Amador Water Agency

2021 Water Capacity Fees Study

Draft Report / April 23, 2021

April 20, 2021

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

Subject: Water Capacity Fee Report

Dear Mr. McKenney,

Raftelis is pleased to provide this Water Capacity Fee Report (Report) to the Amador Water Agency (Agency). This report details the various methodologies used to compute capacity fees and summarizes the key findings and recommendations related to the development of the Agency's Water Capacity Fees.

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,

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Vice President	Senior Consultant	Consultant

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1. Executive Summary

1.1. 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 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.

Capacity Fees also commonly referred to as connection fees, system development charges, and impact fees, are one-time fees collected as a condition of establishing a new connection to the Agency's water system or the expansion of an already-existing connection. The purpose of these fees is to pay for the development's share of the costs of new and existing water facilities. These fees are designed to be proportional to the demand placed on the system by the new or expanded connection. The recommended Capacity Fees for the Agency do not exceed the estimated reasonable costs of providing the facilities for which they are collected and are of proportional benefit to the property being charged. This report documents the data, methodology, and results in calculating an appropriate Capacity Fee.

The primary objective of establishing a full cost-recovery Capacity Fee is to provide an equitable means by which new system customers or existing customers requiring additional system capacity contribute their fair share towards the costs associated with the water facilities necessary to serve them.

1.2. Economic and Legal Framework

For publicly owned water systems, most of the assets are typically paid for by the contributions of existing customers through rates, charges, and taxes. In service areas that incorporate new customers, the infrastructure developed by previous customers is generally extended towards the service of new customers. Existing customers' investment in the existing system capacity allows newly connecting customers to take advantage of unused surplus capacity. To further financial equity among new and existing customers, new connectors will typically buy-in to the existing and pre-funded facilities, effectively putting them on par with existing customers. In other words, the new customers are buying into the existing system through a payment for the portion of facilities that have already been constructed in advance of new development.

1.2.1. Economic Framework

The basic economic philosophy behind Capacity Fees is that the costs of providing water service should be paid for by those that are served by the utility. To fairly distribute the value of the system, the charge should reflect a reasonable estimate of the cost of providing capacity to new customers and not unduly burden existing customers through a comparable rate increase. Accordingly, many utilities make this philosophy one of their primary guiding principles when developing their Capacity Fee structure.

The philosophy that service should be paid for by those that receive utility from the system is often referred to as "growth-should-pay-for-growth." For water utilities, the principal is summarized in the AWWA Manual M26, Water Rates and Related Charges:

> "The purpose of designing customer-contributed-capital system charges is to prevent or reduce the inequity to existing customers that results when these customers must pay the increase in water rates that are needed to pay for added plant costs for new customers. Contributed capital reduces the need for new outside sources

> of capital, which ordinarily has been serviced from the revenue stream. Under a system of contributed capital, many water utilities are able to finance required facilities by use of a 'growth-pays-for-growth' policy."

1.2.2. Legal Framework[1]

In establishing Capacity Fees, it is important to understand and comply with local laws and regulations governing the establishment, calculation, and implementation of Capacity Fees. The following sections summarize the regulations applicable to the development of a Capacity Fee for the Agency.

1.2.2.1. California Government Code Requirements

Capacity Fees must be established based on a reasonable relationship to the needs and benefits brought about by the development or expansion. Courts have long used a standard of reasonableness to evaluate the legality of development charges. The basic statutory standards governing Capacity Fees are embodied by California Government Code Sections 66013, 66016, 66022, and 66023. Government Code Section 66013 contains requirements specific to determining utility development charges:

> "Notwithstanding any other provision of law, when a local agency imposes fees for water connections or sewer connections, or imposes capacity charges, those fees or charges shall not exceed the estimated reasonable cost of providing the service for which the fee or charge is imposed, unless a question regarding the amount [of] the fee or charge in excess of the estimated reasonable cost of providing the services or materials is submitted to, and approved by, a popular vote of two-thirds of those electors voting on the issue."

Section 66013 also includes the following general requirements:

- Local agencies must follow a process set forth in the law, making certain determinations regarding the purpose and use of the fee; they must establish a nexus or relationship between a development project and the public improvement being financed with the fee.
- Capacity Fee revenues must be segregated from the general fund in order to avoid commingling of Capacity Fees and the General Fund.

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

2. Methodologies

The two primary steps in calculating Capacity Fees are 1) determining the cost of capital related to either new service connections or expansions that increase density or require additional service capacity and 2) allocating those costs equitably to various types of connections. Several methodologies for calculating Capacity Fees exist. The various approaches have evolved largely around the basis of changing public policy, legal requirements, and the unique and special circumstances of every local agency. However, four general approaches are widely accepted and appropriate for Capacity Fees. They are the equity buy-in, capacity buy-in, incremental cost, and hybrid methods.

2.1. Equity Buy-In Approach

Equity buy-in, also known as the system buy-in approach, rests on the premise that new customers are entitled to service at the same price as existing customers. However, existing customers have already developed the facilities that will serve new customers, including the costs associated with financing those services. Under this approach, new customers pay only an amount equal to the net investment already made by existing customers. This net equity investment, or value of the system, is then divided by the current demand of the system – the total number of EMUs or Equivalent Meter Units– to determine the buy-in cost per EMU.

For example, if the existing system has 100 EMUs of average usage and the new connector uses an equivalent unit, then the new customer would pay 1/ 100 of the total value of the existing system. By contributing this Capacity Fee, the new connector has bought into the existing system. The customer has effectively acquired a financial position on par with existing customers and will face future capital challenges on an equal financial footing with those customers. This approach is suited for agencies that currently have capacity in their system and are essentially close to build-out. **Figure 2-1** shows the framework for calculating the equity buy-in Capacity Fee.

Figure 2-1: Equity Buy-In Approach

As shown in **Figure 2-1**, under this approach, the value of the system is increased by the balance of the reserves. Reserves are included because they represent the health of the utility and, more specifically, add value to the system as they may be used to maintain the system at the current level of service. Conversely, a utility with no reserves or a negative fund balance would reduce the value of the system since there is no assurance that the current level of service can be maintained.

Debt is also accounted for under the equity buy-in approach, as it is an obligation that is secured by the value of the system. When debt is issued to finance capital improvements, the obligation is typically paid overtime by the existing water customers through water rates. To avoid double charging, the debt obligation is subtracted to determine the net value of the existing system.

Asset Valuation Approaches

As stated earlier, the first step is to determine the asset value of the capital improvements required to furnish services to new customers. However, under the equity buy-in approach, the facilities have already been constructed, therefore the goal is to determine the value of the existing system/ facilities. To estimate the asset value of the existing facilities required to furnish services to new customers, various methods are employed. The principal methods commonly used to value a utility's existing assets are original cost and replacement cost.

Original Cost– The principal advantages of the original cost method lie in its relative simplicity and stability since the recorded costs of tangible property are held constant. The major criticism levied against original cost valuation pertains to the disregard of changes in the value of money, which are attributable to inflation and other factors. As evidenced by history, prices tend to increase rather than to remain constant. Because the value of money varies inversely with changes in price, monetary values in most recent years have exhibited a definite decline; a fact not recognized by the original cost approach. This situation causes further problems when it is realized that most utility systems are developed over time on a piecemeal basis as demanded by service area growth. Consequently, each property addition was paid for with dollars of different purchasing power. When these outlays are added together to obtain a plant value, the result can be misleading.

Replacement Cost – Changes in the value of the dollar over time, at least as considered by the impacts of inflation, can be recognized by replacement cost asset valuation. The replacement cost represents the cost of duplicating the existing utility facilities (or duplicating its function) at current prices. Unlike the original cost approach, the replacement cost method recognizes price level changes that may have occurred since plant construction. The most accurate replacement cost valuation would involve a physical inventory and appraisal of plant components in terms of their RCs at the time of valuation. However, with original cost records available, a reasonable approximation of replacement cost plant value can most easily be ascertained by trending historical OCs. This approach employs the use of cost indices to express actual capital costs experienced by the utility in terms of current dollars. An obvious advantage of the replacement cost approach is that it takes into consideration the changes in the value of money over time.

Original Cost Less Depreciation (OCLD) or Replacement Cost Less Depreciation (RCLD) – Considerations of the current value of utility facilities may also be materially affected by the effects of age and depreciation. Depreciation considers the anticipated losses in plant value caused by wear and tear, decay, inadequacy, and obsolescence. To provide appropriate recognition of the effects of depreciation on existing utility facilities, both the original cost and reproduction cost valuation measures can also be expressed on an OCLD and RCLD basis. These measures are identical to the aforementioned valuation methods, with the exception that accumulated depreciation is computed for each asset account based upon its age or condition and deducted from the respective total original cost or replacement cost to determine the OCLD or RCLD measures of plant value.

2.2. Capacity Buy-In Approach

The capacity buy-in approach is based on the same premise as that for the equity buy-in approach – that new customers are entitled to service at the same rates as existing customers. The difference between the two approaches is that for the capacity buy-in approach, for each major asset, the value is divided by its capacity. This approach has two major challenges. First, to determine the capacity of each major asset is problematic, as the system is designed for peak use, and customer behavior fluctuates based on economics and water conservation. Second, it does not address the financial equity that the current customer has contributed to reserves. For instance, all else equal, a larger capital reserve balance would be a positive benefit for a new customer since it would produce lower rates in the future. If this were not considered, current customers would be subsidizing future customer rates. **Figure 2-2** shows the framework for calculating the capacity buy-in Capacity Fee.

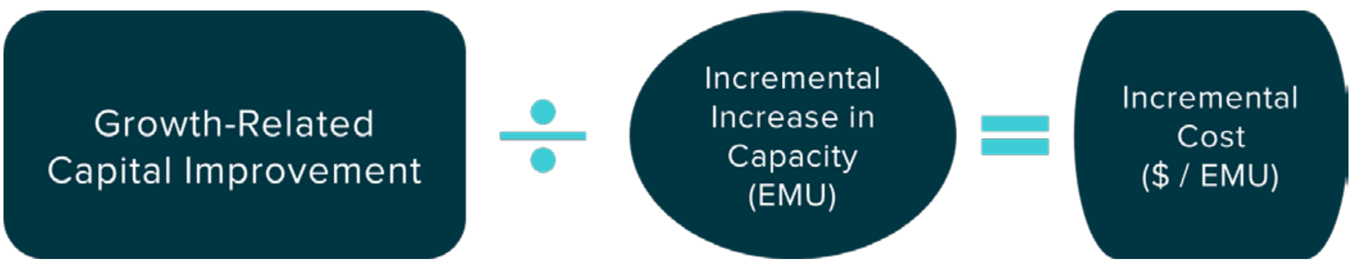
Figure 2-2: Capacity Buy-In Approach

2.3. Incremental Cost Approach

The incremental cost approach is based on the premise that new development (new customers) should pay for the additional capacity and expansions necessary to serve the new development. This method is typically used where there is little or no capacity available to accommodate growth and expansion is needed to service the new development. Under the incremental method, growth-related capital improvements are allocated to new development based on their estimated usage or capacity requirements, irrespective of the value of past investments made by existing customers.

For instance, if it costs X dollars ($X) to provide 100 additional equivalent dwelling units of capacity for average usage and a new connector uses one of those equivalent dwelling units, then the new customer would pay $X/ 100 to connect to the system. In other words, new customers pay the incremental cost of capacity. As with the equity buy-in approach, new connectors will effectively acquire a financial position that is on par with existing customers. The use of this method is generally considered to be most appropriate when a significant portion of the capacity required to serve new customers must be provided by the construction of new facilities. **Figure 2-3** shows the framework for calculating the Capacity Fee based on the incremental cost approach.

Figure 2-3: Incremental Cost Approach



2.4. Hybrid Approach

The hybrid approach is typically used where some capacity is available to serve new growth, but additional expansion is still necessary to accommodate new development. Under the hybrid approach, the Capacity Fee is based on the summation of the existing capacity and any necessary expansions.

In utilizing this methodology, it is important that system capacity costs are not double counted when combining the costs of the existing system with future costs from the capital improvement program (CIP). CIP costs associated with repair and replacement of the existing system should not be included in the calculation unless specific existing facilities, which will be replaced through the CIP, can be isolated and removed from the existing asset inventory and cost basis. In this case, the rehabilitative costs of the CIP essentially replace the cost of the relevant existing assets in the existing cost basis. Capital improvements that expand system capacity to serve future customers may be included proportionally to the percentage of the cost specifically required for expansion of the system. **Figure 2-4** summarizes the framework for calculating the hybrid Capacity Fee.

Figure 2-4: Hybrid Approach

2.5. Proposed Method: Hybrid Equity Buy-In Approach

While the Agency does have some existing capacity available on its existing system, the recent Water Master Plan Study conducted by the engineering firm Keller Associates identified major growth-related capital improvement projects over the next 20 years.

Staff and Raftelis reviewed these considerations in deciding the appropriate methodology to use for the Water Capacity Fees. Recognizing these factors and taking into consideration the considerable economic investment by existing customers as well as the future investments of incoming customers in the capital development of the system, a hybrid approach method was determined to be the most reasonable.

3. Proposed Capacity Fees

3.1. Value of the System

The first step under the equity buy-in method is determining the value of the existing system using one of the methods discussed in Section 2.

Numbers shown in all the tables of this report are rounded; therefore, hand calculations based on the displayed numbers, such as summing or multiplying, may not equal the exact results shown.

3.1.1. Replacement Cost Asset Valuation

Raftelis considered several factors such as the age and condition of the system and the detail and availability of asset records to determine which method would best reflect the value of the system. As with most water systems, the Agency's water system was constructed over the course of many years. A review of the accounting records indicated that past R&R costs were not consistently accounted for within the asset listings. Therefore, a significant portion of the assets that are providing services are missing from the registry completely and would show a zero carrying value despite being maintained, being fully operational, and providing significant value to the system. Additionally, these missing assets incurred some repair and refurbishment costs that weren't captured in the asset registry list.

Due to these factors, the Replacement Cost (method was used to determine the value of the water system. The Agency provided fixed asset records on the replacement costs of the system for land, pipeline, meter, hydrant and other water-related assets. Keller Associates determined the Replacement Cost Values of these assets and identified them to Agency Staff in their Water Master Plan Study. Staff reviewed and categorized the assets into the different categories (which can be seen in Column A of **Table 3-1**), which Raftelis used in calculating the Water Capacity Fees. **Table 3-1** shows the Total Replacement Cost Value for the Agency's Water System. It is important to note that Line 1 of **Table 3-1** includes wastewater assets, which the agency categorizes with water assets under the name "Agency General". The total value of water related general assets is calculated in the next section.

Table 3-1: Replacement Cost Total

Ln	Asset Category	Replacement Cost Total
	A	B
1	Amador Water System	$221,029,246
2	Tanner Treatment Plant	$50,980,650
3	Agency General[1]	$6,200,000
4	Camanche Water	$50,282,348
5	CAWP-Retail	$219,176,573
6	Lamel Heights	$8,044,185
7	**System Value**	**$555,713,001**

[1] Includes wastewater assets.

The agency provides three different water services, each of which have their own Capacity Fee. Each Service Type (Treated Retail, Untreated Retail and Treated Wholesale) also have a different set of assets that are directly related to providing its service. In other words, not all assets are used equally amongst each service type. Raftelis worked with Agency staff to determine the amount of benefit that each service type receives from the different Asset Categories found in Column A of **Table 3-1.** The agency identified the percentage of benefit that should be allocated to each service type, which can be seen in **Table 3-2**.

Table 3-2: Allocation of Assets by Service Type (Water Only)

Ln	Asset Allocation	System Value	Treated Retail	Untreated Retail	Treated Wholesale
	A	B	C	D	E
1	Amador Water System	$221,029,246	62%	3%	35%
2	Tanner Treatment Plant	$50,980,650	53%		47%
3	Agency General[1]	$6,200,000	64%	1%	15%
4	Camanche Water	$50,282,348	100%		
5	CAWP-Retail	$219,176,573	100%		
6	Lamel Heights	$8,044,185	100%		
7	**System Value**	**$555,713,001**			

[1] Approximately 20% of the Agency General assets are allocated to Wastewater. The percentages shown represent the percent of water-related assets only.

As can be seen in **Table 3-2,** three asset categories: "Agency General", "Amador Water System", and "Tanner Treatment Plant" were determined to benefit several service types. The section below details how the percentage of benefit was determined to allocate the assets to each service type.

3.1.1.1. Amador Water System

The "Amador Water System" Category (**Table 3-2,** line 2) benefit split is determined by the Equivalent Meter Unit Demand split, which is discussed in the **Section 3.2** of this report. For example, Treated Retail's percentage is calculated by taking the Total Number of Treated Retail EMUs and Dividing it by the Total Number of all EMUs:

7,803 Treated Retail EMUs / 12,662 Total EMUs = 62%

3.1.1.2. Tanner Treatment Plant

The "Tanner Treatment Plant" (**Table 3-2,** line 3) benefit split was determined by the Agency's internal review relating to how much the Tanner Treatment Plant asset benefitted each service type. The Agency found that the Tanner Treatment plant benefits only the Treated Retail and Wholesale categories at approximately 53% and 47% respectively. The percentage split comes from the amount of usage that passes through the plant based on the two service types. **Table 3-3** below shows the calculation that was used to determine the % benefit between the two service types.

Table 3-3: Tanner % Benefit Split

Ln	Service Type	Tanner Treatment Plant Usage (gal)	% Benefit
	A	B	C
1	Treated Retail	52,050,156	53%
2	Treated Wholesale	46,340,844	47%
3	**Total**	**98,391,000**	**100%**

3.1.1.3. Agency General

Raftelis and staff determined that the "Agency General" assets should be split according to the indirect percentage of the total asset value. That is to say that the total value for the category would be determined by proportionally splitting them based on the amount of assets in each category. Additionally, assets categorized under the "Agency General" name include wastewater assets, so the total system value needs to include this wastewater assets to fairly determine the benefit percentage split for the "Agency General" category. Raftelis asked the agency to identify the replacement cost total of all wastewater assets so the general asset split could be determined. The Agency identified a replacement cost total of $134,207,649 for all wastewater assets. This total is added on to the Water System value and Agency General value (**Table 3-1**) to arrive at a total system value of $689,920,650 as seen in line 4 of **Table 3-4**. Water Assets (**Table 3-4**, Line 1) are the summation of lines 2 through 6 of **Table 3-1.**

Table 3-4: Total System Value (Replacement Cost)

Ln	Asset Category	Replacement Cost Total
	A	B
1	Water Assets	$549,513,001
2	Wastewater Assets	$134,207,649
3	Agency General	$6,200,000
4	**System Total (1B+2B+3B)**	**$689,920,650**

Table 3-5 shows the dollar value of the assets split among its respective service type and the determined percentage benefit allocation for the "Agency General" assets in line 8. The total dollar values in lines columns C, D and E of 2-5 were determined by multiplying the system value Column B of **Table 3-2** with the percent benefit for each service type found on columns C, D, and E of **Table 3-2.**

__$440,686,152__ Treated Retail Total / __$689,920,650__ System Total = __64%__

Table 3-5: Allocation of Assets by Service Type without Agency General, $

Ln	Asset Allocation	System Value	Treated Retail	Untreated Retail	Treated Wholesale	Wastewater
	A	B	C	D	E	F
1	Amador Water System	$221,029,246	$136,213,601	$6,662,590	$78,153,055	$0
2	Tanner Treatment Plant	$50,980,650	$26,969,446	$0	$24,011,204	$0
3	Camanche Water	$50,282,348	$50,282,348	$0	$0	$0
4	CAWP-Retail	$219,176,573	$219,176,573	$0	$0	$0
5	Lamel Heights	$8,044,185	$8,044,185	$0	$0	$0
6	Wastewater	$134,207,649	$0	$0	$0	$134,207,649
7	**Replacement Cost Total**	**$689,920,650**	$440,686,152	$6,662,590	$102,164,259	$134,207,649
8	**Indirect % General**	**B7 / (C7…F7)**	**64%**	**1%**	**15%**	**20%**

Line 7 **Table 3-5** Columns C, D, E, and F show the summation of the respective columns while B7 of **Table 3-5** shows the summation of column B, which again includes the wastewater assets that are shown in **Table 3-4**. Line 8 of **Table 3-5** is determined by taking the service type total and dividing by the System Value total. For example, Treated Retail's percentage is calculated by taking the Total Treated Retail assets as shown in cell C7 and dividing it by the Total System Value, which includes the wastewater assets shown in cell B7:

Table 3-6 shows the Water Enterprise's share of the Agency General Category after multiplying the total $6,200,000 with the respective percent benefit determined in line 8 of **Table 3-5**. **Table 3-7** shows the total system value of the water assets inclusive of the Agency General Category. The percentage of assets by service type is seen in line 8 and is calculated in a similar manner to the Indirect percent split (**Table 3-5**, line 8).

Table 3-6: Water's Share of Agency General Assets

Ln	Service Type	% Benefit of Agency General	$ Value
	A	B	C
1	Treated Retail	64% * $6,200,000	$3,996,156
2	Untreated Retail	1% * $6,200,000	$60,417
3	Treated Wholesale	15% * $6,200,000	$926,429
4	**Subtotal - Water**		**$4,983,001**
5	Wastewater	20% * $6,200,000	$1,216,999
6	**Total**		**$6,200,000**

Table 3-7: Allocation of Assets by Service Type (Water Only), $

Ln	Asset Allocation	System Value	Treated Retail	Untreated Retail	Treated Wholesale
	A	B	C	D	E
1	Agency General	$4,983,001	$3,996,156	$60,417	$926,429
2	Amador Water System	$221,029,246	$136,213,601	$6,662,590	$78,153,055
3	Tanner Treatment Plant	$50,980,650	$26,969,446	$0	$24,011,204
4	Camanche Water	$50,282,348	$50,282,348	$0	$0
5	CAWP-Retail	$219,176,573	$219,176,573	$0	$0
6	Lamel Heights	$8,044,185	$8,044,185	$0	$0
7	**Water Assets Total**	**$554,496,002**	**$444,682,308**	**$6,723,007**	**$103,090,688**
8	**% of Water Assets**	**B7 / (C7…E7)**	**80.20%**	**1.21%**	**18.59%**

3.1.2. Less 20-Year Capital Improvement Plan

To better reflect the current value of the system, the Agency's 20-year CIP, which was determined in the Keller Water Master Plan Study, totaling $386,125,000, was deducted from the replacement cost . By reducing the replacement cost by the 20-year CIP, the Agency acknowledges the system needs repairs and accounts for the use of the system by existing customers. Additionally, capital improvements are typically financed by those receiving benefit from the assets, (e.g., the ratepayers or water customers) and therefore, should not be recovered through Capacity Fees. **Table 3-8** shows a summary of the master plan and R&R CIP needs as determined by the Keller Water Master Plan Study. More details on the 20-year CIP can be found in the Appendix.

Table 3-8: 20 Year Expected Capital Improvement

Ln	Project Totals (Today's $)		Treated Retail	Untreated Retail	Treated Wholesale
	A		B = A*(80.2%)	C = A*(1.2%)	D = A*(18.6%)
1	Water Master Plan	**$184,285,000**	$147,788,765	$2,234,370	$34,261,865
2	Water R&R CIP	**$201,840,000**	$161,867,131	$2,447,216	$37,525,653
3	**Total CIP Costs**	**$386,125,000**	**$309,655,896**	**$4,681,586**	**$71,787,518**

3.1.3. Less Outstanding Debt Obligations

Lastly, new customers will pay their share of any outstanding debt through water rates after joining the system. Therefore, the value of the system should be reduced by the amount of the outstanding principal, which was $36,907,397 as of December 30, 2020. Debt is split based on the percent of assets in each part of the system. This percentage split was determined and shown on line 8 of **Table 3-7. Table 3-9** shows the calculation of the debt obligations separated by service type. For example, Treated Retail's share of the Total Debt obligations is determined by taking the Outstanding Principal Debt (B1) and multiplying it by the total percent of assets for that service type (C8 of **Table 3-7**):

$36,907,397 Outstanding Water Principal x 80.2% Treated Retail Asset Total = $29,598,169

Table 3-9: Outstanding Principal Debt

Ln	Description	Total Debt	Treated Retail	Untreated Retail	Treated Wholesale
	A	B	C = B1*(80.2%)	D = B1*(1.2%)	E = B1*(18.6%)
1	**Water External**	**$36,907,397**	$29,598,169	$447,485	$6,861,743

3.1.4. Net Asset Value

For the Agency's updated Capacity Fee, Raftelis utilized replacement cost, the Agency's 20-year R&R CIP, and outstanding principal debt obligations to determine the Agency's Net Asset Value. The 2020 total Net Asset Value of the water system is $131,463,605 (**Table 3-10:** B4 + C4 + D4). **Table 3-10** summarizes the determination of the system's Net Asset Value separated into the Agency's 3 service types.

Table 3-10: Net Asset Value

Ln	Description	Treated Retail	Untreated Retail	Treated Wholesale	System Total
	A	B	C	D	E = (B+C+D)
1	Asset Value	$444,682,308	$6,723,007	$103,090,688	$554,496,002
2	20 Yr CIP	($309,655,896)	($4,681,586)	($71,787,518)	($386,125,000)
3	Outstanding Principal	($29,598,169)	($447,485)	($6,861,743)	($36,907,397)
4	**Net Asset Value**	**$105,428,243**	**$1,593,935**	**$24,441,427**	**$131,463,605**

3.2. Current Demand

The second step in calculating the Buy-In Capacity Fee is to determine the current available capacity of the system. Dividing the value of the system by the capacity provides a unit cost for the development charge. For water systems, capacity is usually expressed in meter equivalents rather than the number of service connections. The benefit of using meter equivalents is that it relates the relative capacity of service connections with meters of various sizes, i.e., accounts for the larger meters generating more demand.

Raftelis utilized customer account data provided by the Agency to determine the number of meters by meter size. Next, the AWWA standards for maximum rated safe operating flow in gallons per minute (gpm) were used to determine the equivalent meter ratios. For example, if a typical Single-Family residence or base meter for the Agency is a 5/8" meter, then a safe operating capacity of a 20 gpm would be used as the base capacity. For each size of meter, there is a corresponding maximum safe operating capacity, which provides the basis for calculating the meter equivalency ratios (AWWA Meter Ratio). For example, the safe operating capacity for a 1 ½" meter is 100 gpm. Comparing the 1 ½" meter and the 5/8" meter on a capacity basis, a 1 ½" meter is equivalent to five (5) 5/8" meters. This was determined by dividing the 1 ½" meter capacity of 100 gpm by the 5/8" meter capacity of 20 gpm. Therefore, the base meter receives an equivalent meter ratio of 1, whereas the 1 ½" meter receives an equivalent meter ratio of 5. Note in this example, the meter ratios should reflect each meter's capacity in relation to the 5/8" meter capacity. Finally, the number of meters (by size) are multiplied by the respective equivalent meter ratio to obtain the equivalent meters. This value will be referred to as an Equivalent Meter Unit or EMU.

The Agency has normalized its meter type to the ¾” in meter which has a safe operating capacity of 30 gpm. This was done because the Agency is seeking to replace all 5/ 8” meters with ¾” meters for fire resizing. The meter ratios then will be based on the division of all meters with the safe operating capacity of a ¾” meter.

Table 3-11, **Table 3-12**, and **Table 3-13** summarize the data used to determine the total EMU’s for Treated Retail, Untreated Retail, and Treated Wholesale customers respectively. It is important to note that for Treated Wholesale customers, the number of end-user service connections was used rather than the number of connections directly linked to the agency. Agency staff reached out to each of its wholesale customers and received the number of connections they had by meter size, which is shown in **Table 3-13**.

Table 3-11: Treated Retail EMU Calculation

Ln	Meter Size	AWWA Capacity	AWWA Ratio	# of Meters	EMU
	A	B	C	D	E
1	5/ 8 & 3/ 4 inch	30	1.00	6,698	6,698
2	1 inch	50	1.67	226	377
3	1-1/ 2 inch	100	3.33	34	113
4	2 inch	160	5.33	33	176
5	3 inch	350	11.67	3	35
6	4 inch	630	21.00	4	84
7	6 inch	1600	53.33	6	320
8	**Total**			**7,004**	**7,803**

Table 3-12: Untreated Retail EMU Calculation

Ln	Meter Size	AWWA Capacity	AWWA Ratio	# of Meters	EMU
	A	B	C	D	E
1	5/ 8 & 3/ 4 inch	30	1.00	125	125
2	1 inch	50	1.67	30	50
3	1-1/ 2 inch	100	3.33	7	23
4	2 inch	160	5.33	6	32
5	3 inch	350	11.67	3	35
6	4 inch	630	21.00	3	63
7	6 inch	1600	53.33	1	53
8	**Total**			**175**	**382**

Table 3-13: Treated Wholesale EMU Calculation

Ln	Meter Size	AWWA Capacity	AWWA Ratio	# of Meters	EMU
	A	B	C	D	E
1	5/8 & 3/4 inch	30	1.00	3,242	3,242
2	1 inch	50	1.67	197	328
3	1-1/2 inch	100	3.33	36	120
4	2 inch	160	5.33	106	565
5	3 inch	350	11.67	0	-
6	4 inch	630	21.00	8	168
7	6 inch	1,600	53.33	1	53
8	**Total**			**3,590**	**4,477**

3.3. Equity Buy-In Charge ($/EMU)

The final step in determining the Capacity Fee is to divide the total Net Asset Value of the water system summarized in **Table 3-13** by the total EMUs summarized in **Table 3-15**. In 2020 dollars, the total net value of the water system is $131,463,202. The total number of Equivalent Meter Units is 12,662.

Table 3-14: Net Asset Value by Service Type Summary

Ln	Service Type	Net Asset Value	Source
	A	B	C
1	Treated Retail	$105,428,243	*Table 3-10 B4*
2	Untreated Retail	$1,593,935	*Table 3-10 C4*
3	Treated Wholesale	$24,441,427	*Table 3-10 D4*
4	**Grand Total**	**$131,463,202**	

Table 3-15: EMU by Service Type Summary

Ln	Service Type	EMUs	Source
	A	B	C
1	Treated Retail	7,803	*Table 3-11 E9*
2	Untreated Retail	382	*Table 3-12 E9*
3	Treated Wholesale	4,477	*Table 3-13 E9*
4	**Grand Total**	**12,662**	

The value of the system is divided by current demand expressed in total EMUs to determine the per EMU cost of each Capacity Fee. **Figure 3-1**, **Figure 3-2**, and **Figure 3-3** summarizes the calculation of the Buy-in cost of each service type.

Figure 3-1: Treated Retail Buy-In

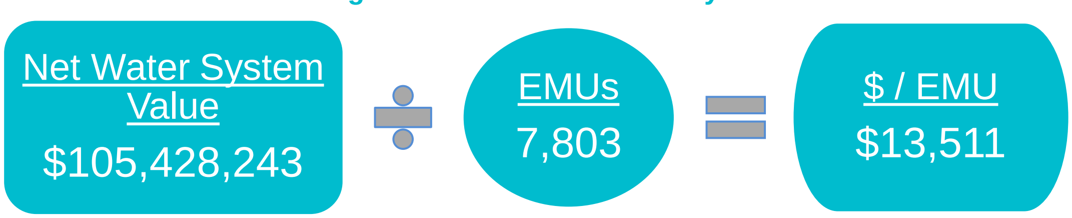


Figure 3-2: Untreated Retail Buy-In

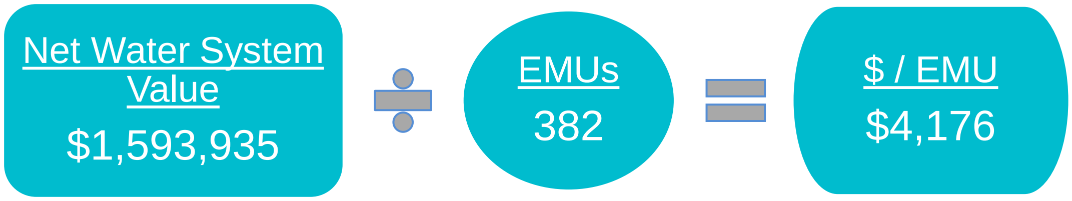
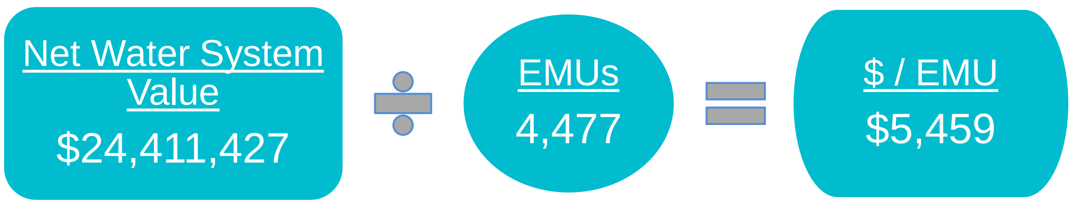


Figure 3-3: Treated Wholesale Buy-In



3.4. Incremental Cost

While the Agency's service area already contains several built-out sections, the Agency is looking at future expansion and growth, which is identified in the Keller Waster Master Plan Study. Because additional capacity is needed to accommodate this new development, the hybrid approach was proposed to determine the updated capacity fee. The hybrid approach requires not only the Buy-in Charge, but also the Incremental cost that will serve new growth. This methodology embraces the philosophy that Capacity Fees should relate to specific facilities that are designed to accommodate growth.

Determination of the Incremental portion of the Capacity Fee requires three steps:

1. Identification of only growth-related CIP over the next 5 years
2. Expected number of units to be served by these improvements over the next 5 years.
3. Determination of Unit Charge

The unit charge is determined by dividing the cost of growth-related improvements with the number of units to be served by these improvements.

Additionally, the agency discussed with Raftelis that there is no expected growth for the Untreated Retail Service Type and as such no new CIP over the next 5 years will be constructed for its benefit. As a result of this, Raftelis determined that the Untreated Retail Capacity Fee would not include the incremental cost.

3.4.1. GROWTH RELATED CIP

The Agency provided the incremental growth-related CIP for backbone system projects over the next 5 years, which will benefit incoming customers. These projects come from the priority 1A improvements that the Keller Water Master Plan Study identified. The projects and their totals can be seen in **Table 3-16.** The amount allocated to growth is seen in column G and totals out to $7,687,000. This value does not include the portion of CIP that is for repair and refurbishment. A more detailed list that of the projects and their costs can also be seen in the appendix under the 20-year CIP plan.

Table 3-16: Growth Related Project Costs

Ln	Project ID#1	Project Name	Total Estimated Cost (2020 Dollars)	% Allocated to Growth	Cost Allocated to Growth
A	B	C	E	F	G
1	AWA 1A.1 (WTP)	Tanner and Ione Treatment Plant Capacity Study	$150,000	50%	$75,000
2	TAN 1A.3 (WTP)	Tanner WTP Clearwell Replacement	$9,806,000	50%	$4,878,000
3	CAWP 1A.1 (B)	Mt. Crossman Pump Station Firm Capacity and Ridgeway Pump Station Generator	$247,000	29%	$72,000
4	CAWP 1A.2 (WTP) 5	Buckhorn Membrane Replacement	$100,000	29%	$29,000
5	CAWP 1A.3 (S)	Buckhorn WTP Finish Water Pumps Control Upgrade	$15,000	29%	$4,000
6	LAMEL 1A.1 (WTP) 5	LaMel Air Stripper Pilot	$25,000	7%	$2,000
7	LAMEL 1A.2 (B & WTP)	LaMel Booster Station and Water Treatment Upgrades	$2,398,000	7%	$163,000
8	TAN 1A.8 (P)	Hayden Alley, Broadway, Borgh, Eureka, and Tucker Hill Pipeline Replacements	$1,838,000	17%	$306,000
9	CAWP 1A.8 (P)	Upsize Madrone Tank Fill Line and McKenzie PRV	$369,000	29%	$107,000
10	CAWP 1A.9 (P)	CAWP Transmission Main Improvements and Tank D Replacement	$7,073,000	29%	$2,051,000
11	**Grand Total**		**$22,021,000**		**$7,687,000**

3.4.2. EXPECTED DEMAND GROWTH

To determine the incremental increase in capacity, Raftelis analyzed the current 2019 population estimate and the growth projections as they appeared on the Keller Water Master Plan Study. The Water Master Plan Study provided yearly growth rates per service area, which Raftelis used to determine a 5-year population estimate. **Table 3-17** shows the yearly Population Growth Projections from the Keller Master Plan Study with the 2020 estimate and 2025 estimate. **Table 3-18** shows Raftelis's percentage estimate for population projections at 2025 buildout, which will be multiplied with the current number of EMUs to determine the expected number of growth-related EMUs.

Table 3-17: Expected Growth

Service Area	Growth Rate	2019	2020	2021	2022	2023	2024	2025
Amador City	0.71%	188	189	190	192	193	194	196
Ione	4.00%	3,940	4,098	4,262	4,432	4,610	4,794	4,986
Mule Creek CF[1]	1.23%	4,051	4,101	4,151	4,203	4,254	4,307	4,359
Jackson	0.70%	4,770	4,803	4,837	4,870	4,905	4,939	4,973
Plymouth	4.00%	1,012	1,052	1,094	1,138	1,183	1,231	1,280
Sutter Creek	0.60%	2,559	2,574	2,589	2,605	2,621	2,636	2,652
Unincorporated	0.71%	21,774	21,928	22,084	22,240	22,398	22,557	22,718
Total County	0.71%	**38,294**	**38,745**	**39,208**	**39,680**	**40,164**	**40,658**	**41,164**

[1] Mule Creek Correctional Facility.

Table 3-18: Expected Demand Growth

Ln	Description	Population
A	B	C
1	**Current Population (2019 Estimate)**	38,294
2	**Population at Buildout (2025 Estimate)**	41,164
3	**% Increase**	7.5%

The incremental EMU is calculated based on the net number of total EMUs less Untreated Retail multiplied by the population growth as follows:

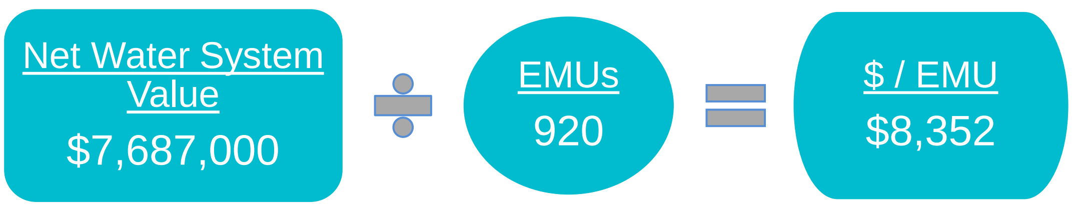
$$(12{,}662\ EMUs_{total} - 382\ EMUs_{UntreatedRetail}) * 7.5\%\ population\ growth = 920\ Incremental\ EMUs$$

EMUs for Untreated Retail are excluded no growth is expected for the Untreated Retail Service Type, and as such, no new CIP over the next 5 years will be constructed for its benefit as previously mentioned.

3.4.3. INCREMENTAL COST

With the growth related CIP over the next 5 years and future demand growth for that same time period determined, the incremental unit cost can be calculated. **Figure 3-4** shows the incremental cost that will be added on top of the Treated Retail and Treated Wholesale Capacity Fees.

Figure 3-4: Incremental Cost Calculation



3.5. Proposed Capacity Fees

The total Capacity Fees with the buy-in and incremental cost are shown in column D of **Table 3-19.**

Table 3-19: Proposed Capacity Fees, $/EMU

Ln	Service Type	Buy-In	Incremental	Proposed Fee
	A	B	C	D = B+C
1	Treated Retail	$13,511	$8,352	$21,863
2	Untreated Retail	$4,176	$0	$4,176
3	Treated Wholesale	$5,459	$8,352	$13,811

Raftelis recommends adopting the proposed Capacity Fees that are shown in **Table 3-19** per EMU to be implemented in FY 2022. In conjunction with adopting an updated Capacity Fee schedule, Raftelis also recommends the Agency adjust the Capacity Fee annually to keep pace with inflation. The Agency should also conduct a comprehensive review of its Capacity Fee every three-to-five years to ensure appropriate funding of capital projects and equity among customers.

APPENDICES

APPENDIX A: 20 Year Capital Improvement Plan

TABLE 8-2: 20-YEAR CAPITAL IMPROVEMENTS

Agency Ranking	Project ID#[1]	Project Name	Project Trigger	Total Estimated Cost (2020 Dollars)	Cost Allocated to AWA[2]
Priority 1A Improvements (2021-2025)					
1	AWA 1A.1 (WTP)	Tanner and Ione Treatment Plant Capacity Study	WTP Planning	$150,000	$75,000
2	IONE 1A.1 (WTP)	Ione Clearwell Cover	Poor Conditions	$300,000	$300,000
3	TAN 1A.1 (WTP)	Tanner WTP PLC Upgrade	WTP Current Deficiencies	$250,000	$250,000
4	TAN 1A.2 (WTP)	Tanner WTP Filter Media Replacement	WTP Current Deficiencies	$430,000	$430,000
5	TAN 1A.3 (WTP)	Tanner WTP Clearwell Replacement	Urgent California SWRCB Identified Deficiencies	$9,806,000	$4,928,000
6	CAWP 1A.1 (B)	Mt. Crossman Pump Station Firm Capacity and Ridge Pump Station Generator	Firm Capacity 25+ Users	$247,000	$175,000
7	TAN 1A.4 (B)	Ridge Pump Station Generator	Firm Capacity 25+ Users and Generator	$229,000	$229,000
8	TAN 1A.5 (P)	Amador City PRV Relocation	Poor Conditions	$213,000	$213,000
9	CAWP 1A.2 (WTP)	Buckhorn Membrane Replacement	WTP Current Deficiencies	$100,000	$71,000
10	CAWP 1A.3 (S)	Buckhorn WTP Finish Water Pumps Control Upgrade	Operational Adjustments	$15,000	$11,000
11	LAMEL 1A.1 (WTP)	LaMel Air Stripper Pilot	WTP Planning	$25,000	$23,000
12	LAMEL 1A.2 (B & WTP)	LaMel Booster Station and Water Treatment Upgrades	Firm Capacity 25+ Users and Conditions	$3,448,000	$3,214,000
13	CAWP 1A.4 (P)	Tank C Service Area Individual PRV Installation	High Pressures	$79,000	$79,000
14	IONE 1A.2 (P)	Tanner to Ione Transmission Line Cathodic Protection	Cathodic Protection	$1,696,000	$1,696,000
15	TAN 1A.6 (P)	Tanner Raw Water Transmission Line Cathodic Protection	Cathodic Protection	$2,384,000	$2,384,000
16	IONE 1A.3 (T)	Prison and Wildflower Tanks Cathodic Protection Upgrades	Cathodic Protection	$120,000	$120,000
17	CAWP 1A.5 (T)	CAWP System Tanks Cathodic Protection Upgrades	Cathodic Protection	$399,000	$399,000
18	TAN 1A.7 (T)	Trent Tank Cathodic Protection Upgrades	Cathodic Protection	$56,000	$56,000
19	IONE 1A.4 (WTP)	Ione WTP Fencing	Security	$336,000	$336,000
20	TAN 1A.8 (P)	Hayden Alley, Broadway, Borgh, Eureka, and Tucker Hill Pipeline Replacements	Poor Conditions	$1,838,000	$1,532,000
21	CAWP 1A.6 (P)	Lynn Way Service Line Replacement	Poor Conditions	$63,000	$63,000
22	CAWP 1A.7 (P)	Robin Lane Pipe Replacement	Poor Conditions	$892,000	$892,000
23	CAWP 1A.8 (P)	Upsize Madrone Tank Fill Line and McKenzie PRV	Operational and Peaking Storage	$369,000	$262,000
24	IONE 1A.5 (P)	Arroyo Seco and Amador Street Pipeline Replacements	Poor Conditions	$598,000	$598,000
25	CAM 1A.1 (P)	Camanche Service Lateral Replacement	Poor Conditions	$2,328,000	$2,328,000
26	TAN 1A.9 (B)	Amador City High Service Individual Boosters	Low Pressures	$223,000	$223,000
27	IONE 1A.6 (P)	Oak Ridge Pressure Zone Creation	Low Pressures	$422,000	$422,000
28	CAWP 1A.9 (P)	CAWP Transmission Main Improvements and Tank D Replacement	Low Pressures	$7,073,000	$5,022,000
			Total Priority 1A Improvements (rounded)	**$34,089,000**	**$26,331,000**
Priority 1B Improvements (2025-2030)					
1	IONE 1B.1 (P)	New WTP Transmission Line	Address Existing WTP Commitments, Existing Capacity	$10,720,000	$5,120,000
2	IONE 1B.2 (WTP)	Ione Treatment Improvements	Address Existing WTP Commitments, Existing Capacity	$46,519,000	$26,829,000
3	TAN 1B.1 (WTP)	Tanner WTP Improvements	WTP Current Deficiencies	$8,047,000	$8,047,000
4	CAWP 1B.1 (B)	Replacement of the McKenzie PS; Pine Needle, Meadowbrook and Gulli Firm Capacity Upgrades; Toma Ln PS Improvements	Firm Capacity Less than 25 Users and Conditions	$984,000	$699,000
5	CAWP 1B.2 (T)	Replace Ranch House Tank	Physical Conditions	$1,502,000	$1,066,000
6	CAWP 1B.3 (T)	Replace Jackson Pines Tank	Physical Conditions	$970,000	$689,000
			Total Priority 1B Improvements (rounded)	**$68,742,000**	**$42,450,000**
Priority 2A Improvements (2030-2035)					
1	TAN 2A.1 (WTP)	Tanner Treatment Expansion	Address Existing WTP Commitments and Growth	$24,149,000	$12,136,000
2	CAWP 2A.1 (T)	New Mt. Crossman Tank, PRVs and Tank Abandonment, and Old Rabb Tank Discharge Line Interties	Emergency and Fire Storage	$7,094,000	$5,037,000
3	IONE 2A.1 (WTP)	Ione Treatment Relocation	Physical Conditions, WTP Consolidation	$25,920,000	$25,920,000
4	CAWP 2A.2 (P)	Buckhorn Ridge Road and Highway 88 Water line and Tie to Alpine Storage	Emergency and Fire Storage	$5,034,000	$3,574,000
5	IONE 2A.2 (T)	Additional Storage at the Prison Tank	Emergency and Fire Storage	$12,185,000	$3,534,000
6	CAWP 2A.3 (WTP)	Buckhorn Automated Clean In Place	WTP Operations	$1,315,000	$934,000
7	CAM 2A.1 (T)	Construct a New 1.5 MG Storage Tank at Camanche Tank 9	Emergency and Fire Storage	$4,099,000	$820,000
8	TAN 2A.2 (T)	Trent Tank Replacement	Physical Conditions	$2,503,000	$2,503,000
			Total Priority 2A Improvements (rounded)	**$82,299,000**	**$54,458,000**

Agency Ranking	Project ID#[1]	Project Name	Project Trigger	Total Estimated Cost (2020 Dollars)	Cost Allocated to AWA[2]
Priority 2B Improvements (2030-2035)					
1	CAWP 2B.1 (WTP)	Tiger Creek Regulator Low Level Pump System	Improve Raw Water Delivery	$750,000	$532,000
2	CAWP 2B.2 (P)	Big Oak PRV Upgrade	Poor Conditions	$116,000	$116,000
3	IONE 2B.1 (P)	Ione Junior High School Pipeline Upsize	Improve Fire Flows to 500+ gpm	$287,000	$287,000
4	CAM 2B.1 (P)	12" Waterline Loop to Site 10	Improve Fire Flows to 500+ gpm, Improve Transmission	$3,487,000	$1,314,000
5	CAM 2B.2 (P)	12" Waterline Loop Across Camanche Reservoir	Improve Fire Flows to 500+ gpm, Improve Transmission	$10,277,000	$3,873,000
6	CAM 2B.3 (P)	Combine Front and Back Systems and Abandon Redwood Tanks and Pump Stations	Physical Conditions	$1,989,000	$749,000
7	IONE 2B.2 (P)	Highway 124 Pipeline Upsize	Improve Fire Flows to 500+ gpm	$1,335,000	$1,335,000
8	TAN 2B.1 (P)	Anna and Dennis Pipeline Replacements	Improve Fire Flows to 500+ gpm	$1,212,000	$1,212,000
9	TAN 2B.2 (P)	Columbia Pipelines	Improve Fire Flows to 500+ gpm	$727,000	$727,000
10	TAN 2B.3 (B)	Trent Pump Station Fire Pump	Improve Fire Flows to 500+ gpm	$208,000	$208,000
11	TAN 2B.4 (P)	Sutter Ione and Oro Madre PRV	Improve Fire Flows to 500+ gpm	$447,000	$447,000
12	TAN 2B.5 (P)	Old Hwy 49, Church, Fleehart, Gods Hill, and Bunker Hill Pipelines	Improve Fire Flows to 500+ gpm	$2,722,000	$2,722,000
13	TAN 2B.6 (P)	Greenstone Pipeline Loop	Improve Fire Flows to 500+ gpm	$586,000	$586,000
14	CAWP 2B.3 (P)	Alpine PRVs, McKenzie Dr Water Line, and Madrone Tank Abandonm	Improve Fire Flows to 500+ gpm	$862,000	$612,000
15	CAWP 2B.4 (P)	Alpine South Water Lines	Improve Fire Flows to 500+ gpm	$2,292,000	$1,627,000
16	CAWP 2B.5 (P)	Antelope Dr, Jacqueline Dr, and Stella Ct Water Lines	Improve Fire Flows to 500+ gpm	$1,899,000	$1,348,000
17	CAWP 2B.6 (P)	Sugar Pine Dr and Conifer Ct Water Line	Improve Fire Flows to 500+ gpm	$2,191,000	$1,556,000
18	CAWP 2B.7 (P)	Cedar Heights Dr and Mt Misery Ln Water Lines	Improve Fire Flows to 500+ gpm	$2,041,000	$1,449,000
19	CAWP 2B.8 (P)	Pioneer Creek Rd and Sunny Dr Water Lines	Improve Fire Flows to 500+ gpm	$1,903,000	$1,351,000
20	CAWP 2B.9 (P)	Tank C Service Area Waterline Upsizing	Improve Fire Flows to 500+ gpm	$3,235,000	$2,297,000
21	CAWP 2B.10 (P)	Arrowhead Rd and Tabeaud Rd Water Lines	Improve Fire Flows to 500+ gpm	$2,355,000	$1,672,000
22	CAWP 2B.11 (P)	Pine Acres North Water Lines	Improve Fire Flows to 500+ gpm	$5,005,000	$3,554,000
23	CAWP 2B.12 (P)	Pine Acres South Water Line Corridor Upsizing	Improve Fire Flows to 500+ gpm	$4,817,000	$3,420,000
24	CAWP 2B.13 (B)	Tank B PS and Pipeline Improvements	Improve Fire Flows to 500+ gpm	$2,415,000	$1,715,000
25	CAWP 2B.14 (P)	Highway 88 and Pioneer Volcano Rd and Rocky Ln PRVs	Improve Fire Flows to 500+ gpm	$492,000	$349,000
26	CAWP 2B.15 (P)	Meadowbrook Dr & Shadow Glenn Ct Water Lines	Improve Fire Flows to 500+ gpm	$1,566,000	$1,112,000
27	CAWP 2B.16 (P)	Windmill Ct and Marc Dr Pipelines and PRVs	Improve Fire Flows to 500+ gpm	$543,000	$386,000
			Total Priority 2 Improvements (rounded)	**$55,759,000**	**$36,556,000**
Priority 3 Improvements (2035 - 2040)					
1	IONE 3.1 (WTP)	Ione Raw Water Tanks	WTP Lower Priority Improvements	$17,783,000	$10,256,000
2	TAN 3.1 (WTP)	Tanner Raw Water Tanks	WTP Lower Priority Improvements	$17,783,000	$8,937,000
3	TAN 3.2 (WTP)	Tanner Metal Building	WTP Lower Priority Improvements	$250,000	$126,000
4	IONE 3.2 (P)	Downtown Pipe Replacement and Looping	Expanded 500+ gpm Fire Flow Corridors	$286,000	$286,000
5	IONE 3.3 (P)	Cemetery Service Replacement	Agency Contract Agreements	$100,000	$100,000
6	CAWP 3.1 (P)	Upsize Alpine Pipelines	Expanded 500+ gpm Fire Flow Corridors	$2,289,000	$1,625,000
7	CAWP 3.2 (P)	Upsize Cedar Heights Service Area Pipelines	Expanded 500+ gpm Fire Flow Corridors	$1,627,000	$1,155,000
8	IONE 3.4 (P)	Marlette St Pipeline Replacement	Expanded 500+ gpm Fire Flow Corridors	$947,000	$297,000
9	LAMEL 3.1 (T)	Additional LaMel Storage Tank	Emergency and Fire Storage Less than 100 Users	$548,000	$511,000
10	LAMEL 3.2 (P)	Upsize Existing 2" Pipeline	Expanded 500+ gpm Fire Flow Corridors	$1,015,000	$946,000
11	CAWP 3.3 (T & B)	Sunset Heights Tank Retirement	Physical Conditions	$354,000	$251,000
			Total Priority 3 Improvements (rounded)	**$42,982,000**	**$24,490,000**

APPENDIX B: Annual Replacement Budget

TABLE 8-3: ANNUAL REPLACEMENT BUDGET

Annual Replacement Budget Summary		
Category	**Annual Budget**	
Water Service Meters	$	156,000
Fire Hydrants	$	424,000
Wells:	$	65,000
Pump Stations[1]:		
Very Small	$	49,000
Small	$	19,000
Medium	$	13,000
Large	$	41,000
Storage Tanks[2]:		
Small	$	11,000
Medium	$	98,000
Large	$	132,000
Subtotal	$	*1,008,000*
Pipeline Replacements Subtotal	$	*7,162,000*
WTP Replacement Subtotal	$	*1,922,000*
Total Annual Replacement Budget	**$**	**10,092,000**

[1]Pump Station sizes:
Very Small: <200 gpm; <10 hp
Small: 200 - 500 gpm; 10 - 20 hp
Medium: 500 - 2,000 gpm; 20 - 40 hp
Large: >2,000 gpm; >40 hp

[2]Tank sizes:
Small: 26k - 100k gal
Medium: 101k - 500k gal
Large: >500k gal