

Elsinore Valley Municipal Water District

2019 Potable Water and Recycled Water Rate Study

Draft – July 8, 2019

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APPENDIX A: FYE 2021 Revenue Requirements

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1. Background of the Study

1.1. Overview of EVMWD’s Water & Recycled Water Utilities

Elsinore Valley Municipal Water District (EVMWD or District) provides public water, wastewater treatment, and water recycling services to approximately 45,600 accounts over its 97-square mile service area. The District’s service area includes the cities of Lake Elsinore, Canyon Lake, Murrieta, Wildomar and the unincorporated communities of The Farm, Lakeland Village, Cleveland Ridge, Rancho Capistrano, El Cariso Village, Horsethief Canyon, Sedco, and Temescal Canyon. Wholesale service is provided to The Farm Mutual Water Company, referred to as Inter-Agency water sales.

The District is comprised of two main water service areas — the Elsinore Water Division and the Temescal Water Division. The purpose of this study (Study) is to update the cost of service based rates for the water and recycled water enterprises for fiscal year end (FYE) 2020 and FYE 2021. A summary of the District’s water and recycled water accounts is detailed in Table 1-1: Summary of District Accounts below.

Table 1-1: Summary of District Accounts

Service	Elsinore Division	Temescal Division	Total
Potable Water	44,780	830	45,510
Recycled Water	110	-	110
Total	44,890	830	46,620

As a sub-member agency of the Metropolitan Water District of Southern California (MWD) via Western Municipal Water District (WMWD), the District relies on imported water for approximately 63% of its potable water supply needs (MWD – Tier 1). The remaining demand is met by local surface water and groundwater.

To promote water use efficiency, the District adopted allocation-based conservation water pricing rates, governed by Water Code Section 370 et seq (commonly referred to as a “Water Budget Rate Structure”) for all residential and recycled water accounts in July of 2009 and is presently in effect. A Water Budget Rate Structure is a monthly amount of water allocated to each customer based on the customer’s efficient indoor and outdoor needs. Because their water use varies significantly based on the nature of their commercial activity, a uniform rate is used for commercial customers. The Inter-Agency water sales customer is charged using a 3-tier inclining tiered rate structure. The current rates, detailed in Section 3.4 of this Report, were effective July 1, 2018.

1.2. Objectives of the Study

In December 2018, the District retained Raftelis Financial Consultants (Raftelis) to conduct the rate update study for the cost-of-service-based rates for its water and recycled water utilities in both Elsinore and Temescal Water Divisions. This Report summarizes the key findings and results for the study.

The major objectives of the study include the following:

1. Update the cost-of-service analyses for potable water enterprise, which includes Fund 20 (Elsinore Division) and Fund 25 Temescal Division, and recycled water enterprise, Fund 35 (Recycled Water);
2. Calculate equitable cost of service for water and recycled water rates that meet California Constitution Article XIII D, Section 6 (commonly referred to as Proposition 218) using the same budget-based rate structure and updated revenue requirements for FYE 2020 and FYE 2021.

1.3. Key Information Used in the Study

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

1. FYE 2020 Operating Budget for Elsinore Division, Temescal Division and Recycled Water
2. Budgeted water and recycled water sales for FYE 2020 and FYE 2021 for Elsinore and Temescal Water Divisions
3. Updated water supply portfolio and associated costs from each supply source
4. Updated recycled water supply portfolio and associated costs for each supply source
5. Current rates effective starting July 1, 2018
6. Peaking characteristics for water & recycled water systems

2. Legal Framework and Rate Setting Methodology

2.1. Legal Framework

2.1.1. CONSTITUTIONAL MANDATES AND STATUTORY AUTHORITY

Article XIII D, Section 6 (commonly referred to as Proposition 218) and Article X, Section 2 of the California Constitution govern the principles applicable to this Study. The Study equitably implements and harmonizes these constitutional mandates in concert with Water Budget Rate Structures.

2.1.2. CALIFORNIA CONSTITUTION - ARTICLE X, SECTION 2

Article X, Section 2 of the California Constitution 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 Study achieves.

2.1.3. CALIFORNIA CONSTITUTION - ARTICLE XIII D, SECTION 6

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

1. Water 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 property.
5. No charge may be imposed for general governmental services including, but not limited to, police, fire, ambulance or library services, where the service is available to the public at large in substantially the same manner as it is to property owners.

As noted in the referenced statutes, an “Allocation-Based Conservation Water Pricing Rate Structure” is a form of increasing tiered rate structure where the amount of water within the first tier or tiers is based on the estimated, efficient water needs of the individual customer on a parcel basis, and the rate is based on the cost of providing water at that level

of usage (taking into account peaking costs, supply, and costs to fund conservation programs that increase water supply and reliability). Water-Budget Rate Structures differ from other metered water rate designs in two key ways. First, the tiers 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, based on customer usage patterns, water supply, and the cost of providing water.

The budget for each customer defines how much water usage is considered efficient for his or her parcel. Customers with usage above their efficient usage budget pay a higher rate, based on the corresponding increased costs to the District of providing additional water.

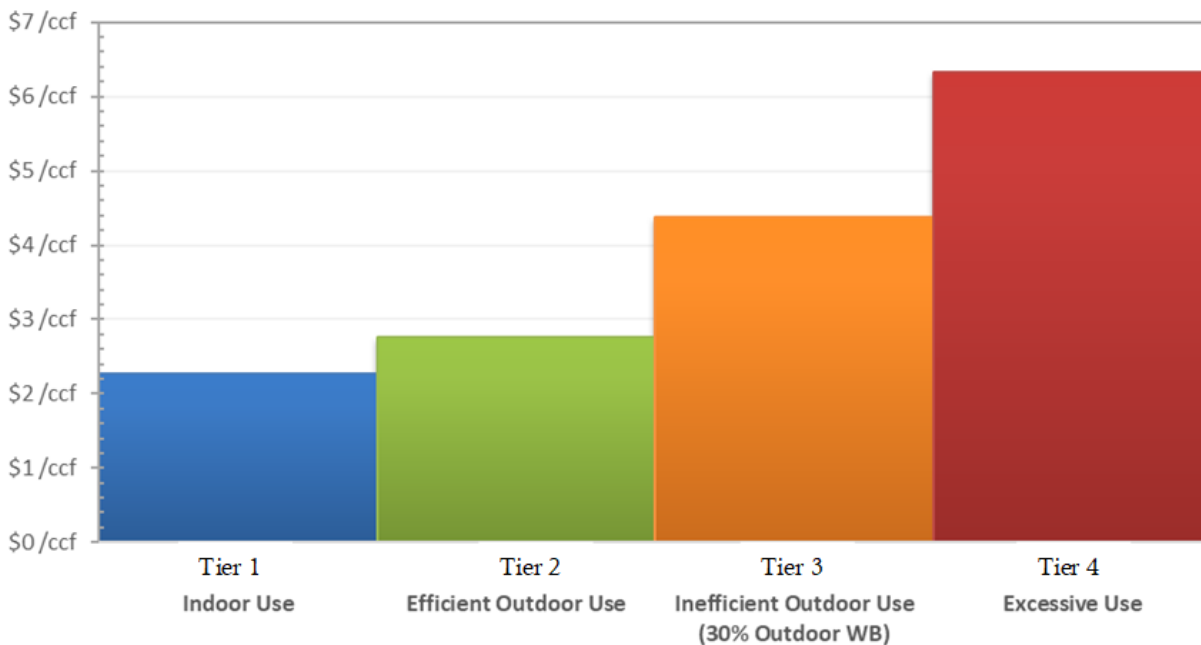
3. Water Budgets & Current Rates

The District has implemented a Water Budget Rate Structure to allocate the costs of providing water at varying usage levels, taking into consideration costs for conservation and efficient water use for both residential, landscape irrigation water customers and all recycled water customers since 2009, with the most recent update in July 2015.

3.1. Water Budget Definitions

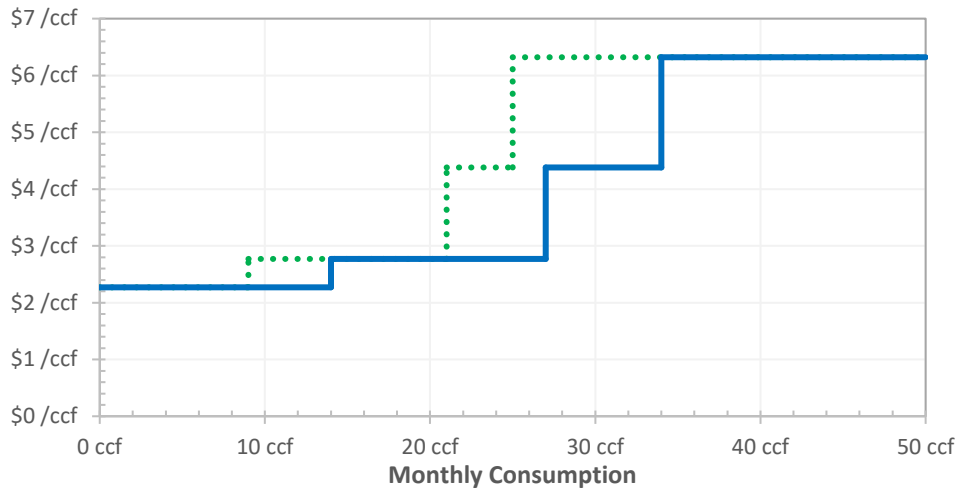
The American Water Works Association Journal defines a water budget as “the quantity of water required for an efficient level of water use by that customer” (Source: *American Water Works Association Journal, May 2008, Volume 100, Number 5*). Therefore, each customer has his or her own allocation of water (i.e. a water budget) as shown in the following figures. The District’s potable water and recycled water customers both use Water Budget Rate Structures. Figure 3-1 shows how the tier breaks are currently set for the District’s residential customers in Elsinore Water Division. Tier 1 is defined by the allotment of water for indoor use and Tier 2 is defined by the allotment of water for efficient outdoor use. Tier 3 is set to 30% of the Outdoor Water Budget (OWB) to account for different landscape needs above the ETAF factor of 60% set by the District as efficient outdoor water use, defined in Section 3.2. For example, if the Tier 2 OWB was 12 units, Tier 3 would be 4 units (30% x 12 units rounded up to the nearest unit). Any use beyond Tier 3 is considered excessive and falls into Tier 4.

Figure 3-1: Current Residential Water Budget Allotments for Elsinore Division



Water Budget Rate Structures are customized for each customer (i.e., on a parcel basis), which results in different tier breaks for different customers. For example, as illustrated by Figure 3-2, the first 9 units consumed by Customer 1 (green dotted line) are charged at the Tier 1 rate, whereas Customer 2 (blue solid line) has 13 units at the Tier 1 rate for indoor use due to the number of persons in the respective household. The next 12 units (10 – 21 units) consumed by Customer 1 are reserved for outdoor use, which is charged at the Tier 2 rate, and usage from 22 – 25 units falls into Tier 3¹. Any usage exceeding 25 units will be charged at the Tier 4 Rate. Similarly, for Customer 2, Tier 2 spans from 14 – 27 units, Tier 3 spans from 28 – 34 units, and usage exceeding 34 units will be charged at the Tier 4 Rate. Customer 2, with a larger indoor and outdoor water budget (or allotment), represents a residential customer with a larger family and bigger irrigated landscape area than Customer 1. The development of individual water budgets is described in more detail in 3.2.

Figure 3-2: Customized / Individualized Water Budget Tiers



3.2. Water Budget Development Methodology

Indoor Water Budget

The indoor water budget (IWB) is determined based on a customer’s household size (i.e., number of persons residing in the household) and a standard consumption (i.e., number of gallons consumed) of 55 gallons per person per day based on Senate Bill No. 7 (SB7x 7), approved on November 10, 2009. (SB7x 7) identified an indoor provisions standard of 55 gallons per capita per day, for retail water suppliers. The proposed IWB formula is as follows:

Equation 3-1: Indoor Water Budget Formula

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

¹ Tier 3 = 30% of Outdoor Water Budget (OWB)

where

- GPCD – Gallons per capita per day, set at 55 from the 2015 Study.
- Household Size – Number of residents per dwelling unit.
- Dwelling Units – The number of dwelling units served by the meter. For example, a single-family residence is one dwelling unit.
- Days of Service – 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 the indoor water budget for each billing cycle.
- DF_{indoor} – Indoor drought factor. The percentage of indoor water budget allotted during drought conditions. The drought factor is determined based on the degree of water shortage and 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 the District’s approval or verification as outlined in the District’s variance program. Variances may be requested by submitting a “Variance/Adjustment Request Form” found on the District’s website.
- 748 is the conversion unit from gallons to a billing unit of one hundred cubic feet (ccf).

Outdoor Water Budget

The outdoor water budget (OWB) is determined by three main variables: irrigable landscape area, weather data and an evapotranspiration (ET) adjustment factor. The irrigable landscape area is measured as the square footage of landscape surface on a customer’s property. 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 at given specific 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 formula to calculate an outdoor water budget is as follows:

Equation 3-2: Outdoor Water Budget Formula

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

where

- ET_0 is measured in inches of water during the billing period based on a ten-year rolling average ET from Winchester Weather Station.
- ETAF (% of ET_0) is set to 60%, which was the metric set by the District since 2009, when the water budget structure was first introduced. The 60% ETAF is equivalent to the standard set for California native and drought friendly plants.
- Landscape Area (or Irrigable Landscape Area in square feet) is the measured irrigable landscape area served by a customer’s meter.
- DF_{outdoor} – The outdoor drought factor is the percentage of outdoor water budget allotted during drought conditions. The drought factor is determined based on the degree of water shortage and is subject to the approval of the District’s Board of Directors. The outdoor drought factor is currently set at 100 percent.
- V_{outdoor} – The outdoor variance is the additional water allotment to be granted for extenuating circumstances and is subject to the District’s approval or verification as outlined in the variance program. An outdoor variance is subject to an outdoor drought factor.
- 1,200 is the conversion unit from inch* ft^2 to billing unit of one hundred cubic feet (ccf).

3.3. Budget Allotment Definitions

Peaking refers to the period of greatest water usage which places the highest demand on the water system. It is further described in Section 4.4. Typically, indoor water use tends to be homogenous throughout the year with minimal peaking characteristics. On the other hand, outdoor use tends to fluctuate with weather conditions and thus has higher peaking characteristics than indoor use. Commercial use includes both indoor and outdoor use with the majority being indoor use. Thus, commercial use peaks less than outdoor use but more than indoor use. Each usage type — indoor, outdoor, or commercial use have similar peaking characteristics. The different peaking characteristics, increasing in the direction of the arrow, may be conceptually represented on the scale shown below. The proposed tier definitions shown in Table 3-1 group usage with similar peaking characteristics within the same tier.



The tier definitions revised and defined in the 2015 Study are presented in Table 3-1 below, which are still applicable to existing and proposed rates. The cost of providing service proportional to each tier can be calculated using updated revenue requirements and usage characteristics. The cost of service is what is ultimately used to determine a unit price for each tier.

Table 3-1: Tier Allotment Definitions

Allotment	Allotment Description	Potable Water	Recycled Water
Tier 1	Indoor Needs	Indoor WB (IWB)	N/A
Tier 2	Outdoor Needs	Outdoor WB (OWB)	OWB
Tier 3	Inefficient Use	30% of OWB	30% of OWB
Tier 4	Excessive Use	Above Tier 3	Above Tier 3

The District provides wholesale water service to The Farm Mutual Water Company. To determine the tier definitions for its lone Inter-Agency customer, the District uses seasonal averages. The current 3-tier rate structure is shown in Table 3-2.

Table 3-2: Allotment Definitions for Inter-Agency Customer

Allotment	Allotment Description	Basis
Tier 1	0-9,000 ccf	90% of Winter Average
Tier 2	9,001 – 12,000 ccf	Annual Average
Tier 3	Above 12,000 ccf	

3.4. Budget Allotment Definitions

The District uses the same monthly meter charge rate schedule for both its potable water and recycled water customers for the Elsinore Water Division. The meter charge rises with the increase in meter size. Larger meters have the potential to demand more capacity, or said differently, exert more peaking characteristics compared to smaller meters. Meter size is used as a proxy for the estimated demand that each customer can place on the water system. A significant portion of the District’s operating and capital costs are related to meeting such capacity requirements and maintaining the readiness to serve each connection. Utilities invest in facilities to provide capacity, and these costs must be recovered regardless of the amount of water used during a given period. The potential capacity demanded (peaking) is proportional to the potential flow through each meter size as established by AWWA hydraulic capacity ratios. Table 3-3 summarizes the current monthly services charges for each meter size, which are imposed on all meters including Elsinore and Temescal Water Divisions and Recycled Water customers.

Table 3-3: Current Monthly Meter Service Charges

Meter Size	Meter Charges
3/4"	\$26.27
1"	\$41.29
1.5"	\$78.85
2"	\$123.91
3"	\$266.59
4"	\$476.87
6"	\$1,205.35
8"	\$2,106.55
10"	\$3,157.94

The District currently uses a four-tier Water Budget Rate Structure for all residential customers and three tier Water Budget Rate Structure for landscape irrigation customers², as shown in Figure 3-1. Commercial and institutional customers both pay a uniform rate. Water for hydrants is a non-property related fee and is charged a uniform rate; hydrant water use is water used on a construction site that is metered from the terminus of a fire hydrant. The full schedules of potable water rates for Elsinore and Temescal Water Divisions are presented in Table 3-4 below.

Table 3-4: Current Potable Water Rates (\$/ccf)

Rate Classifications	Allotment Description	Elsinore Division	Temescal Division
Residential			
Tier 1	0 – 100% IWB	\$2.34	\$0.76
Tier 2	100% IWB – 100% TWB ³	\$2.84	\$1.26
Tier 3	100% TWB – (100% TWB + 30% OWB)	\$5.05	\$1.56
Tier 4	Usage over Tier 3	\$7.48	\$5.86
Irrigation			
Tier 1	0 – 100% OWB	\$2.93	\$1.35
Tier 2	100% OWB – 130% OWB	\$5.25	\$1.77
Tier 3	Usage over Tier 2	\$8.08	\$6.47
Non-Residential		\$2.84	\$0.96
Hydrant Water		\$5.49	
Inter-Agency			
Tier 1	0 – 9,000 ccf	\$2.48	
Tier 2	9,001 – 12,000 ccf	\$4.61	
Tier 3	Usage over Tier 2	\$6.25	

The recycled water and landscape irrigation rate structures use only three tiers, because the indoor use tier is not applicable for these two customer classes. The full schedule of recycled water rates is presented in Table 3-5 below.

² Landscape irrigation customers do not have Tier 1 – Indoor Use

³ 100% Total Water Budget (TWB) = 100% Indoor Water Budget (IWB) + 100% Outdoor Water Budget (OWB)

Table 3-5: Current Recycled Water Rates (\$/ccf)

Rate Classifications	Allotment Description	Recycled Water Rates
Recycled Water		
Tier 1	0 – 100% OWB	\$2.29
Tier 2	100% OWB – 130% OWB	\$4.14
Tier 3	Usage above Tier 2	\$4.70

Customers are also charged a power surcharge per ccf to recover the incremental costs of energy required to deliver water to certain areas of the District. The charge depends on which of the three elevation zones a customer is located within the Elsinore Water Division, as shown in Table 3-6.

Table 3-6: Current Power Zone Charges (\$/ccf)

Zones	Elsinore	Temescal
Zone 1	\$0.12	\$0.12
Zone 2	\$0.29	
Zone 3	\$1.52	

4. Key Assumptions

4.1. FYE 2020 and FYE 2021 Water Sales Projections

The District projects a 1.5% increase in water demand for Elsinore Water Division’s water sales and Temescal Division in FYE 2020 and FYE 2021. Elsinore Water Division is expecting water usage equal to approximately 9.9M ccf for FYE 2020 and approximately 10M ccf for FYE 2021. The Temescal Division is expecting water usage equal to approximately 163K and 166K for FYE 2020 and FYE 2021, respectively. Table 4-1 provides a detailed breakdown by customer class and tier for each fiscal year.

Table 4-1: FYE 2020 and FYE 2021 Projected Water Sales

Water Sales	Elsinore Division FYE 2020	Elsinore Division FYE 2021	Temescal FYE 2020	Temescal FYE 2021
Residential				
Tier 1	4,486,460	4,553,757	62,960	63,904
Tier 2	2,383,568	2,419,321	45,434	46,116
Tier 3	215,773	219,010	4,145	4,207
Tier 4	391,961	397,840	7,059	7,165
Irrigation				
Tier 1	1,298,664	1,318,144	13,749	13,956
Tier 2	157,938	160,307	1,806	1,833
Tier 3	271,908	275,987	3,201	3,249
Commercial	553,388	561,689	24,995	25,370
Institutional	53,407	54,208		
Inter-Agency				
Tier 1	90,067	91,418		
Tier 2	18,484	18,762		
Tier 3	4,389	4,455		
Total	9,926,008	10,074,898	163,350	165,800

The District projects a 1.5% increase in water demand for recycled water sales each fiscal year. Table 4-2 provides a detailed breakdown by tier for FYE 2020 and FYE 2021.

Table 4-2: FYE 2020 and FYE 2021 Projected Recycled Water Sales

Water Sales	Recycled Water FYE 2020	Recycled Water FYE 2021
Tier 1	316,855	321,608
Tier 2	27,530	27,943
Tier 3	35,196	35,724
Total	379,582	385,276

4.2. Water Supply Portfolios

4.2.1. ELSINORE WATER SUPPLY PORTFOLIO

The District relies on several sources of water supply to meet its potable water demand. These include local groundwater, surface water, and imported water. All three sources are blended within the District’s distribution system.

The groundwater supplies are derived from the Elsinore Groundwater Basin in the Elsinore area and Coldwater Groundwater Basin in the Temescal Valley area. These water sources rely heavily upon precipitation, runoff from the surrounding watersheds, infiltration from the San Jacinto River, and other means of recharge. Groundwater from a few of the wells in the Elsinore Groundwater Basin are blended together, and other well water from this same basin is treated at the Back Basin Water Treatment Plant for arsenic removal. To better manage the groundwater basin to ensure future supplies, the District adopted a Groundwater Management Plan for the Elsinore Groundwater Basin and established an operating safe yield to not exceed 5,500 AF per year.

The Canyon Lake Water Treatment Plant treats surface water that flows into Canyon Lake, which includes flows from the San Jacinto River, Salt Creek, and other local surface runoff. Untreated water can also be purchased from WMWD through two connections that provide water from the Colorado River or State Water Project. The District has the right to purchase a maximum flow of 37.5 cubic feet per second through the Auld Valley Pipeline (AVP). Water purchased through AVP is treated at MWD’s Skinner Filtration Plant, which is then blended primarily with Colorado River water and a small amount of State Water Project water.

The associated costs per unit for each of the water supply sources for the Elsinore Water Division are summarized in Table 4-3. The quantity used for sale for each source takes into account unaccounted water including normal water loss within the system, District use for operations, hydrant flush outs, and variances granted to customers for unexpected leaks. These occurrences make up the District’s total system water loss and has consistently averaged approximately 5%, historically.

Table 4-3: Elsinore Division FYE 2020 Water Supply Costs

Water Supplies	FYE 2020 Budget [A]	FYE 2020 Production [B]	Quantity Available [C] (B – Water Loss)	Water Sales (ccf) [D]	Unit Rate (\$ / ccf) [E] (A / D)
Local Water (Wells)	\$365,700	2,180,614	2,071,583	2,071,583	\$0.18
Groundwater (Back Basin)	\$202,400	790,178	750,669	750,669	\$0.27
Surface Water (Canyon Lake)	\$998,800	1,089,000	1,034,550	1,034,550	\$0.97
Imported (MWD – Tier 1)	\$17,163,247	6,636,366	6,304,548	6,069,205	\$2.83

4.2.2. TEMESCAL WATER SUPPLY PORTFOLIO

Water demand in the Temescal Water Division is supplied by the Coldwater Groundwater Basin located within the Temescal service area and supplemented by imported water from Temescal Valley Pipeline as needed. Table 4-4 summarizes Temescal Division water supply sources.

Table 4-4: Temescal Division FYE 2020 Water Supply Costs

Water Supplies	FYE 2020 Budget [A]	Water Sales (ccf) [B]	Unit Rate (\$ / ccf) [C] (A / B)
Local Water (Wells)	\$10,300	153,089	\$0.07
Imported (MWD – Tier 1)	\$29,016	10,261	\$2.83

4.2.3. RECYCLED WATER SUPPLY PORTFOLIO

The District relies on several sources of water to meet its recycled water demand. The associated cost per unit for each of the water supply sources is calculated in Table 4-5.

Table 4-5: Recycled Water FYE 2020 Water Supply Costs

Water Supplies	FYE 2020 Budget [A]	FYE 2020 Production (AF) [B]	Quantity Available (ccf) [C] (B – Water Loss)	Water Sales (ccf) [D]	Unit Rate (\$ / ccf) [E] (A / D)
Auld Valley Pipeline (WMWD)	\$50,000	44	19,333	18,366	\$2.72
EMWD Recycled	\$55,000	179	78,173	74,264	\$0.74
Treated WW Flow	\$596,137	N/A	N/A	286,951	\$2.08

4.3. Recycled Water Funding from Potable Water Rates

Certain properties in the District receive recycled water, which reduces potable water demand and reliance on more expensive purchased water from MWD via WMWD. Recycled water therefore frees up additional, less expensive potable water sources and offsets the need to purchase higher cost water, which would be necessary for the highest District water users. As such, the potable water system benefits from the recycled water system, and it is appropriate for high water usage to share in the costs of the recycled water system as a supplemental water source.

In the absence of recycled water, additional MWD Tier 1 water would be needed to serve excessive usage. The District is currently purchasing MWD Tier 1 water to meet total potable demand even with existing recycled water usage. Thus, the costs that are avoided by potable customers through the presence of recycled water is an appropriate amount for potable revenues to contribute toward recycled water costs as a local water supply source versus paying another agency for an equivalent amount of imported water to serve recycled water demand. Potable water customers' contributions toward the recycled water system are calculated as follows:

Equation 4-1: Formulas for Avoided Potable Water Costs via RW Sales

$$\text{ccfs of RW Sales} \times (\text{MWD Tier 1 ccf Cost} - \text{Blended Water Supply ccf Cost})$$

$$379,582 \times (\$2.83 - \$1.78) = \$301,299$$

The difference in the per unit cost between MWD Tier 1 water (\$2.83) and blended local well water and MWD Tier 1 water (\$1.78) (from Table 4-3) is multiplied by the 379,582 ccf of recycled water (from Table 4-2) to determine the share of recycled water costs to be paid by high water users to account for the proportional benefit received by those customers and property owners related to increased supply and reliability of less expensive potable water sources. The transfer of \$301,299 from potable water sales to fund recycled water Operations & Maintenance (O&M) is recovered entirely from excessive users (Residential - Tier 4 and Irrigation – Tier 3).

Potable water rate revenues also contribute a portion to recycled water debt service and capital projects. For FYE 2020 and FYE 2021, the District's adopted two-year budget for FYE 2020 and FYE 2021 identifies a capital contribution of \$521,716 for each fiscal year.

4.4. Peaking Factors

Water systems are designed to accommodate the maximum level of demand for any given time. System capacity is the system's ability to supply water to all delivery points at the time when demanded. Demand in excess of average annual daily demand generates additional costs to serve the extra capacity demand placed on the water system. Total extra capacity costs are the costs of capital, operation, and maintenance associated with meeting water use requirements in excess of average, or base water use, and are determined using peaking factors derived from Maximum Day (Max Day) and Maximum Hour (Max Hour) water demands (collectively, Peaking). The Max Day demand is the maximum amount of water used in a single day in a year. The Max Hour demand is the maximum usage in an hour as is commonly represented as a factor of Max Day. Various facilities are designed to meet customer peaking needs. For example, reservoirs are designed to meet Max Day requirements and must be designed larger than they would be if the same amount of water were being used at a constant rate throughout the year. The cost associated with constructing a reservoir is based on system wide peaking factors. For example, if the Max Day factor is 2.0, then certain system facilities must be designed larger than what would be required if the system only needed to accommodate average daily demand. In this case, half of the cost would be allocated to Base (or average day demand) and the other half allocated to Max Day. The calculation of the Max Hour and Max Day demands is explained in Section 5.3.3.

5. Water Cost of Service & Proposed Rates

This section of the Study provides a discussion of the revenue requirements, peaking costs, and capital costs for the water utility. The Cost of Service methodology provided in this section demonstrates a clear nexus between the charges for service and the allocation of costs to provide such service, as required by Proposition 218.

5.1. Proportionality

Demonstrating proportionality when calculating rates is a critical component of ensuring compliance with Proposition 218. For costs that are recovered through the agency's proposed fixed charge, the Study spreads the costs either over all accounts or by meter size, depending on the type of expense. As such, customer classes and usage are not needed to calculate each customer's monthly fixed charge. Conversely, costs that are identified as variable are allocated among customer classes based on their water usage demand on the system. As stated in the M1 Manual, the AWWA Rates and Charges Subcommittee has stated that "a utility's full revenue requirements should be recovered from classes of customers in proportion to the cost of serving those customers." The District's revenue requirements are the total operation and maintenance expense and capital-related costs incurred in meeting various aspects of providing water service. Thus, the District's annual revenue requirements are, by definition, the cost of providing service. This cost is then used as the basis to develop unit costs for the water components and to allocate costs to the various customer classes in proportion to the water services rendered.

Individual customer demands vary depending on the nature of the use at the location where the service is provided. For example, demand for a typical single-family home is different than that of an irrigation customer, primarily due to peak use behavior, which drives the need for and costs of sizing, operating, and maintaining infrastructure to meet this demand. The concept of proportionality requires that cost allocations consider both the average quantity of water consumed during a year (base) and the peak rate at which it is consumed (peaking). A water system is designed to meet peak demands. Peaking cost component, which are the costs associated with Max Day and Max Hour combined, are allocated to customer classes and corresponding tiers proportionately based on the peak usage characteristics of each respective customer class and tier.

In allocating the costs of service, the industry standard as promulgated by AWWA’s M1 Manual is to group customers with similar system needs and demands into customer classes. Rates are then developed for each customer class, with each individual customer paying the customer class’ average allocated cost of service.

Customers place the following demands on the water system:

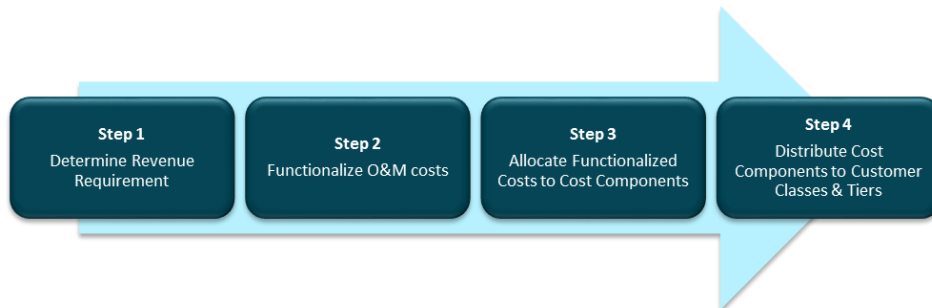
- » The system capacity⁴ (for treatment, storage, and distribution) that must be maintained to provide continuous, reliable service to all customers;
- » The level of water efficiency as a collective group;
- » The number of customers requiring customer services such as bill processing, customer service support, and other administrative services.

A customer class consists of a group of customers, with common characteristics, who share responsibility for certain costs incurred by the utility. Joint costs are proportionately shared among all customers in the system based on their service requirements; some specific costs, such as pumping charges, are borne by a subgroup of customers based on the characteristics of that group alone (i.e., they are located in higher elevations and power zones).

5.2. Water Cost of Service Process

A cost of service analysis proportionately distributes a utility’s revenue requirements (costs) to each customer class. Figure 5-1 provides a general overview of a cost-of-service analysis. Each step shown below will be described in greater detail in the subsections below.

Figure 5-1: Cost of Service Process



5.3. Elsinore Division Water Cost of Service Process

5.3.1. STEP 1 – DETERMINE REVENUE REQUIREMENTS

A review of a utility’s revenue requirements is a key first step in the rate setting process. This section of the report provides a discussion of FY 2020 revenue requirements, including water supply sources, peaking costs, and capital costs for the potable water utility in both Elsinore and Temescal Water Divisions. Table 5-1 details the obligations for Funds 20 (Elsinore Water Division) and the revenue that must be recovered from water rates. The net amount to be recovered from rates is approximately \$51.2M, which includes pumping cost recover from all customers as pumping cost is a shared cost between Elsinore Division, Temescal Division, and Recycled Water. The revenue requirements detailed below were provided by the District and determined as part of the District’s two-year budgetary cycle for FYE 2020 and FYE 2021. Through multiple board workshops, the District reviewed the two-year budget for FYE 2020 and FYE 2021.

⁴ System capacity is the system’s ability to supply water to all delivery points at the time when demanded. The time of greatest demand is known as peak demand.

Table 5-1: FYE 2020 Water Revenue Requirements from Rates

Revenue Requirements	Specific	Operating	Revenue Offset	Capital	Total
Operating Costs					
Fixed Imported Water	\$1,033,730				\$1,033,730
Variable Imported Water	\$17,163,247				\$17,163,247
Local Water (wells)	\$365,700				\$365,700
Groundwater (Back Basin)	\$202,400				\$202,400
Surface Water (Canyon Lake)	\$998,800				\$998,800
Pumping	\$3,530,100				\$3,530,100
Water Conservation	\$574,998				\$574,998
Meter Reading	\$144,513				\$144,513
Meter Testing	\$1,130,000				\$1,130,000
Meter Installation	\$314,821				\$314,821
Administrative	\$12,494,541				\$12,494,541
Other Non-Operating	\$25,000				\$25,000
Reservoirs		\$603,736			\$603,736
Transmission and Distribution		\$7,542,320			\$7,542,320
Capital Outlay		\$270,149			\$270,149
Subtotal Operating Costs	\$37,977,851	\$8,416,205	\$0	\$0	\$46,394,056
Debt Service					
AMI Loan Phase 3				\$138,920	\$138,920
Revenue Bond				\$157,236	\$157,236
Subtotal Debt Service	\$0	\$0	\$0	\$296,156	\$296,156
Transfers Out To					
Reclamation Fund	\$301,299				\$301,299
Elsinore Water Replacement Fund				\$8,170,387	\$8,170,387
Construction Fund				\$100,000	\$100,000
Reclamation Capacity Fees	\$521,716				\$521,716
Subtotal Transfers Out To	\$823,015	\$0	\$0	\$8,270,387	\$9,093,402
Total Revenue Requirements	\$38,800,866	\$8,416,205	\$0	\$8,566,543	\$55,783,614
Transfers In					
Genral Fund and Property Tax		\$900,000	\$900,000		\$1,800,000
Subtotal Transfers In	\$0	\$900,000	\$900,000	\$0	\$1,800,000
Reserve Transfers					
Reserves (to)/from		\$574,998			\$574,998
Operating Reserve (to)/from		(\$1,241,232)			(\$1,241,232)
Rate Stabilizatoin (to)/from		\$433,021			\$433,021
Excess Power Surcharge (to)/from			\$895,855		\$895,855
Subtotal Reserve Transfers	\$0	(\$233,213)	\$895,855	\$0	\$662,642
Less: Revenue Offsets					
Service Revenues			\$1,655,000		\$1,655,000
Non-Operating Revenues			\$489,734		\$489,734
Total Revenue Offsets	\$0	\$0	\$2,144,734	\$0	\$2,144,734
Revenue Requirement from Rates	\$38,800,866	\$7,749,418	(\$3,940,589)	\$8,566,543	\$51,176,238

5.3.2. STEP 2 – FUNCTIONALIZE O&M COSTS

O&M Functionalized Expenses

A cost of service analysis distributes a utility’s revenue requirements (costs) to each customer class. After determining a utility’s revenue requirement, the total cost of water service is analyzed by system functions to proportionately distribute costs in relation to how that cost is generally incurred. The water utility costs were categorized into the following functions:

1. **Fixed Imported Water:** Fixed costs incurred irrespective of the amount of imported water purchased.
2. **Imported Variable Water:** Cost incurred to purchased imported water.
3. **Local Water (Wells):** Costs associated with local water supplies in Elsinore Division from wells, including chemicals, treatment costs, and water quality testing.
4. **Groundwater (Back Basin):** Costs associated with local water supplies from Back Basin to serve Elsinore Division, including chemicals, treatment costs, and water quality testing.
5. **Surface Water (Canyon Lake):** Costs associated with local water supplies of Canyon Lake surface water, including chemicals, treatment costs, and water quality testing.
6. **Pumping:** Electrical costs associated with conveying water, including groundwater production, reservoirs, conveyance through transmission and distribution lines, and booster stations to higher elevations.
7. **Water Conservation:** Rebates for water efficiency, conservation programs and related personnel costs.
8. **Meter Reading:** Costs associated with reading meters for billing.
9. **Meter Testing:** Costs associated with periodic meter testing.
10. **Meter Installation:** Costs associated with installing the physical meter.
11. **Administrative:** Overhead costs, including personnel, supplies, training, IT related expenses, and other miscellaneous expenses.
12. **Reservoirs:** Costs associated with maintenance and ongoing operations of the District’s reservoirs.
13. **Transmission and Distribution:** Ongoing O&M costs associated with local water supplies, and District-wide system improvements throughout the service area.
14. **Capital Outlay:** Capital expenses with a useful life under 5-years, such as vehicles, computers and equipment
15. **Debt Service:** Debt service payments for total principal and interest due as stated within amortization schedules.
16. **Recycled Water Funding:** Portion of recycled O&M and capital as a supplemental water supply to offset potable demand
17. **Capital:** Contribution to capital replacement fund for the continued repair and replacement of the system.

Functionalized Assets

Similar to O&M, assets are also functionalized. The District provided Raftelis with a comprehensive listing of assets for the water utility, which were functionalized based on the asset’s purpose.

Table 5-2 summarizes the functionalized assets.

Table 5-2: Functionalized Assets

Functionalized Assets	FYE 2018 Functionalized Assets
Supply	\$25,295,481
Reservoir & Storage	\$42,875,688
Hydrants	\$4,973,706
Transmission / Distribution	\$229,037,340
Pumping / Treatment	\$51,136,625
Equipment / Misc	\$20,218,982
Studies / Master Plan	\$8,348,358
Land	\$240,714
Tools	\$16,334
Recycled Water	\$265,879
Total Assets	\$382,409,108

5.3.3. STEP 3 - ALLOCATE FUNCTIONALIZED COSTS TO COST COMPONENTS

The functionalization of costs allows us to better allocate the costs based on how the costs are incurred. This is commonly referred to as **cost causation**. Essentially, cost causation means that the District incurs a cost of providing service because of the demands or burdens the customer places on the system and water resources. Raftelis used the Base-Extra Capacity method to allocate the functionalized costs to various rate components (cost causation components), as described in the M1 Manual. The Base-Extra Capacity method allocates annual costs of service by functional cost category to the cost components of base, extra capacity, customer, and direct fire protection costs. The District's costs were allocated to the following cost causation components with certain cost components designated equivalent to the name of the functionalized expense to derive its own unit rate.

1. **Account Services** includes customer related costs such as billing, collecting, customer accounting, and customer call center. These costs are incurred at the same level regardless of the type of land use or the total amount of water that the utility delivers.
2. **Meter Capacity** includes maintenance and capital costs associated with serving meters. These costs are assigned based on the meter size or equivalent meter capacity.
3. **Fire Flow:** includes portions of any functional expenses allocated to max day and max hour based on fire flow needs within District's Master Plan
4. **Fixed Purchased Water:** Fixed costs incurred irrespective of the amount of imported water purchased.
5. **Imported Variable Water:** Cost incurred to purchased imported water.
6. **Local Water (Wells):** Costs associated with local water supplies in Elsinore Division from wells, including chemicals, treatment costs, and water quality testing.
7. **Groundwater (Back Basin):** Costs associated with local water supplies from Back Basin to serve Elsinore Division, including chemicals, treatment costs, and water quality testing.
8. **Surface Water (Canyon Lake):** Costs associated with local water supplies of Canyon Lake surface water, including chemicals, treatment costs, and water quality testing.
9. **Delivery:** are those operating and capital costs of the water system associated with serving customers at a constant, or average, rate of use. These costs tend to vary with the total quantity of water used.
10. **Conservation:** Rebates for water efficiency, conservation programs and related personnel costs.
11. **Recycled Water Funding:** Portion of recycled O&M and capital costs as a supplemental water supply to offset potable demand
12. **Pumping:** Electrical costs associated with conveying water, including groundwater production, reservoirs, conveyance through transmission and distribution lines, and booster stations to higher elevations.
13. **Revenue Offset:** includes non-rate revenues of the District used to reduce rate impacts
14. **Peaking Costs:** Represent costs incurred to meet customer peak demands for water in excess of average day usage. Total Peaking Costs are associated with maximum day and maximum hour demands. The maximum day demand is the maximum amount of water used in a single day in a year. The Max Hour demand is the maximum usage in an hour and is commonly represented as a factor of Max Day.

Allocating costs into these components allows us to distribute these cost components to the various customer classes based on their respective base, extra capacity, and customer requirements for service.

Water systems are designed to accommodate not only the average daily demand, but also the maximum level of demand for any given time. System capacity is the system's ability to supply water to all delivery points at the time when demanded. Demand in excess of average annual daily demand generates additional costs to serve the extra capacity demand placed on the water system. These peaking costs are associated with Max Day and Max Hour demands (collectively, Peaking). Various facilities are designed to meet customer peaking needs. For example, reservoirs are designed to meet Max Day requirements and must be designed larger than they would be if the same amount of water were being used at a constant rate throughout the year. The cost associated with constructing a reservoir is based on system wide peaking factors. For example, if the Max Day factor is 2.0, then certain system facilities must be designed larger than what would be required if the system only needed to accommodate average daily demand. In this case, half of the cost would be allocated to Base (or

average day demand) and the other half allocated to Max Day. The calculation of the Max Hour and Max Day demands is explained below.

To allocate costs amongst Base (delivery), Max Day and Max Hour, system peaking factors are used. The Base demand is assigned a value of 1.0 signifying no peaking demands. The Max Day and Max Hour factors, equal to 1.75 and 3.5, respectively, as shown in Table 5-3 were provided by the District based on the most up to date information available for the water system. A max day peaking factor of 1.75 means that the system delivers approximately 1.75 times the average daily demand during the annual Max Day demand.

Table 5-3: System-Wide Max Day and Max Hour Peaking Factors

System Demand	Peak Factor	Base Allocation	Max Day Allocation	Max Hour Allocation
Base	1.0	100%	-	-
Max Day	1.75	$(1.0 / 1.75) = 57\%$	$(1 - 0.57) = 43\%$	-
Max Hour	3.50	$(1.0 / 3.50) = 29\%$	$(0.75 / 3.50) = 21\%$	$(1 - 0.29 - 0.21) = 50\%$

Fire flow demand is accounted for as a part of the water system’s total maximum demand requirements. Therefore, accounting for fire flow demand can also be incorporated into the analysis, which is a component of meeting Max Day demand and Max Hour demand. Based on the District’s 2016 Master Plan, the District’s maximum fire flow demand is 4,000 gallon per minute (gpm) over an hour associated with the fire flow needs in the event of a fire on a land use of Institutional property, such as a city facility or school property within the District’s service area. When comparing the total fire flow over an hour at 4,000 gpm, equal to 240,000 gallons, and the average hourly demand during Max Day (equal to 1,600,000 gallons), fire flow demand is 15% of system peak demand ($.240\text{MG} / 1.6\text{MG} = 15\%$). Therefore, 15% was allocated to fire flow demand for both Max Day and Max Hour. Table 5-4 reflects system-wide peak with the inclusion of fire flow demand.

Table 5-4: Peaking Factors with Fire Flow Demand

Line #	System Demand	Peak Factor	Base Allocation	Max Day Allocation	Max Hour Allocation	Fire Flow Demand
1	Base	1.0	100%	-	-	-
2	Max Day	1.75	$57\% - (15\%/2) = 50\%$	$43\% - (15\%/2) = 35\%$	-	15%
3	Max Hour	3.50	$29\% - (15\%/3) = 24\%$	$21\% - (15\%/3) = 16\%$	$50\% - (15\%/3) = 45\%$	15%

Specific Allocation

The Specific expenses consists of five primary categories consisting of water supply costs, pumping, water conservation, meter related expense, and recycled water funding. Table 5-5 details the breakdown of these specific allocation costs. The resulting Specific Allocation (%) will be used to allocate the Specific Allocation Requirement. Specific allocations are isolated from receiving any revenue offsets or additional costs associated with revenue adjustments, mid-year adjustments or reserve funding.

Table 5-5: Specific Allocations

Functionalized Expense	Meter Capacity	Fixed Purchased Water	Variable Purchased Water	Wells	Back Basin	Surface Water	Conservation	Recycled Water Funding	Pumping	Total
% Allocation										
Fixed Imported Water		100%								100%
Variable Imported Water			100%							100%
Local Water (wells)				100%						100%
Groundwater (Back Basin)					100%					100%
Surface Water (Canyon Lake)						100%				100%
Pumping									100%	100%
Water Conservation							100%			100%
Meter Reading	100%									100%
Meter Testing	100%									100%
Meter Installation	100%									100%
Administrative	100%									100%
Other Non-Operating	100%									100%
Reclamation Fund								100%		100%
Reclamation Capital								100%		100%
\$ Allocation										
Fixed Imported Water		\$1,033,730								\$1,033,730
Variable Imported Water			\$17,163,247							\$17,163,247
Local Water (wells)				\$365,700						\$365,700
Groundwater (Back Basin)					\$202,400					\$202,400
Surface Water (Canyon Lake)						\$998,800				\$998,800
Pumping									\$3,530,100	\$3,530,100
Water Conservation							\$574,998			\$574,998
Meter Reading	\$144,513									\$144,513
Meter Testing	\$1,130,000									\$1,130,000
Meter Installation	\$314,821									\$314,821
Administrative	\$12,494,541									\$12,494,541
Other Non-Operating	\$25,000									\$25,000
Reclamation Fund								\$301,299		\$301,299
Reclamation Capital								\$521,716		\$521,716
Total	\$14,108,876	\$1,033,730	\$17,163,247	\$365,700	\$202,400	\$998,800	\$574,998	\$823,015	\$3,530,100	\$38,800,866
Specific Allocation (%)	36.36%	2.66%	44.23%	0.94%	0.52%	2.57%	1.48%	2.12%	9.10%	100.00%

O&M Allocation

The O&M expenses consist of three (3) functionalized categories: Reservoirs, Transmission and Distribution, and Capital Outlay. Raftelis reviewed the budget details related to the Operating Expenses to determine the most appropriate method for allocating the functional costs to cost causation components. Table 5-6 summarizes the percent allocations for the District O&M Expenses, the costs (prior to offsets and adjustments) allocated to the cost components, and the resulting O&M Allocation (%). The O&M Allocation (%) will be used to allocate the Operating Requirement, including any revenue offsets and/or transfer adjustments, from the revenue requirements (Table 5-1).

Reservoirs support max day demand and this expense category was allocated using the Max Day allocations identified in Table 5-4 (Line 2). The remaining two (2) expense categories of Transmission and Distribution and Capital Outlay to support the water system include a Max Hour component and were allocated using the Max Hour allocations identified in Table 5-4 (Line 3).

Table 5-6: O&M Allocations

Functionalized Expense	Allocation Basis	Delivery	Max Day	Max Hour	Fire Flow	Total
% Allocation						
Reservoirs	<i>Max Day (Table 5-4, Line 2)</i>	50%	35%	-	15%	100%
Transmission / Distribution	<i>Max Hour (Table 5-4, Line 3)</i>	24%	16%	45%	15%	100%
Capital Outlay	<i>Max Hour (Table 5-4, Line 3)</i>	24%	16%	45%	15%	100%
\$ Allocation						
Reservoirs		\$299,712	\$213,464	-	\$90,560	\$603,736
Transmission / Distribution		\$1,777,833	\$1,239,095	\$3,394,044	\$1,131,348	\$7,542,320
Capital Outlay		\$63,678	\$44,382	\$121,567	\$40,522	\$270,149
Total		\$2,141,222	\$1,496,941	\$3,515,611	\$1,262,431	\$8,416,205
O&M Allocation (%)		15%	25%	18%	42%	100%

Capital Allocation

To reduce rate variability from year to year resulting from fluctuations in capital replacements, it is appropriate to allocate capital costs based on the allocation of existing system assets as all assets will eventually be replaced. Using the current configuration of system assets to allocate capital related expenses maintains a constant percent designation to the different cost causation components over the rate setting planning period. **Error! Reference source not found.** summarizes the percent allocations for the capital assets, the replacement cost asset values by asset category as provided within the District's detailed asset listing⁵ allocated to the Capital Facilities cost component, and the resulting Capital Allocation (%). The Capital Allocation (%) will be used to allocate debt service (since debt proceeds funded capital costs) and capital related transfers (Table 5-1).

⁵ Detailed Asset listing is on file with the District.

Table 5-7: Capital Asset Allocations

Functionalized Expense	Allocation Basis	Delivery	Max Day	Max Hour	Fire Flow	Total
% Allocation						
Supply	Base (Table 5-4,Line 1)	100%	-	-	-	100%
Reservoirs / Storage	Max Day (Table 5-4,Line 2)	50%	35%	-	15%	100%
Hydrants	Fire Flow (100%)	-	-	-	100%	100%
Transmission / Distribution	Max Hour (Table 5-4,Line 3)	24%	16%	45%	15%	100%
Pumping / Treatment	Max Hour (Table 5-4,Line 3)	24%	16%	45%	15%	100%
Equipment / Misc	Base (Table 5-4,Line 1)	100%	-	-	-	100%
Studies / Master Plan	Max Hour (Table 5-4,Line 3)	24%	16%	45%	15%	100%
Land	Base (Table 5-4,Line 1)	100%	-	-	-	100%
Tools	Base (Table 5-4,Line 1)	100%	-	-	-	100%
Recycled Water	Max Hour (Table 5-4,Line 3)	24%	16%	45%	15%	100%
\$ Allocation						
Supply		\$25,295,481	-	-	-	\$25,295,481
Reservoirs / Storage		\$21,284,717	\$15,159,618	-	\$6,431,353	\$42,875,688
Hydrants		-	-	-	\$4,973,706	\$4,973,706
Transmission / Distribution		\$53,987,373	\$37,627,563	\$103,066,803	\$34,355,601	\$229,037,340
Pumping / Treatment		\$12,053,633	\$8,401,017	\$23,011,481	\$7,670,494	\$51,136,625
Equipment / Misc		\$20,218,982	-	-	-	\$20,218,982
Studies / Master Plan		\$1,967,827	\$1,371,516	\$3,756,761	\$1,252,254	\$8,348,358
Land		\$240,714	-	-	-	\$240,714
Tools		\$16,334	-	-	-	\$16,334
Recycled Water		\$62,672	\$43,680	\$119,646	\$39,882	\$265,879
Total		\$135,127,733	\$62,603,394	\$129,954,691	\$54,723,290	\$382,409,108
O&M Allocation (%)		35%	16%	34%	14%	100%

The next step is to use the allocation percentages developed in the preceding section (Table 5-5: Specific Allocations, Table 5-6: O&M Allocations, and Table 5-7: Capital Asset Allocations) to allocate the FYE 2020 revenue requirements identified in Table 5-1 to cost components. Specific revenue requirements, equal to \$38,800,866 (Table 5-1– total revenue requirement for Specific column) , were allocated based on the Specific Allocation percent from Table 5-5. Operating revenue requirements, equal to \$7,749,418 (Table 5-1– total revenue requirement for Operating column), were allocated based on the O&M Allocation percent from Table 5-6 and Capital revenue requirements, equal to \$8,566,543 (Table 5-1– total revenue requirement for Capital column), were allocated based on the Capital Allocation percent from Table 5-7. Table 5-8 summarizes the total revenue requirements allocated to cost components. For Table 5-8, all water supplies were grouped for summary purposes as well as Max Day and Max Hour as Peaking.

Table 5-8: Cost of Service Requirements

Revenue Requirements	Meter Capacity	Fire Flow	Fixed Purchased Water	Water Supplies	Delivery	Peaking	Conservation	Recycled Water Funding	Pumping	Revenue Offset	Total
Specific	\$14,108,876	-	\$1,033,730	\$18,730,147	-	-	\$574,988	\$823,015	\$3,530,100	-	\$38,800,866
Operating	-	\$1,162,413	-	-	\$1,971,581	\$4,615,425	-	-	-	-	\$7,749,418
Capital	-	\$1,225,885	-	-	\$3,027,066	\$4,313,593	-	-	-	-	\$8,566,543
Revenue Offset	-	-	-	-	-	-	-	-	(\$895,855)	(\$3,044,734)	(\$3,940,589)
Cost of Service Requirement	\$14,108,876	\$2,388,297	\$1,033,730	\$18,730,147	\$4,998,646	\$8,929,018	\$998,800	\$823,015	\$2,634,245	(\$3,044,734)	\$51,176,238

5.4. Rate Design

A key component of the Study includes reviewing the current rate structure to determine if any structural changes are warranted. Given the District has been using budget-based rates for multiple years, the rate structure for each customer class is remaining intact but has been updated with current financial data to provide the foundational basis for the new proposed rates. Residential, Irrigation, and Inter-Agency are on conservation-based rate structure using a budget-based approach and Commercial and Political Subdivision (Institutional) are on uniform non-budget-based rate structure.

5.4.1. FIXED CHARGE RECOVERY

Meter Capacity

The Meter Capacity Component includes costs related to meter maintenance, administrative expenses, and billing. Raffelis allocated these cost components based on meter size because the District's fixed operating and capital costs are related to meeting such capacity requirements and maintaining the readiness-to-serve each connection. These costs must be recovered regardless of the amount of water used during a given period. The potential capacity demand on the water system is proportional to the potential flow through each meter size as established by AWWA hydraulic capacity ratios; therefore, the size of the meter provides a fair and equitable basis to recover the Meter Capacity Component. In order to create parity across the various meter sizes, each meter size is assigned a factor relative to a 3/4" meter, which is given a value of one (1). Larger meters have the potential to demand more capacity, or said differently, exert more peaking characteristics compared to smaller meters. The potential capacity demand (peaking) is proportional to the potential flow through each meter size. For the purposes of this study, the safe maximum operating capacity by meter type, as identified in the AWWA M1 Manual, 6th Edition, Table B-2, was used as a basis for calculating the equivalent meter ratio. As shown in Table 5-9, the safe maximum operating capacity for each meter was divided by the base meters safe operating capacity (30 gpm) to determine the equivalent meter ratio. The ratios represent the potential flow through each meter size compared to the flow through a 3/4" meter. Multiplying the number of meters by the AWWA Ratio results in the Equivalent Meter Units (EMUs).

Table 5-9: Equivalent Meter Units

Meter Size	AWWA Capacity (gpm) [A]	Capacity Ratio [B] (A ÷ 30)	Number of Metered Accounts [C]	Equivalent Meter Units [D] (B x C)
3/4"	30	1.00	41,583	41,583
1"	50	1.67	1,992	3,320
1-1/2"	100	3.33	378	1,260
2"	120	5.33	720	3,840
3"	300	10.67	39	416
4"	600	16.67	50	833
6"	1,350	33.33	10	333
8"	1,800	53.33	6	320
10"	2,400	140.00	2	280
12"	3,375	176.67	-	-
Total			44,780	52,186
Annual Units			537,360	626,228

Based on these ratios and taking into consideration the number of billing periods, the total annual equivalent meters equals 626,228. Meter Capacity costs and a portion of system fire flow costs are allocated over the total annual EMUs. System fire flow revenue requirements are further allocated between private fire lines and hydrants based on fire flow demand in order to proportionately spread these costs between dedicated private fire lines and potable meters, where potable meters recover the portion associated with the fire flow demand of all hydrants as a means to quantify the standby services rendered to all potable accounts for system fire flow capacity. Table 5-10 provides the fire flow demand of the system between hydrant and private fire lines. Fire flow demand equivalents were derived by first taking the cross-sectional diameter of the line raised to the 2.63 power, using the principals of the Hazen-Williams equation for the relative flow potential through pressure conduits which is dependent on the size of the diameter. The second step takes the product of the Fire Flow Demand and the service lines to derive total fire flow demand equivalents. The results of Table 5-10 show that 90.48% of fire flow equivalents are associated with the system as a whole and that percent of the fire flow revenue requirement is recovered over annual EMUs. The portion related private fire lines will be recovered over the corresponding private fire lines as discussed later in this Study. Table 5-11 shows the Meter Capacity costs from Table 5-8 and the system-wide fire flow component from Table 5-10 allocated over the total annual EMUs.

Table 5-10: Fire Flow Demand Allocations

Fire Service Line	Fire Flow Demand Factor (Meter Size) ^{2.63} [A]	Service Lines [B] ⁶	Fire Flow Equivalents [C] (A x B)	Percent of Total [D]	Revenue Requirement \$2,388,297 ⁷ [E]
Hydrants					
1"	38	1,149	44,028		
1-1/2"	111	6,560	730,199		
Sub-Total			774,227	90.48%	\$2,160,933
Private Fire Lines					
2 1/2"	11	2	22		
3"	18	1	17		
4"	38	120	4,598		
6"	111	174	19,368		
8"	237	131	31,074		
10"	427	57	24,315		
12"	689	3	2,067		
Total			81,461	9.52%	\$227,365
Annual Units			855,688	100%	\$2,388,297

Table 5-11: Meter Capacity Component – Unit Rate

Meter Capacity Component	
Meter Capacity Revenue Requirements	\$14,108,876
System-Wide Fire Flow Requirement	\$2,160,933
Total Meter Requirement	\$16,269,808
÷ Annual EMU's	626,228
Monthly Unit Rate per EMU	\$25.99

⁶ Fire service lines by connection size provided by District through billing database.

⁷ Revenue requirement for Fire Flow derived in Table 5-8.

Fixed Purchased Water

Fixed purchased water includes expenses incurred irrespective of the amount of imported water purchased. These costs include Readiness to Serve Charge, Capacity Reservation Charge, Meeks & Delay Assessment and San Jacinto River WMWD charges. These costs should also be recovered as part of the monthly fixed charge similar to how these charges are incurred by the District. Table 5-12 shows Fixed Purchased Water costs recovered over total Annual EMUs.

Table 5-12: Fixed Purchased Water – Unit Rate

Meter Capacity Component	
Fixed Purchased Water Revenue Requirements (Table 5-8)	\$1,033,730
÷ Annual EMU's (Table 5-9)	626,228
Monthly Unit Rate	\$1.66

5.4.2. VARIABLE CHARGE RECOVERY

Water Supply

Water supplies include local supplies consisting of local wells, groundwater from Back Basin, surface water from Canyon Lake, and imported water. These local water supplies were first allocated to each customer class based on usage within the customer class's total water budget (TWB) and then further apportioned proportionately within each corresponding water budget tier (i.e. for Residential Tiers 1 and 2 make up TWB, whereas only Tier 1 for Irrigation equals TWB). Any remaining demand in excess of what can be served by local supplies was covered by imported water. Table 5-13 identifies the water supply allocations to each customer class based on usage within TWBs and Table 5-14 provides the unit rate per customer class and tier based on the water supply costs derived in Table 4-3. Tiers outside TWB are served 100% by MWD – Tier 1 water.

Table 5-13: Local Water Supply Allocations to Customer Classes Based on TWB Usage

Customer Class	TWB Usage [A] ⁸	% of TWB Usage	Groundwater (Back Basin) 2,071,583 (Table 4-3 [D])	Local Water (Wells) 750,669 (Table 4-3 [D])	Surface Water (Canyon Lake) 1,034,550 (Table 4-3 [D])
Residential	6,870,028	77.33%	1,601,955	580,493	800,018
Irrigation	1,298,664	16.62%	302,823	109,732	151,230
Commercial	553,388	6.23%	129,039	46,759	64,442
Institutional	53,407	0.60%	12,453	4,513	6,219
Inter-Agency	108,552	1.22%	25,312	9,172	12,641
Total	1,728,510	100.00%	2,071,583	750,669	1,034,550

Table 5-14: Water Supply Unit rates by Customer Class and Tier

Customer Class / Tier	FYE 2020 Usage [A]	Local Supply Allocation by Customer Class	Local Water (Wells) [\$0.18] (Table 4-3 [E])	Groundwater (Back Basin) [\$0.27] (Table 4-3 [E])	Surface Water (Canyon Lake) [\$0.97] (Table 4-3 [E])	Imported Water (MWD) [\$2.83] (Table 4-3 [E])	Effective Unit Rate (\$ / ccf)
Residential	7,477,762		1,601,955	580,493	800,018	4,495,296	
Tier 1	4,486,460	65%	1,046,154	379,090	522,450	2,538,766	\$1.78
Tier 2	2,383,568	35%	555,801	201,403	277,567	1,348,796	\$1.78
Tier 3	215,773		-	-	-	215,773	\$2.83
Tier 4	391,961		-	-	-	391,961	\$2.83
Irrigation	1,728,510		302,823	109,732	151,230	1,164,725	
Tier 1	1,298,664	100%	302,823	109,732	151,230	734,879	\$1.78
Tier 2	157,938		-	-	-	157,938	\$2.83
Tier 3	271,908		-	-	-	271,908	\$2.83
Commercial	553,388	100%	129,039	46,759	64,442	313,147	\$1.78
Institutional	53,407	100%	12,453	4,513	6,219	30,221	\$1.78
Inter-Agency	112,941		25,312	9,172	12,641	65,816	
Tier 1	90,067	100%	25,312	9,172	12,641	42,942	\$1.57
Tier 2	18,484		-	-	-	18,484	\$2.83
Tier 3	4,389		-	-	-	4,389	\$2.83

Delivery

Delivery costs are operating and capital costs associated with delivering water to all customers at a constant average rate of use. Therefore, delivery costs are spread over all units of water, irrespective of customer class, tiers or source, resulting in a uniform rate imposed on each unit of water. Table 5-15 summarizes the determination of the unit rate for the Delivery Component.

Table 5-15: Base/Delivery Component – Unit Rate

Base/Delivery Component	
Delivery Revenue Requirements (Table 5-8)	\$4,998,646
÷ Total FYE 2020 Projected Sales (ccf) (Table 4-1)	9,926,008
Unit Rate (per ccf)	\$0.51

⁸ Actual usage within TWB derived using FYE 2018 consumption data from District’s billing system.

Peaking

Peaking costs is the sum of Max Day and Max Hour revenue requirement, equal to \$8,929,018 as identified in Table 5-8. Similar to water supplies, peaking costs are first apportioned to customer classes and the resultant for each class is then further apportioned across tiers, when applicable. In the first step of allocating peaking costs to each customer class, the total water demand and peaking characteristic of each class are both considered to proportionately apportion costs among the customer classes. Because different customer classes place varying levels of demand on the system, each customer class's peaking factor was weighted by the total usage generating the peaking characteristic, which was derived using FYE 2018 consumption data by taking the max month usage compared to the average month usage for each customer class. Doing so provides a fair allocation of peaking costs to ensure a customer class that may have a significantly higher peaking factor than another class, but far less total usage, isn't inadvertently over charged solely due to peaking alone. Table 5-16 shows the peaking costs allocated to each customer class and Table 5-17 further apportions the peaking revenue requirement to tiers, when applicable, and corresponding unit rate. When apportioning to tiers with water budgets, the tier peaking factor took into account the average winter usage within TWB (Tier 1 and Tier 2 combined) as the baseline with a designation peak factor of 1.0. As such, the Tier 1 peaking factor is less than 1.0 based on the amount of indoor use in the winter when compared to the average usage within winter TWBs, and is equal to 39% ($9 \text{ ccf} / 23 \text{ ccf} = 0.39$). Peaking for tiers associated with high water use was modeled by reviewing the average usage during warmer periods of the year where water budgets (and therefore, total water usage) increase. The time period used for assigning a peaking factor to tiers identified as inefficient (Tier 3 for Residential and Tier 2 for Irrigation) was the quarters of the year related to the spring and fall seasons. Similarly, tiers for the highest water use (Tier 4 for Residential and Tier 3 for Irrigation) were based on total usage within the hottest period in the year during the summer quarter, where water budgets expand even further. Table 5-17 provides the peaking characteristics by tier and corresponding unit rates by customer class and tier.

Table 5-16: Peaking Component Allocated to Customer Classes

Customer Class	Projected Usage [A] (Table 4-1 – FYE 2020)	Peaking Factor [B] ⁹	Weighted Peak Factor [C] (A x B)	Percent of Peaking [D]	Revenue Requirement \$8,929,018 [E] (Table 5-8)
Residential	7,477,762	1.35	10,104,971	70%	\$6,216,923
Irrigation	1,728,510	2.04	3,518,822	24%	\$2,164,899
Commercial / Political Sub	606,795	1.18	714,714	4%	\$439,716
Inter-Agency	112,941	1.55	174,696	1%	\$107,479
Total	9,926,008	N/A	2,071,583	100%	\$8,929,018

⁹ Usage analysis derived using FYE 2018 actual consumption data from District's billing system

Table 5-17: Peaking Component Rate Derivation by Customer Class and Tier

Customer Class / Tier	FYE 2020 Usage [A] (Table 4-1 – FYE 2020)	Peaking Factor [B] ¹⁰	Weighted Peak Factor [C] (A x B)	Percent of Tiered Peaking [D]	Revenue Requirement \$8,929,018 [E] (Table 5-16)	Unit Rate (\$ / ccf) (E/A)
Residential					\$6,216,923	
Tier 1	4,486,460	0.39	1,755,571	34%	2,134,675	\$0.48
Tier 2	2,383,568	1.00	2,383,568	47%	2,898,282	\$1.22
Tier 3	215,773	1.37	295,609	6%	359,444	\$1.67
Tier 4	391,961	1.73	678,092	13%	824,522	\$2.11
Irrigation					\$2,164,899	
Tier 1	1,298,664	1.00	1,298,664	46%	995,366	\$0.77
Tier 2	157,938	2.62	413,799	15%	317,157	\$2.01
Tier 3	271,908	4.09	1,112,104	39%	852,376	\$3.14
Commercial / Political Sub	606,795				\$439,716	\$0.73
Inter-Agency					\$107,479	
Tier 1	90,067	1.00	90,067	75%	80,935	\$0.90
Tier 2	18,484	1.23	22,736	19%	20,431	\$1.11
Tier 3	4,389	1.55	6,803	6%	6,113	\$1.40

¹⁰ Usage analysis derived using FYE 2018 actual consumption data from District’s billing system

Conservation

Conservation includes the costs for programs designed to reduce inefficient or wasted water, thereby increasing water supply and reliability for all customers. Programs include rebates for water efficiency, conservation programs and related personnel costs for the Conservation Division. The purpose of the Conservation Division is to ensure customers use water efficiently and mitigate inefficient and excessive use. Therefore, Conservation expenses were allocated based on usage within inefficient and excessive use. Table 5-18 summarizes the determination of the unit rate for the Conservation Component.

Table 5-18: Conservation by Customer Class and Tier

Customer Class / Tier	FYE 2020 Usage [A] (Table 4-1 – FYE 2020)	Allocation Factor [B]	Unit of Service [C] (A x B)	Percent Allocation [D]	Revenue Requirement \$574,998 [E] (Table 5-8)	Unit Rate (\$ / ccf) (E / A)
Residential						
Tier 3	215,773	1.00	215,773	20%	\$116,996	\$0.55
Tier 4	391,961	1.00	391,961	37%	\$212,529	\$0.55
Irrigation						
Tier 2	157,938	1.00	157,938	15%	\$85,637	\$0.55
Tier 3	271,908	1.00	271,908	26%	\$147,434	\$0.55
Inter-Agency						
Tier 2	18,484	1.00	18,484	2%	\$10,023	\$0.55
Tier 3	4,389	1.00	4,389	<1%	\$2,380	\$0.55

Recycled Water Funding

Recycled Water Funding is a portion of recycled O&M and capital expenses funded by the potable water system as a supplemental water supply that offset potable demand, which would require additional imported water costs to be incurred by the District. The total revenue requirement consists of a small portion of recycled capital expenses and the marginal cost of the blended rate of local supplies and imported, compared to imported water [(\$2.83 – 1.78) x 286,951 ccf]. Because recycled usage is less than usage within the highest use tiers (Residential - Tier 4, Irrigation - Tier 3, Inter-Agency - Tier 3), the total revenue requirement was allocated to the highest tier as a supplemental local supply. Table 5-19 summarizes the determination of the unit rate for the Recycled Water Funding Component.

Table 5-19: Recycled Water Funding by Customer Class and Tier

Customer Class / Tier	FYE 2020 Usage [A] (Table 4-1 – FYE 2020)	Allocation Factor [B]	Unit of Service [C] (A x B)	Percent Allocation [D]	Revenue Requirement \$574,998 [E] (Table 5-8)	Unit Rate (\$ / ccf) (E / A)
Residential						
Tier 4	391,961	1.00	391,961	59%	\$482,732	\$1.24
Irrigation						
Tier 3	271,908	1.00	271,908	41%	\$334,877	\$1.24
Inter-Agency						
Tier 3	4,389	1.00	4,389	<1%	\$5,406	\$1.24

Revenue Offsets

The District has other revenues available, other than rates, such as, property tax and lease revenue that may be used to mitigate rates. The amount of funding is discretionary (when available), and not guaranteed, and is determined on an annual basis. Since these revenues are not generated from water rates and are not otherwise restricted, the District has discretion to use these funds to offset rate increases. Through discussions with District staff, approximately \$3M was allocated for revenue offsets and it was apportioned to domestic uses based on usage within TWBs (Tiers 1 and 2 of Residential and Inter-Agency). Table 5-18 summarizes the determination of the unit rate for the Revenue Offset Component.

Table 5-20: Revenue Offset Allocation by Customer Class and Tier

Customer Class / Tier	FYE 2020 TWB Usage [A] (Table 4-1 – FYE 2020)	Allocation Factor [B]	Unit of Service [C] (A x B)	Percent Allocation [D]	Revenue Requirement (\$3,044,734) [E] (Table 5-8)	Unit Rate (\$ / ccf) (E / A)
Residential	6,870,028	1.00	6,870,028	98%	(\$2,997,373)	N/A
Inter-Agency	108,552	1.00	108,552	2%	(\$47,361)	N/A
Residential					(\$2,997,373)	
Tier 1	4,486,460	1.00	1,755,571	65%	(\$1,957,430)	(\$0.43)
Tier 2	2,383,568	1.00	2,383,568	35%	(\$1,039,944)	(\$0.43)
Inter-Agency					(\$47,361)	
Tier 1	90,067	1.00	90,067	75%	(\$39,296)	(\$0.43)
Tier 2	18,484	1.00	22,736	19%	(\$8,065)	(\$0.43)

Pumping Charges

Pumping costs includes electrical costs associated with conveying water, including groundwater production, reservoirs, conveyance through transmission and distribution lines, and booster stations to higher elevations through the District. Pumping costs of the District’s entire service area are combined and captured under the Elsinore Division and is spread over all units of water based on elevation zone of usage. These rates are applied to all Elsinore Division customers, Temescal Division customers, and Recycled Water customers. Table 5-21 provides the updated pumping charges by Zone.

Table 5-21: Zone Pumping Charges

Zone	FYE 2020 Zone Usage [A] ¹¹	Elevation Allocation Factor [B]	Weighted Unit [C] (A x B)	Percent Allocation [D]	Revenue Requirement \$2,634,662 [E] (Table 5-8)	Unit Rate (\$ / ccf) (E / A)
Zone 1	2,542,210	1.00	2,542,212	12%	\$304,438	\$0.12
Zone 2	7,897,838	2.42	19,086,442	87%	\$2,285,662	\$0.29
Zone 3	29,102	12.67	368,630	2%	\$44,145	\$1.52

5.5. Rate Design

5.5.1. FIXED CHARGES

The new proposed rates will recover approximately the same fixed revenue recovery percentage as current rates, equal to approximately 34%. Table 5-22 summarizes the monthly fixed charges by meter size based on the unit rates developed in the Rate Design section for Test Year (FYE 2020) as identified in Table 5-11 and Table 5-12. FYE 2021 rates are also included within Table 5-22 and is governed by the updated cost of service, herein, and proportionately increased across the board based on the revenue requirement percentage increase for FYE 2021, provided by the District equal 3.8%. The proposed 3.8% increase in rates for FYE 2021 is projected to meet the District’s revenue requirements for FYE 2021 (attached as Appendix A), which was determined as part of the District’s two-year budgetary cycle for FYE 2020 and FYE 2021.

Table 5-22: FYE 2020 and FYE 2021 Proposed Monthly Fixed Charges (\$/Meter Size)

Meter Size	Capacity Ratio (Table 5-9 [B])	Meter Capacity [A]	Fixed Purchase Water [B]	FYE 2020 Proposed Service Charge [C] (A + B)	FYE 2021 Proposed Service Charge [D] (C x 1.038)
3/4"	1.00	\$25.99	\$1.66	\$27.65	\$28.70
1"	1.67	\$43.32	\$2.77	\$46.08	\$47.83
1-1/2"	3.33	\$86.63	\$5.53	\$92.17	\$95.67
2"	5.33	\$138.61	\$8.85	\$147.47	\$153.07
3"	10.67	\$277.23	\$17.71	\$294.93	\$306.14
4"	16.67	\$433.17	\$27.67	\$460.83	\$478.35
6"	33.33	\$866.33	\$55.33	\$921.67	\$956.69
8"	53.33	\$1,386.13	\$88.53	\$1,474.67	\$1,530.70
10"	140.00	\$3,638.60	\$232.40	\$3,871.00	\$4,018.10
12"	176.67	\$4,591.57	\$293.27	\$4,884.83	\$5,070.46

¹¹ Usage by zone is tracked within the District’s billing system through separate billing code identifier.

5.5.2.PRIVATE FIRE LINE CHARGES

The percentage of Fire Flow revenue requirement allocated to private fire lines is further apportioned to each private fire line size based on fire flow demand. Table 5-23 shows the derivation of private fire charge based on fire flow demand for FYE 2020 as well as FYE 2021 based on the revenue requirement increase of 3.8%.

Table 5-23: CY 2020-2024 Proposed Monthly Private Fire Line Service Charge

Connection Size	Connections (Table 5-9 [B]) [A]	Fire Flow Demand (Table 5-9 [C]) [B]	Percent Allocation [C]	Revenue Requirement \$227,365 (Table 5-10 [E]) [D]	FYE 2020 Monthly Unit Rate [E] (D / A / 12)	FYE 2020 Monthly Unit Rate [F] (E x 1.038)
2"	2	22	0.03%	\$61.40	\$2.56	\$2.66
3"	1	17	0.02%	\$47.45	\$3.96	\$4.11
4"	120	4,598	5.64%	\$12,833.40	\$8.92	\$9.26
6"	174	19,368	23.78%	\$54,057.72	\$25.89	\$26.87
8"	131	31,074	38.15%	\$86,730.15	\$55.18	\$57.28
10"	57	24,315	29.85%	\$67,865.21	\$99.22	\$102.99
12"	3	2,067	2.54%	\$5,769.17	\$160.26	\$166.35
Sub-Total	488	81,461	100%	\$227,365		

5.5.3.VARIABLE RATES

The components of the variable rate are added together to produce rates for each customer class and corresponding tier, when applicable. Table 5-24 shows each component rate that make up the proposed rate for FYE 2020 commodity rates as well as FYE 2021 commodity rates based on the revenue requirement increase equal to 3.8%.

Table 5-24: FYE 2020 and FYE 2021 Proposed Monthly Commodity Rates (\$/ccf)

Customer Class / Tier	Water Supply [A] (Table 5-14)	Delivery [B] (Table 5-15)	Peaking [C] (Table 5-17)	Conservation [D] (Table 5-18)	Recycled Water Funding [E] (Table 5-19)	Revenue Offset [F] (Table 5-20)	FYE 2020 Rates (\$ / ccf) [G] (sum of A through F)	FYE 2021 Rates (\$ / ccf) [H] (G x 1.038)
Residential								
Tier 1	\$1.78	\$0.51	\$0.48	-	-	(\$0.43)	\$2.34	\$2.43
Tier 2	\$1.78	\$0.51	\$1.22	-	-	(\$0.43)	\$3.08	\$3.20
Tier 3	\$2.83	\$0.51	\$1.67	\$0.55	-	-	\$5.56	\$5.77
Tier 4	\$2.83	\$0.51	\$2.11	\$0.55	\$1.24	-	\$7.24	\$7.52
Irrigation								
Tier 1	\$1.78	\$0.51	\$0.77	-	-	-	\$3.06	\$3.18
Tier 2	\$2.83	\$0.51	\$2.01	\$0.55	-	-	\$5.90	\$6.12
Tier 3	\$2.83	\$0.51	\$3.14	\$0.55	\$1.24	-	\$8.27	\$8.58
Commercial	\$1.78	\$0.51	\$0.73	-	-	-	\$3.02	\$3.13
Political Sub	\$1.78	\$0.51	\$0.73	-	-	-	\$3.02	\$3.13
Inter-Agency								
Tier 1	\$1.57	\$0.51	\$0.90	-	-	(\$0.43)	\$2.55	\$2.65
Tier 2	\$2.83	\$0.51	\$1.11	\$0.55	-	(\$0.43)	\$4.57	\$4.74
Tier 3	\$2.83	\$0.51	\$1.40	\$0.55	\$1.24	-	\$6.53	\$6.78

6. Temescal Cost of Service & Proposed Rates

6.1. Temescal Water Cost of Service Process

6.1.1. STEP 1 – DETERMINE REVENUE REQUIREMENTS

This section of the report provides a discussion of FY 2020 revenue requirements for the Temescal Water Division. Table 6-1 details the obligations for Fund 25 (Temescal Water Division) and the revenue that must be recovered from water rates. After other revenue adjustments and transfers, the net amount to be recovered from rates is approximately \$571K. The revenue requirements detailed below were provided by the District and determined as part of the District’s two-year budgetary cycle for FYE 2020 and FYE 2021. Through multiple board workshops, the District reviewed the two-year budget for FYE 2020 and FYE 2021.

Table 6-1: FYE 2020 Water Revenue Requirements from Rates

Revenue Requirements	Specific	Operating	Revenue Offset	Total
Operating Costs				
Imported Water	\$29,016			\$29,016
Local Water (wells)	\$10,000			\$10,000
Water Conservation	\$7,850			\$7,850
Meter Reading		\$3,147		\$3,147
Meter Testing		\$18,879		\$18,879
Administrative		\$190,987		\$190,987
Other Non-Operating		\$874		\$874
Reservoirs		\$35,365		\$35,365
Transmission and Distribution		\$495,764		\$495,764
Subtotal Operating Costs	\$46,866	\$745,015	\$0	\$791,882
Transfers Out To				
Temescal Water Replacement Fund		\$300,000		\$300,000
Subtotal Transfers Out To	\$0	\$300,000	\$0	\$300,000
Total Revenue Requirements	\$46,866	\$1,045,015	\$0	\$1,091,882
Transfers In				
General Fund		\$307,000		\$307,000
Subtotal Transfers In	\$0	\$307,000	\$0	\$307,000
Reserve Transfers				
Operating Reserve (to)/from		(\$89,245)		(\$89,245)
Rate Stabilization (to)/from		\$276,197		\$276,197
Subtotal Reserve Transfers	\$0	\$186,952	\$0	\$186,952
Less: Revenue Offsets				
Service Revenues			\$14,250	\$14,250
Non-Operating Revenues			\$12,089	\$12,089
Total Revenue Offsets	\$0	\$0	\$26,339	\$26,339
Revenue Requirement from Rates	\$46,866	\$551,063	(\$26,339)	\$571,590

6.1.2. STEP 2 – FUNCTIONALIZE O&M COSTS

Temescal Division and Recycled Water both pay the same monthly fixed charges calculated under Section 5 of this Report given that all billing, administrative expenses and customer service primarily fall under Elsinore Division. In addition, both Temescal Division and Recycled Water have access to and receive imported water periodically during peak demand and during times of reduced production due to maintenance or unforeseen system failures. As such, Temescal Division and Recycled Water should also pay a portion of Fixed Purchased Water costs, which is embedded as part of proposed monthly fixed charge schedule by meter size. Total revenue requirements associated

with Operating in Table 6-1 are, therefore, reduced by revenue recovered through the monthly fixed charges and the remaining Operating requirement is allocated to variable cost components.

O&M Functionalized Expenses

A cost of service analysis distributes a utility's revenue requirements (costs) to each customer class. After determining a utility's revenue requirement, the total cost of water service is analyzed by system functions to proportionately distribute costs in relation to how that cost is generally incurred. The water utility costs were categorized into the following functions:

1. **Imported Variable Water:** Cost incurred to purchased imported water.
2. **Local Water (Wells):** Costs associated with local water supplies in Temescal Division from wells, including chemicals, treatment costs, and water quality testing.
3. **Water Conservation:** Rebates for water efficiency, conservation programs and related personnel costs.
4. **Meter Reading:** Costs associated with reading meters for billing.
5. **Meter Testing:** Costs associated with periodic meter testing.
6. **Meter Installation:** Costs associated with installing the physical meter.
7. **Administrative:** Overhead costs, including personnel, supplies, training, IT related expenses, and other miscellaneous expenses.
8. **Reservoirs:** Costs associated with maintenance and ongoing operations of the District's reservoirs.
9. **Transmission and Distribution:** Ongoing O&M costs associated with local water supplies, and District-wide system improvements throughout the service area.
10. **Capital:** Contribution to capital replacement fund for the continued repair and replacement of the system. Capital expenses in Temescal are under Operating and will be allocated to cost components as part of total operating costs.

6.1.3. STEP 3 - ALLOCATE FUNCTIONALIZED COSTS TO COST COMPONENTS

The revenue requirements consist of three primary categories, including Specific, Operating and Revenue Offsets. Similar to the Elsinore Division, each revenue requirement category is addressed separately to allocate expenses to cost components for deriving unit rates.

Specific Allocation

The Specific expenses consists of three primary categories consisting of imported water supply costs, local water, and water conservation. Table 6-2 details the breakdown of these specific allocation costs. The resulting Specific Allocation (%) will be used to allocate the Specific Allocation Requirement. Specific allocations are isolated from receiving any revenue offsets or additional costs associated with revenue adjustments, mid-year adjustments or reserve funding.

Table 6-2: Specific Allocations

Functionalized Expense	Imported Variable Water	Local Water	Conservation	Total
% Allocation				
Imported Water	100%			100%
Local Water (wells)		100%		100%
Water Conservation			100%	100%
\$ Allocation				
Imported Water	\$29,016			\$29,016
Local Water (wells)		\$10,000		\$10,000
Water Conservation			\$7,850	\$7,850
Total	\$29,316	\$10,000	\$7,850	\$46,866
Specific Allocation (%)	62%	21%	17%	100.00%

O&M Allocation

The O&M expenses consist of two (2) functionalized categories: Reservoirs and Transmission & Distribution. These categories were allocated as follows: Reservoir - Max Day and Transmission & Distribution – Max Hour. The Max Day and Max Hour allocations were based on Table 5-3, before Fire Flow allocations, because fire flow related costs have already been allocated between potable fixed charges and private fire line fixed charges. Table 6-3 summarizes the percent allocations for the District O&M Expenses, the costs (prior to offsets and adjustments) allocated to the cost components, and the resulting O&M Allocation (%). The O&M Allocation (%) will be used to allocate the Operating Requirement (net of the total fixed charge recovery), including any revenue offsets and/or transfer adjustments (Table 6-1).

Table 6-3: O&M Allocations

Functionalized Expense	Allocation Basis	Delivery	Max Day	Max Hour	Total
% Allocation					
Reservoirs	<i>Max Day (Table 5-3, Line 2)</i>	57%	43%	-	100%
Transmission / Distribution	<i>Max Hour (Table 5-3, Line 3)</i>	29%	21%	50%	100%
\$ Allocation					
Reservoirs		\$20,209	\$15,156	-	\$35,365
Transmission / Distribution		\$141,647	\$106,235	\$247,882	\$495,764
Total		\$161,856	\$121,392	\$247,882	\$531,129
O&M Allocation (%)		30%	23%	47%	100%

The next step is to use the allocation percentages developed in the preceding section (Table 6-2: Specific Allocations and Table 6-3: O&M Allocations) to allocate the FYE 2020 revenue requirements identified in Table 6-1 to cost components. Table 6-4 summarizes the total revenue requirements allocated to cost components with fixed charges accounted for under Meter Capacity for Operating. Within Table 6-4, water supplies were grouped for summary purposes as well as Max Day and Max Hour as Peaking.

Table 6-4: Cost of Service Requirements

Revenue Requirements	Meter Capacity	Water Supplies	Delivery	Peaking	Conservation	Revenue Offset	Total
Specific	-	\$39,316	-	-	\$7,850	-	\$47,166
Operating	\$300,832	-	\$76,164	\$173,767	-	-	\$550,763
Revenue Offset	-	-	-	-	-	(\$26,339)	(\$26,339)
Cost of Service Requirement	\$300,832	\$39,316	\$76,164	\$173,767	\$7,850	(\$26,339)	\$571,590

6.2. Rate Design

6.2.1. FIXED CHARGE RECOVERY

Meter Capacity

All customers are charged the same monthly fixed charge meter schedule and the Meter Capacity component. Temescal total annual revenue recovery from proposed monthly fixed charges equals \$300,832, which is used to cover a majority of the Operating revenue requirement. The remaining approximate \$250K is allocated based on the O&M allocations percentages in Table 6-3.

6.2.2. VARIABLE CHARGE RECOVERY

Water Supply

Water supplies include local supplies consisting of local wells and periodic use of imported water. Local supplies were used to cover all usage except the highest water use (Residential – Tier 4 and Irrigation – Tier 3) and such high water use was served by imported water. Table 6-5 identifies the water supply allocations to each customer class and tier

Table 6-5: Water Supply Unit rates by Customer Class and Tier

Customer Class / Tier	FYE 2020 Usage (Table 4-1 FYE 2020)	Groundwater (Table 6-2)	Imported Water (Table 6-2) (MWD)	Effective Unit Rate (\$ / ccf)
Revenue Requirement		\$10,000	\$29,016	
Total Usage ccf		153,089	10,261	
Unit Rate per ccf		\$0.07	\$2.83	
Residential				
Tier 1	62,960	\$0.07	-	\$0.07
Tier 2	45,434	\$0.07	-	\$0.07
Tier 3	4,145	\$0.07	-	\$0.07
Tier 4	7,059	-	\$2.83	\$2.83
Irrigation				
Tier 1	13,749	\$0.07	-	\$0.07
Tier 2	1,806	\$0.07	-	\$0.07
Tier 3	3,201	-	\$2.83	\$2.83
Commercial	24,995	\$0.07	-	\$0.07

Delivery

Delivery costs are operating and capital costs associated with delivering water to all customers at a constant average rate of use. Therefore, delivery costs are spread over all units of water, irrespective of customer class, tiers or source, resulting in a uniform rate imposed on each unit of water. Table 6-6 summarizes the determination of the unit rate for the Delivery Component.

Table 6-6: Base/Delivery Component – Unit Rate

Base/Delivery Component	
Delivery Revenue Requirements (Table 6-4)	\$76,255
÷ Total FYE 2020 Projected Sales (ccf) (Table 4-1 FYE 2020)	163,350
Unit Rate (per ccf)	\$0.47

Peaking

Peaking costs is the sum of Max Day and Max Hour revenue requirement, equal to \$173,976 as identified in Table 6-4. Similar to Elsinore Division, peaking costs are first apportioned to customer classes and the resultant for each class is then further apportioned across tiers, when applicable. Because different customer classes place varying levels of demand on the system, each customer classes peaking factor was weighted by the total usage generating the peaking characteristic, which was derived using FYE 2018 consumption data by taking the max month usage compared to the average month usage for each customer class. Doing so provides a fair allocation of peaking costs to ensure a customer class that may have a significantly higher peaking factor than another class, but far less total usage, isn't inadvertently over charged due to peaking alone. Table 6-7 shows the peaking costs allocated to each customer class and Table 6-8 further apportions the peaking revenue requirement to tiers, when applicable, and corresponding unit rate.

Table 6-7: Peaking Component Allocated to Customer Classes

Customer Class	Projected Usage [A] (Table 4-1 FYE 2020)	Peaking Factor [B] ¹²	Weighted Peak Factor [C] (A x B)	Percent of Peaking [D]	Revenue Requirement \$173,976 [E] (Table 6-4)
Residential	119,598	1.35	161,960	71%	\$124,116
Irrigation	18,757	1.89	35,396	16%	\$27,125
Commercial	24,995	1.19	29,667	13%	\$22,735
Total	163,350	N/A	227,023	100%	\$173,976

Table 6-8: Peaking Component Rate Derivation by Customer Class and Tier

Customer Class / Tier	FYE 2020 Usage [A] (Table 4-1 FYE 2020)	Peaking Factor [B] ¹³	Weighted Peak Factor [C] (A x B)	Percent of Tiered Peaking [D]	Revenue Requirement \$173,976 [E] (Table 6-7)	Unit Rate (\$ / ccf) (E / A)
Residential			88,186		\$124,116	
Tier 1	62,960	0.39	24,636	28%	\$34,674	\$0.56
Tier 2	45,434	1.00	45,434	52%	\$63,945	\$1.41
Tier 3	4,145	1.39	5,762	7%	\$8,110	\$1.96
Tier 4	7,059	1.75	12,354	14%	\$17,387	\$2.47
Irrigation			28,530		\$27,125	
Tier 1	13,749	1.00	13,749	48%	\$13,073	\$0.96
Tier 2	1,806	2.37	4,280	15%	\$4,069	\$2.26
Tier 3	3,201	3.28	10,500	37%	\$9,983	\$3.12
Commercial	24,995	1.19	29,667		\$22,735	\$0.91

¹² Usage analysis derived using FYE 2018 actual consumption data from District's billing system

¹³ Usage analysis derived using FYE 2018 actual consumption data from District's billing system

Conservation

Conservation includes the costs for programs designed to reduce inefficient or wasted water, thereby increasing water supply and reliability for all customers. Programs include rebates for water efficiency, conservation programs and related personnel costs for the Conservation Division. The purpose of the Conservation Division is to ensure customers use water efficiently. Therefore, in Temescal Division, conservation expenses were allocated to Excessive Use (Residential – Tier 4 and Irrigation – Tier 3). Table 6-9 summarizes the determination of the unit rate for the Conservation Component.

Table 6-9: Conservation by Customer Class and Tier

Customer Class / Tier	FYE 2020 Usage [A] (Table 4-1 FYE 2020)	Allocation Factor [B]	Unit of Service [C] (A x B)	Percent Allocation [D]	Revenue Requirement \$7,850 [E] (Table 6-7)	Unit Rate (\$ / ccf) (E / A)
Residential						
Tier 4	7,059	1.00	7,059	69%	\$5,401	\$0.77
Irrigation						
Tier 3	3,201	1.00	3,201	31%	\$2,449	\$0.77

Revenue Offsets

The District has other revenues available, other than rates, such as, lease revenue that may be used to mitigate rates. The amount of funding is discretionary and not guaranteed and is determined on an annual basis. Since these revenues are not generated from water rates, the District may use these funds as desired based on policy. Besides the \$307k in lease revenue to offset total operating costs, there is approximately \$26K available for revenue offsets and it was apportioned to domestic uses based on usage within TWBs (Tiers 1 and 2 of Residential). Table 6-10 summarizes the determination of the unit rate for the Revenue Offset Component.

Table 6-10: Revenue Offset Allocation by Customer Class and Tier

Customer Class / Tier	FYE 2020 TWB Usage [A] (Table 4-1 FYE 2020)	Allocation Factor [B]	Unit of Service [C] (A x B)	Percent Allocation [D]	Revenue Requirement (\$26,339) [E] (Table 6-7)	Unit Rate (\$ / ccf) (E / A)
Residential						
Tier 1	62,960	1.00	62,960	58%	(\$15,299)	(\$0.24)
Tier 2	45,434	1.00	45,434	42%	(\$11,040)	(\$0.24)

6.3. Rate Design

6.3.1. VARIABLE RATES

The components of the variable rate are added together to produce rates for each customer class and corresponding tier, when applicable. Table 6-11 shows each component rate that make up the proposed rate for FYE 2020 commodity rates as well as FYE 2021 commodity rates based on the revenue requirement increase equal to 38%. The proposed 38% increase in rates for FYE 2021 is projected to meet the District's revenue requirements for FYE 2021 (attached as Appendix A), which was determined as part of the District's two-year budgetary cycle for FYE 2020 and FYE 2021.

Table 6-11: FYE 2020 and FYE 2021 Proposed Monthly Commodity Rates (\$/ccf)

Customer Class / Tier	Water Supply [A] (Table 6-5)	Delivery [B] (Table 6-6)	Peaking [C] (Table 6-8)	Conservation [D] (Table 6-9)	Revenue Offset [F] (Table 6-10)	FYE 2020 Rates (\$ / ccf) [G] (sum of A-F)	FYE 2021 Rates (\$ / ccf) [H] (G x 1.38)
Residential							
Tier 1	\$0.07	\$0.47	\$0.56	-	(\$0.24)	\$0.86	\$1.19
Tier 2	\$0.07	\$0.47	\$1.41	-	(\$0.24)	\$1.71	\$2.36
Tier 3	\$0.07	\$0.47	\$1.96	-	-	\$2.50	\$3.45
Tier 4	\$2.83	\$0.47	\$2.47	\$0.77	-	\$6.54	\$9.03
Irrigation							
Tier 1	\$0.07	\$0.47	\$0.96	-	-	\$1.50	\$2.07
Tier 2	\$0.07	\$0.47	\$2.26	-	-	\$2.80	\$3.86
Tier 3	\$2.83	\$0.47	\$3.12	\$0.77	-	\$7.19	\$9.92
Commercial	\$0.07	\$0.47	\$0.91	-	-	\$1.45	\$2.00

7. Recycled Cost of Service & Proposed Rates

7.1. Recycled Water Cost of Service Process

7.1.1. STEP 1 – DETERMINE REVENUE REQUIREMENTS

This section of the report provides a discussion of FYE 2020 revenue requirements for the Recycled Water. Table 7-1 details the obligations for the Recycled Water and the revenue that must be recovered from water rates. After other revenue adjustments and transfers, the net amount to be recovered from rates is approximately \$1.2M. The revenue requirements detailed below were provided by the District and determined as part of the District's two-year budgetary cycle for FYE 2020 and FYE 2021. Through multiple board workshops, the District reviewed the two-year budget for FYE 2020 and FYE 2021.

Table 7-1: FYE 2020 Recycled Water Revenue Requirements from Rates

Revenue Requirements	Specific	Operating	Revenue Offset	Total
Operating Costs				
Auld Valley Pipeline WMWD	\$50,000			\$50,000
EMWD Recycled Water	\$55,000			\$55,000
Supply (Treatment)	\$596,137			\$596,137
Administrative		\$448,621		\$448,621
Reservoirs		\$17,293		\$17,293
Transmission and Distribution		\$195,449		\$195,449
Subtotal Operating Costs	\$701,137	\$661,363	\$0	\$1,362,500
Transfers Out To				
General Fund		\$172,410		\$172,410
Recycled Water Replacement		\$148,000		\$148,000
Subtotal Transfers Out To	\$0	\$320,410	\$0	\$320,410
Total Revenue Requirements	\$701,137	\$981,773	\$0	\$1,682,910
Transfers In				
Elsinore Water Fund		\$120,520	\$180,779	\$301,299
Subtotal Transfers In	\$0	\$120,520	\$180,779	\$301,299
Reserve Transfers				
Operating Reserve (to)/from		\$63,135		\$63,135
Rate Stabilization (to)/from		\$65,000		\$65,000
Subtotal Reserve Transfers	\$0	\$128,135	\$0	\$128,135
Less: Revenue Offsets				
Non-Operating Revenues			\$12,138	\$12,138
Total Revenue Offsets	\$0	\$0	\$12,138	\$12,138
Revenue Requirement from Rates	\$701,137	\$733,118	(\$192,917)	\$1,241,338

7.1.2. STEP 2 – FUNCTIONALIZE O&M COSTS

Temescal Division and the Recycled Water both pay the same monthly fixed charges calculated under Section 5 of this Report given that all billing, administrative expenses and customer service primarily fall under Elsinore Division (Fund 20). In addition, both Temescal and Recycled Water have access to and receive imported water periodically during peak demand and during times of reduced production due to maintenance or unforeseen system failures. As

such, Temescal Division and Recycled Water should also pay a portion of Fixed Purchased Water costs, which is embedded as part of proposed monthly fixed charge schedule in Table 5-22. Total revenue requirements associated with Operating in Table 6-1 are; therefore, reduced by revenue recovered through the monthly fixed charges and the remaining Operating requirement is allocated to variable cost components.

O&M Functionalized Expenses

A cost of service analysis distributes a utility’s revenue requirements (costs) to each customer class. After determining a utility’s revenue requirement, the total cost of water service is analyzed by system functions to proportionately distribute costs in relation to how that cost is generally incurred. The water utility costs were categorized into the following functions:

1. **Auld Valley:** Cost incurred to purchased imported potable water.
2. **EMWD Recycled:** Cost incurred to purchased imported recycled water from EMWD.
3. **Supply (Treatment):** Costs associated with treating wastewater discharge for recycled water use.
4. **Administrative:** Overhead costs, including personnel, supplies, training, IT related expenses, and other miscellaneous expenses.
5. **Reservoirs:** Costs associated with maintenance and ongoing operations of the District’s reservoirs.
6. **Transmission and Distribution:** Ongoing O&M costs associated with local water supplies, and District-wide system improvements throughout the service area.
7. **Capital:** Contribution to capital replacement fund for the continued repair and replacement of the system. Capital expenses in Recycled are under Operating and will be allocated to cost components as part of total operating costs.

7.1.3. STEP 3 - ALLOCATE FUNCTIONALIZED COSTS TO COST COMPONENTS

The revenue requirements consist of three primary categories, including Specific, Operating and Revenue Offsets. Similar to the Temescal Division, each revenue requirement category is addressed separately to allocate expenses to cost components for deriving unit rates.

Specific Allocation

The Specific expenses consists of three primary categories consisting of imported potable water supply, imported recycled water from EMWD, and Supply (Treatment). Table 7-2 details the breakdown of these specific allocation costs. The resulting Specific Allocation (%) will be used to allocate the Specific Allocation Requirement. Specific allocations are isolated from receiving any revenue offsets or additional costs associated with revenue adjustments, mid-year adjustments or reserve funding.

Table 7-2: Specific Allocations

Functionalized Expense	Auld Valley	EMWD Recycled	Supply (Treatment)	Total
% Allocation				
Auld Valley	100%			100%
EMWD Recycled Water		100%		100%
Supply (Treatment)			100%	100%
\$ Allocation				
Auld Valley	\$50,000			\$50,000
EMWD Recycled Water		\$55,000		\$55,000
Supply (Treatment)			\$596,137	\$596,137
Total	\$50,000	\$55,000	\$596,137	\$701,137
Specific Allocation (%)	7%	8%	85%	100.00%

O&M Allocation

The O&M expenses consist of three (3) functionalized categories: Administrative, Reservoirs and Transmission & Distribution. These categories were allocated as follows: Administrative – Max Day, Reservoir - Max Day and Transmission & Distribution – Max Hour. The Max Day and Max Hour allocations were based on Table 5-3, before Fire Flow allocations, because fire flow related costs have already been allocated between potable fixed charges and private fire line fixed charges. Table 7-3 summarizes the percent allocations for the District O&M Expenses, the costs (prior to offsets and adjustments) allocated to the cost components, and the resulting O&M Allocation (%). The O&M Allocation (%) will be used to allocate the Operating Requirement (net of the total fixed charge recovery), including any revenue offsets and/or transfer adjustments (Table 7-1).

Table 7-3: O&M Allocations

Functionalized Expense	Allocation Basis	Delivery	Max Day	Max Hour	Total
% Allocation					
Administrative	<i>Max Day (Table 5-3, Line 2)</i>	57%	43%	-	100%
Reservoirs	<i>Max Day (Table 5-3, Line 2)</i>	57%	43%	-	100%
Transmission / Distribution	<i>Max Hour (Table 5-3, Line 3)</i>	29%	21%	50%	100%
\$ Allocation					
Administrative		\$256,355	\$192,266	-	\$448,621
Reservoirs		\$9,882	\$7,411	-	\$17,293
Transmission / Distribution		\$55,843	\$41,882	\$97,724	\$195,449
Total		\$322,079	\$241,559	\$97,724	\$661,363
O&M Allocation (%)		49%	37%	15%	100%

The next step is to use the allocation percentages developed in the preceding section (Table 6-2: Specific Allocations and Table 6-3: O&M Allocations) to allocate the FYE 2020 revenue requirements identified in Table 7-1 to cost components. Table 7-4 summarizes the total revenue requirements allocated to cost components with fixed charges accounted for under Meter Capacity for Operating. Within Table 7-4, water supplies were grouped for summary purposes as well as Max Day and Max Hour as Peaking.

Table 7-4: Cost of Service Requirements

Revenue Requirements	Meter Capacity	Water Supplies	Supply (Treatment)	Delivery	Peaking	Revenue Offset	Total
Specific	-	\$105,000	\$596,137	-	-	-	\$701,137
Operating	\$204,721	-	-	\$257,326	\$271,077	-	\$733,118
Revenue Offset	-	-	-	-	-	(\$192,917)	(\$192,917)
Cost of Service Requirement	\$204,721	\$105,000	\$596,137	\$257,326	\$271,077	(\$192,917)	\$1,241,338

7.2. Rate Design

7.2.1. FIXED CHARGE RECOVERY

Meter Capacity

All customers are charged the same monthly fixed charge meter schedule and the Meter Capacity component. Recycled Water total annual revenue recovery from proposed monthly fixed charges equals \$204,721, which is used to cover a portion of the Operating revenue requirement. The remaining approximate \$528K is allocated based on the O&M allocations percentages in Table 7-3.

7.2.2. VARIABLE CHARGE RECOVERY

Water Supply

Water supplies include treated wastewater, imported recycled water from EMWD and periodic use of imported potable water during peak demands. Local supplies were used to cover all usage except Excessive Use (Residential – Tier 4 and Irrigation – Tier 3) and Excessive use was served by imported water. Table 7-5 identifies the water supply unit rates and Table 7-6 provides the allocations to each customer class and tier and the blended effective unit rate.

Table 7-5: Recycled Water Supply Unit Rates

Water Supply	FYE 2020 Budget (Table 7-2) [A]	Quantity Available (ccf) [B]	Effective Unit Rate (\$ / ccf) [C] (A / B)
Auld Valley	\$50,000	18,366	\$2.72
EMWD Recycled	\$55,000	74,264	\$0.74
Treated WW	\$596,137	286,951	\$2.08

Table 7-6: Water Supply Unit rates by Customer Class and Tier

Customer Class / Tier	FYE 2020 Usage [A] (Table 4-1 FYE 2020)	EMWD Recycled [\$0.74] (Table 7-5 [C])	Treated WW [\$2.08] (Table 7-5 [C])	Auld Valley [\$2.72] (Table 7-5 [C])	Effective Unit Rate (\$ / ccf)
Recycled					
Tier 1	316,855	74,264	242,591	-	\$1.76
Tier 2	27,530	-	27,530	-	\$2.08
Tier 3	35,196	-	16,830	18,366	\$2.41

Delivery

Delivery costs are operating and capital costs associated with delivering water to all customers at a constant average rate of use. Therefore, delivery costs are spread over all units of recycled, irrespective of tiers, resulting in a uniform rate imposed on each unit of recycled water. Table 7-7 summarizes the determination of the unit rate for the Delivery Component.

Table 7-7: Base/Delivery Component – Unit Rate

Base/Delivery Component	
Delivery Revenue Requirements (Table 7-1)	\$257,326
÷ Total FYE 2020 Projected Sales (ccf) (Table 4-1 FYE 2020)	379,582
Unit Rate (per ccf)	\$0.68

Peaking

Peaking costs is the sum of Max Day and Max Hour revenue requirement, equal to \$271,072 as identified in Table 7-4. Since there is only once customer class within Recycled Water, peaking costs are apportioned to each tier by taking total usage of each tier and peaking factor of each tier. Doing so provides a fair allocation of peaking costs to each tier. Table 7-8 derives the peaking revenue requirement to each tier and the corresponding unit rates.

Table 7-8: Peaking Component Rate Derivation by Tier

Recycled Water Tiers	FYE 2020 Usage [A] (Table 4-1 FYE 2020)	Peaking Factor [B] ¹⁴	Weighted Peak Factor [C] (A x B)	Percent of Tiered Peaking [D]	Revenue Requirement \$271,072 [E] Table 7-4	Unit Rate (\$ / ccf) [E / A]
Tier 1	316,855	1.00	316,855	59%	\$160,894	\$0.51
Tier 2	27,530	2.58	71,016	13%	\$36,061	\$1.31
Tier 3	35,196	4.15	145,960	27%	\$74,116	\$2.11

Revenue Offsets

The District has other revenues available, other than rates, such as, property tax and lease revenue that may be used to mitigate rates. The amount of funding is discretionary and not guaranteed, which is determined on an annual basis. Since these revenues are not generated from water rates and are otherwise unrestricted, the District may use these funds as desired based on policy. There is approximately \$192K available for revenue offsets and it was used to offset recycled water tier 1 rate. Table 7-9 summarizes the determination of the unit rate for the Revenue Offset Component.

Table 7-9: Revenue Offset Allocation

Recycled Water Tier	FYE 2020 Usage [A] (Table 4-1 FYE 2020)	Revenue Requirement (\$192,917) [B] Table 7-4	Unit Rate (\$ / ccf) [B / A]
Tier 1	316,855	(\$192,917)	(\$0.60)

7.3. Rate Design

7.3.1. VARIABLE RATES

The components of the variable rate are added together to produce rates for each tier. Table 7-10 shows each component rate that make up the proposed rate for FYE 2020 commodity rates as well as FYE 2021 commodity rates based on the revenue requirement increase equal to 3.8%. The proposed 3.8% increase in rates for FYE 2021 is projected to meet the District's revenue requirements for FYE 2021 (attached as Appendix A), which was determined as part of the District's two-year budgetary cycle for FYE 2020 and FYE 2021.

Table 7-10: FYE 2020 and FYE 2021 Proposed Monthly Commodity Rates (\$/ccf)

Customer Class / Tier	Water Supply [A] (Table 7-6)	Delivery [B] (Table 7-7)	Peaking [C] (Table 7-8)	Revenue Offset [F] (Table 7-9)	FYE 2020 Rates (\$ / ccf) [G]	FYE 2021 Rates (\$ / ccf) [H] (G x 1.38)
Tier 1	\$1.76	\$0.68	\$0.51	(\$0.60)	\$2.35	\$2.44
Tier 2	\$2.08	\$0.68	\$1.31	-	\$4.07	\$4.22
Tier 3	\$2.41	\$0.68	\$2.11	-	\$5.20	\$5.40

¹⁴ Usage analysis derived using FYE 2018 actual consumption data from District's billing system

APPENDICES:

Appendix A – FYE 2021 Revenue Requirements

Elsinore Division

Revenue Requirements	Specific	Operating	Revenue Offset	Capital	Total
Operating Costs					
Fixed Imported Water	\$1,068,680				\$1,068,680
Variable Imported Water	\$18,006,933				\$18,006,933
Local Water (wells)	\$370,300				\$370,300
Groundwater (Back Basin)	\$203,200				\$203,200
Surface Water (Canyon Lake)	\$1,010,100				\$1,010,100
Pumping	\$3,706,000				\$3,706,000
Water Conservation	\$506,465				\$506,465
Meter Reading	\$150,450				\$150,450
Meter Testing	\$1,155,180				\$1,155,180
Meter Installation	\$315,920				\$315,920
Administrative	\$13,066,318				\$13,066,318
Other Non-Operating	\$25,000				\$25,000
Reservoirs		\$628,348			\$628,348
Transmission and Distribution		\$7,614,798			\$7,614,798
Capital Outlay		\$247,449			\$247,449
Subtotal Operating Costs	\$39,584,545	\$8,490,595	\$0	\$0	\$48,075,140
Debt Service					
AMI Loan Phase 3				\$138,920	\$138,920
Revenue Bond				\$157,420	\$157,420
Subtotal Debt Service	\$0	\$0	\$0	\$296,339	\$296,339
Transfers Out To					
Reclamation Fund	\$301,299				\$301,299
Elsinore Water Replacement Fund				\$8,765,387	\$8,765,387
Construction Fund				\$180,000	\$180,000
Reclamation Capacity Fees	\$521,716				\$521,716
Subtotal Transfers Out To	\$823,015	\$0	\$0	\$8,945,387	\$9,768,402
Total Revenue Requirements	\$40,407,560	\$8,490,595	\$0	\$9,241,726	\$58,139,882
Transfers In					
Genral Fund and Property Tax		\$933,000	\$933,000		\$1,866,000
Subtotal Transfers In	\$0	\$933,000	\$933,000	\$0	\$1,866,000
Reserve Transfers					
Reserves (to)/from		\$506,465			\$506,465
Operating Reserve (to)/from		(\$339,817)			(\$339,817)
Rate Stabilizaton (to)/from		(\$668,212)			(\$668,212)
Excess Power Surcharge (to)/from			\$686,933		\$686,933
Subtotal Reserve Transfers	\$0	(\$501,564)	\$686,933	\$0	\$185,369
Less: Revenue Offsets					
Service Revenues			\$1,684,900		\$1,684,900
Non-Operating Revenues			\$474,189		\$474,189
Total Revenue Offsets	\$0	\$0	\$2,159,089	\$0	\$2,159,089
Revenue Requirement from Rates	\$40,407,560	\$8,059,159	(\$3,779,022)	\$9,241,726	\$53,929,424

Appendix A – FYE 2021 Revenue Requirements

Temescal Division

Revenue Requirements	Specific	Operating	Revenue Offset	Total
Operating Costs				
Imported Water	\$29,452			\$29,452
Local Water (wells)	\$14,000			\$14,000
Water Conservation	\$7,850			\$7,850
Meter Reading		\$3,276		\$3,276
Meter Testing		\$19,256		\$19,256
Administrative		\$196,032		\$196,032
Other Non-Operating		\$874		\$874
Reservoirs		\$36,608		\$36,608
Transmission and Distribution		\$505,738		\$505,738
Capital Outlay		\$0		\$0
Placeholder		\$0		\$0
Subtotal Operating Costs	\$51,302	\$761,784	\$0	\$813,086
Transfers Out To				
Temescal Water Replacement Fund		\$400,000		\$400,000
Subtotal Transfers Out To	\$0	\$400,000	\$0	\$400,000
Total Revenue Requirements	\$51,302	\$1,161,784	\$0	\$1,213,086
Transfers In				
Genral Fund		\$512,152		\$512,152
Subtotal Transfers In	\$0	\$512,152	\$0	\$512,152
Reserve Transfers				
Operating Reserve (to)/from		\$47,106		\$47,106
Rate Stabilizaton (to)/from		(\$19,091)		(\$19,091)
Subtotal Reserve Transfers	\$0	\$28,015	\$0	\$28,015
Less: Revenue Offsets				
Service Revenues			\$14,250	\$14,250
Non-Operating Revenues			\$12,089	\$12,089
Total Revenue Offsets	\$0	\$0	\$26,339	\$26,339
Revenue Requirement from Rates	\$51,302	\$621,618	(\$26,339)	\$646,580

Appendix A – FYE 2021 Revenue Requirements

Recycled Water

Revenue Requirements	Specific	Operating	Revenue Offset	Total
Operating Costs				
Auld Valley Pipeline WMWD	\$50,000			\$50,000
EMWD Recycled Water	\$55,000			\$55,000
Supply (Treatment)	\$610,997			\$610,997
Administrative		\$461,868		\$461,868
Reservoirs		\$18,042		\$18,042
Transmission and Distribution		\$234,240		\$234,240
Subtotal Operating Costs	\$715,997	\$714,150	\$0	\$1,430,147
Transfers Out To				
General Fund		\$189,752		\$189,752
Recycled Water Replacement		\$175,000		\$175,000
Subtotal Transfers Out To	\$0	\$364,752	\$0	\$514,752
Total Revenue Requirements	\$715,997	\$1,078,902	\$0	\$1,944,899
Transfers In				
Elsinore Water Fund		\$120,520	\$180,779	\$301,299
Subtotal Transfers In	\$0	\$120,520	\$180,779	\$301,299
Reserve Transfers				
Operating Reserve (to)/from		(\$13,729)		(\$13,729)
Rate Stabilization (to)/from		\$189,910		\$189,910
Subtotal Reserve Transfers	\$0	\$176,181	\$0	\$176,181
Less: Revenue Offsets				
Non-Operating Revenues			\$12,138	\$12,138
Total Revenue Offsets	\$0	\$0	\$12,138	\$12,138
Revenue Requirement from Rates	\$715,997	\$782,202	(\$192,917)	\$1,455,281