



IDYLLWILD WATER DISTRICT

Final Report

Water and Sewer
Rate Study

June 2018

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Section 1. PURPOSE AND OVERVIEW OF THE STUDY

A. Purpose

The Idyllwild Water District (District) retained NBS to conduct a comprehensive water and sewer rate study for a number of reasons, including meeting revenue requirements, providing greater financial stability for the water enterprise in particular, and complying with certain legal requirements (such as California Constitution article XIII D, section 6, which is commonly referred to as Proposition 218 [Prop 218]). The rates resulting from this study were developed in a manner that is consistent with industry standard cost of service principles. In addition to documenting the rate study methodology, this report is provided with the intent of assisting the District to maintain transparent communications with its residents and businesses.

In developing new water and sewer rates, NBS worked cooperatively with District staff and the District’s Board of Directors (Board), in selecting appropriate rate alternatives. Based on input from District staff and the Board, the proposed rates are summarized in this report.

Rate increases are needed for both the water and sewer utilities in order to fund necessary capital improvements. The District also needs cash available to take advantage of capital improvement opportunities. For example, CalTrans is currently planning to do road work in the service area, and the District is using this opportunity to replace part of the water main beneath the road. Doing this project at this time allows the District to avoid paying for street resurfacing later.

B. Overview of the Study

Comprehensive rate studies such as this one typically include the following three components, as outlined in **Figure 1**:

1. Preparation of a **Financial Plan**, which identifies the net revenue requirements for the utility.
2. **Cost of Service Analysis** determines the cost of providing service to each customer class.
3. **Rate Design Analysis** evaluates various rate design alternatives.

Figure 1. Primary Components of a Rate Study



These steps are intended to follow industry standards and reflect the fundamental principles of cost-of-service ratemaking embodied in the American Water Works Association (AWWA) Principles of Water Rates,

Fees, and Charges¹, also referred to as the M1 Manual. They also address requirements under Proposition 218 that rates not exceed the cost of providing the service, and that they be proportionate to the cost of providing service to all customers. In terms of the chronology of the study, these three steps represent the order they were performed in this Study. Detailed tables and figures documenting the development of the proposed rates are provided in the Appendices.

FINANCIAL PLAN

As a part of this rate study, NBS projected revenues and expenditures on a cash flow basis for the next twenty years. The amount of rate revenue required, that will allow reserves to be maintained at the recommended levels, is known as the **net revenue requirement**. As current rate revenue falls short of the net revenue requirement, rate adjustments - or more accurately, adjustments in the total revenue collected from rates for both utilities - are recommended. This report presents an overview of the methodologies, assumptions, and data used, along with the financial plans and proposed rates developed in this study².

For the Sewer utility, staff determined that the current cost allocations and rate design were adequate; therefore, only completed the Financial Plan analysis for this utility.

WATER COST OF SERVICE ANALYSIS

Once the net revenue requirements are determined, the cost of service analysis proportionately distributes those revenue requirements to each of the customer classes. The cost of service analysis consists of two major components: (1) the classification of expenses, and (2) the allocation of costs to customer classes. Costs were classified, using the commodity-demand method which is found in the AWWA M1 Manual, corresponding to the function they serve. All costs in the District's budget are allocated to each component of the rates in proportion to the level of service required by customers. The levels of service are related to volumes of peak and non-peak demand, infrastructure capacity, and customer service. These are based on allocation factors, such as water consumption, peaking factors, and number of accounts by meter size. Ultimately, a cost-of-service analysis is intended to result in rates that are proportional to the cost of providing service to each customer.

WATER RATE DESIGN ANALYSIS

Rate Design is typically the stage in the study where NBS, staff and the Board must work closely together, to develop rate alternatives that will meet the District's objectives. It is important for the water utility to send proper price signals to its customers about the actual cost of their water usage. This objective is typically addressed through both the magnitude of the rates, and the rate structure design. In other words, both the amount of revenue collected, and the way in which the revenue is collected from customers are important.

Several criteria are typically considered in setting rates and developing sound rate structures. The fundamentals of this process have been documented in a number of rate-setting manuals, such as the AWWA Manual M1. The foundation for evaluating rate structures is generally credited to James C. Bonbright in the *Principles of Public Utility Rates*³, which outlines pricing policies, theories, and economic

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

² *The complete financial plan for each utility is set forth in the Appendices.*

³ *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.*

concepts along with various rate designs. The following is a simplified list of the attributes of a sound 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 (that is, cost based).
- There should be continuity in the ratemaking philosophy over time.
- Rates should address other utility policies (for example, encouraging conservation & economic development).
- Rates should provide month-to-month and year-to-year revenue stability.

The following are the basic rate design criteria that were considered in this study:

Rate Structure Basics –The vast majority of rate structures contain a fixed or minimum charge in combination with a volumetric charge. The revenue requirements for each customer class are collected from both fixed monthly meter charges and variable commodity charges. Based on direction from the Board, the rates proposed in this study are designed to collect 50 percent of rate revenue from the fixed meter charges in the first year, and escalate to 60 percent of rate revenue in the fifth year. Variable commodity charges will collect the difference, and will transition from being 50 percent of rate revenue in the first year to 40 percent of rate revenue in the fifth year.

Fixed Charges – Fixed charges can be called base charges, minimum monthly charges, customer charges, fixed meter charges, etc. The fixed meter charges recognize that the Water utility incurs fixed costs regardless of whether customers actually use water. The charges typically have two components, one that reflects capacity costs that are scaled based on hydraulic capacity of each size meter connected to the water system, and a second component that represents customer related costs that does not vary by meter size and is based on the number of bills sent to customers.

Variable Commodity (Consumption-Based) Charges – In contrast to fixed charges, variable costs such as water supply, the cost of electricity used in pumping water, and the cost of chemicals for treatment tend to change with the quantity of water produced. For a water utility, variable charges are generally based on metered consumption and charged on a dollar-per-unit cost (for example, per 100 cubic feet, or hcf).

Uniform (Single-Tier) Water Charges – There are significant variations in the basic philosophy of variable charge rate structure alternatives. Under a uniform (single tier) rate structure, the cost per unit does not change with consumption, and provides a simple and straightforward approach from the perspective of customers regarding their understanding of the rates, and for the utility’s administration and billing of the rates.

Multi-Tiered Water Rates – In contrast to a uniform tier, an inclining block rate structure attempts to send a price signal to customers that their consumption costs more as more water is consumed, and is generally considered to be a more conservation-oriented rate structure. Tiered water rates are encouraged by state law and regulatory mandates, but are also intended to represent the higher costs for customers that

contribute more to peak summertime usage and place greater demands on the system. The San Juan Capistrano ruling⁴ placed requirements and guidelines on how Tired Rates must be developed.

DROUGHT AND WATER CONSERVATION

On January 17, 2014, Governor Jerry Brown declared a State of Emergency throughout California due to severe drought conditions. On April 1, 2015, the Governor issued Executive Order B-29-15 mandating statewide water conservation of 25 percent. The specific conservation mandate for each community in California varied from 4 to 36 percent. Due to the District's small customer base, the District was excluded from the conservation requirement, however the District suffers from a source of supply that is susceptible to drought and has no external resources. Thus, conservation is necessary for the District to maintain adequate supply.

Water consumption has an impact on both revenue and expenses. For this analysis, consumption from calendar year 2017 is used as the baseline⁵ as it is assumed to be the "new normal," with approximately 9,344,193 cubic feet (cf) or nearly seventy million gallons of billable water consumed. No increase in consumption beyond expected customer growth is assumed for the five-year rate period.

⁴ *Capistrano Taxpayers Association, Inc. vs City of San Juan Capistrano (Superior Court of California, County of Orange, 2015.)*

⁵ *Consumption for Idyllwild Arts Academy adjusted given recent leak fixes.*

Section 2. WATER RATE STUDY

A. Key Water Rate Study Issues

The District's water rate analysis was undertaken with a few specific objectives, including:

- Avoiding operational deficits and further depletion of reserves.
- Improving revenue stability.
- Generating additional revenue needed to meet projected funding requirements, including capital improvement program costs.
- Continuing to encourage water conservation with a tiered rate structure.

NBS developed various water rate alternatives as requested by District staff and the Board over the course of this Study. All rate structure alternatives relied on industry standards and cost-of-service principles. The rate alternative that will be implemented, is ultimately the decision of the Board. The fixed and volumetric charges were calculated based on the net revenue requirements, number of customer accounts (by customer class and meter size), water consumption, and other District-provided information.

B. Financial Plan

It is important for municipal utilities to maintain reasonable reserves in order to handle emergencies, fund working capital, maintain a good credit rating, and generally follow sound financial management practices. Rate adjustments are governed by the need to meet operating and capital costs, maintain adequate debt coverage, and build reasonable reserve funds. The current state of the District, with regard to these objectives, is as follows.

Net Revenue Requirements: For FY 2017/18 through FY 2021/22, the projected net revenue requirement (that is, total annual expenses plus debt service and rate-funded capital costs, less non-rate revenues) for the District is approximately \$1.5 million, annually. If no rate adjustments are implemented, the District is projected to average a \$170,000 deficit each year.

Building and Maintaining Reserve Funds: Reserve funds provide a basis for a utility to cope with fiscal emergencies such as revenue shortfalls, asset failure, natural disasters, among other events. Reserve policies provide guidelines for sound financial management, with an overall long-range perspective to maintain financial solvency and mitigate financial risks associated with revenue instability, volatile capital costs, and emergencies. The District plans to reach the proposed reserve target by the end of FY 2022/23, one year following the end of the proposed rate plan developed in this Study. The reserve funds for the Water utility are considered unrestricted reserves and consist of the following:

- **The Operating Reserve** has been set by the Board to be \$500,000, which is approximately 35 to 42 percent of annual operating expenses for the next five years. An Operating Reserve is intended to promote financial viability in the event of any short-term fluctuation in revenues and/or expenditures. Fluctuations in revenue can be caused by weather patterns, the natural inflow and outflow of cash during billing cycles, natural variability in demand-based revenue streams (such as volumetric charges), and – particularly in periods of economic distress – changes or trends in age of receivables.

- **The Emergency Reserve** has been set by the Board to be \$350,000, which is approximately 25 to 30 percent of annual operating expenses for the next five years. This reserve is set aside to address unexpected revenue shortfalls.
- **The Capital Rehabilitation and Replacement Reserve** has been set by the Board to be \$1,000,000, which is approximately 24 percent of net asset value for the water utility. This reserve is set aside to address long-term capital system replacement and rehabilitation needs.
- **The Vehicle and Equipment Replacement Reserve** has been set by the Board to be \$500,000, which is approximately 12 percent of net asset value for the water utility. This reserve is set aside to address vehicle and equipment needs.
- **The Vacation/Sick/Annual Leave Reserve** has been set by the Board to be \$75,000, which is set aside to address the accumulated leave liability.
- **The OPEB Liability Reserve** has been set by the Board to be \$675,000, which is set aside to address future other employment benefits, namely healthcare costs of retirees.

Funding Capital Improvement Projects: The District must also be able to fund necessary capital improvements in order to maintain current service levels. District staff has identified \$700,000 in capital expenditures in FY 2018/19 and \$400,000 annually for FY 2019/20 through 2022/23.

Inflation and Growth Projections – Assumptions regarding cost inflation were made in order to project future revenues and expenses for the study period. The following inflation factors were used in the analysis:

- Customer growth is expected to be 0.5 percent annually.
- General cost inflation is 2.5 percent annually.
- Salary cost inflation is 5 percent annually.
- Benefits cost inflation is 5 percent annually.
- Energy cost inflation is 2.5 percent annually.
- Chemicals cost inflation is 2.5 percent annually.
- Fuel cost inflation is 2.5 percent annually.
- Tax inflation is 1.5 percent annually.
- Standby Revenue is reduced at 3 percent annually.

Effective Date of Rate Adjustments: The financial plan modelling assumes that rate adjustments occur on the July bill⁶ of each year.

Rate revenue adjustments of 5 percent from FY 2018/19 through 2022/23, will be needed in order to fully fund all operating expenses, planned capital projects, and build reserves to the recommended targets by FY 2022/23. **Figure 2** summarizes the sources and uses of funds, net revenue requirements, and the recommended annual percent adjustments in total rate revenue recommended for the next five-years for the District.

⁶ The first rate adjustment is scheduled for July 1, 2018 followed by each July 1st thereafter.

Figure 2. Summary of Water Revenue Requirements

Summary of Sources and Uses of Funds and Net Revenue Requirements	Budget		Projected			
	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23
Sources of Water Funds						
Rate Revenue Under Prevailing Rates	\$ 1,272,297	\$ 1,278,658	\$ 1,285,052	\$ 1,291,477	\$ 1,297,934	\$ 1,304,424
Non-Rate Revenues	314,712	318,322	322,012	325,783	329,635	333,569
Interest Earnings	3,000	8,185	10,708	13,972	14,711	20,980
Total Sources of Funds	\$ 1,590,009	\$ 1,605,165	\$ 1,617,771	\$ 1,631,232	\$ 1,642,281	\$ 1,658,972
Uses of Water Funds						
Operating Expenses	\$ 1,150,562	\$ 1,196,558	\$ 1,246,743	\$ 1,299,196	\$ 1,354,025	\$ 1,411,343
Rate-Funded Capital Expenses	577,000	721,000	424,360	437,091	450,204	463,710
Total Use of Funds	\$ 1,727,562	\$ 1,917,558	\$ 1,671,103	\$ 1,736,287	\$ 1,804,229	\$ 1,875,052
Additional Revenue from Rate Increases	-	63,933	131,718	203,569	279,713	360,388
Surplus (Deficiency) after Rate Increase	\$ (137,553)	\$ (248,459)	\$ 78,386	\$ 98,514	\$ 117,765	\$ 144,308
Projected Annual Rate Revenue Increase	0.00%	5.00%	5.00%	5.00%	5.00%	5.00%
<i>Cumulative Increases</i>	0.00%	5.00%	10.25%	15.76%	21.55%	27.63%
Net Revenue Requirement (2)	\$ 1,056,336	\$ 1,093,861	\$ 1,135,143	\$ 1,177,997	\$ 1,222,499	\$ 1,268,726

1. Assumes new rates are implemented July 1, 2018 and July 1 each year thereafter.
2. Total Use of Funds less non-rate revenues and interest earnings. This is the annual amount needed from water rates.

Figure 3 summarizes the projected reserve fund balances and reserve targets. A summary of the utility's proposed five-year financial plan is included in Tables 1 and 2 of Appendix A. The appendix tables include revenue requirements, reserve funds, revenue sources, proposed rate adjustments, and the District's capital improvement program. As can be seen in Figure 3, given proposed rate adjustments, reserves do not quite meet the minimum target by the end of the five-year rate period; however, it is expected that the District will be well positioned to achieve the reserve targets in the following year. It should be noted that Vacation/Sick/Annual Leave and OPEB Liability Reserves are maintained at their current levels (below the target) over the five year rate period. Those reserves are not expected to achieve the target level without additional rate increases beyond the rate period.

Figure 3. Summary of Reserve Funds

Beginning Reserve Fund Balances and Recommended Reserve Targets	Budget		Projected			
	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23
Operating Reserve						
Ending Balance	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000
<i>Recommended Minimum Target</i>	500,000	500,000	500,000	500,000	500,000	500,000
Emergency Reserve						
Ending Balance	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000
<i>Recommended Minimum Target</i>	350,000	350,000	350,000	350,000	350,000	350,000
Capital Rehabilitation and Replacement Reserve & Vehicle Replacement Reserve						
Ending Balance	\$ 1,183,045	\$ 934,586	\$ 1,012,972	\$ 1,111,486	\$ 1,229,251	\$ 1,373,559
<i>Recommended Minimum Target</i>	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000
Total Ending Unrestricted Balance	\$ 2,033,045	\$ 1,784,586	\$ 1,862,972	\$ 1,961,486	\$ 2,079,251	\$ 2,223,559
Vacation/Sick/Annual Leave Liability Reserve						
Ending Balance	\$ 16,878	\$ 16,946	\$ 17,047	\$ 17,175	\$ 17,304	\$ 17,479
<i>Recommended Minimum Target</i>	75,000	75,000	75,000	75,000	75,000	75,000
OPEB Reserve						
Ending Balance	\$ 488,840	\$ 490,808	\$ 493,753	\$ 497,456	\$ 501,187	\$ 506,244
<i>Recommended Minimum Target</i>	675,000	675,000	675,000	675,000	675,000	675,000
Total Ending Balance	\$ 2,538,763	\$ 2,292,340	\$ 2,373,772	\$ 2,476,118	\$ 2,597,742	\$ 2,747,282
Total Recommended Minimum Target	\$ 3,100,000	\$ 3,100,000	\$ 3,100,000	\$ 3,100,000	\$ 3,100,000	\$ 3,100,000

C. Cost of Service Analysis

CLASSIFICATION OF COSTS

Most costs are not typically allocated 100 percent to fixed or variable categories and, therefore, are allocated to multiple functions of water service. Costs were classified using the commodity-demand method which is found in the AWWA M1 Manual⁷. In accordance with this method, budgeted costs were “classified” into four categories: commodity, capacity, customer and fire protection. The classification process provides the basis for allocating costs to various customer classes based on the cost causation (classification) components described below:

- **Capacity related costs** are associated with sizing facilities to meet the maximum, or peak demand. This includes both operating costs and capital infrastructure costs incurred to accommodate peak system capacity events.
- **Customer related costs** are associated with having a customer on the water system, such as meter reading, postage and billing.
- **Fire Protection related costs** are associated with providing sufficient capacity in the system for fire meters and other operations and maintenance costs of providing water to properties for private fire service protection.
- **Commodity related costs** are those that change as the volume of water produced and delivered changes. These commonly include the costs of chemicals used in the treatment process, energy related to pumping for transmission and distribution, and source of supply.

The District’s budgeted costs were reviewed and allocated to these cost causation components which are used as the basis for establishing new water rates and translate to fixed and variable charges. Tables 16 through 19 in Appendix A show how the District’s expenses were classified and allocated to these cost causation components. Additionally, each cost causation component is considered fixed or variable, as summarized in **Figure 4**.

Figure 4. Cost Classification Summary



Ideally (from a financial stability perspective), utilities should recover all of their fixed costs from fixed charges and all of their variable costs from volumetric charges. When this is the case, fluctuations in water sales revenues would be directly offset by reductions or increases in variable costs. When rates are set in this manner, they provide greater revenue stability for the utility. However, other factors are often

⁷ *Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices, M1, AWWA, seventh edition, 2017, p. 83.*

considered when designing water rates such as community values, water conservation goals, ease of understanding, and ease of administration.

Based on the District’s projected costs, the Cost of Service Analysis (COSA) resulted in a distribution that is approximately 87 percent fixed and 13 percent variable. The District’s current rate structure collects approximately 40 percent of revenue from fixed charges and 60 percent from variable charges. The Board of Directors tried to meet the dual goals of both revenue stability and easing the impact of rate changes to customers by selecting a rate structure that will collect 50 percent of revenue from fixed charges and 50 percent from volumetric rates for the first year. The rate structure then will transition over the five-year period to collect 60 percent of rate revenue from fixed charges and 40 percent from volumetric rates, in the final year. This is closer to the COSA results and will provide more financial stability for the District. However, a share of the District’s capacity costs will need to be collected from the volumetric rates. Thus, capacity related costs (which are normally considered fixed) will be collected from both fixed and volumetric rates.

Figure 5 summarizes the allocation of the net revenue requirements to each cost causation component for the first and fifth years in the rate adjustment plan.

Figure 5. Allocation of Water Revenue Requirements

Classification Categories	COSA Results		Revenue Target FY 2018/19		Revenue Target FY 2021/22	
	Unadjusted Net Revenue Requirements (2018-19) 87% Fixed / 13% Variable		Adjusted Net Revenue Requirements (2018-19) 50% Fixed / 50% Variable		Adjusted Net Revenue Requirements (2018-19) 60% Fixed / 40% Variable	
Variable Costs:						
Commodity - Related Costs	\$ 179,810	13.4%	\$ 179,810	13.4%	\$ 179,810	13.4%
Capacity - Related Costs (volumetric allocation)	-	0.0%	491,486	36.6%	357,227	26.6%
Sub-Total Variable Costs	\$ 179,810	13.4%	\$ 671,296	50.0%	\$ 537,037	40.0%
Fixed Costs:						
Capacity - Related Costs (fixed allocation)	\$ 1,124,732	83.8%	\$ 633,246	47.2%	\$ 767,506	57.2%
Customer - Related Costs	37,495	2.8%	37,495	2.8%	37,495	2.8%
Fire Protection - Related Costs	554	0.0%	554	0.0%	554	0.0%
Sub-Total Fixed Costs	\$ 1,162,782	86.6%	\$ 671,296	50.0%	\$ 805,555	60.0%
Net Revenue Requirement	\$ 1,342,591	100%	\$ 1,342,591	100%	\$ 1,342,591	100%

CUSTOMER CLASSES

Customer classes are determined by combining customers with similar demand characteristics, types of use and, in this case, a single large customer into categories that reflect the cost differentials to serve each type of customer. This process is limited by the desire to not overcomplicate the District’s rate structure.

For the District, four customer classes were created: single-family residential, non-single family residential, Idyllwild Arts Academy and private fire protection. Single-family residential customers are separated from other customers for the sake of the rate calculation because non-single family residential customers exhibit the following characteristics:

1. Water usage on average per account is greater than single-family residential customers.
2. Water usage varies greatly among these customers based on the specific type of customer and meter size.

Idyllwild Arts Academy was separated into its own class because it represents a significant portion of the District’s system demands, and is unlike any other customer in the service area.

Customer classes are further subdivided by meter size. For single-family residential customers, setting the same fixed rate for all meter sizes was considered in the study; however, as shown in **Figure 6**, consumption for single-family residential customers with different meter sizes (5/8 inch to 1 inch) are sufficiently different. In terms of average consumption and peaking factors, these meters will continue to be charged different fixed rates (based upon meter size), as non-single family residential customers are.

Figure 6. Single Family Residential Meter Characteristics

Meter Size	Number of Meters	Average Monthly Consumption (cf) CY 2017	Peak Monthly Consumption (cf) CY 2017	Peaking Factor
5/8 inch	1,428	654	851	1.30
3/4 inch	12	1,182	2,808	2.38
1 inch	24	1,481	3,750	2.53
Total	1,464			

The amount of consumption, peaking factors and the number of meters by size are used in the cost-of-service analysis to allocate costs to customer classes and determine the appropriate rate structures for each. The District’s most recent consumption is summarized in **Figure 7**, peaking factors are shown in **Figure 8** and **Figure 9**, and number of customers by customer class is shown in **Figure 10**.

Commodity related costs are costs associated with the annual water consumption by customer class, as shown in Figure 7. Consumption from Calendar Year 2017 was used as the basis for this analysis, because staff believes it best estimates the expected consumption for FY 2017/18, since customers have increased consumption following recent drought restrictions.

Figure 7. Water Consumption by Customer Class

Customer Class	Volume (cf) ¹	Percent of Total Volume
Residential	5,236,816	56.0%
Idyllwild Arts Academy ²	1,132,136	12.1%
All Other Standard Meters	2,975,241	31.8%
Fire Service	0	0.0%
Total	9,344,193	100.0%

1. Consumption and Meters from source files:
Billed Consumption Excel Export 2015, 2016, 2017.xlsx
2. Per client phone call March 26, 2018, Idyllwild Arts Academy adjusted given recent leak fixes.

Peaking factors for each customer class are shown in Figure 8. A “peaking factor” is the relationship of each customer class’ average use to peak (which is generally, summer) use.

Figure 8. Peaking Factors by Customer Class

Customer Class	Average Monthly Use (cf)	Peak Monthly Use (cf) ¹	Monthly Peaking Factor	Peak Capacity Factor
Residential	436,401	653,548	1.50	52.6%
Idyllwild Arts Academy ²	94,345	127,088	1.35	10.2%
All Other Standard Meters	247,937	461,004	1.86	37.1%
Fire Service	0	0		0.0%
Total	778,683	1,241,640		100.0%

1. Based on 2017 monthly billing data (peak day data not available).
2. Per client phone call March 26, 2018, Idyllwild Arts Academy adjusted given recent leak fixes.

Additional capacity factors within the single-family residential class are shown in Figure 9. The “additional capacity factor” represents the cumulative peak consumption in each tier. No additional capacity factor is assigned to Tier 1 water use, as this represents a base level of consumption by customers in the lowest tier, therefore no additional capacity costs would be incurred if all customers stayed within the Tier 1 threshold. The additional capacity factors are shown in the fourth column of Figure 9, as the “Percentage of Total SFR Consumption.” These percentages are used to allocate capacity costs to the Tier 2 and Tier 3 volumetric rates.

Figure 9. Single-Family Residential Peak Capacity Allocation Factors

Consumption by Tier			
Tier	Monthly Breakpoint	Expected Consumption CY2017 (cf)	Percentage of Total SFR Consumption
Tier 1	450 cf	3,145,764	60.1%
Tier 2	900 cf	1,207,314	23.1%
Tier 3	--	883,738	16.9%
Total		5,236,816	100%

1. Tier 1 breakpoint set to 450 cf per district staff on phone call March 23, 2018. (55 gallons per day per 2 people.) Tier 2 breakpoint set to 900 cf.
2. Consumption for all SFR customers (including 1.5" meters)
Source files: Rate Study Billing Info Jan to June 2014, 2015, 2016, 2017.xlsx
(data combined and summarized in pivotTables.xlsx)

The number of customers for each customer class (also known as customer allocation factors) is shown in Figure 10.

Figure 10. Number of Meters by Customer Class

Customer Class	Number of Meters (1)	Percent of Total
Residential	1,464	89.0%
Idyllwild Arts Academy	1	0.1%
All Other Standard Meters	178	10.8%
Fire Service	2	0.1%
Total	1,645	100%

COSTS ALLOCATED TO CUSTOMER CLASSES

Costs are allocated to each customer class based on the customer characteristics of each class in order to reflect the cost differentials to serve each type of customer. **Figure 11** summarizes how the costs for each cost causation component from Figure 5 are allocated to each customer class.

Figure 11. Cost Allocation Methodology

Capacity Related Costs (fixed share)	<ul style="list-style-type: none">• Allocated based on peak water consumption by customer class• Then allocated based on the hydraulic capacity of each meter size
Customer Related Costs	<ul style="list-style-type: none">• Allocated based on the total number of meters
Fire Protection Related Costs	<ul style="list-style-type: none">• Allocated based on the hydraulic capacity of fire meters
Commodity Related Costs	<ul style="list-style-type: none">• Allocated based on water consumption by customer class
Capacity Related Costs (volumetric share)	<ul style="list-style-type: none">• Allocated based on peak consumption by customer class

The costs allocated to each causation component are assigned to each customer class using the cost allocation methodology described in Figure 11. This process is shown in the following sections, in Figure 12 through Figure 16.

Capacity Related Costs (fixed share)

The capacity related costs (fixed share) allocation is summarized in **Figure 12**. Capacity related costs are those costs associated with constructing and operating the water system to ensure there is sufficient capacity in the system to meet the demand of each meter connected. These costs are first allocated to customer classes and then by hydraulic capacity. For all standard and fire service customers, costs are allocated based on meter size. Because the Idyllwild Arts Academy represents a significant portion of the District’s consumption and peaking, capacity related costs have been allocated directly.

Larger meters have the potential to use more of the system’s capacity, compared to smaller meters. The potential capacity demanded is proportional to the maximum safe meter operating capacity as established by the AWWA⁸. The meter capacity factors used in this study are shown in the third column of Figure 12.

A “Hydraulic Capacity Factor” (column *a* in Figure 12) is calculated by dividing the maximum capacity or flow of large meters by the capacity of the base meter size, which is typically the most common residential meter size (in this case a 5/8-inch meter). For example, Figure 12 shows the hydraulic capacity of a two-inch meter is 8 times that of a 5/8-inch meter and therefore, the capacity component of the fixed meter charge is 8 times that of the 5/8 inch meter.

The actual number of meters by size (column *b* in Figure 12) is multiplied by the corresponding capacity ratios to calculate the total number of equivalent meters (column *c* in Figure 12). The number of equivalent meters is used as a proxy for the potential demand that each customer can place on the water system and

⁸ *Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices, M1, AWWA, seventh edition, 2017, p. 338.*

the percentage of capacity related costs (fixed share) distributed to each meter size by the Percent of Total Hydraulic Capacity.

Figure 12. Capacity Related Costs (fixed share) Allocation

Number of Meters by Class and Size (1)	Percentage of Peak Capacity	Meter Capacity (gpm)	Hydraulic Capacity Factor	Number of Meters	Total Equivalent Meters	Percent of Total	Allocated Costs
			<i>a</i>	<i>b</i>	<i>c = a * b</i>		
Basic Meters	88%						\$ 582,289
5/8 inch		20	1	1536	1536	83%	483,588
3/4 inch		30	1.5	30	45	2%	14,168
1 inch		50	2.5	59	148	8%	46,438
1 1/2 inch		100	5	13	65	4%	20,464
2 inch		160	8	5	40	2%	12,593
3 inch		320	16	1	16	1%	5,037
Subtotal Basic Meters				1644	1850	100%	\$ 582,289
Idyllwild Arts Academy	12%			1			\$ 50,957
Fire Service Meters	0%						\$ -
4 inch		700	35	2	70	0%	-
Total	100%			1647			\$ 633,246

Customer Related Costs

The customer related cost allocation is summarized in **Figure 13**. Customer related costs are comprised of those costs relating to reading and maintaining meters, customer billing and collection, and other customer service related costs. The customer service costs do not differ among the various meter sizes, therefore, these costs are spread equally among all meters. Each customer class is allocated customer related costs based upon the percentage of total meters that are in that class.

Figure 13. Customer Related Cost Allocation

Number of Meters by Class and Size (1)	Number of Meters	Percent of Total	Allocated Costs
Basic Meters			
5/8 inch	1,536	93%	34,968
3/4 inch	30	2%	683
1 inch	59	4%	1,343
1 1/2 inch	13	1%	296
2 inch	5	0%	114
3 inch	1	0%	23
Subtotal Basic Meters	1,644		\$ 37,427
Idyllwild Arts Academy	1	0%	\$ 23
Fire Service Meters			
4 inch	2	0%	\$ 46
Total	1,647		\$ 37,495

Fire Protection Related Costs

The fire protection cost allocation is summarized in **Figure 14**. Only Fire Protection meters are allocated this cost component. A direct allocation is made in the functionalization and classification step in the cost of service analysis to represent their share of system capacity and other related operations and maintenance costs. This cost is allocated to the two fire meters using the same methodology as used in Figure 12.

Figure 14. Fire Protection Cost Allocation

Number of Meters by Class and Size (1)	Meter Capacity (gpm)	Hydraulic Capacity Factor	Number of Meters	Total Equivalent Meters	Percent of Total	Allocated Costs
Fire Service Meters 4 inch	700	35	2	70	100%	554
Total			2	70	100%	\$ 554

Commodity Related Costs

The District currently has a four-tiered volumetric rate for all customers with meters 1 inch or smaller. NBS’ second recommendation in the Study, was to adjust the tiered rate structure by reducing the number of tiers to three, setting new breakpoints and imposing a charge for all water consumed. In addition to these changes, the proposed tiered volumetric will only apply to single-family residential customers because they are a homogenous customer class, with similar consumption patterns that are used to establish appropriate tier breakpoints.

Tier breakpoints were established and expected consumption in each tier was determined. The goals when setting the tier breakpoints were twofold:

1. The breakpoint for the first tier was set to the 450 cf⁹, which is approximately 55 gallons per day for two people per month.
2. The breakpoint for the second tier was set to 900 hcf, which is approximately 55 gallons per day for four people per month.

The commodity related cost allocation is summarized in **Figure 15**. Commodity related costs are those costs related to the amount of water sold and commonly include the costs of chemicals used in the treatment process, energy related to pumping for transmission and distribution, and source of supply. Each customer class is allocated commodity related costs based upon the percentage of total consumption by that class.

⁹ HCF is one hundred cubic feet of water.

Figure 15. Commodity Related Costs Allocation

Customer Class	Volume (hcf) ¹	Percent of Total	Allocated Costs
Single Family Residential			
Tier 1	3,145,764	33.7%	\$ 60,534
Tier 2	1,207,314	12.9%	23,232
Tier 3	883,738	9.5%	17,006
Subtotal SFR	5,236,816	56.0%	\$ 100,772
Non-SFR			
Commercial Consumption	2,975,241	31.8%	29,065
Idyllwild Arts Academy	1,132,136	12.1%	21,047
Total	9,344,193	100.0%	\$ 150,884

Capacity Related Costs (variable share)

The capacity related costs allocated to the variable rates for each customer class are shown in **Figure 16**. Capacity related costs collected from the variable rate are allocated to each customer class based upon the percentage of peak monthly use.

Figure 16. Capacity Related Costs (variable share)

Customer Class	Peak Use (hcf)	Percent of Total	Allocated Costs
Single Family Residential	653,548	52.6%	\$ 258,698
Non-SFR Customers			
Commercial Consumption	461,004	37.1%	182,482
Idyllwild Arts Academy	127,088	10.2%	50,306
Total	1,241,640	100%	\$ 491,486

The Capacity Related Costs (variable share) (from Figure 16) within the single-family residential class are further allocated to expected consumption by tier as shown in **Figure 17**. The “additional capacity required” represents the cumulative peak consumption in each tier. No additional capacity factor is assigned to Tier 1 water use, as this represents a base level of consumption by customers in the lowest tier, therefore no additional capacity costs would be incurred if all customers stayed within the Tier 1 threshold.

Figure 17. Single Family Residential Capacity Related Costs (variable share)

Customer Class	Peak Monthly Use (hcf)	Additional Capacity Required (hcf) ²	Percent of Total	Allocated Costs
Single Family Residential				
Tier 1	330,030	0	0.0%	\$ -
Tier 2	498,250	168,220	52.0%	134,515
Tier 3	653,548	155,298	48.0%	124,182
Total		323,518	100%	\$ 258,698

D. Rate Design Analysis

The process of evaluating the water rate structure provides the opportunity to incorporate a number of rate-design objectives and policies, including revenue stability, equity among customer classes, and water conservation. NBS discussed several water rate alternatives and methodologies with District Staff over the course of this study, such as the percentage of revenue collected from fixed vs. volumetric rates and differentiating rates by customer class. Based on input provided by District staff and the Board of Directors, the proposed rates were developed. The following sections describe this process.

NBS recommends that the District make the following modifications to the water rate structure:

1. Update the volumetric rates for Single Family Residential customers as follows:
 - a. Eliminate the 300 units of Tier 1 water that is provided at no charge
 - b. Reduce the number of tiers from four to three
 - c. Establish new tier breakpoints based on recent consumption statistics
2. Move all other customers to a uniform volumetric rate, and impose a charge for all water consumed

FIXED CHARGES

The fixed meter charge recognizes that the water utility incurs fixed costs regardless of whether customers actually use water. There are two components that comprise the fixed meter charge: the customer component and the capacity component, as described in the previous section. Using the costs allocated to each meter size from Figure 12 through Figure 14; **Figure 18** calculates the monthly charge for each meter size.

Figure 18. Fixed Meter Charges FY 2017/18

Number of Meters by Class and Size (1)	Number of Meters	Allocated Capacity Costs	Allocated Customers Costs	Allocated Fire Protection Costs	Total Costs	Monthly Charge
	<i>a</i>	<i>b</i>		<i>d</i>	<i>e = b + c + d</i>	<i>f = e / a / 12</i>
Basic Meters						
5/8 inch	1,536	\$ 483,588	\$ 34,968		\$ 518,556	\$28.12
3/4 inch	30	14,168	682.97		14,851	\$41.25
1 inch	59	46,438	1,343.17		47,781	\$67.49
1 1/2 inch	13	20,464	295.95		20,760	\$133.08
2 inch	5	12,593	113.83		12,707	\$211.79
3 inch	1	5,037	22.77		5,060	\$421.68
Subtotal Basic Meters	1,644	\$ 582,289	\$ 37,427	\$ -	\$ 619,716	
Idyllwild Arts Academy	1	50,957	22.77		50,980	\$4,248.35
Fire Service Meters						
4 inch	2	-	45.53	\$ 554	600	\$25.00
Total	\$ 1,645	\$ 633,246	\$ 37,449	\$ 554	\$ 670,696	

VARIABLE CHARGES

NBS' recommendation regarding rate structure is to maintain non-SFR customers on a uniform volumetric rate. This is due to the varying consumption characteristics of these customers; a uniform volumetric rate better represents their cost-of-service and includes non-SFR customers who's meters are 1 inch and smaller who were previously under a tiered rate.

Using the costs allocated to each customer class in Figure 15 – Figure 17, **Figure 19** calculates the per unit volumetric charge for each customer class and tier.

Figure 19. Calculated Variable Charges for FY 2016/17

Customer Class and Tier	Volume (cf)	Allocated Commodity Costs	Allocated Capacity Costs	Total Costs	Charge per Unit Sold (\$/cf)
Single Family Residential					
Tier 1	3,145,764	\$ 60,534	\$ -	\$ 60,534	\$0.0192
Tier 2	1,207,314	23,232	134,515	157,747.675	\$0.1307
Tier 3	883,738	17,006	124,182	141,188.172	\$0.1598
Subtotal SFR	5,236,816	\$ 100,772	\$ 258,698	\$ 359,470	
Commerical Consumption	2,975,241	57,252	182,482	239,734	\$0.0759
Idyllwild Arts Academy	1,132,136	21,786	50,306	72,092	
Total	9,344,193	\$ 179,810	\$ 491,486	\$ 671,296	

TRANSITION OF FIXED AND VARIABLE RATE REVENUE

In order to transition to collecting a greater percentage of revenue from the fixed rate, an incremental transition is applied to the rate calculations in order to collect a greater percentage of revenue from the fixed rate, as shown in the right two columns of Figure 5. Over the five-year rate period, rates are transitioned from collecting 50 percent of rate revenue from fixed charges, to collection 60 percent of rate revenue from fixed charges. For the details on how these rates were calculated, please see Tables 22 – 36 in Appendix A.

E. Current and Proposed Water Rates

The Cost of Service analysis is used to establish the rates for FY 2018/19. In the subsequent four years of the rate study, proposed charges are adjusted by the proposed adjustment in total rate revenue needed, to meet projected revenue requirements and to transition to collecting a greater percentage of revenue from the fixed charge. **Figure 20** provides a comparison of the current and proposed rates for FY 2018/19 through FY 2022/23. More detailed tables on the developed of the proposed charges are documented in Appendix A.

Figure 20. Current and Proposed Water Rates

Proposed Rates - Transition 50% Fixed to 60% Fixed								
Water Rate Schedule	Number of Customers	Current Rates	Proposed Rates					
			FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	
Monthly Fixed Service Charges:								
<i>Single Family Residential</i>								
5/8 inch	1,427	\$29.70	\$28.13	\$30.92	\$33.91	\$37.13	\$40.59	
3/4 inch	12	\$40.35	\$41.25	\$45.38	\$49.83	\$54.60	\$59.73	
1 inch	24	\$61.25	\$67.49	\$74.31	\$81.65	\$89.54	\$98.01	
<i>All Other Customers:</i>								
5/8 inch	109	\$20.90	\$28.13	\$30.92	\$33.91	\$37.13	\$40.59	
3/4 inch	30	\$31.35	\$41.25	\$45.38	\$49.83	\$54.60	\$59.73	
1 inch	59	\$52.25	\$67.49	\$74.31	\$81.65	\$89.54	\$98.01	
1.5 inch	13	\$104.50	\$133.08	\$146.64	\$161.22	\$176.89	\$193.72	
2 inch	5	\$167.20	\$211.79	\$233.42	\$256.69	\$281.70	\$308.57	
3 inch	1	\$313.50	\$421.68	\$464.85	\$511.29	\$561.21	\$614.84	
<i>Idyllwild Arts Academy</i>								
3 inch	1	\$313.50	\$4,248.35	\$4,844.19	\$5,488.99	\$6,186.16	\$6,939.33	
<i>Fire Service Charges:</i>								
2 inch	0	--	\$7.18	\$7.54	\$7.92	\$8.31	\$8.73	
3 inch	0	--	\$13.45	\$14.12	\$14.83	\$15.57	\$16.35	
4 inch	2	--	\$25.00	\$26.25	\$27.56	\$28.94	\$30.39	
Monthly Commodity Charges per cf of water consumed								
	<u>Current</u>	<u>Proposed</u>						
<i>Tiered Rate (Commercial Customers)</i>								
Tier 1	1000 cf		\$0.0333	--	--	--	--	
Tier 2	4000 cf		\$0.0633	--	--	--	--	
Tier 3	8000 cf		\$0.1000	--	--	--	--	
Tier 4	8001+ cf		\$0.1000	--	--	--	--	
<i>Uniform Potable Rate (Commercial Customers)</i>				\$0.0759	\$0.0757	\$0.0752	\$0.0744	\$0.0735
<i>Tiered Rate (SFR Customers)</i>								
Tier 1	300 cf	450 cf	\$0.0000	\$0.0192	\$0.0202	\$0.0212	\$0.0223	\$0.0234
Tier 2	600 cf	900 cf	\$0.0633	\$0.1307	\$0.1292	\$0.1273	\$0.1248	\$0.1218
Tier 3	1500 cf	900+ cf	\$0.1000	\$0.1598	\$0.1577	\$0.1550	\$0.1516	\$0.1475
Tier 4	1500+ cf	--	\$0.1000	N/A	N/A	N/A	N/A	N/A

F. Comparison of Current and Proposed Water Bills

Figure 21 and Figure 22 compare a range of monthly water bills for the current and proposed water rates as a result of the initial rate adjustment for single-family residential customers (with a 5/8-inch meter) and non-single family residential customers (with a 1-inch meter). These bills are based on typical meter sizes, and the average consumption levels for each customer class are highlighted.

Figure 21. Monthly Bill Comparison for Single Family Customers

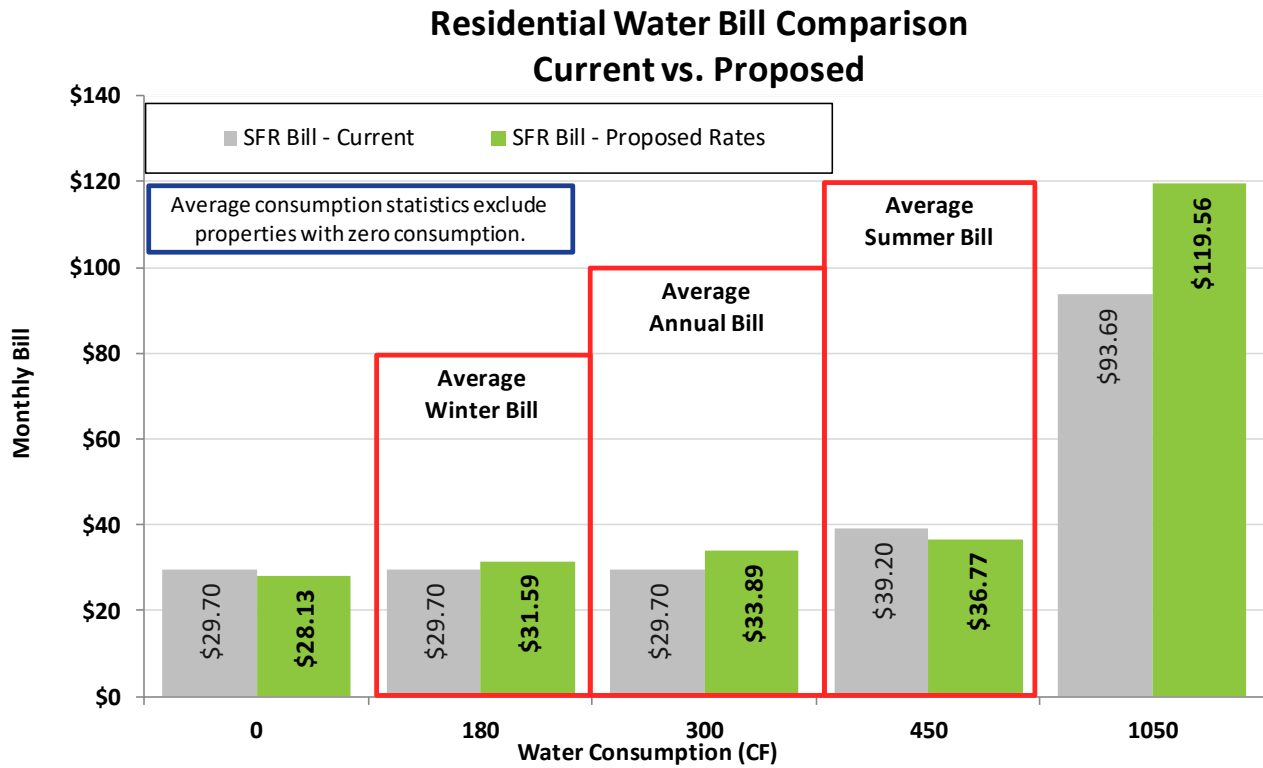
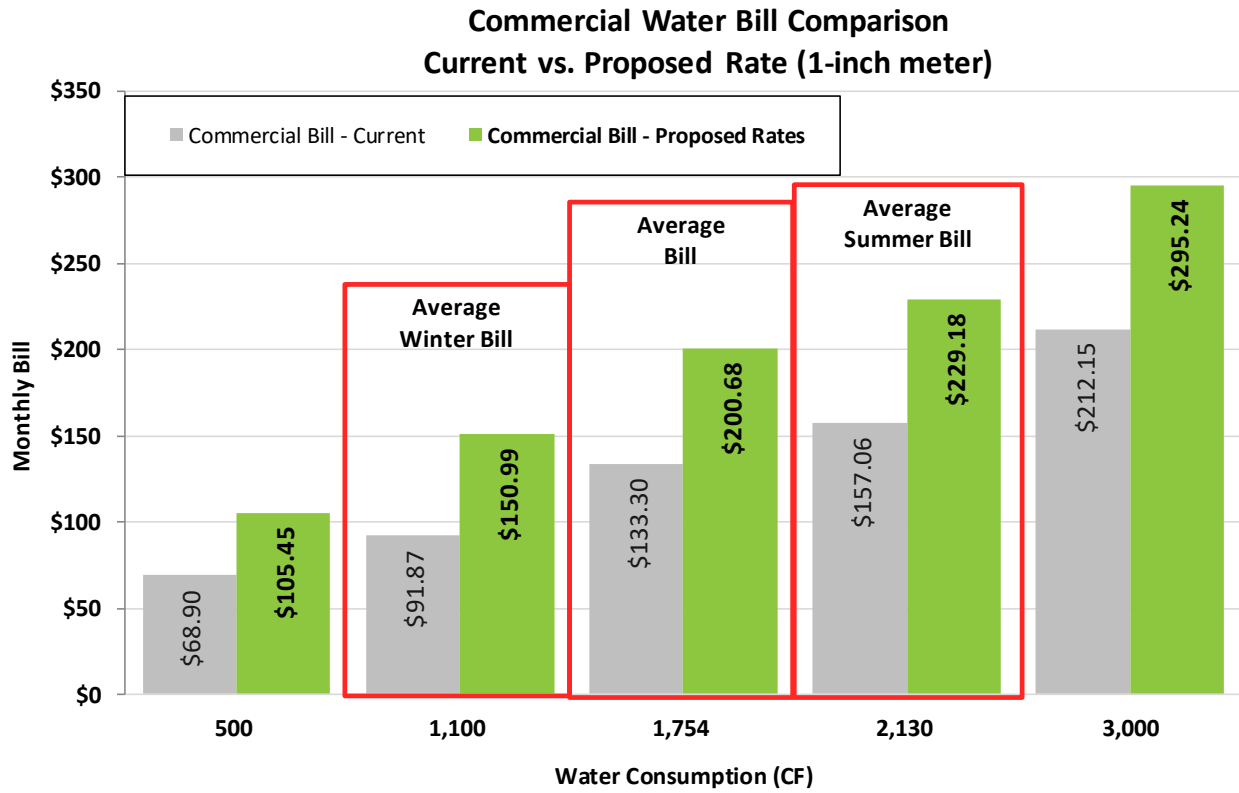


Figure 22. Monthly Water Bill Comparison for Commercial Customers



Section 3. SEWER RATES

A. Key Sewer Rate Study Issues

The District's sewer rate analysis was undertaken with a few specific objectives, including:

- Avoiding operational deficits and depletion of reserves beyond the target minimum reserve level.
- Generating additional revenue needed to meet projected funding requirements.

NBS developed various sewer rate alternatives as requested by District staff and the Board over the course of this Study. All rate structure alternatives relied on industry standards and cost-of-service principles. The rate alternative that will be implemented, is ultimately the decision of the Board. The fixed and volume-based charges were calculated based on the net revenue requirements, number of customer accounts, estimated sewer flow, and other District-provided information.

B. Financial Plan

It is important for municipal utilities to maintain reasonable reserves in order to handle emergencies, fund working capital, maintain a good credit rating, and generally follow sound financial management practices. Rate increases are governed by the need to meet operating and capital costs, maintain adequate debt coverage, and build reasonable reserve funds. The current state of the District's Sewer utility, with regard to these objectives, is as follows:

Net Revenue Requirements: For FY 2018/19 through FY 2022/23, the projected net revenue requirement (that is, total annual expenses plus debt service and rate-funded capital costs, less non-rate revenues) grows from, \$410,000 to \$480,000 annually.

Building and Maintaining Reserve Funds: The District plans to reach the proposed reserve targets by the end of FY 2022/23, one year following the end of the proposed rate increases. The reserve funds for the Utility are considered unrestricted reserves and consist of the following:

- **The Operating Reserve** has been set by the Board to be \$250,000, which is equal to between 40 and 50 percent of annual operating expenses for the next five years. As with the Water Utility, this reserve is primarily intended to provide a short-term cash resource for unexpected financial viability.
- **The Emergency Reserve** has been set by the Board to be \$150,000, which is equal to between 20 and 30 percent of annual operating expenses for the next five years. This reserve is set aside to address unexpected revenue difficulties.
- **The Capital Rehabilitation and Replacement Reserve** has been set by the Board to be \$750,000 and represents the general cost of an unexpected capital project.
- **The Vehicle and Equipment Replacement Reserve** has been set by the Board to be \$250,000, which represents 20 percent of the net asset value for the sewer utility. This reserve is set aside to address vehicle and equipment needs.
- **The Vacation/Sick/Annual Leave Reserve** has been set by the Board to be \$25,000, which is set aside to address the accumulated leave liability.
- **The OPEB Liability Reserve** has been set by the Board to be \$225,000, which is set aside to address future other employment benefits, namely healthcare costs of retirees.

Funding Capital Improvement Projects: The District must also be able to fund necessary capital improvements in order to maintain current service levels. District staff has identified roughly \$250,000 annually in expected capital expenditures for FY 2018/19 through 2022/23. With the recommended rate increases, these expenditures can be accomplished while increasing reserves to the minimum recommended target.

Inflation and Growth Projections – Assumptions regarding cost inflation were made in order to project future revenues and expenses for the study period. The following inflation factors were used in the analysis (the same factors were used for the water utility):

- Customer growth is expected to be 0.3 percent annually.
- General cost inflation is 2.5 percent annually.
- Salary cost inflation is 5 percent annually.
- Benefits cost inflation is 5 percent annually.
- Energy cost inflation is 2.5 percent annually.
- Chemicals cost inflation is 2.5 percent annually.
- Fuel cost inflation is 2.5 percent annually.
- Tax inflation is 1.5 percent annually.
- Standby Revenue is reduced at 3 percent annually.

Effective Date of Rate Adjustments: As with the water utility, the financial plan modelling assumes that rate adjustments occur on the July bill¹⁰ of each year.

An initial increase to \$40 per EDU followed by increases of 2.5 percent annually from FY 2019/20 through 2022/23 will be needed in order to fully fund all operating expenses, planned capital projects and maintain reserves to the recommended targets by FY 2022/23¹¹. **Figure 23** summarizes the sources and uses of funds, net revenue requirements, and the recommended annual percent increases in total rate revenue recommended for the next five-years for the District’s sewer utility.

¹⁰ The first rate adjustment is scheduled for July 1st, 2018 followed by each July 1st thereafter.

Figure 23. Summary of Sewer Revenue Requirements

Summary of Sources and Uses of Funds and Net Revenue Requirements	Budgeted		Projected			
	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23
Sources of Sewer Funds						
Rate Revenue Under Prevailing Rates	\$ 630,006	\$ 631,896	\$ 633,792	\$ 635,693	\$ 637,600	\$ 639,513
<i>Additional Revenue from Rate Increases</i> ¹	-	36,744	53,620	71,018	88,952	107,437
Non-Rate Revenues	115,775	117,502	119,256	121,035	122,841	124,674
Interest Earnings	1,500	6,561	9,781	12,195	12,117	16,103
Other Non-Operating Income	10,450	10,316	10,186	10,061	9,940	9,823
Total Sources of Funds	\$ 757,731	\$ 803,019	\$ 826,635	\$ 850,002	\$ 871,450	\$ 897,550
Uses of Sewer Funds						
Salaries and Benefits	\$ 264,865	\$ 278,108	\$ 292,014	\$ 306,614	\$ 321,945	\$ 338,042
Sewer Utilities	\$ 91,655	\$ 93,946	\$ 96,295	\$ 98,702	\$ 101,170	\$ 103,699
Sewer Operating Expenses	\$ 168,462	\$ 172,829	\$ 177,310	\$ 181,908	\$ 186,628	\$ 191,472
Total Use of Funds	\$ 524,982	\$ 544,883	\$ 565,618	\$ 587,225	\$ 609,743	\$ 633,213
Surplus (Deficiency) before Rate Increase	\$ 232,749	\$ 258,135	\$ 261,016	\$ 262,776	\$ 261,707	\$ 264,337
Surplus (Deficiency) after Rate Increase	\$ 232,749	\$ 294,879	\$ 314,637	\$ 333,795	\$ 350,659	\$ 371,774
Projected Annual Rate Revenue Increase	0.00%	5.81%	2.50%	2.50%	2.50%	2.50%
<i>Cumulative Increases</i>	0.00%	5.81%	8.46%	11.17%	13.95%	16.80%
Net Revenue Requirement ²	\$ 397,257	\$ 410,505	\$ 426,396	\$ 443,935	\$ 464,845	\$ 482,613

1. Assumes new rates are implemented July 1, 2018

2. Total Use of Funds less non-rate revenues and interest earnings. This is the annual amount needed from rates.

Figure 24 summarizes the projected reserve fund balances and reserve targets. A summary of the utility’s proposed five-year financial plan is included in Tables 1 and 2 of Appendix B. The appendix tables include revenue requirements, reserve funds, revenue sources, proposed rate increases, and the District’s capital improvement program. As can be seen in Figure 24, given proposed rate increases, the total reserve balance exceeds the target at the end of the five-year period. This will allow the District to lessen future impacts as it prepares to replace the treatment plant. As with water, it should be noted that Vacation/Sick/Annual Leave and OPEB Liability Reserves are maintained at their current levels (below the target) over the five year rate period. Additional rate increases would be needed, in order to meet these reserve targets.

Figure 24. Summary of Reserve Funds

Beginning Reserve Fund Balances and Recommended Reserve Targets	Budgeted	Projected				
	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23
Operating Reserve						
Ending Balance	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000
<i>Recommended Minimum Target</i>	<i>250,000</i>	<i>250,000</i>	<i>250,000</i>	<i>250,000</i>	<i>250,000</i>	<i>250,000</i>
Emergency Reserve						
Ending Balance	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000
<i>Recommended Minimum Target</i>	<i>150,000</i>	<i>150,000</i>	<i>150,000</i>	<i>150,000</i>	<i>150,000</i>	<i>150,000</i>
Capital Rehabilitation and Replacement Reserve & Vehicle Replacement Reserve						
Ending Balance	\$ 1,229,544	\$ 1,230,179	\$ 1,225,971	\$ 1,215,566	\$ 1,195,895	\$ 1,170,413
<i>Recommended Minimum Target</i>	<i>750,000</i>	<i>750,000</i>	<i>750,000</i>	<i>750,000</i>	<i>750,000</i>	<i>750,000</i>
Total Ending Unrestricted Balance	\$ 1,629,544	\$ 1,630,179	\$ 1,625,971	\$ 1,615,566	\$ 1,595,895	\$ 1,570,413
Vacation/Sick/Annual Leave Liability Reserve						
Ending Balance	\$ 5,626	\$ 5,648	\$ 5,682	\$ 5,725	\$ 5,768	\$ 5,826
<i>Recommended Minimum Target</i>	<i>25,000</i>	<i>25,000</i>	<i>25,000</i>	<i>25,000</i>	<i>25,000</i>	<i>25,000</i>
OPEB Reserve						
Ending Balance	\$ 162,945	\$ 163,601	\$ 164,583	\$ 165,817	\$ 167,061	\$ 168,747
<i>Recommended Minimum Target</i>	<i>225,000</i>	<i>225,000</i>	<i>225,000</i>	<i>225,000</i>	<i>225,000</i>	<i>225,000</i>
Total Ending Balance	\$ 1,798,115	\$ 1,799,429	\$ 1,796,236	\$ 1,787,108	\$ 1,768,724	\$ 1,744,986
Total Recommended Minimum Target	\$ 1,400,000	\$ 1,400,000	\$ 1,400,000	\$ 1,400,000	\$ 1,400,000	\$ 1,400,000

C. Current and Proposed Sewer Rates

For the Sewer utility, the District determined that the current cost allocations and rate design were adequate; therefore, there was no change to the rate structure. Existing Sewer rates are simply increased by the percentage increase in total rate revenue needed, to meet projected revenue requirements. **Figure 25** provides a comparison of the current and proposed rates for FY 2018/19 through FY 2022/23.

Figure 25. Current and Proposed Sewer Rates

Sewer Rate Schedule	Current Monthly Rates ¹	Proposed Monthly Sewer Rates				
		FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23
Rate Per EDU	\$38.25	\$40.00	\$41.00	\$42.03	\$43.08	\$44.15

1. Sewer customers are charged on the basis of their number of assigned Equivalent Dwelling Units (EDUs).

D. Comparison of Current and Proposed Sewer Bills

Figure 26 and **Figure 27** compare monthly sewer bills under current and proposed sewer rates for single-family residential customers and commercial customers. These bills are based on typical assigned EDUs for each customer type.

Figure 26. Monthly Sewer Bill Comparison for Single Family Customers

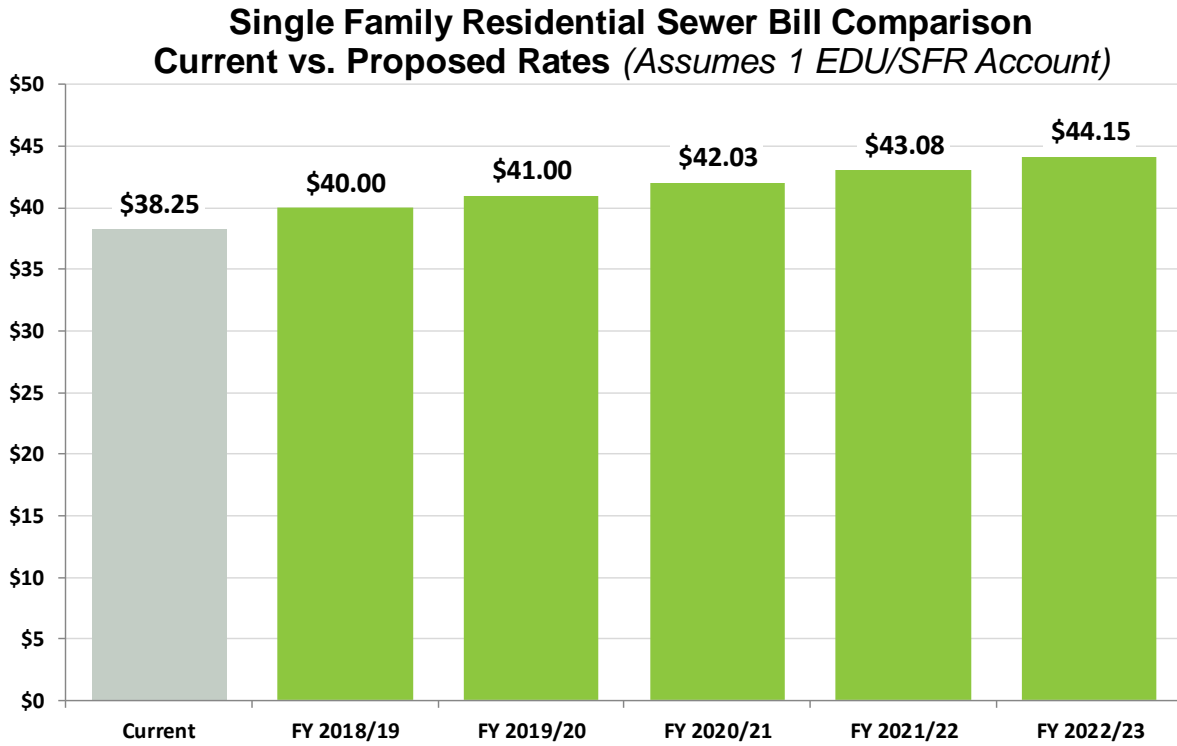
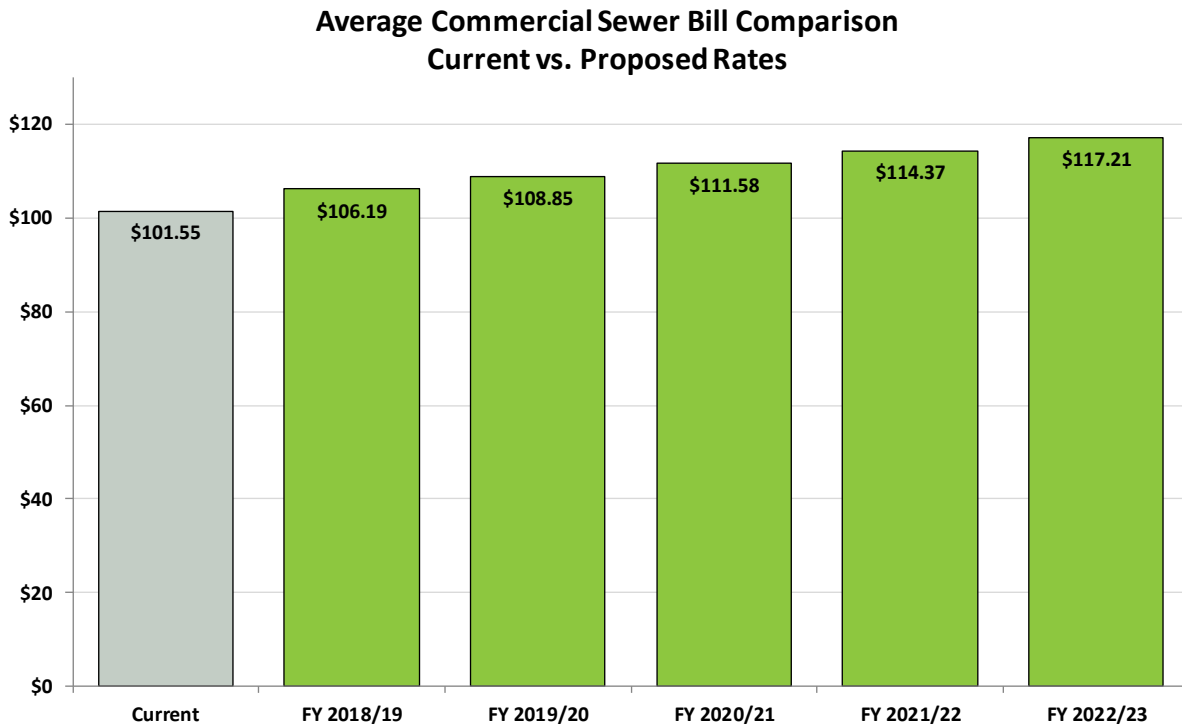


Figure 27. Monthly Sewer Bill Comparison for Commercial Customers



Section 4. RECOMMENDATIONS AND NEXT STEPS

A. Consultant Recommendations

NBS recommends District take the following actions:

Approve and accept this Study: NBS recommends the District Board formally approve and adopt this Study and its recommendations, and proceed with the steps required to implement the proposed water and sewer rates. This will provide documentation of the rate study analyses and the basis for analyzing potential changes to future rates.

Implement Recommended Levels of Rate Adjustments and Proposed Rates: Based on successfully meeting the Proposition 218 procedural requirements, the District Board should proceed with implementing the five-year schedule of proposed rates and rate adjustments previously shown in Figure 20 and Figure 25. This will help ensure the continued financial health of District’s water and sewer utilities.

B. Next Steps

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 and water consumption patterns underscore the need for this review, as well as potential and unseen changing revenue requirements—particularly those related to environmental regulations that can significantly affect capital improvements and repair and replacement costs.

Note: The attached Appendices provides more detailed information on the analysis of the revenue requirements, cost-of-service analysis and cost allocations, and the rate design analyses that have been summarized in this Study.

C. NBS’ Principal Assumptions and Considerations

In preparing this report and the opinions and recommendations included herein, NBS has relied on a number of principal assumptions and considerations with regard to financial matters, conditions, and events that may occur in the future. This information and these assumptions, including District’s budgets, capital improvement costs, and information from District staff were provided by sources we believe to be reliable, although NBS has not independently verified this data.

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 and 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 future conditions differ from those assumed by us or provided to us by others.

Appendix A: Detailed Water Study Tables and Figures

TABLE 1 - FINANCIAL PLAN AND SUMMARY OF REVENUE REQUIREMENTS

RATE REVENUE REQUIREMENTS SUMMARY (1)	Budget	Projected									
	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27	FY 2027/28
Sources of Water Funds											
<i>Potable Rate Revenue:</i>											
Water Sales Revenue Under Current Rates	\$ 1,272,297	\$ 1,278,658	\$ 1,285,052	\$ 1,291,477	\$ 1,297,934	\$ 1,304,424	\$ 1,310,946	\$ 1,317,501	\$ 1,324,088	\$ 1,330,709	\$ 1,337,362
Revenue from Rate Increases (2)	-	63,933	131,718	203,569	279,713	360,388	395,653	431,934	469,257	507,650	547,139
Subtotal: Rate Revenue After Rate Increases	1,272,297	1,342,591	1,416,770	1,495,046	1,577,647	1,664,812	1,706,599	1,749,435	1,793,346	1,838,359	1,884,501
<i>Non-Rate Revenue:</i>											
Tax Revenue	\$ 275,000	\$ 279,125	\$ 283,312	\$ 287,562	\$ 291,875	\$ 296,253	\$ 300,697	\$ 305,207	\$ 309,785	\$ 314,432	\$ 319,149
Charges for Other Services	39,712	39,197	38,700	38,222	37,760	37,316	36,887	36,475	36,078	35,697	35,329
Interest Income	3,000	8,185	10,708	13,972	14,711	20,980	22,436	23,624	24,520	25,101	25,341
Subtotal: Non-Rate Revenue	317,712	326,507	332,720	339,755	344,346	354,548	360,020	365,306	370,384	375,230	379,819
Total Sources of Funds	\$ 1,590,009	\$ 1,669,098	\$ 1,749,489	\$ 1,834,801	\$ 1,921,994	\$ 2,019,361	\$ 2,066,619	\$ 2,114,741	\$ 2,163,730	\$ 2,213,589	\$ 2,264,320
Uses of Water Funds											
<i>Operating Expenses (3):</i>											
Water Operating Expenses	\$ 1,150,562	\$ 1,196,558	\$ 1,246,743	\$ 1,299,196	\$ 1,354,025	\$ 1,411,343	\$ 1,471,266	\$ 1,533,920	\$ 1,599,433	\$ 1,667,943	\$ 1,739,591
Subtotal: Operating Expenses:	\$ 1,150,562	\$ 1,196,558	\$ 1,246,743	\$ 1,299,196	\$ 1,354,025	\$ 1,411,343	\$ 1,471,266	\$ 1,533,920	\$ 1,599,433	\$ 1,667,943	\$ 1,739,591
<i>Other Expenditures:</i>											
Existing Debt Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Debt Service (4)	-	-	-	-	-	-	-	-	-	-	-
Rate-Funded Capital Expenses	577,000	721,000	424,360	437,091	450,204	463,710	477,621	491,950	426,545	384,157	376,078
Subtotal: Other Expenditures	\$ 577,000	\$ 721,000	\$ 424,360	\$ 437,091	\$ 450,204	\$ 463,710	\$ 477,621	\$ 491,950	\$ 426,545	\$ 384,157	\$ 376,078
Total Uses of Water Funds	\$ 1,727,562	\$ 1,917,558	\$ 1,671,103	\$ 1,736,287	\$ 1,804,229	\$ 1,875,052	\$ 1,948,887	\$ 2,025,869	\$ 2,025,978	\$ 2,052,100	\$ 2,115,670
Annual Surplus/(Deficit)	\$ (137,553)	\$ (248,459)	\$ 78,386	\$ 98,514	\$ 117,765	\$ 144,308	\$ 117,732	\$ 88,872	\$ 137,752	\$ 161,488	\$ 148,651
Net Revenue Req't. (Total Uses less Non-Rate Revenue)	\$ 1,409,850	\$ 1,591,051	\$ 1,338,383	\$ 1,396,532	\$ 1,459,883	\$ 1,520,504	\$ 1,588,867	\$ 1,660,563	\$ 1,655,594	\$ 1,676,870	\$ 1,735,851
Projected Annual Rate Revenue Adjustment	0.00%	5.00%	5.00%	5.00%	5.00%	5.00%	2.00%	2.00%	2.00%	2.00%	2.00%
<i>Cumulative Increase from Annual Revenue Increases</i>	0.00%	5.00%	10.25%	15.76%	21.55%	27.63%	30.18%	32.78%	35.44%	38.15%	40.91%
<i>Debt Coverage After Rate Increase</i>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

- Revenue and expenses for FY 2017/18 are from Source file: 2017-2018 Budget.pdf, Pages 6-7.
Budget values have been adjusted as part of the analysis, as detailed in Exhibit 1 (O&M).
- Revenue from rate increases assumes an implementation date of July 1, 2018 and July 1 each year thereafter.
- The FY 2017/18 operating expenses are from the budget. Inflationary factors are applied to these expenses to project costs in FY 2018/19 and beyond.
- Financial Statements. Source File: 2016-2017 Financial Statements.pdf; Note 6, Net position reserves, Page 26

TABLE 2 - RESERVE FUND SUMMARY

SUMMARY OF CASH ACTIVITY	Budget	Projected									
	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27	FY 2027/28
UN-RESTRICTED RESERVES											
Total Beginning Cash (1, 2)	\$ 2,674,288										
Working Capital Reserve Fund											
Beginning Cash Reserve Balance (2)	\$ 1,795,598	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000
Net: Operating Cash Flow (After Rate Increases)	(137,553)	(248,459)	78,386	98,514	117,765	144,308	117,732	88,872	137,752	161,488	148,651
Plus: Transfer of Debt Reserve Surplus	-	-	-	-	-	-	-	-	-	-	-
Net: Transfer Out / In to Emergency Fund Reserve	(1,158,045)	248,459	(78,386)	(98,514)	(117,765)	(144,308)	(117,732)	(88,872)	(137,752)	(161,488)	(148,651)
Ending Working Capital Reserve Fund Balance	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000
Target Ending Balance (\$500K) (3)	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000
Emergency Reserve Fund											
Beginning Reserve Balance (2)	\$ 150,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000
Net: Transfer of Operating Reserve Surplus	1,158,045	(248,459)	78,386	98,514	117,765	144,308	117,732	88,872	137,752	161,488	148,651
Less: Use of Reserves for Capital Projects	-	-	-	-	-	-	-	-	-	-	-
Net: Transfer Out / In to Capital R&R Reserve	(958,045)	248,459	(78,386)	(98,514)	(117,765)	(144,308)	(117,732)	(88,872)	(137,752)	(161,488)	(148,651)
Ending Emergency Reserve Fund Balance	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000
Target Emergency Reserve Fund (\$350K) (3)	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000
Capital Rehabilitation & Replacement Reserve											
Beginning Reserve Balance (2,4)	\$ 225,000	\$ 1,183,045	\$ 934,586	\$ 1,012,972	\$ 1,111,486	\$ 1,229,251	\$ 1,373,559	\$ 1,491,292	\$ 1,580,163	\$ 1,637,752	\$ 1,661,488
Net: Transfer of Emergency Reserve Surplus	958,045	(248,459)	78,386	98,514	117,765	144,308	117,732	88,872	137,752	161,488	148,651
Less: Use of Reserves for Capital Projects	-	-	-	-	-	-	-	-	(80,163)	(137,752)	(161,488)
Ending Capital Rehab & Replacement Reserve Balance	\$ 1,183,045	\$ 934,586	\$ 1,012,972	\$ 1,111,486	\$ 1,229,251	\$ 1,373,559	\$ 1,491,292	\$ 1,580,163	\$ 1,637,752	\$ 1,661,488	\$ 1,648,651
Target Capital R&R Reserve (\$1.5M) (3,4)	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000
Ending Balance	\$ 2,033,045	\$ 1,784,586	\$ 1,862,972	\$ 1,961,486	\$ 2,079,251	\$ 2,223,559	\$ 2,341,292	\$ 2,430,163	\$ 2,487,752	\$ 2,511,488	\$ 2,498,651
Minimum Target Ending Balance	\$ 2,350,000	\$ 2,350,000	\$ 2,350,000	\$ 2,350,000	\$ 2,350,000	\$ 2,350,000	\$ 2,350,000	\$ 2,350,000	\$ 2,350,000	\$ 2,350,000	\$ 2,350,000
Ending Surplus/(Deficit) Compared to Targets	\$ (316,955)	\$ (565,414)	\$ (487,028)	\$ (388,514)	\$ (270,749)	\$ (126,441)	\$ (8,708)	\$ 80,163	\$ 137,752	\$ 161,488	\$ 148,651
Semi-Restricted Reserves (5):											
Vacation/Sick/Annual Leave Liability											
Beginning Reserve Balance (2)	\$ 16,810	\$ 16,878	\$ 16,946	\$ 17,047	\$ 17,175	\$ 17,304	\$ 17,479	\$ 17,655	\$ 17,833	\$ 18,013	\$ 18,195
Interest Earnings	68	68	102	128	129	175	176	178	180	182	184
Ending Vacation/Sick/Annual Leave Liability	\$ 16,878	\$ 16,946	\$ 17,047	\$ 17,175	\$ 17,304	\$ 17,479	\$ 17,655	\$ 17,833	\$ 18,013	\$ 18,195	\$ 18,378
Target Vacation/Sick/Annual Leave Liability (\$75K) (3)	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000
OPEB											
Beginning Reserve Balance (2)	\$ 486,880	\$ 488,840	\$ 490,808	\$ 493,753	\$ 497,456	\$ 501,187	\$ 506,244	\$ 511,352	\$ 516,512	\$ 521,723	\$ 526,987
Interest Earnings	1,960	1,968	2,945	3,703	3,731	5,057	5,108	5,160	5,212	5,264	5,317
Ending OPEB Liability	\$ 488,840	\$ 490,808	\$ 493,753	\$ 497,456	\$ 501,187	\$ 506,244	\$ 511,352	\$ 516,512	\$ 521,723	\$ 526,987	\$ 532,305
Target OPEB Liability (\$675K) (3)	\$ 675,000	\$ 675,000	\$ 675,000	\$ 675,000	\$ 675,000	\$ 675,000	\$ 675,000	\$ 675,000	\$ 675,000	\$ 675,000	\$ 675,000
Restricted Reserves (6):											
Capacity Charge Reserve											
Beginning Reserve Balance (2)	\$ -	\$ 3,186	\$ 6,401	\$ 9,657	\$ 12,964	\$ 16,311	\$ 19,742	\$ 23,224	\$ 26,758	\$ 30,343	\$ 33,982
Plus: Capacity Charge Revenue	3,186	3,202	3,218	3,234	3,250	3,266	3,283	3,299	3,316	3,332	3,349
Less: Use of Reserves for Capital Projects	-	-	-	-	-	-	-	-	-	-	-
Interest Earnings	-	13	38	72	97	165	199	234	270	306	343
Ending Capacity Charges Reserves	\$ 3,186	\$ 6,401	\$ 9,657	\$ 12,964	\$ 16,311	\$ 19,742	\$ 23,224	\$ 26,758	\$ 30,343	\$ 33,982	\$ 37,673
Annual Interest Earnings Rate (7)	0.40%	0.40%	0.60%	0.75%	0.75%	1.01%	1.01%	1.01%	1.01%	1.01%	1.01%

1. Source file: 2016-2017 Financial Statements.pdf; Note 3, Total Cash and Cash Equivalents, Page 22.
2. Financial Statements. Source File: 2016-2017 Financial Statements.pdf; Note 6, Net position reserves, Page 26.
3. Reserve Policy Targets: Source File: Target Reserve Fund.pdf. Capital R&R reduced to \$1.0m following a discussion with staff on 4.02.18.
4. Capital Rehab and Replacement Reserve Fund includes Funds from "Vehicle & Equipment Replacement Reserve Fund"
5. Vacation/Sick/Annual Leave Liability and OPEB reserve funds are not restricted, but are held in reserve which should not be used for standard operations.
6. Water and Sewer Capacity Charge revenue must be maintained in a restricted reserve in accordance with CA Code 66013.
7. Interest earnings in FY 2018/19 equal to 5-year LAIF average (2012/13-2016/17). Interest earnings increase to 10-year LAIF average by FY 2022/23.

CHART 1

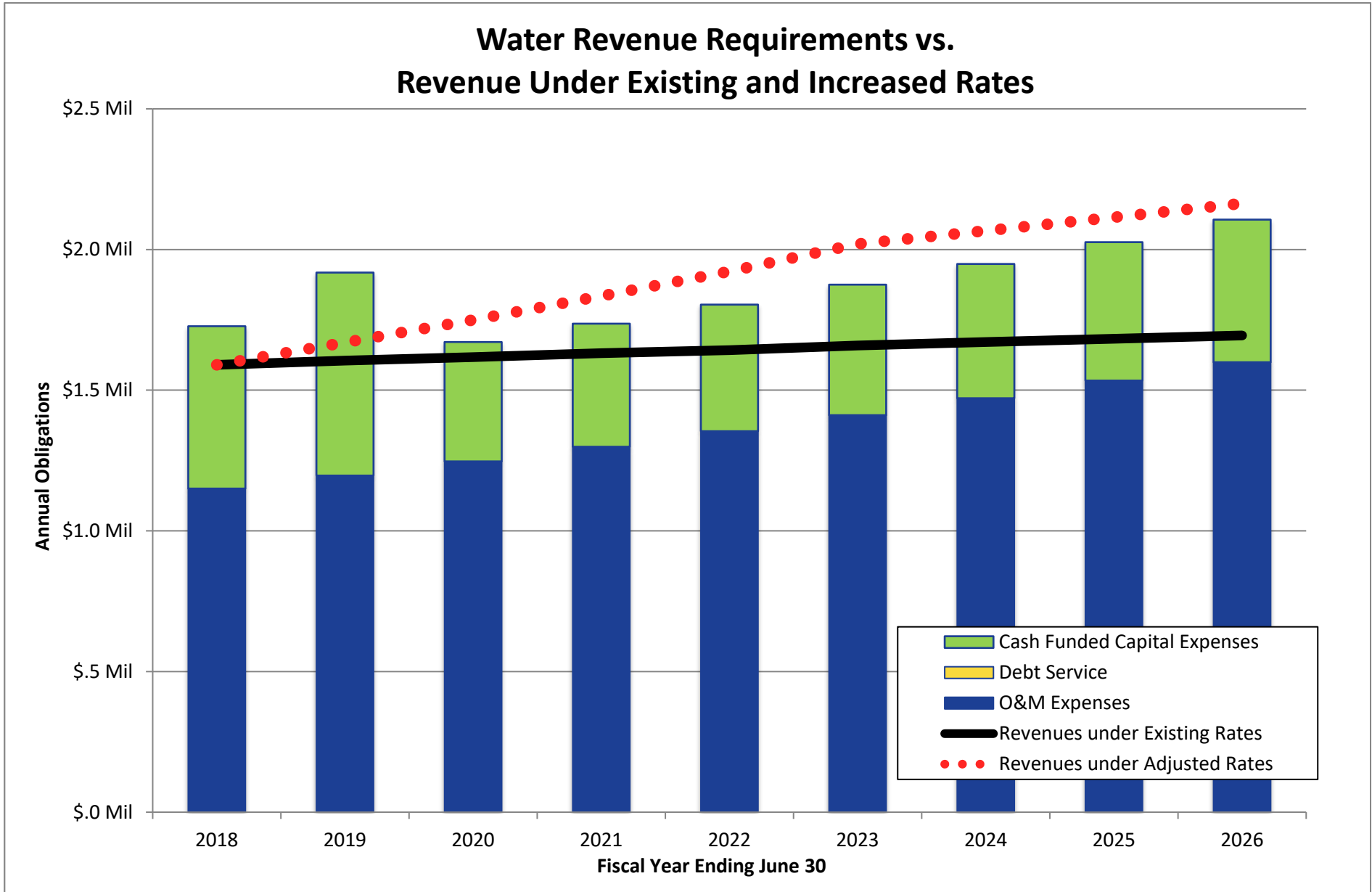


CHART 2

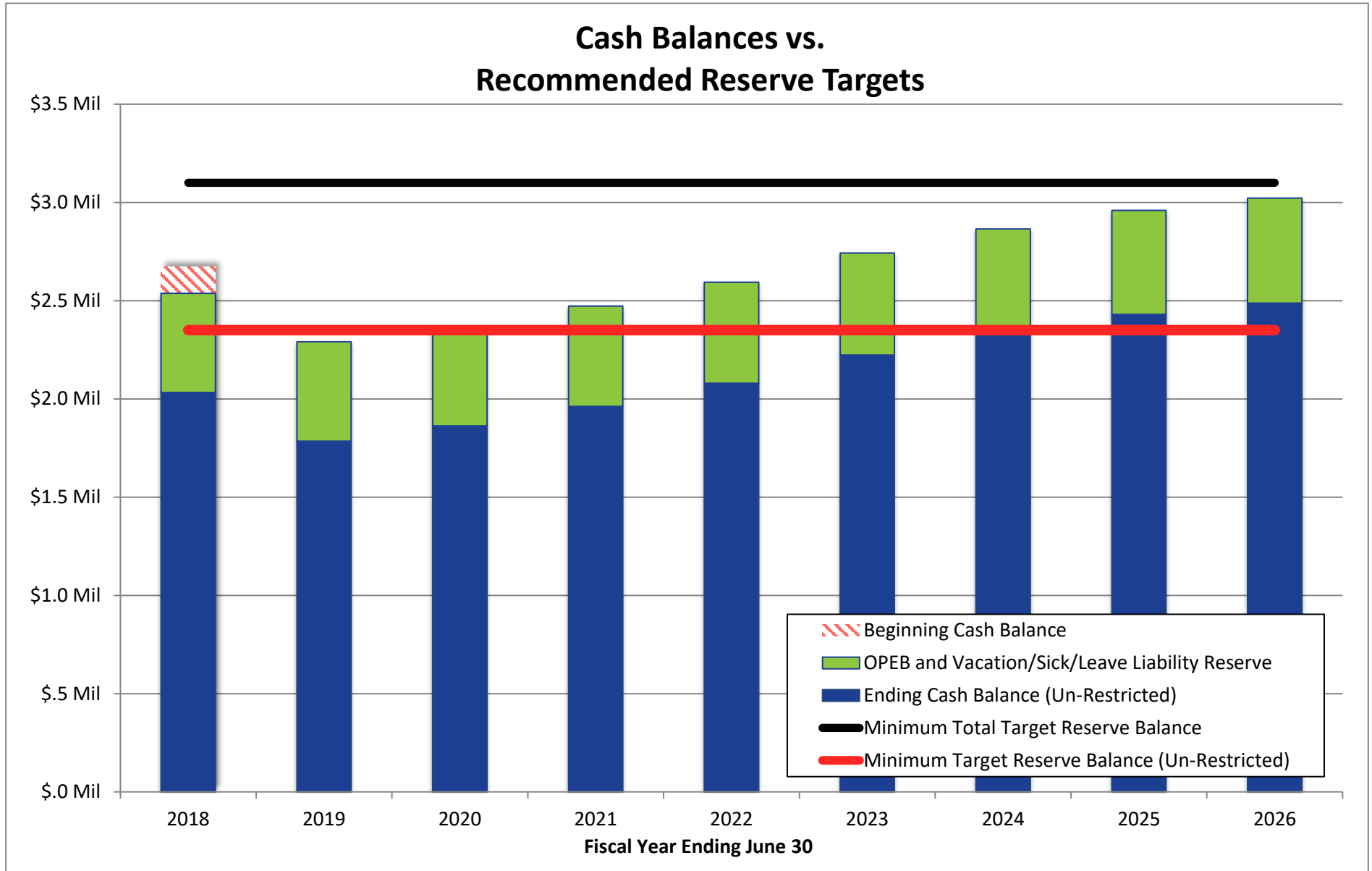
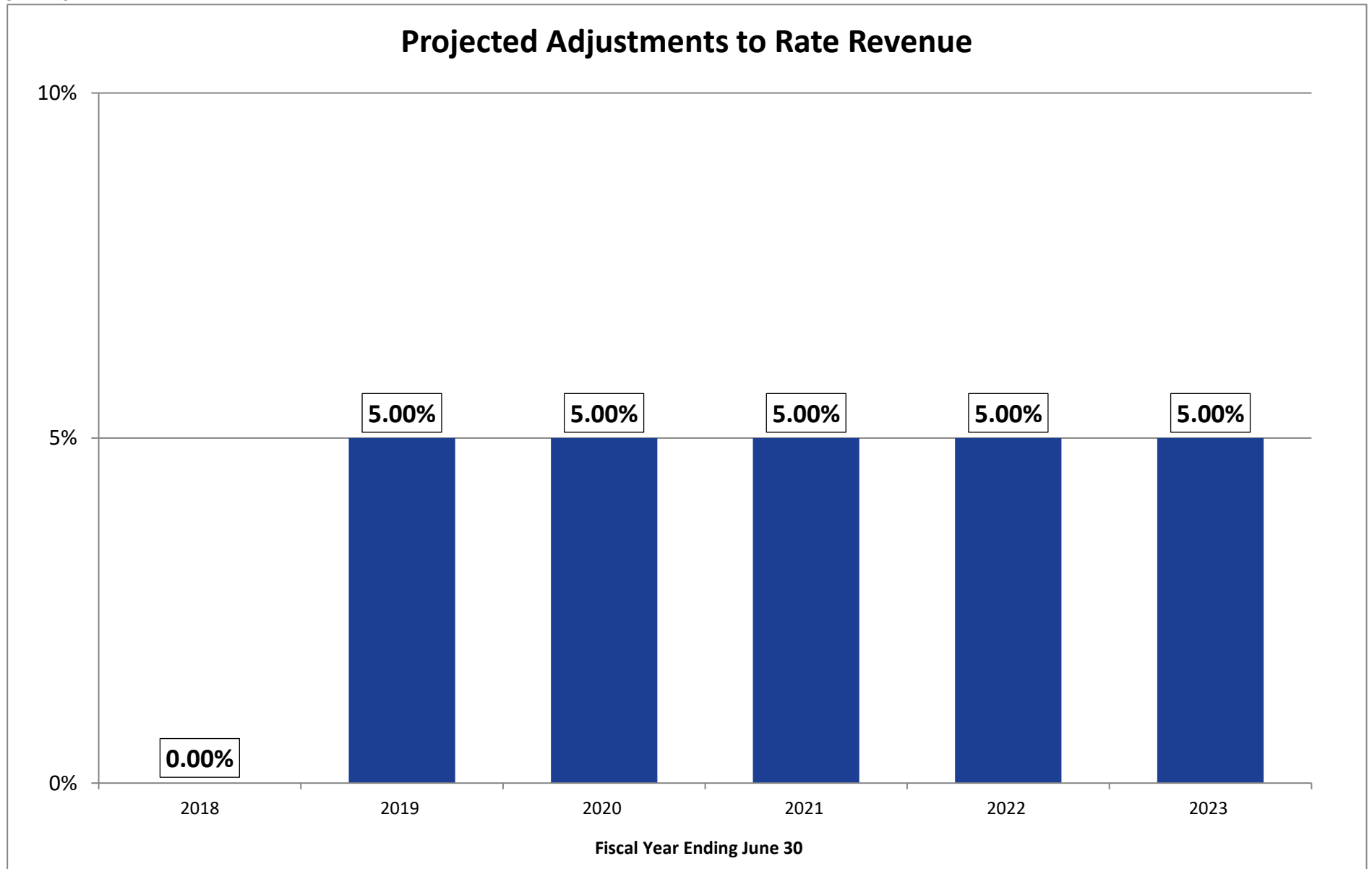


CHART 3



IDYLLWILD WATER DISTRICT
WATER RATE STUDY
Operating Revenue and Expenses

EXHIBIT 1

TABLE 3 - REVENUE FORECAST (1)

DESCRIPTION	Inflation Basis	Budget									
		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Water Operating Revenue											
Water Base Rate - Commercial	1	\$ 158,169	\$ 158,960	\$ 159,755	\$ 160,553	\$ 161,356	\$ 162,163	\$ 162,974	\$ 163,789	\$ 164,608	\$ 165,431
Water Base Rate - Residential	1	512,699	515,262	517,839	520,428	523,030	525,645	528,274	530,915	533,569	536,237
Subtotal: Water Base Rate		\$ 670,868	\$ 674,222	\$ 677,593	\$ 680,981	\$ 684,386	\$ 687,808	\$ 691,247	\$ 694,704	\$ 698,177	\$ 701,668
Water Sales - Commercial	1	\$ 375,557	\$ 377,435	\$ 379,322	\$ 381,219	\$ 383,125	\$ 385,040	\$ 386,965	\$ 388,900	\$ 390,845	\$ 392,799
Water Sales - Residential	1	224,972	226,097	227,227	228,363	229,505	230,653	231,806	232,965	234,130	235,301
Water Sales - Construction	1	700	704	707	711	714	718	721	725	728	732
Water Sales - Other	1	200	201	202	203	204	205	206	207	208	209
Subtotal: Water Sales		\$ 601,429	\$ 604,436	\$ 607,458	\$ 610,496	\$ 613,548	\$ 616,616	\$ 619,699	\$ 622,797	\$ 625,911	\$ 629,041
Water Transfer Fees	1	\$ 3,075	\$ 3,090	\$ 3,106	\$ 3,121	\$ 3,137	\$ 3,153	\$ 3,168	\$ 3,184	\$ 3,200	\$ 3,216
Water Turn On/Off Fees	1	900	905	909	914	918	923	927	932	937	941
Water Will Serve Letter Fees	1	500	503	505	508	510	513	515	518	520	523
Water Delinquency Fees	1	7,037	7,072	7,108	7,143	7,179	7,215	7,251	7,287	7,323	7,360
Water Installation Fees	1	3,186	3,202	3,218	3,234	3,250	3,266	3,283	3,299	3,316	3,332
Water Lien Fees	1	800	804	808	812	816	820	824	828	833	837
Water Other Fees and Charges	1	4,675	4,698	4,722	4,745	4,769	4,793	4,817	4,841	4,865	4,890
Water Renewable Energy Costs	1	-	-	-	-	-	-	-	-	-	-
Subtotal: Water Operating Revenue		\$ 1,292,470	\$ 1,298,932	\$ 1,305,427	\$ 1,311,954	\$ 1,318,514	\$ 1,325,106	\$ 1,331,732	\$ 1,338,391	\$ 1,345,083	\$ 1,351,808
Water Non-Operating Revenue											
Water Taxes and Assessments	8	\$ 275,000	\$ 279,125	\$ 283,312	\$ 287,562	\$ 291,875	\$ 296,253	\$ 300,697	\$ 305,207	\$ 309,785	\$ 314,432
Water Investment Income	10	-	-	-	-	-	-	-	-	-	-
Water Stand By Assessments	9	20,000	19,400	18,818	18,253	17,706	17,175	16,659	16,160	15,675	15,205
Water Interest Earned	See FP	3,000	-	-	-	-	-	-	-	-	-
Water Other Non-Operating Revenue	10	2,725	2,725	2,725	2,725	2,725	2,725	2,725	2,725	2,725	2,725
Subtotal: Water Non-Operating Revenue		\$ 300,725	\$ 301,250	\$ 304,855	\$ 308,540	\$ 312,306	\$ 316,153	\$ 320,081	\$ 324,092	\$ 328,185	\$ 332,362
TOTAL: REVENUE		\$ 1,593,195	\$ 1,600,182	\$ 1,610,282	\$ 1,620,494	\$ 1,630,820	\$ 1,641,259	\$ 1,651,813	\$ 1,662,483	\$ 1,673,268	\$ 1,684,170

TABLE 4 - REVENUE SUMMARY

OPERATING FUND:											
Rate Revenue		\$ 1,272,297	\$ 1,278,658	\$ 1,285,052	\$ 1,291,477	\$ 1,297,934	\$ 1,304,424	\$ 1,310,946	\$ 1,317,501	\$ 1,324,088	\$ 1,330,709
Tax Revenue		275,000	279,125	283,312	287,562	291,875	296,253	300,697	305,207	309,785	314,432
Interest Income		3,000	-	-	-	-	-	-	-	-	-
Other Fees		39,712	39,197	38,700	38,222	37,760	37,316	36,887	36,475	36,078	35,697
Capacity Charges		3,186	3,202	3,218	3,234	3,250	3,266	3,283	3,299	3,316	3,332
TOTAL: REVENUE		\$ 1,593,195	\$ 1,600,182	\$ 1,610,282	\$ 1,620,494	\$ 1,630,820	\$ 1,641,259	\$ 1,651,813	\$ 1,662,483	\$ 1,673,268	\$ 1,684,170

1. Revenue and expenses for FY 2017-18 are from source file: 2017-2018 Budget.pdf, Pages 6-7.

**IDYLLWILD WATER DISTRICT
WATER RATE STUDY
Operating Revenue and Expenses**

EXHIBIT 1

TABLE 5 - OPERATING EXPENSE FORECAST (1)

DESCRIPTION	Inflation Basis	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
WATER OPERATING EXPENSES											
Water Payroll	3	\$ 472,000	\$ 495,600	\$ 520,380	\$ 546,399	\$ 573,719	\$ 602,405	\$ 632,525	\$ 664,151	\$ 697,359	\$ 732,227
Water Retirement and Life Insurance	4	49,000	51,450	54,023	56,724	59,560	62,538	65,665	68,948	72,395	76,015
Water Medical Insurance	4	130,000	136,500	143,325	150,491	158,016	165,917	174,212	182,923	192,069	201,673
Water Worker's Comp Insurance	4	12,000	12,600	13,230	13,892	14,586	15,315	16,081	16,885	17,729	18,616
Water Non-Employee Health Insurance	4	26,265	27,578	28,957	30,405	31,925	33,522	35,198	36,957	38,805	40,746
Salaries and Benefits - TOTAL		\$ 689,265	\$ 723,728	\$ 759,915	\$ 797,910	\$ 837,806	\$ 879,696	\$ 923,681	\$ 969,865	\$ 1,018,358	\$ 1,069,276
Water Engineering Services	2	\$ 6,000	\$ 6,150	\$ 6,304	\$ 6,461	\$ 6,623	\$ 6,788	\$ 6,958	\$ 7,132	\$ 7,310	\$ 7,493
Water Legal Services	2	4,979	5,103	5,231	5,362	5,496	5,633	5,774	5,918	6,066	6,218
State-County Water System Fees	2	30,845	31,616	32,407	33,217	34,047	34,898	35,771	36,665	37,582	38,521
Water General Plant Expense	2	118,020	120,971	123,995	127,095	130,272	133,529	136,867	140,289	143,796	147,391
Water Minor Equipment/Parts	2	600	615	630	646	662	679	696	713	731	749
Water Vehicle Repairs and Main.	2	9,160	9,389	9,624	9,864	10,111	10,364	10,623	10,888	11,161	11,440
Water Utilities - Electricity	5	85,000	87,125	91,481	96,055	100,858	105,901	111,196	116,756	122,594	128,723
Water Utilities - Gas and Fuel	7	9,200	9,430	9,666	9,907	10,155	10,409	10,669	10,936	11,209	11,490
Water Utilities - Propane	7	3,754	3,848	3,944	4,043	4,144	4,247	4,353	4,462	4,574	4,688
Water Telephone and Internet	2	8,361	8,570	8,784	9,004	9,229	9,460	9,696	9,939	10,187	10,442
Water Computer Services	2	18,774	19,243	19,724	20,218	20,723	21,241	21,772	22,316	22,874	23,446
Water Board Reimbursement	2	6,000	6,150	6,304	6,461	6,623	6,788	6,958	7,132	7,310	7,493
Water Other Operating Expenses	2	450	461	473	485	497	509	522	535	548	562
Water Accounting and Auditing	2	9,000	9,225	9,456	9,692	9,934	10,183	10,437	10,698	10,966	11,240
Water Postage and Postage Fees	2	12,000	12,300	12,608	12,923	13,246	13,577	13,916	14,264	14,621	14,986
Water Office Supplies	2	6,000	6,150	6,304	6,461	6,623	6,788	6,958	7,132	7,310	7,493
Water Traveling	2	3,537	3,625	3,716	3,809	3,904	4,002	4,102	4,204	4,309	4,417
Water Office Cleaning Services	2	2,940	3,014	3,089	3,166	3,245	3,326	3,409	3,495	3,582	3,672
Water Maintenance	2	13,500	13,838	14,183	14,538	14,901	15,274	15,656	16,047	16,448	16,860
Water Due, Fees and Subscriptions	2	14,000	14,350	14,709	15,076	15,453	15,840	16,236	16,642	17,058	17,484
Water Advertising and Publishing	2	5,000	5,125	5,253	5,384	5,519	5,657	5,798	5,943	6,092	6,244
Water Leasing Equipment	2	500	513	525	538	552	566	580	594	609	624
Water Utilities Trash Fee	2	2,145	2,199	2,254	2,310	2,368	2,427	2,488	2,550	2,613	2,679
Water Bank Fee Charge	2	972	996	1,021	1,047	1,073	1,100	1,127	1,155	1,184	1,214
Water Auto and General Insurance	2	26,000	26,650	27,316	27,999	28,699	29,417	30,152	30,906	31,678	32,470
Water Laboratory Services	2	18,500	18,963	19,437	19,922	20,421	20,931	21,454	21,991	22,540	23,104
Water Donation	2	-	-	-	-	-	-	-	-	-	-
Water Compensated Time	2	18,900	19,373	19,857	20,353	20,862	21,384	21,918	22,466	23,028	23,604
Water Uniform Expenses	2	7,000	7,175	7,354	7,538	7,727	7,920	8,118	8,321	8,529	8,742
Water Property Tax Expenses	2	1,800	1,845	1,891	1,938	1,987	2,037	2,087	2,140	2,193	2,248
Water Consulting	2	3,000	3,075	3,152	3,231	3,311	3,394	3,479	3,566	3,655	3,747
Water Leak (IWD Site)	2	6,000	6,150	6,304	6,461	6,623	6,788	6,958	7,132	7,310	7,493
Water Security System	2	2,000	2,050	2,101	2,154	2,208	2,263	2,319	2,377	2,437	2,498
Training and Seminars	2	7,360	7,544	7,733	7,926	8,124	8,327	8,535	8,749	8,967	9,192
<i>Materials and Operations- Utilities- Water- Leases</i>	2	-	-	-	-	-	-	-	-	-	-
Materials and Operations- TOTAL		\$ 461,297	\$ 472,829	\$ 486,828	\$ 501,286	\$ 516,220	\$ 531,646	\$ 547,585	\$ 564,055	\$ 581,075	\$ 598,667
GRAND TOTAL: WATER OPERATING EXPENSES		\$ 1,150,562	\$ 1,196,558	\$ 1,246,743	\$ 1,299,196	\$ 1,354,025	\$ 1,411,343	\$ 1,471,266	\$ 1,533,920	\$ 1,599,433	\$ 1,667,943

TABLE 6 - FORECASTING ASSUMPTIONS

INFLATION FACTORS	Inflation Basis	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Customer Growth (3)	1	--	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
General Cost Inflation (4)	2	--	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Salary Inflation (5)	3	--	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Benefits Inflation (5)	4	--	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Energy (4)	5	--	2.50%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Chemicals (4)	6	--	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Fuel (4)	7	--	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Tax Inflation (6)	8	--	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Standby Deflation (7)	9	--	-3.00%	-3.00%	-3.00%	-3.00%	-3.00%	-3.00%	-3.00%	-3.00%	-3.00%
No Escalation	10	--	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

1. Revenue and expenses for FY 2017/18 are from source files: 2017-2018 Budget.pdf; Page 6-7.
2. Direct O&M Expenses for water are expected to increase 1% for the coming year of 2017/2018. Also General Expenses are expected to increase by 1%. From source file: 2017-2018 Budget.pdf; Page 14.
3. Customer Growth rate given in Source file: Idyllwild response to data request 1.5.18.pdf.
4. Projected growth rates for General Inflation, Chemicals, Etc. given in Source File: Idyllwild response to data request 1.5.18.pdf.
5. Projected growth rates for Labor given in Source File: Idyllwild response to data request 1.5.18.pdf.
6. Tax inflation set to 1.5% per phone call with IWD on March 23, 2018.
7. Standby Deflation is set at 3% annually per IWD phone call, March 23, 2018.

IDYLLWILD WATER DISTRICT
WATER RATE STUDY
Capital Improvement Plan Expenditures

EXHIBIT 2

TABLE 7 - CAPITAL FUNDING SUMMARY

CAPITAL FUNDING FORECAST	Budget		Projected								
	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27	FY 2027/28
Funding Sources:											
Grants (1)	\$ 155,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Use of Capacity Charge Revenue	-	-	-	-	-	-	-	-	-	-	-
Use of SRF Loan Proceeds	-	-	-	-	-	-	-	-	-	-	-
Use of New Revenue Bond Proceeds	-	-	-	-	-	-	-	-	-	-	-
Use of Capital Rehabilitation and Replacement Reserve	-	-	-	-	-	-	-	-	80,163	137,752	161,488
Rate Revenue	577,000	721,000	424,360	437,091	450,204	463,710	477,621	491,950	426,545	384,157	376,078
Total Sources of Capital Funds	\$ 732,000	\$ 721,000	\$ 424,360	\$ 437,091	\$ 450,204	\$ 463,710	\$ 477,621	\$ 491,950	\$ 506,708	\$ 521,909	\$ 537,567
Uses of Capital Funds:											
Total Project Costs	\$ 732,000	\$ 721,000	\$ 424,360	\$ 437,091	\$ 450,204	\$ 463,710	\$ 477,621	\$ 491,950	\$ 506,708	\$ 521,909	\$ 537,567
Capital Funding Surplus (Deficiency)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New SRF Loan Proceeds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Revenue Bond Proceeds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

1. Grant funds are from Riverside County. From Source file: 2017-2018 Budget.pdf, Page 3.

CAPITAL IMPROVEMENT PROGRAM

TABLE 8 - Capital Improvement Program Costs (in Current-Year Dollars) (2):

Project Description	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Source of Supply (G/L #1321)											
Well Rehabilitation - #8, 9 and 11 including road improvements	\$ 75,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well Drilling (New well carry over from last year)	100,000	-	-	-	-	-	-	-	-	-	-
Storage Tanks: (G/L #1324)											
Storage Tank Repairs	50,000	-	-	-	-	-	-	-	-	-	-
Transmission and Distributing: (G/L #1324)											
Water Line Piping Replacement	465,000	-	-	-	-	-	-	-	-	-	-
Water Treatment Plant (G/L #1325)											
pH Monitoring Sensors for Well and Aeration Plant	7,000	-	-	-	-	-	-	-	-	-	-
General Plant Structures, Power and Other Equipment											
Various Fire Hydrant Improvements	15,000	-	-	-	-	-	-	-	-	-	-
Skid Steer Tractor with Attachments (50% Water)	20,000	-	-	-	-	-	-	-	-	-	-
Future Year Capital Projects, Estimated (3)		700,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000
Total: CIP Program Costs (Current-Year Dollars)	\$ 732,000	\$ 700,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000

IDYLLWILD WATER DISTRICT
WATER RATE STUDY
Capital Improvement Plan Expenditures

EXHIBIT 2

TABLE 9 - Capital Improvement Program Costs (in Future-Year Dollars) (2):

Project Description	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Source of Supply (G/L #1321)											
Well Rehabilitation - #8, 9 and 11 including road improvements	\$ 75,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well Drilling (New well carry over from last year)	100,000	-	-	-	-	-	-	-	-	-	-
Storage Tanks: (G/L #1324)											
Storage Tank Repairs	50,000	-	-	-	-	-	-	-	-	-	-
Transmission and Distributing: (G/L #1324)											
Water Line Piping Replacement	465,000	-	-	-	-	-	-	-	-	-	-
Water Treatment Plant (G/L #1325)											
pH Monitoring Sensors for Well and Aeration Plant	7,000	-	-	-	-	-	-	-	-	-	-
General Plant Structures, Power and Other Equipment											
Various Fire Hydrant Improvements	15,000	-	-	-	-	-	-	-	-	-	-
Skid Steer Tractor with Attachments (50% Water)	20,000	-	-	-	-	-	-	-	-	-	-
Future Year Capital Projects, Estimated	-	721,000	424,360	437,091	450,204	463,710	477,621	491,950	506,708	521,909	537,567
Total: CIP Program Costs (Future-Year Dollars)	732,000	721,000	424,360	437,091	450,204	463,710	477,621	491,950	506,708	521,909	537,567

TABLE 10 - FORECASTING ASSUMPTIONS:

Economic Variables (4)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Annual Construction Cost Inflation, Per Engineering News Record	0.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Cumulative Construction Cost Multiplier from 2019	1.00	1.03	1.06	1.09	1.13	1.16	1.19	1.23	1.27	1.30	1.34

- Grant funds are from Riverside County. From Source file: 2017-2018 Budget.pdf, Page 3.
- CIP plans found in Source File: 2017-2018 Budget.pdf, Page 3
- Additional Projects represent unknown capital projects funded through rates. Per district staff on phone call March, 23, 2018, future CIP set at \$400K.
- Construction inflator is based on the most current 10 year average of the Engineering News-Record Construction Cost Index. Source: www.enr.com/economics

**IDYLLWILD WATER DISTRICT
WATER RATE STUDY
Current Rate Schedule**

EXHIBIT 3

TABLE 11 - Current Water Rate Schedule:

Current Residential Water Rates					
Rate Code	Meter Size	Monthly Base Rate	Water Consumption Charge (1,2)	Monthly Use (cf)	
R1	5/8"	\$29.70	Tier 1	1-300	\$0.0000
R2	3/4"	\$40.35	Tier 2	301-600	\$0.0633
R3	1"	\$61.25	Tier 3	601-1500	\$0.1000
R4	1 1/2"	\$113.50	Tier 4	1501+	\$0.1000
			Meters 1-1/2" & Larger Uniform Block Rate		
			Construction Meters Uniform Block Rate		
Current Commercial Water Rates					
Rate Code	Meter Size	Base Rate	Water Consumption Charge (1,2)	Monthly Use (cf)	
R1	5/8"	\$20.90	Tier 1	1-1000	\$0.0333
R2	3/4"	\$31.35	Tier 2	1001-4000	\$0.0633
R3	1"	\$52.25	Tier 3	4001-8000	\$0.1000
R4	1 1/2"	\$104.50	Tier 4	8001+	\$0.1000
R5	2"	\$167.20			
IA	3"	\$313.50			

1. Proposed Monthly Water Rates Effective July 1, 2017: File Source: Current Residential Water Rates.pdf and Current Commercial Water Rates.

2. HCF = Hundred Cubic Feet or 748 gallons.

**IDYLLWILD WATER DISTRICT
WATER RATE STUDY
Cost of Service Analysis**

TABLE 12

Classification of Expenses										
Budget Categories		Total Revenue	Commodity	Capacity	Customer	Fire Protection	Basis of Classification			
		Requirements					(COM)	(CAP)	(CA)	(FP)
		FY 2018/19	(COM)	(CAP)	(CA)	(FP)				
WATER OPERATING EXPENSES										
5436	Water Payroll	\$ 495,600	\$ 49,560	\$ 421,031	\$ 24,780	\$ 229	10%	85%	5%	0.05%
5415	Water Retirement and Life Insurance	51,450	5,145	43,709	2,573	\$ 24	10%	85%	5%	0.05%
5426	Water Medical Insurance	136,500	13,650	115,962	6,825	\$ 63	10%	85%	5%	0.05%
5427	Water Worker's Comp Insurance	12,600	1,260	10,704	630	\$ 6	10%	85%	5%	0.05%
5428	Water Non-Employee Health Insurance	27,578	2,758	23,429	1,379	\$ 13	10%	85%	5%	0.05%
5403	Water Engineering Services	6,150	615	5,225	308	\$ 3	10%	85%	5%	0.05%
5404	Water Legal Services	5,103	510	4,336	255	\$ 2	10%	85%	5%	0.05%
5405	State-County Water System Fees	31,616	3,162	26,859	1,581	\$ 15	10%	85%	5%	0.05%
5406	Water General Plant Expense	120,971	36,291	78,575	6,049	\$ 56	30%	65%	5%	0.05%
5407	Water Minor Equipment/Parts	615	62	522	31	\$ 0	10%	85%	5%	0.05%
5408	Water Vehicle Repairs and Main.	9,389	939	7,976	469	\$ 4	10%	85%	5%	0.05%
5410	Water Utilities - Electricity	87,125	87,125	-	-	\$ -	100%	0%	0%	0.00%
5411	Water Utilities - Gas and Fuel	9,430	9,430	-	-	\$ -	100%	0%	0%	0.00%
5412	Water Utilities - Propane	3,848	3,848	-	-	\$ -	100%	0%	0%	0.00%
5414	Water Telephone and Internet	8,570	857	7,281	429	\$ 4	10%	85%	5%	0.05%
5417	Water Computer Services	19,243	1,924	16,348	962	\$ 9	10%	85%	5%	0.05%
5418	Water Board Reimbursement	6,150	615	5,225	308	\$ 3	10%	85%	5%	0.05%
5419	Water Other Operating Expenses	461	46	392	23	\$ 0	10%	85%	5%	0.05%
5420	Water Accounting and Auditing	9,225	923	7,837	461	\$ 4	10%	85%	5%	0.05%
5421	Water Postage and Postage Fees	12,300	1,230	10,449	615	\$ 6	10%	85%	5%	0.05%
5422	Water Office Supplies	6,150	615	5,225	308	\$ 3	10%	85%	5%	0.05%
5423	Water Traveling	3,625	363	3,080	181	\$ 2	10%	85%	5%	0.05%
5025	Water Office Cleaning Services	3,014	301	2,560	151	\$ 1	10%	85%	5%	0.05%
5425	Water Maintenance	13,838	1,384	11,755	692	\$ 6	10%	85%	5%	0.05%
5429	Water Due, Fees and Subscriptions	14,350	1,435	12,191	718	\$ 7	10%	85%	5%	0.05%
5430	Water Advertising and Publishing	5,125	513	4,354	256	\$ 2	10%	85%	5%	0.05%
5431	Water Leasing Equipment	513	51	435	26	\$ 0	10%	85%	5%	0.05%
5432	Water Utilities Trash Fee	2,199	220	1,868	110	\$ 1	10%	85%	5%	0.05%
5433	Water Bank Fee Charge	996	100	846	50	\$ 0	10%	85%	5%	0.05%
5435	Water Auto and General Insurance	26,650	2,665	22,640	1,333	\$ 12	10%	85%	5%	0.05%
5438	Water Laboratory Services	18,963	18,963	-	-	\$ -	100%	0%	0%	0.00%
5439	Water Donation	-	-	-	-	\$ -	10%	85%	5%	0.05%
5440	Water Compensated Time	19,373	1,937	16,458	969	\$ 9	10%	85%	5%	0.05%
5441	Water Uniform Expenses	7,175	718	6,095	359	\$ 3	10%	85%	5%	0.05%
5442	Water Property Tax Expenses	1,845	185	1,567	92	\$ 1	10%	85%	5%	0.05%
5443	Water Consulting	3,075	308	2,612	154	\$ 1	10%	85%	5%	0.05%
5444	Water Leak (IWD Site)	6,150	6,150	-	-	\$ -	100%	0%	0%	0.00%
5445	Water Security System	2,050	205	1,742	103	\$ 1	10%	85%	5%	0.05%
5446	Training and Seminars	7,544	754	6,409	377	\$ 3	10%	85%	5%	0.05%
Total Operating Expense		\$ 1,196,558	\$ 256,814	\$ 885,698	\$ 53,552	\$ 494	21%	74%	4%	0.04%

IDYLLWILD WATER DISTRICT
WATER RATE STUDY
Cost of Service Analysis

TABLE 13

Classification of Expenses, continued									
Budget Categories	Total Revenue Requirements	Commodity	Capacity	Customer	Fire Protection	Basis of Classification			
	FY 2018/19	(COM)	(CAP)	(CA)	(FP)	(COM)	(CAP)	(CA)	(FP)
Capital Expenditures									
Rate Funded Capital Expenses	\$ 721,000	\$ -	\$ 720,702	\$ -	\$ 298	0%	100%	0%	0%
TOTAL REVENUE REQUIREMENTS	\$ 1,917,558	\$ 256,814	\$ 1,606,400	\$ 53,552	\$ 792	13%	84%	3%	0%
Less: Non-Rate Revenues									
4201 Water Base Rate - Commercial									
4202 Water Base Rate - Residential									
4203 Water Sales - Commercial									
4204 Water Sales - Residential									
4205 Water Sales - Construction									
4206 Water Sales - Other									
4208 Water Transfer Fees	\$ (3,090)	\$ (414)	\$ (2,589)	\$ (86)	\$ (1)	13%	84%	3%	0%
4209 Water Turn On/Off Fees	(905)	(121)	(758)	(25)	(0)	13%	84%	3%	0%
4210 Water Will Serve Letter Fees	(503)	(67)	(421)	(14)	(0)	13%	84%	3%	0%
4211 Water Delinquency Fees	(7,072)	(947)	(5,925)	(198)	(3)	13%	84%	3%	0%
4212 Water Installation Fees									
4213 Water Lien Fees	(804)	(108)	(674)	(22)	(0)	13%	84%	3%	0%
4214 Water Other Fees and Charges	(4,698)	(629)	(3,936)	(131)	(2)	13%	84%	3%	0%
4215 Water Renewable Energy Costs	-	-	-	-	-	13%	84%	3%	0%
4901 Water Taxes and Assessments	(279,125)	(37,383)	(233,832)	(7,795)	(115)	13%	84%	3%	0%
4902 Water Investment Income	-	-	-	-	-	13%	84%	3%	0%
4903 Water Stand By Assessments	(19,400)	(2,598)	(16,252)	(542)	(8)	13%	84%	3%	0%
4904 Water Interest Earned	(8,185)	(1,096)	(6,857)	(229)	(3)	13%	84%	3%	0%
4919 Water Other Non-Operating Revenue	(2,725)	(365)	(2,283)	(76)	(1)	13%	84%	3%	0%
NET REVENUE REQUIREMENTS	\$ 1,591,051	\$ 213,085	\$ 1,332,875	\$ 44,434	\$ 657				
<i>Allocation of Revenue Requirements</i>	<i>100.0%</i>	<i>13%</i>	<i>84%</i>	<i>3%</i>	<i>0%</i>				

Net Revenue Req't. Check from Financial Plan \$ -

TABLE 14

Classification of Expenses, continued					
Adjustments to Classification of Expenses					
Adjustment for Current Rate Level:	Total	(COM)	(CAP)	(CA)	(FP)
FY 2017/18 Target Rate Rev. After Rate Increases	\$ 1,342,591				
Projected Rate Revenue at Current Rates	\$ 1,278,658				
FY 2017/18 Projected Rate Increase	5.0%				
Adjusted Net Revenue Req't	\$ 1,342,591	\$ 179,810	\$ 1,124,732	\$ 37,495	\$ 554
<i>Percent of Revenue</i>	<i>100.0%</i>	<i>13.4%</i>	<i>83.8%</i>	<i>2.8%</i>	<i>0.0%</i>

**IDYLLWILD WATER DISTRICT
WATER RATE STUDY
Water Cost of Service Analysis**

TABLE 15 - Single Family Residential Meter Characteristics:

Meter Size	Number of Meters	Average Monthly Consumption (cf) CY 2017	Peak Monthly Consumption (cf) CY 2017	Peaking Factor
5/8 inch	1,428	654	851	1.30
3/4 inch	12	1,182	2,808	2.38
1 inch	24	1,481	3,750	2.53
Total	1,464			

TABLE 16

Development of the COMMODITY Allocation Factor					
Customer Class	Volume CY 2015 (cf) (1)	Volume CY 2016 (cf) (1)	Volume CY 2017 (cf) (1)	Volume (cf) (1)	Percent of Total Volume
Residential	4,339,440	4,807,474	5,236,816	5,236,816	56.0%
Apartment	90,130	122,880	126,910	126,910	1.4%
Trailer Park	472,130	420,930	225,250	225,250	2.4%
Business	776,440	794,838	940,521	940,521	10.1%
Motel	527,290	529,260	522,850	522,850	5.6%
Restaurant	509,580	577,538	531,580	531,580	5.7%
School	35,880	37,500	39,340	39,340	0.4%
Camp	229,780	166,727	344,640	344,640	3.7%
Church	55,760	59,480	76,890	76,890	0.8%
Park	165,250	178,740	167,260	167,260	1.8%
Idyllwild Arts Academy (2)	1,415,170	1,252,240	1,551,490	1,132,136	12.1%
Fire Service	0	0	0	0	0.0%
Total	8,616,850	8,947,607	9,763,547	9,344,193	100.0%

1. Consumption and Meters from source files: Billed Consumption Excel Export 2015, 2016, 2017.xlsx (data combined and summarized in pivot Tables).

Pivot tables found in Source File: Pivot Tables - Billed Consumption Excel Export 2015-2017 Water.xlsx. Consumption based on 2017 consumption.

2. Per client phone call March 26, 2018, Idyllwild Arts Academy consumption adjusted given recent leak fixes.

Commodity Related Costs: These costs are associated with the total consumption (flow) of water over a specified period of time (e.g. annual).

**IDYLLWILD WATER DISTRICT
WATER RATE STUDY
Water Cost of Service Analysis**

TABLE 17

Development of the CAPACITY (MAX MONTH) Allocation Factor							
Customer Class	Peak Monthly 2015 (cf) (1)	Peak Monthly 2016 (cf) (1)	Peak Monthly 2017 (cf) (1)	Average Monthly Use (cf)	Peak Monthly Use (cf) (1)	Monthly Peaking Factor	Monthly Max Capacity Factor
Residential	510,690	622,375	653,548	436,401	653,548	1.50	52.6%
Apartment	12,030	13,860	12,770	10,576	12,770	1.21	1.0%
Trailer Park	49,020	57,440	41,320	18,771	41,320	2.20	3.3%
Business	77,990	92,160	99,730	78,377	99,730	1.27	8.0%
Motel	57,060	78,700	59,940	43,571	59,940	1.38	4.8%
Restaurant	60,190	59,240	56,690	44,298	56,690	1.28	4.6%
School	4,790	9,600	8,660	3,278	8,660	2.64	0.7%
Camp	41,000	32,460	149,336	28,720	149,336	5.20	12.0%
Church	8,540	8,910	9,348	6,408	9,348	1.46	0.8%
Park	23,390	28,150	23,210	13,938	23,210	1.67	1.9%
Idyllwild Arts Academy (2)	164,700	158,860	228,500	94,345	127,088	1.35	10.2%
Fire Service	0	0	0	0	0	0.00	0.0%
Total	1,009,400	1,161,755	1,343,052	778,683	1,241,640	1.59	100%

1. Based on 2017 monthly billing data (peak day data not available).
2. Per client phone call March 26, 2018, Idyllwild Arts Academy peaking adjusted given recent leak fixes.

Capacity Related Costs: Costs associated with the maximum demand required at one point in time or the maximum size of facilities required to meet this demand.

TABLE 18

Development of the CUSTOMER Allocation Factor		
Customer Class	Number of Meters (1)	Percent of Total
Residential	1,464	89.0%
Apartment	9	0.5%
Trailer Park	3	0.2%
Business	98	6.0%
Motel	27	1.6%
Restaurant	16	1.0%
School	4	0.2%
Camp	6	0.4%
Church	12	0.7%
Park	3	0.2%
Idyllwild Arts Academy	1	0.1%
Fire Service	2	0.1%
Total	1,645	100%

1. Meter Count for Dec 2017. Idyllwild bills monthly.
Source files: Billed Consumption Excel Export for Water 2015, 2016, 2017.xlsx (data combined and summarized in pivot Tables)

Customer Related Costs: Costs associated with having a customer on the water system. These costs vary with the addition or deletion of customers on the system. Examples: Meter-reading, Postage and billing.

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TABLE 19

Consumption by Tier			
Tier	Monthly Breakpoint	Expected Consumption CY2017 (cf)	Percentage of Total SFR Consumption
Tier 1	450 cf	3,145,764	60.1%
Tier 2	900 cf	1,207,314	23.1%
Tier 3	--	883,738	16.9%
Total		5,236,816	100%

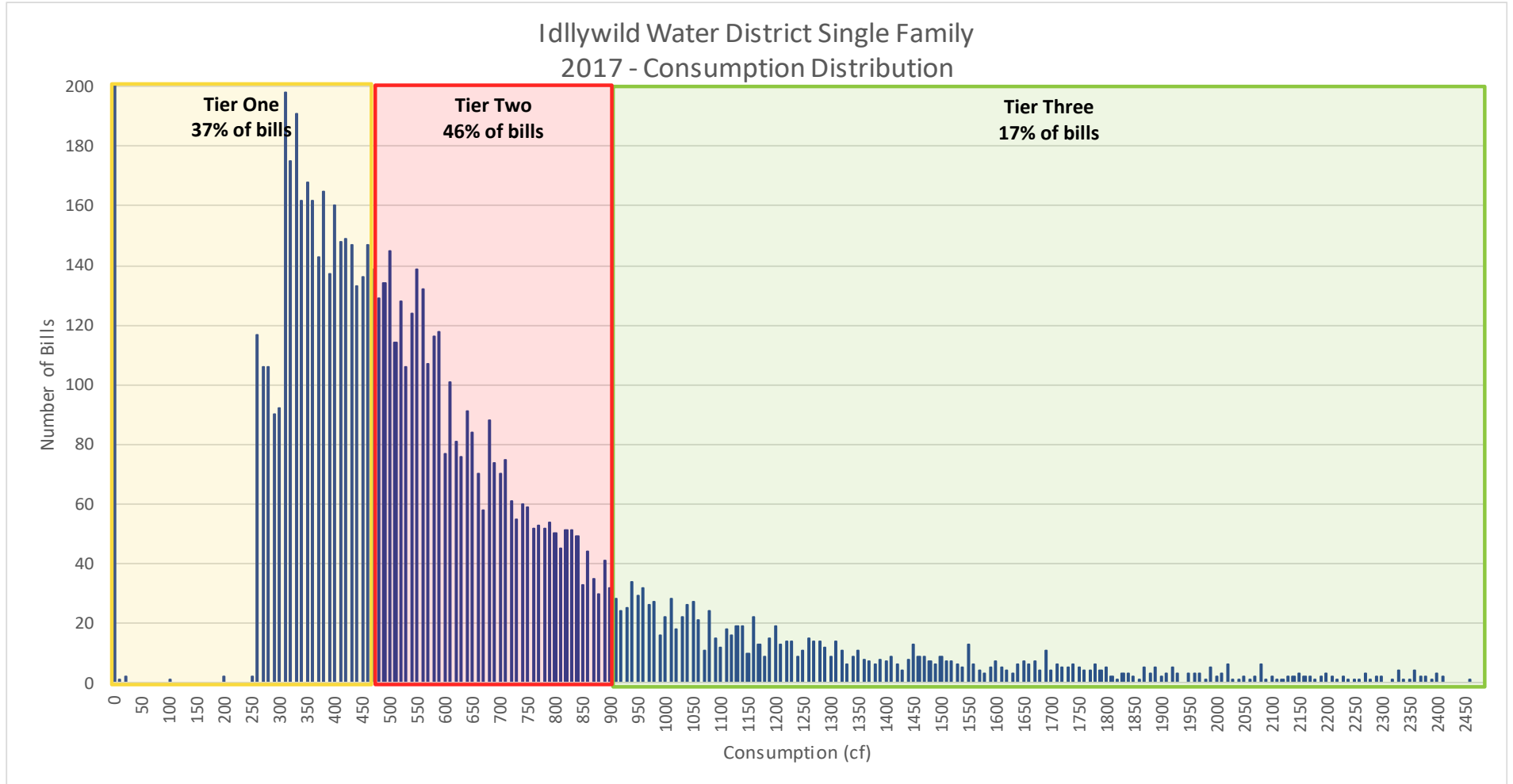
1. Tier 1 break point set to 450 cf per district staff on phone call March 23, 2018. (55 gallons per day per 2 people.)
Tier 2 break point set to 900 cf.
2. Consumption for all SFR customers (including 1.5" meters)
Source files: Rate Study Billing Info Jan to June 2014, 2015, 2016, 2017.xlsx (data combined and summarized in pivotTables.xlsx)

TABLE 20 - DEVELOPMENT OF ADDITIONAL CAPACITY FACTORS FOR SINGLE FAMILY RESIDENTIAL CUSTOMERS FY 2017/18

Development of the Single Family Residential PEAK CAPACITY (MAX BI-MONTHLY) Allocation Factors				
Tier	Description	Peak Consumption CY2017 (cf) (1)	Additional Capacity Required (cf) (4)	Additional Capacity Factor
Tier 1	Max Tier 1 Capacity (2)	330,030	0	0.0%
Tier 2	Peak up to Tier 2 (3)	498,250	168,220	52.0%
Tier 3	Peak up to Tier 3 (3)	653,548	155,298	48.0%
Total			323,518	100.0%

1. Source files: Rate Study Billing Info Jan to June 2014, 2015, 2016, 2017.xlsx (data combined and summarized in pivotTables.xlsx)
2. Capacity allocated to the first tier represents the tier break multiplied by the number of customers.
3. This is the cumulative peak consumption up to the tier break; it represents capacity required to provide service to a given tier.
4. This is the additional cumulative capacity to meet peak consumption at each tier.

Single Family Residential Consumption Distribution Curve:



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TABLE 21

Meter Size	Standard Meters (1)		Fire Service Meters	
	Meter Capacity (gpm)	Equivalency to 5/8- inch	Meter Capacity (gpm)	Equivalency to 5/8- inch
	<u>Displacement Meters</u>		<u>Displacement Meters</u>	
5/8 inch	20	1.00	20	1.00
3/4 inch	30	1.50	30	1.50
1 inch	50	2.50	50	2.50
1.5 inch	100	5.00	100	5.00
2 inch	160	8.00	160	8.00
	<u>Compound Class I Meters</u>		<u>Fire Service Type I & II (2)</u>	
3 inch	320	16.00	350	17.50
4 inch	500	25.00	700	35.00
6 inch	1,000	50.00	1,600	80.00
	<u>Turbine Class II Meters</u>		<u>Turbine Class I Meters</u>	
8 inch	2,800	140.00	2,800	140.00
10 inch	4,200	210.00	4,200	210.00

1. Meter flow rates are from AWWA M-1 (Seventh Edition) Table B-2.
2. Fire Service meter flow rates are from AWWA M-6 Table 5-3.

TABLE 22 - ALLOCATION OF WATER REVENUE REQUIREMENTS:

Classification Categories	COSA Results		Revenue Target FY 2018/19		Revenue Target FY 2021/22	
	Unadjusted Net Revenue Requirements (2018-19) 87% Fixed / 13% Variable		Adjusted Net Revenue Requirements (2018-19) 50% Fixed / 50% Variable		Adjusted Net Revenue Requirements (2018-19) 60% Fixed / 40% Variable	
Variable Costs:						
Commodity - Related Costs	\$ 179,810	13.4%	\$ 179,810	13.4%	\$ 179,810	13.4%
Capacity - Related Costs (volumetric allocation)	-	0.0%	491,486	36.6%	357,227	26.6%
Sub-Total Variable Costs	\$ 179,810	13.4%	\$ 671,296	50.0%	\$ 537,037	40.0%
Fixed Costs:						
Capacity - Related Costs (fixed allocation)	\$ 1,124,732	83.8%	\$ 633,246	47.2%	\$ 767,506	57.2%
Customer - Related Costs	37,495	2.8%	37,495	2.8%	37,495	2.8%
Fire Protection - Related Costs	554	0.0%	554	0.0%	554	0.0%
Sub-Total Fixed Costs	\$ 1,162,782	86.6%	\$ 671,296	50.0%	\$ 805,555	60.0%
Net Revenue Requirement	\$ 1,342,591	100%	\$ 1,342,591	100%	\$ 1,342,591	100%

	<u>Unadjusted Net Rev. Req't.</u>	<u>Adjusted Net Rev. Req't.</u>
	50% total variable	40% total variable
	50% total fixed	60% total fixed
	100%	100%

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TABLE 23 - Allocation of Adjusted Net Revenue Requirements - FY 2018/19:

Net Revenue Requirements (50% Fixed / 50% Variable)							
Customer Classes	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	Fire Service Costs		
Residential	\$ 100,772	\$ 258,698	\$ 333,315	\$ 33,369	\$ -	\$ 726,154	54.1%
Apartment	2,442	5,055	6,513	205	-	14,215	1.1%
Trailer Park	4,334	16,356	21,074	68	-	41,832	3.1%
Business	18,098	39,477	50,863	2,234	-	110,672	8.2%
Motel	10,061	23,726	30,570	615	-	64,973	4.8%
Restaurant	10,229	22,440	28,912	365	-	61,946	4.6%
School	757	3,428	4,417	91	-	8,693	0.6%
Camp	6,632	59,113	76,163	137	-	142,044	10.6%
Church	1,480	3,700	4,768	274	-	10,221	0.8%
Park	3,219	9,187	11,837	68	-	24,312	1.8%
Idyllwild Arts Academy	21,786	50,306	64,816	23	-	136,930	10.2%
Fire Service	-	-	-	46	554	600	0.0%
Total Net Revenue Requirement	\$ 179,810	\$ 491,486	\$ 633,246	\$ 37,495	\$ 554	\$ 1,342,591	100%
	13%	37%	47%	3%	0%	100.00%	

TABLE 24 - Allocation of Adjusted Net Revenue Requirements - FY 2018/19:

Net Revenue Requirements (60% Fixed / 40% Variable)							
Customer Classes	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	Fire Service Costs		
Residential	\$ 100,772	\$ 188,029	\$ 403,983	\$ 33,369	\$ -	\$ 726,154	54.1%
Apartment	2,442	3,674	7,894	205	-	14,215	1.1%
Trailer Park	4,334	11,888	25,541	68	-	41,832	3.1%
Business	18,098	28,693	61,647	2,234	-	110,672	8.2%
Motel	10,061	17,245	37,051	615	-	64,973	4.8%
Restaurant	10,229	16,310	35,042	365	-	61,946	4.6%
School	757	2,492	5,353	91	-	8,693	0.6%
Camp	6,632	42,965	92,310	137	-	142,044	10.6%
Church	1,480	2,689	5,778	274	-	10,221	0.8%
Park	3,219	6,678	14,347	68	-	24,312	1.8%
Idyllwild Arts Academy	21,786	36,564	78,558	23	-	136,930	10.2%
Fire Service	-	-	-	46	554	600	0.0%
Total Net Revenue Requirement	\$ 179,810	\$ 357,227	\$ 767,506	\$ 37,495	\$ 554	\$ 1,342,591	100%
	13%	27%	57%	3%	0%	100.00%	

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TABLE 25 - Cost-of-Service Summary of Revenue Requirements:

Customer Class	CY2017		Net Revenue Requirements (50% Fixed / 50% Variable)			Net Revenue Requirements (60% Fixed / 40% Variable)		
	Rate Revenue	% of Revenue	COS Rev. Req't	% of COS Rev. Req't.	% Change	COS Rev. Req't	% of COS Rev. Req't.	% Change
Residential	\$ 758,859	63.3%	\$ 726,154	54.1%	-9.2%	\$ 726,154	54.1%	-9.2%
Apartment	10,405	0.9%	14,215	1.1%	0.2%	14,215	1.1%	0.2%
Trailer Park	22,657	1.9%	41,832	3.1%	1.2%	41,832	3.1%	1.2%
Business	103,020	8.6%	110,672	8.2%	-0.4%	110,672	8.2%	-0.4%
Motel	45,974	3.8%	64,973	4.8%	1.0%	64,973	4.8%	1.0%
Restaurant	44,241	3.7%	61,946	4.6%	0.9%	61,946	4.6%	0.9%
School	4,500	0.4%	8,693	0.6%	0.3%	8,693	0.6%	0.3%
Camp	35,695	3.0%	142,044	10.6%	7.6%	142,044	10.6%	7.6%
Church	9,108	0.8%	10,221	0.8%	0.0%	10,221	0.8%	0.0%
Park	18,642	1.6%	24,312	1.8%	0.3%	24,312	1.8%	0.3%
Idyllwild Arts Academy	145,267	12.1%	136,930	10.2%	-1.9%	136,930	10.2%	-1.9%
Fire Service	-	0.0%	600	0.0%	0.0%	600	0.0%	0.0%
Total	\$ 1,198,368	100.0%	\$ 1,342,591	100.0%	0.0%	\$ 1,342,591	100.0%	0.0%

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TABLE 26 - CALCULATION OF IDYLLWILD ARTS ACADEMY FOR FY 2018/19:

Net Revenue Requirements (50% Fixed / 50% Variable)					
Class (1)	Meters	Allocated Capacity Costs (2)	Allocated Customer Costs	Total Allocated Costs	Monthly Charge
	a	b	c	d = b+c	c=d/a/12
Idyllwild Arts Academy	1	50,957	\$ 23	\$ 50,980	\$4,248.35

TABLE 27 - CALCULATION OF MONTHLY FIXED METER SERVICE CHARGES FOR FY 2018/19:

Net Revenue Requirements (50% Fixed / 50% Variable)									
Number of Meters by Class and Size (1)	FY 2017/18								Total
	5/8 inch	3/4 inch	1 inch	1 1/2 inch	2 inch	3 inch	4 inch	6 inch	
Residential	1,427	12	24	1	-	-	-	-	1,464
Apartment	6	-	2	1	-	-	-	-	9
Trailer Park	2	-	2	-	1	-	-	-	5
Business	69	12	12	3	2	-	-	-	98
Motel	15	2	6	2	2	-	-	-	27
Restaurant	6	2	7	1	-	-	-	-	16
School	2	-	1	1	-	-	-	-	4
Camp	1	-	3	2	-	-	-	-	6
Church	8	2	1	1	-	-	-	-	12
Park	-	-	1	1	-	1	-	-	3
Total Meters/Accounts	1,536	30	59	13	5	1	-	-	1,644
<i>Hydraulic Capacity Factor (3)</i>	<i>1.00</i>	<i>1.50</i>	<i>2.50</i>	<i>5.00</i>	<i>8.00</i>	<i>16.00</i>	<i>25.00</i>	<i>50.00</i>	
Total Equivalent Meters	1,536	45	148	65	40	16	-	-	1,850
Monthly Fixed Service Charges									
Customer Costs (\$/Acct/month) (4)	\$1.90	\$1.90	\$1.90	\$1.90	\$1.90	\$1.90	\$1.90	\$1.90	
Capacity Costs (\$/Acct/month) (5)	\$26.24	\$39.35	\$65.59	\$131.18	\$209.89	\$419.78	\$655.91	\$1,311.82	
Total Monthly Meter Charge	\$28.13	\$41.25	\$67.49	\$133.08	\$211.79	\$421.68	\$657.81	\$1,313.71	
Annual Fixed Costs Allocated to Monthly Meter Charges									
Customer Costs	\$ 37,427								
Capacity Costs	582,289								
Total Fixed Meter Costs	\$ 619,715								
Annual Revenue from Monthly Meter Charges									
Customer Charges	\$ 34,968	\$ 683	\$ 1,343	\$ 296	\$ 114	\$ 23	\$ -	\$ -	\$ 37,427
Capacity Charges	483,588	14,168	46,438	20,464	12,593	5,037	-	-	\$ 582,289
Total Revenue	\$ 518,556	\$ 14,851	\$ 47,781	\$ 20,760	\$ 12,707	\$ 5,060	\$ -	\$ -	\$ 619,715

- Consumption and Meters from source files: Billed Consumption Excel Export 2015, 2016, 2017.xlsx (data combined and summarized in pivot Tables).
Pivot tables found in Source File: Pivot Tables - Billed Consumption Excel Export 2015-2017 Water.xlsx
- Capacity Costs allocated to the Arts Academy are total Cost of Service net of other expected rate revenue.
- Meter flow rates & hydraulic capacity ratio are from *AWWA M-1 (Seventh Edition)* Table B-2.
- Customer costs are allocated to each customer by dividing the total customer costs by the total number of customers.
- Capacity costs are allocated by meter size and the hydraulic capacity of the meter.

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TABLE 28 - CALCULATION OF IDYLLWILD ARTS ACADEMY FOR FY 2018/19:

<i>Net Revenue Requirements (60% Fixed / 40% Variable)</i>					
Class (1)	Meters	Allocated Capacity Costs (2)	Allocated Customer Costs	Total Allocated Costs	Monthly Charge
	a	b	c	d = b+c	c=d/a/12
Idyllwild Arts Academy	1	\$ 68,485	\$ 23	\$ 68,508	\$5,709.00

TABLE 29 - CALCULATION OF MONTHLY FIXED METER SERVICE CHARGES FOR FY 2018/19:

<i>Net Revenue Requirements (60% Fixed / 40% Variable)</i>									
Number of Meters by Class and Size (1)	FY 2018/19								Total
	5/8 inch	3/4 inch	1 inch	1 1/2 inch	2 inch	3 inch	4 inch	6 inch	
Residential	1,427	12	24	1	-	-	-	-	1,464
Apartment	6	-	2	1	-	-	-	-	9
Trailer Park	2	-	2	-	1	-	-	-	5
Business	69	12	12	3	2	-	-	-	98
Motel	15	2	6	2	2	-	-	-	27
Restaurant	6	2	7	1	-	-	-	-	16
School	2	-	1	1	-	-	-	-	4
Camp	1	-	3	2	-	-	-	-	6
Church	8	2	1	1	-	-	-	-	12
Park	-	-	1	1	-	1	-	-	3
Total Meters/Accounts	1,536	30	59	13	5	1	-	-	1,644
<i>Hydraulic Capacity Factor (3)</i>	<i>1.00</i>	<i>1.50</i>	<i>2.50</i>	<i>5.00</i>	<i>8.00</i>	<i>16.00</i>	<i>25.00</i>	<i>50.00</i>	
Total Equivalent Meters	1,536	45	148	65	40	16	-	-	1,850
Monthly Fixed Service Charges									
Customer Costs (\$/Acct/month) (4)	\$1.90	\$1.90	\$1.90	\$1.90	\$1.90	\$1.90	\$1.90	\$1.90	
Capacity Costs (\$/Acct/month) (5)	\$31.50	\$47.24	\$78.74	\$157.48	\$251.97	\$503.93	\$787.40	\$1,574.80	
Total Monthly Meter Charge	\$33.39	\$49.14	\$80.64	\$159.38	\$253.86	\$505.83	\$789.29	\$1,576.69	
Annual Fixed Costs Allocated to Monthly Meter Charges									
Customer Costs	\$ 37,427								
Capacity Costs	699,020								
Total Fixed Meter Costs	\$ 736,447								
Annual Revenue from Monthly Meter Charges									
Customer Charges	\$ 34,968	\$ 683	\$ 1,343	\$ 296	\$ 114	\$ 23	\$ -	\$ -	\$ 37,427
Capacity Charges	580,533	17,008	55,748	24,567	15,118	6,047	-	-	\$ 699,020
Total Revenue	\$ 615,501	\$ 17,691	\$ 57,091	\$ 24,863	\$ 15,232	\$ 6,070	\$ -	\$ -	\$ 736,447

1. Consumption and Meters from source files: Billed Consumption Excel Export 2015, 2016, 2017.xlsx (data combined and summarized in pivot Tables).

Pivot tables found in Source File: Pivot Tables - Billed Consumption Excel Export 2015-2017 Water.xlsx

2. Capacity Costs allocated to the Arts Academy are total Cost of Service net of other expected rate revenue.

3. Meter flow rates & hydraulic capacity ratio are from *AWWA M-1 (Seventh Edition)* Table B-2.

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

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

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TABLE 30 - CALCULATION OF MONTHLY FIXED METER SERVICE CHARGES FOR FY 2021/22:

<i>Net Revenue Requirements (60% Fixed / 40% Variable)</i>									
	FY 2022/23								
	5/8 inch	3/4 inch	1 inch	1 1/2 inch	2 inch	3 inch	4 inch	6 inch	Idyllwild Arts Academy
Total Monthly Meter Charge	\$40.59	\$59.73	\$98.01	\$193.72	\$308.57	\$614.84	\$959.39	\$1,916.48	\$6,939.33

TABLE 31 - CALCULATION OF MONTHLY FIXED FIRE METER SERVICE CHARGES FOR FY 2018/19:

Number of Meters by Class and Size (1)	FY 2018/19			Total
	2 Inch	3 Inch	4 Inch	
Fire Service	-	-	2	2
Total Meters/Accounts	-	-	2	2
<i>Hydraulic Capacity Factor (2)</i>	8.00	17.50	35.00	
Total Equivalent Meters	-	-	70	70
Bi-Monthly Fixed Service Charges				
Customer Costs (\$/Acct/month) (3)	\$1.90	\$1.90	\$1.90	
Capacity Costs (\$/Acct/month) (4)	\$5.28	\$11.55	\$23.10	
Total Monthly Meter Charge	\$7.18	\$13.45	\$25.00	
Annual Fixed Costs Allocated to Monthly Meter Charges				
Customer Costs	\$ 46			
Fire Protection Costs	554			
Total Fixed Meter Costs	\$ 600			
Annual Revenue from Monthly Meter Charges				
Customer Charges	\$ -	\$ -	\$ 46	\$ 46
Capacity Charges	-	-	554	554
Total Revenue	\$ -	\$ -	\$ 600	\$ 600

1. Fire Service Meter numbers provided by district staff on phone call April 2, 2018.
2. Meter flow rates & hydraulic capacity ratio are from *AWWA M-1 (Seventh Edition)* Table B-2.
3. Customer costs are allocated to each customer by dividing the total customer costs by the total number of customers.
4. Fire Protection costs are allocated by meter size and the hydraulic capacity of the meter.

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PROPOSED VOLUMETRIC CHARGES FOR FY 2018/19:

Net Revenue Requirements (50% Fixed / 50% Variable)

TABLE 32

Customer Classes	Number of Meters ¹	Water Consumption (cf/yr) ¹	Commodity Assigned Costs	Capacity Assigned Costs	Total Target Rev. Req't from Vol. Charges	% of Total Rate Revenue	Uniform Commodity Rates (\$/cf)	Proposed Rate Structure
Residential	1,464	5,236,816	\$ 100,772	\$ 258,698	\$ 359,470	27%	N/A	Tiered
Apartment	9	126,910	2,442	5,055	7,497	1%		Uniform
Trailer Park	3	225,250	4,334	16,356	20,690	2%		Uniform
Business	98	940,521	18,098	39,477	57,575	4%		Uniform
Motel	27	522,850	10,061	23,726	33,788	3%		Uniform
Restaurant	16	531,580	10,229	22,440	32,669	2%		Uniform
School	4	39,340	757	3,428	4,185	0%	\$0.0759	Uniform
Camp	6	344,640	6,632	59,113	65,744	5%		Uniform
Church	12	76,890	1,480	3,700	5,180	0%		Uniform
Park	3	167,260	3,219	9,187	12,406	1%		Uniform
Idyllwild Arts Academy	1	1,132,136	21,786	50,306	72,092	5%		Uniform
Fire Service	2	0	-	-	-	0%		Uniform
Total	1,645	9,344,193	\$ 179,810	\$ 491,486	\$ 671,296	50%		

1. Consumption and Meters from source files: Billed Consumption Excel Export 2015, 2016, 2017.xlsx (data combined and summarized in pivot Tables).

Pivot tables found in Source File: Pivot Tables - Billed Consumption Excel Export 2015-2017 Water.xlsx

2. Per client phone call March 26, 2018, Idyllwild Arts Academy accounts for 80% of 2016 consumption.

TABLE 33

Single-Family Residential Tiered Rates	Tier Break	Water Consumption (cf/yr)	Commodity Assigned Costs	Capacity Assigned Costs	Total Target Rev. Req't from Vol. Charges	% of Residential Volumetric Rate Revenue	Tiered Rates (\$/cf)
Tier 1	450	3,145,764	\$ 60,534	\$ -	\$ 60,534	16.8%	\$0.0192
Tier 2	900	1,207,314	23,232	134,515	157,748	43.9%	\$0.1307
Tier 3	--	883,738	17,006	124,182	141,188	39.3%	\$0.1598
Total		5,236,816	\$ 100,772	\$ 258,698	\$ 359,470	100%	

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PROPOSED VOLUMETRIC CHARGES FOR FY 2018/19:

Net Revenue Requirements (60% Fixed / 40% Variable)

TABLE 34

Customer Classes	Number of Meters ¹	Water Consumption (cf/yr) ¹	Commodity Assigned Costs	Capacity Assigned Costs	Total Target Rev. Req't from Vol. Charges	% of Total Rate Revenue	Uniform Commodity Rates (\$/cf)	Proposed Rate Structure
Residential	1,464	5,236,816	\$ 100,772	\$ 188,029	\$ 288,801	22%	N/A	Tiered
Apartment	9	126,910	2,442	3,674	6,116	0%		Uniform
Trailer Park	3	225,250	4,334	11,888	16,222	1%		Uniform
Business	98	940,521	18,098	28,693	46,791	3%		Uniform
Motel	27	522,850	10,061	17,245	27,306	2%		Uniform
Restaurant	16	531,580	10,229	16,310	26,539	2%		Uniform
School	4	39,340	757	2,492	3,249	0%	\$0.0604	Uniform
Camp	6	344,640	6,632	42,965	49,597	4%		Uniform
Church	12	76,890	1,480	2,689	4,169	0%		Uniform
Park	3	167,260	3,219	6,678	9,896	1%		Uniform
Idyllwild Arts Academy	1	1,132,136	21,786	36,564	58,350	4%		Uniform
Fire Service	2	0	-	-	-	0%		Uniform
Total	1,645	9,344,193	\$ 179,810	\$ 357,227	\$ 537,037	40%		

1. Consumption and Meters from source files: Billed Consumption Excel Export 2015, 2016, 2017.xlsx (data combined and summarized in pivot Tables).

Pivot tables found in Source File: Pivot Tables - Billed Consumption Excel Export 2015-2017 Water.xlsx

2. Per client phone call March 26, 2018, Idyllwild Arts Academy accounts for 80% of 2016 consumption.

TABLE 35

Single-Family Residential Tiered Rates	Tier Break	Water Consumption (cf/yr) ¹	Commodity Assigned Costs	Capacity Assigned Costs	Total Target Rev. Req't from Vol. Charges	% of Residential Volumetric Rate Revenue	Tiered Rates (\$/cf)
Tier 1	450	3,145,764	\$ 60,534	\$ -	\$ 60,534	21%	\$0.0192
Tier 2	900	1,207,314	23,232	97,770	121,002	42%	\$0.1002
Tier 3	--	883,738	17,006	90,260	107,265	37%	\$0.1214
Total		5,236,816	\$ 100,772	\$ 188,029	\$ 288,801	100%	

TABLE 36

FY 2022/23 Rates	Tier Break	Rate
Uniform Commercial Break	N/A	\$0.0735
Single-Family Residential		
Tier 1	450	\$0.0234
Tier 2	900	\$0.1218
Tier 3	--	\$0.1475

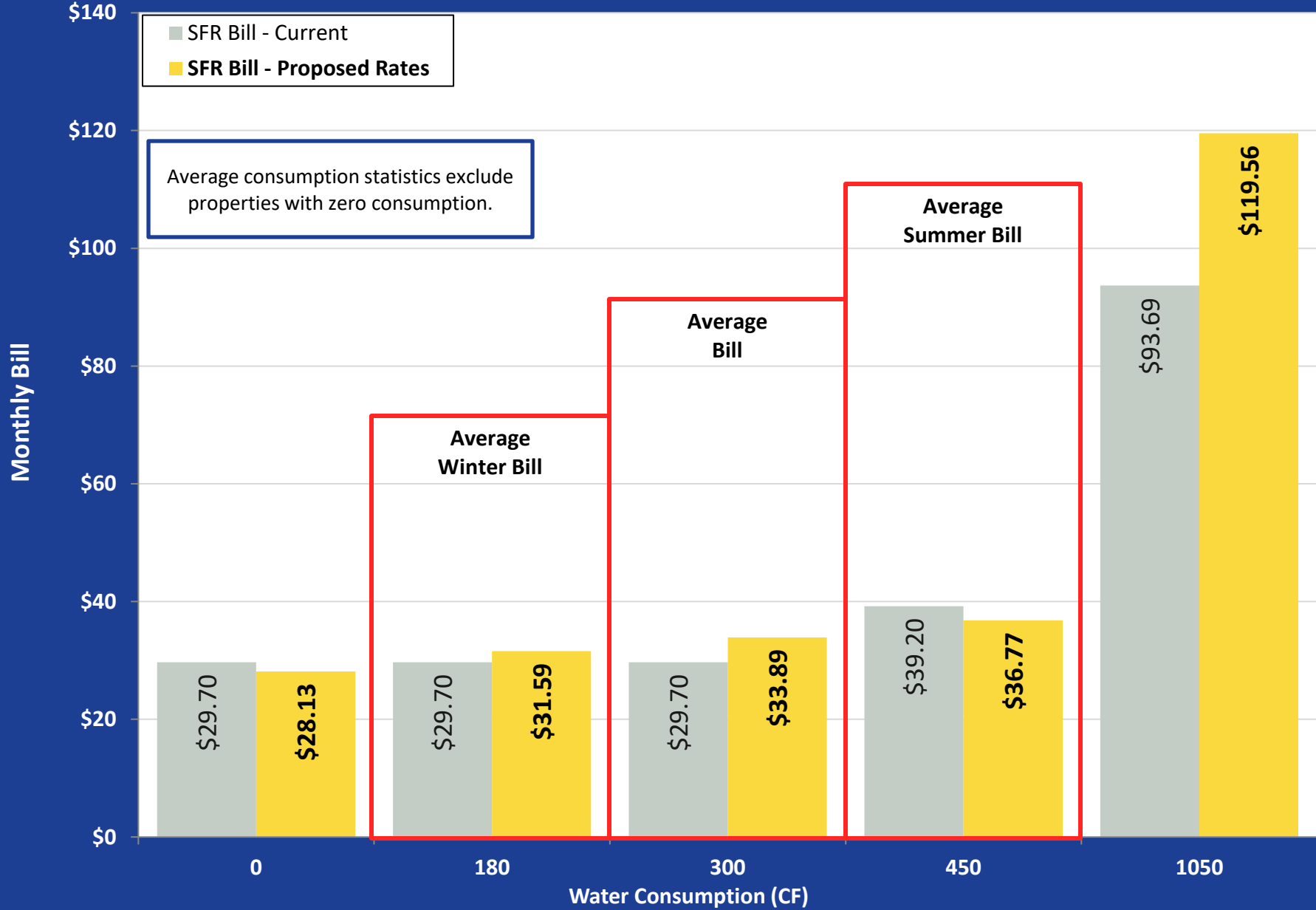
**IDYLLWILD WATER DISTRICT
WATER RATE STUDY
Water Cost of Service Analysis/Rate Design**

CURRENT VS. PROPOSED WATER RATES:

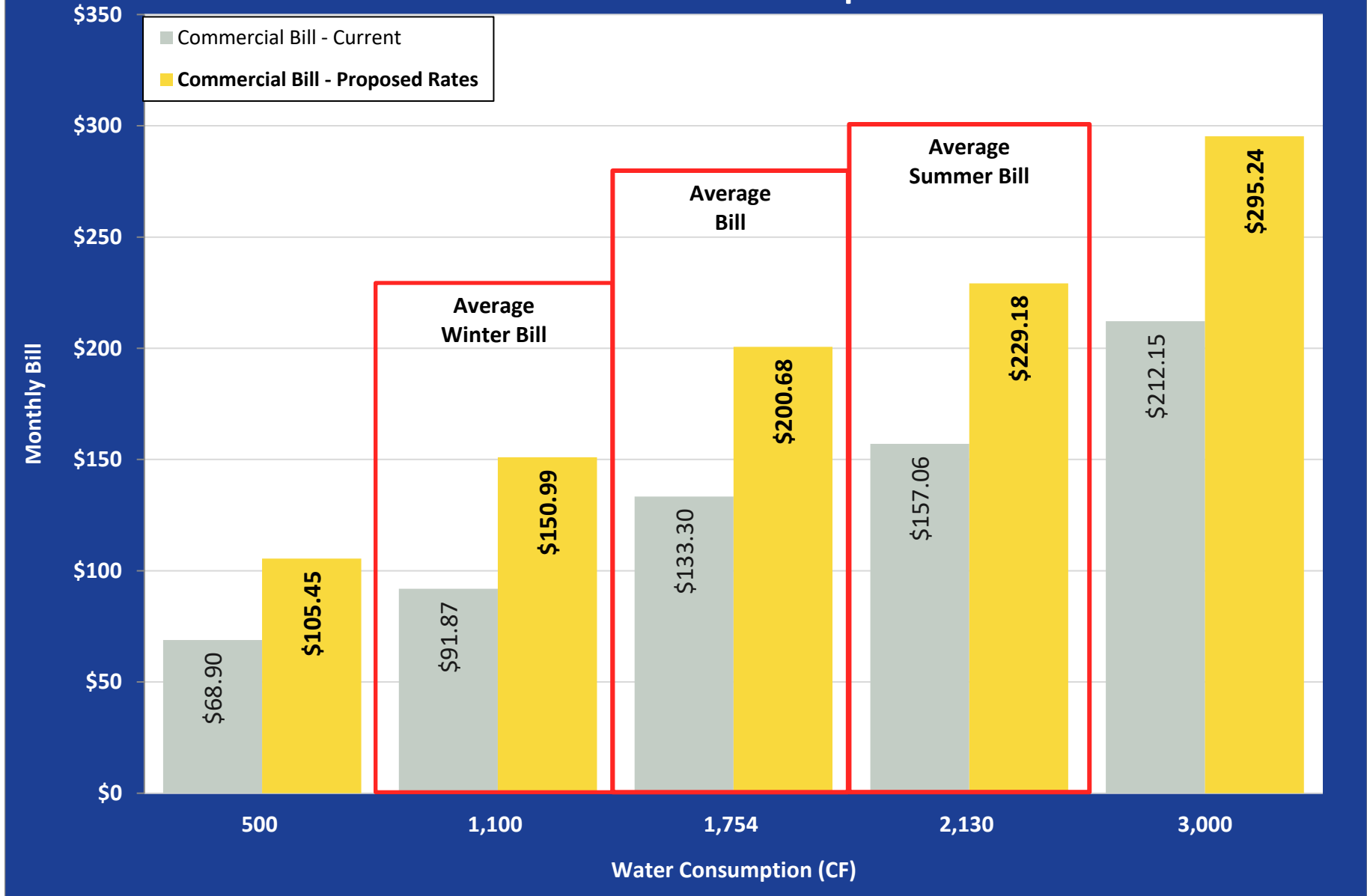
TABLE 37

Proposed Rates - Transition 50% Fixed to 60% Fixed								
Water Rate Schedule	Number of Customers	Current Rates	Proposed Rates					
			FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	
Monthly Fixed Service Charges:								
<i>Single Family Residential</i>								
5/8 inch	1,427	\$29.70	\$28.13	\$30.92	\$33.91	\$37.13	\$40.59	
3/4 inch	12	\$40.35	\$41.25	\$45.38	\$49.83	\$54.60	\$59.73	
1 inch	24	\$61.25	\$67.49	\$74.31	\$81.65	\$89.54	\$98.01	
<i>All Other Customers:</i>								
5/8 inch	109	\$20.90	\$28.13	\$30.92	\$33.91	\$37.13	\$40.59	
3/4 inch	30	\$31.35	\$41.25	\$45.38	\$49.83	\$54.60	\$59.73	
1 inch	59	\$52.25	\$67.49	\$74.31	\$81.65	\$89.54	\$98.01	
1.5 inch	13	\$104.50	\$133.08	\$146.64	\$161.22	\$176.89	\$193.72	
2 inch	5	\$167.20	\$211.79	\$233.42	\$256.69	\$281.70	\$308.57	
3 inch	1	\$313.50	\$421.68	\$464.85	\$511.29	\$561.21	\$614.84	
<i>Idyllwild Arts Academy</i>								
3 inch	1	\$313.50	\$4,248.35	\$4,844.19	\$5,488.99	\$6,186.16	\$6,939.33	
<i>Fire Service Charges:</i>								
2 inch	0	--	\$7.18	\$7.54	\$7.92	\$8.31	\$8.73	
3 inch	0	--	\$13.45	\$14.12	\$14.83	\$15.57	\$16.35	
4 inch	2	--	\$25.00	\$26.25	\$27.56	\$28.94	\$30.39	
Monthly Commodity Charges per cf of water consumed								
	<u>Current</u>	<u>Proposed</u>						
<i>Tiered Rate (Commercial Customers)</i>								
Tier 1	1000 cf	\$0.0333	--	--	--	--	--	
Tier 2	4000 cf	\$0.0633	--	--	--	--	--	
Tier 3	8000 cf	\$0.1000	--	--	--	--	--	
Tier 4	8001+ cf	\$0.1000	--	--	--	--	--	
<i>Uniform Potable Rate (Commercial Customers)</i>			\$0.0759	\$0.0757	\$0.0752	\$0.0744	\$0.0735	
<i>Tiered Rate (SFR Customers)</i>								
Tier 1	300 cf	450 cf	\$0.0000	\$0.0192	\$0.0202	\$0.0212	\$0.0223	\$0.0234
Tier 2	600 cf	900 cf	\$0.0633	\$0.1307	\$0.1292	\$0.1273	\$0.1248	\$0.1218
Tier 3	1500 cf	900+ cf	\$0.1000	\$0.1598	\$0.1577	\$0.1550	\$0.1516	\$0.1475
Tier 4	1500+ cf	--	\$0.1000	N/A	N/A	N/A	N/A	N/A

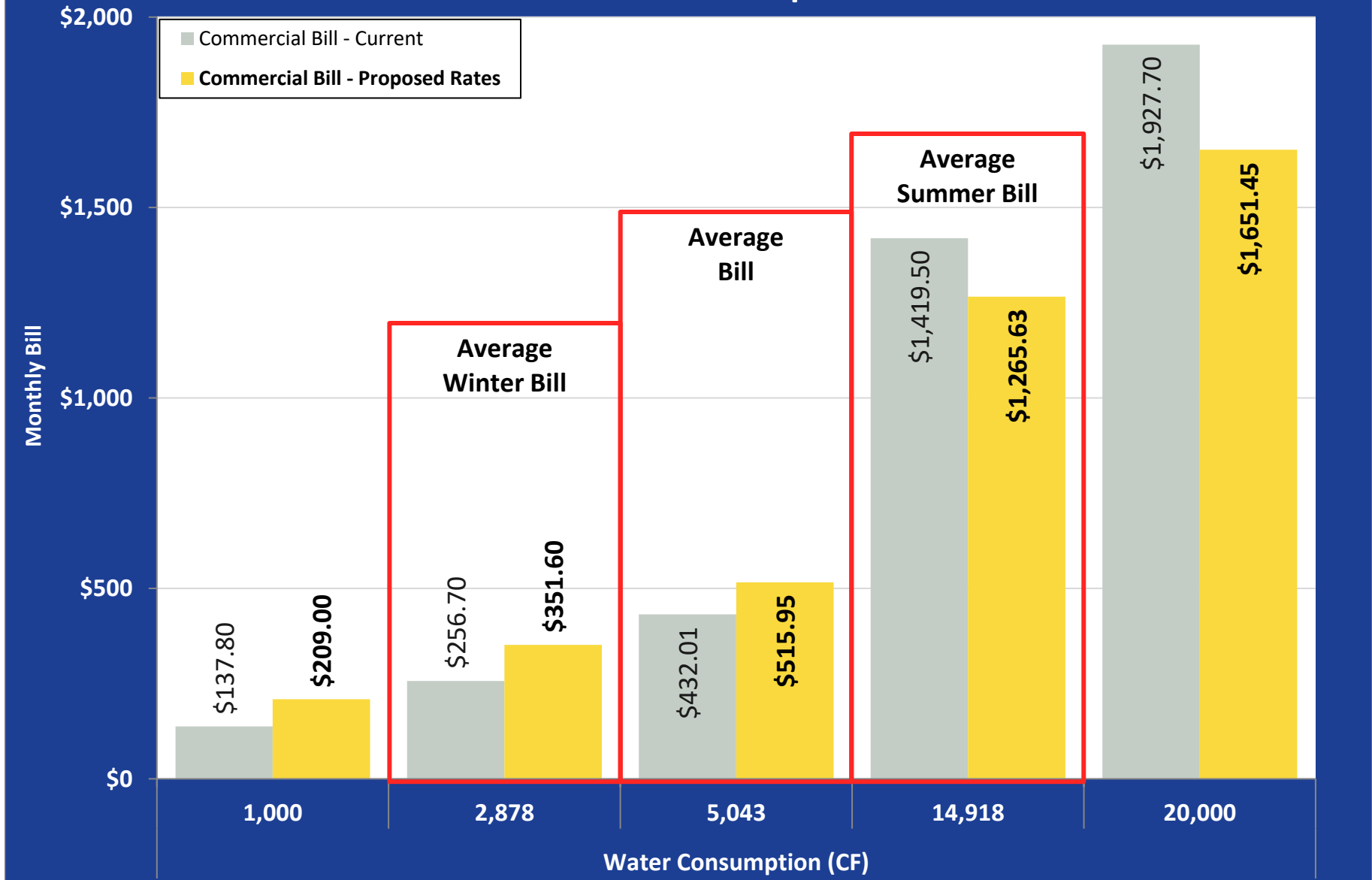
Residential Water Bill Comparison 5/8" Meter - Current vs. Proposed



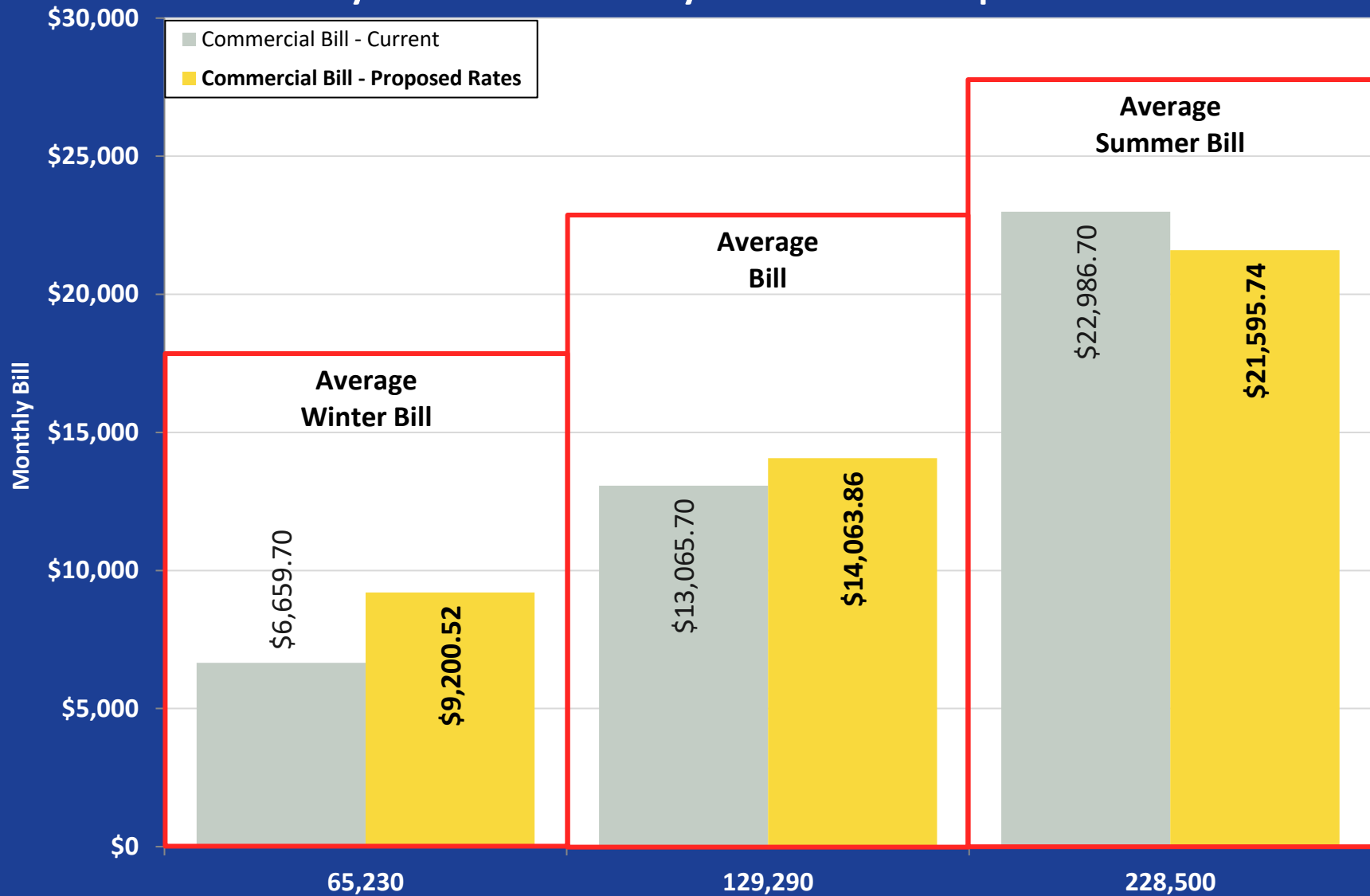
Commercial Water Bill Comparison 1" Meter - Current vs. Proposed Rate



Commercial Water Bill Comparison 1.5" Meter - Current vs. Proposed Rate



Commercial Water Bill Comparison Idyllwild Arts Academy - Current vs. Proposed Rate



Appendix B: Detailed Sewer Study Tables and Figures

TABLE 1
FINANCIAL PLAN AND SUMMARY OF REVENUE REQUIREMENTS

RATE REVENUE REQUIREMENTS SUMMARY (1, 2, 3)	Budgeted	Projected									
	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27	FY 2027/28
Sources of Sewer Funds											
<i>Rate Revenue:</i>											
Revenue Under Current Rates	\$ 630,006	\$ 631,896	\$ 633,792	\$ 635,693	\$ 637,600	\$ 639,513	\$ 641,431	\$ 643,356	\$ 645,286	\$ 647,222	\$ 649,163
Revenue from Rate Increases (2)	-	36,744	53,620	71,018	88,952	107,437	130,235	153,845	178,295	203,611	229,823
Subtotal: Rate Revenue After Rate Increases	630,006	668,640	687,412	706,711	726,552	746,950	771,667	797,201	823,580	850,833	878,987
<i>Non-Rate Revenue:</i>											
Sewer Transfer Fees	\$ 775	\$ 777	\$ 780	\$ 782	\$ 784	\$ 787	\$ 789	\$ 791	\$ 794	\$ 796	\$ 799
Sewer Other Fees, Refunds	-	-	-	-	-	-	-	-	-	-	-
Sewer Taxes	115,000	116,725	118,476	120,253	122,057	123,888	125,746	127,632	129,547	131,490	133,462
Interest Income	1,500	6,561	9,781	12,195	12,117	16,103	15,845	15,518	15,116	14,632	14,061
Other Non-operating Income	10,450	10,316	10,186	10,061	9,940	9,823	9,710	9,601	9,496	9,395	9,297
Subtotal: Non-Rate Revenue	127,725	134,379	139,223	143,291	144,898	150,600	152,091	153,543	154,952	156,312	157,619
Total Sources of Funds	\$ 757,731	\$ 803,019	\$ 826,635	\$ 850,002	\$ 871,450	\$ 897,550	\$ 923,757	\$ 950,744	\$ 978,532	\$ 1,007,145	\$ 1,036,605
Uses of Sewer Funds											
<i>Operating Expenses:</i>											
Sewer Operating Expenses	\$ 524,982	\$ 544,883	\$ 565,618	\$ 587,225	\$ 609,743	\$ 633,213	\$ 657,679	\$ 683,185	\$ 709,779	\$ 737,511	\$ 766,432
Sewer Non-Operating Expenses	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Operating Expenses	\$ 524,982	\$ 544,883	\$ 565,618	\$ 587,225	\$ 609,743	\$ 633,213	\$ 657,679	\$ 683,185	\$ 709,779	\$ 737,511	\$ 766,432
<i>Other Expenditures:</i>											
Existing Debt Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Debt Service	-	-	-	-	-	-	-	-	-	-	-
Rate-Funded Capital Expenses	-	-	-	-	-	-	-	-	-	26,063	92,407
Subtotal: Other Expenditures	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 26,063	\$ 92,407
Total Uses of Funds	\$ 524,982	\$ 544,883	\$ 565,618	\$ 587,225	\$ 609,743	\$ 633,213	\$ 657,679	\$ 683,185	\$ 709,779	\$ 763,573	\$ 858,839
Annual Surplus/(Deficit)	\$ 232,749	\$ 258,135	\$ 261,016	\$ 262,776	\$ 261,707	\$ 264,337	\$ 266,079	\$ 267,559	\$ 268,754	\$ 243,572	\$ 177,766
Net Revenue Req't. (Total Uses less Non-Rate Revenue)	\$ 397,257	\$ 410,505	\$ 426,396	\$ 443,935	\$ 464,845	\$ 482,613	\$ 505,588	\$ 529,642	\$ 554,827	\$ 607,261	\$ 701,220
Projected Annual Rate Revenue Adjustment	0.00%	5.81%	2.50%	2.50%	2.50%	2.50%	3.00%	3.00%	3.00%	3.00%	3.00%
<i>Cumulative Increase from Annual Revenue Increases</i>	0.00%	5.81%	8.46%	11.17%	13.95%	16.80%	20.30%	23.91%	27.63%	31.46%	35.40%
<i>Debt Coverage After Rate Increase</i>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

- Revenue and expenses for FY 2017-18 are from source file: 2017-2018 Budget.pdf, Pages 10-11.
Budget values have been adjusted as part of the analysis, as detailed in Exhibit 1 (O&M).
- Revenue from rate increases assumes an implementation date of July 1, 2018 and July 1 each year thereafter.
- The FY 2017/18 revenue and operating expenses are from the budget. Inflationary factors are applied to these expenses to project costs in FY 2018/19 and beyond.

TABLE 2
RESERVE FUND SUMMARY

SUMMARY OF CASH ACTIVITY UN-RESTRICTED RESERVES	Budgeted	Projected										
	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27	FY 2027/28	
Total Beginning Cash (1, 2)	\$ 1,734,690											
Operating Reserve Fund												
Beginning Reserve Balance (2)	\$ 1,441,795	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000
Plus: Net Cash Flow (After Rate Increases)	232,749	258,135	261,016	262,776	261,707	264,337	266,079	267,559	268,754	243,572	177,766	
Less: Transfer Out to Emergency Reserve	(1,424,544)	(258,135)	(261,016)	(262,776)	(261,707)	(264,337)	(266,079)	(267,559)	(268,754)	(243,572)	(177,766)	
Ending Working Capital Reserve Balance	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000
Target Ending Balance (\$250K) (3)	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000
Emergency Reserve Fund												
Beginning Reserve Balance (2)	\$ 50,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000
Net: Transfer of Working Capital Reserve Surplus	1,424,544	258,135	261,016	262,776	261,707	264,337	266,079	267,559	268,754	243,572	177,766	
Less: Use of Reserves for Capital Projects	-	-	-	-	-	-	-	-	-	-	-	-
Net: Transfer Out / In to Capital R&R Reserve	(1,324,544)	(258,135)	(261,016)	(262,776)	(261,707)	(264,337)	(266,079)	(267,559)	(268,754)	(243,572)	(177,766)	
Ending Emergency Reserve Fund Balance	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000
Target Emergency Reserve Fund (\$150K) (3)	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000
Capital Rehabilitation & Replacement Reserve												
Beginning Reserve Balance (2,4)	\$ 75,000	\$ 1,229,544	\$ 1,230,179	\$ 1,225,971	\$ 1,215,566	\$ 1,195,895	\$ 1,170,413	\$ 1,137,979	\$ 1,098,069	\$ 1,050,131	\$ 993,572	\$ 993,572
Plus: Transfer of Emergency Reserve Surplus	1,324,544	258,135	261,016	262,776	261,707	264,337	266,079	267,559	268,754	243,572	177,766	
Less: Use of Reserves for Capital Projects	(170,000)	(257,500)	(265,225)	(273,182)	(281,377)	(289,819)	(298,513)	(307,468)	(316,693)	(300,131)	(243,572)	
Ending Capital Rehab & Replacement Reserve Balance	\$ 1,229,544	\$ 1,230,179	\$ 1,225,971	\$ 1,215,566	\$ 1,195,895	\$ 1,170,413	\$ 1,137,979	\$ 1,098,069	\$ 1,050,131	\$ 993,572	\$ 927,766	
Target Capital R&R Reserve (\$750K) (3,4)	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000
Ending Balance	\$ 1,629,544	\$ 1,630,179	\$ 1,625,971	\$ 1,615,566	\$ 1,595,895	\$ 1,570,413	\$ 1,537,979	\$ 1,498,069	\$ 1,450,131	\$ 1,393,572	\$ 1,327,766	
Minimum Target Ending Balance	\$ 1,150,000	\$ 1,150,000	\$ 1,150,000	\$ 1,150,000	\$ 1,150,000	\$ 1,150,000	\$ 1,150,000	\$ 1,150,000	\$ 1,150,000	\$ 1,150,000	\$ 1,150,000	\$ 1,150,000
Ending Surplus/(Deficit) Compared to Reserve Targets	\$ 479,544	\$ 480,179	\$ 475,971	\$ 465,566	\$ 445,895	\$ 420,413	\$ 387,979	\$ 348,069	\$ 300,131	\$ 243,572	\$ 177,766	
Semi-Restricted Reserves (5):												
Vacation/Sick/Annual Leave Liability												
Beginning Reserve Balance (2)	\$ 5,603	\$ 5,626	\$ 5,648	\$ 5,682	\$ 5,725	\$ 5,768	\$ 5,826	\$ 5,885	\$ 5,944	\$ 6,004	\$ 6,065	\$ 6,065
Interest Earnings	23	23	34	43	43	58	59	59	60	61	61	61
Ending Vacation/Sick/Annual Leave Liability	\$ 5,626	\$ 5,648	\$ 5,682	\$ 5,725	\$ 5,768	\$ 5,826	\$ 5,885	\$ 5,944	\$ 6,004	\$ 6,065	\$ 6,126	
Target Vacation/Sick/Annual Leave Reserve (\$25K) (3)	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000
OPEB												
Beginning Reserve Balance (2)	\$ 162,292	\$ 162,945	\$ 163,601	\$ 164,583	\$ 165,817	\$ 167,061	\$ 168,747	\$ 170,449	\$ 172,169	\$ 173,906	\$ 175,661	\$ 175,661
Interest Earnings	653	656	982	1,234	1,244	1,686	1,703	1,720	1,737	1,755	1,772	1,772
Ending Vacation/Sick/Annual Leave Liability	\$ 162,945	\$ 163,601	\$ 164,583	\$ 165,817	\$ 167,061	\$ 168,747	\$ 170,449	\$ 172,169	\$ 173,906	\$ 175,661	\$ 177,433	
Target OPEB Reserve (\$225K) (3)	\$ 225,000	\$ 225,000	\$ 225,000	\$ 225,000	\$ 225,000	\$ 225,000	\$ 225,000	\$ 225,000	\$ 225,000	\$ 225,000	\$ 225,000	\$ 225,000
Restricted Reserves (6):												
Capacity Charge Reserve												
Beginning Reserve Balance (2)	\$ -	\$ 5,250	\$ 10,537	\$ 15,882	\$ 21,298	\$ 26,771	\$ 32,371	\$ 38,042	\$ 43,787	\$ 49,607	\$ 55,501	\$ 55,501
Plus: Capacity Charge Revenue	5,250	5,266	5,282	5,297	5,313	5,329	5,345	5,361	5,377	5,393	5,410	5,410
Less: Use of Reserves for Capital Projects	-	-	-	-	-	-	-	-	-	-	-	-
Interest Earnings	-	21	63	119	160	270	327	384	442	501	560	560
Ending Capacity Charges Reserves	\$ 5,250	\$ 10,537	\$ 15,882	\$ 21,298	\$ 26,771	\$ 32,371	\$ 38,042	\$ 43,787	\$ 49,607	\$ 55,501	\$ 61,470	
Annual Interest Earnings Rate (7)	0.40%	0.40%	0.60%	0.75%	0.75%	1.01%	1.01%	1.01%	1.01%	1.01%	1.01%	1.01%

1. Found from Statement of Cash Flows. Source file: 2016-2017 Financial Statements.pdf; Note 3, Total Cash and Cash Equivalents, Page 22.
2. Financial Statements. Source File: 2016-2017 Financial Statements.pdf; Note 6, Net position reserves, Page 26.
3. Found from Reserve Policy Targets: Source Files: Target Reserve Fund.pdf.
4. Capital Rehab and Replacement Reserve Fund includes Funds from "Vehicle & Equipment Replacement Reserve Fund"
5. Vacation/Sick/Annual Leave Liability and OPEB reserve funds are not restricted, but are held in reserve which should not be used for standard operations.
6. Water and Sewer Capacity Charge revenue must be maintained in a restricted reserve in accordance with CA Code 66013.
7. Interest earnings in FY 2018/19 equal to 5-year LAIF average (2012/13-2016/17). Interest earnings increase to 10-year LAIF average by FY 2022/23.

CHART 1

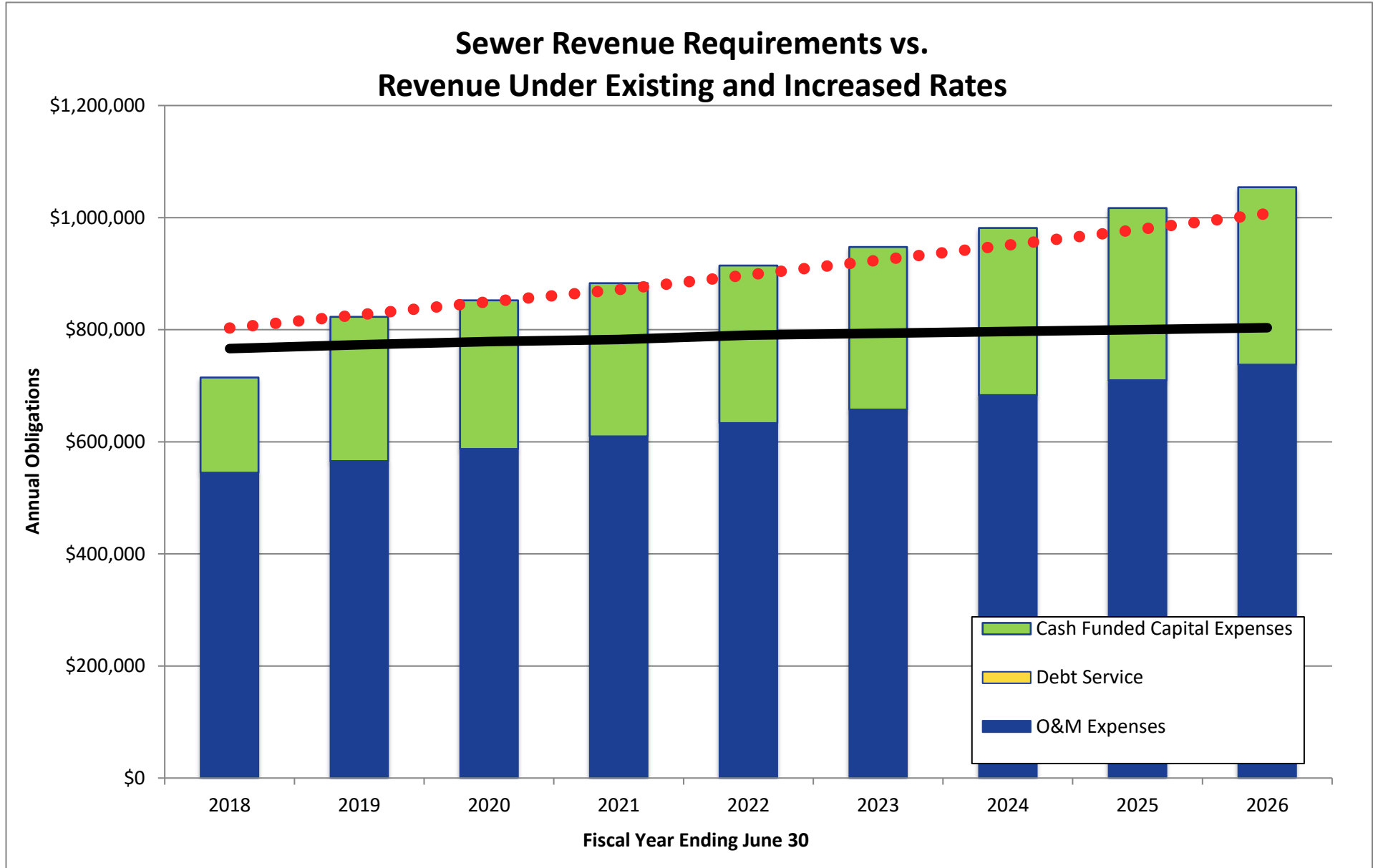


CHART 2

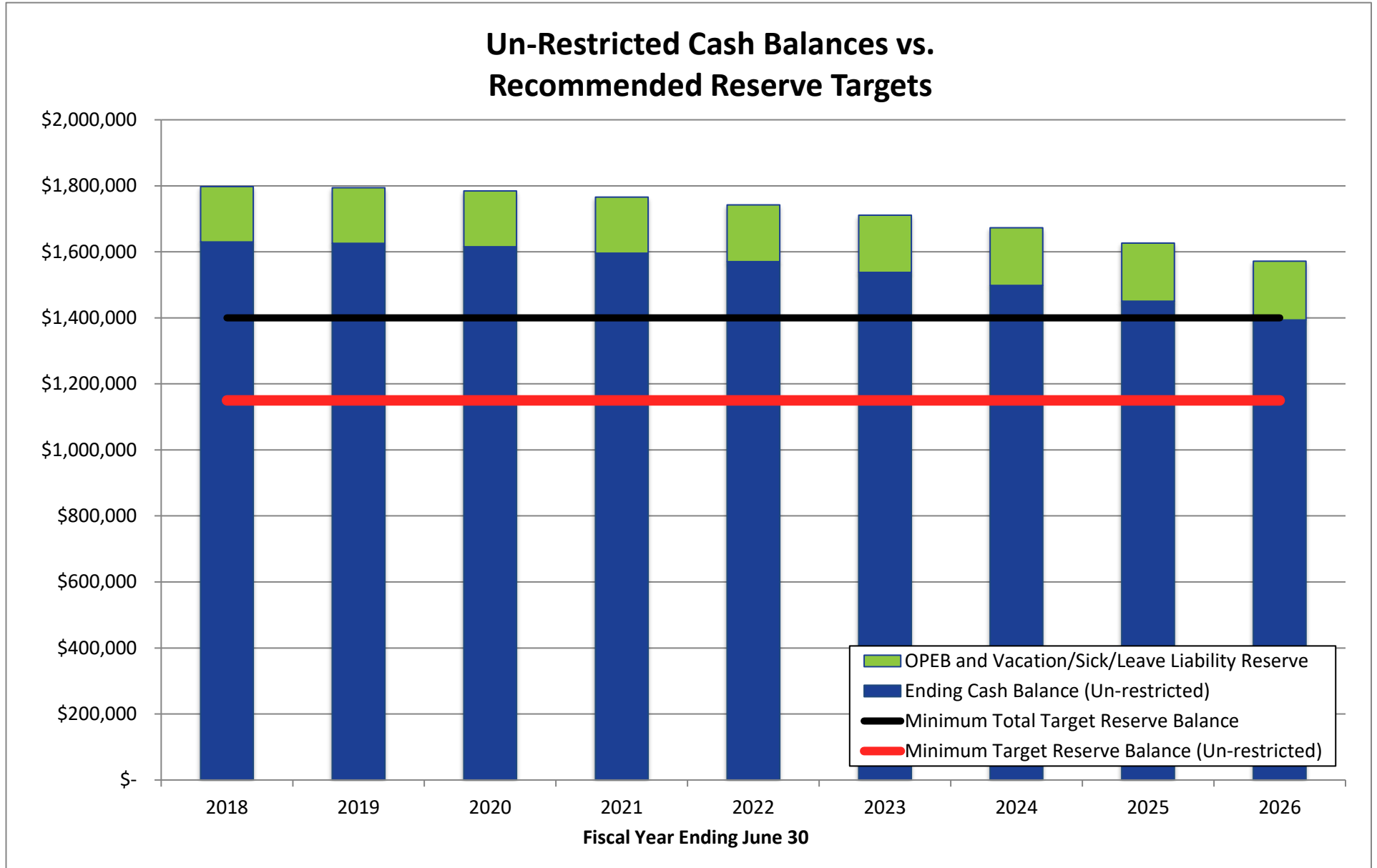
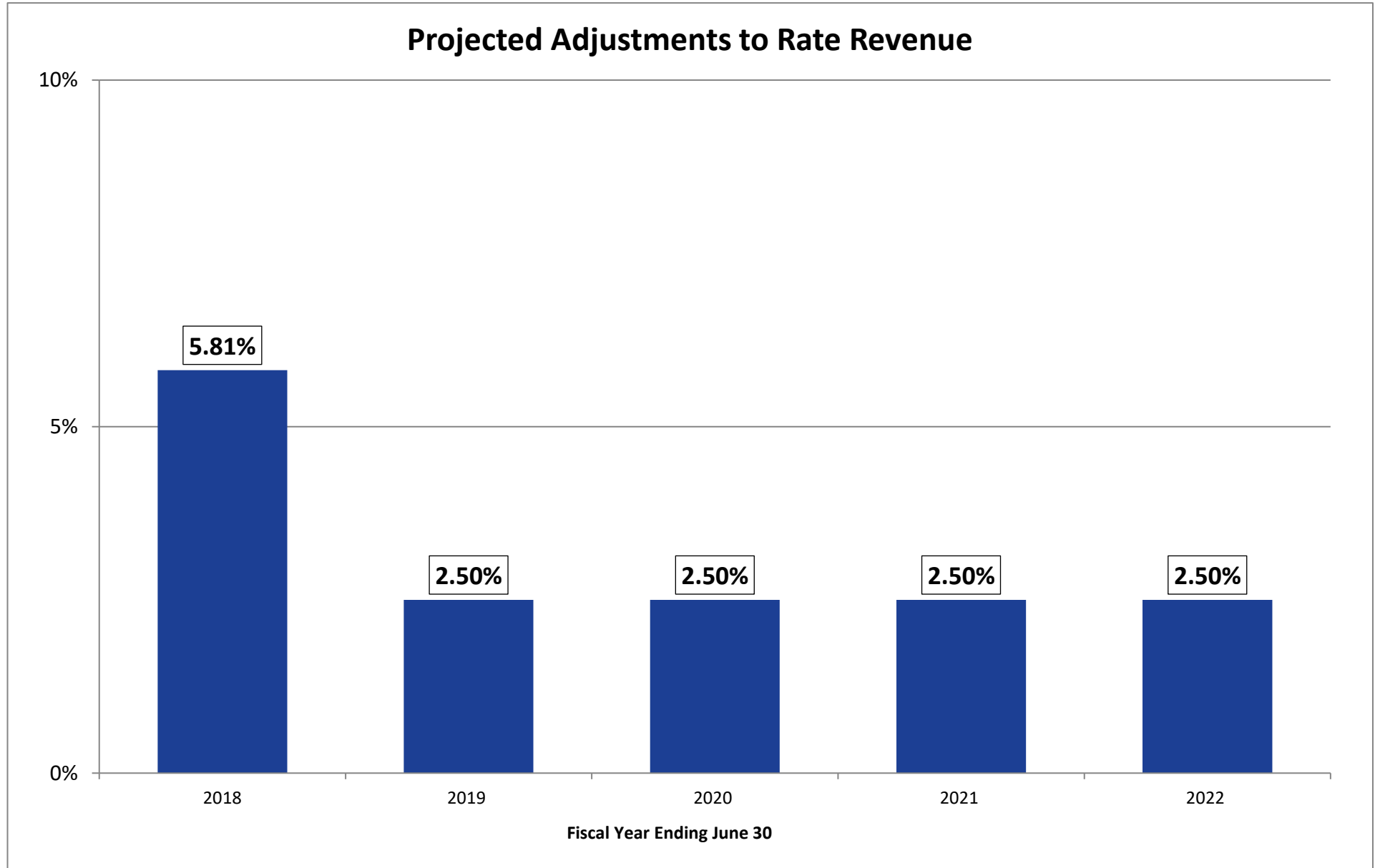


CHART 3



IDYLLWILD WATER DISTRICT
SEWER RATE STUDY
Operating Revenue and Expenses

EXHIBIT 1

TABLE 3 - REVENUE FORECAST (1):

DESCRIPTION	Inflation Basis	Budget										
		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
SEWER OPERATING REVENUE												
Sewer Base Fees - Commercial	1	\$ 423,456	\$ 424,726	\$ 426,001	\$ 427,279	\$ 428,560	\$ 429,846	\$ 431,136	\$ 432,429	\$ 433,726	\$ 435,027	\$ 436,333
Sewer Base Fees - Residential	1	206,550	207,170	207,791	208,415	209,040	209,667	210,296	210,927	211,560	212,194	212,831
Sewer Transfer Fees	1	775	777	780	782	784	787	789	791	794	796	799
Sewer Other Fees, Refunds	1	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Sewer Operating Revenue		\$ 630,781	\$ 632,673	\$ 634,571	\$ 636,475	\$ 638,385	\$ 640,300	\$ 642,221	\$ 644,147	\$ 646,080	\$ 648,018	\$ 649,962
SEWER NON-OPERATING REVENUE												
Sewer Taxes and Assessments	9	\$ 115,000	\$ 116,725	\$ 118,476	\$ 120,253	\$ 122,057	\$ 123,888	\$ 125,746	\$ 127,632	\$ 129,547	\$ 131,490	\$ 133,462
Sewer Stand By Assessments	7	5,000	4,850	4,705	4,563	4,426	4,294	4,165	4,040	3,919	3,801	3,687
Sewer Interest Earned	See FP	1,500	-	-	-	-	-	-	-	-	-	-
Sewer Facilities Charges	1	5,250	5,266	5,282	5,297	5,313	5,329	5,345	5,361	5,377	5,393	5,410
Sewer Other Non-Operating Revenue	10	200	200	200	200	200	200	200	200	200	200	200
Subtotal: Sewer Non-Operating Revenue		\$ 126,950	\$ 127,041	\$ 128,662	\$ 130,314	\$ 131,997	\$ 133,711	\$ 135,456	\$ 137,233	\$ 139,043	\$ 140,884	\$ 142,759
TOTAL: SEWER REVENUE		\$ 757,731	\$ 759,714	\$ 763,233	\$ 766,789	\$ 770,381	\$ 774,010	\$ 777,677	\$ 781,381	\$ 785,122	\$ 788,902	\$ 792,721

TABLE 4 - REVENUE SUMMARY:

OPERATING REVENUE:												
Sewer Billing		\$ 630,006	\$ 631,896	\$ 633,792	\$ 635,693	\$ 637,600	\$ 639,513	\$ 641,431	\$ 643,356	\$ 645,286	\$ 647,222	\$ 649,163
Other Charges for Services		775	777	780	782	784	787	789	791	794	796	799
Interest Income		1,500	-	-	-	-	-	-	-	-	-	-
OTHER REVENUE:												
Sewer Non-Operating Revenue		120,200	121,775	123,380	125,016	126,683	128,381	130,111	131,872	133,665	135,491	137,349
Capacity Charge Revenue		5,250	5,266	5,282	5,297	5,313	5,329	5,345	5,361	5,377	5,393	5,410
TOTAL: SEWER REVENUE		\$ 752,481	\$ 754,448	\$ 757,952	\$ 761,491	\$ 765,068	\$ 768,681	\$ 772,331	\$ 776,019	\$ 779,745	\$ 783,509	\$ 787,311

IDYLLWILD WATER DISTRICT
SEWER RATE STUDY
Operating Revenue and Expenses

EXHIBIT 1

TABLE 5 - OPERATING EXPENSE FORECAST (1):

DESCRIPTION	Inflation Basis	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
SEWER OPERATING EXPENSES												
Sewer Payroll	3	\$ 190,000	\$ 199,500	\$ 209,475	\$ 219,949	\$ 230,946	\$ 242,493	\$ 254,618	\$ 267,349	\$ 280,717	\$ 294,752	\$ 309,490
Sewer Retirement and Life Insurance	4	22,500	23,625	24,806	26,047	27,349	28,716	30,152	31,660	33,243	34,905	36,650
Sewer Medical Insurance	4	38,032	39,934	41,930	44,027	46,228	48,540	50,967	53,515	56,191	59,000	61,950
Sewer Worker's Comp Insurance	4	1,736	1,823	1,914	2,010	2,110	2,216	2,326	2,443	2,565	2,693	2,828
Sewer Non-Employee Insurance	4	12,597	13,227	13,888	14,583	15,312	16,077	16,881	17,725	18,612	19,542	20,519
Subtotal: Salaries and Benefits		\$ 264,865	\$ 278,108	\$ 292,014	\$ 306,614	\$ 321,945	\$ 338,042	\$ 354,944	\$ 372,692	\$ 391,326	\$ 410,893	\$ 431,437
Sewer Treatment Fees	2	\$ 12,000	\$ 12,300	\$ 12,608	\$ 12,923	\$ 13,246	\$ 13,577	\$ 13,916	\$ 14,264	\$ 14,621	\$ 14,986	\$ 15,361
Sewer General Plant Expense	2	37,382	38,317	39,274	40,256	41,263	42,294	43,352	44,435	45,546	46,685	47,852
Sewer Minor Equipment/Parts	2	600	615	630	646	662	679	696	713	731	749	768
Sewer Vehicle Repairs and Maintenance	2	6,000	6,150	6,304	6,461	6,623	6,788	6,958	7,132	7,310	7,493	7,681
Sewer Utilities - Electricity	5	30,000	30,750	31,519	32,307	33,114	33,942	34,791	35,661	36,552	37,466	38,403
Sewer Utilities - Gas and Fuel	5	2,091	2,143	2,197	2,252	2,308	2,366	2,425	2,486	2,548	2,611	2,677
Sewer Utilities - Propane	5	200	205	210	215	221	226	232	238	244	250	256
Sewer Utilities - Telephone	2	2,667	2,734	2,802	2,872	2,944	3,017	3,093	3,170	3,249	3,331	3,414
Sewer Utilities - Trash Fee	2	715	733	751	770	789	809	829	850	871	893	915
Subtotal: Sewer Utilities		\$ 91,655	\$ 93,946	\$ 96,295	\$ 98,702	\$ 101,170	\$ 103,699	\$ 106,292	\$ 108,949	\$ 111,673	\$ 114,465	\$ 117,326
Sewer Legal Services	8	\$ 9,000	\$ 9,315	\$ 9,641	\$ 9,978	\$ 10,328	\$ 10,689	\$ 11,063	\$ 11,451	\$ 11,851	\$ 12,266	\$ 12,695
Sewer Computer Services	8	5,000	5,175	5,356	5,544	5,738	5,938	6,146	6,361	6,584	6,814	7,053
Sewer Cleaning Expense	8	1,500	1,553	1,607	1,663	1,721	1,782	1,844	1,908	1,975	2,044	2,116
Sewer Accounting and Audit Service	2	5,000	5,125	5,253	5,384	5,519	5,657	5,798	5,943	6,092	6,244	6,400
Sewer Postage and Mail Fee	2	6,000	6,150	6,304	6,461	6,623	6,788	6,958	7,132	7,310	7,493	7,681
Sewer Office Supplies	2	3,000	3,075	3,152	3,231	3,311	3,394	3,479	3,566	3,655	3,747	3,840
Sewer Maintenance	2	19,265	19,747	20,240	20,746	21,265	21,797	22,341	22,900	23,473	24,059	24,661
Sewer Dues, Fees and Subscriptions	2	7,009	7,184	7,364	7,548	7,737	7,930	8,128	8,331	8,540	8,753	8,972
Sewer Advertising and Publishing	2	1,500	1,538	1,576	1,615	1,656	1,697	1,740	1,783	1,828	1,873	1,920
Sewer Leasing Equipment	2	600	615	630	646	662	679	696	713	731	749	768
Sewer Bank Fee Charge	2	500	513	525	538	552	566	580	594	609	624	640
Sewer Auto And General Insurance	2	11,134	11,412	11,698	11,990	12,290	12,597	12,912	13,235	13,566	13,905	14,252
Sewer Laboratory Service	2	9,982	10,232	10,487	10,750	11,018	11,294	11,576	11,865	12,162	12,466	12,778
Sewer Removal Disposal Fee	2	3,972	4,071	4,173	4,277	4,384	4,494	4,606	4,721	4,839	4,960	5,084
Sewer Consulting	2	75,000	76,875	78,797	80,767	82,786	84,856	86,977	89,151	91,380	93,665	96,006
Traveling and Entertainment	2	2,500	2,563	2,627	2,692	2,760	2,829	2,899	2,972	3,046	3,122	3,200
Training and Seminar Expenses	2	6,000	6,150	6,304	6,461	6,623	6,788	6,958	7,132	7,310	7,493	7,681
Sewer Security System	2	1,500	1,538	1,576	1,615	1,656	1,697	1,740	1,783	1,828	1,873	1,920
Subtotal: Sewer Operating Expenses		\$ 168,462	\$ 172,829	\$ 177,310	\$ 181,908	\$ 186,628	\$ 191,472	\$ 196,442	\$ 201,544	\$ 206,780	\$ 212,153	\$ 217,669
TOTAL: SEWER EXPENSES		\$ 524,982	\$ 544,883	\$ 565,618	\$ 587,225	\$ 609,743	\$ 633,213	\$ 657,679	\$ 683,185	\$ 709,779	\$ 737,511	\$ 766,432

**IDYLLWILD WATER DISTRICT
SEWER RATE STUDY
Operating Revenue and Expenses**

EXHIBIT 1

TABLE 6 - FORECASTING ASSUMPTIONS

INFLATION FACTORS	Inflation Basis	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Customer Growth (3)	1	--	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%
General Cost Inflation (4)	2	--	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Salary Inflation (5)	3	--	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Benefits Inflation (5)	4	--	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Energy (4)	5	--	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Fuel (4)	6	--	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Standby Deflation (6)	7	--	-3.00%	-3.00%	-3.00%	-3.00%	-3.00%	-3.00%	-3.00%	-3.00%	-3.00%	-3.00%
Contractor Inflation (6)	8	--	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Tax Inflation (6)	9	--	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
No Escalation	10	--	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

1. Revenue and expenses for FY 2017-18 are from source file: *2017-2018 Budget.pdf, Pages 10-11.*
2. Sewer depreciation from FY 2017-18 budget are \$65,000. Leaving out of this analysis as it is not cash.
3. Annual Growth from Source File: Idyllwild response to data request 1.5.18.pdf, Page 1, Paragraph 7.
4. CPI projected at 2.5% for general inflation, chemicals, etc. Source File: Idyllwild response to data request 1.5.18.pdf, Page 1, Paragraph 7.
5. Labor Growth Rates projected to increase 5%. Source file: Idyllwild response to data request 1.5.18.pdf, Page 1, Paragraph 7.
6. Standby Deflation set to -3%, Contractor Inflation set to 3.5%, and Tax inflation set to 1.5% per phone call with IWD on March 23, 2018.

IDYLLWILD WATER DISTRICT
SEWER RATE STUDY
Capital Improvement Plan Expenditures

EXHIBIT 2

TABLE 7 - CAPITAL FUNDING SUMMARY

CAPITAL FUNDING FORECAST	Budgeted	Projected								
	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27
Funding Sources:										
Grants	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Use of Capacity Fee Reserves	-	-	-	-	-	-	-	-	-	-
Use of SFR Proceeds	-	-	-	-	-	-	-	-	-	-
Use of New Revenue Bond Proceeds	-	-	-	-	-	-	-	-	-	-
Use of Capital Rehabilitation and Replacement Reserve	170,000	257,500	265,225	273,182	281,377	289,819	298,513	307,468	316,693	300,131
Rate Revenue	-	-	-	-	-	-	-	-	-	26,063
Total Sources of Capital Funds	\$ 170,000	\$ 257,500	\$ 265,225	\$ 273,182	\$ 281,377	\$ 289,819	\$ 298,513	\$ 307,468	\$ 316,693	\$ 326,193
Uses of Capital Funds:										
Total Project Costs	\$ 170,000	\$ 257,500	\$ 265,225	\$ 273,182	\$ 281,377	\$ 289,819	\$ 298,513	\$ 307,468	\$ 316,693	\$ 326,193
Capital Funding Surplus (Deficiency)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SFR revenue Bonds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Revenue Bond Proceeds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

CAPITAL IMPROVEMENT PROGRAM

TABLE 8 - Capital Improvement Program Costs (in Current-Year Dollars) (1):

Project Description	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Wastewater Treatment Plant (G/L #1316)										
Manual Bar Screen to Headworks	\$ 15,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Surface Lines (G/L #1315)										
Clean and Video collection System	135,000	-	-	-	-	-	-	-	-	-
General Plant - Structures, Power and Other Equipment										
Skid Steer Tractor with attachments (50% sewer)	20,000	-	-	-	-	-	-	-	-	-
Future Projects (2)										
	-	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000
Total: CIP Program Costs (Current-Year Dollars)	\$ 170,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000

IDYLLWILD WATER DISTRICT
SEWER RATE STUDY
Capital Improvement Plan Expenditures

TABLE 9 - Capital Improvement Program Costs (in Future-Year Dollars):

Project Description	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Wastewater Treatment Plant (G/L #1316)										
Manual Bar Screen to Headworks	\$ 15,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Surface Lines (G/L #1315)										
Clean and Video collection System	135,000	-	-	-	-	-	-	-	-	-
General Plant - Structures, Power and Other Equipment										
Skid Steer Tractor with attachments (50% sewer)	20,000	-	-	-	-	-	-	-	-	-
Future Projects (2)	-	257,500	265,225	273,182	281,377	289,819	298,513	307,468	316,693	326,193
Total: CIP Program Costs (Future-Year Dollars)	\$ 170,000	\$ 257,500	\$ 265,225	\$ 273,182	\$ 281,377	\$ 289,819	\$ 298,513	\$ 307,468	\$ 316,693	\$ 326,193

TABLE 10 - FORECASTING ASSUMPTIONS:

Economic Variables	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Annual Construction Cost Inflation, Per Engineering News Record (3)	0.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Cumulative Construction Cost Multiplier from 2018	1.00	1.03	1.06	1.09	1.13	1.16	1.19	1.23	1.27	1.30

1. CIP projected project costs from File Source: 2017-2018 Budget.pdf, Page 4.
2. Future projects, beyond the initial 5-year rate period are estimated to be 250K per district staff phone call on March 23, 2018.
3. Construction inflation values used from Engineering News Record website: www.enr.com

**IDYLLWILD WATER DISTRICT
SEWER RATE STUDY
Projected Water Rates Under Existing Rate Schedule**

EXHIBIT 3

TABLE 11 Current Sewer Rate Schedule:

Current Sewer Rates per EDU		
Code	EDU	Rate
All	1.0	\$38.25

File Source: Current Sewer Rate Structure.pdf

**IDYLLWILD WATER DISTRICT
SEWER RATE STUDY
Cost of Service Analysis**

TABLE 16 - Development of the EDU Allocation Factor

Customer Class	Number of Accounts (1)	Number of EDUs (1)	Percentage of Assigned EDUs	Average EDUs per Account
Apartment	9	35.5	2.5%	3.9
Business	93	246.9	17.7%	2.7
Camp	3	50.0	3.6%	16.7
Church	11	19.5	1.4%	1.8
Motel	25	82.0	5.9%	3.3
Park	2	30.0	2.2%	15.0
Residential	419	445.0	31.9%	1
Restaurant	17	120.7	8.7%	7.1
School	5	227.4	16.3%	45.5
Trailer Park	2	136.0	9.8%	68.0
Total	586	1,393.0	100.0%	2.4

1. Source: Commercial Sewer EDUs.xlsx and Income Statement 02-14-18.pdf (residential EDUs).

TABLE 17 - FY 2018/19 Rate Calculation

	Total Rate Revenue	Number of EDUs (2)	Monthly Charge
	a	b	c = a/b/12
Monthly Charge Per Current EDU	\$668,640	1,393	\$40.00

**IDYLLWILD WATER DISTRICT
SEWER RATE STUDY
Sewer Rate Development**

TABLE 18 Current vs. Proposed Sewer Rates (Monthly)

Sewer Rate Schedule	Current Monthly Rates (1)	Proposed Monthly Sewer Rates				
		FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23
Rate Per EDU	\$38.25	\$40.00	\$41.00	\$42.03	\$43.08	\$44.15

1. Sewer customers are charged on the basis of their number of assigned Equivalent Dwelling Units (EDUs).

Single Family Residential Sewer Bill Comparison Current vs. Proposed Rates (Assumes 1 EDU/SFR Account)



Average Commercial Sewer Bill Comparison Current vs. Proposed

