.5%	**$12,127.50**	**$12,130.00**
2" Fire	$9,420.00	122.5%	**$11,539.50**	**$11,540.00**

APPENDIX A
DETERMINATION OF FY 13/14 FLAT RATES

3" and Larger Standard and Fire Service Installations

	4" Fire	6" Fire	8" Fire	Total
# of Service Installs	37	12	2	
Total including OH/Taxes/Admin	$899,668	$273,699	$39,722	
Per Svc Avg	$24,315.36	$22,808.29	$19,861.16	
Paving	$4,600	$4,600	$4,800	
Total Actual	$28,915	$27,408	$24,661	**$80,985**
Flat Rate Fee	$15,190	$17,990	$20,640	**$53,820**
Actual as % of Fee				**150%**

Most large services are either Custom priced jobs or part of a Multiple Service Installation. Therefore, the sample size is quite small. In an effort to find a more representative price change for this group, the sum of the average actual cost was compared to the sum of the consituent fees. The resulting increase for FY13-14 should be 50%. Since there was insufficient data for 3" and larger Standard Services, we will apply the same increase to all categories of 3" diameter and larger Standard Services .

Flat Rate	FY 12-13	Factor	FY 13-14	Rounded
3" Standard	$23,120.00	150%	**$34,680.00**	**$34,680.00**
4" Standard	$23,120.00	150%	**$34,680.00**	**$34,680.00**
6" Standard	$27,140.00	150%	**$40,710.00**	**$40,710.00**
8" Standard	$31,110.00	150%	**$46,665.00**	**$46,670.00**
4" Fire	$15,190.00	150%	**$22,785.00**	**$22,790.00**
6" Fire	$17,990.00	150%	**$26,985.00**	**$26,990.00**
8" Fire	$20,640.00	150%	**$30,960.00**	**$30,960.00**

Multiple Service Installations

The Primary and Secondary Rates within the Multiple Services Rates table will see the same changes as noted above for the Single Service Rates.

Meter Modify Prices

Due to lack of data, we will utilize the CPI adjustment factor of 2.22% provided by Controller's Office for FY 2013-14.

APPENDIX B
Water Installation Service Charges
12/13 To 13/14 Cost Comparison

SIZE	TYPE	12/13	PROPOSED 13/14	% CHANGE TOTAL	$CHANGE TOTAL
1"	STANDARD SERVICE	$7,310	$8,630	18.1%	$1,320
1 -1/2"	STANDARD SERVICE	$9,900	$12,130	22.5%	$2,230
2"	STANDARD SERVICE	$9,900	$12,130	22.5%	$2,230
3"	STANDARD SERVICE	$23,120	$34,680	50.0%	$11,560
4"	STANDARD SERVICE	$23,120	$34,680	50.0%	$11,560
6"	STANDARD SERVICE	$27,140	$40,710	50.0%	$13,570
8"	STANDARD SERVICE	$31,110	$46,670	50.0%	$15,560
1 -1/2"	FIRE SERVICE	$9,420	$11,540	22.5%	$2,120
2"	FIRE SERVICE	$9,420	$11,540	22.5%	$2,120
4"	FIRE SERVICE	$15,190	$22,790	50.0%	$7,600
6"	FIRE SERVICE	$17,990	$26,990	50.0%	$9,000
8"	FIRE SERVICE	$20,640	$30,960	50.0%	$10,320
1'	COMBINATION SERVICE	$7,310	$8,630	18.1%	$1,320
1 -1/2"	COMBINATION SERVICE	$9,900	$12,130	22.5%	$2,230
2"	COMBINATION SERVICE	$9,900	$12,130	22.5%	$2,230
1"	NON-STANDARD SERVICE	$7,310	$8,630	18.1%	$1,320
1 -1/2"	NON-STANDARD SERVICE	$9,900	$12,130	22.5%	$2,230
2"	NON-STANDARD SERVICE	$9,900	$12,130	22.5%	$2,230

NOTES:

1. RATES INCLUDE LABOR, EQUIPMENT, MATERIALS AND SUPPLIES FOR EXCAVATION, PLATING, PIPING, BACKFILL, AND PAVEMENT RESTORATION FROM THE TAP INTO THE MAIN UP TO AND INCLUDING THE INSTALLATION OF THE WATER METER AND METER BOX.

2. THERE WILL BE $2,200 ADDITIONAL PAVING COST FOR TRENCHES IN STREETS UNDER PAVING MORATORIUM OR THAT ARE CONCRETE.

Appendix C:
10/10/10 Agency Survey

PROJECT MEMORANDUM

Project Name:	Utility Rate Study	**Date:**	December 17, 2013
Client:	San Francisco Public Utilities Commission	**Project Number:**	09194A.00
Prepared By:	Kimberly West, PME		
Reviewed By:	Patricia McGovern, PME		
Subject:	10/10/10 Survey of Other Agencies Rate Structures		
Distribution:	SFPUC Staff		

1.0 INTRODUCTION

The San Francisco Public Utilities Commission (SFPUC) is directing a rate study to examine its current rate structure and how that structure may change to meet future needs and goals. One component of this study is to survey other utility agencies' water, wastewater, and stormwater programs for comparison with SFPUC practices. Utility agencies in 30 cities have been selected for the survey including twelve (12) Bay Area cities, eight (8) greater California cities, and ten (10) cities in the US outside of California. The survey presents data on water rates, wastewater rates, stormwater rates, and low-income assistance programs as applicable to each City. This memorandum is intended to describe the survey content and methodology.

2.0 SURVEY CONTENT

The survey reports fixed service charges and volumetric consumption charges for water, wastewater, and stormwater from the Bay Area, California, and nationally. Data from 12 cities are tabulated for the Bay Area: San Francisco, Antioch, Berkeley, Concord, Fremont, Hayward, Novato, Oakland, Palo Alto, San Jose, Santa Clara, and Union City. The California information complies data from Bakersfield, Fresno, Los Angeles, Riverside, Sacramento, San Diego, Santa Cruz, and Stockton. Cincinnati, Houston, Las Vegas, New York City, Philadelphia, Phoenix, Portland, San Antonio, Seattle, and Washington, D.C. are included for the national survey.

The components of the rate structure for each service is provided as it applies to each City. Conservation incentives, low-income rate assistance, and other fees and surcharges (fire service charge, monthly backflow prevention surcharge, elevation surcharges, etc.) were all identified as part of the water charge, when provided. Connection fees and capacity charges are also obtained for both water and wastewater for each City, where available.

All billing rates for the Bay Area, California, and USA surveys are given as monthly charges, regardless of the billing schedule, to provide a uniform cost comparison. For example, although most stormwater fees are charged annually as an additional line item charge on a property tax bill, the rate listed in the matrix is the calculated monthly rate.

To provide a standard for comparison, water and wastewater bills have been calculated for each city considered in the survey for a single-family residential moderate customer who uses 4 hundred cubic feet (ccf) of water per month and for a heavier-use customer who uses 18 ccf of water each month. When example monthly bills are provided, they generally include typical miscellaneous fees, median elevation surcharges, if applicable, and exclude private fire service charges, unless otherwise noted. If rates vary by season or household details other than water consumption, an assumption was made and noted.

Because one of SFPUC's goals is to build a rate structure that will consider and protect low-income users, details of the low-income assistance programs available for water utilities in the Bay Area and greater California cities are highlighted.

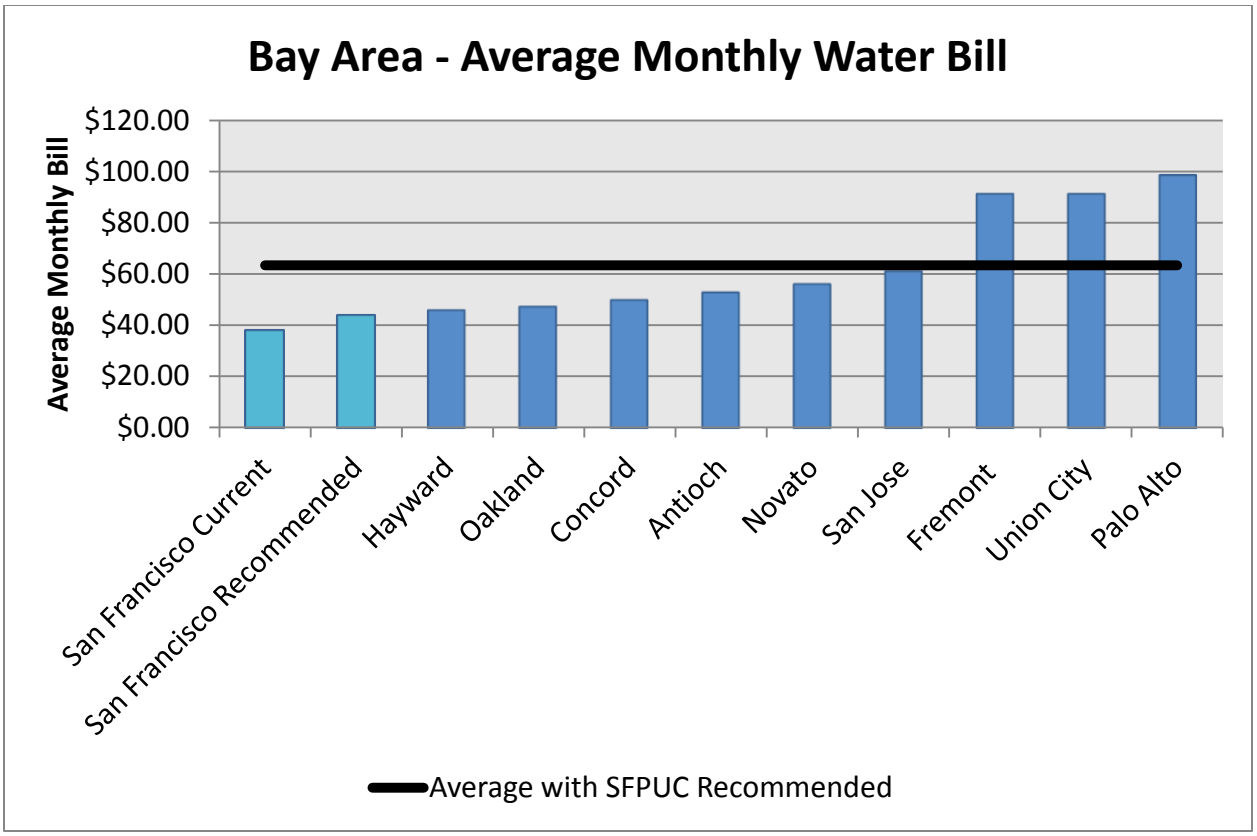
3.0 ASSUMPTIONS, METHODOLOGY, AND LIMITATIONS

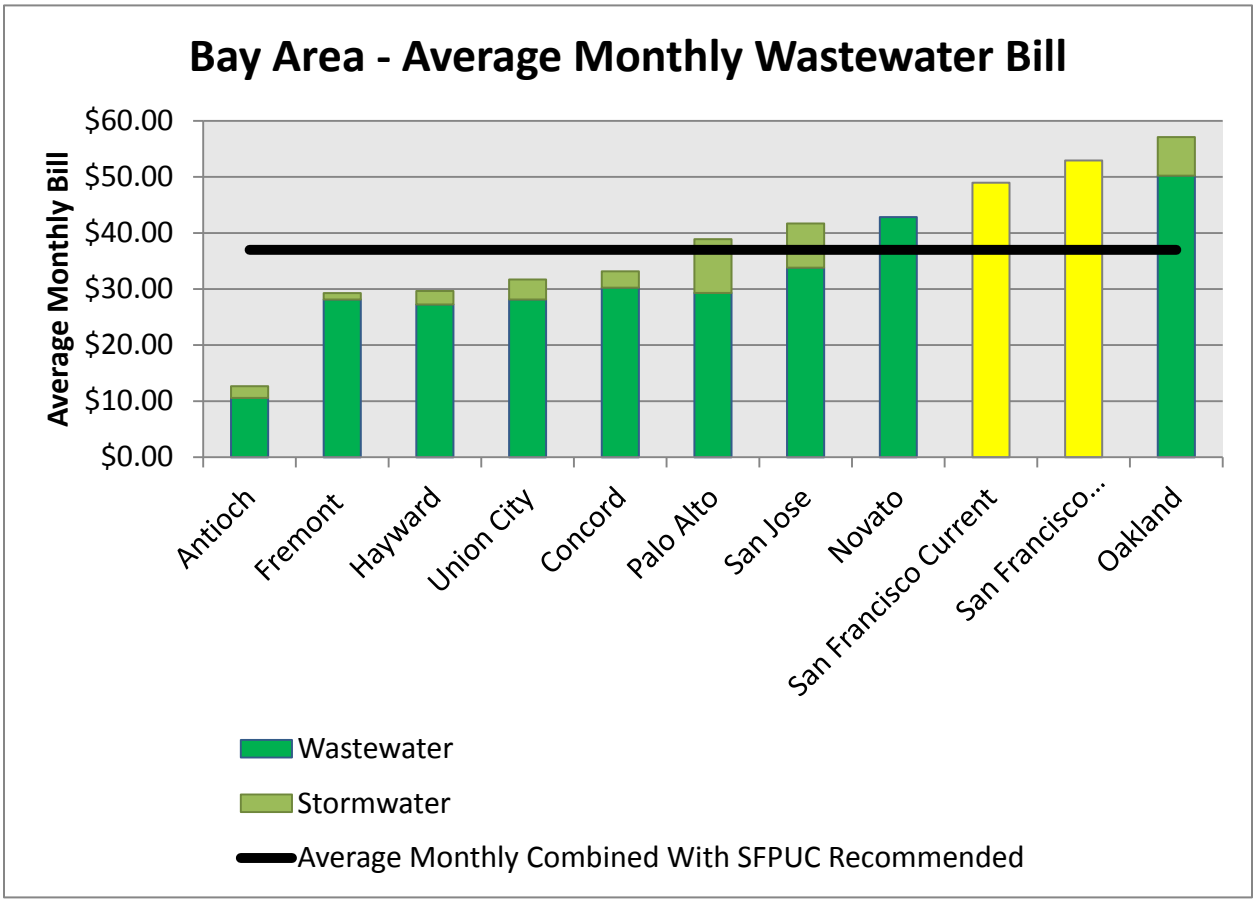
The websites of all cities and agencies that were selected for the survey were reviewed to obtain basic information on the City, the water services provided, and the rates. The majority of the information gathered for this survey is based on the information accessible on the City's website. For example, connection fees/capacity charges were taken from Master Fee Schedules for each City, which are included on their websites. Many of these Master Plans listed "connection fee" or "capacity charge" as a separate line item. If no information on connection fees and capacity charges were available from Master Fee Schedules, the capacity fee/connection fee was left blank on the survey. This does not necessarily mean that there are no capacity charges or connection fees.

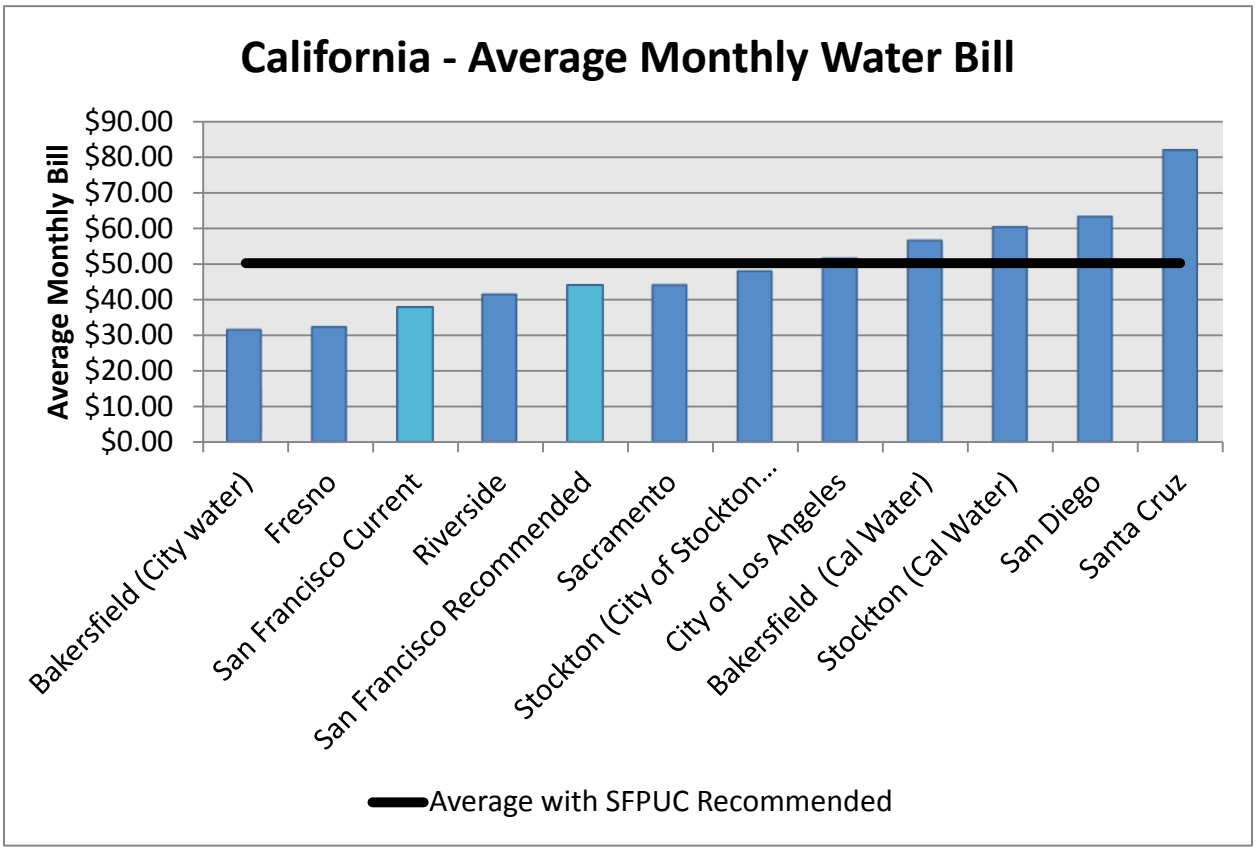
Follow-up phone calls were made to gather more specific information on fees for city collection systems not assessed by the treatment agency, stormwater charges, installation/ connection fees and any other data gaps. In most cases, these questions required further research by the agency contact, resulting in the need to call back. Some agencies and city administrations have been reluctant to respond to inquiries; however, extensive research has yielded answers to most of the questions.

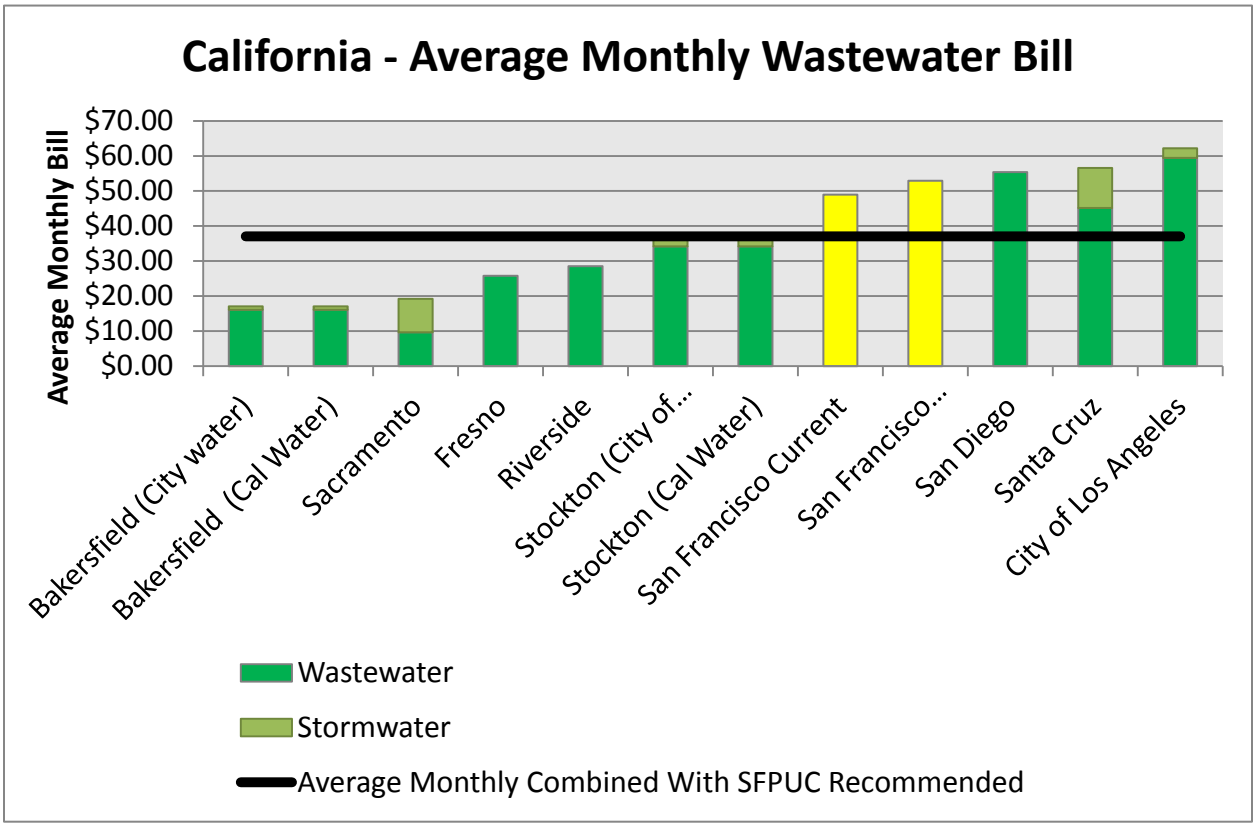
The survey reports residential billing rates for single-family households with a 5/8 inch meter. Rate data was initially collected in April 2013. Many rates changed in July 2013; other rates are set to change in October 2013. In most cases, rates have been updated to reflect current rates as of July 30, 2013. Anticipated rate changes are identified using footnotes, and proposed new rates are presented in cases where available. In all cases, the sources of the reported rates are provided for reference.

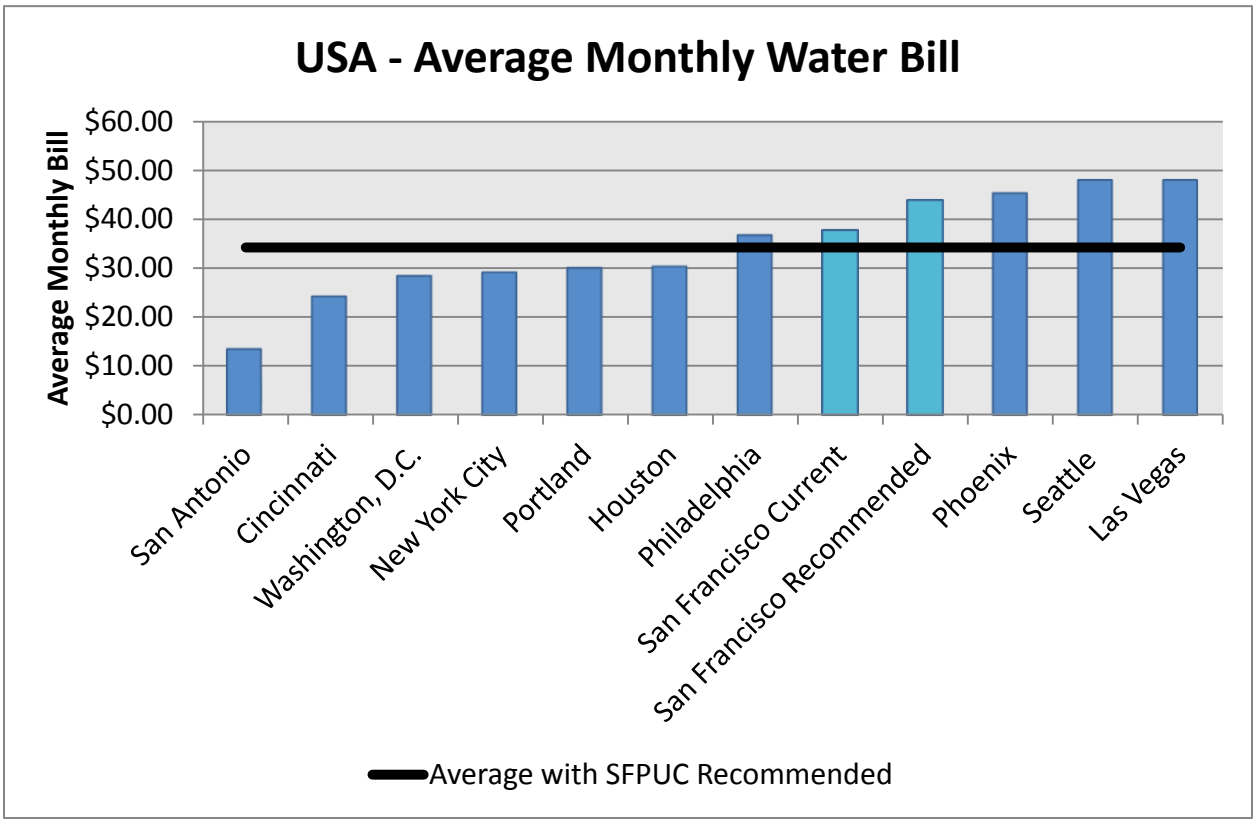
The following Figures are the result of the survey.

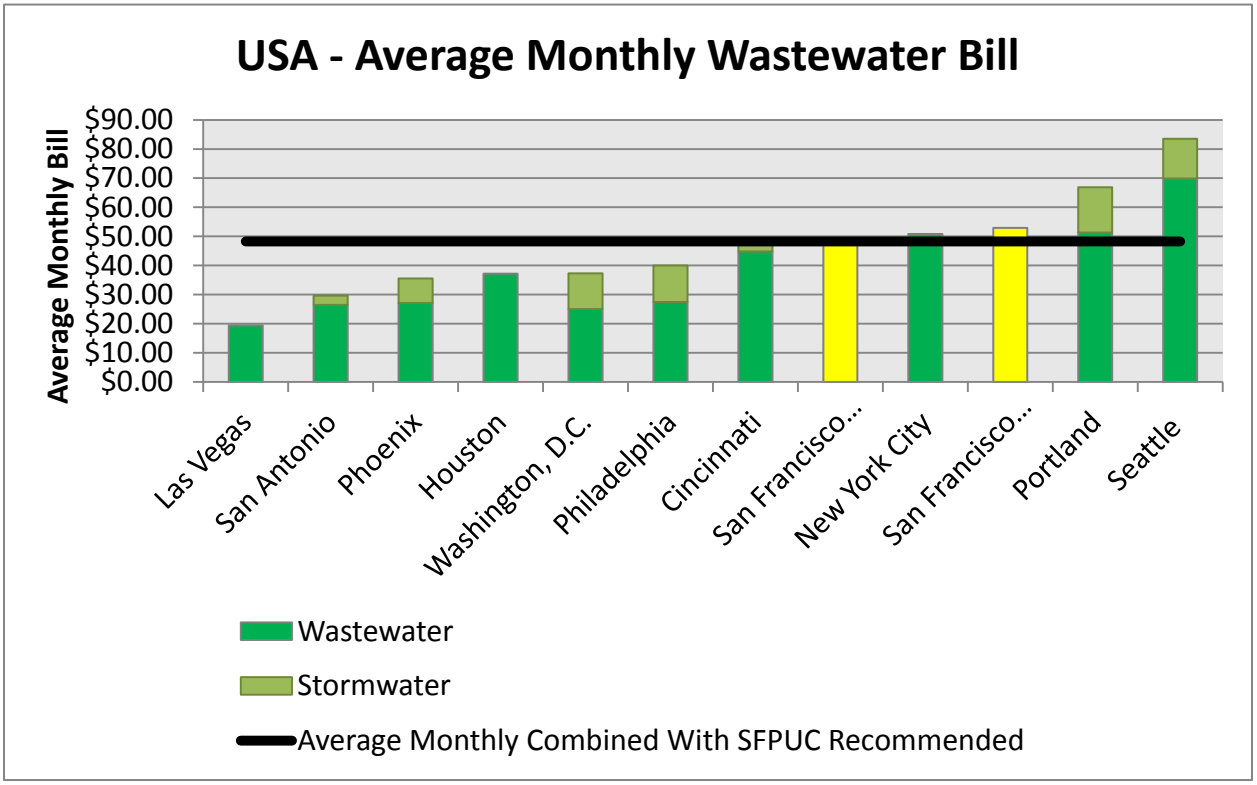

Bay Area - Average Monthly Water Bill
Average Monthly Bill
$120.00
$100.00
$80.00
$60.00
$40.00
$20.00
$0.00
San Francisco Current
San Francisco Recommended
Hayward
Oakland
Concord
Antioch
Novato
San Jose
Fremont
Union City
Palo Alto
Average with SFPUC Recommended


Bay Area - Average Monthly Wastewater Bill
Average Monthly Bill
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$0.00
Antioch
Fremont
Hayward
Union City
Concord
Palo Alto
San Jose
Novato
San Francisco Current
San Francisco...
Oakland
Wastewater
Stormwater
Average Monthly Combined With SFPUC Recommended


California - Average Monthly Water Bill
Average Monthly Bill
$90.00
$80.00
$70.00
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$0.00
Bakersfield (City water)
Fresno
San Francisco Current
Riverside
San Francisco Recommended
Sacramento
Stockton (City of Stockton...
City of Los Angeles
Bakersfield (Cal Water)
Stockton (Cal Water)
San Diego
Santa Cruz
Average with SFPUC Recommended


California - Average Monthly Wastewater Bill
Average Monthly Bill
$70.00
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$0.00
Bakersfield (City water)
Bakersfield (Cal Water)
Sacramento
Fresno
Riverside
Stockton (City of...
Stockton (Cal Water)
San Francisco Current
San Francisco...
San Diego
Santa Cruz
City of Los Angeles
Wastewater
Stormwater
Average Monthly Combined With SFPUC Recommended


USA - Average Monthly Water Bill
Average Monthly Bill
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$0.00
San Antonio
Cincinnati
Washington, D.C.
New York City
Portland
Houston
Philadelphia
San Francisco Current
San Francisco Recommended
Phoenix
Seattle
Las Vegas
Average with SFPUC Recommended


USA - Average Monthly Wastewater Bill
Average Monthly Bill
$90.00
$80.00
$70.00
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$0.00
Las Vegas
San Antonio
Phoenix
Houston
Washington, D.C.
Philadelphia
Cincinnati
San Francisco...
New York City
San Francisco...
Portland
Seattle
Wastewater
Stormwater
Average Monthly Combined With SFPUC Recommended

Single Family Residential Monthly Discounts	San Francisco (SFPUC)	EBMUD Oakland/ Berkeley	Fresno	Palo Alto	Sacramento	San Jose	City of Los Angeles
Median Household Income (2009)	**$70,770**	$51,473/ $60,625	$43,223	$118,989	$47,107	$76,495	$48,617
Name of Program	**Community Assistance Program (CAP)**	Customer Assistance Program (CAP)	*None*	Rate Assistance Program (RAP)	Customer Assistance Program (CAP)	Water Rate Assistance Program (WRAP)	Low Income Discount Program (LIDP) and Lifeline Discount
Type of Discount	**15% discount on water bill and 35% discount on sewer bill**	50% discount on water, 35% on sewer bill	*Program is currently being phased out*	20% discount on stormwater charges	Discounts up to 83% per month on sewer and water	15% discount on water, wastewater, and stormwater	31% LIDP discount on sewer bill and water discount of up to $10/month; Lifeline Discount of up to $10/month on water .
Funding Source	**Unclaimed funds; customer donations; misc. revenues**	1% general property tax	N/A	Ratepayer revenue	Customer donations administered and managed by the Salvation Army	$0.20 monthly surcharge on all non-low income customers[2]	LIDP funded through surcharges on electric bills; Lifeline Discounts funded through surcharge on water bills
Annual Estimated Budget	**$2,075,918**	$1,100,000	N/A	$15,105	$11,170	$2,768,400	N/A

Appendix D:
Wastewater Model

SFPUC
Wastewater Financial Model
Wastewater Operations & Maintenance

carollo

O&M Assumptions

	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
Cost Escalators											
General Inflation Plus Growth	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
General Inflation	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Labor Inflation	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Construction Inflation	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Power and Chemicals Inflation	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Consumption	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Customer Growth	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
No Annual Increase	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

O&M Summary

Revenues											
Rate Revenues	$ 236,114,334	$ 236,114,334	$ 247,920,051	$ 260,316,053	$ 273,331,856	$ 289,731,767	$ 321,602,262	$ 356,978,510	$ 396,246,146	$ 439,833,223	$ 488,214,877
Non-Rate Revenues	9,788,965	9,788,965	10,131,159	10,490,463	10,867,731	11,343,090	12,266,870	13,292,266	14,430,456	15,693,846	17,096,209
Total Revenues	**$ 245,903,299**	**$ 245,903,299**	**$ 258,051,210**	**$ 270,806,516**	**$ 284,199,587**	**$ 301,074,857**	**$ 333,869,132**	**$ 370,270,776**	**$ 410,676,602**	**$ 455,527,069**	**$ 505,311,086**
Calculation Check	Correct	Correct	Correct	Correct	Correct	Correct	Correct	Correct	Correct	Correct	Correct
Expenditures											
Administration	$ 35,450,547	$ 36,098,059	$ 37,385,071	$ 38,718,072	$ 40,098,708	$ 41,528,687	$ 43,009,776	$ 44,543,807	$ 46,132,676	$ 47,778,349	$ 49,482,862
Maintenance	25,963,679	26,604,431	27,628,420	28,691,962	29,796,590	30,943,896	32,135,535	33,373,226	34,658,753	35,993,973	37,380,811
Operations	35,647,699	36,293,146	37,646,142	39,049,803	40,506,034	42,016,812	43,584,190	45,210,298	46,897,346	48,647,628	50,463,526
Environmental Engineering	3,898,990	4,140,083	4,305,061	4,476,616	4,655,011	4,840,519	5,033,422	5,234,016	5,442,608	5,659,517	5,885,075
Planning and Regulations	7,384,825	7,276,897	7,555,471	7,844,750	8,145,148	8,457,093	8,781,030	9,117,423	9,466,752	9,829,516	10,206,234
Collection Systems	31,144,431	31,476,307	32,635,938	33,838,475	35,085,512	36,378,703	37,719,763	39,110,472	40,552,677	42,048,293	43,599,307
Wastewater Labs	4,348,266	4,490,551	4,667,203	4,850,817	5,041,668	5,240,041	5,446,234	5,660,556	5,883,327	6,114,881	6,355,565
Incremental SSIP Expenditures	-	302,835	364,961	430,856	500,703	2,036,198	3,802,558	7,965,365	8,269,327	8,584,745	8,930,246
Total Expenditures	**$ 143,838,437**	**$ 146,682,309**	**$ 152,188,267**	**$ 157,901,351**	**$ 163,829,373**	**$ 171,441,948**	**$ 179,512,508**	**$ 190,215,163**	**$ 197,303,467**	**$ 204,656,903**	**$ 212,303,626**
Calculation Check	Correct	Correct	Correct	Correct	Correct	Correct	Correct	Correct	Correct	Correct	Correct
Net Operating Surplus (Deficiency) - Excluding Debt and Capital Replacement	$ 102,064,862	$ 99,220,990	$ 105,862,942	$ 112,905,165	$ 120,370,214	$ 129,632,909	$ 154,356,623	$ 180,055,614	$ 213,373,135	$ 250,870,166	$ 293,007,461

O&M Detail - Revenues (prior to annual rate increase)

Acct Code	Line Item Description	Type	Revenue Escalator	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
	Waste Water Sales													
	Single Family	Rates	Consumption	$ 58,683,151	$ 58,683,151	$ 61,617,309	$ 64,698,174	$ 67,933,083	$ 72,009,068	$ 79,930,066	$ 88,722,373	$ 98,481,834	$ 109,314,836	$ 121,339,468
	Multi-Residential	Rates	Consumption	95,606,863	95,606,863	100,387,206	105,406,566	110,676,895	117,317,508	130,222,434	144,546,902	160,447,061	178,096,238	197,686,824
	Non-Residential	Rates	Consumption	81,824,320	81,824,320	85,915,536	90,211,312	94,721,878	100,405,191	111,449,762	123,709,236	137,317,251	152,422,149	169,188,586
	Special Districts (contract accounts)	Non-Rate	Consumption	6,843,877	6,843,877	7,186,071	7,545,374	7,922,643	8,398,002	9,321,782	10,347,178	11,485,367	12,748,758	14,151,121
	Biodiesel Revenue	Non-Rate	No Annual Increase	846,681	846,681	846,681	846,681	846,681	846,681	846,681	846,681	846,681	846,681	846,681
	Treasure Island - Utilities Revenues	Non-Rate	No Annual Increase	719,000	719,000	719,000	719,000	719,000	719,000	719,000	719,000	719,000	719,000	719,000
	City Property Rental	Non-Rate	No Annual Increase	908,082	908,082	908,082	908,082	908,082	908,082	908,082	908,082	908,082	908,082	908,082
79999	Other Non-Operating Revenue	Non-Rate	No Annual Increase	462,075	462,075	462,075	462,075	462,075	462,075	462,075	462,075	462,075	462,075	462,075
76199	Gain/Loss - Sale of Fixed Assets	Non-Rate	No Annual Increase	7,363	7,363	7,363	7,363	7,363	7,363	7,363	7,363	7,363	7,363	7,363
76251	Sale of Scrap and Waste	Non-Rate	No Annual Increase	1,887	1,887	1,887	1,887	1,887	1,887	1,887	1,887	1,887	1,887	1,887
	Total Operating Revenues			**$ 245,903,299**	**$ 245,903,299**	**$ 258,051,210**	**$ 270,806,516**	**$ 284,199,587**	**$ 301,074,857**	**$ 333,869,132**	**$ 370,270,776**	**$ 410,676,602**	**$ 455,527,069**	**$ 505,311,086**

O&M Detail - Expenditures

Acct Code	Line Item Description	Type	Expense Escalator	Board Adopted	Board Adopted	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
	Administration													
001	Salaries	On-Going	Labor Inflation	$ 1,359,154	$ 1,376,369	$ 1,431,424	$ 1,488,681	$ 1,548,228	$ 1,610,157	$ 1,674,563	$ 1,741,546	$ 1,811,208	$ 1,883,656	$ 1,959,002

SFPUC
Wastewater Financial Model
Wastewater Operations & Maintenance

carollo

				FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
013	Mandatory Fringe Benefits	On-Going	Labor Inflation	3,060,631	3,339,610	3,473,194	3,612,122	3,756,607	3,906,871	4,063,146	4,225,672	4,394,699	4,570,487	4,753,306
020	COWCAP	On-Going	General Inflation Plus Growth	-	-	-	-	-	-	-	-	-	-	-
021	Non Personal Services	On-Going	General Inflation Plus Growth	1,865,802	1,890,323	1,956,484	2,024,961	2,095,835	2,169,189	2,245,111	2,323,690	2,405,019	2,489,194	2,576,316
040	Materials and Supplies	On-Going	General Inflation Plus Growth	220,402	220,402	228,116	236,100	244,364	252,916	261,768	270,930	280,413	290,227	300,385
060	Capital Purchases	On-Going	General Inflation Plus Growth	-	-	-	-	-	-	-	-	-	-	-
081UA	UA Services of SFPUC	On-Going	General Inflation Plus Growth	24,888,031	25,181,625	26,062,982	26,975,186	27,919,318	28,896,494	29,907,871	30,954,647	32,038,059	33,159,391	34,319,970
081	Services of Other Departments	On-Going	General Inflation Plus Growth	4,056,527	4,089,730	4,232,871	4,381,021	4,534,357	4,693,059	4,857,316	5,027,322	5,203,279	5,385,393	5,573,882
	[Other]	On-Going	General Inflation Plus Growth			-	-	-	-	-	-	-	-	-
	Total Administration			**$ 35,450,547**	**$ 36,098,059**	**$ 37,385,071**	**$ 38,718,072**	**$ 40,098,708**	**$ 41,528,687**	**$ 43,009,776**	**$ 44,543,807**	**$ 46,132,676**	**$ 47,778,349**	**$ 49,482,862**
	Maintenance													
001	Salaries	On-Going	Labor Inflation	$ 12,585,516	$ 12,871,975	$ 13,386,854	$ 13,922,328	$ 14,479,221	$ 15,058,390	$ 15,660,726	$ 16,287,155	$ 16,938,641	$ 17,616,187	$ 18,320,834
013	Mandatory Fringe Benefits	On-Going	Labor Inflation	5,139,751	5,694,819	5,922,612	6,159,516	6,405,897	6,662,133	6,928,618	7,205,763	7,493,993	7,793,753	8,105,503
020	Overhead	On-Going	General Inflation Plus Growth	-	-	-	-	-	-	-	-	-	-	-
021	Non Personal Services	On-Going	General Inflation Plus Growth	2,726,218	2,726,408	2,821,832	2,920,596	3,022,817	3,128,616	3,238,117	3,351,452	3,468,752	3,590,159	3,715,814
040	Materials and Supplies	On-Going	General Inflation Plus Growth	2,283,952	2,310,168	2,391,024	2,474,710	2,561,325	2,650,971	2,743,755	2,839,786	2,939,179	3,042,050	3,148,522
060	Capital Purchases	On-Going	General Inflation Plus Growth	467,436	244,209	252,756	261,603	270,759	280,235	290,044	300,195	310,702	321,577	332,832
081	Services of Other Departments	On-Going	General Inflation Plus Growth	2,760,806	2,756,852	2,853,342	2,953,209	3,056,571	3,163,551	3,274,275	3,388,875	3,507,486	3,630,248	3,757,306
	[Other]	On-Going	General Inflation Plus Growth			-	-	-	-	-	-	-	-	-
	Total Maintenance			**$ 25,963,679**	**$ 26,604,431**	**$ 27,628,420**	**$ 28,691,962**	**$ 29,796,590**	**$ 30,943,896**	**$ 32,135,535**	**$ 33,373,226**	**$ 34,658,753**	**$ 35,993,973**	**$ 37,380,811**
	Operations													
001	Salaries	On-Going	Labor Inflation	$ 11,730,872	$ 11,937,268	$ 12,414,759	$ 12,911,349	$ 13,427,803	$ 13,964,915	$ 14,523,512	$ 15,104,452	$ 15,708,630	$ 16,336,976	$ 16,990,455
013	Mandatory Fringe Benefits	On-Going	Labor Inflation	4,182,515	4,609,981	4,794,380	4,986,155	5,185,602	5,393,026	5,608,747	5,833,097	6,066,420	6,309,077	6,561,440
020	Overhead	On-Going	General Inflation Plus Growth	-	-	-	-	-	-	-	-	-	-	-
021	Non Personal Services	On-Going	General Inflation Plus Growth	4,647,181	4,647,181	4,809,832	4,978,176	5,152,413	5,332,747	5,519,393	5,712,572	5,912,512	6,119,450	6,333,631
040	Materials and Supplies	On-Going	General Inflation Plus Growth	5,707,645	5,780,445	5,982,761	6,192,157	6,408,883	6,633,194	6,865,355	7,105,643	7,354,340	7,611,742	7,878,153
060	Capital Purchases	On-Going	General Inflation Plus Growth	72,800	-	-	-	-	-	-	-	-	-	-
081	Services of Other Departments	On-Going	General Inflation Plus Growth	9,306,686	9,318,271	9,644,410	9,981,965	10,331,334	10,692,930	11,067,183	11,454,534	11,855,443	12,270,383	12,699,847
	[Other]	On-Going	General Inflation Plus Growth			-	-	-	-	-	-	-	-	-
	Total Operations			**$ 35,647,699**	**$ 36,293,146**	**$ 37,646,142**	**$ 39,049,803**	**$ 40,506,034**	**$ 42,016,812**	**$ 43,584,190**	**$ 45,210,298**	**$ 46,897,346**	**$ 48,647,628**	**$ 50,463,526**
	Environmental Engineering													
001	Salaries	On-Going	Labor Inflation	$ 2,758,634	$ 2,864,109	$ 2,978,673	$ 3,097,820	$ 3,221,733	$ 3,350,602	$ 3,484,627	$ 3,624,012	$ 3,768,972	$ 3,919,731	$ 4,076,520
013	Mandatory Fringe Benefits	On-Going	Labor Inflation	1,015,312	1,150,930	1,196,967	1,244,846	1,294,640	1,346,425	1,400,282	1,456,294	1,514,545	1,575,127	1,638,132
020	Overhead	On-Going	General Inflation Plus Growth	-	-	-	-	-	-	-	-	-	-	-
021	Non Personal Services	On-Going	General Inflation Plus Growth	71,122	71,122	73,611	76,188	78,854	81,614	84,471	87,427	90,487	93,654	96,932
040	Materials and Supplies	On-Going	General Inflation Plus Growth	53,922	53,922	55,809	57,763	59,784	61,877	64,042	66,284	68,604	71,005	73,490
060	Capital Purchases	On-Going	General Inflation Plus Growth	-	-	-	-	-	-	-	-	-	-	-
081	Services of Other Departments	On-Going	General Inflation Plus Growth	-	-	-	-	-	-	-	-	-	-	-
	[Other]	On-Going	General Inflation Plus Growth			-	-	-	-	-	-	-	-	-
	Total Environmental Engineering			**$ 3,898,990**	**$ 4,140,083**	**$ 4,305,061**	**$ 4,476,616**	**$ 4,655,011**	**$ 4,840,519**	**$ 5,033,422**	**$ 5,234,016**	**$ 5,442,608**	**$ 5,659,517**	**$ 5,885,075**
	Planning and Regulations													
001	Salaries	On-Going	Labor Inflation	$ 3,202,514	$ 3,267,348	$ 3,398,042	$ 3,533,964	$ 3,675,322	$ 3,822,335	$ 3,975,228	$ 4,134,238	$ 4,299,607	$ 4,471,591	$ 4,650,455
013	Mandatory Fringe Benefits	On-Going	Labor Inflation	1,364,939	1,509,155	1,569,521	1,632,302	1,697,594	1,765,498	1,836,118	1,909,563	1,985,945	2,065,383	2,147,998
020	Overhead	On-Going	General Inflation Plus Growth		-	-	-	-	-	-	-	-	-	-
021	Non Personal Services	On-Going	General Inflation Plus Growth	2,435,381	2,114,393	2,188,397	2,264,991	2,344,265	2,426,315	2,511,236	2,599,129	2,690,098	2,784,252	2,881,701
040	Materials and Supplies	On-Going	General Inflation Plus Growth	16,991	21,001	21,736	22,497	23,284	24,099	24,943	25,816	26,719	27,654	28,622
060	Capital Purchases	On-Going	General Inflation Plus Growth	-	-	-	-	-	-	-	-	-	-	-
081	Services of Other Departments	On-Going	General Inflation Plus Growth	365,000	365,000	377,775	390,997	404,682	418,846	433,506	448,678	464,382	480,635	497,458
	[Other]	On-Going	General Inflation Plus Growth			-	-	-	-	-	-	-	-	-
	Total Planning and Regulations			**$ 7,384,825**	**$ 7,276,897**	**$ 7,555,471**	**$ 7,844,750**	**$ 8,145,148**	**$ 8,457,093**	**$ 8,781,030**	**$ 9,117,423**	**$ 9,466,752**	**$ 9,829,516**	**$ 10,206,234**

SFPUC
Wastewater Financial Model
Wastewater Operations & Maintenance

carollo

				FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
Collection Systems														
001	Salaries	On-Going	Labor Inflation	$ 7,907,388	$ 8,114,904	$ 8,439,500	$ 8,777,080	$ 9,128,163	$ 9,493,290	$ 9,873,022	$ 10,267,942	$ 10,678,660	$ 11,105,806	$ 11,550,039
013	Mandatory Fringe Benefits	On-Going	Labor Inflation	3,134,680	3,477,206	3,616,294	3,760,946	3,911,384	4,067,839	4,230,553	4,399,775	4,575,766	4,758,797	4,949,148
020	Overhead	On-Going	General Inflation Plus Growth	-	-	-	-	-	-	-	-	-	-	-
021	Non Personal Services	On-Going	General Inflation Plus Growth	2,981,056	3,126,294	3,235,714	3,348,964	3,466,178	3,587,494	3,713,057	3,843,014	3,977,519	4,116,732	4,260,818
040	Materials and Supplies	On-Going	General Inflation Plus Growth	731,245	731,245	756,839	783,328	810,744	839,120	868,490	898,887	930,348	962,910	996,612
060	Capital Purchases	On-Going	General Inflation Plus Growth	637,479	260,710	269,835	279,279	289,054	299,171	309,642	320,479	331,696	343,305	355,321
081	Services of Other Departments	On-Going	General Inflation Plus Growth	15,752,583	15,765,948	16,317,756	16,888,878	17,479,988	18,091,788	18,725,001	19,380,376	20,058,689	20,760,743	21,487,369
	[Other]	On-Going	General Inflation Plus Growth			-	-	-	-	-	-	-	-	-
	Total Collection Systems			**$ 31,144,431**	**$ 31,476,307**	**$ 32,635,938**	**$ 33,838,475**	**$ 35,085,512**	**$ 36,378,703**	**$ 37,719,763**	**$ 39,110,472**	**$ 40,552,677**	**$ 42,048,293**	**$ 43,599,307**
Wastewater Labs														
001	Salaries	On-Going	Labor Inflation	$ 2,665,804	$ 2,722,816	$ 2,831,729	$ 2,944,998	$ 3,062,798	$ 3,185,310	$ 3,312,722	$ 3,445,231	$ 3,583,040	$ 3,726,362	$ 3,875,416
013	Mandatory Fringe Benefits	On-Going	Labor Inflation	1,058,418	1,173,690	1,220,638	1,269,463	1,320,242	1,373,051	1,427,973	1,485,092	1,544,496	1,606,276	1,670,527
020	Overhead	On-Going	General Inflation Plus Growth	-	-	-	-	-	-	-	-	-	-	-
021	Non Personal Services	On-Going	General Inflation Plus Growth	173,497	143,497	148,519	153,718	159,098	164,666	170,429	176,394	182,568	188,958	195,572
040	Materials and Supplies	On-Going	General Inflation Plus Growth	309,095	283,568	293,493	303,765	314,397	325,401	336,790	348,577	360,778	373,405	386,474
060	Capital Purchases	On-Going	General Inflation Plus Growth	141,452	166,980	172,824	178,873	185,134	191,613	198,320	205,261	212,445	219,881	227,577
081	Services of Other Departments	On-Going	General Inflation Plus Growth	-	-	-	-	-	-	-	-	-	-	-
	[Other]	On-Going	General Inflation Plus Growth			-	-	-	-	-	-	-	-	-
	Total Wastewater Labs			**$ 4,348,266**	**$ 4,490,551**	**$ 4,667,203**	**$ 4,850,817**	**$ 5,041,668**	**$ 5,240,041**	**$ 5,446,234**	**$ 5,660,556**	**$ 5,883,327**	**$ 6,114,881**	**$ 6,355,565**
Total Operating Expenditures				**$ 143,838,437**	**$ 146,379,474**	**$ 151,823,306**	**$ 157,470,495**	**$ 163,328,670**	**$ 169,405,750**	**$ 175,709,950**	**$ 182,249,798**	**$ 189,034,140**	**$ 196,072,158**	**$ 203,373,380**
Incremental SSIP Expenditures														
	SSIP Incremental O&M	On-Going	No Annual Increase		**$ 302,835**	**$ 364,961**	**$ 430,856**	**$ 500,703**	**$ 2,036,198**	**$ 3,802,558**	**$ 7,965,365**	**$ 8,269,327**	**$ 8,584,745**	**$ 8,930,246**
	[Other]	On-Going	Labor Inflation		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	[Other]	On-Going	General Inflation Plus Growth		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Other Expenditures				**$ -**	**$ 302,835**	**$ 364,961**	**$ 430,856**	**$ 500,703**	**$ 2,036,198**	**$ 3,802,558**	**$ 7,965,365**	**$ 8,269,327**	**$ 8,584,745**	**$ 8,930,246**
Total O&M Expenditures				**$ 143,838,437**	**$ 146,682,309**	**$ 152,188,267**	**$ 157,901,351**	**$ 163,829,373**	**$ 171,441,948**	**$ 179,512,508**	**$ 190,215,163**	**$ 197,303,467**	**$ 204,656,903**	**$ 212,303,626**

SFPUC
Wastewater Financial Model
Debt Service

carollo

Summary

	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
Total Debt Service											
Existing Debt											
Principal Payments	$ 23,095,000	$ 32,805,000	$ 30,895,000	$ 31,115,000	$ 20,870,000	$ 20,015,000	$ 21,010,000	$ 22,085,000	$ 23,240,000	$ 22,880,000	$ 20,370,000
Interest Payments	14,826,294	15,857,818	17,710,093	28,643,227	27,643,852	26,741,402	25,803,927	24,814,702	23,731,577	22,628,577	21,669,308
Total Existing Debt	$ 37,921,294	$ 48,662,818	$ 48,605,093	$ 59,758,227	$ 48,513,852	$ 46,756,402	$ 46,813,927	$ 46,899,702	$ 46,971,577	$ 45,508,577	$ 42,039,308
Future Debt											
Principal Payments	$ -	$ -	$ -	$ -	$ 5,153,720	$ 9,709,542	$ 15,483,240	$ 26,711,002	$ 35,426,920	$ 63,954,497	$ 77,818,492
Interest Payments	-	-	-	14,087,470	25,578,550	39,548,193	67,348,489	86,186,855	157,552,496	183,510,555	227,625,233
Total Future Debt	$ -	$ -	$ -	$ 14,087,470	$ 30,732,270	$ 49,257,735	$ 82,831,729	$ 112,897,856	$ 192,979,417	$ 247,465,052	$ 305,443,725
Total Payment:	$ 37,921,294	$ 48,662,818	$ 48,605,093	$ 73,845,696	$ 79,246,122	$ 96,014,137	$ 129,645,656	$ 159,797,558	$ 239,950,993	$ 292,973,628	$ 347,483,032

Existing Debt Service

	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
Total Existing Debt											
Total Debt from Debt Map											
Principal Payment	$ 23,095,000	$ 32,805,000	$ 30,895,000	$ 31,115,000	$ 20,870,000	$ 20,015,000	$ 21,010,000	$ 22,085,000	$ 23,240,000	$ 22,880,000	$ 20,370,000
Interest Payment	14,826,294	15,857,818	17,710,093	28,643,227	27,643,852	26,741,402	25,803,927	24,814,702	23,731,577	22,628,577	21,669,308
Total Payment:	**$ 37,921,294**	**$ 48,662,818**	**$ 48,605,093**	**$ 59,758,227**	**$ 48,513,852**	**$ 46,756,402**	**$ 46,813,927**	**$ 46,899,702**	**$ 46,971,577**	**$ 45,508,577**	**$ 42,039,308**

New Debt Assumptions

	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
Revenue Bonds:											
Issuance Costs	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Reserve Amount	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Interest Rate	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Amortization Period	30 years	30 years	30 years	30 years	30 years	30 years	30 years	30 years	30 years	30 years	30 years
Months of Capitalized Interest	36 months	36 months	36 months	36 months	36 months	36 months	36 months	36 months	36 months	36 months	36 months

(1) Current PUC Funding Assumptions FYE2013

Projected Debt Service

Borrowing Calculations

	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
Projected New Revenue Bonds											
New Bond Par Amount	$ 233,852,000	$ 195,029,514	$ 239,955,000	$ 474,336,000	$ 334,887,000	$ 1,214,074,000	$ 483,986,000	$ 796,893,000	$ 474,212,000	$ 329,283,000	$ 283,698,860
Plus: Issuance Costs	5,634,988	4,699,506	5,782,048	11,429,783	8,069,566	29,254,795	11,662,313	19,202,241	11,426,795	7,934,530	6,836,117
Plus: Reserve Amount	-	-	-	-	-	-	-	-	-	-	-
Plus: Capitalized Interest	42,262,410	35,246,298	43,365,361	85,723,373	60,521,747	219,410,964	87,467,349	144,016,807	85,700,964	59,508,976	51,270,878
Total Bond Amount Issued:	**$ 281,749,398**	**$ 234,975,318**	**$ 289,102,410**	**$ 571,489,157**	**$ 403,478,313**	**$ 1,462,739,759**	**$ 583,115,663**	**$ 960,112,048**	**$ 571,339,759**	**$ 396,726,506**	**$ 341,805,855**
Annual Payments on Projected Bonds											
Principal Payments	$ -	$ -	$ -	$ -	$ 5,153,720	$ 9,709,542	$ 15,483,240	$ 26,711,002	$ 35,426,920	$ 63,954,497	$ 77,818,492
Interest Payments	-	-	-	14,087,470	25,578,550	39,548,193	67,348,489	86,186,855	157,552,496	183,510,555	227,625,233
Total Payment:	**$ -**	**$ -**	**$ -**	**$ 14,087,470**	**$ 30,732,270**	**$ 49,257,735**	**$ 82,831,729**	**$ 112,897,856**	**$ 192,979,417**	**$ 247,465,052**	**$ 305,443,725**

SFPUC
Wastewater Financial Model
Funding

carollo

	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
Reserve Balance Assumptions											
All Reserves[1]											
Fund Interest Earnings Rate	1.20%	1.20%	1.20%	2.00%	3.00%	3.00%	4.00%	4.00%	4.00%	4.00%	4.00%
[1] Interest Earnings based on US Treasury yield curve published 3/1/2011											
Capital Funding											
Funding Sources (from 10-Year CIP)											
Revenue Bonds	$ 233,852,000	$ 195,029,514	$ 239,955,000	$ 474,336,000	$ 334,887,000	$ 1,214,074,000	$ 483,986,000	$ 796,893,000	$ 474,212,000	$ 329,283,000	$ 283,698,860
Revenue Funded	33,800,000	37,000,000	39,000,000	41,000,000	43,000,000	45,000,000	48,000,000	50,000,000	52,000,000	55,000,000	57,750,140
Capacity Fees	-	-	-	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	-	5,000,000	-
Funding Sources (from Programmatic CIP)											
Revenue Funded	$ 3,781,249	$ 4,778,577	$ 3,437,713	$ 2,982,000	$ 2,850,000	$ 2,885,000	$ 2,941,000	$ 3,000,000	$ 3,060,000	$ 3,122,000	$ -
Total	**271,433,249**	**236,808,091**	**282,392,713**	**522,318,000**	**384,737,000**	**1,265,959,000**	**538,927,000**	**853,893,000**	**529,272,000**	**392,405,000**	**341,449,000**
Bond Issuance	**$ 233,852,000**	**$ 195,029,514**	**$ 239,955,000**	**$ 474,336,000**	**$ 334,887,000**	**$ 1,214,074,000**	**$ 483,986,000**	**$ 796,893,000**	**$ 474,212,000**	**$ 329,283,000**	**$ 283,698,860**
Cash Balance											
Beginning Balance	**$ 64,674,765**	**$ 88,202,878**	**$ 110,149,460**	**$ 139,052,353**	**$ 150,357,527**	**$ 167,042,959**	**$ 191,694,712**	**$ 212,311,275**	**$ 235,294,783**	**$ 214,925,119**	**$ 180,263,061**
Interest Earnings	776,097	1,058,435	1,321,794	2,781,047	4,510,726	5,011,289	7,667,788	8,492,451	9,411,791	8,597,005	7,210,522
[Additions to Reserves]	-	-	-	-	-	-	-	-	-	-	-
[Use of Reserves]	-	-	-	-	-	-	-	-	-	-	-
Net Cash Flow	26,562,319	20,888,147	27,581,099	8,524,127	12,174,706	19,640,465	12,948,774	14,491,057	(29,781,455)	(43,259,063)	(44,709,680)
Ending Balance	**$ 92,013,181**	**$ 110,149,460**	**$ 139,052,353**	**$ 150,357,527**	**$ 167,042,959**	**$ 191,694,712**	**$ 212,311,275**	**$ 235,294,783**	**$ 214,925,119**	**$ 180,263,061**	**$ 142,763,903**
Target % of Non-Debt Expenditures		25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Balance Target		$ 35,472,231	$ 36,789,026	$ 38,154,920	$ 39,571,751	$ 41,041,427	$ 42,565,929	$ 44,147,310	$ 45,787,703	$ 47,489,319	$ 49,254,454

SFPUC
Wastewater Financial Model
Revenue Requirement

carollo

	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
Cash Flow Test											
Revenues											
Rate Revenues	$ 236,114,334	$ 236,114,334	$ 247,920,051	$ 260,316,053	$ 273,331,856	$ 289,731,767	$ 321,602,262	$ 356,978,510	$ 396,246,146	$ 439,833,223	$ 488,214,877
Non-Rate Revenues	9,788,965	9,788,965	10,131,159	10,490,463	10,867,731	11,343,090	12,266,870	13,292,266	14,430,456	15,693,846	17,096,209
Total Revenues	**$ 245,903,299**	**$ 245,903,299**	**$ 258,051,210**	**$ 270,806,516**	**$ 284,199,587**	**$ 301,074,857**	**$ 333,869,132**	**$ 370,270,776**	**$ 410,676,602**	**$ 455,527,069**	**$ 505,311,086**
Expenditures											
Administration	$ 35,450,547	$ 36,098,059	$ 37,385,071	$ 38,718,072	$ 40,098,708	$ 41,528,687	$ 43,009,776	$ 44,543,807	$ 46,132,676	$ 47,778,349	$ 49,482,862
Maintenance	25,963,679	26,604,431	27,628,420	28,691,962	29,796,590	30,943,896	32,135,535	33,373,226	34,658,753	35,993,973	37,380,811
Operations	35,647,699	36,293,146	37,646,142	39,049,803	40,506,034	42,016,812	43,584,190	45,210,298	46,897,346	48,647,628	50,463,526
Environmental Engineering	3,898,990	4,140,083	4,305,061	4,476,616	4,655,011	4,840,519	5,033,422	5,234,016	5,442,608	5,659,517	5,885,075
Planning and Regulations	7,384,825	7,276,897	7,555,471	7,844,750	8,145,148	8,457,093	8,781,030	9,117,423	9,466,752	9,829,516	10,206,234
Collection Systems	31,144,431	31,476,307	32,635,938	33,838,475	35,085,512	36,378,703	37,719,763	39,110,472	40,552,677	42,048,293	43,599,307
Wastewater Labs	4,348,266	4,490,551	4,667,203	4,850,817	5,041,668	5,240,041	5,446,234	5,660,556	5,883,327	6,114,881	6,355,565
Debt Service	37,921,294	48,662,818	48,605,093	73,845,696	79,246,122	96,014,137	129,645,656	159,797,558	239,950,993	292,973,628	347,483,032
Total Operating Expenditures	**$ 181,759,731**	**$ 195,042,292**	**$ 200,428,400**	**$ 231,316,192**	**$ 242,574,792**	**$ 265,419,887**	**$ 305,355,606**	**$ 342,047,356**	**$ 428,985,133**	**$ 489,045,786**	**$ 550,856,412**
Policy Expenditures											
Additions to meet min fund balance reserves	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Rate Funded Capital (PAYGO)	37,581,249	41,778,577	42,437,713	43,982,000	45,850,000	47,885,000	50,941,000	53,000,000	55,060,000	58,122,000	57,750,140
Total Policy Expenditures	$ 37,581,249	$ 41,778,577	$ 42,437,713	$ 43,982,000	$ 45,850,000	$ 47,885,000	$ 50,941,000	$ 53,000,000	$ 55,060,000	$ 58,122,000	$ 57,750,140
Total Expenditures for Cash Flow Test	$ 219,340,980	$ 236,820,869	$ 242,866,113	$ 275,298,192	$ 288,424,792	$ 313,304,887	$ 356,296,606	$ 395,047,356	$ 484,045,133	$ 547,167,786	$ 608,606,552
Cash Flow Surplus (Deficit)	**$ 26,562,319**	**$ 9,082,431**	**$ 15,185,097**	**$ (4,491,676)**	**$ (4,225,205)**	**$ (12,230,030)**	**$ (22,427,474)**	**$ (24,776,579)**	**$ (73,368,531)**	**$ (91,640,718)**	**$ (103,295,465)**
Debt Coverage Test											
Required Coverage Factor (without Reserves)	1.00 x	1.00 x	1.00 x	1.00 x	1.00 x	1.00 x	1.00 x	1.00 x	1.00 x	1.00 x	1.00 x
Required Coverage Factor (with Reserves)	1.25 x	1.25 x	1.25 x	1.25 x	1.25 x	1.25 x	1.25 x	1.25 x	1.25 x	1.25 x	1.25 x
Revenues											
Rate Revenues (prior to rate increase)	$ 236,114,334	$ 236,114,334	$ 247,920,051	$ 260,316,053	$ 273,331,856	$ 289,731,767	$ 321,602,262	$ 356,978,510	$ 396,246,146	$ 439,833,223	$ 488,214,877
Non-Rate Revenues	$ 9,788,965	$ 9,788,965	$ 10,131,159	$ 10,490,463	$ 10,867,731	$ 11,343,090	$ 12,266,870	$ 13,292,266	$ 14,430,456	$ 15,693,846	$ 17,096,209
Total Revenues without Reserves	**$ 245,903,299**	**$ 245,903,299**	**$ 258,051,210**	**$ 270,806,516**	**$ 284,199,587**	**$ 301,074,857**	**$ 333,869,132**	**$ 370,270,776**	**$ 410,676,602**	**$ 455,527,069**	**$ 505,311,086**
Reserves	$ 65,450,862	$ 89,261,313	$ 111,471,254	$ 141,833,400	$ 154,868,253	$ 172,054,248	$ 199,362,501	$ 220,803,726	$ 244,706,575	$ 223,522,124	$ 187,473,583
Total Revenues with Reserves	$ 311,354,161	$ 335,164,612	$ 369,522,463	$ 412,639,916	$ 439,067,840	$ 473,129,105	$ 533,231,632	$ 591,074,503	$ 655,383,177	$ 679,049,193	$ 692,784,670
Expenditures											
Water Expenditures	$ 143,838,437	$ 146,379,474	$ 151,823,306	$ 157,470,495	$ 163,328,670	$ 169,405,750	$ 175,709,950	$ 182,249,798	$ 189,034,140	$ 196,072,158	$ 203,373,380
Total Debt	37,921,294	48,662,818	48,605,093	73,845,696	79,246,122	96,014,137	129,645,656	159,797,558	239,950,993	292,973,628	347,483,032
Subtotal Expenditures	**$ 181,759,731**	**$ 195,042,292**	**$ 200,428,400**	**$ 231,316,192**	**$ 242,574,792**	**$ 265,419,887**	**$ 305,355,606**	**$ 342,047,356**	**$ 428,985,133**	**$ 489,045,786**	**$ 550,856,412**
Additional Coverage Required without Reserves	-	-	-	-	-	-	-	-	-	-	-
Additional Coverage Required with Reserves	9,480,323	12,165,704	12,151,273	18,461,424	19,811,530	24,003,534	32,411,414	39,949,389	59,987,748	73,243,407	86,870,758
Debt Coverage Surplus (Deficit) without Reserves	**$ 64,143,568**	**$ 50,861,008**	**$ 57,622,810**	**$ 39,490,324**	**$ 41,624,795**	**$ 35,654,970**	**$ 28,513,526**	**$ 28,223,421**	**$ (18,308,531)**	**$ (33,518,718)**	**$ (45,545,325)**
Debt Coverage Surplus (Deficit) with Reserves	**$ 120,114,107**	**$ 127,956,616**	**$ 156,942,790**	**$ 162,862,300**	**$ 176,681,517**	**$ 183,705,684**	**$ 195,464,613**	**$ 209,077,758**	**$ 166,410,295**	**$ 116,759,999**	**$ 55,057,500**
Pre-Adjustment Coverage Factor	**2.69 x**	**2.05 x**	**2.19 x**	**1.53 x**	**1.53 x**	**1.37 x**	**1.22 x**	**1.18 x**	**0.92 x**	**0.89 x**	**0.87 x**
Pre-Adjustment Coverage Factor	**4.42 x**	**3.88 x**	**4.48 x**	**3.46 x**	**3.48 x**	**3.16 x**	**2.76 x**	**2.56 x**	**1.94 x**	**1.65 x**	**1.41 x**

SFPUC
Wastewater Financial Model
Revenue Requirement

carollo

	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
Revenue Requirement - Rate Adjustments											
Revenue Surpluses (Shortfalls)	$ 120,114,107	$ 9,082,431	$ 15,185,097	$ (4,491,676)	$ (4,225,205)	$ (12,230,030)	$ (22,427,474)	$ (24,776,579)	$ (73,368,531)	$ (91,640,718)	$ (103,295,465)
Test Driving Deficiency	Surplus	Surplus	Surplus	Cash Flow	Cash Flow	Cash Flow	Cash Flow	Cash Flow	Cash Flow	Cash Flow	Cash Flow
Month Rate Adjustment Is Implemented	July	July	July	July	July	July	July	July	July	July	July
Calculated Rate Increase	0.00%	0.00%	0.00%	1.73%	1.55%	4.22%	6.97%	6.94%	18.52%	20.84%	21.16%
	Overriden	Overriden	Overriden	Overriden	Overriden	Overriden	Overriden	Overriden	Overriden	Overriden	Overriden
Rate Increase	**0.00%**	**5.00%**	**5.00%**	**5.00%**	**6.00%**	**11.00%**	**11.00%**	**11.00%**	**11.00%**	**11.00%**	**12.00%**
Cumulative Rate Increase	0.00%	0.00%	5.00%	10.25%	16.87%	29.72%	43.99%	59.83%	77.41%	96.92%	120.56%
Change in Rate Revenues											
Rate Revenues Pre-Adjustment	$ 236,114,334	$ 236,114,334	$ 247,920,051	$ 260,316,053	$ 273,331,856	$ 289,731,767	$ 321,602,262	$ 356,978,510	$ 396,246,146	$ 439,833,223	$ 488,214,877
Additional Rate Revenue From Adjustment	-	11,805,717	12,396,003	13,015,803	16,399,911	31,870,494	35,376,249	39,267,636	43,587,076	48,381,654	58,585,785
Total Rate Revenues After Adjustment	**$ 236,114,334**	**$ 247,920,051**	**$ 260,316,053**	**$ 273,331,856**	**$ 289,731,767**	**$ 321,602,262**	**$ 356,978,510**	**$ 396,246,146**	**$ 439,833,223**	**$ 488,214,877**	**$ 546,800,662**
Post Adjustment Cash Flow and Coverage											
Revenues											
Total Post Adjustment Rate Revenues	$ 236,114,334	$ 247,920,051	$ 260,316,053	$ 273,331,856	$ 289,731,767	$ 321,602,262	$ 356,978,510	$ 396,246,146	$ 439,833,223	$ 488,214,877	$ 546,800,662
Non-Rate Revenue	9,788,965	9,788,965	10,131,159	10,490,463	10,867,731	11,343,090	12,266,870	13,292,266	14,430,456	15,693,846	17,096,209
Total Year End Revenues	**$ 245,903,299**	**$ 257,709,016**	**$ 270,447,212**	**$ 283,822,318**	**$ 300,599,498**	**$ 332,945,351**	**$ 369,245,380**	**$ 409,538,413**	**$ 454,263,678**	**$ 503,908,723**	**$ 563,896,872**
Revenues plus Reserves	**$ 337,916,480**	**$ 367,858,476**	**$ 409,499,565**	**$ 434,179,845**	**$ 467,642,457**	**$ 524,640,064**	**$ 581,556,656**	**$ 644,833,196**	**$ 669,188,798**	**$ 684,171,784**	**$ 706,660,775**
Expenditures											
Operating	$ 143,838,437	$ 146,379,474	$ 151,823,306	$ 157,470,495	$ 163,328,670	$ 169,405,750	$ 175,709,950	$ 182,249,798	$ 189,034,140	$ 196,072,158	$ 203,373,380
Debt Service	37,921,294	48,662,818	48,605,093	73,845,696	79,246,122	96,014,137	129,645,656	159,797,558	239,950,993	292,973,628	347,483,032
Policy Expenditures	37,581,249	41,778,577	42,437,713	43,982,000	45,850,000	47,885,000	50,941,000	53,000,000	55,060,000	58,122,000	57,750,140
Total Year End Expenditures	**$ 219,340,980**	**$ 236,820,869**	**$ 242,866,113**	**$ 275,298,192**	**$ 288,424,792**	**$ 313,304,887**	**$ 356,296,606**	**$ 395,047,356**	**$ 484,045,133**	**$ 547,167,786**	**$ 608,606,552**
Net Year End Cash Flow	**$ 26,562,319**	**$ 20,888,147**	**$ 27,581,099**	**$ 8,524,127**	**$ 12,174,706**	**$ 19,640,465**	**$ 12,948,774**	**$ 14,491,057**	**$ (29,781,455)**	**$ (43,259,063)**	**$ (44,709,680)**
Coverage w/out reserves	**2.69 x**	**2.29 x**	**2.44 x**	**1.71 x**	**1.73 x**	**1.70 x**	**1.49 x**	**1.42 x**	**1.11 x**	**1.05 x**	**1.04 x**
Coverage w/ reserves	**5.12 x**	**4.55 x**	**5.30 x**	**3.75 x**	**3.84 x**	**3.70 x**	**3.13 x**	**2.89 x**	**2.0 x**	**1.67 x**	**1.45 x**

SFPUC
Wastewater Financial Model
Functional Allocation

carollo

Allocation Test Range	Test Year
FYE 2015	FYE 2015
FYE 2019	

Functional Allocation	Total Flow	Wet Weather Flow	Dry Weather Flow	COD	TSS	FOG	As All Other	Total	Notes/Source
Allocations									
As All Other	0%	0%	0%	0%	0%	0%	100%	100%	
Future Capital Projects	35%	17%	17%	36%	23%	6%	0%	100%	Source: SSIP List of projects from K3 group. Allocation based on SF-specific unit process. Biosolids splits based on info and discussions with Bonnie Jones
Fixed Assets	91%	35%	56%	6%	3%	0%	0%	100%	Source: Asset List. Allocation based on SF-specific system. Input from Jon Lioconno. Biosolids splits based on info and discussions with Bonnie Jones.

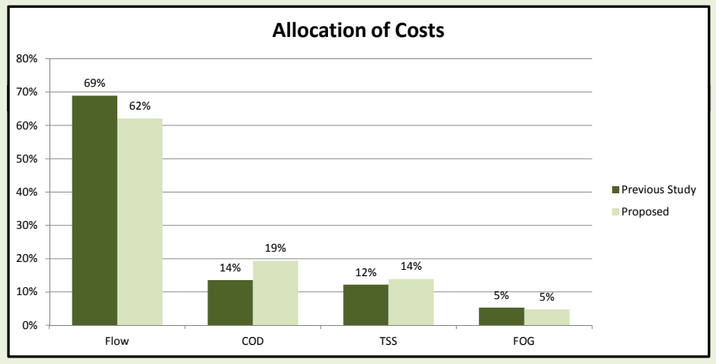
Existing Revenu Bonds	Average from 2015 to 2019		Total Flow	Wet Weather Flow	Dry Weather Flow	COD	TSS	FOG	As All Other	Total	
2010 A	$ 6,334,880	[Input]	78%	29%	49%	10%	9%	2%	0%	100%	Source: Bond list of projects from Mike Brown. Allocation based on SF-specific unit process. Biosolids splits based on info and discussions with Bonnie Jones
2010 B	$ 6,945,527	[Input]	78%	29%	49%	10%	9%	2%	0%	100%	Source: Bond list of projects from Mike Brown. Allocation based on SF-specific unit process. Biosolids splits based on info and discussions with Bonnie Jones
2013 A	$ 16,480,760	Fixed Assets	91%	35%	56%	6%	3%	0%	0%	100%	Refunding bond - Assumed same allocation as existing assets
2013 B	$ 12,023,333	[Input]	84%	32%	52%	6%	6%	3%	0%	100%	Source: Bond list of projects from Mike Brown. Allocation based on SF-specific unit process. Biosolids splits based on info and discussions with Bonnie Jones
Subtotal	$ 41,784,500		$ 35,445,447	$ 13,479,002	$ 21,966,446	$ 3,049,549	$ 2,433,279	$ 813,904	$ 42,320		
Reallocation of As All Others			$ 35,936	$ 13,666	$ 22,270	$ 3,092	$ 2,467	$ 825	$ (42,320)		
Total Dollar Allocation	**$ 41,784,500**		**$ 35,481,383**	**$ 13,492,667**	**$ 21,988,716**	**$ 3,052,641**	**$ 2,435,746**	**$ 814,729**	**$ -**		
Total Percent Allocation			**85%**	**32%**	**53%**	**7%**	**6%**	**2%**	**0%**		

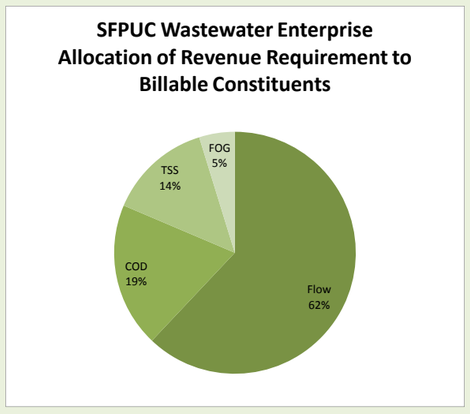
O&M Allocation	Average from 2015 to 2019	Allocation	Total Flow	Wet Weather Flow	Dry Weather Flow	COD	TSS	FOG	As All Other	Total	
Total Dollar Allocation	$ 163,974,690		**$ 86,755,907**	**$ 25,083,040**	**$ 61,672,868**	**$ 38,058,097**	**$ 28,362,233**	**$ 10,798,453**	**$ -**		
Total Percent Allocation	**100%**		53%	**15%**	**38%**	**23%**	**17%**	**7%**	**0%**		Source: O&M CIP from Master Plan. Allocation based on SF-specific unit process. Labor breakdown based on interview with George Engel, Herb Dang, and John Powell. Biosolids splits based on info and discusions with Bonnie Jones.
Total O&M Allocation			**53%**	**15%**	**38%**	**23%**	**17%**	**7%**	**0%**		

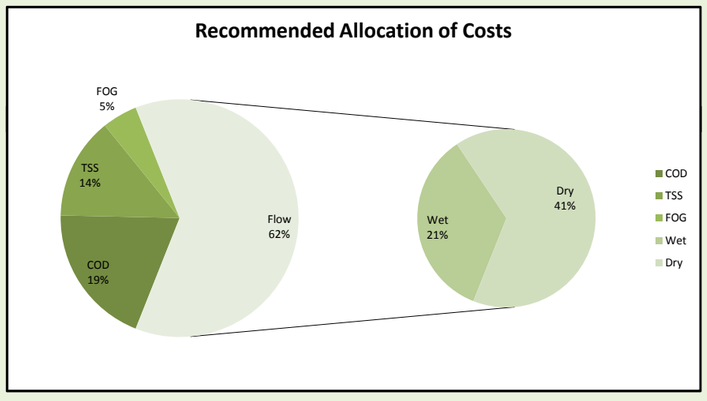
Rev Req Allocation	Average from 2015 to 2019	Allocation	Total Flow	Wet Weather Flow	Dry Weather Flow	COD	TSS	FOG	As All Other	Total
Expense Categories										
Operating Expenses	$ 163,974,690	[O&M Allocation]	53%	15%	38%	23%	17%	7%	0%	100%
Existing Debt	$ 50,089,500	[Existing Debt]	85%	32%	53%	7%	6%	2%	0%	100%
Future Debt	$ 35,381,841	[Future Debt]	35%	17%	17%	36%	23%	6%	0%	100%
Rate Funded Capital	$ 46,219,143	Fixed Assets	91%	35%	56%	6%	3%	0%	0%	100%
Additional Revenues From Rate Delay	$ -	As All Other	0%	0%	0%	0%	0%	0%	100%	100%
Year End Cash Flow	$ 16,173,834	As All Other	0%	0%	0%	0%	0%	0%	100%	100%
Less: Offsetting Revenues										
Other Non-Rate Revenues	$ (11,019,863)	As All Other	0%	0%	0%	0%	0%	0%	100%	100%
Total Revenue to be Collected	$ 300,819,145		$ 183,386,237	$ 63,425,189	$ 119,961,048	$ 57,097,273	$ 40,906,901	$ 14,152,145	$ 5,276,589	
Reallocation of As All Others			3,274,161	1,132,387	2,141,773	1,019,409	730,348	252,671	(5,276,589)	
Total Dollar Allocation	**$ 300,819,145**		**$ 186,660,398**	**$ 64,557,576**	**$ 122,102,822**	**$ 58,116,682**	**$ 41,637,249**	**$ 14,404,817**	**$ -**	
Total Rev Req Allocation			**62%**	**21%**	**41%**	**19%**	**14%**	**5%**	**0%**	

Summary	Total Flow	COD	TSS	FOG	Total
Operating Expenses	$ 86,755,907	$ 38,058,097	$ 28,362,233	$ 10,798,453	$ 163,974,690
Existing Debt	54,785,619	16,406,209	11,148,842	3,126,737	85,467,407
Rate Funded Capital	51,880,689	5,757,666	3,634,494	1,001,445	62,274,294
Other Non-Rate Revenues	(6,837,902)	(2,128,980)	(1,525,291)	(527,689)	(11,019,863)
Total Revenue to be Collected	$ 186,584,313	$ 58,092,993	$ 41,620,277	$ 14,398,945	$ 300,696,528

Unit Cost Calculation		Total Flow	Wet Weather Flow	Dry Weather Flow	COD	TSS	FOG	As All Other	Total
			Impervious Surface Area (1000 sq ft)						
Units	Rev Req for 2015	26,285,549	528,074	26,285,549	114,444,520	43,506,591	14,193,203		
Costs	$ 260,316,053	$ 161,527,944	$ 55,865,372	$ 105,662,572	$ 50,291,697	$ 36,031,099	$ 12,465,314		
Unit Costs		**$6.1452 per ccf**	**$ 8.8159 per Impervious Surface Area (1000 sq ft)**	**$4.0198 per ccf**	**$0.4395 per lb**	**$0.8282 per lb**	**$0.8783 per lb**		







SFPUC
Wastewater Financial Model
Customer Forecast

carollo

	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
Growth Forecast											
Customer Growth	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
Discharge Forecast	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
[Other]	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Summary											
Number of Accounts	164,305	165,126	165,952	166,782	167,616	168,454	169,296	170,143	170,993	171,848	172,708
Flow	26,285,549	26,285,549	26,285,549	26,285,549	26,285,549	26,285,549	26,285,549	26,285,549	26,285,549	26,285,549	26,285,549
O&G	14,377,184	14,193,203	14,193,203	14,193,203	14,193,203	14,193,203	14,193,203	14,193,203	14,193,203	14,193,203	14,193,203
COD	114,444,520	114,444,520	114,444,520	114,444,520	114,444,520	114,444,520	114,444,520	114,444,520	114,444,520	114,444,520	114,444,520
TSS	43,506,591	43,506,591	43,506,591	43,506,591	43,506,591	43,506,591	43,506,591	43,506,591	43,506,591	43,506,591	43,506,591
Impervious Surface Area (1000 sq ft)	528,074	528,074	528,074	528,074	528,074	528,074	528,074	528,074	528,074	528,074	528,074
Gross Surface Area (1000 sq ft)	966,376	966,376	966,376	966,376	966,376	966,376	966,376	966,376	966,376	966,376	966,376
Single Family Residential											
Number of Accounts	Customer Growth	107,934	108,474	109,016	109,561	110,109	110,660	111,213	111,769	112,328	112,890	113,454
Flow		6,690,708	6,690,708	6,690,708	6,690,708	6,690,708	6,690,708	6,690,708	6,690,708	6,690,708	6,690,708	6,690,708
O&G	.53 lb/ccf	3,547,902	3,547,902	3,547,902	3,547,902	3,547,902	3,547,902	3,547,902	3,547,902	3,547,902	3,547,902	3,547,902
COD	4.27 lb/ccf	28,550,165	28,550,165	28,550,165	28,550,165	28,550,165	28,550,165	28,550,165	28,550,165	28,550,165	28,550,165	28,550,165
TSS	1.74 lb/ccf	11,645,463	11,645,463	11,645,463	11,645,463	11,645,463	11,645,463	11,645,463	11,645,463	11,645,463	11,645,463	11,645,463
Tiered Discharge - Existing Structure												
Tier 1 (0-3 Ccf)	Discharge Forecast	3,385,390	3,385,390	3,385,390	3,385,390	3,385,390	3,385,390	3,385,390	3,385,390	3,385,390	3,385,390	3,385,390
Tier 2 (3+ Ccf)	Discharge Forecast	3,305,317	3,305,317	3,305,317	3,305,317	3,305,317	3,305,317	3,305,317	3,305,317	3,305,317	3,305,317	3,305,317
Impervious Surface Area (1000 sq ft)		191,617	191,617	191,617	191,617	191,617	191,617	191,617	191,617	191,617	191,617	191,617
Gross Surface Area (1000 sq ft)		276,306	276,306	276,306	276,306	276,306	276,306	276,306	276,306	276,306	276,306	276,306
Impervious and Gross Surface Area		882,382	882,382	882,382	882,382	882,382	882,382	882,382	882,382	882,382	882,382	882,382
Multi-Family Residential												
Number of Accounts	Customer Growth	37,720	37,908	38,098	38,288	38,480	38,672	38,865	39,060	39,255	39,451	39,648
Flow		10,946,136	10,946,136	10,946,136	10,946,136	10,946,136	10,946,136	10,946,136	10,946,136	10,946,136	10,946,136	10,946,136
O&G	.53 lb/ccf	5,988,422	5,804,441	5,804,441	5,804,441	5,804,441	5,804,441	5,804,441	5,804,441	5,804,441	5,804,441	5,804,441
COD	4.27 lb/ccf	46,719,799	46,719,799	46,719,799	46,719,799	46,719,799	46,719,799	46,719,799	46,719,799	46,719,799	46,719,799	46,719,799
TSS	1.74 lb/ccf	19,056,758	19,056,758	19,056,758	19,056,758	19,056,758	19,056,758	19,056,758	19,056,758	19,056,758	19,056,758	19,056,758
Tiered Discharge - Existing Structure												
Tier 1 (0-3 Ccf)	Discharge Forecast	7,479,956	7,479,956	7,479,956	7,479,956	7,479,956	7,479,956	7,479,956	7,479,956	7,479,956	7,479,956	7,479,956
Tier 2 (3+ Ccf)	Discharge Forecast	3,466,180	3,466,180	3,466,180	3,466,180	3,466,180	3,466,180	3,466,180	3,466,180	3,466,180	3,466,180	3,466,180
Impervious Surface Area (1000 sq ft)		121,872	121,872	121,872	121,872	121,872	121,872	121,872	121,872	121,872	121,872	121,872
Gross Surface Area (1000 sq ft)		153,117	153,117	153,117	153,117	153,117	153,117	153,117	153,117	153,117	153,117	153,117
Impervious and Gross Surface Area		504,666	504,666	504,666	504,666	504,666	504,666	504,666	504,666	504,666	504,666	504,666
Non-Residential												
Number of Accounts	Customer Growth	18,651	18,744	18,838	18,932	19,027	19,122	19,218	19,314	19,410	19,507	19,605
Flow	Discharge Forecast	8,648,705	8,648,705	8,648,705	8,648,705	8,648,705	8,648,705	8,648,705	8,648,705	8,648,705	8,648,705	8,648,705
O&G	Discharge Forecast	4,840,860	4,840,860	4,840,860	4,840,860	4,840,860	4,840,860	4,840,860	4,840,860	4,840,860	4,840,860	4,840,860
COD	Discharge Forecast	39,174,555	39,174,555	39,174,555	39,174,555	39,174,555	39,174,555	39,174,555	39,174,555	39,174,555	39,174,555	39,174,555

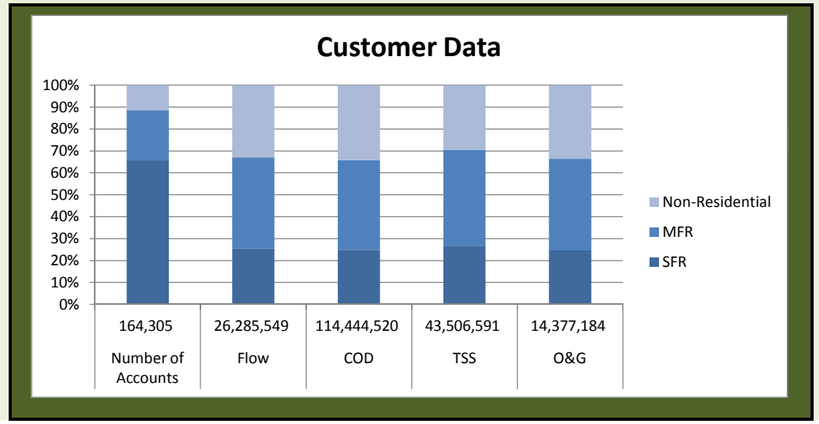
TSS	Discharge Forecast	12,804,370	12,804,370	12,804,370	12,804,370	12,804,370	12,804,370	12,804,370	12,804,370	12,804,370	12,804,370	12,804,370
Impervious Surface Area (1000 sq ft)	Schools and Parks Reduction: 24943	214,584	214,584	214,584	214,584	214,584	214,584	214,584	214,584	214,584	214,584	214,584
Gross Surface Area (1000 sq ft)	Schools and Parks Reduction: 37415	536,953	536,953	536,953	536,953	536,953	536,953	536,953	536,953	536,953	536,953	536,953
Impervious and Gross Surface Area		1,556,966	1,556,966	1,556,966	1,556,966	1,556,966	1,556,966	1,556,966	1,556,966	1,556,966	1,556,966	1,556,966

[Other 1]												
Number of Accounts	Customer Growth	0	0	0	0	0	0	0	0	0	0	0
Flow	Discharge Forecast	0	0	0	0	0	0	0	0	0	0	0
O&G	Discharge Forecast	0	0	0	0	0	0	0	0	0	0	0
COD	Discharge Forecast	0	0	0	0	0	0	0	0	0	0	0
TSS	Discharge Forecast	0	0	0	0	0	0	0	0	0	0	0
Impervious Surface Area (1000 sq ft)			0	0	0	0	0	0	0	0	0	0
Gross Surface Area (1000 sq ft)			0	0	0	0	0	0	0	0	0	0
Impervious and Gross Surface Area			0	0	0	0	0	0	0	0	0	0

[Other 2]												
Number of Accounts	Customer Growth	0	0	0	0	0	0	0	0	0	0	0
Flow	Discharge Forecast	0	0	0	0	0	0	0	0	0	0	0
O&G	Discharge Forecast	0	0	0	0	0	0	0	0	0	0	0
COD	Discharge Forecast	0	0	0	0	0	0	0	0	0	0	0
TSS	Discharge Forecast	0	0	0	0	0	0	0	0	0	0	0
Impervious Surface Area (1000 sq ft)			0	0	0	0	0	0	0	0	0	0
Gross Surface Area (1000 sq ft)			0	0	0	0	0	0	0	0	0	0
Impervious and Gross Surface Area			0	0	0	0	0	0	0	0	0	0

[Other 3]												
Number of Accounts	Customer Growth	0	0	0	0	0	0	0	0	0	0	0
Flow	Discharge Forecast	0	0	0	0	0	0	0	0	0	0	0
O&G	Discharge Forecast	0	0	0	0	0	0	0	0	0	0	0
COD	Discharge Forecast	0	0	0	0	0	0	0	0	0	0	0
TSS	Discharge Forecast	0	0	0	0	0	0	0	0	0	0	0
Impervious Surface Area (1000 sq ft)			0	0	0	0	0	0	0	0	0	0
Gross Surface Area (1000 sq ft)			0	0	0	0	0	0	0	0	0	0
Impervious and Gross Surface Area			0	0	0	0	0	0	0	0	0	0

Summary	Total	SFR	MFR	Non-Residential
Number of Accounts	164,305	107,934	37,720	18,651
Flow	26,285,549	6,690,708	10,946,136	8,648,705
COD	114,444,520	28,550,165	46,719,799	39,174,555
TSS	43,506,591	11,645,463	19,056,758	12,804,370
O&G	14,377,184	3,547,902	5,988,422	4,840,860



SFPUC
Wastewater Financial Model
Customer Allocation

carollo

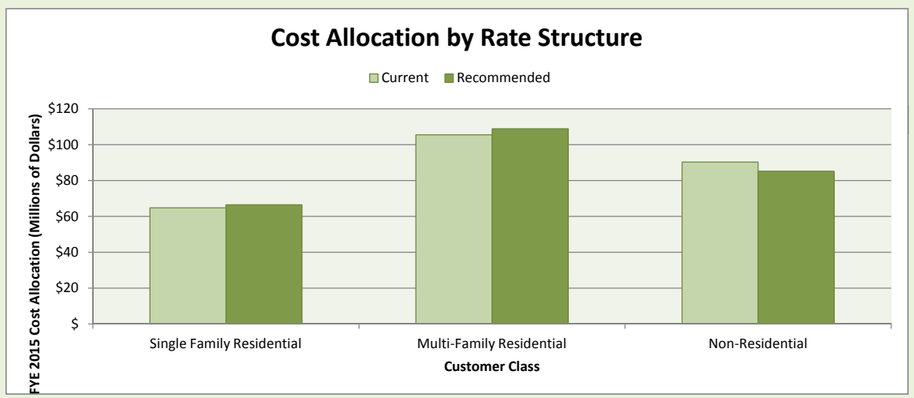
Test Year 2015	Total Flow	Wet Weather Flow	Dry Weather Flow	COD	TSS	FOG	Total
From Functional Allocation	62%	21%	41%	19%	14%	5%	100%
Cost Allocated to Category	$ 161,527,944	$ 55,865,372	$ 105,662,572	$ 50,291,697	$ 36,031,099	$ 12,465,314	$ 260,316,053

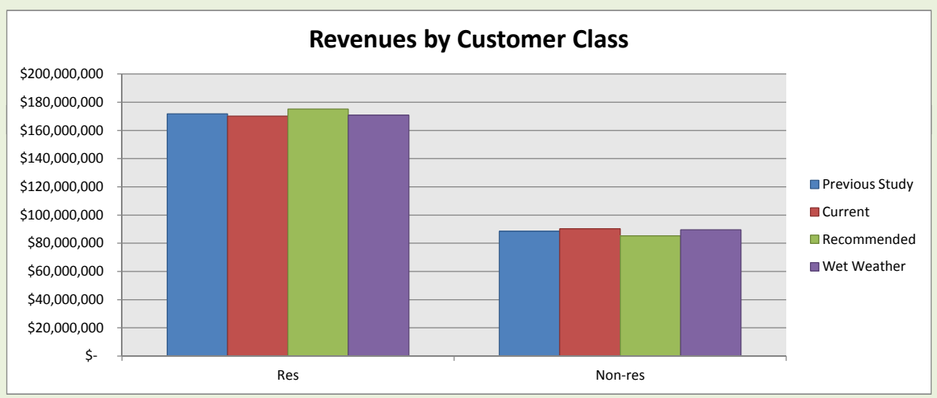
Basis of Allocation to Customer Class	Number of Accounts	Flow	Impervious Surface Area (1000 sq ft)	Flow	COD	TSS	O&G
Unit	Units	CCF	1000 sq ft	CCF	lbs	lbs	lbs
Single Family Residential	107,934	6,690,708	191,617	6,690,708	28,550,165	11,645,463	3,547,902
Multi-Family Residential	37,720	10,946,136	121,872	10,946,136	46,719,799	19,056,758	5,988,422
Non-Residential	18,651	8,648,705	214,584	8,648,705	39,174,555	12,804,370	4,840,860
[Other 1]	-	-	-	-	-	-	-
[Other 2]	-	-	-	-	-	-	-
[Other 3]	-	-	-	-	-	-	-
Total	164,305	26,285,549	528,074	26,285,549	114,444,520	43,506,591	14,377,184

Basis of Allocation to Customer Class						
Single Family Residential	25.5%	36.3%	25.5%	24.9%	26.8%	24.7%
Multi-Family Residential	41.6%	23.1%	41.6%	40.8%	43.8%	41.7%
Non-Residential	32.9%	40.6%	32.9%	34.2%	29.4%	33.7%
[Other 1]	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
[Other 2]	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
[Other 3]	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	100%	100%	100%	100%	100%	100%

Allocated Costs	Total Flow	Wet Weather Flow	Dry Weather Flow	COD	TSS	FOG	Total	With Wet Weather Allocation	Current
Single Family Residential	$ 41,115,225	$ 20,271,363	$ 26,895,287	12,546,134	9,644,488	3,076,104	$ 66,381,951	$ 72,433,375	$ 64,698,174
Multi-Family Residential	67,265,358	12,892,944	44,001,246	20,530,629	15,782,343	5,192,085	108,770,415	98,399,246	105,406,566
Non-Residential	53,147,361	22,701,066	34,766,039	17,214,934	10,604,268	4,197,125	85,163,688	89,483,432	90,211,312
[Other 1]	-	-	-	-	-	-	-	-	
[Other 2]	-	-	-	-	-	-	-	-	
[Other 3]	-	-	-	-	-	-	-	-	
Allocated Customer Costs	**$ 161,527,944**	**$ 55,865,372**	**$ 105,662,572**	**$ 50,291,697**	**$ 36,031,099**	**$ 12,465,314**	**$ 260,316,053**	**$ 260,316,053**	**$ 260,316,053**

Correct





SFPUC
Wastewater Financial Model
Rate Design

carollo

Option 1: Recommended Rates
Option 2: Retain Tiers

Rate Design Assumptions

SFR					
	Current Rate			Tier 1 Upper Limit	3 ccf
Tier 1	$ 7.90		No tier	Price Differential	1.33
Tier 2	$ 10.53				
MFR					
	Current Rate			Tier 1 Upper Limit	3 ccf
Tier 1	$ 8.25		No tier	Price Differential	1.33
Tier 2	$ 11.01				

Single Family Residential			Option 1		Option 2	
	Dry Weather					
	Annual Usage (ccf)		$ 66,381,951	4.270 lbs COD	$ 66,381,951	Dry Weather Flow
Tier 1	3,192,054	48%		1.742 lbs TSS	**$ 8.47 per ccf**	$11.32 per Tgal
Tier 2	3,498,654	52%	**$ 9.93 per ccf**	0.530 lbs FOG	**$ 11.27 per ccf**	$15.06 per Tgal
Total	6,690,708					
	Wet Weather		N/A		**$ 28.33**	per account

Multi-Family Residential			Option 1		Option 2	
	Annual Usage (ccf)		$ 108,770,415	4.270 lbs COD	$ 108,770,415	Dry Weather Flow
Tier 1	7,505,853	69%		1.742 lbs TSS	**$ 9.01 per ccf**	$12.04 per Tgal
Tier 2	3,440,283	31%	**$ 9.93 per ccf**	0.530 lbs FOG	**$ 11.99 per ccf**	$16.03 per Tgal
Total	10,946,136					
	Wet Weather		N/A		**$ 28.33**	per account

Non-Residential			Units	Option 1	Option 2	
					N/A	
Total Flow	**$**	**53,147,361**	8,648,705	**$ 6.1452 per ccf**		
COD	**$**	**17,214,934**	39,174,555	**$ 0.4395 per lb**	**$ 0.4395 per lb**	
TSS	**$**	**10,604,268**	12,804,370	**$ 0.8282 per lb**	**$ 0.8282 per lb**	
FOG	**$**	**4,197,125**	4,840,860	**$ 0.8671 per lb**	**$ 0.8671 per lb**	
Dry Weather Flow	**$**	**34,766,039**	8,648,705	**N/A**	**$ 4.0198 per ccf**	
Wet Weather Flow		(specific to Option)		**N/A**	**$ 28.33**	per account

SFPUC
Wastewater Financial Model
Summary

	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
Rate Revenue Under Existing Rates		$ 247,920,051	$ 247,920,051	$ 247,920,051	$ 247,920,051	$ 247,920,051	$ 247,920,051	$ 247,920,051	$ 247,920,051	$ 247,920,051	$ 247,920,051
Total Revenue Under Existing Rates		$ 257,709,016	$ 258,051,210	$ 258,410,513	$ 258,787,782	$ 259,263,141	$ 260,186,921	$ 261,212,317	$ 262,350,506	$ 263,613,897	$ 265,016,260

Cash Flow

Revenues											
Rate Revenues with Rate Increase	$ 236,114,334	$ 247,920,051	$ 260,316,053	$ 273,331,856	$ 289,731,767	$ 321,602,262	$ 356,978,510	$ 396,246,146	$ 439,833,223	$ 488,214,877	$ 546,800,662
Non-Rate Revenues	9,788,965	9,788,965	10,131,159	10,490,463	10,867,731	11,343,090	12,266,870	13,292,266	14,430,456	15,693,846	17,096,209
Revenue Under Recommended Rates	**$ 245,903,299**	**$ 257,709,016**	**$ 270,447,212**	**$ 283,822,318**	**$ 300,599,498**	**$ 332,945,351**	**$ 369,245,380**	**$ 409,538,413**	**$ 454,263,678**	**$ 503,908,723**	**$ 563,896,872**
Expenditures											
Operations	$ 143,838,437	$ 146,379,474	$ 151,823,306	$ 157,470,495	$ 163,328,670	$ 169,405,750	$ 175,709,950	$ 182,249,798	$ 189,034,140	$ 196,072,158	$ 203,373,380
Debt Service	37,921,294	48,662,818	48,605,093	73,845,696	79,246,122	96,014,137	129,645,656	159,797,558	239,950,993	292,973,628	347,483,032
Pay-Go	37,581,249	41,778,577	42,437,713	43,982,000	45,850,000	47,885,000	50,941,000	53,000,000	55,060,000	58,122,000	57,750,140
Total Expenditures	**$ 219,340,980**	**$ 236,820,869**	**$ 242,866,113**	**$ 275,298,192**	**$ 288,424,792**	**$ 313,304,887**	**$ 356,296,606**	**$ 395,047,356**	**$ 484,045,133**	**$ 547,167,786**	**$ 608,606,552**
Operating Cash Flow Surplus (Deficiency)	**$ 26,562,319**	**$ 20,888,147**	**$ 27,581,099**	**$ 8,524,127**	**$ 12,174,706**	**$ 19,640,465**	**$ 12,948,774**	**$ 14,491,057**	**$ (29,781,455)**	**$ (43,259,063)**	**$ (44,709,680)**

New Rate Summary

Rate Adjustment	FYE 2014 Current	FYE 2015 Recommended	FYE 2016 5.00%	FYE 2017 6.00%	FYE 2018 11.00%	FYE 2019 11.00%	FYE 2020 11.00%	FYE 2021 11.00%	FYE 2022 11.00%	FYE 2023 12.00%
SFR Tiered Rates										
Tier 1	$ 7.90	$ 8.47	$ 8.90	$ 9.44	$ 10.48	$ 11.64	$ 12.93	$ 14.36	$ 15.94	$ 17.86
Tier 2	10.53	11.27	11.83	12.54	13.92	15.46	17.17	$ 19.06	$ 21.16	$ 23.70
SFR Non-Tiered Rate	N/A	9.93	10.43	11.06	12.28	13.64	15.15	16.82	18.68	20.93
MFR Tiered Rates										
Tier 1	$ 8.25	$ 9.01	$ 9.47	$ 10.04	$ 11.15	$ 12.38	$ 13.75	$ 15.27	$ 16.95	$ 18.99
Tier 2	11.01	11.99	12.59	13.35	14.82	16.46	18.28	$ 20.30	$ 22.54	$ 25.25
MFR Non-Tiered Rate	N/A	9.93	10.43	11.06	12.28	13.64	15.15	16.82	18.68	20.93
Non-Residential Rates										
Volume of Wastewater Discharged	$ 6.6203	$ 6.1452	$ 6.4525	$ 6.8397	$ 7.5921	$ 8.4273	$ 9.3544	$ 10.3834	$ 11.5256	$ 12.9087
COD per lb.	0.2178	0.4395	0.4615	0.4892	0.5431	0.6029	0.6693	0.7430	0.8248	0.9238
Suspended Solids per lb.	0.8907	0.8282	0.8697	0.9219	1.0234	1.1360	1.2610	1.3998	1.5538	1.7403
Oil/Grease per lb.	1.1145	0.8671	0.9105	0.9652	1.0714	1.1893	1.3202	1.4655	1.6268	1.8221

Wastewater Enterprise FY 2014 - 2023 Ten Year CIP

San Francisco Public Utilities Commission

	USES	Project	Available Balance as of 6/30/13	FY 13-14	FY 14-15	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 13-22	FY 14-23	Change
2	**Sewer System Improvement Program**															
3	Program Wide Efforts	CWWSIPPR / PL	3,384,668	22,000,000	22,000,000	20,000,000	20,000,000	13,000,000	18,000,000	19,000,000	16,000,000	16,000,000	16,000,000	111,000,000	182,000,000	71,000,000
4	Biofuel/Alternative Energy Studies	CWWBAE	7,765,147	0	0	0	0	0	0	0	0	0	0	5,000,000	0	(5,000,000)
5	**Subtotal**		**11,149,815**	**22,000,000**	**22,000,000**	**20,000,000**	**20,000,000**	**13,000,000**	**18,000,000**	**19,000,000**	**16,000,000**	**16,000,000**	**16,000,000**	**116,000,000**	**182,000,000**	**66,000,000**
6	**Treatment Facilities**															
7	Biosolids/Digester Project	CWWSIPDP	34,643,856	40,000,000	38,100,000	171,000,000	68,300,000	801,900,000	34,200,000	54,800,000	48,000,000	24,700,000	14,200,000	1,698,000,000	1,295,200,000	(402,800,000)
8	Southeast Plant - New 250 MGD Grit Improvements	CWWSIPSE02	2,931,679	3,000,000	3,000,000	13,300,000	14,000,000	129,800,000	12,100,000	7,900,000	1,800,000	0	0	0	184,900,000	184,900,000
9	Transport/Storage & Combined Sewer Discharge Structures		0	0	0	0	0	0	0	0	0	0	0	40,000,000	0	(40,000,000)
10	Southeast Plant	CWWSIPSE	23,293,939	22,500,000	49,300,000	79,600,000	59,300,000	69,400,000	123,500,000	59,500,000	51,670,000	128,250,000	25,500,000	273,000,000	668,520,000	395,520,000
11	North Point Facility	CWWSIPTPNP	1,227,376	7,250,000	3,500,000	5,200,000	16,750,000	8,400,000	8,800,000	15,600,000	38,600,000	39,800,000	12,300,000	54,750,000	156,200,000	101,450,000
12	Treatment Plant Improvements	CWWSIPTP00	17,950,000	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Westside PS and FM		0	2,400,000	2,900,000	5,000,000	7,900,000	75,700,000	6,100,000	4,700,000	1,400,000	200,000	0	0	106,300,000	106,300,000
14	Oceanside Plant	CWWSIPTPOP	1,546,265	2,700,000	6,200,000	8,400,000	15,000,000	2,700,000	19,500,000	35,900,000	2,500,000	150,000	9,700,000	46,700,000	102,750,000	56,050,000
15	**Subtotal**		**81,593,115**	**77,850,000**	**103,000,000**	**282,500,000**	**181,250,000**	**1,087,900,000**	**204,200,000**	**178,400,000**	**143,970,000**	**193,100,000**	**61,700,000**	**2,112,450,000**	**2,513,870,000**	**401,420,000**
16	**Sewer/Collection System**															
17	Central Bayside System Improvements	CWWSIPCT	21,959,745	6,300,000	13,900,000	21,900,000	45,030,000	22,000,000	158,800,000	505,000,000	215,400,000	36,500,000	98,000,000	1,038,000,000	1,122,830,000	84,830,000
18	Collection System - Interceptors/Tunnels/Odor Control	CWWSIPCS	24,816,230	10,600,000	11,000,000	31,800,000	7,800,000	8,600,000	9,770,000	3,740,000	1,850,000	1,381,000	1,544,000	268,941,000	88,085,000	(180,856,000)
19	Transport/Storage & Combined Sewer Discharge Structures		0	2,000,000	5,500,000	9,300,000	10,900,000	10,000,000	11,800,000	10,900,000	7,200,000	6,400,000	6,600,000	0	80,600,000	80,600,000
20	Pump Stations / FM Improvements	CWWSIPPS	1,020,000	370,000	1,300,000	4,600,000	8,310,000	10,700,000	15,600,000	14,899,000	20,600,000	27,000,000	27,800,000	103,000,000	131,179,000	28,179,000
21	Force Main Improvements (combined with Pump Stations)	CWWSIPNC	6,369,941	0	0	0	0	0	0	0	0	0	0	46,535,000	0	(46,535,000)
22	**Subtotal**		**54,165,916**	**19,270,000**	**31,700,000**	**67,600,000**	**72,040,000**	**51,300,000**	**195,970,000**	**534,539,000**	**245,050,000**	**71,281,000**	**133,944,000**	**1,456,476,000**	**1,422,694,000**	**(33,782,000)**
23	**Flood Control**															
24	Drainage Basin / Early Implementation Projects	CWWSIPFCDB	12,307,185	10,000,000	25,600,000	15,400,000	2,500,000	780,000	340,000	140,000	0	0	0	291,659,000	54,760,000	(236,899,000)
25	Low Impact Design Program	CWWLID	2,135,789	0	0	0	0	0	0	0	0	0	0	49,000,000	0	(49,000,000)
26	Green Infrastructure Projects		0	0	0	0	2,940,000	3,600,000	7,800,000	5,560,000	4,300,000	10,600,000	27,800,000	0	62,600,000	62,600,000
27	Advance Rainfall Predictions & Operational Decision System	CWWSIPFCRP	40,000	2,830,000	11,700,000	8,270,000	560,000	520,000	200,000	140,000	0	0	0	0	24,220,000	24,220,000
28	Watershed Assessment	CWWSIPUW	672,066	3,000,000	3,000,000	0	0	0	0	0	0	0	0	10,000,000	6,000,000	(4,000,000)
29	**Subtotal**		**15,155,040**	**15,830,000**	**40,300,000**	**23,670,000**	**6,000,000**	**4,900,000**	**8,340,000**	**5,840,000**	**4,300,000**	**10,600,000**	**27,800,000**	**350,659,000**	**147,580,000**	**(203,079,000)**
30																
31	**SSIP TOTAL**		**162,063,886**	**134,950,000**	**197,000,000**	**393,770,000**	**279,290,000**	**1,157,100,000**	**426,510,000**	**737,779,000**	**409,320,000**	**290,981,000**	**239,444,000**	**4,035,585,000**	**4,266,144,000**	**230,559,000**
32	**Wastewater Interim CIP**															
33	Pump Stations		0	0	0	0	0	0	0	0	0	0	0	4,000,000	0	(4,000,000)
34	Sewer/Collection System		0	0	0	0	0	0	0	0	0	0	0	8,834,000	0	(8,834,000)
35	Treatment Facilities		0	0	0	0	0	0	0	0	0	0	0	13,060,000	0	(13,060,000)
36	**Subtotal**	CENMSCIC	**52,831,711**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**25,894,000**	**0**	**(25,894,000)**
37	**Renewal and Replacement**															
38	Collection System - Condition Assessment	CWWRNROI	4,965,961	3,000,000	3,000,000	0	0	0	0	0	0	0	0	9,000,000	6,000,000	(3,000,000)
39	Collection System - Sewer Improvements	CWWRNRCS	22,175,165	42,339,000	52,499,000	54,338,000	56,240,000	58,209,000	60,246,000	62,354,000	64,536,000	66,796,000	69,134,000	557,880,000	586,691,000	28,811,000
40	Collection System - Spot Sewer	VARIOUS	1,061,383	18,600,000	19,251,000	19,925,000	20,622,000	21,345,000	22,091,000	22,864,000	23,665,000	14,000,000	14,490,000	190,362,000	196,853,000	6,491,000
41	**Subtotal**		**28,202,509**	**63,939,000**	**74,750,000**	**74,263,000**	**76,862,000**	**79,554,000**	**82,337,000**	**85,218,000**	**88,201,000**	**80,796,000**	**83,624,000**	**757,242,000**	**789,544,000**	**32,302,000**
42																
43	Treatment Plant Improvements	CWWRNRTF	5,186,391	11,849,000	12,442,000	13,063,000	13,715,000	14,402,000	15,121,000	15,878,000	16,673,000	17,506,000	18,381,000	139,244,000	149,030,000	9,786,000
44																
45	**Treasure Island**															
46	New Wastewater Treatment Facility	CWP110	8,835,159	4,370,000	5,463,000	38,240,000	12,020,000	12,018,000	12,018,000	12,018,000	12,018,000	0	0	109,265,000	108,165,000	(1,100,000)
47	**Subtotal**		**8,835,159**	**4,370,000**	**5,463,000**	**38,240,000**	**12,020,000**	**12,018,000**	**12,018,000**	**12,018,000**	**12,018,000**	**0**	**0**	**109,265,000**	**108,165,000**	**(1,100,000)**
48	**Wastewater Facilities & Infrastructure**															
49	Collection System Division Consolidation	CWWFAC02	3,262,649	10,000,000	0	0	0	0	0	0	0	0	0	20,000,000	10,000,000	(10,000,000)
50	Ocean Beach Protection	CWWFAC01	2,926,797	1,500,000	0	0	0	0	0	0	0	0	0	3,000,000	1,500,000	(1,500,000)
51	Southeast Community Center Improvements	CWWFAC03	352,145	15,000,000	0	0	0	0	0	0	0	0	0	17,500,000	15,000,000	(2,500,000)
52	**Subtotal**		**6,541,591**	**26,500,000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**40,500,000**	**26,500,000**	**(14,000,000)**
53																
54																
55	**Total USES**		**263,661,247**	**241,608,000**	**289,655,000**	**519,336,000**	**381,887,000**	**1,263,074,000**	**535,986,000**	**850,893,000**	**526,212,000**	**389,283,000**	**341,449,000**	**5,107,730,000**	**5,339,383,000**	**231,653,000**
56																
57	**SOURCES**		**Available Balance**	**FY 13-14**	**FY 14-15**	**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 13-22**	**FY 14-23**	**Change**
58	**Revenue Funding**															
59	Revenue		-	37,000,000	39,000,000	41,000,000	43,000,000	45,000,000	48,000,000	50,000,000	52,000,000	55,000,000	57,750,140	443,000,000	467,750,140	24,750,140
60	BAB Interest Income		-	0	0	0	0	0	0	0	0	0	0	800,000	0	(800,000)
61	**Total Revenue Sources**		**0**	**37,000,000**	**39,000,000**	**41,000,000**	**43,000,000**	**45,000,000**	**48,000,000**	**50,000,000**	**52,000,000**	**55,000,000**	**57,750,140**	**443,800,000**	**467,750,140**	**23,950,140**
62	**Debt Funding**															
63	Revenue Bonds		-	195,029,514	239,955,000	474,336,000	334,887,000	1,214,074,000	483,986,000	796,893,000	474,212,000	329,283,000	283,698,860	4,612,783,000	4,826,354,374	213,571,374
64	State-SBXX1 Water Supply Reliability Grant		-	0	0	0	0	0	0	0	0	0	0	24,147,000	0	(24,147,000)
65	**Total Debt Sources**		**0**	**195,029,514**	**239,955,000**	**474,336,000**	**334,887,000**	**1,214,074,000**	**483,986,000**	**796,893,000**	**474,212,000**	**329,283,000**	**283,698,860**	**4,636,930,000**	**4,826,354,374**	**189,424,374**
66	**Other Funding**															
67	Capacity Fee - Fund Balance		-	9,578,486	10,700,000	0	0	0	0	0	0	0	0	0	20,278,486	20,278,486
68	Capacity Fee - New Development		-	0	0	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	0	5,000,000	0	27,000,000	25,000,000	(2,000,000)
69	**Total Other Sources**		**0**	**9,578,486**	**10,700,000**	**4,000,000**	**4,000,000**	**4,000,000**	**4,000,000**	**4,000,000**	**0**	**5,000,000**	**0**	**27,000,000**	**45,278,486**	**18,278,486**
70																
71	**Total SOURCES**		**0**	**241,608,000**	**289,655,000**	**519,336,000**	**381,887,000**	**1,263,074,000**	**535,986,000**	**850,893,000**	**526,212,000**	**389,283,000**	**341,449,000**	**5,107,730,000**	**5,339,383,000**	**231,653,000**
72																

Wastewater Enterprise FY 2014 - 2023 Ten Year Programmatic Plan

San Francisco Public Utilities Commission

	A	B	D	F	H	I	J	K	L	M	N	O	P	R	S	T
1	**USES**	**Project**	**Available Balance as of 6/30/13**	**FY 13-14**	**FY 14-15**	**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 13-22**	**FY 14-23**	**Change**
2	**Program/Project**															
3	Treasure Island Facilities Maintenance	PUW511	1,200,649	1,200,000	1,236,000	1,273,000	1,331,000	1,350,000	1,390,000	1,432,000	1,475,000	1,519,000	0	13,406,000	12,206,000	(1,200,000)
4	Low Impact Development	PWW100	733,461	1,181,000	681,000	681,000	681,000	681,000	681,000	681,000	681,000	681,000	0	8,110,000	6,629,000	(1,481,000)
5	Youth Employment Project	PYEAES06	8,355	697,864	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	0	3,756,546	3,097,864	(658,682)
6	Surety Bond Program	PUW513	0	31,713	31,713	0	0	0	0	0	0	0	0	94,314	63,426	(30,888)
7	Southeast Community Center Program	PWW101	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	**Subtotal**		**1,942,465**	**3,110,577**	**2,248,713**	**2,254,000**	**2,312,000**	**2,331,000**	**2,371,000**	**2,413,000**	**2,456,000**	**2,500,000**	**0**	**25,366,860**	21,996,290	(3,370,570)
9																
10	525 Golden Gate - Operations & Maintenance	PUW514	20,410	692,000	713,000	734,000	756,000	779,000	802,000	826,000	850,000	875,000	0	7,721,000	7,027,000	(694,000)
11	525 Golden Gate - Lease Payments	PUW515	787,393	2,424,000	2,424,000	2,424,000	2,424,000	2,424,000	2,424,000	2,425,000	2,424,000	2,424,000	0	23,675,000	21,817,000	(1,858,000)
12	**Subtotal**		**807,803**	**3,116,000**	**3,137,000**	**3,158,000**	**3,180,000**	**3,203,000**	**3,226,000**	**3,251,000**	**3,274,000**	**3,299,000**	**0**	**31,396,000**	**28,844,000**	**(2,552,000)**
13																
14																
15	**Total USES**		**2,750,268**	**6,226,577**	**5,385,713**	**5,412,000**	**5,492,000**	**5,534,000**	**5,597,000**	**5,664,000**	**5,730,000**	**5,799,000**	**0**	**56,762,860**	**50,840,290**	**(5,922,570)**
16																
17	**SOURCES**		**Available Balance**	**FY 13-14**	**FY 14-15**	**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 13-22**	**FY 14-23**	**Change**
18	Infrastructure - Recovery Capital (O&M)		0	200,000	206,000	212,000	218,000	225,000	232,000	239,000	246,000	253,000	0	2,091,000	2,031,000	(60,000)
19	Infrastructure - Recovery Capital (Lease)		0	696,000	1,190,000	1,666,000	1,872,000	1,872,000	1,872,000	1,873,000	1,872,000	1,872,000	0	14,945,000	14,785,000	(160,000)
20	Federal Bond Interest Subsidy		0	552,000	552,000	552,000	552,000	552,000	552,000	552,000	552,000	552,000	0	5,520,000	4,968,000	(552,000)
21	Revenue		0	4,778,577	3,437,713	2,982,000	2,850,000	2,885,000	2,941,000	3,000,000	3,060,000	3,122,000	0	34,206,860	29,056,290	(5,150,570)
22	**Total SOURCES**		**0**	**6,226,577**	**5,385,713**	**5,412,000**	**5,492,000**	**5,534,000**	**5,597,000**	**5,664,000**	**5,730,000**	**5,799,000**	**0**	**56,762,860**	**50,840,290**	**(5,922,570)**
23																
24	Total Sources		-	6,226,577	5,385,713	5,412,000	5,492,000	5,534,000	5,597,000	5,664,000	5,730,000	5,799,000	0	56,762,860	50,840,290	(5,922,570)
25	Total Uses		-	6,226,577	5,385,713	5,412,000	5,492,000	5,534,000	5,597,000	5,664,000	5,730,000	5,799,000	0	56,762,860	50,840,290	(5,922,570)
26	NET (Sources - Uses)		0	0	0	0	0	0	0	0	0	0	0	0	0	0

	O&M PERCENTAGE ALLOCATIONS					
	COD	TSS	FOG	FLOW TOTAL	FLOW DRY	FLOW WET
SOUTHEAST PLANT (SEP)						
Influent Pumping		5%		95%	79%	16%
Headworks and Grit Removal		60%		40%	33%	7%
Primary Clarifiers		60%		40%	33%	7%
Aeration Basins	80%			20%	17%	3%
Secondary Clarifiers	80%			20%	17%	3%
Chlorination and Dechlorination				100%	83%	17%
Solids Thickening	77%	19%	4%	0%	0%	0%
Solids Blending	51%	34%	15%	0%	0%	0%
Digester and Gas Management	51%	34%	15%	0%	0%	0%
Centrifuge (Dewatering, Loadout, and Hauling)	60%	40%		0%	0%	0%
SEP Effluent (Booster) PS				100%	83%	17%
Hauling	60%	40%	0%	0%	0%	0%
Chemicals						
Labor						
Other						
SEP Total						
OCEANSIDE PLANT (OSP)						
Influent Pumping (Westside PS)		5%		95%	70%	25%
Screening and Vortex Grit Tanks		60%		40%	30%	10%
Primary Clarifiers		60%		40%	30%	10%
Aeration Basins	80%			20%	15%	5%
Secondary Clarifiers	80%			20%	15%	5%
Gravity Belt Thickener	26%	60%	15%			
Anaerobic Digesters	26%	60%	15%			
Belt Filter Press	30%	70%				
Cyclone Classifier	30%	70%				
HVAC						
Chemicals						
Labor						
OSP Total						
NORTH POINT FACILITY (NPF)						
Screening				100%	0%	100%
Grit Chambers				100%	0%	100%
Primary Clarifiers		50%		50%	0%	50%
Hypochlorite Storage & Dosing System				100%	0%	100%
Dechlorination				100%	0%	100%
Chemicals						
Labor						
NPF Total						
COLLECTION SYSTEM						
Collection System	0%		15%	85%	65%	20%
Channel PS		5%	3%	92%	70%	22%
All Other PSs		5%	3%	92%	70%	22%
Grease Recovery and Recycle			100%			
Collection Total						

	CAPITAL ALLOCATION					
	COD	TSS	FOG	FLOW TOTAL	FLOW DRY	FLOW WET
SOUTHEAST PLANT (SEP)						
Influent Pumping				100%	63%	37%
Headworks		20%		80%	50%	30%
Primary Clarifiers		19%	2%	79%	50%	29%
Aeration	95%			5%		
Secondary Clarifiers	32%	8%		60%	38%	22%
Chlorination and Dechlorination				100%	63%	37%
Solids Thickening	77%	19%	4%			
Biosolids Handling	54%	36%	10%			
SEP Effluent (Booster) PS				100%	63%	37%
SEP R&R						
SEP All/Other						
SEP Total						
OCEANSIDE PLANT (OSP)						
Infuent Pumping, Screening and Vortex Grit Tanks		10%		90%	56%	34%
Primary Clarifiers		19%	2%	79%	49%	30%
Aeration	95%			5%		
Secondary Clarifiers	32%	8%		60%	37%	23%
Biosolids Processing	27%	63%	10%			
OSP Effluent Discharge				100%	62%	38%
OSP All/Other						
OSP Total						
NORTH POINT FACILITY (NPF)						
NPF Total				100%	0%	100%
COLLECTION SYSTEM						
Collection System				100%	63%	37%
Grease Recovery and Recycle			100%			
Collection Total						
ALL OTHER						
ADMINISTRATION						
CAPITAL ASSETS						

	SEP		OSP		NP
COD	0.60	0.54	0.30	0.27	
TSS	0.40	0.36	0.70	0.63	
FOG	-	0.10	-	0.10	
Flow - Dry		63%		62%	0%
Flow - Wet		37%		38%	100%

Appendix E:
Water Model

SFPUC
Water Financial Model
Water Operations & Maintenance

O&M Assumptions

	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
Cost Escalators											
General Escalation	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Labor Inflation	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Power and Chemicals	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Construction Inflation	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Potable Water Demand Growth	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Customer Growth	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
Price Elasticity of Demand	-0.25%	-0.25%	-0.25%	-0.25%	-0.25%	-0.25%	-0.25%	-0.25%	-0.25%	-0.25%	-0.25%
Conservation Offset	-0.25%	-0.25%	-0.25%	-0.25%	-0.25%	-0.25%	-0.25%	-0.25%	-0.25%	-0.25%	-0.25%
Customer Growth Plus Demand	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
No Annual Increase	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Wholesale Contribution (Future years to be updated)											
J-Table Consumption Proportion	65.27%	65.82%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%
Regional Water O&M Expenses	60.99%	60.99%	60.99%	60.99%	60.99%	60.99%	60.99%	60.99%	60.99%	60.99%	60.99%
Direct Wholesale O&M Expenses	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%
Regional Administrative and General Expenses	65.73%	65.72%	65.72%	65.72%	65.72%	65.72%	65.72%	65.72%	65.72%	65.72%	65.72%
Direct Wholesale Administrative and General Expenses	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%
Wholesale O&M Expenses	39.93%	40.27%	40.13%	40.13%	40.13%	40.13%	40.13%	40.13%	40.13%	40.13%	40.13%
Wholesale Administrative and General Expenses	43.05%	43.05%	43.05%	43.05%	43.05%	43.05%	43.05%	43.05%	43.05%	43.05%	43.05%
Source of Supply	40.24%	40.27%	40.24%	40.24%	40.24%	40.24%	40.24%	40.24%	40.24%	40.24%	40.24%
Administration	36.60%	36.60%	36.60%	36.60%	36.60%	36.60%	36.60%	36.60%	36.60%	36.60%	36.60%
Pumping	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Treatment	64.37%	65.61%	64.37%	64.37%	64.37%	64.37%	64.37%	64.37%	64.37%	64.37%	64.37%
Transmission & Distribution	30.59%	30.60%	30.59%	30.59%	30.59%	30.59%	30.59%	30.59%	30.59%	30.59%	30.59%
Customer Accounts	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Services of SFPUC Bureaus	42.86%	42.86%	42.86%	42.86%	42.86%	42.86%	42.86%	42.86%	42.86%	42.86%	42.86%
Other Admin/General Expenses	26.46%	26.46%	26.46%	26.46%	26.46%	26.46%	26.46%	26.46%	26.46%	26.46%	26.46%
Compliance Audit	50.00%	50.00%	50.00%	50.00%	50.00%	50.00%	50.00%	50.00%	50.00%	50.00%	50.00%
No Contribution	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

[1] General Inflation sourced from BLS CPI
[2] Labor Inflation sourced from

O&M Summary

	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
Revenues											
Rate Revenues (prior to rate increase)	$ 178,046,142	$ 178,936,373	$ 191,520,073	$ 215,574,994	$ 242,651,213	$ 268,250,916	$ 291,159,545	$ 316,024,570	$ 343,013,068	$ 372,306,384	$ 392,876,312
Non-Rate Revenues	214,614,691	177,970,512	264,142,447	265,467,413	265,754,791	276,047,316	318,423,716	342,821,221	324,602,702	328,429,130	343,308,720
Total Revenues	**$ 392,660,833**	**$ 356,906,884**	**$ 455,662,520**	**$ 481,042,407**	**$ 508,406,004**	**$ 544,298,232**	**$ 609,583,261**	**$ 658,845,790**	**$ 667,615,770**	**$ 700,735,514**	**$ 736,185,032**
Calculation Check	Correct	Correct	Correct	Correct	Correct	Correct	Correct	Correct	Correct	Correct	Correct
Expenditures											
Administration	$ 92,933,206	$ 91,754,653	$ 94,899,172	$ 98,153,701	$ 101,522,168	$ 105,008,644	$ 108,617,346	$ 112,352,648	$ 116,219,079	$ 120,221,337	$ 124,364,291
City Distribution	34,947,094	35,989,227	37,330,442	38,722,355	40,166,905	41,666,107	43,222,053	44,836,916	46,512,953	48,252,508	50,058,016
Water Quality	14,721,470	15,187,412	15,751,211	16,336,252	16,943,344	17,573,328	18,227,080	18,905,506	19,609,550	20,340,190	21,098,443
Water Supply and Treatment	47,393,688	48,121,984	50,035,834	52,027,773	54,101,063	56,259,107	58,505,453	60,843,799	63,278,003	65,812,090	68,450,253
Natural Resources	10,322,949	10,733,839	11,143,297	11,568,537	12,010,171	12,468,838	12,945,199	13,439,942	13,953,784	14,487,466	15,041,762
Water Resources	8,127,931	8,291,023	8,575,978	8,870,931	9,176,240	9,492,275	9,819,421	10,158,076	10,508,654	10,871,583	11,247,307
Other	21,585,000	-	-	-	-	-	-	-	-	-	-
Total Expenditures	**$ 230,031,338**	**$ 210,078,138**	**$ 217,735,935**	**$ 225,679,549**	**$ 233,919,892**	**$ 242,468,300**	**$ 251,336,552**	**$ 260,536,888**	**$ 270,082,024**	**$ 279,985,175**	**$ 290,260,073**
Calculation Check	Correct	Correct	Correct	Correct	Correct	Correct	Correct	Correct	Correct	Correct	Correct
Net Operating Surplus (Deficiency) - Excluding Debt and Capital Replacement	$ 162,629,495	$ 146,828,746	$ 237,926,585	$ 255,362,858	$ 274,486,112	$ 301,829,932	$ 358,246,709	$ 398,308,903	$ 397,533,747	$ 420,750,339	$ 445,924,959

O&M Detail - Revenues

Rate Code	Line Item Description	Type	Revenue Escalator	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
	Fixed Water Sales													
W-1A	Single Family Residential	Rates	Customer Growth	$ 10,646,392	$ 10,699,624	$ 11,452,075	$ 12,890,456	$ 14,509,497	$ 16,040,249	$ 17,410,086	$ 18,896,907	$ 20,510,703	$ 22,262,317	$ 23,492,310
W-1B	Multi-Family Residential	Rates	Customer Growth	4,968,066	4,992,906	5,344,032	6,015,243	6,770,757	7,485,072	8,124,298	8,818,113	9,571,179	10,388,558	10,962,526

SFPUC
Water Financial Model
Water Operations & Maintenance
carollo

				FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
	Builders & Contractors	Rates	Customer Growth	279,730	281,129	300,899	338,692	381,232	421,452	457,444	496,509	538,911	584,934	617,252
W-1C	Commercial	Rates	Customer Growth	3,013,679	3,028,747	3,241,744	3,648,907	4,107,210	4,540,520	4,928,281	5,349,156	5,805,974	6,301,804	6,649,979
	Combo - Non-Residential	Rates	Customer Growth	120,639	121,242	129,769	146,067	164,414	181,759	197,281	214,129	232,416	252,264	266,202
	Combo - Residential	Rates	Customer Growth	893,777	898,246	961,415	1,082,169	1,218,089	1,346,598	1,461,597	1,586,417	1,721,897	1,868,947	1,972,207
	Docks & Ships	Rates	Customer Growth	31,250	31,406	33,615	37,837	42,589	47,082	51,103	55,467	60,204	65,346	68,956
W-2	Fire - Non-Residential	Rates	Customer Growth	2,642,590	2,655,803	2,842,572	3,199,599	3,601,469	3,981,424	4,321,438	4,690,488	5,091,056	5,525,832	5,831,135
W-2	Fire - Residential	Rates	Customer Growth	877,680	882,068	944,100	1,062,679	1,196,151	1,322,345	1,435,273	1,557,846	1,690,886	1,835,288	1,936,687
W-1C	Industrial Water	Rates	Customer Growth	45,971	46,201	49,450	55,661	62,652	69,262	75,177	81,597	88,565	96,128	101,440
	Irrigation - Non-Residential	Rates	Customer Growth	103,273	103,789	111,088	125,041	140,746	155,595	168,883	183,305	198,960	215,951	227,882
	Irrigation - Residential	Rates	Customer Growth	64,845	65,169	69,752	78,513	88,374	97,698	106,041	115,097	124,927	135,595	143,087
	Municipal - Combo	Rates	Customer Growth	25,751	25,880	27,700	31,179	35,095	38,797	42,111	45,707	49,610	53,847	56,822
	Municipal - Fire	Rates	Customer Growth	321,326	322,933	345,643	389,056	437,921	484,122	525,466	570,340	619,047	671,914	709,037
W-34	Municipal - Irrigation	Rates	Customer Growth	219,236	220,332	235,827	265,447	298,787	330,309	358,517	389,135	422,367	458,437	483,766
	Municipal - Water	Rates	Customer Growth	455,199	457,475	489,647	551,147	620,371	685,820	744,389	807,959	876,959	951,852	1,004,441
	Suburban	Rates	Customer Growth	115,656	116,234	124,408	140,034	157,622	174,252	189,133	205,285	222,816	241,844	255,206
	Total Fixed Water Sales			**$ 24,825,060**	**$ 24,949,185**	**$ 26,703,737**	**$ 30,057,726**	**$ 33,832,976**	**$ 37,402,356**	**$ 40,596,517**	**$ 44,063,459**	**$ 47,826,479**	**$ 51,910,860**	**$ 54,778,935**
	Variable Water Sales													
	Single Family Residential	Rates	Customer Growth Plus Demand	$ 35,714,243	$ 35,892,814	$ 38,416,976	$ 43,242,149	$ 48,673,362	$ 53,808,402	$ 58,403,640	$ 63,391,311	$ 68,804,929	$ 74,680,869	$ 78,806,987
	Multi-Family Residential	Rates	Customer Growth Plus Demand	49,832,731	50,081,895	53,603,904	60,336,554	67,914,825	75,079,840	81,491,658	88,451,045	96,004,765	104,203,572	109,960,819
	Builders & Contractors	Rates	Customer Growth Plus Demand	360,311	362,113	387,578	436,258	491,052	542,858	589,218	639,537	694,154	753,434	795,062
	Commercial	Rates	Customer Growth Plus Demand	44,642,697	44,865,910	48,021,106	54,052,557	60,841,558	67,260,342	73,004,375	79,238,949	86,005,955	93,350,864	98,508,499
	Combo - Non-Residential	Rates	Customer Growth Plus Demand	1,424,967	1,432,092	1,532,804	1,725,324	1,942,025	2,146,908	2,330,254	2,529,258	2,745,257	2,979,702	3,144,330
	Combo - Residential	Rates	Customer Growth Plus Demand	4,324,228	4,345,849	4,651,471	5,235,696	5,893,299	6,515,042	7,071,427	7,675,326	8,330,799	9,042,250	9,541,834
	Docks & Ships	Rates	Customer Growth Plus Demand	74,307	74,678	79,930	89,969	101,269	111,953	121,514	131,891	143,155	155,380	163,965
	Fire - Non-Residential	Rates	Customer Growth Plus Demand	59,020	59,315	63,486	71,460	80,435	88,921	96,515	104,758	113,704	123,414	130,233
	Fire - Residential	Rates	Customer Growth Plus Demand	17,979	18,069	19,340	21,769	24,503	27,088	29,401	31,912	34,637	37,596	39,673
	Industrial Water	Rates	Customer Growth Plus Demand	464,829	467,153	500,005	562,806	633,494	700,328	760,136	825,051	895,511	971,987	1,025,690
	Irrigation - Non-Residential	Rates	Customer Growth Plus Demand	918,898	923,492	988,437	1,112,584	1,252,325	1,384,445	1,502,677	1,631,006	1,770,293	1,921,477	2,027,638
	Irrigation - Residential	Rates	Customer Growth Plus Demand	701,433	704,940	754,515	849,282	955,952	1,056,804	1,147,056	1,245,014	1,351,338	1,466,743	1,547,780
	Municipal - Combo	Rates	Customer Growth Plus Demand	172,761	173,625	185,835	209,176	235,448	260,288	282,517	306,644	332,831	361,255	381,214
	Municipal - Fire	Rates	Customer Growth Plus Demand	3,388	3,405	3,645	4,103	4,618	5,105	5,541	6,014	6,528	7,085	7,477
	Municipal - Irrigation	Rates	Customer Growth Plus Demand	1,771,685	1,780,543	1,905,760	2,145,124	2,414,551	2,669,286	2,897,243	3,144,668	3,413,223	3,704,712	3,909,397
	Municipal - Water	Rates	Customer Growth Plus Demand	5,395,367	5,422,343	5,803,670	6,532,611	7,353,107	8,128,859	8,823,064	9,576,554	10,394,391	11,282,072	11,905,407
	Suburban	Rates	Customer Growth Plus Demand	7,342,239	7,378,950	7,897,875	8,889,848	10,006,413	11,062,090	12,006,792	13,032,172	14,145,120	15,353,113	16,201,373
	Total Variable Water Sales			**$ 153,221,082**	**$ 153,987,187**	**$ 164,816,336**	**$ 185,517,268**	**$ 208,818,237**	**$ 230,848,561**	**$ 250,563,028**	**$ 271,961,111**	**$ 295,186,589**	**$ 320,395,524**	**$ 338,097,377**
	Other													
	Low Income Discounts	Non-Rate	Customer Growth Plus Demand	(616,923)	(620,007)	(623,107)	(626,223)	(629,354)	(632,501)	(635,663)	(638,842)	(642,036)	(645,246)	(648,472)
	Other Property Rentals	Non-Rate	General Escalation	9,987,079	10,286,692	10,595,292	10,913,151	11,240,546	11,577,762	11,925,095	12,282,848	12,651,333	13,030,873	13,421,799
	SFWD Property Tax Reimbursements	Non-Rate	General Escalation	(2,492)	(2,567)	(2,644)	(2,723)	(2,805)	(2,889)	(2,976)	(3,065)	(3,157)	(3,251)	(3,349)
68100	Treasure Island - Utilities Revenues	Non-Rate	General Escalation	1,181,000	1,216,430	1,252,923	1,290,511	1,329,226	1,369,103	1,410,176	1,452,481	1,496,055	1,540,937	1,587,165
78001	Water Service Installation Charges	Non-Rate	General Escalation	2,291,000	2,359,730	2,430,522	2,503,438	2,578,541	2,655,897	2,735,574	2,817,641	2,902,170	2,989,235	3,078,912
79999	Other Non-Operating Revenue	Non-Rate	General Escalation	3,500,000	3,605,000	3,713,150	3,824,545	3,939,281	4,057,459	4,179,183	4,304,559	4,433,695	4,566,706	4,703,707
	City Distribution - Shops 08699 Interdepartmental Recov	Non-Rate	General Escalation	30,337	31,247	32,185	33,150	34,145	35,169	36,224	37,311	38,430	39,583	40,771
086JV	Water Quality - Engineering, Expenditure Recovery from	Non-Rate	General Escalation	10,217	10,524	10,840	11,165	11,500	11,845	12,200	12,566	12,943	13,331	13,731
086AC	Water Quality, Expenditure Recovery from Airport	Non-Rate	General Escalation	120,000	123,600	127,308	131,127	135,061	139,113	143,286	147,585	152,012	156,573	161,270
086WP	Natural Resources, Expenditure Recovery from Cleanwat	Non-Rate	General Escalation	427,884	440,721	453,942	467,560	481,587	496,035	510,916	526,243	542,031	558,292	575,040
75940	Port Penalty and Service Charges	Non-Rate	General Escalation	(51,165)	(52,700)	(54,281)	(55,909)	(57,587)	(59,314)	(61,094)	(62,926)	(64,814)	(66,759)	(68,761)
76199	Gain/Loss - Sale of Fixed Assets	Non-Rate	General Escalation	3,251,181										
76251	Sale of Scrap and Waste	Non-Rate	General Escalation	32,781	33,764	34,777	35,821	36,895	38,002	39,142	40,316	41,526	42,772	44,055
78902	NSF Checks	Non-Rate	General Escalation	(55,092)	(56,745)	(58,447)	(60,201)	(62,007)	(63,867)	(65,783)	(67,756)	(69,789)	(71,883)	(74,039)
8699	525 Golden Gate (08699) - Does not appear in 2A	Non-Rate	General Escalation	3,874,000	3,990,220	4,109,927	4,233,224	4,360,221	4,491,028	4,625,759	4,764,531	4,907,467	5,054,691	5,206,332
	BABs DSRF Interest Income	Non-Rate	No Annual Increase	614,839	614,839	614,839	614,839	614,839	614,839	614,839	614,839	614,839	614,839	614,839
	Wholesale Revenues Offsetting Expenditures in model	Non-Rate	[Calculated]	190,020,044	155,989,764	241,505,221	242,153,938	241,744,701	251,319,635	292,956,837	316,592,889	297,589,995	300,608,436	314,655,719
	Total Other			**$ 214,614,691**	**$ 177,970,512**	**$ 264,142,447**	**$ 265,467,413**	**$ 265,754,791**	**$ 276,047,316**	**$ 318,423,716**	**$ 342,821,221**	**$ 324,602,702**	**$ 328,429,130**	**$ 343,308,720**
	Total Operating Revenues			**$ 392,660,833**	**$ 356,906,884**	**$ 455,662,520**	**$ 481,042,407**	**$ 508,406,004**	**$ 544,298,232**	**$ 609,583,261**	**$ 658,845,790**	**$ 667,615,770**	**$ 700,735,514**	**$ 736,185,032**
	Option 1 BMP 1.4			86.06%	86.06%	86.06%	86.06%	86.06%	86.06%	86.06%	86.06%	86.06%	86.06%	86.06%
	Option 2 BMP 1.4											8%		

SFPUC
Water Financial Model
Water Operations & Maintenance
carollo

	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023

O&M Detail - Expenditures

Acct Code	Line Item Description	Type	Expense Escalator	FY 2012 2013 Board Adopted	FY 2013 2014 Board Adopted	FY 2014 2015 Forecast	FY 2015 2016 Forecast	FY 2016 2017 Forecast	FY 2017 2018 Forecast	FY 2018 2019 Forecast	FY 2019 2020 Forecast	FY 2020 2021 Forecast	FY 2021 2022 Forecast	FY 2022 2023 Forecast
	Administration													
1	Salaries	On-Going	Labor Inflation	$ 1,299,457	$ 1,318,886	$ 1,371,641	$ 1,426,507	$ 1,483,567	$ 1,542,910	$ 1,604,626	$ 1,668,812	$ 1,735,564	$ 1,804,987	$ 1,877,186
013	Mandatory Fringe Benefits	On-Going	Labor Inflation	4,183,520	4,559,960	4,742,358	4,932,053	5,129,335	5,334,508	5,547,889	5,769,804	6,000,596	6,240,620	6,490,245
020	COWCAP	On-Going	General Escalation	-	-	-	-	-	-	-	-	-	-	-
021	Non Personal Services	On-Going	General Escalation	2,192,843	1,926,290	1,984,079	2,043,601	2,104,909	2,168,056	2,233,098	2,300,091	2,369,094	2,440,167	2,513,372
040	Materials and Supplies	On-Going	General Escalation	43,602	53,412	55,014	56,665	58,365	60,116	61,919	63,777	65,690	67,661	69,691
060	Capital Purchases	On-Going	General Escalation	-	-	-	-	-	-	-	-	-	-	-
081	Services of Other Departments	On-Going	General Escalation	7,127,013	7,160,367	7,375,178	7,596,433	7,824,326	8,059,056	8,300,828	8,549,853	8,806,348	9,070,539	9,342,655
081UA	UA Services of SFPUC	On-Going	General Escalation	43,014,870	43,426,680	44,729,480	46,071,365	47,453,506	48,877,111	50,343,424	51,853,727	53,409,339	55,011,619	56,661,968
091	Hetch Hetchy	On-Going	Labor Inflation	35,071,901	33,309,058	34,641,420	36,027,077	37,468,160	38,966,887	40,525,562	42,146,585	43,832,448	45,585,746	47,409,176
	[Other]	On-Going	General Escalation			-	-	-	-	-	-	-	-	-
	Total Administration			**$ 92,933,206**	**$ 91,754,653**	**$ 94,899,172**	**$ 98,153,701**	**$ 101,522,168**	**$ 105,008,644**	**$ 108,617,346**	**$ 112,352,648**	**$ 116,219,079**	**$ 120,221,337**	**$ 124,364,291**
	Wholesale Split		Wholesale O&M Expenses	37,111,827	36,949,431	38,086,266	39,392,419	40,744,300	42,143,541	43,591,836	45,090,939	46,642,670	48,248,912	49,911,620
	City Distribution													
001	Salaries	On-Going	Labor Inflation	$ 18,099,106	$ 18,410,263	$ 19,146,674	$ 19,912,540	$ 20,709,042	$ 21,537,404	$ 22,398,900	$ 23,294,856	$ 24,226,650	$ 25,195,716	$ 26,203,545
013	Mandatory Fringe Benefits	On-Going	Labor Inflation	7,025,188	7,743,557	8,053,299	8,375,431	8,710,449	9,058,866	9,421,221	9,798,070	10,189,993	10,597,592	11,021,496
020	Overhead	On-Going	General Escalation	-	-	-	-	-	-	-	-	-	-	-
021	Non Personal Services	On-Going	General Escalation	2,053,790	2,053,790	2,115,404	2,178,866	2,244,232	2,311,559	2,380,906	2,452,333	2,525,903	2,601,680	2,679,730
040	Materials and Supplies	On-Going	General Escalation	2,422,639	2,420,889	2,493,516	2,568,321	2,645,371	2,724,732	2,806,474	2,890,668	2,977,388	3,066,710	3,158,711
060	Capital Purchases	On-Going	General Escalation	861,149	862,903	888,790	915,454	942,917	971,205	1,000,341	1,030,351	1,061,262	1,093,100	1,125,893
081	Services of Other Departments	On-Going	General Escalation	4,485,222	4,497,825	4,632,760	4,771,743	4,914,895	5,062,342	5,214,212	5,370,638	5,531,757	5,697,710	5,868,641
	[Other]	On-Going	General Escalation			-	-	-	-	-	-	-	-	-
	Total City Distribution			**$ 34,947,094**	**$ 35,989,227**	**$ 37,330,442**	**$ 38,722,355**	**$ 40,166,905**	**$ 41,666,107**	**$ 43,222,053**	**$ 44,836,916**	**$ 46,512,953**	**$ 48,252,508**	**$ 50,058,016**
	Wholesale Split		Wholesale O&M Expenses	13,955,728	14,492,796	14,981,976	15,540,598	16,120,345	16,722,026	17,346,480	17,994,580	18,667,230	19,365,373	20,089,985
	Water Quality													
001	Salaries	On-Going	Labor Inflation	$ 7,536,065	$ 7,690,684	$ 7,998,311	$ 8,318,244	$ 8,650,974	$ 8,997,013	$ 9,356,893	$ 9,731,169	$ 10,120,415	$ 10,525,232	$ 10,946,241
013	Mandatory Fringe Benefits	On-Going	Labor Inflation	2,818,074	3,127,017	3,252,098	3,382,182	3,517,469	3,658,168	3,804,494	3,956,674	4,114,941	4,279,539	4,450,720
020	Overhead	On-Going	General Escalation	-	-	-	-	-	-	-	-	-	-	-
021	Non Personal Services	On-Going	General Escalation	2,997,932	2,963,774	3,052,687	3,144,268	3,238,596	3,335,754	3,435,826	3,538,901	3,645,068	3,754,420	3,867,053
040	Materials and Supplies	On-Going	General Escalation	1,028,324	1,044,256	1,075,584	1,107,851	1,141,087	1,175,319	1,210,579	1,246,896	1,284,303	1,322,832	1,362,517
060	Capital Purchases	On-Going	General Escalation	338,499	359,105	369,878	380,974	392,404	404,176	416,301	428,790	441,654	454,903	468,551
081	Services of Other Departments	On-Going	General Escalation	2,576	2,576	2,653	2,733	2,815	2,899	2,986	3,076	3,168	3,263	3,361
	[Other]	On-Going	General Escalation			-	-	-	-	-	-	-	-	-
	Total Water Quality			**$ 14,721,470**	**$ 15,187,412**	**$ 15,751,211**	**$ 16,336,252**	**$ 16,943,344**	**$ 17,573,328**	**$ 18,227,080**	**$ 18,905,506**	**$ 19,609,550**	**$ 20,340,190**	**$ 21,098,443**
	Wholesale Split		Wholesale O&M Expenses	5,878,853	6,115,943	6,321,497	6,556,294	6,799,940	7,052,774	7,315,147	7,587,423	7,869,979	8,163,210	8,467,523
	Water Supply and Treatment													
001	Salaries	On-Going	Labor Inflation	$ 19,486,097	$ 19,859,292	$ 20,653,664	$ 21,479,810	$ 22,339,003	$ 23,232,563	$ 24,161,865	$ 25,128,340	$ 26,133,473	$ 27,178,812	$ 28,265,965
013	Mandatory Fringe Benefits	On-Going	Labor Inflation	7,700,555	8,504,990	8,845,190	9,198,997	9,566,957	9,949,635	10,347,621	10,761,526	11,191,987	11,639,666	12,105,253
020	Overhead	On-Going	General Escalation	-	-	-	-	-	-	-	-	-	-	-
021	Non Personal Services	On-Going	General Escalation	3,227,572	3,248,572	3,346,029	3,446,410	3,549,802	3,656,296	3,765,985	3,878,965	3,995,334	4,115,194	4,238,650
040	Materials and Supplies	On-Going	Power and Chemicals	9,327,894	9,327,394	9,793,764	10,283,452	10,797,624	11,337,506	11,904,381	12,499,600	13,124,580	13,780,809	14,469,849
060	Capital Purchases	On-Going	General Escalation	585,773	563,069	579,961	597,360	615,281	633,739	652,751	672,334	692,504	713,279	734,677
081	Services of Other Departments	On-Going	General Escalation	7,065,797	6,618,667	6,817,227	7,021,744	7,232,396	7,449,368	7,672,849	7,903,035	8,140,126	8,384,329	8,635,859
	[Other]	On-Going	General Escalation			-	-	-	-	-	-	-	-	-
	Total Water Supply and Treatment			**$ 47,393,688**	**$ 48,121,984**	**$ 50,035,834**	**$ 52,027,773**	**$ 54,101,063**	**$ 56,259,107**	**$ 58,505,453**	**$ 60,843,799**	**$ 63,278,003**	**$ 65,812,090**	**$ 68,450,253**
	Wholesale Split		Wholesale O&M Expenses	18,926,134	19,378,635	20,081,082	20,880,515	21,712,597	22,578,694	23,480,228	24,418,686	25,395,615	26,412,630	27,471,415
	Natural Resources													
001	Salaries	On-Going	Labor Inflation	$ 5,950,474	$ 6,095,016	$ 6,338,817	$ 6,592,369	$ 6,856,064	$ 7,130,307	$ 7,415,519	$ 7,712,140	$ 8,020,625	$ 8,341,450	$ 8,675,108

SFPUC
Water Financial Model
Water Operations & Maintenance
carollo

				FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
013	Mandatory Fringe Benefits	On-Going	Labor Inflation	2,384,432	2,649,280	2,755,251	2,865,461	2,980,080	3,099,283	3,223,254	3,352,184	3,486,272	3,625,723	3,770,752
020	Overhead	On-Going	General Escalation			-	-	-	-	-	-	-	-	-
021	Non Personal Services	On-Going	General Escalation	1,229,762	1,229,762	1,266,655	1,304,655	1,343,794	1,384,108	1,425,631	1,468,400	1,512,452	1,557,826	1,604,560
040	Materials and Supplies	On-Going	General Escalation	402,460	402,460	414,534	426,970	439,779	452,972	466,561	480,558	494,975	509,824	525,119
060	Capital Purchases	On-Going	General Escalation	171,556	173,056	178,248	183,595	189,103	194,776	200,619	206,638	212,837	219,222	225,799
081	Services of Other Departments	On-Going	General Escalation	184,265	184,265	189,793	195,487	201,351	207,392	213,614	220,022	226,623	233,421	240,424
	[Other]	On-Going	General Escalation			-	-	-	-	-	-	-	-	-
	Total Natural Resources			**$ 10,322,949**	**$ 10,733,839**	**$ 11,143,297**	**$ 11,568,537**	**$ 12,010,171**	**$ 12,468,838**	**$ 12,945,199**	**$ 13,439,942**	**$ 13,953,784**	**$ 14,487,466**	**$ 15,041,762**
	Wholesale Split		Wholesale O&M Expenses	4,122,353	4,322,497	4,472,184	4,642,847	4,820,090	5,004,169	5,195,349	5,393,906	5,600,128	5,814,313	6,036,771
	Water Resources													
001	Salaries	On-Going	Labor Inflation	$ 2,473,349	$ 2,526,276	$ 2,627,327	$ 2,732,420	$ 2,841,717	$ 2,955,386	$ 3,073,601	$ 3,196,545	$ 3,324,407	$ 3,457,383	$ 3,595,678
013	Mandatory Fringe Benefits	On-Going	Labor Inflation	988,855	1,096,191	1,140,039	1,185,640	1,233,066	1,282,388	1,333,684	1,387,031	1,442,513	1,500,213	1,560,222
020	Overhead	On-Going	General Escalation	-	-	-	-	-	-	-	-	-	-	-
021	Non Personal Services	On-Going	General Escalation	849,532	849,532	875,018	901,268	928,307	956,156	984,840	1,014,386	1,044,817	1,076,162	1,108,447
38	City Grants	On-Going	General Escalation	2,995,125	2,995,125	3,084,979	3,177,528	3,272,854	3,371,040	3,472,171	3,576,336	3,683,626	3,794,135	3,907,959
040	Materials and Supplies	On-Going	General Escalation	369,650	369,650	380,740	392,162	403,927	416,044	428,526	441,381	454,623	468,262	482,309
060	Capital Purchases	On-Going	General Escalation	35,000	35,000	36,050	37,132	38,245	39,393	40,575	41,792	43,046	44,337	45,667
081	Services of Other Departments	On-Going	General Escalation	416,420	419,249	431,826	444,781	458,125	471,868	486,024	500,605	515,623	531,092	547,025
	[Other]	On-Going	General Escalation			-	-	-	-	-	-	-	-	-
	Total Natural Resources			**$ 8,127,931**	**$ 8,291,023**	**$ 8,575,978**	**$ 8,870,931**	**$ 9,176,240**	**$ 9,492,275**	**$ 9,819,421**	**$ 10,158,076**	**$ 10,508,654**	**$ 10,871,583**	**$ 11,247,307**
	Wholesale Split		Wholesale O&M Expenses	3,245,798	3,338,780	3,441,832	3,560,207	3,682,737	3,809,573	3,940,868	4,076,782	4,217,481	4,363,136	4,513,927
	Total Operating Expenditures			**$ 208,446,338**	**$ 210,078,138**	**$ 217,735,935**	**$ 225,679,549**	**$ 233,919,892**	**$ 242,468,300**	**$ 251,336,552**	**$ 260,536,888**	**$ 270,082,024**	**$ 279,985,175**	**$ 290,260,073**
	Other Expenditures													
	Main Break	One-Time	General Escalation	$ 13,000,000	-	-	-	-	-	-	-	-	-	-
	Bureau Cost	One-Time	General Escalation	8,585,000	-	-	-	-	-	-	-	-	-	-
	[Other]	On-Going	General Escalation		-	-	-	-	-	-	-	-	-	-
	[Other]	On-Going	General Escalation		-	-	-	-	-	-	-	-	-	-
	[Other]	On-Going	General Escalation		-	-	-	-	-	-	-	-	-	-
	[Other]	On-Going	General Escalation		-	-	-	-	-	-	-	-	-	-
	[Other]	On-Going	General Escalation		-	-	-	-	-	-	-	-	-	-
	Total Other Expenditures			**$ 21,585,000**	**$ - **	**$ - **	**$ - **	**$ - **	**$ - **	**$ - **	**$ - **	**$ - **	**$ - **	**$ - **
	Wholesale Split		No Contribution	-	-	-	-	-	-	-	-	-	-	-
	Total O&M Expenditures			**$ 230,031,338**	**$ 210,078,138**	**$ 217,735,935**	**$ 225,679,549**	**$ 233,919,892**	**$ 242,468,300**	**$ 251,336,552**	**$ 260,536,888**	**$ 270,082,024**	**$ 279,985,175**	**$ 290,260,073**
	Wholesale Split			**$ 83,240,693**	**$ 84,598,082**	**$ 87,384,837**	**$ 90,572,880**	**$ 93,880,010**	**$ 97,310,777**	**$ 100,869,908**	**$ 104,562,316**	**$ 108,393,103**	**$ 112,367,575**	**$ 116,491,241**

CAFR: 733800000

SFPUC
Water Financial Model
Debt Service
carollo

Summary

	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
		$ 144,664,206	$ 211,670,446	$ 235,844,822	$ 244,314,213	$ 258,580,787	$ 272,444,952	$ 278,318,787	$ 279,427,678	$ 279,415,019	$ 279,373,433
Existing Debt		$ -	$ 624,206	$ 2,296,581	$ 5,606,025	$ 24,896,643	$ 56,631,476	$ 70,990,776	$ 90,334,928	$ 97,894,777	$ 122,659,909
Principal Payments	$ 39,661,667	$ 40,810,000	$ 51,000,000	$ 63,820,000	$ 74,030,000	$ 87,028,333	$ 94,678,333	$ 100,886,667	$ 106,553,333	$ 111,416,667	$ 116,548,333
Interest Payments	223,360,346	219,456,640	217,567,007	215,078,507	211,993,274	208,618,258	204,937,905	200,840,870	196,089,286	191,005,117	185,556,638
Less: Capital Interest	(99,560,240)	(64,219,163)	(9,795,776)	-	-	-	-	-	-	-	-
Less: BABs Subsidy	(23,920,677)	(23,920,677)	(23,920,677)	(23,920,677)	(23,895,886)	(23,745,846)	(23,586,328)	(23,408,750)	(23,214,941)	(23,006,764)	(22,731,539)
Total Existing Debt	$ 139,541,095	$ 172,126,800	$ 234,850,554	$ 254,977,830	$ 262,127,388	$ 271,900,745	$ 276,029,910	$ 278,318,787	$ 279,427,678	$ 279,415,019	$ 279,373,433
Future Debt											
Principal Payments	$ -	$ -	$ -	$ -	$ 45,686	$ 267,340	$ 6,388,904	$ 14,973,339	$ 17,244,969	$ 23,799,181	$ 26,532,665
Interest Payments	-	-	-	124,880	722,234	17,405,358	39,677,901	43,092,185	57,788,672	60,817,870	76,451,002
Total Future Debt	$ -	$ -	$ -	$ 124,880	$ 767,919	$ 17,672,698	$ 46,066,805	$ 58,065,525	$ 75,033,641	$ 84,617,051	$ 102,983,667
Total Defeasement from BAWSCA Payment	$ 8,231,350	$ 25,894,292	$ 23,180,108	$ 19,133,008	$ 17,813,175	$ 13,319,958	$ 3,584,958				
Hetch Hetchy Debt	$ -	$ -	$ 2,192,508	$ 4,291,470	$ 6,399,176	$ 8,785,015	$ 12,125,742	$ 14,486,322	$ 16,862,358	$ 19,230,344	$ 21,179,724
Existing Bonds (TE) reserve fund cash flow	$ (2,127,031.16)	$ (1,568,302.28)	$ (1,568,302)	$ (2,119,768)	$ (1,561,071)	$ (1,561,071)	$ (1,561,071)	$ (1,561,071)	$ (1,561,071)	$ (5,952,618)	$ (1,503,481)
Total Debt Service	**$ 129,182,714**	**$ 144,664,206**	**$ 212,294,651**	**$ 238,141,403**	**$ 249,920,238**	**$ 283,477,430**	**$ 329,076,428**	**$ 349,309,562**	**$ 369,762,606**	**$ 377,309,796**	**$ 402,033,342**
Wholesale Share	$ 48,347,287	$ 69,922,326	$ 104,447,408	$ 117,367,961	$ 123,342,365	$ 134,421,739	$ 149,987,121	$ 160,850,489	$ 167,210,361	$ 166,928,759	$ 175,164,995
	34.65%	**40.62%**	**44.47%**	**46.01%**	**46.92%**	**46.42%**	**46.57%**	**47.82%**	**47.17%**	**45.86%**	**45.81%**

Existing Debt

Existing Debt Wholesale Assumptions

Wholesale Proportion of Regional Debt	65.27%	65.82%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%
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	93.38%	93.38%	93.38%	93.38%	93.38%	93.38%	93.38%	93.38%	93.38%	93.38%	93.38%
2010 Bond, Series F	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
2010 Bond, Series G	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
2011 Bond, Series A	92.12%	92.12%	92.12%	92.12%	92.12%	92.12%	92.12%	92.12%	92.12%	92.12%	92.12%
2011 Bond, Series B	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
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%
No Share	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2006 Bond, Series A	34.72%	35.01%	34.89%	34.89%	34.89%	34.89%	34.89%	34.89%	34.89%	34.89%	34.89%
2009 Bond, Series A	37.80%	38.12%	37.99%	37.99%	37.99%	37.99%	37.99%	37.99%	37.99%	37.99%	37.99%
2009 Bond, Series B	57.03%	57.51%	57.31%	57.31%	57.31%	57.31%	57.31%	57.31%	57.31%	57.31%	57.31%
2010 Bond, Series B	60.64%	61.15%	60.94%	60.94%	60.94%	60.94%	60.94%	60.94%	60.94%	60.94%	60.94%
2010 Bond, Series D	63.47%	64.00%	63.79%	63.79%	63.79%	63.79%	63.79%	63.79%	63.79%	63.79%	63.79%
2010 Bond, Series E	60.95%	61.46%	61.25%	61.25%	61.25%	61.25%	61.25%	61.25%	61.25%	61.25%	61.25%
2010 Bond, Series F	65.27%	65.82%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%
2010 Bond, Series G	65.27%	65.82%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%
2011 Bond, Series A	60.13%	60.63%	60.43%	60.43%	60.43%	60.43%	60.43%	60.43%	60.43%	60.43%	60.43%

SFPUC
Water Financial Model
Debt Service

carollo

	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
2011 Bond, Series B	65.27%	65.82%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%
2012 Bond, Series A	45.26%	45.64%	45.48%	45.48%	45.48%	45.48%	45.48%	45.48%	45.48%	45.48%	45.48%

Existing Debt Service		FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
Total Existing Debt												
Split out wholesale by each bond												
1991 Bond												
Principal Payment	Senior	$ -	$ -	$ -	$ -	$ -	$ 3,333,333	$ 3,066,667	$ 700,000	$ -	$ -	$ -
	Total Payment:	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 3,333,333**	**$ 3,066,667**	**$ 700,000**	**$ -**	**$ -**	**$ -**
Wholesale Share	No Share	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2002 Bond, Series A												
Principal Payment	Senior	$ 1,261,667	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interest Payment		56,775	-	-	-	-	-	-	-	-	-	-
	Total Payment:	**$ 1,318,442**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Wholesale Share	No Share	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2002 Bond, Series B												
Principal Payment	Senior	$ 2,435,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interest Payment		97,400	-	-	-	-	-	-	-	-	-	-
	Total Payment:	**$ 2,532,400**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Wholesale Share	No Share	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006 Bond, Series A												
Principal Payment	Senior	$ 10,166,667	$ 10,688,333	$ 11,238,333	$ 11,815,000	$ 12,420,000	$ 13,055,000	$ 13,726,667	$ 14,431,667	$ 15,170,000	$ 15,946,667	$ 16,766,667
Interest Payment		22,000,071	21,491,738	20,957,321	20,395,404	19,804,654	19,183,654	18,530,904	17,844,571	17,122,988	16,364,488	15,567,154
	Total Payment:	**$ 32,166,738**	**$ 32,180,071**	**$ 32,195,654**	**$ 32,210,404**	**$ 32,224,654**	**$ 32,238,654**	**$ 32,257,571**	**$ 32,276,238**	**$ 32,292,988**	**$ 32,311,154**	**$ 32,333,821**
Wholesale Share	2006 Bond, Series A	$ 11,167,222	$ 11,266,133	$ 11,233,285	$ 11,238,432	$ 11,243,404	$ 11,248,288	$ 11,254,888	$ 11,261,401	$ 11,267,246	$ 11,273,584	$ 11,281,493
2006 Bond, Series B												
Principal Payment	Senior	$ 3,765,000	$ 3,951,667	$ 4,148,333	$ 7,075,000	$ 8,768,333	$ 7,326,667	$ 7,740,000	$ 9,376,667	$ 8,238,333	$ 7,636,667	$ 7,976,667
Interest Payment		4,010,563	3,822,313	3,624,729	3,417,313	3,063,563	2,684,479	2,391,413	2,074,863	1,679,829	1,329,700	1,011,600
	Total Payment:	**$ 7,775,563**	**$ 7,773,979**	**$ 7,773,063**	**$ 10,492,313**	**$ 11,831,896**	**$ 10,011,146**	**$ 10,131,413**	**$ 11,451,529**	**$ 9,918,163**	**$ 8,966,367**	**$ 8,988,267**
Wholesale Share	No Share	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2006 Bond, Series C												
Principal Payment	Senior	$ 2,775,000	$ 2,886,667	$ 3,011,667	$ 3,145,000	$ 3,280,000	$ 2,025,000	$ 2,191,667	$ 3,293,333	$ 2,256,667	$ 1,608,333	$ 1,683,333
Interest Payment		1,517,973	1,406,973	1,291,506	1,150,673	1,014,690	875,177	787,729	692,417	533,167	425,550	353,175
	Total Payment:	**$ 4,292,973**	**$ 4,293,640**	**$ 4,303,173**	**$ 4,295,673**	**$ 4,294,690**	**$ 2,900,177**	**$ 2,979,396**	**$ 3,985,750**	**$ 2,789,833**	**$ 2,033,883**	**$ 2,036,508**
Wholesale Share	No Share	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2009 Bond, Series A												
Principal Payment	Senior	$ 7,015,000	$ 7,376,667	$ 7,760,000	$ 8,156,667	$ 8,573,333	$ 9,011,667	$ 9,476,667	$ 9,945,000	$ 10,443,333	$ 10,981,667	$ 11,541,667
Interest Payment		19,910,304	19,629,704	19,334,638	18,971,638	18,563,804	18,193,238	17,832,771	17,453,704	16,988,571	16,466,404	15,917,321
	Total Payment:	**$ 26,925,304**	**$ 27,006,371**	**$ 27,094,638**	**$ 27,128,304**	**$ 27,137,138**	**$ 27,204,904**	**$ 27,309,438**	**$ 27,398,704**	**$ 27,431,904**	**$ 27,448,071**	**$ 27,458,988**
Wholesale Share	2009 Bond, Series A	$ 10,178,817	$ 10,295,624	$ 10,294,173	$ 10,306,964	$ 10,310,320	$ 10,336,067	$ 10,375,782	$ 10,409,698	$ 10,422,312	$ 10,428,454	$ 10,432,601

SFPUC
Water Financial Model
Debt Service
carollo

		FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
2009 Bond, Series B												
Principal Payment	Senior	$ 7,146,667	$ 7,441,667	$ 7,773,333	$ 8,156,667	$ 8,576,667	$ 9,016,667	$ 9,478,333	$ 9,965,000	$ 10,476,667	$ 11,013,333	$ 11,578,333
Interest Payment		19,783,983	19,426,650	19,054,567	18,665,900	18,258,067	17,829,233	17,378,400	16,904,483	16,406,233	15,882,400	15,331,733
	Total Payment:	**$ 26,930,650**	**$ 26,868,317**	**$ 26,827,900**	**$ 26,822,567**	**$ 26,834,733**	**$ 26,845,900**	**$ 26,856,733**	**$ 26,869,483**	**$ 26,882,900**	**$ 26,895,733**	**$ 26,910,067**
Wholesale Share	2009 Bond, Series B	$ 15,357,386	$ 15,451,145	$ 15,375,476	$ 15,372,419	$ 15,379,392	$ 15,385,792	$ 15,392,000	$ 15,399,308	$ 15,406,997	$ 15,414,352	$ 15,422,567
2010 Bond, Series A												
Principal Payment	Senior	$ 1,871,667	$ 1,943,333	$ 2,036,667	$ 2,140,000	$ 2,248,333	$ 2,365,000	$ 2,488,333	$ 2,613,333	$ 2,748,333	$ 2,888,333	$ 3,038,333
Interest Payment		2,613,813	2,557,663	2,473,096	2,371,263	2,264,263	2,151,846	2,033,596	1,909,179	1,778,513	1,641,096	1,496,679
	Total Payment:	**$ 4,485,479**	**$ 4,500,996**	**$ 4,509,763**	**$ 4,511,263**	**$ 4,512,596**	**$ 4,516,846**	**$ 4,521,929**	**$ 4,522,513**	**$ 4,526,846**	**$ 4,529,429**	**$ 4,535,013**
Wholesale Share	No Share	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010 Bond, Series B												
Principal Payment	Senior	$ -	$ -	$ -	$ 7,083,333	$ 10,811,667	$ 11,111,667	$ 11,441,667	$ 11,798,333	$ 12,193,333	$ 12,630,000	$ 13,090,000
Interest Payment		23,856,630	23,856,630	23,856,630	23,856,630	23,573,297	23,133,560	22,651,813	22,119,549	21,551,182	20,906,375	20,211,725
Less: Capital Interest		(6,499,679)	-	-	-	-	-	-	-	-	-	-
Less: BABs Subsidy		(8,349,821)	(8,349,821)	(8,349,821)	(8,349,821)	(8,325,029)	(8,174,989)	(8,015,471)	(7,837,893)	(7,644,085)	(7,435,908)	(7,197,111)
	Total Payment:	**$ 9,007,130**	**$ 15,506,810**	**$ 15,506,810**	**$ 22,590,143**	**$ 26,059,935**	**$ 26,070,237**	**$ 26,078,009**	**$ 26,079,989**	**$ 26,100,430**	**$ 26,100,468**	**$ 26,104,614**
Wholesale Share	2010 Bond, Series B	$ 5,461,479	$ 9,481,915	$ 9,449,693	$ 13,766,205	$ 15,880,661	$ 15,886,940	$ 15,891,675	$ 15,892,882	$ 15,905,339	$ 15,905,361	$ 15,907,888
2010 Bond, Series C												
Principal Payment	Senior	$ 3,225,000	$ 3,391,667	$ 3,943,333	$ 1,396,667	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interest Payment		597,833	436,583	267,000	69,833	-	-	-	-	-	-	-
	Total Payment:	**$ 3,822,833**	**$ 3,828,250**	**$ 4,210,333**	**$ 1,466,500**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Wholesale Share	No Share	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2010 Bond, Series D												
Principal Payment	Senior	$ -	$ -	$ 6,240,000	$ 12,750,000	$ 14,938,333	$ 15,705,000	$ 16,508,333	$ 17,353,333	$ 14,780,000	$ 4,450,000	$ -
Interest Payment		4,869,250	4,869,250	4,869,250	4,557,250	3,919,750	3,172,833	2,387,583	1,562,167	694,500	133,500	-
Less: Capital Interest		(1,891,578)	-	-	-	-	-	-	-	-	-	-
	Total Payment:	**$ 2,977,672**	**$ 4,869,250**	**$ 11,109,250**	**$ 17,307,250**	**$ 18,858,083**	**$ 18,877,833**	**$ 18,895,917**	**$ 18,915,500**	**$ 15,474,500**	**$ 4,583,500**	**$ -**
Wholesale Share	2010 Bond, Series D	$ 1,889,861	$ 3,116,484	$ 7,086,132	$ 11,039,580	$ 12,028,793	$ 12,041,391	$ 12,052,925	$ 12,065,417	$ 9,870,545	$ 2,923,625	$ -
2010 Bond, Series E												
Principal Payment	Senior	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,496,667	$ 13,025,000
Interest Payment		20,060,998	20,060,998	20,060,998	20,060,998	20,060,998	20,060,998	20,060,998	20,060,998	20,060,998	20,060,998	19,644,661
Less: Capital Interest		(7,216,359)	-	-	-	-	-	-	-	-	-	-
Less: BABs Subsidy		(7,021,349)	(7,021,349)	(7,021,349)	(7,021,349)	(7,021,349)	(7,021,349)	(7,021,349)	(7,021,349)	(7,021,349)	(7,021,349)	(6,984,920)
	Total Payment:	**$ 5,823,290**	**$ 13,039,648**	**$ 13,039,648**	**$ 13,039,648**	**$ 13,039,648**	**$ 13,039,648**	**$ 13,039,648**	**$ 13,039,648**	**$ 13,039,648**	**$ 21,536,315**	**$ 25,684,741**
Wholesale Share	2010 Bond, Series E	$ 3,549,199	$ 8,014,522	$ 7,987,287	$ 7,987,287	$ 7,987,287	$ 7,987,287	$ 7,987,287	$ 7,987,287	$ 7,987,287	$ 13,191,823	$ 15,732,894
2010 Bond, Series F												
Principal Payment	Senior	$ -	$ -	$ -	$ -	$ 3,273,333	$ 4,800,000	$ 5,031,667	$ 5,328,333	$ 12,398,333	$ 12,951,667	$ 11,860,000
Interest Payment		9,011,825	9,011,825	9,011,825	9,011,825	9,011,825	8,913,625	8,737,992	8,536,725	8,323,592	7,721,692	7,074,108
Less: Capital Interest		(9,011,825)	(4,280,617)	-	-	-	-	-	-	-	-	-
	Total Payment:	**$ -**	**$ 4,731,208**	**$ 9,011,825**	**$ 9,011,825**	**$ 12,285,158**	**$ 13,713,625**	**$ 13,769,658**	**$ 13,865,058**	**$ 20,721,925**	**$ 20,673,358**	**$ 18,934,108**
Wholesale Share	2010 Bond, Series F	$ -	$ 3,114,081	$ 5,911,426	$ 5,911,426	$ 8,058,613	$ 8,995,635	$ 9,032,391	$ 9,094,969	$ 13,592,822	$ 13,560,964	$ 12,420,080
2010 Bond, Series G												
Principal Payment	Senior	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
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

SFPUC
Water Financial Model
Debt Service
carollo

		FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
Less: Capital Interest		(15,877,657)	(7,541,887)	-	-	-	-	-	-	-	-	-
Less: BABs Subsidy		(8,549,508)	(8,549,508)	(8,549,508)	(8,549,508)	(8,549,508)	(8,549,508)	(8,549,508)	(8,549,508)	(8,549,508)	(8,549,508)	(8,549,508)
	Total Payment:	**$ (0)**	**$ 8,335,770**	**$ 15,877,657**	**$ 15,877,657**	**$ 15,877,657**	**$ 15,877,657**	**$ 15,877,657**	**$ 15,877,657**	**$ 15,877,657**	**$ 15,877,657**	**$ 15,877,657**
Wholesale Share	2010 Bond, Series G	$ (0)	$ 5,486,604	$ 10,415,160	$ 10,415,160	$ 10,415,160	$ 10,415,160	$ 10,415,160	$ 10,415,160	$ 10,415,160	$ 10,415,160	$ 10,415,160
2011 Bond, Series A												
Principal Payment	Senior	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 10,506,667	$ 16,286,667	$ 17,103,333	$ 17,960,000
Interest Payment		29,583,425	29,583,425	29,583,425	29,583,425	29,583,425	29,583,425	29,583,425	29,583,425	29,058,092	28,243,758	27,388,592
Less: Capital Interest		(29,583,425)	(24,981,559)	(657,409)	-	-	-	-	-	-	-	-
	Total Payment:	**$ -**	**$ 4,601,866**	**$ 28,926,016**	**$ 29,583,425**	**$ 29,583,425**	**$ 29,583,425**	**$ 29,583,425**	**$ 40,090,092**	**$ 45,344,758**	**$ 45,347,092**	**$ 45,348,592**
Wholesale Share	2011 Bond, Series A	$ -	$ 2,790,267	$ 17,479,222	$ 17,876,477	$ 17,876,477	$ 17,876,477	$ 17,876,477	$ 24,225,376	$ 27,400,631	$ 27,402,041	$ 27,402,947
2011 Bond, Series B												
Principal Payment	Senior	$ -	$ -	$ -	$ -	$ 436,667	$ 668,333	$ 691,667	$ 720,000	$ 746,667	$ 775,000	$ 808,333
Interest Payment		1,375,800	1,375,800	1,375,800	1,375,800	1,375,800	1,360,517	1,337,125	1,310,583	1,281,783	1,251,917	1,220,917
Less: Capital Interest		(236,943)	-	-	-	-	-	-	-	-	-	-
	Total Payment:	**$ 1,138,857**	**$ 1,375,800**	**$ 1,375,800**	**$ 1,375,800**	**$ 1,812,467**	**$ 2,028,850**	**$ 2,028,792**	**$ 2,030,583**	**$ 2,028,450**	**$ 2,026,917**	**$ 2,029,250**
Wholesale Share	2011 Bond, Series B	$ 743,322	$ 905,552	$ 902,474	$ 902,474	$ 1,188,912	$ 1,330,851	$ 1,330,813	$ 1,331,988	$ 1,330,589	$ 1,329,583	$ 1,331,114
2011 Bond, Series C												
Principal Payment	Senior	$ -	$ 433,333	$ 663,333	$ 683,333	$ 703,333	$ 726,667	$ 751,667	$ 783,333	$ 815,000	$ 848,333	$ 880,000
Interest Payment		1,560,050	1,560,050	1,547,050	1,527,150	1,506,650	1,483,183	1,457,750	1,428,908	1,397,575	1,364,975	1,331,042
	Total Payment:	**$ 1,560,050**	**$ 1,993,383**	**$ 2,210,383**	**$ 2,210,483**	**$ 2,209,983**	**$ 2,209,850**	**$ 2,209,417**	**$ 2,212,242**	**$ 2,212,575**	**$ 2,213,308**	**$ 2,211,042**
Wholesale Share	No Share	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2011 Bond, Series D												
Principal Payment	Senior	$ -	$ 2,696,667	$ 4,185,000	$ 1,418,333	$ -	$ -	$ -	$ -	$ -	$ 4,086,667	$ 6,340,000
Interest Payment		2,657,600	2,657,600	2,549,733	2,353,967	2,283,050	2,283,050	2,283,050	2,283,050	2,283,050	2,283,050	2,078,717
	Total Payment:	**$ 2,657,600**	**$ 5,354,267**	**$ 6,734,733**	**$ 3,772,300**	**$ 2,283,050**	**$ 2,283,050**	**$ 2,283,050**	**$ 2,283,050**	**$ 2,283,050**	**$ 6,369,717**	**$ 8,418,717**
Wholesale Share	No Share	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2012 Bond, Series A												
Principal Payment	Senior	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interest Payment		29,242,773	27,415,100	27,415,100	27,415,100	27,415,100	27,415,100	27,415,100	27,415,100	27,415,100	27,415,100	27,415,100
Less: Capital Interest		(29,242,773)	(27,415,100)	(9,138,367)	-	-	-	-	-	-	-	-
	Total Payment:	**$ -**	**$ -**	**$ 18,276,733**	**$ 27,415,100**	**$ 27,415,100**	**$ 27,415,100**	**$ 27,415,100**	**$ 27,415,100**	**$ 27,415,100**	**$ 27,415,100**	**$ 27,415,100**
Wholesale Share	2012 Bond, Series A	$ -	$ -	$ 8,313,080	$ 12,469,620	$ 12,469,620	$ 12,469,620	$ 12,469,620	$ 12,469,620	$ 12,469,620	$ 12,469,620	$ 12,469,620
2012 Bond, Series B												
Principal Payment	Senior	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interest Payment		729,013	683,450	683,450	683,450	683,450	683,450	683,450	683,450	683,450	683,450	683,450
	Total Payment:	**$ 729,013**	**$ 683,450**	**$ 683,450**	**$ 683,450**	**$ 683,450**	**$ 683,450**	**$ 683,450**	**$ 683,450**	**$ 683,450**	**$ 683,450**	**$ 683,450**
Wholesale Share	No Share	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2012 Bond, Series C												
Principal Payment	Senior	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interest Payment		4,697,067	4,403,500	4,403,500	4,403,500	4,403,500	4,403,500	4,403,500	4,403,500	4,403,500	4,403,500	4,403,500
	Total Payment:	**$ 4,697,067**	**$ 4,403,500**	**$ 4,403,500**	**$ 4,403,500**	**$ 4,403,500**	**$ 4,403,500**	**$ 4,403,500**	**$ 4,403,500**	**$ 4,403,500**	**$ 4,403,500**	**$ 4,403,500**
Wholesale Share	No Share	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

SFPUC
Water Financial Model
Debt Service

carollo

		FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
2012 Bond, Series D												
Principal Payment	Senior	$ -	$ -	$ -	$ -	$ -	$ 7,883,333	$ 12,085,000	$ 4,071,667	$ -	$ -	$ -
Interest Payment		700,035	780,225	780,225	780,225	780,225	780,225	554,142	147,033	-	-	-
	Total Payment:	**$ 700,035**	**$ 780,225**	**$ 780,225**	**$ 780,225**	**$ 780,225**	**$ 8,663,558**	**$ 12,639,142**	**$ 4,218,700**	**$ -**	**$ -**	**$ -**
Wholesale Share	No Share	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Local Revenue Bonds

New Debt Assumptions

	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
Local Revenue Bonds:											
Issuance Costs	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Reserve Amount	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Interest Rate	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Amortization Period	30 years	30 years	30 years	30 years	30 years	30 years	30 years	30 years	30 years	30 years	30 years
Months of Capitalized Interest	36 months	36 months	36 months	36 months	36 months	36 months	36 months	36 months	36 months	36 months	36 months

(1) Current PUC Funding Assumptions FY2013

Projected Debt Service - Retail
Borrowing Calculations

		FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
Projected New Revenue Bonds												
New Bond Par Amount		$ -	$ -	$ 28,960,752	$ 70,045,000	$ 63,785,000	$ 238,225,000	$ 39,185,000	$ 45,305,106	$ 22,080,000	$ 18,700,000	$ 13,700,000
Plus: Issuance Costs		-	-	697,849	1,687,831	1,536,988	5,740,361	944,217	1,091,689	532,048	450,602	330,120
Plus: Reserve Amount		-	-	-	-	-	-	-	-	-	-	-
Plus: Capitalized Interest		-	-	5,233,871	12,658,735	11,527,410	43,052,711	7,081,627	8,187,670	3,990,361	3,379,518	2,475,904
	Total Bond Amount Issued:	**$ -**	**$ -**	**$ 34,892,472**	**$ 84,391,566**	**$ 76,849,398**	**$ 287,018,072**	**$ 47,210,843**	**$ 54,584,465**	**$ 26,602,410**	**$ 22,530,120**	**$ 16,506,024**
Annual Payments on Projected Bonds												
Principal Payments		$ -	$ -	$ -	$ -	$ -	$ -	$ 638,248	$ 2,213,839	$ 3,730,250	$ 9,166,857	$ 10,488,774
Interest Payments		-	-	-	-	-	1,744,624	5,932,290	9,664,067	23,828,459	25,730,658	27,935,442
	Total Payment:	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 1,744,624**	**$ 6,570,538**	**$ 11,877,907**	**$ 27,558,708**	**$ 34,897,514**	**$ 38,424,216**

Amoritization Tables

Projected Revenue Bonds *Principal Payments*	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023

New Revenue Bonds *Interest Payments*	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023

Regional Revenue Bonds

New Debt Assumptions

		FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
Regional Revenue Bonds:												
Wholesale Split	J Table info from cons	65.27%	65.82%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%	65.60%
Issuance Costs		2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Reserve Amount		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Interest Rate		5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Amortization Period		30 years	30 years	30 years	30 years	30 years	30 years	30 years	30 years	30 years	30 years	30 years

SFPUC
Water Financial Model
Debt Service

	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
Months of Capitalized Interest	36 months	36 months	36 months	36 months	36 months	36 months	36 months	36 months	36 months	36 months	36 months

(1) Current PUC Funding Assumptions FY2013

Projected Debt Service - Regional *Borrowing Calculations*											
Projected New Revenue Bonds											
New Bond Par Amount	$ 2,073,000	$ 9,954,000	$ 248,201,000	$ 304,982,000	$ 5,320,000	$ 20,050,000	$ 30,853,000	$ 236,227,006	$ 500,000	$ 500,000	$ 500,000
Plus: Issuance Costs	49,952	239,855	5,980,747	7,348,964	128,193	483,133	743,446	5,692,217	12,048	12,048	12,048
Plus: Reserve Amount	-	-	-	-	-	-	-	-	-	-	-
Plus: Capitalized Interest	374,639	1,798,916	44,855,602	55,117,229	961,446	3,623,494	5,575,843	42,691,628	90,361	90,361	90,361
Total Bond Amount Issued:	**$ 2,497,590**	**$ 11,992,771**	**$ 299,037,349**	**$ 367,448,193**	**$ 6,409,639**	**$ 24,156,627**	**$ 37,172,289**	**$ 284,610,851**	**$ 602,410**	**$ 602,410**	**$ 602,410**
Annual Payments on Projected Bonds											
Principal Payments	$ -	$ -	$ -	$ -	$ 45,686	$ 267,340	$ 5,750,656	$ 12,759,500	$ 13,514,719	$ 14,632,325	$ 16,043,891
Interest Payments	-	-	-	124,880	722,234	15,660,734	33,745,611	33,428,118	33,960,213	35,087,212	48,515,560
Total Payment:	**$ -**	**$ -**	**$ -**	**$ 124,880**	**$ 767,919**	**$ 15,928,074**	**$ 39,496,267**	**$ 46,187,618**	**$ 47,474,932**	**$ 49,719,536**	**$ 64,559,451**

Amoritization Tables

Projected Revenue Bonds *Principal Payments*	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023

New Revenue Bonds *Interest Payments*	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023

SFPUC
Water Financial Model
Funding

carollo

	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
Reserve Balance Assumptions											
All Reserves[1]											
Fund Interest Earnings Rate	1.20%	1.20%	1.20%	1.20%	3.00%	3.00%	4.00%	4.00%	4.00%	4.00%	4.00%

[1] Interest Earnings based on US Treasury yield curve published 3/1/2011

Capital Funding											
CIP Expenditures											
10 year CIP	$ 123,451,000	$ 214,551,000	$ 174,042,000	$ 89,446,000	$ 279,227,000	$ 143,842,000	$ 138,634,000	$ 166,951,000	$ 65,577,000	$ 65,577,000	
Revenue Funded Programmatic CIP	17,151,712	17,664,712	19,856,000	25,942,000	20,511,000	16,886,000	16,966,000	17,557,000	17,009,000	-	
WSIP		250,000,000	250,000,000				221,702,112				
Total	**$ - $ 140,602,712**	**$ 482,215,712**	**$ 443,898,000**	**$ 115,388,000**	**$ 299,738,000**	**$ 160,728,000**	**$ 377,302,112**	**$ 184,508,000**	**$ 82,586,000**	**$ 65,577,000**	
Funding (from 10-Year CIP)											
Revenue Bonds - Local	$ - $ -	$ 28,960,752	$ 70,045,000	$ 63,785,000	$ 238,225,000	$ 39,185,000	$ 45,305,106	$ 22,080,000	$ 18,700,000	$ 13,700,000	
Revenue Bonds - Regional	2,073,000	9,954,000	248,201,000	304,982,000	5,320,000	20,050,000	30,853,000	236,227,006	500,000	500,000	500,000
PAYGO - Retail	10,197,910	14,305,236	17,798,630	22,248,394	15,234,977	13,576,720	43,631,881	48,659,404	39,952,294	44,765,826	43,914,106
PAYGO - Wholesale	7,168,590	23,099,076	32,056,082	34,936,606	29,048,023	25,886,280	45,058,119	45,110,596	18,975,706	18,620,174	7,462,894
GO Bonds	38,000,000	29,814,000	89,300,000	8,686,000	-	-	-	-	100,000,000	-	-
BAWSCA Pre-Payment	34,499,500	61,702,476	64,399,248	-	-	-	-	-	-	-	-
Capacity Fee (Fund Balance)		1,727,924	1,500,000	-	-	-	-	-	-	-	-
Capacity Fee (New Development)	-	-	-	3,000,000	2,000,000	2,000,000	2,000,000	2,000,000	3,000,000	-	-
Total	**91,939,000**	**140,602,712**	**482,215,712**	**443,898,000**	**115,388,000**	**299,738,000**	**160,728,000**	**377,302,112**	**184,508,000**	**82,586,000**	**65,577,000**
		99,106,788	**114,253,960**	**57,185,000**	**44,283,000**	**39,463,000**	**88,690,000**	**93,770,000**	**58,928,000**		
Additional Revenue Bonds	-	-	-	-	-	-	-	-	-	-	-
Regional Revenue Bonds	**$ 2,073,000**	**$ 9,954,000**	**$ 248,201,000**	**$ 304,982,000**	**$ 5,320,000**	**$ 20,050,000**	**$ 30,853,000**	**$ 236,227,006**	**$ 500,000**	**$ 500,000**	**$ 500,000**
New Local Bond Issuance	**$ - $ -**	**$ 28,960,752**	**$ 70,045,000**	**$ 63,785,000**	**$ 238,225,000**	**$ 39,185,000**	**$ 45,305,106**	**$ 22,080,000**	**$ 18,700,000**	**$ 13,700,000**	

Cash Balance											
Beginning Balance	**$ 20,490,388**	**$ 251,808,720**	**$ 169,519,041**	**$ 105,913,652**	**$ 93,090,071**	**$ 100,430,768**	**$ 103,793,267**	**$ 71,718,042**	**$ 55,098,069**	**$ 53,586,178**	**$ 54,399,488**
Interest Earnings	245,885	3,021,705	2,034,228	1,270,964	2,792,702	3,012,923	4,151,731	2,868,722	2,203,923	2,143,447	2,175,980
BAWSCA Prepayment	247,128,828										
[Additions to Reserves]											
[Use of Reserves]	(34,499,500)	(61,702,476)	(64,399,248)	-	-	-	-	-	-	-	-
Net Cash Flow	16,080,281	(23,608,907)	(1,240,369)	(14,094,546)	4,547,996	349,576	(36,226,956)	(19,488,694)	(3,715,814)	(1,330,137)	12,158,432
Ending Balance	**$ 249,445,882**	**$ 169,519,041**	**$ 105,913,652**	**$ 93,090,071**	**$ 100,430,768**	**$ 103,793,267**	**$ 71,718,042**	**$ 55,098,069**	**$ 53,586,178**	**$ 54,399,488**	**$ 68,733,900**
Balance Target	$ 57,507,835	$ 52,519,535	$ 54,433,984	$ 56,419,887	$ 58,479,973	$ 60,617,075	$ 62,834,138	$ 65,134,222	$ 67,520,506	$ 69,996,294	$ 72,565,018
% of Non-Debt Expenditures	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%

Wholesale Reserves											
Debt Contribution		48,347,287	69,922,326	104,447,408	117,367,961	123,342,365	134,421,739	149,987,121	160,850,489	167,210,361	166,928,759	175,164,995
Additional Debt Coverage	0.25	12,086,822	17,480,581	26,111,852	29,341,990	30,835,591	33,605,435	37,496,780	40,212,622	41,802,590	41,732,190	43,791,249
Beginning Balance	$ 5,000,000	$ 13,763,579	$ 17,480,581	$ 26,111,852	$ 29,341,990	$ 30,835,591	$ 33,605,435	$ 37,496,780	$ 40,212,622	$ 41,802,590	$ 41,802,590	
Additional Revenue Required		7,086,822	3,717,002	8,631,271	3,230,138	1,493,601	2,769,843	3,891,346	2,715,842	1,589,968	-	1,988,658
Ending Balance	**$ 12,086,822**	**$ 17,480,581**	**$ 26,111,852**	**$ 29,341,990**	**$ 30,835,591**	**$ 33,605,435**	**$ 37,496,780**	**$ 40,212,622**	**$ 41,802,590**	**$ 41,802,590**	**$ 43,791,249**
Balance Target	$ -	$ 37,161,527	$ 77,070,742	$ 77,556,942	$ 88,032,556	$ 90,863,039	$ 99,443,890	$ 119,595,870	$ 119,117,791	$ 125,022,846	$ -	
% of Non-Debt Expenditures	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	

SFPUC
Water Financial Model
Revenue Requirement

carollo

	FY 2012 2013	FY 2013 2014	FY 2014 2015	FY 2015 2016	FY 2016 2017	FY 2017 2018	FY 2018 2019	FY 2019 2020	FY 2020 2021	FY 2021 2022	FY 2022 2023
Cash Flow Test											
Revenues											
Rate Revenues (prior to rate increase)	$ 178,046,142	$ 178,936,373	$ 191,520,073	$ 215,574,994	$ 242,651,213	$ 268,250,916	$ 291,159,545	$ 316,024,570	$ 343,013,068	$ 372,306,384	$ 392,876,312
Wholesale Revenue	190,020,044	155,989,764	241,505,221	242,153,938	241,744,701	251,319,635	292,956,837	316,592,889	297,589,995	300,608,436	314,655,719
Non-Rate Revenues	24,594,647	21,980,748	22,637,226	23,313,475	24,010,089	24,727,681	25,466,879	26,228,331	27,012,707	27,820,694	28,653,001
Total Revenues	**$ 392,660,833**	**$ 356,906,884**	**$ 455,662,520**	**$ 481,042,407**	**$ 508,406,004**	**$ 544,298,232**	**$ 609,583,261**	**$ 658,845,790**	**$ 667,615,770**	**$ 700,735,514**	**$ 736,185,032**
Expenditures											
Administration	$ 92,933,206	$ 91,754,653	$ 94,899,172	$ 98,153,701	$ 101,522,168	$ 105,008,644	$ 108,617,346	$ 112,352,648	$ 116,219,079	$ 120,221,337	$ 124,364,291
City Distribution	34,947,094	35,989,227	37,330,442	38,722,355	40,166,905	41,666,107	43,222,053	44,836,916	46,512,953	48,252,508	50,058,016
Water Quality	14,721,470	15,187,412	15,751,211	16,336,252	16,943,344	17,573,328	18,227,080	18,905,506	19,609,550	20,340,190	21,098,443
Water Supply and Treatment	47,393,688	48,121,984	50,035,834	52,027,773	54,101,063	56,259,107	58,505,453	60,843,799	63,278,003	65,812,090	68,450,253
Natural Resources	10,322,949	10,733,839	11,143,297	11,568,537	12,010,171	12,468,838	12,945,199	13,439,942	13,953,784	14,487,466	15,041,762
Water Resources	8,127,931	8,291,023	8,575,978	8,870,931	9,176,240	9,492,275	9,819,421	10,158,076	10,508,654	10,871,583	11,247,307
Other Expenditures	21,585,000	-	-	-	-	-	-	-	-	-	-
Debt Service	129,182,714	144,664,206	212,294,651	238,141,403	249,920,238	283,477,430	329,076,428	349,309,562	369,762,606	377,309,796	402,033,342
Total Operating Expenditures	**$ 359,214,052**	**$ 354,742,344**	**$ 430,030,586**	**$ 463,820,952**	**$ 483,840,130**	**$ 525,945,730**	**$ 580,412,980**	**$ 609,846,450**	**$ 639,844,629**	**$ 657,294,971**	**$ 692,293,415**
Policy Expenditures											
Additions to meet min fund balance reserves	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 10,218,514	$ 14,266,668	$ 15,989,551
Revenue Funded Capital	17,366,500	37,404,312	49,854,712	57,185,000	44,283,000	39,463,000	88,690,000	93,770,000	58,928,000	63,386,000	51,377,000
Total Policy Expenditures	**$ 17,366,500**	**$ 37,404,312**	**$ 49,854,712**	**$ 57,185,000**	**$ 44,283,000**	**$ 39,463,000**	**$ 88,690,000**	**$ 93,770,000**	**$ 69,146,514**	**$ 77,652,668**	**$ 67,366,551**
Total Expenditures for Cash Flow Test	$ 376,580,552	$ 392,146,656	$ 479,885,298	$ 521,005,952	$ 528,123,130	$ 565,408,730	$ 669,102,980	$ 703,616,450	$ 708,991,143	$ 734,947,639	$ 759,659,966
Cash Flow Surplus (Deficit)	**$ 16,080,281**	**$ (35,239,771)**	**$ (24,222,778)**	**$ (39,963,545)**	**$ (19,717,126)**	**$ (21,110,498)**	**$ (59,519,720)**	**$ (44,770,660)**	**$ (41,375,373)**	**$ (34,212,125)**	**$ (23,474,934)**
Debt Coverage Test											
Required Coverage Factor (without Reserves)	1.00 x	1.00 x	1.00 x	1.00 x	1.00 x	1.00 x	1.00 x	1.00 x	1.00 x	1.00 x	1.00 x
Required Coverage Factor (with Reserves)	1.25 x	1.25 x	1.25 x	1.25 x	1.25 x	1.25 x	1.25 x	1.25 x	1.25 x	1.25 x	1.25 x
Revenues											
Rate Revenues (prior to rate increase)	$ 178,046,142	$ 178,936,373	$ 191,520,073	$ 215,574,994	$ 242,651,213	$ 268,250,916	$ 291,159,545	$ 316,024,570	$ 343,013,068	$ 372,306,384	$ 392,876,312
Wholesale Revenues	$ 190,020,044	$ 155,989,764	$ 241,505,221	$ 242,153,938	$ 241,744,701	$ 251,319,635	$ 292,956,837	$ 316,592,889	$ 297,589,995	$ 300,608,436	$ 314,655,719
Non-Rate Revenues	24,594,647	21,980,748	22,637,226	23,313,475	24,010,089	24,727,681	25,466,879	26,228,331	27,012,707	27,820,694	28,653,001
Total Revenues without Reserves	**$ 392,660,833**	**$ 356,906,884**	**$ 455,662,520**	**$ 481,042,407**	**$ 508,406,004**	**$ 544,298,232**	**$ 609,583,261**	**$ 658,845,790**	**$ 667,615,770**	**$ 700,735,514**	**$ 736,185,032**
Reserves	$ 233,365,601	$ 193,127,949	$ 107,154,022	$ 107,184,616	$ 95,882,773	$ 103,443,691	$ 107,944,998	$ 74,586,763	$ 57,301,992	$ 55,729,625	$ 56,575,468
Total Revenues with Reserves	**$ 626,026,434**	**$ 550,034,833**	**$ 562,816,541**	**$ 588,227,023**	**$ 604,288,777**	**$ 647,741,923**	**$ 717,528,258**	**$ 733,432,554**	**$ 724,917,762**	**$ 756,465,139**	**$ 792,760,499**
Expenditures											
Water Expenditures	$ 230,031,338	$ 210,078,138	$ 217,735,935	$ 225,679,549	$ 233,919,892	$ 242,468,300	$ 251,336,552	$ 260,536,888	$ 270,082,024	$ 279,985,175	$ 290,260,073
Wholesale Debt	48,347,287	69,922,326	104,447,408	117,367,961	123,342,365	134,421,739	149,987,121	160,850,489	167,210,361	166,928,759	175,164,995
Existing Debt	82,962,458	76,310,182	107,223,037	118,476,861	120,971,848	124,159,048	122,457,831	117,468,298	112,217,317	112,486,259	104,208,438
Future Debt	-	-	-	124,880	767,919	17,672,698	46,066,805	58,065,525	75,033,641	84,617,051	102,983,667
Subtotal Expenditures	**$ 361,341,083**	**$ 356,310,646**	**$ 429,406,380**	**$ 461,649,250**	**$ 479,002,024**	**$ 518,721,785**	**$ 569,848,309**	**$ 596,921,199**	**$ 624,543,342**	**$ 644,017,244**	**$ 672,617,173**
Additional Coverage Required without Reserves	-	-	-	-	-	-	-	-	-	-	-
Additional Coverage Required with Reserves	20,740,615	19,077,546	26,805,759	29,650,435	30,434,942	35,457,937	42,131,159	43,883,456	46,812,739	49,275,828	51,798,026
Debt Coverage Surplus (Deficit) without Reserves	**$ 31,319,750**	**$ 596,238**	**$ 26,256,139**	**$ 19,393,157**	**$ 29,403,980**	**$ 25,576,447**	**$ 39,734,951**	**$ 61,924,591**	**$ 43,072,428**	**$ 56,718,270**	**$ 63,567,859**
Debt Coverage Surplus (Deficit) with Reserves	**$ 243,944,736**	**$ 174,646,641**	**$ 106,604,402**	**$ 96,927,338**	**$ 94,851,810**	**$ 93,562,202**	**$ 105,548,790**	**$ 92,627,899**	**$ 53,561,681**	**$ 63,172,067**	**$ 68,345,300**
Pre-Adjustment Coverage Factor	**1.24 x**	**1.0 x**	**1.12 x**	**1.08 x**	**1.12 x**	**1.09 x**	**1.12 x**	**1.18 x**	**1.12 x**	**1.16 x**	**1.17 x**
	3.02 x	**2.32 x**	**1.63 x**	**1.54 x**	**1.51 x**	**1.47 x**	**1.46 x**	**1.41 x**	**1.28 x**	**1.31 x**	**1.31 x**
Revenue Requirement - Rate Adjustments											
Revenue Surpluses (Shortfalls)	$ 16,080,281	$ (35,239,771)	$ (24,222,778)	$ (39,963,545)	$ (19,717,126)	$ (21,110,498)	$ (59,519,720)	$ (44,770,660)	$ (41,375,373)	$ (34,212,125)	$ (23,474,934)
Test Driving Deficiency	Surplus	Cash Flow	Cash Flow	Cash Flow	Cash Flow	Cash Flow	Cash Flow	Cash Flow	Cash Flow	Cash Flow	Cash Flow

Month Rate Adjustment Is Implemented	July	July	July	July	July	July	July	July	July	July	July
Percent of Rate-Increase Applicable Revenue	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Calculated Rate Increase	0.00%	19.69%	12.65%	18.54%	8.13%	7.87%	20.44%	14.17%	12.06%	9.19%	5.98%
Adjusted Rate Increase	0.00%	19.69%	12.65%	18.54%	8.13%	7.87%	20.44%	14.17%	12.06%	9.19%	5.98%
	Overriden	Overriden	Overriden	Overriden	Overriden	Overriden	Overriden	Overriden	Overriden	Overriden	Overriden
Rate Increase	**0.00%**	**6.50%**	**12.00%**	**12.00%**	**10.00%**	**8.00%**	**8.00%**	**8.00%**	**8.00%**	**5.00%**	**5.00%**
Cumulative Rate Increase	0.00%	0.00%	12.00%	25.44%	37.98%	49.02%	60.94%	73.82%	87.73%	97.11%	106.97%
Change in Rate Revenues											
Rate Revenues Pre-Adjustment	$ 178,046,142	$ 178,936,373	$ 191,520,073	$ 215,574,994	$ 242,651,213	$ 268,250,916	$ 291,159,545	$ 316,024,570	$ 343,013,068	$ 372,306,384	$ 392,876,312
Calculated Rate Increase	$ -	$ 35,239,771	$ 24,222,778	$ 39,963,545	$ 19,717,126	$ 21,110,498	$ 59,519,720	$ 44,770,660	$ 41,375,373	$ 34,212,125	$ 23,474,934
Additional Rate Revenue From Override	-	(23,608,907)	(1,240,369)	(14,094,546)	4,547,996	349,576	(36,226,956)	(19,488,694)	(13,934,328)	(15,596,806)	(3,831,119)
Total Rate Revenues After Adjustment	**$ 178,046,142**	**$ 190,567,237**	**$ 214,502,482**	**$ 241,443,993**	**$ 266,916,335**	**$ 289,710,990**	**$ 314,452,308**	**$ 341,306,535**	**$ 370,454,113**	**$ 390,921,703**	**$ 412,520,127**

Post Adjustment Cash Flow and Coverage

Revenues		189,499,862	212,239,845	237,708,627	261,479,489	282,397,848	304,989,676	329,388,850			
Total Post Adjustment Rate Revenues	$ 178,046,142	$ 190,567,237	$ 214,502,482	$ 241,443,993	$ 266,916,335	$ 289,710,990	$ 314,452,308	$ 341,306,535	$ 370,454,113	$ 390,921,703	$ 412,520,127
Wholesale Revenue	190,020,044	155,989,764	241,505,221	242,153,938	241,744,701	251,319,635	292,956,837	316,592,889	297,589,995	300,608,436	314,655,719
Non-Rate Revenue	24,594,647	21,980,748	22,637,226	23,313,475	24,010,089	24,727,681	25,466,879	26,228,331	27,012,707	27,820,694	28,653,001
Total Year End Revenues	**$ 392,660,833**	**$ 368,537,749**	**$ 478,644,928**	**$ 506,911,406**	**$ 532,671,125**	**$ 565,758,305**	**$ 632,876,024**	**$ 684,127,756**	**$ 695,056,816**	**$ 719,350,833**	**$ 755,828,847**
Expenditures											
Operating	$ 230,031,338	$ 210,078,138	$ 217,735,935	$ 225,679,549	$ 233,919,892	$ 242,468,300	$ 251,336,552	$ 260,536,888	$ 270,082,024	$ 279,985,175	$ 290,260,073
Debt Service	129,182,714	144,664,206	212,294,651	238,141,403	249,920,238	283,477,430	329,076,428	349,309,562	369,762,606	377,309,796	402,033,342
Revenue Funded Capital	17,366,500	37,404,312	49,854,712	57,185,000	44,283,000	39,463,000	88,690,000	93,770,000	58,928,000	63,386,000	51,377,000
Total Year End Expenditures	**$ 376,580,552**	**$ 392,146,656**	**$ 479,885,298**	**$ 521,005,952**	**$ 528,123,130**	**$ 565,408,730**	**$ 669,102,980**	**$ 703,616,450**	**$ 698,772,629**	**$ 720,680,971**	**$ 743,670,415**
Gross Year End Cash Flow	$ 16,080,281	$ (23,608,907)	$ (1,240,369)	$ (14,094,546)	$ 4,547,996	$ 349,576	$ (36,226,956)	$ (19,488,694)	$ (3,715,814)	$ (1,330,137)	$ 12,158,432
Year End Debt Coverage (without Reserves)	**1.26 x**	**1.10 x**	**1.23 x**	**1.18 x**	**1.20 x**	**1.14 x**	**1.16 x**	**1.21 x**	**1.15 x**	**1.16 x**	**1.16 x**
Year End Debt Coverage (with Reserves)	**3.19 x**	**2.27 x**	**1.73 x**	**1.57 x**	**1.60 x**	**1.51 x**	**1.38 x**	**1.37 x**	**1.29 x**	**1.31 x**	**1.33 x**
Expenditures Coverage	**108%**	**81%**	**49%**	**41%**	**43%**	**43%**	**29%**	**21%**	**20%**	**19%**	**24%**

SFPUC
Water Financial Model
Functional Alloca

carollo

	Allocation Test Years
Start	FYE 2015
End	FYE 2019

Functional Allocation			Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Fire protection	As All Other	Total	Notes/Sources
Asset Allocation	**Value**										
Water Assets											
Source of Supply	$ 34,585,201	100%	100%						0%	100%	Allocation of Net Plant Assets from Previous Study
Pumping Plant	$ 44,109,606	100%	86%	14%					0%	100%	
Transmission	$ 42,422,271	80%	86%	14%					0%	100%	
Treatment	$ 30,059,154	100%	86%	14%					0%	100%	
Storage	$ 65,102,794	60%	46%	8%	46%				0%	100%	
Distribution	$ 138,720,574	80%	46%	8%	41%			5%	0%	100%	
Meters	$ 12,266,961	100%				100%			0%	100%	
Services	$ 20,694,286	100%					100%		0%	100%	
Hydrants	$ -	100%						100%	0%	100%	
Customer Billing	$ -	100%					100%		0%	100%	
Laboratory	$ -	100%	86%	14%					0%	100%	
General Plant	$ 3,754,239	100%							100%	100%	
									100%	100%	
									100%	100%	
									100%	100%	
									100%	100%	
Asset Allocation Subtota	$ 391,715,086		$ 228,612,237	$ 32,628,614	$ 86,822,721	$ 12,266,961	$ 20,694,286	$ 6,936,029	$ 3,754,239		
Reallocation of As All Others			$ 2,212,246	$ 315,742	$ 840,170	$ 118,706	$ 200,256	$ 67,119	$ (3,754,239)		
Total Dollar Allocation	**$ 391,715,086**		**$ 230,824,483**	**$ 32,944,356**	**$ 87,662,891**	**$ 12,385,667**	**$ 20,894,542**	**$ 7,003,148**	**$ -**		
Total Percent Allocation			**59%**	**8%**	**22%**	**3%**	**5%**	**2%**	**0%**		

Allocations	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Fire protection	As All Other	Total
Fixed Assets	59%	8%	22%	3%	5%	2%	0%	100%
Base Only	100%						0%	100%
Max Day	81%	14%				5%	0%	100%
Max Hour	60%	20%	15%			5%	0%	100%
Peak Only		25%	75%				0%	100%
Customer Service Only					100%		0%	100%
Meter Charges				100%			0%	100%
Base/Peak	62%	10%	23%			5%	0%	100%
Base/Peak/Capacity	40%	40%		20%			0%	100%
Account/Meter				50%	50%		0%	100%
As All Other							100%	100%
User Input								

Debt Allocation	Value		Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Fire protection	As All Other	Total	Notes/Sources
1991A	$1,280,000	Fixed Assets	59%	8%	22%	3%	5%	2%	0%	100%	Refunding bond - Assumed same allocation as existing assets
2006A	20,981,728	[Input]	85%	15%	0%	0%	0%	0%	0%	100%	Debt allocated based on weighted average of projects included
2006B	10,047,966	Fixed Assets	59%	8%	22%	3%	5%	2%	0%	100%	Refunding bond - Assumed same allocation as existing assets
2006C	3,754,622	Fixed Assets	59%	8%	22%	3%	5%	2%	0%	100%	Refunding bond - Assumed same allocation as existing assets
2009A	16,850,223	[Input]	86%	9%	5%	0%	0%	0%	0%	100%	Debt allocated based on weighted average of projects included
2009B	11,456,551	[Input]	87%	11%	3%	0%	0%	0%	0%	100%	Debt allocated based on weighted average of projects included
2010A	4,514,479	Customer Service Only	0%	0%	0%	0%	100%	0%	0%	100%	
2010B	23,261,027	[Input]	87%	12%	0%	0%	0%	0%	0%	100%	Debt allocated based on weighted average of projects included
2010C	1,135,367	Fixed Assets	59%	8%	22%	3%	5%	2%	0%	100%	Refunding bond - Assumed same allocation as existing assets
p 2010D	6,159,903	[Input]	87%	12%	1%	0%	0%	0%	0%	100%	Debt allocated based on weighted average of projects included
2010E	5,052,361	[Input]	87%	13%	0%	0%	0%	0%	0%	100%	Debt allocated based on weighted average of projects included
2010F	3,976,520	[Input]	86%	14%	0%	0%	0%	0%	0%	100%	Debt allocated based on weighted average of projects included
2010G	5,462,497	[Input]	91%	9%	0%	0%	0%	0%	0%	100%	Debt allocated based on weighted average of projects included
2011A	11,654,917	[Input]	91%	9%	0%	0%	0%	0%	0%	100%	Debt allocated based on weighted average of projects included
h 2011B	593,237	Max Day	81%	14%	0%	0%	0%	5%	0%	100%	Debt issued for Hetch Hetchy distribution
lc 2011C	2,210,023	Max Day	81%	14%	0%	0%	0%	5%	0%	100%	Debt issued for local main
2011D	3,471,237	Fixed Assets	59%	8%	22%	3%	5%	2%	0%	100%	Refunding bond - Assumed same allocation as existing assets
V 2012A	13,949,115	Fixed Assets	59%	8%	22%	3%	5%	2%	0%	100%	
la 2012B	683,450	Fixed Assets	59%	8%	22%	3%	5%	2%	0%	100%	
2012C	4,403,500	Fixed Assets	59%	8%	22%	3%	5%	2%	0%	100%	Refunding bond - Assumed same allocation as existing assets

2012D	4,728,675	Fixed Assets	59%	8%	22%	3%	5%	2%	0%	100%	Refunding bond - Assumed same allocation as existing assets
BAWSCA Defeasement	(15,406,241)	As All Other	0%	0%	0%	0%	0%	0%	100%	100%	
	$ 155,627,397		$ 119,222,537	$ 16,157,751	$ 11,059,681	$ 1,373,973	$ 6,832,363	$ 981,092	$ (15,406,241)		
Reallocation of As All Others			(11,802,364)	(1,599,527)	(1,094,847)	(136,016)	(676,366)	(97,123)	15,406,241		
Total Dollar Allocation	**$ 140,221,155**		**$ 107,420,173**	**$ 14,558,224**	**$ 9,964,835**	**$ 1,237,957**	**$ 6,155,997**	**$ 883,969**	**$ -**		
	90%		**77%**	**10%**	**7%**	**1%**	**4%**	**1%**	0%		
Percent to Reallocate	**10%**					**100%**					
Total Percent Allocation			**69%**	**9%**	**6%**	**11%**	**4%**	**1%**	0%		
			$ 107,300,283	$ 14,541,976	$ 9,953,713	$ 16,799,315	$ 6,149,126	$ 882,983			

O&M Allocation	Costs	Allocation	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Fire protection	As All Other	Total
Administration										
Salaries	$ 1,485,850	Account/Meter	0%	0%	0%	50%	50%	0%	0%	100%
Hetch Hetchy	$ 37,525,821	Base Only	100%	0%	0%	0%	0%	0%	0%	100%
Mandatory Fringe Benef	$ 5,137,229	Meter Charges	0%	0%	0%	100%	0%	0%	0%	100%
COWCAP	$ -	Meter Charges	0%	0%	0%	100%	0%	0%	0%	100%
Non Personal Services	$ 2,106,749	Meter Charges	0%	0%	0%	100%	0%	0%	0%	100%
Materials and Supplies	$ 58,416	Meter Charges	0%	0%	0%	100%	0%	0%	0%	100%
Capital Purchases	$ -	Meter Charges	0%	0%	0%	100%	0%	0%	0%	100%
UA Services of SFPUC	$ 7,831,164	Customer Service Only	0%	0%	0%	0%	100%	0%	0%	100%
Services of Other Depar	$ 47,494,977	As All Other	0%	0%	0%	0%	0%	0%	100%	100%
[Other]	$ -	Customer Service Only	0%	0%	0%	0%	100%	0%	0%	100%
City Distribution										
Salaries	$ 20,740,912	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Mandatory Fringe Benef	$ 8,723,853	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Overhead	$ -	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Non Personal Services	$ 2,246,193	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Materials and Supplies	$ 2,647,683	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Capital Purchases	$ 943,741	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Services of Other Depar	$ 4,919,190	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
[Other]	$ -	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Water Quality										
Salaries	$ 8,664,287	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Mandatory Fringe Benef	$ 3,522,882	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Overhead	$ -	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Non Personal Services	$ 3,241,426	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Materials and Supplies	$ 1,142,084	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Capital Purchases	$ 392,747	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Services of Other Depar	$ 2,817	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
[Other]	$ -	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Water Supply and Treatment										
Salaries	$ 22,373,381	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Mandatory Fringe Benef	$ 9,581,680	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Overhead	$ -	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Non Personal Services	$ 3,552,905	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Materials and Supplies	$ 10,823,345	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Capital Purchases	$ 615,818	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Services of Other Depar	$ 7,238,717	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
[Other]	$ -	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Natural Resources										
Salaries	$ 6,866,615	Base Only	100%	0%	0%	0%	0%	0%	0%	100%
Mandatory Fringe Benef	$ 2,984,666	Base Only	100%	0%	0%	0%	0%	0%	0%	100%
Overhead	$ -	Base Only	100%	0%	0%	0%	0%	0%	0%	100%
Non Personal Services	$ 1,344,969	Base Only	100%	0%	0%	0%	0%	0%	0%	100%
Materials and Supplies	$ 440,163	Base Only	100%	0%	0%	0%	0%	0%	0%	100%
Capital Purchases	$ 189,268	Base Only	100%	0%	0%	0%	0%	0%	0%	100%
Services of Other Depar	$ 201,527	Base Only	100%	0%	0%	0%	0%	0%	0%	100%
[Other]	$ -	Base Only	100%	0%	0%	0%	0%	0%	0%	100%
		0.051348284								
Water Resources										
Salaries	$ 2,846,090	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Mandatory Fringe Benef	$ 1,234,963	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Overhead	$ -	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Non Personal Services	$ 929,118	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%

City Grants	$	3,275,714	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Materials and Supplies	$	404,280	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Capital Purchases	$	38,279	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Services of Other Depar	$	458,525	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
[Other]	$	-	Base/Peak	62%	10%	23%	0%	0%	5%	0%	100%
Other Expenditures											
Main Break	$	-	As All Other	0%	0%	0%	0%	0%	0%	100%	100%
Bureau Cost	$	-	As All Other	0%	0%	0%	0%	0%	0%	100%	100%
[Other]	$	-	As All Other	0%	0%	0%	0%	0%	0%	100%	100%
[Other]	$	-	As All Other	0%	0%	0%	0%	0%	0%	100%	100%
[Other]	$	-	As All Other	0%	0%	0%	0%	0%	0%	100%	100%
[Other]	$	-	As All Other	0%	0%	0%	0%	0%	0%	100%	100%
[Other]	$	-	As All Other	0%	0%	0%	0%	0%	0%	100%	100%
O&M Allocation Subtotal	$	234,228,045		$ 124,300,621	$ 12,056,063	$ 27,728,945	$ 8,045,318	$ 8,574,090	$ 6,028,032	$ 47,494,977	
Reallocation of As All Others				31,615,478	3,066,422	7,052,771	2,046,302	2,180,793	1,533,211	(47,494,977)	
Total Dollar Allocation	**$**	**234,228,045**		**$155,916,098**	**$15,122,485**	**$34,781,716**	**$10,091,620**	**$10,754,883**	**$7,561,243**	**$ -**	
Total Percent Allocation		**100%**		**67%**	**6%**	**15%**	**4%**	**5%**	**3%**	**0%**	
Total O&M Allocation Override										100%	
Total O&M Allocation				**67%**	**6%**	**15%**	**4%**	**5%**	**3%**	**0%**	

Rev Req Allocation	Costs		Allocation	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Fire protection	As All Other	Total
Expense Categories											
Operating Expenses	$	234,228,045	[O&M Allocation]	67%	6%	15%	4%	5%	3%	0%	100%
Debt Service	$	262,582,030	[Debt Allocation]	69%	9%	6%	11%	4%	1%	0%	100%
Additions to meet min fu	$	55,895,142	As All Other	0%	0%	0%	0%	0%	0%	100%	100%
Additional Revenues From Override			As All Other	0%	0%	0%	0%	0%	0%	100%	100%
Year End Cash Flow	$	(9,332,860)	As All Other	0%	0%	0%	0%	0%	0%	100%	100%
Less: Offsetting Revenues											
Other Non-Rate Revenu	$	(277,967,136)	As All Other	0%	0%	0%	0%	0%	0%	100%	100%
Total Revenue to be Colle	$	265,405,222		$ 336,958,297	$ 39,658,407	$ 51,576,100	$ 38,436,233	$ 21,129,985	$ 9,051,054	$ (231,404,854)	
Reallocation of As All Others				(156,948,881)	(18,472,145)	(24,023,184)	(17,902,879)	(9,841,952)	(4,215,812)	231,404,854	
Total Dollar Allocation	**$**	**265,405,222**		**$ 180,009,416**	**$ 21,186,262**	**$ 27,552,916**	**$ 20,533,353**	**$ 11,288,032**	**$ 4,835,242**	**$ -**	
Total Rev Req Allocation				**68%**	**8%**	**10%**	**8%**	**4%**	**2%**	**0%**	

BMP 1.4		
Option 1	V/(V+M)	88%
Option 2		

	Operating	Capital	
Rev Req			
Operating Expenses	$ 234,228,045		
Debt Service		$ 262,582,030	
Additions to meet min fun	$ 55,895,142		
Additional Revenues Fron	$ -		
Year End Cash Flow	$ (9,332,860)		
Subtotal	$ 280,790,328	$ 262,582,030	$ 543,372,358
Offsetting rev			
Wholesale	$ 94,003,682	$ 159,932,384	
Other	$ 24,031,070		
Subtotal	$ 118,034,752	$ 159,932,384	
Total	$ 162,755,576	$ 102,649,646	$ 265,405,222
	61.32%	38.68%	

SFPUC
Water Financial Model
Customer Allocation

carollo

Test Year	2015

	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Fire protection	Total
From Functional Allocation	68%	8%	10%	8%	4%	2%	100%
Cost Allocated to Category	$ 145,484,954	$ 17,122,895	$ 22,268,472	$ 16,595,210	$ 9,123,072	$ 3,907,879	$ 214,502,482

Basis of Allocation to Customer Class	**Percent of Capital Included**	**Usage**	**Maximum Day Usage**	**Maximum Hour Usage**	**Meter Equivalents**	**Customer Accounts**	**Hydrant Equivalents**
	38.68%	CCF	CCF	CCF	Units	Units	Units
Single Family Residential	100%	7,848,355	2,354,507	11,144,664	123,882	112,870	-
Multi-family Residential	100%	10,778,776	3,233,633	15,305,861	94,366	37,669	-
Commercal, Industrial, General	100%	10,529,786	4,211,914	16,847,658	61,537	17,041	-
Public Uses	100%	1,163,145	348,944	1,646,050	15,339	1,704	-
Interruptible	85%	1,075,849	322,755	1,522,511	4,789	1,518	-
Docks and Shipping	100%	281,798	338,158	870,756	51	3	-
Fire Service	100%	22,709	9,084	36,334	-	8,578	230,428
Builders and Contractors	100%	76,582	68,924	193,752	1,906	202	-
Contract	100%	134,945	53,978	215,912	260	14	-
Non-Res Irrigation	100%	-	-	-	-	-	-
Res Irrigation	100%	-	-	-	-	-	-
Airport	100%	575,054	517,549	1,454,887	550	6	-
Total		32,486,998	11,459,443	49,238,386	302,679	179,604	230,428

Percent Allocated to Each Customer Class	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Fire protection
Single Family Residential	24.2%	20.5%	22.6%	40.9%	62.8%	0.0%
Multi-family Residential	33.2%	28.2%	31.1%	31.2%	21.0%	0.0%
Commercal, Industrial, General	32.4%	36.8%	34.2%	20.3%	9.5%	0.0%
Public Uses	3.6%	3.0%	3.3%	5.1%	0.9%	0.0%
Interruptible	3.3%	2.8%	3.1%	1.6%	0.8%	0.0%
Docks and Shipping	0.9%	3.0%	1.8%	0.0%	0.0%	0.0%
Fire Service	0.1%	0.1%	0.1%	0.0%	4.8%	100.0%
Builders and Contractors	0.2%	0.6%	0.4%	0.6%	0.1%	0.0%
Contract	0.4%	0.5%	0.4%	0.1%	0.0%	0.0%
Non-Res Irrigation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Res Irrigation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Airport	1.8%	4.5%	3.0%	0.2%	0.0%	0.0%
Allocated Customer Costs	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Allocated Costs	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Fire protection	Total
Single Family Residential	35,146,909	3,518,144	5,040,268	6,792,165	5,733,270	-	$ 56,230,756
Multi-family Residential	48,270,069	4,831,749	6,922,204	5,173,884	1,913,400	-	67,111,306
Commercal, Industrial, General	47,155,032	6,293,514	7,619,494	3,373,936	865,615	-	65,307,592
Public Uses	5,208,856	521,397	744,440	840,999	86,551	-	7,402,243

Interruptible	4,817,922	482,265	688,568	262,567	77,107	-	6,328,429
Docks and Shipping	1,261,962	505,281	393,807	2,769	171	-	2,163,990
Fire Service	101,697	13,573	16,433	-	435,708	3,907,879	4,475,289
Builders and Contractors	342,953	102,987	87,626	104,502	10,252	-	648,321
Contract	604,318	80,655	97,648	14,232	693	-	797,545
Non-Res Irrigation	-	-	-	-	-	-	-
Res Irrigation	-	-	-	-	-	-	-
Airport	2,575,237	773,330	657,985	30,155	305	-	4,037,011
Allocated Customer Costs	**$145,484,954**	**$17,122,895**	**$22,268,472**	**$16,595,210**	**$9,123,072**	**$3,907,879**	**$ 214,502,482**
Checks	Correct	Correct	Correct	Correct	Correct	Correct	Correct

Unit Charges	**Consumption**	**Consumption**	**Consumption**	**Meter Equivalents**	**Customer Accounts**	**Hydrant Equivalents**	
Customer Accounts	$ 4.48	$ 1.49	$ 0.45	$ 4.57	$ 4.23	$ 1.41	

Recovered through Fixed Meter Charges	**0%**	**0%**	**0%**	**100%**	**100%**	**100%**	
Recovered through Variable Rates	100%	100%	100%	0%	0%	0%	

Monthly Fixed Meter Charges								
5/8 in	1.00	$ -	$ -	$ -	$ 4.57	$ 4.23	$ -	$ 8.81
3/4 in	1.50	$ -	$ -	$ -	$ 6.85	$ 4.23	$ -	11.09
1 in	2.50	$ -	$ -	$ -	$ 11.42	$ 4.23	$ -	15.66
1-1/2 in	5.00	$ -	$ -	$ -	$ 22.84	$ 4.23	$ -	27.08
2 in	8.00	$ -	$ -	$ -	$ 36.55	$ 4.23	$ -	40.79
3 in	15.00	$ -	$ -	$ -	$ 68.53	$ 4.23	$ -	72.77
4 in	25.00	$ -	$ -	$ -	$ 114.22	$ 4.23	$ -	118.46
6 in	50.00	$ -	$ -	$ -	$ 228.45	$ 4.23	$ -	232.69
8 in	80.00	$ -	$ -	$ -	$ 365.52	$ 4.23	$ -	369.76
10 in	115.00	$ -	$ -	$ -	$ 525.43	$ 4.23	$ -	529.67
12 in	215.00	$ -	$ -	$ -	$ 982.33	$ 4.23	$ -	986.57
16 in	375.00	$ -	$ -	$ -	$ 1,713.37	$ 4.23	$ -	1,717.61

Fire								
				$ -	$ 435,708.19	$ 3,907,878.63		
		Meters	**Hydrant Equiv**	-	4.23	1.413		
5/8 in	1.00	-	-	$ -			$	-
3/4 in	1.50	-	-	$ -			$	-

1 in	2.50	535	1,338	$ -	$ 4.23	$ 3.53	$ 7.77
1-1/2 in	5.00	2,838	14,191	$ -	$ 4.23	$ 7.07	11.30
2 in	8.00	30,493	243,941	$ -	$ 4.23	$ 11.31	15.54
3 in	15.00	11,724	175,866	$ -	$ 4.23	$ 21.20	25.44
4 in	25.00	31,491	787,264	$ -	$ 4.23	$ 35.33	39.57
6 in	50.00	18,716	935,788	$ -	$ 4.23	$ 70.66	74.90
8 in	80.00	6,737	538,949	$ -	$ 4.23	$ 113.06	117.30
10 in	115.00	180	20,675	$ -	$ 4.23	$ 162.53	166.76
12 in	215.00	219	47,123	$ -	$ 4.23	$ 303.85	308.09
16 in	375.00	-	-	$ -			-
		102,933	**2,765,135**				

Single Family Residential Tiers

	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Fire protection	Total
	$ 35,146,909	**$ 3,518,144**	**$ 5,040,268**	**$ -**	**$ -**	**$ -**	**$ 43,705,320**

Projected Water Usage (ccf)		% of Peak		**Consumption**		**Base**	**Peak**	**Total**	Proposed Rate
Tier 1		0%		3,578,671	46%	$ 16,026,191	$ -	$ 16,026,191	$ 4.48
Tier 2		100%	3.0 ccf	4,269,684	54%	$ 19,120,718	$ 8,558,411	$ 27,679,129	$ 6.49
Tier 3	No	0%	9.0 ccf	-	0%	$ -	$ -	$ -	$ -
Total				7,848,355		$ 35,146,909	$ 8,558,411	$ 43,705,320	

Single Family Residential with Large Family Adjustment

	$ 35,146,909	**$ 3,518,144**	**$ 5,040,268**	**$ -**	**$ -**	**$ -**	**$ 43,705,320**

Projected Water Usage (ccf)		% of Peak		**Consumption**		**Base**	**Peak**	**Total**	Proposed Rate
Tier 1		20%		4,504,146	57%	$ 20,170,699	$ 1,711,682	$ 21,882,381	$ 4.86
Tier 2		80%	4.0 ccf	3,344,209	43%	$ 14,976,210	$ 6,846,729	$ 21,822,939	$ 6.53
Tier 3	No	0%	9.0 ccf	-	0%	$ -	$ -	$ -	$ -
Total				7,848,355		$ 35,146,909	$ 8,558,411	$ 43,705,320	

Adjustment for large household	6-7	4,563,485		$ 21,882,381	$ 4.80
	8-9	3,284,870		$ 21,822,939	$ 6.65
	10+			$ -	
		7,848,355			

Multi Family Residential Tiers

Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Fire protection	Total

				$	48,270,069	$	4,831,749	$	6,922,204	$	-	$	-	$	-	$	60,024,022

Projected Water Usage (ccf)		% of Peak		Consumption		Base	Peak	Total	Proposed Rate
Tier 1		30%		7,048,926	65%	$ 31,566,866	$ 3,526,186	$ 35,093,052	$ 4.98
Tier 2		70%	3.0 ccf	3,729,849	35%	$ 16,703,204	$ 8,227,767	$ 24,930,971	$ 6.69
Tier 3	No	0%	7.0 ccf	-	0%	$ -	$ -	$ -	$ -
Total				10,778,776		$ 48,270,069	$ 11,753,953	$ 60,024,022	

Interruptible Rate

	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Fire protection	Total
Percent of Capital Included in Charge 85%	$ 4,817,921.52	$ 482,265.46	$ 688,568.40	$ 262,566.89	$ 77,106.83	$ -	$ 6,328,429.11

	Price
5/8 in	$ 8.81
3/4 in	$ 11.09
1 in	$ 15.66
1-1/2 in	$ 27.08
2 in	$ 40.79
3 in	$ 72.77
4 in	$ 118.46
6 in	$ 232.69
8 in	$ 369.76
10 in	$ 529.67
12 in	$ 986.57
16 in	$ 1,717.61
Annual Revenue	$ 325,317.84

Annual Revenue from Meter Charges
$ 325,317.84

Remaining to be Collected from Consumption Charges
$ 6,003,111.27

Units (ccf)
1,142,108

Unit Charge	Current Rate	Percent Change
$ 5.26	$ 3.25	61.7%

Reduction from General Rate: 9%

W-1C

	Base	Peak Day	Peak Hour	Meter Charges	Customer Service	Fire protection	Total
Costs	$ 47,155,031.70	$ 6,293,514.14	$ 7,619,494.24	$ -	$ -	$ -	$ 61,068,040.07
Units							10529786
Unit Charge							**$ 5.80**

	Allocated Cost	Usage (ccf)	Unit Cost ($/ccf)
Commercal, Industrial, General	**$ 61,068,040**	10,529,786	$ 5.80
Public Uses	**$ 6,474,693**	1,163,145	$ 5.57
Interruptible	**$ 5,988,755**	1,142,108	$ 5.24
Docks and Shipping	**$ 2,161,050**	281,798	$ 7.67
Fire Service	**$ 131,702**	22,709	$ 5.80
Builders and Contractors	**$ 533,567**	76,582	$ 6.97
Contract	**$ 782,621**	134,945	$ 5.80
Non-Res Irrigation	**$ -**	0	#DIV/0!
Res Irrigation	**$ -**	0	#DIV/0!

Water Enterprise FY 2014 - 2023 Ten Year Programmatic Plan

San Francisco Public Utilities Commission

	A	B	C	D	E	F	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	**USES**	**Project**		**Available Balance as of 6/30/13**		**FY 13-14**	**FY 14-15**	**FY 15-16**	**FY 16-17**	**FY 17-18**	**FY 18-19**	**FY 19-20**	**FY 20-21**	**FY 21-22**	**FY 22-23**	1	**FY 13-22**	**FY 14-23**	**Change**
2	**Project**															2			
3	Natural Resources Planning	CUW257		5,672,113		500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	0	3	5,000,000	4,500,000	(500,000)
4	Long Term Monitoring & Permit Program	CUW271		4,547,603		3,520,000	4,629,000	6,752,000	14,506,000	8,996,000	5,289,000	5,284,000	5,789,000	6,151,000	0	4	68,722,000	60,916,000	(7,806,000)
5	Water Resource Planning & Development	PUW502		1,819,482		2,100,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	0	0	5	9,100,000	9,100,000	0
6	Landscape Conservation Program	CUW265		3,255,384		1,500,000	2,000,000	2,000,000	0	0	0	0	0	0	0	6	5,500,000	5,500,000	0
7	AWSS Maintenance	FUW101		564,003		500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	0	7	4,500,000	4,500,000	0
8	Treasure Island Facilities Maintenance	PUW511		713,790		1,132,000	1,165,000	1,200,000	1,236,000	1,273,000	1,311,000	1,350,000	1,390,000	1,431,000	0	8	11,488,000	11,488,000	0
9	Youth Employment Project	PYEAES06		71,750		1,290,000	1,150,000	1,150,000	1,150,000	1,150,000	1,150,000	1,150,000	1,150,000	1,150,000	0	9	10,490,000	10,490,000	0
10	Watershed Protection	FUW10201		0		1,996,000	1,696,000	1,196,000	1,196,000	1,196,000	1,196,000	1,196,000	1,196,000	1,196,000	0	10	13,260,000	12,064,000	(1,196,000)
11	Surety Bonds Program	PUW513		0		31,712	31,712	0	0	0	0	0	0	0	0	11	63,424	63,424	0
12	17th & Folsom Remediation	PUW516		1,200,000		0	0	0	0	0	0	0	0	0	0	12	0	0	0
13	**Subtotal**			**17,844,125**		**12,569,712**	**12,671,712**	**14,298,000**	**20,088,000**	**14,615,000**	**10,946,000**	**10,980,000**	**11,525,000**	**10,928,000**	**0**	13	**128,123,424**	**118,621,424**	**(9,502,000)**
14																14			
15	525 Golden Gate - Operations & Maintenance	PUW514		323,758		2,240,000	2,300,000	2,370,000	2,440,000	2,513,000	2,588,000	2,665,000	2,745,000	2,827,000	0	15	22,688,000	22,688,000	0
16	525 Golden Gate - Lease Payment	PUW515		261,556		9,167,000	9,166,000	9,167,000	9,169,000	9,168,000	9,168,000	9,169,000	9,167,000	9,169,000	0	16	82,510,000	82,510,000	0
17	**Subtotal**			**585,314**		**11,407,000**	**11,466,000**	**11,537,000**	**11,609,000**	**11,681,000**	**11,756,000**	**11,834,000**	**11,912,000**	**11,996,000**	**0**	17	**105,198,000**	**105,198,000**	**0**
18																18			
19				**18,429,439**		**23,976,712**	**24,137,712**	**25,835,000**	**31,697,000**	**26,296,000**	**22,702,000**	**22,814,000**	**23,437,000**	**22,924,000**	**0**	19	**233,321,424**	**223,819,424**	**(9,502,000)**
20																20			
21	**SOURCES**			**Available Balance**		**FY 13-14**	**FY 14-15**	**FY 15-16**	**FY 16-17**	**FY 17-18**	**FY 18-19**	**FY 19-20**	**FY 20-21**	**FY 21-22**	**FY 22-23**	21	**FY 13-22**	**FY 14-23**	**Change**
22	Infrastructure - Recovery Capital (O&M)			0		930,000	958,000	987,000	1,016,000	1,046,000	1,077,000	1,109,000	1,142,000	1,176,000	0	22	9,441,000	9,441,000	0
23	Infrastructure - Recovery Capital (Lease)			0		3,806,000	3,426,000	2,903,000	2,650,000	2,650,000	2,650,000	2,650,000	2,649,000	2,650,000	0	23	26,034,000	26,034,000	0
24	Federal Bond Interest Subsidy			0		2,089,000	2,089,000	2,089,000	2,089,000	2,089,000	2,089,000	2,089,000	2,089,000	2,089,000	0	24	18,801,000	18,801,000	0
25	Revenue			0		17,151,712	17,664,712	19,856,000	25,942,000	20,511,000	16,886,000	16,966,000	17,557,000	17,009,000	0	25	179,045,424	169,543,424	(9,502,000)
26	**Total SOURCES**			**0**		**23,976,712**	**24,137,712**	**25,835,000**	**31,697,000**	**26,296,000**	**22,702,000**	**22,814,000**	**23,437,000**	**22,924,000**	**0**	26	**233,321,424**	**223,819,424**	**(9,502,000)**
27																27			
28	Total Sources			-		23,976,712	24,137,712	25,835,000	31,697,000	26,296,000	22,702,000	22,814,000	23,437,000	22,924,000	0	28	233,321,424	223,819,424	(9,502,000)
29	Total Uses			-		23,976,712	24,137,712	25,835,000	31,697,000	26,296,000	22,702,000	22,814,000	23,437,000	22,924,000	0	29	233,321,424	223,819,424	(9,502,000)
30	NET (Sources - Uses)					0	0	0	0	0	0	0	0	0	0	30	0	0	0

Water Enterprise FY 2014 - 2023 Ten Year CIP

San Francisco Public Utilities Commission

USES	Project	Available Balance as of 6/30/13	FY 13-14	FY 14-15	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 13-22	FY 14-23	Change
REGIONAL WATER															
Water Treatment Program															
Tesla UV Facility	CUW27201	270,956	600,000	600,000	600,000	600,000	280,000	280,000	280,000	280,000	280,000	280,000	4,233,000	4,080,000	(153,000)
SVWTP & East Bay Fields	CUW27202	323,737	1,900,000	5,900,000	700,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	12,400,000	11,300,000	(1,100,000)
HTWTP & West Bay Fields	CUW27203	88,175	2,336,000	2,341,000	2,347,000	1,052,000	1,209,000	1,214,000	1,221,000	1,228,000	1,234,000	1,234,000	15,212,000	15,416,000	204,000
Subtotal		**682,868**	**4,836,000**	**8,841,000**	**3,647,000**	**2,052,000**	**1,889,000**	**1,894,000**	**1,901,000**	**1,908,000**	**1,914,000**	**1,914,000**	**31,845,000**	**30,796,000**	**(1,049,000)**
Water Transmission Program															
Unallocated Budget	CUW27300	935,233	0	0	0	0	0	0	0	0	0	0	0	0	0
Pipeline Inspection and Repair Project	CUW27302	816,528	1,010,000	1,010,000	1,010,000	1,010,000	1,080,000	1,080,000	1,080,000	1,080,000	1,080,000	1,080,000	10,450,000	10,520,000	70,000
Pipeline Improvement Program	CUW27305	673,607	800,000	4,100,000	7,600,000	300,000	7,100,000	50,800,000	50,100,000	100,000	100,000	100,000	121,700,000	121,100,000	(600,000)
Valve Replacement	CUW27306	506,000	508,000	508,000	1,013,000	1,013,000	1,350,000	1,350,000	1,350,000	1,350,000	1,350,000	1,350,000	10,300,000	11,142,000	842,000
Metering Upgrades	CUW27303	(358)	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	2,000,000	2,000,000	0
Corrosion Protection Capital Upgrades	CUW27301	386,433	1,550,000	1,850,000	1,850,000	1,850,000	1,900,000	1,900,000	1,900,000	1,900,000	1,900,000	1,900,000	18,050,000	18,500,000	450,000
Pump Station Upgrades	CUW27304	5,000	1,025,000	910,000	910,000	910,000	1,180,000	1,180,000	1,180,000	1,180,000	1,180,000	1,180,000	9,655,000	10,835,000	1,180,000
Vault Upgrades	CUW27307	338,000	338,000	338,000	338,000	338,000	675,000	675,000	675,000	675,000	675,000	675,000	5,065,000	5,402,000	337,000
Calaveras Micro Turbine		0	2,500,000	1,500,000	0	0	0	0	0	0	0	0	4,900,000	4,000,000	(900,000)
Town of Sunol Fire Suppression System	CUW26308	448,531	6,084,000	0	0	0	0	0	0	0	0	0	4,830,000	6,084,000	1,254,000
Subtotal		**4,108,974**	**14,015,000**	**10,416,000**	**12,921,000**	**5,621,000**	**13,485,000**	**57,185,000**	**56,485,000**	**6,485,000**	**6,485,000**	**6,485,000**	**186,950,000**	**189,583,000**	**2,633,000**
Water Supply & Storage Program															
Dam Structural Upgrades (w/geotech)	CUW274	378,000	728,000	653,000	6,653,000	5,553,000	378,000	378,000	378,000	278,000	278,000	278,000	15,655,000	15,555,000	(100,000)
Desalination - Regional		0	2,500,000	4,500,000	4,000,000	2,500,000	20,000,000	20,000,000	15,450,000	0	0	0	68,950,000	68,950,000	0
Subtotal		378,000	**3,228,000**	**5,153,000**	**10,653,000**	**8,053,000**	**20,378,000**	**20,378,000**	**15,828,000**	**278,000**	**278,000**	**278,000**	**84,605,000**	**84,505,000**	**(100,000)**
Watersheds & Land Management															
Unallocated Budget	CUW27500	4,550,526	0	0	0	0	0	0	0	0	0	0	0	0	0
Watershed Structures Upgrades	CUW27511/02/03	532,442	710,000	710,000	710,000	710,000	710,000	710,000	710,000	710,000	710,000	710,000	7,100,000	7,100,000	0
Watershed Roads and ROW Management	CUW27512/15	60,613	3,604,000	3,404,000	2,804,000	1,504,000	1,504,000	1,504,000	1,504,000	1,504,000	1,504,000	1,504,000	34,200,000	20,340,000	(13,860,000)
Watershed Cottage/Buildings Upgrades	CUW27513	486,000	486,000	486,000	486,000	486,000	486,000	486,000	486,000	486,000	486,000	486,000	4,860,000	4,860,000	0
EBRPD Water System	CUW27514	42,532	800,000	500,000	0	0	0	0	0	0	0	0	1,500,000	1,300,000	(200,000)
Subtotal		**5,672,113**	**5,600,000**	**5,100,000**	**4,000,000**	**2,700,000**	**2,700,000**	**2,700,000**	**2,700,000**	**2,700,000**	**2,700,000**	**2,700,000**	**47,660,000**	**33,600,000**	**(14,060,000)**
Communication & Monitoring Program															
Microwave Backbone Upgrade	CUW27601	445,000	530,000	2,500,000	1,500,000	0	0	0	0	0	0	0	5,050,000	4,530,000	(520,000)
WSTD Security System		0	0	1,000,000	500,000	550,000	550,000	500,000	500,000	500,000	500,000	500,000	0	5,100,000	5,100,000
Subtotal		**445,000**	**530,000**	**3,500,000**	**2,000,000**	**550,000**	**550,000**	**500,000**	**500,000**	**500,000**	**500,000**	**500,000**	**5,050,000**	**9,630,000**	**4,580,000**
Buildings and Grounds Programs															
Unallocated Budget	CUW27700	3,653,720	0	0	0	0	0	0	0	0	0	0	0	0	0
Sunol Yard Upgrade	CUW27701/02	1,191,093	5,113,000	18,775,000	12,675,000	525,000	0	0	0	0	0	0	24,438,000	37,088,000	12,650,000
Millbrae Yard Upgrade	CUW27703	1,971,282	10,320,000	2,620,000	54,990,000	4,160,000	0	0	0	0	0	0	72,090,000	72,090,000	0
Subtotal		**6,816,095**	**15,433,000**	**21,395,000**	**67,665,000**	**4,685,000**	**0**	**0**	**0**	**0**	**0**	**0**	**96,528,000**	**109,178,000**	**12,650,000**
REGIONAL WATER TOTAL		**18,103,050**	**43,642,000**	**54,405,000**	**100,886,000**	**23,661,000**	**39,002,000**	**82,657,000**	**77,414,000**	**11,871,000**	**11,877,000**	**11,877,000**	**452,638,000**	**457,292,000**	**4,654,000**
LOCAL WATER															
Local Water Conveyance /Distribution System	CUW280/260	28,408,129	44,185,000	53,700,000	53,700,000	53,700,000	53,700,000	53,700,000	53,700,000	53,700,000	53,700,000	53,700,000	498,406,000	527,485,000	29,079,000
Buildings & Grounds Improvements - Local	CUW688	3,186,085	500,000	500,000	525,000	525,000	525,000	25,000	0	0	0	0	5,100,000	2,600,000	(2,500,000)
SF Eastside Recycled Water - Local		0	0	0	0	0	183,640,000	7,460,000	7,520,000	1,380,000	0	0	200,000,000	200,000,000	0
Pacific Rod & Gun Club Remediation Project		0	1,400,000	10,950,000	0	0	0	0	0	0	0	0	0	12,350,000	12,350,000
Systems Monitoring & Control		0	0	1,510,000	5,900,000	5,800,000	0	0	0	0	0	0	0	13,210,000	13,210,000
Water Storage Facilities		0	0	200,000	420,000	5,760,000	2,360,000	0	0	0	0	0	0	8,740,000	8,740,000
Other Recycled Water Projects - Local	CUW278	505,000	910,000	986,000	3,925,000	0	0	0	0	0	0	0	6,326,000	5,821,000	(505,000)
Treasure Island Capital Upgrades	CUW270	6,961,558	3,000,000	3,000,000	0	0	0	0	0	0	0	0	6,000,000	6,000,000	0
LOCAL WATER TOTAL		**39,060,772**	**49,995,000**	**70,846,000**	**64,470,000**	**65,785,000**	**240,225,000**	**61,185,000**	**61,220,000**	**55,080,000**	**53,700,000**	**53,700,000**	**715,832,000**	**776,206,000**	**60,374,000**
Subtotal (less: Auxiliary Water Supply System)		**57,163,822**	**93,637,000**	**125,251,000**	**165,356,000**	**89,446,000**	**279,227,000**	**143,842,000**	**138,634,000**	**66,951,000**	**65,577,000**	**65,577,000**	**1,168,470,000**	**1,233,498,000**	**65,028,000**
Auxiliary Water Supply System	CUWAWS	54,785,300	29,814,000	89,300,000	8,686,000	0	0	0	0	100,000,000	0	0	93,982,000	227,800,000	133,818,000
		111,949,122	**123,451,000**	**214,551,000**	**174,042,000**	**89,446,000**	**279,227,000**	**143,842,000**	**138,634,000**	**166,951,000**	**65,577,000**	**65,577,000**	**1,262,452,000**	**1,461,298,000**	**198,846,000**

SOURCES	Available Balance	FY 13-14	FY 14-15	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 13-22	FY 14-23	Change
Revenue Funding														
Regional Revenue	-	17,942,600	31,204,000	33,404,000	18,341,000	18,952,000	51,804,000	51,804,000	11,371,000	11,377,000	11,377,000	287,035,000	257,576,600	(29,458,400)
Local Revenue	-	2,310,000	986,000	3,925,000	0	0	20,000,000	25,000,000	30,000,000	35,000,000	40,000,000	116,326,000	157,221,000	40,895,000
Total Revenue Sources	**0**	**20,252,600**	**32,190,000**	**37,329,000**	**18,341,000**	**18,952,000**	**71,804,000**	**76,804,000**	**41,371,000**	**46,377,000**	**51,377,000**	**403,361,000**	**414,797,600**	**11,436,600**
Debt Funding														
Regional Bonds	-	9,954,000	23,201,000	67,482,000	5,320,000	20,050,000	30,853,000	25,610,000	500,000	500,000	500,000	154,773,000	183,970,000	29,197,000
Local Bonds	-	0	3,960,752	57,545,000	63,785,000	238,225,000	39,185,000	34,220,000	22,080,000	18,700,000	13,700,000	590,336,000	491,400,752	(98,935,248)
BAB Interest Income/Regional	-	0	0	0	0	0	0	0	0	0	0	6,000,000	0	(6,000,000)
General Obligation Bonds	-	29,814,000	89,300,000	8,686,000	0	0	0	0	100,000,000	0	0	93,982,000	227,800,000	133,818,000
Total Debt Sources	**0**	**39,768,000**	**116,461,752**	**133,713,000**	**69,105,000**	**258,275,000**	**70,038,000**	**59,830,000**	**122,580,000**	**19,200,000**	**14,200,000**	**845,091,000**	**903,170,752**	**58,079,752**
Other Funding														
BAWSCA Pre-payment	-	61,702,476	64,399,248	0	0	0	0	0	0	0	0	0	126,101,724	126,101,724
Capacity Fee - Fund Balance	-	1,727,924	1,500,000	0	0	0	0	0	0	0	0	0	3,227,924	3,227,924
Capacity Fee - New Development	-	0	0	3,000,000	2,000,000	2,000,000	2,000,000	2,000,000	3,000,000	0	0	14,000,000	14,000,000	0
Total Other Sources	**0**	**63,430,400**	**65,899,248**	**3,000,000**	**2,000,000**	**2,000,000**	**2,000,000**	**2,000,000**	**3,000,000**	**0**	**0**	**14,000,000**	**143,329,648**	**129,329,648**
Total SOURCES	**0**	**123,451,000**	**214,551,000**	**174,042,000**	**89,446,000**	**279,227,000**	**143,842,000**	**138,634,000**	**166,951,000**	**65,577,000**	**65,577,000**	**1,262,452,000**	**1,461,298,000**	**198,846,000**
Total Sources	-	123,451,000	214,551,000	174,042,000	89,446,000	279,227,000	143,842,000	138,634,000	166,951,000	65,577,000	65,577,000	1,262,452,000	1,461,298,000	198,846,000
Total Uses	-	123,451,000	214,551,000	174,042,000	89,446,000	279,227,000	143,842,000	138,634,000	166,951,000	65,577,000	65,577,000	1,262,452,000	1,461,298,000	198,846,000
NET (Sources - Uses)		0	0	0	0	0	0	0	0	0	0	0	0	0