



HIDDEN VALLEY LAKE
COMMUNITY SERVICES DISTRICT

WATER & SEWER RATE STUDY REPORT

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SECTION 1. BACKGROUND, PURPOSE AND OVERVIEW OF THE STUDY

BACKGROUND

The District has incurred significant costs and staff time to respond to fires, floods, and Covid-19-related issues since the last rate study was conducted in 2015. Additionally, after evaluating recent changes in consumption patterns, water supply limitations, future Capital Improvement Plan (CIP) projects, legal requirements, and the overall fairness and equity of rates, the Board determined that an updated rate study was needed. This revised rate study addresses these factors.

“Significant changes in water use the last few years have impacted the District’s revenues and rates.”

Faced with limited budgets and increasing costs, the District has implemented a number of cost saving measures including: (1) successfully securing approximately \$2.4 million in grant funding for emergency repairs to damaged infrastructure; (2) participating in the solar NEM-A programs to reduce electric costs by approximately 30%; (3) promoting employees from within and hiring new A-step level employee to reduce salary/benefit costs; (4) reducing rental costs by purchasing a vac-truck and participating in the Disaster Response Network; and (5) reducing costs by performing many maintenance activities in-house rather than using outside contractors (e.g., vehicle maintenance, F.O.G control, distribution system and lift station repairs, and manhole lid replacements).

PURPOSE

This evaluation of the District’s water and sewer rates is intended to ensure that the District’s rates meet substantive Proposition 218 (Prop 218) requirements and broader industry standards, reflect the District’s current funding priorities and costs of service, and promote transparent communications between the District and its ratepayers. This report also documents the District’s cost of service analysis and rate study as required by Prop 218.

OVERVIEW OF THE STUDY

In developing the proposed new water and sewer rates, NBS worked cooperatively with District Staff and the District Board to finalize new financial plans and rate adjustments. The proposed rates summarized in this report represent projected rates based on current budgets and carefully reviewed capital improvement plans. This study has assumed that the proposed new water rates will be implemented on January 1 in 2021 and thereafter, and sewer rates on January 1, 2021 and every July 1 thereafter, each pursuant to the schedules proposed in this study.

Key Issues Addressed – In addition to ensuring that water and sewer rates collect enough revenue to meet annual operating costs and capital improvement plans, other key issues addressed included:

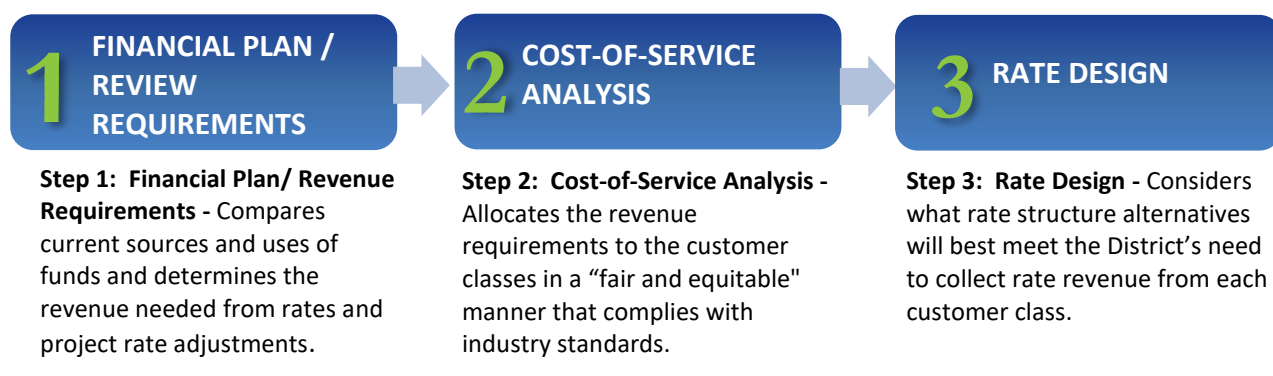
- Slightly increasing water sales over the last few years, although consumption is still well below levels prior to the most recent drought.
- Capital improvements costs that have been impacted by the need to respond to various fire and flood damages; the District’s disaster response efforts have delayed some normal infrastructure repair and replacements and complicated overall cost projections.
- Wooden tank replacements to ensure reliable water supply under wildfire threat.
- Changes in annual operating costs, including adjustments resulting from the District’s most recent salary survey.
- The need to build adequate CIP and replacement reserves for both water and sewer.

Recommendations – As a part of the water and sewer financial plans, NBS evaluated projected revenues and expenditures to determine net revenue requirements and the additional rate revenue needed to meet annual expenses and maintain adequate reserves. After reviewing the results along with the District’s capital improvements priorities, the District Board has directed staff to propose rate increases for both water and sewer utilities of 12% for the next three years followed by two years of 9% increases. These increases are needed to fund critical capital improvement priorities set by the District Board.

RATE STUDY METHODOLOGY

Components of the Rate Study Methodology – A comprehensive utility rate study typically has three major components: (1) the utility’s overall revenue requirements and financial plan; (2) the cost-of-service for each customer class; and, (3) rate structure design, as shown in **Figure 1**. These components reflect industry standards, primarily from the American Water Works Association (AWWA)¹, and address the general requirements for equity and fairness. In terms of the chronology of the study, these three steps represent the order they were performed in this study.

Figure 1: Primary Components of a Rate Study



The following sections in this report present an overview of the methodologies, assumptions, and data used along with the financial plans and rates developed.

Rate Design Criteria – Several criteria are typically considered in setting rates and developing sound rate structures. The fundamentals of this process have been documented in several rate-setting manuals. For example, the foundation for evaluating rate structures is generally credited to James C. Bonbright in the *Principles of Public Utility Rates*², which outlines pricing policies, theories, and economic concepts along with various rate designs. The other common industry standard is AWWA Manual M1. The following is a simplified list of the attributes of a sound rate structure:

- Rates should be easy to understand from the customer’s perspective.
- Rates should be easy to administer from the utility’s perspective.
- Rates should promote the efficient allocation of the resource.
- Rates should be equitable and non-discriminating (e.g., cost based).
- There should be continuity in the rate making philosophy over time.
- Other utility policies should be considered (e.g., encouraging conservation & economic development).
- Rates should consider the customer’s ability to pay.

¹ *Principles of Water Rates, Fees, and Charges*, Manual of Water Supply Practices, M1, AWWA, seventh edition, 2017.

² James C. Bonbright; Albert L. Danielsen and David R. Kamerschen, *Principles of Public Utility Rates*, (Arlington, VA: Public Utilities Report, Inc., Second Edition, 1988), p. 383-384.

- Rates should provide month-to-month and year-to-year revenue stability.

The following section covers basic rate design criteria that NBS and District staff considered as a part of their review of the rate structure alternatives.

Rate Structure Issues – The relationship between fixed and variable costs is one of the most fundamental rate structures considerations. Fixed costs typically vary little if any with the amount of water consumed. Debt service and compensation of District personnel are examples of fixed costs. In contrast, variable costs such as the cost of chemicals and electricity tend to change with the quantity of water sold. Most rate structures contain a fixed or minimum charge in combination with a volumetric charge.

The District’s rate design objectives are not necessarily the same as those in other communities. For example, some communities, particularly those with very expensive purchased water costs, prioritize conservation-oriented rates by emphasizing the variable cost of water purchases. Other communities that have many low-income customers may want to implement low-income subsidies by using non-rate revenues consistent with Proposition 218.

The District’s 2015 rate study considered various combinations of fixed vs. variable charges and recommended collecting 60 percent of rate revenue from fixed charges and 40 percent from variable charges. Additionally, following completion of the 2015 study, the previous four-tiered volumetric rates were replaced with a single-tier (uniform) volumetric rate. This water rate design still appears to be appropriate considering the District’s projected water sales and the need to emphasize revenue sufficiency and stability.

Key Financial Assumptions

Following are the key assumptions used in the water and sewer rate analyses:

- **Funding of Capital Projects** – After the District and its consultant extensively reviewed planned CIP projects and funding requirements, the District has decided that loans and grants from both state and federal sources may not be available to fund CIP costs over the next several years. Therefore, it is prudent to assume the District will not take on new debt to fund CIP projects, but will utilize revenue and reserves instead, and focus expenditures on the most urgent projects within the District.
- **Reserve Targets** – The District’s water and sewer utility reserves are currently below target levels. Going forward, the target reserves for operations and maintenance (O&M) and capital rehabilitation and replacement (R&R) follow general utility industry standards. This includes approximately 90-days of O&M expenses for both the water and sewer O&M Reserves, and approximately 3% of net assets as the target reserve level for the R&R Reserves.
- **Inflation and Growth Projections:**
 - ✓ Customer growth is assumed to be 0.25% annually. While some additional growth may occur³, NBS did not rely on any additional growth during the next five years.
 - ✓ General cost inflation is about 3% annually.
 - ✓ Operating expenses, which include among other things labor costs, health benefits, and retirement benefits, are inflated at a rate of approximately 3% to 4% annually.
 - ✓ No inflation is added to other costs.

The next two sections discuss the water and sewer rate studies.

³ The District has roughly 700 undeveloped lots, but these are not expected to fully develop within the timeframe of this study and the District cannot accurately predict when and how many lots will be developed.

SECTION 2. WATER RATE STUDY

A. KEY WATER RATE STUDY ISSUES

The water rate study was undertaken with a few specific objectives, including:

- Reviewing the District’s approach to funding capital improvements, which total about \$3.7 million over the next five years.
- Examining changes in water consumption over the past several years and how they affect rates.
- Generating additional revenue to meet projected funding requirements and to rebuild reserve funds above the target level.
- Confirming whether continuing to collect approximately 60% of water rate revenue from fixed charges and 40% from volumetric rates is an appropriate and reasonable approach to rate design.
- Updating fixed and volumetric charges to reflect changes in consumption patterns and projected expenses.

NBS considered several water rate alternatives over the course of this study based on industry standards and cost-of-service principles. The fixed and volumetric charges were calculated based on the net revenue requirements, number of customer accounts, water consumption, and other District-provided information. The following are the basic components included in this analysis:

- **Developing Unit Costs:** The water revenue requirements were “functionalized” into three categories: (1) fixed capacity costs; (2) variable costs (or volume-based); and, (3) customer service costs, such as meter reading, billing, mailing, and responding to customer questions. Unit costs for each of these categories were then allocated to functional areas, including water consumption, peaking factors, number of accounts by meter size, and customer class.
- **Determining Revenue Requirements by Customer Class:** The total revenue requirements allocated to each customer classes (i.e., groups of customers with similar consumption patterns) was determined based on the unit costs and the total units of each class. For example, volume-related costs are allocated based on the water consumption for each class, while customer costs are allocated based on number of meters. Once the revenue requirement for each customer class is determined, collecting these revenue requirements from each customer class is addressed in the rate design task.
- **Rate Design and Fixed vs. Variable Costs:** The revenue required from each customer class is collected from fixed charges and volumetric rates. The cost of service analysis indicated that an allocation of 60% of the costs to fixed and 40% to variable rates continues to be a reasonable basis for rate design. State agencies, such as the California Water Efficiency Partnership, would like water utilities to collect at least 70% of rate revenue from volumetric rates. However, many utilities prefer collecting less than 70% from volumetric rates because unexpected decreases in consumption causes revenue instability.

“The best way to promote financial stability is to collect all fixed costs through fixed charges.”

B. WATER UTILITY REVENUE REQUIREMENTS

Rate increases for municipal utilities are governed by the need to meet operating and capital costs, to maintain adequate reserves, and to meet required minimum debt coverage. These are important in order to handle emergencies, fund working capital, maintain a good credit rating, and generally follow sound financial management practices. The current financial state of the District’s water utility is as follows:

Capital Improvement Costs: The \$3.7 million in planned capital projects for FY 2020/21 through FY 2024/25 shown in **Figure 2** are a significant factor in the water utility’s projected annual costs. These costs are in current year dollars; future inflation of 3% is assumed for actual funding requirements. There are also another \$6.5 million (\$1.3 million/year) of unfunded capital projects that should be completed in the next 5 years if adequate funding becomes available. These include water line repairs and upgrading fire hydrants.

Figure 2. Summary of Water Capital Project Costs

Funded Priority	Project Description	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
1	Wildfire Resilience/Reliable Water Supply/Replace wooden tanks	\$ 180,000	\$ 405,000	\$ 405,000	\$ 405,000	\$ 405,000
3	Disaster mitigation/SCADA Upgrade	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000
2	Reliable Water Supply/Automatic Metering Infrastructure	\$ 200,000	\$ 320,000	\$ 320,000	\$ 320,000	\$ 320,000
4	Wildfire Resilience/ Reliable Water Supply/PSPS Backup power supply	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000
7	IT Upgrades/Records Retention/Increase storage capacity				\$ 50,000	
5	Reliable Water Supply/Leak Repair/Mini-Excavator		\$ 25,000	\$ 25,000		
6	Regulatory Compliance/Dump Truck		\$ 37,500	\$ 37,500		
	Total CIP Priority Projects	\$ 460,000	\$ 867,500	\$ 867,500	\$ 855,000	\$ 805,000

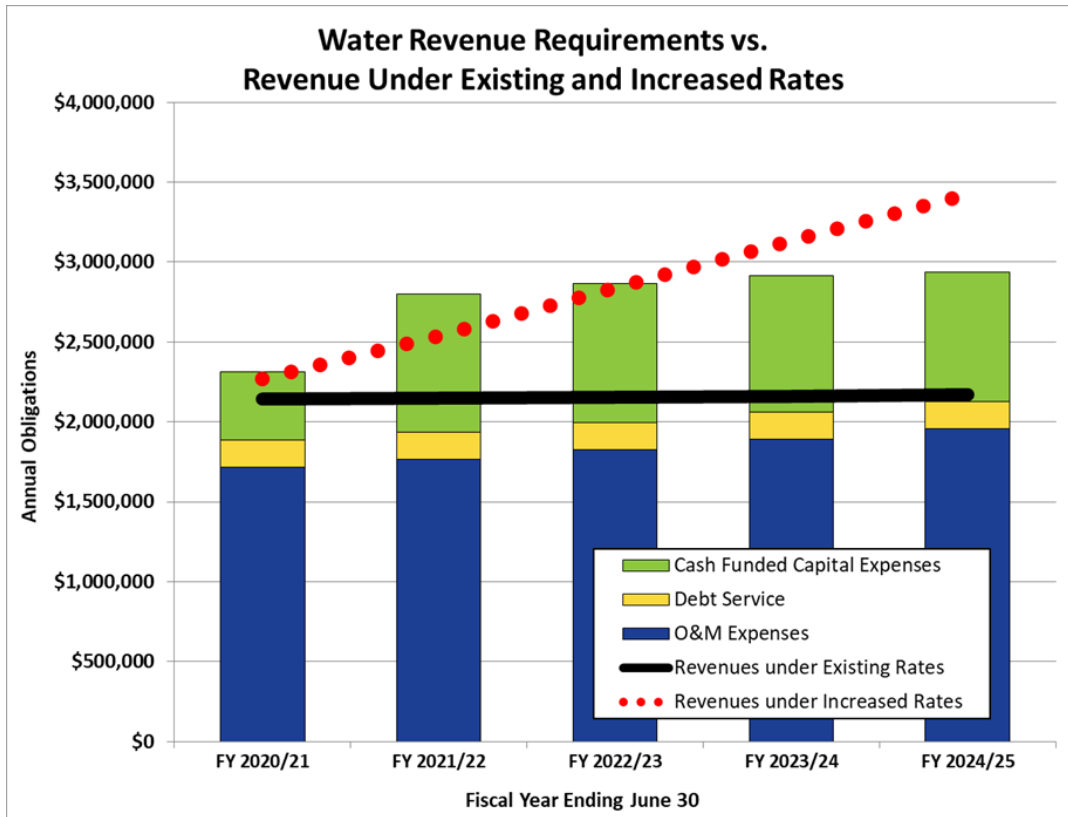
Meeting Net Revenue Requirements: For Fiscal Years 2020/21 through 2024/25, the projected revenue that must be recovered from rates increases by more than 36%, from \$2.10 million to \$2.85 million, as shown in **Figures 3 and 4**. Without additional rate increases, the water utility would run annual deficits that grow to about \$765,000 by the end of FY 2024/25. A summary of the water utility’s proposed 5-year financial plan is included in Appendix A – Water Rate Study Summary Tables, including revenue requirements, reserve funds, revenue sources and proposed rate increases for the 5-year period.

Figure 3. Summary of Water Revenue Requirements

Summary of Sources and Uses of Funds and Net Revenue Requirements	Prop 218 Rate Period				
	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Sources of Water Funds					
Rate Revenue Under Current Rates - Water	\$ 2,069,369	\$ 2,074,542	\$ 2,079,729	\$ 2,084,928	\$ 2,090,140
Non-Rate Revenues	72,700	72,827	72,954	73,081	73,209
Interest Earnings ¹	3,500	4,052	1,800	1,816	5,985
Total Sources of Potable Funds	\$ 2,145,569	\$ 2,151,421	\$ 2,154,483	\$ 2,159,825	\$ 2,169,334
Uses of Water Funds					
Operating Expenses	\$ 1,714,239	\$ 1,765,028	\$ 1,827,967	\$ 1,893,119	\$ 1,959,945
Existing Debt Service	170,746	170,416	170,075	169,721	169,355
Rate-Funded Capital Expenses	295,000	725,000	867,500	855,000	805,000
Total Use of Potable Water Funds	\$ 2,179,985	\$ 2,660,444	\$ 2,865,542	\$ 2,917,840	\$ 2,934,300
Surplus/(Deficiency) before Rate Increase	\$ (34,416)	\$ (509,023)	\$ (711,059)	\$ (758,015)	\$ (764,966)
Additional Revenue from Rate Increases ²	124,162	388,354	685,612	976,059	1,254,676
Surplus/(Deficiency) after Rate Increase	\$ 89,746	\$ (120,669)	\$ (25,448)	\$ 218,044	\$ 489,711
Projected Annual Rate Revenue Adjustment ²	12.00%	12.00%	12.00%	9.00%	9.00%
Net Revenue Requirement - Potable System ³	\$ 2,103,785	\$ 2,583,565	\$ 2,790,788	\$ 2,842,943	\$ 2,855,106

1. Historical interest earning rates were referenced on the California Treasurer’s Office website for funds invested in LAIF. Future years earnings were conservatively estimated through 2021 and phase into the historical 10 year average interest earnings rate.
2. The FY 2020/21 rate increase is assumed to be implemented on January 1, 2021, and future increases are implemented July 1 thereafter.
3. Total Use of Funds less non-rate revenues and interest earnings. This is the annual amount needed from rates.

Figure 4. Water Revenue Requirements through FY 2024/25



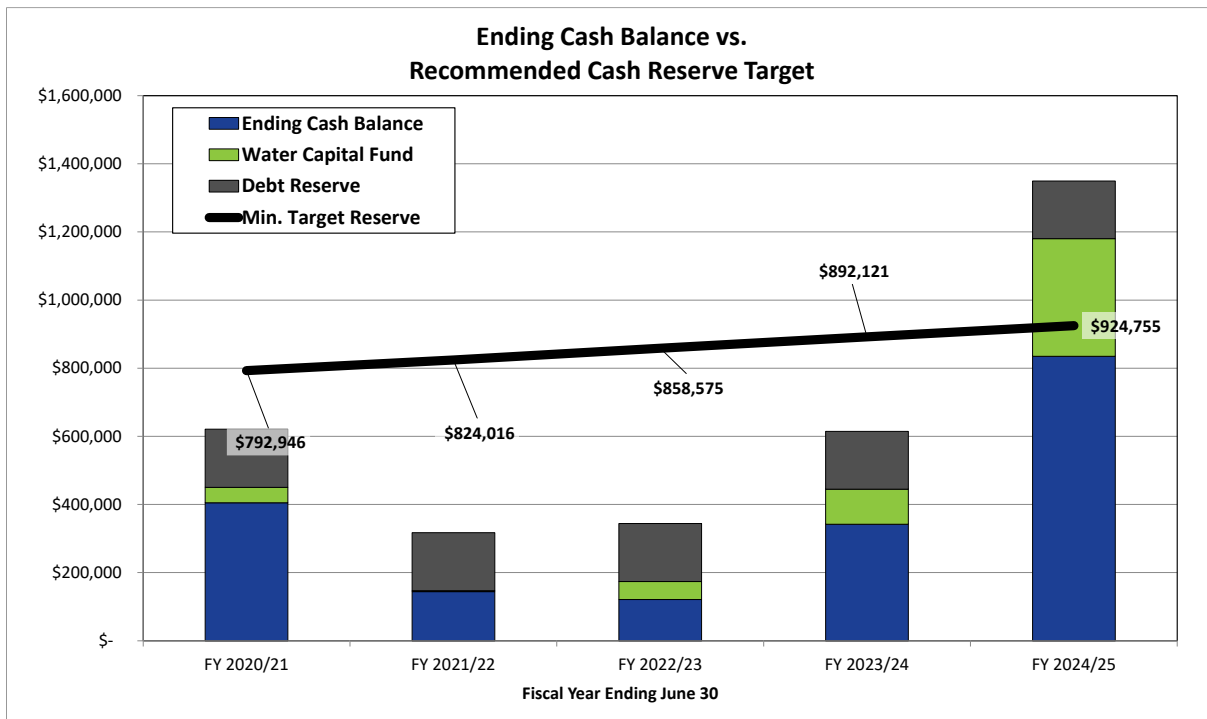
To meet the District’s annual operation and maintenance costs, debt service payments, capital improvement projects and to maintain adequate reserve funds, five years of annual rate increases of 12%, 12%, 12%, 9% and 9% are needed starting January 1, 2021 and every July 1 thereafter.

Figure 5 Summarizes the projected reserve fund balances and reserve targets for the next five years. Figure 6 Indicates that, assuming the proposed rate increases are adopted, the District’s reserves will increase over the next five years; reserve fund target is growing as the District builds additional capital improvements.

Figure 5. Summary of Water Reserve Funds

Beginning Reserve Fund Balances and Recommended Reserve Targets	Prop 218 Rate Period				
	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Operating Reserve					
Ending Balance	\$ 359,881	\$ 141,250	\$ 68,274	\$ 239,222	\$ 490,000
<i>Target Ending Balance (90-days of O&M Costs)</i>	<i>429,000</i>	<i>441,000</i>	<i>457,000</i>	<i>473,000</i>	<i>490,000</i>
Water Capital Fund					
Transfer of Operating Surplus & Grants	\$ 180,270	\$ 45,270	\$ 2,770	\$ 52,770	\$ 102,770
Use of Reserves for Capital Projects	\$ (135,000)	\$ (142,500)	\$ -	\$ -	\$ -
Ending Balance	\$ 45,270	\$ 2,770	\$ 52,770	\$ 102,770	\$ 345,039
<i>Target Ending Balance (3% of Net Capital Assets)</i>	<i>193,200</i>	<i>212,600</i>	<i>231,500</i>	<i>249,400</i>	<i>265,400</i>
Debt Reserve					
Ending Balance	\$ 170,746	\$ 170,416	\$ 170,075	\$ 169,721	\$ 169,355
<i>Target Ending Balance (Annual Debt Service)</i>	<i>170,746</i>	<i>170,416</i>	<i>170,075</i>	<i>169,721</i>	<i>169,355</i>
Total Ending Balance	\$ 575,897	\$ 314,436	\$ 291,119	\$ 511,713	\$ 1,004,394
<i>Total Recommended Minimum Target</i>	<i>792,946</i>	<i>824,016</i>	<i>858,575</i>	<i>892,121</i>	<i>924,755</i>

Figure 6. Water Reserve Funds through FY 2024/25



Building and Maintaining Reserve Funds: NBS recommends the District adopt and maintain the following reserve fund target balances:

- ✓ **Operating Reserve** should normally be about 25% of the Utility’s budgeted annual operating expenses, which provides a three-month (90-day) cash cushion for normal operations. An Operating Reserve is intended to promote financial viability in the event of any short-term fluctuation in revenues and/or expenditures. Fluctuations might be caused by weather patterns, the natural inflow and outflow of cash during billing cycles, natural variability in demand-based revenue streams (e.g., volumetric charges), local natural disasters and – particularly in periods of economic distress – changes or trends in age of receivables.
- ✓ **Capital Rehabilitation and Replacement (R&R) Reserve** are typically about 3% of depreciable capital assets, which equates to a 33-year replacement cycle for capital assets.
- ✓ **Debt Reserve** is the reserve requirement for the CEIDB loan of approximately \$170,000.
- ✓ **OPEB⁴ Reserve** is the reserve the District’s is establishing to begin addressing its current liability for post-retirement benefits.

Summary of Changing Consumption Patterns: NBS confirmed that customer billing data indicate that the District has experienced lower than expected water rate revenues. This was primarily related to the drop in residential water use shown in **Figure 7**, which indicates that residential consumption decreased by 27% between FY’13/14 and FY’15/16, and is still 15% below consumption levels prior to the most recent drought.⁵ The drought surcharges that the District implemented from April 2017 until June 2017 also contributed to lower consumption. **Figure 8** shows the consumption for commercial customers in the same time period.

⁴ OPEB refers to “Other Post-Employment Benefits”.

⁵ Data for FY’14/15 was not readily available; this was the “gap year” between the data used in the 2015 and 2020 rate studies.

Figure 7: Annual Water Consumption for Single Family Residential Customers from 2013-2020

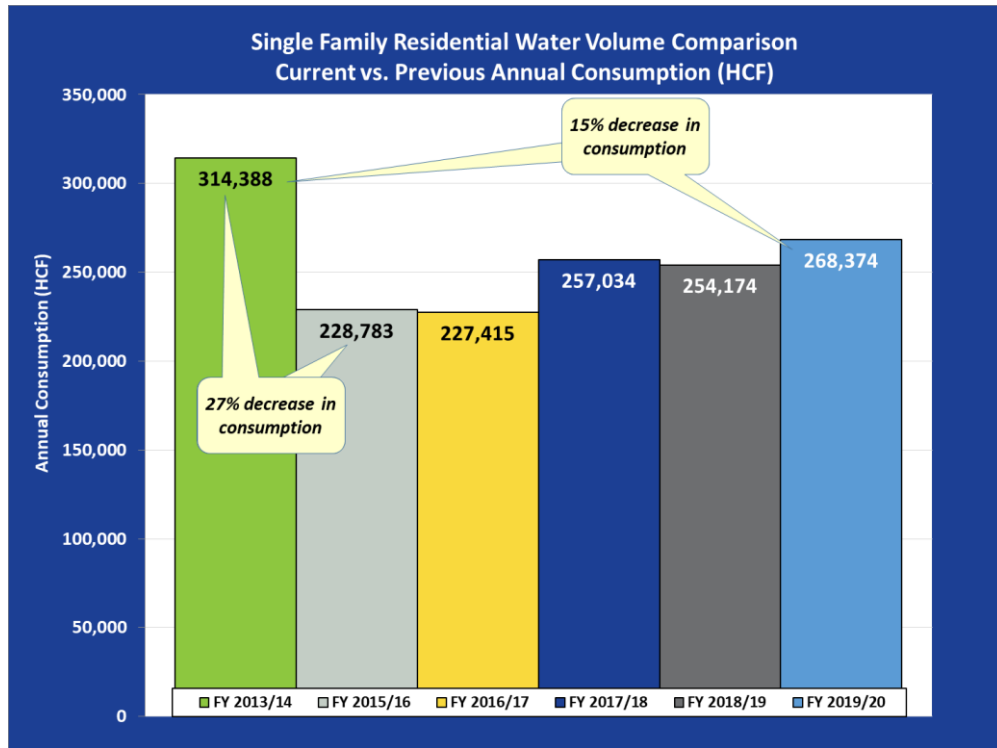
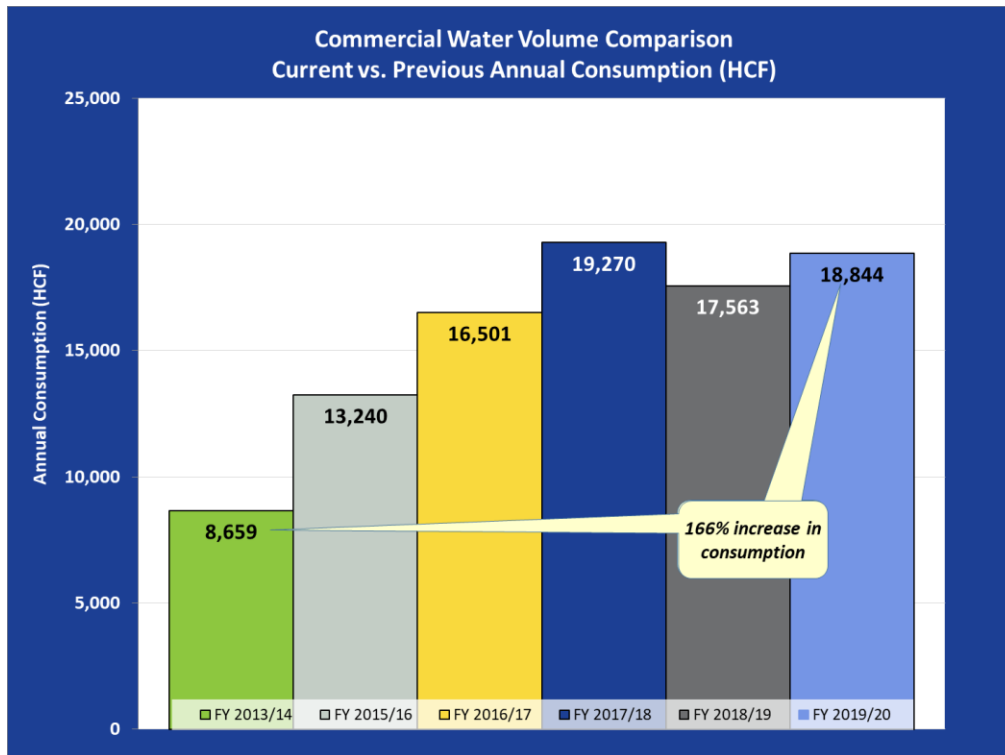


Figure 8: Annual Water Consumption for Commercial Customers from 2013-2020



Customer Classes – Customer classes are typically determined by grouping customers with similar consumption characteristics in order to reflect the differences in the cost of serving each type of customer. In light of the District’s primarily residential customer base (over 99% are residential), the District has historically used meter sizes to represent customer classes rather than “residential” and “commercial” customer classes. The proposed rates will continue this practice.

The District decided to continue to use the same rate design, which is a 60/40 mix of fixed and volume-based charges. The proposed water rates were calculated based on projected net revenue requirements, number of customers, water consumption, and other relevant information provided by the District. The following are the basic components used to calculate new water rates:

- **Cost Allocations:** The water revenue requirements were “functionalized” into three categories: (1) fixed capacity costs; (2) variable (or volume-based) costs; and (3) customer service/admin/overhead costs. These functionalized costs were then used to develop unit costs based on water consumption, peaking factors, and number of accounts by meter size.
- **Revenue Requirements by Customer Class:** The total revenue collected from each customer class was determined using the functional costs and allocation factors. For example, fixed costs are allocated to customer classes (meter sizes) based on their percentage of peak system demand while volume-related costs are calculated as a uniform rate, and are based on total annual water consumption; these uniform rates apply to all customers. Once the costs are allocated and the net revenue requirement for each customer class is determined, collecting the revenue requirements from each customer class is addressed within the rate design.
- **Rate Design and Fixed vs. Variable Costs:** The revenue requirements for each customer class are collected through a combination of fixed monthly service charges and a uniform volumetric rate. The District Board chose to continue using a rate design that collects 60% of the revenue from fixed charges and 40% from variable charges; the uniform volumetric rate applies to all customers, regardless of meter size.

C. CURRENT VS. PROPOSED WATER RATES

Currently, the District charges all customer classes with a standard 5/8” or 3/4” meter a monthly fixed charge of \$39.58, plus a uniform commodity rate of \$2.68/hcf for all water consumed. The proposed rates follow this same rate design but reflect changes in costs and water consumption (previously noted in Figures 7 and 8). As a result, the fixed charges and volumetric rate do not increase by the same percentages. **Figure 9** compares the current (FY 2020/21) and proposed rates for FY 2020/21 through 2024/25.

Figure 9. Current and Proposed Water Rates for FY 2020/21 through 2024/25

Water Rate Schedule	Current Rates ('20/21)	Proposed Water Rates				
		FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Fixed Service Charge						
<i>Monthly Fixed Service Charge:</i>						
5/8 inch	\$39.58	\$44.45	\$49.79	\$55.76	\$60.78	\$66.25
3/4 inch	\$39.58	\$44.45	\$49.79	\$55.76	\$60.78	\$66.25
1 inch	\$94.91	\$107.15	\$120.01	\$134.41	\$146.51	\$159.69
1.5 inch	\$187.11	\$211.65	\$237.04	\$265.49	\$289.38	\$315.43
2 inch	\$297.75	\$337.04	\$377.48	\$422.78	\$460.83	\$502.31
Water Commodity Charges per hundred cubic feet (HCF)						
Uniform Rate (All Classes)	\$2.68	\$3.54	\$3.97	\$4.44	\$4.84	\$5.28

Figure 10 Compares monthly bills for residential customers under current and proposed rates at varying levels of water consumption.

Figure 11 Shows projected water bills under average consumption for the next 5 fiscal years.

Figure 12 Provides a comparison of water bills for other regional communities.

Figure 10. Comparison of Monthly Water Bills for Single-Family Residential Customers

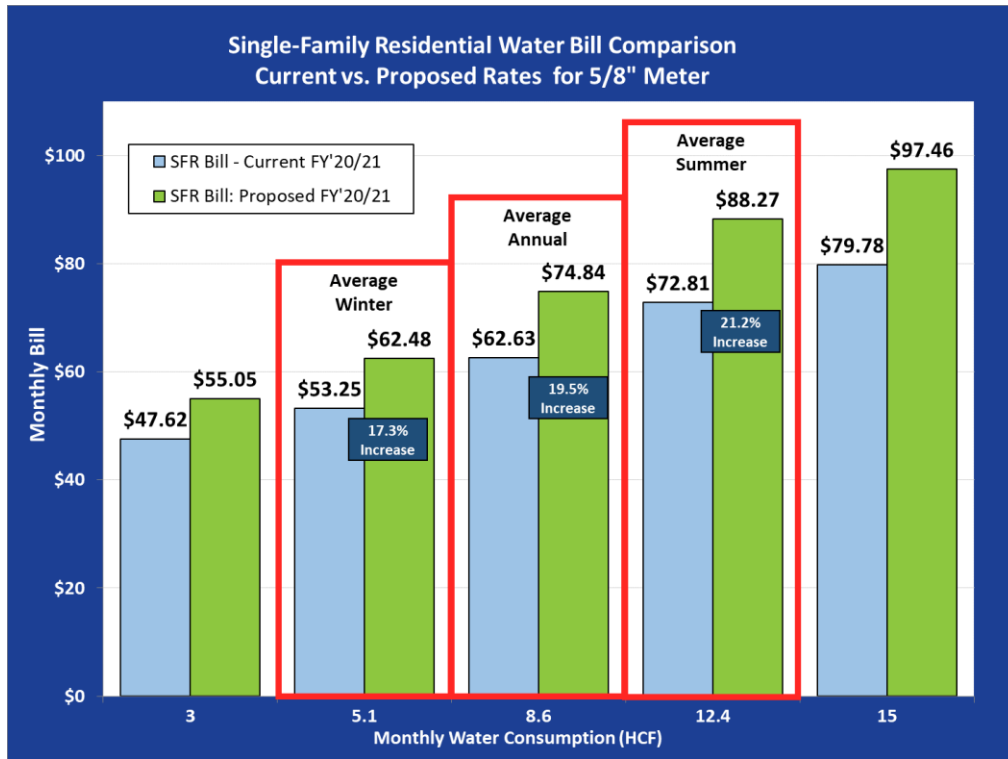


Figure 11. Projected Monthly Single-Family Water Bills – Average Water Use

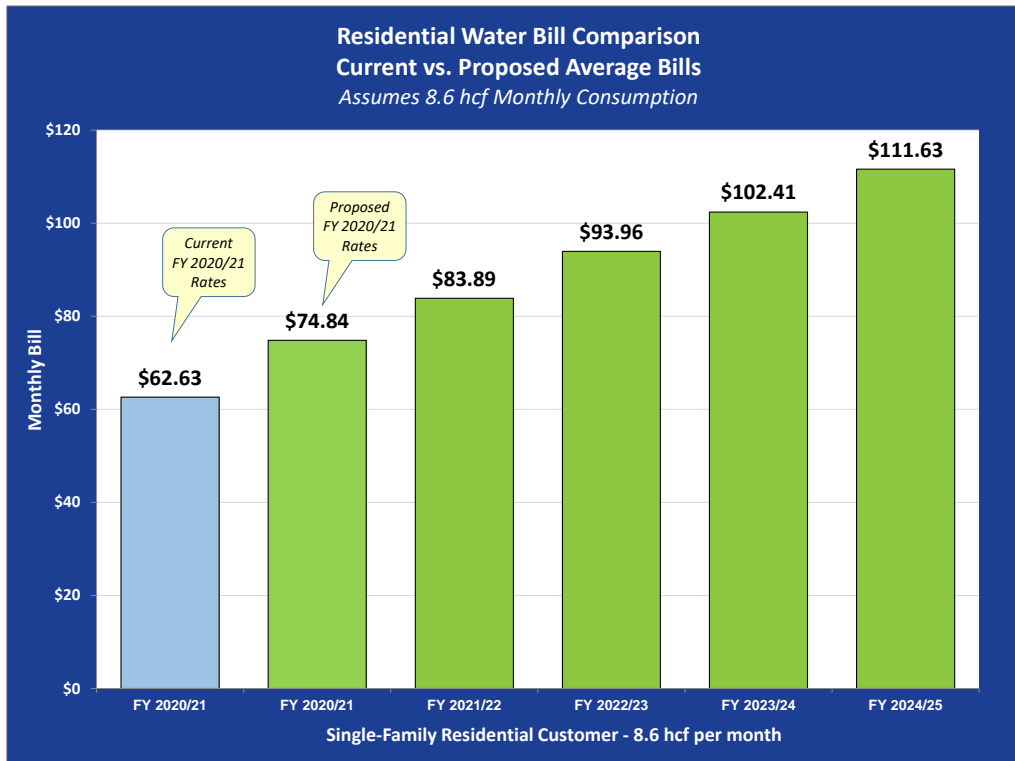
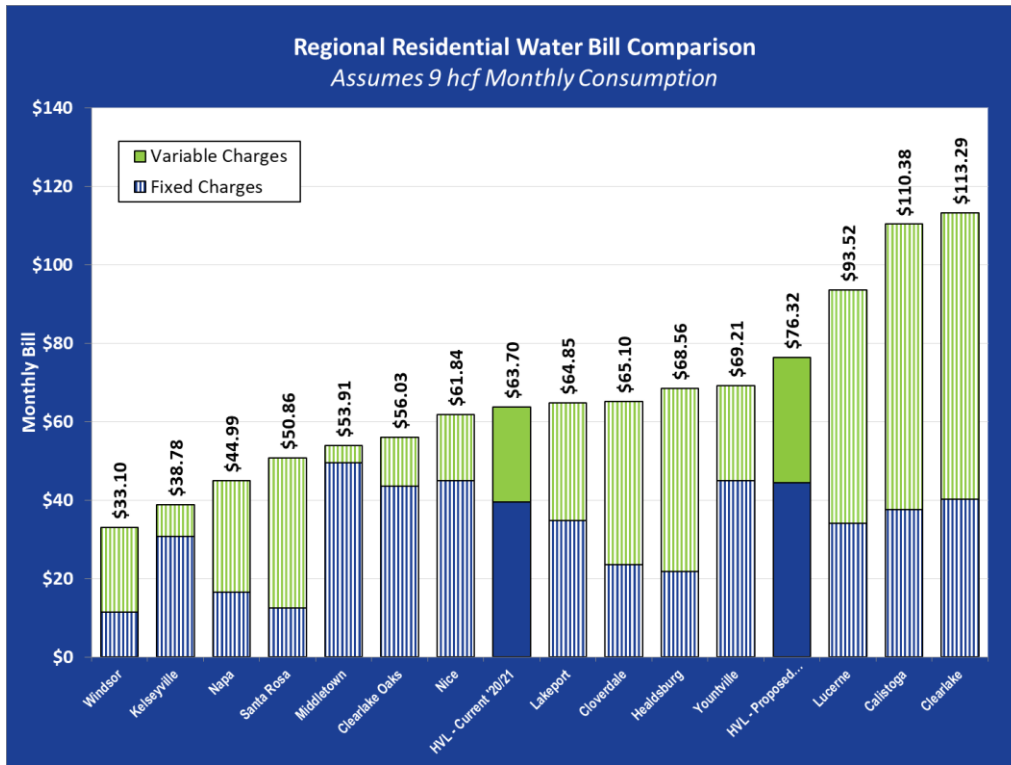


Figure 12. Regional Comparison of Monthly Water Bills for Single-Family Residential



D. DROUGHT RATES

The District’s emergency drought plans have four drought stages requiring progressively greater reductions in water use by 10% through 40%. Assuming consumption is reduced by these amounts, the District will lose revenue from volumetric rates, despite some cost savings as production costs are slightly lower. NBS estimated these cost savings along with revenue losses to calculate drought rates.

After accounting for both cost savings and revenue losses, these drought rates will meet the revenue requirement under each drought stage. These rates are also designed to meet all Governor mandates required by California Districts to comply. **Figure 13** summarizes these drought rates, which reflect the differences in volumetric rates for single-family and multi-family residential (SFR and MFR), commercial and municipal customers.

Figure 13. Proposed Drought Rates

Water Rate Schedule	Current Rates ('20/21)	Proposed Drought Water Rates				
		FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Fixed Service Charge						
Monthly Fixed Service Charge: <i>(Same as Non-Drought Fixed Service Charges)</i>						
Commodity Charges for All Water Consumed per hundred cubic feet (HCF)						
All Customer Classes:						
Drought Stage 1	\$3.35	\$3.86	\$4.32	\$4.84	\$5.28	\$5.75
Drought Stage 2	\$3.75	\$4.38	\$4.90	\$5.49	\$5.99	\$6.52
Drought Stage 3	\$4.02	\$5.04	\$5.65	\$6.33	\$6.90	\$7.52
Drought Stage 4	\$4.47	\$5.93	\$6.64	\$7.44	\$8.11	\$8.84

SECTION 3. SEWER AND RECYCLED WATER RATE STUDY

A. KEY SEWER AND RECYCLED WATER RATE STUDY ISSUES

Some of the specific objectives addressed in the sewer rate analysis included:

- Generating additional revenue needed to meet projected funding requirements.
- Updating the volumetric-based charge for residential customers that maintains the average winter water use basis. This is more equitable than a 100-percent flat rate because it reflects the differences in effluent generation and therefore better aligns with the cost of service.
- Updating the volumetric rate for commercial customers that applies to their monthly water use.
- Updating recycled water rates, which should be increased at the same rate as sewer rates.

As with the water rates, the proposed sewer rates were developed based on industry standards and cost-of-service principles, along with input from District staff and the District Board. The proposed rate structure for residential customers continues to include a fixed monthly charge per housing equivalent unit (HEU) plus a volumetric rate based on their average winter water consumption. This volumetric charge is used to set the volumetric charge each month for the subsequent 12 months and, in this respect, acts like a fixed charge except it varies annually based on each customer's winter consumption. The rate structure for commercial customers is similar, with a fixed monthly charge per HEU plus a volumetric rate based on *monthly* water consumption (not by average winter consumption).

The proposed rates are based on net revenue requirements, number of customer accounts and housing equivalent units, water consumption, and the estimated volume and strength of the effluent. The following are the basic components of this analysis:

- **Customer classes:** Customer classes are typically determined by grouping customers with similar flow and strength characteristics in order to reflect the differences in the cost of serving each type of customer. The District's existing customer classes have been retained in the proposed rates:
 - **Residential** – Consists of single- and multi-family residential customers; multi-family accounts are assessed fixed charges based on the number of housing equivalent units (HEUs), with a single-family account representing one HEU⁶.
 - **Commercial** – Includes 15 commercial and industrial accounts totaling 35 HEUs; their HEUs are assigned based on their effluent flow and strength characteristics.
 - **Recycled Water** – The District has one recycled water meter. The recycled water rate represents the additional treatment costs of recycled water.
- **Cost Allocation Factors:** For the purpose of allocating costs to customer classes, the sewer revenue requirements were "functionalized" into five categories:
 1. Flow (volume) related costs
 2. Strength costs related to biochemical oxygen demand (BOD)
 3. Strength costs related to total suspended solids (TSS)
 4. Customer service-related costs, and
 5. Recycled water related costs.

⁶ An HEU is the typical (average) winter water use of SFR. It's applied to all SFR and doesn't vary with number of bedrooms. For example, 3-5 people in a home aren't assumed to generate more or less effluent (on average) if they are in a 2- vs. 5- bedroom home. Commercial HEUs are estimates of how they compare to SFR effluent.

These cost allocation factors represent varying levels of the cost of service. For example, effluent with higher levels of BOD and TSS is more costly to treat and, therefore, should be allocated a greater proportion of treatment costs. Details documenting these cost allocations are shown in Appendix B.

- **Determining Revenue Requirements by Customer Class:** Based on the identified cost allocation factors, revenue requirements were allocated to each customer class. For example, customer costs are allocated based on number of accounts and billable units, flow-related costs are allocated based on the estimated effluent generated by each class, and strength-related costs are allocated based on estimated strength of wastewater discharged by each customer class. Once the revenue requirement for each customer class is determined, collecting these revenue requirements from each customer class is reflected in the rate design.
- **Rate Design:** The revenue requirements collected from residential customers were based on the number of housing equivalent units (HEUs) and, for residential customers, the average winter water consumption (December through March). Average winter water use is the best means of estimating potential flow to the wastewater treatment plant because outdoor irrigation is typically at its lowest during the winter months. Revenue requirements recovered from commercial and industrial customers through fixed charges are based on the number of HEUs; their monthly water consumption is applied to volumetric rates. The amount of wastewater discharged by commercial users is generally assumed to be better correlated to their monthly water use and that most commercial customers have separate irrigation meters.

B. SEWER UTILITY REVENUE REQUIREMENTS

Rate increases are governed by the need to meet rate revenue requirements, including operating and capital costs, debt service payments and reserves. The current state of the District’s sewer utility is summarized as follows:

Capital Improvement Costs: As with the water utility, sewer capital projects are a major driver of the projected annual costs. The planned capital improvement costs for FY 2020/21 through FY 2024/25 shown in **Figure 14** total more than \$1.25 million and are shown in current year dollars. Future inflation of 3% is assumed for actual funding requirements.

Figure 14. Summary of Sewer Capital Project Costs

Project Description	FY 2020/2021	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025
Regulatory Compliance/I&I Mitigation	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000
Disaster Mitigation/SCADA Upgrade	\$ 30,000	\$ 30,000	\$ 90,000		
Disaster recovery/WWTP Access Road repair					
Reliable Water Supply/Leak Repair/Mini-Excavator		\$ 25,000	\$ 25,000		
Risk Management Plan/Chlorine Tank Auto Shut-Off		\$ 45,000			
Regulatory Compliance/Dump Truck		\$ 37,500	\$ 37,500		
IT Upgrades/Records Retention/Increase storage capacity				\$ 50,000	
Stormwater Master Planning/Mitigation	\$ 10,000	\$ 10,000	\$ 10,000	\$ 50,000	\$ 50,000
Regulatory Compliance/Manhole Rehab		\$ 50,000	\$ 50,000	\$ 50,000	\$ 100,000
Total Projects	\$ 140,000	\$ 297,500	\$ 312,500	\$ 250,000	\$ 250,000

1. CIP expenditures provided by District Staff as of 9-17-20.

Meeting Net Revenue Requirements: The District’s sewer utility is currently running a small structural deficit that is likely to increase to over \$730,000 per year without any rate increases. The proposed rate increases would stabilize this deficit over the next five years, although reserves would still be below target levels. Projected net revenue requirements (i.e., total annual expenses less non-rate revenue) increase in Fiscal Years 2020/21 through 2024/25 from about \$1.6 million to \$2.2 million. It’s notable that the District

is expecting an operating deficit in 2020/21 despite the proposed rate adjustments but can expect a surplus in fiscal year 2021/22 forward.

Building and Maintaining Reserve Funds: The District should maintain sufficient reserves for the Utility. NBS recommends that the District adopt and maintain the following reserve fund targets:

- ✓ **Operating Reserve** equal to 25% of the Utility’s budgeted annual operating expenses. This reserve target is equal to a three-month (90-day) cash cushion for normal operations. An Operating Reserve is intended to promote financial viability in the event of any short-term fluctuation in revenues and/or expenditures.
- ✓ **Capital Facilities Reserve** equal to a minimum of 3% of depreciable capital assets (or approximately \$141,000 based on a total system asset value of approximately \$4.6 million). This reserve provides for capital repair and replacement needs.
- ✓ **Debt Reserve** equal to the reserve requirements for the existing debt, which is approximately \$32,000 annually.

Figures 15 and 16 Summarize the sources and uses of funds, including net revenue requirements, and the recommended annual percent increases in total rate revenue for the next five years. This figure shows the small deficit in FY 2020/21 and, without rate increases, grows to over \$730,000 by FY 2024/25. With rate increases, the deficit turns into small surpluses over the next five years.

Figure 15. Summary of Sewer Revenue Requirements

Summary of Sources and Uses of Funds and Net Revenue Requirements	Prop 218 Rate Period				
	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Sources of Sewer Funds					
Rate Revenue Under Current Rates - Sewer	\$ 1,261,953	\$ 1,265,108	\$ 1,268,271	\$ 1,271,441	\$ 1,274,620
Rate Revenue Under Current Rates - RW	110,000	110,000	110,000	110,000	110,000
Non-Rate Revenues	28,500	28,571	28,643	28,714	28,786
Interest Earnings ¹	1,700	6,545	4,772	3,731	5,296
Total Sources of Funds	\$ 1,402,153	\$ 1,410,225	\$ 1,411,685	\$ 1,413,887	\$ 1,418,702
Uses of Sewer Funds					
Operating Expenses	\$ 1,649,210	\$ 1,694,515	\$ 1,749,104	\$ 1,804,889	\$ 1,861,212
Existing Debt Service	32,255	32,238	32,205	32,158	32,095
Rate Funded Capital Expenses	-	-	112,020	257,500	257,500
Total Use of Funds	\$ 1,681,465	\$ 1,726,753	\$ 1,893,329	\$ 2,094,546	\$ 2,150,807
Surplus (Deficiency) before Rate Increase	\$ (279,312)	\$ (316,528)	\$ (481,644)	\$ (680,660)	\$ (732,106)
Additional Revenue from Rate Increases (Sewer) ²	44,459	349,827	558,100	734,059	926,581
Additional Revenue from Rate Increases (Recycled) ³	6,600	27,984	44,542	58,451	73,611
Surplus (Deficiency) after Rate Increase	\$ (228,253)	\$ 61,283	\$ 120,998	\$ 111,850	\$ 268,087
Projected Annual Rate Revenue Adjustment - Sewer²	12.00%	12.00%	12.00%	9.00%	9.00%
Net Revenue Requirement⁴	\$ 1,651,265	\$ 1,691,636	\$ 1,859,915	\$ 2,062,101	\$ 2,116,725

1. Historical interest earning rates were referenced on the California Treasurer's Office website for funds invested in LAIF. Future years earnings were conservatively estimated through 2021 and phase into the historical 10 year average interest earnings rate.
2. The FY 2020/21 rate increase is assumed to be implemented on January 1, 2021, and future increases are implemented July 1 each year.
3. The FY 2020/21 rate increase is assumed to be implemented on January 1, 2021, but future increases are implemented July 1 each year.
4. Total Use of Funds less non-rate revenues and interest earnings. This is the annual amount needed from rates.

Figure 16. Sewer Revenue Requirements through FY 2024/25

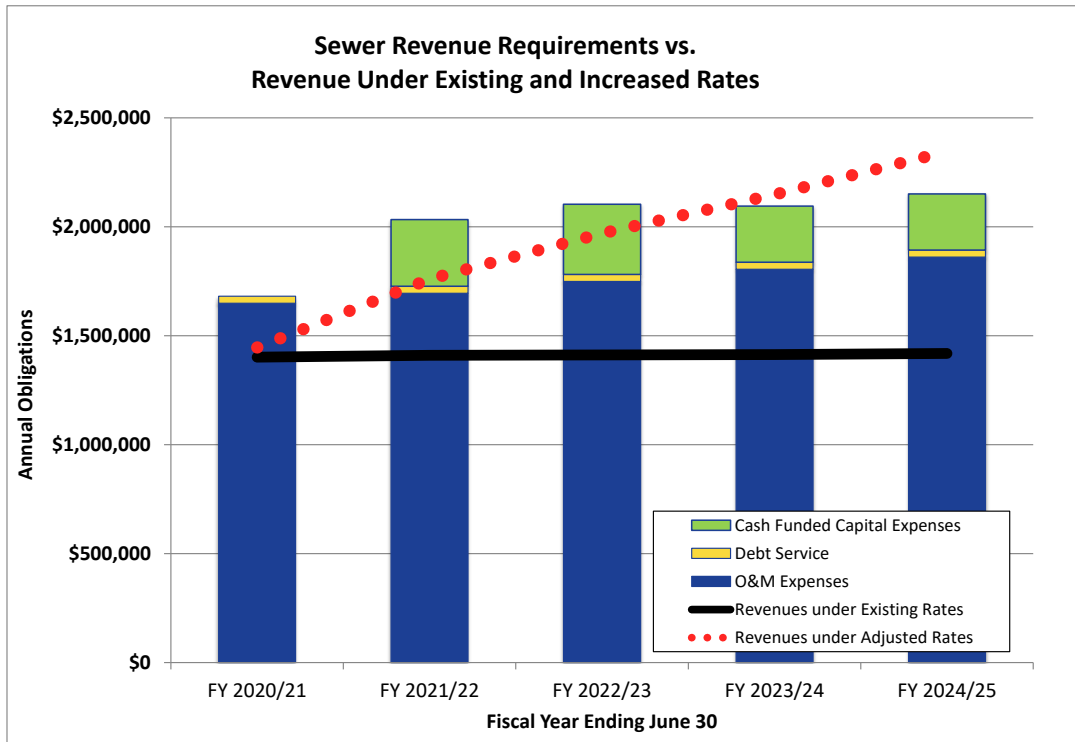
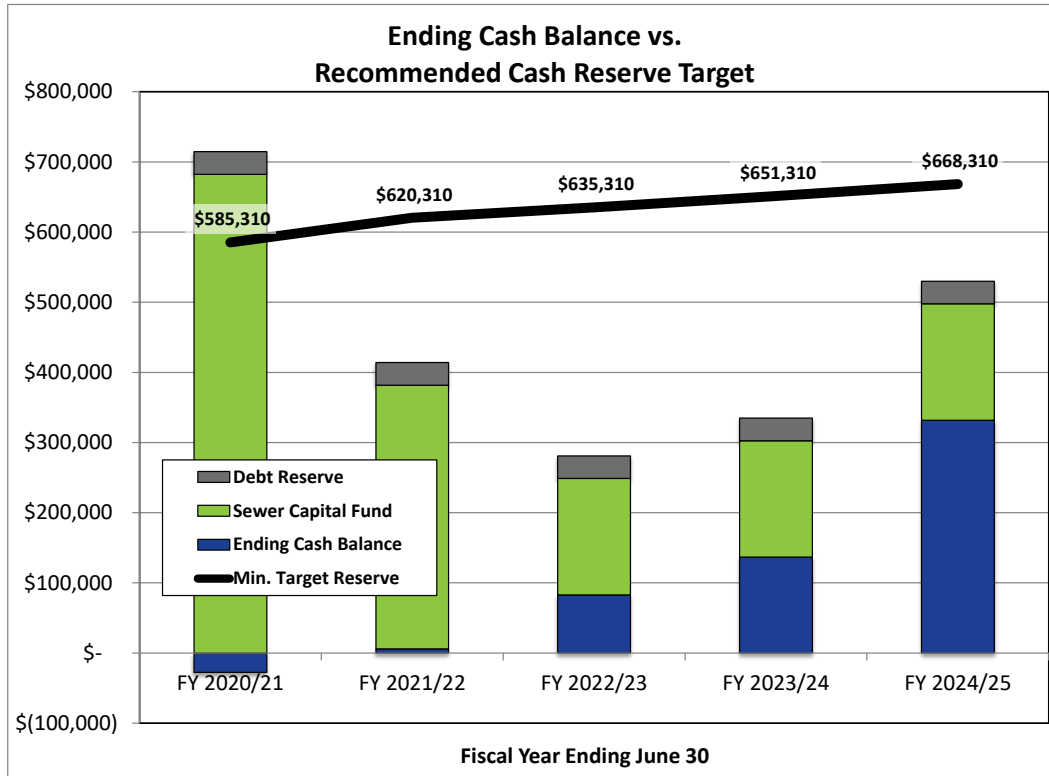


Figure 17 Summarizes the projected reserve fund balances and reserve targets, for the next five years. Figure 18 Indicates that without assuming the proposed rate increases, the District’s initial small surplus of reserves will be drawn down over the next five years. Replenishing the District’s reserve funds are a main factor in the need for sewer rate increases.

Figure 17. Summary of Sewer Reserve Funds

Beginning Reserve Fund Balances and Recommended Reserve Targets	Prop 218 Rate Period				
	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Operating Reserve					
Ending Balance	\$ (27,743)	\$ 5,879	\$ 82,740	\$ 136,623	\$ 331,664
<i>Target Ending Balance (90-days of O&M Costs)</i>	<i>412,000</i>	<i>424,000</i>	<i>437,000</i>	<i>451,000</i>	<i>465,000</i>
Sewer Capital Fund					
Transfer In of Operating Reserve Surplus	\$ -	\$ -	\$ -	\$ -	\$ -
Use of Reserves for Capital Projects	\$ 229,000	\$ (306,425)	\$ (209,855)	\$ -	\$ -
Ending Balance	\$ 682,280	\$ 375,855	\$ 166,000	\$ 166,000	\$ 166,000
<i>Target Ending Balance (3% of Net Capital Assets)</i>	<i>141,000</i>	<i>164,000</i>	<i>166,000</i>	<i>168,000</i>	<i>171,000</i>
Debt Reserve					
Ending Balance	\$ 32,310	\$ 32,310	\$ 32,310	\$ 32,310	\$ 32,310
<i>Target Ending Balance (Annual Debt Service)</i>	<i>32,310</i>	<i>32,310</i>	<i>32,310</i>	<i>32,310</i>	<i>32,310</i>
Total Ending Balance	\$ 686,847	\$ 414,044	\$ 281,050	\$ 334,933	\$ 529,974
Total Recommended Minimum Target	\$ 585,310	\$ 620,310	\$ 635,310	\$ 651,310	\$ 668,310

Figure 18. Sewer Reserve Funds Through FY 2024/25



A summary of the sewer utility’s proposed 5-year financial plan is included in Appendix B – Sewer Rate Study Summary Tables. These tables include revenue requirements, reserve funds, revenue source and proposed rate increases for the 5-year period.

C. SEWER CUSTOMER CHARACTERISTICS

The five factors used in allocating costs as a part of the sewer cost-of-service analysis are effluent (flow), BOD, TSS, customer costs, and recycled water costs. Water consumption data from July 2019 through June 2020 was used to estimate the flows to the District’s wastewater treatment plant, and District staff believe this data is representative of future conditions. Residential bills reflect average winter consumption because it is correlated to the amount of residential effluent going to the treatment plant.

The average residential winter water consumption is assumed to include four billing periods; December 2019 - March 2020 were considered the “winter” months because consumption is lowest in these months. Based on water consumption records summarized in **Figure 19** residential customers account for approximately 94.8% of effluent at the plant (i.e., single-family = 89.9% and multi-family = 4.9%). Commercial customers account for the remaining 5.2% of the flow. Effluent strength factors for individual customer classes⁷ are shown in **Figure 20** and described below.

- **Residential** customers, including single-family, multi-family and municipal, have BOD and TSS strength factors of 250 mg/l and 250 mg/l, which is within the normal range for residential users.
- **Commercial** customers, which represent less than three percent of the sewer HEUs, have individual strength factors that are higher or lower than residential, depending on the particular type of

⁷ Strength factors for each customer class were derived from the State Water Resources Control Board Revenue Program Guidelines, Appendix G, page G-21 “Commercial User Strength Characteristics.”

commercial uses. In the District’s case, NBS and the District believe that commercial effluent is, on average, lower than residential strength. The District is also considering updating HEU calculations for commercial customers and possibly creating individual volumetric rates for individual commercial customers. This approach will require extensive field verification and result in significant changes for individual commercial sewer customers, and will be further reviewed and analyzed when additional commercial customers are added to the system.

Figure 19. Summary of Estimated Flow to Treatment Plant

Development of the FLOW Allocation Factor						
Customer Class	Number of HEUs ¹	Annual Volume (hcf)	Average Winter Monthly Consumption ² (hcf)	Annual Winter (or Monthly) Avg. Based Volume (hcf) ⁴	Adjusted Annual Volume (hcf)	Percentage of Adjusted Volume
Single Family Residential	1,444	87,263	7,183	86,197	120,355	89.9%
Multi-Family Residential	54	4,314	391	4,690	6,548	4.9%
Commercial ³	35	5,036	N.A.	5,036	7,031	5.2%
Total ⁴	1,533	96,612	7,574	95,923	133,934	100.0%
					133,934	Flow (hcf/yr.)
					1.40	Flow Adj. Factor

1. Consumption and Meters from source files: *Copy of Customer Data.xlsx* and *NBS 2020_JT.xlsx* (data combined and summarized in pivot tables).
Note: The adjusted annual flow per HEU for commercial customers is approximately twice that of SFR. In this sense, these are not truly "HEU's".
2. Includes months of December 2019 through March 2020.
3. Commercial will be billed based on monthly consumption, not winter average.
4. Recycled Water excluded from flow allocation factor. One customer only in the District, volumetric rate only.

Figure 20. Summary of Annual Flow and Strength Characteristics by Customer Class

Development of the STRENGTH Allocation Factor									
Customer Class	Adjusted Annual Flow (hcf)	Biochemical Oxygen Demand (BOD)				Total Suspended Solids (TSS)			
		Average Strength Factor (mg/l) ²	Calculated BOD (lbs./yr.)	Adjusted BOD (lbs./yr.)	Percent of Total	Average Strength Factor (mg/l) ²	Calculated TSS (lbs./yr.)	Adjusted TSS (lbs./yr.)	Percent of Total
Single Family Residential	120,355	250	187,703	181,794	93.2%	250	187,703	149,316	92.4%
Multi Family Residential	6,548	250	10,213	9,891	5.1%	250	10,213	8,124	5.0%
Commercial ¹	7,031	80	3,509	3,399	1.7%	120	5,264	4,187	2.6%
Total	133,934		201,425	195,084	100%		203,179	161,627	100%
<i>Target, from WWTP Data</i>				195,084	BOD (lbs./yr.)			161,627	TSS (lbs./yr.)
				0.97	BOD Adj. Factor			0.80	TSS Adj. Factor

1. Commercial was previously billed on winter water use, now is billed on monthly water use.
2. Typical strength factors for BOD and TSS are derived from the State Water Resources Control Board Revenue Program Guidelines, Appendix G.

Figure 21 Compares the total number of accounts and billing units (depending on how customers are billed) by customer class.

Figure 22 Summarizes the total rate revenue requirements by customer class resulting from the cost-of-service cost allocation components previously shown in Figures 19 and 20 (Flow and Strength Characteristics), and Figure 21 (Customer Costs).

Figure 21. Number of Sewer Accounts and Billing Units by Customer Class

Development of the CUSTOMER Allocation Factor					
Customer Class	Number of Accounts ¹	Percentage of Accounts	Number of HEUs ²	Percentage of Assigned HEUs	Average HEUs per Account
Single Family Residential	1,455	97.1%	1,444	94.1%	0.99
Multi-Family Residential	27	1.8%	56	3.6%	2.07
Commercial & Industrial	15	1.0%	35	2.2%	2.30
Recycled Irrigation ²	1	0.1%	0	0.0%	0.00
Total ²	1,498	100.0%	1,535	100.0%	1.02

1. Source files: *Copy of Customer Data.xlsx* and *NBS 2020_JT.xlsx* . HEU count from March 2020.

2. Recycled Water excluded from customer allocation factor. One customer only in the District, volumetric rate only.

HEU stands for housing equivalent unit, which is equal to one single family residential home (SFR = 1 HEU)

Figure 22. Summary of Sewer Rate Revenue Requirements by Customer Class

Allocation of Revenue Requirements by Customer Class							
Customer Class	Cost Classification Components					Cost-of-Service Net Revenue Req't.	% of COS Net Revenue Req't.
	Volume	Treatment		Customer Related	Recycled Water		
		BOD	TSS				
Net Revenue Requirements ¹	\$ 647,287	\$ 308,539	\$ 308,539	\$ 163,916	\$ 108,307	\$ 1,536,587	--
	42.1%	20.1%	20.1%	10.7%	7.0%	100.0%	
Single-, Multi-Family Residential	\$ 613,306	\$303,164	\$300,546	\$160,229	\$ -	\$ 1,377,246	89.6%
Commercial	33,981	5,375	7,993	3,686	-	51,035	3.3%
Recycled Irrigation	-	-	-	-	108,307	108,307	7.0%
Total	\$ 647,287	\$ 308,539	\$ 308,539	\$ 163,916	\$ 108,307	\$ 1,536,587	100%
Total Excluding Recycled Water						\$ 1,428,281	

1. Revenue requirement for each customer class is determined by multiplying the revenue requirement from each cost classification by the allocation factors for each customer class.

D. CURRENT VS. PROPOSED SEWER RATES

Currently, all customers pay the same fixed monthly charge based on their number of household equivalent units (HEUs). Both residential and commercial customers also pay a volumetric rate, the uniform volumetric rate for residential and commercial customers is applied to average winter water use.

Changes in Residential vs. Commercial Sewer Rates – The proposed rates retain the same customer classes, which combine single- and multi-family residential customers, and combine commercial with industrial customers.

Figure 23 Shows current and proposed sewer rates for FY 2020/21 through FY 2024/25. As previously noted, consumption patterns have changed over time and this has been reflected in the proposed rates. The current HEU assignments for commercial customers indicate there is more consumption than for a typical residential customer; this is also reflected in the rates shown in Figure 23.

Figure 24 Compares the average monthly sewer bills for residential customers under current and proposed rates.

Figure 25 Compares commercial bills under current and proposed rates.

Figure 26 Provides a comparison of monthly sewer bills for other communities in the region.

Figure 23. Current vs. Proposed Sewer Rates

Sewer Rate Schedule	Current Rates ('20/21)	Proposed Sewer Rates ¹				
		FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Fixed Service Charge per HEU²						
Residential & Municipal	\$51.96	\$53.60	\$60.03	\$67.24	\$73.29	\$79.89
Commercial	\$51.96	\$53.60	\$60.03	\$67.24	\$73.29	\$79.88
Volumetric Charge (\$/hcf)³						
Residential & Municipal (Applied to Average Winter Water Use)	\$2.76	\$4.54	\$5.08	\$5.69	\$6.20	\$6.76
Commercial (Applied to Average Monthly Water Use)	\$3.00	\$5.73	\$6.41	\$7.18	\$7.83	\$8.53

1. Implementation date for FY 2020/21 rates is January 1, 2021, then July in 2021 through 2024.
2. Sewer customers are charged on the basis of their number of assigned Housing Equivalent Units (HEUs). Commercial accounts average 2.4 HEU/Account, according to District records.
3. Proposed volumetric rates after FY 2020/21 are increased by the annual increase in rate revenue shown in the financial plan.

Figure 24. Residential Sewer Bill Comparison – Current vs. Proposed Rates

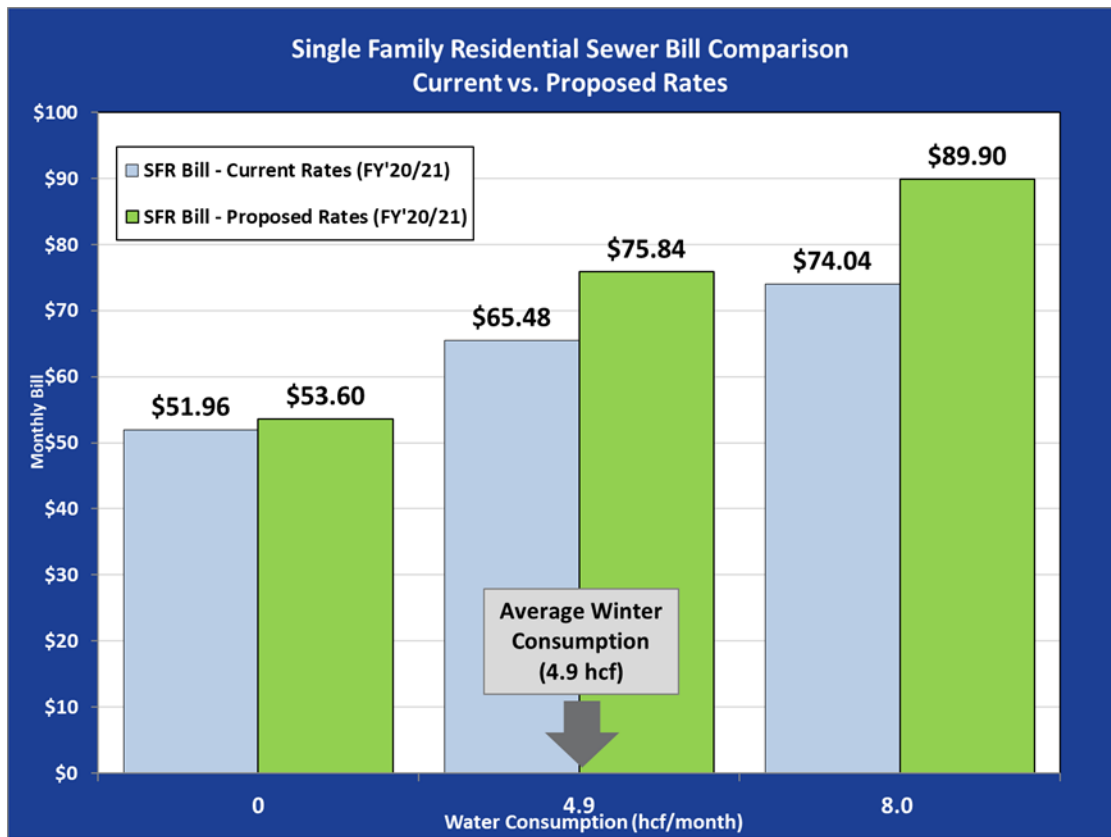


Figure 25. Commercial Sewer Bill Comparison – Current vs. Proposed Rates

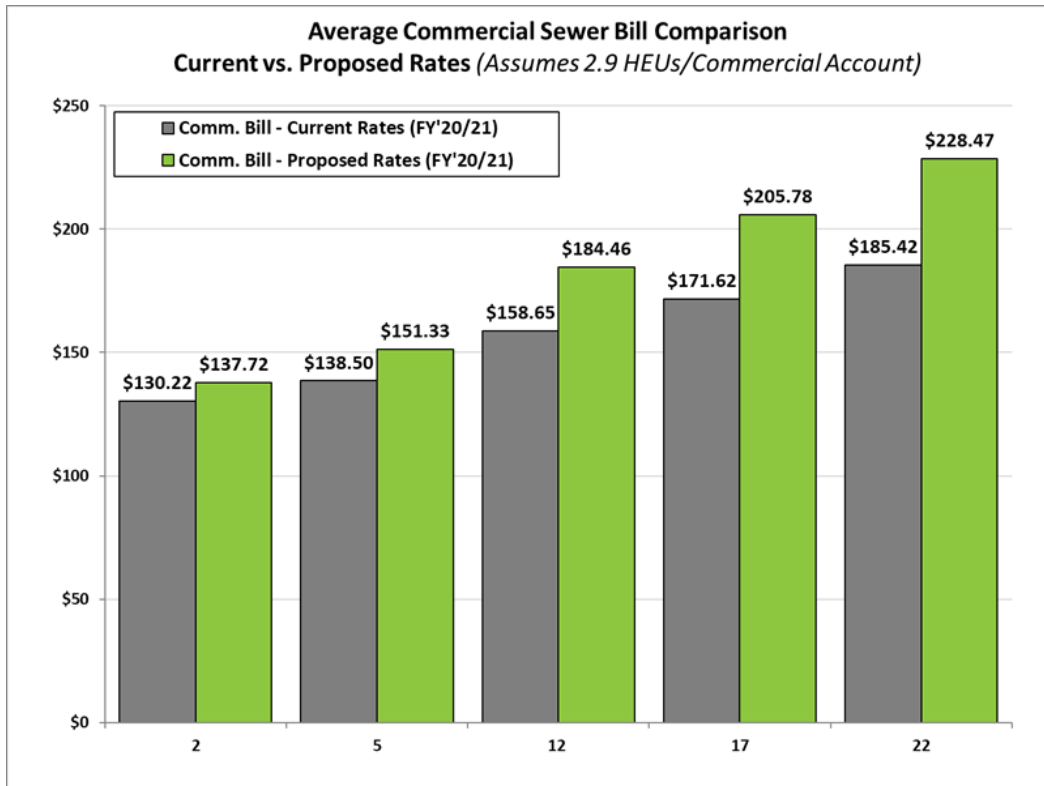
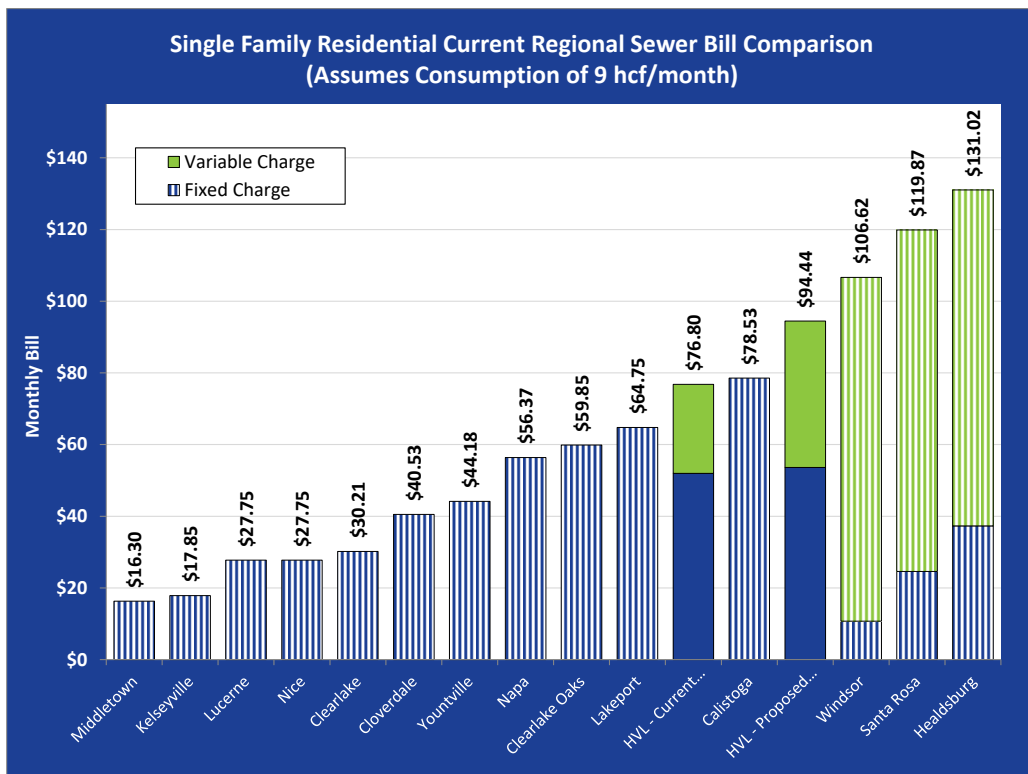


Figure 26. Regional Sewer Bill Comparison – Single Family Residential



E. CURRENT VS. PROPOSED RECYCLED WATER RATES.

The District has maintained one recycled water customer and has not evaluated the recycled water rate since 2012.

Basis for Setting Recycled Water Rate – Industry standard for setting recycled water rates vary from agency to agency, and rates are often set at some percent of potable volumetric rates. Although the allocation of benefits of a recycled water program are not easily assigned to sewer vs. recycled water customers, the benefits are generally described as: (1) benefits to sewer customers from selling recycled water instead of discharging the effluent from the treatment plant through other means; and (2) benefits to recycled water users from lower recycled water costs, although the lower quality of recycled water make it less valuable than potable water and the additional constituents in recycled water typically translate into higher costs for recycled water irrigation systems. While there is no single methodology or calculation formula for determining recycled water rates, the current rate is less than the District’s potable water rate on a per-acre foot basis, and NBS considers the current rate of \$291.64 per acre foot to be consistent with the sewer utility’s annual expenses and how those expenses might be allocated to the recycled water program.

Proposed Recycled Water Rate – The current recycled water rate of \$291.64 is a reasonable and fair rate; updating recycled water rates going forward should reflect the increases in sewer revenue requirements, which have increased for all the reasons previously discussed. A recommended FY 2020/21 volumetric rate is \$326.64 per acre foot, with annual adjustments the same as for sewer rates, as shown in **Figure 27**.

Figure 27. Proposed Recycled Water Rate

Recycled Water Rate Schedule	Current Rates (’19/20)	Proposed Recycled Water Rates				
		FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
% Increase in Annual Rate Revenue:		12.00%	12.00%	12.00%	9.00%	9.00%
Fixed Service Charge per Acre Foot (AF)						
Recycled Irrigation (\$/AF)	\$291.64	\$326.64	\$365.83	\$409.73	\$446.61	\$486.80

SECTION 4. RECOMMENDATIONS AND NEXT STEPS

CONSULTANT RECOMMENDATIONS

A number of factors have impacted the District's water and sewer rates in the last several years. The drought and related conservation efforts have resulted in lower water sales, and the District's staff time and costs of responding to fires and floods have increased costs. NBS' evaluation of water, sewer and recycled water rates has made adjustments for these factors that, in our opinion, best represent the overall rate objectives of the District in a fair, equitable, and defensible manner. The following recommendations are submitted to the District Board for consideration:

- **Review This Study Report:** NBS recommends the District Board review proposed rates and other recommendations presented in this report, approve the recommendations, and direct staff to proceed with Prop 218 noticing.
- **Adopt Reserve Fund Targets:** NBS recommends the District Board adopt the proposed water and sewer reserve fund targets described in Sections 2 and 3 of this report. The District should periodically evaluate reserve fund levels and make it a long-term goal to achieve and maintain these levels for the Operating, Capital, and Debt Reserves.
- **Complete a Review by a Qualified Attorney:** This rate study outlines proposed new rates that, in NBS' opinion, meet the requirements of Prop 218 and industry standards. However, we are not attorneys and therefore defer to the review provided by the District's legal counsel with respect to Prop 218 noticing and related State laws, as well as the resolutions needed to implement these rates.
- **Review Levels of Rate Increases and Proposed Rates:** Based on the analysis to date, the District Board should consider adopting the proposed rates for the next five years. These updated rates are necessary to ensure the following objectives are met:
 - Providing, maintaining, and protecting the community's water service to its customers.
 - Ensuring water rates comply with Prop 218 requirements and promote water conservation.
 - Ensuring revenue stability through drought rates that can be implemented during the District's four drought stages.
 - Setting sewer rates that reflect the cost of providing service to its customers.
 - Ensuring sewer rates comply with Proposition 218 requirements.
 - Maintaining the overall financial health of the District's water and sewer utilities.
 - Setting recycled water rates at levels that are reasonable, fair, and equitable.

NEXT STEPS

Prop 218 Noticing – Mailing Prop 218 notices to customers as required by State law and then after a minimum of 45 days hold a public hearing to discuss the proposed rates, count any written protests and, assuming there is not a successful challenge of the proposed rates, adopt and implement these rates.

Annually Review Rates and Revenue – Any time an Agency adopts new utility rates or rate structures, those new rates should be closely monitored over the next several years to ensure the revenue generated is sufficient to meet the annual revenue requirements. Changing economic factors, water consumption patterns, regulatory mandates, and unplanned emergencies all underscore the need for annual review.

Note: The attached Technical Appendices provide more detailed information on the analysis of the water and sewer revenue requirements, cost of service and rate design analyses that have been summarized in this report.

PRINCIPAL ASSUMPTIONS AND CONSIDERATIONS

In preparing this report and the recommendations included herein, NBS has relied on several principal assumptions and considerations with regard to financial matters, number of customer accounts, billing records, and other conditions and events that may occur in the future. This information and assumptions, including the District's budgets and customer account information provided by District staff, are sources we believe to be reliable, although NBS has not independently verified this data.

We are also assuming that future water consumption levels, which District staff believe are representative of future conditions, are accurate, and that funding from grants and low-interest loans is largely unavailable or will not be secured in time to construct urgently needed capital projects. We also assume that the District will consider reducing future rate increases or modifying reserve fund requirements if such funding becomes available.

While we believe NBS' use of such information and assumptions is reasonable for the purpose of this report and its recommendations, some assumptions will invariably not materialize as stated herein or may vary significantly due to unanticipated events and circumstances. Therefore, the actual results can be expected to vary from those projected to the extent that actual future conditions differ from those assumed by us or provided to us by others.

APPENDIX A – WATER RATE ANALYSIS

RATE REVENUE REQUIREMENTS SUMMARY	Budget		Projected		
	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Sources of Potable Water Funds					
Rate Revenue Under Current Rates	\$ 2,069,369	\$ 2,074,542	\$ 2,079,729	\$ 2,084,928	\$ 2,090,140
Non-Rate Revenues	72,700	72,827	72,954	73,081	73,209
Interest Earnings	3,500	4,052	1,800	1,816	5,985
Total Sources of Funds	\$ 2,145,569	\$ 2,151,421	\$ 2,154,483	\$ 2,159,825	\$ 2,169,334
Uses of Potable Water Funds					
Operating Expenses:					
Salaries & Benefits	\$ 876,284	\$ 910,366	\$ 948,328	\$ 988,342	\$ 1,030,553
Water Rights	50,000	51,450	52,942	54,424	55,839
Repair & Replacement	125,000	128,625	132,355	136,061	139,599
Electricity	150,000	153,000	156,060	159,181	162,365
All Other Expenses	512,955	521,586	538,282	555,110	571,589
<i>Subtotal: Operating Expenses</i>	<i>\$ 1,714,239</i>	<i>\$ 1,765,028</i>	<i>\$ 1,827,967</i>	<i>\$ 1,893,119</i>	<i>\$ 1,959,945</i>
Other Expenditures:					
Existing Debt Service ¹	\$ 170,746	\$ 170,416	\$ 170,075	\$ 169,721	\$ 169,355
New Revenue Bond Debt Service	-	-	-	-	-
Rate-Funded Capital Expenses	295,000	725,000	867,500	855,000	805,000
<i>Subtotal: Other Expenditures</i>	<i>\$ 465,746</i>	<i>\$ 895,416</i>	<i>\$ 1,037,575</i>	<i>\$ 1,024,721</i>	<i>\$ 974,355</i>
Total Uses of Water Funds	\$ 2,179,985	\$ 2,660,444	\$ 2,865,542	\$ 2,917,840	\$ 2,934,300
plus: Revenue from Rate Increases	124,162	388,354	685,612	976,059	1,254,676
Increase/Decrease to Reserves	\$ 89,746	\$ (120,669)	\$ (25,448)	\$ 218,044	\$ 489,711
Net Rev. Req't. (Total Uses less Non-Rate Rev.)	\$ 2,103,785	\$ 2,583,565	\$ 2,790,788	\$ 2,842,943	\$ 2,855,106
Total Rate Revenue After Rate Increases	\$ 2,193,531	\$ 2,462,897	\$ 2,765,340	\$ 3,060,987	\$ 3,344,817
Projected Annual % Rate Increases					
	12.00%	12.00%	12.00%	9.00%	9.00%
Cumulative Increase	12.00%	25.44%	40.49%	53.14%	66.92%
Debt Coverage Without Rate Increase	7.43	7.28	7.09	6.90	6.72
Debt Coverage After Rate Increase	8.16	9.56	11.12	12.65	14.13

1. FUND 218 - CIEDB: Hidden Valley Lake Water System Improvements Project, \$3,000,000 issued in 2002

SUMMARY OF CASH ACTIVITY	Budget		Projected		
	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Total Beginning Unrestricted Cash	\$ 418,803				
Operating Reserve					
Beginning Reserve Balance	\$ 268,533	\$ 359,881	\$ 141,250	\$ 68,274	\$ 239,222
Plus: Net Cash Flow (After Rate Increases)	89,746	(120,669)	(25,448)	218,044	489,711
Plus: Transfer of Debt Reserve Surplus	1,602	2,037	2,471	2,905	3,336
Less: Transfer Out to Water Capital Fund Reserve	-	(100,000)	(50,000)	(50,000)	(242,269)
Ending Operating Reserve Balance¹	\$ 359,881	\$ 141,250	\$ 68,274	\$ 239,222	\$ 490,000
Target Ending Balance (90-days of O&M Costs)	\$ 429,000	\$ 441,000	\$ 457,000	\$ 473,000	\$ 490,000
Water Capital Fund					
Beginning Reserve Balance	\$ 150,270	\$ 45,270	\$ 2,770	\$ 52,770	\$ 102,770
Plus: Grant Proceeds	30,000	-	-	-	-
Plus: Transfer of Operating Reserve Surplus	-	100,000	50,000	50,000	242,269
Less: Use of Reserves for Capital Projects	(135,000)	(142,500)	-	-	-
Ending Water Capital Fund Balance²	\$ 45,270	\$ 2,770	\$ 52,770	\$ 102,770	\$ 345,039
Target Ending Balance (3% of Net Capital Assets)	\$ 193,200	\$ 212,600	\$ 231,500	\$ 249,400	\$ 265,400
Ending Balance - Excludes Restricted Reserves	\$ 405,151	\$ 144,020	\$ 121,044	\$ 341,992	\$ 835,039
Suggested Minimum Target Ending Balance	\$ 622,200	\$ 653,600	\$ 688,500	\$ 722,400	\$ 755,400
Ending Surplus/(Deficit)					
Compared to Minimum Reserve Targets	\$ (217,049)	\$ (509,580)	\$ (567,456)	\$ (380,408)	\$ 79,639
Days Cash on Hand	79	28	23	61	144

1. Ending Water fund balances (Funds 325 and 130, Money Market & LAIF only) from "Financial Activity, Cash and Investment Summary as of June 30, 2020".

2. Includes Fund 320, Water CIP from "Financial Activity, Cash and Investment Summary as of June 30, 2020".

Restricted Reserves:					
Debt Reserve	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Beginning Reserve Balance ³	\$ 171,065	\$ 170,746	\$ 170,416	\$ 170,075	\$ 169,721
Revenue Bond Funded Reserve	\$ -				
Plus: Interest Earnings	1,283	1,707	2,130	2,551	2,970
Less: Transfer of Surplus to Operating Reserve	(1,602)	(2,037)	(2,471)	(2,905)	(3,336)
Ending Debt Reserve Balance	\$ 170,746	\$ 170,416	\$ 170,075	\$ 169,721	\$ 169,355
Target Ending Balance	\$ 170,746	\$ 170,416	\$ 170,075	\$ 169,721	\$ 169,355
Connection Fee Reserve					
Beginning Reserve Balance	\$ -	\$ -	\$ -	\$ -	\$ -
Plus: Interest Earnings	-	-	-	-	-
Plus: Connection Fee Revenue	-	-	-	-	-
Less: Use of Reserves for Capital Projects	-	-	-	-	-
Ending Connection Fee Balance	\$ -	\$ -	\$ -	\$ -	\$ -
Annual Interest Earnings Rate ⁴	0.75%	1.00%	1.25%	1.50%	1.75%

3. Water Operations debt service cash balance found in Source File: #3 - FY End 2017 Hidden Valley Lake Audit.pdf, Page 49. Includes Redemption Fund in Debt Reserve.
 4. Historical interest earning rates were referenced on the California Treasurer's Office website for funds invested in LAIF. Future years earnings were conservatively estimated through 2021 and phase into the historical 10 year average interest earnings rate.

CAPITAL FUNDING FORECAST	Budget		Projected		
Funding Sources:	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Grants ¹	\$ 30,000	\$ -	\$ -	\$ -	\$ -
Loan Funding	-	-	-	-	-
Use of New Revenue Bond Proceeds	-	-	-	-	-
Use of Connection Fee Reserve	-	-	-	-	-
Use of Capital Rehabilitation and Replacement Reserve	135,000	142,500	-	-	-
Rate Revenue	295,000	725,000	867,500	855,000	805,000
Total Sources of Capital Funds	\$ 460,000	\$ 867,500	\$ 867,500	\$ 855,000	\$ 805,000

Uses of Capital Funds:					
	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Total Project Costs ²	\$ 460,000	\$ 867,500	\$ 867,500	\$ 855,000	\$ 805,000
Capital Funding Surplus (Deficiency)	\$ -	\$ -	\$ -	\$ -	\$ -

1. FEMA/CalOES grant revenue found in District budget source file: 2020-2021 Budget & Narrative APPROVED 6-16-2020-.pdf, page 9.
 2. CIP expenditures modified by District Staff as of 9-17-20.

Funded Priority	Capital Project Descriptions	FY 2020/2021	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025
1	Wildfire Resilience/Reliable Water Supply/Replace wooden tanks	\$ 180,000.00	\$ 405,000.00	\$ 405,000.00	\$ 405,000.00	\$ 405,000.00
3	Disaster mitigation/SCADA Upgrade	\$ 30,000.00	\$ 30,000.00	\$ 30,000.00	\$ 30,000.00	\$ 30,000.00
2	Reliable Water Supply/Automatic Metering Infrastructure	\$ 200,000.00	\$ 320,000.00	\$ 320,000.00	\$ 320,000.00	\$ 320,000.00
4	Wildfire Resilience/ Reliable Water Supply/PSPS Backup power supply	\$ 50,000.00	\$ 50,000.00	\$ 50,000.00	\$ 50,000.00	\$ 50,000.00
7	IT Upgrades/Records Retention/Increase storage capacity				\$ 50,000.00	
5	Reliable Water Supply/Leak Repair/Mini-Excavator		\$ 25,000.00	\$ 25,000.00		
6	Regulatory Compliance/Dump Truck		\$ 37,500.00	\$ 37,500.00		
	Top 6 priorities	\$ 460,000.00	\$ 867,500.00	\$ 867,500.00	\$ 855,000.00	\$ 805,000.00

Unfunded Priority	Capital Project Descriptions	FY 2020/2021	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025
	Reliable Water Supply/Water Quality/Repair water lines	\$ 540,000.00	\$ 540,000.00	\$ 540,000.00	\$ 540,000.00	\$ 540,000.00
	Wildfire Resilience/Upgrade Fire Hydrants	\$ 760,000.00	\$ 760,000.00	\$ 760,000.00	\$ 760,000.00	\$ 760,000.00
		\$ 1,300,000.00	\$ 1,300,000.00	\$ 1,300,000.00	\$ 1,300,000.00	\$ 1,300,000.00

EXISTING DEBT OBLIGATIONS HVLCSD WATER DISTRICT - POTABLE WATER					
Annual Repayment Schedules:	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
FUND 218 - CIEDB: Hidden Valley Lake Water System Improvements Project, \$3,000,000 issued in 2002					
Principal Payment ¹	\$ 110,065	\$ 113,895	\$ 117,859	\$ 121,960	\$ 126,204
Interest Payment	55,865	52,035	48,072	43,970	39,726
Annual Fee	4,816	4,486	4,144	3,791	3,425
Subtotal: Annual Debt Service	\$ 170,746	\$ 170,416	\$ 170,075	\$ 169,721	\$ 169,355
Coverage Requirement (\$ Amnt. above annual payment)	187,821	187,458	187,083	186,693	186,291
Reserve Requirement (total fund balance) ²	170,746	170,416	170,075	169,721	169,355

1. Fund 218 Loan Doc found in Source File: #9 - Loan Docs Fund 218 - CIEDB 2002.pdf
2. The Reserve Requirement in future years is equal to the lesser of: the maximum annual debt service payment, or the maximum amount then permitted under the Code.

Classification of Expenses		Total Revenue	Volumetric	Fixed		Allocation %'s to Classifications		
			Commodity	Capacity	Customer	COM	CAP	CA
Budget Items		FY 2020/21	COM	CAP	CA	COM	CAP	CA
130-5010	Salary & Wages	\$ 511,330	\$ 163,626	\$ 322,138	\$ 25,567	32%	63%	5%
130-5020	Employee Benefits	198,304	63,457	124,932	9,915	32%	63%	5%
130-5021	Retirement Benefits	93,850	30,032	59,126	4,693	32%	63%	5%
130-5022	Clothing Allowance	1,800	540	1,170	90	30%	65%	5%
130-5024	Workers' Comp Insurance	15,000	4,500	9,750	750	30%	65%	5%
130-5025	Retiree Health Benefits	14,000	4,200	9,100	700	30%	65%	5%
130-5030	Director Health Benefits	42,000	12,600	27,300	2,100	30%	65%	5%
130-5040	Election Expense	12,000	3,600	7,800	600	30%	65%	5%
130-5060	Gasoline, Oil & Fuel	20,000	6,000	13,000	1,000	30%	65%	5%
130-5061	Vehicle Maintenance	12,500	3,750	8,125	625	30%	65%	5%
130-5062	Taxes & Licenses	1,200	360	780	60	30%	65%	5%
130-5063	Certifications	600	180	390	30	30%	65%	5%
130-5074	Insurance	54,055	16,217	35,136	2,703	30%	65%	5%
130-5075	Bank Fees	21,000	6,300	13,650	1,050	30%	65%	5%
130-5080	Membership & Subscriptions	24,600	7,380	15,990	1,230	30%	65%	5%
130-5090	Office Supplies	4,000	1,200	2,600	200	30%	65%	5%
130-5092	Postage & Shipping	6,500	1,950	4,225	325	30%	65%	5%
130-5121	Legal Services	20,000	6,000	13,000	1,000	30%	65%	5%
130-5122	Engineering Services	60,000	18,000	39,000	3,000	30%	65%	5%
130-5123	Other Professional Services	50,000	15,000	32,500	2,500	30%	65%	5%
130-5126	Audit Services	7,500	2,250	4,875	375	30%	65%	5%
130-5124	Water Rights	50,000	50,000	-	-	100%	0%	0%
130-5130	Printing & Publication	7,500	2,250	4,875	375	30%	65%	5%
130-5135	Newsletter	500	150	325	25	30%	65%	5%
130-5145	Equipment Rental	45,000	13,500	29,250	2,250	30%	65%	5%
130-5148	Operating Supplies	5,000	1,500	3,250	250	30%	65%	5%
130-5150	Repair & Replace	125,000	40,000	78,750	6,250	32%	63%	5%
130-5155	Maintenance Building & Grounds	12,000	3,840	7,560	600	32%	63%	5%
130-5156	Custodial Services	4,200	1,260	2,730	210	30%	65%	5%
130-5157	Security	5,000	1,500	3,250	250	30%	65%	5%
130-5170	Travel & Meetings	4,200	1,260	2,730	210	30%	65%	5%
130-5175	Education & Seminars	9,500	2,850	6,175	475	30%	65%	5%
130-5176	Director Training	5,000	1,500	3,250	250	30%	65%	5%
130-5179	Admin Miscellaneous Expense	350	105	228	18	30%	65%	5%
130-5191	Telephone	11,000	3,300	7,150	550	30%	65%	5%
130-5192	Electricity	150,000	135,000	15,000	-	90%	10%	0%
130-5193	Other Utilities	2,500	750	1,625	125	30%	65%	5%
130-5194	IT Services	36,500	10,950	23,725	1,825	30%	65%	5%
130-5195	Env./Monitoring	17,000	5,100	11,050	850	30%	65%	5%
130-5196	Risk Management	-	-	-	-	30%	65%	5%
130-5198	Annual Operating Fees	32,000	9,600	20,800	1,600	30%	65%	5%
130-5310	Equipment - Field	1,000	300	650	50	30%	65%	5%
Sub-Total:		\$ 1,693,489	\$ 651,856	\$ 966,958	\$ 74,674	38.5%	57.1%	4.4%

Classification of Expenses, continued		Total Revenue FY 2020/21	Volumetric Base Commodity COM	Fixed		Allocation %'s to Classifications		
Budget Categories				Capacity	Customer	COM	CAP	CA
				CAP	CA			
130-5311	Equipment - Office	\$ 1,000	\$ 300	\$ 650	\$ 50	30%	65%	5%
130-5312	Tools - Field	1,500	450	975	75	30%	65%	5%
130-5315	Safety Equipment	1,500	450	975	75	30%	65%	5%
130-5505	Water Conservation	9,000	7,650	900	450	85%	10%	5%
130-5545	Recording Fees	250	75	163	13	30%	65%	5%
130-OPEB	OPEB OBLIGATION	7,500	2,250	4,875	375	30%	65%	5%
130-5600	Contingency	-	-	-	-	30%	65%	5%
Sub-Total:		\$ 20,750	\$ 11,175	\$ 8,538	\$ 1,038	53.9%	41.1%	5.0%
Grand Total: Water Fund Operations		\$ 1,714,239	\$ 663,031	\$ 975,496	\$ 75,712	39%	57%	4%

Classification of Expenses, continued		Total Revenue FY 2020/21	Volumetric Base Commodity COM	Fixed		Allocation %'s to Classifications		
Budget Categories				Capacity	Customer	COM	CAP	CA
				CAP	CA			
Debt Service Payments								
Existing Debt Service		170,746	\$ -	\$ 170,746	\$ -	0%	100%	0%
New Revenue Bond Debt Service		-	\$ -	\$ -	\$ -	0%	100%	0%
Capital Expenditures								
Rate Funded Capital Expenses		295,000	\$ -	\$ 295,000	\$ -	0%	100%	0%
TOTAL REVENUE REQUIREMENTS		\$ 2,179,985	\$ 663,031	\$ 1,441,242	\$ 75,712	30%	66%	3%
130-4035	Reconnect Fees	\$ (12,000)	\$ (3,650)	\$ (7,933)	\$ (417)	30%	66%	3%
130-4039	Water Meter Installation	\$ -	-	-	-	30%	66%	3%
130-4040	Recording Fee Income	\$ (1,200)	(365)	(793)	(42)	30%	66%	3%
130-4045	Availability Fees	\$ (22,000)	(6,691)	(14,545)	(764)	30%	66%	3%
130-4110	Commercial Water Use		-	-	-	30%	66%	3%
130-4112	Government Water Use		-	-	-	30%	66%	3%
130-4115	Water Use Charges		-	-	-	30%	66%	3%
130-4210	Late Fee	\$ (32,000)	(9,733)	(21,156)	(1,111)	30%	66%	3%
130-4215	Returned Check Fee	\$ (1,000)	(304)	(661)	(35)	30%	66%	3%
130-4300	Misc. Income	\$ (3,000)	(912)	(1,983)	(104)	30%	66%	3%
130-4310	Other Income	\$ (1,500)	(456)	(992)	(52)	30%	66%	3%
130-4550	Interest Income	\$ (3,500)	(1,065)	(2,314)	(122)	30%	66%	3%
NET REVENUE REQUIREMENTS		\$ 2,103,785	\$ 639,856	\$ 1,390,864	\$ 73,065			
<i>Allocation of Revenue Requirements</i>		100.0%	30.4%	66.1%	3.5%			

Classification of Expenses, continued				
Adjustments to Classification of Expenses				
Adjustment for Current Rate Level:	Total Rev Reqts	COM	CAP	CA
Target Rate Rev. After Rate Increases**	\$ 2,317,693			
Projected Rate Revenue at Current Rates	\$ 2,069,369			
Rate Increase (FY 2018/19)	12.0%			
Target Rate / Adjusted Net Revenue - Requirement	\$ 2,317,693	\$ 704,915	\$ 1,532,284	\$ 80,495
<i>Percent of Revenue</i>		<i>30.4%</i>	<i>66.1%</i>	<i>3.5%</i>

Development of the COMMODITY Allocation Factor		
Customer Class	2019 Volume (hcf) ¹	Percent of Total Volume
Single Family Residential	254,982	92.5%
Multi-Family Residential	2,306	0.8%
Commercial	17,649	6.4%
Municipal	678	0.2%
Total	275,615	100%
Recycled ²	1,403,126	100%
Total in Acre Feet	3,854 AF	

1. Consumption in hcf and customer class from Source file: *Copy of Customer Data.xlsx*

2. Recycled Water excluded from potable water consumption. One customer only in the District.

Development of the PEAK CAPACITY (MAX MONTH) Allocation Factors				
Customer Class	Average Monthly Use (hcf)	Peak Monthly Use (hcf) ¹	Peak Month Factor	Max Month Capacity Factor
Single Family Residential	21,248	34,813	1.64	91.3%
Multi-Family Residential	192	509	2.65	1.3%
Commercial	1,471	2,669	1.81	7.0%
Municipal	56	158	2.79	0.4%
Total	22,968	38,149	1.66	100.2%
Recycled ²	116,927	314,340	2.69	89.2%
Total in Acre Feet	268 AF	722 AF		

1. Based on peak monthly / monthly data (peak day data not available).

2. Recycled Water excluded from potable water consumption. One customer only in the District.

Development of the CUSTOMER ALLOCATION Factor		
Customer Class	Number of Meters ¹	Percent of Total
Single Family Residential	2,462	97.43%
Multi-Family Residential	27	1.07%
Commercial	34	1.35%
Municipal	4	0.16%
Total	2,527	100%
Recycled ²	1	N.A.

1. Meter counts and customer class from January 2020. Source file: *Copy of Customer Data.xlsx*

2. Recycled Water excluded from potable water consumption. One customer only in the District.

Net Revenue Requirements (60% Fixed / 40% Variable)						
Customer Class	Cost Classification Components				Cost of Service Net Rev. Req't	% of COS Net Revenue Req't
	Commodity Related Costs	Capacity Related Costs - Volumetric Allocation	Capacity Related Costs - Fixed Allocation	Customer Related Costs		
Single Family Residential	\$ 652,144	\$ 202,737	\$ 1,195,564	\$ 78,424	\$ 2,128,869	91.9%
Multi-Family Residential	5,898	2,966	17,494	860	27,218	1.2%
Commercial	46,873	16,459	97,063	1,210	161,606	7.0%
Total	\$ 704,915	\$ 222,163	\$ 1,310,121	\$ 80,495	\$ 2,317,693	100%

Net Revenue Requirements (60% Fixed / 40% Variable)												
Number of Meters by Class and Size ¹	5/8 inch	3/4 inch	1 inch	1.5 inch	2 inch	3 inch	4 inch	6 inch	8 inch	10 inch	12 inch	Total
Single Family Residential	2,223	239	2	-	-	-	-	-	-	-	-	2,464
Multi-Family Residential	27	-	-	-	-	-	-	-	-	-	-	27
Commercial	14	-	12	2	8	-	-	-	-	-	-	36
Total Meters/Accounts	2,264	239	14	2	8	-	-	-	-	-	-	2,527
Hydraulic Capacity Factor ²	1.00	1.00	2.50	5.00	8.00	16.00	25.00	50.00	140.00	210.00	265.00	
Total Equivalent Meters	2,264	239	35	10	64	-	-	-	-	-	-	2,612
Monthly Fixed Service Charges												
Customer Costs (\$/Acct./mo.) ³	\$2.65	\$2.65	\$2.65	\$2.65	\$2.65	\$2.65	\$2.65	\$2.65	\$2.65	\$2.65	\$2.65	
Capacity Costs (\$/Acct./mo.) ⁴	\$41.80	\$41.80	\$104.50	\$208.99	\$334.39	\$668.77	\$1,044.95	\$2,089.91	\$5,851.74	\$8,777.61	\$11,076.51	
Total Monthly Meter Charge	\$44.45	\$44.45	\$107.15	\$211.65	\$337.04	\$671.42	\$1,047.61	\$2,092.56	\$5,854.40	\$8,780.27	\$11,079.17	
Annual Fixed Costs Allocated to Monthly Meter Charges												
Customer Costs	\$ 80,495											
Capacity Costs	1,310,121											
Total Fixed Meter Costs	\$ 1,390,616											
Annual Revenue from Monthly Meter Charges												
Customer Charges	\$ 72,117	\$ 7,613	\$ 446	\$ 64	\$ 255	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 80,495
Capacity Charges	\$1,135,572	\$ 119,877	\$ 17,555	\$ 5,016	\$ 32,101	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	1,310,121
Total Monthly Meter Charge Reve	\$1,207,689	\$ 127,490	\$ 18,001	\$ 5,079	\$ 32,356	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$1,390,616

1. Meter counts from January 2020, consumption rates and customer class from Source files: Copy of Customer Data.xlsx

2. Meter flow rates are from AWWA M-1 (Seventh Edition) Table B-2. Assumes displacement meters for 5/8 through 2 inch meters, Compound for 3 - 8 inch meters, Turbine for 10 & 12 inch, unless noted otherwise.

3. Customer costs are allocated to each customer by dividing the total customer costs by the total number of customers.

4. Capacity costs are allocated by meter size and the hydraulic capacity of the meter.

Net Revenue Requirements (60% Fixed / 40% Variable)									FY 2020/21
Customer Class	Number of Meters ¹	Water Consumption (hcf/yr.)	Water Consump. w/ Conservation ² (hcf/yr.)	Commodity Assigned Costs	Other Volumetric Assigned Costs	Total Target Rev. Req't from Vol. Charges	% of Total Rate Revenue	Uniform Commodity Rates (\$/hcf)	Proposed Rate Structure
Single Family Residential	2,462	254,982	242,233	\$ 652,144	\$ 202,737	\$ 854,881	36.9%	\$ 3.53	Uniform
Multi-Family Residential	27	2,306	2,191	5,898	2,966	8,865	0.4%	3.53	
Commercial	38	18,327	17,410	46,873	16,459	63,332	2.7%	3.64	Uniform
Total	2,527	275,615	261,834	\$ 704,915	\$ 222,163	\$ 927,077	40%		
Uniform Rate (All Classes)								\$ 3.54	Uniform

1. Meter counts, consumption rates and customer class from Source files: Copy of Customer Data.xlsx

2. Assumed Conservation = 5.00%

Comparison of Average Residential Consumption - 2015 vs. Current (hcf/month)			
Year	Winter Average	Annual Average	Summer Average
2015	6.9	11.1	17.1
2019	5.1	8.6	12.4
% Change:	-27%	-22%	-27%

Drought Rates: Expenses Assumed to Decrease with Lower Consumption	
Expense Name	FY 2020/21
Variable Portion of Operating Costs¹	
Electricity	\$ 135,000
Other Utilities	\$ 750
Repair & Replace	\$ 40,000
Total:	\$ 175,750

1. Expenses primarily related volume of water produced.

Net Revenue Requirements (60% Fixed / 40% Variable)			Target Rev. Req't from Vol. Charges: ¹ \$			927,077
Level of Conservation	Total Expected SFR/MFR Consumption ¹	Percent Change	Reduced Expenses Due to Lower Consumption ²	Additional Drought Expenses ³	Revised Target Rev. Req't from Vol. Charges	FY 2021/22 Uniform Rate
Baseline Rate	261,834 ccf	0%	\$ -	\$ -	\$ 927,077	\$3.54
Drought Stage 1	235,651 ccf	-10%	\$ (17,575)	\$ -	\$ 909,502	\$3.86
Drought Stage 2	209,467 ccf	-20%	\$ (35,150)	\$ 25,000	\$ 916,927	\$4.38
Drought Stage 3	183,284 ccf	-30%	\$ (52,725)	\$ 50,000	\$ 924,352	\$5.04
Drought Stage 4	157,100 ccf	-40%	\$ (70,300)	\$ 75,000	\$ 931,777	\$5.93

1. Total 2019 for single- and multi-family customer classes.
2. Purchased water and utility expenses related to treatment costs are directly reduced when the District sells less water.
3. Estimated drought-related additional expenses for each stage.

Water Rate Schedule	Current Rates ('20/21)	Proposed Water Rates				
		FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Fixed Service Charge						
<i>Monthly Fixed Service Charge:</i>						
5/8 inch	\$39.58	\$44.45	\$49.79	\$55.76	\$60.78	\$66.25
3/4 inch	\$39.58	\$44.45	\$49.79	\$55.76	\$60.78	\$66.25
1 inch	\$94.91	\$107.15	\$120.01	\$134.41	\$146.51	\$159.69
1.5 inch	\$187.11	\$211.65	\$237.04	\$265.49	\$289.38	\$315.43
2 inch	\$297.75	\$337.04	\$377.48	\$422.78	\$460.83	\$502.31
Water Commodity Charges per hundred cubic feet (HCF)						
Uniform Rate (All Classes)	\$2.68	\$3.54	\$3.97	\$4.44	\$4.84	\$5.28

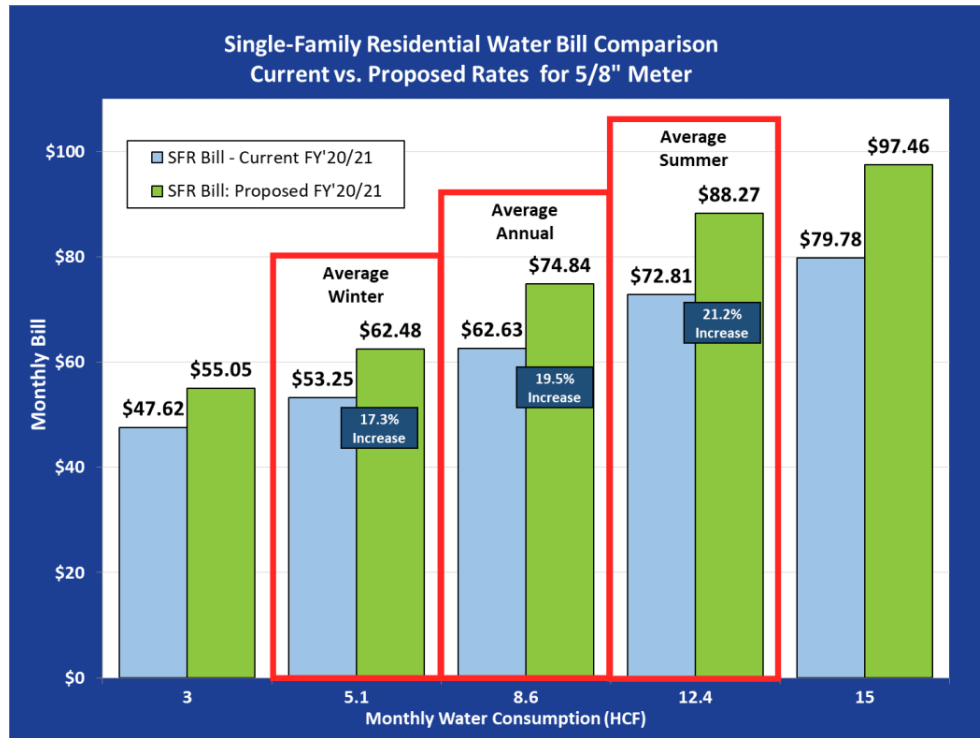
Water Rate Schedule	Current Rates ('20/21)	Proposed Drought Water Rates				
		FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Fixed Service Charge						
<i>Monthly Fixed Service Charge: (Same as Non-Drought Fixed Service Charges)</i>						
Commodity Charges for All Water Consumed per hundred cubic feet (HCF)						
All Customer Classes:						
Drought Stage 1	\$3.35	\$3.86	\$4.32	\$4.84	\$5.28	\$5.75
Drought Stage 2	\$3.75	\$4.38	\$4.90	\$5.49	\$5.99	\$6.52
Drought Stage 3	\$4.02	\$5.04	\$5.65	\$6.33	\$6.90	\$7.52
Drought Stage 4	\$4.47	\$5.93	\$6.64	\$7.44	\$8.11	\$8.84

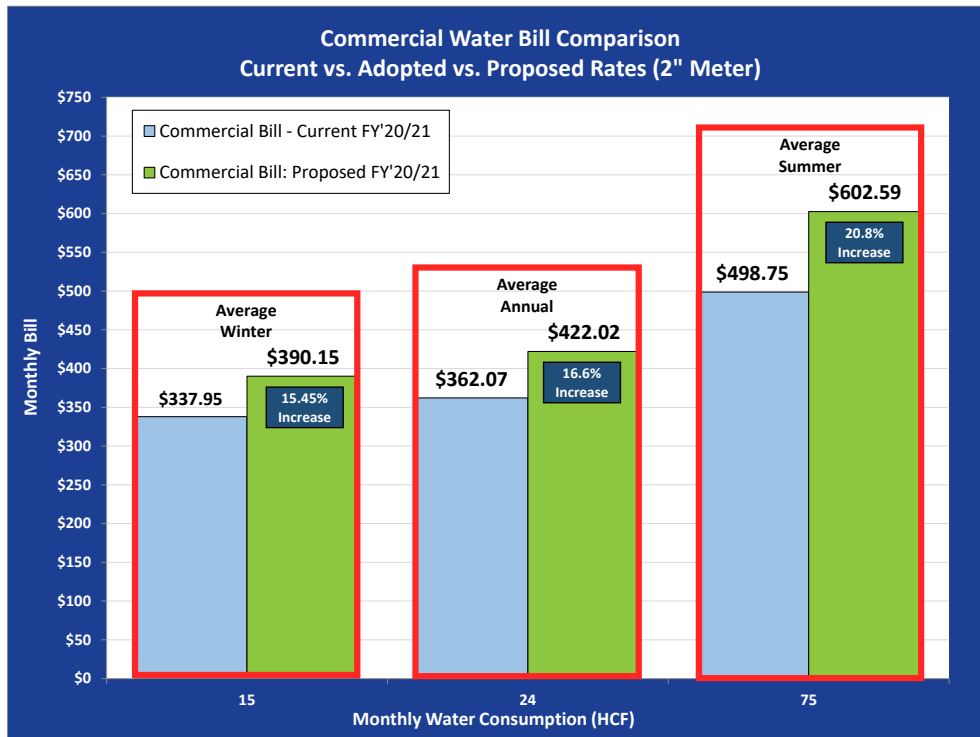
Residential Bill Comparison for 5/8 inch Meter

	Monthly Water Consumption (HCF)							
	1	3	5.1	8.6	12.4	15	20	25
SFR Bill - Current '20/21	\$42.26	\$47.62	\$53.25	\$62.63	\$72.81	\$79.78	\$93.18	\$106.58
SFR Bill - Proposed '20/21	\$47.99	\$55.05	\$62.48	\$74.84	\$88.27	\$97.46	\$115.13	\$132.80
SFR Bill - Proposed '21/22	\$53.75	\$61.68	\$70.01	\$83.89	\$98.96	\$109.27	\$129.10	\$148.93
SFR Bill - Proposed '22/23	\$60.20	\$69.09	\$78.41	\$93.96	\$110.84	\$122.38	\$144.59	\$166.80
SFR Bill - Proposed '23/24	\$65.62	\$75.30	\$85.47	\$102.41	\$120.81	\$133.40	\$157.60	\$181.81
SFR Bill - Proposed '24/25	\$71.53	\$82.08	\$93.16	\$111.63	\$131.68	\$145.40	\$171.79	\$198.17
	Unrounded Avg.:		5.1	8.6	12.4			
	2015 Avg.:		6.9	11.1	17.1			

Residential Bill Comparison for 5/8 inch Meter - Alternative Rates	Winter Average		Annual Average		Summer Average			
	1	3	5.1	8.6	12.4	15	20	25
SFR Bill - Current FY'20/21	\$42.26	\$47.62	\$53.25	\$62.63	\$72.81	\$79.78	\$93.18	\$106.58
SFR Bill: Proposed FY'20/21	\$47.99	\$55.05	\$62.48	\$74.84	\$88.27	\$97.46	\$115.13	\$132.80
SFR Bill: Proposed FY'21/22	\$53.74	\$61.66	\$69.97	\$83.82	\$98.86	\$109.15	\$128.94	\$148.73

Commercial Bill Comparison for 2 inch Meter	Winter Average		Annual Average			Summer Average			
	5	15	24	75	125	175	215	300	500
Commercial Bill - Current FY'20/21	\$311.15	\$337.95	\$362.07	\$498.75	\$632.75	\$766.75	\$873.95	\$1,101.75	\$1,637.75
Commercial Bill: Proposed FY'20/21	\$354.74	\$390.15	\$422.02	\$602.59	\$779.63	\$956.66	\$1,098.29	\$1,399.25	\$2,107.39
Commercial Bill: Proposed FY'21/22	\$397.31	\$436.97	\$472.66	\$674.90	\$873.18	\$1,071.46	\$1,230.09	\$1,567.16	\$2,360.28





Water Consumption Data used for Water Rates:							
Summary of Consumption by Class	2018 Consumption (hcf)	2019 Consumption (hcf)	Jan 2020 Accounts	2019 Avg. hcf/month			Winter-to-Annual Ratio
				Annual	Winter	Summer	
Single Family Residential	260,654	254,982	2,462	8.6	5.1	12.4	0.59
Multi-Family Residential	462	397	2	17	3	24	0.18
Commercial	17,717	18,327	38	104	62	133	0.59
Total	278,833	273,706	2,502	130	70	169	1.36
Recycled	1,050,495	1,403,126	1	87,541	17,325	247,957	0.20

Meter counts, consumption and customer class from Source file: Copy of Customer Data.xlsx

Jan-Mar 19 Jul-Sep 19

APPENDIX B – SEWER RATE ANALYSIS

RATE REVENUE REQUIREMENTS SUMMARY	Budgeted	Projected			
	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Sources of Sewer Funds					
<i>Sewer Rate Revenue:</i>					
Sewer Rate Revenue Under Current Rates	\$ 1,261,953	\$ 1,265,108	\$ 1,268,271	\$ 1,271,441	\$ 1,274,620
Revenue from Rate Increases	37,859	321,843	513,558	675,608	852,969
Subtotal: Rate Revenue After Rate Increases - Sewer	\$ 1,299,812	\$ 1,586,951	\$ 1,781,829	\$ 1,947,049	\$ 2,127,589
<i>Recycled Water Rate Revenue:</i>					
RW Rate Revenue Under Current Rates	\$ 110,000	\$ 110,000	\$ 110,000	\$ 110,000	\$ 110,000
Revenue from Rate Increases	6,600	27,984	44,542	58,451	73,611
Subtotal: Rate Revenue After Rate Increases - RW	\$ 116,600	\$ 137,984	\$ 154,542	\$ 168,451	\$ 183,611
<i>Non-Rate Revenue:</i>					
Other Non-Rate Revenue	\$ 28,500	\$ 28,571	\$ 28,643	\$ 28,714	\$ 28,786
Interest Income ²	1,700	6,545	4,772	3,731	5,296
Subtotal: Non-Rate Revenue	\$ 30,200	\$ 35,117	\$ 33,414	\$ 32,445	\$ 34,082
Total Sources of Funds	\$ 1,446,612	\$ 1,760,052	\$ 1,969,785	\$ 2,147,945	\$ 2,345,283
Uses of Sewer Funds					
<i>Operating Expenses:</i>					
Salaries & Benefits Expenses	\$ 870,394	\$ 899,927	\$ 930,482	\$ 962,095	\$ 994,800
Other Operating Expenses	778,816	794,589	818,622	842,794	866,413
Subtotal: Operating Expenses:	\$ 1,649,210	\$ 1,694,515	\$ 1,749,104	\$ 1,804,889	\$ 1,861,212
<i>Other Expenditures:</i>					
USDA Solar Loan	\$ 32,255	\$ 32,238	\$ 32,205	\$ 32,158	\$ 32,095
New Debt Service	-	-	-	-	-
Rate-Funded Capital Expenses	-	-	112,020	257,500	257,500
Subtotal: Other Expenditures	\$ 32,255	\$ 32,238	\$ 144,225	\$ 289,658	\$ 289,595
Total Uses of Funds	\$ 1,681,465	\$ 1,726,753	\$ 1,893,329	\$ 2,094,546	\$ 2,150,807
Annual Surplus/(Deficit)	\$ (234,853)	\$ 33,299	\$ 76,456	\$ 53,399	\$ 194,475
Net Revenue Req't. (Total Uses less Non-Rate Revenue)	\$ 1,651,265	\$ 1,691,636	\$ 1,859,915	\$ 2,062,101	\$ 2,116,725
Projected Annual % Rate Increases	12.00%	12.00%	12.00%	9.00%	9.00%
<i>Cumulative Increase from Annual Revenue Increases</i>	12.00%	25.44%	40.49%	53.14%	66.92%
Projected Annual Rate Revenue Adjustment - RW	12.00%	12.00%	12.00%	9.00%	9.00%
<i>Cumulative Increase from Annual Revenue Increases</i>	12.00%	25.44%	40.49%	53.14%	66.92%

1. Revenues and Expenditures budgeted for FY 2020/21 found in source file: 2020-2021 Budget & Narrative APPROVED 6-16-2020-.pdf

2. Calculated interest in FY 2021/22 and after.

SUMMARY OF CASH ACTIVITY UN-RESTRICTED RESERVES	Budgeted	Projected			
	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Total Beginning Unrestricted Cash	\$ 660,148				
Operating Reserve					
Beginning Reserve Balance ¹	\$ 206,868	\$ (27,743)	\$ 5,879	\$ 82,740	\$ 136,623
Plus: Net Cash Flow (After Rate Increases)	(234,853)	33,299	76,456	53,399	194,475
Plus: Transfer In of Debt Reserve Surplus	242	323	404	485	565
Less: Transfer Out to Capital Facilities Reserve	-	-	-	-	-
Ending Operating Reserve Balance	\$ (27,743)	\$ 5,879	\$ 82,740	\$ 136,623	\$ 331,664
Target Ending Balance (90-days of O&M Costs)	\$ 412,000	\$ 424,000	\$ 437,000	\$ 451,000	\$ 465,000
Capital Facilities Reserve					
Beginning Reserve Balance ²	\$ 453,280	\$ 682,280	\$ 375,855	\$ 166,000	\$ 166,000
Plus: Transfer In of Operating Reserve Surplus	-	-	-	-	-
Less: Use of Reserves for Capital Projects	229,000	(306,425)	(209,855)	-	-
Ending Capital Facilities Reserve Balance	\$ 682,280	\$ 375,855	\$ 166,000	\$ 166,000	\$ 166,000
Target Capital Facilities Reserve (3% of Assets)	\$ 141,000	\$ 164,000	\$ 166,000	\$ 168,000	\$ 171,000
Ending Balance	\$ 654,537	\$ 381,734	\$ 248,740	\$ 302,623	\$ 497,664
Minimum Target Ending Balance	\$ 553,000	\$ 588,000	\$ 603,000	\$ 619,000	\$ 636,000
Ending Surplus/(Deficit) Compared to Reserve Targets	\$ 101,537	\$ (206,266)	\$ (354,260)	\$ (316,377)	\$ (138,336)
Restricted Reserves:					
Debt Reserve Fund					
Beginning Reserve Balance ⁴	\$ 32,310	\$ 32,310	\$ 32,310	\$ 32,310	\$ 32,310
Plus: Interest Earnings	242	323	404	485	565
Plus: Reserve Funding from New Debt Obligations	-	-	-	-	-
Less: Transfer Out to Operating Reserve	(242)	(323)	(404)	(485)	(565)
Ending Debt Reserve Balance	\$ 32,310	\$ 32,310	\$ 32,310	\$ 32,310	\$ 32,310
Target Ending Balance ⁵	\$ 32,310	\$ 32,310	\$ 32,310	\$ 32,310	\$ 32,310
Annual Interest Earnings Rate ⁶	0.75%	1.00%	1.25%	1.50%	1.75%

- Ending Wastewater fund balances (Funds 313 and 120, Money Market & LAIF only) from "Financial Activity, Cash and Investment Summary as of June 30, 2020".
- Includes Fund 314, Wastewater CIP from "Financial Activity, Cash and Investment Summary as of June 30, 2020".
- Sewer debt service cash balances include 6 funds reserved for debt and bonds; found in Source File: #3 - FY End 2017 Hidden Valley Lake Audit.pdf, Page 44 & 45. Balance includes the following accounts: USDA Solar Loan, USDA Reserve, All Bond Admin, Assessments.
- NBS is assuming the Debt Reserve Target to include the reserve requirement for Fund 219 and not including Fund 215.
- Historical interest earning rates were referenced on the California Treasurer's Office website for funds invested in LAIF. Future years earnings were conservatively estimated through 2021 and phase into the historical 10 year average interest earnings rate.

CAPITAL FUNDING FORECAST	Budget	Projected			
	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Funding Sources:					
FEMA/CalOES Grants ¹	\$ 369,000	\$ -	\$ -	\$ -	\$ -
Use of Connection Fee Reserves	-	-	-	-	-
Use of SFR Proceeds	-	-	-	-	-
Use of New Revenue Bond Proceeds	-	-	-	-	-
Use of Capital Rehabilitation and Replacement Reserve	-	306,425	209,855	-	-
Rate Revenue	-	-	112,020	257,500	257,500
Total Sources of Capital Funds	\$ 369,000	\$ 306,425	\$ 321,875	\$ 257,500	\$ 257,500
Uses of Capital Funds:					
Total Project Costs ²	\$ 140,000	\$ 306,425	\$ 321,875	\$ 257,500	\$ 257,500
Capital Funding Surplus (Deficiency)	\$ 229,000	\$ -	\$ -	\$ -	\$ -

- FY 2020/21 FEMA/CalOES Grants found in source file: 2020-2021 Budget & Narrative APPROVED 6-16-2020-.pdf, page 6
- New CIP expenditures from District staff, email from 4-28-20

Project Description	FY 2020/2021	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025
Regulatory Compliance/I&I Mitigation	\$ 100,000.00	\$ 100,000.00	\$ 100,000.00	\$ 100,000.00	\$ 100,000.00
Disaster Mitigation/SCADA Upgrade	\$ 30,000.00	\$ 30,000.00	\$ 90,000.00		
Disaster recovery/WWTP Access Road repair					
Reliable Water Supply/Leak Repair/Mini-Excavator		\$ 25,000.00	\$ 25,000.00		
Risk Management Plan/Chlorine Tank Auto Shut-Off		\$ 45,000.00			
Regulatory Compliance/Dump Truck		\$ 37,500.00	\$ 37,500.00		
IT Upgrades/Records Retention/Increase storage capacity				\$ 50,000.00	
Stormwater Master Planning/Mitigation	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 50,000.00	\$ 50,000.00
Regulatory Compliance/Manhole Rehab		\$ 50,000.00	\$ 50,000.00	\$ 50,000.00	\$ 100,000.00
Top 6 priorities	\$ 140,000.00	\$ 297,500.00	\$ 312,500.00	\$ 250,000.00	\$ 250,000.00

DISTRICT DEBT OBLIGATIONS	Budget	Projected			
	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Annual Repayment Schedules:					
<u>1995-2 Bond Redemption</u> ¹					
Principal Payment	\$ 185,000	\$ 192,000	\$ 199,000	\$ 206,000	\$ 213,000
Interest Payment	99,357	93,231	86,728	79,843	72,720
Subtotal: Annual Debt Service	\$ 284,357	\$ 285,231	\$ 285,728	\$ 285,843	\$ 285,720
Coverage Requirement (\$-Amnt. above annual payment) ²	-	-	-	-	-
Reserve Requirement (total fund balance) ²	-	-	-	-	-
<u>USDA Solar Loan</u> ³					
Principal Payment	\$ 17,000	\$ 17,500	\$ 18,000	\$ 18,500	\$ 19,000
Interest Payment	15,255	14,738	14,205	13,658	13,095
Subtotal: Annual Debt Service	\$ 32,255	\$ 32,238	\$ 32,205	\$ 32,158	\$ 32,095
Coverage Requirement (\$-Amnt. above annual payment) ⁴	35,541	35,541	35,541	35,541	35,541
Reserve Requirement (total fund balance) ⁵	32,310	32,310	32,310	32,310	32,310

1. Info for Fund 215 Loan in source file: #8 - *Repayment Fund 215 - Bond Debt Schedule.pdf*

Per District staff, Fund 215 represents tax roll revenue that covers this debt service in full. NBS is leaving this debt service out of the rate study.

2. Per debt service agreement, this is USDA sponsored, so no coverage or reserve requirement.

3. Info for Fund 219 Loan in source file: #9 - *Loan Docs Fund 219 - Solar 2011.pdf*

4. The District is required to fix, charge and collect from sewer rates, equal to a minimum of 110% of the maximum annual debt service payment.

5. The Reserve Requirement in future years is equal to the lesser of: the maximum annual debt service payment, or the maximum amount then permitted under the Code.

Classification of Expenses ¹												
Budget Categories		Total Revenue Requirements	Flow	Strength		Customer	Recycled Water	Allocation %'s to Classifications				
		FY 2020/21	(VOL)	(BOD)	(TSS)	(CA)	(RW)	(VOL)	(BOD)	(TSS)	(CA)	(RW)
Sewer Fund												
120-5010	Salary & Wages	\$ 511,330	\$ 218,247	\$ 102,266	\$ 102,266	\$ 51,133	\$ 37,418	42.7%	20.0%	20.0%	10.0%	7.3%
120-5020	Employee Benefits	198,414	84,688	39,683	39,683	19,841	14,519	42.7%	20.0%	20.0%	10.0%	7.3%
120-5021	Retirement Benefits	93,850	40,057	18,770	18,770	9,385	6,868	42.7%	20.0%	20.0%	10.0%	7.3%
120-5022	Clothing Allowance	1,800	768	360	360	180	132	42.7%	20.0%	20.0%	10.0%	7.3%
120-5024	Workers' Comp Insurance	15,000	6,402	3,000	3,000	1,500	1,098	42.7%	20.0%	20.0%	10.0%	7.3%
120-5025	Retiree Health Benefits	14,000	5,976	2,800	2,800	1,400	1,024	42.7%	20.0%	20.0%	10.0%	7.3%
120-5030	Director Health Benefits	36,000	15,366	7,200	7,200	3,600	2,634	42.7%	20.0%	20.0%	10.0%	7.3%
120-5040	Election Expense	12,000	5,122	2,400	2,400	1,200	878	42.7%	20.0%	20.0%	10.0%	7.3%
120-5060	Gasoline, Oil & Fuel	20,000	8,536	4,000	4,000	2,000	1,464	42.7%	20.0%	20.0%	10.0%	7.3%
120-5061	Vehicle Maintenance	18,000	7,683	3,600	3,600	1,800	1,317	42.7%	20.0%	20.0%	10.0%	7.3%
120-5062	Taxes & Licenses	800	341	160	160	80	59	42.7%	20.0%	20.0%	10.0%	7.3%
120-5063	Certifications	2,000	854	400	400	200	146	42.7%	20.0%	20.0%	10.0%	7.3%
120-5074	Insurance	54,066	23,077	10,813	10,813	5,407	3,956	42.7%	20.0%	20.0%	10.0%	7.3%
120-5075	Bank Fees	21,000	8,963	4,200	4,200	2,100	1,537	42.7%	20.0%	20.0%	10.0%	7.3%
120-5080	Membership & Subscriptions	7,500	3,201	1,500	1,500	750	549	42.7%	20.0%	20.0%	10.0%	7.3%
120-5090	Office Supplies	5,000	-	-	-	5,000	-	0.0%	0.0%	0.0%	100.0%	0.0%
120-5092	Postage & Shipping	7,000	-	-	-	7,000	-	0.0%	0.0%	0.0%	100.0%	0.0%
120-5121	Legal Services	20,000	8,536	4,000	4,000	2,000	1,464	42.7%	20.0%	20.0%	10.0%	7.3%
120-5122	Engineering Services	50,000	21,341	10,000	10,000	5,000	3,659	42.7%	20.0%	20.0%	10.0%	7.3%
120-5123	Other Professional Services	50,000	21,341	10,000	10,000	5,000	3,659	42.7%	20.0%	20.0%	10.0%	7.3%
120-5126	Audit Services	7,500	3,201	1,500	1,500	750	549	42.7%	20.0%	20.0%	10.0%	7.3%
120-5130	Printing & Publication	5,000	-	-	-	5,000	-	0.0%	0.0%	0.0%	100.0%	0.0%
120-5135	Newsletter	500	-	-	-	500	-	0.0%	0.0%	0.0%	100.0%	0.0%
120-5145	Equipment Rental	5,000	2,134	1,000	1,000	500	366	42.7%	20.0%	20.0%	10.0%	7.3%
120-5148	Operating Supplies	48,000	20,487	9,600	9,600	4,800	3,513	42.7%	20.0%	20.0%	10.0%	7.3%
120-5150	Repair & Replace	145,000	61,889	29,000	29,000	14,500	10,611	42.7%	20.0%	20.0%	10.0%	7.3%
120-5155	Maintenance - Building & Grounds	8,000	3,415	1,600	1,600	800	585	42.7%	20.0%	20.0%	10.0%	7.3%
120-5156	Custodial Services	16,500	7,043	3,300	3,300	1,650	1,207	42.7%	20.0%	20.0%	10.0%	7.3%
120-5157	Security	500	213	100	100	50	37	42.7%	20.0%	20.0%	10.0%	7.3%
120-5160	Sludge Disposal	45,000	19,207	9,000	9,000	4,500	3,293	42.7%	20.0%	20.0%	10.0%	7.3%
120-5170	Travel & Meetings	2,200	939	440	440	220	161	42.7%	20.0%	20.0%	10.0%	7.3%
120-5175	Education/Seminars	9,500	4,055	1,900	1,900	950	695	42.7%	20.0%	20.0%	10.0%	7.3%
120-5176	Director Training	3,600	1,537	720	720	360	263	42.7%	20.0%	20.0%	10.0%	7.3%
120-5179	Admin Misc. Expense	350	149	70	70	35	26	42.7%	20.0%	20.0%	10.0%	7.3%
120-5465	Tertiary Pond Maintenance	50,000	21,341	10,000	10,000	5,000	3,659	42.7%	20.0%	20.0%	10.0%	7.3%
120-5191	Telephone	11,000	-	5,500	5,500	-	-	0.0%	50.0%	50.0%	0.0%	0.0%
120-5192	Electricity	65,000	27,743	13,000	13,000	6,500	4,757	42.7%	20.0%	20.0%	10.0%	7.3%
120-5193	Other Utilities	2,600	1,110	520	520	260	190	42.7%	20.0%	20.0%	10.0%	7.3%
120-5194	IT Services	36,500	15,579	7,300	7,300	3,650	2,671	42.7%	20.0%	20.0%	10.0%	7.3%
120-5195	Env./Monitoring	35,000	14,939	7,000	7,000	3,500	2,561	42.7%	20.0%	20.0%	10.0%	7.3%
120-5196	Risk Management	-	-	-	-	-	-	42.7%	20.0%	20.0%	10.0%	7.3%
120-5198	Annual Operating Fees	2,000	1,154	300	300	100	146	57.7%	15.0%	15.0%	5.0%	7.3%
120-5310	Equipment - Field	1,000	427	200	200	100	73	42.7%	20.0%	20.0%	10.0%	7.3%
120-5311	Equipment - Office	1,000	427	200	200	100	73	42.7%	20.0%	20.0%	10.0%	7.3%
120-5312	Tools - Field	1,500	640	300	300	150	110	42.7%	20.0%	20.0%	10.0%	7.3%
120-5315	Safety Equipment	1,500	640	300	300	150	110	42.7%	20.0%	20.0%	10.0%	7.3%
120-5545	Recording Fees	200	85	40	40	20	15	42.7%	20.0%	20.0%	10.0%	7.3%
120-5600	Contingency	-	-	-	-	-	-	42.7%	20.0%	20.0%	10.0%	7.3%
120-6009	Access Road	-	-	-	-	-	-	42.7%	20.0%	20.0%	10.0%	7.3%
120-OPEB	OPEB OBLIGATION	7,500	3,201	1,500	1,500	750	549	42.7%	20.0%	20.0%	10.0%	7.3%
140-5192	Electricity - Flood Control	-	-	-	-	-	-	42.7%	20.0%	20.0%	10.0%	7.3%
TOTAL: SEWER EXPENSES		\$ 1,649,210	\$ 692,055	\$ 329,542	\$ 329,542	\$ 179,471	\$ 118,600	42.0%	20.0%	20.0%	10.9%	7%

Classification of Expenses Continued ¹											
Budget Categories	Total Revenue Requirements	Flow	Strength		Customer	Recycled Water	Allocation %'s to Classifications				
	FY 2020/21	(VOL)	(BOD)	(TSS)	(CA)	(RW)	(VOL)	(BOD)	(TSS)	(CA)	(RW)
Debt Services											
Existing Debt Service	\$ 32,255	\$ 16,128	\$ 8,064	\$ 8,064	\$ -	\$ -	50.0%	25.0%	25.0%	0.0%	0.0%
New Debt Service	-	-	-	-	-	-	50.0%	25.0%	25.0%	0.0%	0.0%
Capital Expenditures											
Rate Funded Capital Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	50.0%	25.0%	25.0%	0.0%	0.0%
TOTAL REVENUE REQUIREMENTS	\$ 1,681,465	\$ 708,183	\$ 337,606	\$ 337,606	\$ 179,471	\$ 118,600	42.1%	20.1%	20.1%	10.7%	7.1%
Less: Non-Rate Revenues											
Other Non-Rate Revenue	\$ (28,500)	\$ (11,879)	\$ (5,700)	\$ (5,700)	\$ (3,135)	\$ (2,086)	41.7%	20.0%	20.0%	11.0%	7.3%
Interest Income ²	(1,700)	(709)	(340)	(340)	(187)	(124)	41.7%	20.0%	20.0%	11.0%	7.3%
NET REVENUE REQUIREMENTS	\$ 1,651,265	\$ 695,595	\$ 331,566	\$ 331,566	\$ 176,149	\$ 116,390					
<i>Allocation of Revenue Requirements</i>	<i>100.0%</i>	<i>42.1%</i>	<i>20.1%</i>	<i>20.1%</i>	<i>10.7%</i>	<i>7.0%</i>					

Adjustments to Classification of Expenses	FY 2020/21	(VOL)	(BOD)	(TSS)	(CA)	(RW)
Adjustment to Current Rate Level:	Total					
Projected Sewer Rate Revenue at Current Rates	\$1,261,953					
Projected Sewer Rate Increase	12.00%					
Projected Sewer Rate Increase (\$)	\$151,434					
Total Rate revenue (Excluding RW)	\$1,413,387					
Projected RW Rate Revenue at Current Rates	\$110,000					
Projected RW Rate Increase	12.00%					
Projected RW Rate Increase (\$)	\$13,200					
Target Rate Rev. After Rate Increases ²	\$1,536,587					
Adjusted Net Revenue Req't	\$ 1,536,587	\$ 647,287	\$ 308,539	\$ 308,539	\$ 163,916	\$ 108,307
<i>Percent of Revenue</i>	<i>100.0%</i>	<i>42.1%</i>	<i>20.1%</i>	<i>20.1%</i>	<i>10.7%</i>	<i>7.0%</i>

1. Revenues and Expenditures budgeted for FY 2020/21 found in source file: 2020-2021 Budget & Narrative APPROVED 6-16-2020-.pdf

Budget values have been adjusted as part of the analysis, as detailed in Exhibit 1 (O&M).

2. Revenue from rate increases assumes an implementation date of January 1, 2019 and July 1 each year thereafter.

3. The FY 2020/21 revenue and operating expenses are from the budget. Inflationary factors are applied to these expenses to project costs.

Development of the FLOW Allocation Factor						
Customer Class	Number of HEUs ¹	Annual Volume (hcf)	Average Winter Monthly Consumption ² (hcf)	Annual Winter (or Monthly) Avg. Based Volume (hcf) ⁴	Adjusted Annual Volume (hcf)	Percentage of Adjusted Volume
Single Family Residential	1,444	87,263	7,183	86,197	120,355	89.9%
Multi-Family Residential	56	4,314	391	4,690	6,548	4.9%
Commercial ³	35	5,036	N.A.	5,036	7,031	5.2%
Total ⁴	1,535	96,612	7,574	95,923	133,934	100.0%
					133,934	Flow (hcf/yr.)
					1.40	Flow Adj. Factor

1. Consumption and Meters from source files: Copy of Customer Data.xlsx and NBS 2020_JT.xlsx (data combined and summarized in pivot tables).

Note: The adjusted annual flow per HEU for commercial customers is approximately twice that of SFR. In this sense, these are not truly "HEU's".

2. Includes months of December 2019 through March 2020.

3. Commercial will be billed based on monthly consumption, not winter average.

4. Recycled Water excluded from flow allocation factor. One customer only in the District, volumetric rate only.

Development of the STRENGTH Allocation Factor									
Customer Class	Adjusted Annual Flow (hcf)	Biochemical Oxygen Demand (BOD)				Total Suspended Solids (TSS)			
		Average Strength Factor (mg/l) ²	Calculated BOD (lbs./yr.)	Adjusted BOD (lbs./yr.)	Percent of Total	Average Strength Factor (mg/l) ²	Calculated TSS (lbs./yr.)	Adjusted TSS (lbs./yr.)	Percent of Total
Single Family Residential	120,355	250	187,703	181,794	93.2%	250	187,703	149,316	92.4%
Multi Family Residential	6,548	250	10,213	9,891	5.1%	250	10,213	8,124	5.0%
Commercial ¹	7,031	80	3,509	3,399	1.7%	120	5,264	4,187	2.6%
Total	133,934		201,425	195,084	100%		203,179	161,627	100%
		<i>Target, from WWTP Data</i>		<i>195,084 BOD (lbs./yr.)</i>				<i>161,627 TSS (lbs./yr.)</i>	
				<i>0.97 BOD Adj. Factor</i>				<i>0.80 TSS Adj. Factor</i>	

1. Commercial was previously billed on winter water use, now is billed on monthly water use.

2. Typical strength factors for BOD and TSS are derived from the State Water Resources Control Board Revenue Program Guidelines, Appendix G.

Development of the CUSTOMER Allocation Factor					
Customer Class	Number of Accounts ¹	Percentage of Accounts	Number of HEUs ²	Percentage of Assigned HEUs	Average HEUs per Account
Single Family Residential	1,455	97.1%	1,444	94.1%	0.99
Multi-Family Residential	27	1.8%	56	3.6%	2.07
Commercial & Industrial	15	1.0%	35	2.2%	2.30
Recycled Irrigation ²	1	0.1%	0	0.0%	0.00
Total ²	1,498	100.0%	1,535	100.0%	1.02

1. Source files: *Copy of Customer Data.xlsx* and *NBS 2020_JT.xlsx*. HEU count from March 2020.

2. Recycled Water excluded from customer allocation factor. One customer only in the District, volumetric rate only.

HEU stands for housing equivalent unit, which is equal to one single family residential home (SFR = 1 HEU)

Allocation of Revenue Requirements by Customer Class							
Customer Class	Cost Classification Components					Cost-of-Service Net Revenue Req't.	% of COS Net Revenue Req't.
	Volume	Treatment		Customer Related	Recycled Water		
		BOD	TSS				
Net Revenue Requirements ¹	\$ 647,287	\$ 308,539	\$ 308,539	\$ 163,916	\$ 108,307	\$ 1,536,587	--
	42.1%	20.1%	20.1%	10.7%	7.0%	100.0%	
Single-, Multi-Family Residential	\$ 613,306	\$303,164	\$300,546	\$160,229	\$ -	\$ 1,377,246	89.6%
Commercial	33,981	5,375	7,993	3,686	-	51,035	3.3%
Recycled Irrigation	-	-	-	-	108,307	108,307	7.0%
Total	\$ 647,287	\$ 308,539	\$ 308,539	\$ 163,916	\$ 108,307	\$ 1,536,587	100%
Total Excluding Recycled Water						\$ 1,428,281	

1. Revenue requirement for each customer class is determined by multiplying the revenue requirement from each cost classification by the allocation factors for each customer class.

*Note: The District is expecting an operating budget for FY'20/21, so the net rev. requirement will be lower this year than needed.

Customer Class	No. of Billing Units (HEU) ¹	Annualized Winter Consumption (hcf) ²	Annual Rev. Req't			Monthly Fixed Charge Per HEU	Volumetric Charge Per hcf
			Total	Fixed ^{2,3}	Volumetric		
Single-, Multi-Family & Municipal Commercial	1,500	90,887	\$1,377,246	\$964,845	\$412,401	\$53.60	\$4.54
	35	5,036	\$51,035	\$22,197	\$28,838	\$53.60	\$5.73
Total	1,535	95,923	\$1,428,281	\$987,042	\$441,239	--	--
			<i>Percent of Revenue from Fixed vs. Volumetric Charges</i>	<i>100.0%</i>	<i>69.1%</i>	<i>30.9%</i>	

1. Sewer customers are charged on the basis of their number of assigned Housing Equivalent Units (HEUs). Commercial accounts average 2.4 HEU/Account, according to District records.

2. Annualized monthly consumption is used for commercial customers.

Sewer Rate Schedule	Current Rates ('20/21)	Proposed Sewer Rates ¹				
		FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Fixed Service Charge per HEU²						
Residential & Municipal	\$51.96	\$53.60	\$60.03	\$67.24	\$73.29	\$79.89
Commercial	\$51.96	\$53.60	\$60.03	\$67.24	\$73.29	\$79.88
Volumetric Charge (\$/hcf)³						
Residential & Municipal (Applied to Average Winter Water Use)	\$2.76	\$4.54	\$5.08	\$5.69	\$6.20	\$6.76
Commercial (Applied to Average Monthly Water Use)	\$3.00	\$5.73	\$6.41	\$7.18	\$7.83	\$8.53

1. Implementation date for FY 2020/21 rates is January 1, 2021, then July in 2021 through 2024.
2. Sewer customers are charged on the basis of their number of assigned Housing Equivalent Units (HEUs). Commercial accounts average 2.4 HEU/Account, according to District records.
3. Proposed volumetric rates after FY 2020/21 are increased by the annual increase in rate revenue shown in the financial plan.

Water Consumption Data used for HVLCS Rates ¹									
Customer Class	Customer Type	Accounts	HEUs	Sum of FY19/20 Annual Consumption (HCF)	Average Monthly Consumption per Account (HCF)	Average Monthly Winter Consumption (HCF)	Average Monthly Winter Consumption per Account (HCF)	Winter to Annual Ratio	Avg. EDUs per Account
Single Family Residential	SFR	1,455	1,444	87,263	5.00	7,177	4.93	98.7%	0.99
Multi-Family Residential	MFR	27	56	4,314	13.31	391	14.48	108.7%	2.07
Commercial	Market	3	11	2,511	69.74	209	69.74	100.0%	3.67
Commercial	Office	4	4	841	17.52	70	17.52	100.0%	1.00
Commercial	Park	4	4	386	8.05	32	8.00	99.4%	1.00
Commercial	Retail	3	15	1,221	33.91	95	31.75	93.6%	4.83
Municipal	Fire District	1	1	77	6.42	6	6.42	100.0%	1.00
Recycled Irrigation	Irrigation	1	0	0	0	6	2.14	#DIV/0!	0.00
Total		1,498	1,535	96,612	154	7,987	155	100.7%	1.02

Customer consumption and customer class from Source files: NBS 2020_JT.xlsx