EL TORO WATER DISTRICT

2021-22 Water, Recycled Water, and Wastewater Rate Update Study

Final Report / April 21, 2021

EL TORO WATER DISTRICT
Serving the Public
Respecting the Environment

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April 02, 2021

Dennis P. Cafferty, P.E.
General Manager
El Toro Water District
24251 Los Alisos Blvd.
Lake Forest, CA 92630

Subject: 2021-22 Water, Recycled Water, and Wastewater Rate Update Study Report

Dear Mr. Cafferty:

As part of the annual cost of service and rate update process, El Toro Water District (ETWD or District) engaged Raftelis Consultants, Inc. (Raftelis) to conduct a cost of service study for the development of its water, wastewater, and recycled water rates that comply with Proposition 218 and other legal requirements. As part of the Study, we reviewed the latest operating budget, including purchased water costs, referenced previously conducted cost of service analyses, and calculated the water, wastewater and recycled water rates for the District in fiscal year (FY) 2021-22. The updated rates, scheduled to be effective on July 1, 2021, reflect projected changes in net revenue requirements for each enterprise and projected water sales for FY 2021-22.

This Water, Recycled Water, and Wastewater Rate Update Study Report summarize the key findings and recommendations related to the development of the respective rates.

It has been a pleasure working with the District. We would like to thank you for your assistance during the Study.

Sincerely,

Sanjay Gaur
Vice President – Project Manager

Khanh Phan
Senior Consultant – Lead Analyst

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1. Executive Summary

1.1. Background of the Study

The District engaged Raftelis Consultants, Inc. (Raftelis) to conduct the Water, Recycled Water (RW), and Wastewater Rate Update Study (Study) to develop rates for all three enterprises that are equitable and in compliance with Proposition 218. This Fiscal Year (FY) 2021-22 Water, Recycled Water, and Wastewater Rate Update Study Report (Report) summarizes the key findings and recommendations related to developing the respective rates.

The District's current water and wastewater rate structure consists of the following components to ensure that rates are charged equitably to all customers, provide adequate revenues to fund operating and capital costs, and are simple to administer and implement while promoting water efficiency and conservation.

Water

- Monthly Service Charges by meter size to recover a portion of operating costs
- Variable Rates: Tiered Residential Rates, and Uniform Commercial Rates, comprised of the following rate components:
  - Water Supply Rate to pay for purchased water supply costs
  - Delivery Rate to recover the remaining operating costs
  - Revenue Offset to provide a rate incentive and affordability for essential water use in Tier 1
  - Conservation and Recycled Water Program costs applied to inefficient and excessive water use to fund the District's conservation and supplemental water supply (i.e., Recycled Water expansion) programs
- Capital Replacement and Refurbishment (R&R) Charges by meter size to pay for capital replacement and refurbishment of the existing water system

Wastewater (WW)

- O&M Charges (by dwelling units for residential customers and by usage for non-residential customers) by customer classes
- Capital R&R Charges by meter size to pay for capital R&R of the existing wastewater system

1.2. Proposed Water Rates

1.2.1. MONTHLY SERVICE CHARGES

Table 1-1 shows the proposed monthly service charges for FY 2022, effective July 1, 2021.

Table 1-1: FY 2022 Proposed Monthly Service Charges

Meter Size	Proposed FY 2022	Current FY 2021	$ Change	% Change
5/8"	$16.56	$15.17	$1.39	9.2%
3/4"	$22.24	$20.33	$1.91	9.4%
1"	$33.60	$30.66	$2.94	9.6%
1 1/2"	$62.00	$56.48	$5.52	9.8%
2"	$118.80	$108.11	$10.69	9.9%

1.2.2. CAPITAL R&R CHARGES

The District will maintain the current Capital R&R Charges for potable service.

Table 1-2: FY 2022 Proposed Capital R&R Charges

Meter Size	Proposed FY 2022	Current FY 2021	$ Change	% Change
5/8"	$4.66	$4.66	$0.00	0.0%
3/4"	$4.66	$4.66	$0.00	0.0%
1"	$7.78	$7.78	$0.00	0.0%
1 1/2"	$18.91	$18.91	$0.00	0.0%
2"	$47.47	$47.47	$0.00	0.0%

1.2.3. COMMODITY RATES

The proposed water commodity rates for FY 2022, shown in Table 1-3, will be effective July 1, 2021. The proposed rate reflects the projected increases in purchased water supply costs from Municipal Water District of Orange County (MWDOC), and the resulting redistribution of costs among tiers from the updated Cost of Service, detailed in this report.

Table 1-3: FY 2022 Proposed Water Commodity Rates

Water Usage Rates	Proposed FY 2022	Current FY 2021	$ Impact	% Impact
Tier 1 - Essential Use	$2.72	2.65	$0.07	2.7%
Tier 2 - Efficient Use	$3.11	3.04	$0.07	2.4%
Tier 3 - Inefficient Use	$6.78	6.21	$0.57	9.2%
Tier 4 - Excessive Use	$8.52	7.95	$0.57	7.2%
Uniform - Commercial Use	$3.14	3.02	$0.12	4.1%

1.2.4. PRIVATE FIRE RATES

The District updated the private fires to account for account for the extra capacity demand to fight an average fire in the District. The proposed Private Fire Rates are shown in Table 1-4 reflect the changes to the fixed charges to the Fire demand component result resulting from the updated methodology to calculate the effective the fire line capacity at each fire meter or fire line size. The methodology is detailed in this Report in Section 5.

Table 1-4: FY 2022 Proposed Private Fire Service Rates

Meter Size	Account #	Proposed FY 2022	Current Rates	$ Change	% Change
4"	27	$22.86	$33.72	-$10.86	-32%
6"	90	$44.76	$50.58	-$5.82	-12%
8"	53	$82.53	$67.44	$15.09	22%
10"	4	$139.34	$84.30	$55.04	65%

1.3. Proposed Wastewater Rates

1.3.1. SERVICE CHARGES

Based on careful review of financial requirements of Wastewater Enterprise, the proposed wastewater rates reflect a 6% increase to collect the revenue requirements as shown in Table 1-5.

Table 1-5: FY 2022 Proposed Wastewater Service Charges

Sewer Service Charges	FY 2021 Current	FY 2022 Proposed	$ Increase	% Increase
Residential ($/EDU)				
Residential Unrestricted	$24.30	$25.76	$1.46	6%
Multi-Family Restricted	$19.28	$20.44	$1.16	6%
Multi-Family Unrestricted	$22.92	$24.30	$1.38	6%
Commercial Use ($/ccf)				
Animal Kennel	$3.99	$4.23	$0.24	6%
Car Wash	$3.97	$4.21	$0.24	6%
Dept. Store	$3.99	$4.23	$0.24	6%
Dry Cleaner	$3.50	$3.71	$0.21	6%
Parks Golf Courses	$3.49	$3.70	$0.21	6%
Health Spa	$3.98	$4.22	$0.24	6%
Hospital	$3.50	$3.71	$0.21	6%
Hotel	$6.04	$6.41	$0.37	6%
Market	$7.92	$8.40	$0.48	6%
Mortuaries	$7.89	$8.37	$0.48	6%
Nursery	$3.54	$3.76	$0.22	6%
Prof/Financial Office	$3.99	$4.23	$0.24	6%
Public Institution	$3.93	$4.17	$0.24	6%
Auto Service Station(repair)	$3.98	$4.22	$0.24	6%
Restaurants	$3.77	$4.00	$0.23	6%
Schools	$4.13	$4.38	$0.25	6%
Schools	$4.13	$4.38	$0.25	6%
Theater	$3.99	$4.23	$0.24	6%
Warehouse/Storage	$3.16	$3.35	$0.19	6%
Warehouse	$3.16	$3.35	$0.19	6%
Basic Commercial	$3.50	$3.71	$0.21	6%

1.3.2. CAPITAL R&R CHARGES

The Wastewater Enterprise will also maintain its Capital R&R Charges with no proposed increase.

Table 1-6: FY 2022 Proposed Wastewater Capital R&R Charges

Customer Classes	FY 2022 Proposed	FY 2021 Current	$ Increase	% Increase
Residential ($/EDU)				
Residential Unrestricted	$4.93	$4.93	$0.00	0.0%
Multi-Family Restricted	$3.91	$3.91	$0.00	0.0%
Multi-Family Unrestricted	$4.65	$4.65	$0.00	0.0%
Commercial				
5/8"	$4.34 / month	$4.34 / month	$0.00	0.0%
3/4"	$7.34 / month	$7.34 / month	$0.00	0.0%
1"	$13.55 / month	$13.55 / month	$0.00	0.0%
1 1/2"	$24.07 / month	$24.07 / month	$0.00	0.0%
2"	$70.96 / month	$70.96 / month	$0.00	0.0%
Public Authority				
1"	$4.93 / month	$4.93 / month	$0.00	0.0%
1 1/2"	$24.65 / month	$24.65 / month	$0.00	0.0%
2"	$39.71 / month	$39.71 / month	$0.00	0.0%

1.4. Proposed Recycled Water Rates

The proposed RW rate for FY 2022 is $2.80/ccf, which is approximately 90 percent of the Tier 2 potable water rate. All RW customers connected to the new recycled water distribution system will be assessed Monthly Service Charges (Table 1-7) and Capital R&R Charges (Table 1-8), the same as potable meters to recover the customer service, meter service, a portion of capacity and other RW related fixed costs and to pay for capital R&R of the expanded RW system.

Table 1-7: FY 2022 Proposed Monthly Service Charges

Meter Size	FY 2022 Proposed	FY 2021 Current	$ Change	% Change
5/8"	$16.56	$15.17	$1.39	9%
3/4"	$22.24	$20.33	$1.91	9%
1"	$33.60	$30.66	$2.94	10%
1 1/2"	$62.00	$56.48	$5.52	10%
2"	$118.80	$108.11	$10.69	10%

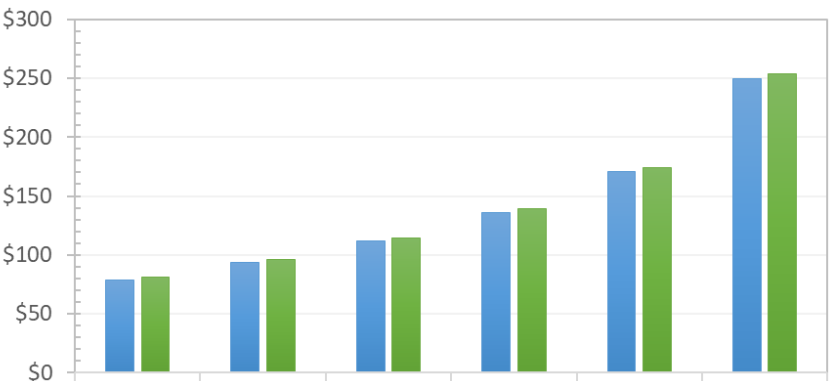
Table 1-8: FY 2022 Proposed Capital R&R Charges

Meter Size	FY 2022 Rates	FY 2021 Rates	$ Change	% Change
5/8-in	$4.66	$4.66	$0.00	0%
3/4-in	$4.66	$4.66	$0.00	0%
1-in	$7.78	$7.78	$0.00	0%
1 1/2-in	$18.91	$18.91	$0.00	0%
2-in	$47.47	$47.47	$0.00	0%

1.5. Customer Impact Analysis

Figure 1-1 shows a breakdown of water and wastewater bills at various water usage levels for a single-family residential user with four occupants and a 4,000 sq. ft. landscape area serviced by a ¾-in meter. The combined water and wastewater bill increase would be ranging from $4.10 to $15.77 per month, depending on the monthly billed water usage. The bill impacts are resulting from increases in water and sewer charges. The proposed rates do not have an increased Capital R&R charges for the water and wastewater enterprises. Recycled water rate impacts are not shown, as residential users do not purchase recycled water.

Figure 1-1: SFR Total Monthly Bill at Different Usage Levels



	10 ccf	15 ccf	21 ccf	25 ccf	30 ccf	40 ccf
Current Water + WW Bills	$79.07	$93.92	$111.74	$136.30	$170.48	$249.28
Proposed Water + WW Bills	$81.11	$96.31	$114.55	$139.39	$173.92	$253.42
Combined Bill Impacts	$2.04	$2.39	$2.81	$3.09	$3.44	$4.14
% Bill Impacts	2.6%	2.5%	2.5%	2.3%	2.0%	1.7%

2. Introduction

2.1. District Background

The El Toro Water District (District), located within the southern portion of Orange County, was formed in 1960 under provisions of California Water District Law, Division 13 of the Water Code of the State of California, commencing with Section 34,000, to provide water and wastewater services to the service area. A publicly elected Board of Directors governs the District. The District is nearly built out and encompasses the City of Laguna Woods and portions of four other cities: Lake Forest, Aliso Viejo, Laguna Hills, and Mission Viejo.

The District provides water, wastewater, and recycled water services to a population of approximately 48,500 in a service area of approximately 8.5 square miles. The District's water system contains six reservoirs with a combined capacity of 287 million gallons, in which the District owns 136 million gallons, over 170 miles of water lines, and eight booster pump stations with 12 pressure zones to deliver water to approximately 10,000 metered water accounts. The District also participated in a five-agency collaboration to fund and construct a local water treatment plant (Baker Water Treatment Plant) located in the City of Lake Forest to improve water treatment and water supply reliability for ETWD's customers and South Orange County. The Baker Water Treatment Plant (Baker WTP) allows the participating agencies to purchase untreated water from MWDOC at a lower cost than the treated water, reducing the financial burden on the District's customers.

The District's wastewater system is comprised of 142 miles of collection system pipeline, 3,400 manholes, and 11 pump stations which pump to the District's treatment plant with a rated capacity of 6 million gallons per day. Much of the District's effluent is reused through RW sales. The District completed its Water Recycling Plant (WRP) upgrades to produce higher quality tertiary RW in FY 2015. The District increased its RW distribution by adding 19 miles of RW distribution pipeline to make RW available to more customers. In FY 2019, the District completed further expansion of the RW Distribution System that increased the total amount of RW distribution pipelines to nearly 25 miles. In FY 2022, the District RW budget was based on a total 275 accounts and an increase in RW usage from 1,400 AF in FY 2021 to 1,485 AF.

2.2. Study Background and Objectives

As part of the annual cost of service and rate update process, the District engaged Raftelis to conduct the Water, Recycled Water (RW), and Wastewater Rate Study (Study) to develop rates for all three enterprises that are equitable and in compliance with Proposition 218.

The major objectives of the Study include the following:

- Determine the revenue requirements from water, wastewater, and recycled water rates for FY 2022.
- Update the water rates to meet the District's goals and objectives, including defensibility, affordability for essential use, and promoting efficiency and conservation.
- Update Private Fire Service charges
- Update the recycled water rates.
- Update the wastewater rates.
- Conduct customer impact analyses for the proposed water and wastewater rates.

This *Water, Recycled Water, and Wastewater Rate Update Study Report* (Report) summarizes the key findings and recommendations related to developing the respective rates.

2.3. Legal Framework and Rate Setting Methodology

This section of the report describes the legal framework that was considered in the development of the rates to ensure that the calculated cost of service rates provided a fair and equitable allocation of costs to the different customer classes.

2.3.1. CONSTITUTIONAL MANDATES AND STATUTORY AUTHORITY

Article XIII D, Section 6 (Proposition 218), and Article X, Section 2 of the California Constitution govern the principles applicable to this Rate Study. This Rate Study equitably implements and harmonizes these constitutional mandates in concert with the authority and principles outlined in Water Code Section 370 et seq. which governs Allocation-Based Conservation Water Pricing (commonly referred to as "Water Budget Rate Structure").
This Rate Study provides for a water budget four-tier Rate Structure designed to implement, in a reasonable manner, the constitutional mandates and statutory authority and principles referenced above.

2.3.2. CALIFORNIA CONSTITUTION – ARTICLE X, SECTION 2

Article X, Section 2 of the California Constitution (established in 1976) provides as follows:

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

As such, public agencies are constitutionally mandated to maximize the beneficial use of water, prevent waste, and encourage conservation which this Rate Study achieves.

2.3.3. CALIFORNIA CONSTITUTION – ARTICLE XIII D, SECTION 6 (PROPOSITION 218)

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

1. Water and wastewater rates shall not exceed the funds required to provide the service.
2. Revenues derived by the charge shall not be used for any other 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 the property.

The rates developed in this Rate Study use a methodology to establish an equitable system of fixed and variable charges that recover the cost of providing service and fairly apportion costs to each customer as required by Proposition 218.

2.3.4. STATUTORY AUTHORITY – GOVERNMENT CODE SECTION 370 ET SEQ. (ALLOCATION-BASED CONSERVATION WATER PRICING)

In 2000, the California Legislature (AB 2882), consistent with the above-referenced constitutional provisions, adopted a body of law entitled "Allocation-Based Conservation Water Pricing" (Water Code Section 370 et seq.)

Water Code Section 370 provides in part as follows:

The Legislature hereby finds and declares all of the following:

(a) The use of allocation-based conservation water pricing by public entities that sell and distribute water is one effective means by which waste or unreasonable use of water can be prevented and water can be saved in the interest of the people and for the public welfare, within the contemplation of Section 2 of Article X of the California Constitution.

(b) It is in the best interest of the people of California to encourage public entities to voluntarily use allocation-based conservation water pricing, tailored to local needs and conditions, as a means of increasing efficient uses of water, and further discouraging wasteful or unreasonable use of water under both normal and dry-year hydrologic conditions.

Water Code Section 372 provides as follows:

(a) A public entity may employ allocation-based conservation water pricing that meets all of the following criteria.

(1) Billing is based on metered water use.

(2) A basic use allocation is established for each customer account that provides a reasonable amount of water for the customer's needs and property characteristics. Factors used to determine the basic use allocation may include, but are not limited to the number of occupants, the type or classification of use, the size of lot or irrigated area, and the local climate data for the billing period. Nothing in this chapter prohibits a customer of the public entity from challenging whether the basic use allocation established for that customer's account is reasonable under the circumstances. Nothing in this chapter is intended to permit public entities to limit the use of property through the establishment of a basic use allocation.

(3) A basic charge is imposed for all water used within the customer's basic use allocation, except that at the option of the public entity, a lower rate may be applied to any portion of the basic use allocation that the public entity has determined to represent superior or more than reasonable conservation efforts

(4) A conservation charge shall be imposed on all increments of water use in excess of the basic use allocation. The increments may be fixed or may be determined on a percentage or any other basis, without limitation on the number of increments, or any requirement that the increments or conservation charges be sized, or ascend uniformly, or in a specified relationship. The volumetric prices for the lowest through the highest priced increments shall be established in an ascending relationship that is economically structured to encourage conservation and reduce the inefficient use of water, consistent with Section 2 of Article X of the California Constitution.

(b) ---

(1) Except as specified in subdivision (a), the design of an allocation-based conservation pricing rate structure shall be determined in the discretion of the public entity.

(2) The public entity may impose meter charges or other fixed charges to recover fixed costs of water service in addition to the allocation-based conservation pricing rate structure.

(c) A public entity may use one or more allocation-based conservation water pricing structures for any class of municipal or other service that the public entity provides.

As noted in the referenced statutes, "Allocation-Based Conservation Water Pricing Rate Structure" is a form of increasing block rates where the amount of water within the first block or blocks is based on the estimated, efficient water needs of the individual customer. Water-budget rates differ from other metered water rate designs in two key ways. First, the blocks are established based on water budgets that represent varying levels of each customer's efficient

water use. Second, water-budget rates require the public agency to set specific standards for what is, and what is not, considered efficient water use for an individual customer.
This Rate Study in conjunction with ETWD's findings and determinations for individual customers establishes a standard for efficient usage and then establishes a budget for each individual customer. That defines how much water is considered efficient. Customers with usage above this efficient usage budget pay a higher rate for their "inefficient" or "wasteful" usage in accordance with Section 372 of the Water Code.
This Rate Study conforms to the principles set forth in the enabling statutes for Water Budget Rate Structures.

2.3.5. TIERED RATES

"Inclining" Block-Rate Structures (which are synonymous with "Increasing Block-Rate Structures"), when properly designed and differentiated by customer class as this Rate Study does, allow a water agency to send consistent price incentives for conservation to customers. For this reason, the heightened interest in water conservation, "Increasing Block-Rates," has been increasingly favored, especially in relatively water-scarce regions, such as Southern California.

2.3.6. PROPORTIONALITY – PROPOSITION 218'S REQUIREMENT THAT FEES BE PROPORTIONATE TO THE COST OF SERVICE FOR EACH PARCEL

There is a fair amount of ambiguity in how Proposition 218 was drafted – none more so than the issue of "proportionality." It has taken a succession of court rulings over several years to clarify the substantive requirement of Proposition 218.

The recent Appellate case of Griffith v. Pajaro Valley Water Management Agency (2013) California Court of Appeal, Sixth District has provided much guidance on several important Proposition 218 issues, including the issue of proportionality. In Pajaro, the Appellate Court held in part as follows:

1. That Pajaro's costs of using supplemental water along the coast to prevent saltwater intrusion benefited all of Pajaro's customers, including inland customers, using the groundwater basins.
2. That proportionality is not measured on an individual parcel basis but instead is measured collectively, considering all customer classes. As such, the Appellate Court in Pajaro confirmed the common practice of grouping customers into classes with comparable service costs and setting rates by class rather than parcel by parcel met the Prop 218 requirement that fees be proportionate to the cost of providing service to each parcel.

Under Item 1 noted above, water utilities can reasonably justify that the addition of recycled water to the water resource mix frees up water for potable uses and therefore, all customers should share in the costs of recycled water so that recycled water can be put to beneficial use as required by Article X, Section 2. This clarification by the appellate court allows agencies to harmonize the mandates of Proposition 218 and Article X, Section 2.
Under Item 2 noted above, utilities can develop rates by customer class and meet the requirements of Proposition 218, as opposed to the strict interpretation, which would require cost proportionality for each parcel receiving service. This was another significant clarification of Proposition 218 since cost proportionality for individual parcels is almost impossible to achieve in the strict sense.

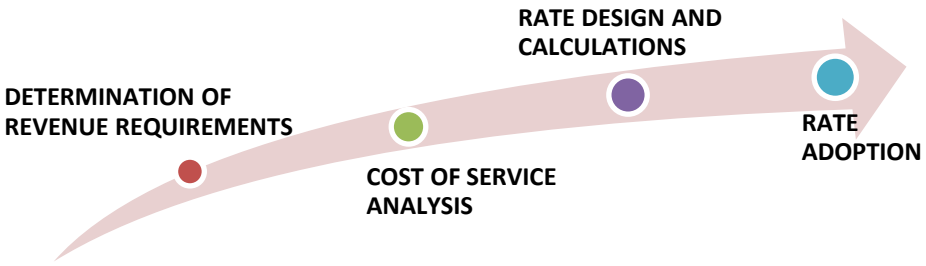
The Pajaro case rulings provided for the harmonizing of the proportionality requirements of Prop 218 with the efficient use and conservation requirements of Article X, Section 2 by accepting that the supplemental costs of water used by one group of customers should be shared by all users, based on the concept that all users receive benefit from the overall water resources. In the District's case, recycled water adds a water resource that provides benefit to all users by freeing up potable water and therefore, the costs of recycled water can be shared by all inefficient potable water users. Due to non-essential usage's demand on the system, the District allocates the cost of funding recycled

water system development to Tiers 3 and 4 residential/irrigation usage as well as to commercial use at a lower rate based on the assumption that 10 percent of Commercial and Public Authority (CII) water use is non-essential.

2.4. Cost-Based Rate Setting Methodology

As stated in the Manual M1, the methodology put forth by the AWWA Rates and Charges Subcommittee is consistent with Proposition 218 requirement that "the costs of water rates and charges should be recovered from classes of customers in proportion to the cost of serving those customers." There are four major steps to develop utility rates that comply with Proposition 218 and industry standards while meeting other emerging goals and objectives of the utility:

Figure 2-1: Cost-Based Rate Setting Methodology



1. **Determination of Revenue Requirement:** The rate-making process starts with the determination of future revenue requirements to sufficiently fund the utility's operation and maintenance (O&M), capital replacement and refurbishment (R&R), capital improvement and perpetuation of the system, and to ensure the preservation of the utility's financial integrity. The basic revenue requirements of a utility include O&M expenses, debt service payments, contributions to specified reserves, and the cost of capital expenditures that are not debt-financed.
2. **Cost of Service Analysis:** The annual costs of providing water services (cost of service), determined in the financial plan development, should be allocated among the customers commensurate with their service requirements. In this step, costs are identified and allocated to cost causation components and distributed to respective customer classes according to the industry standards provided in the Manual M1 published by AWWA.
3. **Rate Design and Calculations:** Rates do more than simply recover costs. Within the legal framework and industry standards, properly designed rates should support and optimize a blend of various utility objectives, such as conservation, affordability for essential needs, revenue stability, etc. They should work as a public information tool in communicating these objectives to customers.
4. **Rate Adoption:** In the last step of the rate-making process, to comply with the Proposition 218 requirements, the results of the analyses are documented in a Study Report that identifies the nexus between costs and rates to help educate the public about the proposed changes, the rationale, and justifications behind the changes and their anticipated financial impacts in layman's terms. At least 45 days after sending out the public notices, the agency shall consider all written protests the proposed rates at a public hearing. If there is no majority protest, the agency can officially adopt the new rates.

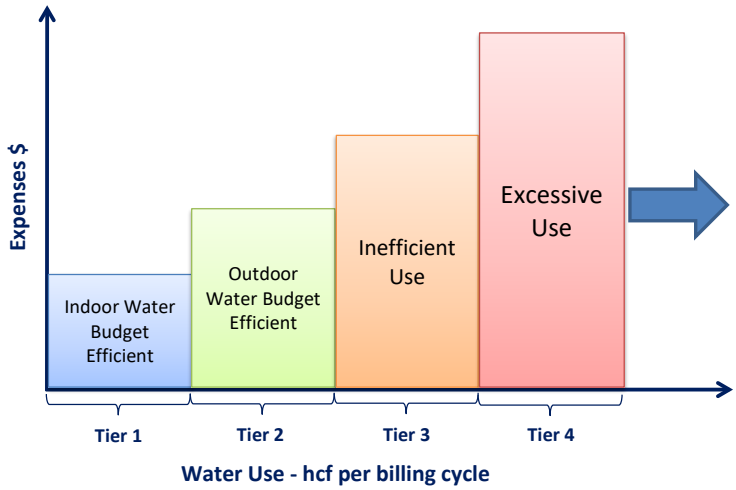
3. Water Budget and Tier Definitions

Since July 1, 2010, the District has implemented a water budget rate structure to incentivize conservation and efficient water use. The description of the allocations to individual customers and the development of water budgets are described here for this report's completeness.

3.1. Water Budget Definitions

The American Water Works Association Journal defines water budget as "the quantity of water required for an efficient level of water use by that customer" *(Source: American Water Works Association Journal, May 2008, Volume 100, Number 5).* Therefore, each customer has their own allocation or water budget, as shown in the following figures. Figure 3-1 illustrates how the tier breaks are set for water budget customers. Tier 1 is defined by the allotment for indoor use, and Tier 2 is defined by the allotment for outdoor use. Tier 3 is set to a percentage of the total water budget (or Tiers 1 and 2) combined. Any use beyond Tier 3 is considered excessive and falls into Tier 4.

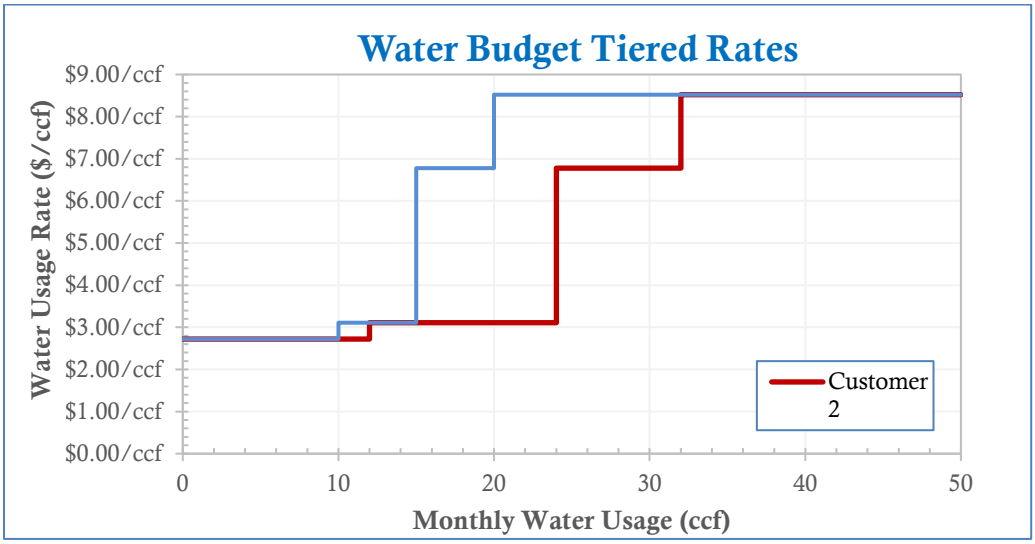
Figure 3-1: Water Budget Tiers



It is worth noting that water budget rate structures are customized for each customer, which results in different tier breaks for different customers. For example, as illustrated by Figure 3-2, [1] , which examines the use of two customers of a *hypothetical* water utility. The first 9 units consumed by Customer 1 are charged at Tier 1 rate, whereas Customer 2 has 12 units at Tier 1 rate ($2.72/ccf) for indoor use. The following 6 units (10 – 15 units) consumed by Customer 1 is reserved for outdoor use, which is charged at Tier 2 rate ($3.11/ccf), and any usage exceeding 20 units [2] will be deemed excessive and charged at the Tier 4 Rate ($8.52/ccf). Similarly, for Customer 2, Tier 2 spans from 13-24 units, and use exceeding 32 units will be charged at Tier 4 Rate ($8.52/ccf). Customer 2, with a larger indoor and outdoor water budget (or allotment), represents a residential customer with a larger family and a bigger irrigated landscape area than Customer 1.

[1] This is for illustrative purposes only and is not based on actual rates of the District.
[2] Tier 3 = 30% of Total Water Budget (TWB) whereas TWB = Indoor WB + Outdoor WB

Figure 3-2: Customized Water Budget Tiers [3]



Like the Water Budget Rate Study in 2010, the District's water budget allocations and tiered rate structure are designed for residential and irrigation accounts only; all other customer types will retain the current uniform rate structure.

3.2. Indoor Water Budget

The indoor water budget (IWB) is determined by a customer's household size and standard consumption per person. The proposed IWB formula is as follows:

$$IWB = \frac{GPCD * Household\ \ Size * Dwelling\ Units * Days\ \ of\ Service * DF_{indoor}}{748} + V_{indoor}$$

where

- GPCD – Gallons per capita per day.
  - SB x7-7,3F[4] Section 10608 of the Water Code established the provisional standard for indoor residential water use at 55 gallons per capita per day.
- Household Size – Number of residents per dwelling unit. The 2010 census lists the average household size at 2.91 persons, which includes single and multi-family housing. Typically, single-family household size is greater than three persons, and multi-family household size is less than 3.0 persons. The District policy is to provide adequate water for the health and sanitation needs and minimize customer complaints and requests for variances. The default values for household size are set as follows based on customer characteristics.
  - Single-Family: Household Size = 4 persons
  - Apartment: Household Size = 2 persons
  - Multi-Family:
    - Restricted: Household Size = 2 persons (senior citizen housing typically 1 to 2 residents per dwelling unit)
    - Unrestricted: Household Size = 3 persons
- Dwelling units – Number of dwelling units served by the meter/account
- Days of Service. The number of days of service varies with each billing cycle for each customer. The actual number of days of service will be applied to calculate each billing cycle's indoor water budget.

[3] For illustrative purposes only, not actual rates of the District

[4] The language from SB x7-7 setting the 55 GPCD performance standard: (2) The per capita daily water use that is estimated using the sum of the following performance standards: (A) For indoor residential water use, 55 gallons per capita daily water use as a provisional standard.

- DF_{indoor} – Indoor drought factor. The percentage of indoor water budget allotted during drought conditions. The drought factor is subject to the approval of the District's Board of Directors. The indoor drought factor is currently set at 100 percent.
- V_{indoor} – Indoor variance. The additional water allotment to be granted for extenuating circumstances is subject to District's approval or the verification as outlined in the District's variance program. Variances can be requested by submitting a "Variance/Adjustment Request Form" found on the District's website.
- 748 is the conversion unit from gallons to billing unit of hundred cubic feet (ccf).

3.3. Outdoor Water Budget

The outdoor water budget (OWB) is determined by three main variables: irrigable landscape area, weather data and evapotranspiration (ET) Adjustment Factor. The irrigable landscape area, measured as square footage of landscape surface on a customer's property, is in some cases established through on-site direct physical measurement and in others is estimated using the Orange County Assessors' parcel data - lot size, building size and number of floors - where the actual irrigable landscape area data is not available. The weather data is based on the reference Evapotranspiration (ET_0), which is the amount of water loss to the atmosphere over a given time period under local atmospheric conditions. ET_0 is the amount of water (in inches of water) needed for a hypothetical reference crop to maintain its health and appearance. The ET Adjustment Factor (ETAF) is a coefficient that adjusts ET_0 values based on plant factor and irrigation system efficiency. The updated California Department of Water Resources' Model Water Efficient Landscape Ordinance (Landscape Ordinance) provides the following ETAF for different landscapes:

- Existing landscape (Functional): $ETAF_{Existing} = 80\%$
- New development / redevelopment landscape (Functional): $ETAF_{New} = 70\%$
- Special landscape (Recreational): $ETAF_{Recreational} = 100\%$

The formula to calculate the outdoor water budget is as follows:

$$OWB = \left(\frac{\text{Landscape Area} * ET_0 * ETAF}{1200} + V_{outdoor} \right) * DF_{outdoor}$$

where

- ET_0 is measured in inches of water during the billing period based on daily data acquired from the California Irrigation Management Information System (CIMIS) Station 75, which is the closest station to the District's service area.
- ETAF (% of ET_0) is defined using the updated Landscape Ordinance as shown above.
- Landscape Area (or Irrigable Landscape Area) (in square feet) is the measured irrigable landscape area served by a customer's meter.
    - Where the measured irrigable landscape area is not available, the landscape area will be estimated by the following formula using the Orange County Assessors' parcel data.
        - $\text{Landscape Area (sq ft)} = 70\% * \left(\text{Lot Size} - \frac{\text{Building Size}}{\text{Number of Floors}} \right)$
    - For accounts dedicated for domestic use only, such as multi-family units, 25 square feet of irrigable landscape area is provided for each dwelling unit for patio plants.
- $DF_{outdoor}$ – Outdoor drought factor. The percentage of outdoor water budget allotted during drought conditions. The drought factor is subject to the approval of the District's Board of Directors. The outdoor drought factor is currently set at 100 percent.
- $V_{outdoor}$ – Outdoor variance. The additional water allotment to be granted for extenuating circumstances is subject to District's approval or verification as outlined in the variance program. Outdoor variance is subject to outdoor drought factor.
- 1,200 is the conversion unit from inch*ft^2 to billing unit of hundred cubic feet (ccf).

3.4. Water Budget Allocations by Customer Type

Table 3-1 summarizes the water budget allocation by customer type. Both Single Family and Multi-Family (restricted and unrestricted) customers will receive an indoor and outdoor water budget. Irrigation accounts will only receive an outdoor budget. Commercial and Public Authority (CII) customers will continue with the current uniform water rate structure.

Table 3-1: Water Budget Allocations by Customer Type

Customer Type	Water Budget Allocations	Default Values
Single Family	IWB + OWB	Household Size = 4 persons; GPCD = 55 $ETAF_{New}$ = 70%; $ETAF_{Existing}$ = 80%; $DF_{outdoor}$ = 100%
Multi-Family – Restricted	IWB + OWB	Household Size = 2 persons; GPCD = 55 $ETAF_{New}$ = 70%; $ETAF_{Existing}$ = 80%; $DF_{outdoor}$ = 100%
Multi- Family – Unrestricted	IWB + OWB	Household Size = 3 persons; GPCD = 55 $ETAF_{New}$ = 70%; $ETAF_{Existing}$ = 80%; $DF_{outdoor}$ = 100%
Irrigation – Functional*	OWB	$ETAF_{New}$ = 70%; $ETAF_{Existing}$ = 80%; $DF_{outdoor}$ = 100%
Irrigation – Recreational**	OWB	$ETAF_{Recreational}$ = 100%; $DF_{outdoor}$ = 100%

**Irrigation – Functional: landscape that is ornamental in nature*
***Irrigation – Recreational: landscape that is used mostly for recreational purposes (schools, parks, golf courses, etc…)*

3.5. Tier Definitions

Based on the information in Table 3-1, the tier definitions are developed as shown in Table 3-2. The main difference between Single-Family/Multi-Family and Irrigation accounts is that Irrigation accounts do not have a Tier 1 allotment which is reserved for indoor use. All three customer types have their Tier 3 allotment defined as 30 percent of their respective total water budget (TWB) and usage exceeding 130% TWB falls in Tier 4.

Table 3-2: Tier Definitions by Customer Types

Tiers	Single Family	Multi-Family	Irrigation
Tier 1 – Indoor Use	100% IWB	100% IWB	N/A
Tier 2 – Outdoor Use	100% OWB	100% OWB	100% OWB
Tier 3 – Inefficient Use	100% to 130% TWB	100% to 130% TWB	100% to 130% OWB
Tier 4 – Excessive Use	Above Tier 3	Above Tier 3	Above Tier 3

TWB = Total Water Budget = IWB + OWB

The tier definitions are tailored to the unique consumption patterns of the District's customers and subject to the District's policy decisions. The tier definitions are based on Raftelis' water use and impact analysis and numerous policy discussions with the Board. The priority for water use is essential indoor water use for health, safety, and sanitary purposes. Based on the Board's direction, indoor water use is eligible for revenue offsets from site leases and property tax revenues. Maintaining a healthy landscape at efficient water use is non-essential, yet important; thus, efficient outdoor water use is required to pay the Tier 2 rate. The total water budget is the sum of the indoor and outdoor water budgets.

Tier 3 was designed to account for inefficient use and/or customers with non-climate appropriate landscapes. Tier 3 is set to thirty percent (30%) of the total water budget and was determined based on the 2009 analysis, which indicated that a customer with high water use plants would require 30% more water than an identical customer with climate-appropriate plants. Any use beyond Tier 3 is considered excessive and falls into Tier 4. Tiers 3 and 4 allow individuals to use additional water above their total water budget while providing a signal to each customer on their inefficient and excessive water usage. Tier 3 provides use up to 30 percent of the total water budget and use over 130% TWB is considered to be excessive.

Any usage above an efficient level is subject to higher charges to fund conservation programs and any other supplemental water supply program. The current water supply is reserved for efficient water use within the District for indoor, outdoor, and commercial use. The higher Tier 3 rate serves as a signal for conservation and efficient use, whereas excessive use in Tier 4 incurs the highest marginal costs of providing service.

The Commercial class will continue to be billed at a uniform rate; however, this rate will encompass domestic use and inefficient use. Based on SB x7-7 (i.e., Water Conservation Act of 2009), which requires commercial users to cut back by 10 percent, indoor and efficient outdoor (or process) use is defined as 90 percent of total use remaining 10 percent use as inefficient. Additionally, indoor use is defined as 90 percent of the efficient use (90% x 90% = 81%) and the remainder is defined as efficient outdoor use (10% x 90% = 9%). The uniform rate charged to commercial customers will then be a blend of the use defined here.

4. Pass-through Water Supply Cost

The District purchases water from the Municipal Water District of Orange County (MWDOC), a member agency of the Metropolitan Water District of Southern California (MWD). MWD rates are scheduled to increase in January 2022. The MWD rate increases, along with MWDOC's other costs, will be included in the blended rates charged to the District. As shown in Table 4-1, total combined water supply costs from the MWDOC & MWD purchased water and the Baker Treatment Plan costs are partially offset by capital charge revenue funding shown in Line 6. Dividing the total costs by the projected water sales (Line 8) results in the unit rate shown in Line 9. See Appendix 1 for detailed breakdown of water supply costs. Table 4-2 and Table 4-3 show that projected water supply rates will be increased by $0.07 across all tiers.

Table 4-1: Water Supply Revenue Requirements

Line #	Revenue Requirements	Budget FY 2022	Notes
1	MWDOC & MWD Fixed Costs	$687,802	Appendix 1
2	MWDOC & MWD Variable Costs	$3,856,575	Appendix 1
3	Baker Raw Water Cost	$2,797,400	Appendix 1
4	Baker WTP O&M Annual Cost	$779,240	Appendix 1
5	Plus Baker WTP Debt Service	$0	Appendix 1
6	Less Capital Charge Revenue Funding	$0	Appendix 1
7	**Total Water Supply Cost w/ Reserve Funding**	**$8,121,017**	**Sum of [1] to [7]**
8	Projected Water Sales	2,918,520	
9	Water Supply Unit Rate	$2.78	[7] / [8]

Table 4-2: Current and Projected Water Supply Unit Rate

Fiscal Year (FY)	Water Supply Unit Rate $ / hundred cubic feet (ccf)
FY 2021	$2.71
FY 2022	$2.78
Increase / Change	$0.07 / ccf

Table 4-3: Water Supply Cost Component of the Water Rates ($/ccf)

Tiers	Descriptions	Current FY 2021	Proposed FY 2022
Tier 1 - Essential Use	MWDOC + Baker Blended	$2.71	$2.78
Tier 2 - Efficient Use	MWDOC + Baker Blended	$2.71	$2.78
Tier 3 - Inefficient Use	MWDOC + Baker Blended	$2.71	$2.78
Tier 4 - Excessive Use	MWDOC + Baker Blended	$2.71	$2.78
Uniform – CII Use	MWDOC + Baker Blended	$2.71	$2.78

5. Water Revenue Requirements and Proposed Rates

5.1. Revenue Requirements

Table 5-1 shows the derivation of the revenue requirement of the water rates. Total expenses for the water enterprise are shown in Line 1. Next, other supplementary revenues are subtracted from the expenses, serving as an offset of these costs. For the District, this is encompassed in the Non-Operating Revenues totaled in Line 2. These revenues include cell-site leases, property taxes, investment revenues, and others. The District makes annual debt payments totaling $0.684M annually for its contribution to the Baker Treatment Plant's construction. This Debt Service (Line 3) is added to the O&M expenses. Rate funded Capital R&R is added (Line 4 and 5). The District will use reserves to offset some of the operating expenses and reduce the revenue required from rates for FY 2022 (Line 6 and Line 7). The total revenue required from rates, excluding Fire Service, is shown in Line 8.

Details of the figures presented in Table 5-1 can be found in Appendix 3, in the Cash Flow Analysis for the Water Funds. The Cash Flow Analysis is part of the Financial Plan developed by District staff to determine the District's long-term financial needs. Raftelis based its determination of the revenue requirements and cost of service for FY 2021 on the Financial Plan developed by District Staff.

Table 5-1: Water Operating Revenue Requirements from Rates [5]

Line #	Water Operating Revenue Requirements	FY 2022 Budgeted	Notes
1	Total Water O&M Expenses	$13,901,067	Appendix 3
2	Less (-) Non-Operating Revenues	-$1,911,501	Appendix 3
3	Plus (+) Debt Service	$684,262	Appendix 3
4	Plus (+) Capital R&R Funding (Unrestricted)	$759,968	Appendix 3
5	Plus (+) Capital R&R Funding (Restricted)	$500,001	Appendix 3
6	Plus (+) Restricted Reserve Funding	$826,317	Appendix 3
7	Plus (+) Capital Reserve Funding	-$32,433	Appendix 3
8	**Total Revenue Requirements from Rates**	**$14,727,682**	

The District separately charges customers for the cost of capital repair and replacement (R&R) for the water and recycled water systems via a fixed charge. Table 5-2 provides the calculation of the Capital R&R revenue requirement from capital R&R charges.

[5] May include some rounding errors

Table 5-2: Water Capital Revenue Requirements

Line #	Description	Total
1	Water Capital Expenditures	$755,000
2	Plus (+) Baker Capital Funding	$500,000
3	Plus (+) Capital Reserve Funding	$0
4	Less (-) Restricted Reserve Funding	$0
5	**Total Water Capital R&R Revenues**	**$1,255,000**
6	Current Water Capital R&R Revenues	$1,254,644
7	**% Rate Increase**	**0.00%**

5.2. Cost of Service

Water systems are designed to accommodate the peak use of any class or type of customer. Different parts of a water system are designed to handle different peaks, and there are significant costs associated with meeting peak requirements. For example, the District's maximum day usage is estimated to be two times the average usage and facilities such as reservoirs are designed twice as large to ensure that maximum day requirements are met (reservoirs also are designed to meet fire flows). To allocate costs appropriately amongst the different type of usage, an analysis of the peaking costs is provided in Section 5.2.1.

But for costs recovered from Private Fire Rates charged to customers which have meters for separate fire line service (discussed in Tables 5-5 to 5-8 and section 5.3.4 of this report below), the costs to maintain public fire flows is included in the cost of service recovered from rates. This reflects that providing water in the volumes and at the pressures required to operate fire hydrants that protect, and fire sprinklers in, structures is a statutory mandate of public water systems in California and such cost recovery is authorized by California Government Code sections 53069.9 and 53750.5. Moreover, charging water users for the portion of the cost of water service associated with fire flows appropriately assigns those cost to those who benefit from them. Sprinklers are within, and serve, structures served by water meters. Hydrants serve parcels improved with structures, as they are not suitable to address fire service calls involving individuals in need of medical aid or vehicle fires (which are fought with fire extinguishers) and are not typically used to fight wildland fires because hydrants rarely serve such land. The California Fire Code requires hydrants near structures, not elsewhere. Thus, those who pay water fees which recover fire flow costs also own or occupy structures protected by fire sprinklers and fire hydrants and therefore benefit from that service. Finally, fire hydrants are used to flush water mains periodically and serve a water-system function, as well as the fire suppression function noted here.

5.2.1. PEAKING FACTOR ANALYSIS

In the 2014 Rate Study, RFC performed usage analyses for single family customers to determine the monthly peaking factors for each tier using 3-year average consumption (2009-2011) data for the 5,630 single family accounts. The results are shown in Table 5-3. The peaks in each tier are compared to the average for the class to establish the tiers' comparative peaking relationship.

Table 5-3: Peaking Factor Analysis for Different Usage Types

Tiers	Individual Max Month Average Usage (per unit)[6]	Average Usage per account/unit	Peaking factors (among tiers)
Indoor Use	7.91	18.09	0.44
Outdoor Use	18.00	18.09	1.00
Inefficient Use	25.12	18.09	1.39
Excessive Use	36.92	18.09	2.04

The proposed peaking factors are shown in Table 5-4 for each usage type. The tiers for residential customers are defined based on each usage class as shown in Table 5-4. Commercial use includes indoor and outdoor use and therefore peaks more than indoor use but less than outdoor. Typical indoor use for a commercial is estimated at 90 percent and outdoor use at 10 percent; thus, an average of the indoor and outdoor peaking factors was used to approximate the commercial peaking factor (90% x 0.44 + 10% x 1.00) of 0.50. Note that this analysis aims to define the relative difference in the peaking factors for the different usage classes so that the costs are appropriately allocated.

Table 5-4: Peaking Factors by Usage Class

Tiers	Relative Peaking Factors
Indoor Use	0.44
Outdoor Use	1.00
Inefficient Use	1.39
Excessive Use	2.04
Commercial Use	0.50

The different peaking factors, increasing in the arrow's direction, may be conceptually represented on the scale shown below.

5.2.2. COST OF SERVICE ANALYSIS

Revenue requirements are allocated to the following cost causation categories[7] to allocate costs appropriately to the different usage classes and determine the cost-of-service rates. This methodology is consistent with the Base Extra Capacity methodology of the American Water Works Association (AWWA) *M1 Manual*, *Principles of Water Rates, Fees, and Charges* (M1 Manual):

[6] Individual max month usage (per unit) = Max month usage per dwelling unit in the 12-month period for each account
Individual Max Month Average Usage (per unit) = average of the individual max month usage
[7] See Appendix 6 for details about cost allocations

1. Water supply costs: Imported water supply costs, allocated to all users in proportion to their usage.
2. Base fixed costs: fixed costs associated with operating and maintaining water systems to deliver water to meet average demand, including customer service, meter service, administration, and other base fixed costs.
3. Peaking costs: fixed costs associated with operating and maintaining water system to deliver water to meet peak demand.
4. RW Funding: The use of RW for non-potable needs releases potable supply for inefficient and excessive use. RW is the least expensive supplemental source of water available to the District and creates supply for potable needs. The revenues collected under this category will be collected in restricted reserves to assist the RW fund to pay for debt services used to finance the RW expansion project completed in FY 2015 and expanded in FY 2019.
5. Conservation: Conservation program cost, allocated to inefficient and excessive use to help conserve water.
6. Revenue Offsets: Property taxes and cell tower lease revenues to provide incentive for indoor/domestic use.

The cost causation categories above are then assigned to each rate component:

Fixed Rate Components (i.e. Monthly Service Charges)

- To recover customer service, meter service, administration and other base fixed costs and a portion of the peaking costs.
- To recover the costs of providing water to fire service to the private fire customers.

Commodity Rate Components

- Water supply: to recover imported water supply costs.
- Delivery/Peaking: to recover remaining peaking costs associated with operating and maintaining water systems to deliver water to meet peak demand. These costs are allocated based on the peaking characteristics of each class of use.
- Recycled Water (RW): to generate supplemental funding sources to pay for RW expansion projects.
- Conservation: to recover the conservation program cost, allocated to inefficient and excessive users, to encourage water conservation.
- Revenue offsets: A portion of the property taxes and cell tower lease revenues to provide an incentive for indoor/domestic use.

Capital R&R Charges:

- Funds for the capital replacement and refurbishment of the existing water and RW system.

Table 5-5 shows the estimated of fire demand between public and private fire services.

Table 5-5: Fire Demand Units

Fire Service Charges	# of Services	Fire Demand Factor	Fire Demand Units / month	FDU / yr	
	A	B = MeterSize^2.63	C = A x B	D = C x 12 bills/yr	
Private Fire Services			**25,331**	**303,970**	**10.7%**
4"	27	38.32	1,035	12,415	
6"	90	111.31	10,018	120,216	
8"	53	237.21	12,572	150,863	
10"	4	426.58	1,706	20,476	
Public Hydrants			**211,379**	**2,536,553**	**89.3%**
6"	1,899	111.31	211,379	2,536,553	
8"		237.21	0	0	
10"		426.58	0	0	
12"		689.04	0	0	
Total	**2,073**		**236,710**	**2,840,524**	100%

Table 5-6 shows the fire demand imposed on peaking requirements.

Table 5-6: Water System and Fire Demand Peaking Requirements

Fire Demand		Peak Demand	Extra Capacity
Flow	4,000 GPM		
Duration	2 hrs		
Max Day Demand	480 kgal		
Max Hour Demand	5,280 kgal		
Annual System Demand	2,918,520 ccf		
Daily Demand	7,996 ccf / day		
Max Day	1.73x of Average Demand	13,833 ccf / day	5,837 ccf /day
Max Hour	2.04 of Max Day	16,312 ccf / day	2,479 ccf /day

Table 5-7 shows the allocation of unrestricted revenue requirements to cost categories and Table 5-8 details the allocations of Max Day and Max Hour revenue requirements to Private Fire services.

Table 5-7: Unrestricted Revenue Requirements by Cost Categories

Water Rev Requirements	FY 2022	Water Supply	Base Fixed	Max Day	Max Hour	RW	Conservation	Rev Offset	Billing & CS	Private Fire	Capital R&R
O&M Expenses(Excl. Dep & Int)											
Source of Supply	$8,259,767	$8,121,017	$138,750	$0	$0	$0	$0	$0	$0	$0	$0
Treatment - Water	$39,500	$0	$22,832	$16,668	$0	$0	$0	$0	$0	$0	$0
Pumping - Water	$306,500	$0	$150,245	$109,679	$46,576	$0	$0	$0	$0	$0	$0
T&D - Water	$592,300	$0	$316,357	$230,940	$45,003	$0	$0	$0	$0	$0	$0
Customer Accounts	$4,000	$0	$0	$0	$0	$0	$0	$0	$4,000	$0	$0
Operations Support	$97,280	$0	$79,770	$0	$0	$0	$0	$0	$17,510	$0	$0
Fleet	$102,560	$0	$84,099	$0	$0	$0	$0	$0	$18,461	$0	$0
Indirect Operating Costs	$17,480	$0	$14,334	$0	$0	$0	$0	$0	$3,146	$0	$0
Administration	$83,280	$0	$68,290	$0	$0	$0	$0	$0	$14,990	$0	$0
Information Technology	$124,000	$0	$96,100	$0	$0	$0	$0	$0	$27,900	$0	$0
Indirect Administration Costs	$648,000	$0	$502,200	$0	$0	$0	$0	$0	$145,800	$0	$0
Labor Costs	$3,626,400	$0	$2,442,159	$653,975	$167,626	$0	$0	$0	$362,640	$0	$0
Subtotal O&M Expenses(Excl. Dep & Int)	**$13,901,067**	**$8,121,017**	**$3,915,135**	**$1,011,262**	**$259,205**	**$0**	**$0**	**$0**	**$594,448**	**$0**	**$0**
Other Rev Requirements											
OPEB (115 Trust)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Debt Service	$684,262	$0	$395,527	$288,735	$0	$0	$0	$0	$0	$0	$0
Unrestricted Capital R&R Funding	$759,968	$0	$0	$0	$0	$0	$0	$0	$0	$0	$759,968
Restricted Capital R&R (Baker WTP)	$500,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$500,001
Subtotal Other Rev Requirements	**$1,944,231**	**$0**	**$395,527**	**$288,735**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$1,259,969**
Less Other Revenues											
Restricted Reserves Funding of Conservation Program	-$200,000	$0	-$200,000	$0	$0	$0	$0	$0	$0	$0	$0
Capital Charge Funding of Baker Debt Service	-$500,001	$0	-$289,018	-$210,983	$0	$0	$0	$0	$0	$0	$0
Restricted Reserve Funding of Baker Debt Service	-$184,000	$0	-$106,358	-$77,642	$0	$0	$0	$0	$0	$0	$0
Property Taxes - General Fund Revenue	-$408,391	$0	-$408,391	$0	$0	$0	$0	$0	$0	$0	$0
Property Taxes (Funds Tier 1 Offset)	-$136,609	$0	$0	$0	$0	$0	$0	-$136,609	$0	$0	$0
Miscellaneous Revenue	-$75,000	$0	-$75,000	$0	$0	$0	$0	$0	$0	$0	$0
Cellular Site Lease Revenue (Funds Tier 1 Offset)	-$235,000	$0	$0	$0	$0	$0	$0	-$235,000	$0	$0	$0
Other Income (R-6 Partners)	-$122,500	$0	-$122,500	$0	$0	$0	$0	$0	$0	$0	$0
Investment Income	-$50,000	$0	-$50,000	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal Other Revenues	**-$1,911,501**	**$0**	**-$1,251,267**	**-$288,625**	**$0**	**$0**	**$0**	**-$371,609**	**$0**	**$0**	**$0**
Plus Restricted Reserve Funding	$826,317					$626,317	$200,000				
Plus Operating Reserve Funding	-$32,433	$0	-$32,433	$0	$0	$0	$0	$0	$0	$0	$0
Plus Capital Reserve Funding	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NET REV REQUIREMENTS FROM RATES	**$14,727,682**	**$8,121,017**	**$3,026,962**	**$1,011,373**	**$259,205**	**$626,317**	**$200,000**	**-$371,609**	**$594,448**	**$0**	**$1,259,969**
Reallocation of Private Fire Peaking Costs				**-$11,898**	**-$78,991**					**$90,889**	
NET REV REQUIREMENTS FROM RATES	**$14,727,682**	**$8,121,017**	**$3,026,962**	**$999,474**	**$180,214**	**$626,317**	**$200,000**	**-$371,609**	**$594,448**	**$90,889**	**$1,259,969**

Table 5-8: Allocations of Peaking Costs to Private Fire Services

Allocation of Peaking Costs to Fire Protection		Max Day	Max Hour	Total
Revenue Requirements		**$1,011,373**	**$259,205**	
Extra Capacity Demand	ccf / day	5,837	2,479	
Unit Cost of Service	$ / ccf	**$173.27**	**$104.57**	
	$/ kgal	$231.64	$139.80	
Fire Demand	kgal	480	5,280	
Fire Protection Costs		**$111,188**	**$738,149**	**$849,338**
Private Fire	10.7%	$11,898	$78,991	$90,889
Public Fire	89.3%	$99,290	$659,159	758,449

Table 5-9 below summarizes the unrestricted revenue requirement for each cost category. The Total Cost of Service (Line 8) is divided among the various cost components (Lines 1-5 & 7). The District Board directs District staff to provide a revenue offset for essential use provided by non-rate revenues (Line 5). The revenue requirements for water supply, base fixed, and peaking were determined using COS allocation methods recommended by AWWA. Details of how the revenue requirements for these three cost causation categories were determined can be found in Appendix 6.

Table 5-9: Unrestricted Revenue Requirements by Cost Categories

Line #	Revenue Requirements	FY 2022	Water Rate Components		
			Monthly Service Charges	Unrestricted Water Commondity Rates	Water Capital R&R
1	Water Supply	$8,121,017		$8,121,017	
2	Base Fixed	$3,026,962	$3,026,962		
3	Peaking	$1,179,688	$509,688	$670,000	
4	RW	$626,317		$626,317	
5	Conservation	$200,000		$200,000	
6	Rev Offset	-$371,609		-$371,609	
7	Billing & CS	$594,448	$594,448		
8	Private Fire	$90,889	$90,889		
9	Capital R&R	$1,259,969			$1,259,969
10	**Net Revenue Requirement**	**$14,727,682**	**$4,221,988**	**$9,245,725**	**$1,259,969**

The total revenue requirement for each cost causation category is then assigned to a rate component. For example, it is appropriate that the water supply revenue requirement be allocated to the water supply rate component. The Revenue Offset is all assigned entirely to their respective rate components.

The AWWA M1 Manual describes a cost-of-service approach to setting water rates which results in the 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. For example, a utility incurs some costs associated with serving customers irrespective of the amount or rate of water they use, such as billing and customer service costs. These costs are referred to as customer-related costs and are typical costs that would be recovered through a fixed monthly service 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 on each bill.

Utilities invest in and continue to maintain facilities to provide capacity to meet all levels of desired consumption, including the peak demand plus fire protection. These costs must be recovered regardless of the amount of water used during a given period. Thus, capacity or peaking costs along with base costs are generally considered as fixed water system costs. Ideally, an agency could recover 100% of the fixed costs in the fixed charges, therefore providing revenue stability; however, this approach foregoes affordability for essential use and heavily impacts small users. A portion of the base costs and peaking costs are recovered in the fixed charges along with the customer-related costs and meter-related costs to balance between affordability and revenue stability. Revenue requirements for the District's fixed monthly service charges include 100 percent of base fixed costs, inclusive of billing and customer service costs and other fixed costs to meet average demand, and a portion of the peaking costs. The remaining peaking costs are recovered in the delivery rate component of the commodity rates.

The rate structure remains unchanged and consists of the monthly fixed service and the volumetric commodity rates, which are determined as follows (Table 5-10):

- The monthly service charge includes customer service, fixed base costs, and a portion of the peaking costs (shown in Table 5-9).
- The volumetric water commodity rates include water supply (to recover total purchased water costs from MWDOC and Baker Water Treatment Plant water costs), delivery/peaking (to recover the District's remaining peaking costs), RW funding, conservation, and revenue offsets components.

Fire flows are also discussed in Section 5.2 of this report above.

Table 5-10: Cost Categories and Water Rate Structure

Cost Components	Service Charges	Tier 1 Essential Use	Tier 2 Efficient Use	Tier 3 Inefficient Use	Tier 4 Excessive Use	Commercial Use
Billing & Cust. Service	x					
Meters	x					
Fixed Base Costs	x					
Delivery Peaking Costs	x	x	xx	xxx	xxx	x
Water Supply		x	x	x	x	x
RW Program Funding				xx	xxx	x
Conservation				x	x	x
Rev Offset		x				x

Monthly Service Charge Derivation

Extra capacity costs representing the demand placed on the system are related to the capacity of the meters. The capacity of the meters is determined by comparing the hydraulic capacity of the meters to the smallest meter in the system, which is assigned a capacity of one. Thus, a 1-inch meter that can continuously deliver 50 gallons per minute (gpm) is considered to have a capacity of 2.5 when compared to the 5/8-inch meter which can deliver 20 gpm. Because of the unique characteristics of the District's service area, the maximum of the hydraulic capacity or the actual usage characteristics were used to determine the capacity of the meters. For example, a 2-inch meter, on average, used 10 times the water of the 5/8-inch meter. The meter capacity ratios representing the maximum of the hydraulic ratio or the actual usage is used to calculate the equivalent meter units to recover the meters & capacity

costs (based on ETWD Cost of Service Study Report for Water, Wastewater and Recycled Water prepared in April 2009).

Monthly service charge calculations are shown in Table 5-11, 5-12, and 5-13 below.

Table 5-11: Units of Service for Monthly Service Charges

Potable Water Meters	Meter Counts	Meter Ratio	Bills / yr	EMUs / yr
5/8"	2,380	1.00	28,560	28,560
3/4"	4,854	1.50	58,248	87,372
1"	452	2.50	5,424	13,560
1 1/2"	702	5.00	8,424	42,120
2"	1,148	10.00	13,776	137,760
Private Fire[8]	174	1.00		2,088
Total	**9,536**		**114,432**	**311,460**

Table 5-12: Calculated Unit Cost of Service for Monthly Service Charges

	Billing & Customer Service	Meters & Capacity
Revenue Requirements	$594,448	$3,536,650
Units of Service	114,432	311,460
Unit Cost of Service	$5.20	$11.36

Table 5-13: Proposed Monthly Service Charges Calculations

Meter Size	Billing & Customer Service	Service & Capacity[9]	Proposed Rates	$ Impact	% Impact
	A	B	C = A+ B	D	E
5/8"	$5.20	$11.36	$16.56	$1.39	9.2%
3/4"	$5.20	$17.04	$22.24	$1.91	9.4%
1"	$5.20	$28.40	$33.60	$2.94	9.6%
1 1/2"	$5.20	$56.80	$62.00	$5.52	9.8%
2"	$5.20	$113.60	$118.80	$10.69	9.9%

Commodity Rate Derivation

Peak Delivery rates (Table 5-14) are applied to all rates based on peaking characteristics for each usage class (shown in Table 5-4). Indoor or domestic use has the lowest peaking factor; consequently, all indoor use (residential and

[8] Private Fire bills are combined with the account customer bill for potable service.
[9] Service and Capacity component can be calculated by using the unit cost (Table 5-8) multiplied by the appropriate meter ratio (Table 5-7)

commercial) is assigned a lower delivery cost. Outdoor irrigation is associated with higher peaking factors, so outdoor use comprising of residential irrigation and the current dedicated irrigation classes (both functional and recreational) will have higher delivery costs. Inefficient and excessive use has even higher peaking factors and is assigned the highest delivery costs.

Table 5-14: Peak Delivery Rate Calculations

Water Usage	Budgeted Water Sales	Equivalent Factor	Equivalent Usage	Unit Rate ($/ccf)
Tier 1 - Essential Use	1,459,129	0.44	642,017	$0.15
Tier 2 - Efficient Use	913,013	1.00	913,013	$0.33
Tier 3 - Inefficient Use	90,201	1.39	125,379	$0.46
Tier 4 - Excessive Use	72,696	2.04	148,300	$0.68
Uniform - Commercial Use	383,481	0.50	191,741	$0.17
Total	**2,918,520**		**2,020,449**	**$670,000**
Revenue Requirement	$670,000.00			
Units of Service (Equivalent Usage Total)	2,020,449			
Unit Peak Delivery Rate	$0.33 / ccf			

The RW program is associated with meeting the demands of inefficient and excessive use and RW program costs are therefore allocated to inefficient and excessive use only (usage in Tiers 3 and 4 and 10 percent of commercial use, which is inefficient and is allocated at the same rate as residential inefficient usage). The RW program provides recycled water and offsets potable water use which is then available for Tiers 3 and 4. To determine the recycled water costs to be assigned to Tiers 3 and 4, Raftelis obtained the recycled water system's costs from the 1994 Recycled Water Master Plan. The cost of most efficient conversion is $892/AF and the system-wide conversion cost is $1,430/AF in 1994 dollars, which gives a ratio of 1:1.60. This ratio is utilized for the RW Program funding ratio between Tier 3 and Tier 4 to reflect that Tier 4, excessive usage, should carry the burden of the higher costs to fund the more extensive RW program and should pay more to fund this alternative source of water required to meet Tier 4 demands. Revenues from this cost component are collected in a restricted reserve used to meet the debt service requirements associated with the recycled water system, which provides supplemental water and frees up valuable potable water resources to offset the demand imposed by inefficient and excessive use. The rates for the recycled water program to Tiers 3 and 4 are shown in Table 5-15.

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Table 5-15: RW Program Funding Rate Calculations

Water Usage	Budgeted Water Sales	Equivalent Factor	Equivalent Usage	Unit Rate ($/ccf)[10]
Tier 1 - Essential Use	1,459,129	0.00	0	$0.00
Tier 2 - Efficient Use	913,013	0.00	0	$0.00
Tier 3 - Inefficient Use	90,201	1.00	90,201	$2.55
Tier 4 - Excessive Use	72,696	1.60	116,542	$4.09
Uniform - Commercial Use	383,481	0.10	38,348	$0.26
Total	**2,918,520**	**$0**	**245,091**	**$624,982**
Revenue Requirement[11]	$626,317.29			
Units of Service (Equivalent Usage Total)	245,091			
Unit RW Program Rate[12]	$2.55 / ccf			

Conservation programs are targeted to inefficient and excessive use and therefore conservation costs are applied only to inefficient and excessive use as shown in Table 5-16.

Table 5-16: Conservation Program Funding (aka Conservation) Rate Calculations

Water Usage	Budgeted Water Sales	Equivalent Factor	Equivalent Usage	Unit Rate ($/ccf)[13]
Tier 1 - Essential Use	1,459,129	0.00	0	$0.00
Tier 2 - Efficient Use	913,013	0.00	0	$0.00
Tier 3 - Inefficient Use	90,201	1.00	90,201	$0.99
Tier 4 - Excessive Use	72,696	1.00	72,696	$0.99
Uniform - Commercial Use	383,481	0.10	38,348	$0.10
Total	**2,918,520**	**$0**	**201,245**	**$199,233**
Revenue Requirement[14]	$200,000.00			
Units of Service (Equivalent Usage Total)	201,245			
Unit Conservation Rate[15]	$0.99 / ccf			

Finally, Table 5-17 shows the offset applied to account for the District's current policy objective to provide rate incentives for essential and efficient indoor use, revenues from cell tower leases (site lease income) and a portion of the property taxes received by the District are used to offset the essential and efficient usage rate. The offset applies to indoor/domestic use in Tier 1 and commercial indoor use.

[10] Rounded to the nearest cent.
[11] Revenue Requirement derivation is detailed in Appendix 6.
[12] Rounded to the nearest cent.
[13] Rounded to the nearest cent.
[14] Revenue Requirement derivation is detailed in Appendix 6.
[15] Rounded to the nearest cent.

- To minimize customer impacts and provide incentives for essential and efficient use, $371K from cell tower lease revenues and a portion of property tax revenues are used to provide a revenue offset for efficient indoor and efficient commercial indoor use.
- Note that it is assumed that efficient usage for commercial is 90 percent of total use and of that 90 percent, the indoor usage is 90%. Therefore, the indoor usage is 81 percent (90 percent x 90 percent) of the total commercial use. The revenue offset is applied to 81 percent of total commercial use to determine the revenue offset for the commercial class.
- Note that $0.21 /ccf is applied to the efficient indoor use; and, since commercial rates are uniform, the incentive becomes $0.17 /ccf when applied to the full commercial use. The remaining property tax revenue is used to offset revenue requirements for fixed service charges. Note that all user classes benefit from this offset. Most irrigation customers have associated domestic usage which also benefits from the revenue offset.

Table 5-17: Revenue Offset Rate Calculations

Water Usage	Budgeted Water Sales	Equivalent Factor	Equivalent Usage	Unit Rate ($/ccf)[16]
Tier 1 - Essential Use	1,459,129	1.00	1,459,129	-$0.21
Tier 2 - Efficient Use	913,013	0.00	0	$0.00
Tier 3 - Inefficient Use	90,201	0.00	0	$0.00
Tier 4 - Excessive Use	72,696	0.00	0	$0.00
Uniform - Commercial Use	383,481	0.81	310,620	-$0.17
Total	**2,918,520**	**$0**	**1,769,749**	**-$371,609**
Revenue Requirement[17]	-$371,609			
Units of Service (Equivalent Usage Total)	1,769,749			
Unit Rev Offset Rate[18]	-$0.21 / ccf			

In summary, the cost allocation methodology developed herein allocates the costs to customers, meters, and usage. Customer costs are the same for each account and other base fixed costs and a portion of peaking costs are allocated proportionally to the capacity of each meter. The remaining costs are allocated to each usage class in accordance with the demand they place on the system. The usage of each customer class is defined and the costs associated with the usage of each customer type provides the revenue to be recovered from that customer class. The rationale for allocating conservation costs and supplemental water costs allows the development of inclining tiered rates to provide incentives for conservation in the inefficient and excessive water usage tiers identified within each customer class. This methodology meets the requirements of Proposition 218 and Article X of the California Constitution.

Table 5-18 shows the total rates derived from the individual rate components detailed in Section 4, Table 5-14 to Table 5-17.

[16] Rounded to the nearest cent.
[17] Revenue Requirement is detailed is Appendix 6.
[18] Rounded to the nearest cent.

Table 5-18: Proposed Commodity Rate Calculation

Water Usage Rates	Water Supply	Peak Delivery	RW	Conservation	Rev Offset	Proposed Rates
Tier 1 - Essential Use	$2.78	$0.15	$0.00	$0.00	-$0.21	**$2.72**
Tier 2 - Efficient Use	$2.78	$0.33	$0.00	$0.00	$0.00	**$3.11**
Tier 3 - Inefficient Use	$2.78	$0.46	$2.55	$0.99	$0.00	**$6.78**
Tier 4 - Excessive Use	$2.78	$0.67	$4.08	$0.99	$0.00	**$8.52**
Uniform - Commercial Use	$2.78	$0.17	$0.26	$0.10	-$0.17	**$3.14**

5.3. Proposed Rates

5.3.1. MONTHLY SERVICE CHARGES

Based on the revenue requirements shown in Table 5-3 and the Monthly Service Charge calculations in Tables 5-11 to 5-13, the proposed Monthly Service Charges for FY 2022 are shown in Table 5-19 below.

Table 5-19: Monthly Service Charges

Meter Size	Proposed FY 2022	Current FY 2021	$ Change	% Change
5/8"	$16.56	$15.17	$1.39	9.2%
3/4"	$22.24	$20.33	$1.91	9.4%
1"	$33.60	$30.66	$2.94	9.6%
1 1/2"	$62.00	$56.48	$5.52	9.8%
2"	$118.80	$108.11	$10.69	9.9%

5.3.2. CAPITAL R&R CHARGES

Table 5-20 shows the proposed Capital R&R Charges are unchanged, as discussed in Revenue Requirements 5.1.

Table 5-20: Water Capital R&R Charges

Meter Size	Proposed FY 2022	Current FY 2021	$ Change	% Change
5/8"	$4.66	$4.66	$0.00	0.0%
3/4"	$4.66	$4.66	$0.00	0.0%
1"	$7.78	$7.78	$0.00	0.0%
1 1/2"	$18.91	$18.91	$0.00	0.0%
2"	$47.47	$47.47	$0.00	0.0%

5.3.3. COMMODITY RATES

Based on the revenue requirements shown in Table 5-1 and the calculated commodity rate components summarized in Table 5-18, a comparison of the current and proposed commodity rate for FY 2022 is shown in Table 5-21 below.

Table 5-21: FY 2022 Proposed Water Commodity Rates

Water Usage Rates	Proposed FY 2022	Current FY 2021	$ Impact	% Impact
Tier 1 - Essential Use	$2.72	2.65	$0.07	2.7%
Tier 2 - Efficient Use	$3.11	3.04	$0.07	2.4%
Tier 3 - Inefficient Use	$6.78	6.21	$0.57	9.2%
Tier 4 - Excessive Use	$8.52	7.95	$0.57	7.2%
Uniform - Commercial Use	$3.14	3.02	$0.12	4.1%

5.3.4. PRIVATE FIRE RATES

The District updated the private fires to account for account for the extra capacity demand to fight an average fire in the District. The proposed Private Fire Rates are shown in Table 5-23 and reflect the changes to the fixed charges to the Fire demand component result resulting from the updated methodology to calculate the effective the fire line capacity at each fire meter or fire line size. Table 5-22 shows the fire demand rate component calculation to share the peaking costs with other water service system. In addition, all private fire services have a 5/8-in meter attached to each that also required maintenance and services and replacement. In addition to the fire demand component, private fire services also share the service and capacity component equivalent for the 5/8-in meter as shown in Table 5-23.

Table 5-22: Fire Demand Rate Calculation

Private Fire Service	FY 2022
Revenue Requirements for Peaking	$90,889
Units of Service (Table 5-5)	303,970 FDUs
Unit Cost of Service	**$0.30 / FDU**

Meter Size	Account #	Fire Demand Factor	Fire Demand
	A	B	C = $0.30 x B
4"	27	38.32	$11.50
6"	90	111.31	$33.40
8"	53	237.21	$71.17
10"	4	426.58	$127.98

Table 5-23: FY 2022 Proposed Private Fire Service Rates

Meter Size	Account #	Fire Demand	Service & Capacity	Proposed Rates	Current Rates	$ Change	% Change
4"	27	$11.50	$11.36	$22.86	$33.72	-$10.86	-32%
6"	90	$33.40	$11.36	$44.76	$50.58	-$5.82	-12%
8"	53	$71.17	$11.36	$82.53	$67.44	$15.09	22%
10"	4	$127.98	$11.36	$139.34	$84.30	$55.04	65%
Total	**174**	**$91,205**	**$23,720**	**$114,925**	**$112,490**	**$2,435**	**2%**

6. Wastewater Revenue Requirements and Proposed Rates

6.1. Monthly Service Charges

The Wastewater Enterprise will maintain its cost of service allocations. The rates will be updated to account for any necessary adjustments to meet the revenue requirements projected for FY 2022. Table 6-1 shows the calculation of the Wastewater O&M revenue requirement from rates. The Wastewater O&M expenses (Line 1) will be partially offset by non-operating revenues (Line 2) and funding from Operating Reserves (Line 4). The District also continues to have a debt obligation (Line 3) due entirely to the Northline Lift Station. The resulting revenue requirement for FY 2022 is shown in Line 5 and compared to the projected revenues from current rates in Line 6. The projected revenue from current rates was provided in Wastewater Enterprise's cash flow statement. Based on the projected revenue requirement, the current Wastewater rates additionally require $462,000 (Line 7). Wastewater rates need a 6% rate increase to collect the revenue requirement.

Table 6-1: Wastewater O&M Revenue Requirements from Rates

Line #	Description	Budget FY 2022	Notes
1	Wastewater O&M Expenses	$8,564,100	Appendix 2
2	Less (-) Non-Operating Revenues	-$595,000	Appendix 5
3	Plus (+) Debt Service	$258,146	Appendix 5
4	Plus (+) Operating Reserve Funding	-$65,246	Appendix 5
5	**Total Sewer Operating Rev Req**	**$8,162,000**	
6	Current Sewer Rev	$7,700,000	Appendix 5
7	Required Revenue Increase	$462,000	[5] – [6]
8	**Overall Rate Increase**	**6%**	**[7] / [6]**

Table 6-2 provides the proposed rates for FY 2022 with the applied 6% increase.

Table 6-2: FY 2022 Proposed Wastewater Service Charges

Sewer Service Charges	FY 2021 Current	FY 2022 Proposed	$ Increase	% Increase
Residential ($/EDU)				
Residential Unrestricted	$24.30	$25.76	$1.46	6%
Multi-Family Restricted	$19.28	$20.44	$1.16	6%
Multi-Family Unrestricted	$22.92	$24.30	$1.38	6%
Commercial Use ($/ccf)				
Animal Kennel	$3.99	$4.23	$0.24	6%
Car Wash	$3.97	$4.21	$0.24	6%
Dept. Store	$3.99	$4.23	$0.24	6%
Dry Cleaner	$3.50	$3.71	$0.21	6%
Parks Golf Courses	$3.49	$3.70	$0.21	6%
Health Spa	$3.98	$4.22	$0.24	6%
Hospital	$3.50	$3.71	$0.21	6%
Hotel	$6.04	$6.41	$0.37	6%
Market	$7.92	$8.40	$0.48	6%
Mortuaries	$7.89	$8.37	$0.48	6%
Nursery	$3.54	$3.76	$0.22	6%
Prof/Financial Office	$3.99	$4.23	$0.24	6%
Public Institution	$3.93	$4.17	$0.24	6%
Auto Service Station(repair)	$3.98	$4.22	$0.24	6%
Restaurants	$3.77	$4.00	$0.23	6%
Schools	$4.13	$4.38	$0.25	6%
Schools	$4.13	$4.38	$0.25	6%
Theater	$3.99	$4.23	$0.24	6%
Warehouse/Storage	$3.16	$3.35	$0.19	6%
Warehouse	$3.16	$3.35	$0.19	6%
Basic Commercial	$3.50	$3.71	$0.21	6%

6.2. Capital R&R Charges

The Wastewater Enterprise also charges a separate Capital R&R Charge. As shown in Table 6-3, there is no increase in revenue requirements for WW Capital R&R charges. The proposed Capital R&R Charges are shown in Table 6-4.

Table 6-3: Wastewater Capital R&R Revenue Requirements

Wastewater Revenue Requirement from Rates	Budget FY 2022 *(Appendix 5)*
Total Capital Expenditures	$1,614,593
Current Wastewater Capital R&R Revenues	$1,614,593
Overall Capital R&R Rate Increase	**0%**

Table 6-4: FY 2022 Proposed Wastewater Capital R&R Charges

Customer Classes	FY 2021 Current	FY 2022 Proposed	$ Increase	% Increase
Residential ($/EDU)				
Residential Unrestricted	$4.93	$4.93	$0.00	0.0%
Multi-Family Restricted	$3.91	$3.91	$0.00	0.0%
Multi-Family Unrestricted	$4.65	$4.65	$0.00	0.0%
Commercial				
5/8"	$4.34 / month	$4.34 / month	$0.00	0.0%
3/4"	$7.34 / month	$7.34 / month	$0.00	0.0%
1"	$13.55 / month	$13.55 / month	$0.00	0.0%
1 1/2"	$24.07 / month	$24.07 / month	$0.00	0.0%
2"	$70.96 / month	$70.96 / month	$0.00	0.0%
Public Authority				
1"	$4.93 / month	$4.93 / month	$0.00	0.0%
1 1/2"	$24.65 / month	$24.65 / month	$0.00	0.0%
2"	$39.71 / month	$39.71 / month	$0.00	0.0%

7. Recycled Water Revenue Requirements and Proposed Rates

7.1. Recycled Water System

In FY 2015, the District completed the expansion of its recycled water system, including water recycling plant (WRP) upgrades to tertiary treatment and RW distribution system pipeline expansion. In FY 2019, the District completed the Phase II expansion of the RW Distribution System. With the RW expansion project's completion, all RW customers (existing and converted customers) are now supplied with higher quality tertiary RW. All RW customers are subject to the corresponding rates that support the annual cost of providing tertiary RW. The following sources financed the RW expansion capital cost for both phases: State Revolving Fund (SRF) Loan, grants, and the restricted reserve (revenues from Tier 3 and Tier 4 potable usage dedicated to recycled water expansion).

7.2. Projected Recycled Water Sales

The District is completing the Phase II Recycled Water Retrofit Project and anticipates serving 275 Recycled Water accounts in FY 2022. The projected RW sales for FY 2021 are estimated at 1,400 AF. The District projects an increase of 85 AF for FY 2022. The estimated Recycled Water sales for FY 2021 and budgeted water states for FY 2022 are shown in Table 7-1.

Table 7-1: Recycled Water Sales

Description	RW Sales	
	ccf	AF
FY 2021 Estimated Actual Sales	609,840	1,400
FY 2022 Budgeted Sales	646,865	1,485
Increase	37,025	85
% Increase	6%	

7.3. Revenue Requirement and Proposed Rates

In FY 2015, the District began separating Recycled Water costs into an independent RW Enterprise Fund. Table 7-2 summarizes the RW revenue requirements from rates for FY 2022. RW O&M expenses and supply (Line 1) will be partially offset by non-operating revenues (Line 4). The RW Fund's debt service payment is incorporated into Restricted Reserve Funding (Line 5). Debt Service payments (Line 5) and Operating Reserve Funding (Line 6) from missing revenues are added to the revenue requirement. The remaining revenue requirement to be recovered from rates is shown in Line 7. The line items shown below are further detailed in Appendix 4 – Cash Flow Analysis for RW Funds, developed by District Staff and provided to Raftelis as the basis for the cost of service analysis.

Table 7-2: Recycled Water Revenue Requirement from Rates

Line #	Revenue Requirement	FY 2022	Notes
1	Operating Expenses	$1,248,300	Appendix 2
2	**Revenue Requirement for RW**	**$1,248,300**	
3	Less (-) Restricted Reserve Funding of Debt Service	-$504,417	Appendix 4
4	Less (-) Non-Operating Revenues	-$484,680	Appendix 4
5	Plus (+) Debt Service	$2,012,004	Appendix 4
6	Plus (+) Operating Reserve Funding	-$87,470	Appendix 4
7	**Total Revenue Requirements from Rates**	**$2,183,737**	

All RW customers connected to the recycled water distribution system will be assessed the same Monthly Service Charges (Table 7-3) and Capital R&R Charges (Table 7-4) as potable customers to recover the customer service, meter service, a portion of capacity, and other RW related fixed costs and to pay for capital R&R of expanded RW system.

Table 7-3: FY 2022 Proposed Monthly Service Charges

Meter Size	FY 2022 Proposed	FY 2021 Current	$ Change	% Change
5/8"	$16.56	$15.17	$1.39	9.2%
3/4"	$22.24	$20.33	$1.91	9.4%
1"	$33.60	$30.66	$2.94	9.6%
1 1/2"	$62.00	$56.48	$5.52	9.8%
2"	$118.80	$108.11	$10.69	9.9%

Table 7-4: FY 2022 Proposed Capital R&R Charges

Meter Size	FY 2022 Rates	FY 2021 Rates	$ Change	% Change
5/8-in	$4.66	$4.66	$0.00	0%
3/4-in	$4.66	$4.66	$0.00	0%
1-in	$7.78	$7.78	$0.00	0%
1 1/2-in	$18.91	$18.91	$0.00	0%
2-in	$47.47	$47.47	$0.00	0%

Table 7-5 derives the revenue required from the Recycled Water Commodity Rate (Line 3) by subtracting the Monthly Service Charge Revenue (Line 2) from the Total Revenue Requirements (Line 1). The unit RW commodity rate is calculated using the net revenue requirements from RW commodity rates (Line 3) divided by projected RW sales (Line 4). The RW commodity rate for FY 2022 is $2.80 / ccf or $1,219 / AF, which is approximately 90% of Tier 2 Potable Water Commodity Rate for FY 2021 and provides an economic incentive for irrigation customers to convert to RW.

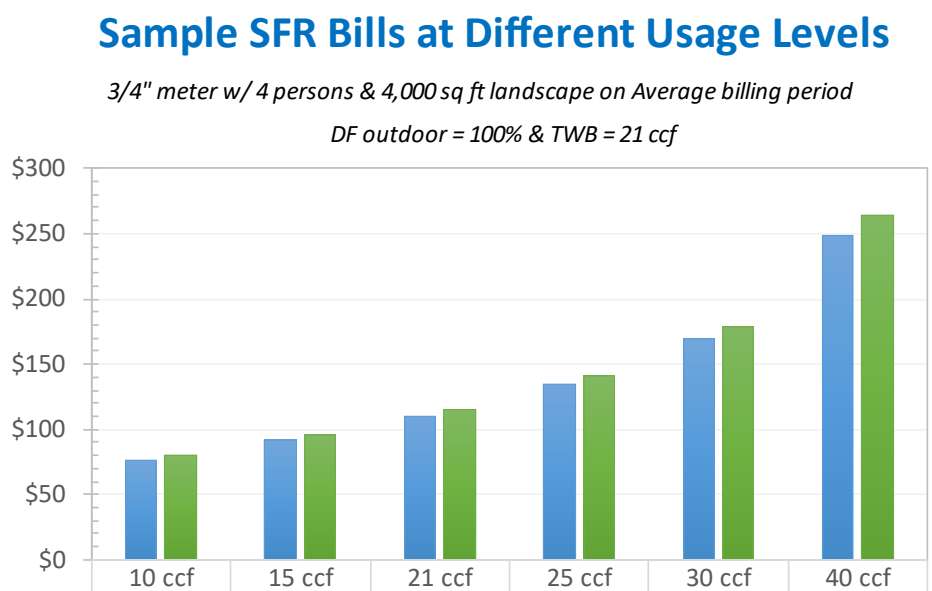
Table 7-5: Recycled Water Commodity Rate Calculation

Line #	Description	FY 2022
1	Total Rev Requirements from RW Rates	$2,183,737
2	Less (-) Monthly Service Charges	-$372,955
3	Net Rev Requirements from RW Usage Rate	$1,810,782
4	Projected RW Sales (ccf)	646,865
5	**Unit RW Usage Rate ($/ccf)**	**$2.80**
6	Unit RW Usage Rate ($/AF)	$1,219
7	% of Tier 2 Potable Rate	90%

8. Customer Impact Analysis

Figure 8-1 shows a breakdown of water and wastewater bills at various water usage levels for a single-family residential user with four occupants and a 4,000 sq. ft. landscape area serviced by a ¾-in meter. The combined water and wastewater bill increase would be ranging from $4.10 to $15.77 per month, depending on the monthly billed water usage. The bill impacts are resulting from increases in water and sewer charges. The proposed rates do not have an increased Capital R&R charges for the water and wastewater enterprises. Recycled water rate impacts are not shown, as residential users do not purchase recycled water.

Figure 8-1: SFR Total Monthly Bill at Different Usage Levels



	10 ccf	15 ccf	21 ccf	25 ccf	30 ccf	40 ccf
Current Water + Sewer Bills	$76.18	$91.38	$109.62	$134.46	$168.99	$248.49
Proposed Water + Sewer Bills	$80.28	$95.84	$114.51	$141.64	$179.04	$264.26
Combined Bill Impacts	$4.10	$4.46	$4.89	$7.18	$10.05	$15.77
% Bill Impacts	5.4%	4.9%	4.5%	5.3%	5.9%	6.3%

APPENDICES

APPENDIX 1: PASS-THROUGH WATER SUPPLY COST

Source: 21-22 Revenue Model – Revised 3-9-21.xlsx; Sent by Jason Hayden.

EL TORO WATER DISTRICT
2021/2022 Purchased Water Budget

	2020/21 Budget		2021/22 Budget	
	Jul 2020	Jan 2021	Jul 2021	Jan 2022
Total Period Demand (AF)	4,000	3,000	4,000	3,000
Total Annual Demand (AF)		7,000		7,000
Assumed Non-Billed Water Demand (AF)				300
		6,700		6,700
MWD Period Demand (AF)	2,321	1,321	2,225	1,225
MWD Annual Demand (AF)		3,642		3,450
MWD Untreated Commodity Rates				
System Access Rate	346.00	373.00	373.00	389.00
System Power Rate	136.00	161.00	161.00	167.00
Water Stewardship Rate	65.00	-	-	-
MWD Tier 1 Rate	208.00	243.00	243.00	243.00
Subtotal Untreated Full Service	**755.00**	**777.00**	**777.00**	**799.00**
Treatment Surcharge	323.00	327.00	327.00	344.00
Total Treated Full Service Rate	**1,078.00**	**1,104.00**	**1,104.00**	**1,143.00**
Total Treated Full Service Annual Cost	**2,502,038**	**1,458,384**	**2,456,400**	**1,400,175**
MWD Fixed Charges				
Capacity Reservation Charge	68,978	68,978	74,172	84,570
Readiness To Serve Charge	200,369	200,369	196,626	211,751
Total MWD Fixed Charges		**538,692**		**567,119**
Total MWD Cost		**4,499,114**		**4,423,694**
Total MWD Unit Cost ($/AF)		**1,235**		**1,282**
MWDOC Connection Rate ($/meter)	**12.20**		**12.60**	
ETWD Meters	9,578		9,578	
MWDOC Connection Charge ($)		**116,852**		**120,683**
Baker Water Treatment Plant				
Period Demand (AF)	1,679	1,679	1,775	1,775
Annual Demand (AF)		3,358		3,550
Baker Raw Water Cost	**1,267,645**	**1,304,583**	**1,379,175**	**1,418,225**
Baker O&M Unit Cost (per AF)	193	193	210	210
SAC Surcharge	8.38	8.38	8.38	8.38
SCP Surcharge	1.13	1.13	1.12	1.12
Baker O&M Annual Cost	**340,026**	**340,026**	**389,620**	**389,620**
Baker Capital Cost (Debt Service)	342,131	342,131		
Total Period Baker Water Treatment Plant Cost	**1,949,802**	**1,986,740**	**1,768,795**	**1,807,845**
Total Annual Baker Water Treatment Plant Cost		**3,936,543**		**3,576,640**
Baker Water Treatment Plant Unit Cost($/AF)		**1,172**		**1,008**
Capital Charge Revenue Funding		**(650,000)**		
Total Baker Water Treatment Plant Cost		**3,286,543**		**3,576,640**
Total Purchased Water Cost				
MWD		4,499,114		4,423,694
MWDOC		116,852		120,683
Baker		3,286,543		3,576,640
Total Purchased Water Cost		**7,902,508**		**8,121,017**
Total Expense (Less Baker Debt Service)		**7,868,246**		**8,121,017**
Percent Increase Budget to Budget per Unit		2.24%		2.77%
Overall Imported Water Effective Rate				
Fiscal Year Cost per Acre Foot Purchased		**1,129**		**1,160**
Fiscal Year Cost per CCF Purchased		**2.59**		**2.66**
Fiscal Year Rate per CCF Sold		**2.71**		**2.78**

APPENDIX 2: O&M EXPENSES ALLOCATIONS TO WATER, RECYCLED WATER AND WASTEWATER FUNDS

Source: 21-22 Revenue Model - Revised 3-9-21.xlsx sent by Jason Hayden 3/9/21

	FY 2022	Water	Sewer	Recycled Water	Total
Source of Supply	8,259,767	8,259,767			8,259,767
Treatment - Water	39,500	39,500			39,500
Pumping - Water	306,500	306,500			306,500
T&D - Water	592,300	592,300			592,300
Customer Accounts	4,000	4,000			4,000
Pumping - Sewer	324,800		324,800		324,800
Treatment Plant	959,500		959,500		959,500
Outside Treatment	992,000		992,000		992,000
T&D - Sewer	179,100		179,100		179,100
Tertiary Plant	297,500			297,500	297,500
T&D - Recycled	11,000			11,000	11,000
Operations Support	243,200	97,280	126,464	19,456	243,200
Fleet	256,400	102,560	133,328	20,512	256,400
Indirect Operating Costs	43,700	17,480	22,724	3,496	43,700
Administration	208,200	83,280	108,264	16,656	208,200
Information Technology	310,000	124,000	161,200	24,800	310,000
Indirect Administration Costs	1,620,000	648,000	842,400	129,600	1,620,000
Depreciation & Amortization	4,356,900	1,742,760	2,265,588	348,552	4,356,900
Interest Costs	718,000	252,000	66,000	400,000	718,000
Labor Costs	9,066,000	3,626,400	4,714,320	725,280	9,066,000
Total	**28,788,367**	**15,895,827**	**10,895,688**	**1,996,852**	**28,788,367**
Total Expenses (Less Depreciation & Interest)	**23,713,467**	**13,901,067**	**8,564,100**	**1,248,300**	**23,713,467**

APPENDIX 3: CASH FLOW ANALYSIS FOR WATER FUND

Source: 21-22 Revenue Model - Revised 3-9-21.xlsx sent by Jason Hayden 3/9/21

Water Cash Flow			FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
BEGINNING RESERVE BALANCES			$9,271,986	$8,680,307	$8,589,732	$8,557,299	$8,525,178	$8,597,931	$8,671,802	$8,800,460	$8,970,495	$9,119,685	$9,292,013
OPERATIONS & MAINTENANCE CASH FLOW													
O&M REVENUES													
Revenues under current rates			$11,861,905	$12,070,934	$12,080,959	$12,080,959	$12,080,959	$12,080,959	$12,080,959	$12,080,959	$12,080,959	$12,080,959	$12,080,959
Fixed Service Charges			$3,584,670	$3,737,703	$3,748,848	$3,748,848	$3,748,848	$3,748,848	$3,748,848	$3,748,848	$3,748,848	$3,748,848	$3,748,848
Fire Service Charges / Flood Meters			$110,966	$120,096	$118,977	$118,977	$118,977	$118,977	$118,977	$118,977	$118,977	$118,977	$118,977
Unrestricted Commodity Rates			$8,166,269	$8,213,135	$8,213,135	$8,213,135	$8,213,135	$8,213,135	$8,213,135	$8,213,135	$8,213,135	$8,213,135	$8,213,135
Additional Fixed Revenue Required			$0	$0	$356,141	$520,340	$733,799	$1,047,585	$1,287,406	$1,488,857	$1,698,365	$1,943,489	$2,171,183
Fiscal Year	Adjustments	Effective Months											
FY 2022	9.5%	12			$356,141	$356,141	$356,141	$356,141	$356,141	$356,141	$356,141	$356,141	$356,141
FY 2023	4.0%	12				$164,200	$164,200	$164,200	$164,200	$164,200	$164,200	$164,200	$164,200
FY 2024	5.0%	12					$213,459	$213,459	$213,459	$213,459	$213,459	$213,459	$213,459
FY 2025	7.0%	12						$313,785	$313,785	$313,785	$313,785	$313,785	$313,785
FY 2026	5.0%	12							$239,822	$239,822	$239,822	$239,822	$239,822
FY 2027	4.0%	12								$201,450	$201,450	$201,450	$201,450
FY 2028	4.0%	12									$209,508	$209,508	$209,508
FY 2029	4.5%	12										$245,125	$245,125
FY 2030	4.0%	12											$227,693
MWD Pass-through Rev Projections			$0	$0	$204,296	$554,519	$933,926	$1,313,334	$1,634,371	$1,926,223	$2,218,075	$2,539,112	$2,860,150
FY 2022					$204,296	$204,296	$204,296	$204,296	$204,296	$204,296	$204,296	$204,296	$204,296
FY 2023						$350,222	$350,222	$350,222	$350,222	$350,222	$350,222	$350,222	$350,222
FY 2024							$379,408	$379,408	$379,408	$379,408	$379,408	$379,408	$379,408
FY 2025								$379,408	$379,408	$379,408	$379,408	$379,408	$379,408
FY 2026									$321,037	$321,037	$321,037	$321,037	$321,037
FY 2027										$291,852	$291,852	$291,852	$291,852

Water Cash Flow	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
FY 2028									$291,852	$291,852	$291,852
FY 2029										$321,037	$321,037
FY 2030											$321,037
Total Unrestricted Water Service Rate Revenue	$11,861,905	$12,070,934	$12,641,396	$13,155,818	$13,748,685	$14,441,878	$15,002,736	$15,496,039	$15,997,399	$16,563,561	$17,112,291
Other Sources of Cash											
Restricted Reserves Funding of Conservation Program	$100,000	$100,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000
Capital Charge Funding of Baker Debt Service	$500,000	$505,969	$500,001	$537,800	$563,755	$590,229	$630,735	$684,277	$684,277	$684,277	$684,277
Restricted Reserve Funding of Baker Debt Service	$100,000	$150,000	$184,000	$121,530	$184,000	$24,697					
Property Taxes - General Fund Revenue	$281,789	$390,141	$408,391	$419,291	$430,409	$441,750	$453,317	$465,115	$477,150	$489,425	$501,946
Property Taxes (Funds Tier 1 Offset)	$133,145	$136,609	$136,609	$136,609	$136,609	$136,609	$136,609	$136,609	$136,609	$136,609	$136,609
Miscellaneous Revenue	$89,352	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000
Cellular Site Lease Revenue (Funds Tier 1 Offset)	$242,187	$235,000	$235,000	$235,000	$235,000	$235,000	$235,000	$235,000	$235,000	$235,000	$235,000
Other Income (R-6 Partners)	$100,185	$124,500	$122,500	$122,500	$122,500	$122,500	$122,500	$122,500	$122,500	$122,500	$122,500
Investment Income	$181,692	$175,000	$50,000	$90,000	$112,500	$135,000	$135,000	$135,000	$135,000	$135,000	$135,000
Subtotal Other Sources of Cash	$1,728,351	$1,892,219	$1,911,501	$1,937,730	$2,059,773	$1,960,785	$1,988,161	$2,053,501	$2,065,536	$2,077,811	$2,090,332
TOTAL O&M REVENUES (Unrestricted)	$13,590,256	$13,963,153	$14,552,896	$15,093,547	$15,808,458	$16,402,662	$16,990,897	$17,549,540	$18,062,935	$18,641,372	$19,202,623
O&M REVENUE REQUIREMENTS											
O&M Expenses	$13,497,672	$13,369,465	$13,901,067	$14,441,406	$15,051,443	$15,644,528	$16,177,977	$16,695,242	$17,229,482	$17,784,781	$18,371,714
OPEB (115 Trust)											
DEBT SERVICE											
Baker Water Treatment Plant	$684,263	$684,262	$684,262	$684,263	$684,262	$684,263	$684,262	$684,263	$684,263	$684,263	$684,263
Subtotal Debt Service	$684,263	$684,262	$684,262	$684,263	$684,262	$684,263	$684,262	$684,263	$684,263	$684,263	$684,263
TOTAL O&M REVENUE REQUIREMENTS	$14,181,935	$14,053,727	$14,585,329	$15,125,669	$15,735,705	$16,328,791	$16,862,239	$17,379,505	$17,913,745	$18,469,044	$19,055,977
OTHER REV REQUIREMENTS											
Restricted Reserves Funding of RW Conversion Program	$575,739	$626,317	$626,317	$626,317	$626,317	$626,317	$626,317	$626,317	$626,317	$626,317	$626,317
Restricted Reserves Funding of Conservation Program	$91,029	$98,994	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000

Water Cash Flow	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
Transfer to Restricted Reserves	-$666,768	-$725,311	-$826,317	-$826,317	-$826,317	-$826,317	-$826,317	-$826,317	-$826,317	-$826,317	-$826,317
ANNUAL O&M SURPLUS (DEFICIT)	-$591,679	-$90,575	-$32,433	-$32,121	$72,752	$73,872	$128,658	$170,035	$149,190	$172,328	$146,646
CAPITAL REPLACEMENT & REFURBISHMENT PROGRAM											
CAPITAL PROGRAM REVENUE											
Revenue from Existing Capital Charge	$1,281,975	$1,259,969	$1,259,969	$1,259,969	$1,259,969	$1,259,969	$1,259,969	$1,259,969	$1,259,969	$1,259,969	$1,259,969
Capital Charge Revenue Increase	$0	$0	$0	$37,799	$63,754	$90,229	$130,735	$184,277	$184,277	$184,277	$184,277
Subtotal Capital Charge Revenue	$1,281,975	$1,259,969	$1,259,969	$1,297,768	$1,323,723	$1,350,197	$1,390,703	$1,444,245	$1,444,245	$1,444,245	$1,444,245
TOTAL CAPITAL REVENUE	$1,281,975	$1,259,969	$1,259,969	$1,297,768	$1,323,723	$1,350,197	$1,390,703	$1,444,245	$1,444,245	$1,444,245	$1,444,245
CAPITAL EXPENDITURES											
Capital Replacement & Refurbishment Program	$781,975	$754,000	$759,968	$759,968	$759,968	$759,968	$759,968	$759,968	$759,968	$759,968	$759,968
Transfer to Baker Debt Service Reserve	$500,000	$505,969	$500,001	$537,800	$563,755	$590,229	$630,735	$684,277	$684,277	$684,277	$684,277
TOTAL CAPITAL EXPENDITURES	$1,281,975	$1,259,969	$1,259,969	$1,297,768	$1,323,723	$1,350,197	$1,390,703	$1,444,245	$1,444,245	$1,444,245	$1,444,245
ANNUAL CAPITAL SURPLUS (DEFICIT)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL ANNUAL RESERVE IMPACT	-$591,679	-$90,575	-$32,433	-$32,121	$72,752	$73,872	$128,658	$170,035	$149,190	$172,328	$146,646
ENDING RESERVE BALANCES	$8,680,307	$8,589,732	$8,557,299	$8,525,178	$8,597,931	$8,671,802	$8,800,460	$8,970,495	$9,119,685	$9,292,013	$9,438,659

APPENDIX 4: CASH FLOW ANALYSIS FOR RECYCLED WATER FUND

Source: 21-22 Revenue Model - Revised 3-9-21.xlsx sent by Jason Hayden 3/9/21

Recycled Water Cash Flow			FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
BEGINNING RESERVE BALANCES			**$2,012,004**	**$1,793,910**	**$1,788,438**	**$1,700,968**	**$1,615,778**	**$1,540,211**	**$1,481,494**	**$1,448,632**	**$1,446,285**	**$1,478,453**	**$1,553,667**
OPERATIONS & MAINTENANCE CASH FLOW													
O&M REVENUES													
Revenues under current rates			**$1,366,391**	**$1,994,528**	**$2,111,825**	**$2,111,825**	**$2,111,825**	**$2,111,825**	**$2,111,825**	**$2,111,825**	**$2,111,825**	**$2,111,825**	**$2,111,825**
Fixed Service Charges			$318,707	$334,238	$339,415	$339,415	$339,415	$339,415	$339,415	$339,415	$339,415	$339,415	$339,415
Commodity Rates			$1,047,684	$1,660,289	$1,772,410	$1,772,410	$1,772,410	$1,772,410	$1,772,410	$1,772,410	$1,772,410	$1,772,410	$1,772,410
Additional Fixed Service Revenue Required			**$0**	**$0**	**$32,244**	**$47,111**	**$66,437**	**$94,847**	**$116,560**	**$134,799**	**$153,768**	**$175,961**	**$196,576**
Fiscal Year	**Adjustments**	**Effective Months**											
FY 2022	9.50%	12			$32,244	$32,244	$32,244	$32,244	$32,244	$32,244	$32,244	$32,244	$32,244
FY 2023	4.00%	12				$14,866	$14,866	$14,866	$14,866	$14,866	$14,866	$14,866	$14,866
FY 2024	5.00%	12					$19,326	$19,326	$19,326	$19,326	$19,326	$19,326	$19,326
FY 2025	7.00%	12						$28,410	$28,410	$28,410	$28,410	$28,410	$28,410
FY 2026	5.00%	12							$21,713	$21,713	$21,713	$21,713	$21,713
FY 2027	4.00%	12								$18,239	$18,239	$18,239	$18,239
FY 2028	4.00%	12									$18,969	$18,969	$18,969
FY 2029	4.50%	12										$22,193	$22,193
FY 2030	4.00%	12											$20,615
RW Commodity Increase Required			**$0**	**$0**	**$39,667**	**$110,822**	**$188,446**	**$266,070**	**$330,757**	**$388,974**	**$447,192**	**$511,879**	**$576,565**
Year	**Rate Action**												
FY 2022	RW Commodity Increase				$39,667	$39,667	$39,667	$39,667	$39,667	$39,667	$39,667	$39,667	$39,667
FY 2023	RW Commodity Increase					$71,155	$71,155	$71,155	$71,155	$71,155	$71,155	$71,155	$71,155
FY 2024	RW Commodity Increase						$77,624	$77,624	$77,624	$77,624	$77,624	$77,624	$77,624
FY 2025	RW Commodity Increase							$77,624	$77,624	$77,624	$77,624	$77,624	$77,624
FY 2026	RW Commodity Increase								$64,686	$64,686	$64,686	$64,686	$64,686
FY 2027	RW Commodity Increase									$58,218	$58,218	$58,218	$58,218
FY 2028	RW Commodity Increase										$58,218	$58,218	$58,218

Recycled Water Cash Flow		FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
FY 2029	RW Commodity Increase										$64,686	$64,686
FY 2030	RW Commodity Increase											$64,686
Total Unrestricted RW Service Rate Revenue		**$1,366,391**	**$1,994,528**	**$2,183,737**	**$2,269,758**	**$2,366,709**	**$2,472,742**	**$2,559,142**	**$2,635,598**	**$2,712,785**	**$2,799,665**	**$2,884,966**
Other Sources of Cash												
Restricted Reserves Funding of Debt Service		$880,812	$760,301	$504,417	$460,828	$412,011	$358,090	$329,417	$307,321	$286,353	$261,568	$237,352
Recycled Water Meter Capital Charge Funding of Debt		$147,055	$147,055	$147,055	$151,466	$159,131	$170,526	$188,220	$215,748	$247,303	$283,472	$324,931
MWD LRP Rebate		$217,125	$286,250	$326,625	$326,625	$326,625	$326,625	$326,625	$326,625	$326,625	$326,625	$326,625
MNWD Payment for RW Service to Golf Course		$11,000	$11,000	$11,000	$11,000	$11,000	$11,000	$11,000	$11,000	$11,000	$11,000	$11,000
JPIA Refund		$7,685										
Property Taxes		$82,987	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal Other Sources of Cash		**$1,346,664**	**$1,204,606**	**$989,097**	**$949,919**	**$908,767**	**$866,241**	**$855,262**	**$860,694**	**$871,281**	**$882,665**	**$899,908**
TOTAL O&M REVENUES (Unrestricted)		**$2,713,054**	**$3,199,133**	**$3,172,834**	**$3,219,678**	**$3,275,475**	**$3,338,983**	**$3,414,404**	**$3,496,293**	**$3,584,066**	**$3,682,330**	**$3,784,874**
O&M REVENUE REQUIREMENTS												
O&M Expenses		$919,144	$1,192,601	$1,248,300	$1,292,864	$1,339,038	$1,385,697	$1,435,261	$1,486,636	$1,539,894	$1,595,111	$1,652,367
OPEB (115 Trust)												
DEBT SERVICE												
Recycled Phase I		$1,602,958	$1,602,958	$1,602,958	$1,602,958	$1,602,958	$1,602,958	$1,602,958	$1,602,958	$1,602,958	$1,602,958	$1,602,958
Recycled Phase II - SRF		$409,046	$409,046	$409,046	$409,046	$409,046	$409,046	$409,046	$409,046	$409,046	$409,046	$409,046
Subtotal Debt Service		**$2,012,004**	**$2,012,004**	**$2,012,004**	**$2,012,004**	**$2,012,004**	**$2,012,004**	**$2,012,004**	**$2,012,004**	**$2,012,004**	**$2,012,004**	**$2,012,004**
TOTAL O&M REVENUE REQUIREMENTS		**$2,931,148**	**$3,204,605**	**$3,260,304**	**$3,304,868**	**$3,351,042**	**$3,397,701**	**$3,447,265**	**$3,498,640**	**$3,551,898**	**$3,607,115**	**$3,664,371**
ANNUAL O&M SURPLUS (DEFICIT)		**-$218,094**	**-$5,472**	**-$87,470**	**-$85,190**	**-$75,567**	**-$58,718**	**-$32,861**	**-$2,347**	**$32,168**	**$75,215**	**$120,503**
TOTAL ANNUAL RESERVE IMPACT		**-$218,094**	**-$5,472**	**-$87,470**	**-$85,190**	**-$75,567**	**-$58,718**	**-$32,861**	**-$2,347**	**$32,168**	**$75,215**	**$120,503**
ENDING RESERVE BALANCES		**$1,793,910**	**$1,788,438**	**$1,700,968**	**$1,615,778**	**$1,540,211**	**$1,481,494**	**$1,448,632**	**$1,446,285**	**$1,478,453**	**$1,553,667**	**$1,674,171**

APPENDIX 5: CASH FLOW ANALYSIS FOR WASTEWATER FUND

Source: 21-22 Revenue Model - Revised 3-9-21.xlsx sent by Jason Hayden 3/9/21

Sewer Cash Flow	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
BEGINNING RESERVE BALANCES	**$10,369,790**	**$10,883,745**	**$10,903,133**	**$10,837,888**	**$10,773,979**	**$10,728,943**	**$10,709,983**	**$10,686,431**	**$10,657,613**	**$10,622,768**	**$10,581,042**
OPERATIONS & MAINTENANCE CASH FLOW											
O&M REVENUES											
Revenues under current rates	**$7,705,618**	**$7,775,000**	**$7,700,000**	**$7,700,000**	**$7,700,000**	**$7,700,000**	**$7,700,000**	**$7,700,000**	**$7,700,000**	**$7,700,000**	**$7,700,000**
Fixed Service Charges	$7,705,618	$7,775,000	$7,700,000	$7,700,000	$7,700,000	$7,700,000	$7,700,000	$7,700,000	$7,700,000	$7,700,000	$7,700,000
Additional Service Revenue Required	**$0**	**$0**	**$462,000**	**$706,860**	**$1,001,100**	**$1,305,639**	**$1,620,836**	**$1,947,065**	**$2,284,712**	**$2,634,177**	**$2,995,874**
Total Sewer Service Rate Revenue	**$7,705,618**	**$7,775,000**	**$8,162,000**	**$8,406,860**	**$8,701,100**	**$9,005,639**	**$9,320,836**	**$9,647,065**	**$9,984,712**	**$10,334,177**	**$10,695,874**
Other Sources of Cash											
Property Taxes - General Fund Revenue	$539,414	$526,750	$545,000	$555,900	$567,018	$578,358	$589,926	$601,724	$613,759	$626,034	$638,554
JPIA Refund	$49,950										
SOCWA Refund	$28,035										
Other Revenue	$6,094										
Investment Income	$181,692	$175,000	$50,000	$90,000	$112,500	$135,000	$135,000	$135,000	$135,000	$135,000	$135,000
Subtotal Other Sources of Cash	**$805,185**	**$701,750**	**$595,000**	**$645,900**	**$679,518**	**$713,358**	**$724,926**	**$736,724**	**$748,759**	**$761,034**	**$773,554**
TOTAL O&M REVENUES (Unrestricted)	**$8,510,803**	**$8,476,750**	**$8,757,000**	**$9,052,760**	**$9,380,618**	**$9,718,997**	**$10,045,761**	**$10,383,789**	**$10,733,471**	**$11,095,211**	**$11,469,428**
O&M REVENUE REQUIREMENTS											
O&M Expenses	$7,738,702	$8,199,216	$8,564,100	$8,862,264	$9,171,249	$9,483,552	$9,814,909	$10,158,203	$10,513,911	$10,882,532	$11,264,581
OPEB (115 Trust)											
DEBT SERVICE											
Northline Lift Station	$258,146	$258,146	$258,146	$258,146	$258,146	$258,146	$258,146	$258,146	$258,146	$258,146	$258,146
Subtotal Debt Service	**$258,146**	**$258,146**	**$258,146**	**$258,146**	**$258,146**	**$258,146**	**$258,146**	**$258,146**	**$258,146**	**$258,146**	**$258,146**

Sewer Cash Flow	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
TOTAL O&M REVENUE REQUIREMENTS	**$7,996,848**	**$8,457,362**	**$8,822,246**	**$9,120,409**	**$9,429,395**	**$9,741,698**	**$10,073,055**	**$10,416,349**	**$10,772,057**	**$11,140,678**	**$11,522,727**
ANNUAL O&M SURPLUS (DEFICIT)	**$513,955**	**$19,388**	**-$65,246**	**-$67,649**	**-$48,777**	**-$22,701**	**-$27,293**	**-$32,559**	**-$38,586**	**-$45,467**	**-$53,299**
CAPITAL REPLACEMENT & REFURBISHMENT PROGRAM											
CAPITAL PROGRAM REVENUE											
Revenue from Existing Capital Charge	$1,606,851	$1,614,593	$1,614,593	$1,614,593	$1,614,593	$1,614,593	$1,614,593	$1,614,593	$1,614,593	$1,614,593	$1,614,593
Capital Charge Revenue Increase	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal Capital Charge Revenue	**$1,606,851**	**$1,614,593**	**$1,614,593**	**$1,614,593**	**$1,614,593**	**$1,614,593**	**$1,614,593**	**$1,614,593**	**$1,614,593**	**$1,614,593**	**$1,614,593**
TOTAL CAPITAL REVENUE	**$1,606,851**	**$1,614,593**	**$1,614,593**	**$1,614,593**	**$1,614,593**	**$1,614,593**	**$1,614,593**	**$1,614,593**	**$1,614,593**	**$1,614,593**	**$1,614,593**
CAPITAL EXPENDITURES											
Capital Replacement & Refurbishment Program	$1,606,851	$1,614,593	$1,614,593	$1,610,852	$1,610,852	$1,610,852	$1,610,852	$1,610,852	$1,610,852	$1,610,852	$1,610,852
TOTAL CAPITAL EXPENDITURES	**$1,606,851**	**$1,614,593**	**$1,614,593**	**$1,610,852**	**$1,610,852**	**$1,610,852**	**$1,610,852**	**$1,610,852**	**$1,610,852**	**$1,610,852**	**$1,610,852**
ANNUAL CAPITAL SURPLUS (DEFICIT)	**$0**	**$0**	**$0**	**$3,741**	**$3,741**	**$3,741**	**$3,741**	**$3,741**	**$3,741**	**$3,741**	**$3,741**
TOTAL ANNUAL RESERVE IMPACT	**$513,955**	**$19,388**	**-$65,246**	**-$63,909**	**-$45,036**	**-$18,960**	**-$23,552**	**-$28,818**	**-$34,845**	**-$41,726**	**-$49,558**
ENDING RESERVE BALANCES	**$10,883,745**	**$10,903,133**	**$10,837,888**	**$10,773,979**	**$10,728,943**	**$10,709,983**	**$10,686,431**	**$10,657,613**	**$10,622,768**	**$10,581,042**	**$10,531,484**

APPENDIX 6: DETAILED WATER COST OF SERVICE ANALYSIS

	Peaking Factors	Base Cost Allocation	Peaking Cost Allocation
Max Day	1.73x Average Demand	57.8%	42.2%
Max Hour	2.04x Max Day Demand	49.0%	51.0%

The appropriate allocation factors between base and extra capacity vary with system design. The water utility is comprised of various facilities, each designed and operated to fulfill a given function. To provide adequate service to its customers at all times, the utility must provide the total water demand and peak demand.

Different facilities are designed to meet different peaking demands. These characteristics are used to allocate costs to functional cost components. Since all customers do not exert their maximum demand for water at the same time, water facilities are designed to meet coincidental demands for all customers. Comparison of historical system coincidental maximum day and maximum hour demands to average day demand result in appropriate ratios for allocating capital costs and operating expenses to base and extra capacity cost components. A maximum day to average day ratio of 2.0 is used based on demands experienced in the District's system. This indicates that 50 percent of the capacity of the facilities designed and operated for maximum day demand is needed for average or base use and 50% is used for a maximum day extra capacity requirements.
Cost of service is allocated to functional cost components using either water system demand ratios developed above or direct assignment, such as billing costs. The separation of costs into functional components provides a means for distributing such costs to customers based on their respective responsibilities for each type of service.

O&M expenses are generally allocated to the functional cost components that best reflect the design parameter associated with that expense. For example, source of supply meets the average day requirements of the system; thus, related expenses are allocated to the base cost component. The treatment plant and transmission mains are designed to meet the maximum day demands of the system and so related expenses are allocated to the base and maximum day cost components. In a similar manner, pump stations and distribution mains are designed to meet the maximum hour demands of the system so related expenses are allocated to the base, maximum day, and maximum hour cost components. Other supporting costs such as Fleet, Information Technology and General & Admin are allocated using staff levels as provided by District Staff.

Water Functions	Peaking Factors	Water Supply	Base Fixed	Max Day	Max Hour	RW	Conservation	Rev Offset	Billing & CS
Max Day	1.73		57.8%	42.2%					
Max Hour	2.04		49.0%	35.8%	15.2%				
Source of Supply		98.3%	1.7%						
T&D			53.4%	39.0%	7.6%				
Treatment			57.8%	42.2%					
Pumping			49.0%	35.8%	15.2%				
Operations			82.0%						18.0%
Administrative			77.5%						22.5%
Billing & CS			0.0%						100.0%
Labor			67.3%	18.0%	4.6%	0.0%	0.0%	0.0%	10.0%
Conservation Program							100.0%		
RW Restricted Res Funding						100.0%			
Rev Offset								100.0%	
Misc. Rev			100.0%						
Water Supply		100.0%							

Using the allocation factors discussed above, the table below summarizes the allocation of Water Revenue Requirements to different cost causation categories.

Water Rev Requirements	FY 2022	Water Supply	Base Fixed	Max Day	Max Hour	RW	Conservation	Rev Offset	Billing & CS	Private Fire	Capital R&R	Allocation Factors
O&M Expenses(Excl. Dep & Int)												
Source of Supply	$8,259,767	$8,121,017	$138,750	$0	$0	$0	$0	$0	$0	$0	$0	Source of Supply
Treatment - Water	$39,500	$0	$22,832	$16,668	$0	$0	$0	$0	$0	$0	$0	Treatment
Pumping - Water	$306,500	$0	$150,245	$109,679	$46,576	$0	$0	$0	$0	$0	$0	Pumping
T&D - Water	$592,300	$0	$316,357	$230,940	$45,003	$0	$0	$0	$0	$0	$0	T&D
Customer Accounts	$4,000	$0	$0	$0	$0	$0	$0	$0	$4,000	$0	$0	Billing & CS
Operations Support	$97,280	$0	$79,770	$0	$0	$0	$0	$0	$17,510	$0	$0	Operations
Fleet	$102,560	$0	$84,099	$0	$0	$0	$0	$0	$18,461	$0	$0	Operations
Indirect Operating Costs	$17,480	$0	$14,334	$0	$0	$0	$0	$0	$3,146	$0	$0	Operations
Administration	$83,280	$0	$68,290	$0	$0	$0	$0	$0	$14,990	$0	$0	Operations
Information Technology	$124,000	$0	$96,100	$0	$0	$0	$0	$0	$27,900	$0	$0	Administrative
Indirect Administration Costs	$648,000	$0	$502,200	$0	$0	$0	$0	$0	$145,800	$0	$0	Administrative
Labor Costs	$3,626,400	$0	$2,442,159	$653,975	$167,626	$0	$0	$0	$362,640	$0	$0	Labor
Subtotal O&M Expenses(Excl. Dep & Int)	**$13,901,067**	**$8,121,017**	**$3,915,135**	**$1,011,262**	**$259,205**	**$0**	**$0**	**$0**	**$594,448**	**$0**	**$0**	
Other Rev Requirements												
OPEB (115 Trust)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	Administrative
Debt Service	$684,262	$0	$395,527	$288,735	$0	$0	$0	$0	$0	$0	$0	Treatment
Unrestricted Capital R&R Funding	$759,968	$0	$0	$0	$0	$0	$0	$0	$0	$0	$759,968	Capital R&R
Restricted Capital R&R (Baker WTP)	$500,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$500,001	Capital R&R
Subtotal Other Rev Requirements	**$1,944,231**	**$0**	**$395,527**	**$288,735**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$1,259,969**	
Less Other Revenues												
Restricted Reserves Funding of Conservation Program	-$200,000	$0	-$200,000	$0	$0	$0	$0	$0	$0	$0	$0	Misc. Rev
Capital Charge Funding of Baker Debt Service	-$500,001	$0	-$289,018	-$210,983	$0	$0	$0	$0	$0	$0	$0	Treatment
Restricted Reserve Funding of Baker Debt Service	-$184,000	$0	-$106,358	-$77,642	$0	$0	$0	$0	$0	$0	$0	Treatment
Property Taxes - General Fund Revenue	-$408,391	$0	-$408,391	$0	$0	$0	$0	$0	$0	$0	$0	Misc. Rev
Property Taxes (Funds Tier 1 Offset)	-$136,609	$0	$0	$0	$0	$0	$0	-$136,609	$0	$0	$0	Rev Offset
Miscellaneous Revenue	-$75,000	$0	-$75,000	$0	$0	$0	$0	$0	$0	$0	$0	Misc. Rev
Cellular Site Lease Revenue (Funds Tier 1 Offset)	-$235,000	$0	$0	$0	$0	$0	$0	-$235,000	$0	$0	$0	Rev Offset
Other Income (R-6 Partners)	-$122,500	$0	-$122,500	$0	$0	$0	$0	$0	$0	$0	$0	Misc. Rev
Investment Income	-$50,000	$0	-$50,000	$0	$0	$0	$0	$0	$0	$0	$0	Misc. Rev
Subtotal Other Revenues	**-$1,911,501**	**$0**	**-$1,251,267**	**-$288,625**	**$0**	**$0**	**$0**	**-$371,609**	**$0**	**$0**	**$0**	
Plus Restricted Reserve Funding	$826,317					$626,317	$200,000					
Plus Operating Reserve Funding	-$32,433	$0	-$32,433	$0	$0	$0	$0	$0	$0	$0	$0	Misc. Rev
Plus Capital Reserve Funding	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	Capital R&R
NET REV REQUIREMENTS FROM RATES	**$14,727,682**	**$8,121,017**	**$3,026,962**	**$1,011,373**	**$259,205**	**$626,317**	**$200,000**	**-$371,609**	**$594,448**	**$0**	**$1,259,969**	
Reallocation of Private Fire Peaking Costs				**-$11,898**	**-$78,991**					**$90,889**		
NET REV REQUIREMENTS FROM RATES	**$14,727,682**	**$8,121,017**	**$3,026,962**	**$999,474**	**$180,214**	**$626,317**	**$200,000**	**-$371,609**	**$594,448**	**$90,889**	**$1,259,969**	

Revenues requirements by categories are then collected through different rate components. Peaking costs are recovered using both fixed charges via meters & capacity rates and water commodity rates via peaking delivery rate component, as shown in the Table below.

Water Rev Requirements	FY 2022	Water Rate Components								
		Water Supply	Service & Capacity	Peak Delivery	RW	Conservation	Rev Offset	Billing & CS	Fire Service	Capital R&R
Water Supply	$8,121,017	$8,121,017	$0	$0				$0		
Base Fixed	$3,026,962		$3,026,962	$0				$0		
Peaking	$1,179,688		$509,688	$670,000				$0		
RW	$626,317			$0	$626,317			$0		
Conservation	$200,000			$0	$0	$200,000		$0		
Rev Offset	-$371,609			$0	$0		-$371,609	$0		
Billing & CS	$594,448			$0	$0			$594,448		
Private Fire	$90,889			$0	$0			$0	$90,889	
Capital R&R	$1,259,969			$0	$0			$0	$0	$1,259,969
Total	**$14,727,682**	**$8,121,017**	**$3,536,650**	**$670,000**	**$626,317**	**$200,000**	**-$371,609**	**$594,448**	**$90,889**	**$1,259,969**
Units of Service		**2,918,520**	**311,460**	**2,020,449**	**245,091**	**201,245**	**1,769,749**	**114,432**	**303,970**	
		ccf / yr	EMUs / yr	ccf / yr	ccf / yr	ccf / yr	ccf / yr	bills / yr	FDU/yr	
Unit Rate		$2.78	$11.36	$0.33	$2.55	$0.99	-$0.21	$5.20	$0.30	