LAKE ARROWHEAD COMMUNITY SERVICES DISTRICT

2022 Water and Sewer Rate Study

Final Report

January 25th, 2022

LAKE ARROWHEAD COMMUNITY SERVICES DISTRICT
2022 WATER AND SEWER RATE STUDY

FINAL REPORT

Prepared for:

Lake Arrowhead Community Services District
27307 State Hwy. 189
Blue Jay, CA 92317

Prepared by:

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RDN Project Number 311

January 25, 2022

Mr. John Obrien

Finance Manager
Lake Arrowhead Community Services District
27307 State Hwy. 189
Blue Jay, CA 92317

Subject: 2022 Water and Sewer Rate Study

Dear Mr. OBrien,

Robert D. Niehaus, Inc. is pleased to provide this Financial Planning, Revenue Requirements, Cost of Service, and Rate Setting Analysis report to the Lake Arrowhead Community Services District. This rate study includes a financial plan to determine the revenue requirements for the next five years and a comprehensive review of the District's current rates based on the cost of service principles. This report outlines the approach, methodology, findings, and recommendations of the study. The report also includes an extensive customer billing impact study. Each of the components of this study has enhanced the equitability of the rates we propose.

The proposed rates were developed utilizing the District's customer usage data, billing records, accounting, operating and management records, capital plan, and reserve policies. Based on the District provided data, key assumptions were made for the study using appropriate resources and our econometric and financial expertise. We are confident that the rates proposed in this report are cost-based and are fully compliant with Proposition 218 and other legal requirements.

It has been an absolute pleasure and honor to work with your District. We thank you, Ms. Catherine Cerri, and the Board of Directors for the support provided during this study.

Respectfully submitted,

Robert D. Niehaus, Ph.D.

Managing Director/Principal Economist

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Program Manager/Sr. Financial Analyst

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EXECUTIVE SUMMARY

Study Overview

Lake Arrowhead Community Services District (District, LACSD) retained Robert D. Niehaus, Inc. (RDN) to develop a comprehensive water and sewer rate study, which includes financial planning, revenue requirements, cost of service, and rate-setting analyses (Study). The District consists of four enterprises, one sewer service and three water services: Arrowhead Woods, Deer Lodge Park (DLP), and Rimforest. The overall goal of this Study is to develop a financial plan and identify necessary revenue adjustments to meet the District's financial needs, and design rates that recover the costs from ratepayers commensurate with their service requirements. RDN collaborated with LACSD staff to evaluate each utility's financial stability given the District's current and future financial conditions, and amend the District's current rates to improve equity, promote water use efficiency, and ensure compliance with Proposition 218 (Prop 218) requirements and other legal mandates.

The objectives of the Study include:

1. Evaluating the regulatory environment and performing a comprehensive review of all relevant District documents,
2. Prioritizing capital improvement projects (CIPs) and adjusting the timing of project execution to mitigate rate impacts on customers,
3. Projecting system operating costs and capital costs as well as water sales for the 10-year financial planning period,
4. Developing ten-year financial plans for the District's water and sewer systems to ensure financial sufficiency to fund day-to-day operation and maintenance, capital improvement, and replacement projects while maintaining the District's target reserve levels,
5. Conducting a Cost of Service (COS) analysis to equitably allocate the costs of providing service to customers in accordance with Prop 218,
6. Designing rates based on the results of COS analysis to establish a strong nexus between costs and pricing of rates,
7. Performing a bill impact study to minimize the impact on customers while ensuring sufficient revenue recovery, and
8. Developing an administrative record that effectively communicates the Study's findings.

The District's three water systems and the sewer system keep separate accounting and budgets; therefore, individual systems must be self-sustaining with revenues to cover all operating and capital expenses. RDN designed rates that accomplish this goal for each system. A brief outline of the financial recommendations for each system follows.

Arrowhead Woods Water System

Arrowhead Woods water system currently serves 8,343 accounts and is the only system of the three water systems to qualify as an Urban Water Supplier. The system has three water sources: Lake Arrowhead, imported water from Silverwood Lake via two Crestline-Lake Arrowhead Water Agency (CLAWA) connections, and groundwater from five wells in Grass Valley Basin. The last rate study was done in 2015, and the rates have been adjusted annually according to the recommendations in the Study.

The following concerns were considered during the rate-making process and incorporated into the proposed water rates for FY 2021-22 through FY 2025-26:

- Creating customer class specific fixed rates reflecting the cost of service allocations for the particular cost components of each customer class,
- Developing a second tier for commercial and institutional customer's volumetric rates to further improve equity between large users and small users,
- Confirming that the tier widths for Residential customers' volumetric charges reflect usage patterns of median users (Tier 1), the 75th percentile of summer use (Tier 2), and the upper bound of summer use (Tier 3)
- Aligning meter ratios to match AWWA recommendations to provide a basis for cost allocations based on different levels of service requirements between meter sizes

Financial Overview

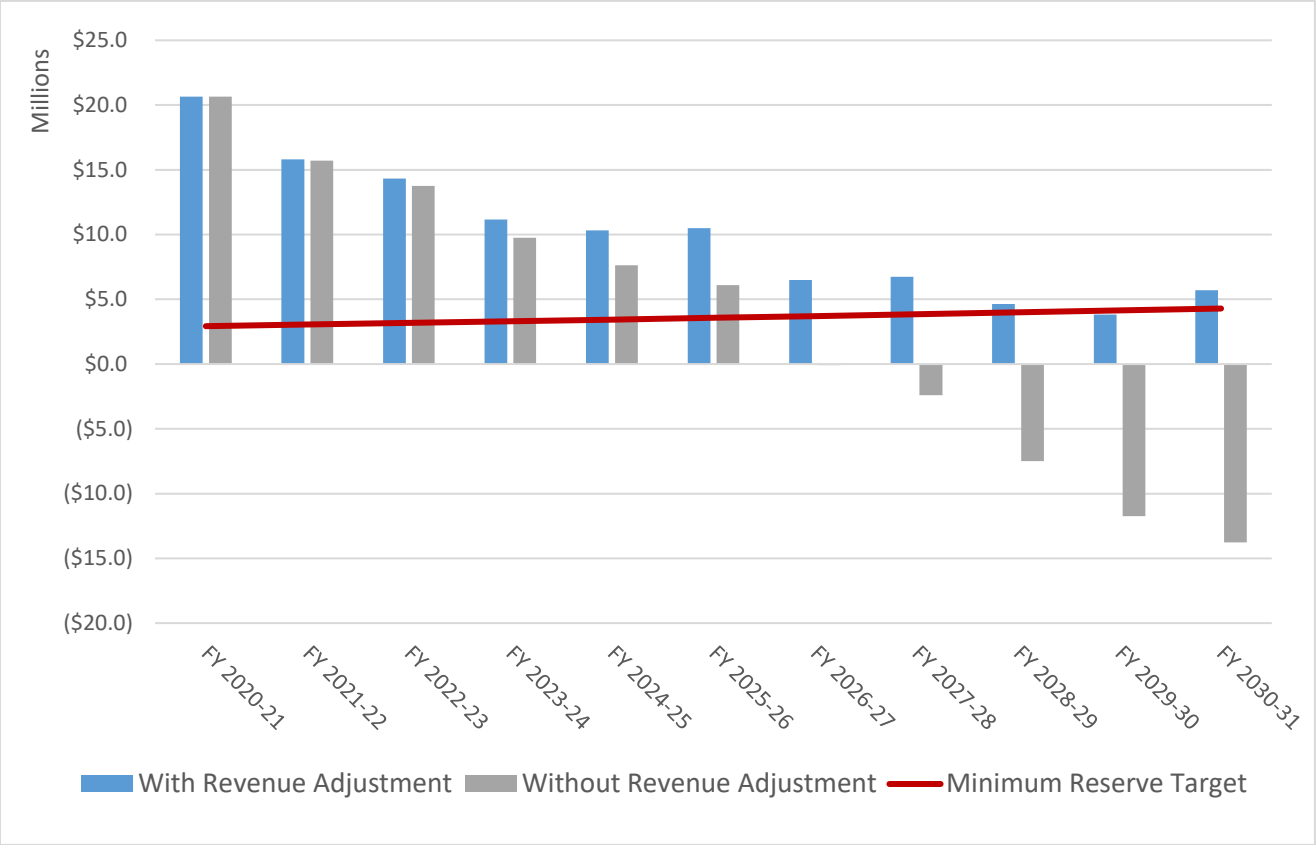
In collaboration with the District's staff, RDN determined that the necessary revenue adjustments for the Arrowhead Woods system during the five-year study period are as follows:

Table ES- 1. Proposed Revenue Adjustments for the Arrowhead Woods Water System, FY 2021-22 – FY 2025-26

	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
Revenue Adjustment	**5.02%**	**5.02%**	**5.02%**	**5.02%**	**5.02%**

With the proposed revenue adjustments, the system will have sufficient funding to execute all the capital improvement projects in the planning horizon and meet the District's cash reserve policy. Figure ES- 1 presents an annual change of reserve levels with or without proposed revenue adjustments for the next ten years.

Figure ES- 1. Cash Reserve Balance with or without Proposed Revenue Adjustments, FY 2020-21 – FY 2030-31



Note: for planning purposes, required revenue adjustments for FY 2026-27 through FY 2030-31 are estimated at approximately 4.0 percent.

Current Water Rates

Currently, all customers with a 5/8-inch meter or a 3/4-inch (the most common meter sizes District-wide) pay a fixed service charge of $44.51 per month. Additionally, customers are billed volumetric rates for all water use, which vary depending on the customer classes. Table ES- 2 shows the current monthly service charge by meter size for all customers.

Table ES- 2. Current Fixed Water Rates

Fixed Charges	Current
5/8-in	$44.51
3/4-in	$44.51
1-in	$109.04
1 1/2-in	$218.10
2-in	$348.51
3-in	$697.43
4-in	$1,089.53
6-in	$2,179.09

Residential customers are billed based on a four-tiered rate structure, and Commercial and Irrigation customers are billed based on a single-tiered rate structure. Table ES-3 shows the current volumetric rates by customer class.

Table ES- 3. Current Variable Water Rates

Volumetric (Per HCF)	Widths	Current		
		RES	COM & INS	IRR
Tier 1	0 - 4	$1.39	$4.32	$7.90
Tier 2	5 - 13	$2.64	$4.32	$7.90
Tier 3	14 - 30	$7.82	$4.32	$7.90
Tier 4	31 +	$16.30	$4.32	$7.90

Proposed Water Rates

The proposed volumetric rates and fixed charges vary by customer class based on their service requirements. The allotment of water for different tiers varies depending on the usage pattern each customer class demonstrates. Table ES-4 shows the proposed fixed charges by customer class for the test year, FY 2021-22.

Table ES- 4. Proposed Fixed Water Rates, FY 2021-22

Fixed Charges	Proposed		
	RES	COM & INS	IRR
5/8-in	$47.03	$50.37	$52.99
3/4-in	$47.03	$50.37	$52.99
1-in	$94.00	$96.72	$96.66
1 1/2-in	$182.33	$187.75	$187.64
2-in	$288.31	$296.99	$296.82
3-in	$535.61	$551.89	$551.56
4-in	$888.90	$916.03	$915.49
6-in	$1,772.11	$1,826.39	$1,825.29

Table ES-5 shows the proposed volumetric rates by customer class. Residential customers have four tiers, Commercial and Institutional customers have two tiers, and Irrigation customers are billed a uniform rate.

Table ES- 5. Proposed Variable Water Rates, FY 2021-22

Volumetric (Per HCF)	Proposed					
	Widths	RES	Widths	COM & INS	Widths	IRR
Tier 1	0 - 4	$1.54	0 - 40	$4.54	All Use	$8.33
Tier 2	5 - 13	$2.77	40 +	$8.86		
Tier 3	14 - 30	$8.27				
Tier 4	31 +	$16.87				

Private Fire Protection

In addition to the standard customer classifications, Arrowhead Woods also bills Private Fire Protection meters based on their service requirements. The proposed fixed charges are shown in Table ES- 6.

Table ES- 6. Proposed Private Fire Protection Rates

Fixed Charges	Proposed Fire
5/8-in	-
3/4-in	-
1-in	$14.34
1 1/2-in	$23.01
2-in	$33.40
3-in	$57.66
4-in	$92.31
6-in	$178.93

Deer Lodge Park Water System

The Deer Lodge Park (DLP) water system serves 216 connections outside the Arrowhead Woods service area. DLP customers receive water from groundwater wells and one established connection to CLAWA. During the rate-making process, the following recommendations were considered and incorporated into the proposed water rates:

- Removing volumetric charges from private fire protection customers in the revenue calculation as the service accounts use water only in emergencies, and
- Aligning meter ratios to match AWWA recommendations to provide a basis for increasing costs between meter sizes

Financial Overview

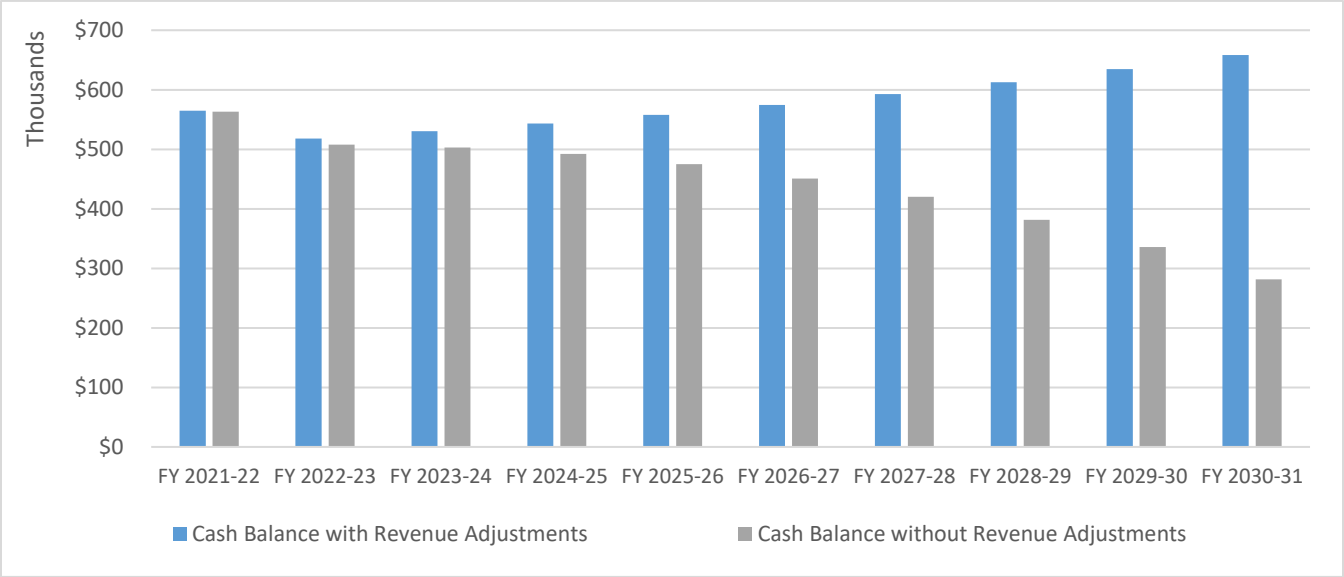
In collaboration with District staff, RDN determined that the necessary revenue adjustments for the DLP water system during the five-year study period are as follows:

Table ES- 7. Proposed Revenue Adjustments for the Deer Lodge Park Water System, FY 2021-22 – FY 2025-26

	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
Revenue Adjustment	**3.50%**	**3.50%**	**3.50%**	**3.50%**	**3.50%**

With the proposed revenue adjustments, the District will meet its reserve target and execute two capital improvement projects scheduled in FY 2022-23. Figure ES- 2 presents the annual change of reserve levels with or without proposed revenue adjustments for the next ten years. Because DLP doesn't have an explicit CIP plan, building a sufficient reserve balance for unforeseeable repairs and replacements is important to provide safe service to its customers.

Figure ES- 2. Cash Reserve Balance with or without Proposed Revenue Adjustments



Note: for planning purposes, required revenue adjustments for FY 2026-27 through FY 2030-31 are estimated at approximately 3.5 percent.

Current Water Rates

There is only one customer class in the DLP service area. Within the Residential customer class, there are meter sizes between 5/8-inch and 2-inch and private fire protection meters ranging from 1-inch to 6-inches in diameter. The current rates for all meter sizes are shown in Table ES-8.

Table ES- 8. Current Fixed Water Rates

Fixed Charges	Current	
	RES	FIRE
5/8-in	$44.51	
3/4-in	$44.51	
1-in	$109.04	$15.03
1 1/2-in	$218.10	$19.81
2-in	$348.51	$22.24
3-in		$34.85
4-in		$46.54
6-in		$64.27

The current volumetric rates include two tiers for residential use and four tiers for fire use. Table ES-9 shows the current tier widths and rates for DLP customers.

Table ES- 9. Current Volumetric Water Rates

Volumetric (per HCF)	Widths	RES	Widths	Fire
Tier 1	0 - 10	$4.10	0 - 4	$1.39
Tier 2	10 +	$4.90	5 - 13	$2.64
Tier 3			14 - 30	$7.82
Tier 4			31 +	$16.30

Proposed Water Rates

The proposed volumetric rates and fixed charges retain the current rate structure, except that meter charges are set to reflect equivalent meter ratios provided by the AWWA M1 Manual. Additionally, fire meters will no longer be charged a volumetric rate. Table ES-10 shows the proposed fixed and volumetric rates for DLP customers.

Table ES- 10. Proposed Water Rates, Deer Lodge Park

Fixed Charges	Proposed	
	RES	Fire
5/8-in	$45.04	
3/4-in	$45.04	
1-in	$105.76	$14.38
1 1/2-in	$206.96	$24.21
2-in	$328.40	$36.00
3-in		$63.51
4-in		$102.82
6-in		$201.07

Volumetric (per HCF)	Widths	Rate
Tier 1	0 - 10	$4.87
Tier 2	10 +	$5.78

Rimforest Water System

In 2014, LACSD formally incorporated the area known as Rimforest into its water operations. The Rimforest water system serves approximately 300 connections, consisting of Residential and Commercial customers. The system receives its water through one connection to CLAWA and has one reservoir. Rimforest has not increased its rates since 2017. To maintain efficient service, Rimforest will need to add a second storage tank and eventually a new well. The system expects to receive a $3.0 million grant from the California Drinking Water State Revolving Fund administered by the State Water Resources Control Board to cover some of these costs. The following recommendations were considered during the rate-making process and incorporated into the proposed water rates:

- Adding a Commercial customer class to improve equity among customers when allocating different types of costs,
- Creating fixed rates that vary depending on customer class based on specific service requirements each customer class places on the system,

- Developing a second variable usage tier for all customer classes to improve equity and promote efficient water use, and
- Aligning meter ratios to match AWWA recommendations to provide a basis for differential costs between meter sizes.

Financial Overview

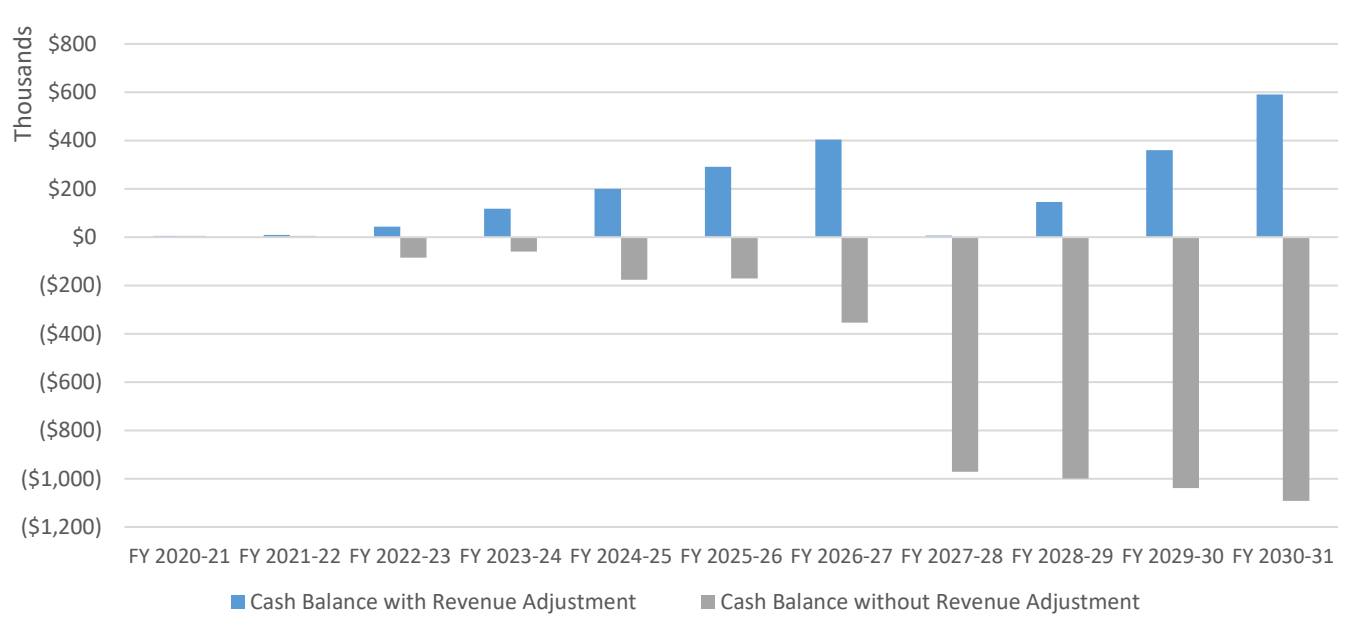
In collaboration with District staff, RDN determined that the necessary revenue adjustments for the water system during the five-year study period are as follows:

Table ES- 11. Proposed Revenue Adjustments for the Water System, FY 2021-22 – FY 2025-26

FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
20.00%	19.50%	5.00%	5.00%	5.00%

With the proposed revenue adjustments, the system will eliminate the operating deficit and build reserves to $290,000 by the end of FY 2025-26. Figure ES- 3 presents the annual change of reserve levels with or without proposed revenue adjustments for the study period.

Figure ES- 3. Cash Reserve Balance with or without Proposed Revenue Adjustments



Note: for planning purposes, required revenue adjustments for FY 2026-27 through FY 2030-31 are estimated at approximately 5.0 -6.0 percent.

Current Water Rates

Currently, a customer with a 3/4-inch meter (the most common meter size for Rimforest) pays a fixed service charge of $49.73. Additionally, the customer is billed a volumetric rate of $5.10 per hcf for all water use. Table ES-12 shows the current water rates by meter size. All customers use the same rate schedule.

Table ES- 12. Current Water Rates

Fixed Charges	Current
3/4-in	$49.73
1-in w/Fire	$56.69
1-in	$90.70
1 1/2-in	$114.27
2-in	$146.60
3-in	$242.46
4-in	$321.93
6-in	$530.37
Volumetric Charges	**Current**
All Use	$5.10

Proposed Water Rates

The proposed volumetric rates and fixed charges vary by customer class because of the service requirement differences in the system. The allotment of water for each tier varies depending on the usage pattern each customer class demonstrates. Additionally, the volumetric portion of fire customers' rates has been removed, and all applicable costs have been allocated to the fixed charges. Tables ES-13 through ES-15 show the proposed fixed and volumetric rates by customer class.

Table ES- 13. Proposed Fixed Rates

Fixed Charges	Proposed		
	RES	COM	Fire
3/4-in	$54.95	$63.02	
1-in w/Fire	$88.13	$101.58	
1-in	$88.13	$101.58	
1 1/2-in	$171.08	$197.98	
2-in	$270.61	$313.66	
3-in	$502.86	$583.57	
4-in	$834.65	$969.16	$113.64
6-in	$1,664.12	$1,933.14	$222.11
8-in			$352.26

Table ES- 14. Proposed Volumetric Rates, Residential

Volumetric per CCF	Widths	Proposed
Tier 1	0 - 5	$5.40
Tier 2	5 +	$8.30

Table ES- 15. Proposed Volumetric Rates, Commercial

Volumetric	Proposed	
per CCF	Widths	Rate
Tier 1	0 - 18	$8.28
Tier 2	18 +	$11.22

Sewer System

The primary goal of the sewer system financial plan was to maintain the long-term financial stability of the District's sewer system. A CPI-based adjustment that follows general inflationary trends is recommended to ensure that fund levels will be maintained. There are no suggested changes to the rate structure design in the proposed financial plan as customer sewer usage dispositions have remained steady since the previous rate study.

Financial Overview

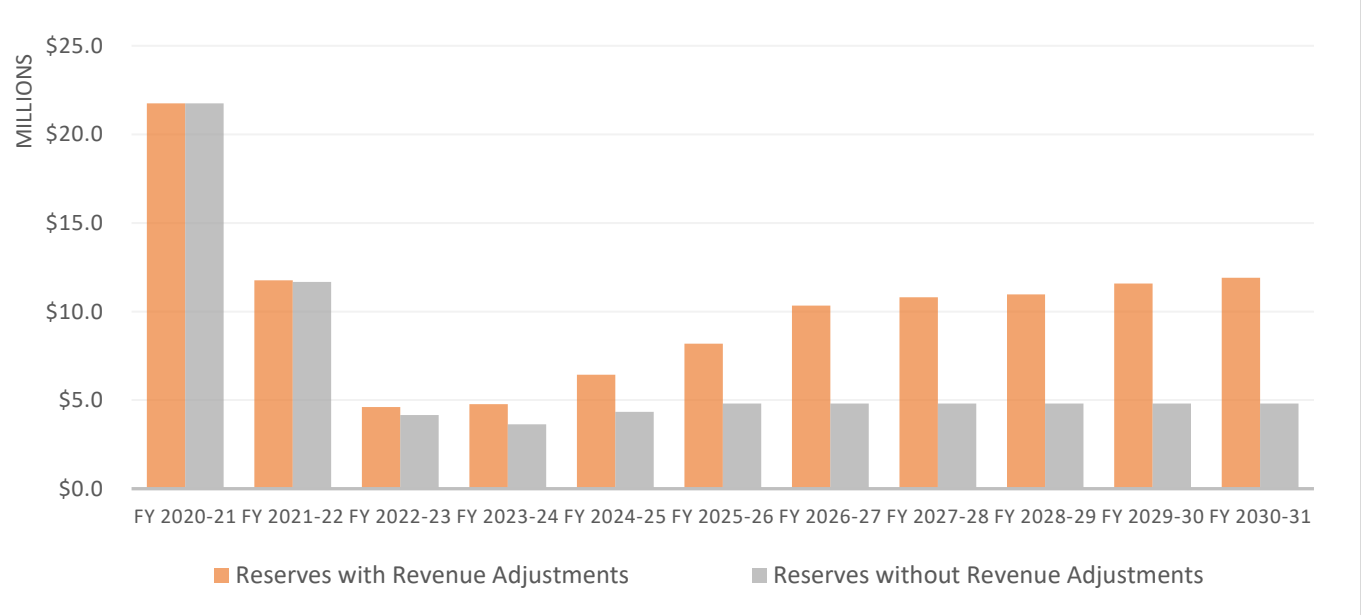
In collaboration with District staff, RDN determined that the necessary revenue adjustments needed to meet the District's financial goals for the next five years are as follows:

Table ES- 16. Proposed Revenue Adjustments for the Water System, FY 2021-22 – FY 2025-26

Sewer	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
Revenue Adjustment	**3.60%**	**3.60%**	**3.60%**	**3.60%**	**3.60%**

With the proposed revenue adjustments, the system will execute all capital projects scheduled for the next ten-year financial planning period. Figure ES- 4 presents the annual change of reserve levels with or without proposed revenue adjustments for the next ten years.

Figure ES- 4. Cash Reserve Balance with or without Proposed Revenue Adjustments



Note: for planning purposes, required revenue adjustments for FY 2026-27 through FY 2030-31 are estimated at approximately 3.6 percent.

Current Sewer Rates

The current sewer rates were established based on the service requirements of each customer class (Residential or Commercial). Each connection pays a fixed service charge of $55.40 per month regardless of the customer class. Commercial customers also pay volumetric rates on all units of water use greater than five hundred cubic feet (CCF). The current volumetric rate is $8.01 per CCF.

Table ES- 17. Current Sewer Rates

Fixed Charges	Current
Residential	$55.40
Commercial	$55.40
Volume Fee > 5 CCF	**Current**
Commercial	$8.01

Proposed Sewer Rates

The proposed volumetric rate and fixed charge retain the current rate structure. All connections are billed a monthly fixed charge of $55.72, and Commercial customers are charged a volumetric fee of $8.34 for each unit of use greater than five CCF. All The proposed rates reallocate the District's costs based on a detailed cost of service analysis which increases customer equity by allocating costs based on the relative wear each customer puts on the system.

Table ES- 18. Proposed Sewer Rates

Fixed Charges	Current	Proposed
Residential	$55.40	$55.72
Commercial	$55.40	$55.72
Volume Fee > 5 CCF		
Commercial	$8.01	$8.34

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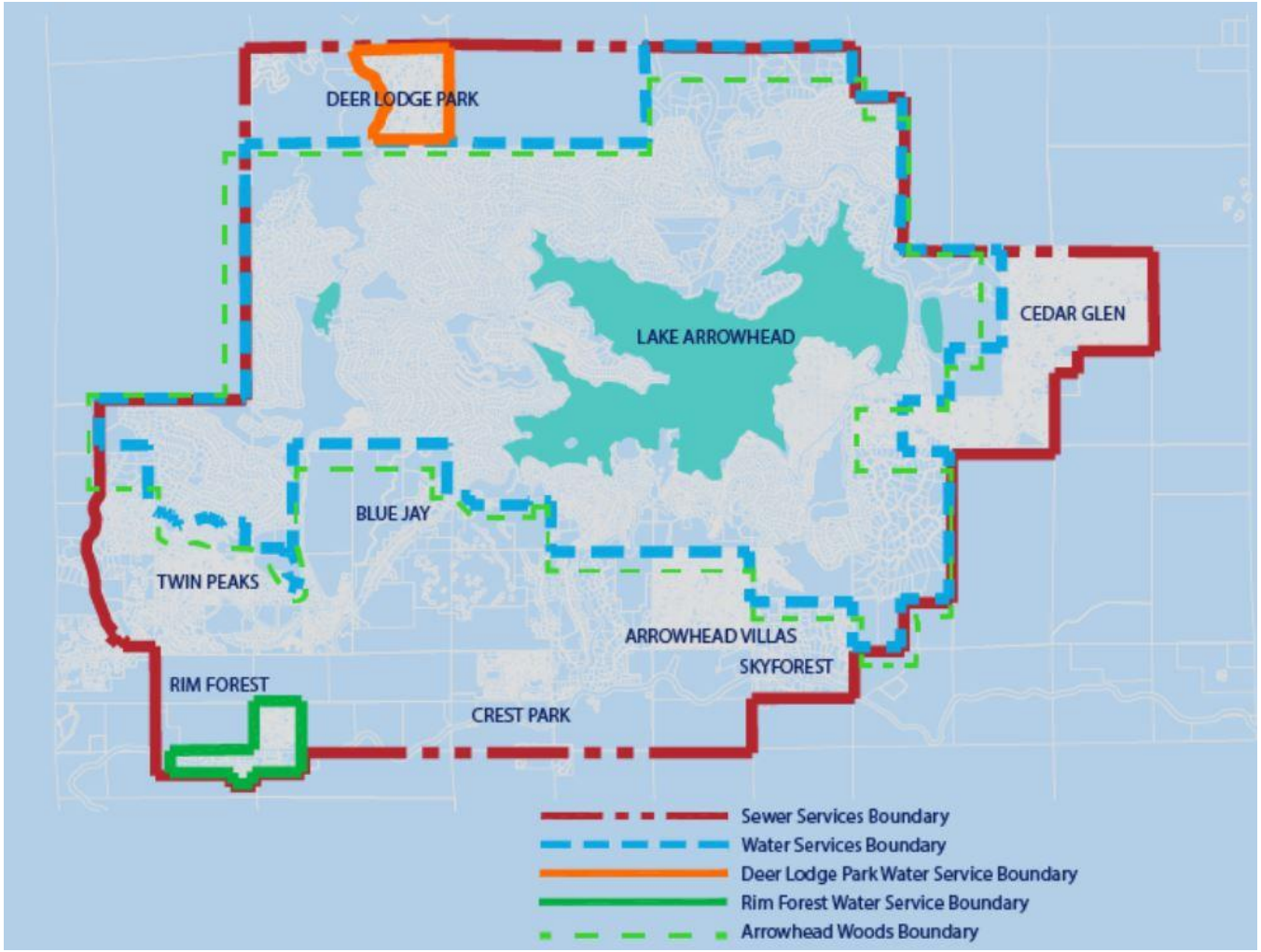
1 INTRODUCTION

1.1 About LACSD

Lake Arrowhead is an unincorporated community in the southwestern corner of San Bernardino County. Located in the San Bernardino National Forest, it is north of the city of San Bernardino, approximately 80 miles east of Los Angeles. LACSD was formed in 1978 and serves about 8,850 water customers in three distinct enterprises: Arrowhead Woods, Deer Lodge Park, and Rimforest. In addition, the District provides sewer service to roughly 10,500 customers. These services are provided by operating two water treatment plants, 19 water pumping stations, two wastewater treatment plants, 21 wastewater pumping stations, 20 reservoir tanks, and several hundred miles of pipelines. LACSD's service area boundary encompasses approximately 15 square miles and ranges in elevation from 4,500 feet to over 6,000 feet. As a resort area, the District's commercial establishments are oriented towards tourists and seasonal residents. Approximately half of the residential dwelling units in the area are second homes. Figure 1-1 shows LACSD's current service area.

Figure 1-1. Lake Arrowhead Community Services District Service Area



1.2 Legal Framework

The primary goal of this study is to help LACSD establish rate structures that achieve the District's objectives of revenue stability, equitable cost recovery, and ratepayer affordability. This section of the report describes the legal framework considered in developing the rates to ensure that the calculated cost of service rates provide a fair and equitable allocation of costs to the different customer classes. Article XIII C (Proposition 26), Article XIII D, Section 6 (Proposition 218), and Article X, Section 2 of the California Constitution govern the principles applicable to this rate study.

California Constitution – Article XIII C (Proposition 26)

The application of Proposition 26 in the structuring of water rates is presently undetermined. The San Juan Capistrano decision briefly touched upon one aspect of the Article XIII C provisions enacted by Proposition 26, finding that tiered water charges would not appropriately be characterized as penalties. Other aspects of the application of Proposition 26 to tiered rate structures may be addressed in future judicial decisions and legislative enactments.

The voters in the State approved Proposition 26 on November 2, 2010. Proposition 26 amended Article XIII C of the State Constitution to expand the definition of "tax" to include "any levy, charge, or exaction of any kind imposed by a local government" with listed exceptions. By means of these exceptions, Article XIII C classifies several types of charges, in addition to property-related charges, that are not taxes, such as charges for specific services or benefits, regulatory charges and penalties.

Article XIII C's definition of "tax" lists the following exceptions: (1) a charge imposed for a specific benefit conferred or privilege granted directly to the payer that is not provided to those not charged, and which does not exceed the reasonable costs to the local government of conferring the benefit or granting the privilege; (2) a charge imposed for a specific government service or product provided directly to the payer that is not provided to those not charged, and which does not exceed the reasonable costs to the local government of providing the service or product; (3) a charge imposed for the reasonable regulatory costs to a local government for issuing licenses and permits, performing investigations, inspections, and audits, enforcing agricultural marketing orders, and the administrative enforcement and adjudication thereof; (4) a charge imposed for entrance to or use of local government property, or the purchase, rental, or lease of local government property; (5) a fine, penalty, or other monetary charge imposed by the judicial branch of government or a local government, as a result of a violation of law; (6) a charge imposed as a condition of property development; and (7) assessments and property-related fees imposed in accordance with the provisions of Article XIII D.

Proposition 26 also provides that the local government bears the burden of proving by a preponderance of the evidence that a levy, charge, or other exaction is not a tax, that the amount is no more than necessary to cover the reasonable costs of the governmental activity, and that the manner in which those costs are allocated to a payer bear a fair or reasonable relationship to the payer's burdens on, or benefits received from, the governmental activity. Like the proportionality requirements of Article XIII D, assessment of rates under these requirements, if applicable, would be supported by the cost of service approach.

California Constitution – Article XIII D, Section 6 (Proposition 218)

In November 1996, California voters passed Proposition 218, the "Right to Vote on Taxes Act." This constitutional amendment protects taxpayers by limiting the methods by which local governments can create or increase taxes, fees and charges without taxpayer consent. Between 2002 and 2017, California courts have ruled that fees associated with providing water services are "property-related" and thus under the jurisdiction of Prop 218. The principal requirements for fairness of the fees, as they relate to public water service, are as follows:

1. Revenues derived from the fee or charge shall not exceed the funds required to provide the property related service
2. Revenues derived by the fee or charge shall not be used for any other purpose other than that for which the charge was imposed
3. The amount of the fee or charge imposed upon any parcel shall not exceed the proportional cost of service attributable to the parcel
4. Reliance by an agency on any parcel map, including, but not limited to, an assessor's parcel map, may be considered a significant factor in determining whether a fee or charge is imposed as an incident of property ownership for purposes of this article

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

California Constitution – Article X, Section 2

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

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

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

1.3 Methodology

RDN's water rate-making practices incorporate methods described in the American Water Works Association (AWWA) Principles of Water Rates, Fees, and Charges Manual of Water Supply Practices Manual 1 (M1). This Study uses the base-extra capacity method built on cost of service principles, in which the costs are distributed to customers commensurate with their service requirements. The cost of service analysis and rates for the District's Sewer system are consistent with the guidelines detailed in the Water Environment Federation (WEF) Manual of Practice No. 27 Financing and Charges for Wastewater Systems (MOP #27).

The methodology of this Study is broken into four steps which outline the basic procedures of rate-setting norms.

1. **Demand Projection**: project water/sewer demand for the five-year study period, FY 2021-22 through FY 2025-26, using District customers' historical usage/account data. Forecast revenues for the study period based on the projected water and sewer demand

2. **Financial Planning/Revenue Requirements**: develop a five-year financial plan based on the projected revenues and annual costs, including operating and capital expenses. The District's target reserve levels are also considered part of the financial planning. Based on the financial planning, revenue requirements, and necessary revenue, the appropriate adjustments are determined for each year of the study period
3. **Cost of Service (COS) Analysis**: perform a COS analysis to allocate costs among the customers commensurate with their service requirements. For the water systems, proportionate allocation of costs must consider not only the relative quantity of water used by a customer but also the peak rate at which it is consumed. Flows (Volumes) and strengths of discharges are commonly used to allocate costs to sewer customers proportionally. Determine cost allocation among different types of users based on the demands they impose on the utility
4. **Rate Setting Analysis**: design rates to equitably recover the rate revenue requirements from each customer given the projected customer demand identified resulting from the COS analysis

1.4 Key Assumptions

A test year, FY 2021-22, was selected for which costs are to be analyzed and rates to be established for this study. The financial plan was built for the next ten years, including the five-year study period FY 2021-22 through FY 2025-26 with a detailed revenue adjustment plan. The District's fiscal year starts on July 1 and ends on June 30.

Escalation Factors

The financial plan was built based on an assumption in the projected escalation of revenues and expenses associated with both operations and maintenance (O&M) and capital improvement projects (CIPs). Escalation factors were calculated for seven independent variables using historical Consumer Price Index (CPI) data from Riverside-San Bernardino-Ontario, CA, between the year 2000 and the most current calendar year[1], and projections by the California Department of Transportation (CADOT) [2] and the California Department of Finance (CADOF). Construction costs were determined using a 5-year average building cost index (BCI) for the Los Angeles area published by Engineering News Record (ENR)[3]. Additionally, property tax increases were charted using audited financial statements published by the County of San Bernardino. All escalation factors were developed by calculating an average growth rate and projecting that rate into future years. Non-recurring expenses (one-time expenses) and acted service expenses are not escalated. Figure 1-2 and Figure 1-3 display escalation factors estimated for LACSD for the study period.

[1] Bureau of Labor Statistics (2021) *Consumer Price Indices 2000-2021 Riverside– San Bernardino – Ontario, Not Seasonally Adjusted.*
[2] California Department of Transportation (2021) *Monthly CPI for transportation, 20 Year Average.*
[3] Engineering News Record (2021) *Los Angeles Building Cost Index, Average Annual Change.*

Figure 1-2. Revenue Escalation Factors Estimated for LACSD, FY 2021-22 - FY 2030-31

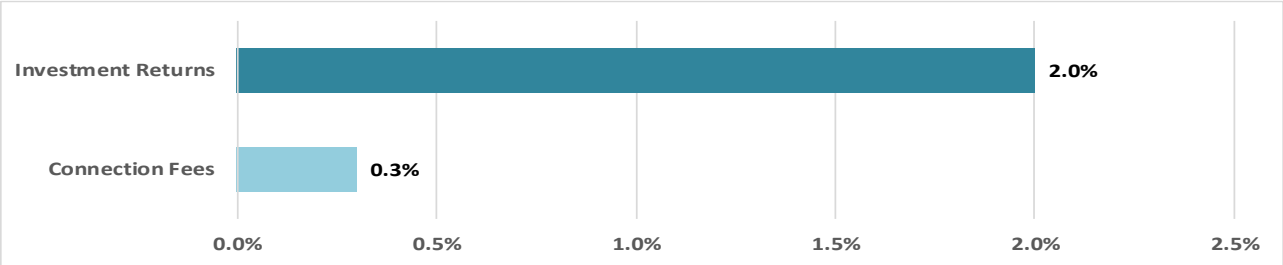
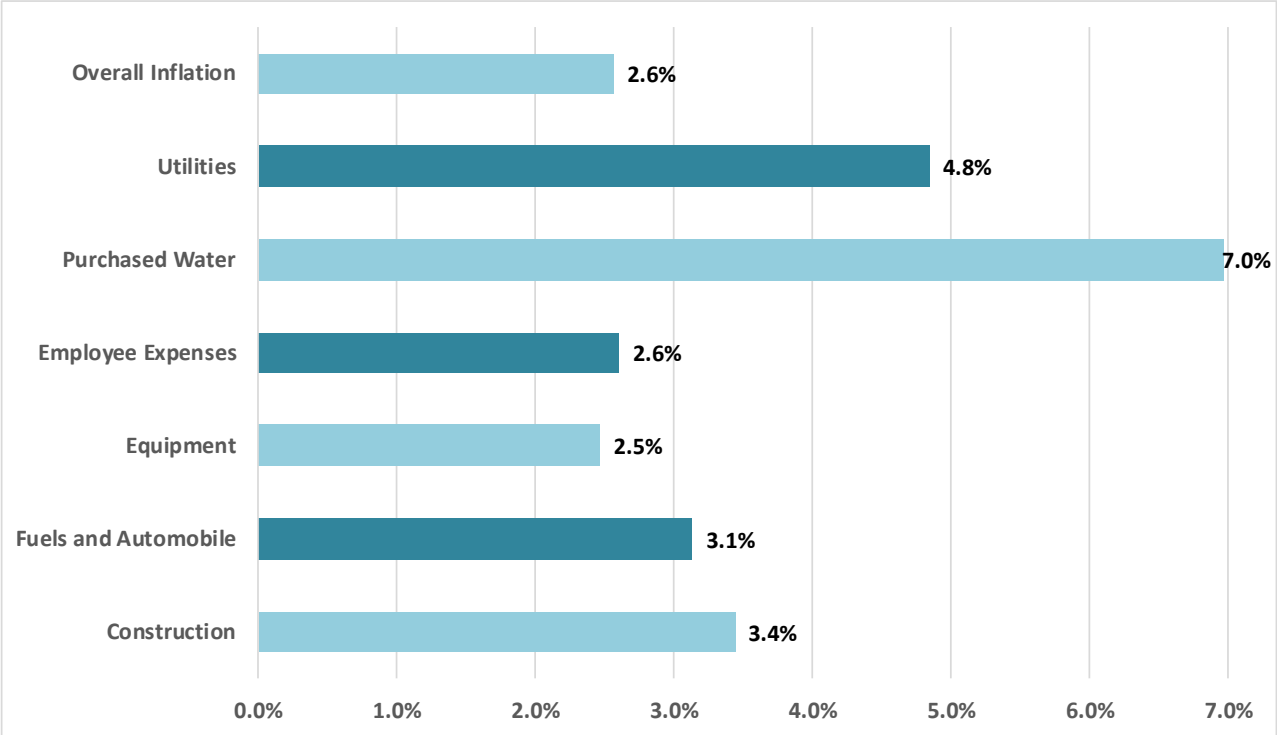


Figure 1-3. Expense Escalation Factors Estimated for LACSD, FY 2021-22 – FY 2030-31



Equivalent Meter Size

When designing fixed monthly water service charges, the potential demand or capacity requirements placed on the water system can be measured by the size of installed meters which receive services from the system. The safe operating flow (or capacity) of a particular size of the meter is essentially the limiting factor in terms of the demand that can be exerted on the water system through the meter. The ratio of the safe operating capacity of various sizes of meters relative to the capacity of a base meter may be used to determine appropriate charges for the larger meter sizes[4]. It is the District's policy to consider all meters that are 3/4–inch and 5/8-inch meters as a base meter (equal to one equivalent meter). The capacity ratio is calculated using the meter capacities in gallons per minute (gpm) provided in the AWWA M1 for the meters larger than 3/4 inch.

Table 1-1. AWWA Equivalent Meter Ratios

Equivalent Meter Ratios	AWWA
5/8-in	1.00
3/4-in	1.00
1-in	1.67
1 1/2-in	3.33
2-in	5.33
3-in	10.00
4-in	16.67
6-in	33.33
8-in	53.33

[4] From "Principles of Water Rates, Fees, and Charges" by American Water Works Association, 2017, Seventh Edition, Appendix B, p. 385.

2 ARROWHEAD WOODS WATER SYSTEM

2.1 Financial Plan

RDN built a 10-year financial model for each water system to meet the District's long-term financial goals. This report presents the account growth and water use projections for ten years.

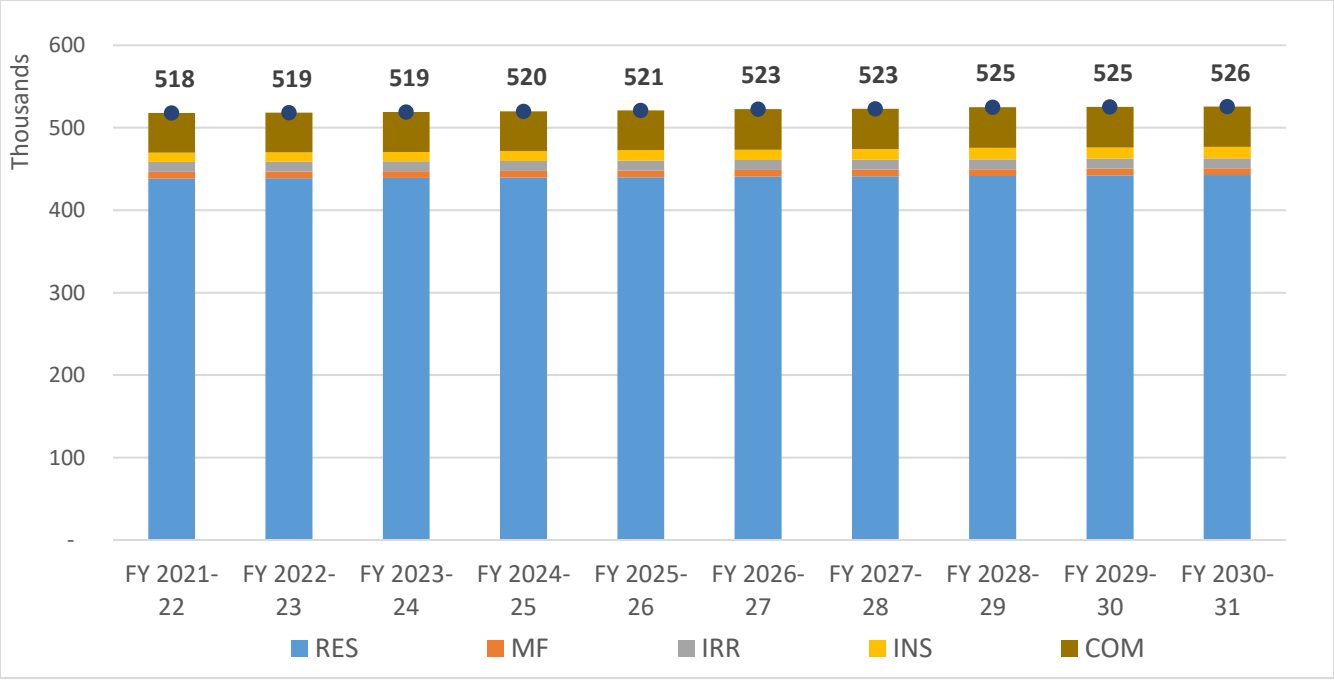
Account Growth

All the analyses performed for this Study were based on an assumption of customer account growth. To accurately compute fixed charge revenue, customer growth was projected by customer class and meter size for the next ten years. The number of accounts for FY 2020-21 was derived from customers' billing records, and the subsequent ten years were projected based on the historical data and input from the District. The current number of customers is 8,343. This number is projected to increase approximately 12 accounts per year, resulting in 8,404 by FY 2025-26 (the end of the study period) and 8,481 by FY 2030-31.

Demand Projections

RDN first derived aggregate usage levels for each customer class to project water demand. Next, we calculated per account water usage for each customer class by dividing the aggregate usage by the number of accounts. RDN assumed constant per account usage over the study period. This assumption was introduced to ensure that forecasted deviation in the wake of the Covid-19 pandemic is conservative. Finally, the forecast number of accounts and per-account usage were multiplied to estimate aggregate use by customer class. Figure 2-1 shows Arrowhead Woods' total demand projected for the next ten years.

Figure 2-1. Annual Water Demand Projections for FY 2020-21 – FY 2030-31



Revenues

Based on the account growth and water demand projections, RDN forecasts revenues generated from customer rates using the current water rates for the study period, which totaled approximately $7.3 to $7.4 million annually. Other operating income and non-operating revenue are estimated to provide supplemental revenue of roughly $0.2 million a year; thus, the system's total revenue for the study period is estimated to be approximately $7.7 to $7.8 million annually under the status quo rate schedule. Table 2-1 shows the projected revenue flow for the study period (FY 2021-22 – FY 2025-26) without any revenue adjustments.

Table 2-1. Revenue Forecast for Arrowhead Woods Water System, FY 2021-22 – FY 2025-26

	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
Revenue from rates					
Service Charges - Water	$5,147,040	$5,153,848	$5,158,831	$5,169,857	$5,175,696
Usage Charges - Water	$2,176,670	$2,205,174	$2,206,783	$2,216,757	$2,226,501
Rate Revenue Total	**$7,323,710**	**$7,359,022**	**$7,365,614**	**$7,386,614**	**$7,402,197**
Other operating revenues	**$196,168**	**$196,173**	**$196,178**	**$196,183**	**$196,188**
Non-operating revenues	**$216,310**	**$219,714**	**$223,186**	**$226,727**	**$230,340**
Total	**$7,736,187**	**$7,774,909**	**$7,784,978**	**$7,809,524**	**$7,828,725**

Operating and Maintenance (O&M) Expense

Table 2-2 displays the total O&M expense by cost category through the study period. The major expense items included in the analysis are employee wages and insurance, pension expense, electricity, and repair and maintenance expenses. The overall annual escalation factor for the study period is approximately 2.9 percent.

Table 2-2. O&M Expense Forecast for Arrowheads Water System, FY 2021-22 – FY 2025-26

	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
Source of Supply	$463,036	$495,544	$530,275	$567,848	$608,048
Pumping	$1,323,142	$1,356,812	$1,391,376	$1,427,072	$1,463,733
Treatment	$661,571	$678,406	$695,688	$713,536	$731,866
Transmission	$1,047,488	$1,074,143	$1,101,506	$1,129,765	$1,158,789
Engineering	$165,393	$169,602	$173,922	$178,384	$182,967
Customer Service	$220,524	$226,135	$231,896	$237,845	$243,955
Administrative and General	$1,819,321	$1,865,617	$1,913,142	$1,962,224	$2,012,633
Conservation	$275,655	$282,669	$289,870	$297,307	$304,944
Total	**$5,976,129**	**$6,148,928**	**$6,327,675**	**$6,513,980**	**$6,706,935**

Other Obligations

Other obligations included in the financial plan are capital improvement projects funded by PAYGO (Pay As You Go), debt service obligations, and reserve contributions made from rates.

Capital Improvement Projects

The District plans to spend approximately $7.2 million in PAYGO and $11.1 million from the Capital Improvement Fund to accomplish all necessary capital improvement projects over the next five years. The major projects included in the financial planning for the study period are New Banff tank ($3.7 million), Spyglass Site Improvements ($2.8 million), Pipe Replacements on Golf Course Rd ($1.9 million), and Blue Jay well ($1.4 million).

Debt Service

The District's current debt service load totals between $0.6 million and $0.7 million a year during the study period. Debt obligations include the 2016 Refunding Revenue Bonds Series and an Interfund loan, which is transferred from restricted funds in the Sewer Fund to the Water Fund for payment of the CalPERS side fund.

Reserves

The District must maintain an appropriate reserve balance to ensure the day-to-day operation will continue during emergencies and guarantee the future stability of the system. The District's financial goal is to build an appropriate level of cash reserves for each reserve fund included in the financial plan of this Study. The current reserve funds are described below:

- **Operating Fund**: the minimum target balance of the fund should equal three months of budgeted operating expenses for the upcoming year. It was established to maintain working capital for current operations and to meet routine cash flow needs for the general operations and debt service payments of the system.
- **Capital Improvement Fund**: The fund's minimum annual allocation should equal the budgeted yearly depreciation plus 10 percent for cost increases. This represents the total annual contribution that should be made to the fund and not the minimum fund balance. The fund was established to support capital projects that improve repair, rehabilitate or replace the capital assets, and eliminate the risk of "use it or lose it" type of spending on infrastructure.
- **Rate Stabilization Fund**: the maximum target for the fund is 20 percent of the budgeted revenue, and accumulation occurs after pooled cash has first been allocated to the Operating Fund and the Capital Improvement Fund. The purpose of this fund is to enable smooth or level annual increases to rates despite uneven increases in underlying costs or variations in annual revenue received.

Necessary reserve contributions to reach the above targets are estimated to equal approximately $2.0 million to $2.3 million per year over the study period.

Revenue Requirements

Table 2-3 displays Arrowhead Woods' revenue requirements for FY 2021-22 through FY 2025-26. The total expense for each year is offset by other operating revenues and non-operating revenues to compute a pure portion of revenue requirements that need to be recovered from customers' rates. CIP expenses, contributions to reserves, and debt service payments are included in the other obligations. RDN proposes 5.02 percent annual revenue adjustments to reach the financial goal set by the District.

Table 2-3. Revenue Requirements for Arrowhead Woods Water System, FY 2021-22 – FY 2025-26

Description	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
	Test Year				
Other Operating Revenues	($196,168)	($196,173)	($196,178)	($196,183)	($196,188)
O&M Expenses	$5,976,129	$6,148,928	$6,327,675	$6,513,980	$6,706,935
Non-operating Revenues	($151,417)	($219,714)	($223,186)	($226,727)	($230,340)
Other Obligations	$2,811,159	$4,189,959	$7,171,429	$5,021,630	$3,248,592
Net Balance	($748,343)	($1,806,587)	($4,548,247)	($2,127,381)	($72,711)
Revenue Requirements	**$7,691,360**	**$8,116,413**	**$8,531,492**	**$8,985,318**	**$9,456,288**

Financial Plan

Based on the projected total revenue and necessary costs to be recovered during the study period, RDN built a financial plan that will generate sufficient revenues for the day-to-day operation and annual PAYGO and make appropriate contributions to reserves. The District currently holds $12.0 million in the Supplemental Water Fee Fund. The District plans to spend the accumulated cash down to zero over the next ten-year period on capital projects and other expenditures. Table 2-4 shows the proposed financial plan for the study period with 5.02 percent revenue adjustments per year.

Table 2-4. Financial Plan for Arrowhead Woods Water System, FY 2021-22 to FY 2025-26

Description	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
	Test Year				
Operating Revenues	**$7,887,528**	**$8,312,586**	**$8,727,670**	**$9,181,501**	**$9,652,476**
Water Sales - Existing	$7,323,710	$7,359,022	$7,365,614	$7,386,614	$7,402,197
Year 1 - 5.02 %	$367,650	$369,423	$369,754	$370,808	$371,590
Year 2 - 5.02 %		$387,968	$388,315	$389,423	$390,244
Year 3 - 5.02 %			$407,809	$408,972	$409,834
Year 4 - 5.02 %				$429,502	$430,408
Year 5 - 5.02 %					$452,015
Water Sales	$7,691,360	$8,116,413	$8,531,492	$8,985,318	$9,456,288
Other Operating Revenues	$196,168	$196,173	$196,178	$196,183	$196,188
O&M Expenses	**($5,976,129)**	**($6,148,928)**	**($6,327,675)**	**($6,513,980)**	**($6,706,935)**
Net Operating Revenues	$1,911,399	$2,163,659	$2,399,996	$2,667,521	$2,945,541
Non-operating Revenues	$151,417	$219,714	$223,186	$226,727	$230,340
Other Obligations	**($2,811,159)**	**($4,251,288)**	**($7,232,496)**	**($5,082,697)**	**($3,309,659)**
Debt Service Total	($632,100)	($711,810)	($711,810)	($711,810)	($711,810)
Contribution to Reserves	($1,903,321)	($2,026,358)	($2,063,293)	($2,194,885)	($2,258,837)
PAYGO	$0	($1,222,144)	($4,151,535)	($1,853,875)	$0
Capital Improvement Fund	($6,015,270)	($1,634,352)	($609,891)	($852,229)	($1,940,926)
Annualization of Rates	($275,738)	($290,976)	($305,857)	($322,126)	($339,011)
Use of CIP Fund	$6,015,270	$1,634,352	$609,891	$852,229	$1,940,926
Net Balance	**($748,343)**	**($1,867,916)**	**($4,609,314)**	**($2,188,448)**	**($133,778)**
Beginning Balance	$12,306,962	$11,558,619	$9,690,703	$5,081,388	$2,892,940
Ending Balance	**$11,558,619**	**$9,690,703**	**$5,081,388**	**$2,892,940**	**$2,759,162**
DSCR	**3.02**	**3.04**	**3.37**	**3.75**	**4.14**
% Deficit/Surplus	-9.7%	-23.0%	-54.0%	-24.4%	-1.4%
% Cumulative Deficiency	**150.3%**	**61.3%**	**20.9%**	**8.7%**	**6.4%**

2.2 Cost of Service Analysis

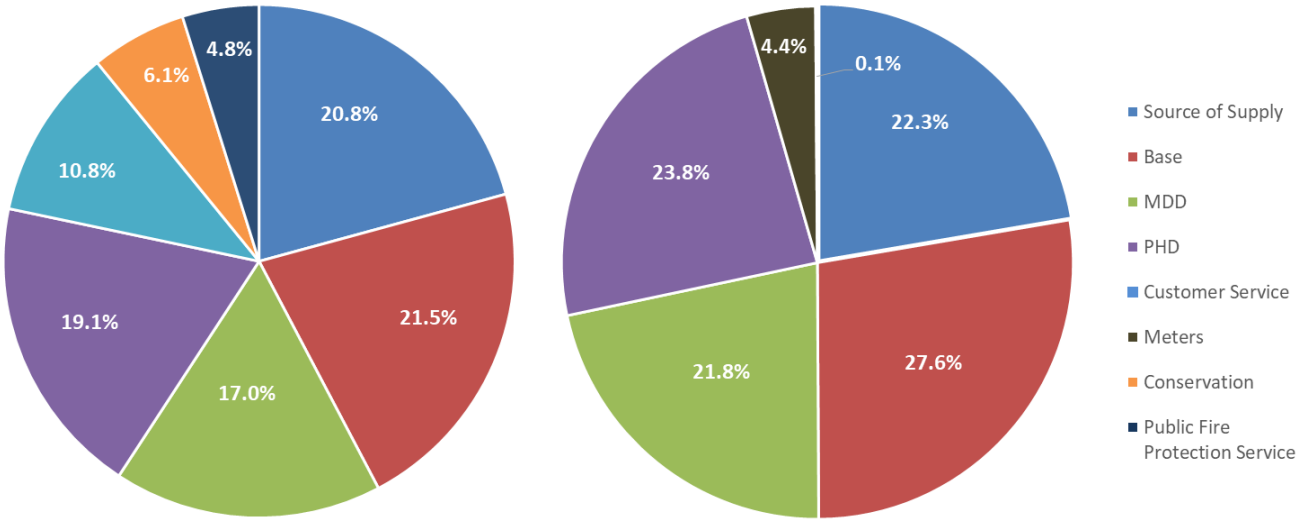
The purpose of a Cost of Service (COS) analysis is to allocate costs among customers commensurate with their service requirements. RDN employs the "base-extra capacity" cost of service method promulgated in AWWA's M1, whereby costs are first allocated to individual functions, which are typical industry-standard activities. The costs of each function are distributed to appropriate cost causative components, which are defined by the cost-driving elements. The results of the COS form a reasonable, equitable basis for designing rates.

Operating costs are functionalized based on input from District staff with expertise on the system and utility industry knowledge. RDN utilized the distribution of the functionalized system asset values to allocate the costs included in the other obligations into the standardized functions.

Once all of the costs are functionalized, the next step in the COS analysis is to allocate the functionalized expenses into the cost causative components. Each water service facility within the system has an underlying average demand exerted by the customers for whom the base cost component applies. For those facilities designed solely to meet average daily demand, 100 percent of the cost should go to the base cost component. Extra capacity requirements associated with demand over average use consist of Max Day Demand (MDD) and Peak Hourly Demand (PHD). The number of bills in one year (the number of accounts multiplied by 12) serves as the basis for distributing billing and customer service costs associated with meter reading, customer billing and collection, and other customer services costs. The number of equivalent meters is used to measure meter-related service costs. The final step of a COS analysis determines how the total revenue requirements are allocated to each of the four customer classes.

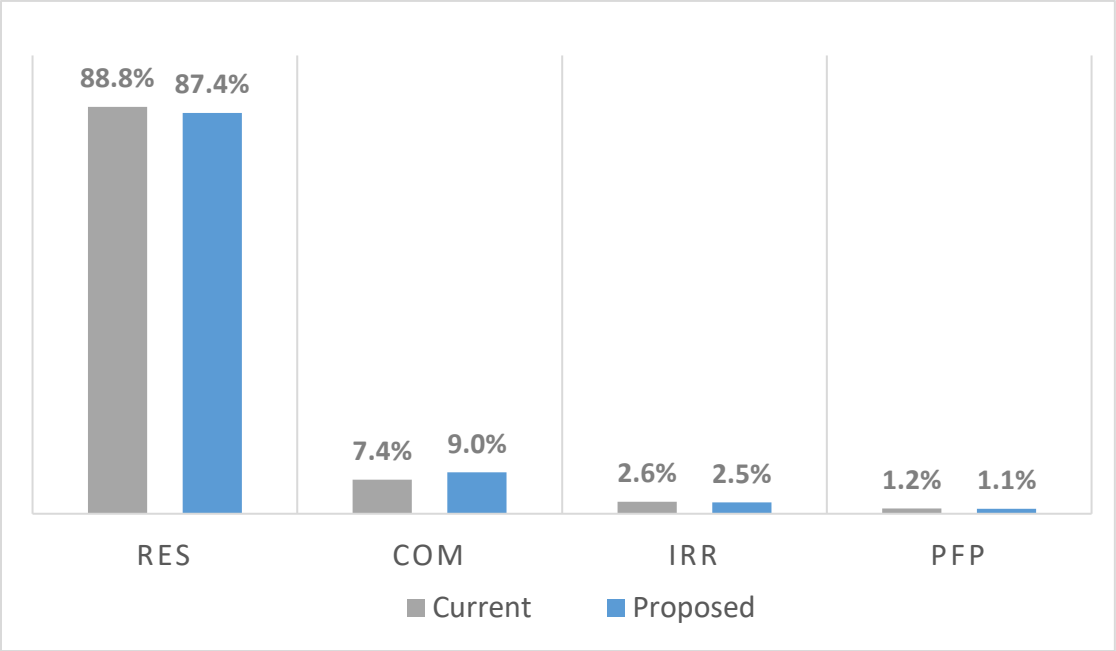
Figure 2-2 displays the percent of functionalized O&M costs and other obligation costs (capital expenditures, debt service payments, and capital contributions) allocated to cost causative components.

Figure 2-2. O&M (left) and Other Obligation (right) Cost Allocations for Arrowhead Woods Water System



Using the cost allocations developed in the COS Analysis, RDN equitably allocated costs to Arrowhead Woods' four customer classes based on their service requirements. Figure 2-3 presents the current cost allocations versus the proposed cost allocations determined in the COS analysis.

Figure 2-3. Current Cost Allocation vs. Proposed Cost Allocation by Customer Class, Arrowhead Woods



2.3 Water Rate Design

RDN, in consultation with District staff, performed multi-level analysis to find the most effective and equitable way to recover necessary revenues from customer rates. RDN proposes the following adjustments to Arrowhead Woods customer water rate structures:

- Creating customer class specific fixed rates reflecting the cost of service allocations to the particular cost components of each customer class,
- Developing a second tier for commercial and institutional customer's volumetric rates to further improve equitability between large users and small users,
- Confirming that the tier widths for Residential customers' volumetric charges reflect usage patterns of median users (Tier 1), the 75th percentile of summer use (Tier 2), and the upper bound of summer use (Tier 3)
- Aligning meter ratios to match AWWA recommendations to provide a basis for different levels of service requirements between meter sizes

The water rates have two components: 1) a fixed monthly service charge and 2) volumetric rates. Customers must pay the fixed charge regardless of the water use. In addition, the customers pay volumetric rates based on the volume of water use.

1. **Fixed monthly service charge**: the rates are established based on the size of the meter at the property receiving water service and are calculated to recover a portion of the District's fixed costs, such as water facilities repairs and replacements, peaking costs, meter reading, billing, public fire services, and customer service.
2. **Volumetric rates**: the rates are calculated based on the cost of water supplies, groundwater, and surface water; purchasing water from sources other than Lake Arrowhead; the cost of managing the

District's water resources; and distributing water throughout the system to customers. The remaining fixed costs that are not recovered via fixed charges are also recovered from volumetric charges. The rates are billed per hundred cubic feet (HCF).

Together, the two components (fixed and volumetric) are calculated to recover the proportionate cost of providing water service attributable to each customer.

Fixed Charge

Base, peaking (MDD and PHD), meters, and fire protection service costs are divided by the number of equivalent meters using the AWWA ratio discussed in the Key Assumptions section to compute the unit cost for each cost component. Customer service costs are simply divided by the number of accounts since the service requirements of this cost type are the same regardless of the meter size installed on a property.

Residential Customers

Table 2-5 shows the cost per unit calculation by cost causative component, resulting in a 5/8-inch base meter fixed charge for Residential customers. The system will collect 70 percent of total revenue requirements from fixed charge revenue.

Table 2-5. Residential Customers Fixed Unit Cost Calculation by Cost Component

Cost Component	Cost Allocatiaon	Unit	Cost/Unit
Source of Supply	$326,094	10,005	$2.72
Base	$1,551,666	10,005	$12.92
MDD	$383,541	10,005	$3.19
PHD	$93,402	10,005	$0.78
Meters	$88,099	10,005	$0.73
Customer Service	$523,859	7,683	$5.68
Conservation	$0	10,005	$0.00
Public Fire Reallocation	$1,798,754	10,005	$14.98
Total	**$4,765,413**		**$41.01**

The proposed monthly service charge for the base equivalent meter (5/8-inch) is $41.01 per month. However, the District wishes to maintain the same charge for the meter size 3/4-inch and below. The fixed service charge for a 3/4-inch meter is $58.67, reflecting the meter ratio of 1.5. The revenue requirements need to be collected from these meters divided by the number of accounts, which resulted in $47.03 per month.

The proposed five-year fixed rates for Arrowhead Woods Residential customers are as follows:

Table 2-6. Proposed Residential Fixed Charges FY 2021-22 to FY 2025-26, Arrowhead Woods

Residential					
Fixed Charges	**FY 2021-22**	**FY 2022-23**	**FY 2023-24**	**FY 2024-25**	**FY 2025-26**
5/8-in	$47.03	$49.39	$51.87	$54.47	$57.20
3/4-in	$47.03	$49.39	$51.87	$54.47	$57.20
1-in	$94.00	$98.72	$103.68	$108.88	$114.35
1 1/2-in	$182.33	$191.48	$201.09	$211.18	$221.78
2-in	$288.31	$302.78	$317.98	$333.94	$350.70
3-in	$535.61	$562.50	$590.74	$620.40	$651.54
4-in	$888.90	$933.52	$980.38	$1,029.60	$1,081.29
6-in	$1,772.11	$1,861.07	$1,954.50	$2,052.62	$2,155.66

Commercial and Institutional Customers

Commercial, Institutional, and Irrigation customers' fixed charges are calculated using the same methodology described above.

Approximately 37 percent of Commercial/Institutional customers' revenue requirements will be collected from fixed charges. Significant differences in user usage levels were identified for this customer class; thus, the peaking-related costs are allocated to the volumetric rates to ensure equitable cost recovery.

Table 2-7. Commercial/Institutional Customers Fixed Unit Cost Calculation by Cost Component

Cost Component	Cost Allocatiaon	Unit	Cost/Unit
Source of Supply	$139,589	562	$20.70
Base	$0	562	$0.00
MDD	$0	562	$0.00
PHD	$0	562	$0.00
Meters	$4,949	562	$0.73
Customer Service	$8,523	125	$5.68
Conservation	$0	562	$0.00
Public Fire Reallocation	$101,039	562	$14.98
Total	**$254,100**		**$42.10**

The proposed monthly service charge for the base equivalent meter (5/8-inch) is $42.10 per month. The fixed service charge for a 3/4-inch meter is $60.30, reflecting the meter ratio of 1.5. The revenue requirements that need to be collected from these meters are divided by the number of accounts, resulting in $50.37 per month.

The proposed five-year rates for Arrowhead Woods Commercial and Institutional customers are as follows:

Table 2-8. Proposed Commercial/Institutional Fixed Charges FY 2021-22 to FY 2025-26, Arrowhead Woods

Commercial/Institutional					
Fixed Charges	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
5/8-in	$50.37	$52.90	$55.56	$58.35	$61.28
3/4-in	$50.37	$52.90	$55.56	$58.35	$61.28
1-in	$96.72	$101.57	$106.67	$112.02	$117.64
1 1/2-in	$187.75	$197.18	$207.08	$217.48	$228.40
2-in	$296.99	$311.90	$327.56	$344.00	$361.27
3-in	$551.89	$579.60	$608.70	$639.26	$671.35
4-in	$916.03	$962.02	$1,010.31	$1,061.03	$1,114.29
6-in	$1,826.39	$1,918.07	$2,014.36	$2,115.48	$2,221.68

Irrigation Customers

Approximately 47 percent of Irrigation customers' revenue requirements will be collected from fixed charges. As seen in the Commercial/Institutional customers' usage pattern, Irrigation customers usage levels vary significantly among different types of users; thus, the rates are designed to place more weight on volumetric rates for revenue recovery to improve equitability among all Irrigation customers.

Table 2-9. Irrigation Customers Fixed Unit Cost Calculation by Cost Component

Cost Component	Cost Allocatiaon	Unit	Cost/Unit
Source of Supply	$27,803	193	$12.00
Base	$0	193	$0.00
MDD	$15,547	193	$6.71
PHD	$4,537	193	$1.96
Meters	$1,699	193	$0.73
Customer Service	$4,773	70	$5.68
Conservation		193	$0.00
Public Fire Reallocation	$34,699	193	$14.98
Total	**$89,057**		**$42.07**

The monthly fixed service charge for the base equivalent meter (5/8-inch) is $42.07 per month for Irrigation customers. The fixed service charge for a 3/4-inch meter is $60.27, reflecting the meter ratio of 1.5. The revenue requirements to be collected from these meters divided by the number of accounts resulted in $52.99 per month.

The proposed five-year fixed rates for Arrowhead Woods Irrigation customers are as follows:

Table 2-10. Proposed Irrigation Fixed Charges FY 2021-22 to FY 2025-26, Arrowhead Woods

Irrigation					
Fixed Charges	**FY 2021-22**	**FY 2022-23**	**FY 2023-24**	**FY 2024-25**	**FY 2025-26**
5/8-in	$52.99	$55.65	$58.44	$61.37	$64.45
3/4-in	$52.99	$55.65	$58.44	$61.37	$64.45
1-in	$96.66	$101.51	$106.61	$111.96	$117.58
1 1/2-in	$187.64	$197.06	$206.95	$217.34	$228.25
2-in	$296.82	$311.72	$327.37	$343.80	$361.06
3-in	$551.56	$579.25	$608.33	$638.87	$670.94
4-in	$915.49	$961.44	$1,009.70	$1,060.39	$1,113.62
6-in	$1,825.29	$1,916.92	$2,013.15	$2,114.21	$2,220.34

Private Fire Protection Service Customers

The fixed monthly service charge was also computed for Private Fire Protection Service customers. The customers pay only for the costs related to system capacity and billing as the service is required in case of an emergency.

Table 2-11. Private Fire Protection Service Customers Fixed Unit Cost Calculation by Cost Component

Fixed		Unit	Cost/Unit
Source of Supply	$0	1,229	$0.00
Base	$0	1,229	$0.00
MDD	$11,675	1,229	$0.79
PHD	$28,618	1,229	$1.94
Meters	$10,826	1,229	$0.73
Customer Service	$31,678	465	$5.68
Conservation	$0	1,229	$0.00
Public Fire Reallocation	$0	465	$0.00
Total	**$82,798**		**$9.15**

The monthly service charge for the base equivalent meter (5/8-inch) is $9.15 per month. However, the smallest meter size for the fire service is a 1-inch meter. RDN applied a 2.5-meter ratio to the base charge, which resulted in $14.34 per month for the service.

The proposed five-year rates for Arrowhead Woods Irrigation customers are as follows:

Table 2-12. Proposed Private Fire Protection Service Fixed Charges FY 2021-22 to FY 2025-26, Arrowhead Woods

Private Fire Protection Service					
Fixed Charges	**FY 2021-22**	**FY 2022-23**	**FY 2023-24**	**FY 2024-25**	**FY 2025-26**
1-in	$14.34	$15.06	$15.82	$16.61	$17.44
1 1/2-in	$23.01	$24.16	$25.37	$26.64	$27.98
2-in	$33.40	$35.08	$36.84	$38.69	$40.63
3-in	$57.66	$60.55	$63.59	$66.78	$70.13
4-in	$92.31	$96.94	$101.81	$106.92	$112.29
6-in	$178.93	$187.91	$197.34	$207.25	$217.65

Volumetric Rates

Volumetric rates are designed based on variable costs such as water purchases, treatment, and energy costs. The peaking costs on the volumetric side are the remaining fixed costs intended to be recovered from volumetric charges. Additionally, water conservation-related costs are all recovered from volumetric rates.

Residential Customers

For Residential customers, the current four-tiered rate structure was maintained to mitigate rate impacts. The system has four water supply sources: surface water, groundwater, and two separate connections from CLAWA. RDN used the cost differences in the supply costs to build the four tiers accordingly.

Table 2-13. Residential Customers Volumetric Tiered Rates Calculation by Cost Component

Cost Components	Tier 1	Tier 2	Tier 3	Tier 4
% of Usage Distribution by Tier	**42.9%**	**32.7%**	**15.0%**	**9.4%**
Volume in HCF	**191,542**	**146,043**	**66,829**	**41,961**
Source of Supply (in HCF)				
Surface Water	191,542	133,048		
Groundwater		12,994.55	25,989	
CLAWA 1			40,840	
CLAWA2				41,961
Water Cost	$0.45	$0.59	$2.56	$5.97
Revenue Requirements	$85,875.95	$86,448.94	$171,404.45	$250,647.76
Other Source of Supply	$1.10	$1.10	$1.10	$1.10
Revenue Requirements	$209,892.88	$160,034.88	$73,231.77	$45,980.91
Base	$0.00	$0.00	$0.00	$0.00
MDD			$3.53	$3.53
PHD				$5.19
Revenue Requirements	$0.00	$0.00	$235,607.11	$365,870.55
Conservation		$1.08	$1.08	$1.08
Revenue Requirements		$157,628.56	$72,130.64	$45,289.53
Total	**$1.54**	**$2.77**	**$8.27**	**$16.87**

The proposed five-year volumetric rates for Arrowhead Woods Residential customers are as follows:

Table 2-14. Proposed Residential Volumetric Charges FY 2021-22 to FY 2025-26, Arrowhead Woods

Residential						
Volumetric Charges	**Widths**	**FY 2021-22**	**FY 2022-23**	**FY 2023-24**	**FY 2024-25**	**FY 2025-26**
Tier 1	0 - 4	$1.54	$1.62	$1.70	$1.79	$1.88
Tier 2	5 - 13	$2.77	$2.91	$3.06	$3.21	$3.37
Tier 3	14 - 30	$8.27	$8.68	$9.12	$9.58	$10.06
Tier 4	31 +	$16.87	$17.71	$18.60	$19.53	$20.51

Commercial and Institutional Customers

RDN identified a few Commercial customers with a predominantly high level of water usage while analyzing customers billing records. It consists of only one tier under the current rate structure; thus, the second tier was designed to send conservation signals to reduce excessive usage.

Table 2-15. Commercial/Institutional Customers Volumetric Tiered Rates Calculation by Cost Component

Cost Components	Tier 1	Tier 2
% of Usage Distribution by Tier	**34.5%**	**65.5%**
Volume in HCF	**20,566**	**39,049**
Source of Supply (in HCF)		
Surface Water	20,566	27,699
Groundwater		6,941.94
CLAWA 1	-	4,408
CLAWA2		
Water Cost	$0.45	$1.01
Revenue Requirements	$9,220.57	$39,451.15
Base	$3.48	$3.48
MDD		$2.69
PHD		$1.08
Revenue Requirements	$71,490.50	$282,648.31
Conservation	$0.62	$0.62
Revenue Requirements	$12,672.43	$24,061.65
Total	**$4.54**	**$8.86**

The proposed five-year volumetric rates for Arrowhead Woods Commercial/Institutional customers are as follows:

Table 2-16. Proposed Commercial Volumetric Charges FY 2021-22 to FY 2025-26, Arrowhead Woods

		Commercial				
Volumetric Charges	**Widths**	**FY 2021-22**	**FY 2022-23**	**FY 2023-24**	**FY 2024-25**	**FY 2025-26**
Tier 1	0 - 40	$4.54	$4.77	$5.01	$5.26	$5.52
Tier 2	40 +	$8.86	$9.31	$9.78	$10.27	$10.79

Irrigation Customers

Finally, the proposed volumetric rate structure for Irrigation customers is the same as the current rate structure, a uniform rate.

Table 2-17. Irrigation Customers Volumetric Tiered Rates Calculation by Cost Component

Cost Components	Tier 1
% of Usage Distribution by Tier	**100.0%**
Volume in HCF	**12,054**
Source of Supply (in HCF)	
Surface Water	9,759
Groundwater	891
CLAWA 1	1,404
CLAWA2	
Water Cost	$0.85
Revenue Requirements	$10,262.52
Base	$3.48
MDD	$3.01
PHD	$0.38
Revenue Requirements	$82,713.52
Conservation	$0.62
Revenue Requirements	$7,427.48
Total	**$8.33**

The proposed five-year volumetric rates for Arrowhead Woods Irrigation customers are as follows:

Table 2-18. Proposed Irrigation Volumetric Rates FY 2021-22 to FY 2025-26, Arrowhead Woods

Irrigation						
Volumetric Charges	**Width**	**FY 2021-22**	**FY 2022-23**	**FY 2023-24**	**FY 2024-25**	**FY 2025-26**
Tier 1	All Use	$8.33	$8.75	$9.19	$9.65	$10.13

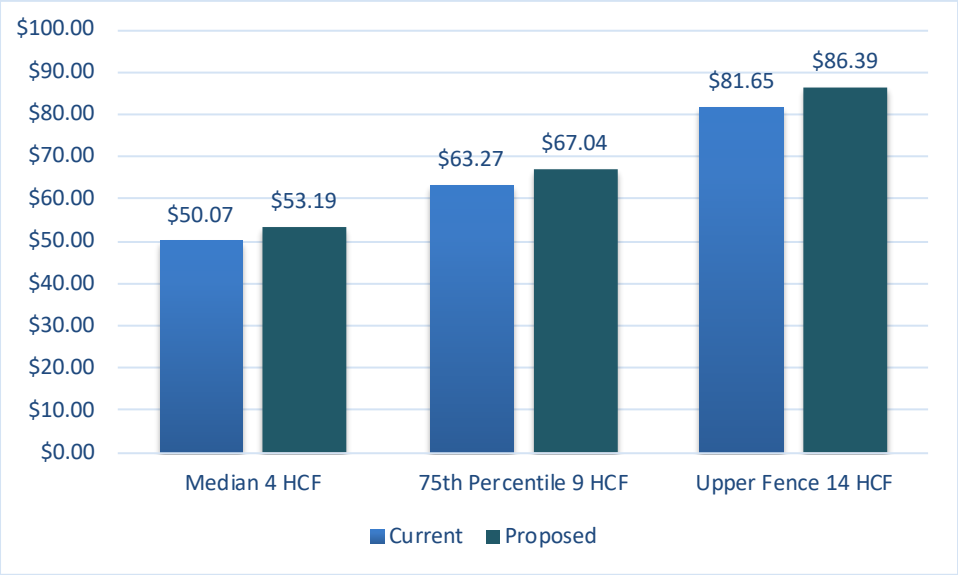
2.4 Bill Impact Analysis

This analysis compares customers' bills under current and proposed rates. The rates were calculated at the median, 75th percentile, and upper fence usage points to determine the impacts on different types of customers. The upper fence was calculated as: Upper Fence = Q3 (75th percentile) + (1.5 * IQR) where IQR represents the difference between the 75th percentile (Q3) and 25th percentile (Q1) in a dataset. An observation that lies above the upper fence is often considered an outlier.

Residential Customers Bill Impact

Figure 2-4 shows the dollar change in the bill based on the Residential customer's usage at selected usage points as described above. The District's median Residential customer uses water for 4 hcf per month. Additionally, 75 Percent of Residential customers use under 9 hcf. The usage at the upper fence was 14 hcf. Figure 2-4 presents Residential customers' monthly bill impacts by usage.

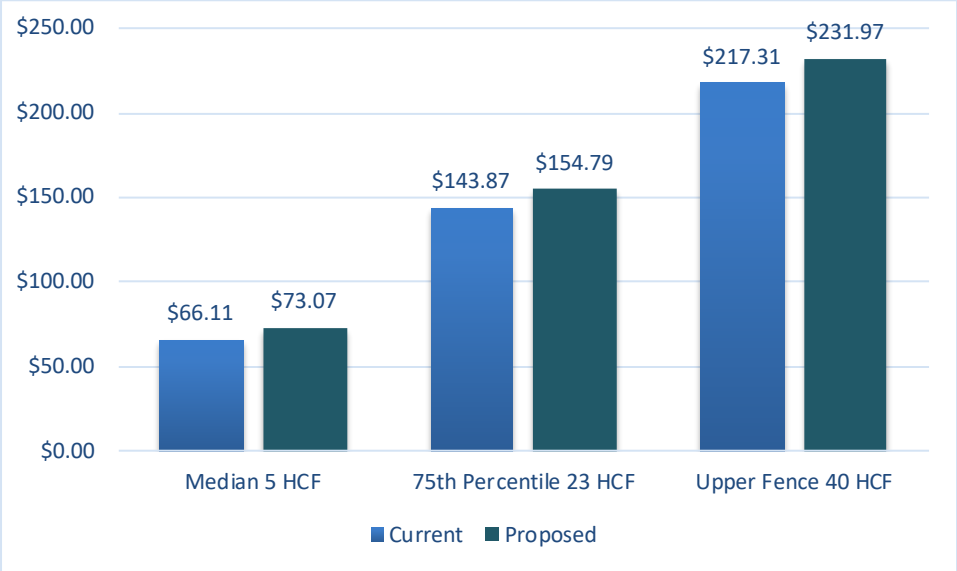
Figure 2-4. Residential Customers' Bill Impacts by Usage for Median, 75 Percentile, and the Upper Fence, Arrowhead Woods



Commercial Customers Bill Impact

Figure 2-5 shows the dollar change in the bill based on the customer's usage. The District's median Commercial customer uses 5 hcf of water per month. Commercial customers at the 75th percentile use 23 hcf. Excluding the outliers, the upper fence of Commercial customers uses 40 hcf a month.

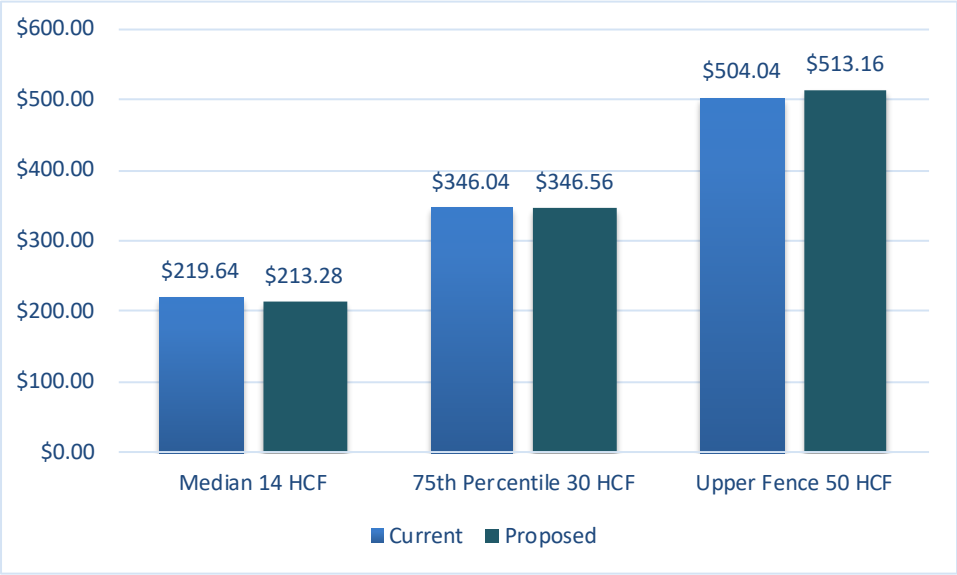
Figure 2-5. Commercial Customer Bill Impacts by Usage for Median, 75th Percentile, and the Upper Fence, Arrowhead Woods



Irrigation Customers Bill Impact

Irrigation customers in the Arrowhead Woods service area have the highest per account usage among all customer classes. Figure 2-6 shows the dollar change in the bill based on the customer's usage. The District's median Irrigation customer uses 14 hcf of water monthly. An Irrigation customer at the 75th percentile uses 30 hcf. The upper fence of irrigation customers is 50 hcf of water per month.

Figure 2-6. Irrigation Customers Bill Impacts by Usage for Median, 75 Percentile and the Upper Fence, Arrowhead Woods



3 DEER LODGE PARK WATER SYSTEM

3.1 Financial Plan

LACSD assumed ownership and control of the Deer Lake Water Corporation in 1985. The District has been providing water since to Deer Lodge Park (DLP) residents. All water sold in DLP is either produced from existing wells within the service area or purchased from CLAWA. The District budgets O&M and CIPs separately for each water system; thus, the costs included in the financial plan reflect the costs incurred to provide service to DLP customers.

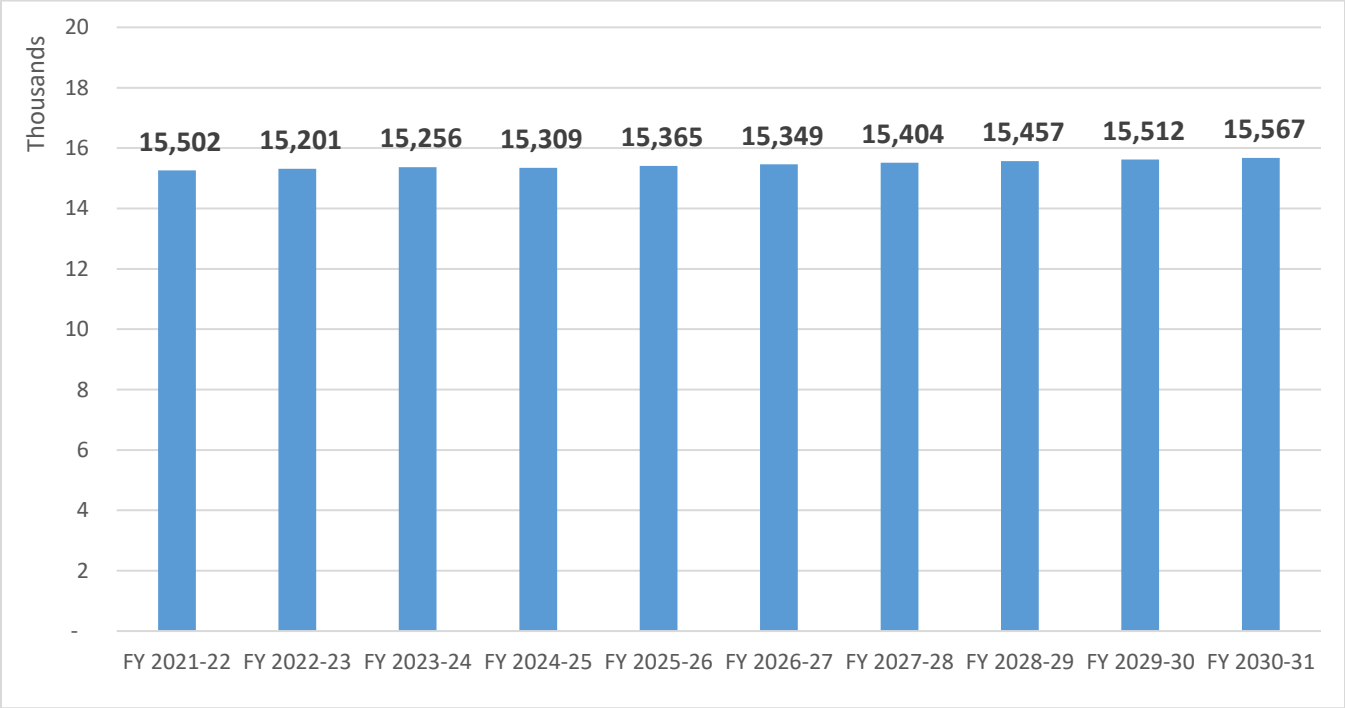
Account Growth

DLP currently serves 216 customers. RDN projects approximately one new customer per year during the study period. In FY 2025-26, there will be 219 customers: 191 residential and 28 fire protection meters.

Demand Projections

To project water demand, RDN first derived aggregate usage levels. Next, we calculated per account water usage by dividing the aggregate usage by the number of accounts. RDN assumed constant per account usage over the study period. RDN projects a slight increase in water use through the study period, with one additional account forecasted per year. Figure 3-1 shows DLP's total demand projected for the next ten years.

Figure 3-1. Annual Water Demand Projections for FY 2021-22 – FY 2030-31



Revenues

Based on the account growth and water demand projections, RDN forecast revenues generated from customer rates for the current year and the study period using the current water rates, which totaled approximately $182,247 to $193,487 annually. Other operating revenues and non-operating revenue are estimated to provide supplemental revenue of approximately $6,000 a year. The District's total revenues for the study period are estimated to be approximately $200,000 annually under the status quo rate schedule. Table 3-1 shows projected revenue flow for the study period (FY 2020-21 – FY 2025-26) without any revenue adjustments.

Table 3-1. Revenue Forecast for Deer Lodge Park Water System, FY 2021-22 – FY 2025-26

	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
Revenues from rates					
Service Charges - Water	$125,374	$125,908	$126,442	$126,442	$126,977
Usage Charges - Water	$65,870	$66,100	$66,338	$66,272	$66,510
Rate Revenue Total	**$191,244**	**$192,008**	**$192,781**	**$192,715**	**$193,487**
Other operating revenues	**$6,000**	**$6,000**	**$6,000**	**$6,000**	**$6,000**
Non-operating revenues	**$5,157**	**$5,261**	**$5,366**	**$5,473**	**$5,583**
Total	**$202,401**	**$203,269**	**$204,147**	**$204,188**	**$205,069**

Operating and Maintenance (O&M) Expense

Table 3-2 displays the total O&M expense by costs category through the study period. The major expense items included in the analysis are employee wages and insurance, pension expense, electricity, and water purchase expenses.

Table 3-2. O&M Expense Forecast for Water, FY 2020-21 (Current) and Study Period, FY 2021-22 – FY 2025-26

	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
Source of Supply	$30,261	$32,482	$34,871	$37,264	$40,003
Pumping	$91,948	$94,183	$96,479	$98,794	$101,213
Treatment	$25,541	$26,162	$26,800	$27,443	$28,115
Transmission	$3,405	$3,488	$3,573	$3,659	$3,749
Engineering	$3,405	$3,488	$3,573	$3,659	$3,749
Administrative and General	$45,974	$47,091	$48,239	$49,397	$50,606
Total	**$200,534**	**$206,895**	**$213,536**	**$220,215**	**$227,434**

Other Obligations

Other obligations included in the financial plan are capital improvement projects funded by PAYGO (Pay As You Go), debt service obligations, and reserve contributions made from rates.

Capital Improvement Projects

The DLP system anticipates two capital projects will be accomplished during the study period: Canister Replacements (estimated at $40,000) and the purchase of new valves (estimated at $15,000). While additional CIP projects are needed, the District opted not to schedule any more during the study period because of the

impact PAYGO spending would have on customer rates. Instead, DLP will contribute funds to the Capital Improvement Reserve Fund to pay for future CIP needs.

Reserves

DLP maintains the same reserve funds as Arrowhead Woods, namely, Operating, Capital Improvement, Rate Stabilization, and New Facilities Funds. The proposed financial plan brings the reserve total for DLP to $557,882 by the end of the study period.

Revenue Requirements

Table 3-3 displays DLPs' revenue requirements for FY 2021-22 through FY 2025-26. The total expense for each year is offset by other operating revenues and non-operating revenues to compute a pure portion of revenue requirements that need to be recovered from customers' rates. CIP expense, contributions to reserves, and debt service payments are included in the other obligations. RDN proposes 3.5 percent annual revenue adjustments to reach the financial goal set by the District.

Table 3-3. Revenue Requirements for Deer Lodge Park System, FY 2021-22 – FY 2025-26

Description	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
	Test Year				
Other Operating Revenues	($6,000)	($6,000)	($6,000)	($6,000)	($6,000)
O&M Expenses	$200,534	$206,895	$213,536	$220,215	$227,434
Non-operating Revenues	($5,157)	($5,261)	($5,366)	($5,473)	($5,583)
Other Obligations	$54,945	$54,965	$57,688	$57,686	$57,437
Net Balance	($41,158)	($39,506)	($40,519)	($39,488)	($37,489)
Revenue Requirements	**$203,164**	**$211,093**	**$219,339**	**$226,940**	**$235,800**

Financial Plan

Based on the projected total revenue and necessary costs to be recovered during the study period, RDN built a financial plan that will generate sufficient revenues for the day-to-day operation and annual PAYGO and make appropriate contributions to the reserves. DLP's current cash balance in addition to the reserve funds is $0.4 million. The District intends to spend the accumulated cash down over the next ten-year period. Table 3-4 shows the proposed financial plan for the study period with 3.5 percent revenue adjustments per year.

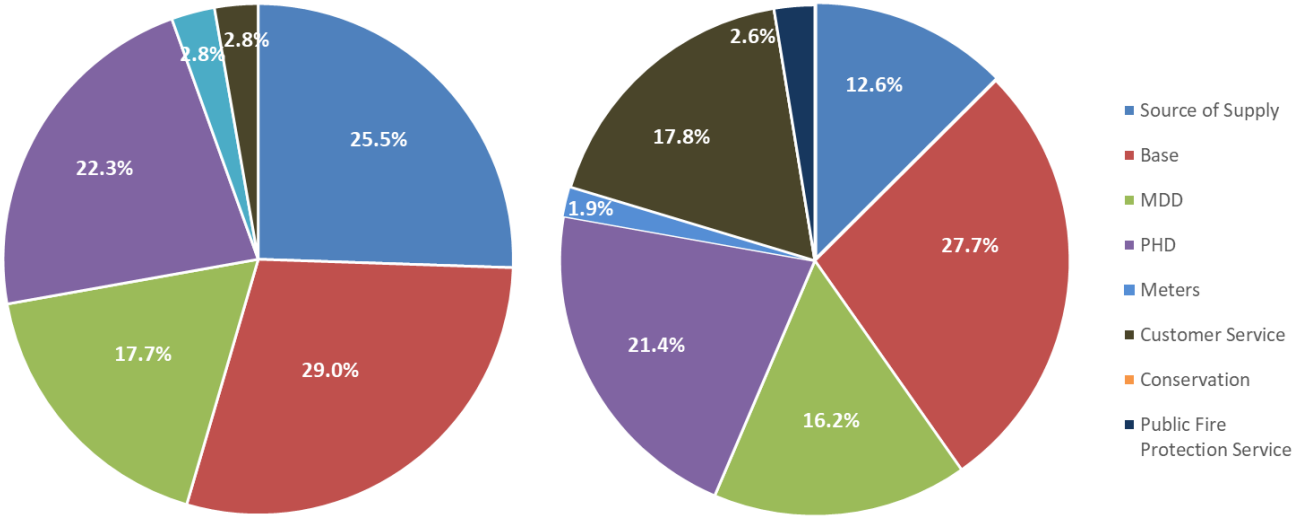
Table 3-4. Financial Plan for Water System, FY 2021-22 to FY 2025-26

Description	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
	Test Year				
Operating Revenues	**$209,164**	**$217,093**	**$225,339**	**$232,940**	**$241,800**
Water Sales - Existing	$196,294	$197,058	$197,831	$197,765	$198,537
Year 1 - 3.5 %	$6,870	$6,897	$6,924	$6,922	$6,949
Year 2 - 3.5 %		$7,138	$7,166	$7,164	$7,192
Year 3 - 3.5 %			$7,417	$7,415	$7,444
Year 4 - 3.5 %				$7,674	$7,704
Year 5 - 3.5 %					$7,974
Water Sales	$203,164	$211,093	$219,339	$226,940	$235,800
Other Operating Revenues	$6,000	$6,000	$6,000	$6,000	$6,000
O&M Expenses	**($200,534)**	**($206,895)**	**($213,536)**	**($220,215)**	**($227,434)**
Net Operating Revenues	$8,630	$10,198	$11,803	$12,725	$14,366
Non-operating Revenues	$5,157	$5,261	$5,366	$5,473	$5,583
Other Obligations	**($54,945)**	**($54,965)**	**($57,688)**	**($57,686)**	**($57,437)**
Debt Service Total	$0	$0	$0	$0	$0
Contribution to Reserves	($49,792)	($49,792)	($52,495)	($52,495)	($52,225)
Annualized Revenue	$0	($5,173)	($5,193)	($5,191)	$0
Total CIPs	$0	$0	$0	$0	$0
PAYGO	$0	$0	$0	$0	$0
Capital Improvement Fund	$0	($56,892)	$0	$0	$0
Use of CIP Fund	$0	$56,892	$0	$0	$0
Net Balance	($41,158)	($39,506)	($40,519)	($39,488)	($37,489)
Beginning Balance	$399,218	$358,060	$318,554	$278,035	$238,547
Ending Balance	**$358,060**	**$318,554**	**$278,035**	**$238,547**	**$201,058**
% Deficit/Surplus	-20.3%	-18.7%	-18.5%	-17.4%	-15.9%
% Cumulative Deficiency	**176.2%**	**76.9%**	**43.9%**	**27.7%**	**18.3%**

3.2 Cost of Service Analysis

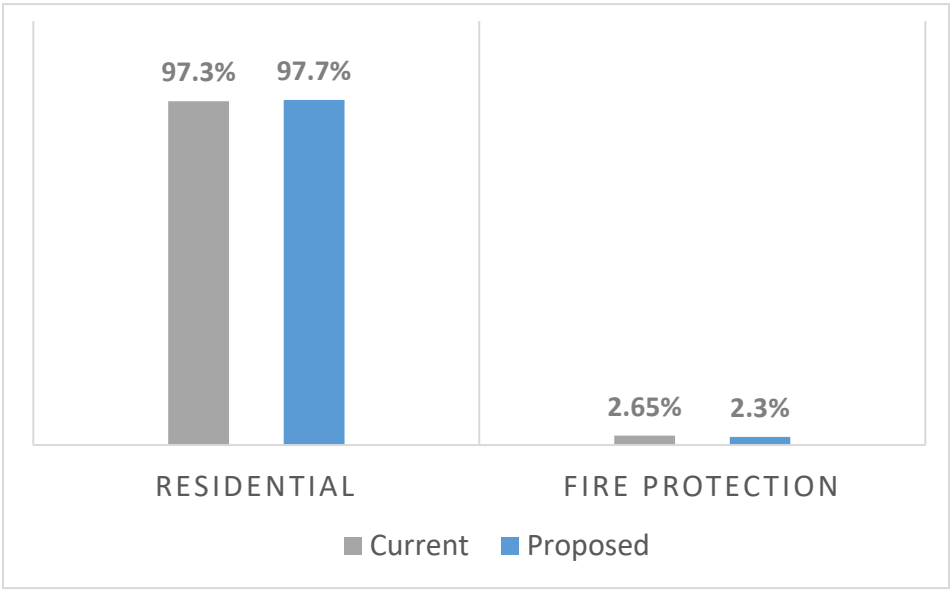
The Cost of Service (COS) analysis was performed for the DLP system to allocate costs between Residential customers and Private Fire Protection Service customers commensurate with their service requirements. RDN employs the "base-extra capacity" cost of service method promulgated in AWWA's M1, whereby costs are first allocated to individual functions, which are typical industry-standard activities. The costs of each function are then distributed to appropriate cost causative components, which are defined by the cost-driving elements. The results of the COS form a reasonable, equitable basis for designing rates.

Figure 3-2. O&M (left) and Other Obligation (right) Cost Allocations for Deer Lodge Park



RDN equitably allocated costs to DLP's two customer classes based on their service requirements. Figure 3-3 presents the current cost allocations versus the proposed cost allocations determined in the COS analysis.

Figure 3-3. Current Cost Allocation vs. Proposed Cost Allocation by Customer Class, Deer Lodge Park



3.3 Water Rate Design

RDN proposes the following adjustments to Deer Lodge Park customer's water rate structures:

- Removing volumetric charges from private fire protection customers and collecting all fire revenue requirements from fixed charges
- Aligning meter ratios to match AWWA recommendations to provide a basis for increasing costs between meter sizes

Fixed Charge

For DLP customers, base, meters, and fire protection service costs are divided by the number of equivalent meters using the AWWA ratio discussed in the Key Assumptions section to compute the unit cost for each cost component. Customer service costs are simply divided by the number of accounts since the service requirements of this cost type are the same regardless of the meter size installed on a property.

Residential Customers

The costs included in the fixed charge calculation are about 50 percent of the base cost and 100 percent of meters, customer service, and public fire service costs. The DLP system will collect 61 percent of total revenue requirements from fixed charge revenue. The proposed 5-year rates for DLP Residential customers are as follows:

Table 3-5. Proposed Residential Fixed Charges FY 2021-22 to FY 2025-26, Deer Lodge Park

Residential					
Fixed Charges	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
5/8-in	$45.04	$46.61	$48.24	$49.93	$51.68
3/4-in	$45.04	$46.61	$48.24	$49.93	$51.68
1-in	$105.76	$109.46	$113.29	$117.26	$121.36
1 1/2-in	$206.96	$214.20	$221.70	$229.46	$237.49
2-in	$328.40	$339.89	$351.79	$364.10	$376.84

Private Fire Protection Service Customers

The fixed monthly service charge was also computed for Private Fire Protection Service customers. The customers pay only for the costs related to system capacity and billing as the service is required in case of emergencies. The system currently has only 1-inch meter customers. This Study also developed service charges for bigger meters in case new customers join later requesting a larger meter.

Table 3-6. Proposed Fire Fixed Charges FY 2021-22 to FY 2025-26, Deer Lodge Park

Fire					
Fixed Charges	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
1-in	$14.38	$14.89	$15.41	$15.95	$16.51
1 1/2-in	$24.21	$25.06	$25.94	$26.85	$27.79
2-in	$36.00	$37.26	$38.56	$39.91	$41.31
3-in	$63.51	$65.74	$68.04	$70.42	$72.88
4-in	$102.82	$106.41	$110.13	$113.98	$117.97
6-in	$201.07	$208.11	$215.39	$222.93	$230.73

Volumetric Rates

Volumetric rates are designed based on variable costs such as water purchases, treatment, and energy costs. The peaking costs for the DLP customers will be recovered via volumetric rates, and 50 percent of the base costs will be recovered from volumetric rate revenue.

The current two-tiered rate structure and tier widths were kept from the previous study to mitigate rate impacts on different types of users. The system has two water supply sources, including groundwater and one connection from CLAWA. RDN used the cost differences in the supply costs to design two tiers accordingly.

Table 3-7. Residential Customers Volumetric Tiered Rates Calculation by Cost Component

Tiers	Tier 1	Tier 2
Tiered Percentages	73%	27%
Total Usage	11,106	4,150
Groundwater	4,749	-
Imported water	6,358	4,150
Water Supply Cost	$2.53	$2.88
Revenue from Water Supply Cost	$28,103	$11,951
Remaining Source of Supply	$0.42	$0.42
Base	$1.91	$1.91
Peaking		$0.57
Conservation		
Public Fire Protection Service		
Total Tier Rate	**$4.87**	**$5.78**

The proposed five-year volumetric rates for DLP Residential customers are as follows:

Table 3-8. Proposed Residential Volumetric Charges FY 2021-22 to FY 2025-26, Deer Lodge Park

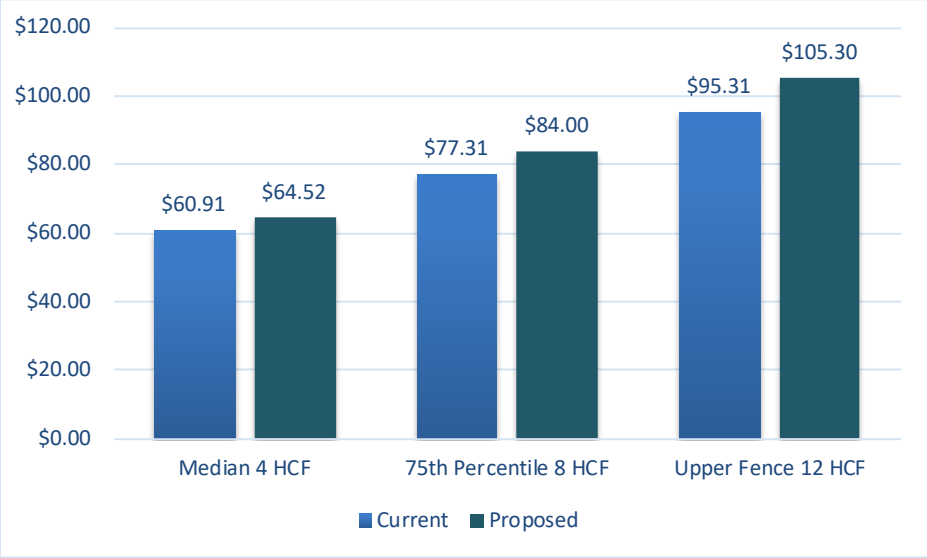
		Residential				
Volumetric Charges	Widths	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
Tier 1	0-10	$4.87	$5.04	$5.22	$5.40	$5.59
Tier 2	10 +	$5.78	$5.98	$6.19	$6.41	$6.63

*Note: volumetric charges include CLAWA water costs of $2.88 per HCF of water use. If CLAWA's rates increase more than 7 percent in any given year, those additional costs will be added to the cost per hcf as a pass-through charge

3.4 Bill Impact Analysis

This analysis compares customers' bills under current and proposed rates. The rates were calculated at the median, 75th percentile, and upper fence usage points to gaze at the impacts on different types of customers. Figure 3-4 displays the changes in bills at the specific usage points.

Figure 3-4. Residential Customers' Bill Impacts by Usage for Median, 75 Percentile, and the Upper Fence, Deer Lodge Park



4 RIMFOREST WATER SYSTEM

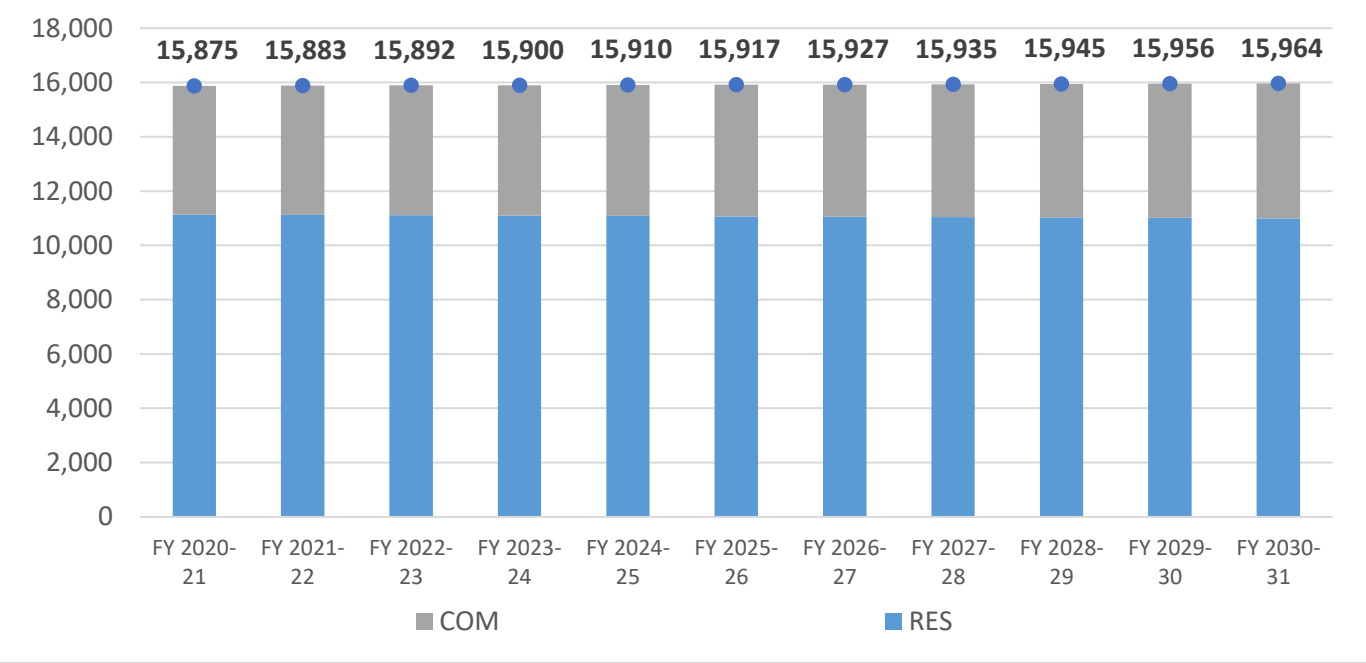
4.1 Financial Plan

LACSD began providing water service to the community of Rimforest in 2014. The previous rates were set by the City of Big Bear Lake, Department of Water and Power through July 2017 and have not been adjusted since. The primary water source supplied to Rimforest customers is from CLAWA. The District budgets O&M and CIPs separately for each water system, thus the costs included in the financial plan reflect the costs incurred to provide service to Rimforest customers.

Account Growth/Demand Projections

Based on the historical trends the data indicated, RDN projects no account growth in the Rimforest service area. In line with that projection, Residential customers are expected to slightly decrease their per account usage over time. RDN projects Commercial customer usage will slightly increase based on the historical trend. The overall effect is that water use is predicted to remain fairly stable during the study period, increasing from 15,875 hcf a year in FY 2020-21 to 15,917 hcf a year in FY 2025-26.

Figure 4-1 Annual Water Demand Projections for FY 2020-21 – FY 2030-31



Revenues

Based on the account growth and water demand projections, RDN forecast revenues generated from customer rates using the current water rates for the study period, which totaled approximately $270,000 annually. Other operating and non-operating revenue are estimated to provide supplemental revenue of approximately $7,200 a year. The system's total revenues for the study period are estimated to be approximately $278,000 annually under the status quo rate schedule. Table 4-1 shows projected revenue flow for the study period (FY 2020-21 – FY 2025-26) without any revenue adjustments.

Table 4-1. Revenue Forecast for Rimforest Water System, FY 2021-22 – FY 2025-26

	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
Revenue from rates					
Service Charges - Water	$177,149	$177,149	$177,149	$177,149	$177,149
Usage Charges - Water	$93,562	$93,670	$93,767	$93,878	$93,976
Rate Revenue Total	**$270,710**	**$270,819**	**$270,916**	**$271,027**	**$271,124**
Other operating revenues	**$6,678**	**$6,698**	**$6,718**	**$6,738**	**$6,758**
Non-operating revenues	**$648**	**$661**	**$674**	**$688**	**$702**
Total	**$278,037**	**$278,178**	**$278,309**	**$278,453**	**$278,585**

Operating and Maintenance (O&M) Expense

Table 4-2 displays the total O&M expense by costs category through the study period. The major expense items included in the analysis are employee wages and insurance, water purchases, utilities, and repair and maintenance expenses.

Table 4-2. O&M Expense Forecast for Rimforest Water System, FY 2021-22 – FY 2025-26

	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
Source of Supply	$58,178	$62,269	$66,638	$71,326	$76,330
Operations	$42,614	$43,728	$44,873	$46,048	$47,255
Field Operations	$50,025	$51,333	$52,677	$54,056	$55,473
Physical Plant Maintenance	$3,706	$7,605	$3,902	$4,004	$4,109
Engineering	$7,411	$3,802	$7,804	$8,008	$8,218
Administrative and General	$81,522	$83,654	$85,843	$88,091	$90,400
Total	**$243,456**	**$252,392**	**$261,737**	**$271,534**	**$281,785**

Other Obligations

Other obligations included in the financial plan are capital improvement projects funded by PAYGO (Pay As You Go), debt service obligations, and reserve contributions made from rates.

Capital Improvement Projects

The Rimforest water system is in the process of securing a major grant to assist in completing required capital projects during the study period. The $3.0 million grant will pay for adding a second water storage take and drilling new wells. Beyond the grant-funded CIP, Rimforest expects to spend approximately $260,000 on various projects during the study period.

Reserves

Rimforest maintains the same reserve funds as the other water systems with the same general funding stipulations. Under the proposed financial plan, total fund balances will reach $290,000 by the end of the study period. The system expects to contribute approximated $50,000 a year to reserve funds from customer rates.

Revenue Requirements

Table 4-3 displays Rimforest's revenue requirements for FY 2021-22 through FY 2025-26. The total expense for each year is offset by other operating revenues and non-operating revenues to compute a pure portion of revenue requirements that need to be recovered from customers' rates. CIP expense, contributions to reserves, and debt service payments are included in the other obligations. RDN proposes an annual revenue adjustment schedule of 20.0 percent for the first year, 19.5 percent for FY 2022-23, and 5.0 percent for the remaining years of the study period to reach the financial goals set by the District.

Table 4-3. Revenue Requirements for Water System, FY 2021-22 – FY 2025-26

Description	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
	Test Year				
Other Operating Revenues	($6,678)	($6,698)	($6,718)	($6,738)	($6,758)
O&M Expenses	$243,456	$252,392	$261,737	$271,534	$281,785
Non-operating Revenues	($648)	($661)	($674)	($688)	($702)
Other Obligations	$133,300	$158,949	$128,123	$131,067	$177,652
Net Balance	($44,578)	($15,628)	$25,451	$33,315	($1,902)
Revenue Requirements	**$324,852**	**$388,354**	**$407,918**	**$428,489**	**$450,076**

Financial Plan

Based on the projected total revenue and necessary costs to be recovered during the study period, RDN built a financial plan that will generate sufficient revenues for the day-to-day operation and annual PAYGO, and make appropriate contributions to the reserves. Table 4-4 shows the proposed financial plan for the study period with the revenue adjustments outlined above.

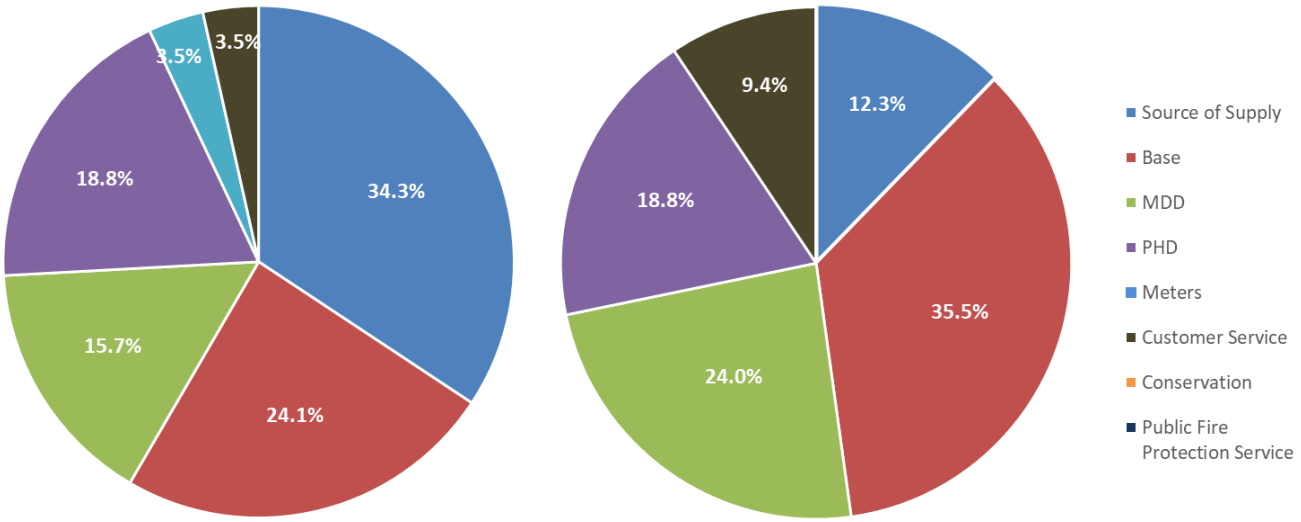
Table 4-4. Financial Plan for Rimforest Water System, FY 2021-22 to FY 2025-26

Description	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
	Test Year				
Operating Revenues	**$331,530**	**$395,052**	**$414,636**	**$435,228**	**$456,834**
Water Sales - Existing	$270,710	$270,819	$270,916	$271,027	$271,124
Year 1 - 20 %	$54,142	$54,164	$54,183	$54,205	$54,225
Year 2 - 19.5 %		$63,372	$63,394	$63,420	$63,443
Year 3 - 5 %			$19,425	$19,433	$19,440
Year 4 - 5 %				$20,404	$20,412
Year 5 - 5 %					$21,432
Water Sales	$324,852	$388,354	$407,918	$428,489	$450,076
Other Operating Revenues	$6,678	$6,698	$6,718	$6,738	$6,758
O&M Expenses	**($243,456)**	**($252,392)**	**($261,737)**	**($271,534)**	**($281,785)**
Net Operating Revenues	$88,074	$142,660	$152,900	$163,694	$175,049
Non-operating Revenues	$648	$661	$674	$688	$702
Other Obligations	**($133,300)**	**($158,949)**	**($128,123)**	**($131,067)**	**($177,652)**
Debt Service Total	($43,338)	$0	$0	$0	$0
Contribution to Reserves	($49,356)	($49,356)	($49,356)	($49,356)	($92,886)
PAYGO	$0	($62,064)	($64,199)	($66,407)	$0
Annualized Rates	($40,607)	($47,529)	($14,569)	($15,303)	($16,074)
Net Balance	**($44,578)**	**($15,628)**	**$25,451**	**$33,315**	**($1,902)**
Beginning Balance	$4,580	($39,998)	($55,625)	($30,174)	$3,141
Ending Balance	**($39,998)**	**($55,625)**	**($30,174)**	**$3,141**	**$1,239**
% Deficit/Surplus	-13.7%	-4.0%	6.2%	7.8%	-0.4%
% Cumulative Deficiency	**-12.3%**	**-7.8%**	**-2.7%**	**0.2%**	**0.1%**

4.2 Cost of Service Analysis

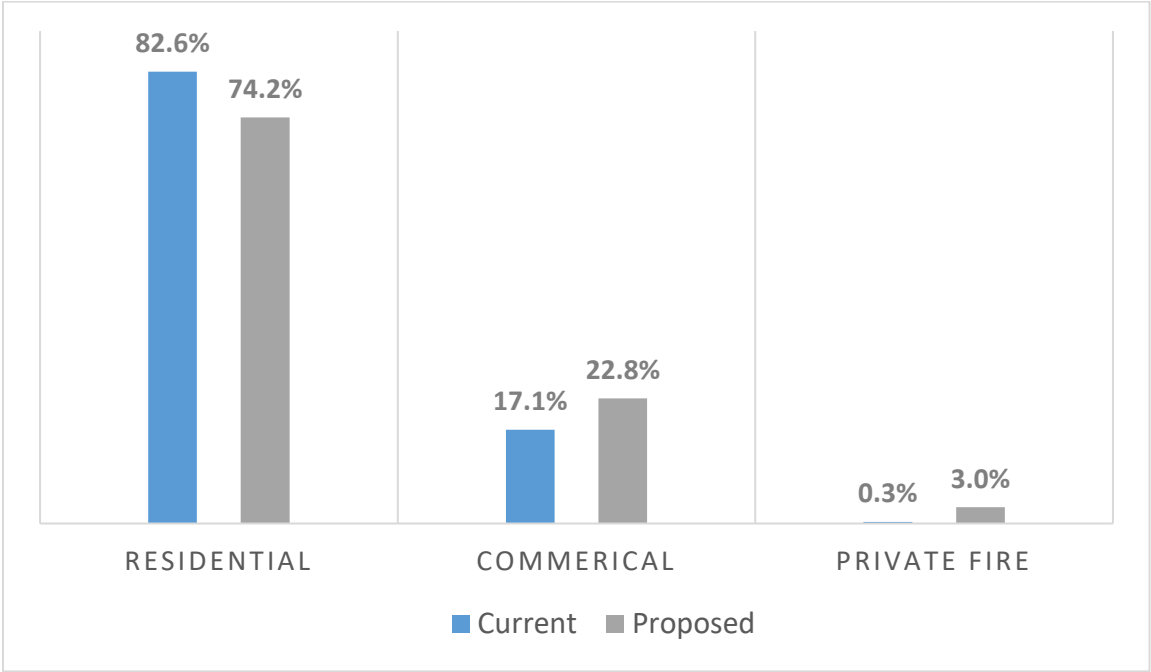
The Cost of Service (COS) analysis was performed for Rimforest water system to allocate costs among customers commensurate with their service requirements. RDN identified significant differences in the service requirements placed on the system between Residential customers and Commercial customers. In consultation with the District staff, costs are allocated to the two customer classes proportionally to develop different rates for each customer class.

Figure 4-2. O&M (left) and Other Obligation (right) Cost Allocations for Rimforest Water System



RDN equitably allocated costs to Rimforest's three customer classes based on their service requirements. Figure 3-3Figure 4-3 presents the current cost allocations versus the proposed cost allocations determined in the COS analysis.

Figure 4-3. Current Cost Allocation vs. Proposed Cost Allocation by Customer Class, Rimforest



4.3 Water Rate Design

RDN proposes the following adjustments to Rimforest customer's water rate structures:

- Adding a Commercial customer class to distribute costs equitably between different types of customers
- Creating different fixed rates for each customer class based on total cost of service allocations

- Developing a second variable usage tier for all customer classes to mitigate rate impacts for smaller users
- Aligning meter ratios to match AWWA recommendations to provide a basis for differential costs between meter sizes

Fixed Charge

For Rimforest customers, base, peaking, meters, and fire protection service costs are divided by the number of equivalent meters to compute the unit cost for each cost component. Customer service costs are simply divided by the number of accounts since the service requirements of this cost type are the same regardless of the meter size installed on a property.

Residential Customers

For Rimforest customers, 100 percent of the base, meters, customer service, and fire protection service costs, and 50 percent of peaking costs are recovered from fixed charge revenue. The system collects approximately 70 percent of revenue requirements for Residential customers from the fixed charges.

The proposed 5-year rate structure for Rimforest residential customers is as follows:

Table 4-5. Proposed Residential Fixed Charges FY 2021-22 to FY 2025-26, Rimforest

Residential					
Fixed Charges	**FY 2021-22**	**FY 2022-23**	**FY 2023-24**	**FY 2024-25**	**FY 2025-26**
3/4-in	$54.95	$65.67	$68.95	$72.40	$76.02
1-in w/Fire	$88.13	$105.31	$110.58	$116.11	$121.92
1-in	$88.13	$105.31	$110.58	$116.11	$121.92
1 1/2-in	$171.08	$204.44	$214.66	$225.39	$236.66
2-in	$270.61	$323.38	$339.55	$356.53	$374.36
3-in	$502.86	$600.92	$630.97	$662.52	$695.65
4-in	$834.65	$997.41	$1,047.28	$1,099.64	$1,154.62
6-in	$1,664.12	$1,988.62	$2,088.05	$2,192.45	$2,302.07

Commercial Customers

Approximately 37 percent of Commercial customers' revenue requirements will be collected from fixed charges. Significant differences in the usage level among users were identified for this customer class, thus the peaking related costs are allocated to the volumetric rates to ensure equitable cost recovery. Approximately 50 percent of the base costs are allocated to fixed charges in addition to 100 percent of meters, customer service, and Public Fire Protection service costs.

Table 4-6. Proposed Commercial Fixed Charges FY 2021-22 to FY 2025-26, Rimforest

COM					
Fixed Charges	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
3/4-in	$63.02	$75.31	$79.08	$83.03	$87.18
1-in w/Fire	$101.58	$121.39	$127.46	$133.83	$140.52
1-in	$101.58	$121.39	$127.46	$133.83	$140.52
1 1/2-in	$197.98	$236.58	$248.41	$260.83	$273.87
2-in	$313.66	$374.82	$393.56	$413.24	$433.90
3-in	$583.57	$697.37	$732.24	$768.85	$807.29
4-in	$969.16	$1,158.15	$1,216.06	$1,276.86	$1,340.70
6-in	$1,933.14	$2,310.10	$2,425.61	$2,546.89	$2,674.23

Private Fire Protection Service Customers

The fixed monthly service charge was also computed for Private Fire Protection Service customers. The customers pay only for the costs related system capacity and billing as the service is required in case of emergency. The system currently has four fire service accounts, with 4-inch meters or larger.

Table 4-7. Proposed Fire Fixed Charges FY 2021-22 to FY 2025-26, Rimforest

Fire					
Fixed Charges	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
4-in	$113.64	$135.81	$142.60	$149.73	$157.22
6-in	$222.11	$265.42	$278.69	$292.62	$307.25
8-in	$352.26	$420.95	$442.00	$464.10	$487.31

Volumetric Rates

Volumetric rates are designed based on variable costs such as water purchases, treatment, and energy costs. The peaking costs on the volumetric side are the remaining fixed costs intended to be recovered from volumetric charges. Additionally, water conservation-related costs are all recovered from volumetric rates.

Residential Customers

Approximately 50 percent of the peaking costs for Residential customers will be recovered via volumetric rates, and the remaining fixed source of supply costs will be recovered from volumetric rate revenue.

RDN built two-tiered rate structure by allocating the peaking costs to the second tier. The rate structure is designed to send strong conservation signals to those who exceed the first five hcf water allocation in Tier 1.

Table 4-8. Residential Customers Volumetric Tiered Rates Calculation by Cost Component

Tiers	Tier 1	Tier 2
Tiered Percentages	72%	28%
Total Usage	7,980	3,145
Imported Water	$2.88	$2.88
Remaining Source of Su	$2.52	$2.52
Base	$0.00	$0.00
Peaking		$2.90
Pass - Thru	$2.88	$2.88
Total Tier Rate	**$5.40**	**$8.30**

The proposed five-year volumetric rates for Rimforest Residential customers are as follows:

Table 4-9. Proposed Residential Volumetric Charges FY 2021-22 to FY 2025-26, Rimforest

Residential						
Volumetric Charges	**Widths**	**FY 2021-22**	**FY 2022-23**	**FY 2023-24**	**FY 2024-25**	**FY 2025-26**
Tier 1	0-5	$5.40	$6.45	$6.77	$7.11	$7.47
Tier 2	5 +	$8.30	$9.92	$10.42	$10.94	$11.49

*Note: volumetric charges include CLAWA water costs of $2.88 per HCF of water use. If CLAWA's rates increase more than 7 percent in any given year, those additional costs will be added to the cost per hcf as a pass-through charge

Commercial Customers

All of the peaking related costs allocated to Commercial customers will be recovered via volumetric rates. In addition, 50 percent of the base cost will be recovered from volumetric rate revenue as well as 100 percent of customer service and public fire protection related service costs.

RDN built two-tiered rate structure by allocating the peaking costs to the second tier. The rate structure is designed to send strong conservation signals to those who exceed the 18 hcf of water allocation in Tier 1.

Table 4-10. Commercial Customers Volumetric Tiered Rates Calculation by Cost Component

Tiers	Tier 1	Tier 2
Tiered Percentages	46%	54%
Total Usage	2,188	2,569
Source of Supply	$2.52	$2.52
Base	$2.89	$2.89
Peaking		$2.93
Pass Thru	$2.88	$2.88
Total Tier Rate	**$8.28**	**$11.22**

The proposed five-year volumetric rates for Rimforest Commercial customers are as follows:

Table 4-11. Proposed Commercial Volumetric Charges FY 2021-22 to FY 2025-26, Rimforest

COM						
Volumetric Charges	**Widths**	**FY 2021-22**	**FY 2022-23**	**FY 2023-24**	**FY 2024-25**	**FY 2025-26**
Tier 1	0-18	$8.28	$9.90	$10.40	$10.92	$11.47
Tier 2	18+	$11.22	$13.40	$14.07	$14.77	$15.51

*Note: volumetric charges include CLAWA water costs of $2.88 per HCF of water use. If CLAWA's rates increase more than 7 percent in any given year, those additional costs will be added to the cost per hcf as a pass-through charge

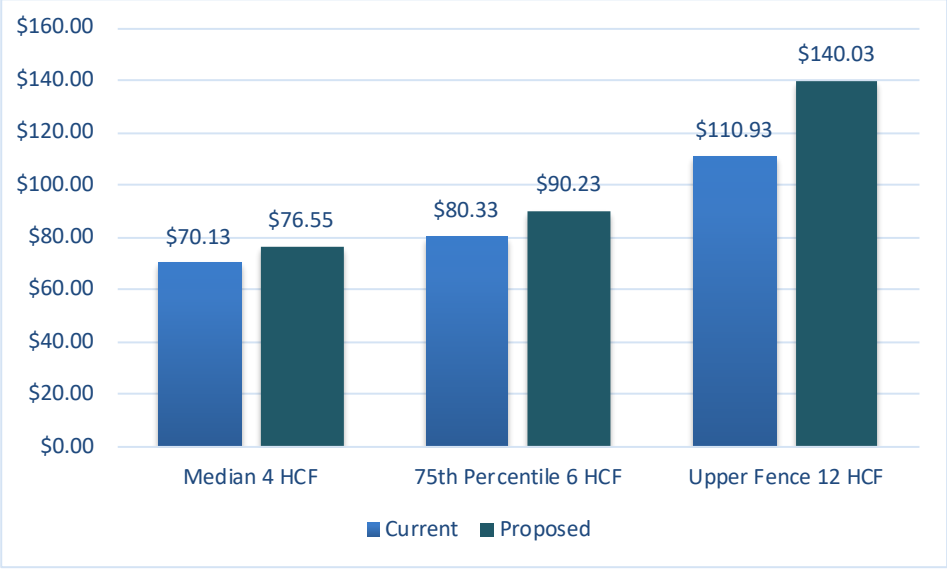
4.4 Bill Impact Analysis

This analysis compares customer's bill under current and proposed rates. The rates were calculated at the median, 75th percentile, and upper fence usage points to gaze the impacts on different types of customers.

Residential Customers Bill Impact

Figure 4-4 shows the dollar change in the bill based on the Residential customer's usage at selected usage points as described above. The District's median Residential customer uses water for the amount of 4 hcf per month. Additionally, 75 percent of Residential customers use under 6 hcf. The usage at the upper fence was 12 hcf. Figure 4-4 presents Residential customers' monthly bill impacts by those three different levels of usage. RDN performed an extensive bill impact analysis to find the optimal rates with the least impact across all customers. Note that the bill impact shown below only reflect the test year rates.

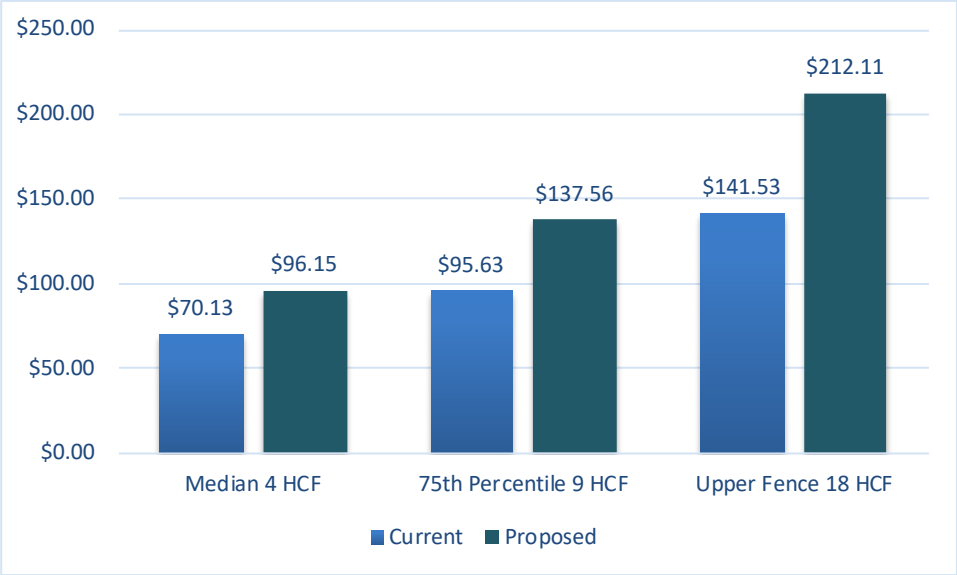
Figure 4-4. Residential Customers' Bill Impacts by Usage for Median, 75 Percentile, and the Upper Fence, Rimforest



Commercial Customers Bill Impact

Figure 4-5 shows the dollar change in the bill based on the customer's usage. The District's median Commercial customer uses 4 hcf of water per month. Commercial customers at the 75th percentile use 9 hcf. Excluding the outliers, the upper fence of commercial customers uses 18 hcf a month.

Figure 4-5. Commercial Customer Bill Impacts by Usage for Median, 75th Percentile, and the Upper Fence, Rimforest



5 SEWER SYSTEM

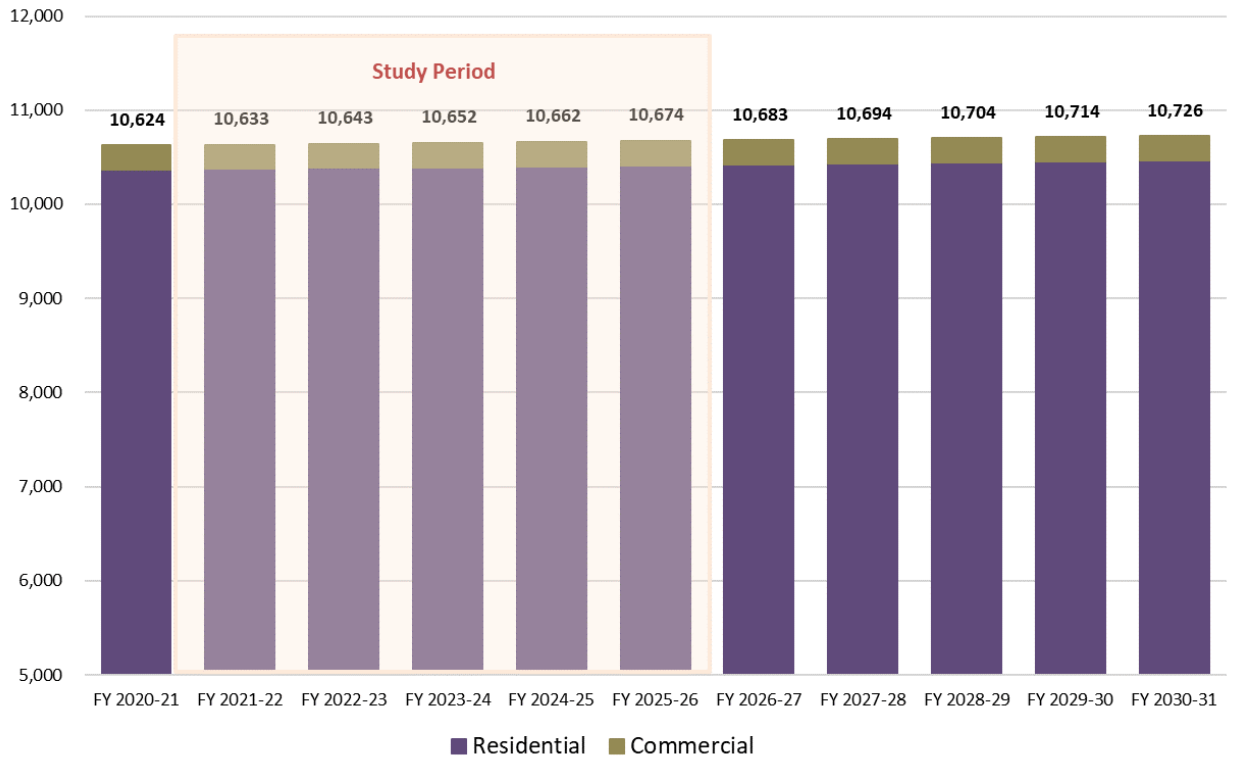
5.1 Financial Plan

RDN built a 10-year financial model for LACSD's sewer system to meet the system's long-term financial goals. The account growth and demand projections are presented for 10 years in this report. The detailed rate analysis was performed for the first five years because rate recommendations designed under Prop 218 cannot exceed five years.

Growth Projections

Residential sewer customers are charged a standard fixed charge for each of their sewer connections. Commercial Customers are charged based on their sewer connection, plus a variable charge for water use over 5 hcf a month. RDN forecast the number of connections and per-connection usage by customer class utilizing observed trends in the historical data. During the study period, a total of 40 new sewer connections are expected. Residential customers are expected to increase by approximately 9 accounts and commercial customers are expected to increase by 3 accounts per year during the study period. ***Figure 5-1*** shows sewer account growth between FY 2020-21 and FY 2030-31

Figure 5-1. Annual Sewer Customer Growth Projections for FY 2020-21 – FY 2030-21



Revenues

Based on the demand projections RDN conducted a revenue analysis using the current sewer rates. The District currently collects revenues from fixed charges, volumetric charges (from commercial customers), and other

operating revenues such as inspection fees. The revenue analysis also includes non-operating revenues such as interest income and property taxes. These revenues are used to offset the revenue requirements that need to be recovered from customers' rates. This projection was created under the status quo and does not include proposed revenue adjustments.

Table 5-1. Revenue Forecast for Sewer System, FY 2021-22 – FY 2025-26

Description	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
Revenues from rates					
Volumetric Revenues	$662,173	$662,173	$662,173	$662,173	$669,872
Fixed Charges	$7,068,818	$7,075,466	$7,081,450	$7,088,098	$7,096,075
Rate Revenue Total	**$7,730,991**	**$7,737,639**	**$7,743,622**	**$7,750,270**	**$7,765,948**
Other operating revenues	**$112,932**	**$113,271**	**$113,611**	**$113,951**	**$114,293**
Non-operating revenues	**$4,012,196**	**$4,085,644**	**$4,160,441**	**$4,236,611**	**$4,314,182**
Total	**$11,856,119**	**$11,936,554**	**$12,017,674**	**$12,100,833**	**$12,194,423**

Operating and Maintenance (O&M) Expense

The itemized O&M expenses were carefully reviewed by the District and forecast for the study period using escalation factors discussed in the Key Assumptions section. Table 5-2 shows LACSD's projected O&M expenses for the sewer utility during the study period. O&M Expenses are expected to increase by 2.7 percent annually.

Table 5-2. O&M Expense Forecast for Sewer, FY 2020-21 (Current) and Study Period, FY 2021-22 – FY 2025-26

Description	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
Physical Plant Maintenance	$288,339	$296,059	$304,008	$312,196	$320,649
Operations	$3,150,829	$3,235,187	$3,322,052	$3,411,526	$3,503,890
Field Ops	$1,513,782	$1,554,311	$1,596,044	$1,639,031	$1,683,406
Engineering	$216,255	$222,044	$228,006	$234,147	$240,487
Administration	$2,039,280	$2,093,879	$2,150,100	$2,208,009	$2,267,789
Total	**$7,208,485**	**$7,401,480**	**$7,600,211**	**$7,804,910**	**$8,016,221**

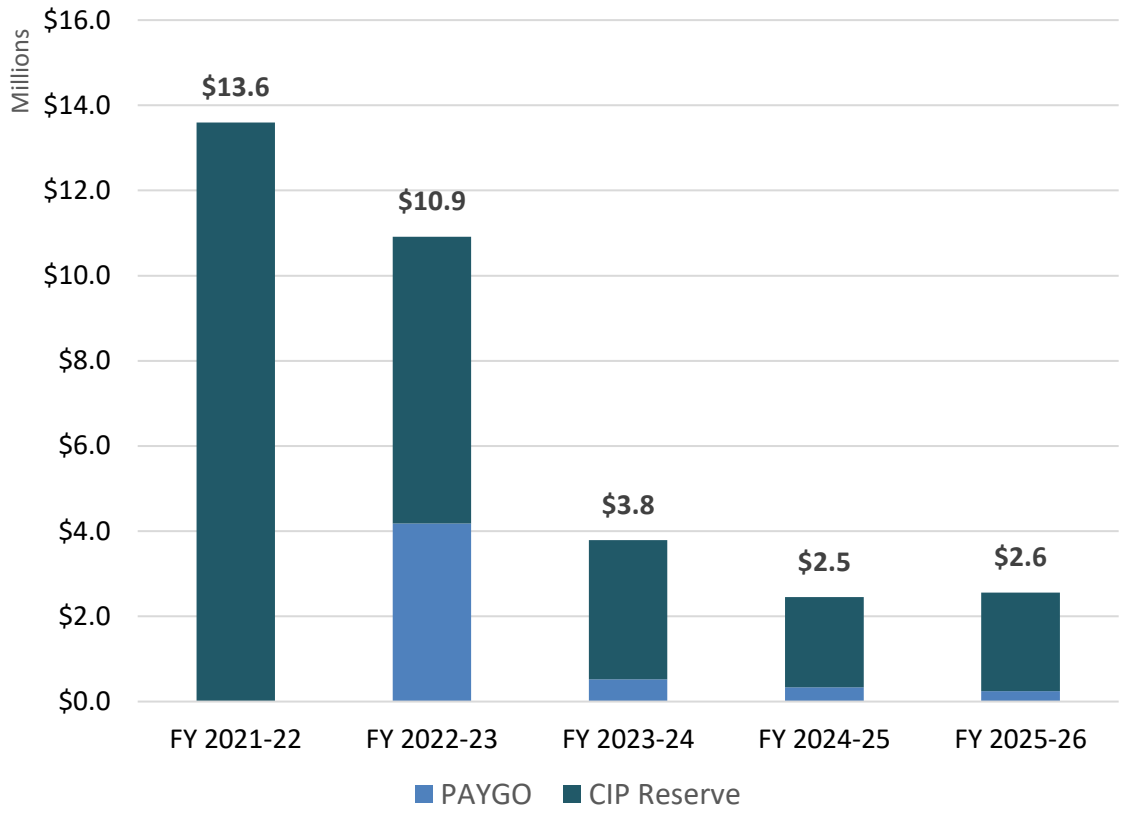
Other Obligations

Other obligations included in the sewer system financial plan are capital improvement projects funded by PAYGO (Pay As You Go), debt service obligations, and reserve contributions made through rates.

Capital Improvement Projects

The District estimates between $2.5 million and $13.6 million in capital expenditures per year for the study period. The majority of CIP expenses are paid for using the CIP Reserve; however, the District projects around $5.3 million in PAYGO expenses during this time. Figure 5-2 shows the total CIP expenditures by funding source which will be accomplished during the 5-year study period.

Figure 5-2. Study Period (FY 2021-22 to FY 2025-26) Planned Capital Expenditures by Funding Source



Debt Service

The District's sewer system's debt service payments are currently scheduled for the amount of approximately $1.1 million annually. The payments include $0.9 million for the 2016 Bonds and $0.2 million for the Inter-Fund-Loan, which will be paid off in FY 2026-27.

Reserves

The sewer system maintains the same reserve funds as the three water systems with the same general funding stipulations. The total reserve balance target at the end of FY 2025-26 is set at $6.2 million, and reserve

contributions to reach this target are estimated to equal approximately between $2.4 million and $3.1 million per year (some of the Capital Improvement Fund is being used to fund study period capital expenses).

Revenue Requirements

Table 5-3 displays LACSD's sewer revenue requirements for FY 2021-22 through FY 2025-26. The total expense of each year is offset by other operating revenues and non-operating revenues to compute a pure portion of revenue requirements that need to be recovered from customer rates. CIP expense, contributions to reserves, and debt service payments are included in the other obligations. RDN proposes 3.6 percent per year, as an annual revenue adjustment to all study years.

Table 5-3. Revenue Requirements for Sewer System, FY 2021-22 – FY 2025-26

Description	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
	Test Year				
Other Operating Revenues	($112,932)	($113,271)	($113,611)	($113,951)	($114,293)
O&M Expenses	$7,208,485	$7,401,480	$7,600,211	$7,804,910	$8,016,221
Non-operating Revenues	($4,012,196)	($4,085,644)	($4,160,441)	($4,236,611)	($4,314,182)
Other Obligations	$3,462,521	$7,879,856	$4,473,975	$4,609,105	$4,491,045
Net Balance	$1,254,692	($2,994,081)	$585,865	$631,902	$947,818
Revenue Requirements	**$7,800,570**	**$8,088,340**	**$8,386,000**	**$8,695,354**	**$9,026,609**

Financial Plan

Based on the projected total revenue and necessary costs to be covered during the study period. Table 5-4 shows the reserve balance through the study period under the proposed rate plan. The system currently holds $1.6 million in cash in addition to the reserve funds. It is the District's plan to spend the accumulated cash down to zero over the next ten-year period on specific capital projects and other expenditures. Table 2-4 shows the proposed financial plan for the study period with 3.6 percent revenue adjustments per year.

By adopting this plan, the District will have a sufficient cash balance of $8.2 million by the end of FY 2025-26 to execute necessary capital projects and meet the reserve targets for Operating and Rate Stabilization Reserve Funds.

Table 5-4. Financial Plan for Sewer System, FY 2021-22 to FY 2025-26

Description	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
	Test Year				
Operating Revenues	$7,913,502	$8,201,611	$8,499,610	$8,809,306	$9,140,903
Water Sales - Existing	$7,730,991	$7,737,639	$7,743,622	$7,750,270	$7,765,948
Year 1 - 3.6 %	$278,316	$278,555	$278,770	$279,010	$279,574
Year 2 - 3.6 %		$288,583	$288,806	$289,054	$289,639
Year 3 - 3.6 %			$299,203	$299,460	$300,066
Year 4 - 3.6 %				$310,241	$310,868
Year 5 - 3.6 %					$322,059
Annualization of rates	($208,737)	($216,437)	($224,402)	($232,680)	($241,545)
Water Sales	$7,800,570	$8,088,340	$8,386,000	$8,695,354	$9,026,609
Other Operating Revenues	$112,932	$113,271	$113,611	$113,951	$114,293
O&M Expenses	**($7,208,485)**	**($7,401,480)**	**($7,600,211)**	**($7,804,910)**	**($8,016,221)**
Net Operating Revenues	$705,017	$800,131	$899,399	$1,004,396	$1,124,681
Non-operating Revenues	$4,012,196	$4,085,644	$4,160,441	$4,236,611	$4,314,182
Other Obligations	**($3,462,521)**	**($7,879,856)**	**($4,473,975)**	**($4,609,105)**	**($4,491,045)**
Debt Service Principal	($607,122)	($603,826)	($638,020)	($674,864)	($714,619)
Debt Service Interest	($502,228)	($517,648)	($483,453)	($446,610)	($406,854)
Contribution to Reserves	($2,353,171)	($2,577,841)	($2,826,817)	($3,152,327)	($3,124,613)
PAYGO	$0	($4,180,542)	($525,684)	($335,305)	($244,959)
CIP Reserve	($13,599,500)	($6,733,314)	($3,262,897)	($2,118,220)	($2,316,915)
Use of CIP Fund	$13,599,500	$6,733,314	$3,262,897	$2,118,220	$2,316,915
Net Balance	**$1,254,692**	**($2,994,081)**	**$585,865**	**$631,902**	**$947,818**
Beginning of the Year Balanc	$1,601,714	$2,856,406	($137,676)	$448,189	$1,080,092
Ending Balance	**$2,856,406**	**($137,676)**	**$448,189**	**$1,080,092**	**$2,027,910**
DCSR	**4.25**	**4.36**	**4.51**	**4.67**	**4.85**
% Deficit/Surplus	16.1%	-37.0%	7.0%	7.3%	10.5%
% Cummulative Deficiency	**36.6%**	**-0.9%**	**1.8%**	**3.3%**	**4.8%**

5.2 Cost of Service Analysis

In the same way as the water system's Cost of Service (COS) analysis was performed, a sewer system's COS analysis also utilizes a three-step approach to allocate costs proportionally among different customer classes. These steps include 1) functionalization of cost and asset items, 2) cost classification, and 3) cost allocation to customers. Provided below is a detailed discussion of the sewer COS analysis conducted for the District, and the specific steps taken for the analysis.

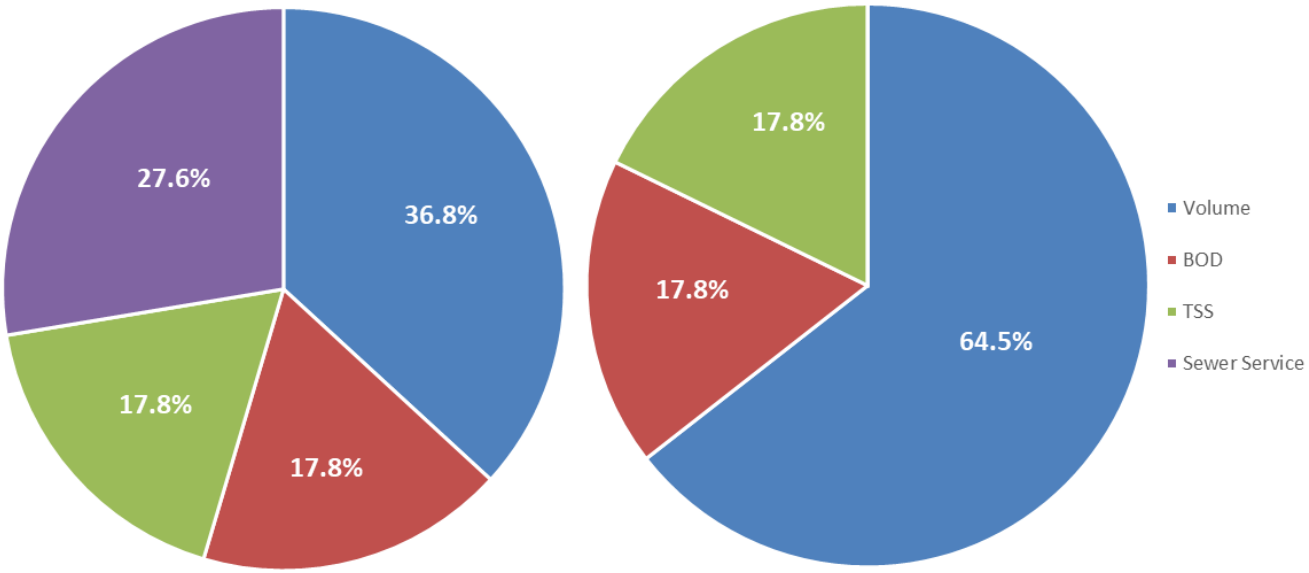
The typical major functions included in a sewer study are collection, pumping, sewer treatment, and other sewer services. The District staff carefully distributed each of the O&M expenses and the asset items into these functions. Special attention was paid to staff's salaries and wages as one employee's salary often applies to multiple functions of the system. Once costs were functionalized, RDN further classified the costs into four different types of service categories (cost causative components):

- **Volume related costs** - those costs which tend to vary with the total quantity of wastewater collected and treated
- **Strength related costs** - those costs associated with the additional handling and treatment of high "strength" sewer. Strength of sewer is typically measured in biochemical oxygen demand (BOD) and total suspended solids (TSS). Increased levels of BOD or TSS generally equate to increased treatment costs.
- **Other sewer service-related costs** – those costs which are a function of the number of customers served. Customer related costs typically include the costs of billing, collecting, and accounting.

Once this process was complete, and the customer classes were identified, the unit cost of these classified costs were calculated and further allocated to different customer classes using the unit of services specific to the class.

Figure 5-3 displays the functionalized O&M costs and other obligation costs allocated to cost causative components for the sewer system.

Figure 5-3. O&M (left) and Other Obligation (right) Cost Allocations for Sewer System



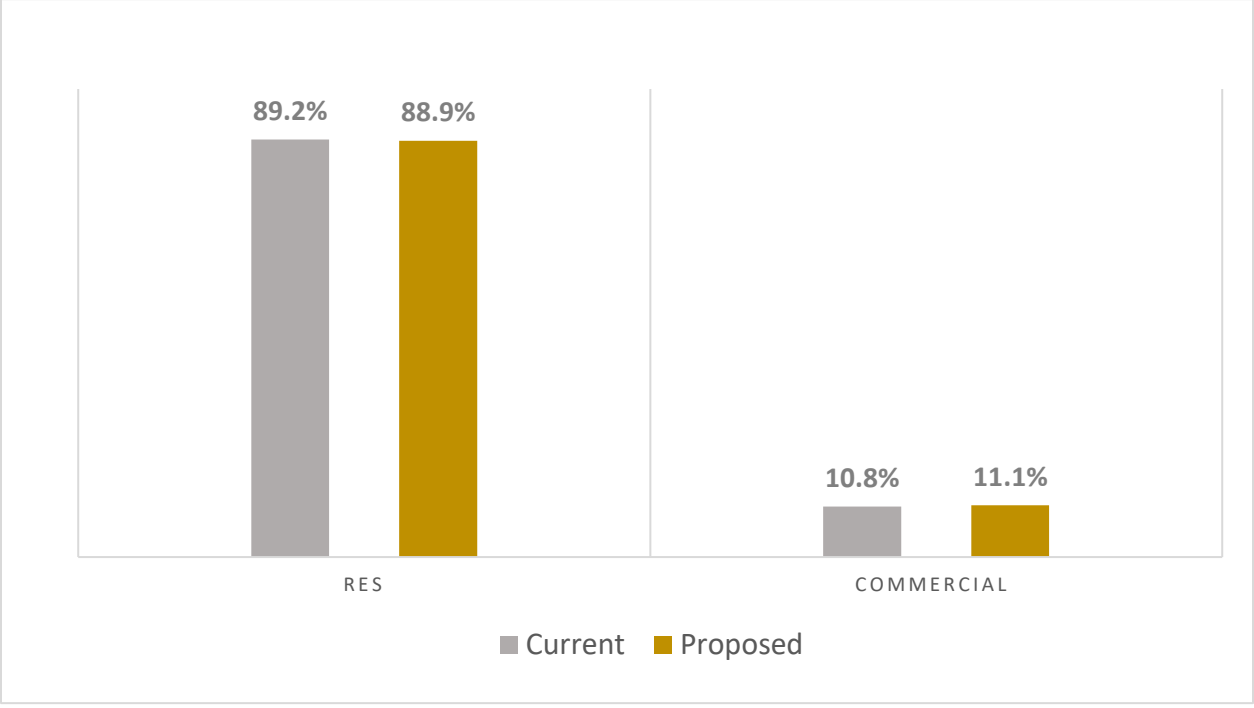
In developing equitable rate structures, revenue requirements are allocated to Residential and Commercial customers commensurate with customer demand and services rendered. The costs are allocated to customer classes according to the volume of discharge, the relative strength of discharge, and number of connections. Based on the results of the unit of service analysis carried out during this study, there are very minor shifts in the cost allocation among the customer classes. Table 5-5 displays different service requirements based on the type of services provided by the system. As a result of this analysis RDN identified slight shifts in the cost allocation among the customer classes. Figure 5-4 presents the current cost allocation verses the proposed cost allocation determined in the COS analysis.

Table 5-5. Unit of Service, Sewer System

Unit of Service	Volume		BOD			
Description	Annual Flow	% Flow	Strength	Volume	Total Strength	% Strengh
	hcf/year		mg/L		lbs/year	
Residential	527,381	85.3%	225	1,493,373,516	740,772	85.3%
Commercial	91,189	14.7%	225	258,219,064	128,087	14.7%
Total	**618,570**	**100.0%**			**868,859**	**100.0%**

Unit of Service	TSS				WW Service	
Description	Strength	Volume	Total Strength	% Strengh	# of Bills	% Connections
	mg/L		lbs/year			
Residential	225	1,493,373,516	740,772	85.3%	124,512	97.6%
Commercial	225	258,219,064	128,087	14.7%	3,096	2.4%
Total			**868,859**	**100.0%**	**127,608**	**100.0%**

Figure 5-4. Current Cost Allocation vs. Proposed Cost Allocation by Customer Class



5.3 RATE DESIGN

The District's sewer rates are comprised of a fixed monthly service charge and a volumetric rate for Commercial customers. The fixed service charge is applied to each of the District's connections.

Sewer Rates

There are no major changes of structure required for the proposed sewer rates as the assumptions used in the last study remain true. The volumetric portion of rates applied to Commercial customers is set to be applied when their water use is above the average indoor water use of Residential customers (5 hcf). Additionally, the fixed charges for Residential and Commercial customers remain the same to reflect the fact that the fixed charge includes one residence's sewer contributions. Table 5-6 shows the proposed sewer rates for FY 2021-22 through FY 2025-26.

Table 5-6. Proposed Sewer Rates for FY 2021-22 – FY 2025-26

Sewer					
Fixed Charges	**FY 2021-22**	**FY 2022-23**	**FY 2023-24**	**FY 2024-25**	**FY 2025-26**
Residential	$55.72	$57.73	$59.81	$61.96	$64.19
Commercial	$55.72	$57.73	$59.81	$61.96	$64.19
Volumetric Charges	**FY 2021-22**	**FY 2022-23**	**FY 2023-24**	**FY 2024-25**	**FY 2025-26**
Commercial Use > 5 CCF	$8.34	$8.64	$8.96	$9.28	$9.61

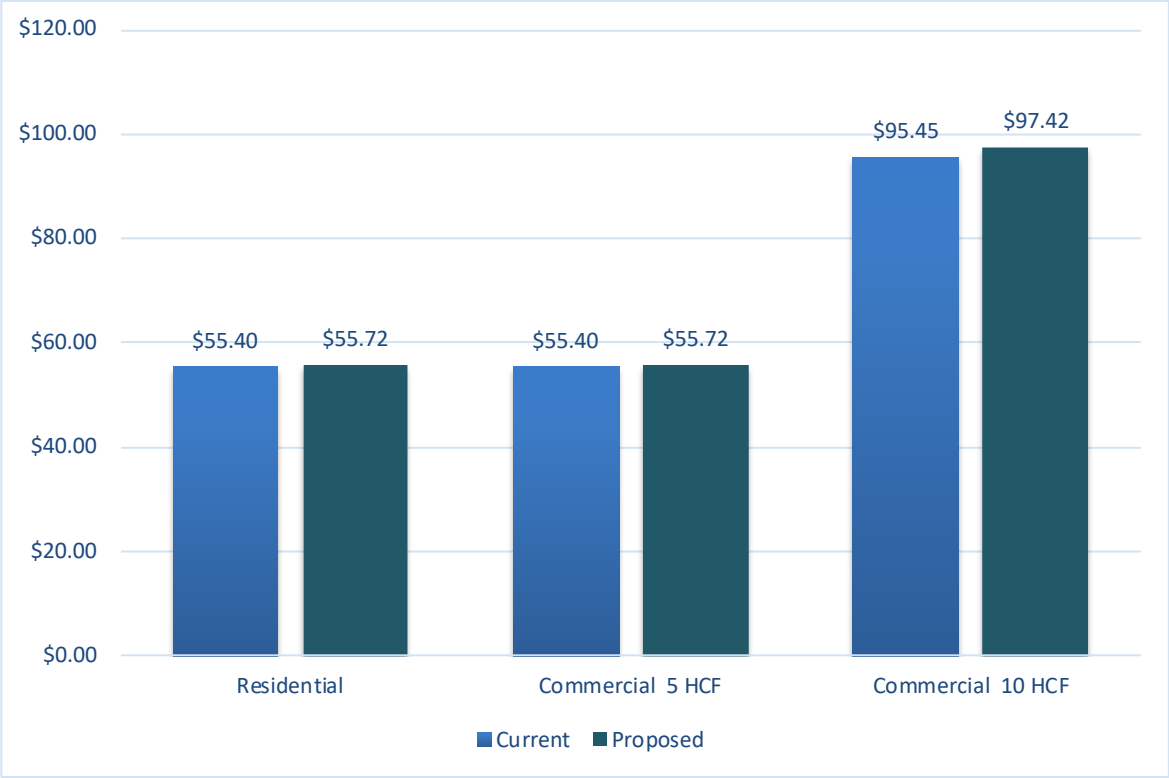
5.4 BILL IMPACTS

RDN performed an extensive bill impact analysis to find the optimal rates with the least impact across all customers. Note that the bill impact shown below only reflects the test year rates.

Residential and Commercial Customers Bill Impact

This analysis compares customer's bill under current and proposed rates. Figure 5-5 shows the dollar change in the bill based on the sewer customer's usage. Residential customers are billed a fixed charge regardless of the flow. Commercial Customers who use more than 5 hcf will see additional bill increases based on the total use.

Figure 5-5. Sewer Bill Impacts by Customer Class

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