

ELDORADO AREA WATER & SANITATION DISTRICT

COST OF SERVICE AND RATE DESIGN STUDY

**FINAL REPORT
SEPTEMBER 6, 2019**

Nelisa Heddin Consulting, LLC
P.O. Box 341855
Lakeway, TX 78734
(512) 589-1028
nheddin@nelisaheddinconsulting.com



COST OF SERVICE ANALYSIS

Nelisa Heddin Consulting, LLC (NH Consulting) is pleased to present the Eldorado Area Water & Sanitation District (District) with the results of a cost of service and rate design study performed for the District's water utility.

The District retained NH Consulting to perform a cost of service and rate design study for the District's water utility. The study's intent is to achieve a water rate structure that will assure equitable and adequate revenues for operations, debt service retirement, capital improvements and bond covenant requirements, therefore ensuring the utility operates on a self-sustaining basis while considering the economic impact on the District's customers.

The project team has worked closely with the District's staff and Rate Study Committee to develop revenue requirements and determine the cost of providing service to each of the District's customers. The project team determined that in order to meet future revenue requirements, the District needs to implement future water rate and/or property tax increases. The project team developed three revenue recovery scenarios to achieve the recovery of the required revenues as outlined below:

- Option 1 - assumes increases in the District's O&M Mill Levy in FYE2021, FYE2022 and FYE2024.
- Option 2 - assumes no changes to the District's O&M Mill Levy throughout the study period.
- Option 3 - assumes no changes to the District's O&M Mill Levy throughout the study period, and rates equal to Option 1. This Option results in a revenue shortfall in FY2024 by over \$789,000.

These three options were presented to the District's Board of Directors on July 25, 2019. After careful consideration, the Board opted to move forward with the rates outlined in Option 3. While the rate model indicates a potential "shortfall" of revenues by FY2024, the Board determined that this is the most prudent course of action at this time. The District will not operate with any shortfall. Rather, the District will continually monitor actual financial performance, actual construction costs and debt issuances as part of the District's annual budgeting process and make necessary adjustments in spending to ensure the District meets all actual operating revenue requirements. In addressing the potential shortfall, the District may utilize one or more of the following strategies:

1. Pursue grant funding for capital projects, thereby reducing future annual debt service.
2. Reduce annual capital spending and/or delay capital projects.
3. Reduce other annual expenditures as possible.



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4. Potentially evaluate future tax rate increases, if and only if, no other options are available to meet capital program needs and reduce costs.

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Table 1 outlines the recommended rates for “Option 3.” This Option was presented to the public during a Public Forum on August 27, 2019.

Table 1: Recommended Water Rates, Option 3¹

	Current	FY20	FY21	FY22	FY23	FY24
Monthly Minimum Charge	\$24.58	\$25.56	\$26.59	\$27.65	\$28.76	\$29.91
Volumetric Charge (per thousand gallons)						
1-3,000 Gallons	\$11.40	\$11.40	\$11.40	\$11.86	\$12.33	\$12.82
3,001-6,000 Gallons	\$14.25	\$14.25	\$14.25	\$14.82	\$15.41	\$16.03
6,001-10,000 Gallons	\$17.81	\$17.81	\$17.81	\$19.06	\$20.39	\$21.82
10,001-20,000 Gallons	\$26.71	\$28.58	\$30.58	\$32.72	\$35.01	\$37.46
20,001-30,000 Gallons	\$40.07	\$44.08	\$48.48	\$53.33	\$58.67	\$64.53
Over 30,001 Gallons	\$60.11	\$66.12	\$72.73	\$80.01	\$88.01	\$96.81
Tax Levy Assumption:						
Property Taxes - Debt Portion	\$1.9681	\$1.9681	\$1.9681	\$1.9681	\$1.9681	\$-
Property Taxes - O&M Portion	<u>2.3919</u>	<u>2.3919</u>	<u>2.3919</u>	<u>2.3919</u>	<u>2.3919</u>	<u>2.3919</u>
Total Property Taxes	\$4.3600	\$4.3600	\$4.3600	\$4.3600	\$4.3600	\$2.3919
Revenue Requirement Over/(Short)		\$30,157	\$(77,715)	\$(197,343)	\$(303,011)	\$(789,831)

¹ Option 3 assumes no changes to the District’s O&M Mill Levy Rate throughout the study period, and rates equal to Option 1. This Option results in a revenue shortfall in FY2024 by over \$789,000.

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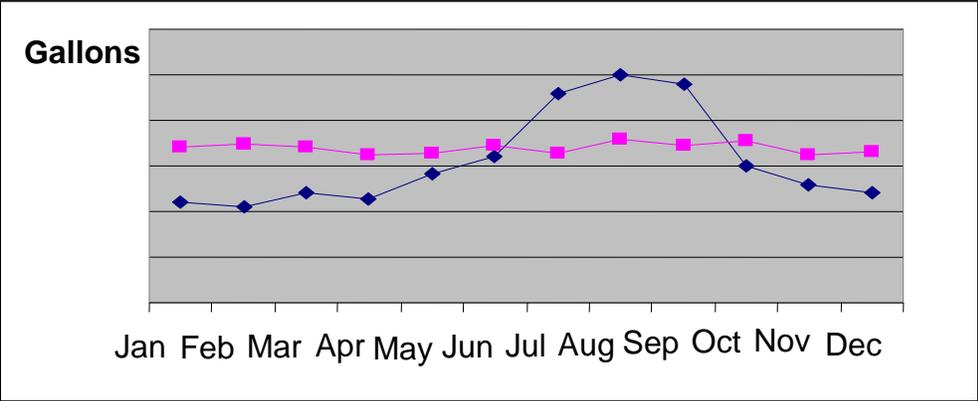
RATE SETTING THEORY

The American Water Works Association (AWWA) sets forth a methodology for rate setting based on cost-of-service principles. The premise of this methodology is to require users to pay the cost incurred by the utility to provide that user with water service.

The water utility infrastructure is created to meet times of peak demand. Although on an annual basis, the average usage of water is at a lower level, the system must meet times of peak usage, such as irrigation in summer months or early mornings when residents are showering, doing laundry and washing dishes. Utility systems operate under strict guidelines that the water utility must abide by while providing retail water services. These guidelines outline specific requirements for items such as minimal system capacities, to meet these times of peak usage. Thus, the water utility must maintain the infrastructure to meet these requirements. To determine the utilities' capacity requirements, one must factor in the number of connections served, and the size of each connection, in addition to the usage patterns of those customers. Therefore, even though the utility may have average usage at a certain level, it must have the capacity to serve customers at a greater level in order to meet peaking demands.

Different customer classes utilize water in different manners, thus putting different strains on the utility. Examination of the utility's customer classes while applying a cost-of-service methodology recommended by the AWWA reveals the usage pattern of each class. Figure 1 exhibits different usage patterns for two different types of customers.

Figure 1: Usage Patterns





The customers represented by a blue line in Figure 1 show a dramatic peaking pattern in summer months. This peak pattern commonly occurs with customers who, for example irrigate during the summer. The customers represented by a pink line show very little deviation in their month-to-month usage. An example of a customer using water in this manner may be a commercial customer who uses water in a consistent pattern year-round.

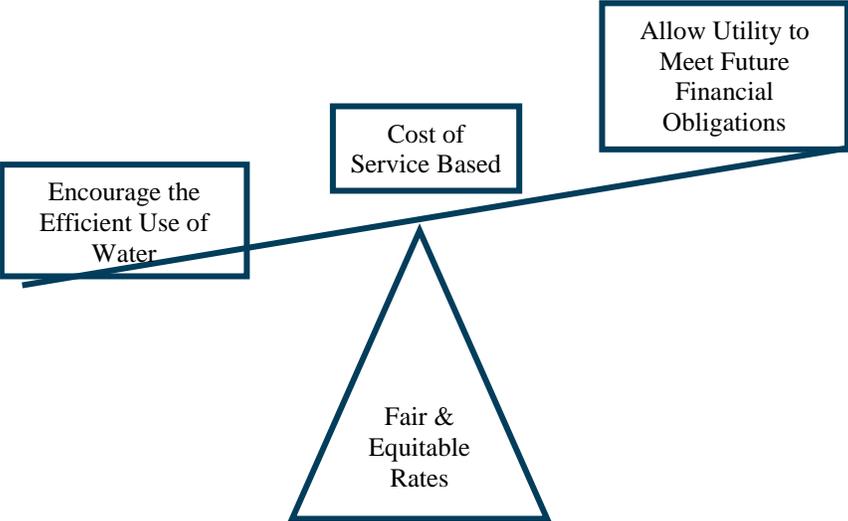
According to the AWWA, “A water utility is required to supply water in total amounts and at such rates of use desired by the customer. A utility incurs costs in relationship to the various expenditure requirements caused by meeting those customer demands. Since the needs for total volume of supply and peak rates of use vary among customers, the costs to the utility of providing service also vary among customers or classes of customers.” In other words, there are significant cost implications to the ability a utility system must have to meet peaking patterns.

The blue-line customer in Figure 1 has a higher peak to average ratio of water usage. Whereas the pink-line customer has a lower peak to average ratio, even though the total volume used is greater for this customer class. In this example, the utility has to maintain a total system capacity to serve the maximum (or peak) usage of all customers, even though the blue-line customer uses a peak amount of water for 3-months out of the year. There is a significant cost implication to this irregular usage pattern. The rates charged to customers should reflect this cost differential.



RATE DESIGN GENERAL COMPONENTS

During rate analysis, the primary consideration is to determine rates that are fair and equitable among all customers. Rates should recover the cost associated with providing service to each customer from that particular customer. Determining rates that fully achieve this goal involves a detailed analysis of each individual customer’s consumption pattern. Since this is an impractical feat for most utility systems, a typical rate design establishment fits average conditions for groups of customers having similar service requirements. When grouping customer classes, one divides customers that utilize water in a similar pattern (such as residential, commercial, apartments and irrigation). Then, analysis of historical usage patterns for each customer grouping and assignment of costs accordingly. EAWSD has mainly residential customers and just a small number of commercial customers. The District does not have any irrigation only customers.



The AWWA emphasizes, “Departure from rates based on cost of service is generally a decision made for political, legal or other reasons. Consideration of rates deviating from cost of service, therefore, is made by politicians, not the rate designer.” In addition, the AWWA states that “when a deviation from cost-related rates is made, the reason for such modification should be explicitly understood so that the responsibility for such deviation is placed on legal and policy-making factors, and the public is not misled into believing that the resulting rates are fully cost-related when they are not.”

It is important to consider when designing and implementing a new rate structure that, while the goal is to get as close as possible to cost of service based rates, while respecting each utility’s political environment.

RATE COMPONENTS

Typically, billing of water services use a structure that consists of a minimum bill and a volumetric component. The intention of the minimum bill is to recover the basic costs associated with providing service to the customer, regardless of the volume of the water utilized. The bill structure usually recovers a high percentage of the utility’s fixed costs, particularly its debt service, to ensure the utility some degree of revenue stability. Minimum bills are a fixed monthly fee. The second component of the rates is a volumetric charge. This charge is based on the amount of water utilized by the customer, and may fluctuate based on actual usage.



Minimum Bill

The AWWA provides guidelines for the determination of the minimum bill on a cost basis. Many utilities set their minimum bill based on policy initiatives. The utility may want to use the minimum charge to guarantee a certain percentage of revenue. Another strategy in setting a minimum bill involves providing lifeline rates for customers, where the customer receives a certain amount of water included in the base charge fee. This allows the customer a higher degree of control over their water bill.

There are two (2) primary options available regarding the structure of the minimum bill:

Meter Size – The larger the meter a customer has, the greater the ability that customer has to place a larger demand on the system. Thus, regardless of the amount of water that a customer actually uses, the utility is still required to maintain the capacity to serve that customer based on their meter size.

Accordingly, a minimum bill based on meter size, in which the larger the meter, the higher the bill, recovers the cost the utility incurs due to the potential increased demand placed on the system by that particular customer. The AWWA provides “meter size equivalency factors,” a scale of factors are applied to the base charge for a 5/8 inch connection to determine the minimum that should be charged to larger connections.

Table 2: Meter Equivalency Ratios.

Meter Size (Inches)	Equivalent Meter & Service Ratio
5/8"	1
3/4"	1.1
1"	1.4
1 1/2"	1.8
2"	2.9
3"	11

Equalized Minimum Bill – The alternative minimum bill structure would be an equalized minimum bill in which all customers pay the same fee, regardless of meter size. This very simple fee structure is easy to understand by the utility’s customers. In addition, most billing systems are able to accommodate this fee structure.

The District bills customers an equalized minimum bill. Given the homogenous nature of the District’s customer base, the project team recommends continuation of this policy.

Volumetric Rate

The second component of the fee structure is the volumetric rate. The basis for the volumetric fees is the actual volume of water each customer uses each month. The volumetric rates usually recover the variable costs associated with providing water to the utility’s customers as well as a portion of fixed costs. Utilities also use volumetric rates as a pricing signal to encourage the efficient usage of water. Below are some volumetric rate design options.



Customer Class – As previously described, different classes of customers utilize water in different ways. Some customers use large amounts of water seasonally for irrigation, while other customers' monthly water use varies only slightly. There is a significant cost implication to different water usage patterns. Those customers who use water irregularly throughout the year, such as those who irrigate, cause the utility's water system to have a higher peaking than those customers who use a consistent amount of water monthly. A case can be made that utilities should classify customers into like groupings (such as residential, commercial, apartments and irrigation) and charge those customers different rates based on their relative usage patterns. The AWWA has outlined a methodology for determining these rates called the Base-Extra Capacity methodology. The basic premise of this methodology is to isolate usage patterns based on customer classifications and allocate costs to those customers based on peaking patterns. While this is a complex task, it is arguably the most equitable means of charging customers for water usage.

The drawback to this methodology is that it is a slightly more complex fee structure that some customers may have difficulty understanding. Prior to implementation, the utility's billing system requires examination to ensure that it is capable of charging customers based on this structure.

Equalized Rate – An alternative to varying volumetric rates based on customer class is to charge all customers the same volumetric rate. This is appropriate for utilities that have a relatively homogenous customer base in which most customers use water in a similar pattern. This rate structure is easy for customers to understand, and usually most billing systems can accommodate equalized rates. The industry recommends that each utility examine its customer base to determine if it is a homogenous group of customers, or if there are customers who use water in different patterns. If the latter is the case, then equalized rates may not be equitable to some customer classifications.

In analyzing the District's customer base and usage patterns, the project team recommends that the District bill based upon an equalized rate applied to all customer classes.

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WATER PRODUCTION

In 2018, the District produced approximately 165 million gallons of water, with a peak day production of .862 MG.

Table 3: Historical Water Production (Gallons)

	2016	2017	2018
Total Production	152,364,000	156,144,000	165,607,000
Average Daily Demand	417,436	427,792	453,718
Peak Day Demand	825,418	857,077	862,360
Peak to Average Ratio	1.98	2.00	1.90

As emphasized in the previous section, there is a direct correlation between a system's production and peaking patterns and the system's costs. The District's peak to average ratio, as determined by dividing maximum daily production by the average daily production, was 1.90:1 for 2018.

WATER CONSUMPTION

As of December 2017, the District provided water services to 2,996 retail, potable water customers. The District meters all active potable water connections. Annual metered water consumption was approximately 139 million gallons in 2017, as shown in Table 4².

Table 4: Total Customer Count and Consumption (Gallons)³

Year	Customers	Consumption
2015	2,983	127,420,500
2016	2,987	137,172,300
2017	2,996	139,515,600

² The Districts anticipates fewer than 10 new connections per year as the service area is almost entirely built-out.

³ Data for the full year for 2018 was not available at the time the analysis was completed.

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CURRENT RATES

Outlined below are the District's current water rates, effective January, 2019.

Table 5: Current Water Rates

	Current
Minimum Charge	\$24.58
Volumetric Charge	
1-3,000 Gallons	\$11.40
3,001-6,000 Gallons	\$14.25
6,001-10,000 Gallons	\$17.81
10,001-20,000 Gallons	\$26.71
20,001-30,000 Gallons	\$40.07
Over 30,001 Gallons	\$60.11



WORK PLAN

In determining water rates, NH Consulting relies upon a methodology described by the American Water Works Association called the Base-Extra Capacity methodology. This methodology approximates the cost associated with serving various classifications of customers.

Essentially, the methodology utilizes a five-step approach:

- Step 1: Revenue Requirement Determination
- Step 2: Cost Functionalization
- Step 3: Customer Cost Allocation
- Step 4: Customer Count and Billing Unit Determination
- Step 5: Rate Design

NH Consulting has performed each of these steps in coordination with the District's staff and Rate Study Committee. The next sections describe each step along with the results.

STEP 1: REVENUE REQUIREMENT DETERMINATION

BASE YEAR REVENUE REQUIREMENT

SYSTEM EXPENDITURES

A base year estimate of costs helps to determine the District's future revenue requirements. This cost estimate is reflective of the normal operation of the water utility, and adjusted for known and measurable changes into the future. NH Consulting used the FY 2019 budget as the Test Year for the revenue requirement phase of the study.

REVENUE OFFSETS

In order to isolate the revenues required by rates from all customers, it was necessary to capture all revenue offsets and remove the corresponding dollar amount from the gross revenue requirement to determine the net revenue requirement. Revenue offsets are items such as late fees and interest income that offset the District's expense.

BASE YEAR REVENUE REQUIREMENT

The base year total revenue requirement determined by the project team for the water utility for FY 2020 was \$2,962,219.

FIVE-YEAR REVENUE REQUIREMENT

INFLATION

The District provided NH Consulting with an estimate of operations & maintenance costs for the five-year study period.



CAPITAL PROJECTS

The District has identified approximately \$13M in future capital improvement projects to be constructed in the next 5 years. The project team has assumed these projects would be funded mainly through the issuance of future debt. Approximately \$6M of the currently planned capital improvement projects represents replacement of approximately 6% of the distribution system lines for the District. It must be noted that this funding of the distribution system replacement program is the beginning of a very long and costly replacement program for the District, which was mainly built forty years ago and nearing the end of its useful life.

REHABILITATION AND REPLACEMENT PROJECTS

In addition to the capital improvement plan projects described above the project team has also included funding for rehabilitation and replacement projects in the amount of \$788,000 beginning in FY2020⁴. The project team assumed \$300,000 per year would be funded by the O&M portion of property taxes. It was assumed that prior year times coverage monies, to the extent available would also be used to fund these improvements. Finally, the balance of the annual required amount would be funded through monthly user fees, as outlined on Table 6 below.

Table 6: Rehabilitation and Replacement Project Funding Source.

	FY20	FY21	FY22	FY23	FY24
Property Taxes (Current Year)	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000
Times Coverage (Prior Year)⁵	188,659	221,879	261,339	300,000	300,000
Cash from Rates	<u>300,000</u>	<u>250,000</u>	<u>94,297</u>	<u>75,305</u>	<u>415,564</u>
	\$788,659	\$771,879	\$655,636	\$675,305	\$1,015,564

FUTURE WATER PURCHASES

The analysis also assumes the purchase of an additional 100 acre feet annually of water from Santa Fe County, which is projected to be required to meet future water demands of the District beginning in FY 2022. This expense has been estimated at the current rates cited by the County.

REVENUE OFFSETS

Revenue-offset projections remained constant throughout the study period, a conservative estimate.

⁴ Future funding for rehabilitation and replacement projects was required to be at a minimum level of \$618,000 per year beginning in FY 2020 with compounded inflation each year. The planned funding varies by year and was determined in amounts to keep rates stable.

⁵ Times coverage are monies that the District is required to collect pursuant to the District’s bond covenants. Times coverage monies are then utilized in subsequent years to fund rehab and replacement projects.



FIVE-YEAR REVENUE REQUIREMENT

Table 7 outlines the five-year revenue requirement for the Water Utility. Schedule 1 shows each line item with details. As can be seen, the projected revenue requirements are anticipated to increase by approximately 5.5% compounded annually from FY2019 through FY2024. While the District does anticipate some operating cost increases, new debt to fund capital projects comprises of the majority of the increases.

Table 7: Total District Five-Year Revenue Requirement.

	FY19	FY20	FY21	FY22	FY23	FY24
Revenue Requirements	\$3,873,686	\$4,232,465	\$4,422,790	\$4,702,171	\$4,975,002	\$5,058,563

FUNDING SOURCES

The District has two primary sources of revenues to support the revenue requirements outlined above:

1. Property Taxes – this is also described as a mill levy which is cited in terms of a fee per \$1000 assessed property valuation⁶ and is assessed on each property within the District. This is an annual fee property owners pay, which is collected by the County Tax Assessors office and remitted to the District. The mill levy has two components:
 - a. Debt component – currently \$1.9681 and is utilized to pay for the District’s outstanding General Obligation Debt (GO Bonds). It must be noted that the District is due to pay off its existing GO Bonds in FY 2023, meaning that unless the District refinances its existing GO Bonds or issues new GO Bonds, in FY 2024, the debt component of the District’s mill levy will be \$ 0.
 - b. O&M component – currently \$2.3919 and is utilized to offset annual operations and maintenance expenses.

2. Water Customer Fees – these take form as a minimum bill and a volumetric rate charged only to water customers, as previously described.

In developing a five-year plan for the District, the project team evaluated three different funding Options:

Option 1 assumes the District will implement future mill levy increases – the first would be implemented in FY 2021 to a total mill levy of \$4.86⁷ and FY 2023 to a total mill levy of \$5.36⁸. In FY 2024, the total mill levy will remain at \$5.36; however, the entire \$5.36 is

⁶ Currently, taxes are assessed on 1/3 of the total property valuation.

⁷ The debt mill levy would stay at \$1.9681 to support the existing GO Bond. The O&M mill levy would be increased to \$2.8919.

⁸ The debt mill levy would stay at \$1.9681 to support the existing GO Bond. The O&M mill levy would be increased to \$3.3919.

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assumed to be O&M mill levy, with \$0 debt mill levy. The additional monies generated by the mill levy increases and water rate increases will be utilized to fund future debt issuances for capital projects, inflationary increases, future water supply acquisitions from the County, and the rehab/replacement program. The specific funding source for the total District Revenue Requirement for Option 1 are outlined on Table 8.

Table 8: Funding Sources for Total District Revenue Requirement, Option 1

Option 1	FY20	FY21	FY22	FY23	FY24
Mill Levy, Debt Portion	\$573,388	\$574,884	\$576,193	\$577,314	\$-
Mill Levy, O&M Portion	696,858	844,727	846,650	994,966	1,574,826
Base Fees	930,705	970,485	1,011,627	1,054,163	1,098,124
Volumetric Fees	<u>2,031,514</u>	<u>2,032,694</u>	<u>2,267,701</u>	<u>2,348,559</u>	<u>2,385,613</u>
	\$4,232,465	\$4,422,790	\$4,702,171	\$4,975,002	\$5,058,563

Option 2 assumes the District will not implement future mill levy increases – the debt mill levy will remain at \$1.9681 through FY 2023. In FY 2024, the debt mill levy will go to \$0. The O&M mill levy will remain at \$2.3919 through FY 2024. This will mean that the total mill levy will be \$4.89 through FY 2023, in FY 2024, the total mill levy will decrease to \$2.2919. This would require the entirety of increases in the revenue requirement to be funded through increases in water rates. The specific funding source for the total District Revenue Requirement for Option 2 are outlined on Table 9.

Table 9: Funding Sources for Total District Revenue Requirement, Option 2

Option 2	FY20	FY21	FY22	FY23	FY24
Mill Levy, Debt Portion	\$573,388	\$574,884	\$576,193	\$577,314	\$-
Mill Levy, O&M Portion	696,858	698,676	700,267	701,630	702,766
Base Fees	948,603	1,008,171	1,071,120	1,137,622	1,412,959
Volumetric Fees	<u>2,013,616</u>	<u>2,141,059</u>	<u>2,354,592</u>	<u>2,558,436</u>	<u>2,942,838</u>
	\$4,232,465	\$4,422,790	\$4,702,171	\$4,975,002	\$5,058,563

Option 3 assumes the District will not implement future mill levy increases; however, the rates are set to be equal to the rates in Option 1 – the debt mill levy will remain at \$1.9681 through FY 2023. In FY 2024, the debt mill levy will go to \$0. The O&M mill levy will remain at \$2.3919 through FY 2024. This will mean that the total mill levy will be \$4.89 through FY 2023, in FY 2024, the total mill levy will decrease to \$2.2919. This would effectively reduce the total revenue recovery of the District, meaning the District would not recover the total District revenue requirement outlined on Table 7. As a result, the District would need to reduce annual expenditures either through reduction of annual O&M expenses, reduction of future debt issuances and therefore elimination of projects in the capital improvement plan and/or a reduction of the rehab/replacement program spending. The specific funding sources for the total District Revenue Requirement for Option 3 are outlined on Table 10. It must be noted that the total revenue recovery of this Option falls short of the total District Revenue Requirement outlined on Table 7.



Table 10: Funding Sources for Total District Revenue Requirement, Option 3

Option 3	FY20	FY21	FY22	FY23	FY24
Mill Levy, Debt Portion	\$573,388	\$574,884	\$576,193	\$577,314	\$-
Mill Levy, O&M Portion	696,858	698,676	700,267	701,630	702,766
Base Fees	930,705	970,485	1,011,627	1,054,163	1,098,124
Volumetric Fees	<u>2,061,671</u>	<u>2,101,030</u>	<u>2,216,742</u>	<u>2,338,883</u>	<u>2,467,842</u>
	\$4,262,623	\$4,345,075	\$4,504,828	\$4,671,991	\$4,268,732
Revenue Requirement Over/(Short)	\$30,157	\$(77,715)	\$(197,343)	\$(303,011)	\$(789,831)



STEP 2: COST FUNCTIONALIZATION

BACKGROUND ON COST FUNCTIONALIZATION

The American Water Works Association (“AWWA”) has accepted the base-extra capacity methodology; it is commonly used in the water utility industry. This is a methodology of functionalization, allocating costs to service functions, and distributing costs to customer classes. It recognizes the differences in the cost of providing service due to variations in average rate of use and peak rate of use by a customer class. This method also recognizes the effects of system diversity on costs. Generally, the three components of costs include:

- Base Costs
- Extra-Capacity Costs
- Customer Billing Costs

Base costs fluctuate with the total amount of water taken under average operating conditions. Extra-capacity costs are those costs incurred that are above the average operating conditions and are necessary to support peaking conditions. Customer billing costs are those costs associated with serving customers, such as meter reading and billing.

COST FUNCTIONALIZATION ANALYSIS

The project team thoroughly analyzed The District’s cost structure and functionalized the costs into appropriate categories. Table 11 presents the cost functionalization for the five-year study period.

Table 11: Cost Functionalization (Option 1).

	FY20	FY21	FY22	FY23	FY24
Base Costs of Service	\$1,405,101	\$1,427,773	\$1,646,792	\$1,711,853	\$1,778,294
Extra Capacity Costs of Service	1,148,210	1,170,297	1,211,776	1,272,480	1,345,731
Customer Costs of Service	<u>408,908</u>	<u>405,109</u>	<u>420,761</u>	<u>418,388</u>	<u>359,712</u>
	\$2,962,219	\$3,003,180	\$3,279,329	\$3,402,721	\$3,483,737



STEP 3: CUSTOMER COST ALLOCATION

CUSTOMER COST ALLOCATION BACKGROUND

The establishment of customer classes is important in setting equitable rates, so that costs designated for each class are appropriate. A customer class should include only those customers who:

- a. Are in similar location in relation to the utility;
- b. Use the same or similar facilities of the utility;
- c. Receive similar service from the utility;
- d. Place similar demands on the utility.

The objective of the distribution of costs to customer groups is to avoid cross-subsidization (inequities between customer classes). With this objective in mind, it is imperative to weigh all differences in service commitment and service requirements when determining the customer classes.

Once all appropriate customer classifications have been determined, the next step is to analyze usage patterns for each customer class. Usage analysis includes evaluating the average and peak usage for each customer class. Finally, the cost allocation to customer classes, based on relative usage patterns, is completed. Table 12 presents the cost allocations to customer classes. It is with these cost allocations that rates are designed.

Table 12: Customer Cost Allocation (Option 1).

	FY20	FY21	FY22	FY23	FY24
Residential	\$2,895,115	\$2,935,264	\$3,205,128	\$3,325,762	\$3,404,622
Commercial	<u>67,104</u>	<u>67,916</u>	<u>74,201</u>	<u>76,959</u>	<u>79,115</u>
	\$2,962,219	\$3,003,180	\$3,279,329	\$3,402,721	\$3,483,737



STEP 4: CUSTOMER GROWTH AND BILLING UNITS

CUSTOMER GROWTH

Population projections for a District should reasonably reflect anticipated future conditions within the District. Since there is little undeveloped land in the District, the project team assumed the District would only slightly grow during the study period.

Table 13: Projected Customer Count.

	FY20	FY21	FY22	FY23	FY24
Residential	2,983	2,991	2,998	3,004	3,009
Commercial	<u>51</u>	<u>51</u>	<u>51</u>	<u>51</u>	<u>51</u>
	3,034	3,042	3,049	3,055	3,060

BILLING UNIT PROJECTION

To anticipate usage for each customer classification requires an examination of historical billing units, also known as water consumption, to find the “normal” pattern for each class. Through a “normalized” average usage, per connection, per month, then multiplying the usage by the projected customer count, results in the estimated billing units and consumption. Assumed future consumption is presented on Table 14.

Table 14: Projected Water Consumption (Gallons).

	FY20	FY21	FY22	FY23	FY24
Residential	136,991,028	137,358,419	137,679,886	137,955,430	138,185,049
Commercial	<u>3,363,845</u>	<u>3,363,845</u>	<u>3,363,845</u>	<u>3,363,845</u>	<u>3,363,845</u>
	140,354,872	140,722,264	141,043,731	141,319,275	141,548,894



STEP 5: RATE DESIGN

There are many different rate design options regarding water rate development, however, the goal is to provide a fair and equitable rate for all customer classes, mitigate “rate-shock” on the District’s customers and allow for the water utility to move towards operating on a self-sustaining basis. Tables 15, 16 and 17 present rates and mill levy for the three different revenue recovery options.

Table 15: Water Rates and Mill Levy, Option 1 (Mill Levy Increase)

	Current	FY20	FY21	FY22	FY23	FY24
Monthly Minimum Charge	\$24.58	\$25.56	\$26.59	\$27.65	\$28.76	\$29.91
Volumetric Charge (per thousand gallons)						
1-3,000 Gallons	\$11.40	\$11.40	\$11.40	\$11.40	\$11.86	\$12.33
3,001-6,000 Gallons	\$14.25	\$14.25	\$14.25	\$14.25	\$14.82	\$15.41
6,001-10,000 Gallons	\$17.81	\$17.81	\$17.81	\$17.81	\$19.06	\$20.39
10,001-20,000 Gallons	\$26.71	\$26.72	\$28.58	\$30.58	\$32.72	\$35.01
20,001-30,000 Gallons	\$40.07	\$40.08	\$44.08	\$48.48	\$53.33	\$58.67
Over 30,001 Gallons	\$60.11	\$60.12	\$66.12	\$72.73	\$80.01	\$88.01
Tax Levy Assumption:						
Property Taxes - Debt Portion	\$1.9681	\$1.9681	\$1.9681	\$1.9681	\$1.9681	\$-
Property Taxes - O&M Portion	<u>2.3919</u>	<u>2.3919</u>	<u>2.8919</u>	<u>2.8919</u>	<u>3.3919</u>	<u>5.3600</u>
Total Property Taxes	\$4.3600	\$4.3600	\$4.8600	\$4.8600	\$5.3600	\$5.3600



Table 16: Water Rates and Mill Levy, Option 2 (No Mill Levy Increase)

	Current	FY20	FY21	FY22	FY23	FY24
Monthly Minimum Charge	\$24.58	\$26.05	\$27.62	\$29.28	\$31.03	\$38.48
Volumetric Charge (per thousand gallons)						
1-3,000 Gallons	\$11.40	\$11.40	\$11.40	\$11.86	\$12.80	\$13.83
3,001-6,000 Gallons	\$14.25	\$14.25	\$14.25	\$14.82	\$16.01	\$17.29
6,001-10,000 Gallons	\$17.81	\$17.81	\$17.81	\$19.06	\$20.96	\$23.06
10,001-20,000 Gallons	\$26.71	\$26.72	\$28.58	\$30.58	\$33.64	\$37.00
20,001-30,000 Gallons	\$40.07	\$40.08	\$44.08	\$48.48	\$54.30	\$60.82
Over 30,001 Gallons	\$60.11	\$60.12	\$66.12	\$72.73	\$81.46	\$91.24
Tax Levy Assumption:						
Property Taxes - Debt Portion	\$1.9681	\$1.9681	\$1.9681	\$1.9681	\$1.9681	\$-
Property Taxes - O&M Portion	<u>2.3919</u>	<u>2.3919</u>	<u>2.3919</u>	<u>2.3919</u>	<u>2.3919</u>	<u>2.3919</u>
Total Property Taxes	\$4.3600	\$4.3600	\$4.3600	\$4.3600	\$4.3600	\$4.3600



Table 17: Water Rates and Mill Levy, Option 3 (No Mill Levy Increase, Rates Equal to Option 1)

	Current	FY20	FY21	FY22	FY23	FY24
Monthly Minimum Charge	\$24.58	\$25.56	\$26.59	\$27.65	\$28.76	\$29.91
Volumetric Charge (per thousand gallons)						
1-3,000 Gallons	\$11.40	\$11.40	\$11.40	\$11.86	\$12.33	\$12.82
3,001-6,000 Gallons	\$14.25	\$14.25	\$14.25	\$14.82	\$15.41	\$16.03
6,001-10,000 Gallons	\$17.81	\$17.81	\$17.81	\$19.06	\$20.39	\$21.82
10,001-20,000 Gallons	\$26.71	\$28.58	\$30.58	\$32.72	\$35.01	\$37.46
20,001-30,000 Gallons	\$40.07	\$44.08	\$48.48	\$53.33	\$58.67	\$64.53
Over 30,001 Gallons	\$60.11	\$66.12	\$72.73	\$80.01	\$88.01	\$96.81
Tax Levy Assumption:						
Property Taxes - Debt Portion	\$1.9681	\$1.9681	\$1.9681	\$1.9681	\$1.9681	\$-
Property Taxes - O&M Portion	<u>2.3919</u>	<u>2.3919</u>	<u>2.3919</u>	<u>2.3919</u>	<u>2.3919</u>	<u>2.3919</u>
Total Property Taxes	\$4.3600	\$4.3600	\$4.3600	\$4.3600	\$4.3600	\$2.3919
Revenue Requirement Over/(Short)		\$30,157	\$(77,715)	\$(197,343)	\$(303,011)	\$(789,831)

These three options were presented to the District’s Board of Directors on July 25, 2019. After careful consideration, the Board opted to move forward with the rates outlined in Option 3. While the rate model indicates a potential “shortfall” of revenues by FY2024, the Board determined that this is the most prudent course of action at this time. The District will not operate with any shortfall. Rather, the District will continually monitor actual financial performance, actual construction costs and debt issuances as part of the District’s annual budgeting process and make necessary adjustments in spending to ensure the District meets all actual operating revenue requirements. In addressing the potential shortfall, the District may utilize one or more of the following strategies:

1. Pursue grant funding for capital projects, thereby reducing future annual debt service.
2. Reduce annual capital spending and/or delay capital projects.
3. Reduce other annual expenditures as possible.
4. Potentially evaluate future tax rate increases, if and only if, no other options are available to meet capital program needs and reduce costs.

El Dorado WSD
 Water Utility
 Cost of Service and Rate Design Study



Schedule 1
 Total District Revenue Requirements
 FINAL

	FY20	FY21	FY22	FY23	FY24
Expenses					
Payroll and Benefits	301,000	311,600	322,600	333,900	345,600
Travel - Employees	750	800	900	1,000	1,100
Worker's Compensation	-	-	-	-	-
Maintenance & Repair	15,000	15,200	15,400	15,600	15,800
Contract - Audit	32,500	33,000	33,500	34,700	36,000
Contract - Attorney Fees	37,500	37,900	38,300	38,700	39,100
Contract - Professional Services	310,000	316,200	322,600	329,100	335,700
Contract - OMI	1,350,000	1,383,800	1,418,400	1,453,900	1,490,300
Contract - Other Services	88,000	88,900	89,800	90,700	91,700
Software	2,750	2,800	2,900	3,000	3,100
Supplies - General Office	5,000	5,100	5,200	5,300	5,400
Supplies - Field Supplies	12,000	12,200	12,400	12,600	12,800
Supplies - Furniture/Equipment (Non-Capital)	25,000	25,300	25,600	25,900	26,200
Supplies - Other	5,100	5,200	5,300	5,400	5,500
Election Costs	1,000	-	-	2,400	-
Employee Training	1,900	2,000	2,100	2,200	2,300
Insurance - General Liability/Property	50,500	52,100	53,700	55,400	57,100
Postage	250	300	400	500	600
Printing/Publishing/Advertising	8,000	8,100	8,200	8,300	8,400
Property Tax Administration Fees	-	-	-	-	-
Rent of Equipment/Machinery	8,500	8,800	9,100	9,400	9,700
Rent of Land/Building	-	-	-	-	-
Subscriptions & Dues	2,500	2,600	2,700	2,800	2,900
Telecommunications	14,000	14,200	14,400	14,600	14,800
Utilities - Electricity	98,000	99,000	100,000	101,000	102,100
Other Operating Costs	15,000	15,200	15,400	15,600	15,800
Existing Debt, Sinking Fund Contributions, Projected					
Future Debt Service, Times Coverage to be Funded by					
Rates	1,604,644	1,770,135	1,958,181	2,170,034	1,805,964
Rehab and Replacement Cash Funding	300,000	250,000	94,297	75,305	415,564
Purchased Water	-	-	241,809	241,809	241,809
Production Cost Savings	-	-	(72,281)	(74,450)	(76,683)
Debt Service - Principal Payments					
Debt Service - Interest Payments					
Total Operating Expenses and Debt Payments	\$ 4,288,894	\$ 4,460,435	\$ 4,720,906	\$ 4,974,698	\$ 5,008,654
Revenue-Off Sets					
Utility Connection Fees	\$ 135,000	\$ 120,000	\$ 105,000	\$ 90,000	\$ 75,000
Miscellaneous Fees	-	-	-	-	-
Billing Adjustments	(128,750)	(132,613)	(136,591)	(140,689)	(144,909)
Other Income	-	-	-	-	-
Interest Income	20,000	20,000	20,000	20,000	20,000
Total Revenue Off-Sets	\$ 26,250	\$ 7,388	\$ (11,591)	\$ (30,689)	\$ (49,909)
TOTAL REVENUE REQUIREMENTS	\$ 4,262,644	\$ 4,453,047	\$ 4,732,497	\$ 5,005,387	\$ 5,058,563