

VALLEY OF THE MOON WATER DISTRICT

Final Report for:

Water Rate Analysis Study

(Includes Capacity Fees)

January 2018

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Section 1. EXECUTIVE SUMMARY

Background and Purpose

BACKGROUND

This report summarizes the findings of the rate study that NBS prepared for the Valley of the Moon Water District (“VOMWD” or “District”). Previous rate studies were completed in 2015 and 2003. In this study, NBS prepared a financial plan, a cost-of-service rate analysis, and evaluated various rate design alternative based on direction provided by VOMWD staff and the District’s Board, for the District’s review. Recommendations were collaboratively developed by District staff, the Board, and NBS.

The District provides water service in the Sonoma Valley area. District service areas extends from the Trinity Oaks Subdivision, located north of the town of Glen Ellen, to the Temelec Subdivision located at the southern end of the Sonoma Valley, and encompasses a total area of approximately 7,545 acres. The District provides potable water service to approximately 23,000 people through 6,940 connections.

PURPOSE

The District wanted to undertake a comprehensive review of its water rates and fees for a number of reasons, but primarily to re-examine the rate design, particularly tiered rates, in light of recent court decisions (e.g., the San Juan Capistrano decision¹). The study was also intended to lay out a sufficient and sustainable financial plan. In order to develop and adopt new water rates and capacity fees, NBS thoroughly reviewed and confirmed the District’s broader rate-related goals and objectives, including policies related to financial parameters, conservation goals, customer bill impacts, and objective of ensuring the new rates provide long-term revenue stability.

The rates and fees developed in this study are also intended to meet the requirements of Proposition 218 (or Prop 218)², commonly referred to as the “right to vote on new taxes” act, and were developed in a manner that is consistent with industry standards. This report documents the study and is intended to assist the District in its effort to communicate transparently with the residents and businesses it serves. The final results will be presented at a public workshop on November 7, 2017, in which the District Board may approve staff to prepare Prop 218 public notices and set the rate hearing for January 2, 2018.

Key Findings

REVENUE REQUIREMENTS AND PROJECTED RATES

The District needs to complete ongoing rehabilitation and replacement projects and adequately fund annual operating costs, while maintaining adequate reserve funds. Maintaining the District’s financial integrity was a key consideration in developing the proposed water rates. With the exception of this fiscal year (2017/18), annual rate increases³ over the next four years are recommended, as follows:

1 This court decision resulted in a more stringent cost basis for water rates, and particularly that tiered rate demonstrate the actual costs included in each tier.

2 California Constitutional Provision, Article XIII D, Section 6.

3 More specifically, these are increases in the total rate revenue; the rates increase for each customer class reflect cost allocation factors that result in some rates being more or less than the annual increases noted here.

- ▮ Zero percent in FY 2017/18 (Year 1); and
- ▮ 7 percent annually in Years 2 through 5.

The District Board of Directors typically approves rates annually. While this rate study covers five years (FY 2017/18 through FY 2021/22), only intends to adopt new rates for two years – through FY 2018/19.

PROPOSED WATER RATE DESIGN

The District's has two distinct sources of water supply – well water and purchased water from Sonoma County Water Agency (SCWA), and currently has four (4) volumetric tiers for residential customers (single- and multi-family) and a uniform rate for all other customers. Although NBS and District staff were able to identify costs that could be used to create more than two volumetric tiers, the District elected to use a two-tiered rate design for residential customers⁴ and a uniform rate for non-residential users. The primary reasons for deciding to not use a third tier were: (1) less than 4% of the District's costs would fit into this category, resulting in insignificant differences in Tier 2 and Tier 3 rates, and (2) potential third-tier costs relied on a subjective allocation of costs that, in light of the recent San Juan Capistrano decision, raised concerns by both District staff and legal counsel as to whether a third tier is defensible. Fixed monthly charges will continue to be based on meter sizes and vary by customer class.

PROPOSED CAPACITY FEES

Updated capacity fees were calculated based on industry standards and commonly accepted methodologies. These fees are charged to new customers connecting to the District's system and are designed to place new customers on equal financial footing with current utility customers. The proposed new capacity fees are slightly higher than the current adopted fees, and represent the maximum capacity fee that the District could adopt.

Study Recommendations

NBS recommends the District take the following actions:

- ▮ Have the District's Attorney review of the proposed rates.
- ▮ Adopt the five-year financial plans presented below.
- ▮ Adopt the recommended fixed monthly and volumetric water rates.
- ▮ Adopt the recommended water capacity fees.
- ▮ Proceed with Prop 218 noticing requirements and 45-day protest period.
- ▮ Assuming a successful Prop 218 process (that is, there is not a majority protest of the rates), adopt the rates summarized in this report. Capacity fees are not subject to the Prop 218 process.

The next section discusses the general rate study methodology, followed by sections for the water rates (Section 3), and capacity fees (Section 4).

⁴ Residential customers include Single Family, Multi-Family with 2 or 3 Units, Outside District - Residential, and SCWA Residential customers. Multi-Family with 4 or more units is considered a commercial account.

Section 2. OVERVIEW OF THE RATE STUDY METHODOLOGY

Overview of Rate Study Methodology

Comprehensive rate studies typically include three components: (1) preparation of a financial plan, which identifies the net revenue requirements for the utility; (2) analysis of the cost-of-service each customer class; and (3) the rate structure design. These steps are shown in Figure 1 and 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 Charges⁵, also referred to as Manual M1. This methodology also addresses requirements under Proposition 218 that rates not exceed the cost of providing the service and be proportionate to the cost of providing service for all customers. These three steps represent the order they were performed in this study.

FIGURE 1. PRIMARY COMPONENTS OF A RATE STUDY



As a result of this water rate analysis study, rate increases – or more accurately, increases in the total revenue collected from rates – are recommended beginning in the second year (FY 2018/19). This means there is no planned increase in total rate revenue in the first year (see the financial plan in Figure 2 below). However, because the cost-of-service analysis and revenue requirements which are separately defined for each customer class, not all rates remain the same in the first year (i.e., in FY 2017/18, commonly called the “test year”). Because of this, while fixed charges for the most common meter size (5/8-inch) do not change, fixed charges for some of the other meter sizes do change.

The recommended volumetric rates were re-configured from four tiers to two tiers with new breakpoints between tiers. This was the District's preferred rate design alternative, primarily because it minimizes the “rate-shock” for rate payers. That is, it has the least impact on customers. After these cost-of-service adjustments in the first year, the remaining four years (i.e., FY 2018/19 through FY 2021/22) are then adjusted in an across-the-board manner for the annual percentage rate adjustments of 7 percent⁶ per year (that is, the increase is applied equally to all fixed charges and volumetric rates).

⁵ Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices, M1, AWWA, seventh edition, 2017.

⁶ This figure is inclusive of VOMWD's and Sonoma County Water Agency's rate increases.

Additionally, the District wanted to gradually increase the total amount of revenue collected from fixed charges over time. This resulted in “transitioning rates” that make small increases in the total percentage of revenue collected from fixed charges, beginning in FY 2018/19.

The District provided NBS with the necessary data, including historical, current, and projected revenues, expenditures, customer accounts, and water consumption, along with other operational and capital cost data that were essential for conducting this study.

Rate Design Criteria

It is important for utilities to send proper price signals to its customers about the actual cost of providing service. 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 it 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. For example, the foundation for evaluating rate structures is generally credited to James C. Bonbright in the *Principles of Public Utility Rates*⁷, which outlines pricing policies, theories, and economic concepts along with various rate designs. The other common industry standard is the aforementioned American Water Works Association’s (AWWA) Manual M1.

The following is a list of common rate structure objectives⁸:

- ▮ Rates should yield the necessary revenue in a stable and predictable manner.
- ▮ Rates should minimize unexpected changes to customer bills.
- ▮ Rates should discourage wasteful use and promote efficient uses.
- ▮ Rates should promote fairness and equity (i.e., cost based).
- ▮ Rates should avoid discrimination.
- ▮ Rates should maintain simplicity, certainty, convenience, and freedom from controversy.
- ▮ Rates should comply with all applicable laws (in California, this specifically includes Prop 218).

In addition to these common rate structure objectives, various court decisions over the last several years have imposed more stringent requirements on rate design, and besides ensuring costs do not exceed the proportional share each customer pays, these rulings have required the cost basis for tiered rates be clearly demonstrated. This means there must be a clear and direct nexus between the tiered rates customers pay and the costs included in each tier. Based on the District’s two water supply sources (groundwater and imported water purchased from SCWA), the most defensible rate design is two tiers that are based directly on the costs the District incurs for each of these two supplies.

Rate Structure Terminology

One of the most fundamental points in considering rate structures is the relationship between fixed and variable costs. The vast majority of water rate structures contain both a fixed or minimum charge and a volumetric charge.

⁷ 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.

⁸ From M1 Manual, AWWA, seventh edition, 2017, p. 105.

The District’s capital and operational reserve funding targets incorporated input from District staff and are intended to meet the District’s specific financial objectives. The following discussion describes general industry rate-study practices in California and principals that were reflected in the recommended rates.

FIXED CHARGES

Fixed charges can be called base charges, minimum charges, fixed meter charges, etc. Although fixed charges are typically a significant percentage of the utilities overall costs, water utilities rarely collect 100 percent of their fixed costs through fixed charges. In general, customers prefer that charges include a volumetric component, as there is an inherent and widely recognized equity in a “pay-for-what-you-use” philosophy.

Water utility fixed charges typically increase by meter size. This is because a large portion of water utilities’ costs are typically related to meeting capacity requirements and therefore reflecting the capacity demands of each meter size is important in establishing equitable fixed charges. For example, a customer with a 2” meter may have a fixed meter charge that is eight times greater than the 5/8” meter charge based on the meter’s maximum flow rate.⁹

VARIABLE (CONSUMPTION-BASED) CHARGES

In contrast, variable costs such as the cost of purchased water, electricity used in pumping water, and chemicals used in the water treatment facilities tend to change with the quantity of water produced. Variable charges are generally based on metered consumption and charged on a dollar-per-unit cost (per 1,000 gallons in the District’s case).

There are significant variations in the basic philosophy of variable charge rate alternatives. Under a uniform (single tier) water rate structure, the cost per unit does not change with consumption, and provides a simple and straightforward approach from the perspective of customer understanding and rate administration/billing. Under a tiered water rate structure, costs are allocated to customers who contribute more to the higher costs typically associated with peak periods of consumption and, therefore, costs change with each tier. Often, tiered rates are only used for residential customers for several reasons. As a customer class, residential customers are relatively homogenous; the consumption patterns are fairly similar for single-family units, while non-residential customers have a wide variation in consumption patterns. Because of this, tiered rates for non-residential customers would not match up well with small vs. large water users.

KEY FINANCIAL ASSUMPTIONS

The following are the key assumptions used in the water rate analysis:

- **Funding Capital Projects** – The analysis assumes:
 - Capital costs attributable to existing customers are funded with rate revenue.
 - Capital costs attributable to growth or expansion-related costs will be funded through capacity fee revenue to the extent those revenues are available.
 - All capital projects listed in the financial plans are District projections.

⁹ These are typically referred to as “hydraulic capacity factors” that represent the relative capacity required in the water system. See American Water Works Association, *Water Meters – Selection, Installation, Testing and Maintenance, M6 Manual, Table 5-3.*

- N **Reserve Targets** – Reserves for operations and capital needs are set at levels established by District staff and adopted by the District Board. Reserve targets used in the analysis are as follows:
 - N Operating & Maintenance Reserve – 90 days of O&M costs.
 - N Capital Rehabilitation and Replacement Reserve – \$1.1 million.
 - N Rate Stabilization Reserve – \$500,000.

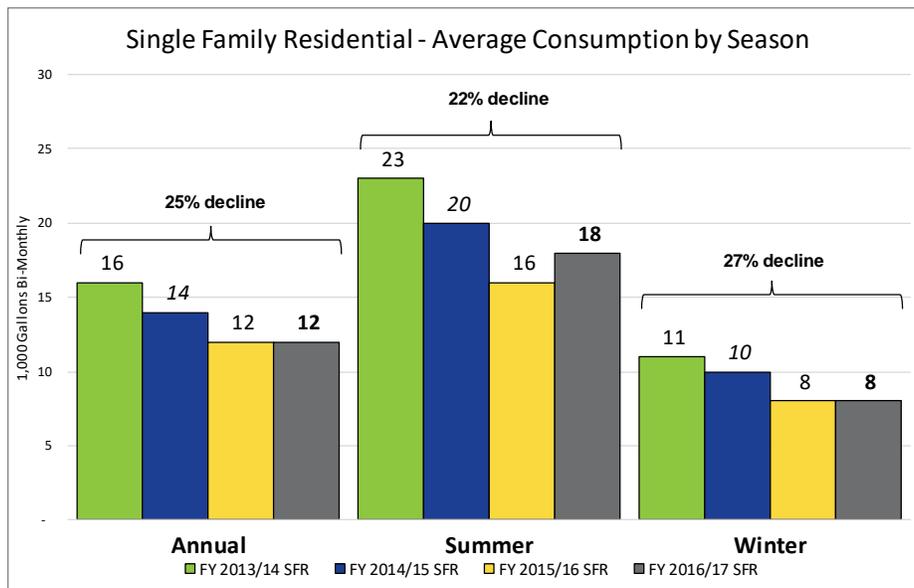
- N **Inflation and Growth Projections** – District-provided inflation and growth projections were applied annually as follows:
 - N General cost inflation is three percent annually.
 - N Customer growth is 0.88 percent through FY 2020/21 and then 0.00 percent thereafter.
 - N Labor cost inflation is 8 percent through FY 2020/21 and then four percent thereafter.
 - N Benefit cost inflation is 10 percent through FY 2021/22 and then five percent thereafter.
 - N Energy and chemical cost inflation is 5 percent annually.
 - N Purchased water (SCWA) cost inflation is 6.5 percent annually.

Water Consumption Trends and Rates

The drought over the last several years has significantly impacted the stability of water rate revenues. Uncertainty about the amount of water sold each year presents a challenge to rate design and how rates should be designed going forward.

Figure 2 summarizes the seasonal average water use by single-family customers and indicates that annual, summer and winter averages have declined from FY 2013/14 to FY 2016/17. Although many people are noting that “the drought is over”, it is unknown what future years hold for annual rainfall and, regardless of rainfall levels, what levels of conservation we will see in the future.

FIGURE 2. SUMMARY OF SEASONAL WATER CONSUMPTION



Rate Design Considerations

Typically, when a water utility sells less water than projected, it under-collects revenue from volumetric charges. This is because some of the fixed costs are typically collected from volumetric rates due to the emphasis on meeting conservation goals. Therefore, the amount of revenue collected from fixed charges should be increased – or more accurately, be closer to the actual percentage of fixed costs, in order to provide more revenue stability and better represent the actual fixed costs incurred.

The District's costs are approximately 70 percent fixed¹⁰ while current rates collect only about 20 percent of rate revenue from fixed charges. This was a major point of discussion in evaluating the District rate design. Ultimately the District decided to keep rates similar to the current rate design (approximately 20 percent of revenue from fixed charges and 80 percent from volumetric), other than some adjustments for the cost-of-service analysis. However, the District also decided to start slowly increasing the amount collected from fixed charges from 20 to 30 percent, starting the second year (FY 2018/19).

The next section discusses the water study in further detail.

¹⁰ A more strict "accounting-based" approach determined fixed/variable costs were closer to 73%/27%, respectively.

Section 3. DEVELOPING RECOMMENDED WATER RATES

Overview: Developing the Recommended Water Rates

The broader water rate study, including the cost-of-service analysis, was undertaken with a few specific objectives in mind, including:

- ▮ Providing revenue stability, to ensure the financial health of the District; this is particularly important following the revenue instability many water utilities experienced during the recent drought.
- ▮ In light of “cost-basis” requirements of recent court decisions, evaluating existing tiered rates and developing alternative rate structures that are not only fair and equitable, but also can easily be defended from a legal perspective.

NBS developed multiple financial plan scenarios and corresponding water rate alternatives as requested by District staff. Each financial plan scenario provided different levels of annual rate increases and projected reserve fund balances. All rate structure alternatives were developed using general industry standards and cost-of-service principles and the District ultimately selected the alternative that best met the District’s overall rate objectives.

The following are the basic tasks included in the cost-of-service and rate design analyses:

- ▮ **Developing Revenue Requirements:** The water revenue requirements were projected based on the current annual budget and input from District staff.
- ▮ **Developing Cost Allocations:** The cost-of-service study used these projected water revenue requirements to “functionalize” them into four categories: (1) fixed capacity costs; (2) variable (or volume-based) costs; (3) customer service costs; and (4) fire service costs. Each of these functional costs has a distinct allocation factor used to determine revenue requirements by customer class.
- ▮ **Determining Revenue Requirements by Customer Class:** Revenue requirements for each customer class were then determined based on allocation factors such as water consumption, capacity peaking factors, and number of accounts by meter size. For example, volume-related costs are allocated based on the annual water consumption for each class, fixed/capacity related costs are allocated based on peaking factors, and customer costs are allocated based on number of accounts in each customer class
- ▮ **Rate Design and Fixed vs. Variable Costs:** These revenue requirements by class are used to evaluate rate-design alternatives, which include determining how much revenue to collect from fixed charges versus variable rates. Fixed costs, such as the costs of infrastructure and capital improvements, billing, and general administrative costs, are typically collected through a fixed monthly charge. Variable costs such as electricity for pumping and purchased water costs are typically collected through volumetric charges. While this study determined that the District’s fixed and variable costs are approximately 70 percent fixed and 30 percent variable¹¹, industry practices provide flexibility regarding the actual percentages collected from fixed vs. variable rates. After evaluating various combinations of fixed vs. variable costs, and based on direction from District

¹¹ A more strict “accounting-based” approach determined fixed costs were higher than 70%.

staff and the District Board, a rate structure that continues to recover 20 percent from fixed charges and 80 percent from variable was selected.

- **Transitioning Rates:** to improve revenue stability, the District has elected to transition fixed rates from about 20 percent of total rate revenue to 30 percent over the four years, beginning in the second year. This equates to about a 2.5 percent increase in fixed charge revenue per year (i.e. 20 percent fixed rate revenues in FY 2017/18, followed by 22.5 percent fixed rate revenues in FY 2018/19, and so on).
- ¶ **Water Conservation:** Due to historically low water demands minimal water conservation was included in projected water sales of around 690 million gallons for FY 2017/18.

Water Utility Revenue Requirements

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 typically consider the need to meet several objectives:

- ¶ **Meeting Operating Costs:** For Fiscal Years 2017/18 through 2021/22, the net revenue requirement (i.e., total annual O&M expenses, debt service, and rate-funded capital costs less non-rate revenues) is estimated to be approximately \$6 million to \$7 million, depending on the level of capital improvement costs each year. However, if rate increases in years 2-5 are not implemented, current revenue is expected to be insufficient to cover these revenue requirements.
- ¶ **Maintaining Reserve Funds:** If rate increases are not implemented, reserves will drop below the sustainable levels needed to fund ongoing water utility operations. In fact, if no rate increases are adopted in the next five years, the annual reserve fund level is projected to reach a deficit of more than \$4 million. Therefore, annual rate increases are necessary to meet reserve fund target levels and maintain the District's healthy financial position. District staff provided the following reserve targets:
 - **Operating Reserves** equal to 90-days of operations and maintenance. For Fiscal Year 2017/18, this is estimated to be \$1.0 million.
 - **Capital Reserves** gradually increasing to \$1.1 million. For Fiscal Year 2017/18 the target is \$660,000; in FY 2018/18 the target balance is \$880,000. In FY 2019/20 and beyond, the target balance is equal to \$1.1 million.
 - **Rate Stabilization Reserves** increasing to \$500,000 over the next two fiscal years. The target balance continues to grow annually to be approximately one month of rate revenues. While this is on the low side of a typical rate stabilization reserve, it represents a significant increase over the current reserve level and will help buffer the revenue instability that often results from collecting a relatively high percentage of revenue from variable rates.
 - **Undesignated Reserves** include funds the District has currently set aside for specific projects and operating costs. This fund does not have any future contributions, or a target balance, and will be exhausted by year 5 of the rate study.

Figure 3 summarizes the sources and uses of funds and net revenue requirements for the next five years, and includes the recommended annual rate increases. Figure 4 summarizes the projected reserve fund balances and reserve targets. A summary of the District's proposed 10-year financial plan, which is

included in Appendix B – Water Rate Study Summary Tables, includes revenue requirements, reserve funds, revenue sources, proposed rate increases, and the District’s capital improvement program.

FIGURE 3. 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
Sources of Water Funds					
Rate Revenue Under Prevailing Rates	\$ 5,150,442	\$ 5,196,000	\$ 5,241,830	\$ 5,288,064	\$ 5,288,064
Non-Rate Revenues	79,411	79,000	79,440	79,884	79,884
Interest Earnings	13,992	5,760	9,720	16,763	22,350
Total Sources of Funds	\$ 5,243,845	\$ 5,280,760	\$ 5,330,990	\$ 5,384,710	\$ 5,390,298
Uses of Water Funds					
Operating Expenses	\$ 3,988,234	\$ 4,255,242	\$ 4,541,912	\$ 4,849,788	\$ 5,180,537
Debt Service	271,975	271,832	271,685	271,533	271,376
Rate-Funded Capital Expenses	2,855,200	1,639,760	1,909,620	1,704,654	1,648,870
Total Use of Funds	\$ 7,115,408	\$ 6,166,834	\$ 6,723,217	\$ 6,825,975	\$ 7,100,784
Surplus (Deficiency) before Rate Increase	\$ (1,871,563)	\$ (886,073)	\$ (1,392,227)	\$ (1,441,264)	\$ (1,710,486)
Additional Revenue from Rate Increases (1)	-	363,720	759,533	1,190,017	1,643,483
Surplus (Deficiency) after Rate Increase	\$ (1,871,563)	\$ (522,353)	\$ (632,693)	\$ (251,247)	\$ (67,003)
Projected Annual Rate Increase (2)	0.00%	7.00%	7.00%	7.00%	7.00%
<i>Cumulative Rate Increases</i>	<i>0.00%</i>	<i>7.00%</i>	<i>14.49%</i>	<i>22.50%</i>	<i>31.08%</i>
Net Revenue Requirement (3)	\$ 7,022,005	\$ 6,082,073	\$ 6,634,057	\$ 6,729,328	\$ 6,998,550

1. Assumes new rates are implemented February 1, 2018.
2. Projected rate increase is inclusive of VOMWD and SCWA's cost increases.
3. Total Use of Funds less non-rate revenues and interest earnings. This is the annual amount needed from water rates.

FIGURE 4. SUMMARY OF WATER 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
Operating Reserve					
Ending Balance	\$ 1,000,000	\$ 1,064,000	\$ 1,135,000	\$ 1,135,000	\$ 1,135,000
<i>Recommended Minimum Target</i>	<i>997,000</i>	<i>1,064,000</i>	<i>1,135,000</i>	<i>1,212,000</i>	<i>1,295,000</i>
Capital Rehabilitation & Replacement Reserve					
Ending Balance	\$ 660,000	\$ 880,000	\$ 1,100,000	\$ 1,100,000	\$ 1,100,000
<i>Recommended Minimum Target</i>	<i>660,000</i>	<i>880,000</i>	<i>1,100,000</i>	<i>1,100,000</i>	<i>1,100,000</i>
Rate Stabilization Reserve					
Ending Balance	\$ 300,000	\$ 297,000	\$ 397,000	\$ 497,000	\$ 310,688
<i>Recommended Minimum Target</i>	<i>300,000</i>	<i>400,000</i>	<i>500,000</i>	<i>518,246</i>	<i>554,524</i>
Undesignated Reserves					
Ending Balance	\$ 3,928,480	\$ 2,059,917	\$ 1,153,564	\$ 129,870	\$ 64,935
Total Ending Balance	\$ 5,888,480	\$ 4,300,917	\$ 3,785,564	\$ 2,861,870	\$ 2,610,623
<i>Total Recommended Minimum Target</i>	<i>\$ 1,957,000</i>	<i>\$ 2,344,000</i>	<i>\$ 2,735,000</i>	<i>\$ 2,830,246</i>	<i>\$ 2,949,524</i>

Characteristics of Water Customers by Class

Water customer characteristics are used in the cost-of-service analysis for allocating costs to customer classes. The District’s most recent customer class data includes the consumption data in Figure 5, peaking factors in Figure 6, and the total number of accounts in Figure 7.

FIGURE 5. WATER CONSUMPTION BY CUSTOMER CLASS

Development of the COMMODITY Allocation Factor				
Customer Class	2016/17 Volume (1,000 gal) (1)	% Adjustment for Conservation	Estimated FY 17/18 Volume Adjusted for Conservation	Percent of Total Volume
Residential (2)	497,188	0%	497,188	72.2%
Commercial (3)	156,404	0%	156,404	22.7%
Institutional	23,926	0%	23,926	3.5%
Irrigation	10,677	0%	10,677	1.6%
Total	688,195	0%	688,195	100%
Fire Lines	96	0%	96	0.0%
Fire Hydrants	790	0%	790	0.0%
Grand Total	689,081	0%	689,081	--

1. Consumption data is based on the District's FY 2016/17 customer billing data.
2. Residential Customers include: Single Family, Multi-Family with 2 or 3 Units, Outside District - Residential, & SCWA Residential customers.
3. Commercial Customers include Multi-Family Residential with 4+ units.

FIGURE 6. PEAKING FACTORS BY CUSTOMER CLASS

Development of the PEAK CAPACITY (MAX BI-MONTH) Allocation Factors				
Customer Class	Average Bi- Monthly Use (1,000 gal)	Peak Bi-Monthly Use (1,000 gal) (1)	Peak Bi-Monthly Factor	Max Bi-Monthly Capacity Factor
Residential (2)	82,865	125,048	1.51	74.3%
Commercial (3)	26,067	32,103	1.23	19.1%
Institutional	3,988	6,896	1.73	4.1%
Irrigation	1,780	4,192	2.36	2.5%
Total	114,699	168,239	--	100%
Fire Lines	16	32	2.00	0.0%
Fire Hydrants	132	397	3.02	0.0%
Grand Total	114,847	168,668	--	--

1. Based on peak bi-monthly data (peak day data not available).
2. Residential Customers include: Single Family, Multi-Family with 2 or 3 Units, Outside District - Residential, & SCWA Residential customers.
3. Commercial Customers include Multi-Family Residential with 4+ units.

FIGURE 7. NUMBER OF ACCOUNTS BY CUSTOMER CLASS

Development of the CUSTOMER Allocation Factor			
Customer Class	Number of Meters (1)	Percent of Total	Fire Service as a Percent of Total Fire Service
Residential (2)	6,647	94.8%	0.0%
Commercial (3)	276	3.9%	0.0%
Institutional	32	0.5%	0.0%
Irrigation	33	0.5%	--
Fire Lines	24	0.3%	100.0%
Total	7,012	100%	100%
Fire Hydrants	5	--	--
Grand Total	7,017	--	--

1. Meter Count data is based on the District's customer billing data for May and June 2017.
2. Residential Customers include: Single Family, Multi-Family with 2 or 3 Units, Outside District - Residential, & SCWA Residential customers.
3. Commercial Customers include Multi-Family Residential with 4+ units.

Cost of Service Analysis

The District's cost-of-service study results are summarized in Figure 8 for the recommended rate design – including the five-year transitioning rate structure. More detailed fixed and variable allocations are shown in Appendix B.

FIGURE 8. SUMMARY OF FIXED AND VARIABLE RATE REVENUE REQUIREMENTS

Classification Components	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22
Projected Annual Rate Revenue Increase (1)	0.0%	7.0%	7.0%	7.0%	7.0%
Variable Costs:	80.0%	77.5%	75.0%	72.5%	70.0%
Commodity-Related Costs	\$ 4,120,354	\$ 4,308,783	\$ 4,501,023	\$ 4,696,609	\$ 4,852,083
Fixed Costs:	20.0%	22.5%	25.0%	27.5%	30.0%
Capacity-Related Costs	889,481	1,099,026	1,336,362	1,604,468	1,890,070
Customer-Related Costs	120,520	130,097	140,432	151,587	162,198
Fire Protection-Related Costs	20,208	21,814	23,547	25,417	27,196
Net Revenue Requirement	\$ 5,150,564	\$ 5,559,720	\$ 6,001,364	\$ 6,478,081	\$ 6,931,547

Figure 9 summarizes the revenue requirement from each type of customer, and indicates that total net revenue requirements in FY 2017/18 are \$5.1 million dollars. Additional revenue requirement tables are included in Appendix B for each of the 5 years covered in this rate study (FY 2017/18 – FY 2021/22).

FIGURE 9. SUMMARY OF ADJUSTED RATE REVENUE REQUIREMENTS BY CUSTOMER CLASS

FY 2017/18	80.0% Variable and 20.0% Fixed					
Customer Classes	Classification Components				Cost of Service Net Rev. Req'ts	% of COS Net Revenue Req'ts
	Commodity-Related Costs	Capacity-Related Costs	Customer-Related Costs	Fire-Related Costs		
Residential	\$ 2,976,759	\$ 661,130	\$ 114,247	\$ -	\$ 3,752,136	72.8%
Commercial	936,420	169,729	4,744	-	1,110,893	21.6%
Institutional	143,249	36,459	550	-	180,259	3.5%
Irrigation	63,925	22,163	567	-	86,656	1.7%
Fire Lines	-	-	413	20,208	20,621	0.4%
Total Net Revenue Requirement	\$ 4,120,354	\$ 889,481	\$ 120,520	\$ 20,208	\$ 5,150,564	100%
<i>Total Net Revenue Requirement by Classification Component</i>	<i>VARIABLE</i> \$4,120,354	<i>FIXED</i> \$1,030,210			\$5,150,564	

Current vs. Proposed Water Rate Structures

Besides merely providing the mechanism for collecting rate revenue from individual customers, as noted earlier water rate design presents an opportunity to consider broader rate-design objectives and policies, including revenue stability and water conservation. During the rate-design analysis, District staff and NBS developed several water rate structure alternatives.

Current Rate Design/Customer Classes: Preserving the current rate structure that maintains fixed monthly service charges by meter size was important in order to maintain administrative efficiency and ease of billing. There are separate classes – and rates – for residential and non-residential customers (i.e. commercial, institutional and irrigation).

Fixed/Variable Rate Alternatives:

- N Rate Alternative #1: 20% fixed/80% variable (the current rate design)
- N Rate Alternative #2: 30% fixed/70% variable
- N Rate Alternative #3: 40% fixed/60% variable
- N Rate Alternative #4: 50% fixed/50% variable

The preferred rate alternative is a blend of two of the options listed above. With respect to the fixed/variable percentages, the current rate design (20% fixed/80% variable) will remain in place and will transition to 30% fixed/70% variable rates over the next four years (through FY 2021/22).

- N **Variable Rates:** Currently all residential customers have 4-tiers and non-residential customers pay a uniform rate per 1,000 gallons. The updated rates include 2-tiers for residential customers and uniform rates for all other customer classes, except that now commercial, institutional and irrigation customers will have different uniform volumetric rates; fire service customers will pay the commercial rate.
- N **Fixed Rates:** There are currently fixed rates, by meter size, for residential, non-residential, and fire service customers. This rate structure is maintained with the proposed rates.

Figure 10 compares the current and recommended rates for FY 2017/18 through 2021/22. Cost-of-service adjustments are reflected in the FY 2017/18 volumetric rates. Thereafter rate increases are applied by means of two mechanisms:

- N First, an overall increase is applied to meet annual rate revenue increases in the financial plan.

- Second, to accommodate the rates transitioning to collect more rate revenue from fixed charges, more revenue is shifted into fixed charges (about 2.5 percent per year).

The District bills bi-monthly. Appendix B provides further detail on the development of the proposed water rates.

FIGURE 10. CURRENT AND PROPOSED BI-MONTHLY WATER RATES FY 2017/18 – 2021/22

Water Rate Schedule	Current Rates	Proposed Rates				
		FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22
Bi-Monthly Fixed Service Charge:						
Residential and MFR 2 & 3 Units						
5/8 inch	\$18.02	\$18.02	\$21.82	\$26.11	\$30.94	\$36.06
3/4 inch	\$25.82	\$25.60	\$31.18	\$37.49	\$44.61	\$52.16
1 inch	\$41.82	\$40.75	\$49.91	\$60.26	\$71.95	\$84.36
1 1/2 inch	\$81.50	\$78.64	\$96.72	\$117.19	\$140.29	\$164.87
2 inch	\$129.08	\$124.11	\$152.90	\$185.49	\$222.30	\$261.49
Commercial, MFR 4+, Institutional & Irrigation						
5/8 inch	\$29.12	\$29.12	\$35.53	\$42.78	\$50.96	\$59.65
3/4 inch	\$42.60	\$42.25	\$51.75	\$62.51	\$74.64	\$87.54
1 inch	\$69.58	\$68.50	\$84.19	\$101.95	\$122.00	\$143.33
1 1/2 inch	\$136.98	\$134.14	\$165.30	\$200.57	\$240.40	\$282.81
2 inch	\$217.88	\$212.91	\$262.62	\$318.91	\$382.48	\$450.18
3 inch	\$474.02	\$422.95	\$522.14	\$634.48	\$761.36	\$896.50
4 inch	\$851.52	\$659.25	\$814.11	\$989.49	\$1,187.61	\$1,398.61
6 inch	\$1,754.80	\$1,315.63	\$1,625.12	\$1,975.65	\$2,371.61	\$2,793.37
Fire Service						
Up to 2 inch	\$17.94	\$14.93	\$16.11	\$17.39	\$18.78	\$20.09
3 inch	\$39.00	\$29.25	\$31.58	\$34.09	\$36.79	\$39.37
4 inch	\$55.64	\$55.64	\$60.06	\$64.83	\$69.98	\$74.88
6 inch	\$111.10	\$123.49	\$133.31	\$143.90	\$155.33	\$166.20
8 inch	\$177.64	\$213.97	\$230.97	\$249.32	\$269.12	\$287.96
10 inch	\$244.12	\$319.52	\$344.91	\$372.31	\$401.88	\$430.01
12 inch	\$309.34	\$402.45	\$434.43	\$468.94	\$506.19	\$541.62
Volumetric Charges for All Water Consumed						
Residential Only - Tiered Rates (Per 1,000 Gallons) (1)						
Tier 1: 0-10	\$3.82	--	--	--	--	--
Tier 2: 11-20	\$5.74	--	--	--	--	--
Tier 3: 21-30	\$8.61	--	--	--	--	--
Tier 4: over 30	\$12.92	--	--	--	--	--
Proposed Rates:						
Tier 1: 0-4	--	\$3.99	\$4.10	\$4.20	\$4.30	\$4.37
Tier 2: 4 +	--	\$6.65	\$6.90	\$7.15	\$7.41	\$7.67
Commercial Uniform Rate - Per 1,000 Gallons	\$5.75	\$5.84	\$6.03	\$6.22	\$6.40	\$6.57
Institutional Uniform Rate - Per 1,000 Gallons	\$5.75	\$5.84	\$6.02	\$6.20	\$6.38	\$6.55
Irrigation Uniform Rate - Per 1,000 Gallons	\$6.23	\$6.42	\$6.73	\$7.06	\$7.40	\$7.76

1. Bi-monthly tier breakpoints shown.
Residential Customers include: Single Family, Multi-Family with 2 or 3 Units, Outside District - Residential, & SCWA Residential customers.

Comparison of Current and Proposed Bi-Monthly Bills

SINGLE-FAMILY CUSTOMERS

Figure 11 compares bi-monthly water bills under the current and proposed rates for single-family customers for a 5/8" inch meter – the most common meter size, in FY 2017/18. Figure 12 compares FY 2017/18 bi-monthly water bills for high use single family residential customers.

FIGURE 11. BI-MONTHLY WATER BILL COMPARISON FOR RESIDENTIAL CUSTOMERS FY 2017/18

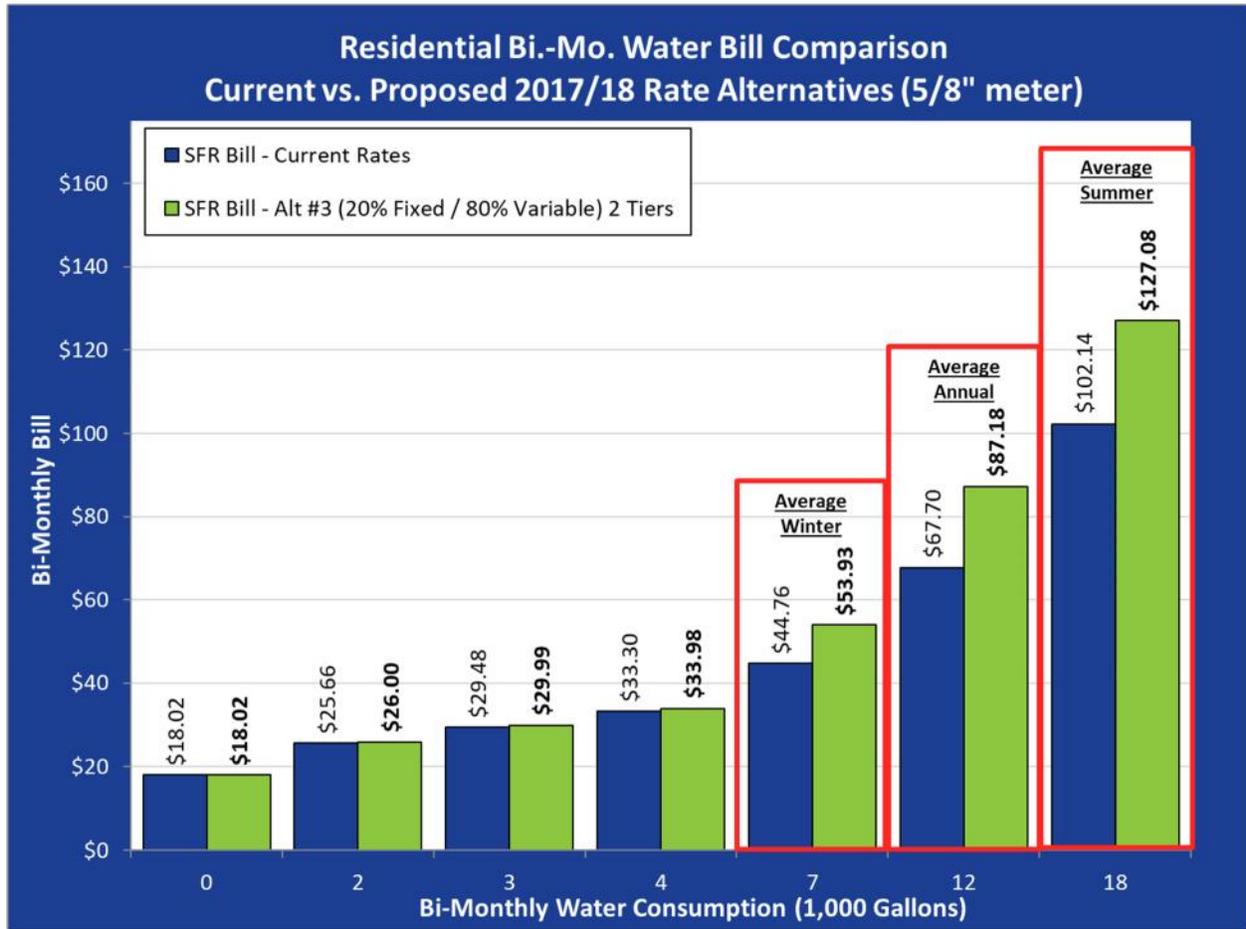
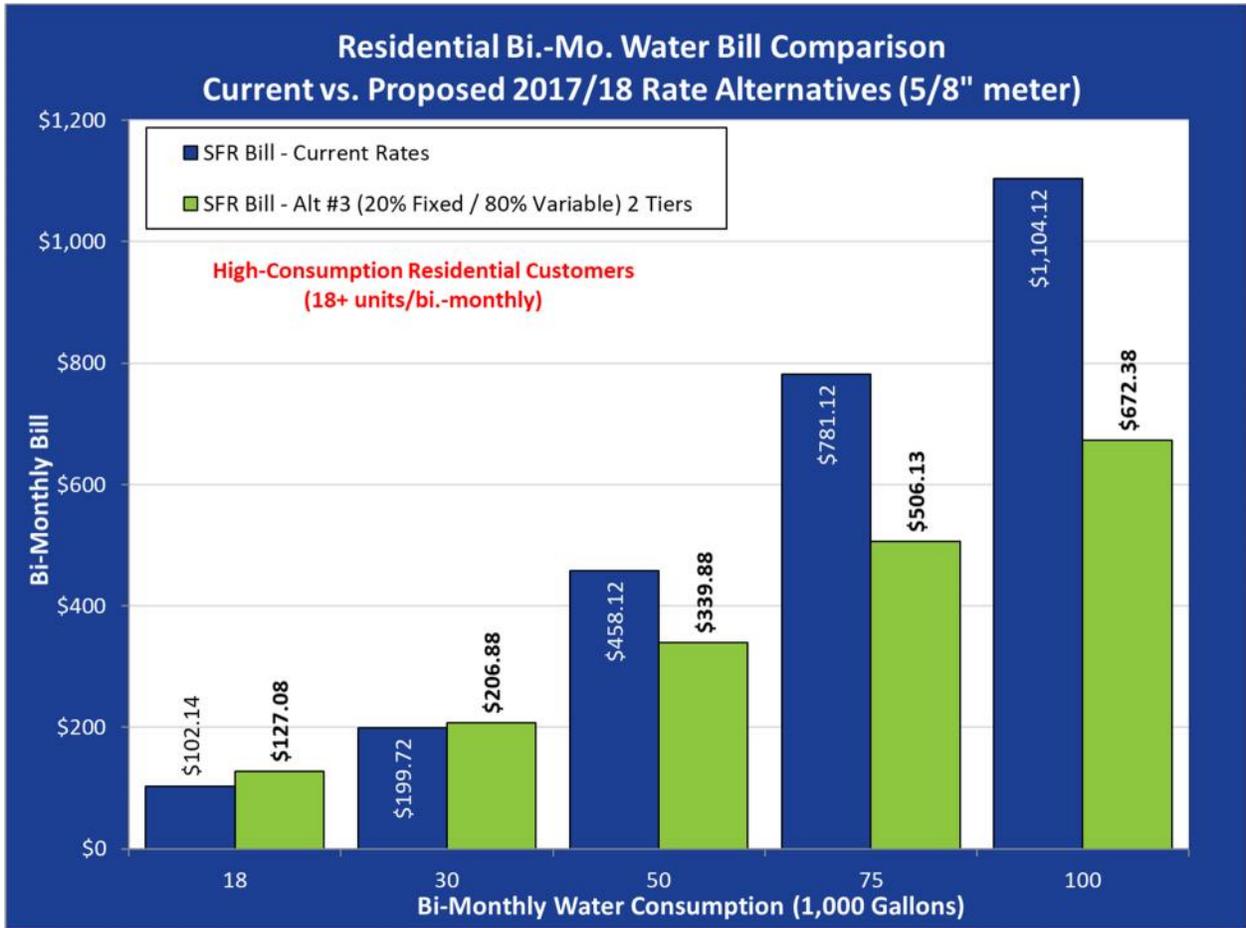


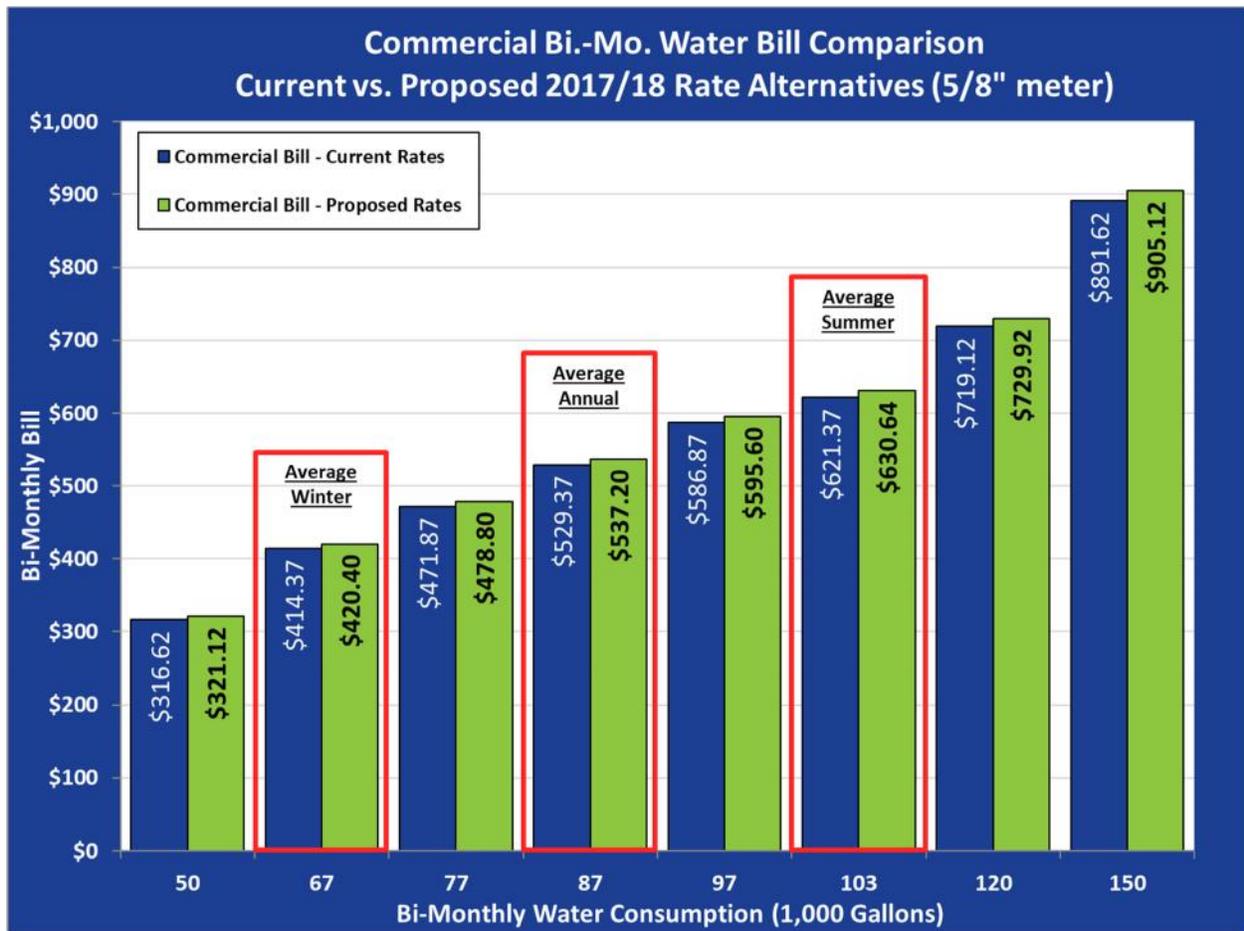
FIGURE 12. BI-MONTHLY BILL COMPARISON FOR HIGH USE RESIDENTIAL CUSTOMERS (FY 2017/18)



COMMERCIAL CUSTOMERS

The District is largely residential (95 percent), with only four percent of customers in the commercial class. Figure 13 compares bi-monthly water bills in FY 2017/18 under the current and proposed rates for commercial customers with a 5/8" inch meter – also the most common meter size.

FIGURE 13. BI-MONTHLY WATER BILL COMPARISON FOR COMMERCIAL CUSTOMERS (FY 2017/18)



INSTITUTIONAL AND IRRIGATION CUSTOMERS

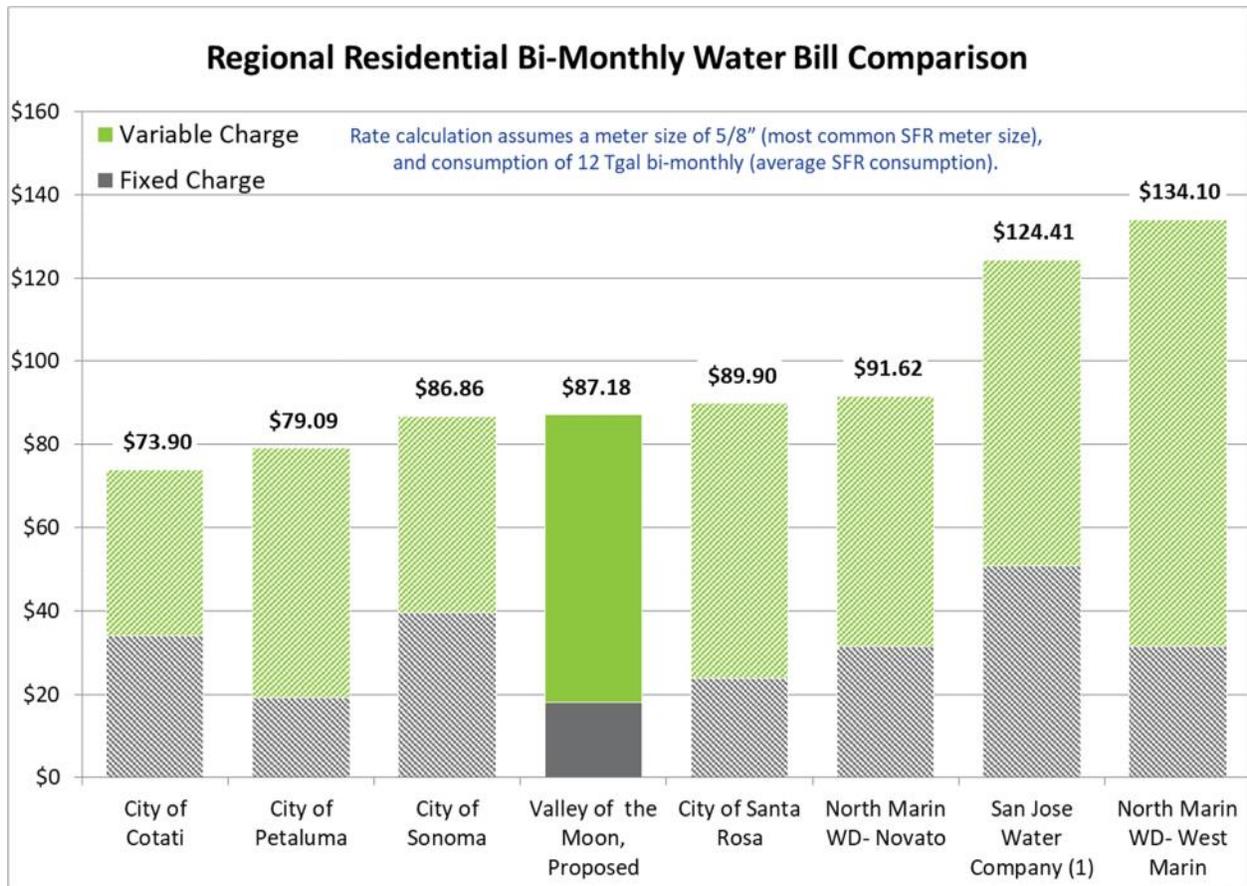
The District has a small number of institutional customers – just over 30 accounts representing less than one percent of all customers. Institutional customers use about 3.5 percent of the District’s water annually.

Irrigation customers also represent a small portion of the Districts customers – just over 30 accounts (also less than one percent of all customers). Irrigation customers use about 1.5 percent of the District’s water annually.

REGIONAL RATE COMPARISONS

For comparison purposes, Figure 14 shows the District’s current and proposed rates compared to regional agencies. The rate calculation assumes 12 thousand gallons of water are consumed bi-monthly by a residential customer with a 5/8-inch water meter.

FIGURE 14. REGIONAL WATER BILL COMPARISONS FOR RESIDENTIAL CUSTOMERS (FY 2017/18)



Section 4. WATER CAPACITY FEE STUDY

Background and Purpose

Capacity fees are one-time fees intended to reflect the cost of existing infrastructure and planned improvements available to new services, and place new utility customers on equal basis from a financial perspective with existing customers. Once new customers are added to the system, they then incur the obligation to pay the same service charges or water rates that existing customers pay.

The District conducted this water capacity fee study to update existing fees and reflect the cost of capital infrastructure required to serve new customers. The next few sections summarize the results of the analysis and present the updated capacity fees that are recommended for new or upsized connections.

General Capacity Fee Requirements

Capacity fees imposed by the District are subject to California’s Mitigation Fee Act (“Act”), embodied in Government Code 66000 et seq., which the State Legislature passed, starting with Assembly Bill 1600 in 1989. The capacity fees presented herein are calculated with the intent of complying with the Act and are based on typical industry methodologies.

In its simplest form, capacity fees (for utilities they are often also referred to as developer fees, connection fees, or system development charges) are calculated by dividing the costs allocated to future development by the number of units of new development:

- ▮ Costs of planned future facilities and improvements required to serve new development are those that can reasonably be allocated to future development.
- ▮ The number of new units (i.e., growth) are those units projected to occur within the timeframe covered by the capacity fee analysis.

Capacity fee revenues may not be used for annual operations or maintenance of existing or new facilities and cannot exceed the actual cost of the public facilities needed to serve the development paying the fee.

Capacity Fee Methodology

Various methodologies have been and are currently used to calculate water capacity fees. The most common methodologies are based on:

- ▮ The value of existing (historical) system assets, often called a “buy-in” methodology.
- ▮ The value of planned future improvements, also called the “incremental” or “system development” methodology.
- ▮ A combination of these two approaches.

This analysis uses the combination approach, which requires new customers to pay both their fair share of existing system assets as well as their share of the planned future capital improvements needed to provide them with capacity in the District’s water system. As a result, new customers connecting to the District would enter as equal participants with regard to their financial commitment and obligations to the utility.

In calculating the water capacity fees, the replacement-cost-new-less-depreciation (RCNLD) value of existing system assets was used to calculate the buy-in component of the capacity fee. The Handy

Whitman Index of Public Utility Construction Costs¹², which is a regionally specific construction cost index that tracks water utility construction costs, was used to estimate the replacement value of the existing system assets. We believe this is an accurate inflation index and appropriate for water utilities. A detailed summary of the fee calculations is included in Appendix C – Water Capacity Fee Study Summary Tables.

Existing Connections and Projected Future Growth

Larger meters have the potential to use more of the water system’s capacity, compared to smaller meters. The potential capacity used is proportional to the maximum hydraulic flow through each meter size as established by the American Water Works Association (AWWA) hydraulic capacity ratios. The AWWA capacity ratios (also known as Flow Factors) used in this study are shown in the fourth column of Figure 15.

FIGURE 15. METER EQUIVALENCE

Meter Size	Existing Water Meters ¹	Equivalent Meters		No. of Equivalent Meters (per 5/8-inch meter)
		Maximum Flow (gpm) ²	Equivalent Meter Factor per 5/8-inch Meter	
5/8 inch	6,219	20	1.00	6,219
3/4 inch	193	30	1.50	290
1 inch	443	50	2.50	1,108
1.5 inch	58	100	5.00	290
2 inch	49	160	8.00	392
3 inch	21	320	16.00	336
4 inch	10	500	25.00	250
6 inch	12	1,000	50.00	600
8 inch	12	1,600	80.00	960
Total	7,017			10,444

The flow factors shown in Figure 15 are the ratio of potential flow through each meter size compared to the flow through a 5/8-inch meter, which is the District’s most common meter size and is used to compare the capacities of the larger meters. The actual number of meters by size is multiplied by the corresponding flow factor to calculate the total number of equivalent meters, which is used as a proxy for the potential demand that each customer can place on the water system. As a result, while there are currently 7,017 total water connections, there are 10,444 equivalent meter connections.

The District’s approved capital improvement plan has a 5-year outlook (through Fiscal Year 2021/22), which is the basis for defining the costs of planned future capital assets. Based on the District’s customer growth projections, there will be approximately 0.88 percent annual growth in the water system over the next three years (through Fiscal Year 2020/21); future growth beyond then is assumed to be zero. The result, as shown in Figure 16, is that the District expects 278 new 5/8-inch equivalent meters over the next twenty years, equivalent to 2.6 percent total growth during the same time.

¹² *The Handy-Whitman Index of Public Utility Construction Costs*. Baltimore, MD: Whitman, Reardon and Associates, 2017. Print.

FIGURE 16. PROJECTED CUSTOMER GROWTH

Demographic Statistics	Existing Total	Projected Service Total by FY 2036/37 (Next 20-Yrs.)	Allocation Factors		Cumulative Change	
			Existing Services	Future Services	Number of Units	% Increase
Single Family Meter Equivalent Units	10,444	10,722	97.4%	2.6%	278	2.6%

1. Billing data provided by District staff; July 2016 - June 2017 data used. Number of Meters based on May & June 2017 billing data. Note: Valley of the Moon Water District has bi-monthly billing.

2. Source: AWWA Manual M1, "Principles of Water Rates, Fees and Charges", Table B-2. Assumes displacement meters for 5/8- through 1.5-inch meters, Compound Type, Class I Type for 2- and 8-inch meters.

Existing and Planned Future Assets

The District’s capital assets include existing assets and planned capital improvements (i.e., the buy-in and incremental assets). The resulting RCNLD value of existing assets are about \$77 million; see Appendix C for full details. For the purpose of this analysis, assets that have exceeded their useful life (as defined in the District’s asset records) were considered to have no remaining value.

Most of the RCNLD costs were allocated to existing users based on the 97.4 percent allocation factor shown in Figure 16. Figure 17 identifies \$1,997,111 of existing assets and \$979,890 (in 2017 dollars) of future capital project costs were allocated to future customers.

FIGURE 17. SUMMARY OF COST BASIS FOR FUTURE WATER CUSTOMERS

System Asset Values Allocated to Future Development	
<i>System Asset Values Allocated to New Development</i>	
Existing System Buy-In	\$ 1,997,111
Future System Expansion	979,890
Total: Existing & Future System Costs	\$ 2,977,001
<i>Adjustments to Cost Basis:</i>	
Cash Reserves	\$ 152,759
Outstanding Long-Term Debt (Principal) Allocated to Future Users	(38,323)
Total: Adjustments to Cost Basis	\$ 114,437
Total Adjusted Cost Basis for New Development	\$ 3,091,437

Adjustments to the Cost Basis

Existing cash reserves are treated as an asset, since existing customers contributed them and they are available to pay for capital and/or operating costs. The cash reserves are, in a sense, no different from any other system asset. As shown in Figure 17, the 2.6 percent of the existing cash reserves allocated to future users is \$152,759.

There was a \$38,323 credit related to outstanding bonds allocated to the cost basis. This credit was included because some existing assets were at least partially funded with loans that will be paid in future years by the “existing customers” at that time. Since new connections pay their share of existing asset values, including the remaining outstanding debt on those same assets would be double counting the asset values in the capacity fees.

Calculated Capacity Fees

The sum of the existing and planned asset values (that is, the system buy-in and system development costs), along with the adjustments for existing cash reserves and outstanding principal payments, defines the total cost basis allocated to future customers. The total adjusted cost basis is then divided by the number of future customers, measured in 5/8-inch meter equivalents, expected to connect to the system (that is, the 278 meter equivalents shown in Figure 16). This calculation is shown in Figure 18. The resulting new capacity fees for each meter size are shown in Figure 19. The updated capacity fees represent the maximum fee that the District could charge for new connections.

FIGURE 18. COSTS ALLOCATED TO FUTURE WATER CUSTOMERS & NEW CAPACITY FEES

Summary of Costs Allocated to Capacity Fees	Adjusted System Cost Basis	Equivalent Meters	Maximum Base Capacity Fee
Maximum Water Capacity Per 5/8-inch meter	\$ 3,091,437	278	\$ 11,114

FIGURE 19. UPDATED WATER CAPACITY FEES

Meter Size	Equivalent Meters		Maximum Unit Cost (\$/Equivalent Meter)	Updated Maximum Capacity Fee Per Meter
	Maximum Flow (gpm) ¹	Equivalent Meter Factor per 5/8-inch Meter		
5/8 inch	20	1.00	\$11,114	\$11,114
3/4 inch	30	1.50	\$11,114	\$16,671
1 inch	50	2.50	\$11,114	\$27,785
1 1/2 inch	100	5.00	\$11,114	\$55,570
2 inch	160	8.00	\$11,114	\$88,913
3 inch	320	16.00	\$11,114	\$177,825
4 inch	500	25.00	\$11,114	\$277,852
6 inch	1,000	50.00	\$11,114	\$555,704
8 inch	1,600	80.00	\$11,114	\$889,126

1. Source: AWWA Manual M1, "Principles of Water Rates, Fees and Charges", Table B-2. Assumes displacement meters for 5/8- through 1.5-inch meters, Compound Type, Class I Type for 2- and 8-inch meters.

Accessory Dwelling Units

Two recent legislative measures¹³ restrict the ability of "local agency, special district, or water corporation" to charge capacity fees to new accessory dwelling units (ADUs). Specifically, that they shall not be considered new residential for the purposes of calculating utility connection charges, including water capacity fees. NBS recommends the District have its attorney review this new legislation with regard to its application to the District's capacity fees.

¹³ See AB 229 and AB 1069.

Front Footage Charges

CURRENT FRONT FOOTAGE CHARGES

The District currently charges new customers connecting to the District a front footage charge of \$43/linear foot, with a minimum of 100 feet. While the basis for this fee is not abundantly clear, NBS' understanding is that the fee is intended to reflect several costs:

- ▮ The costs of extending water mains and/or related costs of installation for new connections.
- ▮ Future maintenance and repair and replacement costs.
- ▮ Oversizing costs, with the intent that the District, by collecting these fees, will at least partially repay connections that have incurred additional costs to upsize a distribution system extension for the purpose of providing capacity for future customers connecting to the same distribution main.

DIFFERENT TYPES OF "CONNECTION FEES"

Connection fees, or system development charges, should be determined in a manner that reflects actual costs incurred and be applied in a fair and equitable manner.¹⁴ Several separate issues are involved in the front footage charges, and need to be separately addressed:

- ▮ **Capital costs:** can be either related to the equitable share of system assets that reflect the capacity of the new connection, or the costs of connecting the customers to the system, such as the cost of the meter and service line from the water main to the meter (often called "hook-up charges").
- ▮ **Future maintenance costs:** including repair and replacement of the extension and/or service line. These types of costs should be recovered through rates as opposed to connection fees.
- ▮ **Over-sizing credits:** when the District requires an extension of a water main to be over-sized¹⁵ in order to provide potential future connections with capacity, there should be a mechanism to reimburse the original customer for these over-sizing costs.
- ▮ **Water main extension costs:** similar to over-sizing credits, the costs of water main extensions should not ultimately be paid only by the "first-in" customer, but also by future customers that also use that main extension. A reimbursement mechanism should be developed to facilitate this repayment, and the District is typically the entity that creates and implements that mechanism.

ADJUSTING THE CURRENT FRONT FOOTAGE CHARGE MECHANISM

To address these different types of costs, separate mechanisms should be used:

- ▮ **Developer Agreements:** often when a significant new connection (e.g., larger than a single-family residence) requires water main extensions, a developer agreement is used to identify and establish what the developer will pay for and how the improvements will be constructed. This could include the connection fee (system capacity-related costs), water main extensions, and reimbursements where appropriate.
- ▮ **Connection fees:** this would be the typical connection charge where water main extensions or other significant system improvements are not involved.

¹⁴ Although the San Juan Capistrano decision noted earlier addresses Prop 218-related charges, and connection fees are not subject to Prop 218 requirements, the broader perspective is that public water agencies should determine all charges in a manner that demonstrates the actual cost basis for the charge.

¹⁵ That is, the pipe is larger than required for just the customer connecting at the time the water main extension is constructed.

- ¶ **Reimbursements:** This would be intended to establish how future customers connection to the water main extension would reimburse the “first-in” customer for costs of extending service to new areas that were previously not able to connect. This includes both the costs of the water main extension and the costs of over-sizing.

RECOMMENDATIONS

NBS recommends the District eliminate the current front-footage charge and replace it with (1) new connection fees, which are already addressed in this section, (2) where appropriate, developer agreements that are specific to the individual development, and (3) reimbursement mechanisms that allow for repayment of the first-in connection by future connections to that same water-main extension. This last mechanism should ensure that the first-in customer does not subsidize future connections, and would need further analysis and review by both District staff and Board before adoption.

Water Capacity Fee Findings Statements

The Mitigation Fee Act establishes requirements for imposing capacity fees and requires local governments to document certain findings when adopting a capacity fee. The new water capacity fees calculated in this report are based on these regulatory requirements and generally accepted industry standards, and are further documented in Appendix C. This study makes the following findings:

- ¶ The purpose of the District’s water capacity fee is to ensure that new and upsized connections reimburse and/or mitigate a reasonable portion of the District’s planned capital investments. These investments benefit and/or are necessary to accommodate increased demand for water service.
- ¶ The District uses capacity fee proceeds to fund capital investments in the water system, which include the future design and construction of planned facilities and partial payment of debt service related to capital improvements.
- ¶ Capacity fees for new water customers vary depending on the size of the water meter serving the connection. Meter size is generally proportionate to the demands a parcel places on the water utility system, specifically the peaking requirements related to the meter size.
- ¶ Figure 15 illustrates the equivalency factors differentiating meter sizes, based on their maximum continuous flow. Of the meters currently connected to the system, a majority are 5/8-inch meters, representing an equivalency factor of 1.0, from which the number of equivalent meters for all larger meters is calculated.
- ¶ All parcels seeking permission to connect to the District’s water system are subject to the water capacity fee, payment of which is a condition of connection approval. Figure 16 identifies the total number of projected future water customers.
- ¶ The District has made investments in water infrastructure, and plans to invest further in expanded and upgraded facilities. These investments make possible the availability and continued reliable provision of utility service of high quality water sufficient to meet demands of growth within the Districts service area.
- ¶ Capacity fees are derived directly from the value of capital investments in existing and planned water facilities. Without capital investment in existing facilities, the water system capacity available to serve the needs of future connections would be uncertain. Without planned investments in

future facilities, water service would not be sustainable at the level of service enjoyed by current users. The total value of planned water system assets that are attributable to serving future connections is identified in Figure 17.

- ¶ The water infrastructure cost per single-family equivalent meter for a new connection is \$11,114 per equivalent meter, as identified in Figure 18.
- ¶ Upon payment of a capacity fee, a new customer incurs the obligation to pay the same ongoing service rates as existing customers, regardless of the date of connection to the systems or the actual start of service. Capacity fees ensures that, over time, ongoing service rates are not disproportionately burdened by the accommodation of system growth.

Section 5. RECOMMENDATIONS AND NEXT STEPS

Consultant Recommendations

This water rate and capacity fee study reflects input from District staff and the District Board and is intended to comply with general industry standards and State law, and specifically the requirements of Proposition 218 (which applies to water rates) and the Mitigation Fee Act (which applies to capacity fees). Public hearings and protest balloting requirements are the next steps required to complete the adoption and implementation requirements for water rates. The District Board can directly adopt new capacity fees in a public hearing, but they are not subject to Proposition 218 requirements. As a part of this process, NBS recommends the District take the following actions:

- ▮ **Approve and Accept This Study Report:** NBS recommends the District Board formally approve and adopt this report and its recommendations. This will provide the documentation and administrative record necessary to adopt and implement these rates and capacity fees.
- ▮ **Implement Recommended Rate Increases and Proposed Rates:** Based on successfully meeting the Proposition 218 balloting requirements, the District Board could proceed with implementing the rate increases and rate structures recommended in this report for the next five years (see Figure 10 and Figure 19). However, the District has typically only implemented rates for a two-year period.
- ▮ **Implement New Capacity Fees:** Based on the analysis presented in this report, the District Board should implement the new capacity fees recommended in this report, which are \$11,114 per 5/8-inch meter equivalent.
- ▮ **Eliminate Front Footage Charges:** Front footage charges would be replaced with recommended connection fees, developer agreements when appropriate, and reimbursement mechanisms that allow for repayment of the first-in connection by future connections to that same water-main extension (subject to further analysis).

Next Steps

Annually Review Rates and Revenue: Any time an agency adopts new utility rates, particularly when facing significant future capital costs, 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 capital improvement and repair and replacement costs that can significantly affect annual cash flows.

Principal Assumptions and Considerations

In preparing this report and the recommendations included herein, NBS has relied on a number of principal assumptions and considerations with regard to financial matters, including the District's operating budgets, capital improvement plans, customer account data, water consumption records, and other conditions and events projected to occur in the future. This information and these assumptions 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 or may vary significantly due to unanticipated events and circumstances. Therefore, the actual results can be expected to vary from those projected to the extent that actual future conditions differ from those assumed by us or provided to us by others.

Section 6. APPENDIX A – ABBREVIATIONS & ACRONYMS¹⁶

AAF	Average Annual Flow
AF	Acre Foot, equal to 435.6 HCF/CCF or 325,851 gallons
Alt.	Alternative
Avg.	Average
AWWA	American Water Works Association
BMP	Best Management Practice
BOD	Biochemical Oxygen Demand
CA	Customer
CAP	Capacity
CCF	Hundred Cubic Feet (same as HCF); equal to 748 gallons
CCI	Construction Cost Index
COD	Chemical Oxygen Demand
COM	Commodity
Comm.	Commercial
COS	Cost of Service
COSA	Cost of Service Analysis
CPI	Consumer Price Index
CIP	Capital Improvement Program
DU	Dwelling Unit
Excl.	Exclude
ENR	Engineering News Record
EDU	Equivalent Dwelling Unit
Exp.	Expense
FP	Fire Protection
FY	Fiscal Year (e.g., July 1st to June 30th)
FY 2016/17	July 1, 2016 through June 30, 2017
GPD	Gallons per Day
GPM	Gallons per Minute
HCF	Hundred Cubic Feet; equal to 748 gallons or 1 CCF
Ind.	Industrial
Irr.	Irrigation
LAIF	Local Agency Investment Fund
Lbs.	Pounds
MFR	Multi-Family Residential
MGD	Million Gallons per Day
MG/L	Milligrams per Liter
Mo.	Month
Muni.	Municipal
NH ₃	Ammonia
NPV	Net Present Value
N/A	Not Available or Not Applicable
O&M	Operational & Maintenance Expenses
Prop 13	Proposition 13 (1978) – Article XIII A of the California Constitution which limits taxes on real property to 1 percent of the full cash value of such property.
Prop 218	Proposition 218 (1996) – State Constitutional amendment expanded restrictions of local government revenue collections.
Req't	<i>Requirement</i>

16 This appendix identifies abbreviations and acronyms that may be used in this report. This appendix has not been viewed, arranged, or edited by an attorney, nor should it be relied on as legal advice. The intent of this appendix is to support the recognition and analysis of this report. Any questions regarding clarification of this document should be directed to staff or an attorney specializing in this particular subject matter.

Appendix A, continued

Res.	Residential
Rev.	Revenue
RTS	Readiness-to-Serve
R&R	Rehabilitation & Replacement
SFR	Single Family Residential
SRF Loan	State Revolving Fund Loan
SWRCB	State Water Resources Control Board
TSS / SS	Total Suspended Solids
V. / Vs. /vs.	Versus
WWTP	Waste Water Treatment Plant

Section 7. **APPENDIX B – WATER RATE SUMMARY TABLES**

Section 8. **APPENDIX C – WATER CAPACITY FEE
SUMMARY TABLES**
