RAFTELIS

September 10, 2021

Mr. Larry McKenney
General Manager
Amador Water Agency
12800 Ridge Road
Sutter Creek, CA 95685

Subject: Amador Water Agency 2021 Water Rate Study Draft Report Dated June 9, 2021

Dear Mr. McKenney:

Raftelis issued a draft report on June 9, 2021, to document the Amador Water Agency 2021 Water Rate Study. During a Special Board meeting held on August 20, 2021, the City of Jackson raised a concern regarding the potential exclusion of Mule Creek State Prison's (MCSP) water usage in the treated water use allocation. Raftelis investigated this concern and confirmed that MCSP water use was improperly excluded when calculating this allocation factor. The table below shows the previous allocation and the corrected allocation. As shown, the treated wholesale allocation based on average water use per month should have been 31% instead of 36%. This correction only impacts the allocations for treated water customers and results in an under-recovery of revenues of approximately $26,000 per year, or 0.3% of total projected revenues. The under-recovery is the net effect of the impact of the correction to both the revenue requirements and revenues from other sources (such as other operating revenue, non-operating revenue, etc.). This letter serves as an addendum to the Amador Water Agency 2021 Water Rate Study Draft Report dated June 9, 2021. The addendum documents the revised sections of the original report to reflect for this correction. It should be noted the treated wholesale rates in the addendum are consistent with the treated wholesale rates presented to the Amador Water Agency Board of Directors on August 26, 2021.

		Previous Calculation		Revised Calculation	
Line	Treated Customer Class	Average Water Use per Month	Calculated Allocation	Average Water Use per Month	Corrected Allocation
1	Mule Creek	*Not included*		20,735	
2	Treated Retail	85,077		85,077	
3	***Subtotal: Total Treated Retail***	***85,077***	***64%***	***105,812***	**69%**
4	***Treated Wholesale***	***47,142***	***36%***	***47,142***	**31%**
5	**TOTAL TREATED**	**132,219**	**100%**	**152,954**	**100%**

In addition, during a public hearing held on July 27, 2021, a question was raised regarding the max day peaking factor noted in the original report on page 24. The original report indicated the product of 1.50 and 1.50 is 2.31 instead of 2.25. The proposed rates documented in the original report were calculated based on the peaking factor of 2.31. It should be noted using 2.25 does not alter the rates in the rate study because the system-wide peaking factor of 2.25 is proportionately applied to the allocation of commodity rate components, all of which become part of the uniform commodity charge. The system-wide

peaking factors are used to allocate specific system costs between the Base, Max Day, and Max Hour cost components. Since all three cost components are recovered through the uniform commodity charge for each customer type, changing the system-wide peaking factor from 2.31 to 2.25 does not have an impact on the calculated water rates. However, the Amador Water Agency requested that the addendum also include the application of the 2.25 peaking factor, which has been reflected in the addendum.

We appreciate the opportunity to amend our report to correct for the Mule Creek error.

Best Regards,

Elaine Conti
Executive Vice President

3. Water Cost of Service

This section of the report details the cost of service analysis and rate calculation process to determine the proposed water rates. The goal of this process is to determine the cost of providing water service to each of the Agency's customer classes and to ensure equity and fairness among the various classes. Numbers shown in all tables of this section are rounded; therefore, hand calculations based on the displayed numbers, such as summing or multiplying, may not equal the exact results shown.

3.1. Water Cost of Service Analysis Process and Approach

Proposition 218 requires a nexus between the rates charged and the costs of providing service. Based on the proposed financial plan, the cost of service analysis translates the financial requirement established in the previous section into rate components and these components are later used to design the actual rates.

The first step in the cost of service analysis is to determine how much revenue is required to be collected from rates. The methodology used is based upon the premise that the utility must generate annual revenues adequate to meet its estimated annual expenses. As part of the cost of service analysis, several adjustments are made to determine the annual revenues needed from rates. Revenues from sources other than water rates and charges (e.g., revenues from miscellaneous services) are deducted. The financial plan (from **Section 2**) shows the revenue requirement for FY 2021 and revenue adjustments needed for the out years of the study period. As stated in the previous section, for all cost of service analyses in this report, the cost of service year will be FY 2021 and rate setting year will be FY 2022. As a result of using FY 2021 as the cost of service year, the revenue is neutral and does not require a midyear adjustment to account for midyear rate changes. The Agency updates its rates in July of each year with the exception of FY 2022 where the rates will be updated in October.

Cost of service 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 an accurate, equitable, and defensible manner:

1. **Cost Functionalization** – O&M expenses and capital expenditures are categorized by their function in the system. Functions can include supply, production, transmission & distribution, customer service, billing, etc.
2. **Cost Component Allocation** – the functionalized costs are then allocated to cost causation components (cost components) based on their burden on the system. The cost components include supply, peaking, delivery, meter, customer, etc. The revenue requirement is allocated accordingly to the cost components and results in the total revenue requirement for each cost component.
3. **Unit Cost Development** – the revenue requirement for each cost component is divided by the appropriate units of service such as total usage, peaking units, equivalent meters, number of customers, etc. for each customer class and dividing the costs for each cost component by the respective service units to determine the unit cost for each cost component.
4. **Revenue Requirement Distribution** – the unit costs are utilized to distribute the revenue requirement for each cost component to customer classes and tiers based on their individual service units.

The calculated revenue requirement shown in **Table 3-1**.

3.1.1. REVENUE REQUIREMENT DETERMINATION

The revenue required from rates is the amount of revenue required to fund all water expenses in the cost of service year (FY 2021). The utility must generate annual revenues adequate to meet its estimated annual O&M

expenses, reserve targets, debt service, and capital investments. **Table 3-1** shows the derivation of the revenue requirement for FY 2021. The total water revenue requirements include O&M, capital expenses, and debt service which is shown in the upper portion of the table. Revenues from other sources are subtracted from this total and an adjustment is made for the yearly ending cash balance as shown in Line 11 of the **Table 3-1**. These final adjustments as well as the adjustments from Line 16 are subtracted from the total revenue requirement (Line 5) to derive the total revenue required from rates (Line 18). The revenues and expenses in the following tables correspond to the FY 2021 values in **Table 2-29**.

Table 3-1: Water Revenue Requirement

A	A	B	C	D
Ln	Revenue Requirement (FY 2021)	Operating	Debt Service	Total
1	**Revenue Requirement**			
2	O&M Expenses	$8,566,645		$8,566,645
3	Debt Service		$2,604,471	$2,604,471
4	Rate Funded Capital Projects			$0
5	**Total - Revenue Requirement**	**$8,566,645**	**$2,604,471**	**$11,171,117**
6				
7	**Revenue Offsets**			
8	Other Operating Revenue	$420,203		$420,203
9	Non-Operating Revenue	$798,260		$798,260
10	Transfers In	$576,354		$576,354
11	**Total - Revenue Offsets**	**$1,794,816**		**$1,794,816**
12				
13	**Adjustments**			
15	Adjustment for Cash Balance	$149,350		$149,350
16	**Subtotal - Adjustments**	**$149,350**		**$149,350**
17				
18	**Total - Revenue Required from Rates**	**$6,622,479**	**$2,604,471**	**$9,226,951**

3.2. Rate Structure Changes

Raftelis worked with the Agency Board and staff to determine certain revisions to the Agency's current water rate structure. The Agency currently provides water service to three different service types (Treated Retail, Treated Wholesale, and Untreated Retail) and charges a separate rate for the Mule Creek State Prison (Mule Creek). Each of these customers receives a monthly fixed service charge, uniform commodity charge, and a debt service charge which is based on service area. Raftelis recommends maintaining the current rate structure (so that there is a specific charge associated with each customer service type) but consolidating Mule Creek into the Treated Retail customer service type.

3.2.1. FIXED SERVICE CHARGE

Currently, Treated Retail and Untreated Retail have the same monthly fixed service charge. Raftelis recommends that these two service types have separate charges based on the cost of providing service to the specific service type. Raftelis developed rates to reflect this change.

Treated Wholesale customers are currently charged a monthly fixed service charge based on peaking. Raftelis recommends maintaining this methodology but updating the peaking analysis to be based on a five-year average rather than a specific test year as is currently being done. The proposed rates reflect this change.

Additionally, a monthly fixed service charge is assessed for Mule Creek. Raftelis recommends that Mule Creek be treated as a Treated Retail Customer to simplify the rate structure and to charge them based on their meter size. The proposed rates reflect this change.

3.2.2. COMMODITY CHARGE

The Agency currently has four commodity charges for Treated Retail, Treated Wholesale, Untreated Retail, and Mule Creek. Each of these four customer classes are charged a uniform commodity rate per unit of water use. Raftelis recommends maintaining the uniform structure but consolidating Mule Creek so that it is charged the commodity rate for Treated Retail service.

3.2.3. DEBT SERVICE

The Agency maintains a debt service charge which is associated with specific service areas of the Agency. The Board of Directors determined that these charges should remain an obligation to each water service area and that the debt service amount must be updated to reflect the Agency's current debt service obligations. Raftelis allocated the future debts obligations based on the allocation of assets by service type which is derived from the percentage of assets allocated to that service type (this calculation was determined in the 2021 Amador Water Capacity Fee Study and shown in Column I of **Table 3-5**).

For Treated Wholesale however, staff determined that it would prefer to maintain its current debt service charge and apply a proportional increase across all wholesale entities' monthly fixed service charges to smooth out the rate impacts.

3.3. Peaking Allocation

To allocate costs to base and peaking cost components[1], the cost of service analyses uses system peaking factors. System peaking factors are defined as follows:

- The Base peaking factor is assigned a value of 1.00 signifying no peaking demand.
- The Maximum Day (Max Day) peaking factor of 1.50 is calculated as the ratio between the system wide Max Day and average day capacity provided by the Agency. The Max Day peaking factor means that the system delivers 1.50 times the amount of water it does during an average day.
- The Maximum Hour (Max Hour) peaking factor of 2.25 is calculated by multiplying the Max Day peaking factor by 1.50. The Max Hour peaking factor means that the system delivers 2.25 times the amount of water during the Max Hour than it does during an average day.

The allocation of peaking factors to cost-causing components is shown in Table 3-2. Costs associated with Base demand are fully allocated to the Base component (no peaking capacity used). Expenses allocated using the Max Day basis assume 66.7% (1.00/1.50) of costs are due to Base demands with the remaining proportion 33.3% (100%-66.7%) of costs allocated to the Max Day cost component. Lastly, expenses allocated using the Max Hour basis attribute 44.4% (1.00/2.25) of the costs to the Base cost component, 22.2% ((1.50-1.00)/2.25)

[1] Peaking cost components include Max Day and Max Hour extra capacity.

to Max Day and 33.4% (100% - 44.4% -22.2%) to Max Hour. Collectively the Max Day and Max Hour cost components are known as peaking costs. These percentages are later used to allocate costs and can be referenced in in Table 3-2. (The percentages in Table 3-2 have been rounded).

Table 3-2: System Wide Peaking Factors and Allocation to Cost Components

A	B	C	D	E	F	G
Ln.	Cost component allocation Basis	Peaking Factor	Base	Max Day	Max Hour	Total
1	Base	1.00	100%	0%	0%	**100%**
2	Max Day	1.50	67%	33%	0%	**100%**
3	Max Hour	2.25	44%	22%	33%	**100%**

Peaking factors help properly distribute extra capacity costs to each class based on their peaking tendencies (extra capacity demanded). Raftelis used water consumption data from FY 2020, which was provided by Agency staff, to calculate the peaking factor for each service type. Next, Raftelis calculated the peaking factor for each customer class. The peaking factors are defined as the ratio between the month with highest water use and the average monthly water use during the fiscal year.

$$Peaking\ Factor = \frac{Maximum\ month\ water\ use}{Average\ month\ water\ use}$$

Where:

- Maximum month water use: the month with highest water use during the fiscal year.
- Average month water use: the average monthly water use calculated by dividing the annual water use by 12 (months).

Raftelis analyzed the Agency's three customer service types as well as Mule Creek and determined their peaking characteristics using the above method. The three customer types are Treated Retail, Treated Wholesale, and Untreated Retail.

Table 3-3 shows the customer class-specific peaking factors based on the maximum monthly usage divided by average monthly usage for each class. The peaking factors are based on a uniform tier width meaning all water usage will be charged at the same rate based on the peaking characteristics of the specific customer service type.

Table 3-3: Customer Class Specific Peaking Factors

A	B	C	D	E	F
Ln.	Customer Class	Selected Monthly Tiers	Max Month	Average Month	Peaking Factor
1	Treated Retail	Uniform	164,392	105,812	1.55
2	Treated Wholesale	Uniform	72,527	47,142	1.54
3	Untreated Retail	Uniform	19,628	10,519	1.87

3.4. O&M Functionalization

The next step in the cost of service analysis involves allocating the Agency's O&M expenses into various system functions. The functionalized O&M costs are shown in **Table 3-4**. For further detail please see **Appendix B**, which shows the step-by-step allocations for each function.

Table 3-4: Functionalized O&M

A	B	C
Line	O&M Functions	2021
1	Supply	$89,785
2	Treated Transmission	$118,480
3	Untreated Transmission	$73,635
4	Water Treatment	$584,015
5	Treated Storage	$213,644
6	Untreated Storage	$41,650
7	Pumping	$6,500
8	Treated Distribution	$178,403
9	Untreated Distribution	$31,970
10	Meter Service	$20,000
11	Customer Service / Billing	$133,200
12	Conservation	$13,000
13	Board of Directors	$81,983
14	Administration	$1,237,280
15	Engineering	$705,698
16	Finance	$1,076,108
17	Non-Departmental	$612,086
18	Operations and Maintenance	$3,252,210
19	G&A	$97,000
20	**Total O&M**	**$8,566,645**

Next, these functions were further subdivided into each customer service type based on a series of allocation methodologies that were determined based on discussions with Agency staff. These allocation methodologies are seen in **Table 3-5.**

Table 3-5: O&M Allocation Methodology by Service Type

A	B	C	D	E	F	G	H	I	J
Allocation Methodology by Service Type	Treated Retail	Treated Wholesale	Untreated Retail	All Usage	Treated Usage	EMUs	Customer	Assets	Retail
Treated Retail	100%	0%	0%	65%	69%	91%	97%	80%	89%
Treated Wholesale	0%	100%	0%	29%	31%	4%	0%	19%	0%
Untreated Retail	0%	0%	100%	6%	0%	5%	2%	1%	11%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

The determination of each function's percentage is shown below:

- **Treated Retail Only:** Allocated completely to Treated Retail.
- **Treated Wholesale Only:** Allocated completely to Treated Wholesale.
- **Untreated Retail Only:** Allocated completely to Untreated Retail.
- **All Usage:** Based on the percentage of usage by each service type.
- **Treated Usage:** Based on percentage of usage by Treated Service type only.
- **EMUs:** Based on percentage of equivalent meter units (EMUs) by service type.
- **Customers:** Based on percentage of meters by service type.
- **Assets:** Based on Replacement Cost asset value by service type.
- **Retail:** Based on the percentage of usage by Retail Service type (Treated and Untreated Retail).

Raftelis then applied an allocation methodology from **Table 3-5** to each function described in **Table 3-4** to determine the allocation of O&M expenses by customer service type. The allocation methodologies were selected based on discussion with the Agency Board and staff to determine the most appropriate split of O&M expenses. The methodologies selected can be seen in **Table 3-6**.

Table 3-6: Allocation Methodology by Service Type

A	B	C
Line	O&M Functions	Methodology
1	Supply	All Usage
2	Treated Transmission	Treated Usage
3	Untreated Transmission	All Usage
4	Water Treatment	Treated Usage
5	Treated Storage	Treated Retail Only
6	Untreated Storage	All Usage
7	Pumping	Treated Usage
8	Treated Distribution	Treated Retail Only
9	Untreated Distribution	Untreated Retail Only
10	Meter Service	EMUs
11	Customer Service / Billing	Customers
12	Conservation	Retail
13	Board of Directors	Customers
14	Administration	EMUs
15	Engineering	Assets
16	Finance	Customers
17	Non-Departmental	All Usage
18	Operations and Maintenance	All Usage
19	G&A	All Usage

After selecting these methodologies, the percentage of the respective function from **Table 3-5** is applied to the total amount attributed to each function in **Table 3-4.** For example, the Supply function total from Line 1 of **Table 3-4** is allocated to each service type by multiplying the percentage values from the "All Usage" allocation method from **Table 3-5**. So Treated Retail would receive 65% x $89,785 = $58,115, Treated Wholesale would

receive 29% x $89,785=$25,892, and Untreated Retail would receive 6% x $89,785=$5,778. The remaining functions are multiplied in a similar manner and the dollar allocations are shown in **Table 3-7**.

Table 3-7: Dollar Allocation by Service Type

A	B	C	D	E	F = C+D+E
Line	O&M Functions	Treated Retail	Treated Wholesale	Untreated Retail	Total
1	Supply	$58,115	$25,892	$5,778	**$89,785**
2	Treated Transmission	$81,963	$36,517	$0	**$118,480**
3	Untreated Transmission	$47,662	$21,235	$4,738	**$73,635**
4	Water Treatment	$404,016	$179,999	$0	**$584,015**
5	Treated Storage	$213,644	$0	$0	**$213,644**
6	Untreated Storage	$26,959	$12,011	$2,680	**$41,650**
7	Pumping	$4,497	$2,003	$0	**$6,500**
8	Treated Distribution	$178,403	$0	$0	**$178,403**
9	Untreated Distribution	$0	$0	$31,970	**$31,970**
10	Meter Service	$18,146	$765	$1,090	**$20,000**
11	Customer Service / Billing	$129,863	$93	$3,245	**$133,200**
12	Conservation	$11,570	$0	$1,430	**$13,000**
13	Board of Directors	$79,928	$57	$1,997	**$81,983**
14	Administration	$1,122,556	$47,297	$67,428	**$1,237,280**
15	Engineering	$565,940	$131,202	$8,556	**$705,698**
16	Finance	$1,049,145	$749	$26,214	**$1,076,108**
17	Non-Departmental	$396,188	$176,511	$39,387	**$612,086**
18	Operations and Maintenance	$2,105,075	$937,861	$209,274	**$3,252,210**
19	G&A	$62,786	$27,973	$6,242	**$97,000**
20	**Total**	**$6,556,454**	**$1,600,163**	**$410,028**	**$8,566,645**
21	*Percentage*	*76.5%*	*18.7%*	*4.8%*	*100%*

3.5. Allocation of O&M Functions to Cost Components

The next step of the cost of service analysis is to allocate the functionalized O&M expenses into the cost components as discussed in **Section 3.1** of the report. This analysis employs the Base-Extra Capacity method, under which water utility costs of service are assigned to basic functional cost components including:

- **Base costs** — fixed costs incurred to meet average demand. Base costs include operations and maintenance and capital costs under average (Base) demand conditions, a portion of operations and maintenance costs associated with storage, treatment, pumping and distributions facilities, and certain water capital cost investments.
- **Extra capacity or peaking costs (Max Day / Max Hour)** — fixed water system costs to meet Max Day and Max Hour, or peaking, demand. Extra capacity costs are associated with meeting water demands that exceed average (base) levels of use by system customers. These costs are incurred because of water use variations and peak demands of customers.
- **Customer Service** — costs of meter reading, billing, and other customer services.
- **Meter Service** — costs of meter maintenance/repair and some capacity-related costs.

- **Conservation** — costs associated with conservation/efficiency programs.
- **General** — represents all other costs that have a general or administrative function.

Column B of **Table 3-8** shows the allocation basis for each of the O&M functions which determines allocation of the cost causation component. These allocations are applied to each of the customer service types of functionalized costs as show in Columns C, D, and E in **Table 3-7.**

The percentages from the Max Day and Max Hour allocation bases were derived from the allocations established in **Table 3-2**. **Table 3-9**, **Table 3-10**, and **Table 3-11** show the dollar amount allocation after applying the relevant percentages from **Table 3-8** to the totals from Columns C, D, and E of **Table 3-7**, respectively. Note that Column K of **Table 3-9**, **Table 3-10**, and **Table 3-11** match the values of Columns C, D, and E on Line 20 of **Table 3-7** for the respective service type.

Table 3-8: O&M Expense Allocation by Cost Causation Component

A	B	C	D	E	G	H	I	J	K	L
O&M Expense Allocation by Cost Component	**Allocation Basis**	**Supply**	**Base**	**Max Day**	**Max Hour**	**Customer Service**	**Meters**	**Conservation**	**General**	**Total**
Percentage Allocation										
Supply	Base	0%	100%	0%	0%	0%	0%	0%	0%	**100%**
Treated Transmission	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	**100%**
Untreated Transmission	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	**100%**
Water Treatment	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	**100%**
Treated Storage	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	**100%**
Untreated Storage	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	**100%**
Pumping	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	**100%**
Treated Distribution	Max Hour	0%	44%	22%	33%	0%	0%	0%	0%	**100%**
Untreated Distribution	Max Hour	0%	44%	22%	33%	0%	0%	0%	0%	**100%**
Meter Service	Meters	0%	0%	0%	0%	0%	100%	0%	0%	**100%**
Customer Service / Billing	Customer Service	0%	0%	0%	0%	100%	0%	0%	0%	**100%**
Fire Protection	Max Hour	0%	44%	22%	33%	0%	0%	0%	0%	**100%**
Conservation	Conservation	0%	0%	0%	0%	0%	0%	100%	0%	**100%**
Debt Service Costs	General	0%	0%	0%	0%	0%	0%	0%	100%	**100%**
Board of Directors	General	0%	0%	0%	0%	0%	0%	0%	100%	**100%**
Administration	General	0%	0%	0%	0%	0%	0%	0%	100%	**100%**
Engineering	General	0%	0%	0%	0%	0%	0%	0%	100%	**100%**
Finance	General	0%	0%	0%	0%	0%	0%	0%	100%	**100%**
Non-Departmental	General	0%	0%	0%	0%	0%	0%	0%	100%	**100%**
Operations and Maintenance	General	0%	0%	0%	0%	0%	0%	0%	100%	**100%**
G&A	General	0%	0%	0%	0%	0%	0%	0%	100%	**100%**

Table 3-9: Treated Retail Dollar Allocation

A	B	C	D	E	G	H	I	J	K
Treated Retail $ Allocation	**Supply**	**Base**	**Max Day**	**Max Hour**	**Customer Service**	**Meters**	**Conservation**	**General**	**Total**
$ Allocation									
Supply	$0	$58,115	$0	$0	$0	$0	$0	$0	**$58,115**
Treated Transmission	$0	$54,642	$27,321	$0	$0	$0	$0	$0	**$81,963**
Untreated Transmission	$0	$31,775	$15,887	$0	$0	$0	$0	$0	**$47,662**
Water Treatment	$0	$269,344	$134,672	$0	$0	$0	$0	$0	**$404,016**
Treated Storage	$0	$142,429	$71,215	$0	$0	$0	$0	$0	**$213,644**
Untreated Storage	$0	$17,973	$8,986	$0	$0	$0	$0	$0	**$26,959**
Pumping	$0	$2,998	$1,499	$0	$0	$0	$0	$0	**$4,497**
Treated Distribution	$0	$79,290	$39,645	$59,468	$0	$0	$0	$0	**$178,403**
Meter Service	$0	$0	$0	$0	$0	$18,146	$0	$0	**$18,146**
Customer Service / Billing	$0	$0	$0	$0	$129,863	$0	$0	$0	**$129,863**
Conservation	$0	$0	$0	$0	$0	$0	$11,570	$0	**$11,570**
Board of Directors	$0	$0	$0	$0	$0	$0	$0	$79,928	**$79,928**
Administration	$0	$0	$0	$0	$0	$0	$0	$1,122,556	**$1,122,556**
Engineering	$0	$0	$0	$0	$0	$0	$0	$565,940	**$565,940**
Finance	$0	$0	$0	$0	$0	$0	$0	$1,049,145	**$1,049,145**
Non-Departmental	$0	$0	$0	$0	$0	$0	$0	$396,188	**$396,188**
Operations and Maintenance	$0	$0	$0	$0	$0	$0	$0	$2,105,075	**$2,105,075**
G&A	$0	$0	$0	$0	$0	$0	$0	$62,786	**$62,786**
Total	**$0**	**$656,566**	**$299,225**	**$59,468**	**$129,863**	**$18,146**	**$11,570**	**$5,381,618**	**$6,556,454**
Treated Retail O&M Expense Allocation	*0.0%*	*10.0%*	*4.6%*	*0.9%*	*2.0%*	*0.3%*	*0.2%*	*82.1%*	*76.5%*

Table 3-10: Treated Wholesale Dollar Allocation

A	B	C	D	E	G	H	I	J	K
Treated Wholesale $ Allocation	**Supply**	**Base**	**Max Day**	**Max Hour**	**Customer Service**	**Meters**	**Conservation**	**General**	**Total**
$ Allocation									
Supply	$0	$25,892	$0	$0	$0	$0	$0	$0	**$25,892**
Treated Transmission	$0	$24,344	$12,172	$0	$0	$0	$0	$0	**$36,517**
Untreated Transmission	$0	$14,156	$7,078	$0	$0	$0	$0	$0	**$21,235**
Water Treatment	$0	$119,999	$60,000	$0	$0	$0	$0	$0	**$179,999**
Untreated Storage	$0	$8,007	$4,004	$0	$0	$0	$0	$0	**$12,011**
Pumping	$0	$1,336	$668	$0	$0	$0	$0	$0	**$2,003**
Meter Service	$0	$0	$0	$0	$0	$765	$0	$0	**$765**
Customer Service / Billing	$0	$0	$0	$0	$93	$0	$0	$0	**$93**
Board of Directors	$0	$0	$0	$0	$0	$0	$0	$57	**$57**
Administration	$0	$0	$0	$0	$0	$0	$0	$47,297	**$47,297**
Engineering	$0	$0	$0	$0	$0	$0	$0	$131,202	**$131,202**
Finance	$0	$0	$0	$0	$0	$0	$0	$749	**$749**
Non-Departmental	$0	$0	$0	$0	$0	$0	$0	$176,511	**$176,511**
Operations and Maintenance	$0	$0	$0	$0	$0	$0	$0	$937,861	**$937,861**
G&A	$0	$0	$0	$0	$0	$0	$0	$27,973	**$27,973**
Total	**$0**	**$193,735**	**$83,921**	**$0**	**$93**	**$765**	**$0**	**$1,321,650**	**$1,600,163**
Treated Wholesale O&M Expense Allocation	0.0%	12.1%	5.2%	0.0%	0.0%	0.0%	0.0%	82.6%	18.7%

Table 3-11: Untreated Retail Dollar Allocation

A	B	C	D	E	G	H	I	J	K
Untreated Retail $ Allocation	**Supply**	**Base**	**Max Day**	**Max Hour**	**Customer Service**	**Meters**	**Conservation**	**General**	**Total**
$ Allocation									
Supply	$0	$5,778	$0	$0	$0	$0	$0	$0	**$5,778**
Untreated Transmission	$0	$3,159	$1,579	$0	$0	$0	$0	$0	**$4,738**
Untreated Storage	$0	$1,787	$893	$0	$0	$0	$0	$0	**$2,680**
Untreated Distribution	$0	$14,209	$7,104	$10,657	$0	$0	$0	$0	**$31,970**
Meter Service	$0	$0	$0	$0	$0	$1,090	$0	$0	**$1,090**
Customer Service / Billing	$0	$0	$0	$0	$3,245	$0	$0	$0	**$3,245**
Conservation	$0	$0	$0	$0	$0	$0	$1,430	$0	**$1,430**
Board of Directors	$0	$0	$0	$0	$0	$0	$0	$1,997	**$1,997**
Administration	$0	$0	$0	$0	$0	$0	$0	$67,428	**$67,428**
Engineering	$0	$0	$0	$0	$0	$0	$0	$8,556	**$8,556**
Finance	$0	$0	$0	$0	$0	$0	$0	$26,214	**$26,214**
Non-Departmental	$0	$0	$0	$0	$0	$0	$0	$39,387	**$39,387**
Operations and Maintenance	$0	$0	$0	$0	$0	$0	$0	$209,274	**$209,274**
G&A	$0	$0	$0	$0	$0	$0	$0	$6,242	**$6,242**
Total	**$0**	**$24,932**	**$9,577**	**$10,657**	**$3,245**	**$1,090**	**$1,430**	**$359,097**	**$410,028**
Untreated Retail O&M Expense Allocation	*0.0%*	*6.1%*	*2.3%*	*2.6%*	*0.8%*	*0.3%*	*0.3%*	*87.6%*	*4.8%*

3.6. Capital Functionalization

Like for O&M, capital costs are functionalized using similar functions, as was discussed in the previous section, applied to the Agency's asset list. The projected functionalized capital costs are shown in **Table 3-12**. For further detail please see **Appendix C**, which shows the step-by-step allocations for each function.

Table 3-12: Functionalized Capital Assets

A	B	C
Line	Capital Functions	2021
1	Supply	$4,784,110
2	Transmission	$45,938,291
3	Water Treatment	$84,795,550
4	Storage	$88,988,770
5	Distribution	$302,738,800
6	Meter Service	$7,684,000
7	Fire Protection	$14,583,481
8	G&A	$4,983,001
9	**Total**	**$554,496,002**

These functions were then grouped into each customer service type based on the total asset benefit that each service type receives from the various assets. This calculation was determined in the FY 2021 Amador Water Capacity Fee Study and the percentage allocations can be seen in Column I of **Table 3-5**. Applying the percentages of Column I to the total asset value in Column C of **Table 3-12,** Raftelis is able to allocate the functions to each service type seen in columns C, D and, E of **Table 3-13**.

Table 3-13: Capital Dollar Functionalization by Service Type

A	B	C	D	E	F = C+D+E
Line	O&M Functions	Treated Retail	Treated Wholesale	Untreated Retail	Total
1	Supply	$3,836,654	$889,451	$58,005	**$4,784,110**
2	Transmission	$36,840,563	$8,540,747	$556,980	**$45,938,291**
3	Water Treatment	$68,002,440	$15,765,004	$1,028,107	**$84,795,550**
4	Storage	$71,365,224	$16,544,598	$1,078,948	**$88,988,770**
5	Distribution	$242,783,695	$56,284,538	$3,670,567	**$302,738,800**
6	Meter Service	$6,162,243	$1,428,593	$93,165	**$7,684,000**
7	Fire Protection	$11,695,334	$2,711,329	$176,818	**$14,583,481**
8	G&A	$3,996,156	$926,429	$60,417	**$4,983,001**
9	**Total**	**$444,682,308**	**$103,090,688**	**$6,723,007**	**$554,496,002**
10	*Percentage*	*80.2%*	*18.6%*	*1.2%*	*100.0%*

3.7. Allocation of Capital Functions to Cost Components

A similar process to the one used for O&M is then applied to the capital functions. The same cost components detailed in **Section 3.5** are used to allocate the capital functions with the allocation basis being shown in **Table**

3-14. **Table 3-15**, **Table 3-16**, **Table 3-17** show the dollar allocation to each service type after applying the relevant percentages to each function shown in **Table 3-14**.

Table 3-18 summarizes the cost allocations that will be used to allocate the revenue requirements to the various cost components. Raftelis used the cost allocation for the O&M and capital assets allocation, shown in **Table** 3-18, to distribute the revenue requirement, shown in **Table 3-1**. The percentage of revenue that each customer service type makes up (Column L of **Table 3-18)** can be referenced in **Table 3-7** line 21 and **Table 3-13** line 10. As mentioned in **Section 3.2**, there is a debt component of rates that is allocated to each customer class. This component of the revenue requirement is determined by allocating the total debt service with the percentages associated with the Asset split as seen in Column I of **Table 3-5**.

Table 3-14: Capital Expense Allocation by Cost Causation Component

A	B	C	D	E	F	G	H	I	J	K
Capital Expense Allocation by Cost Component	Allocation Basis	Supply	Base	Max Day	Max Hour	Customer Service	Meters	Conservation	General	Total
Percentage Allocation										
Supply	Supply	0%	100%	0%	0%	0%	0%	0%	0%	100%
Transmission	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	100%
Water Treatment	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	100%
Storage	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	100%
Pumping	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	100%
Distribution	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	100%
Meter Service	Meters	0%	0%	0%	0%	0%	100%	0%	0%	100%
Customer Service / Billing	Customer Service	0%	0%	0%	0%	100%	0%	0%	0%	100%
Fire Protection	Max Hour	0%	44%	22%	33%	0%	0%	0%	0%	100%
Conservation	Conservation	0%	0%	0%	0%	0%	0%	100%	0%	100%
Debt Service Costs	General	0%	0%	0%	0%	0%	0%	0%	100%	100%
Board of Directors	General	0%	0%	0%	0%	0%	0%	0%	100%	100%
Administration	General	0%	0%	0%	0%	0%	0%	0%	100%	100%
Engineering	General	0%	0%	0%	0%	0%	0%	0%	100%	100%
Finance	General	0%	0%	0%	0%	0%	0%	0%	100%	100%
Non-Departmental	General	0%	0%	0%	0%	0%	0%	0%	100%	100%
Operations and Maintenance	General	0%	0%	0%	0%	0%	0%	0%	100%	100%
G&A	General	0%	0%	0%	0%	0%	0%	0%	100%	100%

Table 3-15: Treated Retail Dollar Allocation Capital

A	B	C	D	E	F	G	H	I	J
Treated Retail Capital Allocation	**Supply**	**Base**	**Max Day**	**Max Hour**	**Customer Service**	**Meters**	**Conservation**	**General**	**Total**
$ Allocation									
Supply	$0	$3,836,654	$0	$0	$0	$0	$0	$0	**$3,836,654**
Transmission	$0	$24,560,376	$12,280,188	$0	$0	$0	$0	$0	**$36,840,563**
Water Treatment	$0	$45,334,960	$22,667,480	$0	$0	$0	$0	$0	**$68,002,440**
Storage	$0	$47,576,816	$23,788,408	$0	$0	$0	$0	$0	**$71,365,224**
Distribution	$0	$161,855,797	$80,927,898	$0	$0	$0	$0	$0	**$242,783,695**
Meter Service	$0	$0	$0	$0	$0	$6,162,243	$0	$0	**$6,162,243**
Fire Protection	$0	$5,197,926	$2,598,963	$3,898,445	$0	$0	$0	$0	**$11,695,334**
G&A	$0	$0	$0	$0	$0	$0	$0	$3,996,156	**$3,996,156**
Total	**$0**	**$288,362,528**	**$142,262,937**	**$3,898,445**	**$0**	**$6,162,243**	**$0**	**$3,996,156**	**$444,682,308**
Treated Retail Capital Expense Allocation	*0.0%*	*64.8%*	*32.0%*	*0.9%*	*0.0%*	*1.4%*	*0.0%*	*0.9%*	*80.2%*

Table 3-16: Treated Wholesale Dollar Allocation Capital

A	B	C	D	E	F	G	H	I	J
Treated Wholesale Capital Allocation	**Supply**	**Base**	**Max Day**	**Max Hour**	**Customer Service**	**Meters**	**Conservation**	**General**	**Total**
$ Allocation									
Supply	$0	$889,451	$0	$0	$0	$0	$0	$0	**$889,451**
Transmission	$0	$5,693,831	$2,846,916	$0	$0	$0	$0	$0	**$8,540,747**
Water Treatment	$0	$10,510,002	$5,255,001	$0	$0	$0	$0	$0	**$15,765,004**
Storage	$0	$11,029,732	$5,514,866	$0	$0	$0	$0	$0	**$16,544,598**
Distribution	$0	$37,523,025	$18,761,513	$0	$0	$0	$0	$0	**$56,284,538**
Meter Service	$0	$0	$0	$0	$0	$1,428,593	$0	$0	**$1,428,593**
Fire Protection	$0	$1,205,035	$602,518	$903,776	$0	$0	$0	$0	**$2,711,329**
G&A	$0	$0	$0	$0	$0	$0	$0	$926,429	**$926,429**
Total	**$0**	**$66,851,077**	**$32,980,813**	**$903,776**	**$0**	**$1,428,593**	**$0**	**$926,429**	**$103,090,688**
Treated Wholesale Capital Expense Allocation	*0.0%*	*64.8%*	*32.0%*	*0.9%*	*0.0%*	*1.4%*	*0.0%*	*0.9%*	*18.6%*

Table 3-17: Untreated Retail Dollar Allocation Capital

A	B	C	D	E	F	G	H	I	J
Untreated Retail Capital Allocation	**Supply**	**Base**	**Max Day**	**Max Hour**	**Customer Service**	**Meters**	**Conservation**	**General**	**Total**
$ Allocation									
Supply	$0	$58,005	$0	$0	$0	$0	$0	$0	**$58,005**
Transmission	$0	$371,320	$185,660	$0	$0	$0	$0	$0	**$556,980**
Water Treatment	$0	$685,404	$342,702	$0	$0	$0	$0	$0	**$1,028,107**
Storage	$0	$719,298	$359,649	$0	$0	$0	$0	$0	**$1,078,948**
Distribution	$0	$2,447,045	$1,223,522	$0	$0	$0	$0	$0	**$3,670,567**
Meter Service	$0	$0	$0	$0	$0	$93,165	$0	$0	**$93,165**
Fire Protection	$0	$78,586	$39,293	$58,939	$0	$0	$0	$0	**$176,818**
G&A	$0	$0	$0	$0	$0	$0	$0	$60,417	**$60,417**
Total	**$0**	**$4,359,659**	**$2,150,827**	**$58,939**	**$0**	**$93,165**	**$0**	**$60,417**	**$6,723,007**
Untreated Retail Capital Expense Allocation	*0.0%*	*64.8%*	*32.0%*	*0.9%*	*0.0%*	*1.4%*	*0.0%*	*0.9%*	*1.2%*

Table 3-18: Revenue Requirement Allocation Summary

A	B	C	D	E	F	G	H	I	J	K	L	M
Line	Revenue Requirement Allocation	Supply	Base	Max Day	Max Hour	Customer Service	Meters	Conservation	General	Debt	Total	% of Revenue Requirement
1	**Treated Retail**											
2	Operating	0.0%	10.0%	4.6%	0.9%	2.0%	0.3%	0.2%	82.1%	0.0%	100%	**76.5%**
3	Debt	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100%	**80.2%**
4	**Treated Wholesale**											
5	Operating	0.0%	12.1%	5.2%	0.0%	0.0%	0.0%	0.0%	82.6%	0.0%	100%	**18.7%**
6	Debt	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100%	**18.6%**
7	**Untreated Retail**											
8	Operating	0.0%	6.1%	2.3%	2.6%	0.8%	0.3%	0.3%	87.6%	0.0%	100%	**4.8%**
9	Debt	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100%	**1.2%**

3.8. Revenue Requirement Allocation to Cost Components

Table 3-19 shows the allocation of the revenue requirement to each customer service type. C1 is determined by allocating 76.5% of the operating revenue requirement in C4, and E1 is determined by allocating 80.2% of the debt service revenue requirement found in E4 to Treated Retail, as shown in lines 2 & 3 of **Table 3-18.** Likewise, C2 is determined by allocating 18.7% of the operating revenue requirement in C4, and E2 is determined by allocating 18.6% of the debt service revenue requirement in E4 to Treated Wholesale, as shown in lines 5 & 6 of **Table 3-18.** Finally, C3 is determined by allocating 4.8% of the operating revenue requirement in C4, and E3 is determined by allocating 1.2% of the debt service revenue requirement in cell E4 to Untreated Retail, as shown in lines 8 & 9 of **Table 3-18.**

Table 3-19: Revenue Requirement by Service Type

A	B	C	D	E
Line	Revenue Requirements	Operating	Debt Service	Total
1	Treated Retail	$5,068,493	$2,088,676	**$7,157,169**
2	Treated Wholesale	$1,237,012	$484,218	**$1,721,230**
3	Untreated Retail	$316,974	$31,578	**$348,552**
4	**Total**	**$6,622,479**	**$2,604,471**	**$9,226,951**

The next step is to distribute these revenue requirements to the cost components shown in **Table 3-18** by customer service type. Raftelis used the percentages for O&M shown in the "Operating" row of **Table 3-18,** to distribute the revenue requirement, shown in **Table 3-19** to the cost components of each service type. The debt revenue requirement is allocated directly to the debt component and is calculated in **Section 4.3.**

Table 3-20, Table 3-21, Table 3-22 show this allocation which starts with distributing the operating revenue requirement to the cost components. The operating revenue requirement[2] is allocated to the cost components using the calculated O&M allocation percentages from **Table 3-18**. The debt costs were entirely allocated to the debt surcharge component.

The final part of revenue requirement allocation from **Table 3-20, Table 3-21, Table 3-22** shows the redistribution of general and administrative costs, to the remaining cost components. General costs are reallocated to all cost components by dividing the total amount into each cost component based on the proportion of total costs. For example, the equation used to determine the Base-related General cost reallocation is as follows:

General Costs x Base Costs / Total Costs less General = Base portion of General costs

Raftelis reallocated the general and administrative costs to the rest of the cost components using the above formula. The final revenue requirement distribution by cost component is derived in the final rows named "Total Adjusted COS" in **Table 3-20, Table 3-21, Table 3-22.**

[2] The operating revenue requirement shown in the first cell of the last column of **Table 3-20, Table 3-21, Table 3-22** represents the total adjusted operating revenue requirement from **Table 3-19**.

3.8.1. TREATED RETAIL ADJUSTED COST OF SERVICE

Table 3-20: Treated Retail Adjusted Cost of Service

A	B	C	D	E	F	G	H	I	J	K
Treated Retail Cost of Service	**Supply**	**Base**	**Max Day**	**Max Hour**	**Customer Service**	**Meters**	**Conservation**	**General**	**Debt**	**Total**
Operating Revenue Requirement	$0	$507,561	$231,317	$45,972	$100,391	$14,027	$8,944	$4,160,281	$0	$5,068,493
Debt Revenue Requirement	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Cost of Service	**$0**	**$507,561**	**$231,317**	**$45,972**	**$100,391**	**$14,027**	**$8,944**	**$4,160,281**	**$2,088,676**	**$7,157,169**
Allocation of General	$0	$2,325,004	$1,059,604	$210,584	$459,864	$64,256	$40,969	($4,160,281)		$0
Total Adjusted COS	**$0**	**$2,832,565**	**$1,290,921**	**$256,556**	**$560,254**	**$78,284**	**$49,913**	**$0**	**$2,088,676**	**$7,157,169**

3.8.2. TREATED WHOLESALE ADJUSTED COST OF SERVICE

Table 3-21: Treated Wholesale Adjusted Cost of Service

A	B	C	D	E	F	G	H	I	J	K
Treated Retail Cost of Service	**Supply**	**Base**	**Max Day**	**Max Hour**	**Customer Service**	**Meters**	**Conservation**	**General**	**Debt**	**Total**
Operating Revenue Requirement	$0	$149,767	$64,876	$0	$72	$591	$0	$1,021,706	$0	$1,237,012
Debt Revenue Requirement	$0	$0	$0	$0	$0	$0	$0	$0	$484,218	$484,218
Total Cost of Service	**$0**	**$149,767**	**$64,876**	**$0**	**$72**	**$591**	**$0**	**$1,021,706**	**$484,218**	**$1,721,230**
Allocation of General	$0	$710,702	$307,860	$0	$340	$2,805	$0	($1,021,706)		$0
Total Adjusted COS	**$0**	**$860,469**	**$372,736**	**$0**	**$412**	**$3,396**	**$0**	**$0**	**$484,218**	**$1,721,230**

3.8.3. UNTREATED RETAIL ADJUSTED COST OF SERVICE

Table 3-22: Untreated Retail Adjusted Cost of Service

A	B	C	D	E	F	G	H	I	J	K
Treated Retail Cost of Service	**Supply**	**Base**	**Max Day**	**Max Hour**	**Customer Service**	**Meters**	**Conservation**	**General**	**Debt**	**Total**
Operating Revenue Requirement	$0	$19,274	$7,404	$8,238	$2,508	$843	$1,106	$277,602	$0	$316,974
Debt Revenue Requirement	$0	$0	$0	$0	$0	$0	$0	$0	$31,578	$31,578
Total Cost of Service	**$0**	**$19,274**	**$7,404**	**$8,238**	**$2,508**	**$843**	**$1,106**	**$277,602**	**$31,578**	**$348,552**
Allocation of General	$0	$135,893	$52,201	$58,085	$17,685	$5,941	$7,797	($277,602)		$0
Total Adjusted COS	**$0**	**$155,166**	**$59,605**	**$66,323**	**$20,194**	**$6,783**	**$8,903**	**$0**	**$31,578**	**$348,552**

3.9. Fixed versus Volumetric Cost Recovery

According to the M1 Manual, the cost of service approach to setting water rates results in the proportionate distribution of costs to each customer or customer class based on the costs that each incurs. A dual set of fees—fixed and variable—is an extension of this cost causation theory These types of costs are referred to as customer-related costs and typically are costs that would be recovered through a fixed charge. These costs are usually recovered on a per-customer basis or some other non-consumptive basis. Regardless of the level of a customer's consumption, a customer will be charged this minimum amount in each bill.

Utilities invest in and continue to maintain facilities to provide capacity to meet all levels of desired consumption including the peak demand, and these costs must be recovered regardless of the amount of water used during a given period. Thus, peaking costs along with base costs and fixed water system costs to meet average demand are generally considered as fixed water system costs. It is ideal that agencies recover all of their fixed costs through monthly base fees; however, this methodology comes at the expense of affordability for essential use and heavily impacts efficient users. To balance between affordability and revenue stability, it is a common practice that a portion of the base costs and peaking costs are recovered in the monthly base fee along with customer-related costs and meter-related costs.

Through a cost of service analysis, Raftelis identified three fixed rate components to include in the proposed fixed charges and four commodity rate components to include in the proposed commodity rates. **Table 3-27**, **Table 3-28**, and **Table 3-29** show the distribution of the total revenue requirement between fixed and variable rates with shares of 60 percent and 40 percent respectively. This percentage is achieved by allocating a certain percentage of Base costs to the Meter component so that each service type recovers the same percentage of fixed and variable revenue. The delivery, conservation, and peaking costs are recovered from commodity charges.

Meter service costs and billing and customer service costs are recovered from fixed charges. The debt service costs, which are also part of the revenue requirements, will continue to be recovered by a debt service charge.

3.10. Derivation of Cost Component Units (Service Units) and Unit Cost Calculation

The Agency's rate structure consists of commodity rates, fixed charges, and a debt service charge. Commodity charges are charges per unit of water sold, while fixed charges do not vary with water use. This section calculates the service units and the unit rate by cost component.

At the beginning of **Section 3**, we described typical cost components. The ones applicable to this study are:

- **Meter Service -** Fixed
- **Customer Service** - Fixed
- **Base** - Variable
- **Max Day -** Variable
- **Max Hour** - Variable
- **Conservation -** Variable
- **Debt -** Fixed

The proposed commodity charges will collect the following cost components: Base, Max Day, Max Hour, and Conservation. The monthly fixed service charge will consist of the following cost components: Meter Service and Customer Service. The Debt Service Surcharge will be completely recovered from the Debt cost component.

Table 3-23 shows the derivation of the units of service for each of these cost components in Columns C, F and I respectively. The Max Day and Max Hour extra capacity requirements are in ccf per day and are the amount of water demanded during the peak day and hour. Raftelis derived the Max Day and Max Hour requirements as detailed in the top row of **Table 3-23**. These calculations convert monthly peaking factors into Max Day and Max Hour requirements. The values for column D come from the values in the **Table 3-3** column F where the values for Column G of **Table 3-23** come from multiplying the values in column D of **Table 3-23** by the system wide Max Hour / System Wide Max Day factors. (Column D * 2.25/1.50). This calculation converts the customer max day peaking factor into a max hour factor.

Table 3-23: Water Usage and Capacity

A	B	C = B/365	D	E = C*D	F = E-C	G	H = C*G	I = H-C
			Max Day			Max Hour		
Customer Class	FY 2021 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)
Treated Retail	1,269,749	3,479	1.55	5,392	1,913	2.33	8,088	2,696
Treated Wholesale	565,703	1,550	1.54	2,387	837	2.31	3,580	1,193
Untreated Retail	126,231	346	1.87	647	301	2.81	970	323
Total	**1,961,683**			**8,426**	**3,051**		**12,638**	**4,213**

Table 3-24, **Table 3-25**, **Table 3-26**, shows the derivation of service units for the Customer Service cost component and the Meter service component – shown at the bottom of each table. The number of bills is equal to the number of meters times 12 (months). Customer Service costs are distributed among customers based on the total number of bills in a test year; these costs are the same for each customer and usually do not depend on the size of the meter. The total number of meters and bills can be referenced in the financial plan section of this report in **Table 2-13**, **Table 2-14**, and **Table 2-15** and in the below tables.

Meter service costs are recovered in proportion to meter size since meter repair and replacement costs are proportional to meter size. Meter size is also a proxy for the potential demand that each customer places on the water system. The unit of service for Meter costs is the number of hydraulically equivalent meters shown at the bottom of **Table 3-24**, **Table 3-25, Table 3-26**. The number of equivalent meters is subsequently annualized for each service type in **Table 3-27**, **Table 3-28**, **Table 3-29**.

The Agency's most common meter is a 5/8" meter. The ratio at which the meter charge increases is a function of the meter's safe operating capacity. For example, based on the AWWA meter capacity ratios, a customer that has a 1-inch meter has the capacity equivalency of two and a half 5/8" meters. A 1-inch meter has a safe operating capacity of 50 gallons per minute (gpm) compared to a 5/8" meter which has a safe operating capacity of 20 gpm as listed in Table B-1 in the M1 Manual. Because a 1-inch meter has 2.5 times the throughput capacity of a 5/8" meter it has a multiplication factor of 2.5 which is how we determine its EMU or equivalent meter unit to 5/8" meter. The capacity factor escalates as meter size increases because the Agency's cost to service a meter increases with its size. This number is then multiplied with the meter counts seen in Column E of **Table 3-24** to derive the equivalent meter units. The distribution of meter service and capacity costs using equivalent meters recognizes that meter service and capacity costs are proportional to the service connection size (meter size).

Table 3-24: Treated Retail Number of Bills and Equivalent Meters

A	B	C	D	E	F = D*E	G = E*12
Line	Meter Size	Capacity (gpm)	AWWA Ratio	FY 2021 Meter Count	Equivalent Meters	Annual Bills
1	**Treated Retail**					
2	5/8 inch	20	1.00	6,438	6,438	77,256
3	3/4 inch	30	1.50	260	390	3,120
4	1 inch	50	2.50	226	565	2,712
5	1-1/2 inch	100	5.00	34	170	408
6	2 inch	160	8.00	33	264	396
7	3 inch	350	17.50	3	53	36
8	4 inch	630	31.50	4	126	48
9	6 inch	1600	80.00	5	400	60
13	10 inch	4200	210	1	210	12
15	**Treated Retail Total**			**7,004**	**8,616**	**84,048**

Table 3-25: Treated Wholesale Number of Bills and Equivalent Meters

A	B	C	D	E	F	G
Line	Meter Size	Capacity (gpm)	AWWA Ratio	FY 2021 Meter Count	Equivalent Meters	Annual Bills
1	**Treated Wholesale**					
2	4 inch	630	31.50	2	63	24
3	6 inch	1600	80.00	2	160	24
4	8 inch	2800	140.00	1	140	12
5	**Total Treated Wholesale**			**5**	**363**	**60**

Table 3-26: Untreated Retail Number of Bills and Equivalent Meters

A	B	C	D	E	F	G
Line	Meter Size	Capacity (gpm)	AWWA Ratio	FY 2021 Meter Count	Equivalent Meters	Annual Bills
1	**Untreated Retail**					
2	5/8 inch	20	1.00	110	110	1,320
3	3/4 inch	30	1.50	15	23	180
4	1 inch	50	2.50	30	75	360
5	1-1/2 inch	100	5.00	7	35	84
6	2 inch	160	8.00	6	48	72
7	3 inch	350	17.50	3	53	36
8	4 inch	630	31.50	3	95	36
9	6 inch	1600	80.00	1	80	12
10	**Total Untreated Retail**			**175**	**518**	**2,100**

Table 3-27, **Table 3-28**, **Table 3-29** derives the cost component unit costs by dividing the Final Adjusted Cost of Service component by the units of service. It is important to note that the units of service in Treated Retail include Mule Creek, which will be consolidated into the Treated Retail customer class.

3.10.1. TREATED RETAIL UNIT COST DERIVATION

Table 3-27: Treated Retail Unit Cost Derivation

A	B	C	D	E	F	G	H	I	J	K
Adjusted Cost of Service Allocation Treated Retail	**Cost of Service**	**Meters**	**Customer Service**	**Supply**	**Base**	**Max Day**	**Max Hour**	**Conservation**	**Debt**	**Total**
Supply	$0	0%	0%	100%	0%	0%	0%	0%	0%	100%
Base	$2,832,565	35%	0%	0%	65%	0%	0%	0%	0%	100%
Max Day	$1,290,921	35%	0%	0%	0%	65%	0%	0%	0%	100%
Max Hour	$256,556	35%	0%	0%	0%	0%	65%	0%	0%	100%
Customer Service	$560,254	0%	100%	0%	0%	0%	0%	0%	0%	100%
Meters	$78,284	100%	0%	0%	0%	0%	0%	0%	0%	100%
Conservation	$49,913	0%	0%	0%	100%	0%	0%	0%	0%	100%
Debt	$2,088,676	0%	0%	0%	0%	0%	0%	0%	100%	100%
Final Adjusted COS Allocation	**$7,157,169**	**$1,615,678**	**$560,254**	**$0**	**$1,888,248**	**$837,808**	**$166,505**	**$0**	**$2,088,676**	**$7,157,169**
Units of Service		103,386	84,048	1,269,749	1,269,749	1,913	2,696	1,269,749		
		EMU/yr	Bills / Yr	hcf	hcf	hcf/day	hcf/day	hcf		
Unit Cost		$15.63	$6.67	$0.00	$1.49	$437.88	$61.76	$0.00		
		per EMU	per Bill	per hcf	per hcf	per hcf/day	per hcf/day	per hcf		

3.10.2. TREATED WHOLESALE UNIT COST DERIVATION

Table 3-28: Treated Wholesale Unit Cost Derivation

A	B	C	D	E	F	G	H	I	J	K
Adjusted Cost of Service Allocation Treated Wholesale	**Cost of Service**	**Meters**	**Customer Service**	**Supply**	**Base**	**Max Day**	**Max Hour**	**Conservation**	**Debt**	**Total**
Supply	$0	0%	0%	100%	0%	0%	0%	0%	0%	100%
Base	$860,469	45%	0%	0%	55%	0%	0%	0%	0%	100%
Max Day	$372,736	45%	0%	0%	0%	55%	0%	0%	0%	100%
Max Hour	$0	45%	0%	0%	0%	0%	55%	0%	0%	100%
Customer Service	$412	0%	100%	0%	0%	0%	0%	0%	0%	100%
Meters	$3,396	100%	0%	0%	0%	0%	0%	0%	0%	100%
Conservation	$0	0%	0%	0%	100%	0%	0%	0%	0%	100%
Debt	$484,218	0%	0%	0%	0%	0%	0%	0%	100%	100%
Final Adjusted COS Allocation	**$1,721,230**	**$558,338**	**$412**	**$0**	**$473,258**	**$205,005**	**$0**	**$0**	**$484,218**	**$1,721,230**
Units of Service		4,356	60	565,703	565,703	837	1,193	565,703		
		EMU/yr	Bills / Yr	hcf	hcf	hcf/day	hcf/day	hcf		
Unit Cost		$128.18	$6.86	$0.00	$0.84	$244.95	$0.00	$0.00		
		per EMU	per Bill	per hcf	per hcf	per hcf/day	per hcf/day	per hcf		

3.10.3. UNTREATED RETAIL UNIT COST DERIVATION

Table 3-29: Untreated Retail Unit Cost Derivation

A	B	C	D	E	F	G	H	I	J	K
Adjusted Cost of Service Allocation Untreated Retail	**Cost of Service**	**Meters**	**Customer Service**	**Supply**	**Base**	**Max Day**	**Max Hour**	**Conservation**	**Debt**	**Total**
Supply	$0	0%	0%	100%	0%	0%	0%	0%	0%	100%
Base	$155,166	50%	0%	0%	50%	0%	0%	0%	0%	100%
Max Day	$59,605	50%	0%	0%	0%	50%	0%	0%	0%	100%
Max Hour	$66,323	50%	0%	0%	0%	0%	50%	0%	0%	100%
Customer Service	$20,194	0%	100%	0%	0%	0%	0%	0%	0%	100%
Meters	$6,783	100%	0%	0%	0%	0%	0%	0%	0%	100%
Conservation	$8,903	0%	0%	0%	100%	0%	0%	0%	0%	100%
Debt	$31,578	0%	0%	0%	0%	0%	0%	0%	100%	100%
Final Adjusted COS Allocation	**$348,552**	**$147,330**	**$20,194**	**$0**	**$86,486**	**$29,802**	**$33,161**	**$0**	**$31,578**	**$348,552**
Units of Service		6,210	2,100	126,231	126,231	301	323	126,231		
		EMU/yr	Bills / Yr	hcf	hcf	hcf/day	hcf/day	hcf		
Unit Cost		$23.72	$9.62	$0.00	$0.69	$99.05	$102.55	$0.00		
		per EMU	per Bill	per hcf	per hcf	per hcf/day	per hcf/day	per hcf		

Table 3-30 summarizes the final dollar allocations of costs to each customer class by cost component.

Table 3-30: Allocation of Costs to Customer Classes

A	B	C	D	E	F	G	H	I	J
Customer Class	**Meters**	**Customer Service**	**Supply**	**Base**	**Max Day**	**Max Hour**	**Conservation**	**Debt**	**Total**
Treated Retail	$1,615,678	$560,254	$0	$1,888,248	$837,808	$166,505	$0	$2,088,676	**$7,157,169**
Treated Wholesale	$558,338	$412	$0	$473,258	$205,005	$0	$0	$484,218	**$1,721,230**
Untreated Retail	$147,330	$20,194	$0	$86,486	$29,802	$33,161	$0	$31,578	**$348,552**
Total	**$2,321,346**	**$580,860**	**$0**	**$2,447,992**	**$1,072,615**	**$199,666**	**$0**	**$2,604,471**	**$9,226,951**

4. Proposed Rates

4.1. Monthly Service Charge

In order to create parity across the various meter sizes, each meter size is assigned a factor relative to a 5/8" meter, which has a value of 1. According to the AWWA M1 Manual, a particular meter size's ratio of meter and capacity servicing costs relative to that of a 5/8" meter is its EMU. For example, as noted earlier, a 1-inch meter has 2.5 times the throughput capacity of a 5/8" meter and, therefore, has a multiplication factor of 2.5 to determine its equivalency to a 5/8" meter. The capacity factor escalates as meter size increases because the Agency's cost to service a meter increases with its size.

For Treated Retail and Untreated Retail Customers, the monthly service charge components include two components: Customer Service, which is uniform for all accounts based on service type; and Meter, which increases based on meter capacity ratios. Since the cost of Customer Service does not fluctuate with usage, the unit cost is simply the line item's revenue requirement divided by the number of bills issued. Meter costs do increase with capacity of usage for each meter size; therefore, the revenue requirement must be divided by the EMUs to determine the unit rate.

The cost of service monthly service charges proposed for FY 2021 are calculated by adding up the monthly service charge components – Customer Service and Meters. As noted above, the Customer Service cost is the same for each account regardless of meter size based on service type. The Meter component of the monthly base fee is determined by multiplying the unit cost of the respective service type (e.g. for Treated Retail $15.63) (found in **Table 3-27**) by the appropriate meter factor found in Column B of **Table 4-1** and **Table 4-2**. Adding these two components together yields the total cost of service monthly base fee for each meter size for FY 2021, as shown in Column E of **Table 4-1** and **Table 4-2** below.

4.1.1. TREATED RETAIL MONTHLY SERVICE CHARGE

Table 4-1: Treated Retail Cost of Service Monthly Service Charge

A	B	C	D	E	F	G	H
Meter Size	Capacity Ratio	Meters	Customer Service	Proposed Monthly Charge	Current Monthly Charge	Difference ($)	Difference (%)
Treated Retail							
5/8 inch	1.00	$15.63	$6.67	$22.29	$26.34	($4.05)	-15%
3/4 inch	1.50	$23.44	$6.67	$30.11	$36.34	($6.23)	-17%
1 inch	2.50	$39.07	$6.67	$45.73	$56.31	($10.58)	-19%
1-1/2 inch	5.00	$78.14	$6.67	$84.80	$106.29	($21.49)	-20%
2 inch	8.00	$125.02	$6.67	$131.69	$166.26	($34.57)	-21%
3 inch	17.50	$273.48	$6.67	$280.15	$326.17	($46.02)	-14%
4 inch	31.50	$492.27	$6.67	$498.94	$506.07	($7.13)	-1%
6 inch	80.00	$1,250.21	$6.67	$1,256.88	$1,005.82	$251.06	25%
8 inch	140.00	$2,187.87	$6.67	$2,194.53	N/A	N/A	N/A
10 inch	210.00	$3,281.80	$6.67	$3,288.47	N/A	N/A	N/A

4.1.2. UNTREATED RETAIL MONTHLY SERVICE CHARGE

Table 4-2: Untreated Retail Cost of Service Monthly Service Charge

A	B	C	D	E	F	G	H
Meter Size	Capacity Ratio	Meters	Customer Service	Proposed Monthly Charge	Current Monthly Charge	Difference ($)	Difference (%)
Untreated Retail							
5/8 inch	1.00	$23.72	$9.62	$33.34	$26.34	$7.00	27%
3/4 inch	1.50	$35.59	$9.62	$45.20	$36.34	$8.86	24%
1 inch	2.50	$59.31	$9.62	$68.93	$56.32	$12.61	22%
1-1/2 inch	5.00	$118.62	$9.62	$128.24	$106.29	$21.95	21%
2 inch	8.00	$189.80	$9.62	$199.41	$166.26	$33.15	20%
3 inch	17.50	$415.18	$9.62	$424.80	$326.17	$98.63	30%
4 inch	31.50	$747.33	$9.62	$756.94	$506.07	$250.87	50%
6 inch	80.00	$1,897.98	$9.62	$1,907.59	$1,005.82	$901.77	90%

4.1.3. TREATED WHOLESALE MONTHLY SERVICE CHARGE

Treated Wholesale customers also have a monthly service charge which is derived by allocating the Customer Service and Meter cost components seen in **Table 4-3** to each Wholesale customer. The Treated Wholesale monthly service charge is based on the percentage of peaking each wholesale customer is responsible for and is converted into a monthly rate by dividing by 12. Raftelis used a five-year average peaking percentage from usage data provided by Agency staff to smooth out any anomalous years. This calculation can be seen in **Table 4-4.** The values for the peaking capacity were derived by multiplying each customer's total annual use each year by that customer's specific peaking factor which was derived by dividing the Max Usage for the month by the average usage as explained in **Section 3.3**. The percentages and proposed monthly service charges can be seen in Columns B and C of **Table 4-5**.

Table 4-3: Wholesale Fixed Service Charge Components

A	B	C	D
Customer Class	Meters	Customer Service	Total
Treated Wholesale	$558,338	$412	$558,750

Table 4-4: 5 Year Peaking Average

A	B	C	D	E	F	G
Peaking Capacity	City of Jackson	First Mace Meadow	Pine Grove CSD	Drytown	Plymouth	Total
2016	616,644	41,208	73,464	25,908	158,628	915,852
2017	584,916	52,284	79,584	33,648	141,456	891,888
2018	616,956	50,376	81,048	26,040	148,692	923,112
2019	599,052	45,732	71,280	25,644	130,008	871,716
2020	646,800	53,868	78,696	30,492	163,932	973,788
% of Peaking	City of Jackson	Mace Meadow	Pine Grove	Drytown	Plymouth	Total
2016	67%	4%	8%	3%	17%	100%
2017	66%	6%	9%	4%	16%	100%
2018	67%	5%	9%	3%	16%	100%
2019	69%	5%	8%	3%	15%	100%
2020	66%	6%	8%	3%	17%	100%
5 Yr Avg	**67%**	**5%**	**8%**	**3%**	**16%**	**67%**

Table 4-5: Treated Wholesale Cost of Service Monthly Service Charge

A	B	C	D	E	F
Service Area	% of Peak Use	Proposed Monthly Charge	Current Monthly Charge	Difference ($)	Difference (%)
Treated Wholesale					
Pine Grove	8%	$3,907.77	$2,846.51	$1,061.26	37%
Mace Meadows	5%	$2,477.18	$1,793.04	$684.14	38%
Jackson	67%	$31,178.63	$20,439.95	$10,738.68	53%
Drytown	3%	$1,442.06	$1,192.93	$249.13	21%
Plymouth	16%	$7,556.82	$5,793.24	$1,763.58	30%

4.2. Commodity Charges

The proposed commodity charge is derived from the sum of the Base and Peaking costs components from **Table 3-30**. The unit cost for Base is derived in **Table 3-27**, **Table 3-28**, **Table 3-29.** The Peaking component of the rate is derived in **Table 4-6**. The amounts are derived by adding the Max Day and Max Hour costs from Columns F and G **Table 3-30** and can be referenced in the table below. Because the rate is uniform, the sum of the peaking costs is simply divided by the annual use of each customer service type to derive the unit cost, as all water is charged at the same rate. **Table 4-7** shows the cost of service commodity charge for each customer service type.

Table 4-6: Peaking Unit Derivation

A	B	C	D = C/B
Customer Class	Annual Use (hcf)	Peaking Costs	Peaking Unit Costs ($/hcf)
Treated Retail	1,269,749	$1,004,313	$0.79
Treated Wholesale	565,703	$205,005	$0.36
Untreated Retail	126,231	$62,964	$0.50
Total	**1,961,683**	**$1,272,281**	

Table 4-7: Cost of Service Commodity Charges by Service Type

A	B	C	D = B+C	E	F	G
Customer Class	Base	Peaking	Proposed Commodity Rate ($/hcf)	Current Commodity Rate ($/hcf)	Difference ($)	Difference (%)
Treated Retail	$1.49	$0.79	$2.28	$2.44	($0.16)	-7%
Treated Wholesale	$0.84	$0.36	$1.20	$1.35	($0.15)	-11%
Untreated Retail	$0.69	$0.50	$1.18	$1.11	$0.07	7%

4.3. Debt Service Rate

As mentioned in **Section 3.2.3**, the Agency maintains a debt service charge that is based on the geographic service area of the customer. Amador assesses the debt service rate to four service areas:

- Amador Water System
- Central Amador Water Project
- La Mel
- Lake Camanche

Each customer service type pays this rate in addition to their monthly service charge. **Table 4-8** highlights the debt service obligation for each customer service type which was shown in **Table 3-19.** The debt service amounts reflect the percentage split between customer service types determined based on asset value shown in Column I of **Table 3-5**.

Table 4-8: Debt Service Obligation by Customer

A	B	C
Line	Revenue Requirements	Debt Service
1	Treated Retail	$2,088,676
2	Treated Wholesale	$484,218
3	Untreated Retail	$31,578
4	**Total**	**$2,604,471**

4.3.1. TREATED RETAIL DEBT SERVICE CHARGE

Raftelis worked with Agency staff to determine the percent allocation to each service area. The percentages were derived by looking at each external loan obligation and determining the percentage of the total amount that benefited each service area. The calculations can be seen in Appendix D. Note that Debt that could not be attributed to a specific service area was allocated to the General category, which is to be applied uniformly to customers in all service areas. The percent allocation for each service area as well as the debt service amount is shown in **Table 4-9**. Raftelis also calculated the EMUs by service area which match the total EMUs found in **Table 3-24**. These EMUs are found in Column D of **Table 4-9** and total 8,616.

Table 4-9: Treated Retail Debt Service Charge

A	B	C	D	E	G
Service Area	% Allocation to Service Area	FY 2021 Debt Service	Equivalent Meters	$/EMU per Month	$/EMU per Month + General
Treated Retail					
AWS	61.0%	$1,273,211	4,726	**$22.45**	**$25.41**
CAWP	24.0%	$500,440	3,104	**$13.44**	**$16.39**
La Mel	0.5%	$9,447	55	**$14.31**	**$17.27**
Lake Camanche	0.0%	$0	731	**$0.00**	**$2.96**
General	14.6%	$305,578	8,616	**$2.96**	
Total	**100%**	**$2,088,676**			

Like the monthly service charge, the debt service charge is also based on EMUs. The capacity ratio escalates as meter size increases because the Agency's cost to service a meter increases with its size. Larger meters should therefore pay a larger portion of the debt service amount. **Table 4-9** Column E derives the EMU charge for a 5/8" meter, where **Table 4-9** Column G adds on the general cost to each customer class which is ultimately equal to the proposed 5/8" meter charge for each service area. This charge is escalated in a similar manner to the Treated Retail monthly service charge for each service area. **Table 4-10**, **Table** 4-11, **Table 4-12**, **Table 4-13** show the proposed debt service rates for Treated Retail.

Table 4-10: Treated Retail Debt Service Charge AWS

A	B	C	D	E	F
Meter Size	Capacity Ratio	Proposed Debt Service Charge	Current Debt Service Charge	Difference ($)	Difference (%)
Treated Retail - AWS					
5/8 inch	1.00	$25.41	$13.29	$12.12	91%
3/4 inch	1.50	$38.11	$19.94	$18.17	91%
1 inch	2.50	$63.52	$33.23	$30.29	91%
1-1/2 inch	5.00	$127.03	$66.45	$60.58	91%
2 inch	8.00	$203.25	$106.32	$96.93	91%
3 inch	17.50	$444.61	$212.64	$231.97	109%
4 inch	31.50	$800.29	$332.25	$468.04	141%
6 inch	80.00	$2,032.49	$664.50	$1,367.99	206%
8 inch	140.00	$3,556.86	N/A	N/A	N/A
10 inch	210.00	$5,335.30	N/A	N/A	N/A

Table 4-11: Treated Retail Debt Service Charge CAWP

A	B	C	D	E	F
Meter Size	Capacity Ratio	Proposed Debt Service Charge	Current Debt Service Charge	Difference ($)	Difference (%)
Treated Retail - CAWP					
5/8 inch	1.00	$16.39	$13.29	$3.10	23%
3/4 inch	1.50	$24.59	$19.94	$4.65	23%
1 inch	2.50	$40.98	$33.23	$7.75	23%
1-1/2 inch	5.00	$81.97	$66.45	$15.52	23%
2 inch	8.00	$131.15	$106.32	$24.83	23%
3 inch	17.50	$286.88	$212.64	$74.24	35%
4 inch	31.50	$516.39	$332.25	$184.14	55%
6 inch	80.00	$1,311.46	$664.50	$646.96	97%
8 inch	140.00	$2,295.05	N/A	N/A	N/A
10 inch	210.00	$3,442.57	N/A	N/A	N/A

Table 4-12: Treated Retail Debt Service Charge La Mel

A	B	C	D	E	F
Meter Size	Capacity Ratio	Proposed Debt Service Charge	Current Debt Service Charge	Difference ($)	Difference (%)
Treated Retail – La Mel					
5/8 inch	1.00	$17.27	$13.29	$3.98	30%
3/4 inch	1.50	$25.90	$19.94	$5.96	30%
1 inch	2.50	$43.17	$33.23	$9.94	30%
1-1/2 inch	5.00	$86.35	$66.45	$19.90	30%
2 inch	8.00	$138.15	$106.32	$31.83	30%
3 inch	17.50	$302.21	$212.64	$89.57	42%
4 inch	31.50	$543.98	$332.25	$211.73	64%
6 inch	80.00	$1,381.53	$664.50	$717.03	108%
8 inch	140.00	$2,417.68	N/A	N/A	N/A
10 inch	210.00	$3,626.52	N/A	N/A	N/A

Table 4-13: Treated Retail Debt Service Charge Lake Camanche

A	B	C	D	E	F
Meter Size	Capacity Ratio	Proposed Debt Service Charge	Current Debt Service Charge	Difference ($)	Difference (%)
Treated Retail – Lake Camanche					
5/8 inch	1.00	$2.96	$6.99	($4.03)	-58%
3/4 inch	1.50	$4.43	$10.48	($6.05)	-58%
1 inch	2.50	$7.39	$17.47	($10.08)	-58%
1-1/2 inch	5.00	$14.78	$34.93	($20.15)	-58%
2 inch	8.00	$23.65	$55.89	($32.24)	-58%
3 inch	17.50	$51.72	N/A	N/A	N/A
4 inch	31.50	$93.10	N/A	N/A	N/A
6 inch	80.00	$236.46	N/A	N/A	N/A
8 inch	140.00	$413.80	N/A	N/A	N/A
10 inch	210.00	$620.70	N/A	N/A	N/A

4.3.2. TREATED WHOLESALE DEBT SERVICE CHARGE

Agency staff determined that the current debt service charge should be maintained across the wholesale entities in order to maintain the current debt service relationship and smooth out impacts among wholesale entities. These charges are shown in the **Table 4-14**.

Table 4-14: Treated Wholesale Debt Service Charge

A	D	E	F	G
Treated Wholesale	Accounts	Proposed Debt Service Charge	Current Debt Service Charge	Difference ($)
Pine Grove	1	$7,127.44	$7,127.44	$0
Mace Meadows	1	$5,246.59	$5,246.59	$0
Jackson	1	$16,417.96	$16,417.96	$0
Drytown	1	$1,129.66	$1,129.66	$0
Plymouth	1	$5,066.11	$5,066.11	$0

4.3.3. UNTREATED RETAIL DEBT SERVICE CHARGE

Untreated Retail is calculated in a similar manner to Treated Retail. Untreated Retail customer are not subdivided into geographic service areas so to determine the equivalent meter charge, Raftelis divided the debt obligation from **Table 4-8** by the EMUs found in **Table 3-26**. The EMU calculation is shown in **Table 4-15**.

Table 4-15: Untreated Retail Equivalent Meter Charge

A	B	C	D
Meter Size	FY 2021 Debt Service	Equivalent Meters	$/EMU per Month
Untreated Retail	$31,578	518	$5.09

This charge is also escalated by the capacity ratios, as described in previous sections, to derive the debt service rate by meter size. This calculation is shown in **Table 4-16.**

Table 4-16: Untreated Retail Debt Service Charge

A	B	C	D	E	F
Meter Size	Capacity Ratio	Proposed Debt Service Charge	Current Debt Service Charge	Difference ($)	Difference (%)
Untreated Retail					
5/8 inch	1.00	$5.09	$1.27	$3.82	300%
3/4 inch	1.50	$7.63	$1.90	$5.73	301%
1 inch	2.50	$12.71	$3.17	$9.54	301%
1-1/2 inch	5.00	$25.43	$6.34	$19.09	301%
2 inch	8.00	$40.68	$10.14	$30.54	301%
3 inch	17.50	$88.99	$20.27	$68.72	339%
4 inch	31.50	$160.18	$31.68	$128.50	406%
6 inch	80.00	$406.80	$63.35	$343.45	542%

4.4. 5 Year Proposed Rates

Table 4-17 presents the schedule of proposed rates. The rates calculated above are presented in Column B. Columns C through H apply the proposed revenue adjustments in **Table 2-28**, with an additional adjustment to recognize that debt service rates are fixed through the period[3].

Table 4-17: Proposed 5 Year Fixed Service Rate Schedule

A	B	C	D	E	F	G
Effective Year	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Effective Month		**October**	**July**	**July**	**July**	**July**
Rate Adjustment		**43%**	**22%**	**12%**	**12%**	**6%**
Wholesale Rate Adjustment		**49%**	**18%**	**12%**	**11%**	**6%**

[3] Table 2-28 adjustments are applied to all revenue. The COS analysis separated rates to finance operations and rates to make payments on debt service. In order to achieve a 30% overall revenue increase in FY 2022 as required by the financial plan, the FY 2021 COS rates must be adjusted by 43% while the debt service remain fixed through the study period. This same analysis is applied to the Wholesale rates whose debt service rate remains the same as the previous study period, warranting a higher increase of 49% to the non-debt related rates.

A	B	C	D	E	F	G
Effective Year	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Monthly Water Service Charges	**FY 2021 COS**	**FY 2022 October**	**FY 2023 July**	**FY 2024 July**	**FY 2025 July**	**FY 2026 July**
Treated Retail						
5/8 inch	$22.29	$31.79	$38.78	$43.51	$48.74	$51.57
3/4 inch	$30.11	$42.93	$52.37	$58.75	$65.81	$69.62
1 inch	$45.73	$65.21	$79.55	$89.24	$99.96	$105.75
1-1/2 inch	$84.80	$120.91	$147.49	$165.45	$185.32	$196.05
2 inch	$131.69	$187.75	$229.02	$256.91	$287.76	$304.42
3 inch	$280.15	$399.41	$487.19	$546.52	$612.14	$647.57
4 inch	$498.94	$711.33	$867.66	$973.31	$1,090.18	$1,153.27
6 inch	$1,256.88	$1,791.91	$2,185.72	$2,451.87	$2,746.27	$2,905.18
8 inch	$2,194.53	$3,128.70	$3,816.30	$4,280.99	$4,795.01	$5,072.47
10 inch	$3,288.47	$4,688.30	$5,718.66	$6,414.99	$7,185.23	$7,601.00
Treated Wholesale						
Pine Grove	$3,907.77	$5,808.09	$6,849.31	$7,681.11	$8,531.27	$9,047.33
Mace Meadows	$2,477.18	$3,681.82	$4,341.87	$4,869.16	$5,408.09	$5,735.23
Jackson	$31,178.63	$46,340.57	$54,648.05	$61,284.64	$68,067.72	$72,185.13
Drytown	$1,442.06	$2,143.33	$2,527.57	$2,834.53	$3,148.26	$3,338.70
Plymouth	$7,556.82	$11,231.65	$13,245.15	$14,853.68	$16,497.71	$17,495.66
Untreated Retail						
5/8 inch	$33.34	$47.54	$57.99	$65.06	$72.88	$77.10
3/4 inch	$45.20	$64.45	$78.62	$88.20	$98.80	$104.52
1 inch	$68.93	$98.27	$119.87	$134.47	$150.62	$159.34
1-1/2 inch	$128.24	$182.83	$223.02	$250.18	$280.22	$296.44
2 inch	$199.41	$284.30	$346.79	$389.02	$435.73	$460.95
3 inch	$424.80	$605.63	$738.73	$828.69	$928.19	$981.90
4 inch	$756.94	$1,079.16	$1,316.33	$1,476.62	$1,653.92	$1,749.63
6 inch	$1,907.59	$2,719.62	$3,317.32	$3,721.25	$4,168.06	$4,409.24

Table 4-18: 5 Year Commodity Rates

A	B	C	D	E	F	G
Water Commodity Rates ($/hcf)	**FY 2021 COS**	**FY 2022 October**	**FY 2023 July**	**FY 2024 July**	**FY 2025 July**	**FY 2026 July**
Rate Adjustment		43%	22%	12%	12%	6%
Wholesale Rate Adjustment		49%	18%	12%	11%	6%
Treated Retail	$2.28	$3.25	$3.97	$4.46	$5.00	$5.29
Treated Wholesale	$1.20	$1.79	$2.12	$2.38	$2.65	$2.82
Untreated Retail	$1.18	$1.69	$2.07	$2.33	$2.61	$2.77

Table 4-19: 5 Year Debt Service Rates

A	C	D	E	F	G
Effective Year	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Effective Month	October	July	July	July	July
Debt Service Charges					
Treated Retail AWS					
5/8 inch	$25.41	$25.41	$25.41	$25.41	$25.41
3/4 inch	$38.11	$38.11	$38.11	$38.11	$38.11
1 inch	$63.52	$63.52	$63.52	$63.52	$63.52
1-1/2 inch	$127.03	$127.03	$127.03	$127.03	$127.03
2 inch	$203.25	$203.25	$203.25	$203.25	$203.25
3 inch	$444.61	$444.61	$444.61	$444.61	$444.61
4 inch	$800.29	$800.29	$800.29	$800.29	$800.29
6 inch	$2,032.49	$2,032.49	$2,032.49	$2,032.49	$2,032.49
8 inch	$3,556.86	$3,556.86	$3,556.86	$3,556.86	$3,556.86
10 inch	$5,335.30	$5,335.30	$5,335.30	$5,335.30	$5,335.30
Treated Retail CAWP					
5/8 inch	$16.40	$16.40	$16.40	$16.40	$16.40
3/4 inch	$24.59	$24.59	$24.59	$24.59	$24.59
1 inch	$40.99	$40.99	$40.99	$40.99	$40.99
1-1/2 inch	$81.97	$81.97	$81.97	$81.97	$81.97
2 inch	$131.15	$131.15	$131.15	$131.15	$131.15
3 inch	$286.89	$286.89	$286.89	$286.89	$286.89
4 inch	$516.39	$516.39	$516.39	$516.39	$516.39
6 inch	$1,311.46	$1,311.46	$1,311.46	$1,311.46	$1,311.46
8 inch	$2,295.05	$2,295.05	$2,295.05	$2,295.05	$2,295.05
Treated Retail La Mel					
5/8 inch	$17.27	$17.27	$17.27	$17.27	$17.27
3/4 inch	$25.91	$25.91	$25.91	$25.91	$25.91
1 inch	$43.18	$43.18	$43.18	$43.18	$43.18
1-1/2 inch	$86.35	$86.35	$86.35	$86.35	$86.35
2 inch	$138.16	$138.16	$138.16	$138.16	$138.16
3 inch	$302.22	$302.22	$302.22	$302.22	$302.22
4 inch	$543.98	$543.98	$543.98	$543.98	$543.98
6 inch	$1,381.54	$1,381.54	$1,381.54	$1,381.54	$1,381.54
8 inch	$2,417.69	$2,417.69	$2,417.69	$2,417.69	$2,417.69
Treated Retail Lake Camanche					
5/8 inch	$2.96	$2.96	$2.96	$2.96	$2.96
3/4 inch	$4.44	$4.44	$4.44	$4.44	$4.44
1 inch	$7.39	$7.39	$7.39	$7.39	$7.39
1-1/2 inch	$14.78	$14.78	$14.78	$14.78	$14.78
2 inch	$23.65	$23.65	$23.65	$23.65	$23.65
3 inch	$51.73	$51.73	$51.73	$51.73	$51.73
4 inch	$93.11	$93.11	$93.11	$93.11	$93.11
6 inch	$236.46	$236.46	$236.46	$236.46	$236.46
8 inch	$413.80	$413.80	$413.80	$413.80	$413.80
Treated Wholesale					

A	C	D	E	F	G
Effective Year	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Pine Grove	$7,127.44	$7,127.44	$7,127.44	$7,127.44	$7,127.44
Mace Meadows	$5,246.59	$5,246.59	$5,246.59	$5,246.59	$5,246.59
Jackson	$16,417.96	$16,417.96	$16,417.96	$16,417.96	$16,417.96
Drytown	$1,129.66	$1,129.66	$1,129.66	$1,129.66	$1,129.66
Plymouth	$5,066.11	$5,066.11	$5,066.11	$5,066.11	$5,066.11
Untreated Retail					
5/8 inch	$5.09	$5.09	$5.09	$5.09	$5.09
3/4 inch	$7.63	$7.63	$7.63	$7.63	$7.63
1 inch	$12.72	$12.72	$12.72	$12.72	$12.72
1-1/2 inch	$25.43	$25.43	$25.43	$25.43	$25.43
2 inch	$40.69	$40.69	$40.69	$40.69	$40.69
3 inch	$88.99	$88.99	$88.99	$88.99	$88.99
4 inch	$160.18	$160.18	$160.18	$160.18	$160.18
6 inch	$406.81	$406.81	$406.81	$406.81	$406.81

APPENDICES

Appendix A: Water Capital Improvement

Capital Projects (Inflated)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Replacement CIP						
Tanner and Ione Treatment Plant Capacity Study	$0	$0	$79,568	$0	$0	$0
Ione Clearwell Cover	$0	$0	$318,270	$0	$0	$0
Tanner WTP PLC Upgrade	$0	$0	$265,225	$0	$0	$0
Tanner WTP Filter Media Replacement	$0	$0	$456,187	$0	$0	$0
Tanner WTP Clearwell Replacement	$0	$0	$0	$1,346,240	$2,773,254	$1,428,226
Mt. Crossman Pump Station Firm Capacity and Ridge Pump Station Generator	$0	$0	$0	$19,123	$177,268	$0
Ridge Pump Station Generator	$0	$0	$0	$250,234	$0	$0
Amador City PRV Relocation	$0	$0	$0	$232,751	$0	$0
Buckhorn WTP Finish Water Pumps Control Upgrade	$0	$0	$0	$0	$0	$0
LaMel Air Stripper Pilot	$0	$0	$11,670	$0	$0	$0
LaMel Booster Station and Water Treatment Upgrades	$0	$0	$0	$0	$2,589	$23,997
Tank C Service Area Individual PRV Installation	$0	$0	$0	$0	$251,551	$2,331,880
Tanner to Ione Transmission Line Cathodic Protection	$0	$0	$0	$86,325	$0	$0
Tanner Raw Water Transmission Line Cathodic Protection	$0	$0	$0	$463,316	$477,216	$491,532
Prison and Wildflower Tanks Cathodic Protection Upgrades	$0	$0	$0	$0	$670,803	$690,927
CAWP System Tanks Cathodic Protection Upgrades	$0	$0	$0	$0	$0	$69,556
Trent Tank Cathodic Protection Upgrades	$0	$0	$0	$0	$0	$115,638
Ione WTP Fencing	$0	$0	$0	$0	$0	$64,919
Hayden Alley, Broadway, Borgh, Eureka, and Tucker Hill Pipeline Replacements	$0	$0	$160,196	$0	$0	$0
Lynn Way Service Line Replacement	$0	$0	$406,325	$418,514	$431,070	$444,002
Robin Lane Pipe Replacement	$0	$0	$66,837	$0	$0	$0
Upsize Madrone Tank Fill Line and McKenzie PRV	$0	$0	$0	$0	$0	$103,407
Arroyo Seco and Amador Street Pipeline Replacements	$0	$0	$0	$0	$0	$30,373
Camanche Service Lateral Replacement	$0	$0	$0	$0	$0	$69,325
Amador City High Service Individual Boosters	$0	$0	$0	$0	$0	$674,698
Oak Ridge Pressure Zone Creation	$0	$0	$0	$0	$0	$0
CAWP Transmission Main Improvements and Tank D Replacement	$0	$0	$0	$0	$0	$0
Growth CIP						

Capital Projects (Inflated)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Tanner and Ione Treatment Plant Capacity Study	$0	$0	$79,568	$0	$0	$0
Ione Clearwell Cover	$0	$0	$0	$0	$0	$0
Tanner WTP PLC Upgrade	$0	$0	$0	$0	$0	$0
Tanner WTP Filter Media Replacement	$0	$0	$0	$0	$0	$0
Tanner WTP Clearwell Replacement	$0	$0	$0	$1,332,581	$2,745,116	$1,413,735
Mt. Crossman Pump Station Firm Capacity and Ridge Pump Station Generator	$0	$0	$0	$7,868	$72,933	$0
Ridge Pump Station Generator	$0	$0	$0	$0	$0	$0
Amador City PRV Relocation	$0	$0	$0	$0	$0	$0
Buckhorn Membrane Replacement	$0	$0	$0	$0	$0	$0
Buckhorn WTP Finish Water Pumps Control Upgrade	$0	$0	$4,244	$0	$0	$0
LaMel Air Stripper Pilot	$0	$0	$0	$0	$225	$2,087
LaMel Booster Station and Water Treatment Upgrades	$0	$0	$0	$0	$18,346	$170,066
Tank C Service Area Individual PRV Installation	$0	$0	$0	$0	$0	$0
Tanner to Ione Transmission Line Cathodic Protection	$0	$0	$0	$0	$0	$0
Tanner Raw Water Transmission Line Cathodic Protection	$0	$0	$0	$0	$0	$0
Prison and Wildflower Tanks Cathodic Protection Upgrades	$0	$0	$0	$0	$0	$0
CAWP System Tanks Cathodic Protection Upgrades	$0	$0	$0	$0	$0	$0
Trent Tank Cathodic Protection Upgrades	$0	$0	$0	$0	$0	$0
Ione WTP Fencing	$0	$0	$0	$0	$0	$0
Hayden Alley, Broadway, Borgh, Eureka, and Tucker Hill Pipeline Replacements	$0	$0	$81,159	$83,594	$86,101	$88,684
Lynn Way Service Line Replacement	$0	$0	$0	$0	$0	$0
Robin Lane Pipe Replacement	$0	$0	$0	$0	$0	$0
Upsize Madrone Tank Fill Line and McKenzie PRV	$0	$0	$0	$0	$0	$12,404
Arroyo Seco and Amador Street Pipeline Replacements	$0	$0	$0	$0	$0	$0
Camanche Service Lateral Replacement	$0	$0	$0	$0	$0	$0
Amador City High Service Individual Boosters	$0	$0	$0	$0	$0	$0
Oak Ridge Pressure Zone Creation	$0	$0	$0	$0	$0	$0
CAWP Transmission Main Improvements and Tank D Replacement	$0	$0	$0	$0	$0	$0
Annual Replacement	$0	$1,030,000	$2,121,800	$3,278,181	$4,502,035	$5,796,370
Total	**$0**	**$1,030,000**	**$4,051,047**	**$7,518,727**	**$12,208,507**	**$14,021,826**

Appendix B: O&M Expense Functionalization

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
O&M Expense Allocation by Function	Supply	Treated Transmission	Untreated Transmission	Water Treatment	Treated Storage	Untreated Storage	Pumping	Treated Distribution	Untreated Distribution	Meter Service	Customer Service / Billing	Fire Protection	Conservation	Debt Service Costs	Board of Directors	Administration	Engineering	Finance	Non Departmental	Operations and Maintenance	G&A	Total
Percentage Allocation																						
Board of Directors	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	100%
Administration	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	100%
Engineering	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	100%
Finance	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	100%
Customer Billing	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Non-Departmental	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%
Operations and Maintenance																						
Salaries and Benefits	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	100%
Distribution/Collection	5%	60%	5%	0%	25%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Meter Replacement	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Meters - New	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Transmission System	0%	25%	75%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Canal-Clean/Chems/Tests/O&M	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Storage/Dams/Reservoirs	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Disposal	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Treatments Plants	0%	0%	0%	85%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Chemicals	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Water Tests	0%	0%	0%	50%	25%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Vehicle Fleet	5%	5%	5%	10%	30%	5%	0%	35%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Vehicle Maintenance/Repair	5%	5%	5%	10%	30%	5%	0%	35%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Gas & Oil	5%	5%	5%	10%	30%	5%	0%	35%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Electricity - PGE	0%	5%	0%	80%	5%	0%	0%	5%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Other Utilities	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Power Foregone	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Radios	5%	5%	5%	5%	25%	5%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Small Tool Replacement	5%	5%	5%	20%	20%	0%	0%	40%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Tool/Equip Mntc/Replace	5%	5%	5%	20%	20%	0%	0%	40%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Tool & Equip Rental	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Generators - Rental or Maintenance	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Safety/Supplies/Mntc	5%	5%	5%	20%	20%	0%	0%	40%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Uniforms	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Air District Permits	5%	0%	0%	20%	0%	0%	0%	75%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
State Fees	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Licenses & Certifications	0%	10%	0%	30%	30%	0%	0%	30%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Misc Repair & Maintenance	5%	10%	5%	50%	5%	0%	0%	20%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Spray Field Mowing	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Tank/Res-Diving & Insp/Maint	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydro Electric - Tanner/Ione	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
To/From Operating Expense	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Valves/Fire Hydrant Exercising	0%	10%	0%	0%	0%	0%	0%	90%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Facilities	0%	5%	0%	50%	20%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
SCADA Annual Service Contract	5%	0%	0%	60%	30%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Instrumentation - Svc Cnt	5%	0%	0%	65%	25%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Director Compensation	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
IT Contract Services	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Server Replacements	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Training	0%	10%	5%	35%	15%	0%	0%	30%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Mandated Plans	20%	0%	0%	35%	10%	0%	0%	10%	5%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	100%

Dollar Allocation																							
Board of Directors	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$81,983	$0	$0	$0	$0	$0	$0	$81,983
Administration	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,237,280	$0	$0	$0	$0	$0	$1,237,280
Engineering	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$705,698	$0	$0	$0	$0	$705,698
Finance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,076,108	$0	$0	$0	$1,076,108
Customer Billing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$133,200	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$133,200
Non-Departmental	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$612,086	$0	$0	$612,086
Operations and Maintenance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
Salaries and Benefits	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$3,252,210	$0	$3,252,210
Distribution/Collection	$6,500	$78,000	$6,500	$0	$32,500	$0	$6,500	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$130,000
Meter Replacement	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,000
Meters - New	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,000
Transmission System	$0	$3,750	$11,250	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,000
Canal-Clean/Chems/Tests/O&M	$0	$0	$8,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$8,000
Storage/Dams/Reservoirs	$0	$0	$0	$0	$0	$20,885	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$20,885
Disposal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Treatments Plants	$0	$0	$0	$85,000	$15,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$100,000
Chemicals	$0	$0	$0	$154,500	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$154,500
Water Tests	$0	$0	$0	$21,500	$10,750	$0	$0	$10,750	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$43,000
Vehicle Fleet	$6,600	$6,600	$6,600	$13,200	$39,600	$6,600	$0	$46,200	$6,600	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$132,000
Vehicle Maintenance/Repair	$2,500	$2,500	$2,500	$5,000	$15,000	$2,500	$0	$17,500	$2,500	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$50,000
Gas & Oil	$6,250	$6,250	$6,250	$12,500	$37,500	$6,250	$0	$43,750	$6,250	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$125,000
Electricity - PGE	$0	$11,250	$0	$180,000	$11,250	$0	$0	$11,250	$11,250	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$225,000
Other Utilities	$0	$0	$0	$17,500	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$17,500
Power Foregone	$50,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$50,000
Radios	$415	$415	$415	$415	$2,074	$415	$0	$4,148	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$8,296
Small Tool Replacement	$500	$500	$500	$2,000	$2,000	$0	$0	$4,000	$500	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$10,000
Tool/Equip Mntc/Replace	$750	$750	$750	$3,000	$3,000	$0	$0	$6,000	$750	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,000
Tool & Equip Rental	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Generators - Rental or Maintenance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Safety/Supplies/Mntc	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Uniforms	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$20,000	$20,000
Air District Permits	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
State Fees	$0	$0	$0	$0	$0	$5,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,000
Licenses & Certifications	$0	$6,500	$0	$19,500	$19,500	$0	$0	$19,500	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$65,000
Misc Repair & Maintenance	$270	$540	$270	$2,700	$270	$0	$0	$1,080	$270	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,400
Spray Field Mowing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$50,000	$50,000
Tank/Res-Diving & Insp/Maint	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hydro Electric - Tanner/Ione	$0	$0	$30,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$30,000
To/From Operating Expense	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,000	$15,000
Valves/Fire Hydrant Exercising	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Facilities	$0	$225	$0	$2,250	$900	$0	$0	$1,125	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,500
SCADA Annual Service Contract	$1,000	$0	$0	$12,000	$6,000	$0	$0	$1,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$20,000
Instrumentation - Svc Cnt	$2,000	$0	$0	$26,000	$10,000	$0	$0	$2,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$40,000
Director Compensation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$12,000	$12,000
IT Contract Services	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Server Replacements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Training	$0	$1,200	$600	$4,200	$1,800	$0	$0	$3,600	$600	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$12,000
Mandated Plans	$13,000	$0	$0	$22,750	$6,500	$0	$0	$6,500	$3,250	$0	$0	$0	$13,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$65,000
Total O&M Expenses	**$89,785**	**$118,480**	**$73,635**	**$584,015**	**$213,644**	**$41,650**	**$6,500**	**$178,403**	**$31,970**	**$20,000**	**$133,200**	**$0**	**$13,000**	**$0**	**$81,983**	**$1,237,280**	**$705,698**	**$1,076,108**	**$612,086**	**$3,252,210**	**$97,000**	**$8,566,645**

Appendix C: Capital Functionalization

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
Capital Expense Allocation	**Supply**	**Transmission**	**Water Treatment**	**Storage**	**Pumping**	**Distribution**	**Meter Service**	**Customer Service / Billing**	**Fire Protection**	**Conservation**	**Debt Service Costs**	**Board of Directors**	**Administration**	**Engineering**	**Finance**	**Non Departmental**	**Operations and Maintenance**	**G&A**	**Total**
Percentage Allocation																			
Service Lines AWS-IONE	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Service Lines AWS-Tanner	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Service Lines CAWP	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Service Lines Camanche	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Service Lines La Mel Height	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydrant Laterals AWS-IONE	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydrant Laterals AWS-Tanner	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydrant Laterals CAWP	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydrant Laterals Camanche	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydrant Laterals La Mel Height	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Water Mains AWS-IONE	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Water Mains AWS-Tanner	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Water Mains CAWP	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Water Mains Camanche	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Water Mains La Mel Height	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Raw Service Lines AWS-IONE	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Raw Service Lines AWS-Tanner	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Raw Service Lines CAWP	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Raw Service Lines Camanche	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Raw Service Lines La Mel Height	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Raw Water Pipe AWS-IONE	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Raw Water Pipe AWS-Tanner	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Raw Water Pipe CAWP	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Raw Water Pipe Camanche	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Raw Water Pipe La Mel Height	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
AWS-IONE																			
Meters & Boxes	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Meter Boxes	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Valves (GV,BF,BO,CK)	1%	7%	5%	7%	0%	80%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydrants	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
ARVs	0%	20%	0%	0%	0%	80%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
PRVs/PSVs	0%	10%	0%	0%	0%	90%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Pump Stations	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Tanks & Reservoirs	5%	0%	0%	95%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Treatment Plants	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Wells	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
AWS-Tanner																			
Meters & Boxes	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Meter Boxes	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Valves (GV,BF,BO,CK)	1%	7%	5%	7%	0%	80%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydrants	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
ARVs	0%	20%	0%	0%	0%	80%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
PRVs/PSVs	0%	10%	0%	0%	0%	90%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Pump Stations	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Tanks & Reservoirs	5%	0%	0%	95%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Treatment Plants	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Wells	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
CAWP																			
Meters & Boxes	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Meter Boxes	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Valves (GV,BF,BO,CK)	1%	7%	5%	7%	0%	80%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydrants	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
ARVs	0%	20%	0%	0%	0%	80%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
PRVs/PSVs	0%	10%	0%	0%	0%	90%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Pump Stations	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Tanks & Reservoirs	5%	0%	0%	95%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Treatment Plants	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Wells	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%

Camanche																			
Meters & Boxes	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Meter Boxes	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Valves (GV,BF,BO,CK)	1%	7%	5%	7%	0%	80%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydrants	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
ARVs	0%	20%	0%	0%	0%	80%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
PRVs/PSVs	0%	10%	0%	0%	0%	90%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Pump Stations	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Tanks & Reservoirs	5%	0%	0%	95%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Treatment Plants	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Wells	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
La Mel Heights																			
Meters & Boxes	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Meter Boxes	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Valves (GV,BF,BO,CK)	1%	7%	5%	7%	0%	80%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydrants	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
ARVs	0%	20%	0%	0%	0%	80%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
PRVs/PSVs	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Pump Stations	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Tanks & Reservoirs	5%	0%	0%	95%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Treatment Plants	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Wells	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Agency General																			
Water Related	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%

Dollar Allocation																				
Service Lines AWS-IONE	$0	$0	$0	$0	$0	$1,347,715	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,347,715
Service Lines AWS-Tanner	$0	$0	$0	$0	$0	$1,219,808	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,219,808
Service Lines CAWP	$0	$0	$0	$0	$0	$2,149,946	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,149,946
Service Lines Camanche	$0	$0	$0	$0	$0	$863,475	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$863,475
Service Lines La Mel Height	$0	$0	$0	$0	$0	$40,842	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$40,842
Hydrant Laterals AWS-IONE	$0	$0	$0	$0	$0	$0	$0	$0	$1,801,379	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,801,379
Hydrant Laterals AWS-Tanner	$0	$0	$0	$0	$0	$0	$0	$0	$2,535,523	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,535,523
Hydrant Laterals CAWP	$0	$0	$0	$0	$0	$0	$0	$0	$2,284,033	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,284,033
Hydrant Laterals Camanche	$0	$0	$0	$0	$0	$0	$0	$0	$794,412	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$794,412
Hydrant Laterals La Mel Height	$0	$0	$0	$0	$0	$0	$0	$0	$28,133	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$28,133
Water Mains AWS-IONE	$0	$0	$0	$0	$0	$49,185,360	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$49,185,360
Water Mains AWS-Tanner	$0	$0	$0	$0	$0	$68,999,015	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$68,999,015
Water Mains CAWP	$0	$0	$0	$0	$0	$113,294,701	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$113,294,701
Water Mains Camanche	$0	$0	$0	$0	$0	$22,493,710	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$22,493,710
Water Mains La Mel Height	$0	$0	$0	$0	$0	$1,566,991	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,566,991
Raw Service Lines AWS-IONE	$0	$33,437	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$33,437
Raw Service Lines AWS-Tanner	$0	$96,443	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$96,443
Raw Service Lines CAWP	$0	$275	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$275
Raw Service Lines Camanche	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Raw Service Lines La Mel Height	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Raw Water Pipe AWS-IONE	$0	$23,977,326	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$23,977,326
Raw Water Pipe AWS-Tanner	$0	$19,583,439	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$19,583,439
Raw Water Pipe CAWP	$0	$0	$0	$0	$0	$10,285,268	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$10,285,268
Raw Water Pipe Camanche	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Raw Water Pipe La Mel Height	$0	$0	$0	$0	$0	$228,769	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$228,769
AWS-IONE																				
Meters & Boxes	$0	$0	$0	$0	$0	$0	$2,159,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,159,000
Meter Boxes	$0	$0	$0	$0	$0	$0	$26,500	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$26,500
Valves (GV,BF,BO,CK)	$42,385	$296,695	$211,925	$296,695	$0	$3,390,800	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,238,500
Hydrants	$0	$0	$0	$0	$0	$0	$0	$0	$1,890,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,890,000
ARVs	$0	$117,160	$0	$0	$0	$468,640	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$585,800
PRVs/PSVs	$0	$155,000	$0	$0	$0	$1,395,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,550,000
Pump Stations	$0	$0	$0	$0	$0	$1,800,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,800,000
Tanks & Reservoirs	$750,000	$0	$0	$14,250,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,000,000
Treatment Plants	$0	$0	$25,000,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$25,000,000
Wells	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AWS-Tanner																				
Meters & Boxes	$0	$0	$0	$0	$0	$0	$1,745,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,745,000
Meter Boxes	$0	$0	$0	$0	$0	$0	$40,250	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$40,250
Valves (GV,BF,BO,CK)	$52,570	$367,990	$262,850	$367,990	$0	$4,205,600	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,257,000
Hydrants	$0	$0	$0	$0	$0	$0	$0	$0	$2,180,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,180,000
ARVs	$0	$171,680	$0	$0	$0	$686,720	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$858,400
PRVs/PSVs	$0	$160,000	$0	$0	$0	$1,440,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,600,000
Pump Stations	$0	$0	$0	$0	$0	$1,800,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,800,000
Tanks & Reservoirs	$625,000	$0	$0	$11,875,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$12,500,000
Treatment Plants	$0	$0	$25,000,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$25,000,000
Wells	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CAWP																				
Meters & Boxes	$0	$0	$0	$0	$0	$0	$2,777,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,777,000
Meter Boxes	$0	$0	$0	$0	$0	$0	$87,250	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$87,250
Valves (GV,BF,BO,CK)	$48,825	$341,775	$244,125	$341,775	$0	$3,906,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,882,500
Hydrants	$0	$0	$0	$0	$0	$0	$0	$0	$2,305,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,305,000
ARVs	$0	$182,120	$0	$0	$0	$728,480	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$910,600
PRVs/PSVs	$0	$275,000	$0	$0	$0	$2,475,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,750,000
Pump Stations	$0	$0	$0	$0	$0	$4,950,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,950,000
Tanks & Reservoirs	$2,375,000	$0	$0	$45,125,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$47,500,000
Treatment Plants	$0	$0	$25,000,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$25,000,000
Wells	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Camanche																				
Meters & Boxes	$0	$0	$0	$0	$0	$0	$696,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$696,000
Meter Boxes	$0	$0	$0	$0	$0	$0	$97,250	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$97,250
Valves (GV,BF,BO,CK)	$14,175	$99,225	$70,875	$99,225	$0	$1,134,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,417,500
Hydrants	$0	$0	$0	$0	$0	$0	$0	$0	$730,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$730,000
ARVs	$0	$58,000	$0	$0	$0	$232,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$290,000
PRVs/PSVs	$0	$10,000	$0	$0	$0	$90,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$100,000
Pump Stations	$0	$0	$0	$0	$0	$1,800,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,800,000
Tanks & Reservoirs	$750,000	$0	$0	$14,250,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,000,000
Treatment Plants	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Wells	$0	$0	$6,000,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$6,000,000
La Mel Heights																				
Meters & Boxes	$0	$0	$0	$0	$0	$0	$54,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$54,000
Meter Boxes	$0	$0	$0	$0	$0	$0	$1,750	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,750
Valves (GV,BF,BO,CK)	$1,155	$8,085	$5,775	$8,085	$0	$92,400	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$115,500
Hydrants	$0	$0	$0	$0	$0	$0	$0	$0	$35,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$35,000
ARVs	$0	$4,640	$0	$0	$0	$18,560	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$23,200
PRVs/PSVs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Pump Stations	$0	$0	$0	$0	$0	$450,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$450,000
Tanks & Reservoirs	$125,000	$0	$0	$2,375,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,500,000
Treatment Plants	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Wells	$0	$0	$3,000,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$3,000,000
Agency General																				
Water Related	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,983,001	$4,983,001
Total Capital Expenses	**$4,784,110**	**$45,938,291**	**$84,795,550**	**$88,988,770**	**$0**	**$302,738,800**	**$7,684,000**	**$0**	**$14,583,481**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$4,983,001**	**$554,496,002**

Appendix D: Debt Service Allocations

Allocations to Service Area

		Debt Service Payment FY 2022	AWS	CAWP	La Mel	Lake Camanche	General
AWS	**AWS (04)**						
	Bond Series 2016	$1,854,606	84.35%	15.03%	0.63%		
	Hillside Cluster	$2,886					100%
	Ridge Cluster	$120,420					100%
	Environ Review	$33,527					100%
	Ione Backwash Proj	$0					100%
	Tanner Facility	$78,901					100%
	Ione Hydro CEC Loan	$128,047					100%
Agency General	**Agency Wide (05)**						
	Kubota Loader	$0					100%
	Takeuchi Excavator	$11,668					100%
CAWP	**CAWP WS (06)**						
	GSL - COP's	$336,200		100%			
	Total - External Loans	**$2,566,255**					
	Total Annual Payment	**$2,566,255**	**$1,564,333**	**$614,866**	**$11,607**	**$0**	**$375,449**
			61.0%	**24.0%**	**0.5%**	**0.0%**	**14.6%**

Bond Series 2016 Allocations

2016 Bond Allocations	AWS	Plymouth	CAWP	La Mel
FY 2016				
$1,853,500	$1,323,000	$240,400	$278,500	$11,600
	71.38%	12.97%	15.03%	0.63%
FY 2022				
$1,854,606	$1,323,790	$240,543	$278,666	$11,607

AWS + Plymouth = 84%
Plymouth is part of AWS

Prior Rate Study Debt Service Allocations

Bond Series 2016	AWS		CAWP		La Mel	
	2016 Rev Refund (ATL)	**$1,323,000**	**2016 Rev Refund (WTP)**	**$278,500**	**2016 Rev Refund (Tank)**	**$11,600**
	Offsets				*Offsets*	
	CFD #1 ATL	($131,000)			Property Tax	($3,952)
	AWS Participation Buy-In	($109,700)				
	Participation Fee	($80,130)				
	PGE Contract	($115,000)				
	Internal Loan Payment	($28,800)				
	Debt Obligation	**$10.46**	**Debt Obligation**	**$5.83**	**Debt Obligation**	**$12.03**
	2016 Rev Refund (Plymouth)	**$240,400**				
	Plymouth Loan Payment	($146,500)				

Amador Water Agency

2021 Water Rate Study

Draft Report / June 9, 2021

RAFTELIS

RAFTELIS

June 9, 2021

Mr. Larry McKenney
General Manager
Amador Water Agency
12800 Ridge Road
Sutter Creek, CA 95685

Subject: Amador Water Agency 2021 Water Rate Study

Dear Mr. McKenney,

Raftelis is pleased to provide this Water Rate Study Report (Report) for Amador Water Agency (Agency). The major objectives of the study include the following:

1. Develop financial plan for the water enterprise to ensure financial sufficiency, meet operation and maintenance (O&M) costs, and ensure sufficient funding for capital refurbishment and replacement (R&R) needs.
2. Conduct a cost of service analysis for the water enterprise.
3. Develop water rates for a five-year period to ensure fairness and equity, enhance revenue stability for recovering fixed costs, and comply with Proposition 218 requirements.

This Report summarizes the key findings and recommendations related to the development of the financial plans for water enterprise and the associated water rates.

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

Sincerely,

Sanjay Gaur
Vice President

Nancy Phan
Senior Consultant

Michael Hicks
Consultant

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1. Introduction

1.1. System Overview

The Amador Water Agency (Agency) provides treated and untreated retail water service through more than 7,200 residential, commercial, industrial, and irrigation water service connections, as well as treated wholesale water services to several neighboring public agencies. The Agency currently delivers about 1.4 billion gallons of safe, reliable water per year through a water distribution system that includes 230 miles of pipelines, as well as water production, transmission, treatment, and storage facilities.

Additionally, the Agency also owns and operates several different wastewater systems in various areas throughout Amador County. Currently the Agency serves the communities of Fairway Pines, Tiger Creek Estates, Gayla Manor, Wildwood Estates, Surrey Junction, Jackson Pines, Pine Grove, Martell, Viewpoint Estates, Eagles Nest, and Lake Camanche Village Unit 6. The wastewater generated in Martell is piped to the City of Sutter Creek for treatment. The remaining systems consist of subsurface leach fields and spray disposal fields.

The major objectives of the study include the following:

1. Develop financial plan for the water enterprise to ensure financial sufficiency, meet operation and maintenance (O&M) costs, and ensure sufficient funding for capital refurbishment and replacement (R&R) needs.
2. Conduct a cost of service analysis for the water enterprise.
3. Develop water rates for a five-year period to ensure fairness and equity, enhance revenue stability for recovering fixed costs, and comply with Proposition 218 requirements.

This Report summarizes the key findings and recommendations related to the development of the financial plans for the water enterprise and the development of the associated rates.

1.2. Legal Requirements and Rate Setting Methodology

1.2.1. LEGAL REQUIREMENTS

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

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

As stated in the American Water Works Association's (AWWA) *Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices M1, 6th edition* (M1 Manual), "water rates and charges should be recovered from

classes of customers in proportion to the cost of serving those customers." Proposition 218 requires that rates cannot be *arbitrary and capricious*, meaning that the rate-setting methodology must be sound and that there must be a nexus between the costs and the rates charged. This study follows industry standard rate setting methodologies set forth by the *M1 Manual*, adhering to Proposition 218 requirements by developing rates that do not exceed the proportionate cost of providing water services.

1.2.2. RATE SETTING METHODOLOGY

This report was prepared using the principles established by AWWA's M1 Manual and the Water Environment Federation's (WEF) Manual No. 27. which establishes commonly accepted professional standards for cost of service studies. The general principles of rate structure design and the objectives of the study are described below.

According to the *M1 Manual*, the first step in ratemaking analysis is to determine the adequate and appropriate funding of a utility. This is referred to as the "revenue requirements" analysis. This analysis considers the short-term and long-term service objectives of the utility over a given planning horizon, including capital facilities and system operations and maintenance, to determine the adequacy of a utility's existing rates to recover its costs. A number of factors may affect these projections, including the number of customers served, water-use trends, nonrecurring sales, weather, conservation, use restrictions, inflation, interest rates, wholesale contracts, capital finance needs, changes in tax laws, and other changes in operating and economic conditions.

After determining a utility's revenue requirements, a utility's next step is determining the cost of service. Utilizing a public agency's approved budget, financial reports, operating data, and capital improvement plans, a rate study generally categorizes (functionalizes) the costs (such as treatment, storage, and pumping), expenses, and assets of the utility system among major operating functions to determine the cost of service.

After the assets and the costs of operating those assets are properly categorized by function, the rate study allocates those "functionalized costs" to the various customer classes (e.g., single-family residential, multi-family residential and commercial) by determining the characteristics of those classes and the contribution of each to incurred costs based on service characteristics and demand patterns. Rate design is the final part of the M1 Manual's rate-making procedure and generally uses the revenue requirement and cost of service analysis to determine appropriate rates for each customer class.

2. Water Financial Plan

A review of the Agency's revenue requirements is a key first step in the rate study process. The review involves an analysis of annual operating revenues under the status quo, O&M expenses, and reserve requirements. This section of the report provides a discussion of the projected revenues, O&M expenses, other reserve funding, and revenue adjustments estimated as required to ensure the fiscal sustainability and solvency of the water enterprise. Numbers shown in all the tables of this section are rounded; therefore, hand calculations based on the displayed numbers, such as summing or multiplying, may not equal the exact results shown.

2.1. Water Assumptions

The Study period is for fiscal years (FY) 2021 to FY 2026. For all cost of service analyses in this report, the cost of service year will be FY 2021 and rate-setting year will be FY 2022. It is important to note that the Agency updates its rates in July of each year with the exception of FY 2022 where the rates will be updated in October.

2.1.1. INFLATION

Various types of assumptions and inputs were incorporated into the study based on discussions with, and/or at the direction of Agency staff. These include the projected number of accounts and annual growth rates in consumption for different customer classes, inflation factors, and other assumptions. The inflation factor assumptions are presented in **Table 2-1** and **Table 2-2**.

Table 2-1: Revenue Escalation Factors

A	B	C	D	E	F	G
Revenue Escalation Factors	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Miscellaneous Revenues	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Meter Sales	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Reimbursements	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Reserve Interest Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Non-Inflated	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table 2-2: Expense Escalation Factors

A	B	C	D	E	F	G
Expense Escalation Factors	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
General	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Salaries	3.0%	6.0%	4.0%	4.0%	4.0%	4.0%
Benefits	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Water	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Utilities	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
PG&E	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Capital	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Non-Inflated	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

2.1.2. PROJECTED ACCOUNT AND DEMAND GROWTH

Raftelis assumes no customer account or demand growth over the study period to ensure sufficiently conservative revenue projections. The projected account growth and demand growth assumptions for the study period are shown in **Table 2-3** and **Table 2-4** below.

Table 2-3: Account Growth Projections

A	B	C	D	E	F	G
Customer Account Growth	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Treated Retail	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Treated Wholesale	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Untreated Retail	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table 2-4: Demand Growth Projections

A	B	C	D	E	F	G
Demand Growth	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Treated Retail	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Treated Wholesale	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Untreated Retail	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

2.1.3. RESERVE POLICY

A reserve policy is a written document that provides a basis for a utility to cope with unanticipated reductions in revenues, offset fluctuations in costs of providing services, and fiscal emergencies such as revenue shortfalls, asset failure, and natural disaster. It also provides guidelines for sound financial management with an overall long-range perspective to maintain financial solvency and to mitigate financial risks associated with revenue instability, volatile capital costs, and emergencies. It also sets funds aside for replacement of capital assets as they age and for new capital projects. Additionally, adopting and adhering to a sustainable reserve policy enhances financial management transparency and helps achieve or maintain a certain credit rating for future debt issues.

The appropriate amount of reserves and reserve types are determined by a variety of factors, such as the size of the operating budget, the amount of debt, the type of rate structure, frequency of customer billing, and risk of natural disaster. With this being said, most reserves tend to fall into the following categories: O&M cash flow, rate stabilization, capital R&R, and emergency.

Operating Reserves – The purpose of an O&M reserve is to provide working capital to support the operation, maintenance, and administration of the utility. From a risk management perspective, the O&M reserve supports the Agency's cash flow needs during normal operations and ensures that operations can continue should there be significant events that impact cash flows. As it is unlikely for a utility to precisely predict the revenues and revenue requirements for each billing period, a reserve set aside to hedge the risk of monthly negative cash positions is prudent financial planning. Another factor to consider when creating a cash flow reserve is the frequency of billing. A utility that bills once a month would require fewer minimum reserves than a utility that bills bi-monthly. Raftelis reviewed the reserve policy with Agency staff and determined that 3 months of annual operating expenses is the most appropriate to support the operations, maintenance, and administration of the Agency.

Capital Replacement – Capital R&R reserves are used to fund future obligations that are necessary for maintaining a reliable infrastructure. Because water and sewer utilities are highly capital-intensive enterprises, it is important to accurately estimate long-term R&R costs and develop a reserve to fund the eventual replacement of the system and new capital projects. The capital replacement reserve is equal to 1% of Asset Value net of depreciation.

Rate Stabilization– While it is not typical for utilities to have substantial rate increases in a short period of time, factors such as declining potable water sales and rapidly increasing potable water supply costs may result in large rate increases. In order to minimize future rate shocks, the Agency has established a rate stabilization reserve to smooth rate increases through gradual increases in rates as opposed to abrupt and large rate increases. A rate stabilization reserve acts as a buffer to protect customers from experiencing large shifts in their bills. The Agency has established a $1 million rate stabilization reserve.

Emergency – The purpose of an emergency fund is to allow the Agency to provide uninterrupted service in light of a fiscal emergency, natural disaster, or facility failure. An emergency reserve decreases risk by recognizing the high capital costs of the facilities and setting aside adequate funds to restart the system after an unanticipated event or to replace an essential facility. Discussions with Agency staff regarding their capital needs and critical asset considerations form the basis for the target level of the emergency reserve. A $1 million emergency fund was deemed most appropriate for the Agency's needs.

Table 2-5 summarizes the water enterprise's target reserves for FY 2021.

Table 2-5: FY 2021 Target Water Reserves

A	B	C
Reserve Targets	**Policy**	**FY 2021 Target**
Operating Reserves	3 Months of Operating Budget	$2,141,661
Capital Replacement	1% of Asset Value Net of Depreciation	$551,657
Rate Stabilization		$1,000,000
Emergency		$1,000,000
Grand Total		**$4,693,318**

2.2. Revenues from Current Water Rates

Table 2-6, **Table 2-7**, and **Table 2-8** summarize the current monthly service charges, and **Table 2-9** summarizes the current commodity rates per hundred cubic feet (ccf) of water usage. The current water rates have been effective since July 1, 2020. The Agency bills monthly for all its services which include Treated Retail, Treated Wholesale, and Untreated Retail.

Table 2-6: Treated Retail Water Monthly Service Charges

A	B
Treated Retail	Water Service Charge
5/8 inch	$26.34
3/4 inch	$36.34
1 inch	$56.31
1-1/2 inch	$106.29
2 inch	$166.26
3 inch	$326.17
4 inch	$506.07
6 inch	$1,005.82
Mule Creek	$27,358.53

Table 2-7: Treated Wholesale Water Monthly Service Charges

A	B
Treated Wholesale	Water Service Charge
Drytown	$1,192.93
City of Plymouth	$5,793.24
City of Jackson	$20,439.95
Pine Grove CSD	$2,846.51
Mace Meadow WA	$1,793.04

Table 2-8: Untreated Retail Water Monthly Service Charges

A	B
Untreated Retail	Water Service Charge
5/8 inch	$26.34
3/4 inch	$36.34
1 inch	$56.31
1-1/2 inch	$106.29
2 inch	$166.26
3 inch	$326.17
4 inch	$506.07
6 inch	$1,005.82

Table 2-9: Water Commodity Rates

A	B
Customer Class	Water Usage Rate (ccf)
Treated Retail	$2.44
Mule Creek	$1.95
Treated Wholesale	$1.35
Untreated Retail	$1.11

The Agency also maintains a debt service charge for each customer class which is associated with a customer's specific service area. The debt service charges are shown in **Table 2-10**, **Table 2-11**, and **Table** 2-12 below.

Table 2-10: Treated Retail Water Monthly Debt Service Charges

A	B	C	D
Treated Retail	Debt Service Charge (AWS & CAWP)	Debt Service Charge (Lake Camanche)	Debt Service Charge (La Mel)
5/8 inch	$13.29	$6.99	$13.29
3/4 inch	$19.94	$10.48	$19.94
1 inch	$33.23	$17.47	$33.23
1-1/2 inch	$66.45	$34.93	$66.45
2 inch	$106.32	$55.89	$106.32
3 inch	$212.64	N/A	$212.64
4 inch	$332.25	N/A	$332.25
6 inch	$664.50	N/A	$664.50
Mule Creek	$10,632.00	N/A	N/A

Table 2-11: Treated Wholesale Water Monthly Debt Service Charges

A	B
Treated Wholesale	Debt Service Charge (AWS & CAWP)
Drytown	$1,129.66
City of Plymouth	$5,066.11
City of Jackson	$16,417.96
Pine Grove CSD	$7,127.44
Mace Meadow WA	$5,246.59

Table 2-12: Untreated Retail Water Monthly Debt Service Charges

A	B
Untreated Retail	Debt Service Charge (AWS & CAWP)
5/8 inch	$1.27
3/4 inch	$1.90
1 inch	$3.17
1-1/2 inch	$6.34
2 inch	$10.14
3 inch	$20.27
4 inch	$31.68
6 inch	$63.35

Table 2-13, **Table 2-14**, **Table 2-15** summarizes the projected number of accounts, and **Table 2-16** summarizes the projected usage by service type for the study period. The accounts and usage projections were provided by Agency staff for FY 2020.

Table 2-13: Projected Treated Retail Accounts by Service Area

A	B	C	D	E	F	G
Treated Retail	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
AWS & CAWP						
5/8 inch	5,682	5,682	5,682	5,682	5,682	5,682
3/4 inch	250	250	250	250	250	250
1 inch	220	220	220	220	220	220
1-1/2 inch	34	34	34	34	34	34
2 inch	33	33	33	33	33	33
3 inch	3	3	3	3	3	3
4 inch	4	4	4	4	4	4
6 inch	5	5	5	5	5	5
Mule Creek	1	1	1	1	1	1
Subtotal - AWS & CAWP	**6,232**	**6,232**	**6,232**	**6,232**	**6,232**	**6,232**
Lake Camanche						
5/8 inch	705	705	705	705	705	705
3/4 inch	9	9	9	9	9	9
1 inch	5	5	5	5	5	5
Subtotal - Lake Camanche	**719**	**719**	**719**	**719**	**719**	**719**
La Mel						
5/8 inch	51	51	51	51	51	51
3/4 inch	1	1	1	1	1	1
1 inch	1	1	1	1	1	1
Subtotal - La Mel	**53**	**53**	**53**	**53**	**53**	**53**
Hydrant	15	15	15	15	15	15
Grand Total	**7,019**	**7,019**	**7,019**	**7,019**	**7,019**	**7,019**

Table 2-14: Projected Treated Wholesale Accounts

A	B	C	D	E	F	G
Treated Wholesale	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
Drytown	1	1	1	1	1	1
City of Plymouth	1	1	1	1	1	1
City of Jackson	1	1	1	1	1	1
Pine Grove CSD	1	1	1	1	1	1
Mace Meadow WA	1	1	1	1	1	1
Total	**5**	**5**	**5**	**5**	**5**	**5**

Table 2-15: Projected Untreated Retail Accounts

A	B	C	D	E	F	G
Untreated Retail	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
5/8 inch	110	110	110	110	110	110
3/4 inch	15	15	15	15	15	15
1 inch	30	30	30	30	30	30
1-1/2 inch	7	7	7	7	7	7
2 inch	6	6	6	6	6	6
3 inch	3	3	3	3	3	3
4 inch	3	3	3	3	3	3
6 inch	1	1	1	1	1	1
Total	**175**	**175**	**175**	**175**	**175**	**175**

Table 2-16: Projected Water Usage (ccf)

A	B	C	D	E	F	G
Customer Class (ccf)	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
Treated Retail	1,020,925	1,020,925	1,020,925	1,020,925	1,020,925	1,020,925
Mule Creek	248,824	248,824	248,824	248,824	248,824	248,824
Treated Wholesale	565,703	565,703	565,703	565,703	565,703	565,703
Untreated Retail	126,231	126,231	126,231	126,231	126,231	126,231
Total	**1,961,683**	**1,961,683**	**1,961,683**	**1,961,683**	**1,961,683**	**1,961,683**

As can be seen from above tables, the projected number of accounts and water usage remain stable through all years of the study period as no growth is assumed over the course of the study as mentioned in **Table 2-3** and **Table 2-4**.

To verify the Agency's revenues from rates and project the future revenue needs, Raftelis conducts an analysis which multiplies the current rates by the projected number of accounts and usage. For example, to calculate the FY 2023 Treated Retail revenues for La Mel, the number of La Mel accounts (**Table 2-13**) are multiplied by their associated meter service charge (**Table 2-6**) for 12 months. The formulas below show how the fixed service charge for La Mel (**Table 2-17** C4) is calculated.

$$Projected\ \#\ of\ accounts\ for\ FY\ 2023 \times Treated\ Retail\ Monthly\ Service\ Rate \times 12\ Months$$

$$\mathbf{51}\ 5/8"\ Meters \times \$\mathbf{26.34}\ Meter\ Charge\ per\ month \times \mathbf{12}\ months = \$\mathbf{16,120}$$
$$\mathbf{1}\ 3/4"\ Meter \times \$\mathbf{36.34}\ Meter\ Charge\ per\ month \times \mathbf{12}\ months = \$\mathbf{436}$$
$$\mathbf{1}\ 1"\ Meter \times \$\mathbf{56.31}\ Meter\ Charge\ per\ month \times \mathbf{12}\ months = \$\mathbf{676}$$
$$\$16{,}120 + \$436 + \$676 = \$\mathbf{17,232}$$

The same formula is also applied to derive the debt service charge (**Table 2-10**) for each service area. The derivation for La Mel debt service charge (**Table 2-17** C12) is shown below.

$$Projected\ \#\ of\ accounts\ for\ FY\ 2023 \times Monthly\ Debt\ Service\ Rate \times 12\ Months$$

$$\mathbf{51}\ 5/8"\ Meters \times \$\mathbf{13.29}\ Meter\ Charge\ per\ month \times \mathbf{12}\ months = \$\mathbf{8,134}$$
$$\mathbf{1}\ 3/4"\ Meter \times \$\mathbf{19.94}\ Meter\ Charge\ per\ month \times \mathbf{12}\ months = \$\mathbf{239}$$
$$\mathbf{1}\ 1"\ Meter \times \$\mathbf{33.23}\ Meter\ Charge\ per\ month \times \mathbf{12}\ months = \$\mathbf{399}$$
$$\$8{,}133 + \$239 + \$399 = \$\mathbf{8,772}$$

The variable revenues are calculated in a similar manner, here the projected usage for the Fiscal Year (**Table 2-16**) is multiplied by the associated Fiscal Year's variable rate (**Table 2-9**) The formula below shows how the value for the Treated Retail (**Table 2-17** C7) is derived.

$$Projected\ Usage\ for\ FY\ 2023 \times FY\ 2023\ Commodity\ Rate$$
$$\mathbf{1,020,925}\ CCF \times \$\mathbf{2.44}\ per\ CCF = \$\mathbf{2,491,057}$$

Table 2-17 shows the Projected Treated Retail Rate Revenues applying these formulas and processes to each service area.

Table 2-17: Projected Treated Retail Rate Revenues

A	B	C	D	E	F	G	H
Ln.	Treated Retail Rate Revenues	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
1	**Water Service Charge**						
2	AWS & CAWP	$2,259,233	$2,259,233	$2,259,233	$2,259,233	$2,259,233	$2,259,233
3	Lake Camanche	$230,140	$230,140	$230,140	$230,140	$230,140	$230,140
4	LaMel	$17,232	$17,232	$17,232	$17,232	$17,232	$17,232
5	Mule Creek	$328,302	$328,302	$328,302	$328,302	$328,302	$328,302
6	**Water Usage Rate (per ccf)**						
7	All Customers	$2,491,057	$2,491,057	$2,491,057	$2,491,057	$2,491,057	$2,491,057
8	Mule Creek	$485,206	$485,206	$485,206	$485,206	$485,206	$485,206
9	**Debt Service Charge**						
10	AWS & CAWP	$1,186,400	$1,186,400	$1,186,400	$1,186,400	$1,186,400	$1,186,400
11	Lake Camanche	$61,315	$61,315	$61,315	$61,315	$61,315	$61,315
12	LaMel	$8,772	$8,772	$8,772	$8,772	$8,772	$8,772
13	Mule Creek	$127,584	$127,584	$127,584	$127,584	$127,584	$127,584
14	**Total**	**$7,195,241**	**$7,195,241**	**$7,195,241**	**$7,195,241**	**$7,195,241**	**$7,195,241**

A similar formula and process is applied to each service type to derive the projected revenues for each service. **Table 2-18** and **Table 2-19** shows the projected revenues for the Treated Wholesale and Untreated Retail Services.

Table 2-18: Projected Treated Wholesale Rate Revenues

A	B	C	D	E	F	G	H
Ln.	Treated Wholesale Rate Revenue	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
1	**Water Service Charge**						
2	Drytown	$14,315	$14,315	$14,315	$14,315	$14,315	$14,315
3	City of Plymouth	$69,519	$69,519	$69,519	$69,519	$69,519	$69,519
4	City of Jackson	$245,279	$245,279	$245,279	$245,279	$245,279	$245,279
5	Pine Grove CSD	$34,158	$34,158	$34,158	$34,158	$34,158	$34,158
6	Mace Meadow WA	$21,516	$21,516	$21,516	$21,516	$21,516	$21,516
7	**Water Usage Rate (per ccf)**						
8	All Customers	$763,699	$763,699	$763,699	$763,699	$763,699	$763,699
9	**Debt Service Charge**						
10	Drytown	$13,556	$13,556	$13,556	$13,556	$13,556	$13,556
11	City of Plymouth	$60,793	$60,793	$60,793	$60,793	$60,793	$60,793
12	City of Jackson	$197,016	$197,016	$197,016	$197,016	$197,016	$197,016
13	Pine Grove CSD	$85,529	$85,529	$85,529	$85,529	$85,529	$85,529
14	Mace Meadow WA	$62,959	$62,959	$62,959	$62,959	$62,959	$62,959
15	**Total**	**$1,568,341**	**$1,568,341**	**$1,568,341**	**$1,568,341**	**$1,568,341**	**$1,568,341**

Table 2-19: Projected Untreated Retail Rate Revenues

A	B	C	D	E	F	G	H
Ln.	Untreated Retail Rate Revenue	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
1	**Water Service Charge**						
2	All Customers	$124,515	$124,515	$124,515	$124,515	$124,515	$124,515
3	**Water Usage Rate (per ccf)**						
4	All Customers	$140,116	$140,116	$140,116	$140,116	$140,116	$140,116
5	**Debt Service Charge**						
6	All Customers	$7,053	$7,053	$7,053	$7,053	$7,053	$7,053
7	**Total**	**$271,684**	**$271,684**	**$271,684**	**$271,684**	**$271,684**	**$271,684**

Table 2-20 shows the summary of rate revenue from each service type which is used to project the revenues through the study period. It is important to note that for FY 2021 and FY 2022, the financial plan uses the budgeted values from Amador as opposed to the calculated values as the Agency analyzed its revenues and determined that these values were more representative.

Table 2-20: Water Rate Revenue Summary

A	B	C	D	E
Customer Class	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
Treated Retail	$7,195,241	$7,195,241	$7,195,241	$7,195,241
Treated Wholesale	$1,568,341	$1,568,341	$1,568,341	$1,568,341
Untreated Retail	$271,684	$271,684	$271,684	$271,684
Total	**$9,035,266**	**$9,035,266**	**$9,035,266**	**$9,035,266**

In addition to revenue from rates, the water enterprise also receives miscellaneous revenues from different sources such as interest earnings, property taxes, and other operating/non-operating sources. Total miscellaneous revenues and rate revenues for the study period are shown in **Table 2-21**. The figures below are based on Agency staff projections for the study period. Revenues are not inflated year to year to maintain conservative revenue projections for the study period.

Table 2-21: Projected Water Revenues

A	B	C	D	E	F	G
Projected Revenue	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
Rate Revenue	$9,226,951	$9,226,951	$9,035,266	$9,035,266	$9,035,266	$9,035,266
Other Operating Revenue	$420,203	$491,600	$491,600	$491,600	$491,600	$491,600
Non-Operating Revenue	$798,260	$665,015	$665,015	$665,015	$665,015	$665,015
Transfers In	$576,354	$331,000	$331,000	$331,000	$331,000	$331,000
Total Revenue	**$11,021,767**	**$10,714,565**	**$10,522,880**	**$10,522,880**	**$10,522,880**	**$10,522,880**

2.3. Water O&M Expenses

Agency staff provided the O&M budget for FY 2021 and FY 2022. The Agency incorporated into it O&M budget 2 additional Full Time Employees for FY 2022. This cost is captured in the Operations and Maintenance row of **Table 2-22** Using the Agency's FY 2022 budget values, inflation factors were assigned to each line item to determine future O&M costs for the water enterprise. These inflation factors can be referenced in **Table 2-2**. **Table 2-22** summarizes budgeted and projected O&M expenses for the Water Enterprise during the study period. Other operating expenses include salaries & benefits, distribution & collection, tool & equipment, and other utility expenses (please refer to the Agency's budget document for descriptions of each expense item).

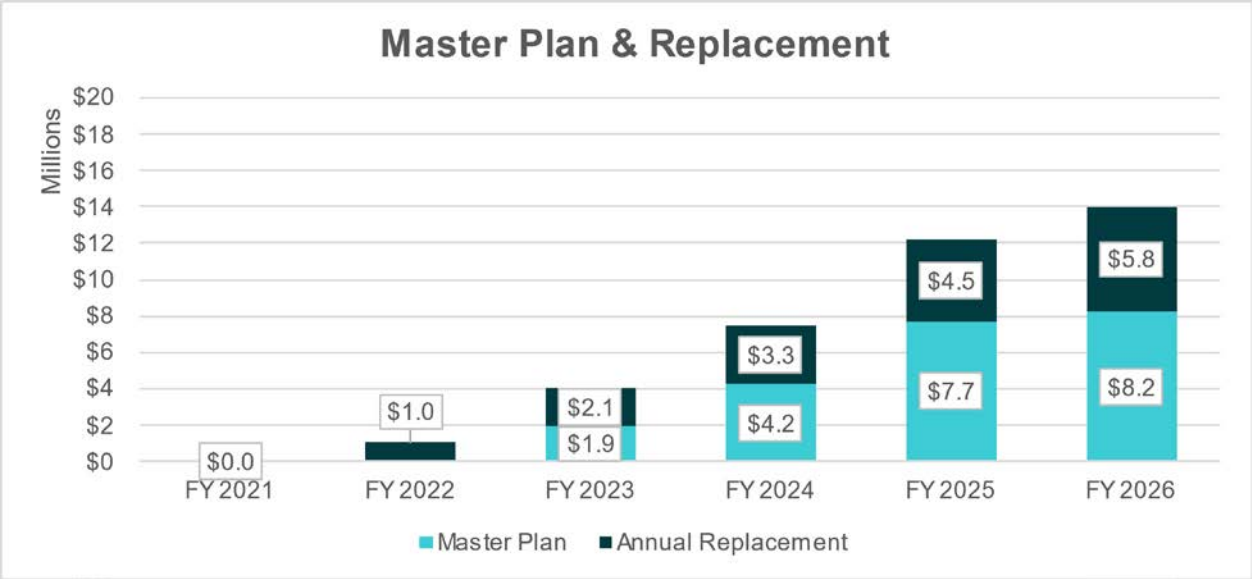
Table 2-22: Projected Water O&M Expenses

A	B	C	D	E	F	G
Projected O&M Expenses	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
Board of Directors	$81,983	$54,119	$101,444	$79,266	$94,898	$98,427
Administration	$1,237,280	$1,013,839	$1,024,887	$1,046,886	$1,068,587	$1,106,120
Engineering	$705,698	$550,344	$566,721	$583,657	$601,173	$622,538
Finance	$1,209,308	$1,192,975	$1,232,180	$1,272,954	$1,315,358	$1,365,844
Operations and Maintenance	$4,720,291	$5,833,383	$6,046,436	$6,267,403	$6,496,582	$6,726,346
Non-Departmental	$612,086	$643,339	$689,141	$720,913	$770,546	$793,663
Total O&M Expenses	**$8,566,645**	**$9,288,000**	**$9,660,809**	**$9,971,079**	**$10,347,145**	**$10,712,938**

2.4. Projected Capital Improvement Projects

In FY 2021, the Agency conducted a Water Master Plan Study with the engineering firm Keller Associates that identified major capital improvement needs relating to the repair, replacement, and growth of the Agency's infrastructure. Using the Water Master Plan Study as a guideline, the Agency has programmed approximately $39 million in total capital expenditures during the study period. As shown in **Figure 2-1**, approximately $17 million is allocated to annual repair and replacement costs (dark blue). These costs were identified as necessary additional R&R expenses needed to maintain the system by the Keller Master Plan Study. The other $22 million is allocated to a mixture of growth-related projects and repair and replacement costs a full list of which can be seen in the Appendix A (teal). The capital improvement project (CIP) costs for future years are determined by using the programmed/budgeted costs and inflating the value by the capital inflation factor shown in **Table 2-2**.

Figure 2-1: Water Growth and Replacement Capital Projects



The Agency plans to fund its CIP needs via a mix of cash (green) and debt proceeds of $15 million and $11 million from debt issuances which will be issued in FY 2024 and FY 2026, respectively. Further details of the debt issuances will be discussed in **Section 2.5**. The capital financing plan is shown in **Figure 2-2** with tabular results detailing the financing scenario in **Table 2-23**.

Figure 2-2: Water Capital Financing Plan

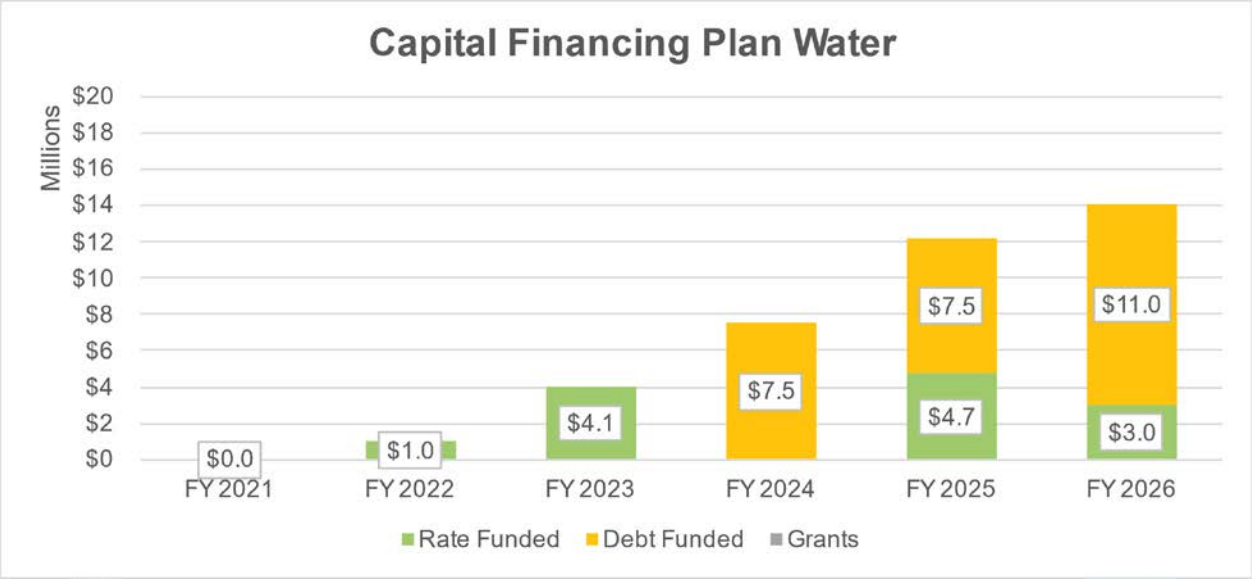


Table 2-23: Water Capital Financing Plan

A	B	C	D	E	F	G
Existing Debt Service	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
Inflated Project Costs	$0	$1,030,000	$4,051,047	$7,518,727	$12,208,507	$14,021,826
Debt Proceeds	$0	$0	$0	$15,000,000	$0	$11,000,000
Capital Financing						
Rate Funded	$0	$1,030,000	$4,051,047	$0	$4,727,233	$3,021,826
Debt Funded	$0	$0	$0	$7,518,727	$7,481,273	$11,000,000

2.5. Debt Service

The Agency has several long-term debt obligations which include both internal and external debt. The repayment of these obligations is associated with specific service areas and will remain an obligation to each water service area. The below tables outline the current debt obligations.

2.5.1. EXISTING DEBT SERVICE

The Agency had several internal loan obligations which were originally developed to address financial constraints and created when each water service area was treated as a separate enterprise. The internal loan obligations relied primarily on borrowing from participation fees in past years. The Agency decided to pay off these obligations in the current fiscal year and as such, the water financial plan will not include these in the analysis.

The Agency does, however, have several existing external loan obligations that can be seen in **Table 2-24**. These external loans make up a $2.6 million debt service obligation each year. One loan, the 2016 Revenue Refunding bonds, make up $1.8 million of the annual obligation and has a covenant that requires the Agency to maintain water system revenues at a level that meets a debt service coverage requirement of 1.25, which means that the Agency's net revenue must amount to at least 1.25 times annual debt service for the 2016 Bond. Net revenues equal revenues less O&M expenses.

Table 2-24: Water Debt Service Obligations

A	B	C	D	E	F	G
Existing Debt Service	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Bond Series 2016	$1,854,606	$1,854,606	$1,854,606	$1,854,606	$1,854,606	$1,854,606
External Loans	$749,865	$711,649	$708,763	$708,763	$697,094	$697,094
Total	**$2,604,471**	**$2,566,255**	**$2,563,369**	**$2,563,369**	**$2,551,701**	**$2,551,701**

2.5.2. PROPOSED DEBT SERVICE

In order to fund the future water capital improvement projects as discussed in **Section 2.4** of this report, the Agency intends to issue two new debts that total $15 million in FY 2024 and $11 million in FY 2026 in proceeds that will be allocated to the projects mentioned in **Figure 2-1**. The proposed debt terms are discussed in **Table 2-25** and the annual debt service requirements are shown in **Table 2-26**.

Table 2-25: Proposed Debt Terms FY 2024

A	B	C
Proposed Debt Terms	FY 2024	FY 2026
Interest Rate	5%	5%
Term (years)	30	30
Issuance Cost	2%	2%

Table 2-26: Annual Water Debt Service

A	B	C	D	E	F	G
Proposed Debt Service	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Proposed Debt Issuance	$0	$0	$0	$15,306,122	$0	$11,224,490
Proposed Debt Proceeds	$0	$0	$0	$15,000,000	$0	$11,000,000
FY 2024 Proposed Debt Service	$0	$0	$0	$995,685	$995,685	$995,685
FY 2026 Proposed Debt Service	$0	$0	$0	$0	$0	$730,169
Total	**$0**	**$0**	**$0**	**$995,685**	**$995,685**	**$1,725,854**

2.6. Status Quo Water Financial Plan

Figure 2-3 shows the revenue shortfalls that begin in FY 2021 and carry through each year of the study period. The solid blue line represents the projected revenues from current rates without any adjustment (gross increase in rate revenues) or debt issuances. Note that the blue dashed line (proposed) matches the solid blue line (current) as no revenue adjustments are made in this scenario.

The stacked bars represent the expenditures such as debt service (grey), O&M expenses (light blue), and cash funded CIP (green). The yellow bars below the axis signify that the collected revenues are insufficient for operating and capital costs in those years and require drawing down the water fund reserve balances, which become negative beginning in FY 2022, seen in **Figure 2-4**. This makes clear that the current water revenues are insufficient to recover the costs to operate in all years as the Agency is not able to meet its target reserves under the status quo; thus, revenue adjustments are required.

Table 2-27 summarizes this data in a tabular format. Net Cash Flow equals Total Revenue less Total O&M expenses and Total Debt and Capital. Net Revenue is simply Total Revenues less Total O&M expenses and is used to calculate debt coverage. The required debt coverage ratio for the Agency is 1.25, which means that the Agency's net revenue must amount to at least 1.25 times annual debt service.

Figure 2-3: Status Quo Financial Plan Water

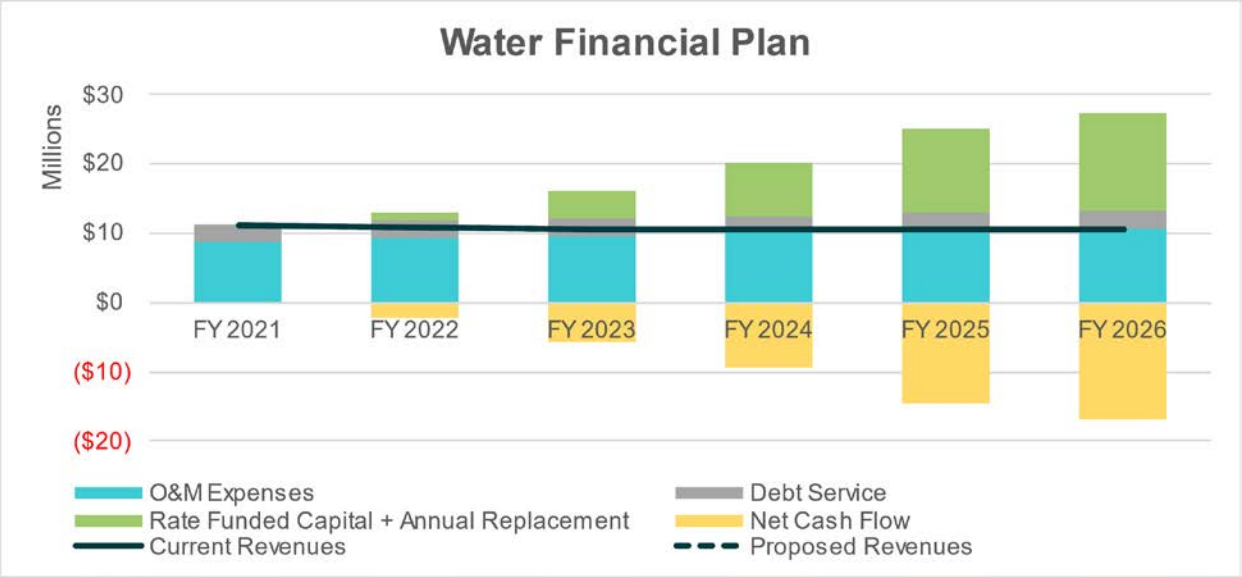


Figure 2-4: Status Quo Water Ending Balances

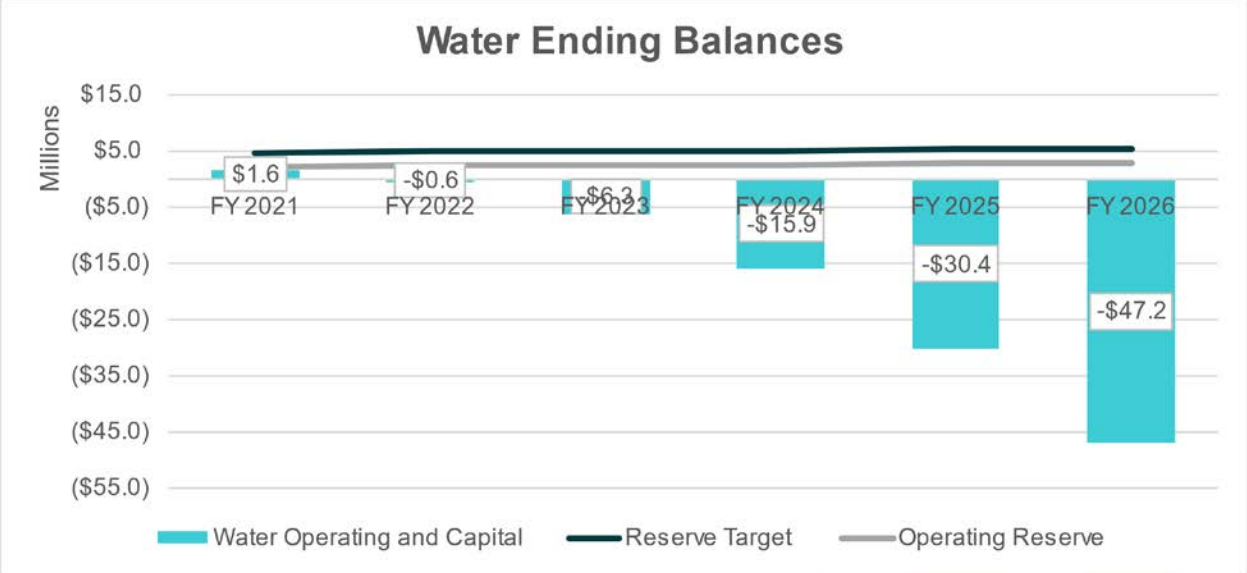


Table 2-27: Status Quo Water Financial Plan

A	B	C	D	E	F	G
Water Financial Plan	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
Revenues						
Rate Revenue	$9,226,951	$9,226,951	$9,035,266	$9,035,266	$9,035,266	$9,035,266
Revenue Adjustments	$0	$0	$0	$0	$0	$0
Other Operating Revenue	$420,203	$491,600	$491,600	$491,600	$491,600	$491,600
Non-Operating Revenue	$798,260	$665,015	$665,015	$665,015	$665,015	$665,015
Transfers In	$576,354	$331,000	$331,000	$331,000	$331,000	$331,000
Total Revenue	**$11,021,767**	**$10,714,565**	**$10,522,880**	**$10,522,880**	**$10,522,880**	**$10,522,880**
O&M Expenses						
Board of Directors	$81,983	$54,119	$101,444	$79,266	$94,898	$98,427
Administration	$1,237,280	$1,013,839	$1,024,887	$1,046,886	$1,068,587	$1,106,120
Engineering	$705,698	$550,344	$566,721	$583,657	$601,173	$622,538
Finance	$1,209,308	$1,192,975	$1,232,180	$1,272,954	$1,315,358	$1,365,844
Operations and Maintenance	$4,720,291	$5,833,383	$6,046,436	$6,267,403	$6,496,582	$6,726,346
Non-Departmental	$612,086	$643,339	$689,141	$720,913	$770,546	$793,663
Total O&M Expenses	**$8,566,645**	**$9,288,000**	**$9,660,809**	**$9,971,079**	**$10,347,145**	**$10,712,938**
Debt & Capital						
Existing Debt Service	$2,604,471	$2,566,255	$2,563,369	$2,563,369	$2,551,701	$2,551,701
Proposed Debt Service	$0	$0	$0	$0	$0	$0
Rate Funded Capital Projects	$0	$1,030,000	$4,051,047	$7,518,727	$12,208,507	$14,021,826
Total Debt & Capital	**$2,604,471**	**$3,596,255**	**$6,614,416**	**$10,082,096**	**$14,760,207**	**$16,573,526**
Net Cashflow	($149,350)	($2,169,690)	($5,752,345)	($9,530,294)	($14,584,472)	($16,763,584)
Net Operating Revenue	$2,455,122	$1,426,565	$862,071	$551,801	$175,735	($190,057)
Calculated Debt Coverage	1.32	0.77	0.46	0.30	0.09	-0.10
Required Debt Coverage	1.25	1.25	1.25	1.25	1.25	1.25
Beginning Balance	$1,730,859	$1,597,324	($572,366)	($6,324,710)	($15,855,005)	($30,439,477)
Net Cashflow	($149,350)	($2,169,690)	($5,752,345)	($9,530,294)	($14,584,472)	($16,763,584)
New Debt Proceeds (less Debt Funded CIP)	$0	$0	$0	$0	$0	$0
Interest Income	$15,815	$0	$0	$0	$0	$0
Ending Balance	**$1,597,324**	**($572,366)**	**($6,324,710)**	**($15,855,005)**	**($30,439,477)**	**($47,203,061)**
Target Balance	*$4,693,318*	*$4,873,657*	*$4,966,859*	*$5,044,427*	*$5,138,443*	*$5,229,891*

2.7. Proposed Water Financial Plan

Raftelis developed a five-year financial plan that incorporates the known and projected cost increases for operating and capital expenditures. The results were presented and discussed with Agency staff and the Agency Board. Raftelis devised several scenarios for the Board to review, and the Agency deemed the scenario below to be the most appropriate. The proposed revenue adjustments for the water fund are shown below in **Table 2-28**.

Table 2-28: Proposed Water Revenue Adjustments

FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
October	July	July	July	July
30.0%	20.0%	10.0%	10.0%	5.0%

The water financial plan with the proposed revenue adjustments and debt issuances is summarized in the following figures. In **Figure 2-5** the solid blue line represents projected revenues from current rates without any adjustment while the dashed blue line represents the projected revenues with the proposed revenue adjustments. The stacked bars represent the expenditures such as debt service (grey), O&M expenses (light blue), and cash funded CIP (green). The yellow bars above the axis signify that the collected revenues are sufficient for operating and capital costs, and that the water enterprise is able to build up its reserves.

Figure 2-6 shows the forecasted water fund ending balances (blue bars) after incorporating the proposed revenue adjustments and projected expenses (shown in **Figure 2-5**), and the estimated water fund beginning balance as of FY 2021. The blue bar intersecting with the dark blue line in FY 2026 indicates that the Agency will achieve its reserve target in FY 2026.

Table 2-29 numerically summarizes the financial plan under the proposed scenario. As can be seen in **Figure 2-6**, the water ending balances are abnormally high in FY 2024 when compared to the other years in the study period. This is due to the $15 million dollar debt proceeds that are used to fund the CIP projects in that year and the year after that. Using the debt issuances as well as the revenue increases, the Agency will be able to meet the 1.25 debt coverage covenant associated with the 2016 revenue refunding bond as mentioned in **Section 2.5.1**.

Figure 2-5: Proposed Financial Plan Water

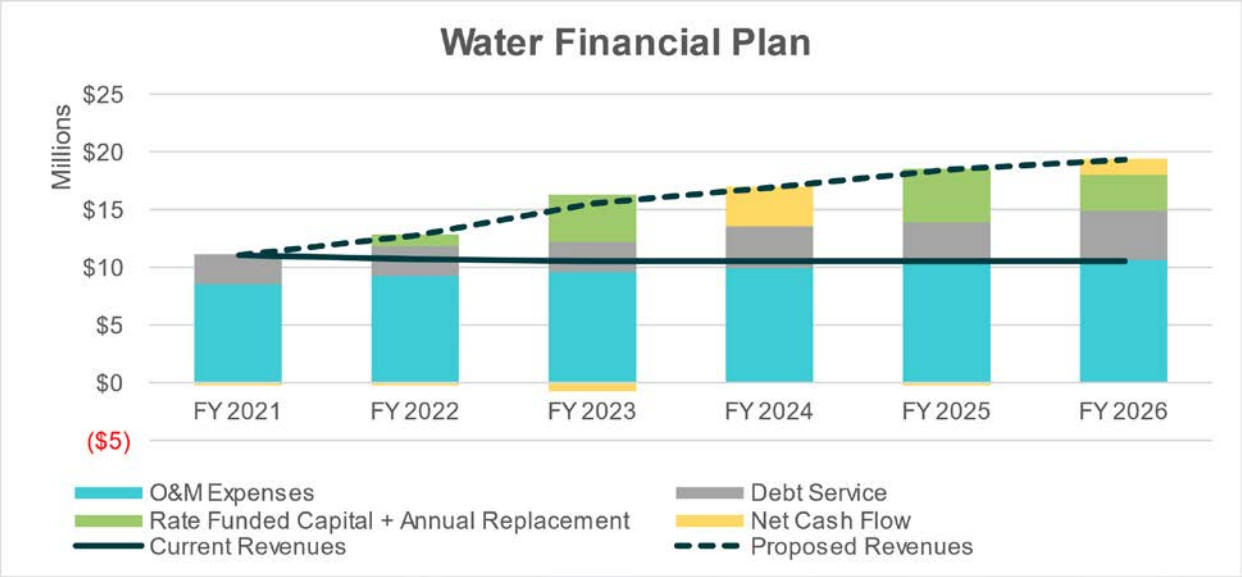


Figure 2-6: Proposed Water Ending Balances

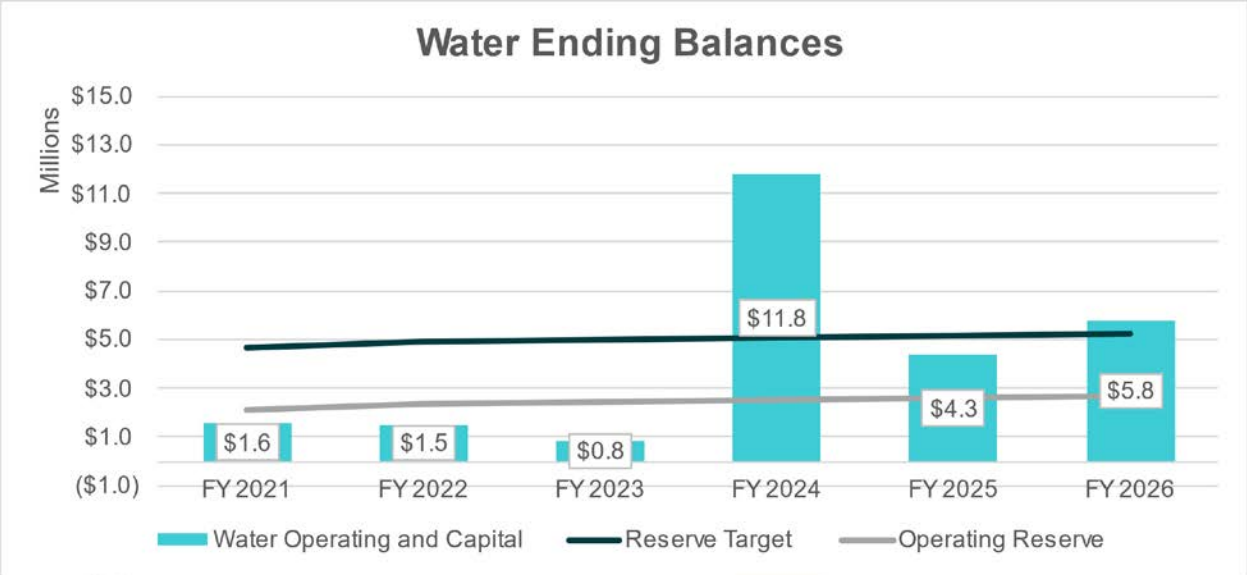


Table 2-29: Proposed Water Financial Plan

A	B	C	D	E	F	G
Water Financial Plan	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
Revenues						
Rate Revenue	$9,226,951	$9,226,951	$9,035,266	$9,035,266	$9,035,266	$9,035,266
Revenue Adjustments	$0	$2,076,064	$5,059,749	$6,469,250	$8,019,702	$8,872,450
Other Operating Revenue	$420,203	$491,600	$491,600	$491,600	$491,600	$491,600
Non-Operating Revenue	$798,260	$665,015	$665,015	$665,015	$665,015	$665,015
Transfers In	$576,354	$331,000	$331,000	$331,000	$331,000	$331,000
Total Revenue	**$11,021,767**	**$12,790,629**	**$15,582,629**	**$16,992,130**	**$18,542,582**	**$19,395,330**
O&M Expenses						
Board of Directors	$81,983	$54,119	$101,444	$79,266	$94,898	$98,427
Administration	$1,237,280	$1,013,839	$1,024,887	$1,046,886	$1,068,587	$1,106,120
Engineering	$705,698	$550,344	$566,721	$583,657	$601,173	$622,538
Finance	$1,209,308	$1,192,975	$1,232,180	$1,272,954	$1,315,358	$1,365,844
Operations and Maintenance	$4,720,291	$5,833,383	$6,046,436	$6,267,403	$6,496,582	$6,726,346
Non-Departmental	$612,086	$643,339	$689,141	$720,913	$770,546	$793,663
Total O&M Expenses	**$8,566,645**	**$9,288,000**	**$9,660,809**	**$9,971,079**	**$10,347,145**	**$10,712,938**
Debt & Capital						
Existing Debt Service	$2,604,471	$2,566,255	$2,563,369	$2,563,369	$2,551,701	$2,551,701
Proposed Debt Service	$0	$0	$0	$995,685	$995,685	$1,725,854
Rate Funded Capital Projects	$0	$1,030,000	$4,051,047	$0	$4,727,233	$3,021,826
Total Debt & Capital	**$2,604,471**	**$3,596,255**	**$6,614,416**	**$3,559,054**	**$8,274,619**	**$7,299,381**
Net Cashflow	($149,350)	($93,626)	($692,596)	$3,461,997	($79,182)	$1,383,012
Net Operating Revenue	$2,455,122	$3,502,629	$5,921,820	$7,021,051	$8,195,437	$8,682,393
Calculated Debt Coverage	1.32	1.89	3.19	2.46	2.88	2.42
Required Debt Coverage	1.25	1.25	1.25	1.25	1.25	1.25
Beginning Balance	**$1,730,859**	**$1,597,324**	**$1,518,735**	**$834,401**	**$11,895,448**	**$4,378,342**
Net Cashflow	($149,350)	($93,626)	($692,596)	$3,461,997	($79,182)	$1,383,012
New Debt Proceeds (less Debt Funded CIP)	$0	$0	$0	$7,481,273	($7,481,273)	$0
Interest Income	$15,815	$15,037	$8,261	$117,777	$43,350	$57,614
Ending Balance	**$1,597,324**	**$1,518,735**	**$834,401**	**$11,895,448**	**$4,378,342**	**$5,818,968**
Target Balance	*$4,693,318*	*$4,873,657*	*$4,966,859*	*$5,044,427*	*$5,138,443*	*$5,229,891*

3. Water Cost of Service

This section of the report details the cost of service analysis and rate calculation process to determine the proposed water rates. The goal of this process is to determine the cost of providing water service to each of the Agency's customer classes and to ensure equity and fairness among the various classes. Numbers shown in all tables of this section are rounded; therefore, hand calculations based on the displayed numbers, such as summing or multiplying, may not equal the exact results shown.

3.1. Water Cost of Service Analysis Process and Approach

Proposition 218 requires a nexus between the rates charged and the costs of providing service. Based on the proposed financial plan, the cost of service analysis translates the financial requirement established in the previous section into rate components and these components are later used to design the actual rates.

The first step in the cost of service analysis is to determine how much revenue is required to be collected from rates. The methodology used is based upon the premise that the utility must generate annual revenues adequate to meet its estimated annual expenses. As part of the cost of service analysis, several adjustments are made to determine the annual revenues needed from rates. Revenues from sources other than water rates and charges (e.g., revenues from miscellaneous services) are deducted. The financial plan (from **Section 2**) shows the revenue requirement for FY 2021 and revenue adjustments needed for the out years of the study period. As stated in the previous section, for all cost of service analyses in this report, the cost of service year will be FY 2021 and rate setting year will be FY 2022. As a result of using FY 2021 as the cost of service year, the revenue is neutral and does not require a midyear adjustment to account for midyear rate changes. The Agency updates its rates in July of each year with the exception of FY 2022 where the rates will be updated in October.

Cost of service 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 an accurate, equitable, and defensible manner:

1. **Cost Functionalization** – O&M expenses and capital expenditures are categorized by their function in the system. Functions can include supply, production, transmission & distribution, customer service, billing, etc.
2. **Cost Component Allocation** – the functionalized costs are then allocated to cost causation components (cost components) based on their burden on the system. The cost components include supply, peaking, delivery, meter, customer, etc. The revenue requirement is allocated accordingly to the cost components and results in the total revenue requirement for each cost component.
3. **Unit Cost Development** – the revenue requirement for each cost component is divided by the appropriate units of service such as total usage, peaking units, equivalent meters, number of customers, etc. for each customer class and dividing the costs for each cost component by the respective service units to determine the unit cost for each cost component.
4. **Revenue Requirement Distribution** – the unit costs are utilized to distribute the revenue requirement for each cost component to customer classes and tiers based on their individual service units.

The calculated revenue requirement shown in **Table 3-1**.

3.1.1. REVENUE REQUIREMENT DETERMINATION

The revenue required from rates is the amount of revenue required to fund all water expenses in the cost of service year (FY 2021). The utility must generate annual revenues adequate to meet its estimated annual O&M

expenses, reserve targets, debt service, and capital investments. **Table 3-1** shows the derivation of the revenue requirement for FY 2021. The total water revenue requirements include O&M, capital expenses, and debt service which is shown in the upper portion of the table. Revenues from other sources are subtracted from this total and an adjustment is made for the yearly ending cash balance as shown in Line 11 of the **Table 3-1**. These final adjustments as well as the adjustments from Line 16 are subtracted from the total revenue requirement (Line 5) to derive the total revenue required from rates (Line 18). The revenues and expenses in the following tables correspond to the FY 2021 values in **Table 2-29**.

Table 3-1: Water Revenue Requirement

A	A	B	C	D
Ln	Revenue Requirement (FY 2021)	Operating	Debt Service	Total
1	**Revenue Requirement**			
2	O&M Expenses	$8,566,645		$8,566,645
3	Debt Service		$2,604,471	$2,604,471
4	Rate Funded Capital Projects			$0
5	**Total - Revenue Requirement**	**$8,566,645**	**$2,604,471**	**$11,171,117**
6				
7	**Revenue Offsets**			
8	Other Operating Revenue	$420,203		$420,203
9	Non-Operating Revenue	$798,260		$798,260
10	Transfers In	$576,354		$576,354
11	**Total - Revenue Offsets**	**$1,794,816**		**$1,794,816**
12				
13	**Adjustments**			
15	Adjustment for Cash Balance	$149,350		$149,350
16	**Subtotal - Adjustments**	**$149,350**		**$149,350**
17				
18	**Total - Revenue Required from Rates**	**$6,622,479**	**$2,604,471**	**$9,226,951**

3.2. Rate Structure Changes

Raftelis worked with the Agency Board and staff to determine certain revisions to the Agency's current water rate structure. The Agency currently provides water service to three different service types (Treated Retail, Treated Wholesale, and Untreated Retail) and charges a separate rate for the Mule Creek State Prison (Mule Creek). Each of these customers receives a monthly fixed service charge, uniform commodity charge, and a debt service charge which is based on service area. Raftelis recommends maintaining the current rate structure (so that there is a specific charge associated with each customer service type) but consolidating Mule Creek into the Treated Retail customer service type.

3.2.1. FIXED SERVICE CHARGE

Currently, Treated Retail and Untreated Retail have the same monthly fixed service charge. Raftelis recommends that these two service types have separate charges based on the cost of providing service to the specific service type. Raftelis developed rates to reflect this change.

Treated Wholesale customers are currently charged a monthly fixed service charge based on peaking. Raftelis recommends maintaining this methodology but updating the peaking analysis to be based on a five-year average rather than a specific test year as is currently being done. The proposed rates reflect this change.

Additionally, a monthly fixed service charge is assessed for Mule Creek. Raftelis recommends that Mule Creek be treated as a Treated Retail Customer to simplify the rate structure and to charge them based on their meter size. The proposed rates reflect this change.

3.2.2. COMMODITY CHARGE

The Agency currently has four commodity charges for Treated Retail, Treated Wholesale, Untreated Retail, and Mule Creek. Each of these four customer classes are charged a uniform commodity rate per unit of water use. Raftelis recommends maintaining the uniform structure but consolidating Mule Creek so that it is charged the commodity rate for Treated Retail service.

3.2.3. DEBT SERVICE

The Agency maintains a debt service charge which is associated with specific service areas of the Agency. The Board of Directors determined that these charges should remain an obligation to each water service area and that the debt service amount must be updated to reflect the Agency's current debt service obligations. Raftelis allocated the future debts obligations based on the allocation of assets by service type which is derived from the percentage of assets allocated to that service type (this calculation was determined in the 2021 Amador Water Capacity Fee Study and shown in Column I of **Table 3-5**).

For Treated Wholesale however, staff determined that it would prefer to maintain its current debt service charge and apply a proportional increase across all wholesale entities' monthly fixed service charges to smooth out the rate impacts.

3.3. Peaking Allocation

To allocate costs to base and peaking cost components[1], the cost of service analyses uses system peaking factors. System peaking factors are defined as follows:

- The Base peaking factor is assigned a value of 1.00 signifying no peaking demand.
- The Maximum Day (Max Day) peaking factor of 1.50 is calculated as the ratio between the system wide Max Day and average day capacity provided by the Agency. The Max Day peaking factor means that the system delivers 1.50 times the amount of water it does during an average day.
- The Maximum Hour (Max Hour) peaking factor of 2.31 is calculated multiplying the Max Day peaking factor by 1.50, The Max Hour peaking factor means that the system delivers 2.31 times the amount of water during the Max Hour than it does during an average day.

The allocation of peaking factors to cost-causing components is shown in **Table 3-2**. Costs associated with Base demand are fully allocated to the Base component (no peaking capacity used). Expenses allocated using the Max Day basis assume 67% (1.00/1.50) of costs are due to Base demands with the remaining proportion 33% (100%-67%) of costs allocated to the Max Day cost component. Lastly, expenses allocated using the Max Hour basis attribute 43% (1.00/2.31) of the costs to the Base cost component, 22% ((1.50-1.00)/2.31) to Max Day

[1] Peaking cost components include Max Day and Max Hour extra capacity.

and 35% (100% - 43% -22%) to Max Hour. Collectively the Max Day and Max Hour cost components are known as peaking costs. These percentages are later used to allocate costs and can be referenced in in **Table 3-2**.

Table 3-2: System Wide Peaking Factors and Allocation to Cost Components

A	B	C	D	E	F	G
Ln.	Cost component allocation Basis	Peaking Factor	Base	Max Day	Max Hour	Total
1	Base	1.00	100%	0%	0%	100%
2	Max Day	1.50	67%	33%	0%	100%
3	Max Hour	2.31	43%	22%	35%	100%

Peaking factors help properly distribute extra capacity costs to each class based on their peaking tendencies (extra capacity demanded). Raftelis used water consumption data from FY 2020, which was provided by Agency staff, to calculate the peaking factor for each service type. Next, Raftelis calculated the peaking factor for each customer class. The peaking factors are defined as the ratio between the month with highest water use and the average monthly water use during the fiscal year.

$$Peaking\ Factor = \frac{Maximum\ month\ water\ use}{Average\ month\ water\ use}$$

Where:

- Maximum month water use: the month with highest water use during the fiscal year.
- Average month water use: the average monthly water use calculated by dividing the annual water use by 12 (months).

Raftelis analyzed the Agency's three customer service types as well as Mule Creek and determined their peaking characteristics using the above method. The three customer types are Treated Retail, Treated Wholesale, and Untreated Retail.

Table 3-3 shows the customer class-specific peaking factors based on the maximum monthly usage divided by average monthly usage for each class. The peaking factors are based on a uniform tier width meaning all water usage will be charged at the same rate based on the peaking characteristics of the specific customer service type.

Table 3-3: Customer Class Specific Peaking Factors

A	B	C	D	E	F
Ln.	Customer Class	Selected Monthly Tiers	Max Month	Average Month	Peaking Factor
1	Mule Creek	Uniform	28,613	20,735	1.38
2	Treated Retail	Uniform	135,779	85,077	1.60
3	Treated Wholesale	Uniform	72,527	47,142	1.54
4	Untreated Retail	Uniform	19,628	10,519	1.87

3.4. O&M Functionalization

The next step in the cost of service analysis involves allocating the Agency's O&M expenses into various system functions. The functionalized O&M costs are shown in **Table 3-4**. For further detail please see **Appendix B**, which shows the step-by-step allocations for each function.

Table 3-4: Functionalized O&M

A	B	C
Line	O&M Functions	2021
1	Supply	$89,785
2	Treated Transmission	$118,480
3	Untreated Transmission	$73,635
4	Water Treatment	$584,015
5	Treated Storage	$213,644
6	Untreated Storage	$41,650
7	Pumping	$6,500
8	Treated Distribution	$178,403
9	Untreated Distribution	$31,970
10	Meter Service	$20,000
11	Customer Service / Billing	$133,200
12	Conservation	$13,000
13	Board of Directors	$81,983
14	Administration	$1,237,280
15	Engineering	$705,698
16	Finance	$1,076,108
17	Non-Departmental	$612,086
18	Operations and Maintenance	$3,252,210
19	G&A	$97,000
20	**Total O&M**	**$8,566,645**

Next, these functions were further subdivided into each customer service type based on a series of allocation methodologies that were determined based on discussions with Agency staff. These allocation methodologies are seen in **Table 3-5.**

Table 3-5: O&M Allocation Methodology by Service Type

A	B	C	D	E	F	G	H	I	J
Allocation Methodology by Service Type	Treated Retail	Treated Wholes	Untreated Retail	All Usage	Treated Usage	EMUs	Customer	Assets	Retail
Treated Retail	100%	0%	0%	65%	64%	91%	97%	80%	89%
Treated Wholesale	0%	100%	0%	29%	36%	4%	0%	19%	0%
Untreated Retail	0%	0%	100%	6%	0%	5%	2%	1%	11%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

The determination of each function's percentage is shown below:

- **Treated Retail Only:** Allocated completely to Treated Retail.
- **Treated Wholesale Only:** Allocated completely to Treated Wholesale.
- **Untreated Retail Only:** Allocated completely to Untreated Retail.
- **All Usage:** Based on the percentage of usage by each service type.
- **Treated Usage:** Based on percentage of usage by Treated Service type only.
- **EMUs:** Based on percentage of equivalent meter units (EMUs) by service type.
- **Customers:** Based on percentage of meters by service type.
- **Assets:** Based on Replacement Cost asset value by service type.
- **Retail:** Based on the percentage of usage by Retail Service type (Treated and Untreated Retail).

Raftelis then applied an allocation methodology from **Table 3-5** to each function described in **Table 3-4** to determine the allocation of O&M expenses by customer service type. The allocation methodologies were selected based on discussion with the Agency Board and staff to determine the most appropriate split of O&M expenses. The methodologies selected can be seen in **Table 3-6**.

Table 3-6: Allocation Methodology by Service Type

A	B	C
Line	O&M Functions	Methodology
1	Supply	All Usage
2	Treated Transmission	Treated Usage
3	Untreated Transmission	All Usage
4	Water Treatment	Treated Usage
5	Treated Storage	Treated Retail Only
6	Untreated Storage	All Usage
7	Pumping	Treated Usage
8	Treated Distribution	Treated Retail Only
9	Untreated Distribution	Untreated Retail Only
10	Meter Service	EMUs
11	Customer Service / Billing	Customers
12	Conservation	Retail
13	Board of Directors	Customers
14	Administration	EMUs
15	Engineering	Assets
16	Finance	Customers
17	Non-Departmental	All Usage
18	Operations and Maintenance	All Usage
19	G&A	All Usage

After selecting these methodologies, the percentage of the respective function from **Table 3-5** is applied to the total amount attributed to each function in **Table 3-4.** For example, the Supply function total from Line 1 of **Table 3-4** is allocated to each service type by multiplying the percentage values from the "All Usage" allocation method from **Table 3-5**. So Treated Retail would receive 65% x $89,785 = $58,115, Treated Wholesale would

receive 29% x $89,785=$25,892, and Untreated Retail would receive 6% x $89,785=$5,778. The remaining functions are multiplied in a similar manner and the dollar allocations are shown in **Table 3-7**.

Table 3-7: Dollar Allocation by Service Type

A	B	C	D	E	F = C+D+E
Line	O&M Functions	Treated Retail	Treated Wholesale	Untreated Retail	Total
1	Supply	$58,115	$25,892	$5,778	$89,785
2	Treated Transmission	$76,237	$42,243	$0	$118,480
3	Untreated Transmission	$47,662	$21,235	$4,738	$73,635
4	Water Treatment	$375,788	$208,227	$0	$584,015
5	Treated Storage	$213,644	$0	$0	$213,644
6	Untreated Storage	$26,959	$12,011	$2,680	$41,650
7	Pumping	$4,182	$2,318	$0	$6,500
8	Treated Distribution	$178,403	$0	$0	$178,403
9	Untreated Distribution	$0	$0	$31,970	$31,970
10	Meter Service	$18,146	$765	$1,090	$20,000
11	Customer Service / Billing	$129,863	$93	$3,245	$133,200
12	Conservation	$11,570	$0	$1,430	$13,000
13	Board of Directors	$79,928	$57	$1,997	$81,983
14	Administration	$1,122,556	$47,297	$67,428	$1,237,280
15	Engineering	$565,940	$131,202	$8,556	$705,698
16	Finance	$1,049,145	$749	$26,214	$1,076,108
17	Non-Departmental	$396,188	$176,511	$39,387	$612,086
18	Operations and Maintenance	$2,105,075	$937,861	$209,274	$3,252,210
19	G&A	$62,786	$27,973	$6,242	$97,000
20	**Total**	**$6,522,185**	**$1,634,432**	**$410,028**	**$8,566,645**
21	*Percentage*	*76.1%*	*19.1%*	*4.8%*	*100.0%*

3.5. Allocation of O&M Functions to Cost Components

The next step of the cost of service analysis is to allocate the functionalized O&M expenses into the cost components as discussed in **Section 3.1** of the report. This analysis employs the Base-Extra Capacity method, under which water utility costs of service are assigned to basic functional cost components including:

- **Base costs** — fixed costs incurred to meet average demand. Base costs include operations and maintenance and capital costs under average (Base) demand conditions, a portion of operations and maintenance costs associated with storage, treatment, pumping and distributions facilities, and certain water capital cost investments.
- **Extra capacity or peaking costs (Max Day / Max Hour)** — fixed water system costs to meet Max Day and Max Hour, or peaking, demand. Extra capacity costs are associated with meeting water demands that exceed average (base) levels of use by system customers. These costs are incurred because of water use variations and peak demands of customers.
- **Customer Service** — costs of meter reading, billing, and other customer services.
- **Meter Service** — costs of meter maintenance/repair and some capacity-related costs.

- **Conservation** — costs associated with conservation/efficiency programs.
- **General** — represents all other costs that have a general or administrative function.

Column B of **Table 3-8** shows the allocation basis for each of the O&M functions which determines allocation of the cost causation component. These allocations are applied to each of the customer service types of functionalized costs as show in Columns C, D, and E in **Table 3-7.**

The percentages from the Max Day and Max Hour allocation bases were derived from the allocations established in **Table 3-2**. **Table 3-9**, **Table 3-10**, and **Table 3-11** show the dollar amount allocation after applying the relevant percentages from **Table 3-8** to the totals from Columns C, D, and E of **Table 3-7**, respectively. Note that Column K of **Table 3-9**, **Table 3-10**, and **Table 3-11** match the values of Columns C, D, and E on Line 20 of **Table 3-7** for the respective service type.

Table 3-8: O&M Expense Allocation by Cost Causation Component

A	B	C	D	E	G	H	I	J	K	L
O&M Expense Allocation by Cost Component	Allocation Basis	Supply	Base	Max Day	Max Hour	Customer Service	Meters	Conservation	General	Total
Percentage Allocation										
Supply	Base	0%	100%	0%	0%	0%	0%	0%	0%	100%
Treated Transmission	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	100%
Untreated Transmission	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	100%
Water Treatment	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	100%
Treated Storage	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	100%
Untreated Storage	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	100%
Pumping	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	100%
Treated Distribution	Max Day	0%	43%	22%	35%	0%	0%	0%	0%	100%
Untreated Distribution	Max Hour	0%	43%	22%	35%	0%	0%	0%	0%	100%
Meter Service	Meters	0%	0%	0%	0%	0%	100%	0%	0%	100%
Customer Service / Billing	Customer Service	0%	0%	0%	0%	100%	0%	0%	0%	100%
Fire Protection	Max Hour	0%	43%	22%	35%	0%	0%	0%	0%	100%
Conservation	Conservation	0%	0%	0%	0%	0%	0%	100%	0%	100%
Debt Service Costs	General	0%	0%	0%	0%	0%	0%	0%	100%	100%
Board of Directors	General	0%	0%	0%	0%	0%	0%	0%	100%	100%
Administration	General	0%	0%	0%	0%	0%	0%	0%	100%	100%
Engineering	General	0%	0%	0%	0%	0%	0%	0%	100%	100%
Finance	General	0%	0%	0%	0%	0%	0%	0%	100%	100%
Non-Departmental	General	0%	0%	0%	0%	0%	0%	0%	100%	100%
Operations and Maintenance	General	0%	0%	0%	0%	0%	0%	0%	100%	100%
G&A	General	0%	0%	0%	0%	0%	0%	0%	100%	100%

Table 3-9: Treated Retail Dollar Allocation

A	B	C	D	E	G	H	I	J	K
Treated Retail $ Allocation	**Supply**	**Base**	**Max Day**	**Max Hour**	**Customer Service**	**Meters**	**Conservation**	**General**	**Total**
$ Allocation									
Supply	$0	$58,115	$0	$0	$0	$0	$0	$0	**$58,115**
Treated Transmission	$0	$50,824	$25,412	$0	$0	$0	$0	$0	**$76,237**
Untreated Transmission	$0	$31,775	$15,887	$0	$0	$0	$0	$0	**$47,662**
Water Treatment	$0	$250,525	$125,263	$0	$0	$0	$0	$0	**$375,788**
Treated Storage	$0	$142,429	$71,215	$0	$0	$0	$0	$0	**$213,644**
Untreated Storage	$0	$17,973	$8,986	$0	$0	$0	$0	$0	**$26,959**
Pumping	$0	$2,788	$1,394	$0	$0	$0	$0	$0	**$4,182**
Treated Distribution	$0	$77,231	$38,615	$62,557	$0	$0	$0	$0	**$178,403**
Meter Service	$0	$0	$0	$0	$0	$18,146	$0	$0	**$18,146**
Customer Service / Billing	$0	$0	$0	$0	$129,863	$0	$0	$0	**$129,863**
Conservation	$0	$0	$0	$0	$0	$0	$11,570	$0	**$11,570**
Board of Directors	$0	$0	$0	$0	$0	$0	$0	$79,928	**$79,928**
Administration	$0	$0	$0	$0	$0	$0	$0	$1,122,556	**$1,122,556**
Engineering	$0	$0	$0	$0	$0	$0	$0	$565,940	**$565,940**
Finance	$0	$0	$0	$0	$0	$0	$0	$1,049,145	**$1,049,145**
Non-Departmental	$0	$0	$0	$0	$0	$0	$0	$396,188	**$396,188**
Operations and Maintenance	$0	$0	$0	$0	$0	$0	$0	$2,105,075	**$2,105,075**
G&A	$0	$0	$0	$0	$0	$0	$0	$62,786	**$62,786**
Total	**$0**	**$631,661**	**$286,773**	**$62,557**	**$129,863**	**$18,146**	**$11,570**	**$5,381,618**	**$6,522,185**
Treated Retail O&M Expense Allocation	*0.0%*	*9.7%*	*4.4%*	*1.0%*	*2.0%*	*0.3%*	*0.2%*	*82.5%*	***76.1%***

Table 3-10: Treated Wholesale Dollar Allocation

A	B	C	D	E	G	H	I	J	K
Treated Wholesale $ Allocation	**Supply**	**Base**	**Max Day**	**Max Hour**	**Customer Service**	**Meters**	**Conservation**	**General**	**Total**
$ Allocation									
Supply	$0	$25,892	$0	$0	$0	$0	$0	$0	**$25,892**
Treated Transmission	$0	$28,162	$14,081	$0	$0	$0	$0	$0	**$42,243**
Untreated Transmission	$0	$14,156	$7,078	$0	$0	$0	$0	$0	**$21,235**
Water Treatment	$0	$138,818	$69,409	$0	$0	$0	$0	$0	**$208,227**
Untreated Storage	$0	$8,007	$4,004	$0	$0	$0	$0	$0	**$12,011**
Pumping	$0	$1,545	$773	$0	$0	$0	$0	$0	**$2,318**
Meter Service	$0	$0	$0	$0	$0	$765	$0	$0	**$765**
Customer Service / Billing	$0	$0	$0	$0	$93	$0	$0	$0	**$93**
Board of Directors	$0	$0	$0	$0	$0	$0	$0	$57	**$57**
Administration	$0	$0	$0	$0	$0	$0	$0	$47,297	**$47,297**
Engineering	$0	$0	$0	$0	$0	$0	$0	$131,202	**$131,202**
Finance	$0	$0	$0	$0	$0	$0	$0	$749	**$749**
Non-Departmental	$0	$0	$0	$0	$0	$0	$0	$176,511	**$176,511**
Operations and Maintenance	$0	$0	$0	$0	$0	$0	$0	$937,861	**$937,861**
G&A	$0	$0	$0	$0	$0	$0	$0	$27,973	**$27,973**
Total	**$0**	**$216,581**	**$95,344**	**$0**	**$93**	**$765**	**$0**	**$1,321,650**	**$1,634,432**
Treated Wholesale O&M Expense Allocation	*0.0%*	*13.3%*	*5.8%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*80.9%*	***19.1%***

Table 3-11: Untreated Retail Dollar Allocation

A	B	C	D	E	G	H	I	J	K
Untreated Retail $ Allocation	**Supply**	**Base**	**Max Day**	**Max Hour**	**Customer Service**	**Meters**	**Conservation**	**General**	**Total**
$ Allocation									
Supply	$0	$5,778	$0	$0	$0	$0	$0	$0	**$5,778**
Untreated Transmission	$0	$3,159	$1,579	$0	$0	$0	$0	$0	**$4,738**
Untreated Storage	$0	$1,787	$893	$0	$0	$0	$0	$0	**$2,680**
Untreated Distribution	$0	$13,840	$6,920	$11,210	$0	$0	$0	$0	**$31,970**
Meter Service	$0	$0	$0	$0	$0	$1,090	$0	$0	**$1,090**
Customer Service / Billing	$0	$0	$0	$0	$3,245	$0	$0	$0	**$3,245**
Conservation	$0	$0	$0	$0	$0	$0	$1,430	$0	**$1,430**
Board of Directors	$0	$0	$0	$0	$0	$0	$0	$1,997	**$1,997**
Administration	$0	$0	$0	$0	$0	$0	$0	$67,428	**$67,428**
Engineering	$0	$0	$0	$0	$0	$0	$0	$8,556	**$8,556**
Finance	$0	$0	$0	$0	$0	$0	$0	$26,214	**$26,214**
Non-Departmental	$0	$0	$0	$0	$0	$0	$0	$39,387	**$39,387**
Operations and Maintenance	$0	$0	$0	$0	$0	$0	$0	$209,274	**$209,274**
G&A	$0	$0	$0	$0	$0	$0	$0	$6,242	**$6,242**
Total	**$0**	**$24,563**	**$9,393**	**$11,210**	**$3,245**	**$1,090**	**$1,430**	**$359,097**	**$410,028**
Untreated Retail O&M Expense Allocation	*0.0%*	*6.0%*	*2.3%*	*2.7%*	*0.8%*	*0.3%*	*0.3%*	*87.6%*	***4.8%***

3.6. Capital Functionalization

Like for O&M, capital costs are functionalized using similar functions, as was discussed in the previous section, applied to the Agency's asset list. The projected functionalized capital costs are shown in **Table 3-12**. For further detail please see **Appendix C**, which shows the step-by-step allocations for each function.

Table 3-12: Functionalized Capital Assets

A	B	C
Line	Capital Functions	2021
1	Supply	$4,784,110
2	Transmission	$45,938,291
3	Water Treatment	$84,795,550
4	Storage	$88,988,770
5	Distribution	$302,738,800
6	Meter Service	$7,684,000
7	Fire Protection	$14,583,481
8	G&A	$4,983,001
9	**Total**	**$554,496,002**

These functions were then grouped into each customer service type based on the total asset benefit that each service type receives from the various assets. This calculation was determined in the FY 2021 Amador Water Capacity Fee Study and the percentage allocations can be seen in Column I of **Table 3-5**. Applying the percentages of Column I to the total asset value in Column C of **Table 3-12,** Raftelis is able to allocate the functions to each service type seen in columns C, D and, E of **Table 3-13**.

Table 3-13: Capital Dollar Functionalization by Service Type

A	B	C	D	E	F = C+D+E
Line	O&M Functions	Treated Retail	Treated Wholesale	Untreated Retail	Total
1	Supply	$3,836,654	$889,451	$58,005	$4,784,110
2	Transmission	$36,840,563	$8,540,747	$556,980	$45,938,291
3	Water Treatment	$68,002,440	$15,765,004	$1,028,107	$84,795,550
4	Storage	$71,365,224	$16,544,598	$1,078,948	$88,988,770
5	Distribution	$242,783,695	$56,284,538	$3,670,567	$302,738,800
6	Meter Service	$6,162,243	$1,428,593	$93,165	$7,684,000
7	Fire Protection	$11,695,334	$2,711,329	$176,818	$14,583,481
8	G&A	$3,996,156	$926,429	$60,417	$4,983,001
9	**Total**	**$444,682,308**	**$103,090,688**	**$6,723,007**	**$554,496,002**
10	*Percentage*	*80.2%*	*18.6%*	*1.2%*	*100.0%*

3.7. Allocation of Capital Functions to Cost Components

A similar process to the one used for O&M is then applied to the capital functions. The same cost components detailed in **Section 3.5** are used to allocate the capital functions with the allocation basis being shown in **Table**

3-14. **Table 3-15**, **Table 3-16**, **Table 3-17** show the dollar allocation to each service type after applying the relevant percentages to each function shown in **Table 3-14**.

Table 3-18 summarizes the cost allocations that will be used to allocate the revenue requirements to the various cost components. Raftelis used the cost allocation for the O&M and capital assets allocation, shown in **Table 3-18**, to distribute the revenue requirement, shown in **Table 3-1**. The percentage of revenue that each customer service type makes up (Column L of **Table 3-18**) can be referenced in **Table 3-7** line 21 and **Table 3-13** line 10. As mentioned in **Section 3.2**, there is a debt component of rates that is allocated to each customer class. This component of the revenue requirement is determined by allocating the total debt service with the percentages associated with the Asset split as seen in Column I of **Table 3-5**.

Table 3-14: Capital Expense Allocation by Cost Causation Component

A	B	C	D	E	F	G	H	I	J	K
Capital Expense Allocation by Cost Component	Allocation Basis	Supply	Base	Max Day	Max Hour	Customer Service	Meters	Conservation	General	Total
Percentage Allocation										
Supply	Supply	0%	100%	0%	0%	0%	0%	0%	0%	100%
Transmission	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	100%
Water Treatment	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	100%
Storage	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	100%
Pumping	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	100%
Distribution	Max Day	0%	67%	33%	0%	0%	0%	0%	0%	100%
Meter Service	Meters	0%	0%	0%	0%	0%	100%	0%	0%	100%
Customer Service / Billing	Customer Service	0%	0%	0%	0%	100%	0%	0%	0%	100%
Fire Protection	Max Hour	0%	43%	22%	35%	0%	0%	0%	0%	100%
Conservation	Conservation	0%	0%	0%	0%	0%	0%	100%	0%	100%
Debt Service Costs	General	0%	0%	0%	0%	0%	0%	0%	100%	100%
Board of Directors	General	0%	0%	0%	0%	0%	0%	0%	100%	100%
Administration	General	0%	0%	0%	0%	0%	0%	0%	100%	100%
Engineering	General	0%	0%	0%	0%	0%	0%	0%	100%	100%
Finance	General	0%	0%	0%	0%	0%	0%	0%	100%	100%
Non-Departmental	General	0%	0%	0%	0%	0%	0%	0%	100%	100%
Operations and Maintenance	General	0%	0%	0%	0%	0%	0%	0%	100%	100%
G&A	General	0%	0%	0%	0%	0%	0%	0%	100%	100%

Table 3-15: Treated Retail Dollar Allocation Capital

A	B	C	D	E	F	G	H	I	J
Treated Retail Capital Allocation	**Supply**	**Base**	**Max Day**	**Max Hour**	**Customer Service**	**Meters**	**Conservation**	**General**	**Total**
$ Allocation									
Supply	$0	$3,836,654	$0	$0	$0	$0	$0	$0	$3,836,654
Transmission	$0	$24,560,376	$12,280,188	$0	$0	$0	$0	$0	$36,840,563
Water Treatment	$0	$45,334,960	$22,667,480	$0	$0	$0	$0	$0	$68,002,440
Storage	$0	$47,576,816	$23,788,408	$0	$0	$0	$0	$0	$71,365,224
Distribution	$0	$161,855,797	$80,927,898	$0	$0	$0	$0	$0	$242,783,695
Meter Service	$0	$0	$0	$0	$0	$6,162,243	$0	$0	$6,162,243
Fire Protection	$0	$5,062,915	$2,531,458	$4,100,961	$0	$0	$0	$0	$11,695,334
G&A	$0	$0	$0	$0	$0	$0	$0	$3,996,156	$3,996,156
Total	**$0**	**$288,227,517**	**$142,195,432**	**$4,100,961**	**$0**	**$6,162,243**	**$0**	**$3,996,156**	**$444,682,308**
Treated Retail Capital Expense Allocation	*0.0%*	*64.8%*	*32.0%*	*0.9%*	*0.0%*	*1.4%*	*0.0%*	*0.9%*	*80.2%*

Table 3-16: Treated Wholesale Dollar Allocation Capital

A	B	C	D	E	F	G	H	I	J
Treated Wholesale Capital Allocation	**Supply**	**Base**	**Max Day**	**Max Hour**	**Customer Service**	**Meters**	**Conservation**	**General**	**Total**
$ Allocation									
Supply	$0	$889,451	$0	$0	$0	$0	$0	$0	$889,451
Transmission	$0	$5,693,831	$2,846,916	$0	$0	$0	$0	$0	$8,540,747
Water Treatment	$0	$10,510,002	$5,255,001	$0	$0	$0	$0	$0	$15,765,004
Storage	$0	$11,029,732	$5,514,866	$0	$0	$0	$0	$0	$16,544,598
Distribution	$0	$37,523,025	$18,761,513	$0	$0	$0	$0	$0	$56,284,538
Meter Service	$0	$0	$0	$0	$0	$1,428,593	$0	$0	$1,428,593
Fire Protection	$0	$1,173,735	$586,868	$950,726	$0	$0	$0	$0	$2,711,329
G&A	$0	$0	$0	$0	$0	$0	$0	$926,429	$926,429
Total	**$0**	**$66,819,778**	**$32,965,163**	**$950,726**	**$0**	**$1,428,593**	**$0**	**$926,429**	**$103,090,688**
Treated Wholesale Capital Expense Allocation	*0.0%*	*64.8%*	*32.0%*	*0.9%*	*0.0%*	*1.4%*	*0.0%*	*0.9%*	*18.6%*

Table 3-17: Untreated Retail Dollar Allocation Capital

A	B	C	D	E	F	G	H	I	J
Untreated Retail Capital Allocation	**Supply**	**Base**	**Max Day**	**Max Hour**	**Customer Service**	**Meters**	**Conservation**	**General**	**Total**
$ Allocation									
Supply	$0	$58,005	$0	$0	$0	$0	$0	$0	$58,005
Transmission	$0	$371,320	$185,660	$0	$0	$0	$0	$0	$556,980
Water Treatment	$0	$685,404	$342,702	$0	$0	$0	$0	$0	$1,028,107
Storage	$0	$719,298	$359,649	$0	$0	$0	$0	$0	$1,078,948
Distribution	$0	$2,447,045	$1,223,522	$0	$0	$0	$0	$0	$3,670,567
Meter Service	$0	$0	$0	$0	$0	$93,165	$0	$0	$93,165
Fire Protection	$0	$76,545	$38,272	$62,001	$0	$0	$0	$0	$176,818
G&A	$0	$0	$0	$0	$0	$0	$0	$60,417	$60,417
Total	**$0**	**$4,357,618**	**$2,149,806**	**$62,001**	**$0**	**$93,165**	**$0**	**$60,417**	**$6,723,007**
Untreated Retail Capital Expense Allocation	*0.0%*	*64.8%*	*32.0%*	*0.9%*	*0.0%*	*1.4%*	*0.0%*	*0.9%*	*1.2%*

Table 3-18: Revenue Requirement Allocation Summary

A	B	C	D	E	F	G	H	I	J	K	L	M
Line	Revenue Requirement Allocation	Supply	Base	Max Day	Max Hour	Customer Service	Meters	Conservation	General	Debt	Total	% of Revenue Requirement
1	**Treated Retail**											
2	Operating	0.0%	9.7%	4.4%	1.0%	2.0%	0.3%	0.2%	82.5%	0.0%	100.0%	**76.1%**
3	Debt	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	**80.2%**
4	**Treated Wholesale**											
5	Operating	0%	13.3%	5.8%	0.0%	0.0%	0.0%	0.0%	80.9%	0.0%	100.0%	**19.1%**
6	Debt	0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	**18.6%**
7	**Untreated Retail**											
8	Operating	0%	6.0%	2.3%	2.7%	0.8%	0.3%	0.3%	87.6%	0.0%	100.0%	**4.8%**
9	Debt	0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	**1.2%**

3.8. Revenue Requirement Allocation to Cost Components

Table 3-19 shows the allocation of the revenue requirement to each customer service type. C1 is determined by allocating 76.1% of the operating revenue requirement in C4, and E1 is determined by allocating 80.2% of the debt service revenue requirement found in E4 to Treated Retail, as shown in lines 2 & 3 of **Table 3-18**. Likewise, C2 is determined by allocating 19.1% of the operating revenue requirement in C4, and E2 is determined by allocating 18.6% of the debt service revenue requirement in E4 to Treated Wholesale, as shown in lines 5 & 6 of **Table 3-18**. Finally, C3 is determined by allocating 4.8% of the operating revenue requirement in C4, and E3 is determined by allocating 1.2% of the debt service revenue requirement in cell E4 to Untreated Retail, as shown in lines 8 & 9 of **Table 3-18**.

Table 3-19: Revenue Requirement by Service Type

A	B	C	D	E
Line	Revenue Requirements	Operating	Debt Service	Total
1	Treated Retail	$5,042,001	$2,088,676	$7,130,677
2	Treated Wholesale	$1,263,504	$484,218	$1,747,722
3	Untreated Retail	$316,974	$31,578	$348,552
4	**Total**	**$6,622,479**	**$2,604,471**	**$9,226,951**

The next step is to distribute these revenue requirements to the cost components shown in **Table 3-18** by customer service type.

Raftelis used the percentages for O&M shown in the "Operating" row of **Table 3-18,** to distribute the revenue requirement, shown in **Table 3-19** to the cost components of each service type. The debt revenue requirement is allocated directly to the debt component and is calculated in **Section 4.3.**

Table 3-20, Table 3-21, Table 3-22 show this allocation which starts with distributing the operating revenue requirement to the cost components. The operating revenue requirement[2] is allocated to the cost components using the calculated O&M allocation percentages from **Table 3-18**. The debt costs were entirely allocated to the debt surcharge component.

The final part of revenue requirement allocation from **Table 3-20, Table 3-21, Table 3-22** shows the redistribution of general and administrative costs, to the remaining cost components. General costs are reallocated to all cost components by dividing the total amount into each cost component based on the proportion of total costs. For example, the equation used to determine the Base-related General cost reallocation is as follows:

General Costs x Base Costs / Total Costs less General = Base portion of General costs

Raftelis reallocated the general and administrative costs to the rest of the cost components using the above formula. The final revenue requirement distribution by cost component is derived in the final rows named "Total Adjusted COS" in **Table 3-20, Table 3-21, Table 3-22.**

[2] The operating revenue requirement shown in the first cell of the last column of **Table 3-20, Table 3-22, Table 3-24** represents the total adjusted operating revenue requirement from **Table 3-19**.

3.8.1. TREATED RETAIL ADJUSTED COST OF SERVICE

Table 3-20: Treated Retail Adjusted Cost of Service

A	B	C	D	E	F	G	H	I	J	K
Treated Retail Cost of Service	**Supply**	**Base**	**Max Day**	**Max Hour**	**Customer Service**	**Meters**	**Conservation**	**General**	**Debt**	**Total**
Operating Revenue Requirement	$0	$488,308	$221,691	$48,360	$100,391	$14,027	$8,944	$4,160,281	$0	$5,042,001
Debt Revenue Requirement	$0	$0	$0	$0	$0	$0	$0	$0	$2,088,676	$2,088,676
Total Cost of Service	**$0**	**$488,308**	**$221,691**	**$48,360**	**$100,391**	**$14,027**	**$8,944**	**$4,160,281**	**$2,088,676**	**$7,130,677**
Allocation of General	$0	$2,304,015	$1,046,018	$228,180	$473,681	$66,187	$42,200	($4,160,281)		$0
Total Adjusted COS	**$0**	**$2,792,323**	**$1,267,709**	**$276,539**	**$574,071**	**$80,214**	**$51,144**	**$0**	**$2,088,676**	**$7,130,677**

3.8.2. TREATED WHOLESALE ADJUSTED COST OF SERVICE

Table 3-21: Treated Wholesale Adjusted Cost of Service

A	B	C	D	E	F	G	H	I	J	K
Treated Retail Cost of Service	**Supply**	**Base**	**Max Day**	**Max Hour**	**Customer Service**	**Meters**	**Conservation**	**General**	**Debt**	**Total**
Operating Revenue Requirement	$0	$167,429	$73,706	$0	$72	$591	$0	$1,021,706	$0	$1,263,504
Debt Revenue Requirement	$0	$0	$0	$0	$0	$0	$0	$0	$484,218	$484,218
Total Cost of Service	**$0**	**$167,429**	**$73,706**	**$0**	**$72**	**$591**	**$0**	**$1,021,706**	**$484,218**	**$1,747,722**
Allocation of General	$0	$707,463	$311,443	$0	$303	$2,497	$0	($1,021,706)		$0
Total Adjusted COS	**$0**	**$874,891**	**$385,150**	**$0**	**$374**	**$3,088**	**$0**	**$0**	**$484,218**	**$1,747,722**

3.8.3. UNTREATED RETAIL ADJUSTED COST OF SERVICE

Table 3-22: Untreated Retail Adjusted Cost of Service

A	B	C	D	E	F	G	H	I	J	K
Treated Retail Cost of Service	**Supply**	**Base**	**Max Day**	**Max Hour**	**Customer Service**	**Meters**	**Conservation**	**General**	**Debt**	**Total**
Operating Revenue Requirement	$0	$18,988	$7,261	$8,666	$2,508	$843	$1,106	$277,602	$0	$316,974
Debt Revenue Requirement	$0	$0	$0	$0	$0	$0	$0	$0	$31,578	$31,578
Total Cost of Service	**$0**	**$18,988**	**$7,261**	**$8,666**	**$2,508**	**$843**	**$1,106**	**$277,602**	**$31,578**	**$348,552**
Allocation of General	$0	$133,881	$51,195	$61,102	$17,685	$5,941	$7,797	($277,602)		$0
Total Adjusted COS	**$0**	**$152,870**	**$58,456**	**$69,768**	**$20,194**	**$6,783**	**$8,903**	**$0**	**$31,578**	**$348,552**

3.9. Fixed versus Volumetric Cost Recovery

According to the M1 Manual, the cost of service approach to setting water rates results in the proportionate distribution of costs to each customer or customer class based on the costs that each incurs. A dual set of fees—fixed and variable—is an extension of this cost causation theory These types of costs are referred to as customer-related costs and typically are costs that would be recovered through a fixed charge. These costs are usually recovered on a per-customer basis or some other non-consumptive basis. Regardless of the level of a customer's consumption, a customer will be charged this minimum amount in each bill.

Utilities invest in and continue to maintain facilities to provide capacity to meet all levels of desired consumption including the peak demand, and these costs must be recovered regardless of the amount of water used during a given period. Thus, peaking costs along with base costs and fixed water system costs to meet average demand are generally considered as fixed water system costs. It is ideal that agencies recover all of their fixed costs through monthly base fees; however, this methodology comes at the expense of affordability for essential use and heavily impacts efficient users. To balance between affordability and revenue stability, it is a common practice that a portion of the base costs and peaking costs are recovered in the monthly base fee along with customer-related costs and meter-related costs.

Through a cost of service analysis, Raftelis identified three fixed rate components to include in the proposed fixed charges and four commodity rate components to include in the proposed commodity rates. **Table 3-27**, **Table 3-28**, and **Table 3-29** show the distribution of the total revenue requirement between fixed and variable rates with shares of 60 percent and 40 percent respectively. This percentage is achieved by allocating a certain percentage of Base costs to the Meter component so that each service type recovers the same percentage of fixed and variable revenue. The delivery, conservation, and peaking costs are recovered from commodity charges.

Meter service costs and billing and customer service costs are recovered from fixed charges. The debt service costs, which are also part of the revenue requirements, will continue to be recovered by a debt service charge.

3.10. Derivation of Cost Component Units (Service Units) and Unit Cost Calculation

The Agency's rate structure consists of commodity rates, fixed charges, and a debt service charge. Commodity charges are charges per unit of water sold, while fixed charges do not vary with water use. This section calculates the service units and the unit rate by cost component.

At the beginning of **Section 3**, we described typical cost components. The ones applicable to this study are:

- **Meter Service -** Fixed
- **Customer Service** - Fixed
- **Base** - Variable
- **Max Day -** Variable
- **Max Hour** - Variable
- **Conservation -** Variable
- **Debt -** Fixed

The proposed commodity charges will collect the following cost components: Base, Max Day, Max Hour, and Conservation. The monthly fixed service charge will consist of the following cost components: Meter Service and Customer Service. The Debt Service Surcharge will be completely recovered from the Debt cost component.

Table 3-23 shows the derivation of the units of service for each of these cost components in Columns C, F and I respectively. The Max Day and Max Hour extra capacity requirements are in ccf per day and are the amount of water demanded during the peak day and hour. Raftelis derived the Max Day and Max Hour requirements as detailed in the top row of **Table 3-23**. These calculations convert monthly peaking factors into Max Day and Max Hour requirements. The values for column D come from the values in the **Table 3-3** column F where the values for Column G of **Table 3-23** come from multiplying the values in column D of **Table 3-23** by the system wide Max Hour / System Wide Max Day factors. (Column D * 2.31/1.50). This calculation converts the customer max day peaking factor into a max hour factor.

Table 3-23: Water Usage and Capacity

A	B	C = B/365	D	E = C*D	F = E-C	G	H = C*G	I = H-C
			Max Day			Max Hour		
Customer Class	FY 2021 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)
Mule Creek	248,824	682	1.38	941	259	2.13	1,449	508
Treated Retail	1,020,925	2,797	1.60	4,475	1,678	2.46	6,892	2,417
Treated Wholesale	565,703	1,550	1.54	2,387	837	2.37	3,676	1,289
Untreated Retail	126,231	346	1.87	647	301	2.88	996	349
Total	**1,961,683**			**8,450**	**3,075**		**13,012**	**4,563**

Table 3-24, **Table 3-25**, **Table 3-26**, shows the derivation of service units for the Customer Service cost component and the Meter service component – shown at the bottom of each table. The number of bills is equal to the number of meters times 12 (months). Customer Service costs are distributed among customers based on the total number of bills in a test year; these costs are the same for each customer and usually do not depend on the size of the meter. The total number of meters and bills can be referenced in the financial plan section of this report in **Table 2-13**, **Table 2-14**, and **Table 2-15** and in the below tables.

Meter service costs are recovered in proportion to meter size since meter repair and replacement costs are proportional to meter size. Meter size is also a proxy for the potential demand that each customer places on the water system. The unit of service for Meter costs is the number of hydraulically equivalent meters shown at the bottom of **Table 3-24**, **Table 3-25**, **Table 3-26**. The number of equivalent meters is subsequently annualized for each service type in **Table 3-27**, **Table 3-28**, **Table 3-29**.

The Agency's most common meter is a 5/8" meter. The ratio at which the meter charge increases is a function of the meter's safe operating capacity. For example, based on the AWWA meter capacity ratios, a customer that has a 1-inch meter has the capacity equivalency of two and a half 5/8" meters. A 1-inch meter has a safe operating capacity of 50 gallons per minute (gpm) compared to a 5/8" meter which has a safe operating capacity of 20 gpm as listed in Table B-1 in the M1 Manual. Because a 1-inch meter has 2.5 times the throughput capacity of a 5/8" meter it has a multiplication factor of 2.5 which is how we determine its EMU or equivalent meter unit to 5/8" meter. The capacity factor escalates as meter size increases because the Agency's cost to service a meter increases with its size. This number is then multiplied with the meter counts seen in Column E of **Table 3-24** to derive the equivalent meter units. The distribution of meter service and capacity costs using equivalent meters recognizes that meter service and capacity costs are proportional to the service connection size (meter size).

Table 3-24: Treated Retail Number of Bills and Equivalent Meters

A	B	C	D	E	F = D*E	G = E*12
Line	Meter Size	Capacity (gpm)	AWWA Ratio	FY 2021 Meter Count	Equivalent Meters	Annual Bills
1	**Treated Retail**					
2	5/8 inch	20	1.00	6,438	6,438	77,256
3	3/4 inch	30	1.50	260	390	3,120
4	1 inch	50	2.50	226	565	2,712
5	1-1/2 inch	100	5.00	34	170	408
6	2 inch	160	8.00	33	264	396
7	3 inch	350	17.50	3	53	36
8	4 inch	630	31.50	4	126	48
9	6 inch	1600	80.00	5	400	60
10	**Total Treated Retail Less Mule**			**7,003**	**8,406**	**84,036**
11						
12	**Mule Creek**					
13	10 inch	4200	210	1	210	12
14	**Total Mule Creek**			**1**	**210**	**12**
15	**Treated Retail Total**			**7,004**	**8,616**	**84,048**

Table 3-25: Treated Wholesale Number of Bills and Equivalent Meters

A	B	C	D	E	F	G
Line	Meter Size	Capacity (gpm)	AWWA Ratio	FY 2021 Meter Count	Equivalent Meters	Annual Bills
1	**Treated Wholesale**					
2	4 inch	630	31.50	2	63	24
3	6 inch	1600	80.00	2	160	24
4	8 inch	2800	140.00	1	140	12
5	**Total Treated Wholesale**			**5**	**363**	**60**

Table 3-26: Untreated Retail Number of Bills and Equivalent Meters

A	B	C	D	E	F	G
Line	Meter Size	Capacity (gpm)	AWWA Ratio	FY 2021 Meter Count	Equivalent Meters	Annual Bills
1	**Untreated Retail**					
2	5/8 inch	20	1.00	110	110	1,320
3	3/4 inch	30	1.50	15	23	180
4	1 inch	50	2.50	30	75	360
5	1-1/2 inch	100	5.00	7	35	84
6	2 inch	160	8.00	6	48	72
7	3 inch	350	17.50	3	53	36
8	4 inch	630	31.50	3	95	36
9	6 inch	1600	80.00	1	80	12
10	**Total Untreated Retail**			**175**	**518**	**2,100**

Table 3-27, **Table 3-28**, **Table 3-29** derives the cost component unit costs by dividing the Final Adjusted Cost of Service component by the units of service. It is important to note that the units of service in Treated Retail include Mule Creek, which will be consolidated into the Treated Retail customer class.

3.10.1. TREATED RETAIL UNIT COST DERIVATION

Table 3-27: Treated Retail Unit Cost Derivation

A	B	C	D	E	F	G	H	I	J	K
Adjusted Cost of Service Allocation Treated Retail	**Cost of Service**	**Meters**	**Customer Service**	**Supply**	**Base**	**Max Day**	**Max Hour**	**Conservation**	**Debt**	**Total**
Supply	$0	0%	0%	100%	0%	0%	0%	0%	0%	100%
Base	$2,792,323	35%	0%	0%	65%	0%	0%	0%	0%	100%
Max Day	$1,267,709	35%	0%	0%	0%	65%	0%	0%	0%	100%
Max Hour	$276,539	35%	0%	0%	0%	0%	65%	0%	0%	100%
Customer Service	$574,071	0%	100%	0%	0%	0%	0%	0%	0%	100%
Meters	$80,214	100%	0%	0%	0%	0%	0%	0%	0%	100%
Conservation	$51,144	0%	0%	0%	100%	0%	0%	0%	0%	100%
Debt	$2,088,676	0%	0%	0%	0%	0%	0%	0%	100%	100%
Final Adjusted COS Allocation	**$7,130,677**	**$1,598,014**	**$574,071**	**$0**	**$1,866,154**	**$824,011**	**$179,751**	**$0**	**$2,088,676**	**$7,130,677**
Units of Service		103,386	84,048	1,269,749	1,269,749	1,937	2,925	1,269,749		
		EMU/yr	Bills / Yr	hcf	hcf	hcf/day	hcf/day	hcf		
Unit Cost		$15.46	$6.83	$0.00	$1.47	$425.34	$61.46	$0.00		
		per EMU	per Bill	per hcf	per hcf	per hcf/day	per hcf/day	per hcf		

3.10.2. TREATED WHOLESALE UNIT COST DERIVATION

Table 3-28: Treated Wholesale Unit Cost Derivation

A	B	C	D	E	F	G	H	I	J	K
Adjusted Cost of Service Allocation Treated Retail	**Cost of Service**	**Meters**	**Customer Service**	**Supply**	**Base**	**Max Day**	**Max Hour**	**Conservation**	**Debt**	**Total**
Supply	$0	0%	0%	100%	0%	0%	0%	0%	0%	100%
Base	$874,891	45%	0%	0%	55%	0%	0%	0%	0%	100%
Max Day	$385,150	45%	0%	0%	0%	55%	0%	0%	0%	100%
Max Hour	$0	45%	0%	0%	0%	0%	55%	0%	0%	100%
Customer Service	$374	0%	100%	0%	0%	0%	0%	0%	0%	100%
Meters	$3,088	100%	0%	0%	0%	0%	0%	0%	0%	100%
Conservation	$0	0%	0%	0%	100%	0%	0%	0%	0%	100%
Debt	$484,218	0%	0%	0%	0%	0%	0%	0%	100%	100%
Final Adjusted COS Allocation	**$1,747,722**	**$570,107**	**$374**	**$0**	**$481,190**	**$211,832**	**$0**	**$0**	**$484,218**	**$1,747,722**
Units of Service		4,356	60	565,703	565,703	837	1,289	565,703		
		EMU/yr	Bills / Yr	hcf	hcf	hcf/day	hcf/day	hcf		
Unit Cost		$130.88	$6.24	$0.00	$0.85	$253.11	$0.00	$0.00		
		per EMU	per Bill	per hcf	per hcf	per hcf/day	per hcf/day	per hcf		

3.10.3. UNTREATED RETAIL UNIT COST DERIVATION

Table 3-29: Untreated Retail Unit Cost Derivation

A	B	C	D	E	F	G	H	I	J	K
Adjusted Cost of Service Allocation Treated Retail	**Cost of Service**	**Meters**	**Customer Service**	**Supply**	**Base**	**Max Day**	**Max Hour**	**Conservation**	**Debt**	**Total**
Supply	$0	0%	0%	100%	0%	0%	0%	0%	0%	100%
Base	$152,870	50%	0%	0%	50%	0%	0%	0%	0%	100%
Max Day	$58,456	50%	0%	0%	0%	50%	0%	0%	0%	100%
Max Hour	$69,768	50%	0%	0%	0%	0%	50%	0%	0%	100%
Customer Service	$20,194	0%	100%	0%	0%	0%	0%	0%	0%	100%
Meters	$6,783	100%	0%	0%	0%	0%	0%	0%	0%	100%
Conservation	$8,903	0%	0%	0%	100%	0%	0%	0%	0%	100%
Debt	$31,578	0%	0%	0%	0%	0%	0%	0%	100%	100%
Final Adjusted COS Allocation	**$348,552**	**$147,330**	**$20,194**	**$0**	**$85,338**	**$29,228**	**$34,884**	**$0**	**$31,578**	**$348,552**
Units of Service		6,210	2,100	126,231	126,231	301	349	126,231		
		EMU/yr	Bills / Yr	hcf	hcf	hcf/day	hcf/day	hcf		
Unit Cost		$23.72	$9.62	$0.00	$0.68	$97.14	$99.89	$0.00		
		per EMU	per Bill	per hcf	per hcf	per hcf/day	per hcf/day	per hcf		

Table 3-30 summarizes the final dollar allocations of costs to each customer class by cost component.

Table 3-30: Allocation of Costs to Customer Classes

A	B	C	D	E	F	G	H	I	J
Customer Class	**Meters**	**Customer Service**	**Supply**	**Base**	**Max Day**	**Max Hour**	**Conservation**	**Debt**	**Total**
Treated Retail	$1,598,014	$574,071	$0	$1,866,154	$824,011	$179,751	$0	$2,088,676	$7,130,677
Treated Wholesale	$570,107	$374	$0	$481,190	$211,832	$0	$0	$484,218	$1,747,722
Untreated Retail	$147,330	$20,194	$0	$85,338	$29,228	$34,884	$0	$31,578	$348,552
Total	**$2,315,452**	**$594,640**	**$0**	**$2,432,682**	**$1,065,071**	**$214,635**	**$0**	**$2,604,471**	**$9,226,951**

4. Proposed Rates

4.1. Monthly Service Charge

In order to create parity across the various meter sizes, each meter size is assigned a factor relative to a 5/8" meter, which has a value of 1. According to the AWWA M1 Manual, a particular meter size's ratio of meter and capacity servicing costs relative to that of a 5/8" meter is its EMU. For example, as noted earlier, a 1-inch meter has 2.5 times the throughput capacity of a 5/8" meter and, therefore, has a multiplication factor of 2.5 to determine its equivalency to a 5/8" meter. The capacity factor escalates as meter size increases because the Agency's cost to service a meter increases with its size.

For Treated Retail and Untreated Retail Customers, the monthly service charge components include two components: Customer Service, which is uniform for all accounts based on service type; and Meter, which increases based on meter capacity ratios. Since the cost of Customer Service does not fluctuate with usage, the unit cost is simply the line item's revenue requirement divided by the number of bills issued. Meter costs do increase with capacity of usage for each meter size; therefore, the revenue requirement must be divided by the EMUs to determine the unit rate.

The cost of service monthly service charges proposed for FY 2021 are calculated by adding up the monthly service charge components – Customer Service and Meters. As noted above, the Customer Service cost is the same for each account regardless of meter size based on service type. The Meter component of the monthly base fee is determined by multiplying the unit cost of the respective service type (e.g. for Treated Retail $15.46) (found in **Table 3-27**) by the appropriate meter factor found in Column B of **Table 4-1** and **Table 4-2**. Adding these two components together yields the total cost of service monthly base fee for each meter size for FY 2021, as shown in Column E of **Table 4-1** and **Table 4-2** below.

4.1.1. TREATED RETAIL MONTHLY SERVICE CHARGE

Table 4-1: Treated Retail Cost of Service Monthly Service Charge

A	B	C	D	E	F	G	H
Meter Size	Capacity Ratio	Meters	Customer Service	Proposed Monthly Charge	Current Monthly Charge	Difference ($)	Difference (%)
Treated Retail							
5/8 inch	1.00	$15.46	$6.83	$22.29	$26.34	($4.05)	-15%
3/4 inch	1.50	$23.19	$6.83	$30.02	$36.34	($6.32)	-17%
1 inch	2.50	$38.64	$6.83	$45.47	$56.31	($10.84)	-19%
1-1/2 inch	5.00	$77.28	$6.83	$84.11	$106.29	($22.18)	-21%
2 inch	8.00	$123.65	$6.83	$130.48	$166.26	($35.78)	-22%
3 inch	17.50	$270.49	$6.83	$277.32	$326.17	($48.85)	-15%
4 inch	31.50	$486.89	$6.83	$493.72	$506.07	($12.35)	-2%
6 inch	80.00	$1,236.54	$6.83	$1,243.37	$1,005.82	$237.55	24%
8 inch	140.00	$2,163.95	$6.83	$2,170.78	N/A	N/A	N/A
10 inch	210.00	$3,245.92	$6.83	$3,252.75	N/A	N/A	N/A

4.1.2. UNTREATED RETAIL MONTHLY SERVICE CHARGE

Table 4-2: Untreated Retail Cost of Service Monthly Service Charge

A	B	C	D	E	F	G	H
Meter Size	Capacity Ratio	Meters	Customer Service	Proposed Monthly Charge	Current Monthly Charge	Difference ($)	Difference (%)
Untreated Retail							
5/8 inch	1.00	$23.72	$9.62	$33.34	$26.34	$7.00	27%
3/4 inch	1.50	$35.59	$9.62	$45.20	$36.34	$8.86	24%
1 inch	2.50	$59.31	$9.62	$68.93	$56.32	$12.61	22%
1-1/2 inch	5.00	$118.62	$9.62	$128.24	$106.29	$21.95	21%
2 inch	8.00	$189.80	$9.62	$199.41	$166.26	$33.15	20%
3 inch	17.50	$415.18	$9.62	$424.80	$326.17	$98.63	30%
4 inch	31.50	$747.33	$9.62	$756.94	$506.07	$250.87	50%
6 inch	80.00	$1,897.98	$9.62	$1,907.59	$1,005.82	$901.77	90%

4.1.3. TREATED WHOLESALE MONTHLY SERVICE CHARGE

Treated Wholesale customers also have a monthly service charge which is derived by allocating the Customer Service and Meter cost components seen in **Table 4-3** to each Wholesale customer. The Treated Wholesale monthly service charge is based on the percentage of peaking each wholesale customer is responsible for and is converted into a monthly rate by dividing by 12. Raftelis used a five-year average peaking percentage from usage data provided by Agency staff to smooth out any anomalous years. This calculation can be seen in **Table 4-4.** The values for the peaking capacity were derived by multiplying each customer's total annual use each year by that customer's specific peaking factor which was derived by dividing the Max Usage for the month by the average usage as explained in **Section 3.3**. The percentages and proposed monthly service charges can be seen in Columns B and C of **Table 4-5**.

Table 4-3: Wholesale Fixed Service Charge Components

A	B	C	D
Customer Class	Meters	Customer Service	Total
Treated Wholesale	$570,107	$374	$570,481

Table 4-4: 5 Year Peaking Average

A	B	C	D	E	F	G
Peaking Capacity	City of Jackson	First Mace Meadow	Pine Grove CSD	Drytown	Plymouth	Total
2016	616,644	41,208	73,464	25,908	158,628	915,852
2017	584,916	52,284	79,584	33,648	141,456	891,888
2018	616,956	50,376	81,048	26,040	148,692	923,112
2019	599,052	45,732	71,280	25,644	130,008	871,716
2020	646,800	53,868	78,696	30,492	163,932	973,788
% of Peaking	City of Jackson	Mace Meadow	Pine Grove	Drytown	Plymouth	Total
2016	67%	4%	8%	3%	17%	100%
2017	66%	6%	9%	4%	16%	100%
2018	67%	5%	9%	3%	16%	100%
2019	69%	5%	8%	3%	15%	100%
2020	66%	6%	8%	3%	17%	100%
5 Yr Avg	**67%**	**5%**	**8%**	**3%**	**16%**	**67%**

Table 4-5: Treated Wholesale Cost of Service Monthly Service Charge

A	B	C	D	E	F
Service Area	% of Peak Use	Proposed Monthly Charge	Current Monthly Charge	Difference ($)	Difference (%)
Treated Wholesale					
Pine Grove	8%	$3,989.82	$2,846.51	$1,143.31	40%
Mace Meadows	5%	$2,529.20	$1,793.04	$736.16	41%
Jackson	67%	$31,833.28	$20,439.95	$11,393.33	56%
Drytown	3%	$1,472.34	$1,192.93	$279.41	23%
Plymouth	16%	$7,715.49	$5,793.24	$1,922.25	33%

4.2. Commodity Charges

The proposed commodity charge is derived from the sum of the Base and Peaking costs components from **Table 3-30**. The unit cost for Base is derived in **Table 3-27**, **Table 3-28**, **Table 3-29.** The Peaking component of the rate is derived in **Table 4-6**. The amounts are derived by adding the Max Day and Max Hour costs from Columns F and G **Table 3-30** and can be referenced in the table below. Because the rate is uniform, the sum of the peaking costs is simply divided by the annual use of each customer service type to derive the unit cost, as all water is charged at the same rate. **Table 4-7** shows the cost of service commodity charge for each customer service type.

Table 4-6: Peaking Unit Derivation

A	B	C	D = C/B
Customer Class	Annual Use (hcf)	Peaking Costs	Peaking Unit Costs ($/hcf)
Treated Retail	1,269,749	$1,003,761	$0.79
Treated Wholesale	565,703	$211,832	$0.37
Untreated Retail	126,231	$64,112	$0.51
Total	**1,961,683**	**$1,279,706**	

Table 4-7: Cost of Service Commodity Charges by Service Type

A	B	C	D = B+C	E	F	G
Customer Class	Base	Peaking	Proposed Commodity Rate ($/hcf)	Current Commodity Rate ($/hcf)	Difference ($)	Difference (%)
Treated Retail	$1.47	$0.79	$2.26	$2.44	($0.18)	-7%
Treated Wholesale	$0.85	$0.37	$1.23	$1.35	($0.12)	-9%
Untreated Retail	$0.68	$0.51	$1.18	$1.11	$0.07	7%

4.3. Debt Service Rate

As mentioned in **Section 3.2.3**, the Agency maintains a debt service charge that is based on the geographic service area of the customer. Amador assesses the debt service rate to four service areas:

- Amador Water System
- Central Amador Water Project
- La Mel
- Lake Camanche

Each customer service type pays this rate in addition to their monthly service charge. **Table 4-8** highlights the debt service obligation for each customer service type which was shown in **Table 3-19.** The debt service amounts reflect the percentage split between customer service types determined based on asset value shown in Column I of **Table 3-5**.

Table 4-8: Debt Service Obligation by Customer

A	B	C
Line	Revenue Requirements	Debt Service
1	Treated Retail	$2,088,676
2	Treated Wholesale	$484,218
3	Untreated Retail	$31,578
4	**Total**	**$2,604,471**

4.3.1. TREATED RETAIL DEBT SERVICE CHARGE

Raftelis worked with Agency staff to determine the percent allocation to each service area. The percentages were derived by looking at each external loan obligation and determining the percentage of the total amount that benefited each service area. The calculations can be seen in Appendix D. Note that Debt that could not be attributed to a specific service area was allocated to the General category, which is to be applied uniformly to customers in all service areas. The percent allocation for each service area as well as the debt service amount is shown in **Table 4-9**. Raftelis also calculated the EMUs by service area which match the total EMUs found in **Table 3-24**. These EMUs are found in Column D of **Table 4-9** and total 8,616.

Table 4-9: Treated Retail Debt Service Charge

A	B	C	D	E	G
Service Area	% Allocation to Service Area	FY 2021 Debt Service	Equivalent Meters	$/EMU per Month	$/EMU per Month + General
Treated Retail					
AWS	61.0%	$1,273,211	4,726	**$22.45**	**$25.41**
CAWP	24.0%	$500,440	3,104	**$13.44**	**$16.39**
La Mel	0.5%	$9,447	55	**$14.31**	**$17.27**
Lake Camanche	0.0%	$0	731	**$0.00**	**$2.96**
General	14.6%	$305,578	8,616	**$2.96**	
Total	**100%**	**$2,088,676**			

Like the monthly service charge, the debt service charge is also based on EMUs. The capacity ratio escalates as meter size increases because the Agency's cost to service a meter increases with its size. Larger meters should therefore pay a larger portion of the debt service amount. **Table 4-9** Column E derives the EMU charge for a 5/8" meter, where **Table 4-9** Column G adds on the general cost to each customer class which is ultimately equal to the proposed 5/8" meter charge for each service area. This charge is escalated in a similar manner to the Treated Retail monthly service charge for each service area. **Table 4-10**, **Table 4-11**, **Table 4-12**, **Table 4-13** show the proposed debt service rates for Treated Retail.

Table 4-10: Treated Retail Debt Service Charge AWS

A	B	C	D	E	F
Meter Size	Capacity Ratio	Proposed Debt Service Charge	Current Debt Service Charge	Difference ($)	Difference (%)
Treated Retail - AWS					
5/8 inch	1.00	$25.41	$13.29	$12.12	91%
3/4 inch	1.50	$38.11	$19.94	$18.17	91%
1 inch	2.50	$63.52	$33.23	$30.29	91%
1-1/2 inch	5.00	$127.03	$66.45	$60.58	91%
2 inch	8.00	$203.25	$106.32	$96.93	91%
3 inch	17.50	$444.61	$212.64	$231.97	109%
4 inch	31.50	$800.29	$332.25	$468.04	141%
6 inch	80.00	$2,032.49	$664.50	$1,367.99	206%
8 inch	140.00	$3,556.86	N/A	N/A	N/A
10 inch	210.00	$5,335.30	N/A	N/A	N/A

Table 4-11: Treated Retail Debt Service Charge CAWP

A	B	C	D	E	F
Meter Size	Capacity Ratio	Proposed Debt Service Charge	Current Debt Service Charge	Difference ($)	Difference (%)
Treated Retail - CAWP					
5/8 inch	1.00	$16.39	$13.29	$3.10	23%
3/4 inch	1.50	$24.59	$19.94	$4.65	23%
1 inch	2.50	$40.98	$33.23	$7.75	23%
1-1/2 inch	5.00	$81.97	$66.45	$15.52	23%
2 inch	8.00	$131.15	$106.32	$24.83	23%
3 inch	17.50	$286.88	$212.64	$74.24	35%
4 inch	31.50	$516.39	$332.25	$184.14	55%
6 inch	80.00	$1,311.46	$664.50	$646.96	97%
8 inch	140.00	$2,295.05	N/A	N/A	N/A
10 inch	210.00	$16.39	N/A	N/A	N/A

Table 4-12: Treated Retail Debt Service Charge La Mel

A	B	C	D	E	F
Meter Size	Capacity Ratio	Proposed Debt Service Charge	Current Debt Service Charge	Difference ($)	Difference (%)
Treated Retail – La Mel					
5/8 inch	1.00	$17.27	$13.29	$3.98	30%
3/4 inch	1.50	$25.90	$19.94	$5.96	30%
1 inch	2.50	$43.17	$33.23	$9.94	30%
1-1/2 inch	5.00	$86.35	$66.45	$19.90	30%
2 inch	8.00	$138.15	$106.32	$31.83	30%
3 inch	17.50	$302.21	$212.64	$89.57	42%
4 inch	31.50	$543.98	$332.25	$211.73	64%
6 inch	80.00	$1,381.53	$664.50	$717.03	108%
8 inch	140.00	$2,417.68	N/A	N/A	N/A
10 inch	210.00	$17.27	N/A	N/A	N/A

Table 4-13: Treated Retail Debt Service Charge Lake Camanche

A	B	C	D	E	F
Meter Size	Capacity Ratio	Proposed Debt Service Charge	Current Debt Service Charge	Difference ($)	Difference (%)
Treated Retail – Lake Camanche					
5/8 inch	1.00	$2.96	$6.99	($4.03)	-58%
3/4 inch	1.50	$4.43	$10.48	($6.05)	-58%
1 inch	2.50	$7.39	$17.47	($10.08)	-58%
1-1/2 inch	5.00	$14.78	$34.93	($20.15)	-58%
2 inch	8.00	$23.65	$55.89	($32.24)	-58%
3 inch	17.50	$51.72	N/A	N/A	N/A
4 inch	31.50	$93.10	N/A	N/A	N/A
6 inch	80.00	$236.46	N/A	N/A	N/A
8 inch	140.00	$413.80	N/A	N/A	N/A
10 inch	210.00	$2.96	N/A	N/A	N/A

4.3.2. TREATED WHOLESALE DEBT SERVICE CHARGE

Agency staff determined that the current debt service charge should be maintained across the wholesale entities in order to maintain the current debt service relationship and smooth out impacts among wholesale entities. These charges are shown in the **Table 4-14**.

Table 4-14: Treated Wholesale Debt Service Charge

A	D	E	F	G
Treated Wholesale	Accounts	Proposed Debt Service Charge	Current Debt Service Charge	Difference ($)
Pine Grove	1	$7,127.44	$7,127.44	$0
Mace Meadows	1	$5,246.59	$5,246.59	$0
Jackson	1	$16,417.96	$16,417.96	$0
Drytown	1	$1,129.66	$1,129.66	$0
Plymouth	1	$5,066.11	$5,066.11	$0

4.3.3. UNTREATED RETAIL DEBT SERVICE CHARGE

Untreated Retail is calculated in a similar manner to Treated Retail. Untreated Retail customer are not subdivided into geographic service areas so to determine the equivalent meter charge, Raftelis divided the debt obligation from **Table 4-8** by the EMUs found in **Table 3-26**. The EMU calculation is shown in **Table 4-15**.

Table 4-15: Untreated Retail Equivalent Meter Charge

A	B	C	D
Meter Size	FY 2021 Debt Service	Equivalent Meters	$/EMU per Month
Untreated Retail	$31,578	518	$5.09

This charge is also escalated by the capacity ratios, as described in previous sections, to derive the debt service rate by meter size. This calculation is shown in **Table 4-16.**

Table 4-16: Untreated Retail Debt Service Charge

A	B	C	D	E	F
Meter Size	Capacity Ratio	Proposed Debt Service Charge	Current Debt Service Charge	Difference ($)	Difference (%)
Untreated Retail					
5/8 inch	1.00	$5.09	$1.27	$3.82	300%
3/4 inch	1.50	$7.63	$1.90	$5.73	301%
1 inch	2.50	$12.71	$3.17	$9.54	301%
1-1/2 inch	5.00	$25.43	$6.34	$19.09	301%
2 inch	8.00	$40.68	$10.14	$30.54	301%
3 inch	17.50	$88.99	$20.27	$68.72	339%
4 inch	31.50	$160.18	$31.68	$128.50	406%
6 inch	80.00	$406.80	$63.35	$343.45	542%

4.4. 5 Year Proposed Rates

Table 4-17 presents the schedule of proposed rates. The rates calculated above are presented in Column B. Columns C through H apply the proposed revenue adjustments in **Table 2-28**, with an additional adjustment to recognize that debt service rates are fixed through the period[3].

Table 4-17: Proposed 5 Year Fixed Service Rate Schedule

A	B	C	D	E	F	G
Effective Year	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Effective Month		**October**	**July**	**July**	**July**	**July**
Rate Adjustment		**43%**	**22%**	**12%**	**12%**	**6%**
Wholesale Rate Adjustment		**49%**	**18%**	**12%**	**11%**	**6%**

[3] Table 2-28 adjustments are applied to all revenue. The COS analysis separated rates to finance operations and rates to make payments on debt service. In order to achieve a 30% overall revenue increase in FY 2022 as required by the financial plan, the FY 2021 COS rates must be adjusted by 43% while the debt service remain fixed through the study period. This same analysis is applied to the Wholesale rates whose debt service rate remains the same as the previous study period, warranting a higher increase of 49% to the non-debt related rates.

A	B	C	D	E	F	G
Effective Year	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Monthly Water Service Charges	**FY 2021 COS**	**FY 2022 October**	**FY 2023 July**	**FY 2024 July**	**FY 2025 July**	**FY 2026 July**
Treated Retail						
5/8 inch	$22.29	$31.78	$38.77	$43.50	$48.73	$51.55
3/4 inch	$30.02	$42.80	$52.21	$58.57	$65.61	$69.41
1 inch	$45.47	$64.83	$79.08	$88.71	$99.37	$105.12
1-1/2 inch	$84.11	$119.92	$146.28	$164.10	$183.81	$194.45
2 inch	$130.48	$186.03	$226.92	$254.56	$285.13	$301.63
3 inch	$277.32	$395.38	$482.28	$541.01	$605.97	$641.04
4 inch	$493.72	$703.89	$858.59	$963.14	$1,078.79	$1,141.22
6 inch	$1,243.37	$1,772.65	$2,162.23	$2,425.52	$2,716.75	$2,873.95
8 inch	$2,170.78	$3,094.84	$3,775.00	$4,234.66	$4,743.12	$5,017.58
10 inch	$3,252.75	$4,637.38	$5,656.55	$6,345.32	$7,107.20	$7,518.45
Treated Wholesale						
Pine Grove	$3,989.82	$5,930.04	$6,993.12	$7,842.39	$8,710.40	$9,237.30
Mace Meadows	$2,529.20	$3,759.13	$4,433.03	$4,971.39	$5,521.64	$5,855.65
Jackson	$31,833.28	$47,313.57	$55,795.48	$62,571.42	$69,496.92	$73,700.79
Drytown	$1,472.34	$2,188.33	$2,580.64	$2,894.04	$3,214.36	$3,408.80
Plymouth	$7,715.49	$11,467.47	$13,523.25	$15,165.55	$16,844.10	$17,863.00
Untreated Retail						
5/8 inch	$33.34	$47.54	$57.99	$65.06	$72.88	$77.10
3/4 inch	$45.20	$64.45	$78.62	$88.20	$98.80	$104.52
1 inch	$68.93	$98.27	$119.87	$134.47	$150.62	$159.34
1-1/2 inch	$128.24	$182.83	$223.02	$250.18	$280.22	$296.44
2 inch	$199.41	$284.30	$346.79	$389.02	$435.73	$460.95
3 inch	$424.80	$605.63	$738.73	$828.69	$928.19	$981.90
4 inch	$756.94	$1,079.16	$1,316.33	$1,476.62	$1,653.92	$1,749.63
6 inch	$1,907.59	$2,719.62	$3,317.32	$3,721.25	$4,168.06	$4,409.24

Table 4-18: 5 Year Commodity Rates

A	B	C	D	E	F	G
Water Commodity Rates ($/hcf)	FY 2021 COS	FY 2022 October	FY 2023 July	FY 2024 July	FY 2025 July	FY 2026 July
Rate Adjustment		43%	22%	12%	12%	6%
Wholesale Rate Adjustment		49%	18%	12%	11%	6%
Treated Retail	$2.26	$3.23	$3.94	$4.42	$4.96	$5.25
Treated Wholesale	$1.23	$1.83	$2.16	$2.43	$2.70	$2.87
Untreated Retail	$1.18	$1.69	$2.07	$2.33	$2.61	$2.77

Table 4-19: 5 Year Debt Service Rates

A	C	D	E	F	G
Effective Year	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Effective Month	October	July	July	July	July
Debt Service Charges					
Treated Retail AWS					
5/8 inch	$25.41	$25.41	$25.41	$25.41	$25.41
3/4 inch	$38.11	$38.11	$38.11	$38.11	$38.11
1 inch	$63.52	$63.52	$63.52	$63.52	$63.52
1-1/2 inch	$127.03	$127.03	$127.03	$127.03	$127.03
2 inch	$203.25	$203.25	$203.25	$203.25	$203.25
3 inch	$444.61	$444.61	$444.61	$444.61	$444.61
4 inch	$800.29	$800.29	$800.29	$800.29	$800.29
6 inch	$2,032.49	$2,032.49	$2,032.49	$2,032.49	$2,032.49
8 inch	$3,556.86	$3,556.86	$3,556.86	$3,556.86	$3,556.86
10 inch	$5,335.30	$5,335.30	$5,335.30	$5,335.30	$5,335.30
Treated Retail CAWP					
5/8 inch	$16.40	$16.40	$16.40	$16.40	$16.40
3/4 inch	$24.59	$24.59	$24.59	$24.59	$24.59
1 inch	$40.99	$40.99	$40.99	$40.99	$40.99
1-1/2 inch	$81.97	$81.97	$81.97	$81.97	$81.97
2 inch	$131.15	$131.15	$131.15	$131.15	$131.15
3 inch	$286.89	$286.89	$286.89	$286.89	$286.89
4 inch	$516.39	$516.39	$516.39	$516.39	$516.39
6 inch	$1,311.46	$1,311.46	$1,311.46	$1,311.46	$1,311.46
8 inch	$2,295.05	$2,295.05	$2,295.05	$2,295.05	$2,295.05
Treated Retail La Mel					
5/8 inch	$17.27	$17.27	$17.27	$17.27	$17.27
3/4 inch	$25.91	$25.91	$25.91	$25.91	$25.91
1 inch	$43.18	$43.18	$43.18	$43.18	$43.18
1-1/2 inch	$86.35	$86.35	$86.35	$86.35	$86.35
2 inch	$138.16	$138.16	$138.16	$138.16	$138.16
3 inch	$302.22	$302.22	$302.22	$302.22	$302.22
4 inch	$543.98	$543.98	$543.98	$543.98	$543.98
6 inch	$1,381.54	$1,381.54	$1,381.54	$1,381.54	$1,381.54
8 inch	$2,417.69	$2,417.69	$2,417.69	$2,417.69	$2,417.69
Treated Retail Lake Camanche					
5/8 inch	$2.96	$2.96	$2.96	$2.96	$2.96
3/4 inch	$4.44	$4.44	$4.44	$4.44	$4.44
1 inch	$7.39	$7.39	$7.39	$7.39	$7.39
1-1/2 inch	$14.78	$14.78	$14.78	$14.78	$14.78
2 inch	$23.65	$23.65	$23.65	$23.65	$23.65
3 inch	$51.73	$51.73	$51.73	$51.73	$51.73
4 inch	$93.11	$93.11	$93.11	$93.11	$93.11
6 inch	$236.46	$236.46	$236.46	$236.46	$236.46
8 inch	$413.80	$413.80	$413.80	$413.80	$413.80
Treated Wholesale					

A	C	D	E	F	G
Effective Year	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Pine Grove	$7,127.44	$7,127.44	$7,127.44	$7,127.44	$7,127.44
Mace Meadows	$5,246.59	$5,246.59	$5,246.59	$5,246.59	$5,246.59
Jackson	$16,417.96	$16,417.96	$16,417.96	$16,417.96	$16,417.96
Drytown	$1,129.66	$1,129.66	$1,129.66	$1,129.66	$1,129.66
Plymouth	$5,066.11	$5,066.11	$5,066.11	$5,066.11	$5,066.11
Untreated Retail					
5/8 inch	$5.09	$5.09	$5.09	$5.09	$5.09
3/4 inch	$7.63	$7.63	$7.63	$7.63	$7.63
1 inch	$12.72	$12.72	$12.72	$12.72	$12.72
1-1/2 inch	$25.43	$25.43	$25.43	$25.43	$25.43
2 inch	$40.69	$40.69	$40.69	$40.69	$40.69
3 inch	$88.99	$88.99	$88.99	$88.99	$88.99
4 inch	$160.18	$160.18	$160.18	$160.18	$160.18
6 inch	$406.81	$406.81	$406.81	$406.81	$406.81

APPENDICES

Appendix A: Water Capital Improvement

Capital Projects (Inflated)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Replacement CIP						
Tanner and Ione Treatment Plant Capacity Study	$0	$0	$79,568	$0	$0	$0
Ione Clearwell Cover	$0	$0	$318,270	$0	$0	$0
Tanner WTP PLC Upgrade	$0	$0	$265,225	$0	$0	$0
Tanner WTP Filter Media Replacement	$0	$0	$456,187	$0	$0	$0
Tanner WTP Clearwell Replacement	$0	$0	$0	$1,346,240	$2,773,254	$1,428,226
Mt. Crossman Pump Station Firm Capacity and Ridge Pump Station Generator	$0	$0	$0	$19,123	$177,268	$0
Ridge Pump Station Generator	$0	$0	$0	$250,234	$0	$0
Amador City PRV Relocation	$0	$0	$0	$232,751	$0	$0
Buckhorn WTP Finish Water Pumps Control Upgrade	$0	$0	$0	$0	$0	$0
LaMel Air Stripper Pilot	$0	$0	$11,670	$0	$0	$0
LaMel Booster Station and Water Treatment Upgrades	$0	$0	$0	$0	$2,589	$23,997
Tank C Service Area Individual PRV Installation	$0	$0	$0	$0	$251,551	$2,331,880
Tanner to Ione Transmission Line Cathodic Protection	$0	$0	$0	$86,325	$0	$0
Tanner Raw Water Transmission Line Cathodic Protection	$0	$0	$0	$463,316	$477,216	$491,532
Prison and Wildflower Tanks Cathodic Protection Upgrades	$0	$0	$0	$0	$670,803	$690,927
CAWP System Tanks Cathodic Protection Upgrades	$0	$0	$0	$0	$0	$69,556
Trent Tank Cathodic Protection Upgrades	$0	$0	$0	$0	$0	$115,638
Ione WTP Fencing	$0	$0	$0	$0	$0	$64,919
Hayden Alley, Broadway, Borgh, Eureka, and Tucker Hill Pipeline Replacements	$0	$0	$160,196	$0	$0	$0
Lynn Way Service Line Replacement	$0	$0	$406,325	$418,514	$431,070	$444,002
Robin Lane Pipe Replacement	$0	$0	$66,837	$0	$0	$0
Upsize Madrone Tank Fill Line and McKenzie PRV	$0	$0	$0	$0	$0	$103,407
Arroyo Seco and Amador Street Pipeline Replacements	$0	$0	$0	$0	$0	$30,373
Camanche Service Lateral Replacement	$0	$0	$0	$0	$0	$69,325
Amador City High Service Individual Boosters	$0	$0	$0	$0	$0	$674,698
Oak Ridge Pressure Zone Creation	$0	$0	$0	$0	$0	$0
CAWP Transmission Main Improvements and Tank D Replacement	$0	$0	$0	$0	$0	$0
Growth CIP						

Capital Projects (Inflated)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Tanner and Ione Treatment Plant Capacity Study	$0	$0	$79,568	$0	$0	$0
Ione Clearwell Cover	$0	$0	$0	$0	$0	$0
Tanner WTP PLC Upgrade	$0	$0	$0	$0	$0	$0
Tanner WTP Filter Media Replacement	$0	$0	$0	$0	$0	$0
Tanner WTP Clearwell Replacement	$0	$0	$0	$1,332,581	$2,745,116	$1,413,735
Mt. Crossman Pump Station Firm Capacity and Ridge Pump Station Generator	$0	$0	$0	$7,868	$72,933	$0
Ridge Pump Station Generator	$0	$0	$0	$0	$0	$0
Amador City PRV Relocation	$0	$0	$0	$0	$0	$0
Buckhorn Membrane Replacement	$0	$0	$0	$0	$0	$0
Buckhorn WTP Finish Water Pumps Control Upgrade	$0	$0	$4,244	$0	$0	$0
LaMel Air Stripper Pilot	$0	$0	$0	$0	$225	$2,087
LaMel Booster Station and Water Treatment Upgrades	$0	$0	$0	$0	$18,346	$170,066
Tank C Service Area Individual PRV Installation	$0	$0	$0	$0	$0	$0
Tanner to Ione Transmission Line Cathodic Protection	$0	$0	$0	$0	$0	$0
Tanner Raw Water Transmission Line Cathodic Protection	$0	$0	$0	$0	$0	$0
Prison and Wildflower Tanks Cathodic Protection Upgrades	$0	$0	$0	$0	$0	$0
CAWP System Tanks Cathodic Protection Upgrades	$0	$0	$0	$0	$0	$0
Trent Tank Cathodic Protection Upgrades	$0	$0	$0	$0	$0	$0
Ione WTP Fencing	$0	$0	$0	$0	$0	$0
Hayden Alley, Broadway, Borgh, Eureka, and Tucker Hill Pipeline Replacements	$0	$0	$81,159	$83,594	$86,101	$88,684
Lynn Way Service Line Replacement	$0	$0	$0	$0	$0	$0
Robin Lane Pipe Replacement	$0	$0	$0	$0	$0	$0
Upsize Madrone Tank Fill Line and McKenzie PRV	$0	$0	$0	$0	$0	$12,404
Arroyo Seco and Amador Street Pipeline Replacements	$0	$0	$0	$0	$0	$0
Camanche Service Lateral Replacement	$0	$0	$0	$0	$0	$0
Amador City High Service Individual Boosters	$0	$0	$0	$0	$0	$0
Oak Ridge Pressure Zone Creation	$0	$0	$0	$0	$0	$0
CAWP Transmission Main Improvements and Tank D Replacement	$0	$0	$0	$0	$0	$0
Annual Replacement	$0	$1,030,000	$2,121,800	$3,278,181	$4,502,035	$5,796,370
Total	**$0**	**$1,030,000**	**$4,051,047**	**$7,518,727**	**$12,208,507**	**$14,021,826**

Appendix B: O&M Expense Functionalization

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
O&M Expense Allocation by Function	**Supply**	**Treated Transmission**	**Untreated Transmission**	**Water Treatment**	**Treated Storage**	**Untreated Storage**	**Pumping**	**Treated Distribution**	**Untreated Distribution**	**Meter Service**	**Customer Service / Billing**	**Fire Protection**	**Conservation**	**Debt Service Costs**	**Board of Directors**	**Administration**	**Engineering**	**Finance**	**Non Departmental**	**Operations and Maintenance**	**G&A**	**Total**
Percentage Allocation																						
Board of Directors	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	100%
Administration	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	100%
Engineering	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	100%
Finance	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	100%
Customer Billing	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Non-Departmental	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%
Operations and Maintenance																						
Salaries and Benefits	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	100%
Distribution/Collection	5%	60%	5%	0%	25%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Meter Replacement	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Meters - New	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Transmission System	0%	25%	75%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Canal-Clean/Chems/Tests/O&M	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Storage/Dams/Reservoirs	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Disposal	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Treatments Plants	0%	0%	0%	85%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Chemicals	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Water Tests	0%	0%	0%	50%	25%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Vehicle Fleet	5%	5%	5%	10%	30%	5%	0%	35%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Vehicle Maintenance/Repair	5%	5%	5%	10%	30%	5%	0%	35%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Gas & Oil	5%	5%	5%	10%	30%	5%	0%	35%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Electricity - PGE	0%	5%	0%	80%	5%	0%	0%	5%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Other Utilities	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Power Foregone	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Radios	5%	5%	5%	5%	25%	5%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Small Tool Replacement	5%	5%	5%	20%	20%	0%	0%	40%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Tool/Equip Mntc/Replace	5%	5%	5%	20%	20%	0%	0%	40%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Tool & Equip Rental	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Generators - Rental or Maintenance	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Safety/Supplies/Mntc	5%	5%	5%	20%	20%	0%	0%	40%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Uniforms	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Air District Permits	5%	0%	0%	20%	0%	0%	0%	75%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
State Fees	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Licenses & Certifications	0%	10%	0%	30%	30%	0%	0%	30%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Misc Repair & Maintenance	5%	10%	5%	50%	5%	0%	0%	20%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Spray Field Mowing	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Tank/Res-Diving & Insp/Maint	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydro Electric - Tanner/Ione	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
To/From Operating Expense	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Valves/Fire Hydrant Exercising	0%	10%	0%	0%	0%	0%	0%	90%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Facilities	0%	5%	0%	50%	20%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
SCADA Annual Service Contract	5%	0%	0%	60%	30%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Instrumentation - Svc Cnt	5%	0%	0%	65%	25%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Director Compensation	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
IT Contract Services	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Server Replacements	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Training	0%	10%	5%	35%	15%	0%	0%	30%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Mandated Plans	20%	0%	0%	35%	10%	0%	0%	10%	5%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	100%

Dollar Allocation																						
Board of Directors	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$81,983	$0	$0	$0	$0	$0	$0	$81,983
Administration	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,237,280	$0	$0	$0	$0	$0	$1,237,280
Engineering	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$705,698	$0	$0	$0	$0	$705,698
Finance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,076,108	$0	$0	$0	$1,076,108
Customer Billing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$133,200	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$133,200
Non-Departmental	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$612,086	$0	$0	$612,086
Operations and Maintenance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
Salaries and Benefits	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$3,252,210	$0	$3,252,210
Distribution/Collection	$6,500	$78,000	$6,500	$0	$32,500	$0	$6,500	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$130,000
Meter Replacement	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,000
Meters - New	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,000
Transmission System	$0	$3,750	$11,250	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,000
Canal-Clean/Chems/Tests/O&M	$0	$0	$8,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$8,000
Storage/Dams/Reservoirs	$0	$0	$0	$0	$0	$20,885	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$20,885
Disposal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Treatments Plants	$0	$0	$0	$85,000	$15,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$100,000
Chemicals	$0	$0	$0	$154,500	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$154,500
Water Tests	$0	$0	$0	$21,500	$10,750	$0	$0	$10,750	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$43,000
Vehicle Fleet	$6,600	$6,600	$6,600	$13,200	$39,600	$6,600	$0	$46,200	$6,600	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$132,000
Vehicle Maintenance/Repair	$2,500	$2,500	$2,500	$5,000	$15,000	$2,500	$0	$17,500	$2,500	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$50,000
Gas & Oil	$6,250	$6,250	$6,250	$12,500	$37,500	$6,250	$0	$43,750	$6,250	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$125,000
Electricity - PGE	$0	$11,250	$0	$180,000	$11,250	$0	$0	$11,250	$11,250	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$225,000
Other Utilities	$0	$0	$0	$17,500	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$17,500
Power Foregone	$50,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$50,000
Radios	$415	$415	$415	$415	$2,074	$415	$0	$4,148	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$8,296
Small Tool Replacement	$500	$500	$500	$2,000	$2,000	$0	$0	$4,000	$500	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$10,000
Tool/Equip Mntc/Replace	$750	$750	$750	$3,000	$3,000	$0	$0	$6,000	$750	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,000
Tool & Equip Rental	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Generators - Rental or Maintenance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Safety/Supplies/Mntc	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Uniforms	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$20,000	$20,000
Air District Permits	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
State Fees	$0	$0	$0	$0	$0	$5,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,000
Licenses & Certifications	$0	$6,500	$0	$19,500	$19,500	$0	$0	$19,500	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$65,000
Misc Repair & Maintenance	$270	$540	$270	$2,700	$270	$0	$0	$1,080	$270	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,400
Spray Field Mowing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$50,000	$50,000
Tank/Res-Diving & Insp/Maint	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hydro Electric - Tanner/Ione	$0	$0	$30,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$30,000
To/From Operating Expense	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,000	$15,000
Valves/Fire Hydrant Exercising	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Facilities	$0	$225	$0	$2,250	$900	$0	$0	$1,125	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,500
SCADA Annual Service Contract	$1,000	$0	$0	$12,000	$6,000	$0	$0	$1,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$20,000
Instrumentation - Svc Cnt	$2,000	$0	$0	$26,000	$10,000	$0	$0	$2,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$40,000
Director Compensation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$12,000	$12,000
IT Contract Services	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Server Replacements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Training	$0	$1,200	$600	$4,200	$1,800	$0	$0	$3,600	$600	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$12,000
Mandated Plans	$13,000	$0	$0	$22,750	$6,500	$0	$0	$6,500	$3,250	$0	$0	$0	$13,000	$0	$0	$0	$0	$0	$0	$0	$0	$65,000
Total O&M Expenses	**$89,785**	**$118,480**	**$73,635**	**$584,015**	**$213,644**	**$41,650**	**$6,500**	**$178,403**	**$31,970**	**$20,000**	**$133,200**	**$0**	**$13,000**	**$0**	**$81,983**	**$1,237,280**	**$705,698**	**$1,076,108**	**$612,086**	**$3,252,210**	**$97,000**	**$8,566,645**

Appendix C: Capital Functionalization

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
Capital Expense Allocation	**Supply**	**Transmission**	**Water Treatment**	**Storage**	**Pumping**	**Distribution**	**Meter Service**	**Customer Service / Billing**	**Fire Protection**	**Conservation**	**Debt Service Costs**	**Board of Directors**	**Administration**	**Engineering**	**Finance**	**Non Departmental**	**Operations and Maintenance**	**G&A**	**Total**
Percentage Allocation																			
Service Lines AWS-IONE	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Service Lines AWS-Tanner	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Service Lines CAWP	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Service Lines Camanche	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Service Lines La Mel Height	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydrant Laterals AWS-IONE	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydrant Laterals AWS-Tanner	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydrant Laterals CAWP	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydrant Laterals Camanche	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydrant Laterals La Mel Height	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Water Mains AWS-IONE	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Water Mains AWS-Tanner	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Water Mains CAWP	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Water Mains Camanche	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Water Mains La Mel Height	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Raw Service Lines AWS-IONE	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Raw Service Lines AWS-Tanner	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Raw Service Lines CAWP	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Raw Service Lines Camanche	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Raw Service Lines La Mel Height	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Raw Water Pipe AWS-IONE	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Raw Water Pipe AWS-Tanner	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Raw Water Pipe CAWP	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Raw Water Pipe Camanche	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Raw Water Pipe La Mel Height	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
AWS-IONE																			
Meters & Boxes	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Meter Boxes	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Valves (GV,BF,BO,CK)	1%	7%	5%	7%	0%	80%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydrants	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
ARVs	0%	20%	0%	0%	0%	80%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
PRVs/PSVs	0%	10%	0%	0%	0%	90%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Pump Stations	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Tanks & Reservoirs	5%	0%	0%	95%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Treatment Plants	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Wells	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
AWS-Tanner																			
Meters & Boxes	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Meter Boxes	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Valves (GV,BF,BO,CK)	1%	7%	5%	7%	0%	80%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydrants	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
ARVs	0%	20%	0%	0%	0%	80%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
PRVs/PSVs	0%	10%	0%	0%	0%	90%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Pump Stations	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Tanks & Reservoirs	5%	0%	0%	95%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Treatment Plants	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Wells	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
CAWP																			
Meters & Boxes	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Meter Boxes	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Valves (GV,BF,BO,CK)	1%	7%	5%	7%	0%	80%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydrants	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
ARVs	0%	20%	0%	0%	0%	80%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
PRVs/PSVs	0%	10%	0%	0%	0%	90%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Pump Stations	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Tanks & Reservoirs	5%	0%	0%	95%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Treatment Plants	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Wells	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%

Camanche																			
Meters & Boxes	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Meter Boxes	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Valves (GV,BF,BO,CK)	1%	7%	5%	7%	0%	80%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydrants	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
ARVs	0%	20%	0%	0%	0%	80%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
PRVs/PSVs	0%	10%	0%	0%	0%	90%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Pump Stations	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Tanks & Reservoirs	5%	0%	0%	95%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Treatment Plants	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Wells	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
La Mel Heights																			
Meters & Boxes	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Meter Boxes	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Valves (GV,BF,BO,CK)	1%	7%	5%	7%	0%	80%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Hydrants	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
ARVs	0%	20%	0%	0%	0%	80%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
PRVs/PSVs	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Pump Stations	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Tanks & Reservoirs	5%	0%	0%	95%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Treatment Plants	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Wells	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Agency General																			
Water Related	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%

Dollar Allocation																				
Service Lines AWS-IONE	$0	$0	$0	$0	$0	$1,347,715	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,347,715
Service Lines AWS-Tanner	$0	$0	$0	$0	$0	$1,219,808	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,219,808
Service Lines CAWP	$0	$0	$0	$0	$0	$2,149,946	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,149,946
Service Lines Camanche	$0	$0	$0	$0	$0	$863,475	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$863,475
Service Lines La Mel Height	$0	$0	$0	$0	$0	$40,842	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$40,842
Hydrant Laterals AWS-IONE	$0	$0	$0	$0	$0	$0	$0	$0	$1,801,379	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,801,379
Hydrant Laterals AWS-Tanner	$0	$0	$0	$0	$0	$0	$0	$0	$2,535,523	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,535,523
Hydrant Laterals CAWP	$0	$0	$0	$0	$0	$0	$0	$0	$2,284,033	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,284,033
Hydrant Laterals Camanche	$0	$0	$0	$0	$0	$0	$0	$0	$794,412	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$794,412
Hydrant Laterals La Mel Height	$0	$0	$0	$0	$0	$0	$0	$0	$28,133	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$28,133
Water Mains AWS-IONE	$0	$0	$0	$0	$0	$49,185,360	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$49,185,360
Water Mains AWS-Tanner	$0	$0	$0	$0	$0	$68,999,015	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$68,999,015
Water Mains CAWP	$0	$0	$0	$0	$0	$113,294,701	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$113,294,701
Water Mains Camanche	$0	$0	$0	$0	$0	$22,493,710	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$22,493,710
Water Mains La Mel Height	$0	$0	$0	$0	$0	$1,566,991	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,566,991
Raw Service Lines AWS-IONE	$0	$33,437	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$33,437
Raw Service Lines AWS-Tanner	$0	$96,443	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$96,443
Raw Service Lines CAWP	$0	$275	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$275
Raw Service Lines Camanche	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Raw Service Lines La Mel Height	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Raw Water Pipe AWS-IONE	$0	$23,977,326	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$23,977,326
Raw Water Pipe AWS-Tanner	$0	$19,583,439	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$19,583,439
Raw Water Pipe CAWP	$0	$0	$0	$0	$0	$10,285,268	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$10,285,268
Raw Water Pipe Camanche	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Raw Water Pipe La Mel Height	$0	$0	$0	$0	$0	$228,769	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$228,769
AWS-IONE																				
Meters & Boxes	$0	$0	$0	$0	$0	$0	$2,159,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,159,000
Meter Boxes	$0	$0	$0	$0	$0	$0	$26,500	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$26,500
Valves (GV,BF,BO,CK)	$42,385	$296,695	$211,925	$296,695	$0	$3,390,800	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,238,500
Hydrants	$0	$0	$0	$0	$0	$0	$0	$0	$1,890,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,890,000
ARVs	$0	$117,160	$0	$0	$0	$468,640	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$585,800
PRVs/PSVs	$0	$155,000	$0	$0	$0	$1,395,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,550,000
Pump Stations	$0	$0	$0	$0	$0	$1,800,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,800,000
Tanks & Reservoirs	$750,000	$0	$0	$14,250,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,000,000
Treatment Plants	$0	$0	$25,000,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$25,000,000
Wells	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AWS-Tanner																				
Meters & Boxes	$0	$0	$0	$0	$0	$0	$1,745,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,745,000
Meter Boxes	$0	$0	$0	$0	$0	$0	$40,250	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$40,250
Valves (GV,BF,BO,CK)	$52,570	$367,990	$262,850	$367,990	$0	$4,205,600	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,257,000
Hydrants	$0	$0	$0	$0	$0	$0	$0	$0	$2,180,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,180,000
ARVs	$0	$171,680	$0	$0	$0	$686,720	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$858,400
PRVs/PSVs	$0	$160,000	$0	$0	$0	$1,440,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,600,000
Pump Stations	$0	$0	$0	$0	$0	$1,800,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,800,000
Tanks & Reservoirs	$625,000	$0	$0	$11,875,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$12,500,000
Treatment Plants	$0	$0	$25,000,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$25,000,000
Wells	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CAWP																				
Meters & Boxes	$0	$0	$0	$0	$0	$0	$2,777,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,777,000
Meter Boxes	$0	$0	$0	$0	$0	$0	$87,250	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$87,250
Valves (GV,BF,BO,CK)	$48,825	$341,775	$244,125	$341,775	$0	$3,906,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,882,500
Hydrants	$0	$0	$0	$0	$0	$0	$0	$0	$2,305,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,305,000
ARVs	$0	$182,120	$0	$0	$0	$728,480	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$910,600
PRVs/PSVs	$0	$275,000	$0	$0	$0	$2,475,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,750,000
Pump Stations	$0	$0	$0	$0	$0	$4,950,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,950,000
Tanks & Reservoirs	$2,375,000	$0	$0	$45,125,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$47,500,000
Treatment Plants	$0	$0	$25,000,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$25,000,000
Wells	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Camanche																				
Meters & Boxes	$0	$0	$0	$0	$0	$0	$696,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$696,000
Meter Boxes	$0	$0	$0	$0	$0	$0	$97,250	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$97,250
Valves (GV,BF,BO,CK)	$14,175	$99,225	$70,875	$99,225	$0	$1,134,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,417,500
Hydrants	$0	$0	$0	$0	$0	$0	$0	$0	$730,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$730,000
ARVs	$0	$58,000	$0	$0	$0	$232,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$290,000
PRVs/PSVs	$0	$10,000	$0	$0	$0	$90,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$100,000
Pump Stations	$0	$0	$0	$0	$0	$1,800,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,800,000
Tanks & Reservoirs	$750,000	$0	$0	$14,250,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,000,000
Treatment Plants	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Wells	$0	$0	$6,000,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$6,000,000
La Mel Heights																				
Meters & Boxes	$0	$0	$0	$0	$0	$0	$54,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$54,000
Meter Boxes	$0	$0	$0	$0	$0	$0	$1,750	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,750
Valves (GV,BF,BO,CK)	$1,155	$8,085	$5,775	$8,085	$0	$92,400	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$115,500
Hydrants	$0	$0	$0	$0	$0	$0	$0	$0	$35,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$35,000
ARVs	$0	$4,640	$0	$0	$0	$18,560	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$23,200
PRVs/PSVs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Pump Stations	$0	$0	$0	$0	$0	$450,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$450,000
Tanks & Reservoirs	$125,000	$0	$0	$2,375,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,500,000
Treatment Plants	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Wells	$0	$0	$3,000,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$3,000,000
Agency General																				
Water Related	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,983,001	$4,983,001
Total Capital Expenses	**$4,784,110**	**$45,938,291**	**$84,795,550**	**$88,988,770**	**$0**	**$302,738,800**	**$7,684,000**	**$0**	**$14,583,481**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$4,983,001**	**$554,496,002**

Appendix D: Debt Service Allocations

Allocations to Service Area

		Debt Service Payment FY 2022	AWS	CAWP	La Mel	Lake Camanche	General
AWS	**AWS (04)**						
	Bond Series 2016	$1,854,606	84.35%	15.03%	0.63%		
	Hillside Cluster	$2,886					100%
	Ridge Cluster	$120,420					100%
	Environ Review	$33,527					100%
	Ione Backwash Proj	$0					100%
	Tanner Facility	$78,901					100%
	Ione Hydro CEC Loan	$128,047					100%
Agency General	**Agency Wide (05)**						
	Kubota Loader	$0					100%
	Takeuchi Excavator	$11,668					100%
CAWP	**CAWP WS (06)**						
	GSL - COP's	$336,200		100%			
	Total - External Loans	**$2,566,255**					
	Total Annual Payment	**$2,566,255**	**$1,564,333**	**$614,866**	**$11,607**	**$0**	**$375,449**
			61.0%	**24.0%**	**0.5%**	**0.0%**	**14.6%**

Bond Series 2016 Allocations

2016 Bond Allocations	AWS	Plymouth	CAWP	La Mel
FY 2016				
$1,853,500	$1,323,000	$240,400	$278,500	$11,600
	71.38%	12.97%	15.03%	0.63%
FY 2022				
$1,854,606	$1,323,790	$240,543	$278,666	$11,607

AWS + Plymouth = 84%
Plymouth is part of AWS

Prior Rate Study Debt Service Allocations

Bond Series 2016	AWS		CAWP		La Mel	
	2016 Rev Refund (ATL)	**$1,323,000**	**2016 Rev Refund (WTP)**	**$278,500**	**2016 Rev Refund (Tank)**	**$11,600**
	Offsets				*Offsets*	
	CFD #1 ATL	($131,000)			Property Tax	($3,952)
	AWS Participation Buy-In	($109,700)				
	Participation Fee	($80,130)				
	PGE Contract	($115,000)				
	Internal Loan Payment	($28,800)				
	Debt Obligation	**$10.46**	**Debt Obligation**	**$5.83**	**Debt Obligation**	**$12.03**
	2016 Rev Refund (Plymouth)	**$240,400**				
	Plymouth Loan Payment	($146,500)				