

Proposed Biennial Budget

Fiscal Years 2018 & 2019

District Overview

Water System Budget

Wastewater System Budget



East Bay Municipal Utility District
Oakland, California

Fiscal Years 2018 & 2019

Biennial Budget

***Volume 1 District Overview
 Water System Budget
 Wastewater System Budget***

***Volume 2 Supplemental Material:
 Capital Project Summaries***

*Presented to the Board of Directors
April 11, 2017*

East Bay Municipal Utility District

**EAST BAY MUNICIPAL UTILITY DISTRICT
BIENNIAL BUDGET FY18 & FY19
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BIENNIAL BUDGET FY18 & FY19
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SUPPLEMENTAL VOLUME

Capital Project Summaries

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April 6, 2017

Honorable Members of the Board of Directors:

I am pleased to present the water and wastewater budgets for Fiscal Years 2018 and 2019. This budget continues our efforts to move forward with key goals of reinvesting in our infrastructure and expanding preventative maintenance. The budget does so while recognizing the need to recover from the financial and operational impacts of the most severe drought the District has experienced followed closely by significant regional storms producing an above average amount of rainfall.

The budget controls spending as we implement long-planned initiatives while considering the impact on our customers. We are grateful for the strong community response to our calls for wise water use which is supported by a rate structure with a large volume-based component which is one of our best conservation tools. However, all water and wastewater utilities, including the District, are essentially fixed-cost enterprises: few of our costs go down when we produce and treat less water. The District is experiencing record low water sales as a result of the long drought, followed by lower outdoor water use due to continued customer conservation and above average precipitation. The District therefore requires increases to our water rates to continue to maintain the high level of service which we are proud to provide.

The FY18 and FY19 water rates and customer bill impacts are higher than those projected two years ago because water sales are significantly below projections. The average user reduced water use in response to the drought and now consumes only 8 CCF per month (about 200 gallons per day) as compared to 10 CCF previously. The reduced consumption of the average user has partially offset the bill impact of recent rate increases. The average 8 CCF user will see an increase of \$4.34 per month in FY18 and an increase of \$4.63 per month in FY19, based on the proposed rate increases of 9.25 percent in FY18 and 9.0 percent in FY19. The budget draws upon Rate Stabilization Funds to lessen the rate impact on our customers as the District recovers from the multi-year drought.

Many customers who live in the western part of our service area also receive a wastewater treatment charge on their EBMUD bill. The wastewater rate increases will be exactly as projected as the Wastewater System is less affected than the Water System by the challenges associated with drought. The average single family residential bill for wastewater treatment based on the average of 6 CCF will increase by \$0.96 per month in FY18 and \$1.06 per month in FY19. This reflects proposed wastewater increases of 5.0 percent in FY18 and 5.0 percent in FY19. Wastewater customers also pay an annual Wet Weather Facilities Charge collected on the property tax bill. Depending on lot size, this charge will increase 5.0 percent in FY18 between \$4.70 to \$16.80 per year, and in FY19 an increase of 5.0 percent between \$4.94 to \$17.64 per year.

A potential challenge on the horizon for the Wastewater System is the need to reduce nutrient discharge (nitrogen and phosphorus) to the San Francisco Bay. The District is still working to understand the cost impacts and this budget includes an appropriation for nutrient management studies. The District will work to meet this evolving challenge as cost effectively as possible while doing our part to protect the environment.

With the proposed rate increases, EBMUD water rates will remain similar to rates for comparable northern California water agencies, in the lower third of agencies we survey. For the Wastewater System, as EBMUD provides only treatment and not collection of wastewater, we will maintain our current position in the top third of surveyed agencies, driven by the rates of the wastewater collection agencies in our service area. As part of our continued efforts towards ensuring greater understanding of District activities and what they cost, the bill impacts for a wide range of use levels and customer classes are presented in this budget book.

GENERAL MANAGER'S ADOPTED BUDGET HIGHLIGHTS

The budget priorities for FY18 and FY19 emerged from a planning process that began with the adoption of the District's latest update of its Strategic Plan on June 14, 2016. The Strategic Plan outlines the goals, strategies, and objectives we will pursue to meet future challenges and fulfill the District's mission. Priorities were developed for the Strategic Plan goals, and are reflected in this budget.

Increase Investments in and Maintenance of Aging Infrastructure

EBMUD operates and maintains a vast network of pipelines, storage and treatment facilities to deliver water and provide wastewater services to customers. Reaching from the Sierra Nevada foothills to the San Francisco Bay, this network has an estimated replacement cost exceeding \$14.4 billion. Maintaining high-quality service requires ongoing reinvestment in reservoirs, aqueducts, pump stations, distribution pipelines, sewer interceptors, treatment plants, transmission pipelines, service laterals and buildings. Increases in sustained infrastructure funding are necessary to continue providing high quality and reliable service. The budget was developed after analyzing a portfolio of capital investments and determining the highest priority projects based on regulatory compliance, safety, cost-effectiveness and improving service to our customers.

We continue with our long-term goal of increasing investments in infrastructure. Capital investments typically represent about 65 percent of our budget and this budget reflects spending of nearly \$1.5 billion on water infrastructure and \$190 million on wastewater infrastructure. The two-year Capital Improvement Program (CIP) cash flow for both Water and Wastewater totals \$618.5 million, a 15 percent increase over the prior two-year budget.

This budget reflects a significant commitment in capital investments to replace aging infrastructure. In 2018 to 2022, projected Water System capital cash flow spending totals \$1.50 billion, an increase of \$126.0 million or 9 percent from the prior total. The projected Wastewater System capital cash flow spending from FY18-22 totals \$187.7 million, an increase of \$19.2 million or 11 percent from the prior total.

The largest share of projected cash flow spending on the Water System is for replacing deteriorated distribution pipelines, large diameter transmission pipelines and service laterals. These three capital projects account for over 25 percent of the cash flow. The rehabilitation and replacement of water transmission facilities such as water treatment plants, pumping plants, and reservoirs account for almost another 25 percent of the cash flow. Optimizing the performance of various pressure zones to improve water quality is another significant portion of our infrastructure investment.

The largest share, over 40 percent, of projected cash flow spending on the Wastewater System is for rehabilitating and making improvements to the infrastructure at the Main Wastewater Treatment Plant. The rehabilitation of interceptors and pumping plants accounts for over 20 percent of the cash flow. Rehabilitating digesters, controlling plant odors and studying nutrients are also a significant portion of our infrastructure investment.

Managing the Financial and Operational Impacts of Severely Reduced Consumption

The FY16 and FY17 budget was developed using prudent assumptions that dramatically reduced billed water consumption to 151 million gallons per day (MGD) for both years, a drop of 25 percent below the peak consumption level of just over 200 MGD in 2007. As ratepayers met and exceeded the call for conservation, the reality outpaced even these conservative assumptions: the District sold just 128 MGD in FY16. This remarkable response from customers led the District to again reset the projected billed water consumption in this budget.

The FY18 and FY19 budget is based on assumptions of 137 MGD for FY18 and a slight increase to 141 MGD for FY19. Despite the fact that the recent drought has ended and water use restrictions have been lifted, the budget assumes that customers will generally maintain their conservation habits.

Low water use affects system operations as well as finances. For example, the increased average age of water in our reservoirs may cause issues including taste and odor, challenging our water quality teams to manage these impacts. The effects of the drought are wide ranging and will continue to be felt for years.

The District does not anticipate any water shortage emergencies in FY18 and FY19 as a result of the very high levels of water currently in storage due to recent storms. Therefore, no drought contingency is included in this budget. If the District experiences a water shortage emergency, staff will develop a budget to bring to the Board for consideration.

In the FY16 and FY17 budget, the Board adopted a staged system of drought rates to recover drought-related costs. The District's 2015 Cost of Service study developed drought surcharges on volume use of up to 8 percent, 20 percent and 25 percent to be levied for drought Stages 2, 3 and 4, respectively. The District's Proposition 218 will continue to notice these surcharges so that they remain available to the Board to implement the next time the District is in a water shortage emergency.

Negotiating Labor Agreements

District employees are represented by AFSCME Local 2019, AFSCME Local 444, IFPTE Local 21, and IUOE Local 39. The labor agreements will expire in April 2017. The District is in the process of negotiating wage and benefit agreements with represented employees, and working with management and non-represented employees as well.

ADOPTED BUDGET OVERVIEW

The following charts summarize the budget for FY18 and FY19. The District-wide total appropriation is \$2.03 billion for Water System and Wastewater System operations, debt service and capital appropriations.

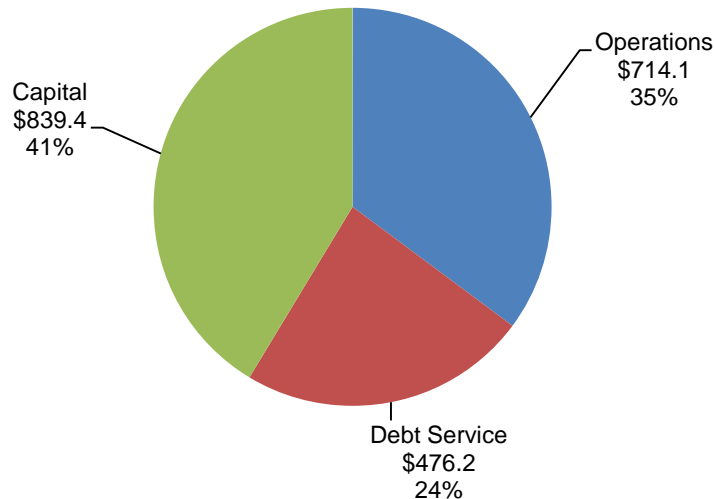
The Water and Wastewater System biennial budget is \$2.03 billion, a 19 percent increase over the previous two-year adopted budget that includes appropriations for operations (35 percent), debt service (24 percent), and the capital budget (41 percent).

COMPARISON OF FY17, FY18, AND FY19 BUDGETS					
(\$ Millions)					
	FY17 Amended Budget	FY18 Proposed Budget	FY18 vs FY17	FY19 Proposed Budget	FY19 vs FY18
Water System					
Operations	262.4	277.9	5.9%	292.5	5.2%
Debt Service	180.2	199.6	10.7%	210.0	5.3%
Capital Appropriation	<u>290.4</u>	<u>386.5</u>	33.1%	<u>367.5</u>	-4.9%
Total	733.0	863.9	17.9%	869.9	0.7%
Wastewater System					
Operations	70.7	70.6	-0.2%	73.1	3.7%
Debt Service	34.0	34.7	2.1%	31.9	-7.9%
Capital Appropriation	<u>32.6</u>	<u>34.4</u>	5.5%	<u>51.1</u>	48.7%
Total	137.3	139.6	1.7%	156.2	11.9%
District					
Operations	333.1	348.5	4.6%	365.6	4.9%
Debt Service	214.1	234.2	9.4%	242.0	3.3%
Capital Appropriation	<u>323.0</u>	<u>420.8</u>	30.3%	<u>418.6</u>	-0.5%
District-wide Total	870.2	1,003.5	15.3%	1,026.1	2.3%

Numbers in the table may be rounded.

FY18 & FY19 Water and Wastewater Budgets

(\$ Millions)



Water System The total two-year budget is \$1.7 billion. In FY18, the budget is \$863.9 million, or \$130.9 million (17.9 percent) greater than the FY17 amended budget. In FY19, the total budget is \$869.9 million, or \$6.0 million (0.7 percent) greater than FY18. In both fiscal years combined, more than two-thirds of the budget is related to the Capital Improvement Program. The proposed FY18 and FY19 budget includes the additional staffing considerations of 17.5 full-time equivalents (FTEs) discussed at the March 14, 2017 workshop to address capital projects and a variety of operation programs such as preventative maintenance, information systems security, diversity and inclusion outreach, intern program, and water treatment plant distributed control systems support. Hiring for these positions is contingent upon planned water sales during the peak summer months. If water sales fall below the planned projection, then recruitment for these positions may be delayed.

Of the \$130.9 million increase in FY18, \$15.5 million is due to operations, \$19.4 million to debt service, and \$96.0 million for capital. Of the operations budget total increase, \$11.6 million is attributable to labor costs and \$3.9 million is driven by non-labor. The primary increase in the operations labor budget is to fund additional staff as shown in Chapters 2 and 3, but the cost is partially offset by a decrease in budgeted overtime. The additional staff will address the budget priority of infrastructure maintenance including water operations needs identified during the most recent drought. In Chapter 3, the major drivers for the increase in the operations non-labor budget are discussed. Many costs are rising, but a significant new driver is a requirement for lead sampling in schools and a voluntary customer tap lead sampling program costing \$1.5 million each year of this biennial budget. The rising expenses are partially offset by lower potable water production costs due to reduced water sales, and decreases for other costs such as petroleum and fees. Debt service in FY18 will increase \$19.4 million due to the issuance of new bonds for the Capital Improvement Program. The FY18 capital appropriation increase of approximately \$96.0 million will fund work such as water treatment plant upgrades, pumping plant rehabilitation, and large diameter pipeline replacements.

The FY19 increase of \$6.0 million reflects \$14.5 million for operations, \$10.5 million for debt service, and a decrease in the capital appropriation of \$19.0 million. Of the operations budget increase, \$9.9 million is attributable to labor costs and approximately \$4.6 million is driven by non-labor. As discussed in Chapter 3, the non-labor budget increase is primarily due to a variety of operations costs such as higher potable water production expenses as a result of price increases for chemicals, energy and disposal combined with a slight growth in water sales, fleet vehicle expenses, Board election fees, and other operating costs relative to FY18. Debt service will increase \$10.5 million due to the issuance of new bonds to fund the CIP. The \$19.0 million decrease in capital appropriation is the result of several multi-year projects being fully appropriated in FY18.

Wastewater System The total two-year budget is \$295.8 million. In FY18, the budget is \$139.6 million, or \$2.3 million (1.7 percent) greater than the FY17 amended budget. In FY19, the total budget is \$156.2 million, or \$16.6 million (11.9 percent) greater than FY18.

Of the \$2.3 million increase in FY18, a decrease of approximately \$0.2 million is attributable to operations, offset by an increase of \$0.7 million in debt service and \$1.8 million in the capital appropriation. As detailed in Chapter 2 and 4, additional positions are funded in FY18. Compared to the prior fiscal year, the operations labor budget increase is \$0.3 million and the non-labor budget will decrease \$0.5 million primarily due to favorable chemical pricing combined with operational efficiencies and lower reimbursable costs for services provided by the Water System. Debt service expenses in FY18 will increase \$0.7 million compared to the prior fiscal year. Of the increase to the capital appropriation, \$1.5 million will fund nutrient management studies.

The FY19 increase of \$16.6 million reflects \$2.6 million for operations, a decrease of \$2.7 million for debt service, and an increase of \$16.7 million in the capital appropriation. Of the operations budget total increase, \$1.8 million is attributable to labor costs and \$0.8 million for non-labor. The total operations non-labor budget increases are primarily for plant operating costs such as chemicals, disposal, fleet expenses and Water System reimbursable costs. Debt service will decrease a net of \$2.7 million due to the retirement of the General Obligation bond, but is offset by the issuance of new bonds. The \$16.7 million increase in the capital appropriation will fund work such as the rehabilitation of sections of the 3rd Street sewer interceptor, odor control improvements, and improving the infrastructure at the Main Wastewater Treatment Plant.

Five-Year Capital Improvement Program Budget

The FY18-22 combined Water and Wastewater System CIP includes \$1.85 billion of appropriations. Of this total, the Board of Directors approves the first two years or \$839.4 million.

The following discussion focuses on the CIP cash flows as they establish the fiscal years' project spending and are a significant component of the rates. The FY18-22 combined Water and Wastewater System CIP planned cash flow spending will increase by 14 percent over the five year span, from \$309.1 million in FY18 to \$355.4 million in FY22.

Water System Top Programs EBMUD is continuing its focus on investments in infrastructure rehabilitation, repair and replacement. The following table shows the major Water System capital programs and the projected cash flow spending. The largest program spending over the next five years is for Pipelines and Regulators which includes replacing 15 to 20 miles of distribution pipelines per year, and replacing large transmission pipelines. The Pressure Zone Improvements program is the next largest area of spending and includes upgrading or replacing reservoirs, pumping plants and transmission systems throughout the District to optimize storage capacity and improve water quality. The Water Treatment Plant Upgrade program focuses on improvements to the operation, reliability and safety of plants and includes upgrading filter systems, chemical systems, and control systems. The other programs will make improvements to the Mokelumne aqueducts, storage reservoirs and pumping plants, and replace polybutylene and copper service laterals. The Water Recycling program will focus on expanding the San Ramon Valley recycled water project.

Water System Major Capital Programs Five-Year CIP (\$ Millions)	
Programs	FY18-FY22 Cash Flow
Pipelines and Regulators	458
Pressure Zone Improvements	150
Water Treatment Plant Upgrade	139
Raw Water Aqueducts	104
Reservoir Rehabilitation	103
Water Recycling	90
Pumping Plant Rehabilitation	79
Polybutylene Lateral Replacement	74

Wastewater System Top Projects The following table shows the continued focus on making improvements to the Main Wastewater Treatment Plant to maintain our strong record of complying with permit requirements. Work addresses various aspects of the facility including drains, clarifiers, digesters, grit handling and other equipment, concrete structures, and controlling odors. In addition, work on the 3rd Street sewer interceptor rehabilitation will continue. A new project is for nutrients management to identify cost-effective solutions as the discharge of nutrients to San Francisco Bay continues to be a key area of concern.

Wastewater System Major Capital Projects Five-Year CIP (\$ Millions)	
Projects	FY18-FY22 Cash Flow
Treatment Plant Infrastructure	44
3 rd Street Sewer Interceptor Rehabilitation	32
Odor Control Improvements	23
Digester Upgrades	21
Concrete Rehabilitation	19
Nutrient Management	15
Capital Equipment Replacement	13

CUSTOMER BILL IMPACTS

As a community, our quality of life depends on reliable, environmentally-sound water and wastewater services. In this message, a summary of bill impacts for the average single family residential user is shown. The attachment provides detailed information for a wide range of use levels.

Customer bill impacts for FY18 and FY19 reflect the revenue requirement necessary to meet the proposed budget needs and low projected water sales. The proposed rates and charges are consistent with the District's 2015 Cost of Service study that allocates costs among customer classes based on usage characteristics. State law requires basing rates and charges on cost of service.

- An average single family residential customer now uses 8 centum cubic feet (CCF) per month or approximately 200 gallons per day (gpd). This customer's monthly water charges would increase \$4.34 in FY18 and an additional \$4.63 in FY19.
- An average single family residential customer discharges 6 CCF per month to the sewer system. This customer's monthly wastewater treatment charges collected on the water bill would increase \$0.96 in FY18 and an additional \$1.06 in FY19.
- An average single family residential customer receiving both EBMUD water and wastewater treatment services would see a combined monthly increase of \$5.30 in FY18 and an additional \$5.69 in FY19.
- The wastewater Wet Weather Facilities Charge, collected on the property tax bill, is based on a customer's lot size. For most single family residential customers the annual wastewater Wet Weather Facilities Charge will increase by \$4.70 in FY18 and an additional \$4.94 in FY19. For single family residential customers with the largest lot size, over 10,000 square feet, the annual increase would be \$16.80 in FY18 and an additional \$17.64 in FY19.

USING THE BUDGET DOCUMENT

EBMUD's FY18 and FY19 biennial budget document is comprised of two volumes. This volume contains all of the key biennial budget information for both the Water and Wastewater Systems, including a District overview, detailed operating and capital budgets, and five-year financial forecasts. The supplemental volume provides



summaries for all projects in the Capital Improvement Program. Since 1996, the District's budget documents have consistently received the Government Finance Officers Association's coveted Distinguished Budget Presentation Award. In addition, the California Society of Municipal Finance Officers has given awards for the District's biennial budget documents.

CONCLUSION

The FY18 and FY19 budget continues our commitment to providing high quality, reliable water and wastewater services for our customers. We will closely monitor our costs and continue to look for opportunities to maximize efficiency and productivity. We will also look for ways to restructure the workloads, and leveraging technology as employees retire or leave the District. With the ongoing support of the Board and the staff of the District, I am confident that we will meet our challenges well into the future.

In closing, I want to thank the staff who worked so diligently to develop the budget and in particular to acknowledge their work in preparing the budget document. Their collective efforts have enabled us to develop a budget that serves as an effective policy document, a financial plan, an operations guide, and an information resource that explains to ratepayers the benefits of necessary rate increases.

Respectfully submitted,

ALEXANDER R. COATE
General Manager

ARC:SDS

Attachment

To enhance transparency, we are providing this attachment to the General Manager's message. The tables contain additional detail on bill impacts of the changes to water and wastewater rates and charges. The tables present FY18 and FY19 water and wastewater charges. To better demonstrate the full impacts of rate changes, they cover a range of customer classes and use levels.

Water Charge Bill: Monthly Impacts

The table titled **Single Family Residential Water Charges on Water Bill** addresses a broad cross-section of single family residential users which represent the majority of District accounts. The impact of rate increases is illustrated for users ranging from 4 CCF (25th percentile) to 22 CCF (95th percentile) per month. The impact is also provided for both the median single family user of 6 CCF and the recent average of 8 CCF. The tables present monthly impacts for ease of use, although residential single family customers receive bills covering two month periods.

Multi-Family Residential and Non-Residential Water Charges on Water Bill demonstrates the impact on adopted rate increases for two multi-family residential users: one with 4 units at 25 CCF monthly use, and one with 5+ units at 50 CCF monthly use. Information is also included for sample commercial users at 50 CCF per month and industrial users at 500 CCF per month.

Wastewater Treatment Charge Bill: Monthly Impacts and Wastewater Wet Weather Facilities Charge: Annual Impacts

Wastewater customers' charges appear in two separate places, their water bill and their property tax bill. The two tables presented in this section, **Wastewater Charges on Water Bill** and **Wet Weather Facilities Charge on Property Tax Bill**, address each of these bills.

Wastewater charges are based on volume, but are capped at a maximum of 9 CCF per month per single family residential user. The table titled **Wastewater Charges on Water Bill** shows bill impacts for both an average single family residential user discharging 6 CCF per month and a single family residential user discharging at the maximum, capped amount. In addition, impacts are shown for two multi-family residential users: one with 4 units at 25 CCF per month, and one with 5+ units at 50 CCF per month. Information is also included for sample commercial users at 50 CCF per month and industrial users at 500 CCF per month.

The table titled **Wet Weather Facilities Charge on Property Tax Bill** shows updated annual Wet Weather Facilities Charges based on lot size.

Water Charge Bill: Monthly Impacts

Single Family Residential Water Charges on Water Bill								
	Use (CCF)	FY17 Bill	FY18 Bill	Increase from FY17	Percent Change	FY19 Bill	Increase from FY18	Percent Change
25 th Percentile	4	\$33.33	\$36.40	\$3.07	9.2%	\$39.67	\$3.27	9.0%
50 th Percentile (median use)	6	\$39.65	\$43.30	\$3.65	9.2%	\$47.19	\$3.89	9.0%
75 th Percentile	10	\$55.83	\$60.97	\$5.14	9.2%	\$66.46	\$5.49	9.0%
95 th Percentile	22	\$116.31	\$127.03	\$10.72	9.2%	\$138.46	\$11.43	9.0%
Average Single Family Residential Use*	8	\$47.15	\$51.49	\$4.34	9.2%	\$56.12	\$4.63	9.0%

*8 CCF/month represents recent average single-family residential use. Previous comparisons used 10 CCF/month, which represented historic average single-family residential use prior to recent drought conditions.

Multi-Family Residential and Non-Residential Water Charges on Water Bill									
	Meter (Inches)	Use (CCF)	FY17 Bill	FY18 Bill	Increase from FY17	Percent Change	FY19 Bill	Increase from FY18	Percent Change
Multi-Family Residential 4 units	1	25	\$142.74	\$155.88	\$13.14	9.2%	\$169.95	\$14.07	9.0%
Multi-Family Residential 5+ units	1	50	\$254.24	\$277.63	\$23.39	9.2%	\$302.70	\$25.07	9.0%
Commercial	1	50	\$253.24	\$276.63	\$23.39	9.2%	\$301.70	\$25.07	9.1%
Industrial	2	500	\$2,309.32	\$2,522.58	\$213.26	9.2%	\$2,751.36	\$228.78	9.1%

Wastewater Treatment Charge Bill: Monthly Impacts

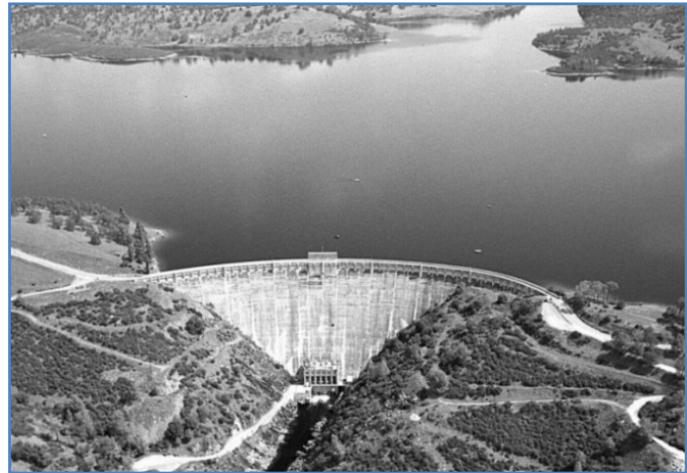
Wastewater Charges on Water Bill									
	Meter (Inches)	Use (CCF)	FY17 Bill	FY18 Bill	Increase from FY17	Percent Change	FY19 Bill	Increase from FY18	Percent Change
Average Single Family Residential	5/8	6	\$19.93	\$20.89	\$0.96	4.8%	\$21.95	\$1.06	5.1%
Single Family Residential	5/8	9	\$23.20	\$24.31	\$1.11	4.8%	\$25.55	\$1.24	5.1%
Multi-Family Residential 4 units	1	25	\$64.16	\$67.21	\$3.05	4.8%	\$70.64	\$3.43	5.1%
Multi-Family Residential 5+ units	1	50	\$130.55	\$136.33	\$5.78	4.4%	\$143.62	\$7.29	5.3%
Commercial	1	50	\$135.03	\$140.81	\$5.78	4.3%	\$148.10	\$7.29	5.2%
Industrial	2	500	\$7,261.03	\$7,621.31	\$360.28	5.0%	\$8,006.60	\$385.29	5.1%

Wastewater Wet Weather Facilities Charge: Annual Impacts

Wet Weather Facilities Charge on Property Tax Bill							
	FY17 Bill	FY18 Bill	Increase from FY17	Percent Change	FY19 Bill	Increase from FY18	Percent Change
Small Lot 0-5,000 sq. ft.	\$94.10	\$98.80	\$4.70	5.0%	\$103.74	\$4.94	5.0%
Medium Lot 5,001 - 10,000 sq.ft.	\$147.00	\$154.34	\$7.34	5.0%	\$162.06	\$7.72	5.0%
Large Lot >10,000 sq. ft.	\$336.00	\$352.80	\$16.80	5.0%	\$370.44	\$17.64	5.0%

INTRODUCTION: DISTRICT OVERVIEW

East Bay Municipal Utility District (EBMUD) supplies water and wastewater treatment for East Bay communities located within Alameda and Contra Costa Counties in California. It is a publicly owned utility formed under the Municipal Utility District (MUD) Act passed by the state legislature in 1921. The Act permits the formation of multi-purpose government agencies to provide needed public services on a regional basis.



The mission of the District is:

“To manage the natural resources with which the District is entrusted; to provide reliable, high quality water and wastewater services at fair and reasonable rates for the people of the East Bay; and to preserve and protect the environment for future generations.”

In 1923, voters in the eastern San Francisco Bay Area created EBMUD to provide water service. Ninety percent of the water used by EBMUD comes from rain and melted snow within the 627-square mile protected watershed of the Mokelumne River located on the western slope of the Sierra Nevada. Raw or untreated water from Pardee Reservoir is transported more than 90 miles west via three parallel aqueducts to East Bay water treatment plants or terminal reservoirs, and from there to 170 local reservoirs and 4,200 miles of distribution pipeline. To protect EBMUD’s customers from the effects of a severe drought, in 2002 the District created the Freeport Regional Water Project to convey up to 100 million gallons per day of supplemental Sacramento River water. The first water deliveries to the East Bay were in 2014 due to the drought that was being experienced at that time.

In 1944, voters in six of the East Bay cities served by EBMUD elected to form Special District No. 1 to treat wastewater before being released into San Francisco Bay. In 1951, EBMUD began to provide wastewater treatment. Laboratory services operate 365 days a year to constantly monitor water quality for drinking water and wastewater systems.

EBMUD is a California Special District and has a seven-member Board of Directors publically elected from wards within the service area. The Board is committed to governing through an open, public process, guided by the District’s Mission Statement. Policies are then implemented under the direction of the General Manager. The General Manager and General Counsel are appointed by and report directly to the Board. The Senior Management Team is responsible for managing the operations of the District. EBMUD employs over 1,800 people in service to its mission. The Water and Wastewater Systems are legally distinct entities managed by the same Board.

For a complete history of the East Bay Municipal Utility District, please visit the history page at www.ebmud.com/about-us/who-we-are/mission-and-history/.

COMMUNITY

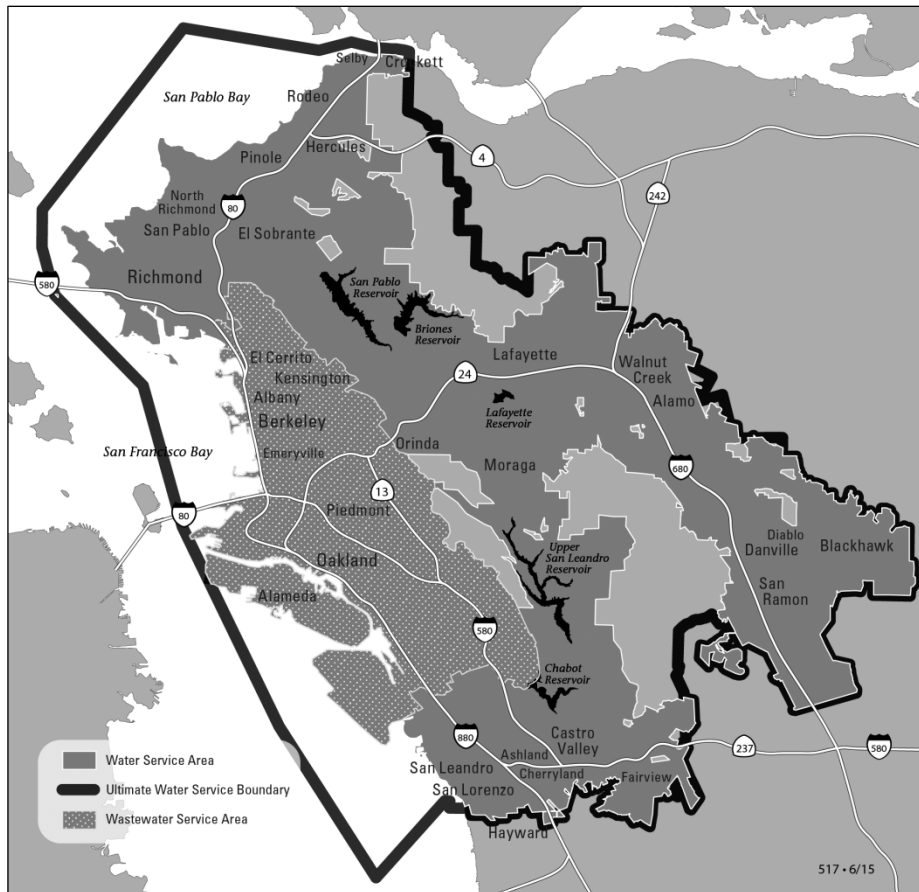
Service Area Description

Since 1929, when EBMUD first delivered water from the Sierra Mountains to the East Bay, the population served has grown from approximately 0.5 million to 1.4 million. Today the service area includes many of the region's large employers. The District's vitality is inseparable from the \$667 billion Bay Area regional economy which is essential to the economic health of California and the nation. The gross domestic product (GDP) of the Bay Area is one of the highest in the United States. The District's infrastructure is diverse and extensive, with a replacement cost conservatively estimated at more than \$14.4 billion.

The EBMUD water service area includes a large part of urban and suburban development in Alameda and Contra Costa Counties. The service area includes 20 cities and 15 unincorporated communities located on the eastern shore of San Francisco Bay (the "East Bay"). It is a 332-square mile area extending from Crockett in the north to San Lorenzo in the south, and eastward from San Francisco Bay through the Oakland-Berkeley hills to Walnut Creek and south through the San Ramon Valley.

The wastewater service area is an 88-square mile area along the east shore of the bay extending from Richmond in the north to Oakland in the south.

EBMUD SERVICE AREA – WATER and WASTEWATER SYSTEMS



Population

Approximately 1.4 million people are served by the Water System, 685,000 of whom are also served by the Wastewater System. Alameda County is the second fastest growing county in the state. Oakland is the eighth largest city in the state. The following table includes population data for the largest cities in the District's service area.

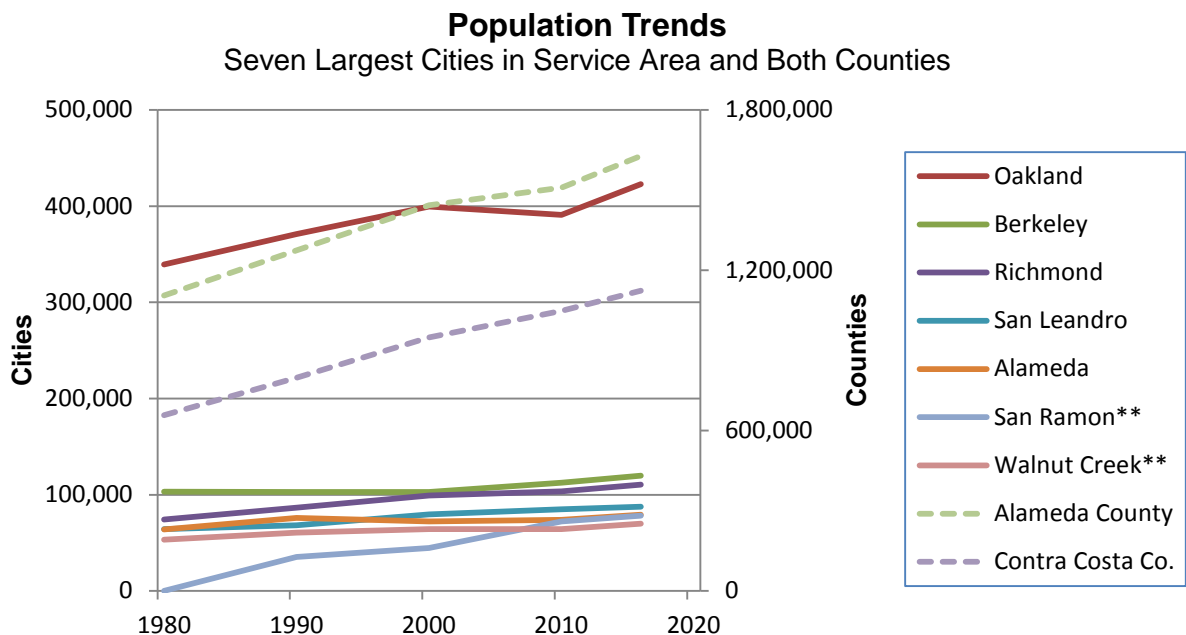
Population Trends*
Seven Largest Cities in Service Area
Alameda and Contra Costa Counties, and California

City/County	1/1/1980	1/1/1990	1/1/2000	1/1/2010	1/1/2016
Oakland	339,300	371,100	399,500	390,757	422,856
Berkeley	103,300	102,700	102,700	112,621	119,915
Richmond	74,300	86,600	99,200	103,661	110,378
San Leandro	64,200	68,100	79,500	84,977	87,700
Alameda	63,900	75,900	72,300	73,835	79,277
San Ramon**	***	35,300	44,800	72,148	78,363
Walnut Creek**	53,300	60,600	64,300	64,140	70,018
Alameda County	1,105,380	1,274,700	1,443,700	1,509,240	1,627,865
Contra Costa Co.	657,250	797,600	948,800	1,047,948	1,123,429
California	23,669,000	29,558,000	33,872,000	37,223,900	39,255,883

* California Department of Finance, Demographic Research Unit. Population Estimates for California Cities – Released May 2016.

** EBMUD does not serve all of San Ramon or Walnut Creek, but total population is shown for each.

*** San Ramon was unincorporated in 1980, data not available.



** Total Population shown even though EBMUD does not serve the entire community.

WATER AND WASTEWATER SYSTEMS

Water Supply

This section describes how EBMUD delivers water from the Sierra Nevada foothills to the Bay Area and how the wastewater plant treats municipal wastewater. During its 90 years, the population has grown and the system has expanded to meet increasing needs.

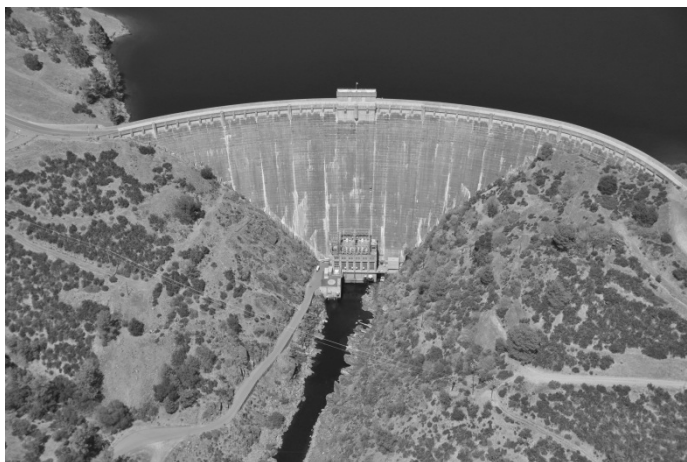
Ensuring a reliable, high quality water supply for today and the future is one of the District's highest priorities. Significant capital investments have been made to ensure a reliable water supply such as securing supplemental water supplies and expanding recycled water supply programs.



One of the most important factors in water quality is the source: the purer the source the better the water. Ninety percent of EBMUD's water comes from the 627-square mile watershed of the Mokelumne River located on the western slope of the Sierra Nevada. This area is mostly national forest, EBMUD-owned lands and other undeveloped lands little affected by human activity. The Mokelumne watershed collects snowmelt which flows into Pardee Reservoir near the town of Valley Springs.

Three large aqueducts carry this water more than 90 miles from Pardee Reservoir to the East Bay and protect it from pesticides, agricultural and urban runoff, municipal sewage and industrial discharges. When water demand is high or during times of operational need, EBMUD also draws water from protected local watersheds.

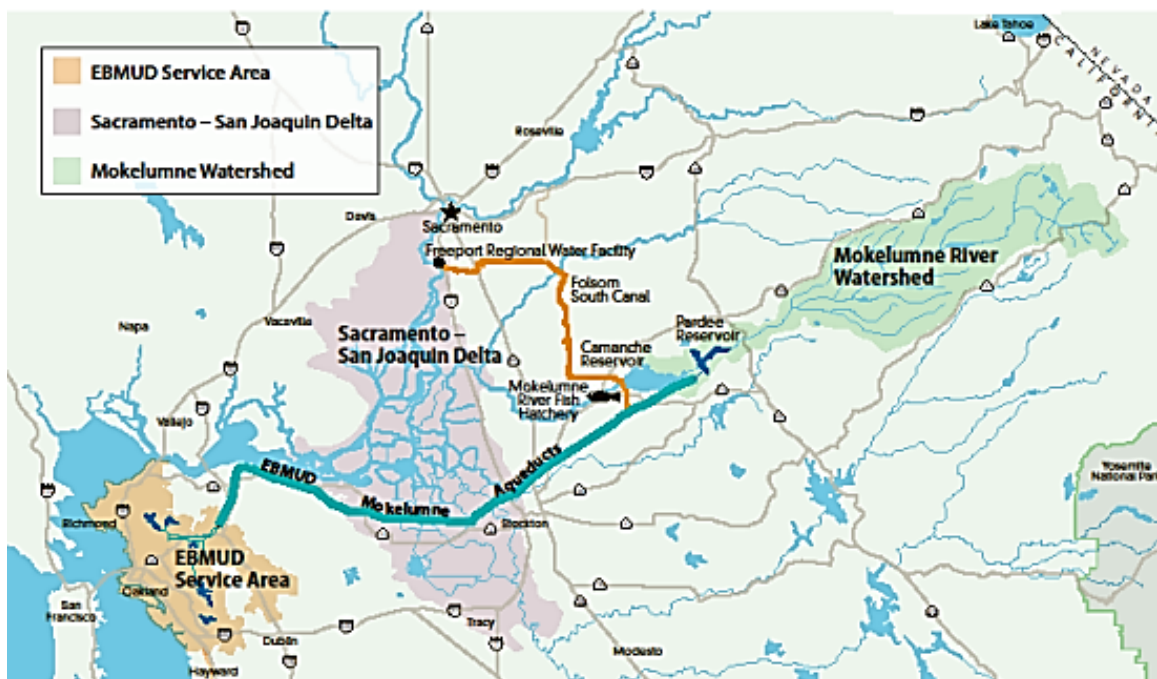
Before water reaches the tap, EBMUD takes many steps to ensure its quality. This includes carefully managing watershed lands and reservoirs; treating the water; maintaining water quality through a complex system of distribution pipes, pumping plants and reservoirs; testing water samples in our lab and in the field; and addressing consumer concerns. These efforts ensure that all customers receive high-quality drinking water that meets or surpasses all state and federal regulatory requirements.





Every five years, EBMUD updates its Urban Water Management Plan to ensure a reliable water supply for the next generation. This includes making the best use of limited supplies through water conservation and recycling and developing long-term projects to augment the water supply.

This map shows how the water travels from the Mokelumne River watershed into Pardee Reservoir, across the Central Valley in EBMUD's Mokelumne Aqueducts, and to the EBMUD Service Area.



The indoor water used by customers is discharged into the sewer system and makes its way to the Wastewater Treatment Plant for treatment, and finally to the San Francisco Bay.

Wastewater Treatment

EBMUD's wastewater treatment plant provides service for 685,000 people along the eastern shore of the San Francisco Bay, and treats approximately 56 million gallons of municipal wastewater per day. Wastewater is collected from homes and businesses through privately owned sewer laterals that feed into a network of city and other regional sewers. EBMUD's sewer interceptors and pump stations carry the wastewater to its treatment plant located in Oakland.



Stormwater is collected through a separate community-owned system. The plant treats sewage to meet stringent state and federal standards before recycling it or releasing it to the Bay. Prior to its construction, raw sewage was discharged directly into the Bay. As a partner in the stewardship of the Bay, EBMUD works with residents and businesses to help them keep contaminants out of the sewer system.

EBMUD has been recycling and producing renewable energy at its wastewater plant since the mid-1980s. EBMUD's plant transforms sewage and other organic wastes into green energy, nutrient-rich soil conditioner and recycled water. EBMUD produces sufficient renewable energy to meet its onsite power demands. In addition, excess energy is sold to the neighboring Port of Oakland.

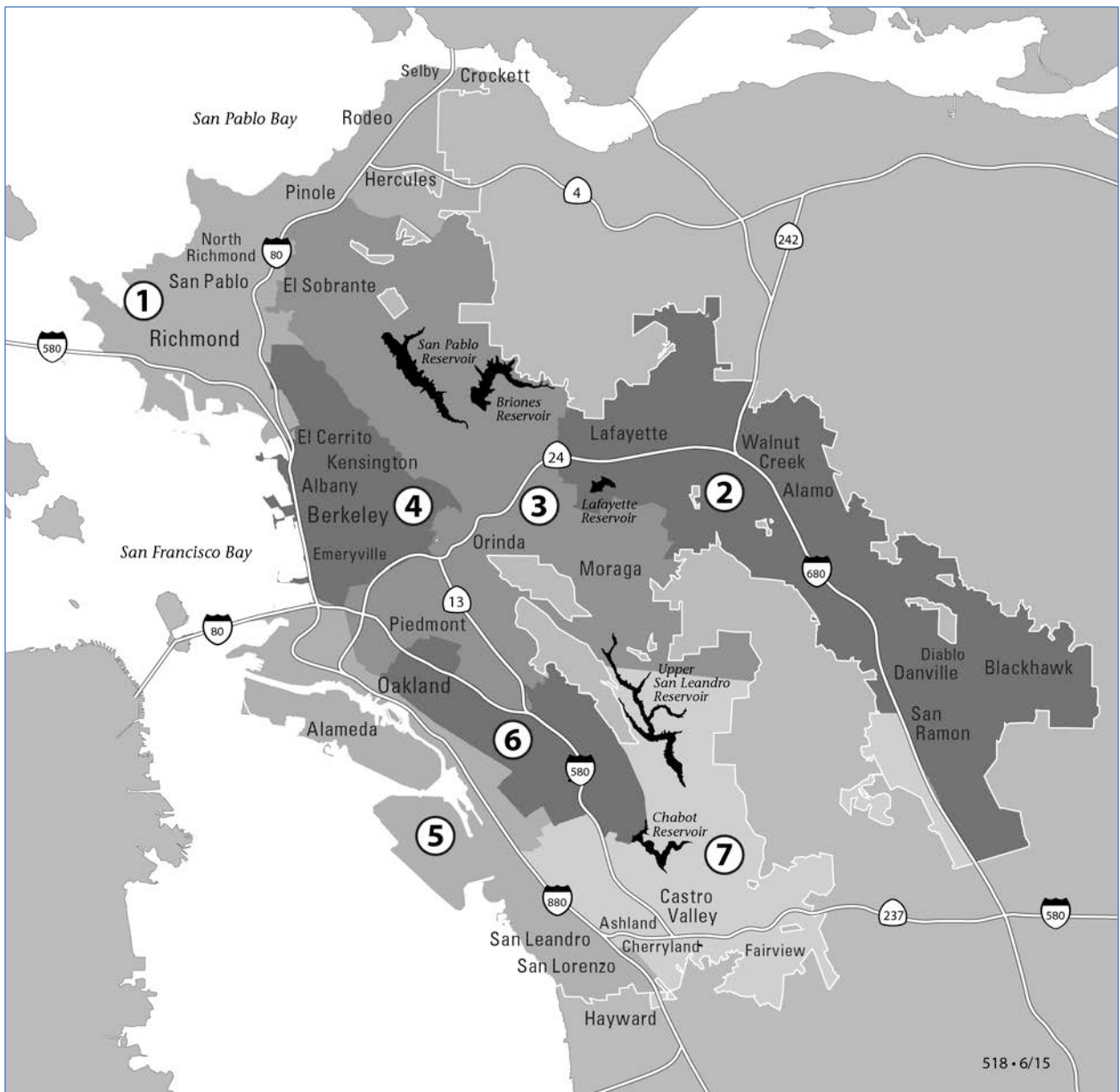


DISTRICT ORGANIZATION

BOARD OF DIRECTORS

EBMUD has a seven-member elected Board of Directors who determines overall policies, which are then implemented under the direction of the General Manager. The Board of Directors believes that EBMUD has a public responsibility to preserve the region's resources and set industry standards for water and wastewater utilities.

Directors are publicly elected to four-year terms from seven wards within the service area. The following map shows the areas included in each ward.



The current Board of Directors is shown below. More information on the Board of Directors can be found at: www.ebmud.com/about-us/board-directors/your-board-members/.

WARD 1 Lesa R. McIntosh - President Term expires 12/31/2020

CONTRA COSTA COUNTY: Cities of Crockett, Hercules, Rodeo, and San Pablo; portions of Richmond and Pinole; and communities of North Richmond and Selby.

WARD 2 John A. Coleman Term expires 12/31/2018

CONTRA COSTA COUNTY: Cities of Alamo, Lafayette, Walnut Creek, Town of Danville; portions of San Ramon and Pleasant Hill and communities of Blackhawk and Diablo.

WARD 3 Marguerite Young Term expires 12/31/2018

ALAMEDA COUNTY: City of Piedmont, and a substantial portion of Oakland.
CONTRA COSTA COUNTY: Cities of Orinda and El Sobrante; Town of Moraga, and portions of Pinole and Richmond.

WARD 4 Andy Katz Term expires 12/31/2018

ALAMEDA COUNTY: Cities of Albany, Berkeley, and Emeryville; and a portion of Oakland.
CONTRA COSTA COUNTY: Cities of El Cerrito and Kensington.

WARD 5 Doug Linney Term expires 12/31/2020

ALAMEDA COUNTY: Cities of Alameda and San Lorenzo; West Oakland and Oakland Airport Area, and a portion of San Leandro.

WARD 6 William B. Patterson - Vice-President Term expires 12/31/2020

ALAMEDA COUNTY: Portions of Oakland (East Oakland and south of Park Boulevard/5th Avenue) to the San Leandro City boundary.

WARD 7 Frank Mellon Term expires 12/31/2018

ALAMEDA COUNTY: Castro Valley; portions of San Leandro and Hayward; communities of Cherryland and Fairview.
CONTRA COSTA COUNTY: Portion of San Ramon.

Board meetings are open to the public and are held twice monthly on the second and fourth Tuesday of each month. The Board may also meet at other times as needed. The Board is committed to governing through an open, public process, guided by the EBMUD Mission Statement.

SENIOR MANAGEMENT

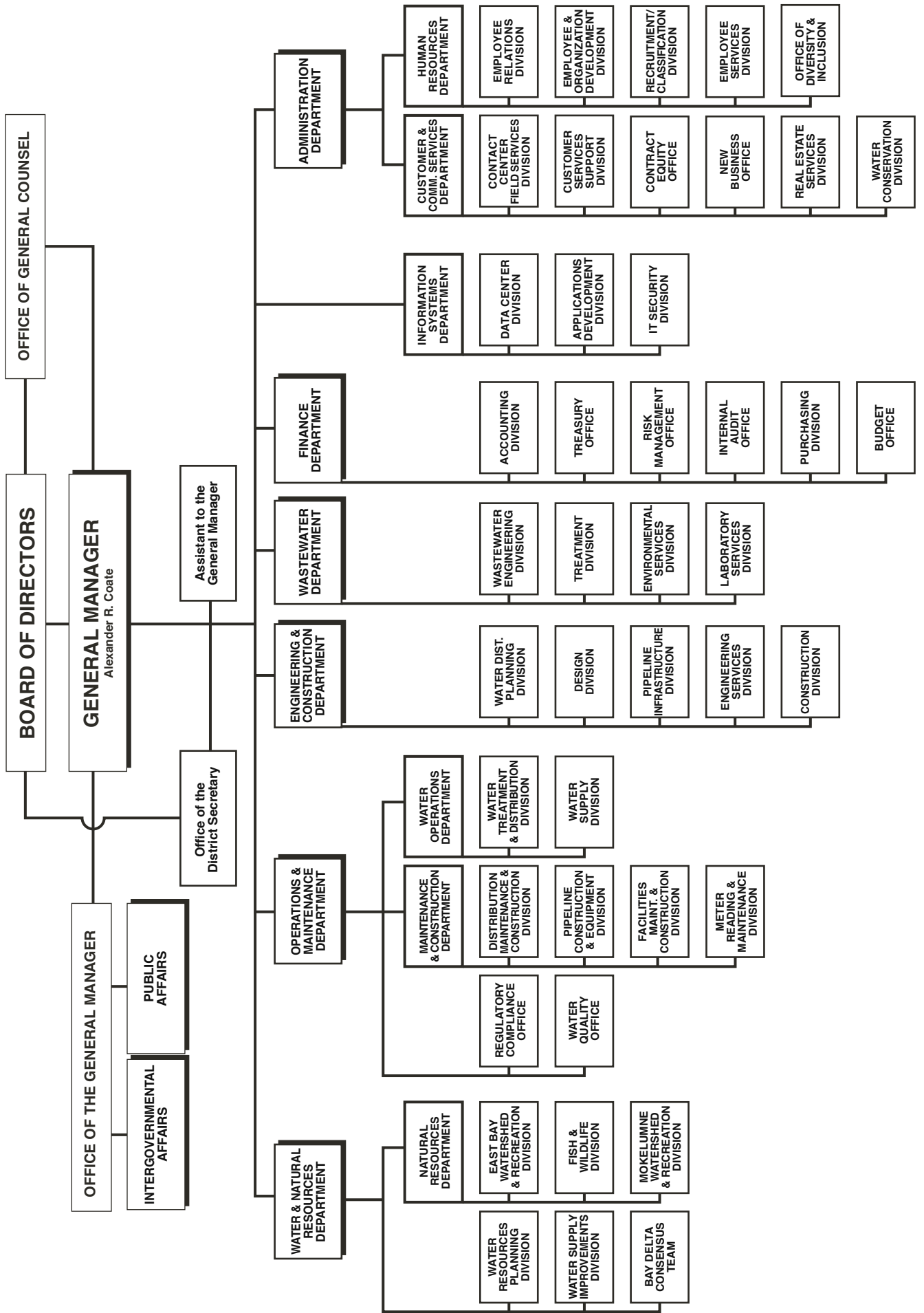
The General Manager and General Counsel are appointed by and report directly to the Board of Directors.

Alexander R. Coate	General Manager
Craig S. Spencer	General Counsel

The Senior Management Team listed below is responsible for managing the operations of the District.

Laura A. Brunson	Manager of Human Resources
Clifford C. Chan	Operations and Maintenance Department Manager
Rischa S. Cole	Secretary of the District
Vincent P. De Lange	Director of Wastewater (Acting)
Marlaigne K. Dumaine	Special Assistant to the General Manager – Governmental Affairs
Sherri A. Hong	Manager of Customer and Community Services
Nicholas J. Irias	Manager of Information Systems
Xavier J. Irias	Director of Engineering and Construction
Alison A. Kastama	Special Assistant to the General Manager – Communications
Sophia D. Skoda	Director of Finance
Richard G. Sykes	Director of Water and Natural Resources
Michael J. Wallis	Director of Operations and Maintenance
Eileen M. White	Operations and Maintenance Department Manager
Vacant	Director of Administration
Vacant	Manager of Natural Resources

The chart on the following page provides an overview of the organization and shows the relationships between different departments and divisions within the District. It can also be found at www.ebmud.com/about-us/board-directors/management/.



WORKFORCE

EBMUD has over 1,800 employees. Most are represented by the American Federation of State, County and Municipal Employees, Locals 444 and 2019; the International Federation of Professional and Technical Engineers, Local 21; and the International Union of Operating Engineers, Local 39. The majority of employees work in the East Bay, but employees also work in the Central Valley and Mokelumne watershed area.

EBMUD is an equal employment opportunity (EEO) employer, and a proud leader in taking legal, proactive steps that support a diverse, inclusive workforce. From Board policies that ensure equal employment opportunities for all persons based on job-related merit, the District uses inclusive and creative recruitment, professional development and placement methods to enhance the District's efforts to achieve a workforce reflective of the labor market in the communities we serve.

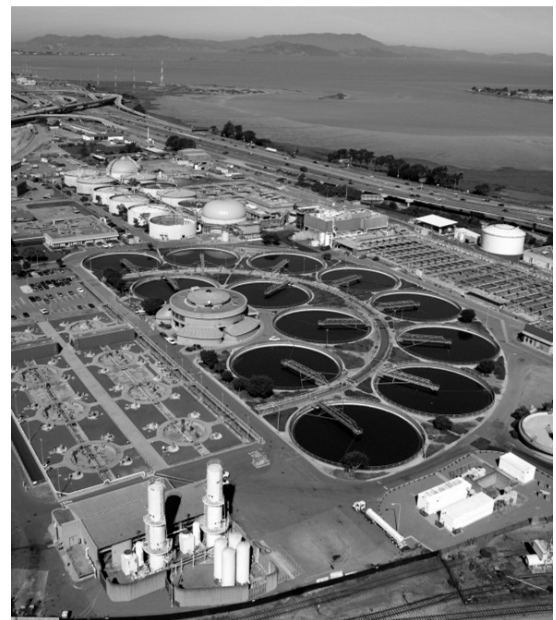


EBMUD OFFICES



Administration Building
375 Eleventh Street, Oakland, 94607

Wastewater Treatment Plant
2020 Wake Ave, Oakland, 94607



STRATEGIC PLAN SUMMARY

The District's Strategic Plan incorporates its mission and principles, and identifies its goals, strategies, objectives, and key performance indicators. The plan guides staff in the management and allocation of resources and assets. The Strategic Plan precedes and guides the development of the biennial budget and the five-year capital improvement program to ensure that necessary resources are provided to implement the strategies and objectives.

The District's current Strategic Plan was adopted by the Board of Directors in July 2016. It is a blueprint for how EBMUD will respond to and prioritize challenges and evolving priorities. The plan incorporates the principles of fiscal responsibility, sustainability and effective use of resources that minimize the District's environmental footprint.

The Strategic Plan includes the following elements:

- **Goals** that define what the District wants to achieve;
- **Strategies** that define which actions to take to reach each goal;
- **Objectives** that reflect what needs to be accomplished in the near term; and
- **Key Performance Indicators (KPIs)** that measure how well the District is doing in achieving its goals.

Strategic Plan Goals

The District has established the following comprehensive set of goals integrating sustainability principles:

- **Long-Term Water Supply**
Ensure a reliable high-quality water supply for the future.
- **Water Quality and Environmental Protection**
Meet or surpass environmental and public health standards and protect public trust values.
- **Long-Term Infrastructure Investment**
Maintain and improve the District's infrastructure in a cost-effective manner to ensure sustainable delivery of reliable, high quality service now and in the future, addressing economic, environmental, and social concerns.
- **Long-Term Financial Stability**
Manage the District's finances to meet funding needs and maintain fair and reasonable water and wastewater rates.
- **Customer and Community Services**
Maintain and enhance service excellence through continuous improvement.
- **Workforce Planning and Development**
Create an environment that attracts, retains, and engages a high performing diverse workforce in support of the District's mission and core values.

Implementing the Plan

The fundamental purpose of the strategic planning process is to define the actions in the next two to five years which are necessary to meet the District's mission now and well into the future. The General Manager and the Senior Management Team lead the implementation of the Strategic Plan, with input from various sources such as master plans and long-range plans, new initiatives, and employee and customer feedback.

The Strategic Plan is adopted by the Board of Directors. Upon adoption, development of actions to implement the Strategic Plan can begin. The Strategic Plan provides an overall high-level direction to prioritize resources to achieve future success, but it does not describe all of the specific actions. By developing actions that are linked to the Strategic Plan, the District can ensure that it focuses its resources on the District's highest priorities.

Strategic Plan Process



Annual individual employee performance plans are prepared to establish and communicate responsibilities, accountabilities, and performance expectations for priorities contained in the Strategic Plan.

The plan includes a series of KPIs that are measurable, comprehensive, and reflect the various strategies contained within the six Strategic Plan goals. KPIs are measured against targets annually to enable the District to evaluate its progress. The latest KPI report was presented to the Finance Committee in September 2016.

Strategic Plan 2016 goals, strategies, objectives, and KPIs are contained in the Appendix to this volume.

For a complete copy of the 2016 Strategic Plan, go to www.ebmud.com/about-us/who-we-are/.

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CHAPTER 1: FINANCIAL ORGANIZATION & BUDGET PROCESS

The Introduction discussed the District's Strategic Plan which guides the development of the biennial budget and the five-year capital improvement program. This chapter describes the District's financial structure and organization, and budget development process. It provides the parameters under which the budget is created and a comprehensive financial overview.

FINANCIAL ORGANIZATION

Fund Structure and Descriptions

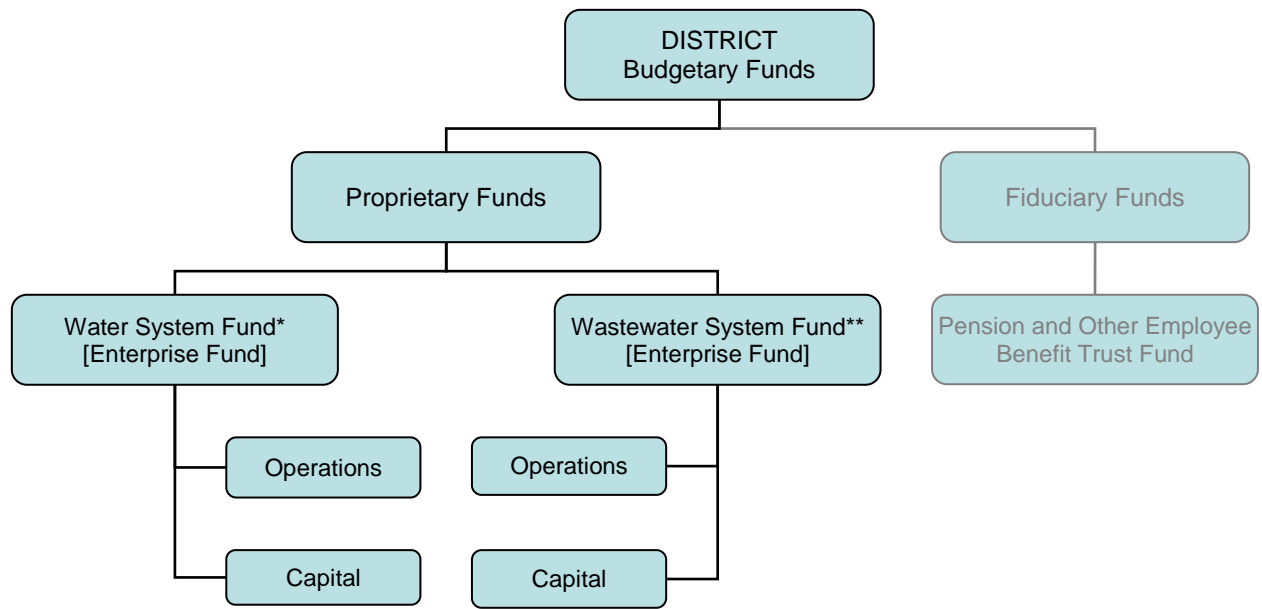
As illustrated in the graphic on the following page, the District's financial structure is composed of proprietary and fiduciary funds (see glossary for definitions of terms). The proprietary funds include two legally distinct and financially independent enterprise funds: the Water System and the Wastewater System. The two separate funds preserve the unique expenditure and revenue distinction between the two entities. When services are provided by one system for the benefit of the other, the appropriate fund is billed and cash transfers are made to the other.

- The Water System is engaged in the collection, transmission, and distribution of water to communities within Alameda and Contra Costa Counties of California. In addition, the Water System provides administrative, financial, and other support services to the Wastewater System. These costs are charged to the Wastewater System. The Water System consists of fourteen staffed departments.
- The Wastewater System is engaged in the interception and treatment of wastewater from residences and industries in the California communities of Alameda, Albany, Berkeley, Emeryville, Oakland, Piedmont, and the Stege Sanitary District. The Wastewater System consists of one staffed department.

Both systems are proprietary, enterprise funds. Enterprise funds are used to account for operations that are financed and operated in a manner similar to private business enterprises where the intent of the governing body is that the expense of providing goods or services to the general public on a continuing basis be financed or recovered primarily through user charges.

The Water System performs many support functions for the Wastewater System. These functions include but are not limited to financial services such as accounting, human resources services such as recruitment, information technology, customer services, legal services, and general oversight and governance. The Wastewater System reimburses the Water System directly for these services through a joint administrative and general annual expense.

Both systems are governed by the same elected Board of Directors, and share policies and procedures. Throughout this book, the 'District' refers to the East Bay Municipal Utility District and is understood to encompass both the Water and Wastewater Funds.



***Departments**

Operations and Maintenance Support
 Maintenance & Construction
 Water Operations
 Water Resources
 Natural Resources
 Engineering & Construction
 Office of the General Manager
 Finance
 Information Systems
 Customer & Community Services
 Human Resources
 Office of the General Counsel
 Water Recycling Program
 Administration

****Department**

Wastewater

These funds are organized according to the Uniform System of Accounts for Water Utilities, as established by the California Public Utilities Commission, and adhere to the Government Finance Officers Association (GFOA) requirements for enterprise funds.

In addition to the District's proprietary funds, the District maintains a fiduciary fund used to account for resources held for the benefit of parties outside the government. The District's fiduciary fund consists of the Pension and Other Employee Benefit Trust fund, which is maintained to account for assets held by the Employees' Retirement System in a trustee capacity for vested and retired employees. This book does not address the District's fiduciary funds.

Financial Reporting

The District prepares its financial reports in conformity with generally accepted accounting principles used in the United States of America. At the conclusion of each fiscal year, the Finance Department prepares the Comprehensive Annual Financial Report (CAFR) in compliance with principles and standards for financial reporting set forth by the Governmental Accounting Standards Board (GASB), and the guidelines recommended by the Government Finance Officers Association (GFOA) of the United States and Canada. An application has been submitted to GFOA for the Certificate of Achievement for Excellence in Financial Reporting for the Comprehensive Annual Financial Report for the fiscal year ending June 30, 2016. The Certificate of Achievement is a prestigious national award recognizing conformance with the highest standards for preparation of a state and local government financial report. To be awarded a Certificate of Achievement, a government unit must publish an easily readable and efficiently organized CAFR that satisfies both generally accepted accounting principles and applicable legal requirements. This would be the twelfth consecutive year that EBMUD has received this award.

Budgetary and Accounting Basis

The basis of budgeting and accounting refers to the method of recognition of revenue and expenses in financial and budgetary reporting.

EBMUD's budgets are prepared on a modified cash flow basis which projects the District's cash inflows and outflows over the course of a fiscal year (July 1 through June 30) excluding physical and intangible assets such as depreciation. Revenues are recognized as they are received and accounted for while obligations for expenditures are recognized when a commitment is made through an encumbered purchase order or actual expense.

EBMUD's accounts and transactions are tracked on an accrual basis, which is the basis of accounting under generally accepted accounting principles. Under this method, all assets and liabilities associated with operations are included on the balance sheet; and revenues are recorded when earned and expenses are recorded at the time commitments are incurred.

Depreciation and amortization are handled differently in budgetary reporting and in financial reporting. In budgetary reporting, depreciation and amortization are excluded, and the repayment of the principal on debt as expense is included. In financial reporting, depreciation and amortization are included, and the repayment of the principal on debt as expense is excluded.

This table illustrates the differences between the budget and accounting basis described above.

	BUDGETARY Modified Cash Flow Basis	ACCOUNTING Accrual Basis
Revenue	Recognized when received and accounted for	Recorded when earned
Obligations	Recognized when a commitment is made through encumbrance or expense	Recorded at the time commitments are incurred
Depreciation and amortization	Excluded	Included
Repayment of principal on debt	Included	Excluded

Financial Planning

The District prepares a biennial strategic plan and annual financial forecasts that provide the basis for developing the budget. Long-term financial stability is a goal in the District's Strategic Plan, which includes managing the District's finances to support its needs and maintain reasonable water and wastewater rates.

Revenue requirements over a five-year planning horizon are evaluated to determine the level of rate adjustments required for the upcoming budget years. To the extent possible, increases in water and wastewater rates are adjusted to avoid large fluctuations.

Financial Policies

The District establishes policies and resolutions to comply with the stipulations set forth in the MUD Act. The majority of District policies are reviewed biennially; some policies, such as the Investment Policy shown below, are reviewed annually. The adoption date changes only if revisions are made to the policy. The policies described below set forth key objectives for long-range financial planning and control.

The following policies are included in the Appendices as a reference:

Policy 4.02	Cash Reserves and Debt Management	Adopted October 2016
Policy 4.04	Financial Planning and Budgetary Control	Adopted April 2009
Policy 4.07	Investment Policy	Adopted April 2016
Policy 4.13	Establishing Water and Wastewater Rates	Adopted April 2016

Policy 4.02: Cash Reserves and Debt Management: identifies specific financial metric targets.

The District strives to maintain operating reserves at a level sufficient to meet working capital and unanticipated needs, specifically:

- Maintaining Working Capital Reserve of at least 3.0 times monthly net operating and maintenance expenses.
- Maintaining Self-Insured Liability Program Reserve based on the Actuarial Self-Insured Retention (SIR) funding recommendation.
- Maintaining Workers' Compensation Program Reserve based on the Actuarial SIR funding recommendation.
- Maintaining Rate Stabilization Reserve:
 - For Water System – a minimum of 20 percent of projected annual water volume revenues.
 - For Wastewater System – a minimum of 5 percent of operating and maintenance expenses.

The District strives to maintain a reasonably conservative ratio between current funding sources and debt financing:

- Maintaining an annual revenue bond debt service coverage ratio of at least 1.6 times.
- Limiting debt-funded capital to no more than 65 percent of the total capital program over each five-year planning period.
- Limiting commercial paper/variable rate debt to 25 percent of outstanding long-term debt.

Policy 4.04: Financial Planning and Budgetary Control: provides for the efficient use of District resources through financial planning and cost control; keeps total annual expenditures to the level of total annual revenue; provides periodic status reports on revenues, expenditures, and investments; and establishes the authority of the General Manager to transfer up to 5 percent of each fiscal years' budget between the capital and operating budgets within each System's funds, provided that the total budget for each System fund remains unchanged.

Policy 4.07: Investment Policy: guides the investment of District funds. The policy ensures that all investments are compliant with State law, and prioritizes the protection of the investments (safety), the availability of funds when needed (liquidity), earnings on the investment portfolio (yield), and reduces risk by investing in a variety of instruments (diversity). Among the key guidelines included in the policy are the types and characteristics of permitted investments, parameters for investment decisions, reporting requirements, and internal controls.

Policy 4.13: Establishing Water and Wastewater Rates: sets forth the rate methodology, rate design, and rate distribution that provide adequate revenues while keeping rates affordable, encouraging conservation and efficient use of water, and reflecting the cost of providing service to customers. Rates should provide sufficient revenue to support a safe, reliable, and sufficient water supply and wastewater treatment services to its customers over the long term.

BUDGET PROCESS

During the budget process, the District makes decisions on the efficient use of its resources using the Strategic Plan for guidance. A financial plan and biennial budget are established for the Water and the Wastewater Systems that includes the operations and capital programs and sets levels of related operations, capital and debt service expenditures that may be made.

The budget reflects the costs necessary to provide customers with safe, reliable water and wastewater service over the long term while keeping rates fair and reasonable. The budget is also used to develop rates and charges that provide adequate revenues to meet the District's needs, and encourages the efficient use of water.

Decisions on allocating resources and addressing budget needs do not end when the Board adopts the budget. Throughout the year, departments are responsible for implementing the budget and monitoring budget performance, responding to unforeseen or emergency circumstances, and participating in long-range financial planning.

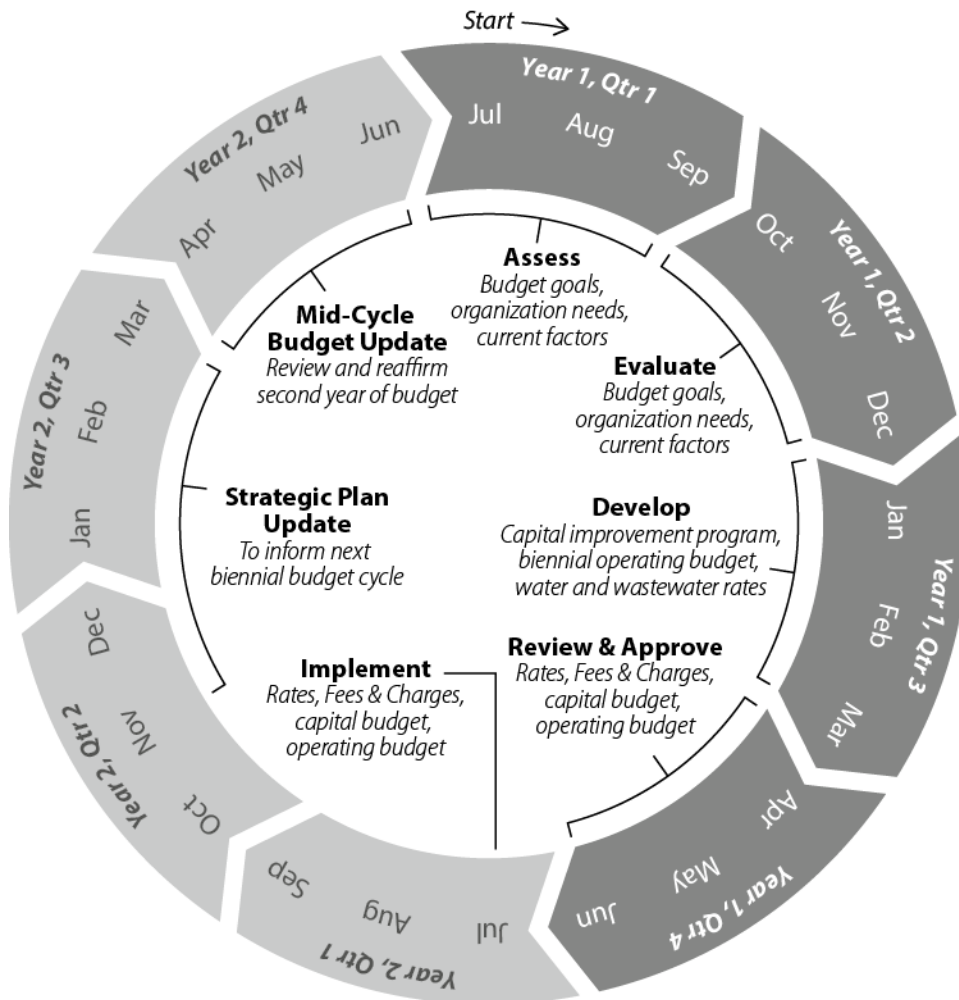
The District received the GFOA's Distinguished Budget Presentation Award for its FY16 and FY17 biennial budget document dated June 9, 2015. This is the fourteenth consecutive budget document for which the District has received the GFOA award. For the third time, the California Society of Municipal Finance Officers (CSMFO) has presented the Excellence in Budgeting Award to the District. To qualify for these awards, the budget document had to meet stringent guidelines and criteria.

Balanced Budget

The District budget is balanced when operating revenues are equal to or greater than operating expenditures including debt service, and ending fund balances meet minimum policy levels. The District establishes its budget on the principle of overall revenue neutrality, as outlined in the American Water Works Association (AWWA) Principles of Water Rates, Fees and Charges recommendations for government-owned utilities. The District's rates and charges are set to ensure that revenues are sufficient to recover the total cash needs in a given fiscal year.

Budget Development Calendar

The District has a biennial budget process which is represented in the graphic below and described more fully in the following text.



Assess: **Budget goals, organization needs, and current factors**

July
August
September

Strategic Plan adopted.
Budget guidelines and assumptions prepared.
Capital budget development starts.

Evaluate: **Budget goals, organization needs, and current factors**

October
November
December

Operating budget development starts.
Review of capital budget requests begins.
Review of operating budget requests begins.

Develop: Biennial operating budget, capital improvement program, water and wastewater rates

January / February Operating budget and capital improvement program recommendations are developed by Senior Management with input from the Board of Directors.

Water and Wastewater rates to fund budget needs are proposed.

March Documents prepared to present proposed budget and rates to the Board and the public.
The General Manager presents the proposed operating and capital budgets, and proposed rates, fees and charges to the Board at budget workshops.

Review & Approve: Rates, fees & charges, capital budget, operating budget

April Another budget workshop occurs if needed to address any direction given by the Board at previous budget workshops.

California Proposition 218 notices are distributed to property owners.

May The General Manager's recommendations on the proposed rates, charges, and fees are filed with the Board of Directors.

June Public hearing on rates is held.
Board adopts operating and capital budgets; rates, fees and charges schedules; and positions authorization.

Implement: Adopted rates, fees & charges, capital and operating budgets

July Adopted rates and budget implementation begins.

Adopted Budget, and rates and charges schedules, published.

Strategic Plan Update

The Strategic Plan is updated every other year. This plan provides the District with overall direction for the next two to five years, sets priorities, and guides the development of the operating and capital budgets with those priorities.

Mid-Cycle Budget Update

The Board of Directors approves the budget covering a two-year period. The Board reviews and reaffirms the second year of the two-year budget prior to the start of a new fiscal year in July. A Mid-Cycle Budget Update workshop given to the Board of Directors provides a budget status and any projected changes to revenues, expenditures and staffing.

Annual and Semi-Annual Budget Performance Reports

At the mid-point and conclusion of each fiscal year, the Board of Directors is provided with a comparative analysis of expenditures to budget.

Budget Responsibilities

Budget decisions are made through a process that involves the Board of Directors, District staff and the public. The responsibilities for financial management planning and budget control are as follows:

Departmental Responsibilities

- Prepare capital improvement program and biennial budget requests.
- Monitor financial performance and take prompt corrective action, as needed.
- Monitor key performance indicators and take corrective action, as appropriate.
- Inform the General Manager when unforeseen circumstances indicate that budget amounts may be exceeded or that expected revenues may be less than planned.

Finance Department Responsibilities

Treasury Operations

- Monitor District's liquidity and ensure funds are available as needed, invest funds in accordance with Board policy, wire funds to pay approved demands, and take other actions associated with the prudent management of the District's financial resources.
- Provide for the issuance of debt to fund the capital improvement program.
- Prepare financial projections, schedules of rates and charges, tax rate proposals and other financial materials.

Accounting

- Produce monthly and annual expenditure and revenue reports.
- Prepare and present information on financial trends to facilitate evaluation of the District's financial position and identify conditions requiring management attention.
- Prepare periodic reports on the status of expenditures, revenues, investments and actions taken to ensure the financial stability of the District.

Budget Office

- Support the development of the Strategic Plan.
- Project short-range and long-range financial needs, and recommend methods for meeting those needs.
- Prepare the District's biennial operations and capital improvement program budgets.
- Prepare budget performance reports on a monthly, quarterly, semi-annual and annual basis.
- Prepare the mid-cycle budget update.
- Develop procedures and controls to monitor and ensure compliance with the budget.
- Assist departments throughout the year with their budgets and financial issues.

General Manager's Responsibilities

- Review and present to the Board of Directors long range plans, budgets and revisions, schedules of rates and charges, payments of financial demands and other financial transactions, as necessary.
- Authorize budget transfers up to 5 percent of the fiscal years' budget between the operations and capital budgets in each of the Water and Wastewater System's budgets, provided that the total budget for each of the two systems remains unchanged.
- Authorize the allocation of budgeted funds from contingency.
- Implement emergency financial procedures within approved limits, when necessary.

Budgetary Controls

Automated District-wide budgetary controls track spending to the amounts set in the budget. Budgetary controls function differently for operations and capital budget expenditures.

For the operations budget, each department is controlled within each expenditure category: personnel costs, contract services, and operations and maintenance. Departments are not allowed to exceed their authorized operations budget for each fiscal year.

For the capital budget, each capital project is controlled based on its appropriation. A project may not exceed its total appropriation. Unlike the operations budget, which expires on June 30 of each fiscal year, capital appropriations are multi-year and will last the life of the project.

Budget Adjustments

Adjustments to the operations budget are reallocations of funds between organizational units, categories, and/or line items, which allow departments to have financial flexibility within established budgetary controls. Budget adjustments to the capital budget are reallocations of funds within or between projects. Approval from the affected department(s) and the Budget Office is required for all budget adjustments.

General Manager approval is required for the reallocation of funds from contingency, and the reallocation of funds between the operations and capital budgets in both the Water and Wastewater Systems. Approval from the Board of Directors is required for increases to the total adopted budget of the Water or Wastewater System.

Capital Improvement Program Preparation

The Capital Improvement Program (CIP) budget communicates the capital priorities of the District for the next five years to enable the District to identify and prioritize its infrastructure needs and plan for infrastructure investments.

The CIP consists of three primary levels:

The highest level of the CIP is a strategy, which groups several programs representing key capital objectives as identified in the EBMUD's Strategic Plan. The nine Water System and three Wastewater System strategies are summarized in the Capital Expenditures sections of the Water System and Wastewater System chapters.

The second level in the CIP is a program, which represents a group of related projects combined to facilitate planning and decision-making. A discussion of the significant programs included in the CIP can be found in the CIP program highlights sections of the Water System and Wastewater System chapters.

The third level in the CIP is a project, which is a discrete set of capital improvement tasks, coordinated by a project manager. Appropriation requests and projected spending (cash flow) are authorized at the project level. A discussion of each project included in the CIP can be found in the supplemental volume of the budget document.

CIP Budget Preparation

The CIP is prepared as part of the District's biennial budget process. The responsibilities for preparing and managing the CIP are shared among District staff as follows:

Project Management

Project managers work together to meet the requirements of the biennial CIP budget process and to implement a specific program or project. During the budget process, the project managers update project appropriations and cash flows, and modify project descriptions and justifications to identify recent and anticipated major accomplishments. Managers also work together to identify the most effective ways to schedule, staff, and coordinate projects.

The steps used to budget for the CIP are:

- Propose and justify new capital projects needed to carry out the goals of the District;
- Identify how resources will be allocated to accomplish the work;
- Identify the required appropriation and estimated cash flow for each project; and
- Include direct costs (without overhead), contingency and an inflation factor in the recommended appropriations and cash flows for projects.

Capital Steering Committee (CSC)

The CSC consists of Department Directors and Managers responsible for the overall management of the CIP during the budget preparation process.

Responsibilities include:

- Serve as an advisory group to the General Manager and the Budget Office;
- Review projects for opportunities to combine programs and projects, streamline costs, and determine the necessity for proposed new projects;
- Confirm the adequacy of District resources to complete proposed projects;
- Scrutinize proposed project cash flow amounts;
- Establish priorities and finalize the list of individual projects to be presented to the General Manager and Board of Directors based on available resources and project justification;
- Review the status of the CIP regularly;
- Work with project management staff to resolve administrative issues; and
- Authorize necessary changes to project scope, schedule and budget that are within staff's administrative authority.

Budget Office

The office is responsible for the overall management of the budget process which includes:

- Manage the CIP budget preparation and planning process;
- Provide staff support to the CSC;
- Ensure that the decisions of the CSC and General Manager are reflected in the budget;
- Determine types and levels of funding necessary for the CIP;
- Report to the General Manager and CSC the status of capital project appropriations and cash flow spending; and
- Report CSC recommendations regarding adjustments to the CIP that require either General Manager or Board approval.

CHAPTER 2: DISTRICT BUDGET SUMMARY

The District budget summary provides an overview of the District-wide biennial budget. Subsequent chapters describe the budgets for each of the two distinct funds: Water and Wastewater. This chapter includes the appropriations, a summary of operational priorities, and discussions of the following topics:

- Operations
- Debt service
- Capital expenditures
- Staffing
- Labor and benefits
- Sources of funds
- Fund summaries

BUDGET APPROPRIATIONS

The FY18 and FY19 District-wide total appropriation is \$2.03 billion for water system and wastewater system operations, debt service, and capital appropriations.

The FY18 budget of \$1.00 billion is comprised of \$348.5 million or 35 percent for operations expense, \$234.2 million or 23 percent for debt service and \$420.8 million or 42 percent for capital appropriation. The FY19 budget of \$1.03 billion is comprised of \$365.6 million or approximately 35 percent for operations expense, \$242.0 million or 24 percent for debt service and \$418.6 million or 41 percent for capital appropriation.

The following table shows the major components and the total appropriation proposed to the Board of Directors for this biennial budget.

FY18 & FY19 APPROPRIATIONS							
(\$ Millions)							
	FY18			FY19			FY18 & FY19
	Water	Wastewater	Total	Water	Wastewater	Total	Grand Total
Operations	277.9	70.6	348.5	292.5	73.1	365.6	714.1
Debt Service	199.6	34.7	234.2	210.0	31.9	242.0	476.2
Capital Appropriation	<u>386.5</u>	<u>34.4</u>	<u>420.8</u>	<u>367.5</u>	<u>51.1</u>	<u>418.6</u>	<u>839.4</u>
Total	863.9	139.6	1,003.5	869.9	156.2	1,026.1	2,029.7

Numbers in the table may be rounded.

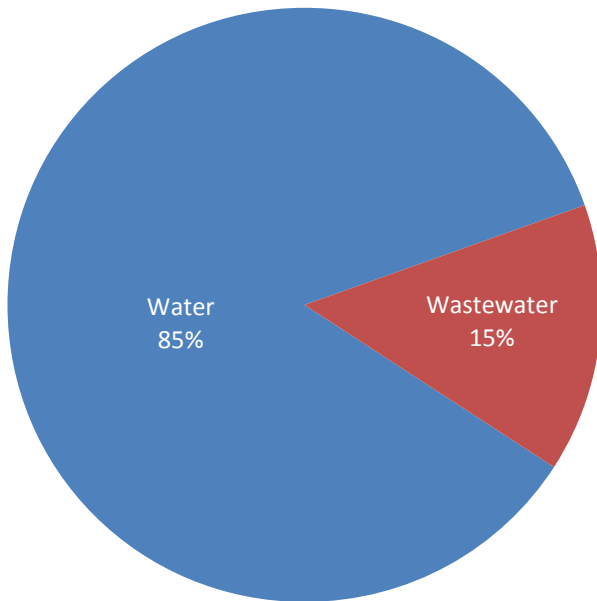
USE OF FUNDS

The District's use of funds are divided into three major components in both the Water System and Wastewater System:

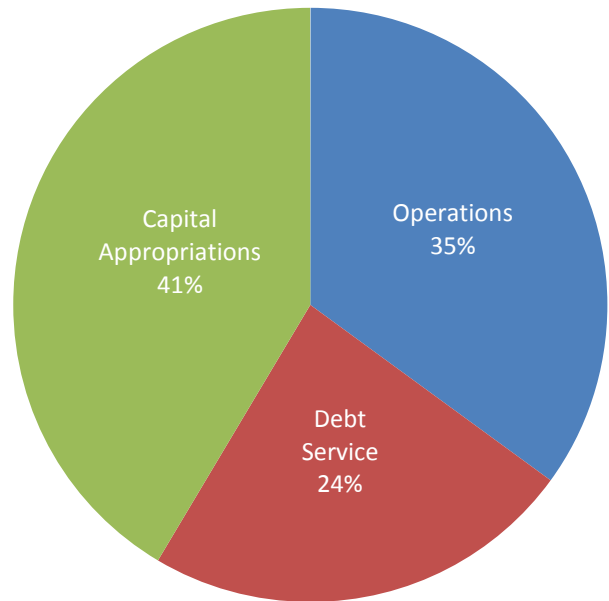
- Operations and maintenance of the District, including the annual cost of providing all water and wastewater services, labor and benefits;
- Debt Service on previously issued bonds to pay for the investments in infrastructure in the capital improvement program; and
- Capital Appropriation, which is for long-term projects to upgrade aging infrastructure, prepare for earthquakes, protect natural resources, ensure a future water supply, and, like operating expenses, includes equipment and salaries.

The following charts characterize the combined FY18 and FY19 budget in two aspects. First, the chart on the left compares the size of the Water System budget to the Wastewater System budget. The second chart depicts the three separate components of the budget (i.e., operations, debt service and capital appropriation). Financing, or debt service, is only incurred to support the capital program. The total capital and debt service appropriation when combined represent 65 percent of the budget dedicated to capital investment activities.

Budget by Enterprise



Budget by Component



BUDGET ALLOCATED BY SERVICES PROVIDED

The following table provides a summary of the FY18 and FY19 appropriations grouped by services provided by the District. In addition to providing water and wastewater services, significant funds are used for making capital improvements and repaying bonds used to fund previous capital work. As shown, almost two-thirds of the total budget is spent on capital infrastructure investment, and almost one fourth will be spent on water and wastewater service.

Amounts shown below will not necessarily match the amounts shown in the department budget sections later in this volume.

FY18 & FY19 BUDGETS BY SERVICES PROVIDED (\$ Millions)		
SERVICES	FY18	FY19
Capital Improvement Program Long-term projects to upgrade aging infrastructure, protect natural resources, provide high quality water and wastewater services. Projects typically result in the construction of new facilities, or the rehabilitation or upgrade of existing facilities.	420.8	418.6
Debt Service Repayment of bonds that have been sold to pay for long-term investments in infrastructure.	234.2	242.0
Water Service Storage, treatment and delivery of high-quality water to 1.4 million customers; day-to-day maintenance of water supply and distribution systems; planning and engineering for future water supply; recycled water; and meter reading.	171.9	181.0
Wastewater Service Operation and engineering at wastewater treatment plant, laboratory and wet weather facilities that serve more than 685,000 customers; educational outreach to residences, businesses and communities for industrial discharge, source control, and sewer programs.	70.6	73.1
Support Services Human resources, finance, information technology and other internal support services.	68.6	72.6
Customer Service Water conservation programs, public information, school outreach, billing services, call center and additional services to customers.	21.2	22.1
Natural Resource Management and Protection Environmentally sound management of nearly 56,000 acres of watershed lands, operation of public recreation facilities and fisheries programs.	16.3	16.8
TOTAL BUDGET	1,003.5	1,026.1

Numbers in the table may be rounded.

OPERATIONS

As shown in the FY18 & FY19 Appropriations table at the beginning of this chapter, the budget is categorized into three components: Operations, Debt Service and Capital Appropriations. This section will address the operations budget component which is 35 percent of the total District-wide budget.

The operations portion of each fund (i.e., Water or Wastewater) budget is categorized into various departments. The majority of these departments are referred to as *staffed departments* indicating employees are assigned to work in these areas. The staffed departments' budgets fund the day-to-day operations of the District and include funding for labor, benefits, outside contract services and other non-labor expenses such as electricity, chemicals, fuel, computer hardware, self-insured liability claims, workers compensation claims, etc. A detailed description of each staffed department is included in the corresponding Water and Wastewater System chapter of this document.

A small number of departments do not have personnel assigned to them. These departments are referred to as *non-staffed departments*. The impact on the budget by each of these departments varies:

Contingency - Funds budgeted each fiscal year to primarily cover projected labor-related expenses such as the employee cost of living adjustment which is based upon each year's February Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) in the San Francisco-Oakland-San Jose area. The index is published in March of each year. The contingency budget also includes funding for unanticipated needs which may arise before the next budget cycle.

Intradistrict - Certain internal service accounts are included in balance sheets to assure that internal expenses are not counted twice within the operations budget. Examples of these accounts include warehouse stores loading overhead and fleet vehicle expenses.

Administration of Capital - The administration of capital represents those costs that are not directly attributable to specific capital projects but are more generalized indirect support of the Capital Improvement Program (CIP). The administration of capital in the operations budget will decrease operating expenses by a like amount and reallocate the costs to the capital budget.

While contingency adds costs to the staffed departments, intradistrict and administration of capital subtracts costs at the Water System and Wastewater System Fund level as shown in the following table.

FY18 & FY19 Budget

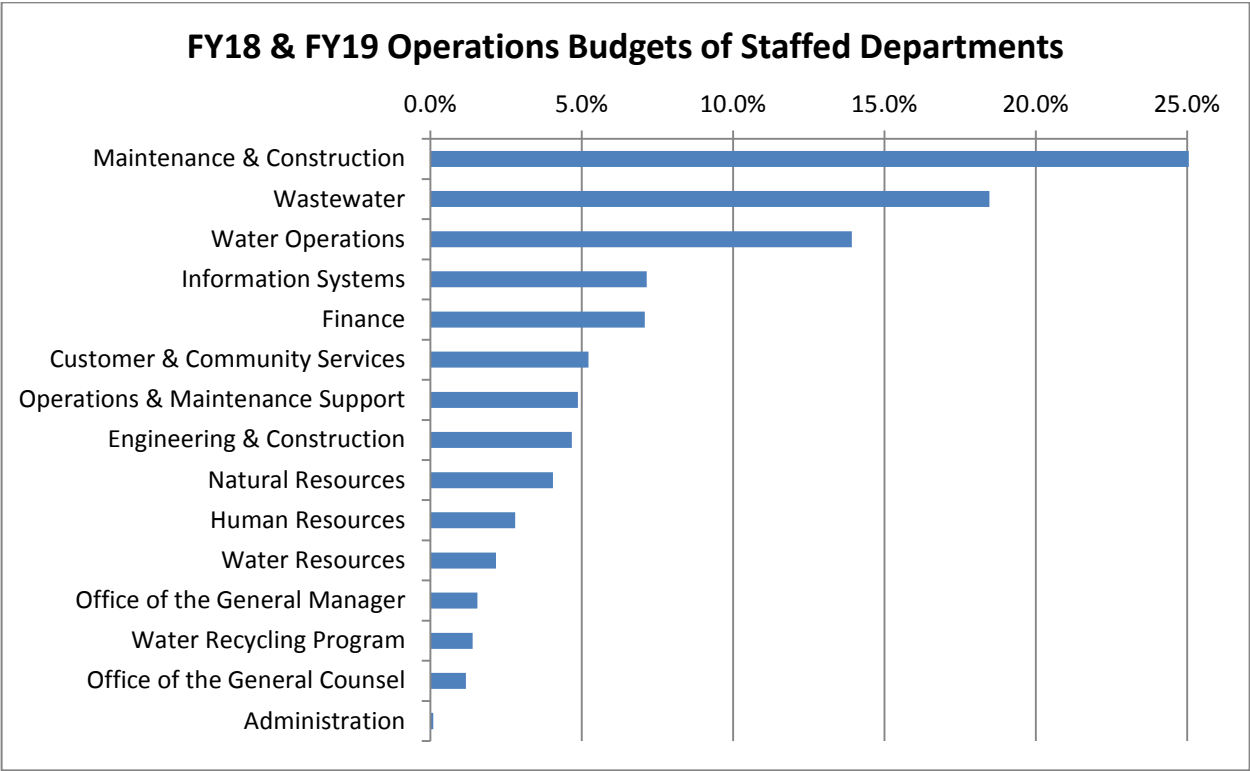
The table below illustrates each staffed and non-staffed department's portion of District-wide operations of \$348.5 million in FY18 and \$365.6 million in FY19, ordered by size within each system (Water and Wastewater). For the Water System, operations will be \$277.9 million in FY18 and \$292.5 million in FY19. For the Wastewater System, operations will be \$70.6 million in FY18 and \$73.1 million in FY19. The totals can be compared to the operations appropriation at the start of this chapter.

FY18 & FY19 DEPARTMENT OPERATIONS		
(\$ Thousands)		
WATER SYSTEM	FY18	FY19
Maintenance & Construction	99,161.8	101,632.4
Water Operations	53,576.1	55,346.6
Information Systems	27,837.1	28,955.4
Finance	27,339.2	28,094.6
Customer & Community Services	20,194.1	20,634.1
Operations & Maintenance Support	18,842.7	19,479.6
Engineering & Construction	18,269.2	18,661.6
Natural Resources	15,690.3	15,997.0
Human Resources	11,067.6	11,213.0
Water Resources	8,486.9	8,471.3
Office of the General Manager	5,881.8	6,317.8
Water Recycling Program	5,418.6	5,509.9
Office of the General Counsel	4,576.2	4,592.4
Administration	376.2	376.9
Subtotal Water Staffed Departments	316,717.6	325,282.5
Contingency	12,905.7	18,871.5
Intradistrict	(11,700.0)	(11,700.0)
Administration of Capital	(40,000.0)	(40,000.0)
Total Water Operations	277,923.4	292,454.0
WASTEWATER SYSTEM		
Wastewater	71,479.8	72,981.5
Subtotal Wastewater Staffed Departments	71,479.8	72,981.5
Contingency	2,078.0	3,156.0
Administration of Capital	(3,000.0)	(3,000.0)
Total Wastewater Operations	70,557.8	73,137.4
DISTRICT		
Total District Operations	348,481.2	365,591.4

Numbers in the table may be rounded.

Staffed Departments

The chart below shows the share of the total operations budget of each staffed department. Maintenance and Construction is the largest staffed department and is responsible for services such as water distribution pipelines including installation of new services, repairing leaks, replacing meters, fleet operations and maintaining the water treatment infrastructure and other facilities located throughout the District. A detailed description of each department's services is shown in the Water and Wastewater System chapters. The full cost of labor, including capital labor, is discussed in those chapters.



DEBT SERVICE

As shown in the FY18 & FY19 Appropriations table at the beginning of this chapter, the budget is categorized into three components: Operations, Debt Service and Capital Appropriations. This section will address the debt service component which is 24 percent of the total District-wide budget.

Capital expenditures can either be funded through debt financing (bonds and loans), or on a “pay-as-you-go” basis, or in some cases, by reimbursements. Debt financing is generally more suited to large capital projects with long useful lives. If the capital expenditure is significant, debt financing may be a better option since large capital expenditures can be difficult to accommodate on a “pay-as-you-go” basis without spiking rates. Debt financing also creates a measure of intergenerational equity in that future ratepayers will participate in the financing of the capital projects over their useful life. The “pay-as-you-go” option is also referred to as revenue funded capital. It is a source of funding the District utilizes to reduce its reliance on debt, and is funded from current year revenues.

The District’s policy is that over any five-year planning period no more than 65 percent of the Capital Improvement Program (CIP) will be funded from debt. The prior biennial budget as well as this budget supports additional “pay-as-you-go” funding to reduce the debt-financed portion of the CIP. Although debt service payments are considered to be part of the operations budget, debt proceeds are used to finance capital investment activities.

FY18 & FY19 Debt Service

Debt service will be \$199.6 million in FY18 and \$210.0 million in FY19 for the Water System, and \$34.7 million in FY18 and \$31.9 million in FY19 for the Wastewater System. Total outstanding debt on the Water System is projected to be \$2.59 billion as of June 30, 2017. Total outstanding debt on the Wastewater System is projected to be \$397.2 million as of June 30, 2017.

The Water System budget assumes issuance of \$179.5 million in new revenue bonds in FY18, and \$151.6 million in FY19. The Wastewater System budget assumes issuance of approximately \$20.5 million of new revenue bonds in FY18 and \$14.0 million in FY19.

CAPITAL EXPENDITURES

As shown in the FY18 & FY19 Appropriations table at the beginning of this chapter, the budget is categorized into three components: Operations, Debt Service and Capital Appropriations. This section addresses the capital appropriations component which is 41 percent of the total District-wide budget and funds the District's Capital Improvement Program (CIP). The CIP is a set of projects approved by the Board of Directors that define the capital priorities of the District for the next five years.

Appropriations

Appropriations are the amounts approved by the Board to be spent on capital projects. The Board adopts the appropriations for the first two years of the five-year CIP. The remaining years are for planning purposes only and are subject to revision. Appropriations may be expended over multiple years, and any unspent appropriations automatically carry forward to the next fiscal year. Appropriations vary from year-to-year depending upon the funding needs for the projected work.

Administration of capital is included in the capital appropriation, and consists of costs incurred by administrative support functions that are not directly charged to individual capital projects, such as work performed in support departments including Finance, Human Resources, and Information Systems. These costs support the CIP as a whole, and are deducted from the operating budget and included in the CIP budget.

FY18 – FY22 Capital Appropriation

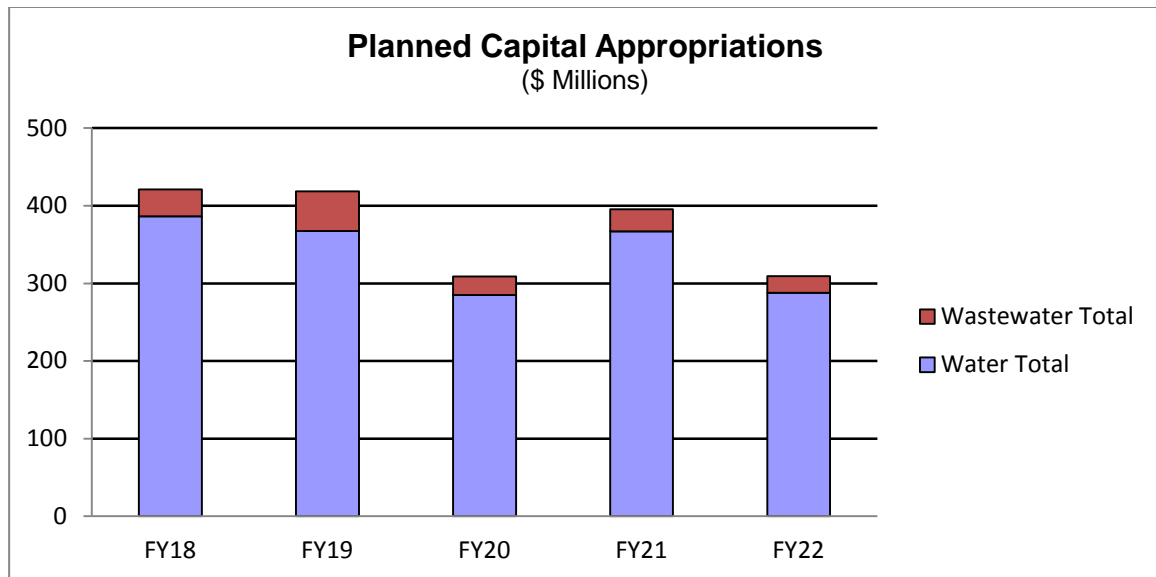
The FY18 capital appropriation, including administration of capital, is \$386.5 million for the Water System and \$34.4 million for the Wastewater System, for an approximate total of \$420.8 million. In FY19, the capital appropriation is \$367.5 million for the Water System and \$51.1 million for the Wastewater System, for a total of \$418.6 million. As in previous years, this CIP balances the need to continue to replace and rehabilitate system infrastructure to meet the needs of our customers at reasonable costs. Key programs and projects are discussed in Chapters 3 and 4 for the Water System and Wastewater System, respectively. In addition, a full description of each project can be found in the supplemental volume to this budget document.

The following table presents the planned appropriations for the five-year CIP by fund, plus the administration of capital. The total planned FY18-22 capital appropriation is \$1.85 billion, which includes \$1.69 billion for the Water System and \$159.2 million for the Wastewater System.

Capital Improvement Program Planned Appropriations within Fund (\$ Millions)						
	FY18	FY19	FY20	FY21	FY22	Total
Water	346.5	327.5	243.8	324.7	244.2	1,486.6
Administration of Capital	<u>40.0</u>	<u>40.0</u>	<u>41.2</u>	<u>42.4</u>	<u>43.7</u>	<u>207.3</u>
Water Total	386.5	367.5	285.0	367.1	287.9	1,693.9
Wastewater	31.4	48.1	20.9	25.1	18.1	143.6
Administration of Capital	<u>3.0</u>	<u>3.0</u>	<u>3.1</u>	<u>3.2</u>	<u>3.3</u>	<u>15.6</u>
Wastewater Total	34.4	51.1	24.0	28.3	21.4	159.2
District Total	420.8	418.6	309.0	395.5	309.3	1,853.2

Numbers in the table may be rounded.

The relationship between the Water System and Wastewater System five-year planned appropriations can also be seen in the following chart:



Water System appropriations are increasing \$82.1 million in FY21 compared to FY20. In FY21, a large planned increase is needed for the Encinal Cascade and Leland pressure zone projects; one of the Alameda Crossing pipelines; Briones reservoir tower modifications; construction of 21,600 feet of pipeline in St. Mary's Road/Rohrer Drive in Moraga, Lafayette, and Walnut Creek to improve distribution system hydraulics; and improvements to the Camanche wastewater treatment plant.

Wastewater appropriations will increase \$16.7 million in FY19 compared to FY18. In FY19, a large planned increase is needed for the 3rd Street sewer interceptor rehabilitation; pump station M improvements; upgrades to the fats, oils and grease trucked waste receiving station; odor control improvements; grit handling equipment replacement; plant gallery drain improvements; and improvements to the Operations Center building.

Capital Cash Flow

Cash flow is the amount projected to be spent each fiscal year on projects in the CIP. The cash flow varies each year as projects progress from one phase of the work to another, such as from planning to design and then construction. Cash flow includes spending on contracts, equipment and supplies, and District labor. Capital labor is budgeted by departments for the time staff will work on capital projects.

Administration of capital expenses are allocated to the capital program for costs not directly attributable to specific capital projects, but indirectly support the CIP. Therefore, the administration of capital is not allocated to each individual project's cash flow, but is applied to the CIP as a whole.

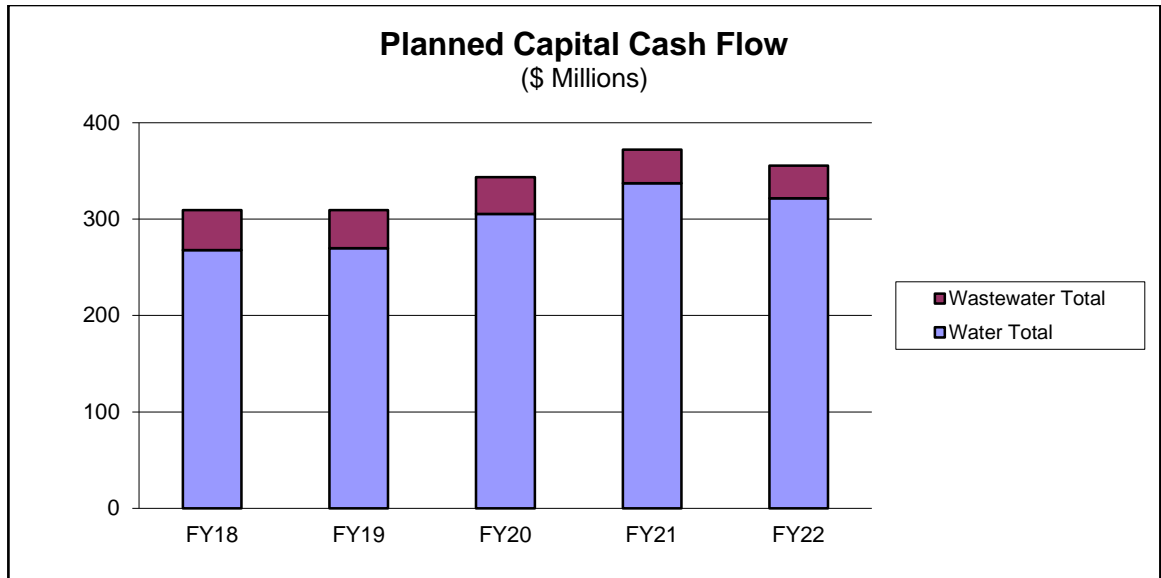
FY18 - FY22 Capital Cash Flow

The FY18 capital cash flow, including administration of capital expenses is \$267.7 million for the Water System and \$41.4 million for the Wastewater System, for a total of \$309.1 million. In FY19, the capital cash flow is \$269.8 million for the Water System and \$39.5 million for the Wastewater System, for a total of \$309.4 million. The five-year planned cash flows can be seen in this table:

Capital Improvement Program Planned Cash Flow within Fund (\$ Millions)						
	FY18	FY19	FY20	FY21	FY22	Total
Water	227.7	229.8	264.2	294.7	277.8	1,294.3
Administration of Capital	<u>40.0</u>	<u>40.0</u>	<u>41.2</u>	<u>42.4</u>	<u>43.7</u>	<u>207.3</u>
Water Total	267.7	269.8	305.4	337.1	321.5	1,501.6
Wastewater	38.4	36.5	34.9	31.7	30.6	172.1
Administration of Capital	<u>3.0</u>	<u>3.0</u>	<u>3.1</u>	<u>3.2</u>	<u>3.3</u>	<u>15.6</u>
Wastewater Total	41.4	39.5	38.0	34.8	33.9	187.7
District Total	309.1	309.4	343.4	372.0	355.4	1,689.3

Numbers in the table may be rounded.

The relationship between the Water System and Wastewater System five-year planned cash flows can also be seen in the following chart:



The most significant change over the five-year period is the planned increase in the Water System cash flow by \$35.6 million between FY19 and FY20, and an additional \$31.7 million between FY20 and FY21. The increase encompasses pressure zone improvements that will take place west of the hills, increased pipeline replacements, and temperature anchor retrofit and base isolator replacement on the Mokelumne Aqueducts.

STAFFING

The District maintains a Staffing Plan that relates specifically to positions authorized by the Board of Directors. The Staffing Plan includes the job titles, positions and appointment types that have been authorized by the Board of Directors to carry out District functions. The Staffing Plan balances departmental efforts to allocate human resources effectively. Departments look for opportunities to restructure the workload as employees retire or leave the District and continue to evaluate staffing plans based on operational need. Staffing changes that require Board action are supported with a Position Resolution. Positions are only created by the Board of Directors.

The Staffing Plan and the Position Resolution do not address whether a position is funded in a particular fiscal year. Decisions regarding funding positions are made during the biennial budget process.

The District utilizes different position appointment types to meet its range of staffing needs. The appointment types include full-time civil service, full-time civil service exempt, limited-term, temporary construction, intermittent, part-time and temporary.

Staffing is shown by number of full-time equivalents (FTE). Depending upon the appointment type, the FTE value will be different. Civil service, non-civil service, limited-term, and temporary construction appointment types are full-time and equivalent to 1.0 FTE. Intermittent appointment types are equivalent to 0.75 FTE. Part-time and temporary appointment types count as 0.5 FTE.

Appointment Types

The majority of the District's workforce is full-time civil service or full-time civil service exempt positions.

Limited-term positions are intended to augment regular District staff to accomplish extra work or other operational programs or activities of a limited duration, with appointments for a maximum of 4 years.

Temporary construction positions are also of a limited and specified duration typically associated with capital projects and facilities.

Intermittent positions represent the smallest number of positions of the appointment types. These positions typically work 32 hours per week, instead of 40 hours per week for full-time positions.

Part-time positions are normally restricted to 832 hours per year.

Temporary positions are limited to 6 month duration, and are full-time during that duration.

FY18 & FY19 Budget

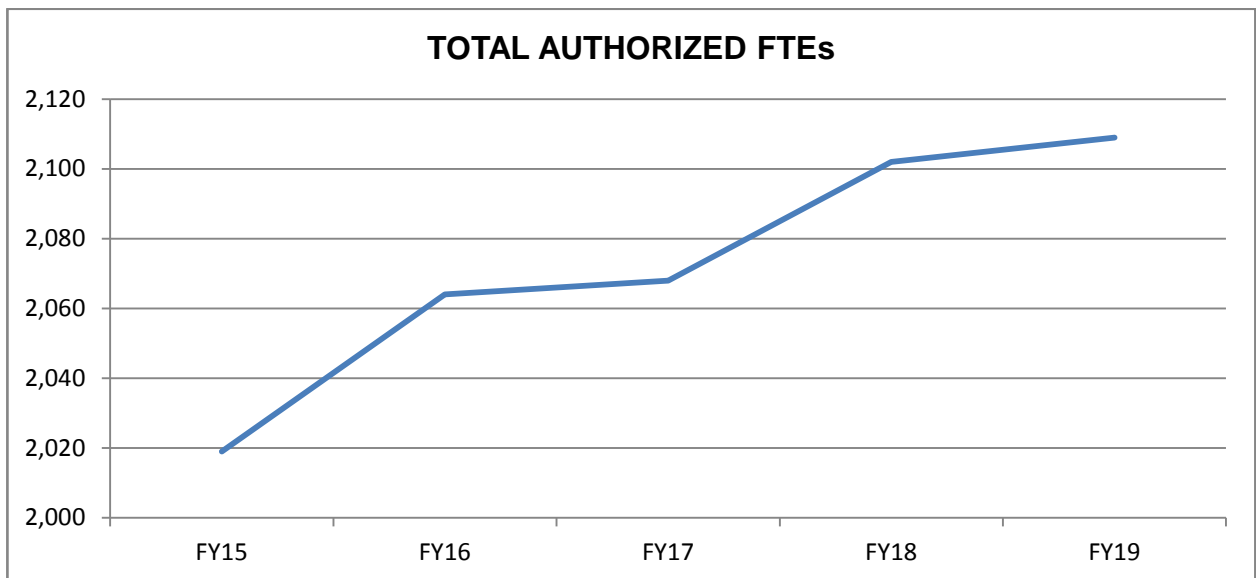
Staff will enable the District to address key priority areas such as the investment and maintenance of aging water and wastewater infrastructure. The majority of the staffing changes occur in the first year of the biennial budget.

The following pages show the District-wide authorized FTEs in the FY18 and FY19 biennial budget.

Authorized Full-Time Equivalents (FTEs)

In FY18, the total number of authorized FTEs is 2,102, or 34 more FTEs than the prior fiscal year. In FY19, an additional 7 FTEs are included to bring the total FTEs to 2,109. The following table and graph show the number of authorized FTEs in the Staffing Plan for FY15 through FY19. Staffing for FY15 through FY17 represents adopted annual staffing as amended by Board actions.

DISTRICT STAFFING (NUMBER OF AUTHORIZED FTEs)					
APPOINTMENT TYPE	FY15	FY16	FY17	FY18	FY19
Full-Time Civil Service and C.S. Exempt	1,943	1,970	1,971	2,009	2,016
Limited-Term / Temporary Construction	36	53	56	53	53
Intermittent	3	3	3	3	3
Temporary / Part-Time	<u>37</u>	<u>38</u>	<u>38</u>	<u>37</u>	<u>37</u>
TOTAL AUTHORIZED FTEs	2,019	2,064	2,068	2,102	2,109
FTE Change From Previous FY	0	45	4	34	7



Authorized FTE Detail

The number of District-wide authorized full-time equivalents is increasing 34.0 in FY18 and 7.0 in FY19 in comparison to the prior fiscal year, respectively. The net total increases are derived through the addition of 39.0 FTEs combined with the deletion of 5.0 FTEs in FY18. In FY19, 7.0 FTEs will be added. These staffing changes are attributable to each specific enterprise system and will amend the authorized number of FTEs as shown below.

Water System

FY18

A net total of 33.0 FTEs are added in FY18. This total is derived through the addition of 35.0 FTEs and the deletion of 2.0 FTEs.

The 35.0 FTEs added are comprised of:

- *Infrastructure Maintenance / Pipeline Construction* – 20.0 FTEs added: 11.0 FTEs to support distribution system maintenance, and 9.0 FTEs to reduce reliance on contract services
- *Infrastructure Investment* – 9.0 FTEs to support the capital improvement program
- *Regulatory Compliance* – 1.0 FTE to support required lead testing in schools and a voluntary customer tap lead sampling program
- *Technology Infrastructure* – 3.0 FTEs to address the replacement of the aging human resources information system and accelerated security risk-reduction
- *Human Resources* – 2.0 FTEs to support an increase in employee recruitment and workforce development

The 2.0 deleted FTEs are comprised of:

- *Technology Infrastructure* – 2.0 FTEs, one vacant temporary construction FTE supporting the customer information system now fully implemented, and the responsibility of one vacant limited-term FTE supporting advanced meter infrastructure is transferred to another department

FY19

A net total of 6.0 additional FTEs are added in FY19 are comprised of:

- *Infrastructure Maintenance / Pipeline Construction* – 5.0 FTEs to further reduce reliance on contract services
- *Technology Infrastructure* - 1.0 FTE to support the water control systems which monitor and manage the water treatment plants, the distribution system, and the water supply systems

Wastewater System

FY18

A net total of 1.0 FTE is added in FY18. This total is derived through the addition of 4.0 FTEs and the deletion of 3.0 FTEs.

The 4.0 added FTEs are comprised of:

- *Infrastructure Investment* – 2.0 FTEs added to support the capital improvement program
- *Infrastructure Maintenance* – 1.0 FTE added to reduce reliance on outside services
- *Information Technology* – 1.0 FTE added to provide data systems supervision

The 3.0 deleted FTEs are comprised of:

- *Workload Efficiencies* – 1.0 FTE (two temporary positions) that are no longer needed since a full-time position has been filled
- *Inflow and Infiltration and Resource Recovery* – 2.0 vacant limited-term FTEs due to term completion

FY19

One FTE is added in FY19, as follows:

- *Infrastructure Maintenance* – 1.0 FTE to address treatment plant electrical integrity

LABOR and BENEFITS

This section provides a description of the District-wide labor and benefit costs for both the Water and Wastewater Systems. Labor includes all compensation such as wages, salaries, cost of living adjustment, and overtime. Benefits include payments to cover the employer costs associated with retirement, health care, Social Security, and other programs such as disability and unemployment insurance. The District does not pay for the employee share of retirement contributions.

FY18 & FY19 Budget

Labor and Benefits

The table below summarizes the District-wide labor and benefits from FY16 through FY19. Of the District-wide total FY18 and FY19 labor and benefits budgets, the Water System represents 86 percent and the Wastewater System is 14 percent.

Operations & Capital Itemized by Labor and Benefits						
(\$ Millions)						
	FY16 Actual	FY17 Amended Budget	FY18 Proposed Budget	FY18 vs FY17	FY19 Proposed Budget	FY19 vs FY18
Water						
Labor	164.3	176.4	189.0	7.1%	198.1	4.8%
Benefits	107.5	115.8	118.9	2.7%	124.9	5.0%
Wastewater						
Labor	28.3	31.3	32.2	2.9%	33.7	4.7%
Benefits	18.1	19.9	19.5	-2.0%	20.4	4.5%
District-wide						
Labor	192.6	207.6	221.2	6.5%	231.9	4.8%
Benefits	125.6	135.7	138.4	2.0%	145.3	5.0%
Grand Total	318.2	343.3	359.6	4.8%	377.2	4.9%

Numbers in the table may be rounded.

Includes cost of living adjustment.

Excludes the Administration of Capital overhead allocated from Operations to Capital.

Total labor and benefits are projected to be \$359.6 million in FY18, an increase of \$16.3 million or 4.8 percent, and \$377.2 million in FY19, an increase of approximately \$17.5 million, or 4.9 percent in comparison with the prior fiscal years, respectively. Of the increase in FY18, labor costs will increase \$13.6 million, and \$2.7 million is attributable to benefits. In FY19, an increase of approximately \$10.6 million is attributable to labor costs and \$6.9 million to benefits.

The increase in labor and benefit costs are attributable to funding additional positions, rising costs primarily for health care, and a cost of living adjustment. The additional positions are principally funded in the Water System to support capital-related projects, infrastructure maintenance, pipeline construction, water operations, and other support functions such as human resources. A number of complex drivers impact the labor and benefits budget beyond funding additional positions. One of the major complex drivers is a slower than projected rise in benefit costs.

The FY18 and FY19 budget continues to build on past efforts to contain benefit costs. The benefits budget comprises several drivers, the largest is the employer pension contribution followed by the health care expense. In 2012, pursuant to State legislation referred to as the California Public Employees' Pension Reform Act (PEPRA), the Board of Directors implemented this change in the District's Employee Retirement System, referred to as the 2013 Plan. New employees receive a reduced pension benefit and fund a greater share of that benefit themselves. The assumption utilized for this budget projects a growth in the number of employees in the 2013 Plan thereby slowing the projected increase for this cost.

The following table shows the different employer pension contribution rates since FY16. Most new employees are part of the 2013 Plan and all other employees participate in the 1955/1980 Plan. The FY18 contribution rate is slightly higher than the prior year in large part due to lower earnings levels and the decrease in the assumed investment rate of return. The actual FY19 rate will not be available until it is calculated by the actuary and adopted by the Retirement Board in 2018.

Employer Pension Contribution Rates			
Plan	FY16	FY17	FY18
1955/1980 Plan	37.71%	37.71%	37.92%
2013 Plan	30.92%	30.92%	31.30%

In the District's continuing pursuit of cost containment, it offers employees traditional health care plans, and a consumer-driven health plan paired with a health savings account which is also available for non-represented employees. The premium rates are lower for a consumer-driven health plan than a traditional plan. The health benefit assumption utilized for this budget represents a cost increase range of 5 to 12 percent for FY18 and the same additional increase for FY19.

Operations and Capital

Depending upon the work being performed, labor and benefit costs are allocated to either operations or capital. The majority of these costs are charged to the operations budget. Typical duties performed by employees that charge to the operations budget include pipeline system maintenance, meter maintenance, electrical / structural / mechanical maintenance, customer contact center support, managing watershed properties, human resources, information systems and treatment plant operations for both water and wastewater. Duties of employees that typically charge the capital budget include pipeline replacements, significant treatment plant upgrades or wastewater plant improvements.

The table below shows labor and benefits allocated between the operations and capital budgets. Of the total FY18 and FY19 budgets, 75 percent of the District's labor and benefits budget is attributable to operations. The remaining 25 percent is attributable to the capital budget.

Labor and Benefits Itemized by Operations and Capital						
(\$ Millions)						
	FY16 Actual	FY17 Amended Budget	FY18 Proposed Budget	FY18 vs FY17	FY19 Proposed Budget	FY19 vs FY18
Water						
Operations	197.1	216.7	226.6	4.6%	237.6	4.9%
Capital	74.7	75.5	81.3	7.8%	85.5	5.1%
Wastewater						
Operations	36.2	41.4	41.5	0.2%	43.5	4.9%
Capital	10.2	9.7	10.2	5.1%	10.5	3.4%
District-wide						
Operations	233.3	258.1	268.1	3.9%	281.1	4.9%
Capital	84.9	85.2	91.5	7.5%	96.0	4.9%
Grand Total	318.2	343.3	359.6	4.8%	377.2	4.9%

Numbers in the table may be rounded.

Includes cost of living adjustment.

Excludes the Administration of Capital overhead allocated from Operations to Capital.

The District-wide total operations labor and benefits budget will increase \$10.0 million, or 3.9 percent in FY18 and the capital budget will increase \$6.3 million, or 7.5 percent. As mentioned earlier, these increases are primarily driven by funding additional positions, rising costs for health care, and a cost of living adjustment.

In FY19, the District-wide operations budget will increase \$13.0 million, or 4.9 percent and capital will increase \$4.5 million, or 4.9 percent primarily due to projected increases in labor costs such as scheduled salary step changes, an anticipated increase in health care cost, and a cost of living adjustment.

Please see the Water and Wastewater System chapters for more details.

SOURCES OF FUNDS

Operating expenses are funded by a group of revenues approved by the Board of Directors. Capital expenses are funded primarily by bond proceeds, which results in annual debt service payments, and rate revenue. The complete discussion of the types of operating and capital funding sources is included in the subsequent chapters on the Water System and the Wastewater System.

A summary table below shows the amounts to be collected from revenue sources and the amounts that are expected to be received from the issuance of debt to fund a portion of the capital program for the Water and Wastewater Systems.

TOTAL SOURCES OF FY18 & FY19 FUNDS				
(\$ Millions)				
	Water System		Wastewater System	
	FY18	FY19	FY18	FY19
Operating Revenues:				
Total Operating Revenues	552.2	607.2	127.0	129.9
Less Revenue Funded Capital	<u>(70.7)</u>	<u>(101.1)</u>	<u>(21.3)</u>	<u>(25.8)</u>
Net Operating Revenues	481.5	506.2	105.7	104.1
Capital Funding Sources:				
New Bond Proceeds	175.9	148.6	20.1	13.7
Revenue Funded Capital	70.7	101.1	21.3	25.8
Other	<u>21.1</u>	<u>20.2</u>	<u>0.0</u>	<u>0.0</u>
Total Capital Funding Sources	267.7	269.8	41.4	39.5
TOTAL FUND SOURCES	749.2	776.0	147.1	143.6

Numbers in the table may be rounded.

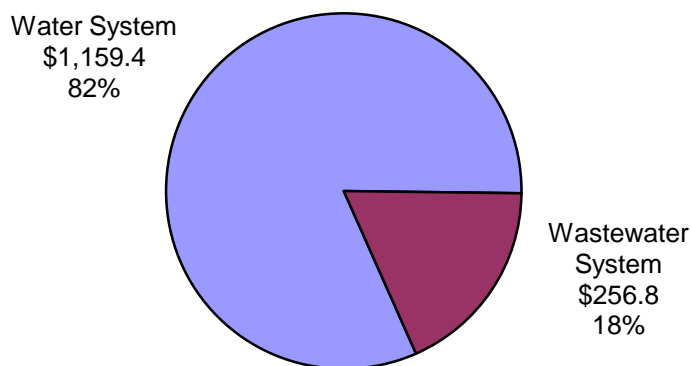
Operating Revenue

The principal source of operating revenues is water sales and wastewater treatment charges. The budget includes rate increases for the Water System of 9.25 percent in FY18 and an additional 9.0 percent in FY19, and rate increases for the Wastewater System of 5.0 percent in FY18 and an additional 5.0 percent in FY19. The total operating revenue for the combined Water and Wastewater Systems is \$1.42 billion in this budget.

Water System and Wastewater System operating revenues totaling \$679.2 million are needed during FY18. Of this amount, \$552.2 million is for the Water System and approximately \$127.0 million is for the Wastewater System.

Water System and Wastewater System operating revenues totaling \$737.1 million are needed for FY19. Of this amount, \$607.2 million is for the Water System and approximately \$129.9 million is for the Wastewater System.

FY18 & FY19 Sources of Operating Revenue
(\$ Millions)



Capital Funding Sources

Funding for the projects in the CIP is drawn from multiple sources including bonds, commercial paper, grants, reimbursements from other agencies, and current reserves and revenues. In accordance with the District's financial policies, the maximum percentage of capital funded from debt is 65 percent. As a result, a substantial portion of capital expenditures are funded on a pay-as-you-go basis which uses current and accumulated revenues rather than debt.

The FY18 and FY19 CIP will be funded with bond proceeds, water and wastewater revenues, reimbursements, and grants and loans.

For the Water System, it is anticipated that the District will receive \$175.9 million in FY18 and \$148.6 million in FY19 in new revenue bond proceeds, combined with revenue funded capital of \$70.7 million in FY18 and \$101.1 million in FY19. Additional proceeds from grants, loans and reimbursements will make up the rest of the capital funding.

For the Wastewater System, it is anticipated that the District will receive \$20.1 million in FY18 and \$13.7 million in FY19 in new revenue bonds proceeds, combined with revenue funded capital of \$21.3 million in FY18 and \$25.8 million in FY19 to fund the CIP.

WATER and WASTEWATER SYSTEM FUND SUMMARIES

The following tables summarize the fund balance, projected revenues and expenditures for the Water System and the Wastewater System. The tables include the information presented earlier in this chapter on the sources of funds and the use of funds for operations, debt, and capital expenses. Please refer to the chapters entitled Water System and Wastewater System for detailed fund summaries.

Water System Fund Summary Operating and Capital Budgets (\$ Millions)						
	FY18			FY19		
	Operating	Capital	Fund Balance	Operating	Capital	Fund Balance
Beginning FY Fund Balance (Projected)	348.6	0.0	348.6	352.6	0.0	352.6
Sources of Funds						
Operating Revenues	552.2		552.2	607.2		607.2
Capital Sources		197.0	197.0		168.8	168.8
Revenue Funded Capital	<u>(70.7)</u>	<u>70.7</u>	<u>0.0</u>	<u>(101.1)</u>	<u>101.1</u>	<u>0.0</u>
Total Sources of Funds	481.5	267.7	749.2	506.2	269.8	776.0
Use of Funds						
Operations	277.9		277.9	292.5		292.5
Debt Service	199.6		199.6	210.0		210.0
Capital Cash Flow		<u>267.7</u>	<u>267.7</u>		<u>269.8</u>	<u>269.8</u>
Total Use of Funds	477.5	267.7	745.2	502.5	269.8	772.3
Ending Balance *	352.6	0.0	352.6	356.3	0.0	356.3

Numbers in the table may be rounded.

* Includes reserves for working capital, self-insurance, worker's compensation, contingency and rate stabilization, and for capital projects.

See Wastewater System Fund Summary on the next page.

Wastewater System Fund Summary
Operating and Capital Budgets
(\$ Millions)

	FY18			FY19		
	Operating	Capital	Fund Balance	Operating	Capital	Fund Balance
Beginning FY Fund Balance (Projected)	77.5	0.0	77.5	78.0	0.0	78.0
Sources of Funds						
Operating Revenues	127.0		127.0	129.9		129.9
Capital Sources		20.1	20.1		13.7	13.7
Revenue Funded Capital	<u>(21.3)</u>	<u>21.3</u>	<u>0.0</u>	<u>(25.8)</u>	<u>25.8</u>	<u>(0.0)</u>
Total Sources of Funds	105.7	41.4	147.1	104.1	39.5	143.6
Use of Funds						
Operations	70.6		70.6	73.1		73.1
Debt Service	34.7		34.7	31.9		31.9
Capital Cash Flow		<u>41.4</u>	<u>41.4</u>		<u>39.5</u>	<u>39.5</u>
Total Use of Funds	105.2	41.4	146.6	105.1	39.5	144.6
Ending Balance *	78.0	0.0	78.0	77.0	0.0	77.0

Numbers in the table may be rounded.

* Includes reserves for working capital, self-insurance, worker's compensation, contingency and rate stabilization, and for capital projects.

CHAPTER 3: WATER SYSTEM

This chapter provides a detailed description of the Water System sources of funds, use of funds, department operations budgets including staffing, capital expenditures and a Five-Year Financial Forecast.

The Water System Fund is an enterprise fund consisting of an operating and a capital budget. The function of the Water System is the collection, transmission, and distribution of water to communities within Alameda and Contra Costa Counties. In addition, the Water System provides administrative, financial, and other support services to the Wastewater System. These costs are charged to the Wastewater System.

This chapter is organized into the following sections:

Pages 63 - 153 A detailed description of the FY18 and FY19 budgets including sources of revenues and use of funds for operations, debt financing, and capital programs. This section also includes detailed department budgets.

Pages 154 - 160 A five-year-forecast of the Water System projected revenues and expenditures for operations, debt financing, and capital programs.

FUND SUMMARY

The following are key projections and assumptions utilized in the FY18 and FY19 budget.

WATER SYSTEM FUND – KEY ASSUMPTIONS		
	FY18	FY19
Sales Volume (mgd)	137.0	141.0
% Rate Increase	9.25%	9.00%
Average monthly single family residential bill based on 8 ccf/month	\$51.49	\$56.12

The fund summary illustrates the beginning and ending fund balances as well as revenues, expenditures, and other financing sources/uses. The following table shows the fund balance, and projected revenues and expenditures for the Water System for FY18 and FY19. The table is an expansion of the Water System Fund Summary table presented at the end of Chapter 2.

Water System Fund Summary Operating and Capital Budgets (\$ Millions)						
	FY18			FY19		
	Operating	Capital	Fund Balance	Operating	Capital	Fund Balance
Beginning FY Fund Balance (Projected)	348.6	0.0	348.6	352.6	0.0	352.6
Sources of Funds						
Operating Revenues						
Water Charges	454.7		454.7	507.5		507.5
Property Taxes	30.0		30.0	30.7		30.7
Power Sales	3.7		3.7	3.7		3.7
Interest Income	7.3		7.3	7.4		7.4
SCC Revenue	27.0		27.0	28.0		28.0
Reimbursements	11.6		11.6	11.9		11.9
All Other Revenue	<u>17.9</u>		<u>17.9</u>	<u>18.1</u>		<u>18.1</u>
Total Operating Revenues	552.2		552.2	607.2		607.2
Capital Funding Sources						
New Bond Proceeds		175.9	175.9		148.6	148.6
Loans Proceeds		0.0	0.0		0.0	0.0
Grants		0.5	0.5		0.3	0.3
Reimbursements		20.6	20.6		19.9	19.9
Commercial Paper		<u>0.0</u>	<u>0.0</u>		<u>0.0</u>	<u>0.0</u>
Total Capital Sources		197.0	197.0		168.8	168.8
Revenue Funded Capital	<u>(70.7)</u>	<u>70.7</u>	<u>0.0</u>	<u>(101.1)</u>	<u>101.1</u>	<u>0.0</u>
Total Sources of Funds	481.5	267.7	749.2	506.2	269.8	776.0
Use of Funds						
Operations	277.9		277.9	292.5		292.5
Debt Service	199.6		199.6	210.0		210.0
Capital Cash Flow		<u>267.7</u>	<u>267.7</u>		<u>269.8</u>	<u>269.8</u>
Total Use of Funds	477.5	267.7	745.2	502.5	269.8	772.3
Ending Balance *	352.6	0.0	352.6	356.3	0.0	356.3

Numbers in the table may be rounded.

* Includes reserves for working capital, self-insurance, worker's compensation, contingency and rate stabilization, and for capital projects.

FY 2018 & FY 2019 BUDGET

SOURCES OF FUNDS

Operating expenses are funded by a group of revenue sources approved by the Board of Directors. Capital expenses are funded primarily by a combination of bond issues, which results in annual debt service payments, and operating revenue.

The table below displays the amounts to be collected from revenue sources and shows the amounts that are expected to be received to fund the capital program for the Water System.

WATER SYSTEM SOURCES OF FUNDS				
(\$ Millions)				
	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY19 Proposed Budget
Operating Revenues:				
Water Charges	369.9	453.0	454.7	507.5
Property Taxes	29.9	25.1	30.0	30.7
Power Sales	3.2	3.5	3.7	3.7
Interest Income	2.1	3.3	7.3	7.4
SCC Revenue	39.3	26.0	27.0	28.0
Reimbursements	11.3	11.2	11.6	11.9
All Other Revenue	<u>18.7</u>	<u>17.4</u>	<u>17.9</u>	<u>18.1</u>
Total Operating Revenues	474.4	539.5	552.2	607.2
Revenue Funded Capital	(207.6)	(100.5)	(70.7)	(101.1)
Capital Funding Sources:				
Revenue Funded Capital	207.6	100.5	70.7	101.1
New Bond Proceeds	0.0	108.9	175.9	148.6
Loans Proceeds	0.0	0.0	0.0	0.0
Grants	4.4	1.8	0.5	0.3
Reimbursements	17.0	24.9	20.6	19.9
Commercial Paper	0.0	0.0	0.0	0.0
Construction Fund	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
Total Capital Funding Sources	229.0	236.1	267.7	269.8
Total Water Sources	495.8	675.1	749.2	776.0

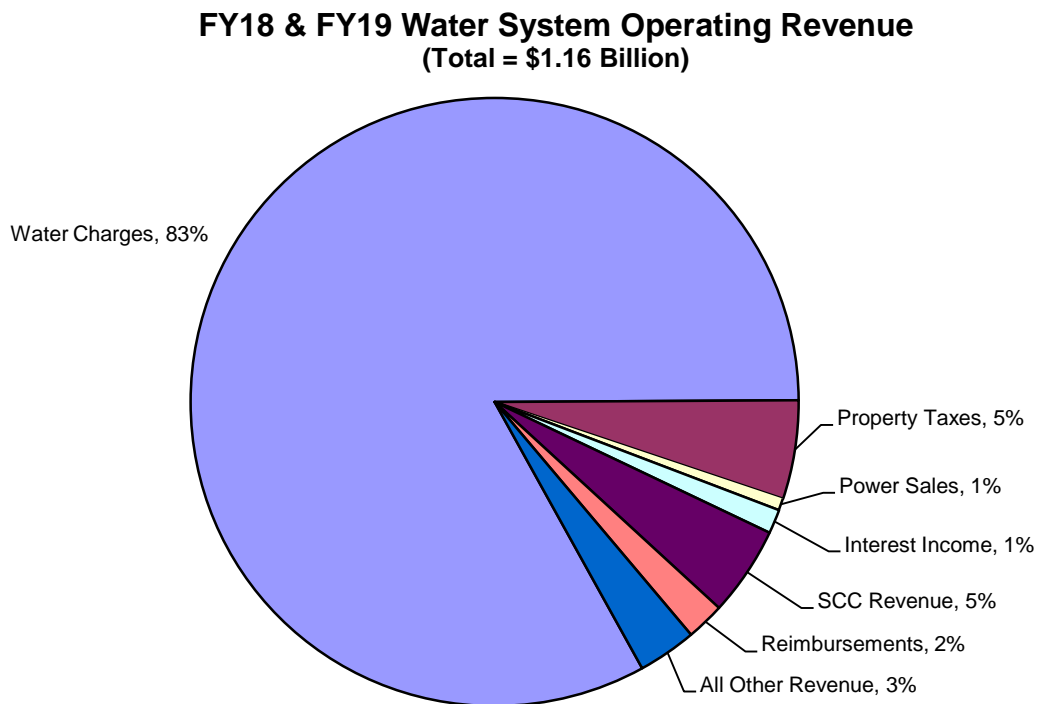
Numbers in the table may be rounded.

Operating Revenue

Water System operating revenues for FY18 are increasing \$12.7 million, or 2.4 percent compared to FY17 for a total of \$552.2 million. This increase reflects the net impact of lower water sales than budgeted in FY17 and the proposed rate increase of 9.25 percent. The FY18 budget also includes a rise in property tax receipts of \$4.9 million and interest income of \$4.0 million compared to the FY17 budgeted revenue.

In FY19, Water System operating revenues will increase \$55.0 million, or approximately 9.9 percent for a total of \$607.2 million. This increase is comprised primarily of \$52.8 million from water charges due to higher projected consumption and an increase in the water rates.

The figure below illustrates the various sources of revenue and the relative percentage each contributes to the total. Water charges revenue is the largest source of revenue for EBMUD comprising 83 percent of FY18 and FY19 total revenues.



The following pages provide more detail on each of the revenue categories.

Source Descriptions

Operating Revenue

The following are descriptions of the seven sources of operating revenue, including information about the projected revenues for FY18 and FY19.

Water Charges

Water charges consist of a monthly service charge, a volume charge for the amount of water used and an elevation charge for those customers located at higher elevations that require pumping and additional storage facilities. The overall water charges will increase by 9.25 percent in FY18 and an additional 9.0 percent in FY19.

FY18 Revenue (\$ Millions)			FY19 Revenue (\$ Millions)		
	<u>Amount</u>	<u>% of Total</u>		<u>Amount</u>	<u>% of Total</u>
Monthly Service Charge	137.0	30.1	Monthly Service Charge	149.7	29.5
Volume Charge	294.1	64.7	Volume Charge	331.2	65.3
Elevation Charge	<u>23.6</u>	<u>5.2</u>	Elevation Charge	<u>26.6</u>	<u>5.2</u>
Total	454.7	100.0	Total	507.5	100.0

FY18 water charges are projected to increase by \$1.7 million, for a total of \$454.7 million, or 0.4 percent over the FY17 budgeted revenue of \$453.0 million, due to reduced customer demand and the 9.25 percent rate increase. FY19 water charges are projected to increase by \$52.8 million, for a total of \$507.5 million, or 11.6 percent over the FY18 water charges revenue as projected consumption increases slightly from 137 MGD to 141 MGD.

Property Taxes

The District receives a portion of the 1 percent county tax levy on properties within District boundaries. The percentage of the county levy received varies, depending on the number of other agencies participating in the distribution. The District's share averages 1.25 percent of the total monies collected. For FY18, property tax revenue of \$30.0 million is based upon FY16 actual property tax receipts. Revenues for FY19 are projected to be \$30.7 million or a 2.3 percent increase over FY18.

Power Sales

The District operates power generation facilities at the Pardee and Camanche Dams. For FY18 and FY19, projected as years of normal precipitation, the District expects to earn approximately \$3.7 million for each year, primarily from sales of power to other agencies.

Interest Income

The District places funds not needed for current expenditures in short-term investments in accordance with the District's investment policy and may include money market funds, commercial paper, medium term corporate notes, bankers' acceptances and short-term U.S. government securities. Interest earned on these funds in FY18 is projected to be \$7.3 million, a \$4.0 million increase from FY17 due to significantly higher interest rates than assumed for the FY17 budget. For FY19 interest income is projected to be \$7.4 million, a \$0.1 million increase compared to the prior year. Interest earned is assumed to be 2 percent in FY18 and FY19.

SCC Revenue

System Capacity Charges (SCC) are collections from customers requesting new water service. The charges are designed to recover costs of facilities necessary to serve new customers. These costs include distribution facilities, treatment facilities, facilities that serve the system as a whole such as Pardee and Camanche Reservoirs, terminal storage reservoirs, administrative facilities, and a portion of the costs of supplemental water supply. The purpose of the SCC is to assure that existing customers do not bear the cost of customer growth and that new customers pay for their appropriate share of the existing water system facilities. Funds collected from the SCC are held either in dedicated reserves or accounted for as a capital contribution from developers. Funds held in the dedicated reserve account are used to pay the debt service for the bonds issued to build supplemental water supply projects.

SCC revenue for FY18 is projected at \$27.0 million which is a \$1.0 million increase from the amount budgeted for FY17. FY19 SCC revenue is projected at \$28.0 million, a \$1.0 million increase from FY18. This is based on the assumption that the number of new connections for FY18 and FY19 will continue at the average rate of connections over the last five years, plus a 3.5 percent increase in SCC rates. The 3.5 percent increase is based on the increase in the Engineering News Record Construction cost index.

Reimbursements

The Water System receives reimbursement for services provided to other agencies. The Wastewater System reimburses the Water System for administrative costs, space rental in the Administration building and for providing billing and collection services. The Water System also receives reimbursements from several cities for providing billing and collection services for the cities' sewer charges. Total reimbursements for FY18 and FY19 are projected at \$11.6 million and \$11.9 million respectively.

All Other Revenue

Included in this category are receipts from property sales, rental of District properties, fees for use of District recreational lands and facilities, insurance and property damage reimbursements, sales of surplus District equipment and vehicles, sales of District publications, reimbursements from the U.S. Treasury under the Build America Bond program, reimbursement of operating expenses from the Richmond Advanced Recycled Expansion (RARE) project and other miscellaneous revenues. All other revenues are projected at \$17.9 million for FY18 and \$18.1 million for FY19.

Capital Funding

The following are descriptions of the five sources of capital funding. The FY18 and FY19 Capital Improvement Program will be funded with bond proceeds, water revenues, reimbursements, and grants. It is anticipated that the District will receive \$175.9 million in new revenue bond proceeds in FY18 and \$148.6 million in FY19, combined with revenue funded capital of \$70.7 million in FY18 and \$101.1 million in FY19.

Please refer to the section on Debt Service and Financing for additional details on debt funding of capital projects.

New Bond Proceeds

The District has the ability to issue long-term bonds to fund its capital program. The proceeds of the bond sales can be used to pay for capital expenses over several years. The repayment of the bonds is generally over 30 years and is paid from water rate revenues.

Commercial Paper Issues

In addition to issuing long-term bonds to fund its capital program, the District has used short-term borrowing in the form of commercial paper to raise revenues for capital expenses. The term of commercial paper can be up to 270 days. The repayment of commercial paper is paid from water rate revenues.

Grants and Loans Proceeds

The District pursues federal and state grants and low-interest loans to fund some of its capital projects when they meet the conditions of the grant and loan programs.

Reimbursements

Some of the capital projects in the Water System are done at the request of other agencies, and the District is reimbursed for its expenses. An example would be the relocation of a water main at the request of a city or state agency. Also, work to expand the distribution system to meet new connections that is not covered by the System Capacity Charge is paid directly by the applicants.

Revenue Funded Capital

Annual capital expenses that are not paid from debt funding, grants, loans or reimbursements are paid from operating revenues, either from current year revenues or from reserves.

USE OF FUNDS

The Water System has three types of expenditures:

Operations, or the annual costs of providing all water services;

Debt service, or the repayment of bonds for making capital investments in the water system; and

Capital cash flow, or the annual costs of the Capital Improvement Program for long-term projects.

The following table shows the breakdown of expenses for operations, debt service, and capital cash flow.

USE OF FUNDS				
(\$ Millions)				
Expenditure Type	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY19 Proposed Budget
Operations	234.9	262.4	277.9	292.5
Debt Service	166.2	180.2	199.6	210.0
Capital Cash Flow	<u>218.5</u>	<u>236.1</u>	<u>267.7</u>	<u>269.8</u>
Total Expenditures	619.6	678.7	745.2	772.3

Numbers in the table may be rounded.

Operations

This section contains charts and tables which explain the major components of the Water System operations budget. Typical operations expenditures include, but are not limited to labor, benefits, chemicals, energy, parts and materials, insurance, District vehicle fleet costs, and computer hardware and software.

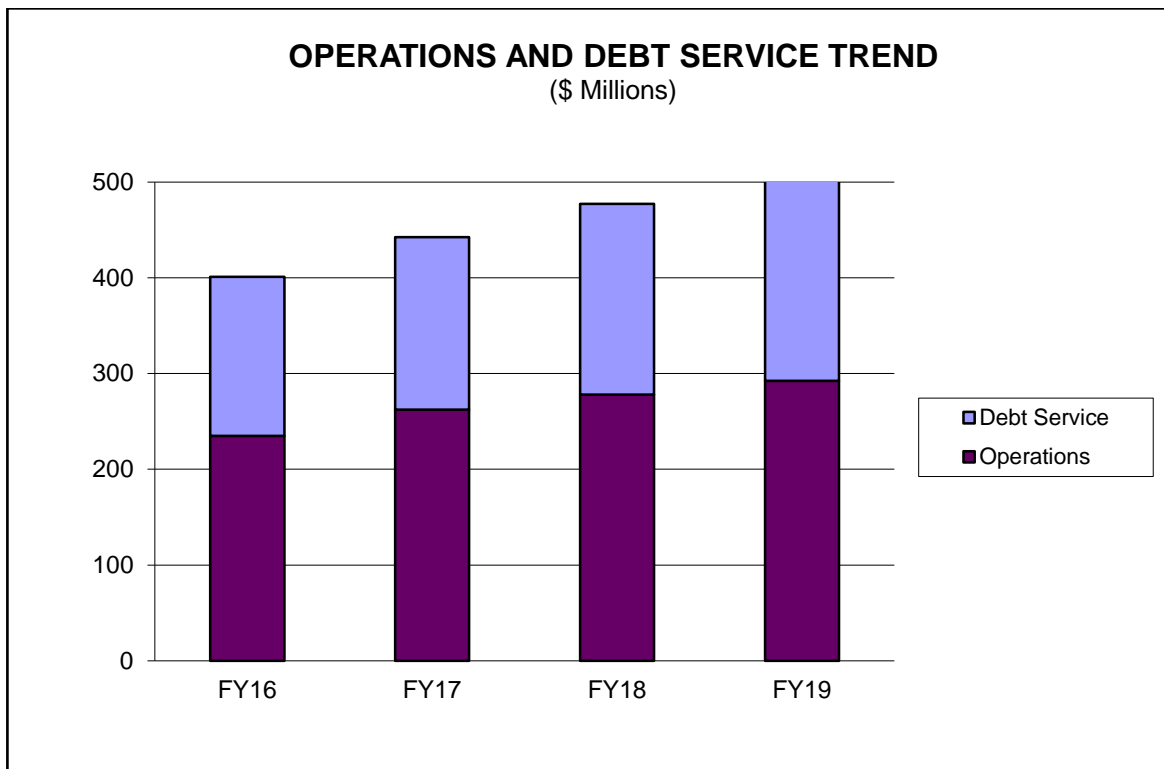
The operations budget is also shown by department. The details of each staffed department include a discussion of services provided, significant budget changes, and staffing and position changes.

The table below details the operations and debt service budget for FY18 and FY19.

Operations and Debt Service (\$ Millions)						
	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Operations	234.9	262.4	277.9	5.9%	292.5	5.2%
Debt Service	<u>166.2</u>	<u>180.2</u>	<u>199.6</u>	10.7%	<u>210.0</u>	5.3%
Total	401.1	442.6	477.5	7.9%	502.5	5.2%

Numbers in the table may be rounded.

In FY18, the operations and debt service budget is increasing \$34.9 million or 7.9 percent over the FY17 amended budget, and in FY19 will increase \$25.0 million or 5.2 percent compared to FY18.



Department Operations Budgets

The operations portion of the Water System budget is divided into various departments. The majority of these departments are referred to as staffed departments indicating employees are assigned to work in these areas. The staffed department budget funds the day-to-day operations of the District, and include funding for labor, benefits, outside contract services and other non-labor expenses such as electricity, chemicals, fuel, computer hardware, self-insured liability claims, and workers compensation claims. A detailed description of each staffed department is included later in this chapter.

A small number of departments do not have personnel assigned to them and are referred to as non-staffed departments. The impact on the budget by each of the following departments varies:

Contingency - Funds budgeted each fiscal year to primarily cover projected labor-related expenses such as the employee cost of living adjustment which is based upon each year's February Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) in the San Francisco-Oakland-San Jose area. The index is published in March of each year. The contingency budget also includes funding for unanticipated needs which may arise before the next budget cycle.

Intradistrict - Certain internal service accounts are included in balance sheets to assure that internal expenses are not counted twice within the operations budget. Examples of these accounts include warehouse stores loading overhead and fleet vehicle expenses.

Administration of Capital - The administration of capital represents those costs that are not directly attributable to specific capital projects but are more generalized indirect support of the Capital Improvement Program (CIP). The administration of capital in the operations budget will decrease operating expense by a like amount and reallocate the costs to the capital budget.

The following table presents the total FY18 and FY19 Water System operations budget by department.

Operations Budget by Department (\$ Thousands)						
DEPARTMENTS	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Operations & Maintenance Support	17,231	18,113	18,843	4.0%	19,480	3.4%
Maintenance and Construction	92,583	96,692	99,162	2.6%	101,632	2.5%
Water Operations	48,400	53,793	53,576	-0.4%	55,347	3.3%
Water Resources	6,748	8,259	8,487	2.8%	8,471	-0.2%
Natural Resources	14,545	15,490	15,690	1.3%	15,997	2.0%
Engineering & Construction	15,484	17,608	18,269	3.8%	18,662	2.1%
Office of the General Manager	5,398	6,474	5,882	-9.2%	6,318	7.4%
Finance	24,699	26,584	27,339	2.8%	28,095	2.8%
Information Systems	26,191	27,566	27,837	1.0%	28,955	4.0%
Customer & Community Services	18,482	20,269	20,194	-0.4%	20,634	2.2%
Human Resources	9,731	10,157	11,068	9.0%	11,213	1.3%
Office of the General Counsel	3,970	4,764	4,576	-3.9%	4,592	0.4%
Water Recycling Program	4,875	5,367	5,419	1.0%	5,510	1.7%
Administration	344	356	376	5.5%	377	0.2%
Subtotal Staffed Departments	288,681	311,493	316,718	1.7%	325,282	2.7%
Contingency	1,439	2,613	12,906		18,872	
Intradistrict	(11,600)	(11,700)	(11,700)	0.0%	(11,700)	0.0%
Administration of Capital	(43,627)	(40,000)	(40,000)	0.0%	(40,000)	0.0%
Subtotal Operations Expenses	234,893	262,407	277,923	5.9%	292,454	5.2%
Debt Service	166,245	180,191	199,551	10.7%	210,036	5.3%
TOTAL	401,138	442,598	477,474	7.9%	502,490	5.2%

Numbers in the table may be rounded.

The FY17 amended staffed department budgets include a cost of living adjustment.

The FY17 amended budget includes a carry forward of approximately \$0.2 million from FY16 which is within the total two-year appropriations approved by the Board.

Department Operations Budget Highlights

The Water System is comprised of 14 staffed departments that perform and provide operations and support functions to the Wastewater System. This section details the various departments including the labor and non-labor budgets, department goals and staffing.

The below table is a summary of the Water System departments' budgets, which excludes the administration of capital overhead allocated from operations to capital.

Category (\$ Thousands)	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Total Labor and Benefits	270,376	288,881	295,367	2.2%	300,849	1.9%
Less: Capital Labor and Benefits	<u>(74,670)</u>	<u>(75,392)</u>	<u>(78,529)</u>	4.2%	<u>(80,118)</u>	2.0%
Operating Labor and Benefits	195,706	213,489	216,838	1.6%	220,731	1.8%
Contract Services	14,766	14,683	18,911	28.8%	19,281	2.0%
All Other Costs	<u>78,209</u>	<u>83,321</u>	<u>80,969</u>	-2.8%	<u>85,271</u>	5.3%
Operating Total	288,681	311,493	316,718	1.7%	325,282	2.7%

Labor and Benefits

Labor and benefits are allocated between the staffed department and contingency for cost of living adjustments. Cost of living adjustments are not shown in the staffed departments' FY18 and FY19 labor and benefits budgets since it is based on the CPI-W index and the amount is not known until the index is published annually. Once the index is published, and if funds are needed, contingency would be transferred to departments. The details of the departments' labor and benefits budget are shown later in this chapter.

Labor and benefits will increase as a result of funding additional positions primarily in FY18 compared to the prior fiscal year, and a smaller number of additional positions in FY19. These additional positions support capital projects and operations work such as infrastructure maintenance, pipeline construction, water operations and support functions such as human resources. A number of complex drivers impact the labor and benefits budget beyond funding additional positions. One of the major complex drivers is a slower than projected rise in benefit costs which result in a lower fringe benefit rate compared to the prior fiscal year.

Total labor and benefits in FY18 will increase approximately \$6.4 million compared to the prior fiscal year. Of the increase, approximately \$3.1 million is for capital labor and is attributable to funding additional positions to support capital projects, as well as an increase in overtime to support a ramp-up of pipeline construction and construction inspections that must take place after normal work hours. The remaining amount of \$3.3 million is for additional positions to support operations work such as water operations, replacement of aging financial and human resources information systems, infrastructure maintenance and other support functions such as human resources. Operating overtime is reduced as a result of these additional positions.

In FY19, total labor and benefits will increase \$5.5 million compared to FY18. This increase is attributable to funding additional positions, scheduled salary step increases, and an anticipated increase in health care costs. The operations budget will increase \$3.9 million primarily attributable to the addition of staff to support baseline work in the maintenance and pipeline construction crews to replace outside contract services. The remaining amount of \$1.6 million is for work associated with capital projects.

Non-labor

In FY18, staffed department non-labor budgets are increasing a net of \$1.9 million or 1.9 percent compared to the prior fiscal year. The major drivers accounting for the changes include:

- Professional services are increasing \$2.7 million with the largest portion, \$1.5 million, to address a new requirement for lead sampling in schools, and a voluntary customer tap lead sampling program; other increases are to meet equal employment opportunity requirements, benefit consultant services to advise on plan design, cost analysis and regulatory requirements, new leak-detection services, and information technology contracts associated with data warehousing, training and firewall maintenance;
- Maintenance and operations supplies and services are increasing \$1.9 million primarily for building and equipment maintenance contracts, vehicle and construction equipment rentals, and pipeline maintenance supplies such as pipes, backfill, and paving;
- Vehicle use charges are increasing \$1.0 million to fund vehicle replacements which were deferred in prior years as a temporary cost savings strategy;
- Security contract services are increasing \$0.5 million for scheduled annual contract increases, and a new radar-based perimeter detection and integrated video assessment systems;
- Allowance for self-insured liability claims will increase by \$0.5 million;
- California State Drinking Water fees are increasing \$0.4 million based on a new fee schedule;
- Equipment is increasing \$0.3 million to replace aging equipment; and
- Mokelumne River Fish Hatchery operations are increasing of \$0.2 million for contract fees.

Planned reductions of \$5.7 million offset these anticipated increases in FY18.

- Chemicals, energy, and sludge disposal will decrease \$4.0 million associated with potable water production due to lower anticipated water sales; and
- Other drivers of the planned reductions include lower petroleum costs, Board of Director election fees which occur in the second year of the budget, and completion of the FY16 and FY17 budget priority to replace deferred aging computer equipment.

In FY19, staffed department non-labor budgets will increase a net of \$4.7 million or 4.7 percent compared to FY18. The major drivers accounting for the changes include:

- Potable water production costs will increase \$1.1 million for chemicals, energy, and sludge disposal due to an anticipated increase in energy prices, slight growth in water sales and liquid oxygen for new ozone systems at water treatment plants;
- Vehicle use charges will increase \$1.0 million to continue replacing deferred purchases;
- Fees for the Board of Director elections will be incurred for \$0.5 million;
- Computer hardware and equipment will increase \$0.4 million for software, ongoing maintenance and equipment replacement needs;
- Allowance for self-insured liability and workers' compensation claims will increase by \$0.3 million;
- Security contracts will increase \$0.3 million due to scheduled annual contract increases; and
- Other operating expenditures of \$0.8 million will increase such as maintenance and operations supplies and services, District laboratory services, mailing costs, telephone expense, and Mokelumne Fish Hatchery operations.

Department Operations by Budget Category

The table below depicts the Water System staffed departments operations by expense category. It does not include capital labor; however, capital labor by department is shown later in this chapter.

FY18 & FY19 DEPARTMENT OPERATIONS BY CATEGORIES								
(\$ Thousands)								
Department	FY18				FY19			
	Labor	Contract Services	All Other	Total Budget	Labor	Contract Services	All Other	Total Budget
Operations & Maintenance Supt	10,060	3,667	5,116	18,843	10,222	3,977	5,280	19,480
Maintenance and Construction	71,404	3,202	24,556	99,162	73,110	3,157	25,365	101,632
Water Operations	31,337	2,700	19,539	53,576	31,688	2,767	20,892	55,347
Water Resources	6,536	385	1,566	8,487	6,588	200	1,684	8,471
Natural Resources	9,337	2,970	3,383	15,690	9,406	3,020	3,570	15,997
Engineering & Construction	16,990	184	1,095	18,269	17,349	160	1,153	18,662
Office of the General Manager	5,083	221	577	5,882	5,116	125	1,077	6,318
Finance	16,506	1,301	9,532	27,339	16,721	1,466	9,908	28,095
Information Systems	19,445	1,329	7,063	27,837	19,899	1,470	7,586	28,955
Customer & Community Svcs	16,452	349	3,393	20,194	16,744	349	3,541	20,634
Human Resources	8,531	1,762	775	11,068	8,698	1,757	758	11,213
Office of the General Counsel	3,591	750	235	4,576	3,607	750	235	4,592
Water Recycling Program	1,566	91	3,762	5,419	1,582	83	3,845	5,510
Administration	0	0	376	376	0	0	377	377
TOTAL	216,838	18,911	80,969	316,718	220,731	19,281	85,271	325,282

Numbers in the table may be rounded.

Staffed Department Descriptions

The next section describes each of the staffed departments and includes the following topics:

Overview provides an overall statement about the key responsibilities of the department within the larger mission of the District as a whole.

Description of Services Provided describes the responsibilities of the department, by unit (division) or by function, including services required to meet regulatory or legal requirements.

FY18 & FY19 Goals highlights the highest priority tasks or projects related to the budget, and places these within the context of the overall District Strategic Plan.

Department Budget Summary is a reference table that shows the Department's operating budget expenditures by category (Labor and Benefits, Contract Services, All Other Costs). It also includes capital labor to give a more complete picture of departmental budget.

Budget Highlights shows changes in cost relative to the previous fiscal year and describes reasons for those changes. This section focuses on the significant budget change.

Staffing Summary is a reference table that shows the Full-Time Equivalent (FTE) for the department by appointment type (full-time, part-time, etc.).

Staffing Changes is a section included only for departments that have position changes that require Board approval. It includes a table that enumerates position changes, followed by a brief description of the changes. The change in cost is determined by comparing the annual cost of the salaries and benefits of the current classification with the annual cost of the new classification at the top salary step.

The following guide lists each department by name, the divisions within each department, and includes the page number to locate each department in this chapter.

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OPERATIONS AND MAINTENANCE SUPPORT DEPARTMENT

OVERVIEW

The Operations and Maintenance Support Department is responsible for managing and improving the water system infrastructure, processes and assets, and providing District-wide support and leadership in regulatory compliance, emergency preparedness and facility security.

DESCRIPTION OF SERVICES PROVIDED

The department consists of the Water Quality program and the Asset Management program which develops and maintains work management systems for field operations and staff. It also contains the Regulatory Compliance Office which provides security services, environmental compliance guidance and assistance, emergency preparedness support and workplace health and safety support to the entire District, and is also responsible for physical plant engineering services.

FY18 & FY19 GOALS

The department has primary responsibility for leading the Water Quality and Environmental Protection Strategic Plan goal. Key department goals include:

- Improving distribution system water quality;
- Implementing lead program, including customer tap sampling, school sampling, and lead service inventory;
- Investigating and reducing disinfection by products; and
- Implementing enhanced compliance activity for pipeline creek crossings.

DEPARTMENT BUDGET SUMMARY

A comparison of the department's budget is shown in the table below.

Category (\$ Thousands)	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Total Labor and Benefits	10,098	10,262	10,661	3.9%	10,855	1.8%
Less: Capital Labor and Benefits	(777)	(427)	(601)	40.8%	(632)	5.3%
Operating Labor and Benefits	9,321	9,835	10,060	2.3%	10,222	1.6%
Contract Services	3,138	3,218	3,667	13.9%	3,977	8.5%
All Other Costs	4,773	5,059	5,116	1.1%	5,280	3.2%
Operating Total	17,231	18,113	18,843	4.0%	19,480	3.4%

BUDGET HIGHLIGHTS

The department's operating budget in FY18 is increasing \$0.7 million or 4.0 percent compared to FY17. In FY19, the budget will increase by \$0.6 million or 3.4 percent compared to the prior fiscal year. Significant budget changes include:

FY18

Total labor and benefits costs are increasing \$0.4 million, while operating labor and benefits are increasing by a smaller amount, primarily due to funding an additional position, scheduled salary step increases, and a higher portion allocated to capital primarily for vulnerability assessment security measures. Contract services are increasing \$0.4 million primarily due to an increase in security contracts that serve the entire District. All other costs are increasing \$0.06 million primarily due to an increase in District laboratory services cost.

FY19

Total labor and benefits costs will increase \$0.2 million primarily due to scheduled salary step increases. Contract services will increase \$0.3 million primarily due to increases in security contracts. All other costs will increase \$0.2 million primarily due to an increase in District laboratory services cost.

STAFFING SUMMARY

The table below shows the staffing of the department.

Position Type	FY16	FY17	FY18	FY18 Change vs FY17	FY19	FY19 Change vs FY18
Full-Time	49.0	49.0	51.0	2.0	51.0	0.0
Limited-Term / Temp Construction	0.0	0.0	0.0	0.0	0.0	0.0
Intermittent	0.0	0.0	0.0	0.0	0.0	0.0
Temporary / Part-Time	0.0	0.0	0.0	0.0	0.0	0.0
Total FTE	49.0	49.0	51.0	2.0	51.0	0.0

In FY18, the increase of one full-time FTE reflects a transfer into the department.

STAFFING CHANGES

The table below summarizes the FTE changes followed by a brief description. The net change in cost represents the difference between the annual salary at the top step including benefits for the existing highest job classification versus the highest classification for the change.

FY	Action	From Classification(s)	To Classification(s)	Change in Cost	Change in FTE	Project/Program
2018	Add		(LT) Associate Civil Engineer	219,822	1.0	Security Systems, Raw Water Studies, and Upcountry Wastewater Treatment Projects
FY18 TOTAL				219,822	1.0	

In FY18, the department is adding one limited-term FTE to perform design work on selected capital projects. The Upcountry Wastewater Collection and Treatment Systems project will address improvements that minimize risk to the environment, health and safety and regulatory compliance based on the master plan; operational experience; and collection system inspections. Another capital project this position will support is improvements to the security systems at District facilities to minimize risk to the workplace, assets, and operations. These improvements are based on the Security Vulnerability Assessment completed in 2017.

MAINTENANCE AND CONSTRUCTION DEPARTMENT

OVERVIEW

The Maintenance and Construction Department is responsible for maintaining the local water system infrastructure and facilities, performing preventative and corrective maintenance, replacing and rehabilitating the District's infrastructure, reading and maintaining the nearly 400,000 water meters, and maintaining all District owned vehicles and heavy equipment.

DESCRIPTION OF SERVICES PROVIDED

The department consists of the Distribution Maintenance and Construction (DMC), Facilities Maintenance and Construction (FMC), Pipeline Construction and Equipment (PCE), and Meter Reading and Maintenance (MRM) divisions. DMC installs new services and pipelines and supports the maintenance, replacement, and installation of the water distribution system by repairing leaks, and replacing pipeline appurtenances. FMC provides support for the water treatment and distribution infrastructure and other facilities located throughout the Water System including the computer systems used to operate the water system. PCE installs replacement pipelines, provides District-wide construction support, and is responsible for vehicle and equipment maintenance and replacement. MRM is responsible for the maintenance, repair, and reading of meters, and backflow prevention.

FY18 & FY19 GOALS

The department has a key role in the Long-Term Infrastructure Investment Strategic Plan goal. Key department goals include:

- Meeting Key Performance Indicators for critical meter repair backlog, exercising water system valves, and recording asset maintenance activities for analysis;
- Implementing OP/NET system improvements and cyber security controls for the industrial control systems and centralized security systems; and
- Leading the industry in water loss control through using new and innovative technology, effective maintenance practices, and efficient operations.

DEPARTMENT BUDGET SUMMARY

A comparison of the department's budget is shown in the table below.

Category (\$ Thousands)	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Total Labor and Benefits	99,000	106,452	109,005	2.4%	111,752	2.5%
Less: Capital Labor and Benefits	(34,820)	(35,551)	(37,601)	5.8%	(38,642)	2.8%
Operating Labor and Benefits	64,180	70,901	71,404	0.7%	73,110	2.4%
Contract Services	3,513	2,435	3,202	31.5%	3,157	-1.4%
All Other Costs	24,891	23,355	24,556	5.1%	25,365	3.3%
Operating Total	92,583	96,692	99,162	2.6%	101,632	2.5%

BUDGET HIGHLIGHTS

The department's operating budget in FY18 is increasing \$2.5 million or 2.6 percent compared to FY17. In FY19, the budget will increase \$2.5 million or 2.5 percent compared to the prior fiscal year. Significant budget changes include:

FY18

Total labor and benefits costs are increasing \$2.6 million primarily due to funding additional positions to reduce reliance on fully-manned and operated (FM&O) contract services and increase maintenance on the distribution system. Operating labor and benefits are increasing \$0.5 million primarily due to scheduled salary step increases. Contract services are increasing \$0.8 million primarily due to satellite leak detection (\$0.2 million), increased vegetation management (\$0.2 million), and to meet the goal of less than 30-day turnaround for concrete work during peak workload periods (\$0.2 million). All other costs are increasing by \$1.2 million primarily due to construction materials and services for increased pipeline repair work (\$1.0 million), and the cost of repairing and maintaining the District's fleet of vehicles and equipment (\$0.1 million).

FY19

Total labor and benefits costs will increase by \$2.7 million compared to the prior year primarily due to funding additional positions to further reduce reliance on full-manned and operated contract services, and scheduled salary step increases. All other costs will increase by \$0.8 million related to the District's vehicle and equipment fleet operating expenses.

STAFFING SUMMARY

The table below shows the staffing of the department.

Position Type	FY16	FY17	FY18	FY18 Change vs FY17	FY19	FY19 Change vs FY18
Full-Time	682.0	686.0	713.0	27.0	719.0	6.0
Limited-Term / Temp Construction	22.0	22.0	14.0	(8.0)	14.0	0.0
Intermittent	0.0	0.0	0.0	0.0	0.0	0.0
Temporary / Part-Time	7.0	7.0	7.0	0.0	7.0	0.0
Total FTE	711.0	715.0	734.0	19.0	740.0	6.0

In FY18, one full-time FTE is transferred to another department.

STAFFING CHANGES

The table below summarizes the FTE changes followed by a brief description. The net change in cost represents the difference between the annual salary at the top step including benefits for the existing highest job classification versus the highest classification for the change.

FY	Action	From Classification(s)	To Classification(s)	Change in Cost	Change in FTE	Project/Program
2018	Flex Class & Character	(TC) Water Distribution Plumber I	Water Distribution Plumber I / II / III	25,974	0.0	Stabilize Pipeline Rebuild Crew
2018	Flex Class & Character	(TC) Water Distribution Plumber I	Water Distribution Plumber I / II / III	25,974	0.0	
2018	Flex Class & Character	(TC) Water Distribution Plumber I	Water Distribution Plumber I / II / III	25,974	0.0	
2018	Flex Class & Character	(TC) Water Distribution Plumber I	Utility Laborer / Water Distribution Plumber I / II / III	25,974	0.0	Increased Maintenance on Distribution System
2018	Flex Class & Character	(TC) Water Distribution Plumber I	Utility Laborer / Water Distribution Plumber I / II / III	25,974	0.0	
2018	Flex Class & Character	(TC) Water Distribution Plumber I	Utility Laborer / Water Distribution Plumber I / II / III	25,974	0.0	
2018	Flex Class & Character	(TC) Water Distribution Plumber I	Utility Laborer / Water Distribution Plumber I / II / III	25,974	0.0	
2018	Flex Class & Character	(TC) Water Distribution Plumber I	Utility Laborer / Water Distribution Plumber I / II / III	25,974	0.0	

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FY	Action	From Classification(s)	To Classification(s)	Change in Cost	Change in FTE	Project/Program
2018	Add		Utility Laborer	118,497	1.0	Increased Maintenance on Distribution System
2018	Add		Utility Laborer	118,497	1.0	
2018	Add		Utility Laborer	118,497	1.0	
2018	Add		Utility Laborer	118,497	1.0	
2018	Add		Utility Laborer	118,497	1.0	
2018	Add		Utility Laborer	118,497	1.0	
2018	Add		Utility Laborer	118,497	1.0	
2018	Add		Maintenance Shift Supervisor	184,917	1.0	Reduce Overtime
2018	Add		Maintenance Shift Supervisor	184,917	1.0	
2018	Add		Maintenance Shift Supervisor	184,917	1.0	
2018	Add		Maintenance Shift Supervisor	184,917	1.0	
2018	Add		Heavy Transport Operator	140,944	1.0	Reduce Reliance on FM&O Contract Services
2018	Add		Heavy Transport Operator	140,944	1.0	
2018	Add		Heavy Transport Operator	140,944	1.0	
2018	Add		Heavy Transport Operator	140,944	1.0	
2018	Add		Heavy Transport Operator	140,944	1.0	
2018	Add		Heavy Transport Operator	140,944	1.0	
2018	Add		Heavy Transport Operator	140,944	1.0	
2018	Add		Heavy Transport Operator	140,944	1.0	
2018	Add		Heavy Transport Operator	140,944	1.0	
2018	Add		Heavy Transport Operator	140,944	1.0	
FY18 TOTAL				3,045,470	20.0	

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FY	Action	From Classification(s)	To Classification(s)	Change in Cost	Change in FTE	Project/Program
2019	Add		Heavy Equipment Operator	148,103	1.0	Reduce Reliance on FM&O Contract Services
2019	Add		Truck Driver II	137,584	1.0	
2019	Add		Heavy Transport Operator	141,037	1.0	
2019	Add		Heavy Transport Operator	141,037	1.0	
2019	Add		Heavy Equipment Operator	148,103	1.0	
2019	Add		Associate Electrical Engineer	219,822	1.0	Water Treatment Plant Control Systems
FY19 TOTAL				935,687	6.0	

In FY18, the department is converting eight temporary construction FTEs in the Pipeline Rebuild Program to full-time FTEs, and adding 20 full-time FTEs to increase maintenance on the distribution system, reduce overtime, and reduce reliance on contract services for fully manned and operated (FM&O) equipment. Of the 20 FTEs, seven Utility Laborers are added to increase the support of ongoing maintenance of the water distribution pipelines and appurtenances including leak detection and valve testing.

In FY19, the department is adding six full-time FTEs. Five FTEs will further reduce reliance on contract services for FM&O equipment. One FTE will support the water system control systems used to monitor the water treatment plants, distribution system and water supply systems. In addition, this position will support the cyber security of the network and the new control systems at Orinda, Walnut Creek, Sobrante, and Upper San Leandro water treatment plants.

WATER OPERATIONS DEPARTMENT

OVERVIEW

The Water Operations Department is responsible for operating Pardee and Camanche Reservoirs as an integrated system to achieve multiple objectives including providing high quality water to District customers, stream flow regulation, environmental protection, flood control, hydropower, and releases for downstream requirements. The department delivers water from Pardee Reservoir or the local reservoirs to the water treatment plants, from where it flows into the distribution system and to the District's customers.

DESCRIPTION OF SERVICES PROVIDED

The department consists of the Water Supply and Water Treatment and Distribution divisions. The Water Supply Division operates and maintains Pardee and Camanche Reservoirs, raw water aqueducts, pumping plants, hydropower facilities, local reservoirs, and the Folsom South Canal Connection system, in compliance with all water rights, contractual requirements, and environmental regulations, and maintenance of the recreation areas. The Water Treatment and Distribution Division operates the potable water treatment plants and distribution facilities, and is responsible for investigating water quality, pressure and flow inquiries, and implementing a comprehensive energy management program.

FY18 & FY19 GOALS

The department has a key role in implementing the Water Quality and Environmental Protection Strategic Plan goal. Key department goals include:

- Operating the water system to meet multiple objectives including municipal water supply, stream flow regulation, environmental protection, flood control, and releases for downstream requirements;
- Meeting Joint Settlement Agreement Mokelumne River minimum flow releases 100% of the time;
- Meeting water quality regulations and water quality goals 100% of the time;
- Managing Freeport operations and supplemental supply evaluations and recommendations;
- Operating the water system to maximize hydropower revenue and minimize chemical, energy, and sludge disposal costs; and
- Leading the District's energy strategy.

DEPARTMENT BUDGET SUMMARY

A comparison of the department's budget is shown in the table below.

Category (\$ Thousands)	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Total Labor and Benefits	30,341	31,320	32,546	3.9%	32,910	1.1%
Less: Capital Labor and Benefits	(2,298)	(1,212)	(1,209)	-0.2%	(1,221)	1.0%
Operating Labor and Benefits	28,043	30,108	31,337	4.1%	31,688	1.1%
Contract Services	862	865	2,700	212.0%	2,767	2.5%
All Other Costs	19,495	22,820	19,539	-14.4%	20,892	6.9%
Operating Total	48,400	53,793	53,576	-0.4%	55,347	3.3%

BUDGET HIGHLIGHTS

The department's operating budget in FY18 is decreasing \$0.2 million or 0.4 percent compared to FY17. In FY19, the budget will increase \$1.8 million or 3.3 percent compared to the prior fiscal year. Significant budget changes include:

FY18

Operating labor and benefits costs are increasing \$1.2 million primarily due to a greater number of funded FTEs to support water treatment and water quality. Contract services are increasing \$1.8 million due to a new requirement for lead sampling in schools and a voluntary customer tap lead sampling program (\$1.5 million), and required disinfection for additional new pipes being put into service (\$0.3 million). All other costs are decreasing a net of \$3.3 million; chemicals, energy, and sludge disposal from water production are decreasing \$4.0 million as a result of reduced water consumption following the recent Stage 4 drought emergency, offset by rising operational costs such as state drinking water fees.

FY19

Operating labor and benefits will increase by \$0.4 million due to scheduled salary step increases. All other costs will increase \$1.4 million primarily driven by the unit cost of energy and chemicals compared to the prior year as water demand gradually increases.

STAFFING SUMMARY

The table below shows the staffing of the department.

Position Type	FY16	FY17	FY18	FY18 Change vs FY17	FY19	FY19 Change vs FY18
Full-Time	187.0	185.0	185.0	0.0	185.0	0.0
Limited-Term / Temp Construction	0.0	0.0	1.0	1.0	1.0	0.0
Intermittent	0.0	0.0	0.0	0.0	0.0	0.0
Temporary / Part-Time	2.0	2.0	2.0	0.0	2.0	0.0
Total FTE	189.0	187.0	188.0	1.0	188.0	0.0

STAFFING CHANGES

The table below summarizes the FTE changes followed by a brief description. The net change in cost represents the difference between the annual salary at the top step including benefits for the existing highest job classification versus the highest classification for the change.

FY	Action	From Classification(s)	To Classification(s)	Change in Cost	Change in FTE	Project/Program
2018	Add		(LT) Water Distribution Supervisor	219,822	1.0	Lead Sampling in Schools and Voluntary Customer Tap Lead Sampling Program
FY18 TOTAL				219,822	1.0	

In FY18, the department is adding one limited-term FTE Water Distribution Supervisor to oversee the new requirement for lead sampling in schools and the District's voluntary customer tap lead sampling program.

WATER RESOURCES DEPARTMENT

OVERVIEW

The Water Resources Department develops and administers the plans, policies and programs necessary to protect existing District water resources, develops additional water supplies to meet future needs, and assures the availability of adequate physical facilities to meet those needs.

DESCRIPTION OF SERVICES PROVIDED

The department consists of the Bay Delta Section, the Water Resources Planning and the Water Supply Improvements divisions. The Bay-Delta Section provides the District's technical and policy evaluation and advocacy efforts related to the State and Federal plans to restore the San Francisco Bay-Delta ecosystem. Water Resources Planning Division administers the District's licenses, permits and agreements for current water supplies, conducts water resource analyses to support operations and long-range planning, and prepares reports and implements plans needed to comply with state and federal regulations related to water supply management. Water Supply Improvements Division plans and implements supplemental supply and recycling projects needed to meet current and future needs.

FY18 & FY19 GOALS

The department has primary responsibility for the Long-Term Water Supply Strategic Plan goal. Key department goals include:

- Continuing collaborative partnerships for ensuring dry year water supply with emphasis on a long-term water transfer agreement with Placer County Water Agency, development of a Groundwater Banking Demonstration project with San Joaquin County, and water supply reliability partnerships in the Bay Area;
- Preparing a Recycled Water Master Plan and expanding the current projects to increase total recycled water deliveries;
- Reducing demand on Mokelumne River and East Bay water supplies through expansion of recycled water service along the I-80 corridor, San Ramon Valley, Richmond and the Chevron Refinery;
- Participating in State Water Resources Control Board hearings on the California Water Fix and the Water Quality Control Plan;
- Convening the Mokelumne River Stakeholders forum to coordinate long-term water supply planning;
- Publishing the Water Management Plan for submission to the US Bureau of Reclamation; and
- Amending the District's license with the Federal Energy Regulatory Commission to facilitate construction activities near Pardee and Camanche Dam.

DEPARTMENT BUDGET SUMMARY

A comparison of the department's budget is shown in the table below.

Category (\$ Thousands)	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Total Labor and Benefits	7,513	7,878	8,058	2.3%	8,122	0.8%
Less: Capital Labor and Benefits	(2,242)	(1,328)	(1,522)	14.6%	(1,534)	0.8%
Operating Labor and Benefits	5,272	6,551	6,536	-0.2%	6,588	0.8%
Contract Services	160	195	385	97.9%	200	-48.1%
All Other Costs	1,316	1,514	1,566	3.4%	1,684	7.5%
Operating Total	6,748	8,259	8,487	2.8%	8,471	-0.2%

BUDGET HIGHLIGHTS

The department's operating budget in FY18 is increasing \$0.2 million or 2.8 percent compared to FY17. In FY19, the budget will decrease \$0.02 million or 0.2 percent compared to the prior fiscal year. Significant budget changes include:

FY18

Total labor and benefits costs are increasing \$0.2 million primarily due to a higher portion of labor allocated to capital for recycled water projects. Contract services costs are increasing \$0.2 million to develop a Historical Properties Management Plan (HPMP), and to inspect hydroelectric projects required every five years by the Federal Energy Regulatory Commission (FERC). All other costs are increasing \$0.05 million primarily for water rights fees required by the State Water Resources Control Board.

FY19

Total labor and benefits costs will increase \$0.06 million due to scheduled salary step increases. Contract services costs will decrease \$0.2 million due to work completed on the HPMP and FERC project inspection. All other costs will increase \$0.1 million primarily due to the District's share of the Upper Mokelumne River Watershed Authority's work focused on forest health issues.

STAFFING SUMMARY

The table below shows the staffing of the department.

Position Type	FY16	FY17	FY18	FY18 Change vs FY17	FY19	FY19 Change vs FY18
Full-Time	39.0	38.0	37.0	(1.0)	37.0	0.0
Limited-Term / Temp Construction	0.0	0.0	0.0	0.0	0.0	0.0
Intermittent	0.0	0.0	0.0	0.0	0.0	0.0
Temporary / Part-Time	0.0	0.5	0.5	0.0	0.5	0.0
Total FTE	39.0	38.5	37.5	(1.0)	37.5	0.0

In FY18, one full-time FTE is transferred to another department.

NATURAL RESOURCES DEPARTMENT

OVERVIEW

The Natural Resources Department develops and implements plans, policies, and programs necessary to manage over 50,000 acres of water, watershed lands and related facilities. The department develops and implements programs for water quality, environmental protection and public recreation on these lands, and the reservoirs, rivers and streams within them.

DESCRIPTION OF SERVICES PROVIDED

The department consists of the East Bay Watershed and Recreation, the Mokelumne Watershed and Recreation, and the Fisheries and Wildlife divisions. Both Watershed and Recreation divisions, East Bay and Mokelumne, manage and protect the local and upcountry watershed lands owned by EBMUD, including overseeing environmental, recreation, and public education programs. The Fisheries and Wildlife Division develops and maintains the scientific information necessary to manage and protect wildlife and fisheries on EBMUD-owned lands and the Lower Mokelumne River fishery, conducts monitoring to comply with water right agreements, provides biological support for capital projects, and responds to service area incidents.

FY18 & FY19 GOALS

The department has a key role in the Water Quality and Environmental Protection Strategic Plan goals. Key department goals include:

- Implementing the water quality protection, environmental stewardship and recreation and public use programs consistent with the East Bay and Mokelumne Watershed Master Plans;
- Updating the East Bay Watershed Master Plan;
- Continuing to build on the successful fishery program for the Mokelumne River including expansion of the science programs on outmigration survival, juvenile barging and hatchery genetics management;
- Providing support for Chabot Dam Seismic Upgrade Project;
- Assisting in protocol development for the new National Pollutant Discharge Elimination System permit for drinking water discharges;
- Establishing and operating the Oursan Ridge Conservation Bank; and
- Developing the San Leandro Creek Management Plan.

DEPARTMENT BUDGET SUMMARY

A comparison of the department's budget is shown in the table below.

Category (\$ Thousands)	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Total Labor and Benefits	9,324	9,557	9,351	-2.2%	9,420	0.7%
Less: Capital Labor and Benefits	(191)	0	(13)	0	(14)	2.2%
Operating Labor and Benefits	9,132	9,557	9,337	-2.3%	9,406	0.7%
Contract Services	2,510	2,870	2,970	3.5%	3,020	1.7%
All Other Costs	2,902	3,063	3,383	10.5%	3,570	5.5%
Operating Total	14,545	15,490	15,690	1.3%	15,997	2.0%

BUDGET HIGHLIGHTS

The department's operating budget in FY18 is increasing \$0.2 million or 1.3 percent compared to FY17. In FY19, the budget will increase \$0.3 million or 2.0 percent compared to the prior fiscal year. Significant budget changes include:

FY18

Total labor and benefits are decreasing \$0.2 million primarily due to a lower fringe benefit rate. Contract services costs are increasing \$0.1 million primarily due to public safety services provided by the East Bay Regional Park District Police and Amador and Calaveras County Sheriff's Department. All other costs are increasing \$0.3 million primarily due to increased costs for the California Department of Fish and Game to operate the Mokelumne River Fish Hatchery, and the continuation of the juvenile salmon outmigration barging study.

FY19

Total labor and benefits costs will increase \$0.07 million due to scheduled salary step increases. Contract services cost will increase \$0.05 million due to anticipated increases for watershed security contracts. All other costs will increase \$0.2 million due to the hatchery operations agreement with the California Department of Fish and Game, and District vehicle fleet cost.

STAFFING SUMMARY

The table below shows the staffing of the department.

Position Type	FY16	FY17	FY18	FY18 Change vs FY17	FY19	FY19 Change vs FY18
Full-Time	67.0	66.0	66.0	0.0	66.0	0.0
Limited-Term / Temp Construction	0.0	0.0	0.0	0.0	0.0	0.0
Intermittent	0.0	0.0	0.0	0.0	0.0	0.0
Temporary / Part-Time	2.5	2.5	2.5	0.0	2.5	0.0
Total FTE	69.5	68.5	68.5	0.0	68.5	0.0

ENGINEERING AND CONSTRUCTION DEPARTMENT

OVERVIEW

The Engineering and Construction Department is responsible for developing plans, policies and programs that assure the availability of physical facilities to meet current and future water service needs; and capital program implementation, including infrastructure management, system expansions, and facility improvements. The department provides technical leadership and innovation in engineering, construction, research and development, and operational efficiency improvements.

DESCRIPTION OF SERVICES PROVIDED

The department consists of Water Distribution Planning, Design, Construction, Pipeline Infrastructure, and Engineering Services. Direct services include planning, design, and construction management and inspection of water system capital projects. Support services include cost estimating, contract specifications preparation, bid and award management, surveying, mapping, graphic design, hydraulic modeling, geotechnical engineering, materials testing, engineering records storage and engineering support to other departments.

FY18 & FY19 GOALS

The department is primarily responsible for leading the Long-Term Infrastructure Investment goal and providing support to all other goals identified in the District's Strategic Plan. Key department goals include:

- Developing and maintaining coordinated master plans;
- Implementing the Capital Improvement Program based on priorities identified in the plans;
- Continuing support for the ramp-up of planned pipeline infrastructure renewals;
- Planning, designing and overseeing the construction of improvements at the District's water treatment plants identified in a recent comprehensive assessment to ensure high quality water continues to be delivered to customers; and
- Supporting the implementation and use of information technologies that improve the efficiency and effectiveness of business processes, such as geospatial tools and radio frequency identification.

DEPARTMENT BUDGET SUMMARY

A comparison of the department's budget is shown in the table below.

Category (\$ Thousands)	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Total Labor and Benefits	46,065	48,957	52,139	6.5%	53,097	1.8%
Less: Capital Labor and Benefits	(31,735)	(32,436)	(35,149)	8.4%	(35,748)	1.7%
Operating Labor and Benefits	14,330	16,521	16,990	2.8%	17,349	2.1%
Contract Services	188	125	184	48.0%	160	-13.5%
All Other Costs	966	963	1,095	13.8%	1,153	5.3%
Operating Total	15,484	17,608	18,269	3.8%	18,662	2.1%

BUDGET HIGHLIGHTS

The department's operating budget in FY18 is increasing \$0.7 million or 3.8 percent compared to FY17. In FY19, the budget will increase \$0.4 million or 2.1 percent compared to the prior fiscal year. Significant budget changes include:

FY18

Total labor and benefit costs are increasing \$3.2 million due to additional staff associated with applicant pipeline extension work, construction and materials inspections, and support on the Alameda Crossings and the Wildcat Aqueduct Replacement projects. Capital labor and benefits is increasing \$2.7 million due to a higher portion of labor allocated to capital projects, and funding for Engineering Aides. The Engineering Aides is an outreach effort to attract potential future engineering candidates. Contract services are increasing \$0.06 million primarily due to technical training for new hires and engineering professional services. All other costs are increasing \$0.1 million primarily to replace a format scanner, printer, and survey equipment.

FY19

Total labor and benefit costs will increase \$1.0 million primarily due to scheduled salary step increases and to account for a fully staffed department. All other costs will increase \$0.06 million primarily due to higher fees for California State Department of Safety of Dams.

STAFFING SUMMARY

The table below shows the staffing of the department.

Position Type	FY16	FY17	FY18	FY18 Change vs FY17	FY19	FY19 Change vs FY18
Full-Time	254.0	255.0	257.0	2.0	257.0	0.0
Limited-Term / Temp Construction	8.0	9.0	15.0	6.0	15.0	0.0
Intermittent	0.0	0.0	0.0	0.0	0.0	0.0
Temporary / Part-Time	2.0	3.5	3.5	0.0	3.5	0.0
Total FTE	264.0	267.5	275.5	8.0	275.5	0.0

STAFFING CHANGES

The table below summarizes the FTE changes followed by a brief description. The net change in cost represents the difference between the annual salary at the top step including benefits for the existing highest job classification versus the highest classification for the change.

FY	Action	From Classification(s)	To Classification(s)	Change in Cost	Change in FTE	Project/Program
2018	Add		(LT) Engineering Designer I / II / Drafter I / II / III	140,944	1.0	Applicant Pipeline Extension
2018	Add		(TC) Senior Construction Inspector / Construction Inspector	194,205	1.0	Alameda Crossings and Wildcat Aqueduct Replacement projects
2018	Add		(LT) Senior Construction Inspector / Construction Inspector	194,205	1.0	Applicant Pipeline Extension and Pipeline Relocation
2018	Add		Assistant Surveying Supervisor	209,210	1.0	Facility, Pipeline, and Construction Surveying
2018	Add		(LT) Materials Inspector / Senior Construction Inspector / Construction Inspector	194,205	1.0	Pipe, Valve, Materials Inspections
2018	Add		(LT) Materials Inspector / Senior Construction Inspector / Construction Inspector	194,205	1.0	Pipe, Valve, Materials Inspections
2018	Add		(LT) Senior Construction Inspector / Construction Inspector	194,205	1.0	Applicant Pipeline Extension and Pipeline Relocation
2018	Add		Survey Technician I / II	155,568	1.0	District-wide Survey Services
2018	Reallocate	Management Analyst I / II	Senior Civil Engineer	69,890	0.0	Geospatial Initiatives
FY18 TOTAL				1,546,637	8.0	

In FY18, three limited-term FTEs are needed due to an anticipated increase in applicant pipeline extension work (one Designer/Drafter and two Senior Construction Inspectors). Two limited-term FTEs (Materials Inspectors) are needed to support pipe, valve, and materials inspections, and one full-time FTE (Assistant Surveying Supervisor) is needed due to an increase in baseline surveying work. One temporary construction FTE Senior Construction Inspector is needed to support the Alameda Crossings and the Wildcat Aqueduct Replacement projects. One full-time FTE (Survey Technician I/II) is needed to provide District-wide survey services including the growing volume of infrastructure renewal work. The reallocation of a Management Analyst I/II position to a Senior Civil Engineer is needed to support the advancement of geospatial initiatives such as Radio Frequency Identification (RFID), Geographic Positioning Systems (GPS), and Geographic Information Systems (GIS) which will enhance productivity across the District.

OFFICE OF THE GENERAL MANAGER

OVERVIEW

The Office of the General Manager manages the overall operations of the District and implements the policies and priority programs of the Board of Directors with an emphasis on effectively communicating with all stakeholders and advancing EBMUD's policy objectives with the state and federal legislatures.

DESCRIPTION OF SERVICES PROVIDED

The department includes the Office of the General Manager, Inter-Governmental Affairs, Public Affairs and the Office of the Secretary of the District. The Office of the General Manager provides several District-wide functions including: legislative and intergovernmental agency advocacy; public and community education and outreach; support to the Board of Directors and District-wide records management, including managing responses to public records requests.

FY18 & FY19 GOALS

The department supports all six Strategic Plan goals. Key department goals include:

- Supporting EBMUD's water and wastewater program goals through engaging and communicating with the public about District operations and infrastructure, Board policy proposals and decisions, and stewardship of the District's natural, financial and human resources;
- Educating stakeholders on the need for a generational investment in infrastructure and on other District priorities as expressed through the District's Strategic Plan; and
- Supporting EBMUD's water and wastewater program goals through legislative efforts to advance EBMUD's policy objectives and acquire state and federal funding and to proactively support legislation through active outreach and customer education.

DEPARTMENT BUDGET SUMMARY

A comparison of the department's budget is shown in the table below.

Category (\$ Thousands)	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Total Labor and Benefits	4,881	5,168	5,083	-1.6%	5,116	0.6%
Less: Capital Labor and Benefits	(2)	0	0	0	0	0
Operating Labor and Benefits	4,879	5,168	5,083	-1.6%	5,116	0.6%
Contract Services	126	241	221	-8.3%	125	-43.5%
All Other Costs	392	1,065	577	-45.8%	1,077	86.6%
Operating Total	5,398	6,474	5,882	-9.2%	6,318	7.4%

BUDGET HIGHLIGHTS

The department's operating budget in FY18 is decreasing \$0.6 million or 9.2 percent compared to FY17. In FY19, the budget will increase \$0.4 million or 7.4 percent compared to the prior fiscal year. Significant budget changes include:

FY18

Total labor and benefits are decreasing \$0.09 million primarily due to a lower fringe benefit rate and new employees with salaries lower than the employees they replaced. All other costs are decreasing \$0.5 million primarily due to Board election fees charged by the counties to participate in the ballot process which occurs in the second year of the biennial budget.

FY19

Total labor and benefits will increase \$0.03 million due to scheduled salary step increases. Contract services costs will decrease \$0.1 million due to the District-wide customer survey expense which occurred in the prior fiscal period. All other costs will increase \$0.5 million due to the Board election fees mentioned above which occur in the second year of the budget.

STAFFING SUMMARY

The table below shows the staffing of the department.

Position Type	FY16	FY17	FY18	FY18 Change vs FY17	FY19	FY19 Change vs FY18
Full-Time	25.0	25.0	25.0	0.0	25.0	0.0
Limited-Term / Temp Construction	0.0	0.0	0.0	0.0	0.0	0.0
Intermittent	0.0	0.0	0.0	0.0	0.0	0.0
Temporary / Part-Time	0.5	0.5	0.5	0.0	0.5	0.0
Total FTE	25.5	25.5	25.5	0.0	25.5	0.0

FINANCE DEPARTMENT

OVERVIEW

The Finance Department is responsible for providing proactive and strategic management of District finances and ensuring the long-term financial stability of the District. These responsibilities include managing the finances to meet funding needs, ensuring adequate internal financial controls, reporting financials timely and accurately, managing the budget efficiently, implementing reasonable rates and charges, optimizing investment of cash funds, maintaining good standing in the credit markets, and engaging actively with external stakeholders to promote fiscal transparency and accountability.

DESCRIPTION OF SERVICES PROVIDED

The department consists of Accounting, Budget Office, Internal Audit, Treasury Operations, Purchasing, and Risk Management divisions. It provides a range of financial services including accounts payable and payroll, financial reporting, biennial budget management, grant administration, strategic planning coordination, debt management, credit rating agency and investor relations, rates and charges, investment of funds, procurement and supply chain management, liability and workers compensation claim management, insurance procurement, and internal controls. The department also supports the District's Employee Retirement System with respect to investment management.

FY18 & FY19 GOALS

The department supports all six Strategic Plan goals but is primarily responsible for leading the Long-Term Financial Stability Strategic Plan goal. Key department goals include:

- Developing a long-range financing plan;
- Increasing fiscal transparency and accountability in financial reporting; and
- Replacing aging financial, materials management, and human resources information systems.

DEPARTMENT BUDGET SUMMARY

A comparison of the department's budget is shown in the table below.

Category (\$ Thousands)	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Total Labor and Benefits	14,376	16,511	16,506	0.0%	16,721	1.3%
Less: Capital Labor and Benefits	(198)	(969)	0	-100.0%	0	0
Operating Labor and Benefits	14,178	15,542	16,506	6.2%	16,721	1.3%
Contract Services	1,142	1,336	1,301	-2.6%	1,466	12.7%
All Other Costs	9,379	9,706	9,532	-1.8%	9,908	3.9%
Operating Total	24,699	26,584	27,339	2.8%	28,095	2.8%

BUDGET HIGHLIGHTS

The department's operating budget in FY18 is increasing \$0.8 million or 2.8 percent compared to FY17. In FY19, the budget will increase \$0.8 million or 2.8 percent compared to the prior fiscal year. Significant budget changes include:

FY18

Operating labor and benefits are increasing \$1.0 million primarily due to an increase in funded FTEs for the replacement of three critical computer systems that support financial, materials management, and human resources information. All other costs are decreasing \$0.2 million primarily due to a one-time print shop expenditure in the prior fiscal year for new production equipment.

FY19

Total labor and benefit costs will increase \$0.2 million primarily due to scheduled salary step increases. Contract services will increase \$0.2 million primarily due to a rates and charges study, worker's compensation administrative costs, and office and print shop equipment maintenance costs. All other costs will increase \$0.4 million consistent with prior years' trends for cost associated with self-insured liability claims.

STAFFING SUMMARY

The table below shows the staffing of the department.

Position Type	FY16	FY17	FY18	FY18 Change vs FY17	FY19	FY19 Change vs FY18
Full-Time	97.0	98.0	99.0	1.0	99.0	0.0
Limited-Term / Temp Construction	0.0	1.0	0.0	(1.0)	0.0	0.0
Intermittent	0.0	0.0	0.0	0.0	0.0	0.0
Temporary / Part-Time	0.5	0.5	0.5	0.0	0.5	0.0
Total FTE	97.5	99.5	99.5	0.0	99.5	0.0

In FY18, one full-time FTE is transfer into the department.

STAFFING CHANGES

The table below summarizes the FTE changes followed by a brief description. The net change in cost represents the difference between the annual salary at the top step including benefits for the existing highest job classification versus the highest classification for the change.

FY	Action	From Classification(s)	To Classification(s)	Change in Cost	Change in FTE	Project/Program
2018	Flex Class & Character	Senior Wastewater Control Inspector	(TC) Accounting & Financial Systems Analyst / (Reg) Senior Wastewater Control Inspector	32,398	0.0	HRIS Project
2018	Flex Class & Character	Admin Clerk / Information Systems Support Analyst I / II	Admin Clerk / (LT) Information Systems Specialist I / II / III	(52,057)	0.0	MMIS Project
2018	Flex Class & Character	Senior Accounting & Financial Systems Analyst / Management Analyst I / II	(Reg/LT) Senior Accounting & Financial Systems Analyst / (Reg) Management Analyst I / II	0	0.0	FIS Project
2018	Delete	(TC) Information System Support Analyst II		(189,551)	(1.0)	CIS Project Completed
FY18 TOTAL				(209,210)	(1.0)	

In FY18, three existing FTEs are temporarily reallocated to the Human Resources Information System (HRIS), Materials Management Information System (MMIS), and Financial Information System (FIS) replacement capital projects currently underway. These FTEs are required to support short-term implementation and streamline business processes that will change as a result of the new computer systems. The department is deleting one temporary construction FTE due to the completion of the Customer Information System (CIS) Project.

INFORMATION SYSTEMS DEPARTMENT

OVERVIEW

The Information Systems Department is responsible for planning, deploying, operating and maintaining information technology and services in support of District functions. These responsibilities include providing security and recoverability for business systems and data critical to the operations of the District.

DESCRIPTION OF SERVICES PROVIDED

The department consists of the Data Center, Applications Development, and Information Technology Security divisions. These divisions support the lifecycle of the District's technology and communication needs including initial planning, acquisition, development, deployment, and ongoing maintenance. Areas supported include: desktop and mobile computing; remote access; network connectivity; telephone, radio, and microwave communications; application development and integration for a wide range of business functions; risk identification in the computing and network environments; guidance to ensure District systems and data are properly secured and available; and planning to ensure business continuity of District computing resources.

FY18 & FY19 GOALS

The department has a key role in the Long-Term Financial Stability Strategic Plan goal. Key department goals include:

- Ensuring that maintenance and project work is performed in a manner that supports the achievement of goals outlined in the Information Technology (IT) Master Plan;
- Completing planning and beginning implementation of projects to replace the Human Resource Information System and Work Management System;
- Completing planning to replace the Laboratory Information System;
- Implementing a new Materials Management Information Management System and Financial Information System; and
- Implementing the IT Governance FY18-19 Project Portfolio.

DEPARTMENT BUDGET SUMMARY

A comparison of the department's budget is shown in the table below.

Category (\$ Thousands)	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Total Labor and Benefits	18,730	19,604	19,584	-0.1%	20,046	2.4%
Less: Capital Labor and Benefits	(253)	(803)	(139)	-82.6%	(147)	5.6%
Operating Labor and Benefits	18,477	18,801	19,445	3.4%	19,899	2.3%
Contract Services	854	994	1,329	33.6%	1,470	10.7%
All Other Costs	6,859	7,771	7,063	-9.1%	7,586	7.4%
Operating Total	26,191	27,566	27,837	1.0%	28,955	4.0%

BUDGET HIGHLIGHTS

The department's operating budget in FY18 is increasing \$0.3 million or 1.0 percent compared to FY17. In FY19, the budget will increase \$1.1 million or 4.0 percent compared to the prior fiscal year. Significant budget changes include:

FY18

Total labor and benefit costs are decreasing \$0.02 million. Capital labor and benefits are decreasing \$0.7 million due a lower portion of labor allocated to capital projects. Operating labor and benefits are increasing \$0.6 million primarily due to higher portion of labor allocated to operating compared to FY17, funding the IT intern program, and scheduled salary step increases. The IT intern program is an outreach effort to attract college students for potential future IT candidates. Contract services are increasing \$0.3 million primarily due to a data warehouse consulting contract, project management training, and firewall maintenance costs. All other costs are decreasing by \$0.7 million due to the completion of the FY16 and FY17 budget priority to replace deferred aging equipment. This budget continues to include funding to the equipment replacement fund for ongoing equipment replacement needs.

FY19

Total labor and benefit costs will increase \$0.5 million primarily due to scheduled salary step increases and to account for a fully staffed department. Contract services will increase \$0.1 million primarily due to a cloud service for the Contact Center. All other costs will increase \$0.5 million for computer hardware, software, and communications equipment.

STAFFING SUMMARY

The table below shows the staffing of the department.

Position Type	FY16	FY17	FY18	FY18 Change vs FY17	FY19	FY19 Change vs FY18
Full-Time	92.0	92.0	94.0	2.0	94.0	0.0
Limited-Term / Temp Construction	4.0	2.0	2.0	0.0	2.0	0.0
Intermittent	0.0	0.0	0.0	0.0	0.0	0.0
Temporary / Part-Time	0.0	0.0	0.0	0.0	0.0	0.0
Total FTE	96.0	94.0	96.0	2.0	96.0	0.0

STAFFING CHANGES

The table below summarizes the FTE changes followed by a brief description. The net change in cost represents the difference between the annual salary at the top step including benefits for the existing highest job classification versus the highest classification for the change.

FY	Action	From Classification(s)	To Classification(s)	Change in Cost	Change in FTE	Project/Program
2018	Add		Senior Systems Programmer	214,385	1.0	Industrial Control Systems Security
2018	Add		Senior Systems Programmer	214,385	1.0	
FY18 TOTAL				428,771	2.0	

In FY18, based on a vulnerability assessment, two full-time FTEs (Senior Systems Programmers) will support the implementation and operation of a new, isolated server infrastructure that is necessary to improve security of the District's industrial control systems used for water treatment and distribution, security, and building controls.

CUSTOMER AND COMMUNITY SERVICES DEPARTMENT

OVERVIEW

The Customer and Community Service Department provides quality, responsive customer service through the use of efficient business practices, technology, and value added programs and services to District customers and stakeholders guided by fairness, consistency, efficiency, and high standards of professionalism and fiscal responsibility.

DESCRIPTION OF SERVICES

The department's operations include the Contact Center, Field Services, Customer Services Support, New Business, Water Conservation, Real Estate Services, and Contract Equity divisions. These divisions are the direct interface to customers and internal and external stakeholders to support billing, payment, and service inquiries; field service operation requests; customer programs and services; Customer Information System administration, maintenance, systems integration and support; water conservation services and assistance; new service and development requests; property management and land acquisitions; mail distribution and payment processing; and enhance equal opportunities for business owners who are interested in doing business with the District.

FY18 & FY19 GOALS

The department is primarily responsible for the Customer and Community Services Strategic Plan goal. Key department goals include:

- Providing responsive, quality service to meet and/or exceed customer expectations;
- Implementing new customer and community programs and services to increase customer engagement opportunities;
- Evaluating processes and business operations to enhance the customer experience;
- Promoting water use efficiency and conservation services;
- Completing the expansion of the Automated Metering Infrastructure technology pilot and water loss initiatives;
- Expanding opportunities to utilize land assets more effectively; and
- Promoting contract education and increasing contract equity opportunities.

DEPARTMENT BUDGET SUMMARY

A comparison of the department's budget is shown in the table below.

Category (\$ Thousands)	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Total Labor and Benefits	17,373	19,450	18,746	-3.6%	18,924	0.9%
Less: Capital Labor and Benefits	(2,113)	(2,648)	(2,293)	-13.4%	(2,179)	-5.0%
Operating Labor and Benefits	15,260	16,802	16,452	-2.1%	16,744	1.8%
Contract Services	172	327	349	6.7%	349	0.0%
All Other Costs	3,049	3,140	3,393	8.0%	3,541	4.4%
Operating Total	18,482	20,269	20,194	-0.4%	20,634	2.2%

BUDGET HIGHLIGHTS

The department's operating budget in FY18 is decreasing \$0.08 million or 0.4 percent compared to FY17. In FY19, the budget will increase \$0.4 million or 2.2 percent compared to the prior fiscal year. Significant budget changes include:

FY18

Total labor and benefits are decreasing \$0.7 million. Operating labor and benefits are decreasing by approximately \$0.4 million due to a lower fringe benefit rate and a reduction in the number of funded positions. Capital labor and benefits are decreasing \$0.4 million primarily due to a lower portion of labor allocated to capital projects. All other costs are increasing \$0.3 million primarily for electronic bill payment and presentment services, District vehicle fleet costs, and U.S. postage costs.

FY19

Total labor and benefits will increase \$0.2 million. Operating labor and benefits will increase \$0.3 million primarily due to scheduled salary step increases and a reallocation of a portion of labor from capital to operating. All other costs will increase \$0.1 million primarily for the printing and distribution costs of the Proposition 218 notices for the FY20 and FY21 biennial budget.

STAFFING SUMMARY

The table below shows the staffing of the department.

Position Type	FY16	FY17	FY18	FY18 Change vs FY17	FY19	FY19 Change vs FY18
Full-Time	121.0	121.0	125.0	4.0	125.0	0.0
Limited-Term / Temp Construction	1.0	1.0	0.0	(1.0)	0.0	0.0
Intermittent	3.0	3.0	3.0	0.0	3.0	0.0
Temporary / Part-Time	13.5	13.5	13.5	0.0	13.5	0.0
Total FTE	138.5	138.5	141.5	3.0	141.5	0.0

In FY18, four full-time FTEs are returned to the department.

STAFFING CHANGES

The table below summarizes the FTE changes followed by a brief description. The net change in cost represents the difference between the annual salary at the top step including benefits for the existing highest job classification versus the highest classification for the change.

FY	Action	From Classification(s)	To Classification(s)	Change in Cost	Change in FTE	Project/Program
2018	Delete	(LT) Associate Civil Engineer		(219,822)	(1.0)	Automated Metering Infrastructure
FY18 TOTAL				(219,822)	(1.0)	

In FY18, the department is deleting one limited-term FTE for program management of Automated Metering Infrastructure. The Operations and Maintenance Support Department will assume program management.

HUMAN RESOURCES DEPARTMENT

OVERVIEW

The Human Resources Department recruits, develops, and retains a diverse, well-qualified and professional workforce that reflects the values of EBMUD. It supports the District's core mission, and leads the organization in positive employee relations, talent management, succession planning and employee engagement.

DESCRIPTION OF SERVICES PROVIDED

The department consists of Diversity and Inclusion, Employee Relations, Employee Services, Recruitment and Classification, and Employee Development divisions. These divisions administer the District's retirement system, deferred compensation programs and employee benefits; provide guidance to effectively resolve grievances and facilitate labor contract negotiations; implement training and development opportunities to support leadership and managerial skill enhancement; develop a performance recognition program that acknowledges employee contributions toward meeting Districts goals; steward a "grow our own" strategy to address skills shortages by developing employees to meet workforce demands; respond to discrimination and harassment complaints; work with the community on outreach efforts to attract a diverse applicant pool; and recruit and onboard a highly qualified, diverse employee population.

FY18 & FY19 GOALS

The department is primarily responsible for leading the Workforce Planning and Development Strategic Plan goal. Key department goals include:

- Implementing workforce development plans to identify future employees to fill anticipated vacancies resulting from retirements;
- Completing the labor negotiations process for successor Memoranda of Understanding;
- Implementing a health care strategy that provides a competitive benefit package while recognizing the potential increase in forecasted health care costs;
- Completing recruitments in a timely manner to fill vacancies created by the large number of retirements; and
- Continuing to work with the Values and Organizational Improvements teams to imbed the District's values and implement organizational changes as identified by the teams.

DEPARTMENT BUDGET SUMMARY

A comparison of the department's budget is shown in the table below.

Category (\$ Thousands)	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Total Labor and Benefits	7,712	8,210	8,531	3.9%	8,698	2.0%
Less: Capital Labor and Benefits	(10)	(18)	0	-100.0%	0	0
Operating Labor and Benefits	7,703	8,192	8,531	4.1%	8,698	2.0%
Contract Services	1,430	1,276	1,762	38.1%	1,757	-0.3%
All Other Costs	598	690	775	12.3%	758	-2.1%
Operating Total	9,731	10,157	11,068	9.0%	11,213	1.3%

BUDGET HIGHLIGHTS

The department's operating budget in FY18 is increasing \$0.9 million or 9.0 percent compared to FY17. In FY19, the operating budget will increase \$0.1 million or 1.3 percent. Significant budget changes include:

FY18

Operating labor and benefits are increasing \$0.3 million due to an increase in funded positions to meet workload needs. Contract services costs are increasing \$0.5 million to meet equal employment opportunity requirements; outreach and workforce development projects; benefit consultant services to advise on plan design, cost analysis and regulatory requirements; and District values and organizational improvement activities. All other costs are increasing \$0.09 million primarily due to the tuition reimbursement program, new employee recognition program, software for eLearning platform, and curriculum development.

FY19

Total labor and benefits costs will increase \$0.2 million due to scheduled salary step increases and to account for a fully staffed department.

STAFFING SUMMARY

The table below shows the staffing of the department.

Position Type	FY16	FY17	FY18	FY18 Change vs FY17	FY19	FY19 Change vs FY18
Full-Time	47.0	47.0	49.0	2.0	49.0	0.0
Limited-Term / Temp Construction	5.0	4.0	5.0	1.0	5.0	0.0
Intermittent	0.0	0.0	0.0	0.0	0.0	0.0
Temporary / Part-Time	7.5	5.5	5.5	0.0	5.5	0.0
Total FTE	59.5	56.5	59.5	3.0	59.5	0.0

STAFFING CHANGES

The table below summarizes the FTE changes followed by a brief description. The net change in cost represents the difference between the annual salary at the top step including benefits for the existing highest job classification versus the highest classification for the change.

FY	Action	From Classification(s)	To Classification(s)	Change in Cost	Change in FTE	Project/Program
2018	Add		Senior Human Resources Analyst	204,095	1.0	Increase in Ongoing Workload
2018	Add		Human Resources Analyst I / II	184,917	1.0	Outreach and Workforce Development Projects
2018	Add		(TC) Information System Support Analyst II	189,551	1.0	HRIS Project
FY18 TOTAL				578,562	3.0	

In FY18, the department is adding one full-time FTE to support Recruitment and Classification ongoing workload, one full-time FTE to support outreach and workforce development projects including assisting with overflow EEO consultants/investigations, and a temporary construction FTE to support the implementation of the Human Resources Information System (HRIS) project.

OFFICE OF THE GENERAL COUNSEL

OVERVIEW

The Office of the General Counsel (OGC) provides the legal advice and assistance necessary to implement the District's mission, policies, and programs in a manner consistent with the law and to take charge of litigation and other legal matters in which the District is a party or in which it is legally interested.

DESCRIPTION OF SERVICES PROVIDED

The department provides legal assistance and litigation support to the Board of Directors, General Manager and staff in such areas as: resources law; municipal and public law; environmental law; public works contracting; construction and real estate law; personnel, benefits, retirement and labor law; risk management and insurance; public finance and governmental law; tort law; and rates, regulations, and public policy matters.

FY18 & FY19 GOALS

Key department goals include:

- Providing the District, its officers, and its employees with competent, responsible, and effective representation in all proceedings in which the District is a party or has an interest and obtain the best results possible given the facts and law applicable to the specific case;
- Assuring that all documents with legal significance presented to the OGC for review, or are originally prepared by the OGC, accomplish the purpose for which they are intended, protect the District from legal risk to the full extent administrative staff considers appropriate for the transaction, and are written in clear and understandable language in an appropriate legal form;
- Providing accurate, clear, and practical oral legal advice that is responsible to the questions and facts presented;
- Providing accurate, clear, and practical written legal memoranda and opinions that are thoroughly researched, timely, and in an appropriately professional form;
- Providing forceful and persuasive advocacy on behalf of the District in non-judicial settings when requested to do so;
- Assuring that all legal services provided to the District are cost-effective, responsive to the directions of the Board, and professionally competent; and
- Adhering to the highest standards of professional conduct and legal ethics including those standards set forth in the Rules of Professional Conduct.

DEPARTMENT BUDGET SUMMARY

A comparison of the department's budget is shown in the table below.

Category (\$ Thousands)	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Total Labor and Benefits	3,209	3,778	3,591	-5.0%	3,607	0.5%
Less: Capital Labor and Benefits	(20)	0	0	0	0	0
Operating Labor and Benefits	3,189	3,778	3,591	-5.0%	3,607	0.5%
Contract Services	664	750	750	0.0%	750	0.0%
All Other Costs	117	236	235	-0.1%	235	0.0%
Operating Total	3,970	4,764	4,576	-3.9%	4,592	0.4%

BUDGET HIGHLIGHTS

The department's operating budget in FY18 is decreasing \$0.2 million or 3.9 percent compared to FY17. In FY19, the budget will increase \$0.02 million or 0.4 percent compared to the prior fiscal year. Significant budget changes include:

FY18

Total labor and benefits are decreasing \$0.2 million primarily due to a lower fringe benefit rate and new employees with salaries lower than the employees they replaced.

FY19

Total labor and benefits will increase \$0.02 million due to scheduled salary step increases.

STAFFING SUMMARY

The table below shows the staffing of the department.

Position Type	FY16	FY17	FY18	FY18 Change vs FY17	FY19	FY19 Change vs FY18
Full-Time	16.0	16.0	16.0	0.0	16.0	0.0
Limited-Term / Temp Construction	0.0	0.0	0.0	0.0	0.0	0.0
Intermittent	0.0	0.0	0.0	0.0	0.0	0.0
Temporary / Part-Time	1.0	1.0	1.0	0.0	1.0	0.0
Total FTE	17.0	17.0	17.0	0.0	17.0	0.0

WATER RECYCLING PROGRAM

OVERVIEW

The Water Recycling Department develops and implements projects that provide recycled water for appropriate uses by the District and its customers to reduce the demand on high quality drinking water supplies.

DESCRIPTION OF SERVICES PROVIDED

The department operates and maintains the North Richmond Water Reclamation Plant and the Richmond Advance Recycled Expansion (RARE) facility that provide recycled water for use in the Chevron refinery and the East Bayshore Recycled Water treatment facility that provides recycled water to customers for irrigation applications. While this program is managed and budgeted under the Water System, the Wastewater Department is responsible for the ongoing operations and maintenance of the recycled water treatment plants.

FY18 & FY19 GOALS

The department supports the Long-Term Water Supply Strategic Plan goal. Key department goals include:

- Continuing to operate and maintain the three recycled water treatment facilities (RARE, North Richmond, East Bayshore) to meet regulatory standards for recycled water and maximize the production from these facilities;
- Maintaining contractual obligations with Chevron; and
- Continuing to offset the use of drinking water for nonpotable applications as part of the District's water recycling goal.

DEPARTMENT BUDGET SUMMARY

A comparison of the department's budget is shown in the table below.

Category (\$ Thousands)	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Total Labor and Benefits	1,754	1,732	1,566	-9.6%	1,582	1.1%
Less: Capital Labor and Benefits	(13)	0	0	0	0	0
Operating Labor and Benefits	1,741	1,732	1,566	-9.6%	1,582	1.1%
Contract Services	7	52	91	76.0%	83	-9.0%
All Other Costs	3,126	3,583	3,762	5.0%	3,845	2.2%
Operating Total	4,875	5,367	5,419	1.0%	5,510	1.7%

BUDGET HIGHLIGHTS

The department's FY18 operating budget is increasing \$0.05 million or 1.0 percent compared to FY17. In FY19, the operating budget will increase \$0.09 million or 1.7 percent. Significant budget changes include:

FY18

Operating labor costs are decreasing \$0.2 million primarily due to a lower fringe benefit rate and new employees with salaries lower than the employees they replaced. All other costs are increasing \$0.2 million primarily due to chemical and energy costs, and repair work by Wastewater Department staff who maintain the recycling facilities.

FY19

All other costs will increase \$0.08 million primarily due to chemical and energy costs, and anticipated repair work by Wastewater Department staff.

STAFFING SUMMARY

The table below shows the staffing of the department.

Position Type	FY16	FY17	FY18	FY18 Change vs FY17	FY19	FY19 Change vs FY18
Full-Time	8.0	8.0	8.0	0.0	8.0	0.0
Limited-Term / Temp Construction	0.0	0.0	0.0	0.0	0.0	0.0
Intermittent	0.0	0.0	0.0	0.0	0.0	0.0
Temporary / Part-Time	0.0	0.0	0.0	0.0	0.0	0.0
Total FTE	8.0	8.0	8.0	0.0	8.0	0.0

ADMINISTRATION DEPARTMENT

OVERVIEW

The Administration Department is currently unstaffed and the functions of the department have been distributed to the Customer and Community Services Department and the Human Resources Department.

DESCRIPTION OF SERVICES PROVIDED

The department has the budget for District memberships in professional and trade organizations.

FY18 & FY19 GOALS

The department does not lead any Strategic Plan goals in FY18 and FY19.

DEPARTMENT BUDGET SUMMARY

A comparison of the department's budget is shown in the table below.

Category (\$ Thousands)	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Total Labor and Benefits	0	0	0	0	0	0
Less: Capital Labor and Benefits	0	0	0	0	0	0
Operating Labor and Benefits	0	0	0	0	0	0
Contract Services	0	0	0	0	0	0
All Other Costs	344	356	376	5.5%	377	0.2%
Operating Total	344	356	376	5.5%	377	0.2%

BUDGET HIGHLIGHTS

FY18

The department has no personnel or contract budget due to transferring services to other departments. All other costs are increasing due to new memberships and an anticipated rise in professional dues.

FY19

The District membership budget remains flat.

STAFFING SUMMARY

The table below shows the staffing of the department.

Position Type	FY16	FY17	FY18	FY18 Change vs FY17	FY19	FY19 Change vs FY18
Full-Time	2.0	2.0	2.0	0.0	2.0	0.0
Limited-Term / Temp Construction	0.0	0.0	0.0	0.0	0.0	0.0
Intermittent	0.0	0.0	0.0	0.0	0.0	0.0
Temporary / Part-Time	0.0	0.0	0.0	0.0	0.0	0.0
Total FTE	2.0	2.0	2.0	0.0	2.0	0.0

Staffing

The table below provides the full-time equivalent (FTE) by department and compares the changes from year-to-year. Depending upon the appointment type, the FTE value will be different. Full-time, limited-term and temporary construction appointment types are equivalent to 1.0 FTE; intermittent appointment types are equivalent to 0.75 FTE; part-time and temporary appointment types are equivalent to 0.5 FTE.

FY18 & FY19 STAFFING BY DEPARTMENT					
By Full-Time Equivalent (FTE)					
Department	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Operations & Maintenance Support	49.0	51.0	2.0	51.0	0.0
Maintenance and Construction	715.0	734.0	19.0	740.0	6.0
Water Operations	187.0	188.0	1.0	188.0	0.0
Water Resources	38.5	37.5	(1.0)	37.5	0.0
Natural Resources	68.5	68.5	0.0	68.5	0.0
Engineering & Construction	267.5	275.5	8.0	275.5	0.0
Office of the General Manager	25.5	25.5	0.0	25.5	0.0
Finance	99.5	99.5	0.0	99.5	0.0
Information Systems	94.0	96.0	2.0	96.0	0.0
Customer & Community Services	138.5	141.5	3.0	141.5	0.0
Human Resources	56.5	59.5	3.0	59.5	0.0
Office of the General Counsel	17.0	17.0	0.0	17.0	0.0
Water Recycling Program	8.0	8.0	0.0	8.0	0.0
Administration	<u>2.0</u>	<u>2.0</u>	<u>0.0</u>	<u>2.0</u>	<u>0.0</u>
WATER SYSTEM TOTAL	1,766.5	1,803.5	37.0	1,809.5	6.0

In FY18, a total of 37.0 FTEs are shown as the Water System change from FY17. Chapter 2 shows a net 33.0 FTEs added to the Water System. One additional FTE is being transferred from the Wastewater Department to the Finance Department, and three FTEs are being transferred from the Drought department back to Customer and Community Services. In FY19, six full-time FTEs will be added to the Maintenance and Construction Department.

For a more detailed description of staffing changes, please see the specific department section in this chapter or the Staffing section in the District Budget Summary Chapter 2 of this book.

Bargaining Unit Changes

The following tables show the net change in bargaining unit status of authorized FTEs represented by AFSCME Local 2019, AFSCME Local 444, IFPTE Local 21, and IUOE Local 39; or included in Management/Confidential, non-represented groups, and civil service exempt positions. The tables reflect all staffing changes for FY18 and FY19.

FY 18 vs. FY 17 Net Change in Bargaining Unit Status (by FTE)							
Department	Local 2019	Local 444	Local 21	Local 39	MGMT / Confidential	Non-Rep	Civil Service Exempt
Operations & Maintenance Support	1						
Maintenance and Construction		16	4				
Water Operations			1				
Water Resources							
Natural Resources							
Engineering & Construction	7		1				
Office of the General Manager							
Finance	(1)						
Information Systems	2						
Customer & Community Services	(1)						
Human Resources	1				2		
Office of the General Counsel							
Water Recycling Program							
Administration							
Total Net Change	9	16	6	0	2	0	0

FY 19 vs. FY 18 Net Change in Bargaining Unit Status (by FTE)							
Department	Local 2019	Local 444	Local 21	Local 39	MGMT / Confidential	Non-Rep	Civil Service Exempt
Operations & Maintenance Support							
Maintenance and Construction	1	5					
Water Operations							
Water Resources							
Natural Resources							
Engineering & Construction							
Office of the General Manager							
Finance							
Information Systems							
Customer & Community Services							
Human Resources							
Office of the General Counsel							
Water Recycling Program							
Administration							
Total Net Change	1	5	0	0	0	0	0

Debt Service and Financing

This section describes the Water System's current and projected debt obligations, current credit ratings, and adherence to the District's debt financing policies.

The District incurs debt to finance projects or purchase, repair or replace assets which will have useful lives equal to or greater than the related debt. Issuance of revenue supported debt is authorized by the District's Board of Directors, subject to a referendum process. Individual revenue bond issues are authorized by the District's Board of Directors.

The annual debt service principal and interest payments are charged to the operating budget. However, debt is only issued to finance capital investment activities.

Outstanding Debt

The Water System will have a total outstanding debt of \$2.59 billion as of June 30, 2017. The District's debt issues are summarized on the following page and discussed in detail thereafter.

OUTSTANDING DEBT As of June 30, 2017 (\$ Thousands)				
Issue	Date of Issue	Last Maturity	Amount Issued	Debt Outstanding
LONG-TERM DEBT				
Revenue Bonds:				
Series 2007B	5/23/2007	6/1/2019	54,790	13,080
Series 2008A	3/20/2008	6/1/2038	322,525	105,250
Series 2010A	2/3/2010	6/1/2036	192,830	180,945
Series 2010B (Build America Bonds)	2/23/2010	6/1/2040	400,000	400,000
Series 2012A	10/10/2012	6/1/2037	191,750	191,750
Series 2012B	11/13/2012	6/1/2026	358,620	249,450
Series 2013A	3/5/2013	6/1/2021	48,670	28,065
Series 2014A	6/11/2014	6/1/2035	128,315	128,315
Series 2014B	6/11/2014	6/1/2030	242,730	233,450
Series 2014C	6/26/2014	6/1/2044	75,000	75,000
Series 2015A	3/3/2015	6/1/2037	429,360	429,360
Series 2015B	6/2/2015	6/1/2045	74,335	74,335
Series 2015C	6/2/2015	6/1/2045	110,715	110,715
Total Revenue Bonds	-	-	\$2,629,640	\$2,219,715
General Obligations Bonds	-	-	\$0	\$0
Loans:				
State Loans (Parity)	1/1/2003	1/1/2024	2,188	893
State Loans (Parity)	5/22/2008	4/1/2028	20,100	12,058
Total Loans			\$22,288	\$12,951
Total Long-Term Debt			\$2,651,928	\$2,232,666
SHORT-TERM DEBT				
Commercial Paper	Various	Various	N/A	\$359,800
TOTAL OUTSTANDING DEBT				\$2,592,466

The District may issue Water System revenue refunding bonds in FY17 to take advantage of market interest rates. Refunding debt at lower interest rates can save the District a substantial amount of money if market conditions allow. In addition, not included in the above table, the District also plans to issue approximately \$129 million of new Water System revenue bond debt in FY17. The budget assumes issuance of \$179.5 million in additional new Water System revenue bonds in FY18, and \$151.6 million in FY19.

Debt Service

The Water System total outstanding debt of \$2.59 billion as of June 30, 2017 is projected to cost the District \$1.8 billion in interest payments over the next 28 years, as detailed in the table below. The table does not include additional debt expected to be issued before the end of FY17. The principal payments below do not include the payments of commercial paper principal, as there is no final maturity associated with those notes.

Interest payments on synthetic fixed-rate debt were calculated at their associated swap rates plus a spread (if applicable). Interest on commercial paper (CP) was calculated at 2.5 percent.

Projected Debt Service on Current Outstanding Debt			
Fiscal Year	Principal	Interest	Debt Service
2018	59,114,024	118,733,971	177,847,995
2019	61,560,313	116,125,682	177,685,995
2020	64,307,237	113,195,259	177,502,496
2021	67,139,811	110,109,135	177,248,946
2022	69,968,050	107,001,545	176,969,595
2023	73,226,972	103,672,673	176,899,645
2024	76,521,592	100,130,503	176,652,095
2025	80,041,189	96,467,397	176,508,586
2026	81,683,697	92,615,538	174,299,235
2027	78,806,866	88,585,319	167,392,185
2028	82,645,711	84,680,725	167,326,436
2029	85,405,000	80,581,938	165,986,938
2030	90,825,000	76,351,388	167,176,388
2031	96,520,000	71,819,638	168,339,638
2032	101,155,000	67,213,711	168,368,711
2033	106,020,000	62,384,138	168,404,138
2034	110,845,000	57,596,985	168,441,985
2035	115,840,000	52,619,425	168,459,425
2036	127,445,000	47,172,933	174,617,933
2037	132,995,000	40,774,295	173,769,295
2038	142,520,000	33,911,948	176,431,948
2039	147,855,000	26,121,651	173,976,651
2040	45,580,000	17,618,520	63,198,520
2041	28,415,000	15,130,800	43,545,800
2042	29,720,000	13,820,200	43,540,200
2043	31,095,000	12,448,700	43,543,700
2044	32,530,000	11,013,050	43,543,050
2045	12,885,000	9,510,400	22,395,400
Total	2,232,665,462	1,827,407,467	4,060,072,929

The difference in the debt service from the budgeted amount results from two factors. First, the figures in the table on the prior page include only debt service on currently outstanding bonds while budgeted debt service includes interest and principal on new bonds expected to be issued in FY17, FY18, and FY19 to fund the Capital Improvement Program. Second, budgeted figures include additional costs associated with the debt portfolio including liquidity fees, re-marketing fees, basis spread, and debt service administration.

Debt Ratings

Credit risk is the risk that the issuer of an investment, such as a revenue bond, will not fulfill its obligation to the holder of the investment. Credit ratings are assigned to bonds by nationally recognized statistical credit rating organizations based on published methodologies. The ratings reflect the organizations' opinions about the issuer's ability and willingness to meet its financial obligations. All investment grade ratings presume the obligation will be paid, in full and on time, currently and in the future.

Strong credit ratings provide tangible benefits to ratepayers in the form of reduced debt service cost. A strong credit rating provides better access to capital markets, lower interest rates, better terms on debt, and access to a greater variety of debt products. Prudent financial management policies have contributed to the District's strong ratings shown in the tables below.

As of January 1, 2017, ratings on the Water System's debt were as follows:

Water System Debt Ratings			
Debt by Type	Standard & Poor's	Moody's Investors Service	Fitch
Fixed Rate Revenue Bonds	AAA	Aa1	AA+
Variable Rate Revenue Bonds			
Long-term Underlying Rating	AAA	Aa1	--
Short-term Rating	A-1+	VMIG-1	--
Commercial Paper	A-1+	P-1	F1+

Debt Management Policy and Debt Service Coverage

The District is subject to legal debt limits prescribed in the Municipal Utility District (MUD) Act. The MUD Act describes three types of legal limitations: general debt limits, revenue bond limits, and short-term borrowing limits.

The District's general debt indebtedness cannot exceed the ordinary annual income and revenue of the District without a two-thirds approval of the voters. However, revenue bonds are not included in general debt limits.

The District is authorized to issue revenue bonds with the approval of a resolution from the Board of Directors, subject to a 60-day referendum period. The resolution specifies the maximum principal amount of bonds that may be issued pursuant to the authorization. The District's Board of Directors also approves individual series of revenue bonds issued under the broader authorization.

The MUD Act authorizes the District to issue short-term indebtedness without an election of the voters. The amount of short-term borrowing cannot exceed the lesser of 1) the annual average total revenue of the three preceding years or 2) twenty-five percent of the District's total outstanding bonds. This provision is substantially the same as the District's internal policy discussed below.

The District has also established its own policy regarding debt management (Policy 4.02: Cash Reserves and Debt Management – see Appendix). The purpose of the debt policy is to maintain a balance between current funding sources and debt financing over each five-year plan horizon in order to retain the District's financing flexibility and achieve the lowest cost of financing.

The District's debt management policy is to:

- a) maintain an annual revenue bond debt service coverage ratio of at least 1.6 times;
- b) limit debt-funded capital to no more than 65 percent of the total capital program over each five-year planning period; and
- c) limit commercial paper / variable rate debt to 25 percent of outstanding long-term debt.

Debt Service Coverage Ratio

The debt service coverage policy ensures that the District has sufficient annual operating revenues to pay its operating expenses and meet its debt service obligations on its revenue bonds and other parity debt. The revenue bond debt service coverage ratio is defined as the District's net operating revenue (current year's operating revenue less the current year's operating expenses) divided by the current year's debt service on all revenue bonds and other parity debt. In FY18 and FY19, the projected debt coverage ratios are 1.60 and 1.60 respectively.

Debt-Funded Capital

The percentage of the capital program that is funded by debt over the five year planning period FY18-22 is projected to average 52.1 percent, which is lower than the financial policy maximum target of 65 percent. The debt percentage funding for FY18 and FY19 is shown in the below table.

Projected Debt Percentage of Funding		
(\$ Millions)		
	<u>FY18</u>	<u>FY19</u>
Expenditures:		
Capital Cash Flow	227.7	229.8
Administration of Capital	<u>40.0</u>	<u>40.0</u>
Total Expenditures	267.7	269.8
Project Funding:		
New Bond Proceeds	175.9	148.6
Loans Proceeds	0.0	0.0
Commercial Paper	0.0	0.0
Construction Fund	<u>0.0</u>	<u>0.0</u>
Total Resources	175.9	148.6
Debt Percentage of Funding	65.7%	55.1%

Commercial Paper and Variable Rate Debt Ratio

The District has authorized a short-term commercial paper (CP) borrowing program consistent with the MUD Act and the District's debt management policy. Under this program, the District may issue commercial paper notes at prevailing interest rates for periods of not more than 120 days from the date of issuance. The program is supported by liquidity agreements. The Water System CP is secured by a pledge of the Water System's net revenues, subordinate to the respective System's revenue bonds.

On June 30, 2017, \$359.8 million of Water System CP is projected to be outstanding under the program. Water System CP will comprise less than 14 percent of the \$2.59 billion in total outstanding debt.

Water System outstanding variable rate debt projected as of June 30, 2017 will be approximately \$105.3 million. Since the beginning of FY14, the District has converted over \$340.0 million of its variable rate debt into fixed rate debt by paying off existing interest rate swap contracts and replacing the underlying variable rate bonds with fixed rate bonds. Going forward, the District expects to finance its construction program through a combination of fixed-rate debt and CP.

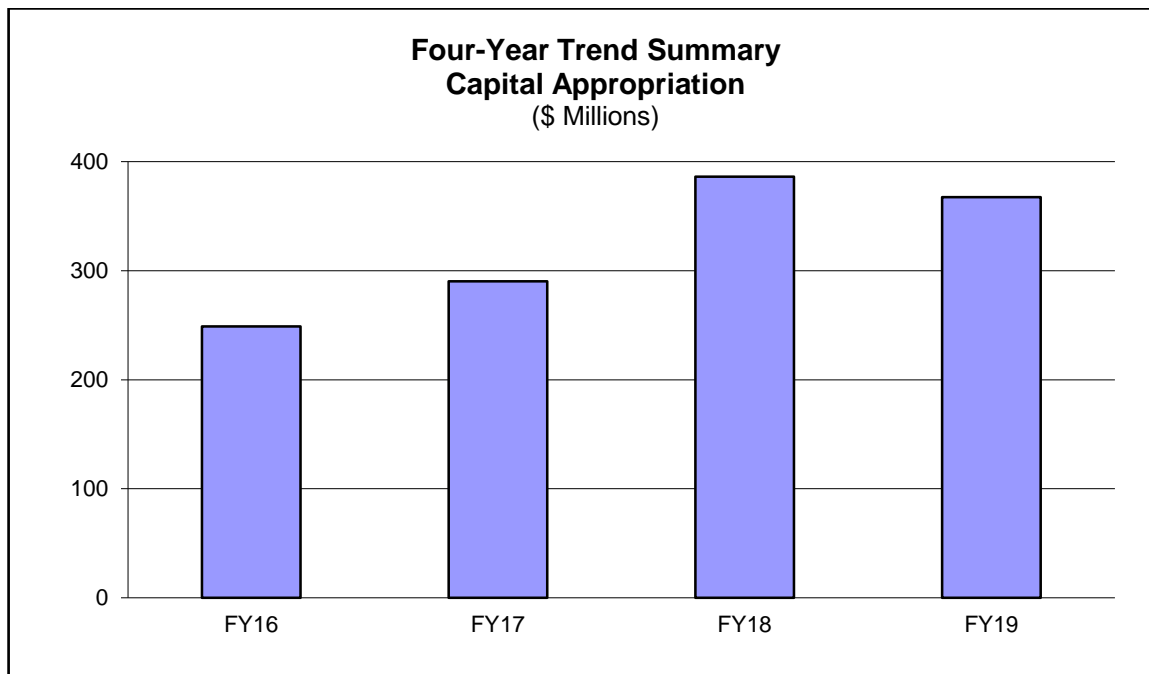
Capital Expenditures

The Capital Improvement Program (CIP) consists of projects that typically result in the construction of new facilities, or the rehabilitation or upgrade of existing facilities. Project costs include all expenditures required to study, plan, design, purchase, construct, or upgrade new or existing facilities. In addition, projects can include large equipment purchases and the creation or replacement of computer systems infrastructure.

Capital Appropriation

Capital appropriations represent the amounts approved by the Board to be spent on projects in the CIP. Since these appropriations are often spent over multiple years, the amounts appropriated for each fiscal year will vary depending upon project scope and timing, and any unspent appropriation a project may have.

The Water System's FY18 appropriation totals \$386.5 million, an increase of \$96.1 million from FY17. In FY19, the appropriation totals \$367.5 million, a decrease of \$19.0 million from FY18. The FY18 and FY19 appropriations reflect the District's continued commitment to maintaining and improving the infrastructure, especially distribution pipelines, large diameter pipelines, and water treatment plants.



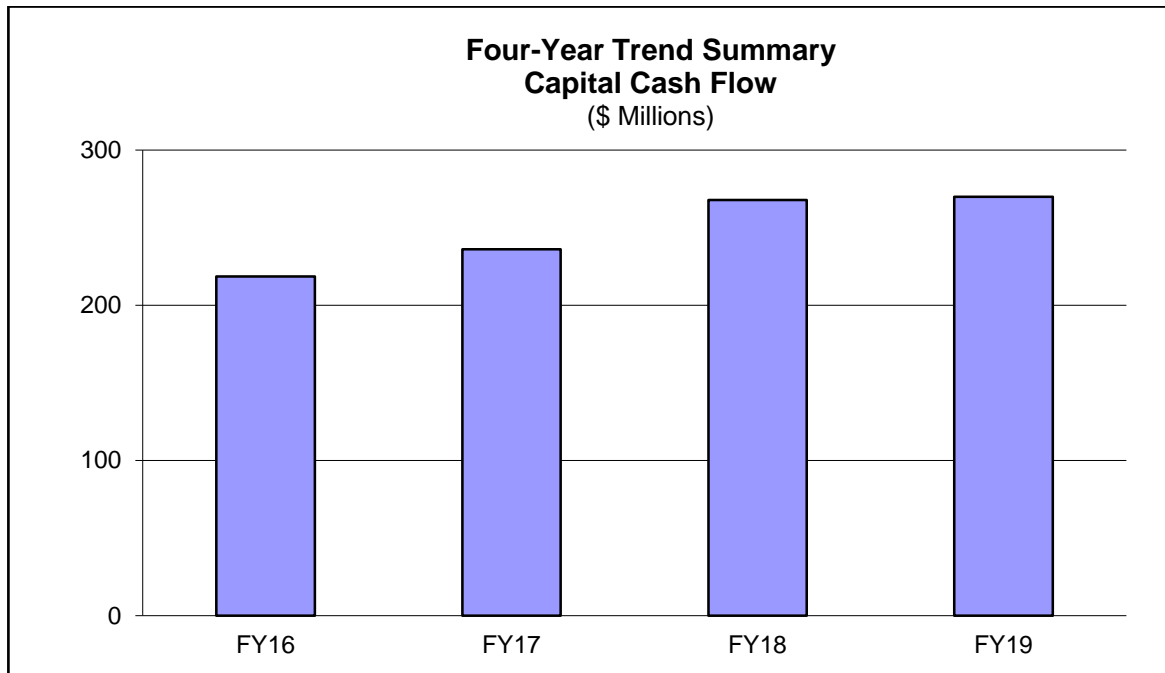
Capital Appropriation (\$ Millions)						
	FY16 Adopted Budget	FY17 Adopted Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Capital Appropriation	249.0	290.4	386.5	33.1%	367.5	-4.9%

Includes Administration of Capital

Capital Cash Flow

Capital cash flows represent the amounts projected to be spent each fiscal year on projects in the CIP. The amount of cash flow each year varies as projects progress from one phase to another, such as from planning to design and then construction, and as projects are completed and new ones started.

The Water System's FY18 cash flow totals \$267.7 million, an increase of \$31.6 million from FY17. In FY19, the cash flow totals \$269.8 million, an increase of \$2.1 million from FY18. Key projects in the FY18 and FY19 cash flows include replacement of distribution pipelines, large diameter transmission pipelines, and service laterals; water treatment plant upgrades; improvements to various pressure zones; and reservoir rehabilitation.



Capital Cash Flow						
(\$ Millions)						
	FY16	FY17	FY18	FY18	FY19	FY19
	Actual	Adopted Budget	Proposed Budget	Change vs FY17	Proposed Budget	Change vs FY18
Capital Cash Flow	218.5	236.1	267.7	13.4%	269.8	0.8%

Includes Administration of Capital

Capital Labor

The following table shows the capital labor and benefits budget by department for capital project work.

Capital Labor By Department						
(\$ Thousands)						
DEPARTMENTS	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Operations & Maintenance Support	777	427	601	40.8%	632	5.3%
Maintenance and Construction	34,820	35,551	37,601	5.8%	38,642	2.8%
Water Operations	2,298	1,212	1,209	-0.2%	1,221	1.0%
Water Resources	2,242	1,328	1,522	14.6%	1,534	0.8%
Natural Resources	191	0	13	0.0%	14	2.2%
Engineering & Construction	31,735	32,436	35,149	8.4%	35,748	1.7%
Office of the General Manager	2	0	0	0.0%	0	0.0%
Finance	198	969	0	-100.0%	0	0.0%
Information Systems	253	803	139	-82.6%	147	5.6%
Customer & Community Services	2,113	2,648	2,293	-13.4%	2,179	-5.0%
Human Resources	10	18	0	-100.0%	0	0.0%
Office of the General Counsel	20	0	0	0.0%	0	0.0%
Water Recycling Program	13	0	0	0.0%	0	0.0%
Administration	0	0	0	0.0%	0	0.0%
Departments Total	74,670	75,392	78,529	4.2%	80,118	2.0%

Numbers in the table may be rounded.

The Water System capital labor budget is increasing approximately \$3.2 million in FY18 and \$1.6 million in FY19 compared to the prior fiscal year to reflect the funding associated with additional FTEs supporting capital work. The total labor increase in FY18 is offset due to a lower fringe benefit rate compared to FY17. In FY19, total capital labor increase is primarily attributable to scheduled salary step increases.

Capital Program Highlights

The FY18-22 Water System Capital Improvement Program (CIP) requires \$1.69 billion in project appropriations, an increase of \$77.1 million or 5 percent from the FY16-20 CIP. The increase is primarily due to increased appropriation needs of the Maintaining Infrastructure Strategy for replacing deteriorated water distribution pipelines, service laterals, and large diameter transmission pipelines; and pumping plant rehabilitation. Under the Water Quality Strategy, increases are for water treatment plant upgrades. Under the Water Supply Strategy, decreases are associated with moving out the Mokelumne Aqueduct relining project.

In accordance with the District's ten-year capital budget planning horizon, approximately \$1.9 billion of work has been tentatively identified for FY23-27. Key aspects of this future work are discussed in the program and project summaries in the following pages. These future year estimates will be revised as studies are completed, priorities are redefined, and new needs emerge. Therefore, the focus is on the first five years of the CIP.

The Water System appropriations focus on the Maintaining Infrastructure Strategy which comprises 53 percent of the CIP appropriations. All Water System appropriations by strategy are summarized below.

FY16-20 vs. FY18-22 Appropriation Capital Improvement Program by Strategy (\$ Thousands)					
Strategy	Appropriation		Change		% of FY18-22
	FY16-20	FY18-22	\$	%	
Emergency Preparedness*	0	0	0	0%	0%
Extensions & Improvements	237,302	194,672	(42,630)	-18%	13%
Facilities, Services & Equipment	64,024	89,269	25,245	39%	6%
Maintaining Infrastructure	615,707	790,748	175,041	28%	53%
Regulatory Compliance	62,707	40,068	(22,639)	-36%	3%
Resource Management	4,813	12,016	7,203	150%	1%
Water Quality	48,627	147,023	98,396	202%	10%
Water Supply	362,139	186,345	(175,794)	-49%	13%
Non-Program Specific	14,200	26,500	12,300	87%	2%
Water Subtotal	1,409,519	1,486,641	77,122	5%	100%
Administration of Capital	207,345	207,345	0	0%	
Water Total	1,616,864	1,693,986	77,122	5%	

Numbers in the table may be rounded.

* No new appropriation is required.

The FY18-22 CIP identifies \$1.50 billion in projected cash flow spending, an increase of \$126.0 million or 9 percent compared to the FY16-20 CIP. The increase is primarily attributable to the Maintaining Infrastructure Strategy for replacing deteriorated water distribution pipelines, service laterals and large diameter transmission pipelines; and continuing to retrofit the temperature anchors on Mokelumne Aqueduct #1. Under the Water Quality Strategy, new work was identified regarding water treatment plant upgrades. Under the Water Supply Strategy, decreases are associated with moving out the Mokelumne Aqueduct relining project.

All Water System cash flows by strategy are summarized below, with select programs and projects discussed in more detail.

FY16-20 vs. FY18-22 Cash Flows Capital Improvement Program by Strategy (\$ Thousands)					
Strategy	Cash Flows		Change		% of FY18-22
	FY16-20	FY18-22	\$	%	
Emergency Preparedness	1,268	0	(1,268)	0%	0%
Extensions & Improvements	208,605	188,805	(19,800)	-9%	15%
Facilities, Services & Equipment	60,568	85,410	24,842	41%	7%
Maintaining Infrastructure	514,023	623,807	109,784	21%	48%
Regulatory Compliance	73,329	70,808	(2,521)	-3%	5%
Resource Management	7,306	11,331	4,025	55%	1%
Water Quality	39,625	116,811	77,186	195%	9%
Water Supply	263,559	197,309	(66,250)	-25%	15%
Non-Program Specific	0	0	0	0%	0%
Water Sub-total	1,168,283	1,294,281	125,998	11%	100%
Administration of Capital	207,345	207,345	0	0%	
Water Total	1,375,628	1,501,626	125,998	9%	

Numbers in the table may be rounded.

EMERGENCY PREPAREDNESS STRATEGY

This strategy furthers the District's objectives to maintain and improve the infrastructure to ensure delivery of reliable, high quality service now and in the future. In 1994, the Seismic Improvement Program (SIP) was adopted to take a comprehensive approach to mitigate earthquake risk to the water system. The program has been completed and any additional seismic work will take place as part of other programs.

Seismic Improvement Program

The objective of this program was to strengthen and upgrade the water treatment and distribution systems to ensure post-earthquake water service. The program included upgrades to critical facilities including reservoirs, pipelines, pumping plants, water treatment plants, etc. The Southern Loop Pipeline was constructed to connect the water systems between San Ramon and Castro Valley to provide operational redundancy, and improvements were made to the Claremont Tunnel which crosses the Hayward Fault.

EXTENSIONS & IMPROVEMENTS TO THE SYSTEM STRATEGY

This strategy furthers the District's objectives to improve the infrastructure to ensure reliable, high quality service, and update and enhance the District's system modeling capabilities. Work under this strategy focuses on making improvements to various components of pressure zones such as pipelines, reservoirs, pumping plants and water treatment plants to improve system reliability for existing customers, and to provide service to new customers. The programs included in this strategy are:

Appropriations (\$ Thousands)						
Programs	FY18	FY19	FY20	FY21	FY22	Total
Mapping Program	1,211	1,458	1,706	1,757	1,810	7,942
OP/NET Program	2,909	2,712	3,108	1,123	1,057	10,909
Pressure Zone Improvements Program	22,666	46,964	15,298	47,946	17,192	150,066
Walnut Creek - San Ramon Valley In-Zone Improvements Program	0	0	1,980	0	0	1,980
Water Treatment and Transmission Improvements Program	3,306	2,200	1,303	16,966	0	23,775
Total	30,092	53,334	23,395	67,792	20,059	194,672

Pressure Zone Improvements Program

The Pressure Zone Improvements Program addresses issues with the District's pressure zones. It includes studying individual pressure zones and compiling the studies into the Distribution System Master Plan. Improvements include upgrading or replacing reservoirs, pumping plants and transmission systems to optimize storage capacity and improve water quality. The following significant pressure zone work is planned:

- Almond/Fire Trail in Castro Valley – replace the 6.6 million gallon (MG) open-cut Almond Reservoir with two smaller tanks and demolish the 3.1 MG Cull Creek Reservoir in FY19-23;
- Encinal Cascade in Orinda – construct a new Encinal Regulator and demolish the old redwood Encinal Reservoir in FY18-21; replace the Westside Pumping Plant (PP) and associated pipelines in FY18-22; and replace Dos Osos Reservoir with dual tanks at a higher elevation and rehabilitate the Dos Osos Pumping PP in FY21-24;
- Leland in Lafayette/Walnut Creek – replace the 18 MG reservoir and associated pipelines with two 8 MG concrete reservoirs in FY21-25;
- Faria in San Ramon – is a new pressure zone needed to serve the Faria Preserve Development and includes two new 0.5 MG reservoirs, a new 1.6 million gallon per day (MGD) pumping plant, and related inlet-outlet pipeline;
- Maloney in El Sobrante/Pinole/Crockett – increase the capacity of the Maloney PP by 12.5 MGD in FY18-21, make improvements to the Crockett PP in FY21-25, and begin planning for a new 3 to 5 MG Selby Reservoir in FY23;
- Summit in Berkeley – complete the replacement of the 37 MG open-cut Summit Reservoir and associated Woods and Shasta PPs in FY18, and begin planning for a new Lawrence Reservoir in FY22; and

- West of Hills Transmission Improvements – to increase transmission capacity to the Wildcat Aqueduct, new pipeline will be constructed in Berkeley and El Cerrito in FY18-21; to increase transmission capacity to the South 30 Aqueduct, new pipeline will be constructed in Oakland in FY20-24; a new Fontaine PP in Oakland will be constructed in FY20-24; to increase transmission capacity associated with North Reservoir in Richmond, new pipeline will be constructed in FY20-23; to operate the Genoa Rate Control Station in Oakland at higher flow rates, new pipeline will be constructed in FY23-25; construction of a new 32 MGD Wildcat PP is scheduled for FY23-26; and to increase transmission capacity to the Sequoia Aqueduct, new pipeline will be constructed in Oakland in FY24-27.

Water Treatment and Transmission Improvements Program

The Water Treatment and Transmission Improvements Program (WTTIP) calls for new and upgraded facilities to meet current and projected water demands in the Lafayette, Orinda, Moraga and western Walnut Creek area.

The program includes a new 3.2 MGD Happy Valley Pumping Plant in Orinda in FY20-21; a new 1.5 MGD Sunnyside Pumping Plant in Lafayette in FY20-21; a new 2 MG Ardith Reservoir and 1.2 MGD Donald Pumping Plant in Orinda in FY20-22; upgrading the Fay Hill PP in Moraga from 1.6 MGD to 2.6 MGD in FY18-21; constructing 21,600 feet of 20-inch pipeline in St. Mary's Road/Rohrer Drive from Moraga Reservoir to Grizzly Reservoir in FY22-25; and constructing a new 3 MGD Withers PP in Lafayette in FY25-28.

The program also includes completing the conversion of the air feed ozone generator to a liquid oxygen feed system with a larger capacity at Sobrante WTP in El Sobrante and Upper San Leandro WTP in Oakland in FY19; and constructing a new 10 MGD Tice PP in Walnut Creek in FY23-25.

FACILITIES, SERVICES & EQUIPMENT STRATEGY

This strategy furthers the District's objectives to ensure the security of the water supply and the water system; to evaluate facilities and implement corrective maintenance programs; to implement changes in technology; and to maintain a safe, well equipped workplace. Work associated with this strategy includes making security improvements at various facilities, implementing new computer systems and replacing vehicles and equipment as needed. The programs included in this strategy are:

Appropriations (\$ Thousands)						
Programs	FY18	FY19	FY20	FY21	FY22	Total
Area Service Center / Building Program	7,474	10,567	2,065	8,512	365	28,983
Communications Program	1,659	6,430	7,300	1,400	1,000	17,789
Security Program	0	1,265	2,050	6,600	100	10,015
Vehicle / Equipment Program	11,243	9,994	5,000	3,371	2,875	32,483
Total	20,376	28,256	16,415	19,883	4,340	89,270

Area Service Center / Building Program

The Area Service Center/Building Program is comprised of various projects to upgrade District buildings. In FY18-22, the focus will be on the Oakland Administration Building. Work includes HVAC improvements to increase energy efficiency and occupant comfort, and improve equipment reliability to reach an Energy Star rating of 75 or better; overhauling the elevator operating system and mechanical equipment; and new roofing for the 4th, 8th, 9th and 10th floor terraces.

Other work includes replacing the deteriorated Oakport warehouse roof; upgrading facilities at Walnut Creek Pumping Plant No. 1 & 2, Bixler Maintenance Center, and Stockton Center to comply with ADA requirements; and completing the conversion of a property purchased in Walnut Creek into the new Fleet Maintenance East facility.

Communications Program

The Communications Program is comprised of projects that replace and upgrade computer and communication systems. The Materials Management Information System (MMIS) that is used for purchasing and accounting purposes is over 25 years old and will be replaced in FY18-20, along with the Financial Information System (FIS). The two systems share data and must be integrated. Various modules of the Human Resources Information System (HRIS) will be replaced in FY18-20. Replacement of various work management systems including general work orders, concrete orders and paving orders will take place in FY19-22.

Vehicles & Equipment Program

The Vehicle Replacements Project is ongoing and involves the periodic replacement of vehicles and construction equipment as needed. In FY18-19, the necessary equipment will be purchased to outfit additional staff and decrease the reliance on fully manned and operated contracts, and new vacuum excavators and equipment.

MAINTAINING INFRASTRUCTURE STRATEGY

This strategy furthers the District's objectives to improve, rehabilitate and replace aging infrastructure in a cost effective manner to ensure sustainable delivery of reliable, high quality water service now and in the future. Work under this strategy focuses on pipeline projects to improve system reliability for existing customers and to provide service to new customers. The programs included in this strategy are:

Appropriations (\$ Thousands)						
Programs	FY18	FY19	FY20	FY21	FY22	Total
Corrosion Program	2,847	1,492	1,748	2,036	2,275	10,398
Electrical Hazard Prevention Program	70	213	220	236	234	973
Pipelines / Appurtenances Program	17,973	10,665	9,534	9,825	10,130	58,127
Pipelines / Regulators Program	96,872	58,427	80,728	112,603	114,377	463,007
Polybutylene Lateral Replacement Program	13,753	13,779	15,161	15,443	15,479	73,615
Pumping Plant Rehabilitation Program	30,511	15,107	13,943	19,721	16,881	96,163
Reservoir Rehabilitation Program	21,229	17,317	20,198	14,304	15,416	88,464
Total	183,255	117,000	141,532	174,168	174,792	790,747

Pipelines/Appurtenances Program

This program maintains efficient pipeline operations by replacing appurtenances such as valves, hydrants and meters at the end of their useful life. The New Service Installations Project installs taps on the main, laterals, and meter sets for new customers. The need for new services is expected to increase as housing starts rise. In FY16 and FY17, 450 new services per year were installed. In FY18-19, work is estimated at 500 new services per year, increasing to 550 in FY20-22.

Water meters are routinely replaced at the end of their useful life, as are meters that are believed to be reading inaccurately. In addition, meters that were difficult or dangerous to read were replaced with automated electronic meters under a meter reading mitigation program. In FY18 and FY19, an estimated 5,000 meters in each of the two years will be replaced with an integrated system of smart meters under the new Advanced Metering Infrastructure pilot project for which the District has received grant funds.

Pipelines/Regulators Program

Pipelines/Regulators is an ongoing program to replace deteriorated pipelines, and expand the distribution system. This is the District's largest capital program.

Pipeline Infrastructure Renewals is an ongoing project to replace deteriorating water distribution pipelines, identified primarily through the evaluation of maintenance histories. In FY16 and FY17, pipeline replacements totaled 13.5 and 15 miles per year. In FY18-22, work includes a total of 15 miles in FY18, ramping up to 20 miles per year by FY22. An increase in production is expected as the Pipeline Rebuild program implements more efficient replacement processes and installation methods.

Large Diameter Pipelines is an ongoing project to replace the large transmission pipes that form the backbone of the distribution system. FY18-19 projects include completing construction of MacArthur/Davenport, Grand Avenue, and International Boulevard in Oakland, and updating the

Large Diameter Pipeline Master Plan. In FY20-27, planned work includes completing construction of Summit Pressure Zone Transmission in Berkeley; Berryman South Reservoir Pipeline Improvements in Oakland; D Street in Hayward; East 15th Street in Oakland; and Alameda Crossings #2 and #3.

Pipeline System Extensions is an ongoing project to serve new customers. The workload is estimated from projections of development activity and recent trends in water service estimates in the District's New Business Office. In FY16-17, roughly 6 miles per year were installed. In FY18-22, roughly 8 miles per year is anticipated.

Polybutylene Lateral Replacement Program

This program previously focused on the replacement of defective polybutylene service laterals, but has been restructured to encompass all types of laterals. Crews respond to 4 to 5 service lateral failures each day (emergency replacements). While the majority involves replacing defective polybutylene laterals, a significant percentage also involves corroding copper laterals. This project will also continue the practice of identifying and replacing service laterals within areas that have suffered high failure rates (planned replacements) at a rate of 400 replacements per year.

Pumping Plant Rehabilitation Program

The District updated the Distribution Pumping Plant Infrastructure Rehabilitation Plan in 2016 which identifies the highest priority pumping plants for rehabilitation, replacement, or demolition. In FY18-22, work is planned at 31 of the District's 130 distribution pumping plants.

Reservoir Rehabilitation Program

This program includes the rehabilitation, replacement and demolition of distribution reservoirs. The Reservoir Rehabilitation and Maintenance Project maintains and extends the service lives of the steel and reinforced concrete distribution tanks by replacing coating systems; installing or repairing cathodic protection systems; repairing or replacing roofs; and performing structural upgrades to improve water quality and enhance worker safety.

In FY18-22, three to four steel reservoirs per year will continue to be rehabilitated. Other plans include completion of the new Carisbrook Reservoir and the rehabilitation of Montclair Reservoir in Oakland. Also, completion of the reservoir roof safety program to improve reservoir roofs and ladders is planned.

The Open Cut Reservoir Rehabilitation project includes the rehabilitation and replacement of open-cut reservoirs. Plans for FY18-22 include completion of the South Reservoir replacement in Castro Valley with a 9 MG concrete reservoir; completion of the San Pablo Clearwell replacement in Kensington with two 2.7-MG concrete tanks; completion of the environmental review documents to replace North Reservoir in Richmond; and demolition of the Seneca Reservoir in Oakland. Replacing Central Reservoir in Oakland is planned beyond FY22.

REGULATORY COMPLIANCE STRATEGY

This strategy furthers the District's objectives to operate and maintain facilities to meet all air, land and water discharge requirements; implement preventative and corrective maintenance programs; and improve the infrastructure to ensure delivery of reliable, high quality service. The work under this strategy focuses on dam safety improvements and modifications to reservoir towers. The programs included in this strategy are:

Appropriations (\$ Thousands)						
Programs	FY18	FY19	FY20	FY21	FY22	Total
Dam Safety Program	3,500	918	2,725	10,565	1,145	18,853
Penn Mine Program	0	0	0	0	0	0
Remediation Program	0	0	0	1,140	1,260	2,400
Trench Spoils Program	15,101	812	836	861	1,205	18,815
Total	18,601	1,730	3,561	12,566	3,610	40,068

Dam Safety Program

This program upgrades dams, reservoir outlet towers, clearwells and spillways to meet flood and earthquake safety requirements. The Dam Seismic Upgrades Project includes safety evaluations and dam freeboard increases to improve seismic safety. Evaluations have been completed at all of the District's Dams. The seismic upgrade at Chabot Dam in San Leandro is expected to be completed in FY18. Upgrades at Camanche Dam are dependent on Federal Energy Regulatory Commission (FERC) review and approval, and is planned to begin in FY18.

The Reservoir Tower Modifications Project encompasses the seismic retrofit of six reservoir towers. Retrofits to Chabot Tower were undertaken as part of the seismic upgrades made to Chabot Dam. The Briones Tower in Orinda will require upgrades and construction is planned for FY20-21. Lafayette Reservoir Tower modifications include seismic and gate control upgrades, and modification of the tower to act as a spillway. Construction is planned for FY22.

A seismic evaluation of the Pardee Reservoir Outlet Tower included the seepage from Pardee Tunnel in the vicinity of the West Portal (Campo Seco). The tunnel is scheduled to be repaired in FY21. A stability analysis was conducted for the Upper San Leandro Reservoir Tower in Oakland and construction is planned for FY18-19. As the need for the San Pablo Filter Plant is uncertain, the San Pablo Tower in Richmond will undergo only minor seismic rehabilitation. Sobrante Tower was evaluated and found to be capable to withstand seismic loads.

Trench Spoils Program

Trench spoils material is generated from pipeline installations and repairs. The excavated trench spoils are temporarily stockpiled at three disposal sites for future reuse or disposal: Miller Road in Castro Valley, Briones in Orinda and Amador in San Ramon. The project includes site management in accordance with regulatory requirements, periodic removal of the trench spoils, and evaluation of potential spoils reduction and disposal alternatives. In FY18-22, work includes updating the Five-Year Master Plan and off-haul of the Briones site.

RESOURCE MANAGEMENT STRATEGY

This strategy furthers the District's objectives to manage the Mokelumne and East Bay watersheds to ensure a high quality water supply; protect natural resources; provide public access and recreational opportunities compatible with water quality and natural resource protection; and prepare plans to protect natural resources and ensure drinking water quality. Work under this strategy focuses on making improvements to recreational facilities at Camanche, Pardee and East Bay Reservoirs, and updating habitat and watershed management plans. The programs included in this strategy are:

Appropriations (\$ Thousands)						
Programs	FY18	FY19	FY20	FY21	FY22	Total
Recreation Areas Program	500	775	0	0	0	1,275
Watershed Recreation Program	1,176	1,500	2,935	1,375	3,755	10,741
Total	1,676	2,275	2,935	1,375	3,755	12,016

Recreation Areas Program

The Pardee and Camanche Recreation Area facilities require periodic replacements and upgrades to the roads, parking lots, fuel docks, launch ramps, docks, boat berths, stores, campgrounds, and bathroom and shower buildings.

In FY18-20, the Camanche South Shore general store will be evaluated for replacement due to settling issues, and the piping and delivery equipment will be replaced between the fuel tanks and floating fuel dock at Camanche North Shore. The Pardee Recreation Area coffee shop will be evaluated for replacement, and the restroom at Camanche South Shore Oaks Campground will be evaluated for renovation including the addition of shower facilities.

Watershed Recreation Program

This program provides for protecting and enhancing the District's watershed lands including trails and recreation facilities in accordance with master plans and regulatory requirements.

In FY18-22, projects at the San Pablo and Lafayette Recreation Areas include picnic area, parking lot and trail staging area improvements; visitor center and cafe upgrades; marina improvements; water and sewer system upgrades; and repaving primary roadways. Watershed projects include trail staging area upgrades; habitat and pond restoration; hazardous tree removal; replacement of old fire pumps; boundary fence replacement; upgrades at the Orinda Watershed Headquarters; and Division of Safety of Dams required upgrades at Upper San Leandro and San Pablo Reservoirs.

In FY20-22, work at the Mokelumne Watershed Headquarters includes a new fuel station, a back-up generator, construction of a modular warehouse/shop building, and vehicle access and circulation improvements.

WATER QUALITY STRATEGY

This strategy furthers the District's objectives to operate and maintain facilities to surpass federal and state drinking water regulations, and to make system improvements that meet or surpass regulatory requirements. Work under this strategy focuses on making improvements to water treatment plants to improve water quality. The programs included in this strategy are:

Appropriations (\$ Thousands)						
Programs	FY18	FY19	FY20	FY21	FY22	Total
Water Quality Improvement Program	1,500	1,500	1,500	1,500	1,500	7,500
Water Treatment Upgrade Program	52,367	82,727	3,451	476	502	139,523
Total	53,867	84,227	4,951	1,976	2,002	147,023

Water Treatment Upgrade Program

The Treatment Plant Upgrades Project addresses the need to comply with water quality regulations and to improve the operation, reliability and safety of the water treatment plants (WTPs).

In FY18-22, work is planned at five water treatment plants: (1) Orinda WTP - filter renovation, sodium hypochlorite system replacement, and adding a filter air scour system; (2) Upper San Leandro (USL) WTP - renovations to the solids removal, backwash water reclamation, and solids handling systems; (3) Sobrante WTP - installing an oxygenation/mixing system in the San Pablo Reservoir to improve water quality, and new wash water reclamation and solids handling systems; (4) Walnut Creek WTP - rehabilitating the old filters, improving the solids handling, and designing a new pretreatment system; and (5) Lafayette WTP - conducting interim safety and reliability upgrades. Additional work in FY18-22 includes improving the chemical system safety at five WTPs and upgrading the controls systems at USL and Sobrante WTPs.

Planned work in FY23-27 includes completion of Phase I of the Walnut Creek WTP pretreatment system construction, and design of Phase II of the pretreatment system.

WATER SUPPLY STRATEGY

This strategy furthers the District's objectives to ensure a reliable, high quality water supply for the future; to preserve current entitlements and augment the District's water supply; and reduce the demand for potable water through conservation and recycling. The immediate focus of this strategy is on maintaining the raw water aqueducts and water recycling projects. The programs included in this strategy are:

Appropriations (\$ Thousands)						
Programs	FY18	FY19	FY20	FY21	FY22	Total
Aqueduct Program	9,284	17,286	18,266	10,347	16,374	71,557
Supply Reservoirs Program	2,776	1,069	738	8,574	527	13,684
Water Conservation Program	3,800	3,918	4,030	4,155	4,280	20,183
Water Recycling Program	16,724	9,866	23,958	19,907	10,468	80,923
Water Supply Management Program	0	0	0	0	0	0
Total	32,584	32,139	46,992	42,983	31,649	186,347

Aqueduct Program

This program evaluates and makes improvements to the raw water aqueduct system. In FY18-22, various portions of Mokelumne Aqueduct No.1 will be recoated to provide protection from the corrosive Delta environment.

The program also includes replacing the deteriorated cement lining in the Mokelumne Aqueducts that protects the steel pipeline from internal corrosion. FY18-22 planned work includes water treatment improvements, pilot testing of lining materials, and a comprehensive internal inspection of the below-ground segment of Mokelumne #2 (65 miles) and the above-ground section of Mokelumne #3 (10 miles). Starting in FY23, work includes design and construction of the aqueduct relining.

The Raw Water Studies and Improvements Project evaluates and makes improvements to the raw water system. In FY18-22, work includes continuing to monitor and retrofit the temperature anchors on Mokelumne Aqueduct #1; construction of the Briones Center upgrades; construction of the Walnut Creek Raw Water PP upgrades; completion of the Mokelumne Aqueduct wasteways facility plan, and design and construction of identified upgrades; and selective demolition of the Bixler PP. Beyond FY22, planned work includes installing a liner in Lafayette Aqueduct #1 and completing the preliminary design for the Delta Tunnel.

Water Conservation Program

In 2016, the District adopted an updated Urban Water Management Plan that included water conservation programs to reduce potable water demand. In FY16-17, customers achieved substantial water savings through their response to the drought including participation in District indoor and outdoor conservation incentives, water use and leak detection surveys, and education programs.

Going forward, the focus will be on services that allow customers to manage their water use and outdoor landscape water budgets. Incentives for toilet and clothes washer rebates have come to an end as they no longer provide the incentive they once did as state efficiency codes have raised standards. Other areas of focus include water loss control programs and Advanced Metering Infrastructure.

Water Recycling Program

The Water Supply Management Program (WSMP) helps to guide decisions for providing a reliable, high quality water supply and meet growing demand through the year 2040, and includes recycled water as a key element to offset demand for potable water.

The East Bayshore Phase 1A Project is projected to provide 0.5 MGD of recycled water to the cities of Albany, Berkeley, Emeryville, and Oakland. Construction of pipeline extensions and customer connections could be completed by FY26. The Phase 1B project, estimated at 1.2 MGD, will be implemented from FY21-29 and provide recycled water to Alameda. Implementation of the estuary crossing pipeline is anticipated in FY21-22 pending federal funding assistance.

The San Ramon Valley (SRV) Recycled Water Program is a joint program with the Dublin San Ramon Services District to supply recycled water to portions of San Ramon, Danville, Blackhawk and surrounding areas. Expansion of the tertiary treatment facilities from 9.7 MGD to 16.5 MGD will be completed in FY19 to provide capacity as the distribution system is expanded and customers are connected. Also, additional supplemental supplies will need to be secured over the next few years to meet peak demands.

EBMUD's portion of the SRV Recycled Water Program includes connecting customers to the distribution system; implementing distribution systems in San Ramon, Danville and Blackhawk; and property purchase of Pump Stations 3 and 4. Phase 2 distribution pipelines have been completed, and customer retrofits will be completed in FY18.

The Phase 3 pump station on the border between San Ramon and Danville will be completed in FY20 with distribution pipelines to be implemented in FY20-22, and site retrofits to be completed in FY21-23. The Phase 4 pump station in Blackhawk is expected to be completed in FY24 with distribution pipelines and site retrofits to be implemented by FY25. Phase 5 (Blackhawk West) and Phase 6 (Danville West) are anticipated to be completed beyond FY25.

The Richmond Advanced Recycled Expansion (RARE) Water Project could be expanded incrementally by an additional 0.5 MGD in FY24, and an additional 1.0 MGD in FY26-29. Expansion of the North Richmond Water Recycling Plant by an additional 1 MGD is expected by FY27 pending supply availability. The plants serve the Chevron refinery in Richmond. It is anticipated that the cost of these expansions will be borne by Chevron through reimbursements paid to the District.

NON-PROGRAM SPECIFIC STRATEGY

This strategy furthers the District's objective to maintain a strong financial position to meet short-term and long-term needs. The contingency program focuses on making funds available for unanticipated needs, and for projects that are seeking grants to pay for a substantial portion of the project's cost.

Appropriations (\$ Thousands)						
Programs	FY18	FY19	FY20	FY21	FY22	Total
Contingency Program	6,000	8,500	4,000	4,000	4,000	26,500
Total	6,000	8,500	4,000	4,000	4,000	26,500

Contingency Program

The Contingency Project provides funding for unanticipated needs that may arise before the next budget preparation cycle, such as replacement or repairs to facilities and equipment as a result of failures or safety deficiencies, and new projects or the acceleration of planned projects requiring funding before the next budget cycle. Funds may also be set aside for projects where grants are being sought in the event that the grant application is successful. Most grants require the District to fund the project and then apply for reimbursement of allowable costs.

In FY19, funds have been set aside for possible costs related to the implementation of new computer systems.

Capital Appropriation Summary

This section provides a summary of the five-year appropriation for the Water System projects listed in the Capital Improvement Program, sorted by strategy and program. When the CIP is presented to the Board of Directors, the Board approves the overall five-year plan, but adopts just the first two years of the plan. The remaining three years are for planning purposes only and are subject to revision.

Department Abbreviations

The abbreviation for the Lead Department responsible for each capital project is as follows:

CUS	–	Customer and Community Services Department
ENG	–	Engineering Department
FIN	–	Finance Department
ISD	–	Information Systems Department
MCD	–	Maintenance & Construction Department
NRD	–	Natural Resources Department
OSD	–	Operations & Maintenance Support Department
WOD	–	Water Operations Department
WRD	–	Water Resources Department
WRP	–	Water Recycling Program

Capital Improvement Projects	Dept	Prior Approp	FY18-22 APPROPRIATIONS (IN 000's)					5 YR TOTAL
			FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	
EXTENSIONS AND IMPROVEMENTS								
Mapping								
CAD/CAM Mapping, Documentation	ENG	32,913	1,211	1,458	1,706	1,757	1,810	7,941
Mapping Total		32,913	1,211	1,458	1,706	1,757	1,810	7,941
OP/NET								
OP/NET System	MCD	25,757	2,909	2,712	3,108	1,123	1,057	10,910
OP/NET Total		25,757	2,909	2,712	3,108	1,123	1,057	10,910
Pressure Zone Improvements								
Almond/Fire Trail PZI	ENG	11,860	200	4,000	0	0	0	4,200
Cent Oakland Hills Cascade PZI	ENG	26,046	0	5,153	0	0	0	5,153
Colorados Pressure Zone Imprv	ENG	955	3	0	0	2,848	0	2,851
Distribution System Upgrades	ENG	5,927	600	539	546	552	558	2,795
Encinal Cascade PZI	ENG	0	6,602	0	0	7,035	0	13,637
Enterprise Hyd WQ & Op Modl	ENG	520	265	0	0	0	0	265
Faria PZI (formerly Purdue)	ENG	14,342	0	0	0	0	0	0
Leland Pressure Zone Impr	ENG	8,121	0	0	0	31,261	0	31,261
Maloney Pressure Zone Facility	ENG	10,389	9,300	0	0	450	0	9,750
Pressure Zone Planning Program	ENG	2,684	581	0	0	0	0	581
So Oakland Hills Cascades PZI	ENG	2,411	1,088	0	0	0	0	1,088
Summit Pressure Zone Improve	ENG	40,259	0	0	0	1,260	0	1,260
USL Pressure Zone Impr	ENG	672	50	0	250	0	0	300
Water Demand Projection Update	ENG	550	390	0	0	0	0	390
West of Hills Master Plan	ENG	52,114	3,587	37,272	14,502	4,540	16,634	76,535
Pressure Zone Improvements Total		176,851	22,666	46,964	15,298	47,946	17,192	150,066
WC-SRV In Zone Improvements								
Diablo PZ Improvements	ENG	13,555	0	0	1,980	0	0	1,980
WC-SRV In Zone Improvements Total		13,555	0	0	1,980	0	0	1,980
Water Trmt and Trans Impr								
Tice Pumping Plant	ENG	889	0	0	0	0	0	0
WTTIP Distribution Improvs	ENG	36,186	3,306	0	1,303	16,966	0	21,574
WTTIP WTP Improvements	ENG	60,051	0	2,200	0	0	0	2,200
Water Trmt and Trans Impr Total		97,127	3,306	2,200	1,303	16,966	0	23,774
EXTENSIONS AND IMPROVEMENTS TOTAL		346,203	30,092	53,333	23,395	67,792	20,059	194,672

Capital Improvement Projects	Dept	Prior Approp	FY18-22 APPROPRIATIONS (IN 000's)					5 YR TOTAL
			FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	
FACILITIES, SERVC AND EQUIP								
Area Service Center/Bldg Prog								
Adm Bldg Modifications	ENG	20,376	5,997	5,355	337	0	0	11,689
Buildings Assessment & Improve	ENG	10,328	655	4,132	945	4,045	0	9,777
East Area Service Center	ENG	9,440	0	0	0	0	0	0
Meter Test Facility	MCD	750	0	0	0	0	0	0
Minor Facility Improvements	OSD	3,798	822	1,079	783	4,467	365	7,516
Area Service Center/Bldg Prog Total		44,693	7,474	10,567	2,065	8,512	365	28,982
Communications								
Data & Telecom Infrastructure	ISD	3,473	50	80	100	0	0	230
FIS Replacement	ISD	2,500	526	1,850	2,600	0	0	4,976
HRIS Replacement	ISD	3,200	1,000	3,000	600	0	0	4,600
MMIS Replacement	ISD	4,000	83	0	2,500	0	0	2,583
Work Mgmt Systems Replacement	ISD	200	0	1,500	1,500	1,400	1,000	5,400
Communications Total		13,373	1,659	6,430	7,300	1,400	1,000	17,789
Security								
VA Security System Imprmts	OSD	25,432	0	1,265	2,050	6,600	100	10,015
Security Total		25,432	0	1,265	2,050	6,600	100	10,015
Vehicle/Equipment								
Veh & Hvy Equip Additions, Wtr	MCD	13,520	4,543	3,094	0	0	0	7,637
Vehicle Replacements	MCD	84,749	5,000	5,000	5,000	3,371	2,875	21,245
Diesel Engine Retrofit	OSD	14,228	1,700	1,900	0	0	0	3,600
Fueling Facility Upgrades	OSD	6,370	0	0	0	0	0	0
Vehicle/Equipment Total		118,866	11,243	9,994	5,000	3,371	2,875	32,482
FACILITIES, SERVC AND EQUIP TOTAL		202,364	20,376	28,256	16,415	19,882	4,340	89,269

Capital Improvement Projects	Dept	Prior Approp	FY18-22 APPROPRIATIONS (IN 000's)					5 YR TOTAL
			FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	
MAINTAINING INFRASTRUCTURE								
Corrosion								
Aqueduct Cathodic Protection	ENG	3,392	0	0	211	454	646	1,311
Dist Sys Corrosion Protection	ENG	8,593	2,732	724	746	768	791	5,761
Trans Main Cathodic Protection	ENG	2,551	115	768	791	814	838	3,326
Corrosion Total		14,536	2,847	1,492	1,748	2,036	2,275	10,398
Electrical Hazard Prevent Pgm								
Electrical Hazard Prevention	ENG	2,393	70	213	220	236	234	973
Electrical Hazard Prevent Pgm Total		2,393	70	213	220	236	234	973
Pipelines/Appurtenances								
Hydrants Installed by DF	ENG	19,750	1,210	1,310	1,420	1,460	1,510	6,910
New Service Installations	ENG	171,510	8,950	4,610	4,750	4,890	5,030	28,230
Meter Replacements	MCD	36,038	6,446	3,544	2,126	2,200	2,277	16,593
Pipeline Appurtenances	MCD	13,209	1,367	1,201	1,238	1,275	1,313	6,394
Pipelines/Appurtenances Total		240,507	17,973	10,665	9,534	9,825	10,130	58,127
Pipelines/Regulators								
Large Diameter Pipelines	ENG	86,828	41,652	0	16,360	29,940	17,654	105,606
Pipeline Infrastruct Renewals	ENG	267,993	42,080	43,337	44,605	60,814	70,283	261,119
Pipeline Relocations	ENG	50,833	4,200	4,326	6,127	6,311	6,499	27,463
Pipeline System Extensions	ENG	56,490	8,940	9,207	9,530	9,864	10,209	47,750
Pipeline System Improvements	ENG	32,157	0	1,170	3,677	3,787	3,901	12,535
Rate Control Station Rehab	ENG	8,897	0	387	419	1,887	5,437	8,130
Regulator Rehabilitation	ENG	22,414	0	0	10	0	394	404
Pipelines/Regulators Total		525,613	96,872	58,427	80,728	112,603	114,377	463,007
Polybutylene Lateral Replcmt								
Service Lateral Replacements	ENG	186,766	13,753	13,779	15,161	15,443	15,479	73,615
Polybutylene Lateral Replcmt Total		186,766	13,753	13,779	15,161	15,443	15,479	73,615
Pumping Plant Rehabilitation								
Pumping Plant Rehabilitation	ENG	98,988	28,491	12,487	11,237	16,780	13,826	82,821
Small Capital Improvements	MCD	10,280	2,020	2,620	2,706	2,941	3,055	13,342
Pumping Plant Rehabilitation Total		109,268	30,511	15,107	13,943	19,721	16,881	96,163
Reservoir Rehab Program								
Open Cut Reservoir Rehab	ENG	57,326	8,767	0	0	0	2,234	11,001
Reservoir Rehab/Maintenance	ENG	133,633	12,395	17,248	20,127	14,231	13,107	77,108
Reservoir Access Roads	WOD	2,389	67	69	71	73	75	355
Reservoir Rehab Program Total		193,348	21,229	17,317	20,198	14,304	15,416	88,464
MAINTAINING INFRASTRUCTURE TOTAL		1,272,431	183,255	117,000	141,532	174,169	174,793	790,748

Capital Improvement Projects	Dept	Prior Approp	FY18-22 APPROPRIATIONS (IN 000's)					5 YR TOTAL
			FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	
NON-PROGRAM SPECIFIC								
Non-Program Specific								
Contingency Project Water	FIN	39,700	6,000	8,500	4,000	4,000	4,000	26,500
Non-Program Specific Total		39,700	6,000	8,500	4,000	4,000	4,000	26,500
NON-PROGRAM SPECIFIC TOTAL		39,700	6,000	8,500	4,000	4,000	4,000	26,500
REGULATORY COMPLIANCE								
Dam Safety								
Dam Operational Upgrades	ENG	5,885	2,780	578	1,500	0	0	4,858
Dam Seismic Upgrades	ENG	40,841	0	0	0	0	0	0
Dam Surveillance Improvements	ENG	7,153	570	340	1,225	965	1,145	4,245
Reservoir Tower Modifications	ENG	33,732	150	0	0	9,600	0	9,750
San Pablo Dam Seismic Mods	ENG	82,588	0	0	0	0	0	0
Dam Safety Total		170,199	3,500	918	2,725	10,565	1,145	18,853
Penn Mine								
Penn Mine Remediation	OSD	18,221	0	0	0	0	0	0
Penn Mine Total		18,221	0	0	0	0	0	0
Remediation								
Upcountry WW Trmt Imprvmts	OSD	23,953	0	0	0	1,140	1,260	2,400
Remediation Total		23,953	0	0	0	1,140	1,260	2,400
Trench Spoils								
Trench Spoils Disposal Sites	ENG	17,495	15,101	812	836	861	1,205	18,815
Trench Spoils Total		17,495	15,101	812	836	861	1,205	18,815
REGULATORY COMPLIANCE TOTAL		229,869	18,601	1,730	3,561	12,566	3,610	40,068

Capital Improvement Projects	Dept	Prior Approp	FY18-22 APPROPRIATIONS (IN 000's)					5 YR TOTAL
			FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	
RESOURCE MANAGEMENT								
Recreation Areas								
Camanche Rec Area Upgrades	ENG	6,176	0	0	0	0	0	0
Pardee/Cam Rec Areas Impr Plan	NRD	8,929	500	775	0	0	0	1,275
Recreation Areas Total		15,105	500	775	0	0	0	1,275
Watershed Recreation								
East Bay Watershed Rec Projs	NRD	10,667	706	1,110	770	980	910	4,476
F&W Projects and Mok Hatchery	NRD	3,771	200	190	245	195	345	1,175
Mokelumne Watershed Rec HQ	NRD	4,160	0	0	1,695	0	0	1,695
Mokelumne Watershed Rec Projs	NRD	5,371	270	200	225	200	200	1,095
Pinole Valley Miti. Bank Plan	NRD	1,055	0	0	0	0	2,300	2,300
Watershed Property Purchases	NRD	17,613	0	0	0	0	0	0
Watershed Recreation Total		42,637	1,176	1,500	2,935	1,375	3,755	10,741
RESOURCE MANAGEMENT TOTAL		57,742	1,676	2,275	2,935	1,375	3,755	12,016
WATER QUALITY								
Water Quality Improvement								
Distrib Sys Wtr Quality Imprv	WOD	18,200	1,500	1,500	1,500	1,500	1,500	7,500
Water Quality Improvement Total		18,200	1,500	1,500	1,500	1,500	1,500	7,500
Water Treatment Upgrade								
Treatment Plant Upgrades	ENG	98,585	51,962	82,300	3,000	0	0	137,262
Minor WTP Capital Work	WOD	3,710	405	427	451	476	502	2,261
Water Treatment Upgrade Total		102,295	52,367	82,727	3,451	476	502	139,523
WATER QUALITY TOTAL		120,495	53,867	84,227	4,951	1,976	2,002	147,023

Capital Improvement Projects	Dept	Prior Approp	FY18-22 APPROPRIATIONS (IN 000's)					5 YR TOTAL
			FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	
WATER SUPPLY								
Aqueduct Program								
Mok Aqu No 2 & 3 Relining Proj	ENG	65,422	0	0	0	0	0	0
Mokelumne Aqueduct Recoating	ENG	43,315	0	0	0	0	1,335	1,335
Raw Water Studies and Improves	ENG	53,089	6,739	16,588	16,660	8,687	13,369	62,043
Raw Wtr Aq O&M Imprvmnts	WOD	41,531	2,545	698	1,606	1,660	1,670	8,179
Aqueduct Program Total		203,358	9,284	17,286	18,266	10,347	16,374	71,557
Supply Reservoirs								
Cam So Shore WTP Replacement	WOD	6,234	735	0	0	0	0	735
Camanche Area WWTP Improvement	WOD	0	0	0	0	6,000	0	6,000
Enhanced Power Revenue	WOD	9,588	1,420	370	20	1,500	0	3,310
Pardee Ctr Cap Maint & Imprvmt	WOD	1,630	106	109	112	145	88	560
Powerhouse Improvements	WOD	9,076	290	300	300	603	105	1,598
Rec Area Cap Maint & Imprvmt	WOD	3,281	155	260	268	276	284	1,243
Wtr Supply Monitoring System	WOD	1,757	70	30	38	50	50	238
Supply Reservoirs Total		31,565	2,776	1,069	738	8,574	527	13,684
Water Conservation								
Water Conservation Project	CUS	63,632	3,800	3,918	4,030	4,155	4,280	20,183
Water Conservation Total		63,632	3,800	3,918	4,030	4,155	4,280	20,183
Water Recycling								
East Bayshore	WRD	55,408	2,573	2,094	5,170	7,500	5,730	23,067
RARE Water Project	WRD	64,802	0	0	104	280	0	384
SRV Recycled Water Program	WRD	69,171	12,724	6,497	17,634	10,552	1,948	49,355
Water Recycling WSMIP	WRD	16,098	500	0	601	1,113	2,315	4,529
No Richmond Recy Wtr Fac Impr	WRP	12,858	927	1,275	449	462	475	3,587
Water Recycling Total		218,337	16,724	9,866	23,958	19,907	10,468	80,922
Water Supply Mgmt Program								
Addl Supplemental Supply Projs	WRD	103,157	0	0	0	0	0	0
Bayside Groundwater Project	WRD	58,164	0	0	0	0	0	0
Freeport Regional Wtr Project	WRD	251,140	0	0	0	0	0	0
Water Supply Mgmt Program Total		412,461	0	0	0	0	0	0
WATER SUPPLY TOTAL		929,353	32,584	32,138	46,992	42,983	31,649	186,345
APPROPRIATIONS SUMMARY (IN 000'S)								
Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	5 YR TOTAL		
3,198,156	346,450	327,459	243,781	324,743	244,208	1,486,641		

Operating Budget Impact of Capital Investments

The FY18-22 Capital Improvement Program includes various significant nonrecurring capital projects that will affect the operating budget and the services that the District provides. Such projects and their potential impacts include:

Administration Building HVAC Upgrades

Replace aging equipment and increase energy efficiency. Improvements to the Data Center include installation of an automatic transfer switch for emergency power during outages. Energy efficiency upgrades include lighting, window, solar gain reductions, HVAC controls, and replacing the aging central plant equipment (boilers, chillers, cooling towers) to reach an Energy Star rating of 75 or better.

This project is estimated to save \$0.4 million per year in energy cost and \$0.1 million per year in maintenance cost. It is also expected to reduce greenhouse gas emissions by roughly 700 metric tons of carbon dioxide equivalent per year.

Briones / Lafayette Tower Modifications

The Briones Tower requires upgrades to safely resist seismic loads. Design of the upgrades started in FY16, and will be followed by construction. The project also includes Lafayette Reservoir Tower modifications which include seismic and gate control upgrades, and modification of the tower to act as a spillway capable of handling the revised Probable Maximum Flood.

These tower modifications will not result in any significant costs or revenues, but will increase public safety in the event of an earthquake.

Financial / Materials Management / Human Resource Info System (FIS/MMIS/HRIS)

This project will replace the 25-year-old MMIS that is supported by a one person consulting firm with a new procurement and vendor management system. Accounts Payable functionality is handled in MMIS so its replacement will be evaluated along with the FIS replacement to ensure such functionality is addressed. The project will also use the best of breed replacement approach which allows for selection and implementation of HRIS modules rather than the entire system in one effort.

A new purchasing/accounting/inventory system will reduce the risk of system failure, reduce vendor dependence, and improve system integration with other applications. New Human Resource modules will make it easier to implement tax and regulatory updates that are required to comply with tax law. Replacement of these systems requires funding 8 new positions on a limited term basis (three to four years) to assess needs, select a vendor(s), implement the new systems and conduct extensive testing.

Faria Pressure Zone

A new pressure zone will be created to serve the Faria Preserve Development in San Ramon that includes 618 dwelling units, a school site and community facilities. The pressure zone includes a new 1.6 million gallons per day (MGD) pumping plant, two new 0.5 MG (million gallon) storage reservoirs, and related pipelines on property provided by the developer. Construction commenced in FY17 under a System Capacity Charge Agreement.

Operating and maintenance costs are expected to increase as a result of these new facilities. The maintenance cost of the Faria Pumping Plant is estimated to be \$0.03 million per year, and the Faria Reservoirs to be \$0.04 million year. The annual cost of power to operate the Faria Pumping Plant is estimated to be \$0.02 million. Revenues will be generated by the new dwelling units and will depend on each owner's water use and the rates at the time the units are occupied. The Development is expected to build an educational facility which may help lower class sizes in the neighborhood schools.

Happy Valley/Sunnyside Pumping Plants

Work includes a new 3.2 MGD Happy Valley Pumping Plant (PP) in Orinda, and 3,300 feet of 16-inch pipeline. The Las Aromas Pressure Zone (PZ) has a deficit of 2.9 MGD in pumping capacity. This project will resolve the deficiency and can be expanded to 4.2 MGD to meet future demands. The project also includes a new 1.5 MGD Sunnyside PP in Lafayette to resolve an existing 0.7 MGD pumping capacity deficit and improve hydraulic connectivity in the Valley View PZ.

Annual maintenance costs are estimated to be \$0.04 million for Happy Valley PP and \$0.03 million for Sunnyside PP. Annual electricity costs are estimated to be \$0.05 million for each PP.

Maloney Pumping Plant & Sobrante Water Treatment Plant Improvements

Pumping capacity in the Maloney Pressure Zone is deficient and inefficient. The Maloney PP capacity is 30 MGD, but pumps frequently run during peak times when energy costs are higher as more than 30 MGD is often needed to supply the cascade. The project will increase pumping capacity to 42.5 MGD with standard electric pumps, and add a standby generator. Electrical improvements at Sobrante WTP are needed to address reliability issues at this critical treatment facility.

Overall operating and maintenance costs for these facilities are expected to decrease. While costs for increased pumping may rise in the future, maintenance costs will decrease significantly as the diesel driven pump, which historically required a high level of effort to maintain will be removed from service.

Mokelumne Aqueduct Lining Studies & Improvements

Work includes pilot testing of lining technologies and materials; comprehensive inspection of the entire Mokelumne Aqueduct No. 2 (MA2) and above-ground section of Mokelumne Aqueduct No. 3 (MA3); and raw water treatment improvements to minimize corrosion. The deteriorated cement mortar lining in the aqueducts will be replaced to protect the steel pipeline from internal corrosion. Previous inspections revealed that 10 miles of the lining in MA3, and 65 miles in MA2 needs replacement.

Increased operating and maintenance costs are expected with the raw water treatment improvements project. Chemical costs are expected to increase by \$0.8 million per year and other costs for labor, energy, materials and equipment replacement are expected to increase by \$0.2 million per year. These expenses were considered in the total life cycle cost analysis which concluded that the cost to provide chemical treatment to minimize corrosion of the aqueducts would be offset by extending the life of the cement motor linings as well as extending the life of future relining work. The project will also reduce future aqueduct failures. There are expected to be short-term costs of approximately \$2 million per year to cover the outage cost of one aqueduct to install new aqueduct linings (approximately 10 miles per year for seven years).

Mokelumne Aqueduct No. 3 / Briones Center Upgrades

This work addresses problems with the above-ground portions of the three Mokelumne Aqueducts across the Delta. Work includes repairing the levee at aqueduct crossings; repairing the Mokelumne Aqueduct No. 3 (MA3) base isolators; and continuing to repair the Mokelumne Aqueduct No. 1 temperature anchors. Planned work also includes completing the Briones Aqueduct slide repair; upgrades to the Briones Center; repairs of the Lafayette Aqueduct No. 2; upgrades to the Walnut Creek Raw Water Pumping Plant; and decommission of the Bixler Pumping Plant.

Operating impacts are likely to be insignificant as a result of the Briones Center Upgrade project, but water system reliability will be improved.

San Ramon Valley Recycled (SRV) Water Program

Expansion of the tertiary treatment facilities from 9.7 MGD to 16.5 MGD is expected to be completed in FY19 and will provide additional recycled water as the distribution system is expanded and customers connected in San Ramon, Danville and Blackhawk. The project also includes planning/property purchase for two pump stations.

Operating costs associated with the expansion have yet to be determined as they are the responsibility of a separate entity, the Dublin San Ramon Services District / EBMUD Recycled Water Authority (DERWA). The project will contribute towards the District's Strategic Plan goal to supply 20 MGD of recycled water by the year 2040, and reduce the need for potable water. A slight reduction in revenue is possible as the current rate for nonpotable/recycled water (\$3.46 per 100 cubic feet) is often less than the tiered system of rates for potable water that ranges from \$3.16 in the first tier to \$5.74 in the third tier for single family residential customers, or \$4.46 for multi-family customers.

San Pablo Clearwell Replacement

San Pablo Clearwell, a 5.4 MG open-cut reservoir located in Kensington, will be demolished and replaced with two 3.5 MG concrete reservoirs, along with replacement of the rate control station, pipelines, and chlorine contact baffles. The pre-cast concrete roof of the San Pablo Reservoir is structurally unsafe and has roof access restrictions. Also, the lining, outlet tower structure, valves, and extension stems require replacement.

Operational costs are anticipated to decrease incrementally as the new facilities will improve access for maintenance activities and require less emergency maintenance.

Seneca Reservoir Demolition

Seneca Reservoir, a 30 MG open-cut reservoir located in Oakland, will be demolished and the property offered for sale. The District expects to receive approximately \$3.7 million from the sale of the property.

Sobrante / Upper San Leandro / Walnut Creek Water Treatment Plants (WTPs)

Sobrante WTP projects include the replacement of the reclaim and solids clarifier systems. In addition, a mixing/oxygenation system will be installed at San Pablo Reservoir to reduce manganese and address taste and odor water quality issues.

Improvements to the Upper San Leandro WTP include: replacement of the unreliable cable-vac solids collection system; rehabilitation of the reclaim and solids handling systems; installation of a filter-to-waste basin; replacement of the seismically deficient clearwell roof; rehabilitation of

Filter No. 15 and capping of media on all filters; and installation of a 5th flocculation stage and replacement of the failing flocculation baffles.

Walnut Creek WTP projects will increase the robustness of the treatment train by installing a pretreatment system and rehabilitating Filters 1 through 4 with a modern underdrain system and updating the filter controls. The pretreatment system includes both a solids removal process and a system to address taste & odor issues for 80 MGD of WTP capacity. In addition, new solids handling improvements will be made to better thicken the sludge and reduce the number of truck loads required.

Changes to the operating costs at USL and Sobrante WTPs are uncertain. The volume and thus the cost of sewer waste discharge will be reduced, but the overall operating and maintenance impact has yet to be determined as the system has not been designed. The operating costs for the Walnut Creek WTP are expected to increase with the addition of pretreatment, as this is an added treatment process that will require energy and additional chemicals, but will improve water quality.

Sobrante and USL Water Treatment Plants (WTPs) Ozone

The existing ozone systems at Sobrante and USL WTPs use air to generate ozone with high operation and maintenance costs due to unreliable and obsolete ozone generators. The new ozone equipment will use oxygen to generate ozone and are much more reliable and energy efficient than the existing systems. Moreover, the new system will have a greater capacity to generate ozone to remove higher concentrations of taste and odor causing compounds that have been observed in the Sobrante and USL WTPs raw water in the past several years.

The total annual operational cost savings for the new ozone systems at these plants is estimated to be \$0.2 million, and the total annual maintenance cost savings is estimated to be \$0.5 million. Also, taste and odor issues will be reduced.

South Reservoir Replacement

South Reservoir, a 50 MG open-cut reservoir located in Castro Valley, was demolished and is being replaced with a new 9 MG concrete reservoir. The reservoir is being replaced due to water quality concerns, and pre-cast concrete roof panels that were structurally damaged.

Operational costs are expected to decrease slightly from when the 50 MG reservoir was in service. The new, smaller facility is anticipated to reduce the need for frequent reservoir treatments for water quality, and roof maintenance activities. In addition, the new facility will reduce staff travel time due to the improved access for District employees who use the South Reservoir site as a remote reporting location.

Summit Reservoir Replacement

The project replaces the 37 MG open cut reservoir with a 3.5 MG concrete tank, a new flow control valve, and replacement of Woods and Shasta Pumping Plants at the same site. Construction will be completed in FY18.

The smaller, appropriately sized reservoir will improve turnover and thus water quality, which will reduce or eliminate the need to manually chlorinate some reservoirs in the Berkeley hills. The project will also replace two aging pumping plants with new pumping plants, and the need for pumping plant maintenance. The new landscape plan includes a larger landscaped area, removal of existing trees, and planting additional trees and shrubs, which may affect landscaping maintenance.

FIVE-YEAR FINANCIAL FORECAST

SUMMARY

The five-year financial forecast presents the estimated impact of operations, debt service requirements and reserve balances on rate projections over the five-year period.

This forecast is built upon:

- Adopted District financial policies
- Capital investments in the FY18-FY22 Capital Improvement Program

This forecast identifies a series of rate increases for the Water System based on estimated increases in operating and capital expenditures to maintain current service levels, meet mandated program requirements, and fund increased debt service due to capital expenditures.

On average over the five-year period, revenues are forecast to increase 8.0 percent per year to cover the increases in operating expenses and debt service, and maintain a minimum of 1.6 times coverage on revenue bond debt service. Forecasted operating expenses are expected to grow by 4.1 percent per year over the five-year period, while debt service grows 5.2 percent per year.

The key factors driving the need for increased Water System revenues are:

- Inflation
- Increasing labor and benefits costs
- Impact of lower customer demand and revenue
- Increasing capital program.

For all five years, the cash reserves exceed the cash reserve targets. Reserves in excess of those needed to meet financial reserve targets are available to pay for a portion of the capital program expenses funded with cash, a positive financial metric.

Capital cash flow spending, including the administration of capital, is projected at \$1.5 billion over the five-year period. Major programs or projects to be undertaken during this period include the: Pipelines, Regulators and Appurtenances programs; Raw Water Aqueduct Improvements; Pressure Zone Improvements program; Water Recycling; Reservoir Rehabilitation program; Water Treatment and Transmission.

The projected average percentage of capital funded from debt will be 52.1 percent over the five-year period, lower than the financial policy target maximum of 65 percent. In FY18 and FY19, the debt coverage ratio is projected to be 1.60 and 1.60, respectively, and for all five years the ratio meets or exceeds the target coverage ratio of 1.60.

OPERATIONS

The following table shows the financial forecast for the Water System operating budget based on projected operations and maintenance expenses and debt service requirements.

WATER SYSTEM FUND – OPERATING BUDGET FIVE-YEAR FINANCIAL FORECAST (\$ Millions)							
	Actuals	Budget	Forecast				
	FY16	FY17	FY18	FY19	FY20	FY21	FY22
Beginning Balance	-	-	348.6	352.6	356.3	350.1	363.6
Water Charges	369.9	453.0	454.7	507.5	552.6	601.0	642.4
Property Taxes	29.9	25.1	30.0	30.7	31.4	32.2	33.0
Power Sales	3.2	3.5	3.7	3.7	3.7	3.7	3.7
Interest Income	2.1	3.3	7.3	7.4	9.2	9.3	9.5
SCC Revenue	39.3	26.0	27.0	28.0	28.9	29.9	31.0
Reimbursements	11.3	11.2	11.6	11.9	12.3	12.6	13.0
All Other Revenue	<u>18.7</u>	<u>17.4</u>	<u>17.9</u>	<u>18.1</u>	<u>18.2</u>	<u>18.4</u>	<u>18.6</u>
Total Operating Revenues	474.4	539.5	552.2	607.2	656.4	707.2	751.2
Revenue Funded Capital	207.6	100.5	70.7	101.1	135.6	143.1	173.7
Operations	234.9	262.4	277.9	292.5	302.9	315.1	326.4
Debt Service	<u>166.2</u>	<u>180.2</u>	<u>199.6</u>	<u>210.0</u>	<u>224.0</u>	<u>235.5</u>	<u>244.0</u>
Total Expenses	608.7	543.1	548.2	603.6	662.5	693.7	744.0
Ending Balance	-	-	352.6	356.3	350.1	363.6	370.7
Policy Reserves	-	-	148.8	150.1	162.3	181.9	202.7

Numbers in the table may be rounded.

The following table shows the key assumptions used to create the revenue forecast.

WATER SYSTEM FUND – KEY ASSUMPTIONS FIVE-YEAR FINANCIAL FORECAST							
	Actuals	Budget	Forecast				
	FY16	FY17	FY18	FY19	FY20	FY21	FY22
Sales Volume (mgd)	128.1	151	137	141	144	147	150
% Rate Increase	8.00%	7.00%	9.25%	9.00%	7.00%	7.00%	5.00%
Average monthly single family residential bill based on 8 ccf/month	\$44.05	\$47.15	\$51.49	\$56.12	\$60.02	\$64.21	\$67.46
Debt Service Coverage Ratio	1.65	1.67	1.60	1.60	1.64	1.70	1.77

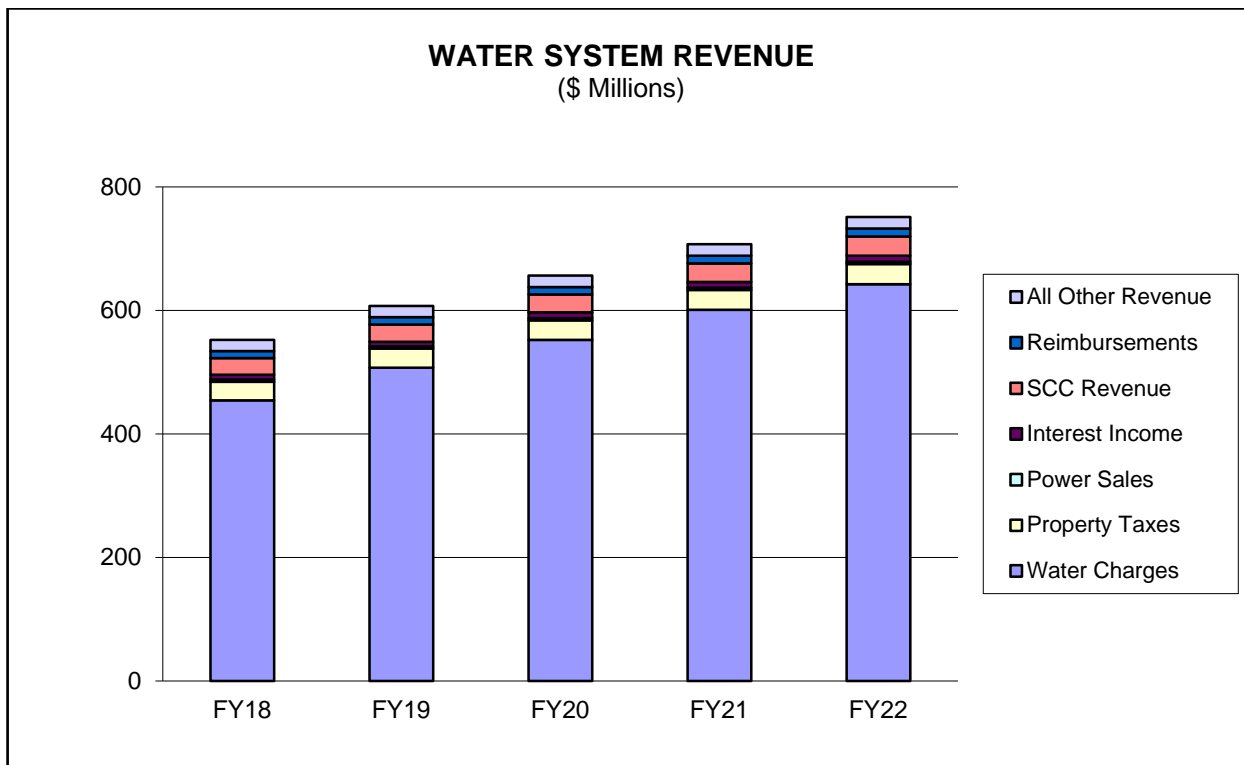
Five-Year Projection of Revenue

The key factors driving the need for increased Water System revenues are: inflation, increasing labor and benefit costs, the impact of the lower customer water use, and an increase in funding the capital program from revenue rather than debt. Water System revenues will be used to pay for an increasing amount of capital expenditures on a pay-as-you-go basis.

Projected annual operating revenues are expected to increase from \$552.2 million in FY18 to \$751.2 million by FY22, an increase of \$199.0 million or 8.0 percent per year. The increase in revenue over the five-year period is to cover increased costs in operations and maintenance, debt service requirements, and revenue funding for capital projects.

The major components of the increase in operating revenue over the five-year period are revenue from water charges which is projected to increase from \$454.7 million in FY18 to \$642.4 million in FY22 based on water rate increases; interest rate increases as they recover from historic lows; and increased SCC revenues from \$27.0 million in FY18 to \$31 million in FY22 due to slight increases in new connections and in the charge.

The following charts show projected Water System operating revenue by category for the next five years.



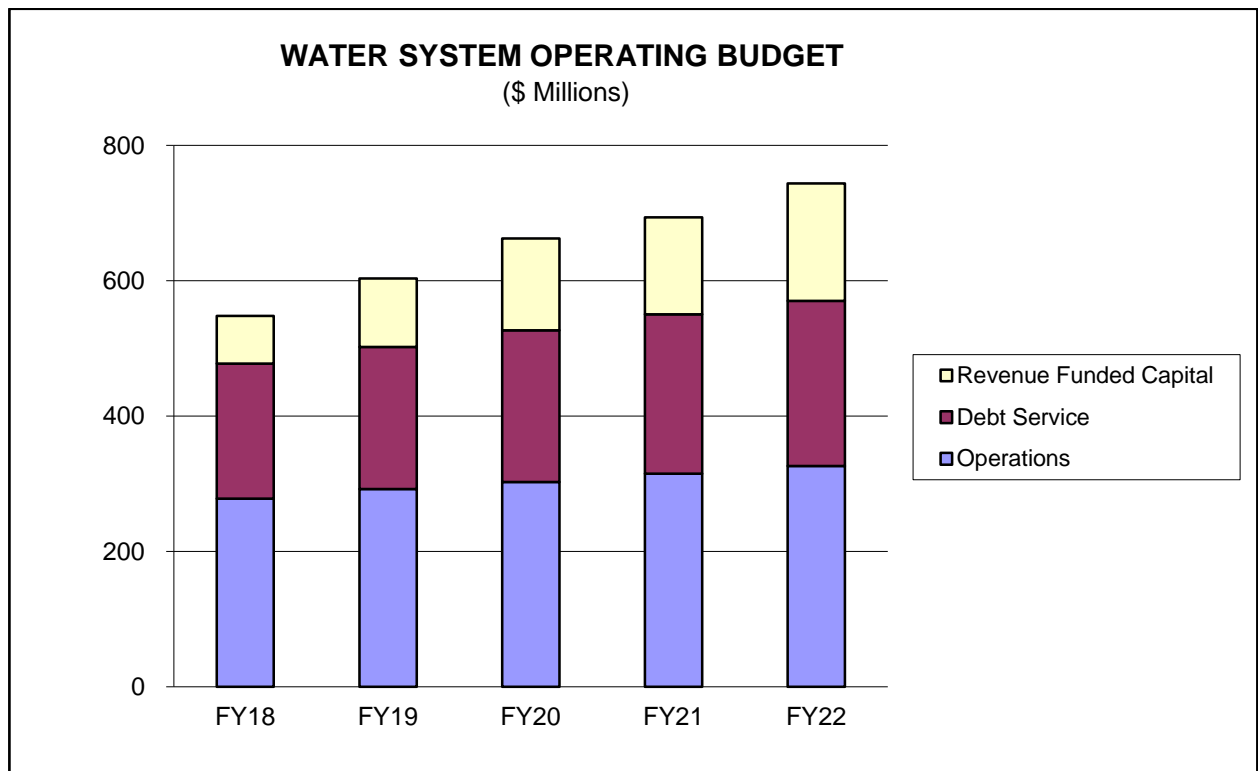
Five-Year Projection of Operating Budget

The Water System operations expenses are projected to increase from \$277.9 million in FY18 to \$326.4 million in FY22, an increase of 4.1 percent per year.

Debt service requirements are expected to increase from \$199.6 million in FY18 to \$244.0 million by FY22, an increase of 5.2 percent per year. The five-year increase results in \$798.6 million of new debt that will be issued to finance the Water System Capital Improvement Program.

The District uses rate revenue to cash fund a portion of its annual capital improvement expenses. The amount of revenue funded capital will increase from \$70.7 million in FY18 to \$173.7 million in FY22, an increase of 146 percent.

This chart summarizes projected Water System budget by category for the next five years.



Five-Year Projection of Reserves

The operating reserves consist of:

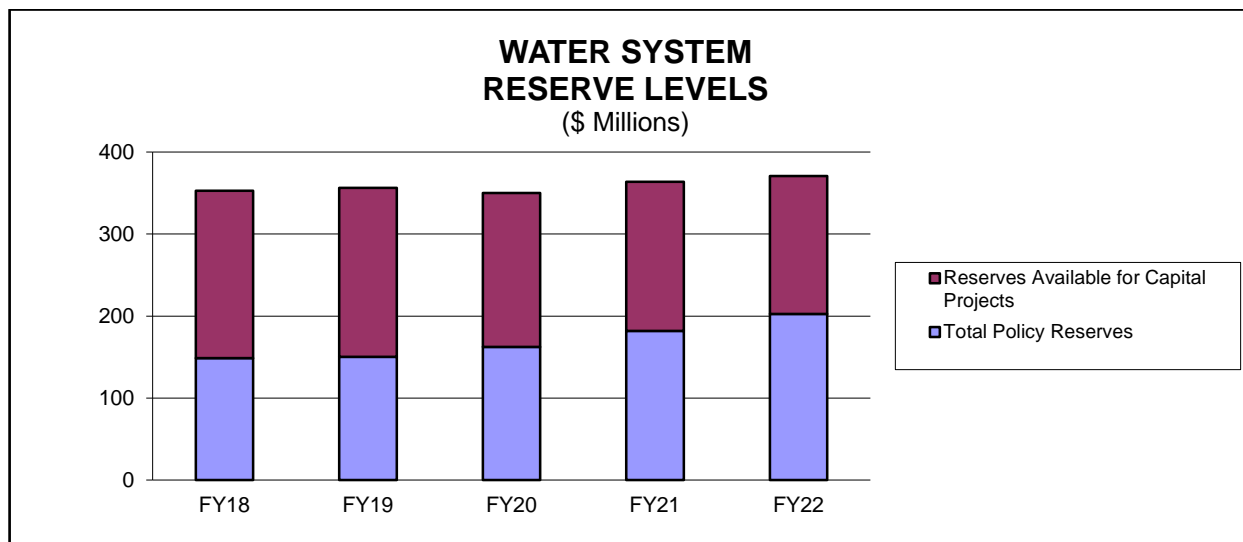
- Working capital reserves equal to three months operating and maintenance expenses
- Self-Insured Liability reserve based on the Actuarial Self-Insured Retention (SIR) funding recommendation
- Workers' Compensation reserve based on the Actuarial SIR funding recommendation
- Rate stabilization reserve of a minimum of 20 percent of projected annual water volume revenues

The table below shows the changes to reserve components over the five-year period. Reserve balances meet or exceed the policy reserve levels for the entire period.

WATER SYSTEM RESERVE COMPONENTS (\$ Millions)					
	Forecast				
	FY18	FY19	FY20	FY21	FY22
Projected Operating Budget Reserves	352.6	356.3	350.1	363.6	370.7
Policy Reserves					
Working Capital	69.1	72.4	74.6	77.2	80.0
Self-Insured Liability Reserve	6.6	6.6	6.6	6.6	6.6
Workers' Compensation Reserves	6.1	6.1	6.1	6.1	6.1
Rate Stabilization Reserve	<u>67.0</u>	<u>65.0</u>	<u>75.0</u>	<u>92.0</u>	<u>110.0</u>
Total Policy Reserves	148.8	150.1	162.3	181.9	202.7
Reserves Available for Capital Projects	203.8	206.2	187.8	181.7	168.0

Numbers in the table may be rounded.

The following chart shows Water System reserve levels projected at the end of each fiscal year.



CAPITAL INVESTMENTS AND FINANCING

The Five-Year Capital Improvement Program (CIP) outlines Water System capital investment plans, the estimated cost of these investments, and the sources of funds. Appropriations reflect the amount that is authorized and budgeted over a multi-year period for each program. Cash flows are the amounts estimated to be spent on each program in a given year. The five-year program for the Water System includes \$1.7 billion in capital project appropriations, including administration of capital expenses, and \$1.5 billion in projected cash flow spending.

The focus of the CIP is the five-year period from FY18-22. Capital needs have been estimated for a second five-year period from FY23-27, but given the long-term nature of these capital improvement plans, by necessity they are preliminary estimates only and will be revised as studies are completed, priorities are redefined, and as new needs emerge. Therefore, the budget focuses on the first five years of the CIP.

In the FY18-22 CIP, 53% of the Water System's project appropriations will focus on the Maintaining the Infrastructure Strategy. This strategy furthers the District's objectives to improve, rehabilitate and replace aging infrastructure in a cost effective manner to ensure sustainable delivery of reliable, high quality water service now and in the future. Work under this strategy focuses on pipeline projects to improve system reliability for existing customers and to provide service to new customers.

Funding for these projects is drawn from the proceeds of revenue bond issues, commercial paper, grants, reimbursements from developers and other agencies, and current reserves and revenues.

For the FY18-22 CIP, an increasing amount of capital expenditures will be funded on a pay-as-you-go basis in accordance with the District's financial policies. Over the five-year period, the percentage of capital funded from debt will average 52.1 percent, which is under the target maximum of 65 percent contained in the District's debt policy, and debt service will grow by 5.2 percent per year. Water System total outstanding debt will increase by \$366.9 million during the period. Total debt outstanding at the end of the five-year period will total \$3.1 billion.

In FY18 and FY19, the debt coverage ratio will be 1.60 and 1.60, respectively, and for all five years the ratio meets or exceeds the target coverage ratio of 1.60.

The following table shows the cash flow spending on capital improvements anticipated for the next five years, along with the financial resources anticipated to fund the capital program.

WATER SYSTEM FUND - CAPITAL BUDGET						
FIVE-YEAR FINANCIAL FORECAST						
(\$ Millions)						
	Forecast					
	FY18	FY19	FY20	FY21	FY22	Totals
Beginning Balance	0.0	0.0	0.0	0.0	0.0	-
Resources:						
Revenue Funded Capital	70.7	101.1	135.6	143.1	173.7	624.2
New Bond Proceeds	175.9	148.6	151.4	176.4	130.3	782.6
Loans Proceeds	0.0	0.0	0.0	0.0	0.0	0.0
Grants	0.5	0.3	0.2	0.4	0.2	1.5
Reimbursements	20.6	19.9	18.2	17.2	17.4	93.3
Commercial Paper	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
Total Resources	267.7	269.8	305.4	337.2	321.5	1,501.6
Expenditures:						
Capital Cash Flow	227.7	229.8	264.2	294.7	277.8	1,294.3
Administration of Capital	<u>40.0</u>	<u>40.0</u>	<u>41.2</u>	<u>42.4</u>	<u>43.7</u>	<u>207.3</u>
Total Expenditures	267.7	269.8	305.4	337.1	321.5	1,501.6
Ending Balance	0.0	0.0	0.0	0.0	0.0	-
Debt Percentage of Funding	65.7%	55.1%	49.6%	52.3%	40.5%	52.1%

Numbers in the table may be rounded.

Projected new bond issues, outstanding debt, and debt service are shown in the following table.

OUTSTANDING DEBT AND DEBT SERVICE AT END OF FISCAL YEAR					
(\$ Millions)					
	Forecast				
	FY18	FY19	FY20	FY21	FY22
Beginning of Year Outstanding Debt	2,592.5	2,706.3	2,815.3	2,923.3	3,025.4
Debt Retired	60.8	65.8	68.8	74.5	80.3
New Bond Issues and Commercial Paper	<u>179.5</u>	<u>151.6</u>	<u>154.5</u>	<u>180.0</u>	<u>133.0</u>
Total Outstanding Debt	2,711.2	2,792.1	2,901.0	3,028.8	3,078.1
Debt Service, Existing Debt	185.9	186.0	189.8	189.5	189.2
Debt Service, New Debt	11.7	21.5	31.6	43.3	52.0
Debt Servicing Costs	<u>2.0</u>	<u>2.5</u>	<u>2.6</u>	<u>2.7</u>	<u>2.8</u>
Total Debt Service	199.6	210.0	224.0	235.5	244.0

Numbers in the table may be rounded.

CHAPTER 4: WASTEWATER SYSTEM

This chapter provides a detailed description of the Wastewater System sources of funds, use of funds, department operations budgets including staffing, capital expenditures and a Five-Year Financial Forecast.

The Wastewater System Fund is an enterprise fund consisting of an operating and a capital budget. The function of the Wastewater System is the interception and treatment of wastewater from residences and industries in the communities of Alameda, Albany, Berkeley, Emeryville, Oakland, Piedmont, and the Stege Sanitary District. The Wastewater System receives administrative, financial, and other support services from the Water System.

This chapter is organized into the following sections:

Pages 163 - 196 A detailed description of the FY18 and FY19 budgets including sources of revenues and use of funds for operations, debt financing, and capital programs. This section also includes a detailed department budget.

Pages 197 - 203 A five-year forecast of the Wastewater System projected revenues and expenditures for operations, debt financing, and capital programs

FUND SUMMARY

The following are key projections and assumptions utilized in the FY18 and FY19 budget.

WASTEWATER SYSTEM FUND – KEY ASSUMPTIONS		
	FY18	FY19
% Rate Increase	5.0%	5.0%
Average monthly single family residential bill based on 6 ccf/month	\$20.89	\$21.95

The fund summary illustrates the beginning and ending fund balances as well as revenues, expenditures, and other financing sources/uses. The following table shows the fund balance, and projected revenues and expenditures for the Wastewater System for FY18 and FY19. The table is an expansion of the Wastewater System Fund Summary table presented at the end of Chapter 2.

Wastewater System Fund Summary
Operating and Capital Budgets

(\$ Millions)

	FY18			FY19		
	Operating	Capital	Fund Balance	Operating	Capital	Fund Balance
Beginning FY Fund Balance (Projected)	77.5	0.0	77.5	78.0	0.0	78.0
Sources of Funds						
Operating Revenues						
Treatment Charges	71.7		71.7	75.3		75.3
Resource Recovery	8.0		8.0	8.0		8.0
Wet Weather Facilities Charge	24.0		24.0	25.2		25.2
Property Taxes	4.8		4.8	4.9		4.9
Ad Valorem Bond Levy	2.2		2.2	0.0		0.0
Interest Income	1.5		1.5	1.5		1.5
Laboratory Services	4.1		4.1	4.3		4.3
Reimbursements	1.4		1.4	1.4		1.4
Permit Fees	1.6		1.6	1.6		1.6
Capacity Charges	1.8		1.8	1.9		1.9
All Other Revenue	<u>5.7</u>		<u>5.7</u>	<u>5.7</u>		<u>5.7</u>
Total Operating Revenues	127.0		127.0	129.9		129.9
Capital Funding Sources						
New Bond Proceeds		20.1	20.1		13.7	13.7
Loans Proceeds		0.0	0.0		0.0	0.0
Grants		0.0	0.0		0.0	0.0
Reimbursements		0.0	0.0		0.0	0.0
Commercial Paper		<u>0.0</u>	<u>0.0</u>		<u>0.0</u>	<u>0.0</u>
Total Capital Sources		20.1	20.1		13.7	13.7
Revenue Funded Capital	<u>(21.3)</u>	<u>21.3</u>	<u>0.0</u>	<u>(25.8)</u>	<u>25.8</u>	<u>0.0</u>
Total Sources of Funds	105.7	41.4	147.1	104.1	39.5	143.6
Use of Funds						
Operations	70.6		70.6	73.1		73.1
Debt Service	34.7		34.7	31.9		31.9
Capital Cash Flow		<u>41.4</u>	<u>41.4</u>		<u>39.5</u>	<u>39.5</u>
Total Use of Funds	105.2	41.4	146.6	105.1	39.5	144.6
Ending Balance *	78.0	0.0	78.0	77.0	0.0	77.0

Numbers in the table may be rounded.

* Includes reserves for working capital, self-insurance, worker's compensation, contingency and rate stabilization, and for capital projects.

FY 2018 & FY 2019 BUDGET

SOURCES OF FUNDS

Operating expenses are funded by a group of revenue sources approved by the Board of Directors. Anticipated capital expenses are funded primarily by a combination of bond issues, which results in annual debt service payments, and operating revenue.

The table below displays the amounts to be collected from revenue sources and shows the amounts that are expected to fund the capital program for the Wastewater System.

WASTEWATER SYSTEM SOURCES OF FUNDS				
(\$ Millions)				
	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY19 Proposed Budget
Operating Revenues:				
Treatment Charges	64.3	70.3	71.7	75.3
Resource Recovery	11.6	8.0	8.0	8.0
Wet Weather Facilities Charge	21.9	22.9	24.0	25.2
Property Taxes	4.6	4.4	4.8	4.9
Ad Valorem Bond Levy	3.3	4.1	2.2	0.0
Interest Income	0.3	0.7	1.5	1.5
Laboratory Services	4.3	4.0	4.1	4.3
Reimbursements	1.4	1.0	1.4	1.4
Permit Fees	1.6	1.8	1.6	1.6
Capacity Charges	3.1	1.6	1.8	1.9
All Other Revenue	<u>5.3</u>	<u>5.7</u>	<u>5.7</u>	<u>5.7</u>
Total Operating Revenues	121.8	124.5	127.0	129.9
Revenue Funded Capital	(35.8)	(14.6)	(21.3)	(25.8)
Capital Funding Sources:				
Revenue Funded Capital	35.8	14.6	21.3	25.8
New Bond Proceeds	0.0	22.1	20.1	13.7
Loans Proceeds	0.0	0.0	0.0	0.0
Grants	0.3	0.0	0.0	0.0
Reimbursements	0.7	0.0	0.0	0.0
Commercial Paper	0.0	0.0	0.0	0.0
Construction Fund	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
Total Capital Funding Sources	36.9	36.7	41.4	39.5
Total Wastewater Sources	122.9	146.6	147.1	143.6

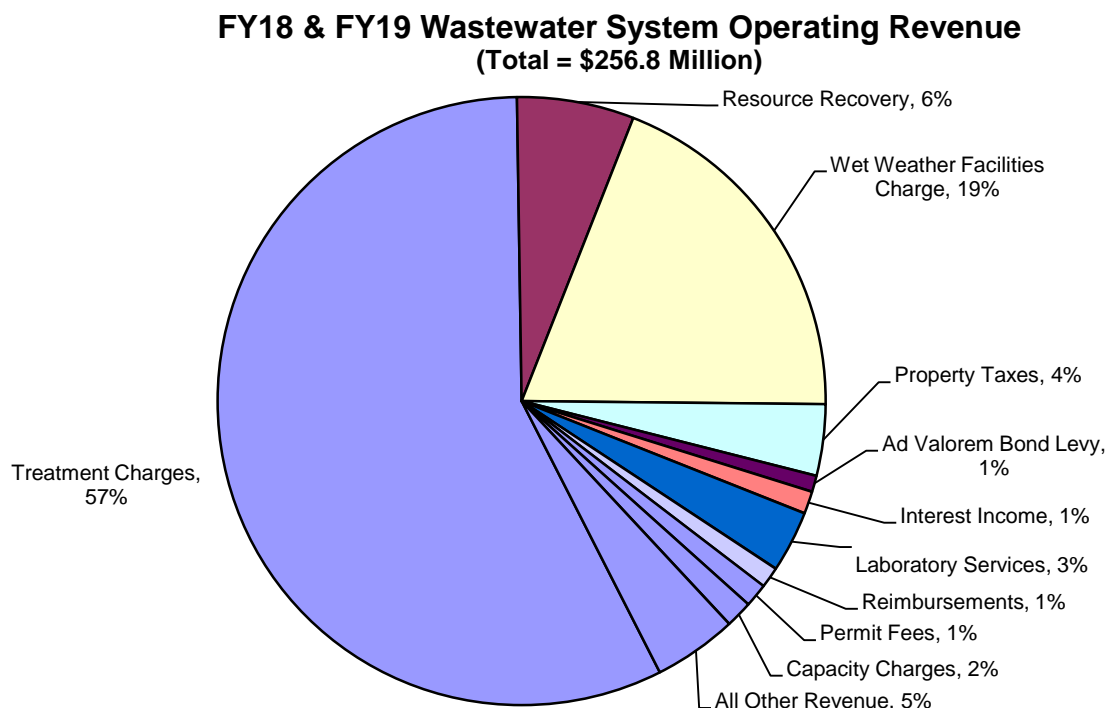
Numbers in the table may be rounded.

Operating Revenue

Wastewater System operating revenues for FY18 are increasing \$2.5 million, or 2.0 percent compared to FY17, for a total of \$127.0 million. The projected wastewater treatment charges will total \$71.7 million, an increase of \$1.4 million compared to FY17. Wet Weather Facilities Charge revenue in FY18 is projected to increase \$1.1 million from the FY17 budgeted amount. Property tax revenue is increasing \$0.4 million to reflect projected collections. Interest income is increasing \$0.8 million due to higher projected interest rates. Reimbursement income from the Water System is increasing \$0.4 million due to work done by Wastewater staff on the recycled water programs that benefit water system customers. Ad Valorem Bond Levy proceeds are decreasing \$1.9 million compared to FY17 due to the retirement of the General Obligation bonds during this fiscal year.

In FY19, Wastewater System operating revenues will increase \$2.9 million, or 2.3 percent for a total of \$129.9 million. This increase is comprised primarily of \$4.8 million from rate increases in the wastewater treatment and Wet Weather Facilities Charges. Ad Valorem Bond Levy proceeds will decrease \$2.2 million compared to FY18 due to the retirement of the General Obligation bonds.

The figure below illustrates the various sources of revenue and the relative percentage each contributes to the total. Wastewater treatment charges revenue is the largest source of revenue comprising 58 percent of FY18 and FY19 total revenues. The second largest source of revenue is the Wet Weather Facilities Charge.



The following pages provide more detail on each of the revenue categories.

Source Descriptions

Operating Revenue

The following are descriptions of the 11 sources of operating revenue, including information about the projected revenues for FY18 and FY19.

Treatment Charges

The District provides treatment for discharges collected through city-owned sewers and transported through District interceptors and pump stations to the Main Wastewater Treatment Plant. Treatment charges for all customers are based on the volume and strength of the wastewater discharged plus a service charge, and are collected on the water service bill. The overall rate increase for the various wastewater treatment charges will be 5.0 percent for FY18 and an additional 5.0 percent for FY19. After the 5.0 percent rate increase for FY18, the projected wastewater treatment charge will total \$71.7 million, which is 2.0 percent higher than FY17 due to the drop in water use during the recent drought. For FY19, the projected wastewater treatment charge will be \$75.3 million, an increase of \$3.6 million or 5.0 percent over the FY18 treatment revenue.

Resource Recovery

The District utilizes its excess capacity at the Main Wastewater Treatment Plant with the acceptance of trucked waste. The Resource Recovery Program is projected to generate \$8.0 million in FY18 and in FY19.

Wet Weather Facilities Charge

In June 1987, the Board of Directors established the Wet Weather Facilities Charge to pay for the costs associated with the District wet weather facilities. This charge is assessed on a per parcel basis and, while it is not a tax, the charge is collected on the county property tax bill. The charge is projected to generate approximately \$24.0 million in FY18, a 4.8 percent increase over the FY17 budget. In FY19, the projected revenue is \$25.2 million, a 5.0 percent increase over the FY18 budget.

Property Taxes

The District receives a portion of the one percent county levy on properties within District boundaries. The percentage of the county levy received varies depending on the number of other agencies participating in the distribution. The District's Wastewater share has averaged 0.5 percent of the total monies collected. For FY18, property tax revenue is projected to be \$4.8 million. For FY19, revenues are projected to be \$4.9 million or \$0.1 million over FY18.

Ad Valorem Bond Levy

The Wastewater System has the authority, approved by a two-thirds majority of the voters, to impose an ad valorem property tax to recover the debt service on its outstanding General Obligation (GO) bonds. The District has one GO bond outstanding with a remaining balance of approximately \$2.2 million. As of August 2016, the net assessed valuation for property within the Wastewater System is \$96.8 billion. For FY18, the ad valorem property tax rate will be approximately \$0.0023 per \$100 of assessed value, or \$2.30 for every \$100,000 of assessed valuation. After FY18, the GO bond will be paid off and the levy will no longer be collected.

Interest Income

The District places funds not needed for current expenditures in short-term investments, following the same procedures as the Water System. Interest income in FY18 is projected to be \$1.5 million, an increase of \$0.8 million over the FY17 budgeted amount due to an increase in the projected interest rates. Interest income in FY19 is projected to be \$1.5 million. Interest is assumed to be 2 percent in FY18 and in FY19.

Laboratory Services

The Wastewater Laboratory provides testing and analysis services for the Water and Wastewater Systems and several outside agencies. The Water and Wastewater Systems share in the joint costs of operating the lab. Revenues from the Water System and outside agencies are projected to be \$4.1 million for FY18 and \$4.3 million for FY19.

Reimbursements

The Wastewater System is reimbursed from the Water System for work done by Wastewater staff on the recycled water programs. In FY18 and in FY19, the estimated revenue from reimbursements is \$1.4 million, which reflects the actual reimbursements from FY16.

Permit Fees

The District collects fees to fund its pollution prevention programs and the discharge permit programs. In FY18 and in FY19, the estimated revenue from these permit fees will be \$1.6 million, a slight decrease from the FY17 budget of \$1.8 million due to fewer accounts in the discharge permit programs.

Capacity Charges

In FY14, the District designated the revenues received from the Wastewater Capacity Fees (WCF) as operating revenue for purposes of the budget and the bond indenture. This allows the WCF revenues to be used in the debt coverage ratio calculation for Wastewater. Because the WCF is collected from new customers as payment for their share of existing wastewater facilities, these revenues can be classified as being available to pay for debt expenses for capital. This is similar to the treatment of the Water System Capacity Charge revenue. This change in designation of revenues reduces the amount of the wastewater treatment rate increase that is required to meet the debt coverage ratio target. The WCF revenue is projected to be \$1.8 million in FY18 and \$1.9 million in FY19.

All Other Revenue

Included in this category are lease revenue of District properties, reimbursements from the U.S. Treasury under the Build America Bond program, revenue from energy sales at the Power Generation Station, and private sewer lateral fees. All other revenue for the Wastewater System is expected to remain at \$5.7 million for FY18 and FY19.

Capital Funding

The following are descriptions of the five sources of capital funding. The FY18 and FY19 capital improvement program will be funded with bond proceeds and wastewater revenue and reserves. It is anticipated that the District will receive \$20.1 million in new revenue bond proceeds in FY18 and \$13.7 in FY19, combined with revenue funded capital of \$21.3 million in FY18 and \$25.8 million in FY19.

Please refer to the section Debt Service and Financing for additional details on debt funding of capital projects.

New Bond Proceeds

The District has the ability to issue long-term bonds to fund its capital program. The proceeds of the bond sales can be used to pay for capital expenses over several years. The repayment of the bonds is generally over 30 years and is paid from wastewater rate revenues.

Commercial Paper Issues

In addition to issuing long-term bonds to fund its capital program, the District has used short-term borrowing in the form of commercial paper to raise revenues for capital expenses. The term of commercial paper can be up to 270 days. The repayment of commercial paper is paid from wastewater rate revenues.

Grants and Loans Proceeds

The District seeks out federal and state grants and low-interest loans to fund some of its capital projects when they meet the conditions of the grant and loan programs.

Reimbursements

Some of the capital projects in the Wastewater System are done at the request of other agencies, and the District is reimbursed for its expenses. An example would be the relocation of a portion of the sewer interceptor at the request of a city or state agency.

Revenue Funded Capital

Annual capital expenses that are not paid from debt funding, grants, loans or reimbursements must be paid from revenues, either from current year revenues or from reserves.

USE OF FUNDS

The Wastewater System has three types of expenditures:

Operations, or the annual costs of providing all wastewater services;

Debt Service, or the repayment of bonds for making capital investments in the wastewater system; and

Capital cash flow, or the annual costs of the Capital Improvement Program for long-term projects.

The following table shows the breakdown of expenses for operations, debt service, and capital cash flow.

USE OF FUNDS				
(\$ Millions)				
Expenditure Type	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY19 Proposed Budget
Operations	60.3	70.7	70.6	73.1
Debt Service	33.2	34.0	34.7	31.9
Capital Cash Flow	<u>37.0</u>	<u>36.7</u>	<u>41.4</u>	<u>39.5</u>
Total Expenditures	130.4	141.4	146.6	144.6

Numbers in the table may be rounded.

Operations

This section contains charts and tables which explain the major components of the Wastewater System operations budget. Typical operations expenditures include, but are not limited to labor, benefits, chemicals, energy, spoils/sludge disposal, parts and materials, and fees and licenses.

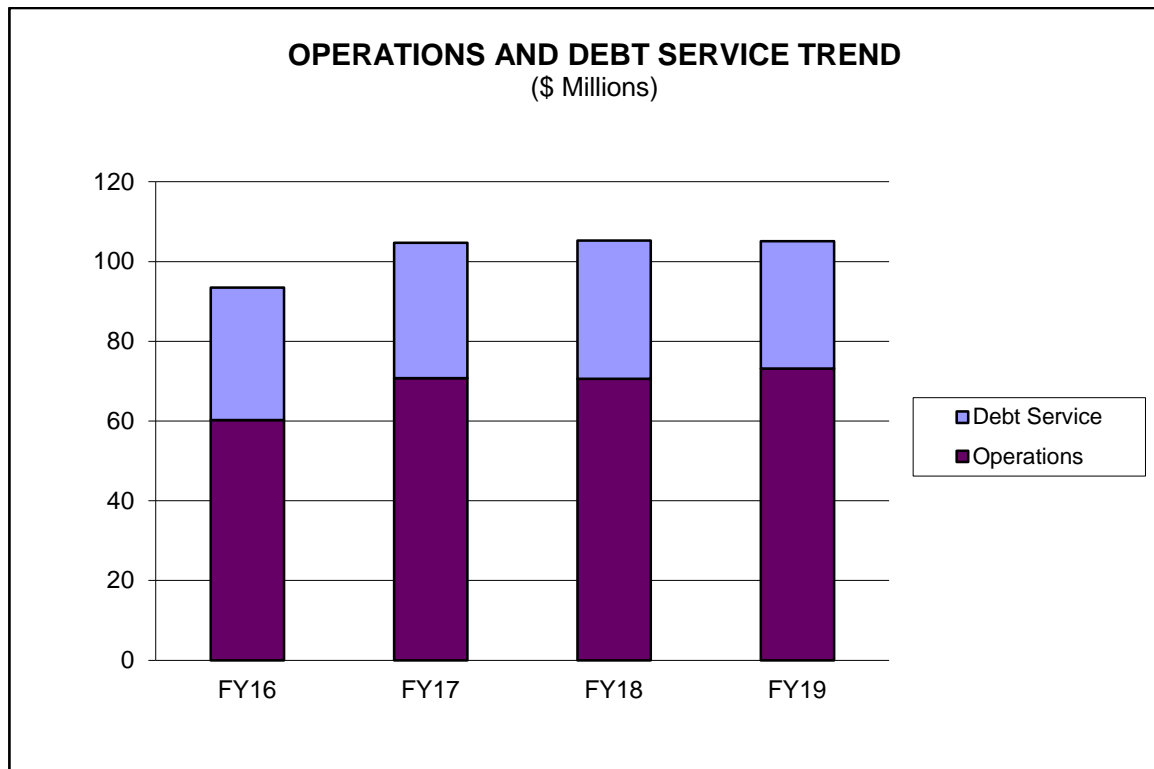
The operations budget is also shown. The details include a discussion of services provided, significant budget changes, and staffing and position changes.

The table below details the operations and debt service budget for FY18 and FY19.

Operations and Debt Service (\$ Millions)						
	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Operations	60.3	70.7	70.6	-0.2%	73.1	3.7%
Debt Service	<u>33.2</u>	<u>34.0</u>	<u>34.7</u>	2.1%	<u>31.9</u>	-7.9%
Total	93.5	104.7	105.2	0.5%	105.1	-0.1%

Numbers in the table may be rounded.

In FY18, the operations and debt service budget is increasing \$0.5 million or 0.5 percent over the FY17 amended budget, and in FY19 will decrease \$0.1 million or 0.1 percent compared to FY18.



Department Operations Budget

The operations portion of the Wastewater System budget is divided into various departments. One department is referred to as a staffed department indicating employees are assigned to work in the department. The staffed department budget funds the day-to-day operations of the Wastewater System, and includes funding for labor, benefits, outside contract services and other non-labor expenses such as chemicals, energy, spoils and sludge disposal, parts and materials, and fees and licenses. A detailed description of the staffed department is included later in this chapter.

A small number of departments do not have personnel assigned to them and are referred to as non-staffed departments. The impact on the budget by each of the following departments varies:

Contingency - Funds budgeted each fiscal year to primarily cover projected labor-related expenses such as the employee cost of living adjustment which is based upon each year's February Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) in the San Francisco-Oakland-San Jose area. The index is published in March of each year. The contingency budget also includes funding for unanticipated needs which may arise before the next budget cycle.

Administration of Capital - The administration of capital represents those costs that are not directly attributable to specific capital projects but are more generalized indirect support of the Capital Improvement Program (CIP). The administration of capital in the operations budget will decrease operating expense by a like amount and reallocate the costs to the capital budget.

The following table presents the total FY18 and FY19 Wastewater System operations budget by department.

Operations Budget by Department						
(\$ Thousands)						
DEPARTMENT	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Wastewater	64,042	73,477	71,480	-2.7%	72,981	2.1%
Subtotal Staffed Department	64,042	73,477	71,480	-2.7%	72,981	2.1%
Contingency	180	240	2,078		3,156	
Administration of Capital	(3,951)	(3,000)	(3,000)	0.0%	(3,000)	0.0%
Subtotal Operations Expenses	60,271	70,717	70,558	-0.2%	73,137	3.7%
Debt Service	33,202	33,956	34,659	2.1%	31,936	-7.9%
TOTAL	93,472	104,673	105,217	0.5%	105,074	-0.1%

Numbers in the table may be rounded.

The FY17 amended staffed department budgets include a cost of living adjustment.

Department Operations Budget Highlights

The Wastewater System is comprised of one staffed department that performs all aspects of wastewater system operations. This section details the department's labor and non-labor budget, department goals and staffing.

Labor and Benefits

Labor and benefits are allocated between the staffed department and contingency for cost of living adjustments. Cost of living adjustments are not shown in the staffed department's FY18 and FY19 labor and benefits budget since it is based on the CPI-W index and the amount is not known until the index is published annually. Once the index is published, and if funds are needed, contingency would be transferred to departments. The details of the department's labor and benefits budget are shown later in this chapter.

A number of complex drivers impact the labor and benefits budget beyond funding additional positions. One of the major complex drivers is a slower than projected rise in benefit costs which result in a lower fringe benefit rate compared to the prior fiscal year.

In comparison to the prior fiscal year, additional positions have been funded in the Wastewater Department in FY18 and FY19. This increase in funding for positions is offset each fiscal year when compared to the prior biennial budget due to a lower fringe benefit rate and a reduction in budgeted overtime. In addition, starting in FY18, a greater portion of labor is allocated to capital work reducing the operations labor and benefits budget. In FY19, total labor and benefits will increase due to funding an additional position and scheduled salary step increases.

Unlike the Water System, the Wastewater System has only one staffed department as mentioned earlier. Therefore, the department's labor and benefits are explained in greater detail in the budget highlights later in this chapter.

Non-labor

The Wastewater staffed department non-labor costs are decreasing \$0.7 million or 2.0 percent in FY18 and will increase \$0.8 million or 2.4 percent in FY19 compared to the prior fiscal year. A detailed explanation of the significant changes is shown in the department budget highlights section later in this chapter.

Department Operations by Budget Category

The table below depicts the Wastewater System staffed department operations by expense category. It does not include capital labor; however, capital labor by department is shown later in this chapter.

FY18 & FY19 DEPARTMENT OPERATIONS BY CATEGORIES								
(\$ Thousands)								
Department	FY18				FY19			
	Labor	Contract Services	All Other	Total Budget	Labor	Contract Services	All Other	Total Budget
Wastewater	39,855	4,471	27,153	71,480	40,586	4,413	27,983	72,981
TOTAL	39,855	4,471	27,153	71,480	40,586	4,413	27,983	72,981

Numbers in the table may be rounded.

Staffed Department Descriptions

The next section describes the staffed department and includes the following topics:

Overview provides an overall statement about the key responsibilities of the department within the larger mission of the District as a whole.

Description of Services Provided describes the responsibilities of the department, by unit (division) or by function, including services required to meet regulatory or legal requirements.

FY18 & FY19 Goals highlights the highest priority tasks or projects related to the budget, and place these in the context of the overall District Strategic Plan.

Department Budget Summary is a reference table that shows the Department's operating budget expenditures by category (Labor and Benefits, Contract Services, All Other Costs). It also includes capital labor to give a more complete picture of departmental budget.

Budget Highlights shows changes in cost relative to the previous fiscal year and describes reasons for those changes. This section focuses on the significant budget change.

Staffing Summary is a reference table that shows the Full-Time Equivalency (FTE) for the department by appointment type (full-time, part-time, etc.).

Staffing Changes is a section included only for departments that have position changes that require Board approval. It includes a table that enumerates position changes, followed by a brief description of the changes. The change in cost is determined by comparing the annual cost of the salaries and benefits of the current classification with the annual cost of the new classification at the top salary step.

WASTEWATER DEPARTMENT

OVERVIEW

The Wastewater Department operates and maintains the District's wastewater treatment facilities to comply with environmental and public health requirements. The department strives to protect the environment by reducing or eliminating the discharge of toxic and noxious substances to the air, land and San Francisco Bay. The primary goal is to ensure public health and safety by complying with federal, state and local regulations regarding air, biosolids and water.

DESCRIPTION OF SERVICES

The department consists of the Wastewater Treatment, Wastewater Engineering, Laboratory Services, and Environmental Services divisions. The department operates and maintains the main wastewater treatment plant and three wet weather facilities; maintains the wastewater system infrastructure including sewer interceptors; monitors discharges by all wastewater customers; and tests and reports analytical results on water and wastewater.

FY18 & FY19 GOALS

The department has a key role in the Strategic Plan goals of Water Quality and Environmental Protection, Long-Term Infrastructure Investment, and Long-Term Financial Stability. Key department goals include:

- Reducing environmental impacts on the San Francisco Bay during wet weather events through improving operational reliability and reducing inflow and infiltration;
- Pursuing opportunities to grow the Resource Recovery Program;
- Continuing to be a good neighbor by improving operating practices and investing in technologies that will minimize odors from the wastewater treatment plant; and
- Initiating planning activities to evaluate short-term and long-term nutrient management alternatives and maintaining a regional leadership role to ensure a collaborative, science based approach to addressing potential nutrient impairment in the San Francisco Bay.

DEPARTMENT BUDGET SUMMARY

A comparison of the department's budget is shown in the table below.

Category (\$ Thousands)	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Total Labor and Benefits	46,246	50,894	49,702	-2.3%	50,471	1.5%
Less: Capital Labor and Benefits	(10,233)	(9,695)	(9,846)	1.6%	(9,886)	0.4%
Operating Labor and Benefits	36,012	41,199	39,855	-3.3%	40,586	1.8%
Contract Services	3,512	3,806	4,471	17.5%	4,413	-1.3%
All Other Costs	24,518	28,472	27,153	-4.6%	27,983	3.1%
Operating Total	64,042	73,477	71,480	-2.7%	72,981	2.1%

BUDGET HIGHLIGHTS

The department's total operating budget in FY18 is decreasing \$2.0 million or 2.7 percent compared to FY17. In FY19, the budget will increase \$1.5 million or 2.1 percent compared to the prior fiscal year. Significant budget changes include:

FY18

Total labor and benefits is decreasing by \$1.2 million. Operating labor and benefits is decreasing by \$1.3 million primarily due to a lower fringe benefit rate, a reduction in budgeted overtime, and a higher portion of labor allocated to capital projects. Contract services are increasing by \$0.7 million for inflow investigations in community sewer systems required by the consent decree and to support the Electrical Integrity Program. All other costs are decreasing by \$1.3 million primarily due to decreased chemical costs (\$0.5 million) resulting from operational efficiencies and lower chemical prices; and a reduction in the department's share of reimbursable costs (\$0.6 million) to the Water System covering services such as billing and collection, finance, human resources, and rent.

FY19

Total labor and benefits costs will increase \$0.8 million primarily due to scheduled salary step increases and an additional full-time FTE to meet workload needs. Contract services will decrease \$0.06 million primarily due to the elimination of the Electrical Integrity Program outside service which will now be performed by Wastewater staff. All other costs will increase by \$0.8 million primarily due to chemical costs, District vehicle fleet costs, spoils and sludge disposal, fees and licenses, and computer software. In addition, the department's share of reimbursable costs to the Water System will increase by \$0.2 million primarily due to projected labor cost increases.

STAFFING SUMMARY

The table below shows the staffing of the department.

Position Type	FY16	FY17	FY18	FY18 Change vs FY17	FY19	FY19 Change vs FY18
Full-Time	281.0	280.0	282.0	2.0	283.0	1.0
Limited-Term / Temp Construction	3.0	5.0	4.0	(1.0)	4.0	0.0
Intermittent	0.0	0.0	0.0	0.0	0.0	0.0
Temporary / Part-Time	1.5	1.5	0.5	(1.0)	0.5	0.0
Total FTE	285.5	286.5	286.5	0.0	287.5	1.0

In FY18, one full-time FTE is transferred to the Water System.

STAFFING CHANGES

The table below summarizes the FTE changes followed by a brief description. The net change in cost represents the difference between the annual salary at the top step including benefits for the existing highest job classification versus the highest classification for the change.

FY	Action	From Classification(s)	To Classification(s)	Change in Cost	Change in FTE	Project/Program
2018	Delete	(Temp) Gardener II		(59,761)	(0.5)	Full-time Gardener utilized in place of two temporary Gardeners
2018	Delete	(Temp) Gardener II		(59,761)	(0.5)	
2018	Delete	(LT) Assistant Engineer		(195,828)	(1.0)	Resource Recovery
2018	Delete	(LT) WW Control Rep		(168,893)	(1.0)	Private Sewer Lateral
2018	Add		Facility Specialist II	149,318	1.0	Reduce outside services
2018	Add		Associate Civil Engineer	216,232	1.0	Increased CIP
2018	Add		Senior Construction Inspector	191,033	1.0	Increased CIP
2018	Add		(LT) Information Services Supervisor	232,788	1.0	To support restructure of information system services
2018	Reallocate & Flex Character	Senior Civil Engineer/ Senior Mechanical Engineer	(Reg/LT) Information System Administrator II	(29,007)	0.0	To procure and implement a replacement Laboratory Information Management System
FY18 TOTAL				276,121	1.0	
2019	Add		Electrical Technician	168,688	1.0	Electrical Integrity Program
FY19 TOTAL				168,688	1.0	

In FY18, the department is deleting one FTE (two temporary positions) and two limited-term FTEs due to either completion of projects or workload efficiencies. The department is adding three full-time FTEs and one limited-term FTE to support increased capital workload and reduce outside services. The department is flexing one full-time FTE with one limited-term FTE and reallocating it to a new classification. In FY19, the department is adding one full-time FTE for the Electrical Integrity Program.

Staffing

The table below provides the full-time equivalent (FTE) and compares the changes from year-to-year. Depending upon the appointment type, the FTE value will be different. Full-time, limited-term and temporary construction appointment types are equivalent to 1.0 FTE; intermittent appointment types are equivalent to 0.75 FTE; part-time and temporary appointment types are equivalent to 0.5 FTE.

FY18 & FY19 STAFFING BY DEPARTMENT					
By Full-Time Equivalent (FTE)					
Department	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
WASTEWATER SYSTEM TOTAL	286.5	286.5	0.0	287.5	1.0

In FY18, the Wastewater System has a net zero change in FTE compared to FY17. Chapter 2 shows 1.0 FTE added to the Wastewater System, but is offset by one FTE transferred from the Wastewater System to the Water System. In FY19, one FTE is added to the Wastewater System.

For a more detailed description of staffing changes, please see the specific department section in this chapter or the Staffing section in the District Budget Summary Chapter 2 of this book.

Bargaining Unit Changes

The following tables show the net change in bargaining unit status of authorized FTEs represented by AFSCME Local 2019, AFSCME Local 444, IFPTE Local 21, and IUOE Local 39; or included in Management/Confidential, non-represented groups, and civil service exempt positions. The tables reflect all staffing changes for FY18 and FY19.

FY 18 vs. FY 17 Net Change in Bargaining Unit Status (by FTE)							
Department	Local 2019	Local 444	Local 21	Local 39	MGMT / Confi- dential	Non- Rep	Civil Service Exempt
Wastewater			1				
Total Net Change	0	0	1	0	0	0	0

FY 19 vs. FY 18 Net Change in Bargaining Unit Status (by FTE)							
Department	Local 2019	Local 444	Local 21	Local 39	MGMT / Confi- dential	Non- Rep	Civil Service Exempt
Wastewater		1					
Total Net Change	0	1	0	0	0	0	0

Debt Service and Financing

This section describes the Wastewater System's current and projected debt obligations, current credit ratings, and adherence to the District's debt financing policies.

The District incurs debt to finance projects or purchase, repair or replace assets which will have useful lives equal to or greater than the related debt. Issuance of revenue supported debt is authorized by the District's Board of Directors, subject to a referendum process. Individual revenue bond issues are authorized by the District's Board of Directors.

The annual debt service principal and interest payments are charged to the operating budget. However, debt is only issued to finance capital investment activities.

Outstanding Debt

The Wastewater System has a total outstanding debt of \$397.2 million as of June 30, 2017. The District's debt issues are summarized below and discussed in detail thereafter.

OUTSTANDING DEBT As of June 30, 2017 (\$ Thousands)				
Issue	Date of Issue	Last Maturity	Amount Issued	Debt Outstanding
LONG-TERM DEBT				
Revenue Bonds:				
Series 2007B	5/16/2007	6/1/2026	46,670	23,915
Series 2010A	10/20/2010	6/1/2029	58,095	41,905
Series 2010B (Build America Bonds)	10/20/2010	6/1/2040	150,000	150,000
Series 2012A	10/10/2012	6/1/2037	20,000	20,000
Series 2014A	8/28/2014	6/1/2031	80,425	72,040
Series 2015A1	3/6/2015	6/1/2037	54,805	54,805
Series 2015A2	3/6/2015	6/1/2038	13,565	13,565
Series 2015B	3/6/2015	6/1/2030	2,795	2,475
Total Revenue Bonds	-	-	\$426,355	\$378,705
General Obligations Bonds				
Series G	2/27/2014	4/1/2018	\$14,160	\$3,515
Total Long-Term Debt			\$440,515	\$382,220
SHORT-TERM DEBT				
Extendable Commercial Paper	Various	Various	N/A	\$15,000
TOTAL OUTSTANDING DEBT				\$397,220

The District may issue Wastewater System revenue refunding bonds in FY17 to take advantage of market interest rates. Refunding debt at lower interest rates can save the District a substantial amount of money if market conditions allow. The budget assumes issuance of \$20.5 million in additional new Wastewater System revenue bonds to fund FY18, and \$14.0 million to fund FY19 capital expenditures.

Debt Service

The Wastewater System total outstanding debt of \$397.2 million projected as of June 30, 2017 will cost the District \$273.4 million in interest payments over the next 23 years, as detailed in the table below. The principal payments below do not include the payments of extendible commercial paper principal, as there is no final maturity associated with those notes.

Interest rates on extendible commercial paper (ECP) were projected at 2.5 percent in FY17 and thereafter.

Projected Debt Service on Current Outstanding Debt			
Fiscal Year	Principal	Interest	Debt Service
2018	13,790,000	19,336,348	33,126,348
2019	10,675,000	18,817,823	29,492,823
2020	11,185,000	18,315,008	29,500,008
2021	11,665,000	17,814,288	29,479,288
2022	12,220,000	17,235,413	29,455,413
2023	12,790,000	16,628,913	29,418,913
2024	13,360,000	16,024,373	29,384,373
2025	13,980,000	15,360,443	29,340,443
2026	14,625,000	14,665,733	29,290,733
2027	14,285,000	13,937,783	28,222,783
2028	14,300,000	13,226,915	27,526,915
2029	15,030,000	12,515,380	27,545,380
2030	15,750,000	11,769,114	27,519,114
2031	16,305,000	10,982,489	27,287,489
2032	16,795,000	10,164,252	26,959,252
2033	17,620,000	9,321,369	26,941,369
2034	18,505,000	8,430,726	26,935,726
2035	19,410,000	7,498,209	26,908,209
2036	20,360,000	6,520,044	26,880,044
2037	21,345,000	5,493,983	26,838,983
2038	24,365,000	4,418,250	28,783,250
2039	26,250,000	3,162,794	29,412,794
2040	27,610,000	1,804,094	29,414,094
Total	382,220,000	273,443,744	655,663,744

The difference in the debt service from the budgeted amount results from two factors. First, the figures in the table above include only debt service on currently outstanding bonds while budgeted debt service includes interest and principal on new bonds expected to be issued in FY18 and FY19 to fund the Capital Improvement Program. Second, budgeted figures include additional costs associated with the debt portfolio including re-marketing fees and debt service administration.

Debt Ratings

Credit risk is the risk that the issuer of an investment, such as a revenue bond, will not fulfill its obligation to the holder of the investment. Credit ratings are assigned to bonds by nationally recognized statistical credit rating organizations based on published methodologies. The ratings reflect the organizations' opinions about the issuer's ability and willingness to meet its financial obligations. All investment grade ratings presume the obligation will be paid, in full and on time, currently and in the future.

Strong credit ratings provide tangible benefits to ratepayers in the form of reduced debt service cost. A strong credit rating provides better access to capital markets, lower interest rates, better terms on debt, and access to a greater variety of debt products. Prudent financial management policies have contributed to the District's strong ratings shown in the tables below.

As of January 1, 2017, ratings on the Wastewater System's debt were as follows:

Wastewater System Debt Ratings			
Debt by Type	Standard & Poor's	Moody's Investors Service	Fitch
General Obligation Bonds	AAA	Aa1	--
Fixed Rate Revenue Bonds	AAA	Aa2	AA+
Extendable Commercial Paper	A-1+	P-1	F1+

Debt Management Policy and Debt Service Coverage

The District is subject to legal debt limits prescribed in the Municipal Utility District (MUD) Act. The MUD Act describes three types of legal limitations: general debt limits, revenue bond limits, and short-term borrowing limits.

The District's general debt indebtedness cannot exceed the ordinary annual income and revenue of the District without a two-thirds approval of the voters. However, revenue bonds are not included in general debt limits.

The District is authorized to issue revenue bonds with the approval of a resolution from the Board of Directors, subject to a 60-day referendum period. The resolution specifies the maximum principal amount of bonds that may be issued pursuant to the authorization. The District's Board of Directors also approves individual series of revenue bonds issued under the broader authorization.

The MUD Act authorizes the District to issue short-term indebtedness without an election of the voters. The amount of short-term borrowing cannot exceed the lesser of 1) the annual average total revenue of the three preceding years or 2) twenty-five percent of the District's total outstanding bonds. This provision is substantially the same as the District's internal policy discussed below.

The District has also established its own policy regarding debt management (Policy 4.02: Cash Reserves and Debt Management – see Appendix). The purpose of the debt policy is to maintain a balance between current funding sources and debt financing over each five-year plan horizon in order to retain the District's financing flexibility and achieve the lowest cost of financing.

The District's debt management policy is to:

- a) maintain an annual revenue bond debt service coverage ratio of at least 1.6 times;
- b) limit debt-funded capital to no more than 65 percent of the total capital program over each five-year planning period; and
- c) limit commercial paper/variable rate debt to 25 percent of outstanding long-term debt.

Debt Service Coverage Ratio

The debt service coverage policy ensures that the District has sufficient annual operating revenues to pay its operating expenses and meet its debt service obligations on its revenue bonds and other parity debt. The revenue bond debt service coverage ratio is defined as the District's net operating revenue (current year's operating revenue less the current year's operating expenses) divided by the current year's debt service on all revenue bonds and other parity debt. In FY18 and FY19, the projected debt coverage ratios are 1.78 and 1.81 respectively.

Debt-Funded Capital

The percentage of the capital program that is funded by debt over the five-year planning period FY18-22 will be 34.7 percent, which is under the financial policy maximum target of 65 percent. The debt percentage funding for FY18 and FY19 is shown in the below table.

Projected Debt Percentage of Funding		
(\$ Millions)		
	<u>FY18</u>	<u>FY19</u>
Expenditures:		
Capital Cash Flow	38.4	36.5
Administration of Capital	<u>3.0</u>	<u>3.0</u>
Total Expenditures	41.4	39.5
Project Funding:		
New Bond Proceeds	20.1	13.7
Loans Proceeds	0.0	0.0
Commercial Paper	0.0	0.0
Construction Fund	<u>0.0</u>	<u>0.0</u>
Total Resources	20.1	13.7
Debt Percentage of Funding	48.6%	34.7%

Commercial Paper and Variable Rate Debt Ratio

The District has authorized a short-term extendable commercial paper (ECP) borrowing program consistent with the MUD Act and the District's debt management policy. Under this program, the District may issue commercial paper notes at prevailing interest rates for periods of not more than 120 days from the date of issuance with the option by the District to extend the maturity for another 150 days. The program is not supported by any liquidity or revolving credit agreement. The Wastewater System ECP is secured by a pledge of the Wastewater System's net revenues, subordinate to the System's revenue bonds.

On June 30, 2017, \$15.0 million of Wastewater ECP is projected to be outstanding under the program. Wastewater System ECP will comprise 3.8 percent of the approximately \$397.2 million in total outstanding debt at the end of FY17.

The Wastewater System has no variable rate debt outstanding.

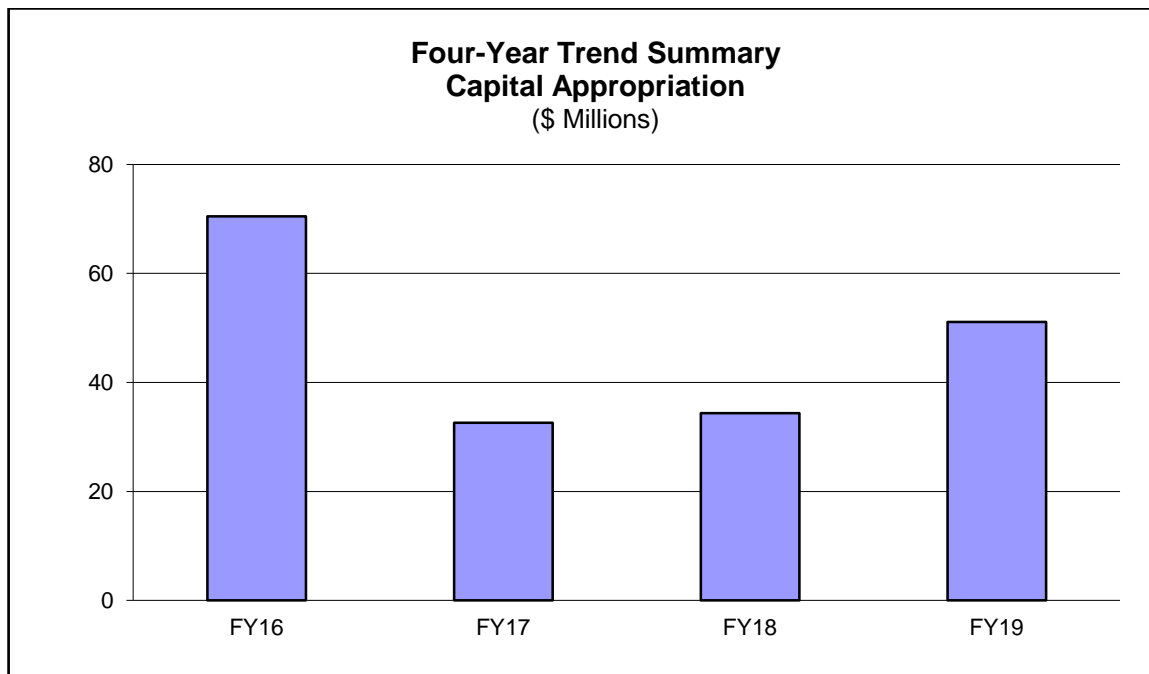
Capital Expenditures

The Capital Improvement Program (CIP) consists of projects that typically result in the construction of new facilities, or the rehabilitation or upgrade of existing facilities. Project costs include all expenditures required to study, plan, design, purchase, construct, or upgrade new or existing facilities. In addition, projects can include large equipment purchases and the creation or replacement of computer systems infrastructure.

Capital Appropriation

Capital appropriations represent the amounts approved by the Board to be spent on projects in the CIP. Since these appropriations are often spent over multiple years, the amounts appropriated for each fiscal year will vary depending upon project scope and timing, and any unspent appropriation a project may have.

The Wastewater System's FY18 appropriation totals \$34.4 million, an increase of \$1.8 million from FY17. In FY19, the appropriation totals \$51.1 million, an increase of \$16.7 million from FY18. The FY18 and FY19 appropriations reflect the District's continued commitment to improving the infrastructure at the Main Wastewater Treatment Plant, controlling odors, and rehabilitating sewer interceptors.



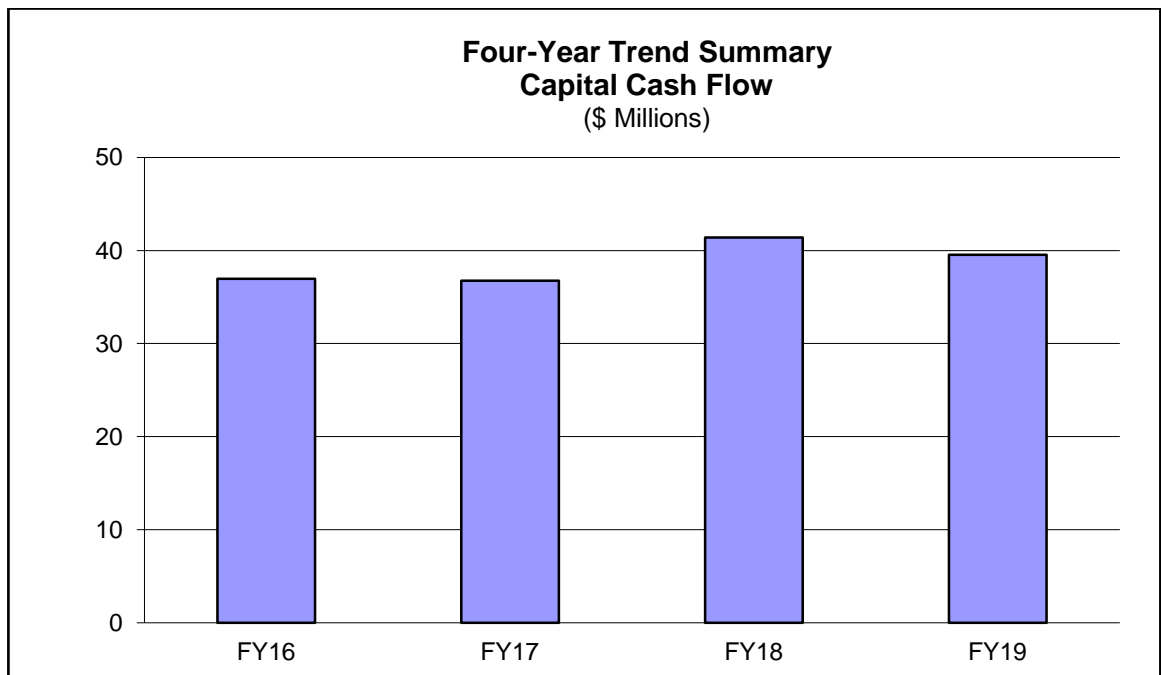
Capital Appropriation (\$ Millions)						
	FY16 Adopted Budget	FY17 Adopted Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Capital Appropriation	70.5	32.6	34.4	5.5%	51.1	48.7%

Includes Administration of Capital

Capital Cash Flow

Capital cash flows represent the amounts projected to be spent each fiscal year on projects in the CIP. The amount of cash flow each year varies as projects progress from one phase to another, such as from planning to design and then construction, and as projects are completed and new ones started.

The Wastewater System's FY18 cash flow totals \$41.4 million, an increase of \$4.7 million from FY17. In FY19, the cash flow totals \$39.5 million, a decrease of \$1.9 million from FY18. Key projects in the FY18 and FY19 cash flows include the 3rd Street sewer interceptor rehabilitation, concrete rehabilitation, digester upgrades, odor control improvements, and treatment plant infrastructure upgrades.



Capital Cash Flow						
(\$ Millions)						
	FY16 Actual	FY17 Adopted Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Capital Cash Flow	37.0	36.7	41.4	12.7%	39.5	-4.5%

Includes Administration of Capital

Capital Labor

The following table shows the capital labor and benefits budget for the Wastewater Department for capital project work.

Capital Labor By Department						
(\$ Thousands)						
DEPARTMENT	FY16 Actuals	FY17 Amended Budget	FY18 Proposed Budget	FY18 Change vs FY17	FY19 Proposed Budget	FY19 Change vs FY18
Wastewater	10,233	9,695	9,846	1.6%	9,886	0.4%
Department Total	10,233	9,695	9,846	1.6%	9,886	0.4%

The Wastewater Department capital labor budget is increasing \$0.2 million in FY18 compared to FY17 primarily due to a shift in personnel costs from capital work to the operating budget. In FY19, the capital labor budget is essentially flat with FY18.

Capital Program Highlights

The FY18-22 Wastewater System Capital Improvement Program (CIP) requires \$159.2 million in project appropriations, a decrease of \$0.3 million or less than one percent from the FY16-20 CIP. The decrease in the Maintaining Infrastructure Strategy is primarily due to completion of the Wood Street Sewer Interceptor Project and reduced needs under the Resource Recovery Project. The increase in the Regulatory Compliance Strategy is for nutrient management studies, pilot tests and possible design of sidestream treatment.

In accordance with the District's ten-year capital budget planning horizon, approximately \$235.0 million of work has been tentatively identified for FY23-27. Key aspects of this future work are discussed in the program and project summaries in the following pages. These future estimates will be revised as studies are completed, priorities are redefined, and new needs emerge. Therefore, the focus is on the first five years of the CIP.

The Wastewater System appropriations focus on the Maintaining Infrastructure Strategy, which comprises 85 percent of the CIP appropriations. All Wastewater System appropriations by strategy are summarized below.

FY16-20 vs. FY18-22 Appropriation Capital Improvement Program by Strategy (\$ Thousands)					
Strategy	Appropriation		Change		% of FY18-22
	FY16-20	FY18-22	\$	%	
Maintaining Infrastructure	132,547	122,369	(10,178)	0%	85%
Regulatory Compliance	8,558	17,956	9,398	110%	13%
Non-Program Specific	2,800	3,300	500	18%	2%
Wastewater Subtotal	143,905	143,625	(280)	0%	100%
Administration of Capital	15,551	15,551	0	0%	
Wastewater Total	159,456	159,176	(280)	0%	

Numbers in the table may be rounded.

No new appropriation is required as prior appropriations will be used.

The FY18-22 CIP identifies \$187.7 million in projected cash flow spending, an increase of \$19.2 million or 11 percent compared to the FY16-20 CIP. The increase is primarily attributable to the Maintaining Infrastructure Strategy for digester upgrades and upgrades to the treatment plant infrastructure. Under the Regulatory Compliance Strategy, new work was identified regarding nutrient management studies, pilot tests and possible treatment improvements.

All Wastewater System cash flows by strategy are summarized below, with select projects discussed in more detail.

FY16-20 vs. FY18-22 Cash Flows Capital Improvement Program by Strategy (\$ Thousands)					
Strategy	Cash Flows		Change		% of FY18-22
	FY16-20	FY18-22	\$	%	
Maintaining Infrastructure	143,095	153,253	10,158	0%	89%
Regulatory Compliance	9,886	18,878	8,992	91%	11%
Non-Program Specific	0	0	0	0%	0%
Wastewater Subtotal	152,981	172,131	19,150	13%	100%
Administration of Capital	15,551	15,551	0	0%	
Wastewater Total	168,532	187,682	19,150	11%	

Numbers in the table may be rounded.

MAINTAINING INFRASTRUCTURE STRATEGY

This strategy furthers the District's objectives to improve, rehabilitate and replace aging infrastructure in a cost effective manner to ensure sustainable delivery of reliable, high quality service at both the Main Wastewater Treatment Plant (MWWTP) and remote facilities. Work under this strategy focuses on rehabilitating the digesters, concrete structures, and treatment process facilities at the MWWTP; implementing odor control improvements; and rehabilitating sections of the sewer interceptor system. The program included in this strategy is:

Appropriations (\$ Thousands)						
Program	FY18	FY19	FY20	FY21	FY22	Total
Wastewater Infrastructure Program	25,328	46,901	17,567	14,668	17,905	122,369
Total	25,328	46,901	17,567	14,668	17,905	122,369

Wastewater Infrastructure Program

The Digester Upgrade Project will reuse or rehabilitate the digesters, which perform a key role in stabilizing wastewater solids prior to disposal. Interior coatings applied to some digesters are experiencing failure. The cause of the failure is being investigated and the coatings will be repaired in FY18-19. In FY18-22, the floating covers on Digester Nos. 3 and 4, and the membrane on Digester No. 2 will be replaced along with seismic upgrades, mechanical piping work, and associated electrical and control upgrades.

Additional digester work is scheduled for FY22-24 including new and upgraded equipment to facilitate digester cleaning, and a study to determine the effectiveness of including a grit removal system between the primary and secondary digesters to improve equipment reliability.

The Concrete Rehabilitation Project addresses critical concrete structures, channels and gates at the MWWTP as sulfides and other constituents in the wastewater accelerate corrosion. Repair of the primary tank channels is being conducted in phases and includes replacement of valves, gates and control panels. Phases 3 through 6 are scheduled to take place in FY18-21. Repairs to the secondary aeration reactor basins will be completed in four phases with the repair of two tanks per year starting in FY18 and continuing through FY25.

The Odor Control Project provides for odor control facilities to improve the air quality in communities along the collection system and at the MWWTP. Planned work includes replacing the odor control units at the influent pump station coarse screen and intake structure in FY18-19, and at the fine screen room in FY24-26; replacing the scrubber system at the solids dewatering building with a chemical scrubber in FY21-24; replacing the scrubber system at the resource recovery receiving station in FY18-20; and covering portions of the primary sedimentation tanks and providing two new chemical scrubbers in FY18-21. A second phase, if needed, includes covering the remainder of the primary sedimentation tanks and adding an additional odor control unit in FY25.

The Treatment Plant Infrastructure Projects provide for the cyclical replacement and rehabilitation of various treatment process facilities at the MWWTP. Work planned in FY18-22 includes replacement of large variable frequency drives; repair or replacement of flow meters; laboratory upgrades; rehabilitation of the secondary clarifiers; installation of a plant-wide intercom system; improvements to the plant gallery drains and internal plant drain; upgrades to the security system; improvements to the East Gate Undercrossing; replacement of grit handling equipment; and improvements to the Wastewater administration and operations buildings.

Work planned in FY23-27 includes rehabilitation of the remaining 10 of 12 clarifiers along with the installation of online total suspended solids monitors; replacement of the influent screens; improvements to the dewatering sludge well; additional improvements to plant gallery drains; replacement of aging motors and variable frequency drives at the influent pump station and the effluent pump station; and seismic improvements to various structures.

The Interceptor Rehabilitation program includes several projects to rehabilitate portions of the interceptor system that are approximately 60 years old. In FY18-22, all phases of the rehabilitation of a 9,200 foot portion of the 105 inch diameter South Interceptor along 3rd Street will be completed. In FY22-26, rehabilitation of a 2,100 foot portion of the South Interceptor along the Embarcadero will be completed. In addition, repairs will be made to various sections of the South Interceptor pipe ranging from 84 to 30 inches in diameter, along with manholes and flow control structures.

The Pump Station Improvements program includes upgrades to various pump stations such as the replacement of equipment; sump pumps and flow meters; the addition of programmable logic controllers and software; access improvements; and replacement of discharge piping. Work is scheduled for Pump Station M in Alameda in FY19-20, Pump Station L in Oakland in FY20-21, Pump Station C in Alameda in FY22-23, Pump Station A in Albany in FY23-24, and Pump Station J in Oakland in FY25-26.

The Resource Recovery program was developed to accept a wide variety of solid and liquid wastes delivered by truck to the MWWTP. Upgrades in FY18-20 include improvements to the Solid/Liquid Waste Receiving station and the Blend Tank Receiving Station which will result in the ability to accept additional high-strength waste.

REGULATORY COMPLIANCE STRATEGY

This strategy furthers the District's objectives to operate and maintain facilities to meet all water discharge, air emission, and land disposal requirements; to ensure protection and stewardship of San Francisco Bay; and implement preventative and corrective maintenance programs. Work under this strategy focuses on developing strategic nutrient management solutions to meet current and potential future regulatory requirements. The program included in this strategy is:

Appropriations (\$ Thousands)						
Program	FY18	FY19	FY20	FY21	FY22	Total
Regulatory Compliance Program	6,054	1,208	44	10,465	185	17,956
Total	6,054	1,208	44	10,465	185	17,956

Regulatory Compliance Program

The Pump Station Q (PS Q) Project includes the design and construction of modifications to portions of the North Interceptor to allow dual-mode operation of PS Q for use as either a gravity relief sewer (north to south flow) or a forcemain (south to north flow). Based on wet weather flow modeling work completed to date, discharges from the wet weather facilities may be reduced by operating the PS Q forcemain as a gravity sewer with relatively minor modifications. Construction began in FY17 and is expected to be completed in FY19.

The Nutrient Management Project includes the development of strategic nutrient management solutions to meet current and potential future regulatory requirements. Starting in FY18, a master plan will be developed to identify and evaluate a range of cost-effective alternatives to achieve nutrient reductions for the MWWTP that provide broad environmental and public health benefits. The work includes conducting one or more pilot-scale tests to evaluate promising sidestream nutrient treatment/recovery technologies. It also includes the implementation of sidestream treatment, if necessary in FY21-26; and planning and preliminary design for mainstream treatment, if necessary in FY23-27. Costs for these phases will be included in future projections when available.

NON-PROGRAM SPECIFIC STRATEGY

This strategy furthers the District's objective to maintain a strong financial position to meet short and long-term needs. The contingency program focuses on making funds available for unanticipated needs, and for projects that are seeking grants to pay for a substantial portion of the project's cost.

Appropriations (\$ Thousands)						
Program	FY18	FY19	FY20	FY21	FY22	Total
Contingency Program	0	0	3,300	0	0	3,300
Total	0	0	3,300	0	0	3,300

Contingency Program

The Contingency Project provides funding for unanticipated needs that may arise before the next budget preparation cycle, such as replacement or repairs to facilities and equipment as a result of failures or safety deficiencies, and new projects or the acceleration of planned projects requiring funding before the next budget cycle. Funds may also be set aside for projects where grants are being sought in the event that the grant application is successful. Most grants require the District to fund the project and then apply for reimbursement of allowable costs.

In FY20, funds have been set aside for possible costs related to expanding the food waste receiving station, or constructing a new food waste preprocessing facility at the MWWTP.

Capital Appropriation Summary

This section provides a summary of the five-year appropriation for the Wastewater System projects listed in the Capital Improvement Program, sorted by strategy and program. When the CIP is presented to the Board of Directors, the Board approves the overall five-year plan, but adopts just the first two years of the plan. The remaining three years are for planning purposes only and are subject to revision.

Department Abbreviations

The abbreviation for the Lead Department responsible for each capital project is as follows:

WAS – Wastewater Department

Capital Improvement Projects	Dept	Prior Approp	FY18-22 APPROPRIATIONS (IN 000's)					5 YR TOTAL
			FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	
MAINTAINING INFRASTRUCTURE								
WW Infrastructure Program								
3rd St Sewer Interceptor Rehab	WAS	28,266	0	6,572	0	0	6,437	13,009
Alameda Sewer Intercept Rehab	WAS	6,901	0	0	0	0	0	0
Biosolids Improvements Project	WAS	500	0	0	0	0	0	0
Centrifuge Replacement	WAS	22,403	0	0	0	0	0	0
Collection System Master Plan	WAS	0	0	0	200	0	0	200
Concrete Rehab at SD1	WAS	24,813	9,225	1,989	1,720	595	1,210	14,739
DCS Upgrades	WAS	9,402	0	0	0	0	0	0
Digester Upgrade	WAS	113,067	6,025	5,714	0	200	500	12,439
Information System Upgrades	WAS	2,210	225	0	2,500	0	0	2,725
Interceptor Corrosion Prevent	WAS	7,787	1,150	409	30	30	30	1,649
MWWTP Master Plan	WAS	19,277	0	550	0	0	0	550
MWWTP Pwr Dist Sys Upgrade	WAS	13,569	767	1,263	4,110	260	460	6,860
Motor Control Center Repl	WAS	2,529	0	0	0	0	0	0
North Interceptor Rehab	WAS	0	0	0	0	0	0	0
Odor Control Improvements	WAS	21,845	450	7,835	0	1,469	0	9,754
Outfall Investigation Project	WAS	1,089	0	0	43	0	0	43
PGS Engine Overhaul	WAS	8,512	0	0	0	0	296	296
PGS Expansion	WAS	49,341	230	970	0	0	0	1,200
Plant Pipe Replacement	WAS	5,091	316	1,771	0	0	0	2,087
Procure Emerg Response Equipmnt	WAS	1,875	0	0	0	0	0	0
Pump Station A Improvements	WAS	1,929	0	0	0	0	0	0
Pump Station C Upgrades	WAS	1,864	0	0	0	0	0	0
Pump Station H Imprvmts	WAS	6,134	0	0	0	0	0	0
Pump Station J Upgrades	WAS	0	0	0	0	0	0	0
Pump Station L Improvement	WAS	1,490	0	0	1,137	0	0	1,137
Pump Station M Imprvmts	WAS	0	674	4,099	0	0	0	4,773
Pump Station Master Plan	WAS	181	0	0	0	0	0	0
Pump Station N Upgrades	WAS	520	0	0	0	0	0	0
Resource Recovery Project	WAS	32,887	435	2,242	0	0	0	2,677
Routine Cap Equip Replacements	WAS	28,377	2,287	2,300	2,300	2,300	2,300	11,487
Scum System Improvements	WAS	1,400	0	0	0	0	0	0
Treatment Plant Infra Ph 2	WAS	4,292	2,264	10,360	3,796	5,073	4,923	26,416
Treatment Plant Infrastructure	WAS	57,909	351	764	1,655	4,741	1,749	9,260
Vehicle & Equip Additions, WW	WAS	335	139	63	0	0	0	202
WW Energy Management	WAS	2,200	790	0	76	0	0	866
West End Property Development	WAS	2,593	0	0	0	0	0	0
Wood St Sewer Intercept Rehab	WAS	27,653	0	0	0	0	0	0
WW Infrastructure Program Total		508,240	25,328	46,901	17,567	14,668	17,905	122,369
MAINTAINING INFRASTRUCTURE TOTAL		508,240	25,328	46,901	17,567	14,668	17,905	122,369

Capital Improvement Projects	Dept	Prior Approp	FY18-22 APPROPRIATIONS (IN 000's)					5 YR TOTAL
			FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	
NON-PROGRAM SPECIFIC								
WW Non-Program Specific								
Contingency Project Wastewater	WAS	18,719	0	0	3,300	0	0	3,300
WW Non-Program Specific Total		18,719	0	0	3,300	0	0	3,300
NON-PROGRAM SPECIFIC TOTAL		18,719	0	0	3,300	0	0	3,300
REGULATORY COMPLIANCE								
WW Regulatory Compliance								
Dechlorination Facility Impmpts	WAS	3,652	705	0	0	0	0	705
Infiltration/Inflow Contrl Prj	WAS	26,535	0	8	44	185	185	422
NPDES Compliance	WAS	8,594	49	0	0	280	0	329
Nutrient Management	WAS	0	5,300	0	0	10,000	0	15,300
PS Q FM Dual-Mode Operation	WAS	8,504	0	0	0	0	0	0
Wet Weather Plant Impmpts	WAS	8,067	0	1,200	0	0	0	1,200
WW Regulatory Compliance Total		55,352	6,054	1,208	44	10,465	185	17,956
REGULATORY COMPLIANCE TOTAL		55,352	6,054	1,208	44	10,465	185	17,956
APPROPRIATIONS SUMMARY (IN 000'S)								
Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	5 YR TOTAL		
582,310	31,382	48,109	20,911	25,133	18,090	143,625		

Operating Budget Impact of Capital Investments

The FY18-22 Capital Improvement Program includes various significant nonrecurring capital projects that will affect the operating budget and the services that the District provides. Such projects and their potential impacts include:

Nutrient Management

This project develops strategic nutrient management solutions to meet current and potential future regulatory requirements. Planned work includes identifying and evaluating a range of cost-effective alternatives to achieve nutrient reductions for the Main Wastewater Treatment Plant that provide broad environmental and public benefits; conducting pilot-scale testing to evaluate promising sidestream nutrient treatment/recovery technologies; and implementing sidestream treatment, if necessary.

While planning and pilot testing has yet to be completed, the operation of sidestream treatment is estimated to result in increased operating costs of \$2.4 million per year.

Odor Control Improvements

This project provides for odor control facilities in the collection system and at the Main Wastewater Treatment Plant. Planned work includes replacing the odor control units at the influent pump station; replacing the wet scrubber system at the solids dewatering building with a chemical scrubber; conducting a study of the primary sedimentation basins to evaluate and implement treatment alternatives; covering the primary sedimentation tanks and providing new chemical scrubbers; and replacing the scrubber system at the resource recovery receiving station.

The odor control improvements to the primary sedimentation tanks are estimated to result in increased operating costs of \$0.07 million per year.

FIVE-YEAR FINANCIAL FORECAST

SUMMARY

The five-year financial forecast presents the estimated impact of operations, debt service requirements and reserve balances on rate projections over the five-year period.

This forecast is built upon:

- Adopted District financial policies
- Capital investments in the FY18-FY22 Capital Improvement Program

This forecast identifies rate increases for the Wastewater System based on estimated increases in operating and capital expenditures to maintain current service levels, meet mandated program requirements, and fund increased debt service due to capital expenditures.

On average over the five-year period, revenues are forecast to increase by 3.6 percent per year to cover the increases in operating expenses and debt service, and maintain a minimum of 1.6 times coverage on revenue bond debt service. Forecasted operating expenses are expected to grow by 3.4 percent per year over the five-year period. In FY19, debt service decreases by 0.4 percent per year due in part to the retirement of the General Obligation bond.

The key factors driving the need for increased Wastewater System revenues are:

- Inflation
- Increasing labor and benefits costs

For all five years, the cash reserves exceed the cash reserve targets. Reserves in excess of those needed to meet financial reserve targets are available to pay for a portion of the capital program expenses funded with cash, a positive financial metric.

Capital cash flow spending, including administration of capital expenses, is projected at \$187.7 million over the five-year period. Major programs or projects to be undertaken during this period include: 3rd Street Sewer Interceptor Rehabilitation, Treatment Plant Infrastructure, Odor Control Improvements, Concrete Rehabilitation, and Digester Upgrades.

The projected average percentage of capital funded from debt will be 34.7 percent over the five-year period, lower than the financial policy maximum target of 65 percent. In FY18 and FY19, the debt coverage ratio will be 1.78 and 1.81, respectively, and for FY18 through FY22, the ratio meets or exceeds the target coverage ratio of 1.60.

OPERATIONS

The following table shows the financial forecast for the Wastewater System operating budget based on projected operations and maintenance expenses and debt service requirements.

WASTEWATER SYSTEM FUND – OPERATING BUDGET FIVE-YEAR FINANCIAL FORECAST (\$ Millions)							
	Actuals	Budget	Forecast				
	FY16	FY17	FY18	FY19	FY20	FY21	FY22
Beginning Balance	-	-	77.5	78.0	77.0	80.1	86.8
Treatment Charges	64.3	70.3	71.7	75.3	79.0	82.2	86.2
Resource Recovery	11.6	8.0	8.0	8.0	8.5	8.5	8.5
Wet Weather Facilities Charge	21.9	22.9	24.0	25.2	26.3	27.3	28.4
Property Taxes	4.6	4.4	4.8	4.9	5.1	5.2	5.3
Ad Valorem Bond Levy	3.3	4.1	2.2	0.0	0.0	0.0	0.0
Interest Income	0.3	0.7	1.5	1.5	1.9	2.1	2.2
Laboratory Services	4.3	4.0	4.1	4.3	4.4	4.5	4.7
Reimbursements	1.4	1.0	1.4	1.4	1.5	1.5	1.6
Permit Fees	1.6	1.8	1.6	1.6	1.6	1.6	1.6
Capacity Charges	3.1	1.6	1.8	1.9	1.9	2.0	2.1
All Other Revenue	<u>5.3</u>	<u>5.7</u>	<u>5.7</u>	<u>5.7</u>	<u>5.7</u>	<u>5.7</u>	<u>5.7</u>
Operating Revenues Total	121.8	124.5	127.0	129.9	135.9	140.6	146.2
Revenue Funded Capital	35.8	14.6	21.3	25.8	24.3	22.1	29.0
Operations	60.3	70.7	70.6	73.1	75.5	78.1	80.7
Debt Service	<u>33.2</u>	<u>34.0</u>	<u>34.7</u>	<u>31.9</u>	<u>32.9</u>	<u>33.8</u>	<u>34.1</u>
Expenses Total	129.3	119.3	126.5	130.9	132.8	134.0	143.8
Ending Balance	-	-	78.0	77.0	80.1	86.8	89.2
Policy Reserves	-	-	43.2	43.9	44.5	45.1	45.8

Numbers in the table may be rounded.

The following table shows the key assumptions used to create the revenue forecast.

WASTEWATER SYSTEM FUND – KEY ASSUMPTIONS FIVE-YEAR FINANCIAL FORECAST							
	Actuals	Budget	Forecast				
	FY16	FY17	FY18	FY19	FY20	FY21	FY22
% Rate Increase	5.0%	5.0%	5.0%	5.0%	4.0%	4.0%	4.0%
Average monthly single family residential bill based on 6 ccf/month	\$19.01	\$19.93	\$20.89	\$21.95	\$22.82	\$23.72	\$24.66
Debt Service Coverage Ratio	1.98	1.69	1.78	1.81	1.87	1.89	1.96

Excludes Wet Weather Facilities Charge

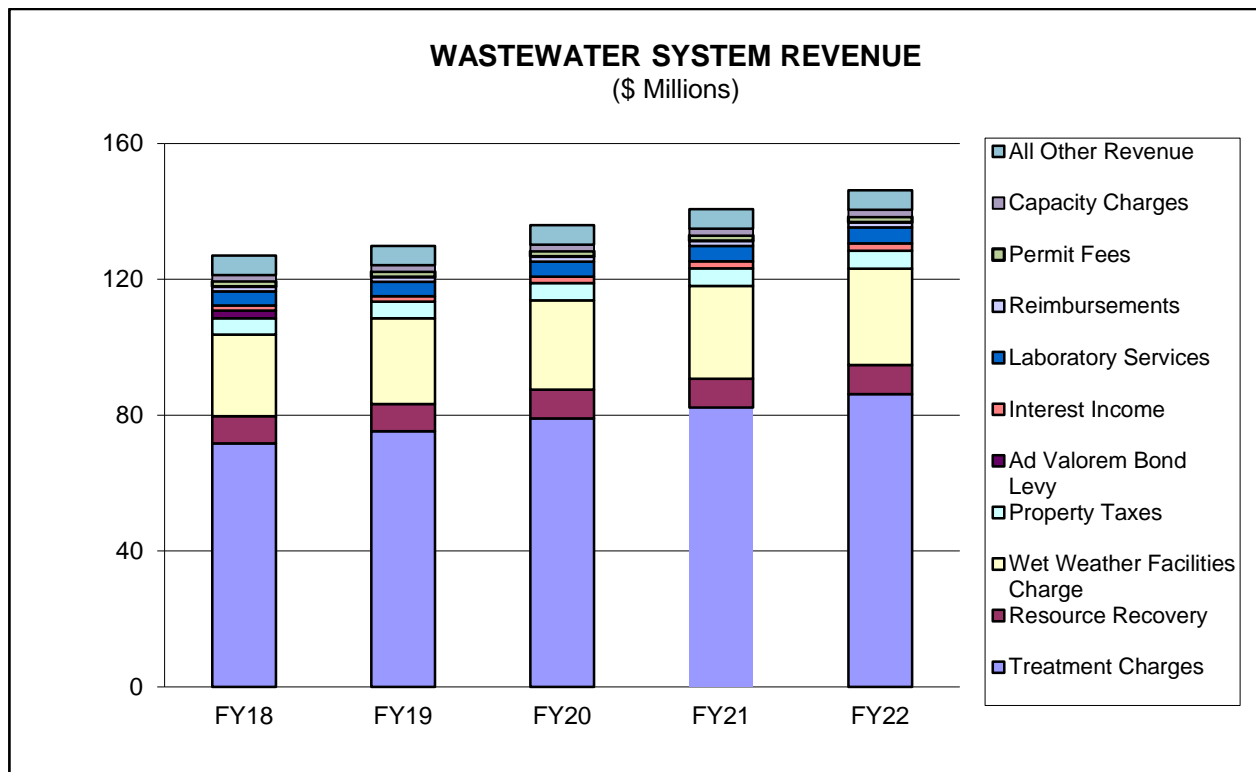
Five-Year Projection of Revenue

The key factors driving the need for increased Wastewater System revenues are: inflation, increasing labor and benefit costs, projected reductions in treatment revenue due to lower customer water use, and increasing capital expenditures.

Projected annual operating revenues are expected to increase from \$127.0 million in FY18 to \$146.2 million by FY22, an increase of \$19.2 million or 3.6 percent per year. The increase in revenue over the five-year period is to cover increased costs in operations and maintenance, debt service requirements, and revenue funding for capital projects.

The major components of the increase in operating revenue over the five-year period are wastewater treatment charges which are projected to increase from \$71.7 million in FY18 to \$86.2 million in FY22 and increases in revenue from the Wet Weather Facilities Charge from \$24.0 million in FY18 to \$28.4 million in FY22.

The following chart shows projected Wastewater System operating revenue by category for the next five years.



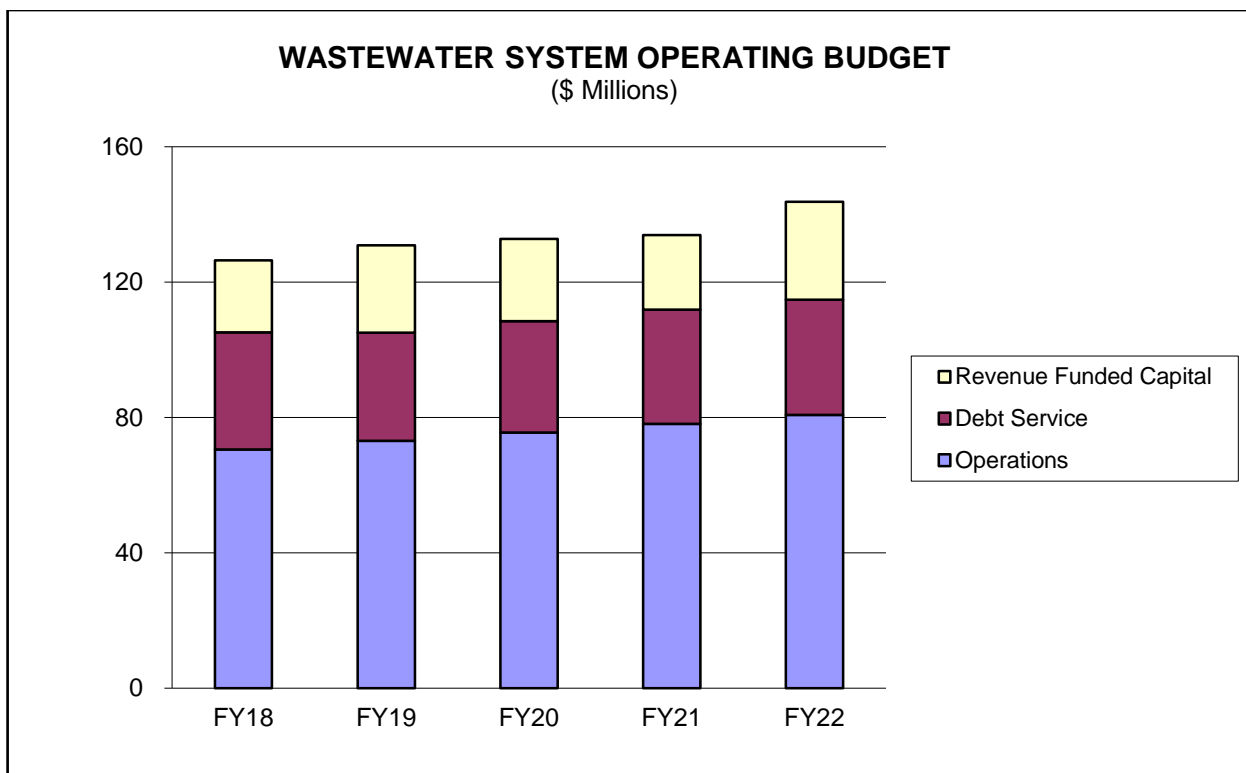
Five-Year Projection of Operating Budget

The Wastewater System operations expenses are projected to increase from \$70.6 million in FY18 to \$80.7 million in FY22, an increase of 3.4 percent per year.

Debt service requirements are expected to decrease from \$34.7 million in FY18 to \$34.1 million by FY22, a decrease of 0.4 percent per year because of the retirement of the General Obligation bond.

The District uses rate revenue to cash fund a portion of the annual capital improvement expenses. The amount of revenue funded capital will increase from \$21.3 million in FY18 to \$29.0 million in FY22, an increase of 8 percent per year.

This chart summarizes projected Wastewater System budget by category for the next five years.



Five-Year Projection of Reserves

The operating reserves consist of:

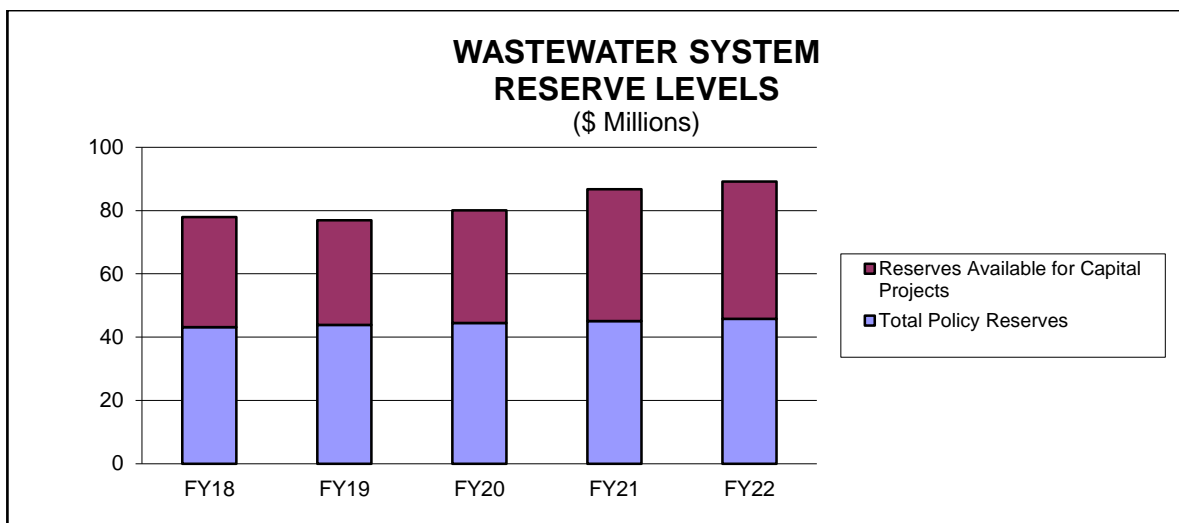
- Working capital reserves equal to three months operating and maintenance expenses
- Self-Insured Liability reserve based on the Actuarial Self-Insured Retention (SIR) funding recommendation
- Workers' Compensation reserve based on the Actuarial SIR funding recommendation
- Rate stabilization reserve of a minimum of 5 percent of operating and maintenance expenses

The table below shows the changes to reserve components over the five-year period. Reserve balances meet or exceed the policy reserve levels for the entire period.

WASTEWATER SYSTEM RESERVE COMPONENTS (\$ Millions)					
	Forecast				
	FY18	FY19	FY20	FY21	FY22
Projected Operating Budget Reserves	78.0	77.0	80.1	86.8	89.2
Policy Reserves					
Working Capital	17.6	18.3	18.9	19.5	20.2
Self-Insured Liability Reserve	0.3	0.3	0.3	0.3	0.3
Workers' Compensation Reserves	1.2	1.2	1.2	1.2	1.2
Rate Stabilization Reserve	<u>24.1</u>	<u>24.1</u>	<u>24.1</u>	<u>24.1</u>	<u>24.1</u>
Total Policy Reserves	43.2	43.9	44.5	45.1	45.8
Reserves Available for Capital Projects	34.8	33.1	35.6	41.7	43.4

Numbers in the table may be rounded.

The following chart shows Wastewater System reserve levels projected at the end of each fiscal year.



CAPITAL INVESTMENTS AND FINANCING

The Five-Year Capital Improvement Program (CIP) outlines the Wastewater System capital investment plan for the next five-year period, the estimated cost of these investments and the sources of funds. Appropriations reflect the amount that is authorized and budgeted over a multi-year period for each program. Cash flows are the amounts estimated to be spent on each program in a given year. The five-year program for the Wastewater System includes \$159.2 million in capital project appropriations, including administration of capital expenses, and \$187.7 million in projected cash flow spending.

The focus of the CIP is the five-year period from FY18-22. Capital needs have been estimated for a second five-year period from FY23-27, but given the long-term nature of these capital improvement plans, by necessity they are preliminary estimates only and will be revised as studies are completed, priorities are redefined, and as new needs emerge. Therefore, the budget focuses on the first five years of the CIP.

In the FY18-22 CIP, 85 percent of the Wastewater System's project appropriations will focus on the Maintaining Infrastructure Strategy. This strategy furthers the District's objectives to improve, rehabilitate and replace aging infrastructure in a cost effective manner to ensure sustainable delivery of reliable, high quality service at both the Main Wastewater Treatment Plant (MWWTP) and remote facilities. Work under this strategy focuses on rehabilitating the digesters, concrete structures, and treatment process facilities at the MWWTP; implementing odor control improvements; and rehabilitating sections of the sewer interceptor system.

Funding for these projects is drawn from the proceeds of revenue bond issues, commercial paper, grants, and current reserves and revenues.

For the FY18-22 CIP, an increasing amount of capital expenditures will be funded on a pay-as-you-go basis in accordance with the District's financial policies. Over the five-year period, the percentage of capital funded from debt will average 34.7 percent, which is less than the target maximum of 65 percent contained in the District's debt policy, and debt service will drop by \$0.6 million as the General Obligation bonds are retired. Wastewater System total outstanding debt will decrease by \$5.1 million during the period. Total debt outstanding at the end of the five-year period will total \$398.2 million.

In FY18 and FY19, the debt coverage ratio will be 1.78 and 1.81, respectively, and for FY20 through FY22, the ratio meets or exceeds the target coverage ratio of 1.60.

The following table shows the cash flow spending on capital improvements anticipated for the next five years, along with the financial resources anticipated to fund the capital program.

WASTEWATER SYSTEM FUND - CAPITAL BUDGET						
FIVE-YEAR FINANCIAL FORECAST						
(\$ Millions)						
	Forecast					
	FY18	FY19	FY20	FY21	FY22	Totals
Beginning Balance	0.0	0.0	0.0	0.0	0.0	-
Resources:						
Revenue Funded Capital	21.3	25.8	24.3	22.1	29.0	122.5
New Bond Proceeds	20.1	13.7	13.7	12.7	4.9	65.2
Loans Proceeds	0.0	0.0	0.0	0.0	0.0	0.0
Grants	0.0	0.0	0.0	0.0	0.0	0.0
Reimbursements	0.0	0.0	0.0	0.0	0.0	0.0
Commercial Paper	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
Total Resources	41.4	39.5	38.0	34.8	33.9	187.7
Expenditures:						
Capital Cash Flow	38.4	36.5	34.9	31.7	30.6	172.1
Administration of Capital	<u>3.0</u>	<u>3.0</u>	<u>3.1</u>	<u>3.2</u>	<u>3.3</u>	<u>15.6</u>
Total Expenditures	41.4	39.5	38.0	34.8	33.9	187.7
Ending Balance	0.0	0.0	0.0	0.0	0.0	-
Debt Percentage of Funding	48.6%	34.7%	36.1%	36.6%	14.5%	34.7%

Numbers in the table may be rounded.

Projected new bond issues, outstanding debt, and debt service are shown in the following table.

OUTSTANDING DEBT AND DEBT SERVICE AT END OF FISCAL YEAR					
(\$ Millions)					
	Forecast				
	FY18	FY19	FY20	FY21	FY22
Beginning of Year Outstanding Debt	397.2	403.3	405.8	407.6	407.7
Debt Retired	14.4	11.5	12.2	12.9	14.5
New Bond Issues and Commercial Paper	<u>20.5</u>	<u>14.0</u>	<u>14.0</u>	<u>13.0</u>	<u>5.0</u>
Total Outstanding Debt	403.3	405.8	407.6	407.7	398.2
Debt Service, Existing Debt	33.1	29.5	29.6	29.6	29.6
Debt Service, New Debt	1.3	2.2	3.2	4.0	4.3
Debt Servicing Costs	<u>0.3</u>	<u>0.2</u>	<u>0.2</u>	<u>0.2</u>	<u>0.2</u>
Total Debt Service	34.7	31.9	33.0	33.8	34.1

Numbers in the table may be rounded.

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