

DATE: March 26, 2018

TO: President and Members of the EMID Board of Directors

VIA: Kevin Miller, District Manager

FROM: Dante Hall, Assistant District Manager  
Edmund Suen, Finance Director

SUBJECT: REVIEW OF PROJECTED WATER RATES FOR FY 2018-2019; POLICY  
DIRECTION FOR RATE NOTIFICATION UNDER PROPOSITION 218

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### RECOMMENDATION

It is recommended that the Estero Municipal Improvement District (EMID) Board of Directors:

1. Review and approve the proposed water rates for FY 2018-2019 based on a conservation-based rate model with two tiers; and
2. Based on that direction, authorize District staff to establish the proposed water rates for FY 2018-2019 that will be noticed to all rate payers under the requirements of Proposition 218.

### EXECUTIVE SUMMARY

The EMID water enterprise is currently in good financial shape and its water service rates remain in the lower range compared to other agencies on the Bay Area Peninsula and is currently debt free. As of July 1, 2017, the Operating Reserve balance was \$1,483,791 to be used in case of an operational emergency or to smooth any “rate shocks” to water customers.

However, at 50 years old, EMID’s infrastructure is approaching the end of its expected life for a system of its kind. The District engaged Bartle Wells Associates (BWA) to develop 10-year financial projections for its Water Enterprise and to recommend water rate recommendations to cover maintenance, operations, and capital improvements for FY 2018-2019 and the following five-year period.

The table below shows the proposed water rates in the next fiscal year for EMID Board consideration and a projection of possible water rates in the future. Water bills include

both a fixed monthly charge based on meter size, plus a water consumption charge based on each customer's metered water use. The fixed monthly charge represents a flat rate charged to each customer for water delivery to their homes or business service lines, and is based upon the size of water meter.

Table 3  
City of Foster City / Estero Municipal Improvement District  
Proposed Water Rates - Two Tier Hybrid Model

Recommended Rates		TWO TIER HYBRID MODEL									
		Current Rates	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027
<b>Monthly Meter Charge</b>											
3/4"	\$19.85	\$21.45	\$23.15	\$23.85	\$24.55	\$25.30	\$26.05	\$26.85	\$27.65	\$28.50	\$29.35
1"	33.08	35.75	38.58	39.75	40.92	42.17	43.42	44.75	46.08	47.50	48.92
1-1/2"	79.40	85.80	92.60	95.40	98.20	101.20	104.20	107.40	110.60	114.00	117.40
2"	105.87	114.40	123.47	127.20	130.93	134.93	138.93	143.20	147.47	152.00	156.53
3"	231.58	250.25	270.08	278.25	286.42	295.17	303.92	313.25	322.58	332.50	342.42
4"	416.85	450.45	486.15	500.85	515.55	531.30	547.05	563.85	580.65	598.50	616.35
6"	926.33	1,001.00	1,080.33	1,113.00	1,145.67	1,180.67	1,215.67	1,253.00	1,290.33	1,330.00	1,369.67
8" or greater	1,588.00	1,716.00	1,852.00	1,908.00	1,964.00	2,024.00	2,084.00	2,148.00	2,212.00	2,280.00	2,348.00
<b>Conservation-Based Water Rate Model (based on bi-monthly allotments)</b>											
<b>Single Family Residential</b>											
Tier 1 0-20 per ccf	5.03	5.43	5.85	6.06	6.27	6.49	6.73	6.96	7.21	7.46	7.69
Tier 2 Over 20 ccf	6.06	6.10	6.58	6.80	7.04	7.22	7.40	7.62	7.85	8.09	8.30
<b>Multi-Family Residential (per living unit)</b>											
Tier 1 0-10 ccf per living unit	5.03	5.43	5.85	6.06	6.27	6.49	6.73	6.96	7.21	7.46	7.69
Tier 2 Over 10 ccf per living unit	5.62	6.10	6.58	6.81	7.04	7.23	7.40	7.62	7.85	8.09	8.30
<b>Irrigation Customers</b>											
Tier 1 <=100% of annual budget	5.03	5.43	5.85	6.06	6.27	6.49	6.73	6.96	7.21	7.46	7.69
Tier 2 >100% of annual budget	7.21	6.47	6.98	7.22	7.46	7.63	7.77	7.99	8.20	8.44	8.64
<b>Commercial and Fire Line Customers</b>											
Base Consumption Rate	5.15	5.54	5.98	6.19	6.40	6.62	6.84	7.07	7.32	7.57	7.79
<b>Monthly Fire Meter Charge</b>											
3/4"	27.79	30.03	32.41	33.39	34.37	35.42	36.47	37.59	38.71	39.90	41.09
1"	27.79	30.03	32.41	33.39	34.37	35.42	36.47	37.59	38.71	39.90	41.09
1-1/2"	27.79	30.03	32.41	33.39	34.37	35.42	36.47	37.59	38.71	39.90	41.09
2"	37.12	40.11	43.29	44.60	45.91	47.31	48.71	50.21	51.71	53.30	54.88
3"	80.99	87.52	94.45	97.31	100.16	103.22	106.28	109.55	112.81	116.28	119.75
4"	145.90	157.66	170.15	175.30	180.44	185.96	191.47	197.35	203.23	209.48	215.72
6"	324.15	350.28	378.04	389.47	400.90	413.15	425.40	438.46	451.52	465.41	479.29
8" or greater	555.80	600.60	648.20	667.80	687.40	708.40	729.40	751.80	774.20	798.00	821.80
(Minimum charge is equivalent to 1-1/2" meter charge)											

The following chart provides more information about how the proposed new rates impact the ratepayer in FY 2018-2019 and projects the impact into the future.

Table 5  
Foster City / Estero Municipal Improvement District  
Projected Water Rate Impacts

Projected Water Bills	Current	Fiscal Year Ending June 30,					Extended Year Projection				
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028

**Two Tier Hybrid Model**

Single Family Residential Monthly Rate	\$60.09	\$64.89	\$69.95	\$72.33	\$74.71	\$77.22	\$79.89	\$82.53	\$85.33	\$88.18	\$90.87
\$ Increase		4.80	5.06	2.38	2.38	2.51	2.67	2.64	2.80	2.85	2.69
% Increase		8.0%	7.8%	3.4%	3.3%	3.4%	3.5%	3.3%	3.4%	3.3%	3.1%

**Based on Single Family Residential Use of 8 ccf**

The primary drivers for the proposed FY 2018-2019 rates include funding for capital water improvements, an allocation Water Conservation and Sustainability Rebate Program, an increase in maintenance and operation costs, and the higher than

expected system water losses over past years. This faulty meter contributed to the depletion of the operating fund below the EMID Board of Directors' established target levels (90 days of operating expenses). Additionally, the proposed rates include an annual transfer from Water Operating Revenues to the City's Capital Improvement Fund, continuation to the Water Sustainability Rebate Program, and an increase in operational charges to keep revenues in line with operating expenses.

Based upon the EMID Board of Directors' policy direction this evening, the District will mail a notice to all ratepayers on or before April 16, 2018 for a public hearing to be held on June 4, 2018 to consider the new rates. If adopted, the new rates will go into effect on July 1, 2018.

### BACKGROUND/ ANALYSIS

The District currently provides water service to a population of approximately 37,700. Most of the District's customers are residential. There are approximately 8,161 water accounts that allow for water service and fire protection service.

The primary drivers for the proposed FY 2018-2019 rates include the following:

- **Cost of Wholesale Water from the San Francisco Public Utility Commission (SFPUC):** The San Francisco Public Utilities Commission (SFPUC), the sole source of water supply for the District, released updated projections for their wholesale rate for water in February 2018. SFPUC is projecting the current rate of \$4.10 per hundred cubic feet (ccf) will remain the same in FY 2018-2019 and projected to remain steady for the following four years.
- **Bay Area Water Supply and Conservation Agency (BAWSCA) Surcharge:** The District will continue to make annual payments to BAWSCA for capital improvement costs associated with the \$4.8 billion Water System Improvement Project (WSIP) to upgrade the Hetch Hetchy Water System. For FY 2018- 2019 the payment will be \$869,496. The fixed monthly impact in dollars to water customers would be \$0.42. The WSIP is over 90% complete; however, SFPUC operating costs and debt service are projected to increase over the next five years.
- **Higher Than Expected System Water Losses:** Water utilities incur real losses from pipeline leakage and apparent losses when customer water consumption is not properly measured or billed. The current water rates are based on 7% water loss derived from historical data over a number of years that showed a positive loss from SFPUC purchases. An investigation by the SFPUC in 2016 revealed that the water loss figure was due to an SFPUC meter which had been under-reporting. The SFPUC meter was replaced in 2016, and actual water purchase and sales data from FY 2016-2017 revealed water losses of approximately 11.5% (an increase of 4.5%). This water loss percentage is within the normal range that other municipalities experience. The City is currently developing a water master plan that would implement controls to minimize system losses in the future.

The proposed water rates are designed to cover the increase in the water loss rate and replenish the operating fund above target levels by FY 2020-2021. As a result, the rate model includes a 7.6% variable volumetric rate increase to cover operation and maintenance costs, as well as to meet the operating fund balance target.

- **Capital Funding:** EMID's strategy for funding long-term capital water improvements calls for an annual transfer from water operating revenues to the City's Capital Improvement Fund to fund those projects over the next 10 years. The proposed rate projections include a transfer out of \$205,000 for FY 2018-2019.
- **Conservation Costs:** District staff is recommending that the EMID Board of Directors allocate \$200,000 to the Water Sustainability Rebate Program for FY 2018-2019 to continue to support water conservation.
- **Operational Costs:** Draft operations and maintenance projections assume 3.8% annual cost increase to keep revenues in line with operating expenses (excluding wholesale water purchases).

#### Rate Smoothing

The EMID Board of Directors has implemented a long-term rate smoothing model that takes into consideration the long-range projections by the SFPUC in terms of wholesale water rates and significant capital improvements that have a profound impact on rates, such as the WSIP program. The rate smoothing model attempts to maintain revenue increases at no greater than 10% per year. The proposed FY 2018-2019 rates continue the use of a 10-year model which has proven to be successful in dampening the impacts of significant rate increases imposed by the SFPUC on the ratepayers.

#### Rate Survey

A survey of communities along the San Francisco Peninsula was conducted to compare the District's typical residential monthly bill with the neighboring communities. The results of the survey are summarized in the comparison chart attached to this report (Attachment – Water Rate Survey Comparison Chart). The survey indicates the District's water rates remain among the lowest on the Peninsula. The average monthly water bill for the region (based on 8 units of water for monthly usage) is \$75.07 per month and the District's current average monthly residential water bill is \$60.09 per month, or about 20% less than the current average of neighboring communities.

#### Proposition 218 Notification

District staff requests that the EMID Board of Directors review the information prepared by BWA and provide District staff with direction regarding the water rates. Based on that direction, District staff will prepare a notice that will be mailed to all ratepayers on or before April 16, 2018 in compliance with the provisions of Proposition 218. A public hearing on and adoption of the proposed rates will occur at the June 4, 2018, an EMID Board of Directors meeting in conjunction with the FY 2018-2019 Annual Budget Public Hearing. The new rates will become effective July 1, 2018.

It should be noted that between the notification date and the public hearing date, the

EMID Board of Directors will receive the FY 2018-2019 Preliminary Annual Budget and 5-Year Financial Plan. Any adjustments that occur based upon EMID Board direction at the Budget Study Session will be incorporated into an updated rate model at the time of the public hearing. However, it is the opinion of District staff that conservative assumptions have been employed in the creation of the attached rate models. Accordingly, District staff believes that the rates proposed herein are the maximum rates that would be recommended for FY 2018-2019. At the public hearing, the EMID Board would have the option of reducing rates lower than what was noticed to rate payers under Proposition 218 if budgetary estimates change, but it could not increase the rates above what was noticed.

Attachment:

- Bartle Wells Associates Water Rate Study Results Memo including 2018 Rate Study Water Tables and Rate Survey Comparison Analysis



**DATE:** March 1<sup>st</sup>, 2018

**TO:** City of Foster City/Estero Municipal Improvement District

**FROM:** Bartle Wells Associates

**SUBJECT:** Water and Wastewater Rate Study Update Results

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## **SUMMARY OF FINDINGS AND RECOMMENDATIONS**

### **Introduction and Background**

The Estero Municipal Improvement District (District) engaged Bartle Wells Associates (BWA) to develop 10-year financial projections for the District's Water and Wastewater Enterprises and to recommend water and wastewater rate increases for the next five-year period. BWA last conducted formal rate studies in 2017, which resulted in a one-year rate approval for water rates for FY 2018 and five-year rate approval for wastewater rates.

Current and projected water service rates are in the lower range compared to other agencies on the Peninsula and wastewater service rates are in the low to mid-range compared to other agencies on the Peninsula. The District water and wastewater enterprises are currently debt free, however, the District faces unique infrastructure funding challenges in each enterprise.

### **Water**

The primary driver for the proposed rate increases are higher than expected system water losses over past years, which has contributed to the depletion of the operating fund below target levels (90 days of operating expenses). Additionally, the District faces costs associated with the \$4.8 billion Water System Improvement Project (WSIP) to upgrade the Hetch Hetchy Water System, resulting in significant additional wholesale SFPUC rate increases beginning in FY 2023. The WSIP is over 90% complete, however SFPUC operating costs and debt service are projected to increase over the next five years.

The San Francisco Public Utilities Commission (SFPUC), the sole source of water supply for the District, released updated projections for their wholesale rate for water in February 2018. SFPUC is projecting the current rate of \$4.10 in FY 2018 per hundred cubic feet (ccf) will remain the same in FY 2019.

SFPUC rates are projected to be held level at \$4.10/ccf for the next four years despite escalating SFPUC debt service and operating costs through use of a balancing account, which is estimated to be \$66.4 million as of June 30<sup>th</sup>, 2018. The balancing account was built up from SFPUC wholesale water sales exceeding projections used in rate setting. The balancing account represents the amount SFPUC owes to wholesale customers. BWA proposed water rates are designed to phase in District rate increases over time to avoid sharp increases.

The District will also continue to make annual payments, projected to be \$869,496 in FY 2019, to the Bay Area Water Supply and Conservation Agency (BAWSCA) for the WSIP capital improvements that were funded through the issuance of bonds. The water enterprise's single largest cost is water purchases from SFPUC.

BWA proposed water rates are designed to cover the additional water loss rate and replenish the operating fund above target levels by FY 2020. Current water rates are based on 7% water loss. That is, 93% of the water EMID purchases is sold to retail customers. The 7% water loss estimate was designed to be conservative, as historical data showed a positive loss from SFPUC purchases for many years. Actual water purchase and sales data from FY 2017 revealed realized water losses of approximately 11.5%. This water loss is primarily due to an SFPUC meter which had been under-reporting. The SFPUC meter was of age and was replaced in 2016. The water loss is within the range that other municipalities experience.

Due to 4.5% greater water losses and a water operating fund below target levels, BWA recommends the District implement an 8% volumetric rate increase in FY 2019. Additionally, meter charges are recommended to be increased by 8% in FY 2019 to cover increasing operation and maintenance costs, as well as to meet the operating fund balance target.

Detailed water rate calculations are shown in APPENDIX C.

## **Wastewater**

The District has entered into a Joint Powers Agreement with the City of San Mateo where the District receives treatment of its wastewater via the San Mateo Wastewater Treatment Plant (WWTP). The District is responsible for its share of operating and maintenance costs that San Mateo (as the lead agency and the contracting party) incurs treating the District's wastewater, as well as approximately 24.5% of the capital improvement costs incurred as part of the Clean Water Program (CWP), a 10-year comprehensive capital improvement project initiated in 2014 at the WWTP. The Cities of San Mateo and Foster City (District) are expanding the jointly owned WWTP at an estimated cost of about \$578 million of which the District is responsible for approximately \$155 million. This is in addition to local capital projects for the District's own sewage collection system. The wastewater enterprise intends to fund collection system capital expenditures through annual transfers of \$1,080,000 from the operating fund to the capital improvement fund.

In June 2017, to fund the anticipated costs of the WWTP CWP improvements, the District Board approved a 5-year wastewater rate increase of 14.25% per year from FY 2018 through FY 2022. Based on updated cash flow estimates, BWA recommends that the District extend the 14.25% rate increase one additional year to FY 2023 and approve a rolling 5-year wastewater rate increase schedule of 14.25% per year from FY 2019 to FY 2023 to ensure that the District remain eligible to receive debt proceeds. Rates must be in place to ensure adequate funds to cover debt service.

Detailed wastewater rate calculations are shown in APPENDIX E.

## **Rate Surveys**

BWA conducted a water and wastewater rate survey of neighboring communities along the San Francisco Peninsula. The results of the water survey are summarized in APPENDIX B and the results of the wastewater survey are summarized in APPENDIX D.

The survey found that the District's water rates are among the lowest in the region. The average monthly water bill for the region (based on 8 ccf of monthly usage) is \$75.07 per month and the District's current average monthly residential water bill is \$60.09 per month, or about 20% less than the current average of neighboring communities.



The District's wastewater rates are also low amongst its comparator agencies. The average monthly bill among the comparator agencies is \$74.23 and the District's current monthly residential wastewater bills for FY 2018 is \$65.27 per month, or about 12% less than the average of the neighboring communities.

# Water Enterprise Fund

The District currently provides water service to a population of approximately 37,687. Most of the District's customers are residential. Table 1 shows the approximately 8,161 accounts/meters that allow for water service and fire protection service.

Table 1  
City of Foster City / Estero Municipal Improvement District  
Water Meters By Size

Data as of: 01/17/18

Meter Size	Accounts	Meter Ratio <sup>1,2</sup>	Est. Meter Equivalents <sup>3</sup>
<b>Water Service</b>			
3/4"	6,788	1.00	6,788
1"	421	1.67	702
1-1/2"	168	4.00	672
2"	388	5.33	2,069
3"	84	11.67	980
4"	52	21.00	1,092
6"	28	46.67	1,307
8" or greater	<u>18</u>	80.00	<u>1,440</u>
Subtotal	7,947		15,050
<b>Private Fire Protection Service</b>			
3/4"	1	1.40	1
1"	7	1.40	10
1-1/2"	3	1.40	4
2"	0	1.87	0
3"	2	4.08	8
4"	26	7.35	191
6"	100	16.33	1,633
8" or greater	<u>75</u>	28.00	<u>2,100</u>
Subtotal	214		3,948
Total	8,161		18,998

Source: Foster City/Estero Municipal Improvement District water use records

[1] The meter ratios shall be based on meter size in compliance with ratios established by the American Water Works Association (AWWA) Sizing Water Service Lines and Meters M22, Second Edition, 2004 (M22 Manual)

[2] Private fire protection service ratio based on the fire service line; Resolution No. 2715

[3] Equals the number of accounts multiplied by the meter ratio for each meter size.

Table 2 illustrates the current reserves that the District can draw down in case of emergency or to smooth any “rate shocks” to its customers. In recent years reserves were used as a buffer due to unexpected increases in system water losses.

BWA projected rate increases to meet the District’s 90-day operating fund reserve target by FY 2020 (estimated to be \$3.55 million in FY 2020.)

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Table 2  
 City of Foster City / Estero Municipal Improvement District  
 Water Enterprise Operating Reserves

Fund Reserve Component	July 1, 2017
	Reserve Balance
Reserved for Maintenance & Operation (401)	<u>\$1,483,791</u>
Total	\$1,483,791

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Note: Rate model only includes fund reserve components available to fund ongoing operating expenditures.

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Source: City of Foster City/Estero Municipal Improvement District Staff

The wholesale water purchase rates that SFPUC is projecting through FY 2025 are shown graphically in CHART A. The SFPUC also collects the BAWSCA Bond Surcharge from the District. The chart incorporates the BAWSCA Bond Surcharge estimated at \$0.42 cents per ccf. The SFPUC rates and BAWSCA surcharge combined are projected to remain flat from FY 2018 to FY 2022 at \$4.52/ccf (\$4.10 SFPUC + \$.42 BAWSCA). The SFPUC rate plus BAWSCA surcharge is projected to increase by 27% from FY 2023 to FY 2025.

CHART A

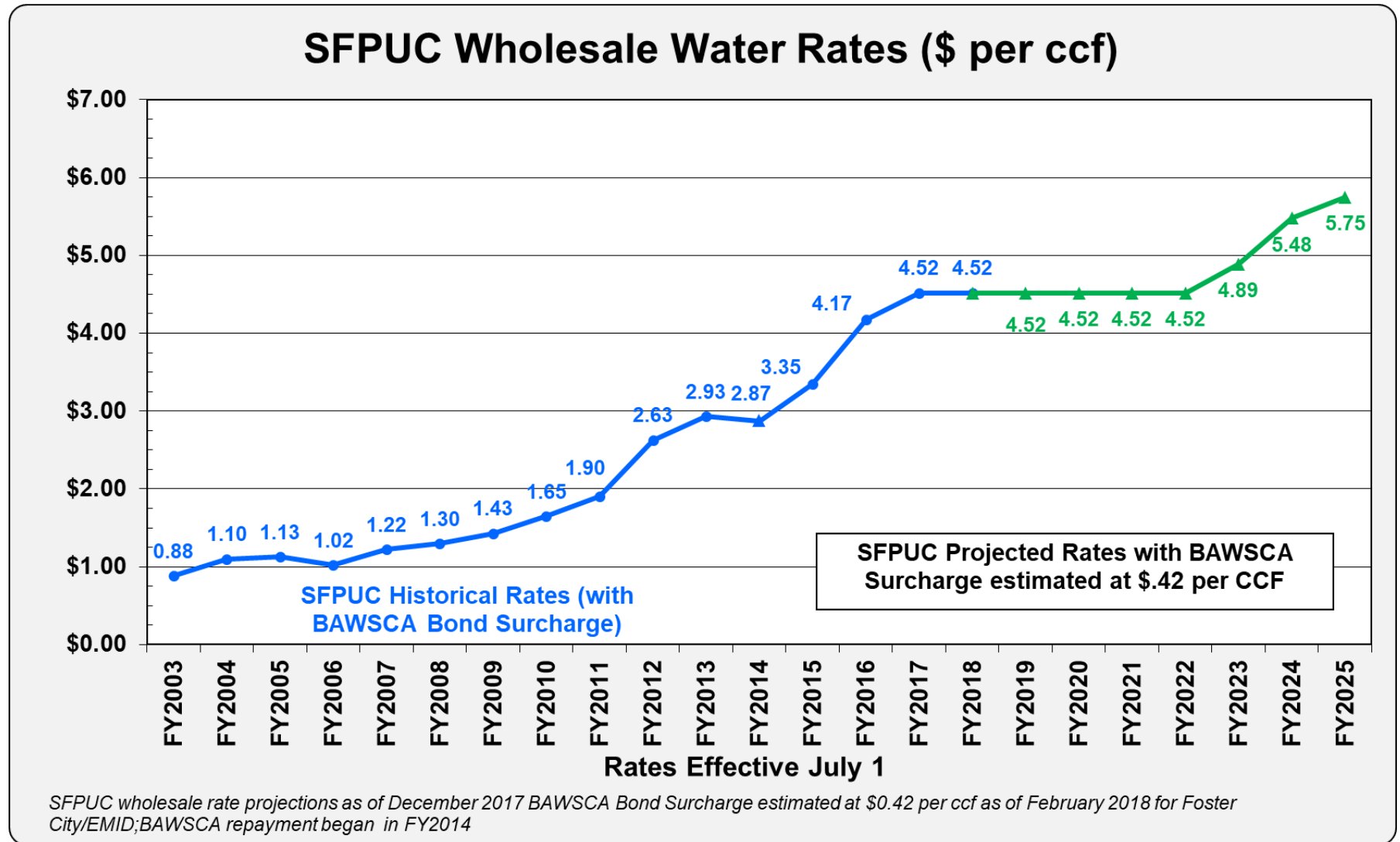


Table 3 summarizes the District’s projected operating expenditures which are anticipated to increase over the next five years by about 15%.

Table 3  
 City of Foster City / Estero Municipal Improvement District  
 Water Enterprise O&M Projection

Expenditures	FY2018	Five Year Projection					Annual % Increase [1]
	Projected	FY2019	FY2020	FY2021	FY2022	FY2023	
Employee Services	1,865,400	1,960,700	2,039,128	2,120,693	2,205,521	2,293,742	4.0%
Internal Services - Others	564,087	582,293	596,850	611,772	627,066	642,743	2.5%
Internal Services - ERF	322,593	316,582	324,497	332,609	340,924	349,447	2.5%
Services & Supplies	610,600	570,550	584,814	599,434	614,420	629,780	2.5%
SFPUC Water Purchases	8,281,384	8,691,000	8,736,000	8,782,000	8,827,000	9,665,000	varies
BAWSCA Bond Repayment	929,000	869,496	900,000	900,000	900,000	900,000	
Reallocation	1,069,457	1,177,420	1,206,856	1,237,027	1,267,953	1,299,651	2.5%
Water Sustainability	200,000	200,000	200,000	200,000	200,000	200,000	
Capital Outlay	25,000	25,000	25,625	26,266	26,922	27,595	2.5%
<b>TOTAL O&amp;M Expenditures</b>	<b>13,867,521</b>	<b>14,393,041</b>	<b>14,613,769</b>	<b>14,809,800</b>	<b>15,009,806</b>	<b>16,007,959</b>	
		3.8%	1.5%	1.3%	1.4%	6.7%	

[1] Based on City/District Staff direction

Table 4 summarizes the current water rates. The District has variable expenditures which are expenditures that are impacted by the amount of water its customers consume. These costs must be recouped via its volumetric water charge, \$5.15 per ccf in FY 2018. Likewise the District's meter charges recover fixed expenditures, expenditures that are fixed regardless of amount of water that is consumed, \$19.85 for a ¾" meter in FY 2018.

The District has a two-tiered model for its residential customers where higher levels of water consumption are subject to higher water rates based on a proportionate share of conservation program costs. Commercial customers are charged a uniform rate, which includes commercial customer's proportionate share of conservation program costs.

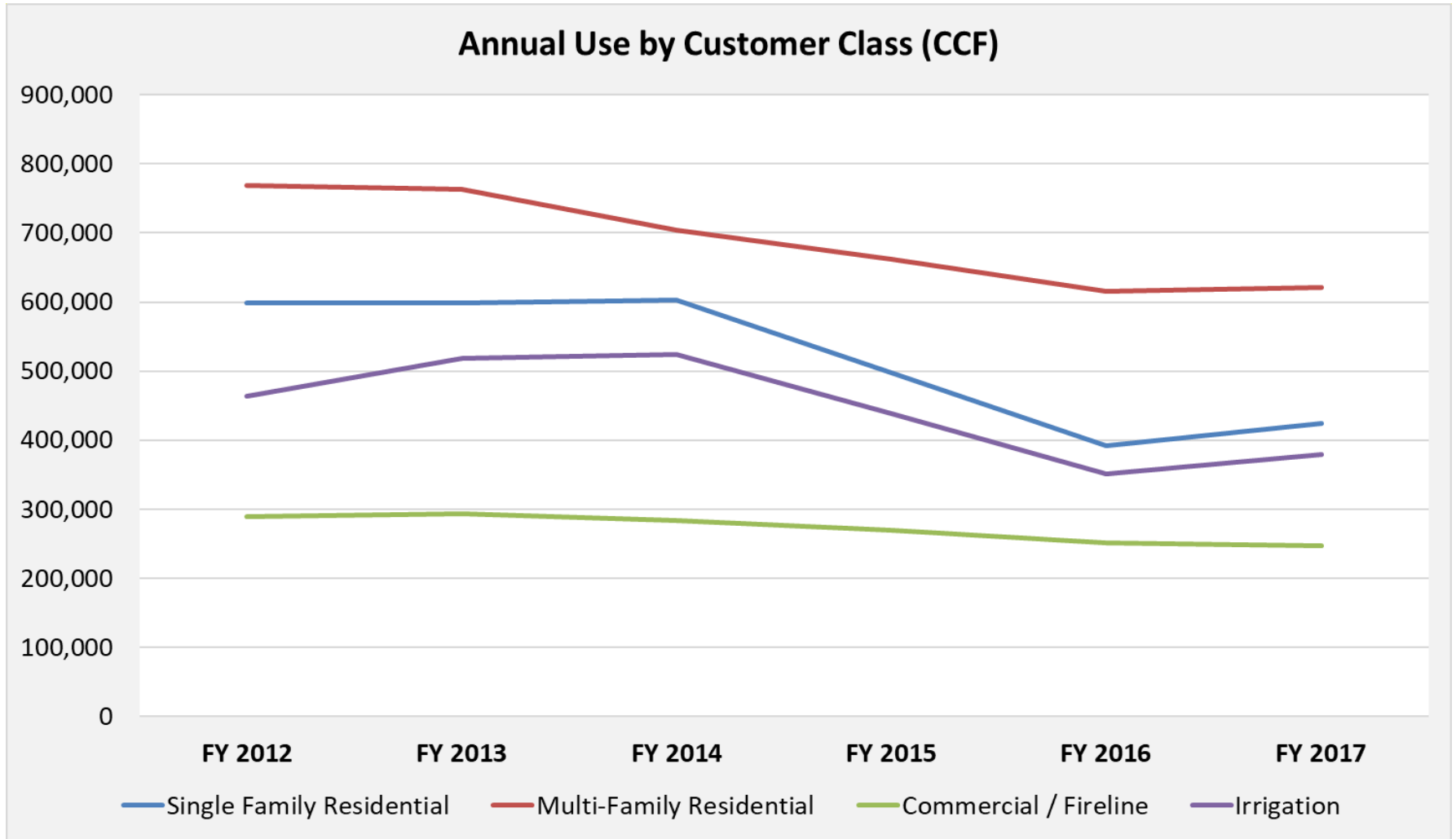
For its irrigation customers, the District has worked with John Whitcomb of Waterfluence to assign each irrigation customer a water budget. Any water consumed above the irrigation customers allotted amount is subject to a higher Tier 2 rate based on each customer's share of conservation program costs.

APPENDIX A shows District historical water use trends. Customer use has reversed declines due to drought and has bumped up slightly from FY 2016 lows. BWA's proposed rates are designed to match volumetric expenses (such as water purchases) with volumetric revenue. The rate structure mitigates over or under collecting revenue due to fluctuations in water use.

Table 4  
 City of Foster City / Estero Municipal Improvement District  
 Current Rates

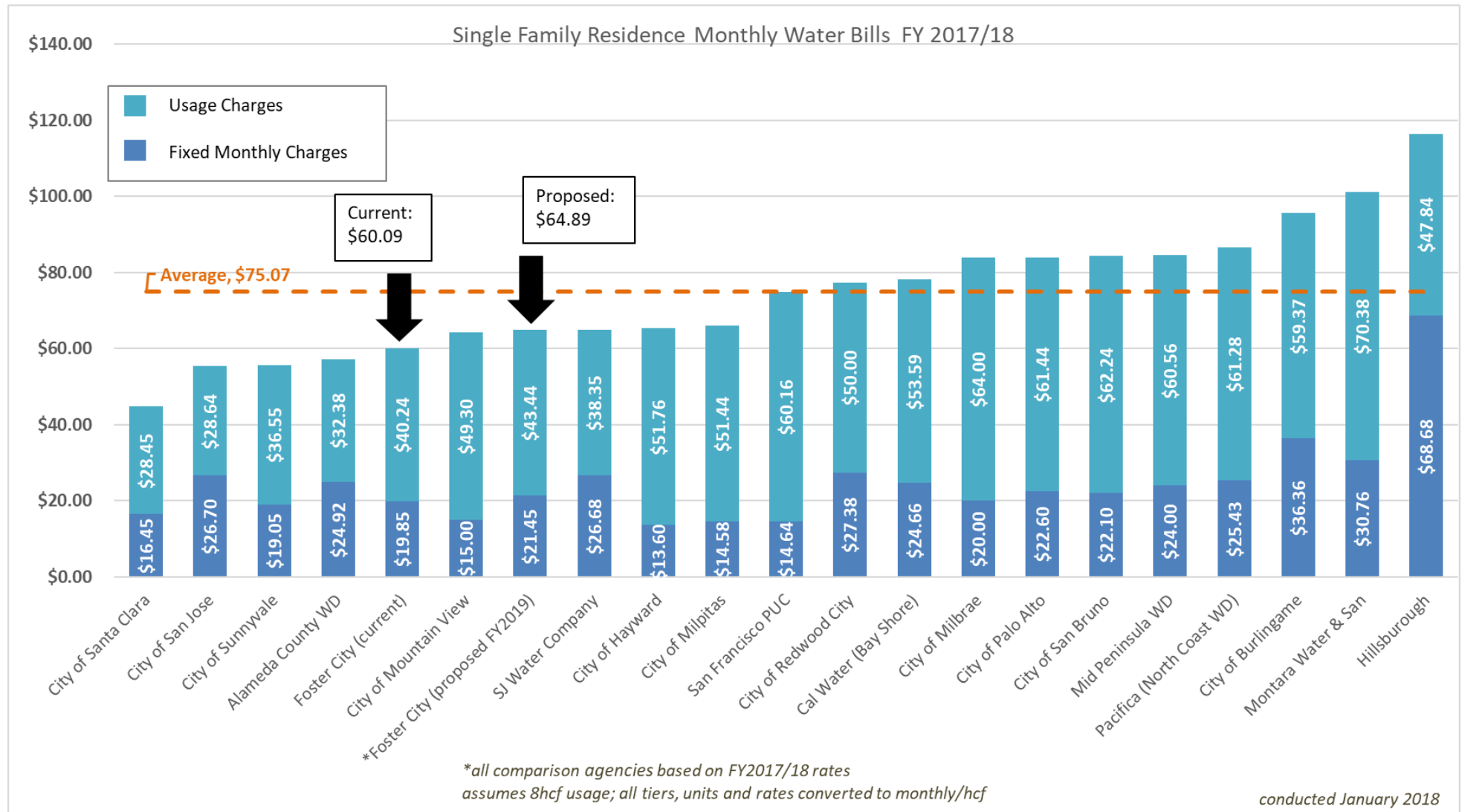
Current Rates	2018
<b>Fixed Meter Charge</b>	
<b>Monthly Meter Charge</b>	
<u>Meter Size</u>	
3/4"	\$19.85
1"	\$33.08
1-1/2"	\$79.40
2"	\$105.87
3"	\$231.58
4"	\$416.85
6"	\$926.33
8" or greater	\$1,588.00
<b>Bi-Monthly Water Consumption Tiers and Rates</b>	
<u>Single Family Residential</u>	
Tier 1 0-20 per ccf	\$5.03
Tier 2 Over 20 ccf	\$6.06
<u>Multi-Family Residential</u>	
Tier 1 0-10 ccf per living unit	\$5.03
Tier 2 Over 10 ccf per living unit	\$5.62
<u>Irrigation Customers</u>	
Tier 1 <=100% of annual budget	\$5.03
Tier 2 >100% of annual budget	\$7.21
<u>Commercial and Fire Line</u>	
All usage	\$5.15
<b>Monthly Private Fire Protection Charge</b>	
<u>Meter Size</u>	
3/4"	\$27.79
1"	\$27.79
1-1/2"	\$27.79
2"	\$37.12
3"	\$80.99
4"	\$145.90
6"	\$324.15
8" or greater	\$555.80

APPENDIX A





APPENDIX B



APPENDIX C

Table 1  
 City of Foster City / Estero Municipal Improvement District  
 Water Enterprise Cash Flow Projection - Residential Two Tier Rate Structure Hybrid Model

Fiscal Year Ending June 30	Five Year Projection						Extended Year Projection				
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
<b>Assumptions:</b>											
Interest Earnings Rate	1.00%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Revenue Increase from Growth [1]		0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
Fixed Charge	\$19.85	\$21.45	\$23.15	\$23.85	\$24.55	\$25.30	\$26.05	\$26.85	\$27.65	\$28.50	\$29.35
Fixed Rate Adjustment		8.1%	7.9%	3.0%	2.9%	3.1%	3.0%	3.1%	3.0%	3.1%	3.0%
SFR Variable Charge	\$5.03	\$5.43	\$5.85	\$6.06	\$6.27	\$6.49	\$6.73	\$6.96	\$7.21	\$7.46	\$7.69
Variable Rate Adjustment		8.0%	7.7%	3.6%	3.5%	3.5%	3.7%	3.4%	3.6%	3.5%	3.1%
Monthly Service Charge Single Family (8 ccf)	\$60.09	\$64.89	\$69.95	\$72.33	\$74.71	\$77.22	\$79.89	\$82.53	\$85.33	\$88.18	\$90.87
Rate Adjustment		8.0%	7.8%	3.4%	3.3%	3.4%	3.5%	3.3%	3.4%	3.3%	3.1%
<b>Beginning Fund Balance</b>	\$1,483,791	\$1,168,000	\$1,867,000	\$3,626,200	\$5,863,400	\$8,588,600	\$11,026,600	\$12,720,600	\$14,356,600	\$15,765,600	\$17,120,600
<b>Revenues</b>											
Water Sales & Service Charges											
<i>Meter Charge Revenue Estimate</i>	4,526,000	4,915,000	5,330,000	5,519,000	5,709,000	5,913,000	6,119,000	6,338,000	6,560,000	6,795,000	7,033,000
<i>Volumetric Revenue Estimate</i>	9,116,000	10,303,000	11,159,000	11,618,000	12,082,000	12,548,000	13,048,000	13,555,000	14,102,000	14,649,000	15,164,000
Connection Fees [1]	33,140	0	0	0	0	0	0	0	0	0	0
Interest Earnings - Operating Reserve [2]	21,000	18,000	28,000	54,000	88,000	129,000	165,000	191,000	215,000	236,000	257,000
Interest Earnings - Capital Improvement Fund [3]	61,000	61,000	61,000	61,000	61,000	61,000	61,000	61,000	61,000	61,000	61,000
Other	0	0	0	0	0	0	0	0	0	0	0
<b>Operating Revenues</b>	<b>13,757,140</b>	<b>15,297,000</b>	<b>16,578,000</b>	<b>17,252,000</b>	<b>17,940,000</b>	<b>18,651,000</b>	<b>19,393,000</b>	<b>20,145,000</b>	<b>20,938,000</b>	<b>21,741,000</b>	<b>22,515,000</b>
<b>Expenses</b>											
Employee Services	1,865,400	1,960,700	2,039,128	2,120,693	2,205,521	2,293,742	2,385,000	2,480,000	2,579,000	2,682,000	2,789,000
Internal Services - Others	564,087	582,293	596,850	611,772	627,066	642,743	659,000	675,000	692,000	709,000	727,000
Internal Services - ERF	322,593	316,582	324,497	332,609	340,924	349,447	358,000	367,000	376,000	385,000	395,000
Services & Supplies	610,600	570,550	584,814	599,434	614,420	629,780	646,000	662,000	679,000	696,000	713,000
SFPUC Water Purchases	8,281,384	8,691,000	8,736,000	8,782,000	8,827,000	9,665,000	10,986,000	11,626,000	12,469,000	13,144,000	14,067,000
BAWSCA Bond Repayment	929,000	869,496	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000
Reallocation	1,069,457	1,177,420	1,206,856	1,237,027	1,267,953	1,299,651	1,332,000	1,365,000	1,399,000	1,434,000	1,470,000
Capital Outlay	25,000	25,000	25,625	26,266	26,922	27,595	28,000	29,000	30,000	31,000	32,000
<b>Operating Expenses</b>	<b>13,667,521</b>	<b>14,193,041</b>	<b>14,413,769</b>	<b>14,609,800</b>	<b>14,809,806</b>	<b>15,807,959</b>	<b>17,294,000</b>	<b>18,104,000</b>	<b>19,124,000</b>	<b>19,981,000</b>	<b>21,093,000</b>
<b>Operating Net Revenues</b>	<b>89,619</b>	<b>1,103,959</b>	<b>2,164,231</b>	<b>2,642,200</b>	<b>3,130,194</b>	<b>2,843,041</b>	<b>2,099,000</b>	<b>2,041,000</b>	<b>1,814,000</b>	<b>1,760,000</b>	<b>1,422,000</b>
<b>Water Sustainability Fund Transfer</b>	<b>200,000</b>	<b>200,000</b>	<b>200,000</b>	<b>200,000</b>	<b>200,000</b>	<b>200,000</b>	<b>200,000</b>	<b>200,000</b>	<b>200,000</b>	<b>200,000</b>	<b>200,000</b>
<b>Capital Improvement Transfer [4]</b>	<b>205,000</b>	<b>205,000</b>	<b>205,000</b>	<b>205,000</b>	<b>205,000</b>	<b>205,000</b>	<b>205,000</b>	<b>205,000</b>	<b>205,000</b>	<b>205,000</b>	<b>205,000</b>
Total Expenses	14,072,521	14,598,041	14,818,769	15,014,800	15,214,806	16,212,959	17,699,000	18,509,000	19,529,000	20,386,000	21,498,000
<b>Revenues Less O&amp;M Expenses</b>	<b>89,619</b>	<b>1,103,959</b>	<b>2,164,231</b>	<b>2,642,200</b>	<b>3,130,194</b>	<b>2,843,041</b>	<b>2,099,000</b>	<b>2,041,000</b>	<b>1,814,000</b>	<b>1,760,000</b>	<b>1,422,000</b>
<b>Revenues Less Total Expenses</b>	<b>(315,381)</b>	<b>698,959</b>	<b>1,759,231</b>	<b>2,237,200</b>	<b>2,725,194</b>	<b>2,438,041</b>	<b>1,694,000</b>	<b>1,636,000</b>	<b>1,409,000</b>	<b>1,355,000</b>	<b>1,017,000</b>
<b>Ending Fund Balance</b>	<b>1,168,410</b>	<b>1,866,959</b>	<b>3,626,231</b>	<b>5,863,400</b>	<b>8,588,594</b>	<b>11,026,641</b>	<b>12,720,600</b>	<b>14,356,600</b>	<b>15,765,600</b>	<b>17,120,600</b>	<b>18,137,600</b>
<b>Revenue Test: Annual Revenues &gt; O&amp;M Expenses</b>											
Annual Revenues Less O&M Expenses	89,619	1,103,959	2,164,231	2,642,200	3,130,194	2,843,041	2,099,000	2,041,000	1,814,000	1,760,000	1,422,000
Pass/fail	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS
<b>Fund Reserve Test: Minimum Fund Balance &gt; 25% O&amp;M Expenses</b>											
Year-end fund balance	1,168,410	1,866,959	3,626,231	5,863,400	8,588,594	11,026,641	12,720,600	14,356,600	15,765,600	17,120,600	18,137,600
25% operating expenses	3,370,000	3,500,000	3,550,000	3,600,000	3,650,000	3,900,000	4,260,000	4,460,000	4,720,000	4,930,000	5,200,000
# of Days O&M in Reserves	31	48	92	146	212	255	268	289	301	313	314
Pass/fail	FAIL	FAIL	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS

[1] Estimated for planning purposes  
 [2] Calculated as 1% of the Beginning Fund Balance of the Water Revenue Fund  
 [3] Calculated as 1% of the Beginning Fund Balance of the Water Capital Improvement Project Fund  
 [4] Capital Improvements are funded through the Long-Term Capital Improvement Project Fund

Table 2  
City of Foster City / Estero Municipal Improvement District  
Water Rate Calculation - Two Tier Hybrid Model

Fiscal Year Ending June 30	Five Year Projection						Extended Year Projection				
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
<b>Fixed Meter Charge Increase</b>		<b>8.00%</b>	<b>8.00%</b>	<b>3.00%</b>	<b>3.00%</b>	<b>3.00%</b>	<b>3.00%</b>	<b>3.00%</b>	<b>3.00%</b>	<b>3.00%</b>	<b>3.00%</b>
<b>Fixed Revenues +/- 5% of Fixed Costs?</b>		<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
<b>Reserves % Above (Below) Reserve Target</b>		53.3%	102.1%	162.9%	235.3%	282.7%	298.6%	321.9%	334.0%	347.3%	348.8%
<b>Reserve Target Met?</b>		<b>NO</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
<b>Revenue Estimates</b>											
Meter Charge Revenue	\$ 4,526,000	\$ 4,915,000	\$ 5,330,000	\$ 5,519,000	\$ 5,709,000	\$ 5,913,000	\$ 6,119,000	\$ 6,338,000	\$ 6,560,000	\$ 6,795,000	\$ 7,033,000
Other Fixed Revenue	\$ 115,140	\$ 79,000	\$ 89,000	\$ 115,000	\$ 149,000	\$ 190,000	\$ 226,000	\$ 252,000	\$ 276,000	\$ 297,000	\$ 318,000
Volumetric Revenue	\$ 9,116,000	\$ 10,299,000	\$ 11,171,000	\$ 11,625,000	\$ 12,083,000	\$ 12,558,000	\$ 13,044,000	\$ 13,553,000	\$ 14,106,000	\$ 14,656,000	\$ 15,159,000
<b>Total Projected</b>	<b>\$ 13,757,140</b>	<b>\$ 15,293,000</b>	<b>\$ 16,590,000</b>	<b>\$ 17,259,000</b>	<b>\$ 17,941,000</b>	<b>\$ 18,661,000</b>	<b>\$ 19,389,000</b>	<b>\$ 20,143,000</b>	<b>\$ 20,942,000</b>	<b>\$ 21,748,000</b>	<b>\$ 22,510,000</b>
<b>Revenue Allocation</b>											
Fixed	33.7%	32.7%	32.7%	32.6%	32.7%	32.7%	32.7%	32.7%	32.6%	32.6%	32.7%
Variable	66.3%	67.3%	67.3%	67.4%	67.3%	67.3%	67.3%	67.3%	67.4%	67.4%	67.3%
<b>Costs Estimates</b>											
Fixed Costs [1]	\$4,662,137	\$4,837,545	\$4,982,769	\$5,132,800	\$5,287,806	\$5,447,959	\$5,613,000	\$5,783,000	\$5,960,000	\$6,142,000	\$6,531,000
Variable Costs [2]	\$9,410,384	\$9,760,496	\$9,836,000	\$9,882,000	\$9,927,000	\$10,765,000	\$12,086,000	\$12,726,000	\$13,569,000	\$14,244,000	\$15,167,000
<b>Total Projected Costs</b>	<b>\$14,072,521</b>	<b>\$14,598,041</b>	<b>\$14,818,769</b>	<b>\$15,014,800</b>	<b>\$15,214,806</b>	<b>\$16,212,959</b>	<b>\$17,699,000</b>	<b>\$18,509,000</b>	<b>\$19,529,000</b>	<b>\$20,386,000</b>	<b>\$21,698,000</b>
<b>Net Revenue</b>											
Fixed Charges	-\$20,997	\$156,455	\$436,231	\$501,200	\$570,194	\$655,041	\$732,000	\$807,000	\$876,000	\$950,000	\$820,000
Volumetric Charges	-\$294,384	\$538,504	\$1,335,000	\$1,743,000	\$2,156,000	\$1,793,000	\$958,000	\$827,000	\$537,000	\$412,000	-\$8,000
<b>Total</b>	<b>-\$315,381</b>	<b>\$694,959</b>	<b>\$1,771,231</b>	<b>\$2,244,200</b>	<b>\$2,726,194</b>	<b>\$2,448,041</b>	<b>\$1,690,000</b>	<b>\$1,634,000</b>	<b>\$1,413,000</b>	<b>\$1,362,000</b>	<b>\$812,000</b>
<b>Cost Analysis</b>											
Fixed	33.1%	33.1%	33.6%	34.2%	34.8%	33.6%	31.7%	31.2%	30.5%	30.1%	30.1%
Variable	66.9%	66.9%	66.4%	65.8%	65.2%	66.4%	68.3%	68.8%	69.5%	69.9%	69.9%
<b>Meter Charge Calculation</b>											
Monthly charge per meter equivalent (Rounded to nearest \$0.05)	\$ 19.85	\$ 21.45	\$ 23.15	\$ 23.85	\$ 24.55	\$ 25.30	\$ 26.05	\$ 26.85	\$ 27.65	\$ 28.50	\$ 29.35
Annual charge per meter equivalent	\$ 238.20	\$ 257.40	\$ 277.80	\$ 286.20	\$ 294.60	\$ 303.60	\$ 312.60	\$ 322.20	\$ 331.80	\$ 342.00	\$ 352.20
Meter equivalents [3]	18,998	19,093	19,188	19,284	19,380	19,477	19,574	19,672	19,770	19,869	19,968
Meter Charge Revenue Estimate	\$ 4,526,000	\$ 4,915,000	\$ 5,330,000	\$ 5,519,000	\$ 5,709,000	\$ 5,913,000	\$ 6,119,000	\$ 6,338,000	\$ 6,560,000	\$ 6,795,000	\$ 7,033,000
<b>Volumetric Rate Calculation</b>											
<b>EMID Proposed Uniform Rate</b>	<b>\$5.15</b>	<b>\$ 5.54</b>	<b>\$ 5.98</b>	<b>\$ 6.19</b>	<b>\$ 6.40</b>	<b>\$ 6.62</b>	<b>\$ 6.84</b>	<b>\$ 7.07</b>	<b>\$ 7.32</b>	<b>\$ 7.57</b>	<b>\$ 7.79</b>
Projected annual water sales (ccf) [4]	1,770,000	1,859,000	1,868,000	1,878,000	1,888,000	1,897,000	1,907,000	1,917,000	1,927,000	1,936,000	1,946,000
Variable revenue estimate	\$9,116,000	\$10,299,000	\$11,171,000	\$11,625,000	\$12,083,000	\$12,558,000	\$13,044,000	\$13,553,000	\$14,106,000	\$14,656,000	\$15,159,000
<b>% Spread between EMID and SFPUC</b>											
Surcharge		35.1%	45.9%	51.0%	56.1%	48.1%	35.2%	32.6%	28.6%	26.8%	22.5%
<b>SFPUC PROJECTED RATES</b>	<b>\$4.10</b>	<b>\$4.10</b>	<b>\$4.10</b>	<b>\$4.10</b>	<b>\$4.10</b>	<b>\$4.47</b>	<b>\$5.06</b>	<b>\$5.33</b>	<b>\$5.69</b>	<b>\$5.97</b>	<b>\$6.36</b>
Increase (Decrease) %		0.0%	0.0%	0.0%	0.0%	9.0%	13.2%	5.3%	6.8%	4.9%	6.5%
<b>BAWSCA Surcharge</b>	<b>\$0.42</b>	<b>\$0.42</b>	<b>\$0.42</b>	<b>\$0.42</b>	<b>\$0.42</b>	<b>\$0.42</b>	<b>\$0.42</b>	<b>\$0.42</b>	<b>\$0.42</b>	<b>\$0.42</b>	<b>\$0.42</b>
<b>SFPUC Rate + BAWSCA Surcharge</b>	<b>\$4.52</b>	<b>\$4.52</b>	<b>\$4.52</b>	<b>\$4.52</b>	<b>\$4.52</b>	<b>\$4.89</b>	<b>\$5.48</b>	<b>\$5.75</b>	<b>\$6.11</b>	<b>\$6.39</b>	<b>\$6.78</b>
<b>EMID Fixed Meter Charge Increase (Decrease)</b>		8.1%	7.9%	3.0%	2.9%	3.1%	3.0%	3.1%	3.0%	3.1%	3.0%
<b>EMID Volumetric Rate Increase (Decrease)</b>		7.6%	7.9%	3.5%	3.4%	3.4%	3.3%	3.4%	3.5%	3.4%	2.9%

Note:  
[1] Includes: Employee Services, Internal Services - Other, Internal Services - ERF, Services & Supplies, Reallocation, Capital Outlay, Capital Improvement Fund Transfers, and net revenues for the operating fund.  
[2] Includes: SFPUC Water Purchases, BAWSCA Bond Repayment, and Water Sustainability Fund Transfers.  
[3] 0.5% growth estimated for planning purposes  
[4] Includes 11.5% water loss factor

Table 3

City of Foster City / Estero Municipal Improvement District  
Proposed Water Rates - Two Tier Hybrid Model

**TWO TIER HYBRID MODEL**

Recommended Rates	Current Rates	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028
<b>Monthly Meter Charge</b>											
3/4"	\$19.85	\$21.45	\$23.15	\$23.85	\$24.55	\$25.30	\$26.05	\$26.85	\$27.65	\$28.50	\$29.35
1"	33.08	35.75	38.58	39.75	40.92	42.17	43.42	44.75	46.08	47.50	48.92
1-1/2"	79.40	85.80	92.60	95.40	98.20	101.20	104.20	107.40	110.60	114.00	117.40
2"	105.87	114.40	123.47	127.20	130.93	134.93	138.93	143.20	147.47	152.00	156.53
3"	231.58	250.25	270.08	278.25	286.42	295.17	303.92	313.25	322.58	332.50	342.42
4"	416.85	450.45	486.15	500.85	515.55	531.30	547.05	563.85	580.65	598.50	616.35
6"	926.33	1,001.00	1,080.33	1,113.00	1,145.67	1,180.67	1,215.67	1,253.00	1,290.33	1,330.00	1,369.67
8" or greater	1,588.00	1,716.00	1,852.00	1,908.00	1,964.00	2,024.00	2,084.00	2,148.00	2,212.00	2,280.00	2,348.00
<b>Conservation-Based Water Rate Model (based on bi-monthly allotments)</b>											
<i>Single Family Residential</i>											
Tier 1 0-20 per ccf	5.03	5.43	5.85	6.06	6.27	6.49	6.73	6.96	7.21	7.46	7.69
Tier 2 Over 20 ccf	6.06	6.10	6.58	6.80	7.04	7.22	7.40	7.62	7.85	8.09	8.30
<i>Multi-Family Residential (per living unit)</i>											
Tier 1 0-10 ccf per living unit	5.03	5.43	5.85	6.06	6.27	6.49	6.73	6.96	7.21	7.46	7.69
Tier 2 Over 10 ccf per living unit	5.62	6.10	6.58	6.81	7.04	7.23	7.40	7.62	7.85	8.09	8.30
<i>Irrigation Customers</i>											
Tier 1 <=100% of annual budget	5.03	5.43	5.85	6.06	6.27	6.49	6.73	6.96	7.21	7.46	7.69
Tier 2 >100% of annual budget	7.21	6.47	6.98	7.22	7.46	7.63	7.77	7.99	8.20	8.44	8.64
<i>Commercial and Fire Line Customers</i>											
Base Consumption Rate	5.15	5.54	5.98	6.19	6.40	6.62	6.84	7.07	7.32	7.57	7.79
<b>Monthly Fire Meter Charge</b>											
3/4"	27.79	30.03	32.41	33.39	34.37	35.42	36.47	37.59	38.71	39.90	41.09
1"	27.79	30.03	32.41	33.39	34.37	35.42	36.47	37.59	38.71	39.90	41.09
1-1/2"	27.79	30.03	32.41	33.39	34.37	35.42	36.47	37.59	38.71	39.90	41.09
2"	37.12	40.11	43.29	44.60	45.91	47.31	48.71	50.21	51.71	53.30	54.88
3"	80.99	87.52	94.45	97.31	100.16	103.22	106.28	109.55	112.81	116.28	119.75
4"	145.90	157.66	170.15	175.30	180.44	185.96	191.47	197.35	203.23	209.48	215.72
6"	324.15	350.28	378.04	389.47	400.90	413.15	425.40	438.46	451.52	465.41	479.29
8" or greater	555.80	600.60	648.20	667.80	687.40	708.40	729.40	751.80	774.20	798.00	821.80
(Minimum charge is equivalent to 1-1/2" meter charge)											

Table 4  
 Foster City / Estero Municipal Improvement District  
 Projected Water Rate Impacts

		Current	FY2019	
		Rates	Two Tier Hybrid Model	
Monthly meter charge		\$19.85	\$21.45	
% Change			8.1%	
<b>Single Family Residential</b>				
<b>Bi-Monthly Tiers</b>				
Tier 1: 0 to 20 ccf		\$5.03	\$5.43	
Tier 2: over 20 ccf		\$6.06	\$6.10	
<u>Water Use Level</u>	<u>Monthly Use (ccf)</u>		<u>Monthly Bill</u>	
<b>Low User</b>	5	\$45.00	\$48.60	
<i>\$ Increase</i>			3.60	
<i>% Increase</i>			8.0%	
<b>Average User</b>	8	\$60.09	\$64.89	
<i>\$ Increase</i>			4.80	
<i>% Increase</i>			8.0%	
<b>High User</b>	10	\$70.15	\$75.75	
<i>\$ Increase</i>			5.60	
<i>% Increase</i>			8.0%	
<b>Very High User</b>	20	\$120.45	\$136.75	
<i>\$ Increase</i>			16.30	
<i>% Increase</i>			13.5%	
<b>Excessive User</b>	50	\$302.25	\$319.75	
<i>\$ Increase</i>			17.50	
<i>% Increase</i>			5.8%	

Table 5  
 Foster City / Estero Municipal Improvement District  
 Projected Water Rate Impacts

Projected Water Bills	Current	Fiscal Year Ending June 30,					Extended Year Projection				
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
<u>Two Tier Hybrid Model</u>											
Single Family Residential Monthly Rate	\$60.09	\$64.89	\$69.95	\$72.33	\$74.71	\$77.22	\$79.89	\$82.53	\$85.33	\$88.18	\$90.87
\$ Increase		4.80	5.06	2.38	2.38	2.51	2.67	2.64	2.80	2.85	2.69
% Increase		8.0%	7.8%	3.4%	3.3%	3.4%	3.5%	3.3%	3.4%	3.3%	3.1%

***Based on Single Family Residential Use of 8 ccf***

## Wastewater Enterprise Fund

There are approximately 13,482 wastewater accounts serviced by the District. The majority of accounts are residential with the remainder consisting of commercial and institutional accounts as shown in Table 5.

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Table 5  
Foster City / Estero Municipal Improvement District  
Wastewater Service Accounts

Data as of: 01/01/18

Customer Class	Number of Accounts
<b><u>Residential</u></b>	
Single Family	4,534
Townhouse/Duplex	2,216
Apartment/Condominium (Pools w/ Restrooms)	<u>6,468</u>
Residential Total	13,218
<b><u>Commercial</u></b>	
Restaurants	53
Commercial/Hotels/Offices/Industrial/Laundromats	<u>175</u>
Commercial Total	228
<b><u>Institutional</u></b>	
Institutional/Schools	<u>36</u>
Insitutional Total	36
Total	13,482

Source: Cognos Sewer Customer Count Report

The District has approximately \$5,327,525 in its wastewater maintenance and operations reserve fund as shown in Table 6. The District's minimum operating reserve target is 25% of operating and maintenance expenses (est. to be \$2 million).

Table 6  
 Foster City / Estero Municipal Improvement District  
 Wastewater Operating Fund Reserves

Fund Reserve Component	July 1, 2017
	Balance
Reserved for Maintenance & Operation	<u>\$5,327,525</u>
Total	<u>\$5,327,525</u>

Note: Rate model only includes fund reserve components available to fund ongoing operating and capital expenditures.

Source: City of Foster City/Estero Municipal Improvement District Staff

Table 7 summarizes the current wastewater service rates.

Table 7  
 Foster City / Estero Municipal Improvement District  
 Current Wastewater Rates

Fiscal Year Ending June 30	Current 2018
<b>Residential (flat monthly rate)</b>	
Single Family	\$65.27
Townhouse/Duplex	54.83
Apartment/Condominium (Pools w/ Restrooms)	54.83
<b>Commercial (rate per ccf of water use)</b>	
Restaurants	11.86
Commercial/Hotels/Offices/Industrial/Laundromats	4.17
<b>Institutional (rate per ccf of water use)</b>	
Institutional/Schools	2.74



Table 8 summarizes the operating expenditures of the enterprise. Costs are expected to remain relatively stable over the next five years.

Table 8  
 City of Foster City / Estero Municipal Improvement District  
 Wastewater Enterprise O&M Projection

Expenditures	Five Year Projection						Annual % Increase [1]
	FY2018 Projected	FY2019	FY2020	FY2021	FY2022	FY2023	
Employee Services	\$1,983,475	\$2,082,625	\$2,165,930	\$2,252,567	\$2,342,670	\$2,436,377	4.0%
Internal Services (from City)	669,676	665,622	682,263	699,320	716,803	734,723	2.5%
Internal Services -ERF	350,140	261,950	268,499	275,211	282,091	289,143	2.5%
Services & Supplies	924,700	799,650	819,641	840,132	861,135	882,663	2.5%
EMID Share WWTP O&M	2,500,000	2,500,000	2,575,000	2,652,250	2,731,818	2,813,773	3.0%
EMID Share WWTP Capital Improvements	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	0.0%
Reallocation	<u>716,373</u>	<u>823,974</u>	<u>836,334</u>	<u>848,879</u>	<u>861,612</u>	<u>874,536</u>	1.5%
<b>TOTAL O&amp;M Expenditures</b>	<b>\$8,144,364</b>	<b>\$8,133,821</b>	<b>\$8,347,667</b>	<b>\$8,568,359</b>	<b>\$8,796,129</b>	<b>\$9,031,215</b>	
		-0.1%	2.6%	2.6%	2.7%	2.7%	

[1] Based on historical results

## Wastewater Financial Projections

Wastewater projections are shown in APPENDIX E.

Projections anticipate an interfund loan totaling \$7.67 million is required from the Capital Improvement Fund in FY 2018 to meet projected capital requirements. The interfund loan is recommended to be repaid through bond proceeds from a FY 2019 issuance.

### Bond Financing:

Projections anticipate a \$143.48 million of bond issues between FY 2019 and FY 2023 (5% interest, 30 year repayment) to fund WWTP expansion costs and to refund interfund loans totaling \$14.86 million. BWA proposes annual overall rate increases of 14.25% on all wastewater rates for FY 2019 to FY 2023. The increases are consistent with the adopted FY 2018 to FY 2022 rate plan, with a sixth increase of 14.25% added on in FY 2023.

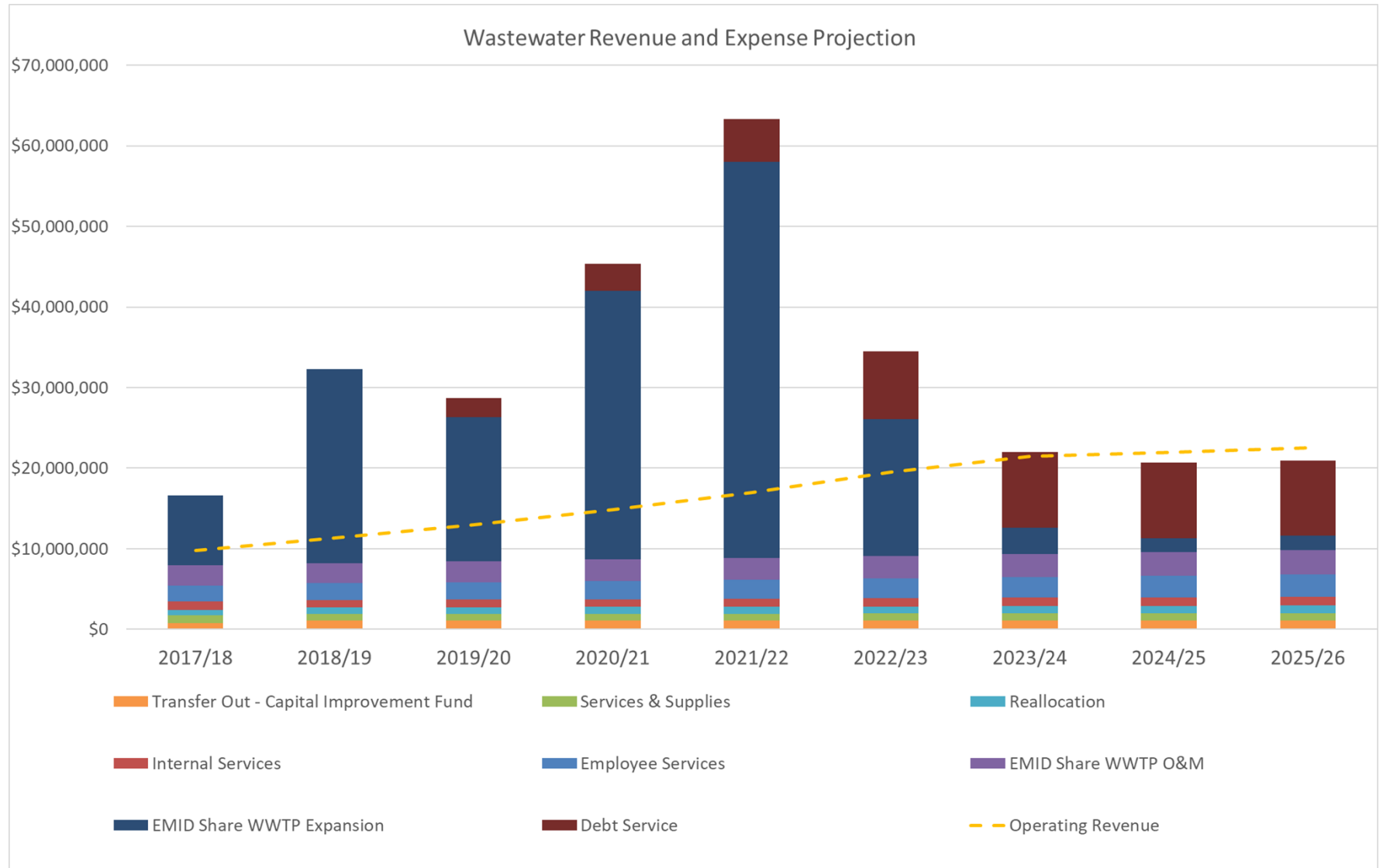
Table 9 shows bond debt service estimates for the District's share of WWTP costs. The projected total issuance costs are estimated to be \$2,185,000. Annual debt service for the combined total debt issuances is estimated to amount to \$9,334,100.

Table 9  
City of Foster City / Estero Municipal Improvement District  
Bond Debt Service Estimates

Fiscal Year	2019		2020		2021		2022		2023		Total
	Long-Term 30-Year Bonds No Reserve	Long-Term 30-Year Bonds No Reserve	Long-Term 30-Year Bonds No Reserve	Long-Term 30-Year Bonds No Reserve	Long-Term 30-Year Bonds No Reserve	Long-Term 30-Year Bonds No Reserve	Long-Term 30-Year Bonds No Reserve	Long-Term 30-Year Bonds No Reserve			
<b>Funding Target</b>	\$35,941,613	\$14,875,057	\$30,368,952	\$46,121,671	\$13,995,670						
<b>Total Debt Issue</b>	\$36,456,213	\$15,176,857	\$30,827,252	\$46,739,071	\$14,288,570						<b>\$143,487,963</b>
<b>Project Funding</b>	\$35,941,613	\$14,875,057	\$30,368,952	\$46,121,671	\$13,995,670						<b>\$141,302,963</b>
<b>Issuance Costs &amp; Reserve Requirement</b>											
Underwriter Discount	1.00%	\$364,600	\$151,800	\$308,300	\$467,400	\$142,900					
Issuance Costs/Contingency		150,000	150,000	150,000	150,000	150,000					
Debt Service Reserve Fund	Excluded	0	0	0	0	0					
Bond Insurance	Excluded	0	0	0	0	0					
Reserve Surety Bond	Excluded	0	0	0	0	0					
<b>Total</b>		514,600	301,800	458,300	617,400	292,900					<b>2,185,000</b>
<b>Financing Terms</b>											
Term (Years)		30	30	30	30	30					
Est. Average Interest Rate		5.00%	5.00%	5.00%	5.00%	5.00%					
<b>Annual Debt Service</b>		<b>2,371,500</b>	<b>987,300</b>	<b>2,005,400</b>	<b>3,040,400</b>	<b>929,500</b>					<b>9,334,100</b>

Financing costs and interest rates estimated for financial planning purposes.

**CHART B**



## Wastewater Cost of Service Analysis

In addition, Bartle Wells performed a Wastewater Cost of Service Analysis to determine equitable cost allocation to the various user classes. BWA recommends continuing the practice of placing commercial customers into three wastewater strength categories, (low, medium and high) based on the State Water Resources Control Board (SWRCB) Wastewater Revenue Program Guidelines. Low strength wastewater (Class A) customers include banks, laundromats, retail stores, schools, churches and others as shown in Table 10.

Medium strength wastewater (Class B) customers have wastewater strength factors that are assumed to be similar to residential wastewater strength factors. They include typical commercial activities such as libraries, spas, nail salons, gas stations and bars.

High strength wastewater (Class C) customers primarily include food-related businesses such as restaurants, bakeries, dairies, wineries, catering, butcher shops and fish markets.

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Table 10

City of Foster City/Estero Municipal Improvement District  
Strength Classifications into Low, Medium/Domestic, and High Strength Dischargers

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**Low Strength**

Banks & Financial Institutions  
Barber Shops/Hair Salons (hair cutting only)  
Post Offices/Government  
Retail Stores  
Libraries  
Schools  
Churches, Halls & Lodges

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**Medium/Commercial/  
Domestic Strength**

Residential - All  
Appliance Repair  
Beauty Shops ( hair cutting w/additional treatments)  
Dry Cleaners  
Nail Salons

Pet Groomers  
Commercial Laundromats  
Bars & Taverns  
Tasting Rooms  
Hospitals - General, Convalescent & Veterinarian  
Hotels, Motels, B&Bs, and Vacation Rentals  
Offices - Business and Professional  
Offices - Medical/Dental  
Pools with Restrooms (Clubhouse)  
Theaters  
Warehouses  
Car Washes  
High Tech Medical Manufacturing  
Light Manufacturing/Industrial  
Gym or Health Club  
Machine Shops  
Service Stations, Garages, Auto Repair Shops  
Mini Marts - W/O Dish Washer or Garbage Disposal  
Mini Mart with Gas Pumps - W/O Dish Washer or Garbage Disposal  
Spa with Various Beauty Treatments  
Parking Garages

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**High Strength**

Restaurants  
Coffee Shops  
Ice Cream Parlors  
Catering  
Eatery  
Bakeries  
Butcher Shops  
Fish Market/Shop  
Markets - with Dish Washer or Garbage Disposal  
Markets - with Bakeries or Butcher Shops  
Mini Marts - with Dish Washer or Garbage Disposal  
Wineries  
Market  
Dairies (milk producers, yogurt, ice cream maker)  
Specialty Foods Manufacturing (e.g., cheese or olive oil maker)

Note: Wastewater users who have Fats, Oils, and Grease (FOG) waste will be put into the High Strength user category

---

Table 11 summarizes the assumed wastewater strength factors for the low, medium and high strength groups that are based on typical strengths provided in the SWRCB's Revenue Program Guidelines. The strength factor for medium strength customers is equivalent to residential or "domestic" strength, of 1.00. The strength factor for low strength is calculated at 0.66 and for high strength is calculated at 2.85 based on the SWRCB guidelines.

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Table 3  
 City of Foster City/Estero Municipal Improvement District  
 Assumed Wastewater Strength Factors

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Strength Class	LOW	LOW-MEDIUM	MEDIUM	HIGH
Examples:	Institutional Bank	Townhouse, Duplex, Apartment, Condo	Residential Offices	Restaurant Bakery
Flow (gpd)	200	168	200	200
BOD <sup>1</sup> (mg/l)	130	240	240	1000
TSS <sup>2</sup> (mg/l)	100	240	240	800
Strength Factor	0.66	0.84	1.00	2.85
Strength Factor Formula	$SF = (\text{Flow}(\text{gpd})/200) * (0.34 + (0.33 * \text{BOD}(\text{mg/l})/240) + (0.33 * \text{TSS}(\text{mg/l})/240))$			

WW flows and strengths based on State Water Resources Control Board's Revenue Program Guidelines

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1 "BOD" stands for Biochemical Oxygen Demand

2 "TSS" stands for Total Suspended Solids

Table 12 summarizes the mass-balance analysis for the City's wastewater system and calculates the wastewater rates for each customer class. Single family residences are assumed to have an average daily (dry weather) flow of 200 gallons per day (gpd).

Based on residential occupancy data provided by the City of Foster City, single family residences are estimated to have an average of 2.67 residents per household and multi-family residences are estimated to have an average of 2.25 residents per household (84% of a single family household).

Multi-family dwellings are billed based on an estimated flow of 168 gpd or 0.84 times the single family flow. As a check, the mass balance in Table 12 compares the total calculated and measured daily wastewater flows for Foster City (average dry weather flow).

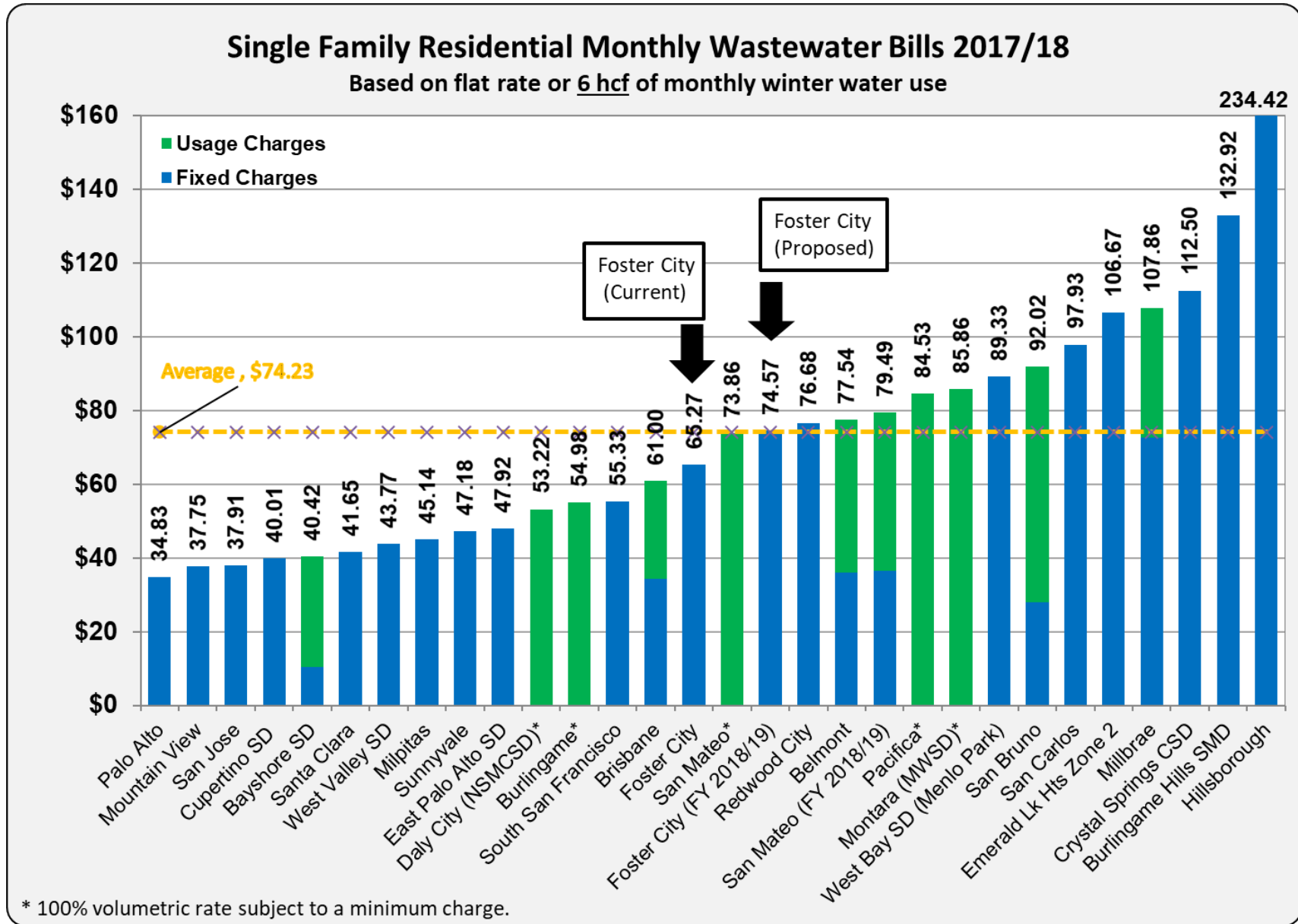
The results agree well with the estimated daily flow at 2.58 million gallons per day (mgd) and the measured flow at 2.37 mgd.

Table 12  
 City of Foster City/Estero Municipal Improvement District  
 Summary of Wastewater Users by Customer Class

Customer Class	EDUs <sup>1</sup>		ADWF Flow (gal/day)	FY 2017 Estimate EDU x Flow ADWF Flow (gal/day)	BOD <sup>3</sup> (mg/l)	TSS <sup>4</sup> (mg/l)	FY 2018 Calculated Current Rate
<b>Residential</b>							
Single Family Residential	4,534		200	906,800	240	240	65.27
Townhouse/Duplex	2,216		168	372,288	240	240	54.83
Apartment/Condos	6,468		168	1,086,624	240	240	54.83
Subtotal				2,365,712			
	Accounts	FY 2017 Use (gal/day)	Flow Factor	Estimated ADWF Flow (gal/day)	BOD <sup>3</sup> (mg/l)	TSS <sup>4</sup> (mg/l)	FY 2018 Calculated Current Rate
<b>Commercial</b>							
Low Strength	36	54,604	65%	35,492	130	100	2.73
Medium/Domestic Strength	175	244,651	53%	129,421	240	240	4.17
High Strength	53	75,973	70%	53,181	1000	800	11.86
Subtotal		375,228		218,094			
<b>Totals</b>				2,583,806			
Check Against Lowest Actual Monthly Avg. Day Flow (May 2014 from LS 59 Flow Log):				2,367,806			

- 1 "EDU" stands for Equivalent Dwelling Unit
- 2 "ADWF" stands for Average Dry Weather Flow
- 3 "BOD" stands for Biochemical Oxygen Demand
- 4 "TSS" stands for Total Suspended Solids





APPENDIX E

Table 1  
 City of Foster City / Estero Municipal Improvement District  
 Wastewater Enterprise Cash Flow Projection - Bond Financing

	Five Year Projection						Extended Year Projection				
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
<b>Assumptions:</b>											
Interest Earnings Rate	1.00%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Revenue Increase from Growth		0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
Rate Adjustment		14.25%	14.25%	14.25%	14.25%	14.25%	9.50%	2.00%	2.00%	0.00%	0.00%
Monthly Service Charge for Single Family	\$65.27	\$74.57	\$85.20	\$97.34	\$111.21	\$127.06	\$139.13	\$141.91	\$144.75	\$144.75	\$144.75
<b>Beginning O&amp;M Fund Balance</b>	\$5,327,525	\$6,232,400	\$6,321,600	\$5,480,400	\$5,315,200	\$5,091,900	\$4,087,100	\$3,547,000	\$4,857,000	\$6,447,600	\$8,652,700
<b>Operating Revenues</b>											
Service Charges	9,768,000	11,209,000	12,862,000	14,759,000	16,936,000	19,434,000	21,377,000	21,911,000	22,459,000	22,571,000	22,684,000
Connection Fees [1]	26,250										
Interest Earnings [2]	34,000	93,000	95,000	82,000	80,000	76,000	61,000	53,000	73,000	97,000	130,000
Other Revenue	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
<b>Operating Revenue</b>	<b>9,829,250</b>	<b>11,303,000</b>	<b>12,958,000</b>	<b>14,842,000</b>	<b>17,017,000</b>	<b>19,511,000</b>	<b>21,439,000</b>	<b>21,965,000</b>	<b>22,533,000</b>	<b>22,669,000</b>	<b>22,815,000</b>
<b>Non Operating Revenue</b>											
<b>Interfund Loan - Capital Improvement Fund</b>	<b>7,671,545</b>										
Bond / Loan [3]		35,941,613	14,875,057	30,368,952	46,121,671	13,995,670	0	0	0	0	0
<b>Non Operating Revenue</b>	<b>7,671,545</b>	<b>35,941,613</b>	<b>14,875,057</b>	<b>30,368,952</b>	<b>46,121,671</b>	<b>13,995,670</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total Revenue</b>	<b>17,500,795</b>	<b>47,244,613</b>	<b>27,833,057</b>	<b>45,210,952</b>	<b>63,138,671</b>	<b>33,506,670</b>	<b>21,439,000</b>	<b>21,965,000</b>	<b>22,533,000</b>	<b>22,669,000</b>	<b>22,815,000</b>
<b>Operating Expenses</b>											
Employee Services	1,983,475	2,082,625	2,165,930	2,252,567	2,342,670	2,436,377	2,533,832	2,635,185	2,740,592	2,850,216	2,964,225
Internal Services (from City)	669,676	665,622	682,263	699,320	716,803	734,723	753,091	771,918	791,216	810,996	831,271
Internal Services -ERF	350,140	261,950	268,499	275,211	282,091	289,143	296,372	303,781	311,376	319,160	327,139
Services & Supplies	924,700	799,650	819,641	840,132	861,135	882,663	904,730	927,348	950,532	974,295	998,652
EMID Share WWTP O&M	2,500,000	2,500,000	2,575,000	2,652,250	2,731,818	2,813,773	2,898,186	2,985,132	3,074,686	3,166,927	3,261,935
EMID Share WWTP Capital Improvements	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Reallocation	716,373	823,974	836,334	848,879	861,612	874,536	887,654	900,969	914,484	928,201	942,124
<b>Operating Expenses</b>	<b>8,144,364</b>	<b>8,133,821</b>	<b>8,347,667</b>	<b>8,568,359</b>	<b>8,796,129</b>	<b>9,031,215</b>	<b>9,273,865</b>	<b>9,524,333</b>	<b>9,782,886</b>	<b>10,049,795</b>	<b>10,325,346</b>
<b>Operating Net Revenue</b>	<b>1,684,886</b>	<b>3,169,179</b>	<b>4,610,333</b>	<b>6,273,641</b>	<b>8,220,871</b>	<b>10,479,785</b>	<b>12,165,135</b>	<b>12,440,667</b>	<b>12,750,114</b>	<b>12,619,205</b>	<b>12,489,654</b>
<b>Repayment of Interfund Loan</b>		<b>14,862,371</b>									
<b>Capital Expenses</b>											
<b>Transfer Out - Capital Improvement Fund</b>	<b>780,000</b>	<b>1,080,000</b>	<b>1,080,000</b>	<b>1,080,000</b>	<b>1,080,000</b>	<b>1,080,000</b>	<b>1,080,000</b>	<b>1,080,000</b>	<b>1,080,000</b>	<b>1,080,000</b>	<b>1,080,000</b>
EMID Share WWTP Expansion	7,671,545	23,079,242	16,875,057	32,368,952	48,121,671	15,995,670	2,291,123	716,609	745,441	0	0
<b>Capital Expenses</b>	<b>8,451,545</b>	<b>24,159,242</b>	<b>17,955,057</b>	<b>33,448,952</b>	<b>49,201,671</b>	<b>17,075,670</b>	<b>3,371,123</b>	<b>1,796,609</b>	<b>1,825,441</b>	<b>1,080,000</b>	<b>1,080,000</b>
<b>Annual Debt Service</b>			<b>2,371,500</b>	<b>3,358,800</b>	<b>5,364,200</b>	<b>8,404,600</b>	<b>9,334,100</b>	<b>9,334,100</b>	<b>9,334,100</b>	<b>9,334,100</b>	<b>9,334,100</b>
Debt Service			2,371,500	3,358,800	5,364,200	8,404,600	9,334,100	9,334,100	9,334,100	9,334,100	9,334,100
<b>Debt Coverage [4]</b>			1.94	1.87	1.53	1.25	1.30	1.33	1.37	1.35	1.34
Total Expenditures	16,595,909	32,293,063	28,674,224	45,376,111	63,362,000	34,511,485	21,979,088	20,655,042	20,942,427	20,463,895	20,739,446
<b>Revenues Less Total Expenditures</b>	<b>904,886</b>	<b>14,951,550</b>	<b>(841,167)</b>	<b>(165,159)</b>	<b>(223,329)</b>	<b>(1,004,815)</b>	<b>(540,088)</b>	<b>1,309,958</b>	<b>1,590,573</b>	<b>2,205,105</b>	<b>2,075,554</b>
<b>Ending O&amp;M Fund Balance</b>	<b>6,232,411</b>	<b>6,321,579</b>	<b>5,480,433</b>	<b>5,315,241</b>	<b>5,091,871</b>	<b>4,087,085</b>	<b>3,547,012</b>	<b>4,856,958</b>	<b>6,447,573</b>	<b>8,652,705</b>	<b>10,728,254</b>
<b>Cash Fund Reserve Test: Minimum Fund Balance &gt; 25% O&amp;M Expenses</b>											
Year-end O&M Fund Balance	6,232,411	6,321,579	5,480,433	5,315,241	5,091,871	4,087,085	3,547,012	4,856,958	6,447,573	8,652,705	10,728,254
25% Operating Expenses	2,036,091	2,033,455	2,086,917	2,142,090	2,199,032	2,257,804	2,318,466	2,381,083	2,445,722	2,512,449	2,581,337
# of Days O&M in Reserves	279	284	240	226	211	165	140	186	241	314	379
Pass/fail	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Table 2  
 City of Foster City / Estero Municipal Improvement District  
 Projected Wastewater Rate Impacts

Projected Rates	Current	Projected - Fiscal Year Ending June 30				
	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
<b>% Rate Increase</b>		<b>14.25%</b>	<b>14.25%</b>	<b>14.25%</b>	<b>14.25%</b>	<b>14.25%</b>
<b>Residential (flat monthly rate)</b>						
Single Family	\$65.27	\$74.57	\$85.20	\$97.34	\$111.21	\$127.06
<i>Increase (Decrease)</i>		9.30	10.63	12.14	13.87	15.85
Townhouse/Duplex	\$54.83	\$62.64	\$71.57	\$81.77	\$93.42	\$106.73
<i>Increase (Decrease)</i>		7.81	8.93	10.20	11.65	13.31
Apartment/Condominium (Pools w/ Restrooms)	\$54.83	\$62.64	\$71.57	\$81.77	\$93.42	\$106.73
<i>Increase (Decrease)</i>		7.81	8.93	10.20	11.65	13.31
<b>Commercial (rate per ccf of water use)</b>						
High Strength	\$11.86	\$13.55	\$15.48	\$17.69	\$20.21	\$23.09
<i>Increase (Decrease) per ccf</i>		1.69	1.93	2.21	2.52	2.88
Medium/Domestic Strength	\$4.17	\$4.76	\$5.44	\$6.22	\$7.11	\$8.12
<i>Increase (Decrease) per ccf</i>		0.59	0.68	0.78	0.89	1.01
Low Strength	\$2.74	\$3.13	\$3.58	\$4.09	\$4.67	\$5.34
<i>Increase (Decrease) per ccf</i>		0.39	0.45	0.51	0.58	0.67

CHART C

