CRESTLINE-LAKE ARROWHEAD WATER AGENCY

Water Cost of Service and Rate Study

Final Report / October 2019

RAFTELIS

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October 17, 2019

Ms. Roxanne Holmes
General Manager
Crestline-Lake Arrowhead Water Agency
P.O. Box 3880 – 24116 Crest Forest Drive
Crestline, CA 92325-3880

Subject: Water Cost of Study and Rate Study Report

Dear Ms. Holmes,

Raftelis is pleased to provide this report to the Crestline-Lake Arrowhead Water Agency (Agency) for the Water Cost of Service and Rate Study. This report presents the analyses, rationales, and methodologies utilized in the study to determine water rates that meet the requirements of California Constitution Article XIII D, Section 6 (commonly referred to as "Proposition 218").

The study involved a comprehensive review of the Agency's current water rate structure, long-term financial plan, cost requirements, and alternative rate structures to determine proposed water rates that are in line with the Agency's policy objectives. The main objectives that informed the study include:

- Adequately recovering all costs to maintain the Agency's financial health
- Evaluating alternative rate structures
- Minimizing customer impacts due to changes in rate structure

We are confident that the proposed rates developed during this study are fair and equitable for the Agency's customers and are compliant with Proposition 218. It was a pleasure working with you and your team, and we wish to express our gratitude for the support you and other Agency staff provided to us during the study. If you have any questions, please do not hesitate to call me at 213-262-9308.

Sincerely,
Raftelis

Steve Gagnon, PE (Arizona)
Manager

Hannah Phan
Manager

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Table of Contents

List of Tables

List of Figures

1 Executive Summary

Study Background

The Crestline-Lake Arrowhead Water Agency (Agency) engaged Raftelis to conduct a cost of service and rate study for its water utility in May 2019. The Agency last updated its water rates in 1993. The Agency wants to ensure that its rates will adequately fund the increased operating and capital costs associated with providing water service, and fairly and equitably recover these costs from its customers.

The major objectives that informed the study include the following:

- Ensure revenue sufficiency to fund operating and maintenance (O&M) costs, capital improvement plan (CIP) costs, and reserve requirements
- Evaluate alternative rate structures
- Minimize customer impacts due to changes in rate structure
- Develop rates that are fair, equitable, and defensible

This executive summary provides an overview of the study and its results, including recommendations for proposed water rates beginning January 1, 2020. The study period is between FY 2019[1] through FY 2024.

Agency Background

The Agency is an independent special district of the State of California created by an act of the California Legislature in 1962. The Agency began to function in accordance with the provisions of its governing act upon approval by the registered voters at an election conducted within Agency boundaries on January 8, 1963.

The Agency's sole purpose and function is to provide water service to customers and properties located within a service area that extends across the San Bernardino Mountains generally from Silverwood Lake, in the westerly portion, to Green Valley Lake, in the easterly portion of the Agency. The Agency's boundaries include more than 50,000 acres, almost half of which are owned by the United States Forest Service.

The Agency is a State Water Contractor that has contracted with the California Department of Water Resources for imported water from the State Water Project. The Agency levies a tax throughout the Agency's service area, as allowed by law, to help pay costs incurred for the delivery of imported water from the State Water Project to lands within the Agency. The Agency takes all of its water from Silverwood Lake, a State Water Project surface reservoir; treats the water at the Agency's treatment plant constructed on the southerly shore of Silverwood Lake; then pumps the water uphill through the Agency's transmission system for storage in enclosed reservoirs and delivery to customers across the mountains. All of the water delivered by the Agency is treated and suitable for domestic consumption. The Agency's treated water supply meets all State and Federal regulatory requirements that apply to drinking water.

The majority (approximately 88%) of the Agency's water is delivered on a wholesale basis to retail water purveyors, which in turn resell the water to their own customers. They take water from the Agency to supplement their own local well water supplies, as and when needed to satisfy the consumptive demands of their own retail customers. Their need for supplemental water from the Agency can vary significantly from one year to the next,

[1] FY 2019 is the year starting July 1, 2018 and ending June 30, 2019.

due to annual variations in the quantity of water that can be produced from local wells in the mountains. During periods of heavy local precipitation, the production from local wells is high, the need for supplemental water from the Agency is relatively lower, and the Agency therefore sells less water. However, during periods of low precipitation, well water production decreases, the need for supplemental water from the Agency is greater, and therefore the Agency sells more water. The Agency's wholesale customers rely on the dependable availability of supplemental water from the Agency, regardless of whether the need happens to be great or small at any particular point in time.

The remainder of the Agency's water deliveries are to the Agency's own retail customers. Over a period of many years, the Agency was asked to take over the retail systems of small water companies that had fallen into disrepair or that could not keep up with increasingly stringent regulatory requirements. As these retail systems were conveyed to the Agency, "Improvement Districts" were formed within the Agency for the purpose of financing loans to pay for water system improvements needed for each specific area. Water rates differed from one Improvement District to another, and in some cases were combined with an additional tax levied within the Improvement District to help repay debts specific to each Improvement District. However, those debts have now been repaid in full, and last year the Agency's Board of Directors decided to merge all Improvement Districts into a single retail service area. Most of the Agency's retail customers are individual homeowners, or cabin owners, although some are commercial businesses, school sites, governmental offices and the like. Most of these do not have their own local well water supplies and rely upon the Agency as their sole supplier of water. Many of the residences within the Agency's retail service area are occupied only part-time, while others are occupied full-time.

The Agency's current rates for water service have not been adjusted since 1993. Under California law ("Proposition 218"), adjustment of retail water rates requires a noticed public protest hearing in which the owners of properties receiving retail water service, or tenants primarily responsible for paying the Agency's bill for water service, may file written protests to the proposed rate adjustments. The protest hearing requirement does not apply to rates for water supplied to wholesale customers for delivery to their retail customers.

Current Rates

The current water rate structure has different rates for wholesale customers (called purveyors) and different rates for retail customers within each Improvement District. The Agency also provides retail service to a few customers not located within an Improvement District, and years ago established different rates for those customers based on requirements specific to those customers. Most customers currently pay a fixed monthly charge to help cover fixed costs incurred for providing service, even when a customer is not actually using water. Certain larger retail customers pay a significantly larger annual fixed charge, instead of smaller monthly fixed charges. In each case, the fixed charge varies by meter size and includes an allotment of water that can be used. Water used in excess of that allotment is charged at a volumetric rate, for each additional unit of water used.

Table 1-1 shows the current fixed charges by customer class and rate code/meter size.

Table 1-1: Current Fixed Charges

A	B	C
Line		$/month
1	**Purveyors Monthly Charge**	
2	Rate Code	
3	PE1	$137.50
4	PF1	$50.00
5	PF2	$100.00
6	PF3	$200.00
7	PF4	$400.00
8	PF5	$425.00
9	**Purveyors Annual Service Charge**	
10	Meter Size	
11	2C	$210.00
12	2T	$310.00
13	3C	$415.00
14	3T	$695.00
15	4C	$650.00
16	4T	$1,950.00
17	6C	$1,295.00
18	6T	$3,880.00
19	**Retail Monthly Charge**	
20	Rate Code	
21	RA1	$10.00
22	RA2	$15.00
23	RA3	$25.00
24	RA4	$35.00
25	RA5	$185.00
26		
27	RC1	$15.00
28	RC2	$22.50
29	RC3	$37.50
30	RC4	$50.00
31	RC5	$240.00
32		
33	RD2	$15.00
34	RD3	$22.50
35	RD4	$37.50
36	RD5	$50.00
37	RD6	$37.50
38	**Fire Service Monthly Charge**	
39	Fire Meter	$25.00

Table 1-2 shows the current consumption rates by customer class and rate code. Hcf stands for hundred cubic feet. One hundred cubic feet is equal to 748 gallons.

Table 1-2: Current Consumption Rates ($/hcf)

A	B	C	D
Line	Rate Code	Included hcf/month	Consumption Rate
1	**Purveyors**		
2	PE1	25	$6.35
3	PE2	0	$5.75
4	PE3	0	$2.64
5	PE5	0	$2.10
6	PF1	8	$7.25
7	PF2	16	$7.25
8	PF3	32	$7.25
9	PF4	64	$7.25
10	PF5	100	$5.00
11			
12	**Retail**		
13	RA1	2.50	$5.00
14	RA2	3.75	$5.00
15	RA3	6.00	$5.00
16	RA4	8.00	$5.00
17	RA5	45.50	$5.00
18			
19	RC1	2.50	$7.25
20	RC2	3.75	$7.25
21	RC3	6.00	$7.25
22	RC4	8.00	$7.25
23	RC5	56.00	$5.00
24			
25	RD2	2.50	$7.25
26	RD3	3.75	$7.25
27	RD4	6.00	$7.25
28	RD5	8.00	$7.25
29	RD6	6.25	$7.25

Legal Framework[2]

The rate-making process, especially for water agencies in California, begins with reviewing the legal requirements and framework currently in place. The major legal requirements include Proposition 218 and Article X, Section 2 of the California Constitution, which are outlined in the following sections.

California Constitution – Article XIII D, Section 6 (Proposition 218)

Proposition 218 was enacted by voters in 1996 to ensure, in part, that fees and charges imposed for ongoing delivery of a service to a property ("property-related fees and charges") are proportional to, and do not exceed, the

[2] Raftelis does not practice law nor does it provide legal advice. The above discussion provides a general review of apparent state institutional constraints and is labeled "legal framework" for literary convenience only. The Agency should consult with its legal counsel for clarification and/or specific review of any of the following or other matters.

cost of providing service. Water service fees and charges are property-related and subject to the provisions of Proposition 218. Annual water standby or availability charges are not considered property-related fees and charges, but rather, are considered assessments subject to separate requirements under Proposition 218. Annual water standby or availability charges already in effect in 1996 are not subject to the procedural requirements of Proposition 218, unless the annual charge is increased.

The principal requirements, as they relate to public water service fees and charges, are as follows:

1. Revenues derived from a property-related charge imposed by a public agency shall not exceed the costs required to provide the property-related service.
2. Revenues derived by the fee or charge shall not be used for any purpose other than that for which the fee or charge was imposed.
3. The amount of the fee or charge imposed upon any parcel shall not exceed the proportional cost of service attributable to the parcel.
4. No fee or 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 fee or charge shall be mailed to the record owner of each parcel not less than 45 days prior to a public hearing, when the agency considers all written protests against the charge.

As stated in the American Water Works Association's (AWWA) *Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices M1, Seventh 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 establish a clear nexus between costs and the rates charged.

California Constitution – Article X, Section 2

Article X, Section 2 of the California Constitution was established in 1976 and 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 California 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.

Process and Approach

The process and approach Raftelis utilized in the study to determine water rates is informed by the Agency's policy objectives, the current water system and rates, and the legal requirements in California (namely, Proposition 218). The resulting financial plan, cost of service analysis, and rate design process take all factors into consideration and follow five key steps, outlined below, to determine proposed rates that fulfill the Agency's objectives, meet industry standards, and comply with relevant regulations.

Step 1: Long-Term Financial Plan

The first study step is to develop a long-term financial plan that projects the water utility's revenues, expenses, capital project financing, annual debt service, and reserve funding. The financial plan is used to determine the revenue adjustment, which allows the water utility to recover adequate revenues to fund expenses and reserves.

Step 2: Revenue Requirement Determination for the Test Year

After completing the long-term financial plan, the rate-making process can begin by determining the revenue requirement for the test year, also known as the rate-setting year. The test year for this study is FY 2020. The revenue requirement should sufficiently fund the utility's O&M costs, annual debt service, capital improvement plan (CIP) costs, and reserve funding as projected based on the utility's FY 2018 budget.

Step 3: Cost of Service Analysis

The annual cost of providing water service, or the revenue requirement, is then distributed to customer classes commensurate with their use of and burden on the system. A cost of service analysis involves the following steps:

1. Functionalize costs – the different components of the revenue requirement are categorized into functions such as supply, transmission and distribution (T&D), customer service and billing, etc.
2. Allocate to cost causation components – the functionalized costs are then allocated to cost causation components such as supply, base delivery, peaking, etc.
3. Develop unit costs – unit costs for each cost causation component are determined using units of service, such as total usage, peaking units, equivalent meters, number of customers, etc. for each component
4. Distribute cost components – the cost components are allocated to each customer class using the unit costs in proportion to their demand and burden on the system

A cost of service analysis considers both the average water demand and peak demand. Peaking costs are incurred during periods of peak consumption, most often coinciding with summertime water usage. There are additional capacity-related costs associated with designing, constructing, operating, maintaining, and replacing facilities to meet peak demand. The patterns of usage impose additional costs for the utility and are used to determine the expense of the peaking-related facilities.

Step 4: Rate Design and Calculation

After allocating the revenue requirement to each customer class, the rate design and calculation process can begin. Rates do more than simply recover costs; within the legal framework and industry standards, properly designed rates should support and optimize the Agency's policy objectives. Rates also act as a public information tool in communicating these policy objectives to customers. This process also includes a rate impact analysis for all proposed water rates and sample customer bill impacts.

Step 5: Administrative Record Preparation and Rate Adoption

The final step in a rate study is to develop the administrative record in preparation for the rate adoption process. The administrative record, also known as the study report, documents the study results and presents the methodologies, rationale, justifications, and calculations utilized to determine the proposed rates. A thorough and methodological administrative record serves two important functions: maintaining defensibility in a stringent legal environment and communicating the rate adoption process to customers and important stakeholders.

Results and Recommendations

One key objective for the study is to simplify the current rate structure. Raftelis worked closely with Agency staff to develop various rate structures and analyze the impacts of those alternatives. The recommendations for changes to the rate structure are as follows:

- Purveyors (including wholesale, contract, and large retail customers) will be charged either a fixed annual service charge or a fixed monthly service charge based on meter size, depending on their current contract with the Agency.
- Private fire service meters will be charged a fixed monthly service charge based on meter size.
- The current purveyor class will be separated into three customer classes: wholesale purveyors, Silverwood, and Tax Exempt and Public Agencies. Each customer class is charged a uniform consumption rate based on hcf of water usage.
- Retail customers will be charged a fixed monthly service charge based on meter size and a uniform consumption rate based on hcf of water usage.

Raftelis recommends that the Agency implement a 9 percent revenue adjustment in January 2020, a 8 percent revenue adjustment in January 2021, a 7 percent revenue adjustment in January 2022, and a 6 percent revenue adjustment in January 2023 and January 2024. The revenue adjustments will allow the Agency to adequately fund its annual operating and maintenance expenses and a portion of its CIP costs through water rates.

Proposed Rates

The Agency proposes a revised rate schedule that will slowly increase rates over the next five years. The proposed rate structure will include a fixed charge, either monthly or annually, which will recover certain fixed costs (such as meter reading, billing, collection, and customer service costs), plus a uniform rate for each unit of water used. The volumetric rate will be charged for each unit of water used, in addition to the fixed charge. The uniform rate will be less for customers who pay taxes, including the Agency's tax levied to pay for the delivery of imported water from the State Water Project, as an offset to provide credit for the taxes they pay to fund a portion of the cost of water service, and will be higher for customers that are tax-exempt and therefore do not pay the Agency's tax imposed for the delivery of imported water from the State Water Project. The Agency also proposes to revise the monthly fixed charges for individual fire service connections, which also vary by connection size, to help pay for the cost of providing instantaneous fire protection as needed.

Table 1-3, Table 1-4, Table 1-5, Table 1-6 show the proposed five-year rate schedule for the monthly or annual meter charges for purveyors, monthly meter charges for retail customers, monthly fire line service charges, and consumption rates, respectively.

Table 1-3: Proposed Fixed Meter Charges - Purveyors ($/meter size)

A	B	C	D	E	F	G
Line	Meter Size	January 2020	January 2021	January 2022	January 2023	January 2024
1	**Annual Charges**					
2	2C	$610	$659	$706	$749	$794
3	2T	$910	$983	$1,052	$1,116	$1,183
4	3C	$1,210	$1,307	$1,399	$1,483	$1,572
5	3T	$2,010	$2,171	$2,323	$2,463	$2,611
6	4C	$1,885	$2,036	$2,179	$2,310	$2,449
7	4T	$5,634	$6,085	$6,511	$6,902	$7,317
8	6C	$3,760	$4,061	$4,346	$4,607	$4,884
9	6T	$11,258	$12,159	$13,011	$13,792	$14,620
10						
11	**Monthly Charges**					
12	5/8”	$18.26	$19.73	$21.12	$22.39	$23.74
13	1”	$30.76	$33.23	$35.56	$37.70	$39.97
14	1-1/2”	$51.59	$55.72	$59.63	$63.21	$67.01
15	2”	$76.58	$82.71	$88.50	$93.81	$99.44
16	3”	$155.73	$168.19	$179.97	$190.77	$202.22
17	4”	$272.37	$294.16	$314.76	$333.65	$353.67
18	6”	$551.48	$595.60	$637.30	$675.54	$716.08
19	8”	$1,176.36	$1,270.47	$1,359.41	$1,440.98	$1,527.44

Table 1-4: Proposed Fixed Meter Charges - Retail ($/meter size)

A	B	C	D	E	F	G
Line	Meter Size	January 2020	January 2021	January 2022	January 2023	January 2024
1	5/8"	$18.26	$19.73	$21.12	$22.39	$23.74
2	1"	$30.76	$33.23	$35.56	$37.70	$39.97
3	1-1/2"	$51.59	$55.72	$59.63	$63.21	$67.01
4	2"	$76.58	$82.71	$88.50	$93.81	$99.44
5	3"	$155.73	$168.19	$179.97	$190.77	$202.22

Table 1-5: Proposed Fire Line Fixed Service Charges ($/line size)

A	B	C	D	E	F	G
Line	Fire Line Size	January 2020	January 2021	January 2022	January 2023	January 2024
1	1”	$11.95	$12.91	$13.82	$14.65	$15.53
2	1-1/2”	$15.80	$17.07	$18.27	$19.37	$20.54
3	2”	$22.44	$24.24	$25.94	$27.50	$29.15
4	2.5”	$32.42	$35.02	$37.48	$39.73	$42.12
5	3”	$46.26	$49.97	$53.47	$56.68	$60.09
6	4”	$87.36	$94.35	$100.96	$107.02	$113.45
7	6”	$234.85	$253.64	$271.40	$287.69	$304.96
8	8”	$489.23	$528.37	$565.36	$599.29	$635.25

Table 1-6: Proposed Consumption Rates ($/hcf)

A	B	C	D	E	F	G
Line	Customer Class	January 2020	January 2021	January 2022	January 2023	January 2024
1	Wholesale Purveyors	$2.88	$3.12	$3.34	$3.55	$3.77
2	Silverwood	$2.47	$2.67	$2.86	$3.04	$3.23
3	Tax Exempt & Public Agencies	$4.29	$4.64	$4.97	$5.27	$5.59
4						
5	Tax Payer Retail	$2.88	$3.12	$3.34	$3.55	$3.77

2 Financial Plan

This section of the report describes the Agency's long-term financial plan. It includes customer and usage projections, rate and non-rate revenues, O&M and capital expenses, and reserve funding. The financial plan determines the overall revenue adjustments required to maintain the Agency's financial health. Numbers shown in this section of the report are rounded. Therefore, hand calculations based on the displayed numbers, such as summing or multiplying, may not equal the exact results shown in this report.

Customer Accounts and Usage

Agency staff provided customer accounts and water usage data for FY 2018. It is expected that the number of accounts and usage demand per account will remain constant at the current level each year.

Table 2-1 shows the customer accounts by customer class/rate code and meter size in FY 2018, which was provided by Agency staff based on the current customer data. The Agency expects no additional growth in its customers because the Agency typically adds only one or two services per year, and many times those new services are just larger meters replacing an existing small meter. Thus, the total accounts will remain the same as FY 2018.

Total accounts (Line 48) is equal to the sum of total purveyors water meters (Line 12 and Line 23), total retail water meters (Line 44), and total fire lines (Line 46).

Table 2-1: Projected Customer Accounts

A	B	C
Line	Customer Class	FY 2018
1	**Purveyors**	
2	Monthly Fixed Charges	
3	PE1	2
7	PF1	0
8	PF2	5
9	PF3	4
10	PF4	0
11	PF5	2
12	**Total**	**13**
13		
14	Annual Fixed Charges	
15	2C	5
16	2T	21
17	3C	1
18	3T	3
19	4C	2
20	4T	9
21	6C	1
22	6T	3
23	**Total**	**45**
24		

A	B	C
Line	Customer Class	FY 2018
25	**Retail**	
26	RA1	718
27	RA2	75
28	RA3	3
29	RA4	8
30	RA5	1
31		
32	RC1	236
33	RC2	18
34	RC3	0
35	RC4	1
36	RC5	1
37		
38	RD1	85
39	RD2	56
40	RD3	3
41	RD4	2
42	RD5	0
43	RD6	1
44	**Total**	1,**208**
45		
46	**Fire Meters**	**16**
47		
48	**Total - Accounts**	**1,304**

Table 2-2 shows the billed customer use data in hcf in FY 2018. The Agency does not expect any growth to the water use due to no expected additional growth to the accounts. Thus, water use in FY 2019 through FY 2024 are the same as FY 2018. The total water use is shown as hcf (Line 35) and acre-feet (AF) (Line 36). One AF of water is equal to approximately 435.6 hcf.

Table 2-2: Projected Billed Customer Usage (hcf)

A	B	C
Line	Customer Class	FY 2018
1	**Purveyors**	
2	Rate Code	
3	PE1	582
4	PE2	9,061
5	PE3	505,423
6	PE5	33,737
7	PF1	0
8	PF2	1,491
9	PF3	3,381
10	PF4	0

A	B	C
Line	Customer Class	FY 2018
11	PF5	13,456
12	**Total**	**567,132**
13		
14	**Retail**	
15	RA1	19,885
16	RA2	5,741
17	RA3	406
18	RA4	2,127
19	RA5	2,853
20		
21	RC1	5,880
22	RC2	1,065
23	RC3	0
24	RC4	381
25	RC5	862
26		
27	RD1	7,516
28	RD2	4,422
29	RD3	305
30	RD4	1,747
31	RD5	0
32	RD6	40
33	**Total**	**53,227**
34		
35	**Total Billed Usage – hcf**	**620,359**
36	**Total Billed Usage - AF**	**1,424**

Revenue

Table 2-3 and **Table 2-4** show the Agency's current fixed charges and consumption rates, respectively, which were used to calculate revenue under current rates.

Table 2-3: Current Fixed Charges

A	B	C
Line		$/month
1	**Purveyors Fixed Monthly Charge**	
2	Rate Code	
3	PE1	$137.50
4	PF1	$50.00
5	PF2	$100.00
6	PF3	$200.00
7	PF4	$400.00
8	PF5	$425.00
9	**Purveyors Fixed Annual Charge**	

A	B	C
Line		$/month
10	Meter Size	
11	2C	$210.00
12	2T	$310.00
13	3C	$415.00
14	3T	$695.00
15	4C	$650.00
16	4T	$1,950.00
17	6C	$1,295.00
18	6T	$3,880.00
19	**Retail Fixed Monthly Charge**	
20	Rate Code	
21	RA1	$10.00
22	RA2	$15.00
23	RA3	$25.00
24	RA4	$35.00
25	RA5	$185.00
26		
27	RC1	$15.00
28	RC2	$22.50
29	RC3	$37.50
30	RC4	$50.00
31	RC5	$240.00
32		
33	RD2	$15.00
34	RD3	$22.50
35	RD4	$37.50
36	RD5	$50.00
37	RD6	$37.50
38	**Fire Service Fixed Monthly Charge**	
39	Fire Meter	$25.00

Table 2-4: Current Consumption Rates ($/hcf)

A	B	C	D
Line		Included hcf/month	Consumption Rate
1	**Purveyors**		
2	PE1	25	$6.35
3	PE2	0	$5.75
4	PE3	0	$2.64
5	PE5	0	$2.10
6	PF1	8	$7.25
7	PF2	16	$7.25
8	PF3	32	$7.25
9	PF4	64	$7.25

A	B	C	D
Line		Included hcf/month	Consumption Rate
10	PF5	100	$5.00
11			
12	**Retail**		
13	RA1	2.50	$5.00
14	RA2	3.75	$5.00
15	RA3	6.00	$5.00
16	RA4	8.00	$5.00
17	RA5	45.50	$5.00
18			
19	RC1	2.50	$7.25
20	RC2	3.75	$7.25
21	RC3	6.00	$7.25
22	RC4	8.00	$7.25
23	RC5	56.00	$5.00
24			
25	RD2	2.50	$7.25
26	RD3	3.75	$7.25
27	RD4	6.00	$7.25
28	RD5	8.00	$7.25
29	RD6	6.25	$7.25

Agency staff provided the revenue budget for FY 2019. To accurately project rate revenue for FY 2019 and beyond in **Table 2-5**, the current water rates in **Table 2-3** and **Table 2-4** are multiplied by the projected customer count and water usage data in **Table 2-1** and **Table 2-2** to calculate rate revenue.

For example, retail monthly fixed revenue (Line 4) is calculated by multiplying the retail monthly charge accounts (**Table 2-1**, Lines 26-43) by the current fixed monthly meter charge (**Table 2-3**, Column C, Lines 21-37) by 12 billing periods in a year. Retail consumption rate revenues (Line 10) are calculated by multiplying retail water usage for each rate code (**Table 2-2**, Lines 15-32) by the consumption rate for each rate code (**Table 2-4**, Column D, Lines 13-29).

Table 2-5 shows the calculated rate revenue by customer class and rate component for FY 2019. Revenues for FY 2020 through FY 2024 are the same as FY 2019 since there are no projected growth to customer accounts and usage.

Table 2-5: Calculated Rate Revenue

A	B	C
Line	Calculated Rate Revenues	FY 2019
1	**Fixed Revenue**	
2	Purveyors - Monthly	$29,100
3	Purveyors - Annual	$41,845
4	Retail	$197,130
5	Fire	$24,875
6	**Subtotal Fixed Revenue**	**$292,950**

A	B	C
Line	Calculated Rate Revenues	FY 2019
7		
8	**Consumption Revenue**	
9	Purveyors	$1,563,568
10	Retail	$314,185
11	**Subtotal Consumption Revenue**	**$1,877,753**
12		
13	**TOTAL RATE REVENUE**	**$2,170,703**

Table 2-6 shows the revenue escalation factors to project future non-rate revenues (Line 1), property tax revenues (Line 2), and interest income (Line 3) for FY 2020 and beyond. Non-rate revenues, which include standby charge revenues and other miscellaneous revenues are expected to remain stable over the study period. Property tax revenues are expected to increase by two percent per year, based on the maximum increase to assessed value of real property set by Proposition 13. The reserve interest rate is based on the rate provided by Agency staff. The Agency invests a portion of its water utility reserves, and the reserve interest rate represents a composite return on total reserves.

Table 2-6: Revenue Escalation Factors

A	B	C	D	E	F	G
Line	Revenue Escalation Factors	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
1	Non-Rate Revenues	0.0%	0.0%	0.0%	0.0%	0.0%
2	Property Tax Revenues	2.0%	2.0%	2.0%	2.0%	2.0%
3	Reserve Interest Rate	1.0%	1.0%	1.0%	1.0%	1.0%

Table 2-7 shows the actual and projected revenues for the study period. Agency staff provided actual revenues for FY 2019. Revenues for FY 2020 are projected based on the calculated rate revenues in **Table 2-5** and revenue escalation factors in **Table 2-6** for all non-rate revenues. The Agency also receives property tax to fund its State Water Project (SWP) costs. This revenue is kept separate from the water rates calculation, since it is a separate funding source that is not governed by Proposition 218.

The water sales revenue (**Table 2-7**, Line 1) is equal to the fixed charge revenue and consumption rate revenues (**Table 2-5**, Lines 6 and 11).

Table 2-7: Projected Revenues

A	B	C	D	E	F	G	H
Line	Revenues	Actual - FY 2019	Projected - FY 2020	Projected - FY 2021	Projected - FY 2022	Projected - FY 2023	Projected - FY 2024
1	Water Sales - Water	$2,244,570	$2,170,703	$2,170,703	$2,170,703	$2,170,703	$2,170,703
2	All Other Revenue	$19,950	$19,950	$19,950	$19,950	$19,950	$19,950
3							
4	Non-Operating Revenue						
5	Interest Income	$385,345	$160,581	$266,251	$279,474	$293,051	$306,687
7	Property Tax - General	$806,956	$823,095	$839,557	$856,348	$873,475	$890,945
8	Standby Revenue	$881,172	$881,172	$881,172	$881,172	$881,172	$881,172
9							
10	**TOTAL REVENUE**	**$4,337,993**	**$4,055,501**	**$4,177,633**	**$4,207,648**	**$4,238,351**	**$4,269,457**

Expenses

Table 2-8 shows the expense escalation factors used to reasonably project future expenses for FY 2020 and beyond. Agency staff provided input to ensure reasonable and accurate escalation factors, which are used to project the expenses budget.

Table 2-8: Expense Escalation Factors

A	B	C	D	E	F	G
Line	Expense Escalation Factors	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
1	General	3.0%	3.0%	3.0%	3.0%	3.0%
2	Salary/Benefits	4.0%	4.0%	4.0%	4.0%	4.0%
3	Water Supply	5.0%	5.0%	5.0%	5.0%	5.0%
4	Utilities/Power	5.0%	5.0%	5.0%	5.0%	5.0%
5	Chemicals	5.0%	5.0%	5.0%	5.0%	5.0%
6	Supplies/Materials	3.0%	3.0%	3.0%	3.0%	3.0%
7	Capital	3.0%	3.0%	3.0%	3.0%	3.0%
8	Non-inflated	0.0%	0.0%	0.0%	0.0%	0.0%

Table 2-9 shows the projected expense budget for the study period. Agency staff provided the FY 2019 expenses from the Agency's FY 2019 budget. For the FY 2020 and beyond, expenses are inflated based on the expense escalation factors in **Table 2-8**.

Table 2-9: Projected Expenses

A	B	C	D	E	F	G	H
Line	Expenses	Actual - FY 2019	Projected - FY 2020	Projected - FY 2021	Projected - FY 2022	Projected - FY 2023	Projected - FY 2024
1	**Administrative Expenses**						
2	*Source of Supply - Maintenance*[3]	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*
3	Source of Supply - Purchased Water	$131,218	$190,000	$199,500	$209,475	$219,949	$230,946
4	Pumping - Supervision	$0	$0	$0	$0	$0	$0
5	Pumping - Generator Maintenance	$25,045	$25,796	$26,570	$27,367	$28,188	$29,034
6	*Pumping - Maintenance*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*
7	Pumping - Emission Testing	$48,544	$50,000	$51,500	$53,045	$54,637	$56,276
8	Pumping - Fuel	$745,346	$782,613	$821,744	$862,831	$905,973	$951,271
9	Treatment - Supervision	$128,024	$133,145	$138,471	$144,010	$149,770	$155,761
10	Treatment - Maintenance	$115,611	$119,079	$122,652	$126,331	$130,121	$134,025
11	Treatment - Chemicals	$196,603	$206,433	$216,755	$227,593	$238,972	$250,921
12	Treatment - Carbon	$252,927	$260,515	$268,330	$276,380	$284,672	$293,212
13	Treatment - Testing	$19,636	$20,225	$20,832	$21,457	$22,100	$22,764
14	Transmission/Distribution - Supervision	$280,643	$291,869	$303,543	$315,685	$328,313	$341,445
15	*Transmission/Distribution - Maintenance*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*
16	Customer Accounts - Supervision	$7,164	$7,451	$7,749	$8,059	$8,381	$8,716
17	Admin - Salaries	$697,869	$725,784	$754,815	$785,008	$816,408	$849,064
18	Admin - Extra Help	$0	$0	$0	$0	$0	$0
19	Admin - Office Supplies	$16,161	$16,646	$17,145	$17,660	$18,189	$18,735
20	Admin - Insurance	$101,776	$104,829	$107,974	$111,213	$114,550	$117,986
21	Admin - Retirement/Health	$673,160	$700,086	$728,090	$757,213	$787,502	$819,002
22	Admin - Bank Charges	$3,110	$3,203	$3,299	$3,398	$3,500	$3,605
23	Admin - Payroll Taxes	$13,664	$14,211	$14,779	$15,370	$15,985	$16,624
24	Admin - Rents and Leases	$457	$471	$485	$499	$514	$530
25	Admin - Utilities	$29,422	$30,893	$32,438	$34,060	$35,763	$37,551
26	Admin - Maintenance	$17,118	$17,632	$18,160	$18,705	$19,266	$19,844
27	Admin - Tools and Supplies	$17,545	$18,071	$18,613	$19,172	$19,747	$20,339
28	Admin - Office Equipment	$0	$0	$0	$0	$0	$0
29	Admin - Telephone	$12,904	$13,291	$13,690	$14,101	$14,524	$14,959

[3] Italicized expenses are projected to be funded from property tax revenue.

A	B	C	D	E	F	G	H
Line	Expenses	Actual - FY 2019	Projected - FY 2020	Projected - FY 2021	Projected - FY 2022	Projected - FY 2023	Projected - FY 2024
30	Admin - Household	$3,007	$3,097	$3,190	$3,286	$3,384	$3,486
31	Admin - Communication	$13,050	$13,442	$13,845	$14,260	$14,688	$15,129
32	Admin - Security Service	$6,414	$6,606	$6,805	$7,009	$7,219	$7,436
33	Admin - Dues/Subscription	$42,419	$43,692	$45,002	$46,352	$47,743	$49,175
34	Admin - Air/Auto	$44,314	$45,643	$47,013	$48,423	$49,876	$51,372
35	Admin - Lodging/Meals	$2,417	$2,490	$2,564	$2,641	$2,720	$2,802
36	Admin - Uniforms	$1,936	$1,994	$2,054	$2,116	$2,179	$2,244
37	Admin - Directors	$9,600	$9,888	$10,185	$10,490	$10,805	$11,129
38	Admin - Engineering	$173,707	$178,918	$184,286	$189,814	$195,509	$201,374
39	Admin - Consultant	$25,553	$26,320	$27,109	$27,922	$28,760	$29,623
40	Admin - Legal	$99,052	$102,024	$105,084	$108,237	$111,484	$114,828
41	Admin - Audit	$117,684	$121,215	$124,851	$128,596	$132,454	$136,428
42	Admin - Public Relations	$922	$950	$978	$1,007	$1,038	$1,069
43	Admin - Job Training	$6,287	$6,476	$6,670	$6,870	$7,076	$7,288
44	Admin - Computer Expenses	$27,222	$28,039	$28,880	$29,746	$30,639	$31,558
45	Other - Standby	$0	$0	$0	$0	$0	$0
46	**Subtotal Administrative Expenses**	**$4,107,531**	**$4,323,035**	**$4,495,650**	**$4,675,403**	**$4,862,598**	**$5,057,552**
47							
48	**Non-Operating Expenses**						
49	County Tax Collection Charges	$9,567	$9,854	$10,150	$10,454	$10,768	$11,091
50	Election Expenses	$60,000	$61,800	$63,654	$65,564	$67,531	$69,556
51	**Subtotal Non-Operating Expenses**	**$69,567**	**$71,654**	**$73,804**	**$76,018**	**$78,298**	**$80,647**
52							
53	**General Plant Assets**						
54	Automotive Equipment	$0	$0	$0	$0	$0	$0
55	Office Machinery	$0	$0	$0	$0	$0	$0
56	Technical Equipment	$36,355	$37,446	$38,569	$39,726	$40,918	$42,145
57	Equipment	$31,115	$32,048	$33,010	$34,000	$35,020	$36,071
58	Building and Structure	$18,333	$18,883	$19,449	$20,033	$20,634	$21,253
59	Land, Office & Warehouse	$56,010	$57,690	$59,421	$61,204	$63,040	$64,931
60	**Subtotal General Plant Assets**	**$141,813**	**$146,067**	**$150,449**	**$154,963**	**$159,612**	**$164,400**
61							

A	B	C	D	E	F	G	H
Line	Expenses	Actual - FY 2019	Projected - FY 2020	Projected - FY 2021	Projected - FY 2022	Projected - FY 2023	Projected - FY 2024
62	**TOTAL EXPENSES**	**$4,318,911**	**$4,540,756**	**$4,719,903**	**$4,906,384**	**$5,100,508**	**$5,302,600**

The Agency estimated future annual capital costs for replacement and refurbishment of the water system is $500,000 in FY 2020, and $675,000 per year in FY 2021 through FY 2024. The capital costs will be funded through standby charge revenue.

Reserve Policy

The Agency currently maintains two funds in its water utility, as specified in its adopted reserve policy, the General Fund and the SWP Reserve Fund. The reserve target for the General Fund is set at 50 percent of the annual operating expenses and the target for the SWP Reserve Fund is the sum of the next five years of projected payments to the Department of Water Resources (DWR). Raftelis does not recommend any changes to the current reserve policy.

Current Financial Plan

Table 2-10 shows the operating financial plan with no revenue adjustments. Revenues (Line 17) are from **Table 2-7**[4] and expenses are from **Table 2-9**.

Net operating revenue (Line 27) is equal to revenues (Line 17) less operating expenses (Line 20). The net operating revenue is negative for all years, which shows that the Agency's current revenues are insufficient to cover its operating expenses. Net income (Line 29) is net operating revenue less all other expenses (Lines 21-24). Net income is negative for all years, which signifies that current revenues are insufficient to fund non-operating costs.

Table 2-11 shows the projected fund balances with no revenue adjustments. Due to the negative cash flow in all years (**Table 2-10**, Line 28), the Agency is drawing down its reserves and will not meet reserve targets by FY 2022.

[4] Revenues shown in Table 2-10 match those shown in Table 2-7 with the exception of interest income, which is dynamically calculated based on projected fund ending balances. Therefore, interest income with no revenue adjustments (shown in Table 2-10) is less than what is shown in Table 2-7 (which shows interest income with proposed revenue adjustments in effect).

Table 2-10: Projected Financial Plan (No Adjustments)

A	B	C	D	E	F	G	H
Line	Projected Financial Plan	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
1	**Revenues**						
2	Rate Revenues	$2,244,570	$2,170,703	$2,170,703	$2,170,703	$2,170,703	$2,170,703
3							
4	**Revenue Adjustments**						
5	FY 2020 - 0.0%		$0	$0	$0	$0	$0
6	FY 2021 - 0.0%			$0	$0	$0	$0
7	FY 2022 - 0.0%				$0	$0	$0
8	FY 2023 - 0.0%					$0	$0
9	FY 2024 - 0.0%						$0
10	**Total - Revenue Adjustments**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
11							
12	Total Rate Revenue	$2,244,570	$2,170,703	$2,170,703	$2,170,703	$2,170,703	$2,170,703
13	All Other Revenue	$19,950	$19,950	$19,950	$19,950	$19,950	$19,950
14	Non-Operating Revenue						
15	Interest Income	$385,345	$159,604	$261,377	$266,863	$268,991	$267,545
16	Property Tax - General Distribution	$806,956	$823,095	$839,557	$856,348	$873,475	$890,945
17	Standby Revenue	$881,172	$881,172	$881,172	$881,172	$881,172	$881,172
18	**Total - Revenues**	**$4,337,993**	**$4,054,524**	**$4,172,760**	**$4,195,036**	**$4,214,291**	**$4,230,315**
19							
20	**Expenses**						
21	Operating Expenses	$4,733,863	$4,323,035	$4,495,650	$4,675,403	$4,862,598	$5,057,552
22	Non-Operating Expenses	$69,567	$71,654	$73,804	$76,018	$78,298	$80,647
23	General Plant Assets	$141,813	$146,067	$150,449	$154,963	$159,612	$164,400
24	7000 Accounts	$0	$0	$0	$0	$0	$0
25	Rate Funded Capital Projects	$0	$500,000	$0	$0	$0	$0
26	**Total - Expenses**	**$4,945,243**	**$5,040,756**	**$4,719,903**	**$4,906,384**	**$5,100,508**	**$5,302,600**
27							
28	Net Operating Revenue	($395,870)	($268,511)	($322,891)	($480,367)	($648,307)	($827,237)
29	**Net Income**	**($607,250)**	**($986,232)**	**($547,144)**	**($711,348)**	**($886,217)**	**($1,072,285)**

Table 2-11: Projected Ending Balances (No Adjustments)

A	B	C	D	E	F	G	H
Line	Water Fund Projected Balances	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
1	**General Fund**						
2	Beginning General Fund Balance	$868,678	$261,428	$4,275,196	$3,728,052	$3,016,704	$2,130,488
3	Net Cash Flow	($607,250)	($986,232)	($547,144)	($711,348)	($886,217)	($1,072,285)
4	Loan from SWP Reserve		$5,000,000				
5	**Ending General Fund Balance**	**$261,428**	**$4,275,196**	**$3,728,052**	**$3,016,704**	**$2,130,488**	**$1,058,203**
6							
7	**SWP Reserve**						
8	Beginning SWP Balance	$13,002,037	$13,002,037	$9,377,037	$10,283,287	$11,189,537	$12,095,787
9	Loan to General Fund	$0	($5,000,000)	$0	$0	$0	$0
10	Repayment from General Fund	$0	$1,375,000	$906,250	$906,250	$906,250	$906,250
11	**Ending SWP Balance**	**$13,002,037**	**$9,377,037**	**$10,283,287**	**$11,189,537**	**$12,095,787**	**$13,002,037**
12							
13	Total Ending Balance - O&M and SWP Reserve	$13,263,465	$13,652,233	$14,011,339	$14,206,241	$14,226,275	$14,060,240
14	Total O&M and SWP Reserve Target	$12,900,313	$13,052,883	$13,593,182	$14,259,177	$15,091,736	$15,874,987
15	Difference	$363,153	$599,350	$418,157	($52,935)	($865,461)	($1,814,747)

Figure 2-1 shows the financial plan in graphical format – derived from **Table 2-10**. The blue bars represent the O&M expenses, which include water supply costs. The dark blue bars represent all other expenses, and the rate funded capital costs are shown as green bars. The yellow bars, which represent net income, are negative for all study years, signifying that the Agency is drawing down reserves for all years. The teal line shows current revenues without revenue adjustments, which are not sufficient to fund all operating and capital costs.

Figure 2-1: Financial Plan (No Adjustments)

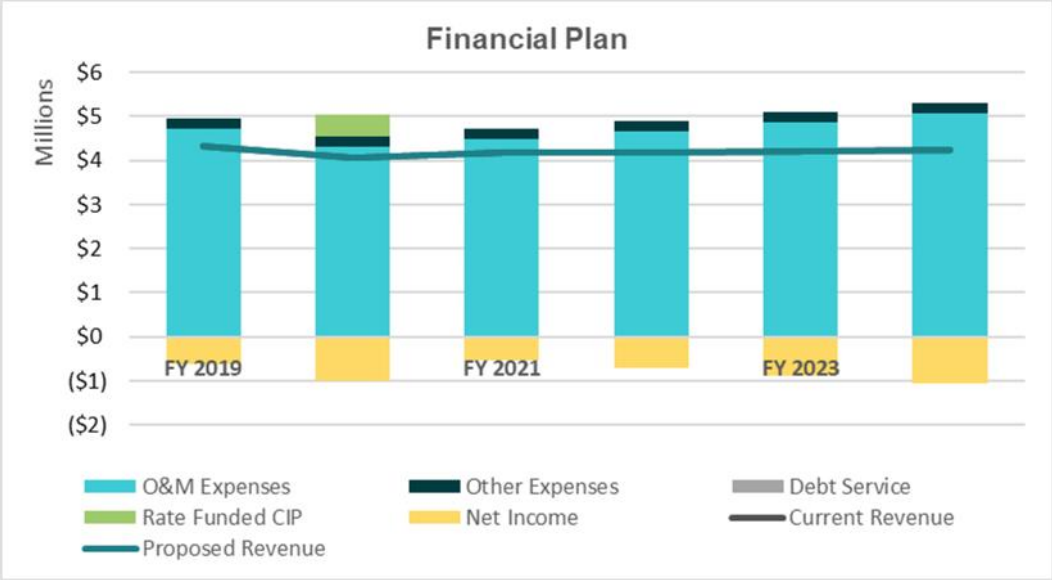
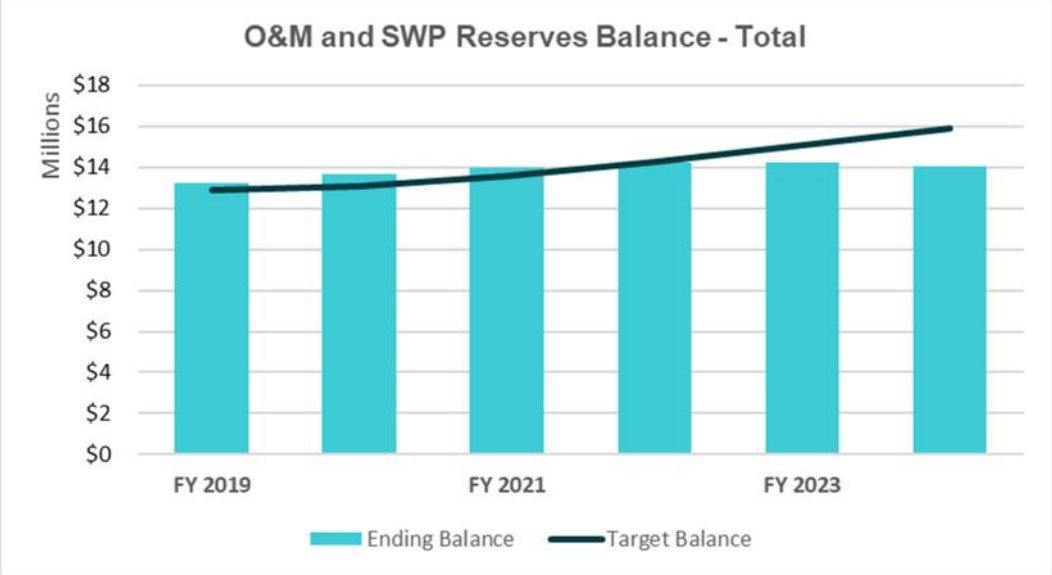


Figure 2-2 shows the Agency's projected water fund ending balances as the blue bars and the recommended reserve target as the dark blue line. The Agency's water reserves are projected to fall below the reserve target in FY 2022 without revenue adjustments.

Figure 2-2: Projected Ending Balances (No Adjustments)



Proposed Financial Plan

As shown in the previous section, the Agency will fall below its reserve targets without revenue adjustments, starting in FY 2022. **Table 2-12** shows the recommended revenue adjustments to meet the reserve targets for each year of the study period and fund projected expenses.

Table 2-12: Proposed Revenue Adjustments

A	B	C	D
Line	Year	Month	Revenue Adjustment
1	FY 2020	January	9.0%
2	FY 2021	January	8.0%
3	FY 2022	January	7.0%
4	FY 2023	January	6.0%
5	FY 2024	January	6.0%

Table 2-13 shows the proposed financial plan with the revenue adjustments shown in **Table 2-12**. Even with the proposed revenue adjustments, the net income (Line 29) is still negative for all years of the study, which signifies that proposed revenues are still insufficient to fund the Agency's projected costs. The revenue adjustments were selected to minimize customers impacts. However, the net income under the proposed financial plan is higher than the net income without revenue adjustments.

Table 2-14 shows the projected fund balances with revenue adjustments. The Agency will meet reserve target levels for all study years. The proposed revenue adjustments allow the Agency's water utility to be financially healthy, while aiming to minimize customer impacts.

Table 2-13: Projected Financial Plan (Proposed Adjustments)

A	B	C	D	E	F	G	H
Line	Projected Financial Plan	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
1	**Revenues**						
2	Rate Revenues	$2,244,570	$2,170,703	$2,170,703	$2,170,703	$2,170,703	$2,170,703
3							
4	**Revenue Adjustments**						
5	FY 2020 - 9.0%		$97,682	$195,363	$195,363	$195,363	$195,363
6	FY 2021 - 8.0%			$94,643	$189,285	$189,285	$189,285
7	FY 2022 - 7.0%				$89,437	$178,875	$178,875
8	FY 2023 - 6.0%					$82,027	$164,054
9	FY 2024 - 6.0%						$86,948
10	**Total - Revenue Adjustments**	**$0**	**$97,682**	**$290,006**	**$474,086**	**$645,550**	**$814,525**
11							
12	Total Rate Revenue	$2,244,570	$2,268,385	$2,460,709	$2,644,789	$2,816,253	$2,985,228
13	All Other Revenue	$19,950	$19,950	$19,950	$19,950	$19,950	$19,950
14	Non-Operating Revenue						
15	Interest Income	$385,345	$160,581	$266,251	$279,474	$293,051	$306,687
16	Property Tax - General Distribution	$806,956	$823,095	$839,557	$856,348	$873,475	$890,945
17	Standby Revenue	$881,172	$881,172	$881,172	$881,172	$881,172	$881,172
18	**Total - Revenues**	**$4,337,993**	**$4,153,183**	**$4,467,639**	**$4,681,734**	**$4,883,901**	**$5,083,982**
19							
20	**Expenses**						
21	Operating Expenses	$4,733,863	$4,323,035	$4,495,650	$4,675,403	$4,862,598	$5,057,552
22	Non-Operating Expenses	$69,567	$71,654	$73,804	$76,018	$78,298	$80,647
23	General Plant Assets	$141,813	$146,067	$150,449	$154,963	$159,612	$164,400
24	7000 Accounts	$0	$0	$0	$0	$0	$0
25	Rate Funded Capital Projects	$0	$500,000	$0	$0	$0	$0
26	**Total - Expenses**	**$4,945,243**	**$5,040,756**	**$4,719,903**	**$4,906,384**	**$5,100,508**	**$5,302,600**
27							
28	Net Operating Revenue	($395,870)	($169,852)	($28,012)	$6,331	$21,304	$26,430
29	**Net Income**	**($607,250)**	**($887,574)**	**($252,265)**	**($224,650)**	**($216,606)**	**($218,617)**

Table 2-14: Projected Ending Balances (Proposed Adjustments)

A	B	C	D	E	F	G	H
Line	Water Fund Projected Balances	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
1	**General Fund**						
2	Beginning General Fund Balance	$868,678	$261,428	$4,373,854	$4,121,590	$3,896,940	$3,680,333
3	Net Cash Flow	($607,250)	($887,574)	($252,265)	($224,650)	($216,606)	($218,617)
4	Loan from SWP Reserve		$5,000,000				
5	**Ending General Fund Balance**	**$261,428**	**$4,373,854**	**$4,121,590**	**$3,896,940**	**$3,680,333**	**$3,461,716**
6							
7	**SWP Reserve**						
8	Beginning SWP Balance	$13,002,037	$13,002,037	$9,377,037	$10,283,287	$11,189,537	$12,095,787
9	Repayment from General Fund	$0	($3,625,000)	$906,250	$906,250	$906,250	$906,250
10	**Ending SWP Balance**	**$13,002,037**	**$9,377,037**	**$10,283,287**	**$11,189,537**	**$12,095,787**	**$13,002,037**
11							
12	Total Ending Balance - O&M and SWP Reserve	$13,263,465	$13,750,891	$14,404,877	$15,086,477	$15,776,120	$16,463,753
13	Total O&M and SWP Reserve Target	$12,900,313	$13,052,883	$13,593,182	$14,259,177	$15,091,736	$15,874,987
14	Difference	$363,153	$698,009	$811,695	$827,300	$684,384	$588,766

Figure 2-3 shows the proposed revenue adjustments from **Table 2-12**.

Figure 2-3: Revenue Adjustments (Proposed Adjustments)

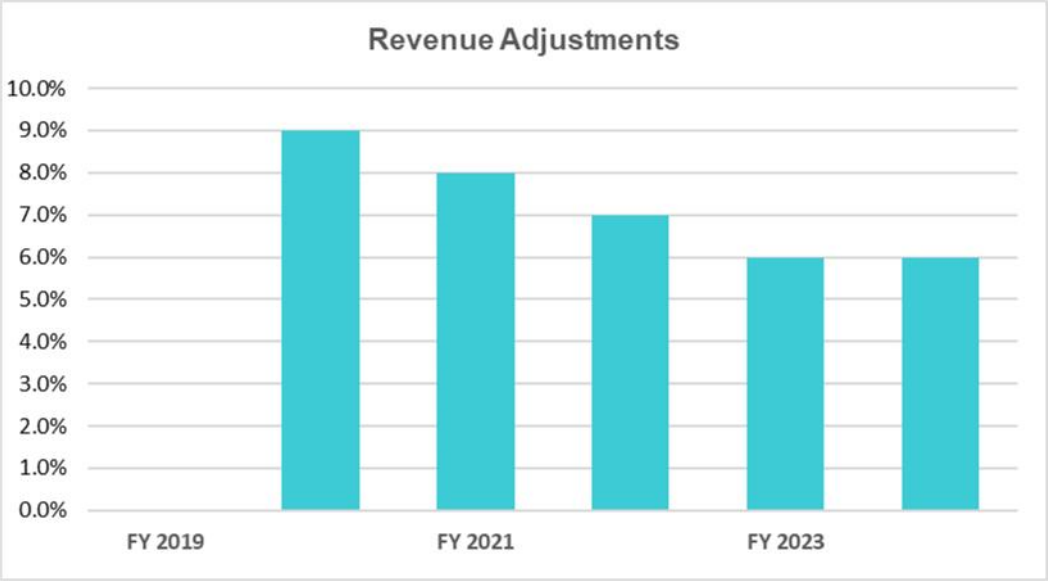


Figure 2-4 shows the financial plan with proposed revenue adjustments from **Table 2-13**. The net income, shown as yellow bars, is slightly negative for the study period.

Figure 2-4: Financial Plan (Proposed Adjustments)

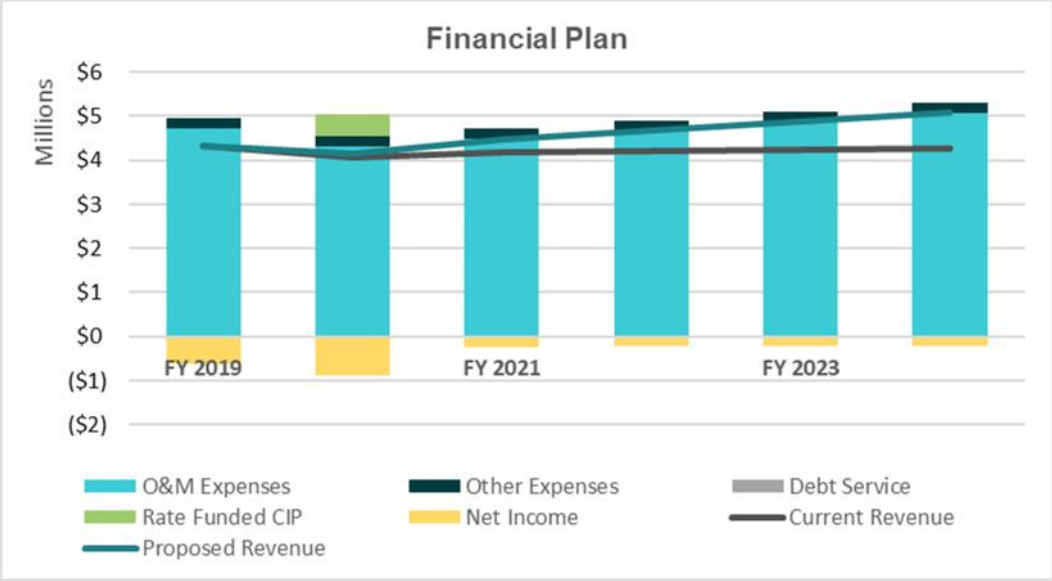
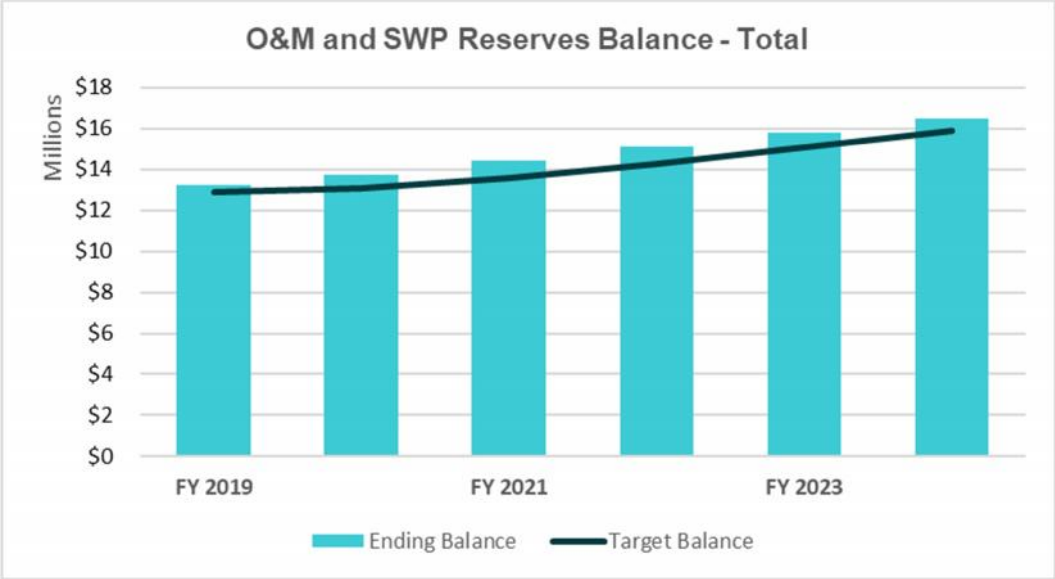


Figure 2-5 shows the projected water fund ending balances with the proposed revenue adjustments. The Agency is expected to meet reserve target levels.

Figure 2-5: Projected Ending Balances (Proposed Adjustments)



3 Cost of Service Analysis

This report section documents the cost of service (COS) analysis for the Agency's water utility. The goal of a COS analysis is to allocate the revenue requirement to all customer classes based on their proportion of use and burden on the system. Numbers shown in this section of the report are rounded. Therefore, hand calculations based on the displayed numbers, such as summing or multiplying, may not equal the exact results shown in this report.

Process and Approach

The first step in the COS analysis is to determine the revenue requirement, which is based on the results of the financial plan and the proposed revenue adjustments. The framework and methodology utilized to develop the COS analysis and apportion the revenue requirement to each customer class is informed by the processes outlined in the M1 Manual.

COS analyses are tailored specifically to meet the unique needs of each utility. However, there are four distinct steps in every analysis to recover costs from customer classes in accurate, equitable, and defensible manner:

1. Cost functionalization: O&M expenses and capital assets are categorized by their function in the system. Functions include supply, production, T&D, customer service, billing, etc.
2. Cost causation component allocation: the functionalized costs are then allocated to cost causation components based on their burden on the system. The cost causation components include supply, peaking, delivery, meter, customer, etc. The revenue requirement is allocated accordingly to the cost causation components and results in the total revenue requirement for each cost causation component.
3. Unit cost development: the revenue requirement for each cost causation component is divided by the appropriate units of service to determine the unit cost for each cost causation component.
4. Revenue requirement distribution: the unit cost is utilized to distribute the revenue requirement for each cost causation component to customer classes based on their individual service units. The Agency's customer classes include wholesale purveyors, tax exempt customers, contract customers (Silverwood), public agencies and retail customers.

Revenue Requirement

Table 3-1 shows the revenue requirement, which is equal to the total revenue required from rates, for FY 2020, the test or rate-setting year. The revenue requirement is split into the Operating and Capital categories (Columns C and D), which are then allocated based on operating expenses and capital assets, respectively.

The revenue requirement is calculated using the FY 2020 expenses (Lines 1-7), which includes operating expenses, non-operating expenses, general plant assets, and rate funded capital projects. The revenue offsets (Lines 9-15) are the various miscellaneous, non-rate revenues that are used to offset the revenue requirement. The adjustments are to annualize the rate increase (Line 18) due to the mid-year proposed revenue adjustment occurring in January and to adjust for the cash balance (Line 19), which is equal to the net income for FY 2020 (**Table 2-13**, Column D, Line 29). The final revenue requirement (Line 22) is calculated as follows:

Revenue requirements (Line 7) - Revenue offsets (Line 15) - Adjustments (Line 20)

Table 3-1: Proposed Revenue Requirement

A	B	C	D	E
Line	Revenue Requirement (FY 2020)	Operating	Capital	Total
1	**Revenue Requirements**			
2	Operating Expenses	$4,323,035		$4,323,035
3	Non-Operating Expenses	$71,654		$71,654
4	General Plant Assets		$146,067	$146,067
5	7000 Accounts		$0	$0
6	Rate Funded Capital Projects		$500,000	$500,000
7	**Total - Revenue Requirements**	**$4,394,689**	**$646,067**	**$5,040,756**
8				
9	**Revenue Offsets**			
10	All Other Revenue	$19,950		$19,950
11	Non-Operating Revenue	$0		$0
12	Interest Income	$160,581		$160,581
13	Property Tax - General Distribution[5]	$0		$0
14	Standby Revenue	$881,172		$881,172
15	**Total - Revenue Offsets**	**$1,061,703**	**$0**	**$1,061,703**
16				
17	**Less Adjustments**			
18	Midyear Rate Increase Adjustment	($97,682)		($97,682)
19	Cash Balance Adjustment	$773,815	$113,759	$887,574
20	**Total - Less Adjustments**	$676,133	$113,759	$789,892
21				
22	**Total Revenue Required from Rates**	**$2,656,853**	**$532,308**	**$3,189,162**

Functionalization and Allocation of Expenses

After determining the revenue requirement, the next step in a COS analysis is to allocate the operating expenses and capital assets to the following functions:

- Administration – represents costs of administration of the water utility
- Billing – represents costs of meter reading, billing and collecting charges from water customers
- Customer Service – represents costs of providing customer service to water customers
- Supply – represents variable costs associated with SWP water
- Storage – represents costs of storing water in tanks, reservoirs, etc.
- Treatment – represents costs of water treatment
- Pumping – represents costs of pumping water to customers
- T&D – represents costs of the Transmission & Distribution system
- Pipelines – represents costs of purchasing, operating, repair, and maintenance of pipelines
- Fire Hydrants – represents the costs associated with maintaining and repairing fire hydrants
- General – represents costs for general operational expenses which cannot be categorized under any of the above

The functionalization of costs allows for the allocation of costs to the cost causation components, which include:

- Supply – variable costs associated with SWP water

[5] Property Tax revenue would be distributed in Revenue Offset section.

- Base Delivery – costs associated with providing water under average conditions
- Peaking (Max Day and Max Hour) – costs associated with providing water under peak demand conditions
- Meter – costs associated with purchasing, maintaining, and servicing water meters
- Customer – costs associated with customer service and billing
- Offset – revenue offsets with no direct association to rates, such as property tax
- General – costs that do not have any direct cost causation

Peaking costs are divided into maximum day (Max Day) and maximum hour (Max Hour) demand. The Max Day demand is the maximum amount of water used in a single day in a year. The Max Hour demand is the maximum usage in an hour on the Max Day. Different facilities, such as distribution and storage facilities, are designed to meet the peaking demands of customers. Therefore, peaking costs, also known as extra capacity costs, are associated with meeting peak customer demand.

Peaking Factors

Table 3-2 shows the system-wide peaking factors used to derive the cost component allocation bases for Base Delivery, Max Day, and Max Hour costs. The Base Delivery, or Base use is considered average daily demand during the year, which has been normalized to a factor of 1.00 (Column C, Line 1). The Max Day peaking factor (Column C, Line 2) represents that the Max Day demand is 2.00 times greater than the average daily demand. Similarly, the Max Hour peaking factor (Column C, Line 3) shows that the Max Hour demand is 4.00 times greater than average demand.

The allocation bases (Columns D to F) are calculated using the equations outlined in this section. Columns are represented in these equations as letters, and rows are represented as numbers. For example, Column D, Line 2 is shown as D2.

The Max Day allocations are calculated as follows:

- Base Delivery: *C1 / C2 x 100% = D2*
- Max Day: *(C2 - C1) / C2 x 100% = E2*

The Max Hour allocations are calculated as follows:

- Base Delivery: *C1 / C3 x 100% = D3*
- Max Day: *(C2 - C1) / C3 x 100% = E3*
- Max Hour: *(C3 - C2) / C3 x 100% = F3*

Table 3-2: System Peaking Factor Allocations

A	B	C	D	E	F	G
Line	Allocation Factor	Peaking Factor	Base	Max Day	Max Hour	Total
1	Base	1.00	100%	0%	0%	100%
2	Max Day	2.00	50%	50%	0%	100%
3	Max Hour	4.00	25%	25%	50%	100%

Equivalent Meters

Equivalent meter units are used to allocate meter-related costs appropriately and equitably. Larger meters impose larger demands; are more expensive to install, maintain, and replace than smaller meters; and commit a greater capacity in the water system.

Equivalent meter units are based on meter hydraulic capacity and are calculated to represent the potential demand on the water system compared to a base meter size. A ratio of hydraulic capacity is calculated by dividing larger meter capacities by the base meter capacity. The base meter in this study is the 5/8" meters, the smallest meter size.

Table 3-3 shows the equivalent meters for the test year, FY 2020. The actual number of meters (Columns E and G) is provided by the Agency's customer database.

The capacity in gallons per minute (gpm) is based on data from the M1 Manual (Column C). The capacity ratios (Column D) are calculated by dividing the capacity for each meter size by the capacity for the 5/8" meter. The actual number of meters for each type of customer (Columns E and G) is multiplied by the capacity ratios (Column D) to determine the number of equivalent meters for each type of customer (Columns F and H).

Table 3-3: Equivalent Meters for Monthly Charge Accounts

A	B	C	D	E	F	G	H
Line	Meter Size	Capacity (gpm)	AWWA Ratio	Number of Meters - Retail	Equivalent Meters - Retail	Number of Meters – Non-Retail	Equivalent Meters – Non-Retail
1	5/8"	20	1.00	1,043	1,043	5	5
2	1"	50	2.50	152	380	3	8
3	1-1/2"	100	5.00	6	30	0	0
4	2"	160	8.00	14	112	2	16
5	3"	350	17.50	1	18	2	35
6	4"	630	31.50		0	0	0
7	6"	1,300	65.00		0	0	0
8	8"	2,800	140.00		0	0	0
9	**Total**			**1,216**	**1,583**	**12**	**64**

Similarly, **Table 3-4** shows the equivalent meters for annual charge accounts for the test year FY 2020. The number of meter (Column E) is from **Table 2-1**. The capacity (Column C) for these meters were provided by the Agency from the Purveyor Annual Connection Fee document shown in Appendix A. The calculation is the same as described above.

Table 3-4: Equivalent Meters for Annual Charge Accounts

A	B	C	D	E	F
Line	Meter Size	Capacity (gpm)	Meter Ratio	Number of Meters	Equivalent Meters
1	2C	120	6.00	5	30
2	2T	180	9.00	21	189
3	3C	240	12.00	1	12
4	3T	400	20.00	3	60
5	4C	375	18.75	2	38
6	4T	1,125	56.25	9	506
7	6C	750	37.50	1	38
8	6T	2,250	112.50	3	338
9	**Total**			**45**	**1,210**

Similar to equivalent water meters, private fire line and public fire hydrant counts are also converted to equivalent lines based on fire line capacities. **Table 3-5** shows the equivalent lines for private fire lines and public fire hydrants. Agency staff provided the size for private fire and public fire hydrant data.

The fire line capacity ratios are determined based on the Hazen-Williams equation for flow through pressure conduits, as explained in the M1 Manual. The flow potential is dependent on the diameter of the fire line raised to the power of 2.63. Therefore, the fire line capacity ratio for each line size is normalized based on the capacity of a 6" fire line.

For example, the equation used to calculate the fire ratio for a 4" meter is as follows:

$$(4\text{" line} / 6\text{" line})^{2.63} = 0.34$$

Table 3-5: Equivalent Public and Private Fire Lines

A	B	C	D	E	F	G
Line	Fire Line Size	Fire Capacity Ratio	Private Fire Connections	Equivalent Meters	Number of Hydrants	Equivalent Hydrants
1	1"	0.01	2	0.02		0.00
2	1-1/2"	0.03		0.00		0.00
3	2"	0.06	2	0.11		0.00
4	2-1/2"	0.10		0.00	344	34.40
5	3"	0.16	1	0.16		0.00
6	4"	0.34		0.00	172	59.21
7	6"	1.00	4	4.00		0.00
8	8"	2.13	5	10.66		0.00
9	**Total - Fire Lines**		**14**	**14.95**	**516**	**93.62**

Operating Allocation

Table 3-6 and **Table 3-7** show the allocation of operating expenses to each cost component. Operating expenses are used in the COS analysis to allocate the Operating revenue requirement (**Table 3-1**, Column C, Line 22). The operating expenses (Column B) are allocated based on a percentage for each cost component based on the nature of each function. Then the percentages (**Table 3-6**) for each cost component are multiplied by the operating costs

(**Table 3-7**, Column K) to determine the total allocation of operating expenses to each cost component (**Table 3-7**, Line 54). This process allocates the operating expenses to each cost component (Line 19). The proportion of costs in each cost component is equal to the operating allocation percentage (Line 54). Note that the total operating cost is equal to the projected operating expenses in FY 2020 (**Table 2-9**, Column D, Line 62).

Supply costs are allocated fully to the Supply cost component (Column C) because these are the variable costs associated with water delivered from the SWP. Pumping and treatment facilities and the costs associated with them are designed to withstand Max Day demands and are allocated to the cost components based on the Max Day peaking factor allocations (**Table 3-2**, Line 2). Transmission and distribution facilities and the costs associated with those facilities are designed to withstand Max Hour demands. The operating costs associated with this function are allocated to the cost components based on the Max Hour peaking factor allocations (**Table 3-2**, Line 3). Engineering costs are allocated based on the capital asset allocation (Table 3-9, Line 50).

Customer accounts, office supplies, telephone, and public relation costs are allocated fully to the Customer cost component (Column H) because these costs are incurred to provide billing and customer service to water customers. Administrative salaries, communication, air/auto, and automotive equipment costs are allocated partially to Meter (Column G) and Customer cost components based on discussion with Agency staff as to the function of those costs. All other costs are allocated fully to the General cost component (Column J) because these costs cannot be directly allocated to the other cost components.

Capital Allocation

Table 3-8 shows the allocation of capital assets to each cost component. Capital assets are utilized in COS analyses to allocate capital costs because the cost component associated with annual capital project costs can fluctuate greatly from year to year. For example, in one year the Agency may have mostly supply related capital projects. The overall distribution of capital assets to the cost components remain relatively stable and are more representative of the Agency's investments in its water utility over time. The capital assets are allocated in a similar manner to the operating expenses: each capital function is allocated to each cost component using a percentage based on the nature of that function, then the allocation percentages for each function is multiplied by the capital asset value for that function to determine the asset allocation for each cost component.

Agency staff provided asset information and asset values as stated in net book value. Storage (reservoirs and tanks), pumping, treatment facilities, and water mains are designed to provide service during periods of Max Day demand and are allocated based on the Max Day peaking factor allocations (**Table 3-2**, Line 2). Distribution pipelines are sized to accommodate service during the periods of highest demand and are allocated based on the Max Hour peaking factor allocations (**Table 3-2**, Line 3). All other assets are allocated to the General cost component.

The resulting capital asset allocation (Line 50) is used to allocate the Capital revenue requirement without revenue offsets (**Table 3-1**, Column D, Line 22).

Table 3-6: Operating Cost Allocation

A	B	C	D	E	F	G	H	I	J	K
Line	Operating Expenses	Supply	Base	Max Day	Max Hour	Meter	Customer	Fire	General	Total
1	Source of Supply - Maintenance	100%							0%	100%
2	Source of Supply - Purchased Water	100%							0%	100%
3	Pumping - Supervision		50%	50%	0%				0%	100%
4	Pumping - Generator Maintenance		50%	50%	0%				0%	100%
5	Pumping - Maintenance		50%	50%	0%				0%	100%
6	Pumping - Emission Testing		50%	50%	0%				0%	100%
7	Pumping - Fuel		50%	50%	0%				0%	100%
8	Treatment - Supervision		50%	50%	0%				0%	100%
9	Treatment - Maintenance		50%	50%	0%				0%	100%
10	Treatment - Chemicals		50%	50%	0%				0%	100%
11	Treatment - Carbon		50%	50%	0%				0%	100%
12	Treatment - Testing		50%	50%	0%				0%	100%
13	Transmission/Distribution - Supervision		25%	25%	50%				0%	100%
14	Transmission/Distribution - Maintenance		25%	25%	50%				0%	100%
15	Customer Accounts - Supervision						100%		0%	100%
16	Admin - Salaries					5%	12%		83%	100%
17	Admin - Extra Help								100%	100%
18	Admin - Office Supplies						100%		0%	100%
19	Admin - Insurance								100%	100%
20	Admin - Retirement/Health								100%	100%
21	Admin - Bank Charges								100%	100%
22	Admin - Payroll Taxes								100%	100%
23	Admin - Rents and Leases								100%	100%
24	Admin - Utilities								100%	100%
25	Admin - Maintenance					0%			100%	100%
26	Admin - Tools and Supplies								100%	100%
27	Admin - Office Equipment								100%	100%

A	B	C	D	E	F	G	H	I	J	K
Line	Operating Expenses	Supply	Base	Max Day	Max Hour	Meter	Customer	Fire	General	Total
28	Admin - Telephone						100%		0%	100%
29	Admin - Household								100%	100%
30	Admin - Communication					25%	75%		0%	100%
31	Admin - Security Service								100%	100%
32	Admin - Dues/Subscription								100%	100%
33	Admin - Air/Auto					25%	15%		60%	100%
34	Admin - Lodging/Meals								100%	100%
35	Admin - Uniforms								100%	100%
36	Admin - Directors								100%	100%
37	Admin - Engineering	29%	31%	31%	1%	0%	0%	0%	7%	100%
38	Admin - Consultant								100%	100%
39	Admin - Legal								100%	100%
40	Admin - Audit								100%	100%
41	Admin - Public Relations						100%		0%	100%
42	Admin - Job Training								100%	100%
43	Admin - Computer Expenses								100%	100%
44	Other - Standby								100%	100%
45	County Tax Collection Charges						0%		100%	100%
46	Election Expenses								100%	100%
47	Automotive Equipment						50%		50%	100%
48	Office Machinery								100%	100%
49	Technical Equipment								100%	100%
50	Equipment								100%	100%
51	Building and Structure								100%	100%
52	Land, Office & Warehouse								100%	100%

Table 3-7: Operating Cost Allocation

A	B	C	D	E	F	G	H	I	J	K
Line	Operating Expenses	Supply	Base	Max Day	Max Hour	Meter	Customer	Fire	General	Total
1	Source of Supply - Maintenance	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	Source of Supply - Purchased Water	$190,000	$0	$0	$0	$0	$0	$0	$0	$190,000
3	Pumping - Supervision	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	Pumping - Generator Maintenance	$0	$12,898	$12,898	$0	$0	$0	$0	$0	$25,796
5	Pumping - Maintenance	$0	$0	$0	$0	$0	$0	$0	$0	$0
6	Pumping - Emission Testing	$0	$25,000	$25,000	$0	$0	$0	$0	$0	$50,000
7	Pumping - Fuel	$0	$391,307	$391,307	$0	$0	$0	$0	$0	$782,613
8	Treatment - Supervision	$0	$66,572	$66,572	$0	$0	$0	$0	$0	$133,145
9	Treatment - Maintenance	$0	$59,540	$59,540	$0	$0	$0	$0	$0	$119,079
10	Treatment - Chemicals	$0	$103,217	$103,217	$0	$0	$0	$0	$0	$206,433
11	Treatment - Carbon	$0	$130,257	$130,257	$0	$0	$0	$0	$0	$260,515
12	Treatment - Testing	$0	$10,113	$10,113	$0	$0	$0	$0	$0	$20,225
13	Transmission/Distribution - Supervision	$0	$72,967	$72,967	$145,934	$0	$0	$0	$0	$291,869
14	Transmission/Distribution - Maintenance	$0	$0	$0	$0	$0	$0	$0	$0	$0
15	Customer Accounts - Supervision	$0	$0	$0	$0	$0	$7,451	$0	$0	$7,451
16	Admin - Salaries	$0	$0	$0	$0	$36,289	$87,094	$0	$602,401	$725,784
17	Admin - Extra Help	$0	$0	$0	$0	$0	$0	$0	$0	$0
18	Admin - Office Supplies	$0	$0	$0	$0	$0	$16,646	$0	$0	$16,646
19	Admin - Insurance	$0	$0	$0	$0	$0	$0	$0	$104,829	$104,829
20	Admin - Retirement/Health	$0	$0	$0	$0	$0	$0	$0	$700,086	$700,086
21	Admin - Bank Charges	$0	$0	$0	$0	$0	$0	$0	$3,203	$3,203
22	Admin - Payroll Taxes	$0	$0	$0	$0	$0	$0	$0	$14,211	$14,211
23	Admin - Rents and Leases	$0	$0	$0	$0	$0	$0	$0	$471	$471
24	Admin - Utilities	$0	$0	$0	$0	$0	$0	$0	$30,893	$30,893
25	Admin - Maintenance	$0	$0	$0	$0	$36	$0	$0	$17,595	$17,632

A	B	C	D	E	F	G	H	I	J	K
Line	Operating Expenses	Supply	Base	Max Day	Max Hour	Meter	Customer	Fire	General	Total
26	Admin - Tools and Supplies	$0	$0	$0	$0	$0	$0	$0	$18,071	$18,071
27	Admin - Office Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0
28	Admin - Telephone	$0	$0	$0	$0	$0	$13,291	$0	$0	$13,291
29	Admin - Household	$0	$0	$0	$0	$0	$0	$0	$3,097	$3,097
30	Admin - Communication	$0	$0	$0	$0	$3,360	$10,081	$0	$0	$13,442
31	Admin - Security Service	$0	$0	$0	$0	$0	$0	$0	$6,606	$6,606
32	Admin - Dues/Subscription	$0	$0	$0	$0	$0	$0	$0	$43,692	$43,692
33	Admin - Air/Auto	$0	$0	$0	$0	$11,411	$6,847	$0	$27,386	$45,643
34	Admin - Lodging/Meals	$0	$0	$0	$0	$0	$0	$0	$2,490	$2,490
35	Admin - Uniforms	$0	$0	$0	$0	$0	$0	$0	$1,994	$1,994
36	Admin - Directors	$0	$0	$0	$0	$0	$0	$0	$9,888	$9,888
37	Admin - Engineering	$51,662	$55,970	$55,970	$1,707	$369	$0	$55	$13,185	$178,918
38	Admin - Consultant	$0	$0	$0	$0	$0	$0	$0	$26,320	$26,320
39	Admin - Legal	$0	$0	$0	$0	$0	$0	$0	$102,024	$102,024
40	Admin - Audit	$0	$0	$0	$0	$0	$0	$0	$121,215	$121,215
41	Admin - Public Relations	$0	$0	$0	$0	$0	$950	$0	$0	$950
42	Admin - Job Training	$0	$0	$0	$0	$0	$0	$0	$6,476	$6,476
43	Admin - Computer Expenses	$0	$0	$0	$0	$0	$0	$0	$28,039	$28,039
44	Other - Standby	$0	$0	$0	$0	$0	$0	$0	$0	$0
45	County Tax Collection Charges	$0	$0	$0	$0	$0	$0	$0	$9,854	$9,854
46	Election Expenses	$0	$0	$0	$0	$0	$0	$0	$61,800	$61,800
47	Automotive Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0
48	Office Machinery	$0	$0	$0	$0	$0	$0	$0	$0	$0
49	Technical Equipment	$0	$0	$0	$0	$0	$0	$0	$37,446	$37,446
50	Equipment	$0	$0	$0	$0	$0	$0	$0	$32,048	$32,048
51	Building and Structure	$0	$0	$0	$0	$0	$0	$0	$18,883	$18,883
52	Land, Office & Warehouse	$0	$0	$0	$0	$0	$0	$0	$57,690	$57,690
53	**Total**	**$241,662**	**$927,841**	**$927,841**	**$147,641**	**$51,466**	**$142,359**	**$55**	**$2,101,891**	**$4,540,756**
54	Operating Expenses Allocation	5.3%	20.4%	20.4%	3.3%	1.1%	3.1%	0.0%	46.3%	100.0%

Table 3-8: Capital Cost Allocation

A	B	C	D	E	F	G	H	I	J	K
Line	Assets	Supply	Base	Max Day	Max Hour	Meter	Customer	Fire	General	Total
1	**General Fund**									
2	Intangible								100%	100%
3	Land								100%	100%
4	State Water Rights	100%								100%
5	Source of Supply Plant	100%								100%
6	Pumping Plant - Booster Station		50%	50%	0%					100%
7	Pumping Plant - Portable		50%	50%	0%					100%
8	Water Treatment Plant		50%	50%	0%					100%
9	Reservoirs		50%	50%	0%					100%
10	Mains		50%	50%	0%					100%
11	Transmission and Distribution - Purveyors Connection		25%	25%	50%					100%
12	Transmission and Distribution - Misc		25%	25%	50%					100%
13	General Plant								100%	100%
14	General Plant - Land								100%	100%
15										
16	**Improvement District B**									
17	Intangible								100%	100%
18	Land								100%	100%
19	Wells	100%								100%
20	Purveyor Connections		25%	25%	50%					100%
21	Pumping Plant		50%	50%	0%					100%
22	Reservoirs and Tanks		50%	50%	0%					100%
23	Mains		50%	50%	0%					100%
24	Services					100%				100%
25	Meters					100%				100%
26	Hydrants							100%		100%
27	Pipeline Maps								100%	100%
28	General								100%	100%

A	B	C	D	E	F	G	H	I	J	K
Line	Assets	Supply	Base	Max Day	Max Hour	Meter	Customer	Fire	General	Total
29	Building & Structures								100%	100%
30										
31	**Improvement District C**									
32	Reservoirs and Tanks		50%	50%	0%					100%
33	Mains		50%	50%	0%					100%
34	Meters					100%				100%
35	Building & Structures								100%	100%
36										
37	**Improvement District D**									
38	Land								100%	100%
39	Reservoirs and Tanks		50%	50%	0%					100%
40	Other								100%	100%
41	Mains		50%	50%	0%					100%
42	Meters					100%				100%
43	Building & Structures								100%	100%

Table 3-9: Capital Cost Allocation

A	B	C	D	E	F	G	H	I	J	K
Line	Assets	Supply	Base	Max Day	Max Hour	Meter	Customer	Fire	General	Total
1	**General Fund**									
2	Intangible	$0	$0	$0	$0	$0	$0	$0	$81,469	$81,469
3	Land	$0	$0	$0	$0	$0	$0	$0	$638,121	$638,121
4	State Water Rights	$6,199,674	$0	$0	$0	$0	$0	$0	$0	$6,199,674
5	Source of Supply Plant	$1,402,181	$0	$0	$0	$0	$0	$0	$0	$1,402,181
6	Pumping Plant - Booster Station	$0	$1,459,289	$1,459,289	$0	$0	$0	$0	$0	$2,918,578
7	Pumping Plant - Portable	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	Water Treatment Plant	$0	$2,779,818	$2,779,818	$0	$0	$0	$0	$0	$5,559,636
9	Reservoirs	$0	$1,318,154	$1,318,154	$0	$0	$0	$0	$0	$2,636,308
10	Mains	$0	$1,416,274	$1,416,274	$0	$0	$0	$0	$0	$2,832,548
11	Transmission and Distribution - Purveyors Connection	$0	$123,043	$123,043	$246,085	$0	$0	$0	$0	$492,171

A	B	C	D	E	F	G	H	I	J	K
Line	Assets	Supply	Base	Max Day	Max Hour	Meter	Customer	Fire	General	Total
12	Transmission and Distribution - Misc	$0	$2,522	$2,522	$5,043	$0	$0	$0	$0	$10,086
13	General Plant	$0	$0	$0	$0	$0	$0	$0	$477,096	$477,096
14	General Plant - Land	$0	$0	$0	$0	$0	$0	$0	$575,328	$575,328
15	**Subtotal General Fund**	**$7,601,855**	**$7,099,099**	**$7,099,099**	**$251,128**	**$0**	**$0**	**$0**	**$1,772,014**	**$23,823,196**
16										
17	**Improvement District B**									
18	Intangible	$0	$0	$0	$0	$0	$0	$0	$8,262	$8,262
19	Land	$0	$0	$0	$0	$0	$0	$0	$32,068	$32,068
20	Wells	$0	$0	$0	$0	$0	$0	$0	$0	$0
21	Purveyor Connections	$0	$9	$9	$18	$0	$0	$0	$0	$37
22	Pumping Plant	$0	$2,255	$2,255	$0	$0	$0	$0	$0	$4,510
23	Reservoirs and Tanks	$0	$229,915	$229,915	$0	$0	$0	$0	$0	$459,830
24	Mains	$0	$211,714	$211,714	$0	$0	$0	$0	$0	$423,429
25	Services	$0	$0	$0	$0	$13,584	$0	$0	$0	$13,584
26	Meters	$0	$0	$0	$0	$4,342	$0	$0	$0	$4,342
27	Hydrants	$0	$0	$0	$0	$0	$0	$8,044	$0	$8,044
28	Pipeline Maps	$0	$0	$0	$0	$0	$0	$0	$0	$0
29	General	$0	$0	$0	$0	$0	$0	$0	$11,269	$11,269
30	Building & Structures	$0	$0	$0	$0	$0	$0	$0	$150	$150
31	**Subtotal Improvement District B**	**$0**	**$443,893**	**$443,893**	**$18**	**$17,927**	**$0**	**$8,044**	**$51,749**	**$965,525**
32										
33	**Improvement District C**									
34	Reservoirs and Tanks	$0	$17,808	$17,808	$0	$0	$0	$0	$0	$35,616
35	Mains	$0	$183,776	$183,776	$0	$0	$0	$0	$0	$367,551
36	Meters	$0	$0	$0	$0	$25,449	$0	$0	$0	$25,449
37	Building & Structures	$0	$0	$0	$0	$0	$0	$0	$0	$0
38	**Subtotal Improvement District C**	**$0**	**$201,584**	**$201,584**	**$0**	**$25,449**	**$0**	**$0**	**$0**	**$428,616**
39										
40	**Improvement District D**									
41	Land	$0	$0	$0	$0	$0	$0	$0	$112,875	$112,875
42	Reservoirs and Tanks	$0	$320,905	$320,905	$0	$0	$0	$0	$0	$641,811
43	Other	$0	$0	$0	$0	$0	$0	$0	$3,469	$3,469

A	B	C	D	E	F	G	H	I	J	K
Line	Assets	Supply	Base	Max Day	Max Hour	Meter	Customer	Fire	General	Total
44	Mains	$0	$170,295	$170,295	$0	$0	$0	$0	$0	$340,590
45	Meters	$0	$0	$0	$0	$10,980	$0	$0	$0	$10,980
46	Building & Structures	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	**Subtotal Improvement District D**	**$0**	**$491,200**	**$491,200**	**$0**	**$10,980**	**$0**	**$0**	**$116,344**	**$1,109,724**
48										
49	**TOTAL ASSETS**	**$7,601,855**	**$8,235,777**	**$8,235,777**	**$251,147**	**$54,355**	**$0**	**$8,044**	**$1,940,107**	**$26,327,061**
50	Capital Costs Allocation	28.9%	31.3%	31.3%	1.0%	0.2%	0.0%	0.0%	7.4%	100.0%

Units of Service

The next step in the COS analysis to determine the appropriate units of service to calculate the unit costs for each cost component. **Table 3-10** shows the units of service calculation for all customer classes.

The annual water usage in hcf (Column C) is the total water usage in each customer class, provided by Agency records. The average daily use (Column D) is calculated by dividing annual water usage for each customer class by 365 days.

The Max Day capacity factors (Column E) are equal to the system peaking factors (**Table 3-2**, Column C, Line 2). The total Max Day capacity (Column F) is equal to the average daily use (Column D) multiplied by the capacity factor (Column E). The Max Day extra capacity (Column G) is equal to the total Max Day capacity (Column F) less average daily use (Column D).

The Max Hour capacity factors (Column H) are equal to the system-wide Max Hour Peaking factor (**Table 3-2**, Column C, Line 3). The Max Hour capacity factors (Column H) are multiplied by the average daily use (Column D) to determine the total Max Hour capacity (Column I). The extra Max Hour capacity (Column J) is equal to the total Max Hour capacity (Column K) less the total Max Day capacity (Column F).

The equivalent meters (Column L, Lines 1-7) is from **Table 3-3** and **Table 3-4**. The equivalent fire lines (Column L, Line 7) is from **Table 3-5**. The number of bills for each customer class is equal to the projected number of customer accounts for FY 2020 taken from **Table 3-3**, **Table 3-4**, and **Table 3-5**.

Table 3-10: Units of Service

A	B	C	D	E	F	G	H	I	J	K	L
				Max Day			Max Hour				
Line	Customer Class	Annual Use (hcf)	Average Daily Use (hcf/day)	Capacity Factor	Total Capacity (hcf/day)	Extra Capacity (hcf/day)	Capacity Factor	Total Capacity (hcf/day)	Extra Capacity (hcf/day)	No. of Bills	Equivalent Meters / Lines
1	Purveyors	505,423	1,385	2.00	2,769	1,385	4.00	5,539	2,769	45	1,210
2	Tax Exempt	9,061	25	2.00	50	25	4.00	99	50		
3	Silverwood	33,737	92	2.00	185	92	4.00	370	185		
4	Other Public Agencies	21,614	59	2.00	118	59	4.00	237	118	144	64
5											
6	Retail	78,242	214	2.00	429	214	4.00	857	429	14,592	1,583
7	Private Fire									168	15
8	**Total**	**648,077**				**1,776**			**3,551**	**14,949**	**2,871**

The Max Day and Max Hour extra capacity shown in **Table 3-10** represents the extra capacity required in the water system to serve customers under peak demands. However, these amounts only account for peaks as demanded by customers and does not include additional capacity required for fire.

Table 3-11 shows the estimates for additional fire capacity, as outlined in the M1 Manual. The fire capacity estimate assumes a two-hour fire at 1,500 gallons per minute (Column C, Lines 1-2). Line 4 shows the fire capacity demand calculated from these assumptions. This line is used to calculate the cost of fire protection in Line 6 of **Table 3-13**.

The cost to public fire is a percentage based on the proportion of equivalent public fire capacity compared to total equivalent fire capacity (which includes private fire line capacity), calculated from **Table 3-5** for the percentage of fire hydrants equivalents to total fire service meter equivalents.

Table 3-11: Fire Capacity Estimates

A	B	C	D
Line	Fire Estimate	Max Day	Max Hour
1	Hours for Fire	2.0	
2	Gallons per minute	1,500	1,500
3			
4	**Fire Capacity Demand**	**241**	**2,647**

Unit Cost Derivation

Table 3-12 shows the adjustments to the cost of service between certain cost components, namely, Fire to Max Hour cost component. A portion of total Fire costs are allocated to the Max Hour component to achieve the desired fixed to variable revenue recovery percentage (Line 4) and to account for costs within the Max Hour cost components that are related to providing capacity for fire protection.

Table 3-12: Adjustments to Cost of Service

A	B	C
Line	Adjustments	Percentage
1	Fire to Max Hour	9%
2		
3	Current Fixed Revenue	13.5%
4	Proposed Fixed Revenue	20.4%

Table 3-13 shows the unit cost of service calculation for each cost component. The operating revenue requirement (Column L, Line 1) is allocated based on the O&M allocation (**Table 3-6**, Line 54) and is equal to the operating revenue requirement (**Table 3-1**, Column C, Line 22). The capital revenue requirement (Column L, Line 2) is allocated based on the capital asset allocation (**Table 3-8**, Line 50) and is equal to the capital revenue requirement less revenue offsets (**Table 3-1**, Column D, Line 22). The property tax revenue offsets (Column L, Line 3) is from

Table 2-7 (Column D).

The total cost of service (Line 4) is calculated by adding the operating and capital revenue requirements and revenue offsets for each cost component (Lines 1-3).

The total cost of service is then adjusted in the three ways outlined:

1. Allocation of General cost: General costs are allocated to the Base, Max Day, Max Hour, Meter, Customer, and Fire cost components based on proportion of the cost of service for each of these components. The Supply cost component is omitted because this represents only the variable cost of procuring water supply from the SWP.
2. Total Fire Protection Cost: A portion of Max Day and Max Hour costs are allocated to the Fire cost component based on the calculated potential fire capacity demand (**Table 3-11**, Line 4) to recognize that the certain peaking facilities are sized to meet fire flow requirements.
3. Allocation of Public Fire Cost: A portion of the total Fire costs equal to the public fire protection allocation is allocated to Max Hour and Meter based on the public fire percent allocation (calculated from **Table 3-5** for the percentage of fire hydrants equivalents to total fire service meter equivalents). Public fire protection is a general benefit to all customers and is collected on the meter charge and volumetric rate. The Max Hour allocation is used to achieve the desired fixed revenue recovery of 20 percent.

The total adjusted cost of service (Line 9) is equal to the sum of the total cost of service (Line 4) and all adjustments (Lines 5-8) for each cost component. The total adjusted cost of service is then divided by each cost components units of service (Line 11) to determine the unit cost by cost component (Line 14).

The Supply and Base units of service (Columns C and D, Line 11) are equal to water usage in hcf (**Table 3-10**, Column D, Line 8). The Max Day and Max Hour units of service (Columns E and F, Line 11) are equal to the extra capacity for the respective cost components (**Table 3-10**, Columns G and J, Line 8). The Meter, Customer, and Fire, units of service (Columns G through I) are equivalent meters, customer bills, and equivalent lines per year, respectively.

Table 3-13: Unit Cost of Service by Cost Component

A	B	C	D	E	F	G	H	I	J	K	L
Line	Cost of Service Allocation	Supply	Base	Max Day	Max Hour	Meter	Customer	Fire	General	Property Tax	Total
1	Operating Cost	$141,399	$542,891	$542,891	$86,387	$30,114	$83,296	$32	$1,229,843		$2,656,853
2	Capital Cost	$153,702	$166,520	$166,520	$5,078	$1,099	$0	$163	$39,227		$532,308
3	Property Tax Offset									($823,095)	($823,095)
4	**Total Cost of Service**	**$295,102**	**$709,411**	**$709,411**	**$91,465**	**$31,213**	**$83,296**	**$195**	**$1,269,070**	**($823,095)**	**$2,366,067**
5	Allocation of General Cost		$554,030	$554,030	$71,431	$24,376	$65,052	$152	($1,269,070)		$0
6	Total Fire Protection Cost			($171,235)	($121,426)			$292,660			$0
7	Allocation of Public Fire Cost				$22,740	$229,928		($252,668)			$0
8											
9	**Total Adjusted Cost of Service**	**$295,102**	**$1,263,441**	**$1,092,206**	**$64,210**	**$285,517**	**$148,348**	**$40,339**	**$0**	**($823,095)**	**$2,366,067**
10											
11	Unit of Service	648,077	648,077	1,776	3,551	2,856	14,949	15		583,665	
12	Unit	hcf	hcf	hcf/day	hcf/hr	equiv meters	bills/yr	equiv meters		hcf	
13											
14	Unit Cost	$0.46	$1.95	$615.14	$18.08	$99.98	$9.92	$224.92		($1.41)	
15	Unit	hcf	hcf	hcf/day	hcf/hr	equiv meters	bills	equiv meters		hcf	

Cost of Service by Customer Class

Since Silverwood has a contract that specifies that they only pay for pumping and treatment costs, the pumping and treatment costs need to be calculated, as shown in **Table 3-14**. The pumping and treatment unit cost is calculated by dividing the total pumping and treatment costs (Line 3) by the total water usage (Line 4).

Table 3-14: Pumping and Treatment Unit Cost

A	B	C	D
Line			Source
1	Pumping Cost	$858,410	Table 3-7, Column K, Lines 3-7
2	Treatment Cost	$739,397	Table 3-7, Column K, Lines 8-12
3	**Total Pumping and Treatment**	**$1,597,807**	
4	Total Usage (hcf)	648,077	Table 3-10, Column C, Line 8
5	**Pumping & Treatment Unit Cost ($/hcf)**	**$2.47**	

Once Silverwood's rate has been calculated, the volumetric rate for all other customers are calculated as shown in **Table 3-15**. The volumetric rate for all other customers is calculated by dividing the net volumetric cost (Line 3) by the total remaining water usage (Line 4).

Table 3-15: Volumetric Rate Calculation

A	B	C	D
Line			Source
1	Total Volumetric Cost	$2,714,958	Table 3-13, Columns C-F, Line 9
2	Less: Silverwood Volumetric Cost	($83,177)	Table 3-14, Line 5 x Table 3-10, Column C, Line 3
3	**Net Volumetric Cost**	**$2,631,782**	
4	Total Usage, less Silverwood (hcf)	614,340	Table 3-10, Column C, Line 8 - Table 3-10, Column C, Line 3
5	**Volumetric Rate ($/hcf)**	**$4.28**	

Table 3-16 shows the cost of service by customer class. The dollar amounts shown are calculated by multiplying the unit cost by cost component (**Table 3-13**, Line 14, **Table 3-14**, Line 5, and **Table 3-15**, Line 5) by the corresponding units of service for each customer class shown in **Table 3-10**.

Supply, Base, Max Day, and Max Hour costs are combined into the Volumetric component and are allocated to each customer class based on the water usage in each class. Silverwood volumetric costs are calculated by multiplying the pumping and treatment unit cost (**Table 3-14**, Line 5) by the total usage for Silverwood (**Table 3-10**, Line 3). All other customer classes' volumetric costs are calculated by multiplying the volumetric rate (**Table 3-15**, Line 5) by the respective water usage for each customer class shown in **Table 3-10**.

Private Fire costs are allocated to customers based on the number of equivalent fire lines. Meter costs are allocated to each customer class based on the number of equivalent meters in each class. Customer costs are allocated based on the number of customer bills in each class. Property tax offsets (Column G) are reserved only for customers who pay property taxes and are allocated to purveyors and retail customers based on the usage in these classes and the Offset unit cost (**Table 3-13**, Column K, Line 14).

For example, to calculate the Meter cost of service for retail customers (Column D, Line 6), the calculation is as follows:

*Meter unit cost (**Table 3-13**, Column G, Line 14) x Retail Meter Equivalent units (**Table 3-10**, Column L, Line 6)*

Note that the total cost of service (Column H, Line 9) is equal to the total revenue requirement (**Table 3-13**, Column L, Line 9).

Table 3-16: Proposed Cost of Service by Customer Class

A	B	C	D	E	F	G	H
Line	Customer Class	Volumetric	Meter	Customer Service	Fire	Property Tax	Total
1	Purveyors	$2,165,188	$120,950	$447		($712,756)	$1,573,829
2	Tax Exempt	$38,817					$38,817
3	Silverwood	$83,177					$83,177
4	Other Public Agencies	$92,592	$6,349	$1,429			$100,369
5							
6	Retail	$335,184	$158,218	$144,805		($110,339)	$527,868
7	Private Fire			$1,667	$40,339		$42,006
8							
9	**TOTAL**	**$2,714,958**	**$285,517**	**$148,348**	**$40,339**	**($823,095)**	**$2,366,067**

4 Rate Design and Derivation

This report section derives the proposed water rates. All rates shown in this section are rounded up to the nearest cent. Numbers shown in the tables in this section of the report are rounded. Therefore, hand calculations based on the displayed numbers, such as summing or multiplying, may not equal the exact results shown in this report.

Rate Design

The Agency's current water rates include the following components:

- Fixed monthly and/or annual meter charge by meter size for wholesale and large retail customers. Some monthly charges include a volumetric allowance.
- Fixed monthly meter charge by rate code that includes a volumetric allowance for retail customers
- Various volumetric rates for wholesale and large retail customers
- Various volumetric rates for retail customers

The proposed rate structure simplifies the rate structure to include the following components:

- Monthly OR annual meter charge by meter size for all customers with no volumetric allowance
- Uniform volumetric rate for all customers that varies by customers classes: wholesale purveyors, Silverwood, tax exempt, other public agencies, and retail customers

Meter Charge

Table 4-1 shows the fixed monthly meter charge calculation. The monthly Meter unit cost (**Table 3-13**, Column G, Line 14 divided by 12) is multiplied by the capacity ratio for each meter size (Column C) to determine the Meter component of the charge for each meter size (Column D). The Customer component of the charge is equal to the Customer unit cost (**Table 3-13**, Column H, Line 14) and is the same for all meter sizes. The proposed fixed monthly meter charge (Column F) is equal to the sum of the Meter and Customer components (Columns D and E) for each meter size.

Table 4-1: Fixed Monthly Meter Charge Calculation

A	B	C	D	E	F	G
Line	Meter Size	Capacity Ratio	Meter	Customer	Proposed Charge	Current Charge
1	5/8"	1.00	$8.33	$9.92	$18.26	varies
2	1"	2.50	$20.83	$9.92	$30.76	varies
3	1-1/2"	5.00	$41.66	$9.92	$51.59	varies
4	2"	8.00	$66.65	$9.92	$76.58	varies
5	3"	17.50	$145.80	$9.92	$155.73	varies
6	4"	31.50	$262.45	$9.92	$272.37	varies
7	6"	65.00	$541.56	$9.92	$551.48	varies
8	8"	140.00	$1,166.43	$9.92	$1,176.36	varies

Table 4-2 shows the fixed annual meter charge calculation. The annual Meter unit cost (**Table 3-13**, Column G, Line 14) is multiplied by the capacity ratio for each meter size (Column C) to determine the Meter component of

the charge for each meter size (Column D). The Customer component of the charge is equal to the Customer unit cost (**Table 3-13**, Column H, Line 14) and is the same for all meter sizes. The proposed fixed annual meter charge (Column F) is equal to the sum of the Meter and Customer components (Columns D and E) for each meter size.

Table 4-2: Fixed Annual Meter Charge Calculation

A	B	C	D	E	F	G	H
Line	Meter Size	Capacity Ratio	Meter	Customer	Proposed Charge	Current Charge	Difference ($)
1	2C	6.00	$600	$9.92	$610	$210	$400
2	2T	9.00	$900	$9.92	$910	$310	$600
3	3C	12.00	$1,200	$9.92	$1,210	$415	$795
4	3T	20.00	$2,000	$9.92	$2,010	$695	$1,315
5	4C	18.75	$1,875	$9.92	$1,885	$650	$1,235
6	4T	56.25	$5,624	$9.92	$5,634	$1,950	$3,684
7	6C	37.50	$3,749	$9.92	$3,760	$1,295	$2,465
8	6T	112.50	$11,248	$9.92	$11,258	$3,880	$7,378

Monthly Fire Service Charge

Table 4-3 shows the fixed monthly fire service charge calculations for private fire customers. The monthly Fire unit cost (**Table 3-13**, Column I, Line 14 divided by 12) is multiplied by the fire capacity ratio (Column C) to determine the Fire capacity component of the charge (Column D). The Customer component of the charge is equal to the Customer unit cost (**Table 3-13**, Column H, Line 14). The proposed fixed monthly fire service charge (Column F) is equal to the sum of the Fire capacity and Customer components of the charge (Columns D and E) for each meter size.

Table 4-3: Fixed Monthly Fire Service Charge Calculation

A	B	C	D	E	F	G	H
Line	Fire Line Size	Capacity Ratio	Fire Capacity	Customer	Proposed Charge	Current Charge	Difference ($)
1	1”	0.01	$2.02	$9.92	$11.95	$25.00	($13.05)
2	1-1/2”	0.03	$5.87	$9.92	$15.80	$25.00	($9.20)
3	2”	0.06	$12.51	$9.92	$22.44	$25.00	($2.56)
4	2.5”	0.10	$22.49	$9.92	$32.42	$25.00	$7.42
5	3”	0.16	$36.33	$9.92	$46.26	$25.00	$21.26
6	4”	0.34	$77.43	$9.92	$87.36	$25.00	$62.36
7	6”	1.00	$224.92	$9.92	$234.85	$25.00	$209.85
8	8”	2.13	$479.30	$9.92	$489.23	$25.00	$464.23

Consumption Rate

Table 4-4 shows the consumption rate calculation for all customer classes. The revenue required for each customer class is calculated from the sum of Columns C and G in **Table 3-16**, which is the volumetric costs less property tax revenue offset. The annual usage is from **Table 3-10**, Column C. The volumetric rate per unit of water use (Column E) is calculated by dividing the total revenue required (Column C) by the annual water usage (Column D).

Table 4-4: Consumption Rate Calculation

A	B	C	D	E	F
Line	Customer Class	Revenue Required	Annual Usage (hcf)	Volumetric Rate ($/hcf)	Current Rate ($/hcf)
1	Wholesale Purveyors	$1,452,432	505,423	$2.88	$2.64
2	Silverwood	$83,177	33,737	$2.47	$2.10
3	Tax Exempt	$38,817	9,061	$4.29	$5.75
4	Public Agencies	$92,592	21,614	$4.29	varies
5	Retail	$224,845	78,242	$2.88	varies

Proposed Water Rates

Table 4-5, **Table 4-6**, **Table 4-7**, and **Table 4-8** shows the five-year rate schedule for implementation of fixed monthly meter charges, fixed annual meter charges, fixed monthly fire service charges, and consumption rates, respectively. The proposed water rates for implementation in January 2020 are from **Table 4-1**, **Table 4-2**, **Table 4-3**, and **Table 4-4**. The following years' rates are calculated by escalating the January 2020 proposed rates by the revenue adjustment percentages shown in **Table 2-12** for each year of the study, rounded up to the nearest penny.

Table 4-5: Proposed Fixed Meter Charges - Purveyors ($/meter size)

A	B	C	D	E	F	G
Line	Meter Size	January 2020	January 2021	January 2022	January 2023	January 2024
1	**Fixed Annual Charges**					
2	2C	$610	$659	$706	$749	$794
3	2T	$910	$983	$1,052	$1,116	$1,183
4	3C	$1,210	$1,307	$1,399	$1,483	$1,572
5	3T	$2,010	$2,171	$2,323	$2,463	$2,611
6	4C	$1,885	$2,036	$2,179	$2,310	$2,449
7	4T	$5,634	$6,085	$6,511	$6,902	$7,317
8	6C	$3,760	$4,061	$4,346	$4,607	$4,884
9	6T	$11,258	$12,159	$13,011	$13,792	$14,620
10						
11	**Fixed Monthly Charges**					
12	5/8"	$18.26	$19.73	$21.12	$22.39	$23.74
13	1"	$30.76	$33.23	$35.56	$37.70	$39.97
14	1-1/2"	$51.59	$55.72	$59.63	$63.21	$67.01
15	2"	$76.58	$82.71	$88.50	$93.81	$99.44
16	3"	$155.73	$168.19	$179.97	$190.77	$202.22
17	4"	$272.37	$294.16	$314.76	$333.65	$353.67
18	6"	$551.48	$595.60	$637.30	$675.54	$716.08
19	8"	$1,176.36	$1,270.47	$1,359.41	$1,440.98	$1,527.44

Table 4-6: Proposed Fixed Meter Charges - Retail ($/meter size)

A	B	C	D	E	F	G
Line	Meter Size	January 2020	January 2021	January 2022	January 2023	January 2024
1	5/8"	$18.26	$19.73	$21.12	$22.39	$23.74
2	1"	$30.76	$33.23	$35.56	$37.70	$39.97
3	1-1/2"	$51.59	$55.72	$59.63	$63.21	$67.01
4	2"	$76.58	$82.71	$88.50	$93.81	$99.44
5	3"	$155.73	$168.19	$179.97	$190.77	$202.22

Table 4-7: Proposed Fixed Fire Line Service Charges ($/line size)

A	B	C	D	E	F	G
Line	Fire Line Size	January 2020	January 2021	January 2022	January 2023	January 2024
1	1”	$11.95	$12.91	$13.82	$14.65	$15.53
2	1-1/2”	$15.80	$17.07	$18.27	$19.37	$20.54
3	2”	$22.44	$24.24	$25.94	$27.50	$29.15
4	2.5”	$32.42	$35.02	$37.48	$39.73	$42.12
5	3”	$46.26	$49.97	$53.47	$56.68	$60.09
6	4”	$87.36	$94.35	$100.96	$107.02	$113.45
7	6”	$234.85	$253.64	$271.40	$287.69	$304.96
8	8”	$489.23	$528.37	$565.36	$599.29	$635.25

Table 4-8: Proposed Consumption Rates ($/hcf)

A	B	C	D	E	F	G
Line	Customer Class	January 2020	January 2021	January 2022	January 2023	January 2024
1	Wholesale Purveyors	$2.88	$3.12	$3.34	$3.55	$3.77
2	Silverwood	$2.47	$2.67	$2.86	$3.04	$3.23
3	Tax Exempt & Public Agencies	$4.29	$4.64	$4.97	$5.27	$5.59
4						
5	Tax Payer Retail	$2.88	$3.12	$3.34	$3.55	$3.77

Customer Impacts

Table 4-9 and **Table 4-10** show the proposed annual bill impacts for wholesale purveyors and Silverwood and other large retail customers, respectively. Since each customer usage is very different, Raftelis calculated a bill impact for these customers. Some customers, as shown in **Table 4-10**, currently have both a monthly and an annual charge. These customers will only have the annual charge under the proposed rate structure.

Table 4-11 shows the monthly bill impacts for the average retail customers for each rate code. The average monthly usage (Column D) represents the average monthly usage for that rate code. Column G shows the current monthly bill and Column J shows the monthly bill under the proposed rates for that assumed usage.

Table 4-9: Wholesale Purveyors Impacts

A	B	C	D	E	F	G	H	I	J
				Current			Proposed		
Line	Customer	Meter Size	Annual Use (hcf)	Annual Charge	Volumetric	Total Annual Bill	Annual Charge	Volumetric	Total Annual Bill
1	Alpine Water	2T	12,050	$310	$31,812	**$32,122**	$910	$34,704	**$35,614**
2	Alpine Water	4T	15,396	$1,950	$40,645	**$42,595**	$5,634	$44,340	**$49,974**
3									
4	Arrowbear Park	3T	1	$695	$3	**$698**	$2,010	$3	**$2,013**
5									
6	Arrowhead Villas	2T	15,075	$310	$39,798	**$40,108**	$910	$43,416	**$44,326**
7									
8	Cedarpines Park	2T	16,143	$310	$42,618	**$42,928**	$910	$46,492	**$47,402**
9									
10	Crestline Village - Lake Drive	2T	1,399	$310	$3,693	**$4,003**	$910	$4,029	**$4,939**
11	Crestline Village - Mile High Park	2T	15,597	$310	$41,176	**$41,486**	$910	$44,919	**$45,829**
12	Crestline Village - Pinecrest	2T	5,984	$310	$15,798	**$16,108**	$910	$17,234	**$18,144**
13	Crestline Village - Camp Seely	4T	4,177	$1,950	$11,026	**$12,976**	$5,634	$12,029	**$17,663**
14	Crestline Village - Lake Drive	4T	2,731	$1,950	$7,211	**$9,161**	$5,634	$7,866	**$13,500**
15	Crestline Village - Mile High Park	4T	10,824	$1,950	$28,575	**$30,525**	$5,634	$31,173	**$36,807**
16	Crestline Village - Pinecrest	4T	65,459	$1,950	$172,812	**$174,762**	$5,634	$188,522	**$194,156**
17	Crestline Village - Crest Forest	6T	36,918	$3,880	$97,465	**$101,345**	$11,258	$106,325	**$117,583**
18									
19	CSA 70	2T	7,190	$310	$18,982	**$19,292**	$910	$20,707	**$21,617**
20									
21	Green Valley	2T	1	$310	$3	**$313**	$910	$3	**$913**
22	Green Valley	6C	0	$1,295	$0	**$1,295**	$3,760	$0	**$3,760**
23									
24	Lake Arrowhead CSD - Rimforest	2T	17,298	$310	$45,667	**$45,977**	$910	$49,818	**$50,728**
25	Lake Arrowhead CSD - Deer Lodge Park	2T	9,271	$310	$24,475	**$24,785**	$910	$26,700	**$27,610**
26	Lake Arrowhead CSD - Brentwood	2T	5,339	$310	$14,094	**$14,404**	$910	$15,376	**$16,286**
27	Lake Arrowhead CSD - Deer Lodge Park	4T	1,270	$1,950	$3,353	**$5,303**	$5,634	$3,658	**$9,292**

A	B	C	D	E	F	G	H	I	J
				Current			Proposed		
Line	Customer	Meter Size	Annual Use (hcf)	Annual Charge	Volumetric	Total Annual Bill	Annual Charge	Volumetric	Total Annual Bill
28	Lake Arrowhead CSD - Brentwood	4T	32,249	$1,950	$85,136	**$87,086**	$5,634	$92,876	**$98,510**
29									
30	Running Springs - Forest 2"	2T	5,446	$310	$14,377	**$14,687**	$910	$15,684	**$16,594**
31	Running Springs - Avian	3T	9,161	$695	$24,186	**$24,881**	$2,010	$26,385	**$28,395**
32	Running Springs - Forest	4T	779	$1,950	$2,058	**$4,008**	$5,634	$2,245	**$7,879**
33	Running Springs - Nob Hill	6T	38,891	$3,880	$102,671	**$106,551**	$11,258	$112,005	**$123,263**
34									
35	Skyforest	2T	6,224	$310	$16,431	**$16,741**	$910	$17,925	**$18,835**
36	Strawberry Lodge	2T	1,158	$310	$3,057	**$3,367**	$910	$3,335	**$4,245**
37	Upper Little Bear	2T	69	$310	$182	**$492**	$910	$199	**$1,109**
38									
39	Valley of Enchantment	2T	9,216	$310	$24,330	**$24,640**	$910	$26,542	**$27,452**
40	Valley of Enchantment	4T	49,308	$1,950	$130,173	**$132,123**	$5,634	$142,007	**$147,641**
41									
42	Valley View Park	2T	20,514	$310	$54,157	**$54,467**	$910	$59,080	**$59,990**

Table 4-10: Other Customers Impacts

A	B	C	D	E	F	G	H	I	J	K
				Current				Proposed		
Line	Customer	Meter Size	Annual Use (hcf)	Annual Charge	Monthly Fixed Charge (Annual)	Volumetric	Total Annual Bill	Annual Charge	Volumetric	Total Annual Bill
1	Camp Cedar Crest	4C	1	$650	$0	$7	**$657**	$1,885	$6	**$1,891**
2	Ability First/Camp Paivika	2T	2,506	$310	$0	$14,412	**$14,722**	$910	$10,752	**$11,662**
3	CA Land Management - Dogwood	2T	1,183	$310	$0	$6,802	**$7,112**	$910	$5,075	**$5,985**
4	USDA Forest Service - Switzer Park	2C	1	$210	$0	$6	**$216**	$610	$4	**$614**
5	Calvary Chapel Youth Camp	2C	1	$210	$0	$6	**$216**	$610	$4	**$614**

A	B	C	D	E	F	G	H	I	J	K
				Current				Proposed		
Line	Customer	Meter Size	Annual Use (hcf)	Annual Charge	Monthly Fixed Charge (Annual)	Volumetric	Total Annual Bill	Annual Charge	Volumetric	Total Annual Bill
6	Thousand Pines Christian Camp	2T	5,368	$310	$0	$30,866	**$31,176**	$910	$23,029	**$23,939**
7	Ponderosa Pines	2C	0	$210	$0	$0	**$210**	$610	$0	**$610**
8										
9	USFS - Cottonwood Ranger Station	2C	766	$210	$1,650	$3,696	**$5,556**	$610	$3,286	**$3,896**
10	CA State Parks - Tehachapi	6T	33,737	$3,880	$0	$70,848	**$74,728**	$11,258	$83,330	**$94,588**
11	San Bernardino Transportation Dept	2C	59	$210	$1,200	$51	**$1,461**	$610	$253	**$863**
12	USFS - Heaps	2T	0	$310	$1,200	$0	**$1,510**	$910	$0	**$910**
13	Leachate Facility	2	40		$1,200	$0	**$1,200**	$919	$172	**$1,091**
14	San Bernardino County - County Complex	3C	938	$415	$2,400	$4,464	**$7,279**	$1,210	$4,023	**$5,233**
15	Athens Services	3	2,102		$2,400	$12,456	**$14,856**	$1,869	$9,018	**$10,886**
16	Robertson Ready Mix	3	1,432		$2,400	$7,598	**$9,998**	$1,869	$6,143	**$8,012**
17	Rim of The World SD	4C	14,656	$650	$5,100	$67,281	**$73,031**	$1,885	$62,875	**$64,760**

Table 4-11: Retail Customers Impacts

A	B	C	D	E	F	G	H	I	J
				Current			Proposed		
Line	Rate Code	Meter Size	Average Monthly Use (hcf)	Monthly Charge	Volumetric	Total Monthly Bill	Monthly Charge	Volumetric	Total Monthly Bill
1	RA1	5/8”	4	$10.00	$7.50	**$17.50**	$18.26	$11.52	**$29.78**
2	RA2	1”	9	$15.00	$26.25	**$41.25**	$30.76	$25.92	**$56.68**
3	RA3	1-1/2”	15	$25.00	$45.00	**$70.00**	$51.59	$43.20	**$94.79**
4	RA4	2”	26	$35.00	$90.00	**$125.00**	$76.58	$74.88	**$151.46**
5	RA5	2”	283	$185.00	$1,187.50	**$1,372.50**	$76.58	$815.04	**$891.62**
6									
7	RC1	5/8”	4	$15.00	$10.88	**$25.88**	$18.26	$11.52	**$29.78**
8	RC2	1”	7	$22.50	$23.56	**$46.06**	$30.76	$20.16	**$50.92**

A	B	C	D	E	F	G	H	I	J
				Current			Proposed		
Line	Rate Code	Meter Size	Average Monthly Use (hcf)	Monthly Charge	Volumetric	Total Monthly Bill	Monthly Charge	Volumetric	Total Monthly Bill
9	RC4	2”	40	$50.00	$232.00	**$282.00**	$76.58	$115.20	**$191.78**
10	RC5	3”	91	$240.00	$175.00	**$415.00**	$155.73	$262.08	**$417.81**
11									
12	RD1	5/8”	4	$15.00	$10.88	**$25.88**	$18.26	$11.52	**$29.78**
13	RD2	1”	9	$22.50	$38.06	**$60.56**	$30.76	$25.92	**$56.68**
14	RD3	1-1/2”	12	$37.50	$43.50	**$81.00**	$51.59	$34.56	**$86.15**
15	RD4	2”	80	$50.00	$522.00	**$572.00**	$76.58	$230.40	**$306.98**
16	RD6	2”	98	$600.00	$0.00	**$600.00**	$76.58	$282.24	**$358.82**

Appendix A