

ACWD 2018 Water Rate Update Study Report Appendix A:

ACWD 2017 Water Rate Update Study Report



Alameda County Water District

2017 Water Rate Update Study

Final Report / January 23, 2017





445 S. Figueroa Street
Suite 2270
Los Angeles, CA 90071

Phone 213.262.9300
Fax 213.262.9303

www.raftelis.com

January 23, 2017

Shelley Burgett
Manager of Finance
Alameda County Water District
43885 S. Grimmer Blvd.
Fremont, CA 94538

Subject: 2017 Water Rate Update Study Report

Dear Ms. Burgett,

Raftelis Financial Consultants, Inc. (RFC) is pleased to provide this 2017 Water Rate Update Study Report (Report) for the Alameda County Water District (District or ACWD) to develop a financial plan for the District's General Fund for FY 2016/17 to 2020/21 and calculate water rates for FY 2016/17 and 2017/18.

The major objectives of the study include the following:

1. Develop financial plans to ensure financial sufficiency, meet operation and maintenance (O&M) costs, ensure sufficient funding for debt obligations and capital replacement and refurbishment (R&R) needs;
2. Calculate the water rates; and
3. Conduct a customer impact analysis for the proposed rates.

The Report summarizes the key findings and recommendations related to the development of the financial plans, the associated water rates and the customer impact analysis.

It has been a pleasure working with you, and we thank you and the District staff for the support provided during the course of this study.

Sincerely,

RAFTELIS FINANCIAL CONSULTANTS, INC.

A handwritten signature in black ink, appearing to read 'Sanjay Gaur', written over a light blue horizontal line.

Sanjay Gaur
Vice President

A handwritten signature in black ink, appearing to read 'Khanh Phan', written over a light blue horizontal line.

Khanh Phan
Senior Consultant

TABLE OF CONTENTS

1.	EXECUTIVE SUMMARY	5
1.1	BACKGROUND OF THE STUDY	5
1.2	FINANCIAL PLAN DEVELOPMENT	6
1.3	PROPOSED 2-YEAR WATER RATES	8
1.4	CUSTOMER IMPACT ANALYSIS	9
2.	INTRODUCTION.....	11
2.1	BACKGROUND OF THE STUDY	11
2.2	KEY INFORMATION USED IN THE STUDY	13
2.3	KEY ASSUMPTIONS USED IN THE STUDY	13
3.	LEGAL FRAMEWORK AND RATE SETTING METHODOLOGY	16
3.1	CALIFORNIA CONSTITUTION - ARTICLE XIII D, SECTION 6 (PROPOSITION 218)	16
3.2	CALIFORNIA CONSTITUTION - ARTICLE X, SECTION 2.....	16
3.3	COST-BASED RATE-SETTING METHODOLOGY	17
4.	FINANCIAL PLAN DEVELOPMENT	19
4.1	WATER REVENUE REQUIREMENTS.....	19
4.1.1	Revenues from Current Rates	19
4.1.2	Miscellaneous Revenues	20
4.1.3	O&M Expenses	21
4.1.4	Debt Service Obligations	25
4.1.5	Capital Improvement Program.....	25
4.2	WATER FINANCIAL PLAN	26
4.2.1	Status Quo Financial Plan (No Revenue Increase)	26
4.2.2	Proposed Financial Plan	28
5.	PROPOSED WATER RATES & CUSTOMER IMPACT ANALYSIS.....	33
5.1	PROPOSED WATER RATES	33
5.2	CUSTOMER IMPACT ANALYSIS	33
6.	APPENDIX.....	36
6.1	APPENDIX – “ALAMEDA COUNTY WATER DISTRICT 2015 WATER RATE STUDY REPORT”	36

LIST OF TABLES

Table 1-1: Pension/OPEB Advance Funding and Revenue Adjustments	7
Table 1-2: Proposed Water Rates for FY 2016/17 and FY 2017/18	9
Table 2-1: Cost Escalation Factors	14
Table 2-2: Projected New Accounts	14
Table 2-3: Billed Demand 5-Year Forecast	15
Table 4-1: Current Bimonthly Meter Service Charges and Projected 5-Year Service Connections.....	19
Table 4-2: Projected Revenues from Current Consumption Charges	19
Table 4-3: Projected Revenues from Current Water Rates	20
Table 4-4: Projected Miscellaneous Revenues	21
Table 4-5: Water Supply Information and Unit Cost	22
Table 4-6: Water Supply All-in Costs.....	23
Table 4-7: CalPERS/OPEB Liabilities Advance Funding.....	24
Table 4-8: Budgeted and Projected Water O&M Expenses.....	24
Table 4-9: Annual Debt Service	25
Table 4-10: Status Quo Financial Plan.....	27
Table 4-11: Changes in Revenue Requirements for FY 2016/17 and FY 2017/18	28
Table 4-12: Proposed 5-Year Revenue Adjustments	29
Table 4-13: Proposed Financial Plan	30
Table 5-1: Proposed Water Rates for FY 2016/17 and FY 2017/18	33

LIST OF FIGURES

Figure 1-1: Water Supply Sources in Typical Year	3
Figure 1-2: Projected Water Debt Coverage Ratios	8
Figure 1-3: Projected General Fund (GF) Ending Balances	8
Figure 1-4: Single Family Customer Bill Impact Analysis.....	10
Figure 2-1: Water Supply Sources in Typical Year	11
Figure 4-1: Water Supply Sources in Typical Year	21
Figure 4-2: Projected Capital Expenditures and Funding Sources	26
Figure 4-3: Water Operating Financial Plan	31
Figure 4-4: Projected Debt Coverage Ratios under Proposed Revenue Adjustments	31
Figure 4-5: Projected General Fund Ending Balances	32
Figure 5-1: Single Family Customer Bill Impact Analysis.....	34
Figure 5-2: Customer Bill Impact Analysis.....	35

Glossary

Terms	Descriptions
AF	Acre foot / Acre feet, 1 AF = 435.6 CCF
AWWA	American Water Works Association
CCF	Centum Cubic Feet = 100 cubic feet = 748 gallons
CIP	Capital Improvement Plan
COS	Cost of Service
EMU	Equivalent Meter Unit
FPM	Financial Plan Model
FY	Fiscal Year (July 1 – June 30)
FIF	Facilities Improvement Fund
GF	General Fund
IRP	Integrated Resource Plan
M1 Manual	"Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices M1", 6 th edition published by AWWA
MD	Max Day Peaking Factor
MFR	Multi-Family Residential
MGD	Million Gallons per Day, 1 MGD = 1,120 AF/yr
MH	Max Hour Peaking Factor
OPEB	Other Postemployment Benefits
O&M	Operations and Maintenance
PAYGO	Pay-As-You-Go CIP
R&R	Replacement and refurbishment
RFC	Raftelis Financial Consultants, Inc.
SFPUC	San Francisco Public Utilities Commission
SFR	Single Family Residential
SWP	State Water Project
WTP	Water Treatment Plant

This page intentionally left blank to facilitate two-sided printing.

1. EXECUTIVE SUMMARY

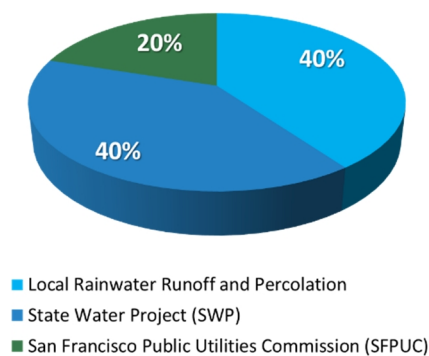
1.1 BACKGROUND OF THE STUDY

The Alameda County Water District (ACWD or District) provides water services to more than 344,000 residents through more than 82,400 water meter connections in Fremont, Newark, and Union City. The District operates and maintains approximately 900 miles of transmission and distribution pipeline system, 12 reservoirs and tanks, a surface water treatment facility with 26.0 million gallons per day (MGD) capacity (another surface water treatment facility with 4 MGD capacity was temporarily decommissioned due to lower water demands as a result of the drought), a desalination facility with 12.5 MGD capacity, and a blending facility with 50 MGD capacity.

The District currently has three primary sources of water supply:

- » San Francisco Public Utilities Commission (SFPUC)
- » Local rainwater runoff and percolation
- » The State Water Project (SWP)

Figure 1-1: Water Supply Sources in Typical Year



The District is facing a number of financial challenges resulting primarily from the lingering effects of the drought. Water demand has dropped approximately 19 percent (from 40.5 MGD in FY 2013/14 to a projected 32.8 MGD in FY 2016/17.) The projected revenue impact due to the drought from FY 2013/14 until water demand stabilizes in FY 2019/20, is estimated to be approximately \$60.2 million (the District estimates that there will be an approximately 6% permanent reduction in water demand due to long-term customer behavior changes).

To help mitigate decreased revenue and increased water supply costs during the drought period, the District implemented a variety of measures to manage costs, including:

- » Deferring Capital Projects
- » Utilizing Reserves
- » Implementing Drought Surcharges (rescinded July 1, 2016)
- » Temporarily Decommissioning the Mission San Jose Water Treatment Plant
- » Reducing staffing levels
- » Conducting on-going organizational assessments of the District
- » Leveraging the District water portfolio to minimize water supply costs
- » Maximizing use of Newark Desalination Plant
- » Optimizing WTP2 treatment process and power use
- » Interagency bulk buying of water treatment chemicals
- » Maintaining an AAA credit rating

Although some increase in water use is projected now that the drought appears to have moderated, the District does not anticipate that water demand will return to pre-drought demand levels for a number of years. Instead, the District projects a “new normal” water demand of approximately 39.29 MGD starting FY 2020/21. While facing sustained lower water demand and associated revenues, the District must continue to maintain and replace aging infrastructure and comply with on-going and new water quality and environmental regulations, including constructing or contributing to projects required to address those environmental regulations. Additionally, the District Board of Directors has signaled that it wants to proactively fund approximately \$107.8 million in currently unfunded pension and other post-employment benefits (OPEB) liabilities. Yet another financial unknown of concern to the District is the costs of future supplemental water supplies, especially if drought conditions return.

The District engaged Raftelis Financial Consultants, Inc. (RFC) to provide analytical support necessary to conduct annual financial plan and rate setting updates. RFC assisted with the development of a multi-year financial plan, which included projected lower water consumption, new water-supply cost information, and added assumptions of increased Capital Improvement Plan (CIP) spending. The analysis also evaluated various levels of advance funding of the District’s unfunded liabilities, per the request of the Board of Directors.

The major objectives of the study include the following:

1. Develop financial plans to ensure financial sufficiency, meet operation and maintenance (O&M) costs, ensure sufficient funding for debt obligations and capital replacement and refurbishment (R&R) needs;
2. Calculate proposed water rates in a way that is consistent with District policies, complies with general “cost of service” principles, and is in compliance with Proposition 218 requirements; and
3. Conduct customer impact analysis for the proposed rates.

This Report provides an overview of the study and includes findings and recommendations for the District’s financial plan and water rates.

1.2 FINANCIAL PLAN DEVELOPMENT

In this Study, the Financial Plan Model¹ (FPM) was updated with the current financial plan information² including the FY 2016/17 Operating Budget, the 25-year Capital Improvement Program (CIP) plan, updated water supply costs along with 5-year billed water demand forecasts, and revised assumptions associated with cost escalations and projected growth in accounts. In addition, the FPM incorporated District plans to accelerate advance funding of pension and other post-employment benefits (OPEB) liabilities.

Use of the FPM enables the District to set rates and charges to generate sufficient water revenues to meet the District’s short-term and long-term obligations. It also shows the level of revenues that will maintain appropriate reserves and provide adequate debt service coverage. The Board directed District staff to include advance funding of pension and OPEB liabilities as part the financial plan. If the District maintains current water rates for the next two years (FY 2016/17 and FY 2017/18), the District will have an estimated

¹ Developed by RFC and used in the 2015 Rate Study

² Provided to RFC on December 6, 2016

cumulative total deficit of \$30.2 M (see Section 4.2, Table 4-11 for details). The \$30.2 M total deficit equates to approximately 37% of revenues from rates that would be generated from current rates. To balance the revenues and revenue requirements after two years and going forward, the FY 2016/17 and FY 2017/18 revenue adjustment needs to generate approximately \$30.2 M, or about 37% more revenues than the current annual rates will generate. In order to minimize the cash deficits and to maintain fiscal solvency and sufficiency for its expenses and other funding obligations, the District Board took action to set a public hearing and authorized ACWD staff to proceed with the Proposition 218 rate notification process for water rates based on a 5-year financial plan with revenue adjustments of 25 percent in FY 2016/17 and five percent in FY 2017/18 along with the 2-year estimated amounts for advance funding of pension and OPEB liabilities, as shown in Table 1-1. Details of the financial plan and the District’s revenue needs for the next two years are presented in Chapter 4 of this report.

Table 1-1: Pension/OPEB Advance Funding and Revenue Adjustments

Fiscal Year	Pension / OPEB Advance Funding \$	Revenue Adjustments
FY 2016/17	\$0	25%
FY 2017/18	\$8,970,221	5%

With the proposed financial plan, the District will maintain debt coverage³ of at least 200%, which will help the District to maintain its AAA credit rating⁴ as shown in Figure 1-2 and to meet reserve targets⁵ as shown by the orange columns representing General Fund ending balances all greater than the red reserve target line shown in Figure 1-3. The financial plan as proposed will also increase reserve funds and will better prepare the District to absorb unknown costs and liabilities, including uncertainty and volatility in water demand and water supply costs.

³ Debt coverage = (Total Revenues – O&M expenses) / Total debt service

⁴ Established by the District’s current financial policy

⁵ Established by the District’s current financial policy

Figure 1-2: Projected Water Debt Coverage Ratios

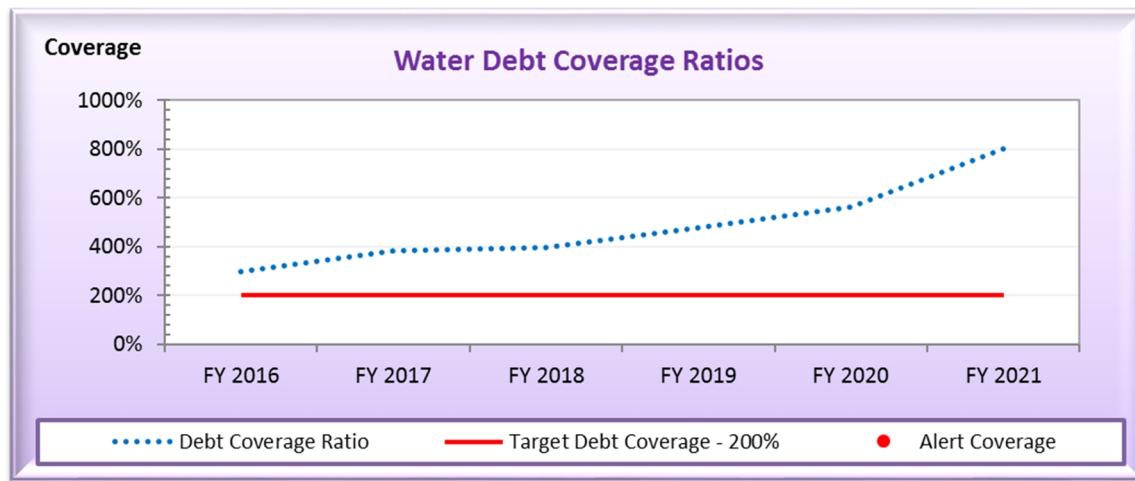
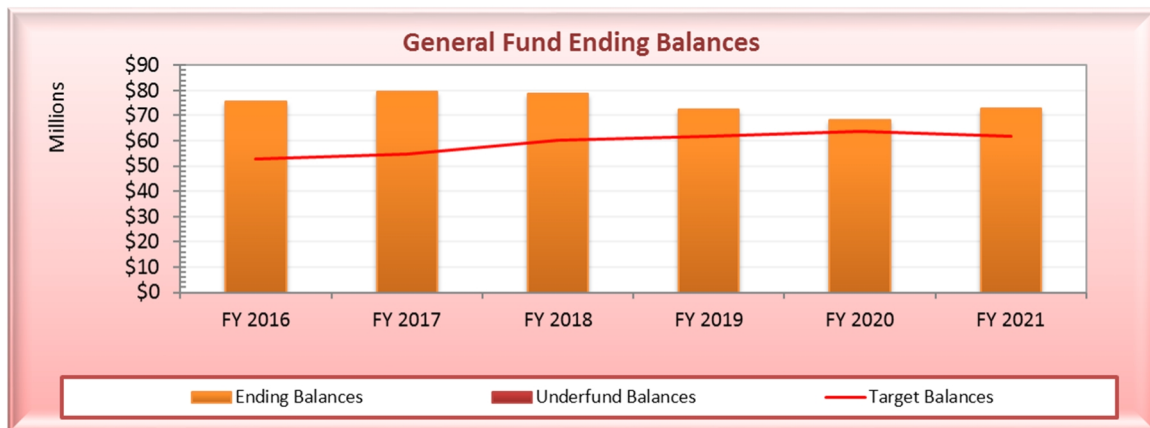


Figure 1-3: Projected General Fund (GF) Ending Balances



1.3 PROPOSED 2-YEAR WATER RATES

Government Code §54999.7(c) requires that water and wastewater agencies must conduct a cost of service study a minimum of every 10 years. The District conducted a comprehensive cost of service rate study for its water service in 2015 and documented the results and findings in the “Alameda County Water District 2015 Water Rate Study Report” dated March 23, 2015 (Appendix). This Study focuses on updating the financial plan to incorporate the latest financial information and cost projections for the next five years. The revenue adjustments recommended in the financial plan were applied across current rates proportionately to calculate the proposed rates for FY 2016/17 and FY 2017/18.

Table 1-2 shows the proposed water rates for FY 2016/17 and FY 2017/18.

Table 1-2: Proposed Water Rates for FY 2016/17 and FY 2017/18⁶

	Current	FY 2016/17	FY 2017/18
Effective Date	Since May 2015	March 1, 2017	March 1, 2018
Proposed Revenue Adjustments		25%	5%
Bimonthly Meter Service Charge			
5/8-inch	\$41.54	\$51.92	\$54.51
¾-inch	\$41.54	\$51.92	\$54.51
1-inch	\$64.05	\$80.06	\$84.06
1 ½-inch	\$120.32	\$150.40	\$157.92
2-inch	\$187.84	\$234.80	\$246.54
3-inch	\$401.66	\$502.07	\$527.17
4-inch	\$716.76	\$895.95	\$940.74
6-inch	\$1,808.37	\$2,260.46	\$2,373.48
8-inch	\$3,158.81	\$3,948.51	\$4,145.93
10-inch	\$4,734.31	\$5,917.88	\$6,213.77
Consumption Charge			
Inside District	\$3.373/CCF	\$4.216/CCF	\$4.426/CCF
Outside District	\$3.878/CCF	\$4.847/CCF	\$5.089/CCF

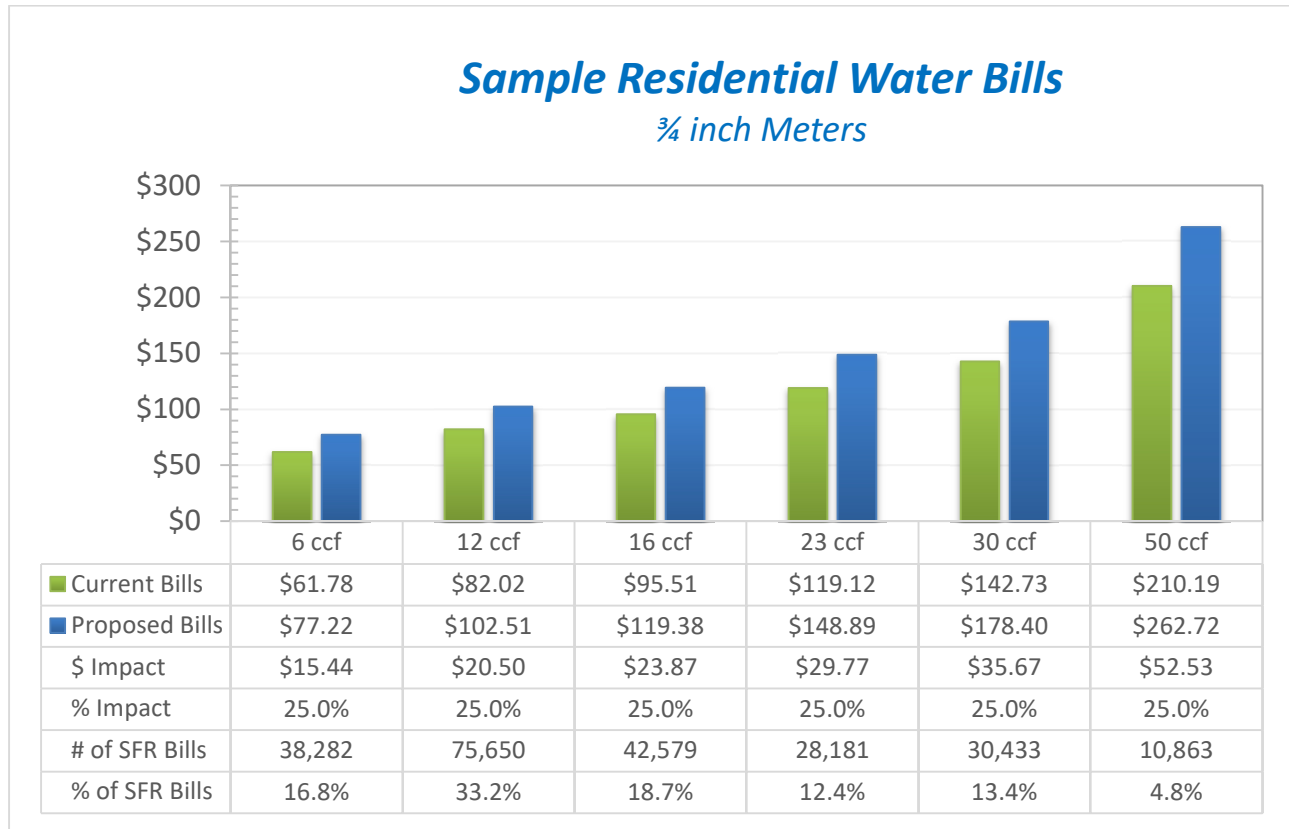
1.4 CUSTOMER IMPACT ANALYSIS

Before implementing any rate structure recommendations, it is important to understand how the proposed rates would impact the ACWD's customers. The customer impact analysis is a powerful tool, which can be used to assist elected officials in making informed decisions.

Figure 1-4 shows the water bills of typical single-family residential customers with ¾" meter for a bimonthly billing period at various water consumption levels under current and proposed rates. Single-family residential users at all consumption levels will see a 25% increase in their bimonthly bills. Currently, average single-family residential users consume 16 CCF per 2-month billing period. Therefore, as shown in Figure 1-4, average residential customers will experience a \$23.87 bimonthly (\$11.94 per month) increase in costs for their water service.

⁶ Rates are rounded down to the nearest \$0.01 for bimonthly meter service charge and \$0.001 for consumption charge

Figure 1-4: Single Family Customer Bill Impact Analysis



2. INTRODUCTION

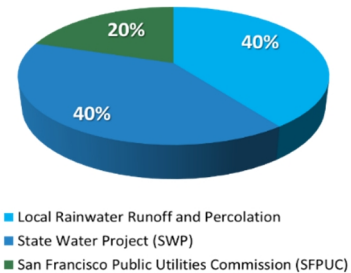
2.1 BACKGROUND OF THE STUDY

The Alameda County Water District (ACWD or District) provides water services to more than 344,000 residents through more than 82,400 water meter connections in the tri-city area, which includes the cities of Fremont, Newark, and Union City. The District operates and maintains approximately 900 miles of transmission and distribution pipeline system, 12 reservoirs and tanks, a surface water treatment facility with 26.0 million gallons per day (MGD) capacity (another surface water treatment facility with 4 MGD capacity was temporarily decommissioned due to lower water demands as a result of the drought), a desalination facility with 12.5 MGD capacity, and a blending facility with 50 MGD capacity.

The District currently has three primary sources of water supply:

- » San Francisco Public Utilities Commission (SFPUC)
- » Local rainwater runoff and percolation
- » The State Water Project (SWP)

Figure 2-1: Water Supply Sources in Typical Year



The SWP and SFPUC supplies are imported into the District service area through the South Bay Aqueduct and Hetch Hetchy Aqueduct, respectively. Local supplies include fresh groundwater from the Niles Cone Groundwater Basin (underlying the District service area), desalinated brackish groundwater from portions of the groundwater basin previously impacted by seawater intrusion, and surface water from the Del Valle Reservoir.

The primary source of recharge for the Niles Cone Groundwater Basin is from percolation of runoff from the Alameda Creek watershed. To a lesser degree, a portion of ACWD's SWP supplies are also used for local groundwater percolation. Infiltration of rainfall and applied water also contribute to local groundwater recharge.

Before being supplied to District's customers, the source water supplies are treated to meet and surpass all state and federal drinking water standards. The District treats SWP and local surface water from Del Valle Reservoir. The Newark Desalination Facility treats brackish groundwater to remove salts and other impurities, and the Blending Facility blends treated San Francisco water with local fresh groundwater (with higher hardness) to provide a blended supply with lower overall hardness.

It is the mission of the Alameda County Water District to provide a reliable supply of high quality water at a reasonable price to our customers. To fulfill this mission, the District will:

- » Provide prompt, courteous, and responsive customer service.
- » Ensure that sound, responsible financial management practices are observed in the conduct of District business.

- » Plan, design, and operate facilities efficiently, effectively and safely, bearing in mind the District's responsibility to be a good neighbor and a good steward of the environment.
- » Promote ethical behavior in the conduct of District affairs and facilitate the public's involvement in the planning and development of District policy.
- » Recruit and retain a qualified, productive workforce and maintain a workplace environment where diversity and excellence are valued and where creativity, teamwork, and open communication are actively encouraged.

The provision of clean, safe, and reliable drinking water is a capital intensive and labor intensive operation. To ensure that District continues to fulfill its mission of providing a reliable supply of high quality water, it must provide consistent and on-going infrastructure operations and maintenance, and assure the adequate management of its water resources, including the importation of water as needed.

The District is facing a number of financial challenges resulting primarily from the lingering effects of the drought. Water demand has dropped approximately 19 percent (from 40.5 MGD in FY 2013/14 to a projected 32.8 MGD in FY 2016/17.). The projected revenue impact due to the drought from FY 2013/14 until water demand recovers in FY 2019/20, is estimated to be approximately \$60.2 million. Although some increase in water use is projected now that the drought appears to have moderated, the District does not anticipate that water demand will return to pre-drought demand levels for a number of years. Instead, the District projects a "new normal" water demand of 39.29 MGD starting FY 2020/21. While facing sustained lower water demand and revenues, the District must continue to maintain and replace aging infrastructure and to comply with on-going and new environmental regulations, including by constructing or contributing to projects required to address those environmental regulations. Additionally, the District Board of Directors has signaled that it wants to fund approximately \$107.8 million in unfunded pension and other post-employment benefits (OPEB) liabilities. Yet another financial unknown of concern to the District is the cost and availability of future supplemental water supply sources, especially if drought conditions return.

To help mitigate decreased revenue and increase water supply cost, the District implemented a variety of measures during the drought to manage costs, including:

- » Deferring Capital Projects
- » Utilizing Reserves
- » Implementing Drought Surcharges (rescinded July 1, 2016)
- » Temporarily Decommissioning Mission San Jose Water Treatment Plant
- » Reducing staffing levels
- » Conducting on-going organizational assessments of District
- » Leveraging the District water portfolio to minimize water supply costs
- » Maximizing use of Newark Desalination Plant
- » Optimizing WTP2 treatment process and power use
- » Interagency bulk buying of water treatment chemicals
- » Maintaining a AAA credit rating

The District engaged Raftelis Financial Consultants, Inc. (RFC) to provide analytical support necessary to conduct annual financial plan and rate setting updates. RFC assisted with the development of a multi-year

financial plan, which included projected lower water consumption, new water-supply cost information, and adjustments in Capital Improvement Plan (CIP) spending. The analysis also evaluated advance funding of the District's unfunded pension and other post-employment benefits (OPEB) liabilities.

The major objectives of the study include the following:

1. Develop financial plans to ensure financial sufficiency, meet operation and maintenance (O&M) costs, ensure sufficient funding for debt obligations and capital replacement and refurbishment (R&R) needs;
2. Calculate proposed water rates in a way that is consistent with District policies, comply with general "cost of service" principles, and that is in compliance with Proposition 218 requirements; and
3. Conduct customer impact analysis for the proposed rates.

This Report provides an overview of the study and includes findings and recommendations for the District's financial plan and water rates.

2.2 KEY INFORMATION USED IN THE STUDY

The Study utilized the following key information provided by the District:

1. FY 2016/17 Budget provided by District staff
2. Reserve Policy provided by District staff
3. 25-year CIP provided by District staff
4. Water supply cost projections provided by District staff
5. Beginning fund balances as of July 1, 2016 provided by District staff
6. Bimonthly billing data extracts for all water accounts in calendar year (CY) 2015
7. Board of Directors requests for advance payment of Pension/OPEB liabilities
8. Adjustments to costs and revenue based on updated information

RFC used the District's FY 2016/17 Budget as the baseline for future projections, consistent with best practices. Final actual budget figures are typically not available at the time a study is conducted. Additional current data⁷ in relation to water demand revenue, water supply costs, and development activity are also included in the baseline. The Study is focused on the District's General Fund revenues and expenses and excludes the Facilities Improvement Fund (FIF) expenses. The FIF supports growth related projects and is funded by Facilities Connection Charges instead of water rates.

2.3 KEY ASSUMPTIONS USED IN THE STUDY

The Study period is from FY 2016/17 to FY 2020/21. Various types of assumptions and inputs were incorporated into the Study based on directions from District staff. The cost escalation factors are shown in Table 2-1.

⁷ Based on data available to the District as of January 17, 2017

Table 2-1: Cost Escalation Factors

	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
General	3.00%	3.00%	3.00%	3.00%
Salary	3.00%	3.00%	3.00%	3.00%
Benefits	6.32%	6.05%	5.91%	3.62%
CalPERS/Pension	8.15%	7.90%	7.98%	3.00%
Medical	7.10%	6.40%	5.70%	5.00%
OPEB	3.00%	3.00%	3.00%	3.00%
Utilities	5.00%	5.00%	5.00%	5.00%
SFPUC Water Cost	6.6%	8.9%	14.7%	0.7%
SWP Water Cost	-3.41%	5.06%	0.81%	-0.94%

The general inflation rate of 3 percent is based on a historical Consumer Price Index (CPI) range of 3-3.5 percent. A salary inflation rate of 3 percent is based on the most recent union negotiated agreements, which applies through FY 2017/18. Benefits inflation rate ranges from 3.6 percent to 6.3 percent based on the District's estimates on increasing health insurance costs and other factors such as OPEB and CalPERS liabilities annual funding contributions. Beyond FY 2017/18, these figures are subject to future labor union negotiations. A utilities inflation rate of 5 percent is based on District staff estimates.

SFPUC water cost increases are based on SFPUC's April 4, 2016 Rate Notice and State Water Project (SWP) rate adjustments are based on California Department of Water Resources (DWR) Bulletin 132-16 Appendix B.

Table 2-2: Projected New Accounts

	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
5/8-inch	330	476	476	476	476
1-inch	422	163	163	163	163
2-inch	5	25	25	25	25
Total	757	664	664	664	664

Table 2-2 shows ACWD staff's estimates of new water service accounts to be added to the District system for the Study period. From June 2015 to December 2016, the District added 260 single family residential accounts plus 188 multi-family accounts. Assuming similar development in the near future and assuming eight housing units per multi-family account, ACWD staff estimates that approximately 1,600 new single family and multi-family housing units, represented by 664 accounts per year, will be connected to the District's system per year for the five-year Study period.

Table 2-3 shows the 5-year demand forecast prepared by ACWD staff based on two main drivers, short and long-term planned new development and water sales rebound assumptions based on earlier historic post-drought periods. In addition, after the State Water Resource Control Board (SWRCB) allowed self-certification and the ACWD conservation target was set to 0% due to sufficient water supply in May 2016, the ACWD Board rescinded the Water Shortage Emergency Ordinance and Drought Surcharge effective the June/July 2016

billing period. A rebound in customer demand has been observed since July 2016 when compared to the consumption in the same month in 2015. Combining the projected new demand from new development and assuming some rebound in customer demand for water, ACWD staff projects billed water demand to increase 15.2% in FY 2016/17 to 32.78 MGD, then 4.6% per year from FY 2017/18 to reach a “new normal” level of water sales of 39.29 MGD starting in FY 2020/21 and for the next 25 years.

Table 2-3: Billed Demand 5-Year Forecast

	FY 2014/15 (Actual)	FY 2015/16 (Actual)	FY 2016/17 (Projected)	FY 2017/18 (Projected)	FY 2018/19 (Projected)	FY 2019/20 (Projected)	FY 2020/21 (Projected)
Billed Demand	31.95 MGD	28.47 MGD	32.78 MGD	34.30 MGD	35.89 MGD	37.55 MGD	39.29 MGD
Bill Demand (CCF)⁸	15,585,854	13,888,811	15,994,629	16,735,073	17,509,795	18,320,380	19,168,491
% Change		-10.9%	15.2%	4.6%	4.6%	4.6%	4.6%

⁸ 1 MGD = 1,120 AFY, 1AFY = 435.6 CCF/yr → 1 MGD = 487,872 CCF/yr

3. LEGAL FRAMEWORK AND RATE SETTING METHODOLOGY

3.1 CALIFORNIA CONSTITUTION - ARTICLE XIII D, SECTION 6 (PROPOSITION 218)

Proposition 218, reflected in the California Constitution as Article XIII D, was enacted in 1996 to ensure that rates and fees are reasonable and proportional to the cost of providing service. The principal requirements for fairness of the fees, as they relate to public water service are as follows:

1. A property-related charge (such as water and recycled water rates) imposed by a public agency on a parcel shall not exceed the costs required to provide the property related service.
2. Revenues derived by the charge shall not be used for any purpose other than that for which the charge was imposed.
3. The amount of the charge imposed upon any parcel shall not exceed the proportional cost of service attributable to the parcel.
4. No charge may be imposed for a service unless that service is actually used or immediately available to the owner of property.
5. A written notice of the proposed charge shall be mailed to the record owner of each parcel at least 45 days prior to the public hearing, when the agency considers all written protests against the charge.

As stated in AWWA's *Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices M1*, 6th edition (*M1 Manual*), "water rates and charges should be recovered from classes of customers in proportion to the cost of serving those customers." Proposition 218 requires that water rates cannot be "arbitrary and capricious," meaning that the rate-setting methodology must be sound and that there must be a nexus between the costs and the rates charged. RFC follows industry standard rate setting methodologies set forth by the *M1 Manual* to ensure this study meets Proposition 218 requirements and develops rates that do not exceed the proportionate cost of providing water services.

3.2 CALIFORNIA CONSTITUTION - ARTICLE X, SECTION 2

Article X, Section 2 of the California Constitution (established in 1976) states the following:

"It is hereby declared that because of the conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare."

Article X, Section 2 of the State Constitution institutes the need to preserve the State's water supplies and to discourage the wasteful or unreasonable use of water by encouraging conservation. As such, public agencies are constitutionally mandated to maximize the beneficial use of water, prevent waste, and encourage conservation.

3.3 COST-BASED RATE-SETTING METHODOLOGY

As stated in the M1 Manual, “the costs of water rates and charges should be recovered from classes of customers in proportion to the cost of serving those customers.” To develop utility rates that comply with Proposition 218 and industry standards while meeting other emerging goals and objectives of the utility, there are four major steps discussed below.

Calculate Revenue Requirement

The rate-making process starts by determining the test year (rate setting year) revenue requirement. The revenue requirement should sufficiently fund the utility’s O&M, debt service, capital expenses and other identified costs with funding to reserves (positive cash) or using reserves (negative cash), all based on a long-term financial plan.

Cost of Service Analysis (COS)

The annual cost of providing water service is distributed among customer classes commensurate with their service requirements. A COS analysis involves the following:

1. Functionalize costs. Examples of functions are supply, treatment, transmission, distribution, storage, meter servicing, and customer billing and collection.
2. Allocate functionalized costs to cost causation components. Cost causation components include base, maximum day, maximum hour⁹, conservation, public fire protection, meter service, and customer servicing and billing costs.
3. Distribute the cost causation components. Distribute cost components, using unit costs, to customer classes in proportion to their demands on the water system. This is described in the M1 Manual published by AWWA.

A COS analysis considers both the average quantity of water consumed (base costs) and the peak rate at which it is consumed (peaking or capacity costs as identified by maximum day and maximum hour demands).¹⁰ Peaking costs are costs that are incurred during peak times of consumption. There are additional costs associated with designing, constructing, and operating and maintaining facilities to meet peak demands. These peak demand costs need to be allocated to those imposing such costs on the utility. In other words, not all customer classes share the same responsibility for peaking related costs.

Rate Calculations

Rates do more than simply recover costs. Within the legal framework and industry standards, properly designed rates should support and optimize a blend of various utility objectives, such as

⁹ Collectively maximum day and maximum hour costs are known as peaking costs or capacity costs.

¹⁰ System capacity is the system’s ability to supply water to all delivery points at the time when demanded. Coincident peaking factors are calculated for each customer class at the time of greatest system demand. The time of greatest demand is known as peak demand. Both the operating costs and capital asset related costs incurred to accommodate the peak flows are generally allocated to each customer class based upon the class’s relative demands during the peak month, day, and hour event.

promoting water conservation, affordability for essential needs, and revenue stability among other objectives. Rates may also act as a public information tool in communicating these objectives to customers.

Rate Adoption

Rate adoption is the last step of the rate-making process to comply with Proposition 218. RFC documents the rate study results in this study report to serve as the utility's administrative record and a public education tool about the proposed changes, the rationale and justifications behind the changes, and their anticipated financial impacts in lay terms.

Government Code §54999.7(c) requires that water and wastewater agencies must conduct a cost of service study a minimum of every 10 years. The District already conducted a comprehensive cost of service rate study for its water service in 2015 and documented the results and findings in the "Alameda County Water District 2015 Water Rate Study Report" dated March 23, 2015 (Appendix). As the District is retaining the same uniform rate structure and because a cost of service study was conducted for the District so recently, an updated cost of service study is not needed at this time. Rather, this Study focuses on the financial plan development to incorporate the latest financial information and cost projections for the next 5 years. The proposed revenue adjustments resulting from the financial plan will be applied across all categories of the current rates to calculate the proposed rates for FY 2016/17 and FY 2017/18.

4. FINANCIAL PLAN DEVELOPMENT

4.1 WATER REVENUE REQUIREMENTS

4.1.1 Revenues from Current Rates

The current water rates were last approved in April 2015 to be effective May 1, 2015. Water service customers pay a bimonthly service charges based on meter size, shown in Table 4-1, and consumption charges for all usage, shown in Table 4-2. Table 4-1 also shows the projected number of service connections by customer class for the Study period. The projected number of service connections were provided by ACWD staff, and include an estimated 664 new connections in 5/8", 1" and 2" meters per year from FY 2017/2018 through the end of the study period (from Table 2-2).

Table 4-1: Current Bimonthly Meter Service Charges and Projected 5-Year Service Connections

Meter Size	Current Rates	FY 2015/16 Est. Actual ¹¹	FY 2016/17 Projected	FY 2017/18 Projected	FY 2018/19 Projected	FY 2019/20 Projected	FY 2020/21 Projected
5/8	\$41.54	26,736	27,066	27,542	28,018	28,494	28,970
3/4	\$41.54	40,416	40,416	40,416	40,416	40,416	40,416
1	\$64.05	9,091	9,513	9,676	9,839	10,002	10,165
1 1/2 F ¹²	\$64.05	2,170	2,170	2,170	2,170	2,170	2,170
1 1/2	\$120.32	1,664	1,664	1,664	1,664	1,664	1,664
2	\$187.84	2,805	2,810	2,835	2,860	2,885	2,910
3	\$401.66	215	215	215	215	215	215
4	\$716.76	98	98	98	98	98	98
6	\$1,808.37	54	54	54	54	54	54
8	\$3,158.81	23	23	23	23	23	23
10	\$4,734.31	5	5	5	5	5	5
Total		83,277	84,034	84,698	85,362	86,026	86,690

Revenues from consumption charges are calculated using projected bill demand in CCF multiplied by the current consumption charge \$3.373/CCF, as shown in Table 4-2.

Table 4-2: Projected Revenues from Current Consumption Charges

Line #		FY 2015/16 (Actual)	FY 2016/17 (Projected)	FY 2017/18 (Projected)	FY 2018/19 (Projected)	FY 2019/20 (Projected)	FY 2020/21 (Projected)
1	Bill Demand (CCF) (Table 2-3)	13,888,811	15,994,629	16,735,073	17,509,795	18,320,380	19,168,491
2	Current Consumption Charge (\$/CCF)	\$3.373	\$3.373	\$3.373	\$3.373	\$3.373	\$3.373
3	Projected Revenues [1] x [2]	\$46,846,960	\$53,949,885	\$56,447,402	\$59,060,537	\$61,794,643	\$64,655,320

¹¹ Estimated increase of 1.5% from actual FY 2015 meter counts

¹² Mandatory upgrades to 1 1/2 inch meters due to fire requirements

Table 4-3 summarizes the projected revenues from current rates. Annual service charges revenues are calculated using current bimonthly service charges and number of accounts (shown in Table 4-1) for six billing periods and for each meter size. The calculation for service charge revenues for ¾" meters is shown below.

$$Bimonthly\ service\ charge \times number\ of\ accounts\ with\ 3/4"\ meter \times 6\ billing\ periods\ per\ year \\ \$41.54 \times 40,416\ accounts \times 6\ periods = \$10,073,283$$

This calculation is repeated for all meter sizes and then summed to arrive at the current service charges revenues as shown in Table 4-3, along with revenues from consumption charges calculated from Table 4-2. Revenues from current rates under projected account growth and billed demand are forecast to increase from \$74.4M in FY 2015/16 to \$93.3M in FY 2020/21.

Table 4-3: Projected Revenues from Current Water Rates

	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
	<i>Est. Actual</i>	<i>Budgeted</i>	<i>Budgeted</i>	<i>Projected</i>	<i>Projected</i>	<i>Projected</i>
Service Charges	\$27,530,642	\$27,780,701	\$27,990,156	\$28,199,611	\$28,409,067	\$28,618,522
Consumption Charges	\$46,846,960 ¹³	\$53,949,885	\$56,447,402	\$59,060,537	\$61,794,643	\$64,655,320
Total	\$74,377,602	\$81,730,586	\$84,437,558	\$87,260,149	\$90,203,710	\$93,273,841

4.1.2 Miscellaneous Revenues

In addition to revenue from rates, the District also receives miscellaneous revenues from different sources such as property tax, other revenues (including other service charges such as turn on and turn off fees), interest revenues, etc. to offset the water operating costs. These revenues are shown in Table 4-4.

In addition to the ad valorem property tax revenues received from the Alameda County Assessor (County), the District receives an override property tax amount that helps pay for the groundwater portion of both the fixed and variable costs of SWP water purchased by the District. The District projects such costs annually and requests that the County collect the projected amount. The annual request to the County is adjusted for prior year over or under collections of tax revenue, and actual prior year's State Water Project expenses. ACWD Staff assumes an increase in the property tax override to 67.7%¹⁴ of SWP expenses starting in FY 2017/18.

Customer jobs revenues include payments made by developers for capital expenditures benefitting specific development projects¹⁵. Other revenues include one-time sales of fixed assets in FY 2016/17 and projected grants receipts of \$920,500 per year in FY 2019/20 and FY 2020/21. The one-time

¹³ This value does not include adjustments for delinquencies, bill credits, etc.

¹⁴ FY 2016/17 State water contract tax = 60% of State water purchase costs

¹⁵ Customer job revenues are not included in the Net Revenues used to calculate debt coverage ratio

sale of fixed assets is the primary reason for the significant increase in other revenues shown in FY 2016/17.

On March 13, 2014, the District Board of Directors (Board) adopted Ordinance No. 2014-01, declaring a water shortage emergency and adopting water use regulations, restrictions and guidelines for the water shortage emergency, in response to the Governor's proclamation of a statewide drought emergency on January 17, 2014. In 2016, this conservation, coupled with additional water supply availability, and improved hydrologic conditions significantly improved the District's water supply outlook. Additionally, the Governor issued Executive Order B-37-16 on May 9, 2016, which relaxes prior statewide water use reduction directives. As a result, the Board adopted Ordinance No. 2016-01, rescinding Ordinance No. 2014-01, on June 9, 2016. The Board also adopted Resolution No. 16-040, amending the rate and fee schedule to rescind the drought surcharges, effective July 1, 2016. The associated revenues for drought surcharges are therefore not applicable and are not shown past FY 2015/16 in Table 4-4.

Table 4-4: Projected Miscellaneous Revenues

	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Groundwater Replenishment Rev	\$415,653	\$452,230	\$452,230	\$452,230	\$452,230	\$452,230
State Water Contract Tax	\$4,444,632	\$4,402,700	\$6,179,212	\$6,329,571	\$6,314,741	\$6,390,553
Ad Valorem Property Tax	\$4,855,632	\$4,518,600	\$4,518,600	\$4,518,600	\$4,518,600	\$4,518,600
Interest Revenues¹⁶	\$838,762	\$802,641	\$775,594	\$741,981	\$689,260	\$690,936
Customer Jobs Revenue	\$5,751,006	\$4,175,840	\$2,507,808	\$2,507,808	\$2,507,808	\$2,507,808
Other Revenues	\$2,193,401	\$5,510,152	\$1,328,652	\$1,328,652	\$2,249,152	\$2,249,152
Drought Surcharges	\$5,692,599	\$0	\$0	\$0	\$0	\$0
Total	\$24,191,685	\$19,862,163	\$15,762,097	\$15,878,842	\$16,731,791	\$16,809,279

4.1.3 O&M Expenses

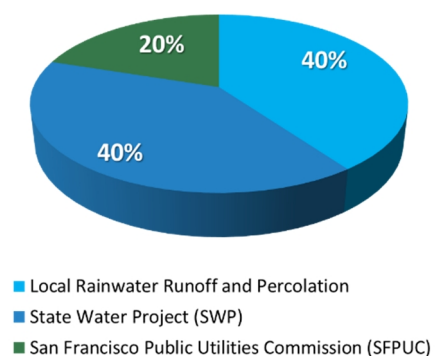
4.1.3.1 Water Supply Costs

The District currently has three primary sources of water supply:

- » San Francisco Public Utilities Commission (SFPUC)
- » Local rainwater runoff and percolation
- » The State Water Project (SWP)

These sources of water have varying amounts of availability and costs. Based on projections and

Figure 4-1: Water Supply Sources in Typical Year



¹⁶ Calculated based on available GF balances, assuming proposed revenue adjustments are implemented

inputs from District staff, the respective sources of water, per unit price, and expected purchase quantities are shown in Table 4-5.

The current water supply costs are summarized in the FY 2016/17 column in Table 4-5. On average year, a total of 8,602 acre feet (AF) is acquired from SFPUC representing the annual “take or pay” contract with that source. Due to the recent drought, in FY 2015/16 and FY 2016/17 the District was temporarily subject to lower limits for the SFPUC minimum take or pay amount. It is assumed that the District’s obligation will return to an annual contractual minimum take of 8,602 AF from the SFPUC starting in FY 2017/18. Next, the District uses a matching amount of 8,602 AF of groundwater and additional 8,400 AF from the District’s desalination plant. Starting in FY 2016/17, 2,000 AF of the 5,800 AF typically acquired from Lake Del Valle will be used for groundwater replenishment. The remaining demand of up to 25,500 AF are met by SWP water.

Table 4-5: Water Supply Information and Unit Cost

	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Water Demand (MGD)	28.47	32.78	34.30	35.89	37.55	39.29
Water Demand (CCF)	13,888,811	15,994,629	16,735,073	17,509,795	18,320,380	19,168,491
Water Loss	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Total Production (CCF)	15,096,534	17,385,467	18,190,297	19,032,385	19,913,457	20,835,316
Total Production (AF)	34,657 AF	39,912 AF	41,759 AF	43,692 AF	45,715 AF	47,831 AF
Water Supply to Meet Water Demand (AF)						
SFPUC - Min	6,882 AF	7,311 AF	8,602 AF	8,602 AF	8,602 AF	8,602 AF
Groundwater - Min	6,882 AF	7,311 AF	8,602 AF	8,602 AF	8,602 AF	8,602 AF
Desal Water - Min	8,400 AF	8,470 AF	8,470 AF	8,470 AF	8,470 AF	8,470 AF
Lake Del Valle	5,800 AF	3,800 AF	3,800 AF	3,800 AF	3,800 AF	3,800 AF
SWP	6,694 AF	13,019 AF	12,286 AF	14,219 AF	16,242 AF	18,358 AF
Water Supply Unit Cost (\$/AF)						
SFPUC - Min	\$1,633 /AF	\$1,786 /AF	\$1,904 /AF	\$2,073 /AF	\$2,378 /AF	\$2,396 /AF
Groundwater - Min	\$111 /AF	\$116 /AF	\$122 /AF	\$128 /AF	\$135 /AF	\$141 /AF
Desal Water - Min	\$146 /AF	\$154 /AF	\$145 /AF	\$146 /AF	\$154 /AF	\$161 /AF
Lake Del Valle	\$0 /AF	\$0 /AF	\$0 /AF	\$0 /AF	\$0 /AF	\$0 /AF
SWP	\$64 /AF	\$58 /AF	\$56 /AF	\$59 /AF	\$60 /AF	\$59 /AF
Desal Water - to Max	\$146 /AF	\$154 /AF	\$161 /AF	\$169 /AF	\$178 /AF	\$187 /AF
SFPUC - Max Limit	\$1,633 /AF	\$1,786 /AF	\$1,904 /AF	\$2,073 /AF	\$2,378 /AF	\$2,396 /AF
Groundwater - Max	\$111 /AF	\$116 /AF	\$122 /AF	\$128 /AF	\$135 /AF	\$141 /AF
Future Water Supply	\$3,478 /AF	\$3,582 /AF	\$3,690 /AF	\$3,800 /AF	\$3,914 /AF	\$4,032 /AF

The AF quantities for each source are multiplied by the corresponding unit price. The sum of the product of the price and quantity of each source, plus the fixed costs and other direct operating costs such as blending costs and treatment costs, equal the District’s “total all-in water supply costs” for each fiscal year, as shown in Table 4-6. For the purposes of these calculations, ACWD staff assumes that there will be sufficient water supply from existing sources and therefore no supply reduction during the Study period. Additionally, the District is participating in a Semi-tropic water storage program with the SWP to create additional water storage for use during drought periods. The annual

costs for participation in the Semi-tropic storage project is approximately \$1M annually, as is also in Table 4-6 below.

Table 4-6: Water Supply All-in Costs

	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
SFPUC						
Fixed	\$2,935,236	\$2,935,236	\$2,935,236	\$2,935,236	\$2,935,236	\$2,935,236
Min	\$11,240,022	\$13,057,797	\$16,373,765	\$17,835,039	\$20,457,839	\$20,607,713
Max	\$0	\$0	\$0	\$0	\$0	\$0
Blending Cost	\$243,993	\$306,810	\$342,541	\$352,817	\$363,402	\$374,304
SWP or SBA						
Fixed	\$7,556,738	\$8,185,186	\$8,435,541	\$8,508,287	\$8,358,964	\$8,355,060
Variable	\$430,853	\$758,932	\$691,804	\$841,153	\$968,570	\$1,084,457
Treatment Cost	\$619,210	\$977,573	\$950,221	\$1,132,728	\$1,332,673	\$1,551,509
Groundwater						
Min	\$762,440	\$850,558	\$1,050,689	\$1,103,223	\$1,158,384	\$1,216,304
Max	\$0	\$0	\$0	\$0	\$0	\$0
Blending Cost	\$243,993	\$306,810	\$342,541	\$352,817	\$363,402	\$374,304
Desal Water						
Oper. of Desal Fac.	\$755,027	\$674,368	\$737,458	\$759,581	\$782,369	\$805,840
Min	\$1,025,803	\$1,013,040	\$1,056,781	\$1,102,502	\$1,150,296	\$1,200,259
Max	\$0	\$0	\$0	\$0	\$0	\$0
Lake Del Valle						
Water Cost	\$0	\$0	\$0	\$0	\$0	\$0
Treatment Cost	\$536,539	\$285,339	\$293,899	\$302,716	\$311,798	\$321,152
Semi-tropic						
Fixed	\$979,500	\$1,009,500	\$1,039,785	\$1,070,979	\$1,103,108	\$1,136,201
Total All-in Water Supply Costs	\$27,329,354	\$30,361,147	\$34,250,260	\$36,297,078	\$39,286,040	\$39,962,337
Water Supply Cost Incremental Increases		\$3,031,792	\$3,889,113	\$2,046,818	\$2,988,962	\$676,297
% Incremental Increase		11%	13%	6%	8%	2%

4.1.3.2 Advance CalPERS/OPEB Liabilities Funding

The District is considering advance funding of CalPERS pension and OPEB liabilities. The District Board directed District staff to include advanced funding of pension and OPEB unfunded liabilities assuming a discount rate of 6.5% and accelerating funding over a period of 15 years, beginning in FY 2017/18. Table 4-7 shows the first five years of the funding schedule.

Table 4-7: CalPERS/OPEB Liabilities Advance Funding

	FY 2017/18 Pension/OPEB liabilities advance funding, 15 year/6.5% discount rate Pension: 6.50%/OPEB: 6.50%
FY 2016/17	\$0
FY 2017/18	\$8,970,221
FY 2018/19	\$9,212,251
FY 2019/20	\$9,461,543
FY 2020/21	\$9,718,313

4.1.3.3 O&M Expenses

Using the District's FY 2016/17 budget values and inflation factors that were assigned to each line item (see Table 2-1), future operations and maintenance (O&M) costs are forecast. Table 4-8 summarizes budgeted and projected O&M expenses during the Study period. Table 4-8 also shows the cost of CalPERS pension/ OPEB advance funding starting in FY 2017/18 from Table 4-7. Note that the CalPERS/OPEB costs for advance funding are in addition to some CalPERS (line 3) and OPEB (line 5) costs already included in the District's O&M budget as also shown in Table 4-8.

Table 4-8: Budgeted and Projected Water O&M Expenses

		FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
		<i>Actual</i>	<i>Budgeted</i>	<i>Budgeted</i>	<i>Projected</i>	<i>Projected</i>	<i>Projected</i>
1	Water Supply Costs (Table 4-6)	\$27,329,354	\$30,361,147	\$34,250,260	\$36,297,078	\$39,286,040	\$39,962,337
2	Labor	\$24,313,838	\$25,848,476	\$26,623,930	\$27,422,648	\$28,245,328	\$29,092,687
3	Benefits & CalPERS	\$8,076,506	\$9,292,300	\$10,026,266	\$10,793,046	\$11,624,592	\$11,982,664
4	Medical	\$5,616,188	\$6,446,010	\$6,838,446	\$7,235,889	\$7,643,991	\$7,926,074
5	OPEB	\$4,079,000	\$3,972,000	\$4,091,160	\$4,213,895	\$4,340,312	\$4,470,521
6	Other O&M Costs	\$8,997,522	\$8,714,160	\$9,917,902	\$10,259,676	\$10,616,932	\$10,970,181
7	CalPERS / OPEB Advance Funding	\$0	\$0	\$8,970,221	\$9,212,251	\$9,461,543	\$9,718,313
8	Total O&M	\$78,412,408	\$84,634,093	\$100,718,185	\$105,434,483	\$111,218,738	\$114,122,777

4.1.4 Debt Service Obligations

The District is currently obligated to annual debt service payments for three revenue bonds:

- 2009 Water System Refunding Revenue Bonds (2009 Bond);
- 2012 Revenue Bonds (2012 Bond); and
- 2015 Water System Revenue Bonds (2015 Bond)

The District issued the 2015 Water Revenue Bonds at an average interest rate of 3.4%, and has used the \$30 million of bond proceeds to execute critical capital projects including, seismic hardening of major water mains and storage facilities, replacing aging infrastructure, improving water supply reliability, and improving water quality and production reliability.

The annual debt service schedule for each is shown in Table 4-9.

Table 4-9: Annual Debt Service

	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Current Debt						
2009 Bond	\$2,863,200	\$2,866,825	\$2,863,700	\$2,862,575	\$2,866,875	
2012 Bond	\$1,893,281	\$1,892,681	\$1,886,681	\$1,885,481	\$1,883,881	\$3,905,381
2015 Bond	\$1,624,650	\$1,626,900	\$1,622,900	\$1,622,900	\$1,626,650	\$1,623,900
Total Current Debt Service	\$6,381,131	\$6,386,406	\$6,373,281	\$6,370,956	\$6,377,406	\$5,529,281

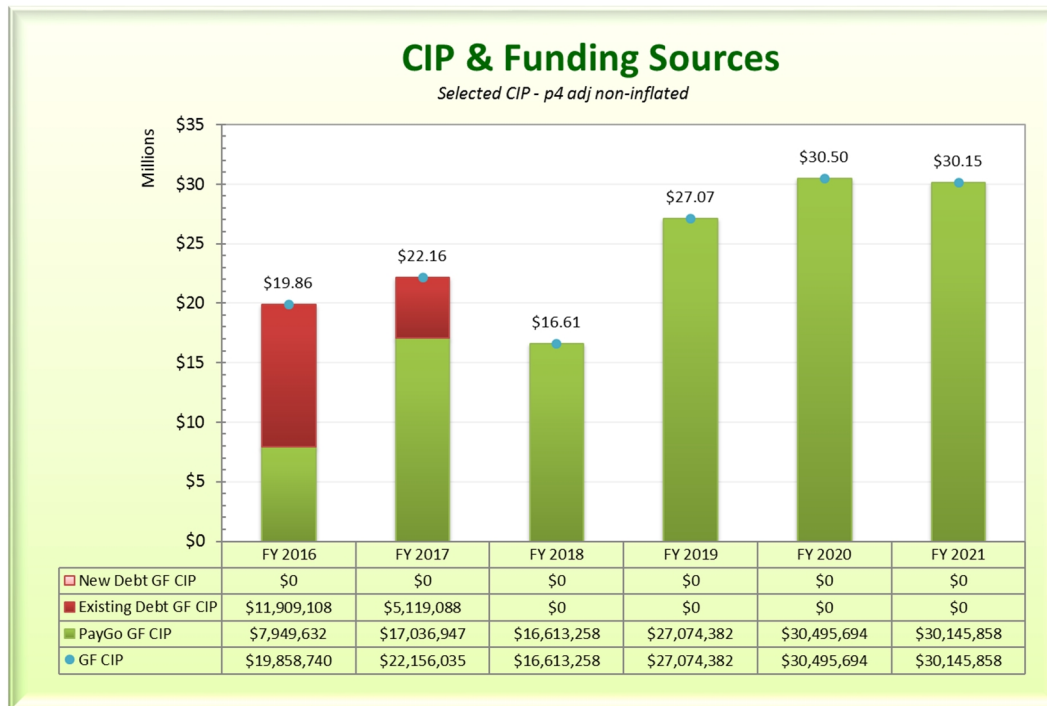
The District is planning to finance its capital projects with 100% Pay as you go (PayGo) and existing debt proceeds. The District is not planning to issue any additional debt in the Study period at this time.

4.1.5 Capital Improvement Program

The District plans to finance its capital projects with the combination of PayGo funding (shown in the green bars in Figure 4-2) and existing debt proceeds (red bars). Figure 4-2 summarizes the projected capital expenditures during the Study period, as provided by the District. The District issued 2015 Water System Revenue Bonds (2015 Bond) in FY 2014/15 to finance \$30M of capital projects in FY 2014/15¹⁷ to FY 2016/17 as denoted by dark red bars in Figure 4-2.

¹⁷ Not shown in Figure 4-2

Figure 4-2: Projected Capital Expenditures and Funding Sources



4.2 WATER FINANCIAL PLAN

4.2.1 Status Quo Financial Plan (No Revenue Increase)

In this Study, the Financial Plan Model¹⁸ (FPM) was updated with the updated financial plan information¹⁹ including FY 2016/17 Operating Budget, revised long-term Capital Improvement Program (CIP), updated water supply costs along with 5-year billed water demand forecast and revised assumptions associated with cost escalations, projected account growth, and CalPERS pension / OPEB advance funding options (discussed in prior subsection 4.1).

Table 4-10 displays the pro forma of the District's General Fund under current rates over the Study period without any revenue adjustment. All projections shown in the table are based upon the District's current rate structure. The pro forma combines the revenues from current rates (Table 4-3), miscellaneous revenues (Table 4-4), O&M expenses (Table 4-8), annual debt service payments (Table 4-9) and capital projects (Figure 4-2) for General Fund (GF) to project the debt coverage ratio and projected GF ending balances for the Study period.

Under the "status-quo" Financial Plan scenario, summarized in Table 4-10, the General Fund will face negative net income²⁰ starting in FY 2018. Revenues generated from rates and other miscellaneous revenues will be inadequate to sufficiently recover operating expenses, capital expenditure and debt obligations throughout the Study period, as shown by negative net cash balance in Table 4-10. Starting in FY 2017/18, debt coverage is projected to fall below 125 percent of annual debt service, which is required by the Official Statement of the 2009 and 2012 Bonds, and which is well below the

¹⁸ Developed by RFC and used in the 2015 Rate Study

¹⁹ Provided to RFC in October 2016

²⁰ Net Income = Total Revenues – Total O&M Expenses

District's target debt coverage ratio of 200%, which the Board established to help the District maintain its AAA credit ratings. The District will be unable to maintain fiscal sustainability and solvency under the current rates.

Table 4-10: Status Quo Financial Plan

	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
	<i>Budgeted</i>	<i>Projected</i>	<i>Projected</i>	<i>Projected</i>	<i>Projected</i>
REVENUES					
Revenues from Current Rates	\$81,730,586	\$84,437,558	\$87,260,149	\$90,203,710	\$93,273,841
Revenues Adjustments	\$0	\$0	\$0	\$0	\$0
GW Replenishment Rev	\$452,230	\$452,230	\$452,230	\$452,230	\$452,230
State Water Contract Tax	\$4,402,700	\$6,179,212	\$6,329,571	\$6,314,741	\$6,390,553
Ad Valorem Property Tax	\$4,518,600	\$4,518,600	\$4,518,600	\$4,518,600	\$4,518,600
Interest Revenues ²¹	\$768,416	\$591,882	\$292,486	-\$98,184	-\$512,494
Customer Jobs Revenue	\$4,175,840	\$2,507,808	\$2,507,808	\$2,507,808	\$2,507,808
Other Revenues	\$5,510,152	\$1,328,652	\$1,328,652	\$2,249,152	\$2,249,152
TOTAL REVENUES	\$101,558,524	\$100,015,943	\$102,689,496	\$106,148,057	\$108,879,690
EXPENSES					
Water Related Supply Costs	\$30,361,147	\$34,250,260	\$36,297,078	\$39,286,040	\$39,962,337
CalPERS/OPEB Advance Funding	\$0	\$8,970,221	\$9,212,251	\$9,461,543	\$9,718,313
Other O&M Expenses	\$54,272,946	\$57,497,705	\$59,925,154	\$62,471,155	\$64,442,127
TOTAL EXPENSES	\$84,634,093	\$100,718,185	\$105,434,483	\$111,218,738	\$114,122,777
NET REVENUES	\$16,924,431	-\$702,243	-\$2,744,987	-\$5,070,681	-\$5,243,087
GF CIP EXPENDITURES	\$22,156,035	\$16,613,258	\$27,074,382	\$30,495,694	\$30,145,858
PAYGO	\$17,036,947	\$16,613,258	\$27,074,382	\$30,495,694	\$30,145,858
Existing Debt Financing	\$5,119,088	\$0	\$0	\$0	\$0
New Debt Financing	\$0	\$0	\$0	\$0	\$0
DEBT SERVICE					
Existing Debt Service	\$6,386,406	\$6,373,281	\$6,370,956	\$6,377,406	\$5,529,281
New Debt Service	\$0	\$0	\$0	\$0	\$0
TOTAL DEBT SERVICE	\$6,386,406	\$6,373,281	\$6,370,956	\$6,377,406	\$5,529,281
NET GF CASH BALANCES	-\$6,498,923	-\$23,688,782	-\$36,190,326	-\$41,943,782	-\$40,918,226
Beginning GF Balances	\$79,063,033	\$72,564,110	\$48,875,328	\$12,685,002	-\$29,258,780
Ending GF Balances	\$72,564,110	\$48,875,328	\$12,685,002	-\$29,258,780	-\$70,177,006
Target GF Balances ²²	\$54,796,076	\$60,100,701	\$61,655,955	\$63,569,058	\$61,660,517
Debt Coverage Ratio²³	278%	34%	7%	-25%	-27%
Target Debt Coverage Ratios	200%	200%	200%	200%	200%

²¹ Calculated based on available GF balances, assuming no revenue adjustments

²² Based on the District's current financial policy

²³ Debt Coverage Ratio = (Net Revenues – Customer Jobs Revenue + Interest Revenues in FIF and RBPF) / Total Debt Service

4.2.2 Proposed Financial Plan

The District's financial plan was prepared for a five-year study period. However, Table 4-11 focuses on the financial plan for FY 2016/17 and FY 2017/18, corresponding with the currently proposed two-year rates. Table 4-11 compares the District's revenues without any revenue adjustments (see also Table 4-10) and shows the average annual changes in revenue requirements for FY 2016/17 and FY 2017/18 compared to FY 2015/16. The financial plan combines the revenues from current rates (Table 4-3), miscellaneous revenues (Table 4-4), O&M expenses (Table 4-8), annual debt service payments (Table 4-9) and capital project expenses (Figure 4-2) for the General Fund (GF).

Table 4-11: Changes in Revenue Requirements for FY 2016/17 and FY 2017/18

	FY 2016/17	FY 2017/18	2-year Total
Rate Revenues @ Current Rates	\$81,730,586	\$84,437,558	\$166,168,144
Revenue Adjustments	\$0	\$0	\$0
Other Revenues including DSC	\$19,827,938	\$15,578,385	\$35,406,322
Total Revenues	\$101,558,524	\$100,015,943	\$201,574,466
Rev Requirements			
O&M Expenses			
Water Supply Costs	\$30,361,147	\$34,250,260	\$64,611,406
Labor	\$25,848,476	\$26,623,930	\$52,472,406
Benefits & CalPERS	\$9,292,300	\$10,026,266	\$19,318,566
Medical	\$6,446,010	\$6,838,446	\$13,284,456
OPEB	\$3,972,000	\$4,091,160	\$8,063,160
Other O&M Costs	\$8,714,160	\$9,917,902	\$18,632,062
CalPERS/OPEB Advance Funding		\$8,970,221	\$8,970,221
Debt Service	\$6,386,406	\$6,373,281	\$12,759,688
PAYGO CIP	\$17,036,947	\$16,613,258	\$33,650,205
Total Revenue Requirements	\$108,057,446	\$123,704,725	\$231,762,171
Surplus / (Deficit) Net Cash Flows	-\$6,498,923	-\$23,688,782	-\$30,187,705

Without the proposed FY 2016/17 revenue adjustments, after two years, the District will have an estimated cumulative total deficit of approximately \$30.2 M (shown in Table 4-11). The \$30.2M total deficit equates to approximately 37% of annual revenues generated from current rates (\$81.7M in FY 2016/17). To balance the revenues and revenue requirements after two years and going forward, the FY 2016/17 and FY 2017/18 revenue adjustment needs to generate approximately \$30.2M, or about 37% more revenues than the current annual revenues from rates.

Use of the FPM enables the District to set rates and charges to generate sufficient water revenues to meet the District's short-term and long-term obligations and to avoid significant rate fluctuations. It

also shows the level of revenues that will maintain appropriate reserves and provide adequate debt service coverage. The Board directed ACWD staff and RFC to proceed with the Proposition 218 rate adoption process necessary to adopt the two-year rates consistent with the financial plan for the 5-year revenue adjustments shown below in Table 4-12, which includes a 25% increase in FY 2016/17 followed by a rate increase of 5% in FY 2017/18. The revenue adjustments shown for FY 2018/19 to FY 2020/21 are for planning purposes only and are subject to the District Board's approval in the later years.

Table 4-12: Proposed 5-Year Revenue Adjustments

	Effective Date	Revenue Adjustments
FY 2016/17 Proposed	March 1, 2017	25%
FY 2017/18 Proposed	March 1, 2018	5%
FY 2018/19 Estimated	February 1, 2019	5%
FY 2019/20 Estimated	February 1, 2020	5%
FY 2020/21 Estimated	February 1, 2021	5%

Similar to the Status Quo Financial Plan (Table 4-10), Table 4-13 shows the proposed financial plan but with the revenue adjustments shown in Table 4-12. The pro forma combines the revenues from current rates (Table 4-3), the revenue from increases in rates consistent with the proposed adjustments (Table 4-12), miscellaneous revenues (Table 4-4), O&M expenses (Table 4-8), annual debt service payments (Table 4-9) and GF capital projects (Figure 4-2) to project the debt coverage ratios and projected GF ending balances for the Study period.

The revenue adjustments from the proposed rate increases for FY 2016/17 and FY 2017/18 combined are approximately \$29.7M²⁴. The projected revenue from the revenue adjusted rates is slightly less than the identified deficit of \$30.2 M described and shown in Table 4-11. Although the net General Fund cash balances show a deficit in FY 2017/18 to FY 2019/20 due to the planned expenditures in capital facilities during those years, the overall GF balance and reserve account balances will remain within a fiscally healthy range and the debt coverage will exceed the target debt coverage ratio of 200% allowing the District to maintain its AAA financial bond rating. In summary, the proposed financial plan ensures financial sufficiency and solvency for the District to meet projected expenditures and financial obligations including debt service, debt coverage and reserve targets while adding additional CIP projects and implementing the accelerated advance payment of CalPERS pension/OPEB liabilities.

²⁴ After accounting for the mid-year rate increases on March 1st, 2017 and March 1st, 2018

Table 4-13: Proposed Financial Plan

	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
	<i>Budgeted</i>	<i>Projected</i>	<i>Projected</i>	<i>Projected</i>	<i>Projected</i>
REVENUES					
Revenues from Current Rates	\$81,730,586	\$84,437,558	\$87,260,149	\$90,203,710	\$93,273,841
Revenues Adjustments	\$6,810,882	\$22,868,505	\$29,654,816	\$36,698,111	\$44,508,200
GW Replenishment Rev	\$452,230	\$452,230	\$452,230	\$452,230	\$452,230
State Water Contract Tax	\$4,402,700	\$6,179,212	\$6,329,571	\$6,314,741	\$6,390,553
Ad Valorem Property Tax	\$4,518,600	\$4,518,600	\$4,518,600	\$4,518,600	\$4,518,600
Interest revenues ²⁵	\$802,641	\$775,594	\$741,981	\$689,260	\$690,936
Customer Jobs Revenue	\$4,175,840	\$2,507,808	\$2,507,808	\$2,507,808	\$2,507,808
Other Revenues	\$5,510,152	\$1,328,652	\$1,328,652	\$2,249,152	\$2,249,152
TOTAL REVENUES	\$108,403,631	\$123,068,160	\$132,793,807	\$143,633,611	\$154,591,321
EXPENSES					
Water Related Supply Costs	\$30,361,147	\$34,250,260	\$36,297,078	\$39,286,040	\$39,962,337
CalPERS/OPEB Advance Funding	\$0	\$8,970,221	\$9,212,251	\$9,461,543	\$9,718,313
Other O&M Expenses	\$54,272,946	\$57,497,705	\$59,925,154	\$62,471,155	\$64,442,127
TOTAL EXPENSES	\$84,634,093	\$100,718,185	\$105,434,483	\$111,218,738	\$114,122,777
NET REVENUES	\$23,769,538	\$22,349,975	\$27,359,323	\$32,414,874	\$40,468,543
GF CIP Expenditures	\$22,156,035	\$16,613,258	\$27,074,382	\$30,495,694	\$30,145,858
PAYGO	\$17,036,947	\$16,613,258	\$27,074,382	\$30,495,694	\$30,145,858
Existing Debt Financing	\$5,119,088	\$0	\$0	\$0	\$0
New Debt Financing	\$0	\$0	\$0	\$0	\$0
DEBT SERVICE					
Existing Debt Service	\$6,386,406	\$6,373,281	\$6,370,956	\$6,377,406	\$5,529,281
New Debt Service	\$0	\$0	\$0	\$0	\$0
TOTAL DEBT SERVICE	\$6,386,406	\$6,373,281	\$6,370,956	\$6,377,406	\$5,529,281
NET GF CASH BALANCES	\$346,185	-\$636,565	-\$6,086,015	-\$4,458,227	\$4,793,404
Beginning GF Balances	\$79,063,033	\$79,409,218	\$78,772,653	\$72,686,638	\$68,228,411
Ending GF Balances	\$79,409,218	\$78,772,653	\$72,686,638	\$68,228,411	\$73,021,816
Target GF Balances ²⁶	\$54,796,076	\$60,100,701	\$61,655,955	\$63,569,058	\$61,660,517
Debt Coverage Ratio²⁷	385%	396%	479%	563%	800%
Target Debt Coverage Ratios	200%	200%	200%	200%	200%

Aspects of the proposed Financial Plan are also displayed graphically in Figure 4-3, Figure 4-4, and Figure 4-5, below. Figure 4-3 shows how the proposed revenue adjustments along with revenues from current rates and other miscellaneous revenues are projected to generate adequate revenues to fund all O&M expenses, including water supply costs, additional advance funding of pension CalPERS/OPEB, and debt service obligations for current bonds. The projected revenues under proposed revenue adjustments will also generate additional funding for capital expenditures and / or funding reserves for future use (as shown by positive red bars in Figure 4-3). Current revenues (shown by the red line) would be inadequate to recover O&M expenses and debt service starting in

²⁵ Calculated based on available GF balances, assuming no revenue adjustments

²⁶ Established by the District's current financial policy

²⁷ Debt Coverage Ratio = (Net Revenues – Customer Jobs Revenue + Interest Revenues in FIF and RBPF) / Total Debt Service

FY 2017/18, as shown by the red line falling below the combined height of orange, blue, green and purple bars in Figure 4-3.

Figure 4-3: Water Operating Financial Plan

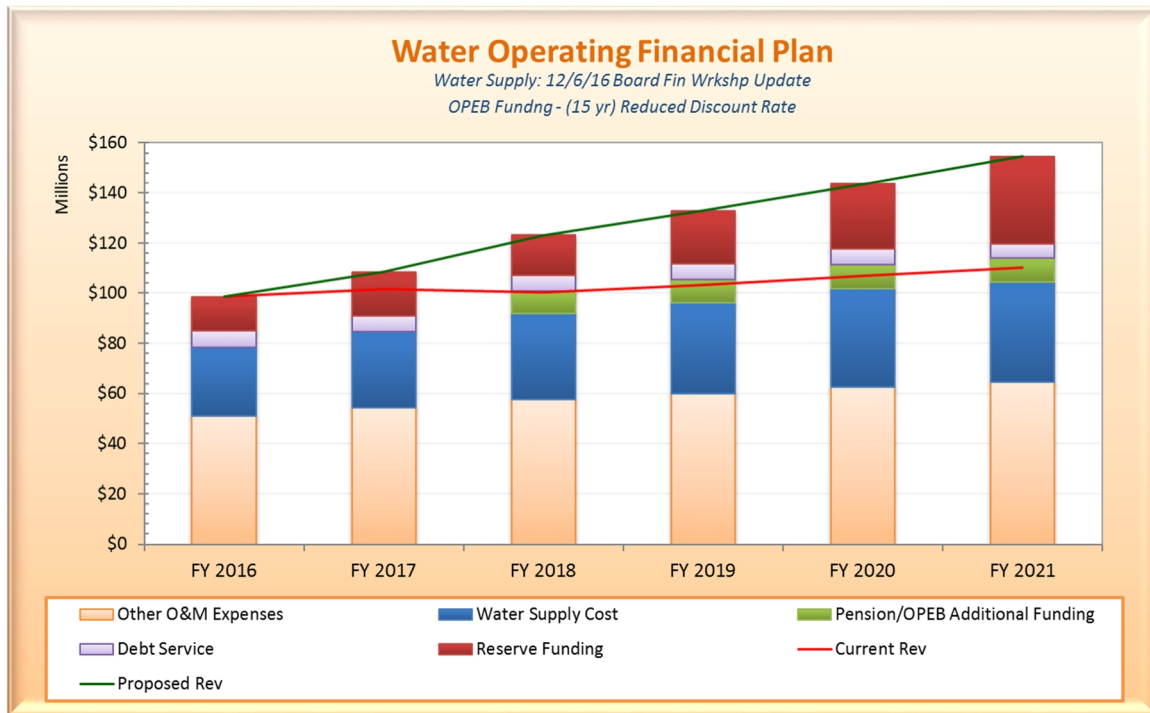
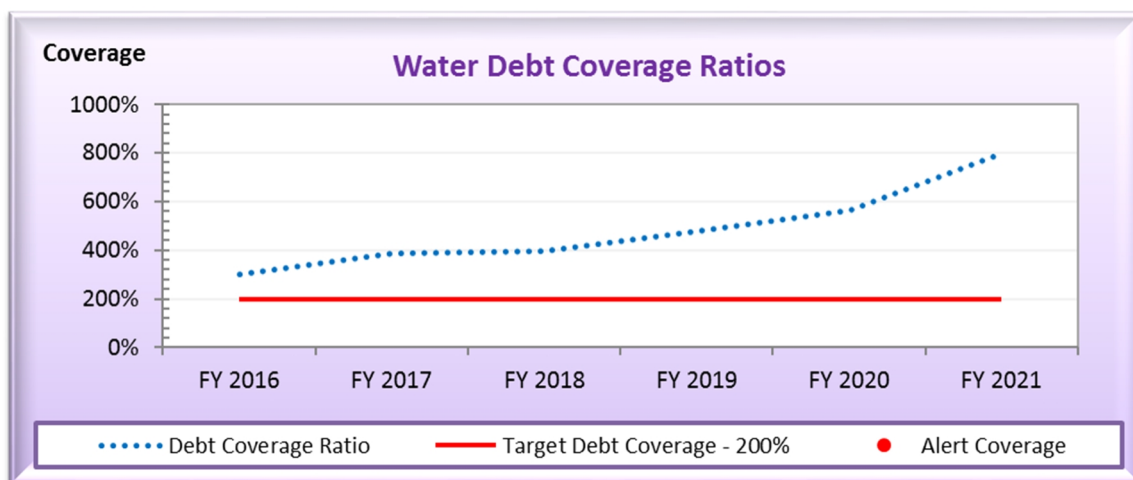


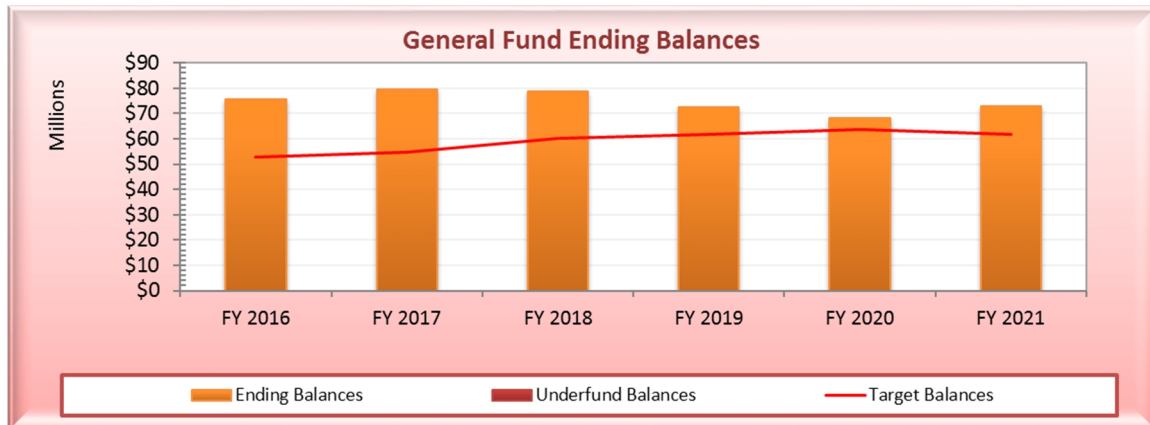
Figure 4-4 illustrates how the proposed revenue adjustments also ensure that the District will meet its bond covenants by maintaining at least a 125% debt coverage as well as exceeding 200% debt coverage target set by the District Board in its financial policies. Thus these proposed adjustments will also assist in maintaining the District's current AAA credit ratings (Figure 4-4).

Figure 4-4: Projected Debt Coverage Ratios under Proposed Revenue Adjustments



Finally, Figure 4-5 shows the projected GF ending balances (orange bars) exceeding the minimum target balances²⁸ (red line) under proposed financial plan. It is common practice for an agency to maintain its reserve balances exceeding its minimum targets to provide risk protection against volatile water sales and water supply conditions as well as other unknown risks and unforeseen conditions.

Figure 4-5: Projected General Fund Ending Balances



²⁸ Established by the District's current financial policy

5. PROPOSED WATER RATES & CUSTOMER IMPACT ANALYSIS

5.1 PROPOSED WATER RATES

In December 2016, the Board took action to set a public hearing and to authorize District staff to proceed with a Proposition 218 process to consider rate increases of 25% for FY 2016/17 and 5% for FY 2017/18, and continue with uniform water rates for all usage at this time. Government Code §54999.7(c) requires that water agencies must conduct a cost of service study a minimum of every 10 years. The District conducted a comprehensive cost of service rate study for its water service in 2015 and documented the results and findings in the “Alameda County Water District 2015 Water Rate Study Report” dated March 23, 2015 (Appendix). Because the District conducted a comprehensive cost of service study so recently and because the rate structure is unchanged, a new cost of service study is not necessary at this time. Instead, the proposed revenue adjustments resulting from the financial plan will be applied across all categories of the current rates to calculate the proposed rates for FY 2016/17 and FY 2017/18 as shown Table 5-1.

Table 5-1: Proposed Water Rates for FY 2016/17 and FY 2017/18²⁹

	Current	FY 2016/17	FY 2017/18
Effective Date	Since May 2015	March 1, 2017	March 1, 2018
Proposed Revenue Adjustments		25%	5%
Bimonthly Meter Service Charge			
5/8-inch	\$41.54	\$51.92	\$54.51
¾-inch	\$41.54	\$51.92	\$54.51
1-inch	\$64.05	\$80.06	\$84.06
1 ½-inch	\$120.32	\$150.40	\$157.92
2-inch	\$187.84	\$234.80	\$246.54
3-inch	\$401.66	\$502.07	\$527.17
4-inch	\$716.76	\$895.95	\$940.74
6-inch	\$1,808.37	\$2,260.46	\$2,373.48
8-inch	\$3,158.81	\$3,948.51	\$4,145.93
10-inch	\$4,734.31	\$5,917.88	\$6,213.77
Consumption Charge			
Inside District	\$3.373/CCF	\$4.216/CCF	\$4.426/CCF
Outside District	\$3.878/CCF	\$4.847/CCF	\$5.089/CCF

5.2 CUSTOMER IMPACT ANALYSIS

Before implementing any rate structure recommendations, it is important to understand how the proposed rate structure would impact the ACWD’s customers. The customer impact analysis is a

²⁹ Rates are rounded down to the nearest \$0.01 for bimonthly meter service charge and \$0.001 for consumption charge

powerful tool, which can be used to assist elected officials in making informed decisions. RFC conducted a series of customer impact analyses for all customers as part of the Study.

Figure 5-1 shows the water bills of typical residential customers with ¾” meter for bimonthly billing period at various water consumption levels under current and proposed rates. The bimonthly water bills under the current rates are illustrated by the green bars and the bimonthly water bills assuming the proposed rates are shown by the blue bars in Figure 5-1.

Figure 5-1: Single Family Customer Bill Impact Analysis

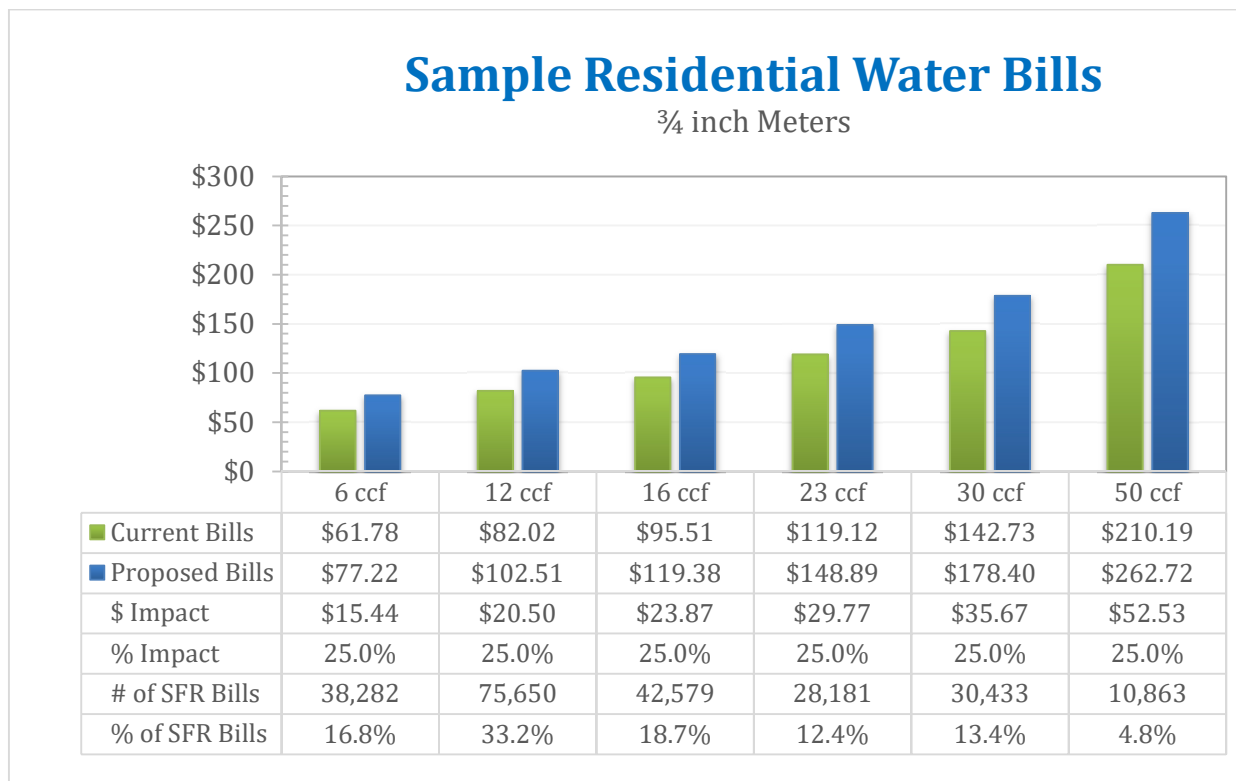
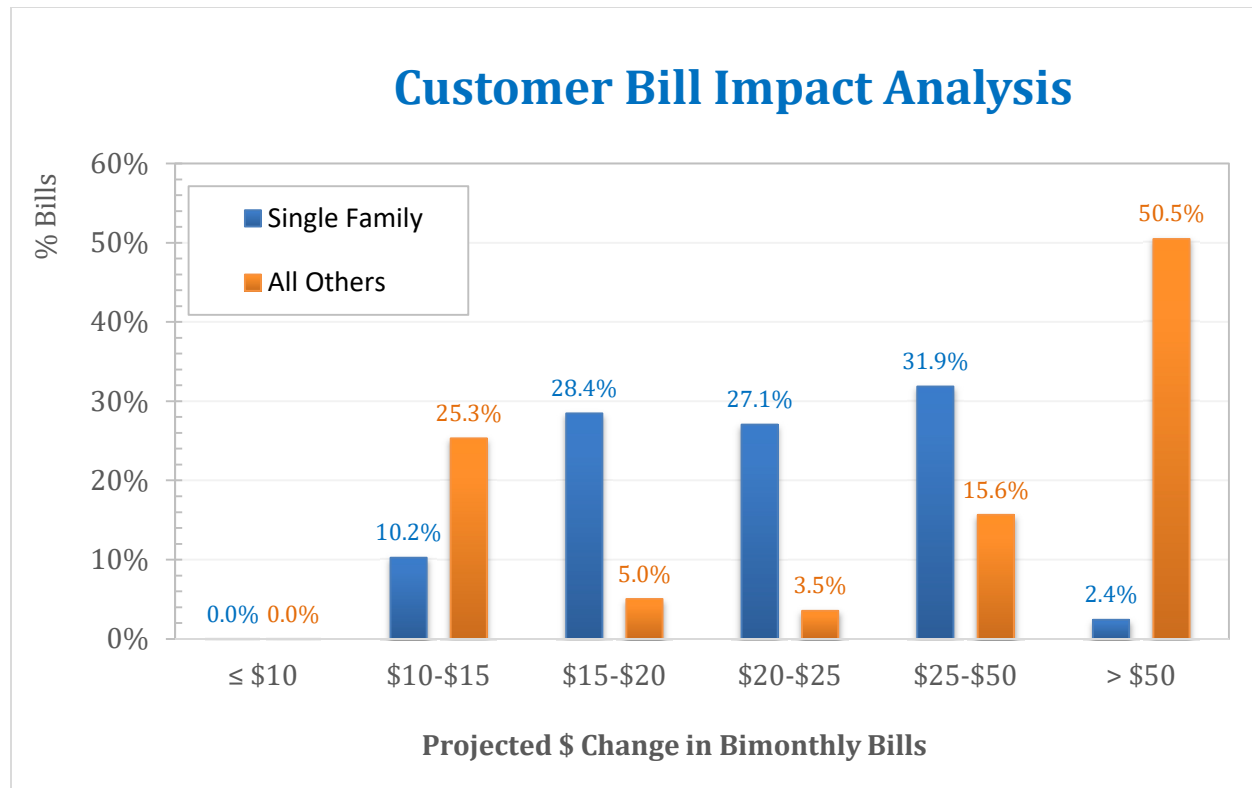


Figure 5-2 summarizes and compares bill impacts for single-family residential customers, illustrated by the blue bars, and all other District customers (including multi-family, mobile home and non-residential customers) shown by the orange bars. The analysis was done comparing current and proposed rates based on detailed consumption data by customer from 2015.

Water users at all level of consumption will see 25% increase in their bimonthly bills for FY 2016/17. Most single family residential bills (approximately 95%) will have increases ranging from \$10 to \$50 whereas over 50% of all other customer bills will have increases of more than \$50 under the proposed new rates. In particular, some non-Single Family residential accounts have large meters and high water consumption, thus the dollar increases on bimonthly bills for those users will be much more significant than on single family residential bills or other users of less water. For example, a typical residential account with a ¾” meter and use of 16 CCF will see a 25% increase in their current bimonthly bill of \$95.51 of \$23.87(see also Figure 5-1). A 25% increase for a water customer with a current bimonthly bill of \$1,078.31 for a 2” meter and using 264 CCF is \$269.51.

Figure 5-2: Customer Bill Impact Analysis³⁰



³⁰ The numbers may not add up to 100% due to rounding

6. APPENDIX

6.1 APPENDIX – “ALAMEDA COUNTY WATER DISTRICT 2015 WATER RATE STUDY REPORT”

Attached as a separate file labeled: “ACWD 2017 Water Rate Update Study Report Appendix – ACWD 2015 Water Rate Study Report”