



Ventura River Water District
We Serve Water

REVENUE REQUIREMENTS, COST OF SERVICE, AND RATE SETTING ANALYSIS

Robert D. Niehaus, Inc.

January 22, 2018



**VENTURA RIVER WATER DISTRICT
REVENUE REQUIREMENTS, COST OF SERVICE, AND
RATE SETTING ANALYSIS**

FINAL MEMO

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Introduction

Ventura River Water District (VRWD, or the District) serves potable water to customers in the communities of Casitas Springs, Live Oak Acres, Los Encinos, Oak View, the Mira Monte area of the Ojai Valley, and a portion of the City of Ojai. The District provides water to a population of approximately 5,700 people. VRWD supplies water from four wells located near Ventura River in Ojai, California. The District also has five water system connections to receive treated surface water from Lake Casitas. Customers in Casitas Springs (Zone 4), and Rio Via and Monte Via in Oak View (Zone 3) receive Lake Casitas water at all times. All other customers may receive Lake Casitas surface water if the District wells need repair or the aquifer declines. A blend of surface and ground water is delivered on those occasions.

The District had 2,160 customer accounts in FY 2016-17, of which 2,088 were single-family residential customers representing 97.0 percent of total accounts. The District also has multi-family and commercial customers as well as six private fire protection service and 264 public fire protection service (fire hydrants) accounts. Over the current year (FY 2017-18) plus five-year study period (FYE 2018-19 – FY 2022-23), the District projects 0.2 percent overall account growth.

Table 1. The Number of Customer Accounts by Customer Class and Zone for FY 2016-17 – FY 2022-23

| Customer Classes | FY 2016-17 | FY 2017-18 | FY 2018-19 | FY 2019-20 | FY 2020-21 | FY 2021-22 | FY 2022-23 |
|------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Single Family Residential - Zone 1 | 1,323 | 1,324 | 1,324 | 1,325 | 1,325 | 1,326 | 1,326 |
| Multi Family Residential - Zone 1 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| Commercial - Zone 1 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| Single Family Residential - Zone 2 | 565 | 565 | 566 | 566 | 566 | 566 | 566 |
| Multi Family Residential - Zone 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Single Family Residential - Zone 3 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Single Family Residential - Zone 4 | 125 | 126 | 126 | 127 | 128 | 128 | 128 |
| Multi Family Residential - Zone 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Commercial - Zone 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Private Fire Protection | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Total Customer Accounts | 2,160 | 2,162 | 2,163 | 2,165 | 2,166 | 2,167 | 2,167 |
| Public Fire Protection (Hydrants) | 264 | 264 | 264 | 264 | 264 | 264 | 264 |

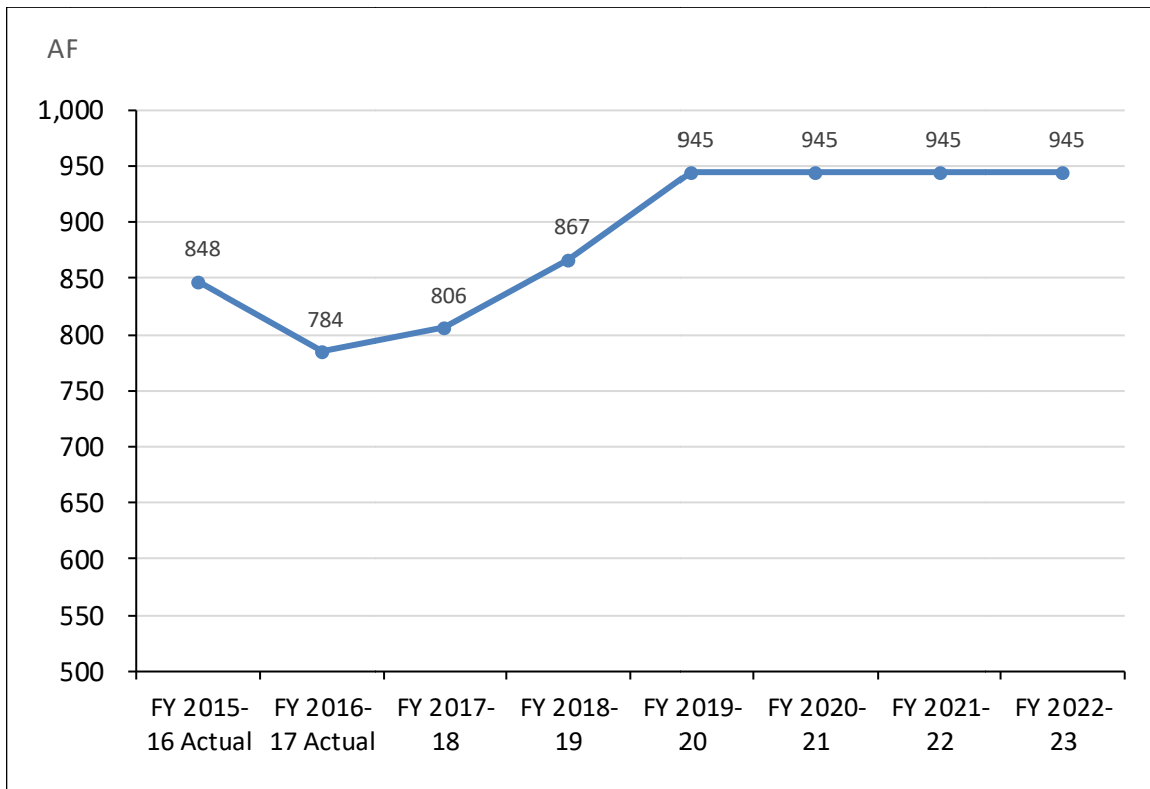
Water Demand Projections

The VRWD water demands for the study period FY 2017-18 (current) plus five years (FY 2018-19 through FY 2022-23) were projected based on the FY 2015-16 and FY 2016-17 usage as well as the District's historical usage pattern by customer class and zone, and approved by the District and its Board of Directors. Table 2 displays the District's total actual usage for FY 2015-16 and FY 2016-17, and projected demand for FY 2017-18 through FY 2022-23. Figure 1 presents the same data graphically.

Table 2. VRWD Water Demand for FY 2015-16 - FYE 2022-23

| | FY 2015-16 Actual | FY 2016-17 Actual | FY 2017-18 | FY 2018-19 | FY 2019-20 | FY 2020-21 | FY 2021-22 | FY 2022-23 |
|------------|----------------------|----------------------|------------|------------|------------|------------|------------|------------|
| AF | 848 | 784 | 806 | 867 | 945 | 945 | 945 | 945 |
| HCF | 368,783 | 341,098 | 350,610 | 377,145 | 411,075 | 411,075 | 411,075 | 411,075 |

Figure 1. VRWD Water Demand for FY 2015-16 – FY 2022-23



Revenue and Revenue Requirements Analysis

Based on the District’s demand projections, revenues from water sales under the current rates were forecasted for the study period. The itemized operating and maintenance (O&M) expenses were carefully reviewed by the District and also forecasted for the study period using escalation factors, which were computed and analyzed for various types of expenses. The capital expenses were projected for the next ten years (FY 2017-18 – FY 2026-27). RDN computed an annual average of capital expenses to capture a representative year of evenly distributed capital improvement projects (CIPs). These projected expenses, other operating revenues (excluding rate revenues), non-operating revenues such as interest income and property tax, and the District’s target net cash balance were used to calculate revenue requirements for the current year plus the five-year study period. The District’s financial goal is to reach a net cash balance of \$1 million by the end of FY 2022-23 for capital and operating reserves that include emergency funds for operating, water sales, fluctuation, and capital improvement projects.

Table 3. VRWD Projected Revenue Requirements for FY 2017-18 – FY 2022-23

| Function and Type of Costs | FY 2017-18 | FY 2018-19 | FY 2019-20 | FY 2020-21 | FY 2021-22 | FY 2022-23 |
|---|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| 1 Revenues | \$2,185,687 | \$2,504,972 | \$2,902,080 | \$3,121,113 | \$3,356,953 | \$3,610,759 |
| 2 Water Sales | \$2,176,687 | \$2,492,932 | \$2,889,999 | \$3,108,912 | \$3,344,425 | \$3,597,796 |
| 3 Other Operating Revenues | \$9,000 | \$12,040 | \$12,080 | \$12,201 | \$12,528 | \$12,963 |
| 4 PWS | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| 5 O&M Expenses | -\$1,848,187 | -\$1,899,890 | -\$1,956,792 | -\$2,015,124 | -\$2,073,326 | -\$2,134,552 |
| 6 Fixed | -\$1,695,129 | -\$1,734,053 | -\$1,776,844 | -\$1,819,581 | -\$1,860,531 | -\$1,902,662 |
| 7 Variable | -\$153,058 | -\$165,837 | -\$179,948 | -\$195,544 | -\$212,794 | -\$231,890 |
| 8 New Water | -\$25,000 | -\$25,500 | -\$26,010 | -\$26,530 | -\$27,061 | -\$27,602 |
| 9 Net Operating Revenues | \$312,500 | \$579,582 | \$919,278 | \$1,079,459 | \$1,256,567 | \$1,448,605 |
| 10 Property Tax | \$35,000 | \$35,000 | \$35,000 | \$35,000 | \$35,000 | \$35,000 |
| 11 Other non-operating Revenues | \$15,500 | \$10,000 | \$10,000 | \$10,000 | \$10,000 | \$10,000 |
| 12 CIP Expenses | -\$969,607 | -\$969,607 | -\$969,607 | -\$969,607 | -\$969,607 | -\$969,607 |
| 13 Fixed | -\$810,728 | -\$810,728 | -\$810,728 | -\$810,728 | -\$810,728 | -\$810,728 |
| 14 Variable | -\$158,878 | -\$158,878 | -\$158,878 | -\$158,878 | -\$158,878 | -\$158,878 |
| 16 Conservation Program | -\$89,911 | -\$91,753 | -\$93,793 | -\$95,824 | -\$97,754 | -\$99,741 |
| 17 O&M | -\$81,018 | -\$82,860 | -\$84,900 | -\$86,930 | -\$88,861 | -\$90,847 |
| 18 CIP | -\$8,893 | -\$8,893 | -\$8,893 | -\$8,893 | -\$8,893 | -\$8,893 |
| 19 Depreciation | \$240,000 | \$244,800 | \$249,696 | \$254,690 | \$259,784 | \$264,979 |
| 20 Contribution to (withdrawal from) reserves | -\$456,518 | -\$191,978 | \$150,575 | \$313,718 | \$493,989 | \$689,237 |
| 21 Beginning of the Year Balance | \$2,728,779 | \$2,272,261 | \$2,080,283 | \$2,230,858 | \$2,544,576 | \$3,038,565 |
| 22 Ending Balance | \$2,272,261 | \$2,080,283 | \$2,230,858 | \$2,544,576 | \$3,038,565 | \$3,727,802 |
| 23 Total Revenue Requirement with Reserve Contribution | -\$2,176,687 | -\$2,492,932 | -\$2,889,999 | -\$3,108,912 | -\$3,344,425 | -\$3,597,796 |
| 24 Total Rate Revenue Requirements without Reserve Contribution | -\$2,633,205 | -\$2,684,910 | -\$2,739,425 | -\$2,795,194 | -\$2,850,435 | -\$2,908,559 |
| Cumulative Water Service Revenue | \$2,185,687 | \$4,690,659 | \$7,592,739 | \$10,713,852 | \$14,070,805 | \$17,681,563 |
| Cumulative Net Reserves | -\$456,518 | -\$648,496 | -\$497,921 | -\$184,203 | \$309,786 | \$999,023 |

Some of the key points in computing the District's revenue requirements are:

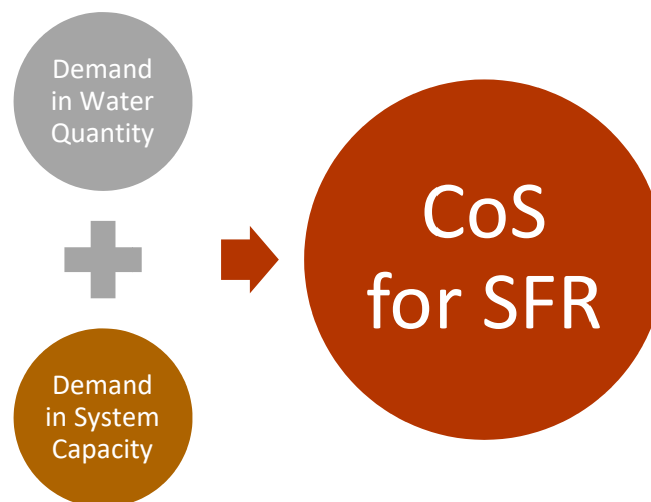
- Water sales are computed using the current rates and rate structure for the purpose of this analysis;
- Water sales include volumetric, base (meter), and additional dwelling charges (line 2);
- Revenues from volumetric charges were computed based on the projected demand (806 HCF) for FY 2017-18;
- An overall rate increase of 7.6 percent was applied to all charges including volumetric, base, and additional dwelling charges to compute water sales for FY 2018-19 – FY 2022-23 (line 2) in order to achieve the District's cumulative net cash balance target;
- The items highlighted in gray in Table 3 presenting direct costs/revenues were not included in the process of the CoS analysis, but added back to applicable customer classes' cost share at the end prior to the rate setting analysis (line 8, 10, 17, 18);
- Net Balance = line 1 - (line 5 + 8 + 10 + 11 + 12 + 16 + 19);
- Total Revenue Requirements (Line 23) = line 3 + 4 + 5 + 8 + 10 + 11 + 12 + 16 + 19 + 20;

- Total Rate Revenue Requirements (Line 24) = line 3 + 4 + 5 + 8 + 10 + 11 + 12 + 16 + 19; and
- FY 2017-18 rate revenue requirement of \$2.6 million was used for the following CoS analysis

Cost of Service Analysis

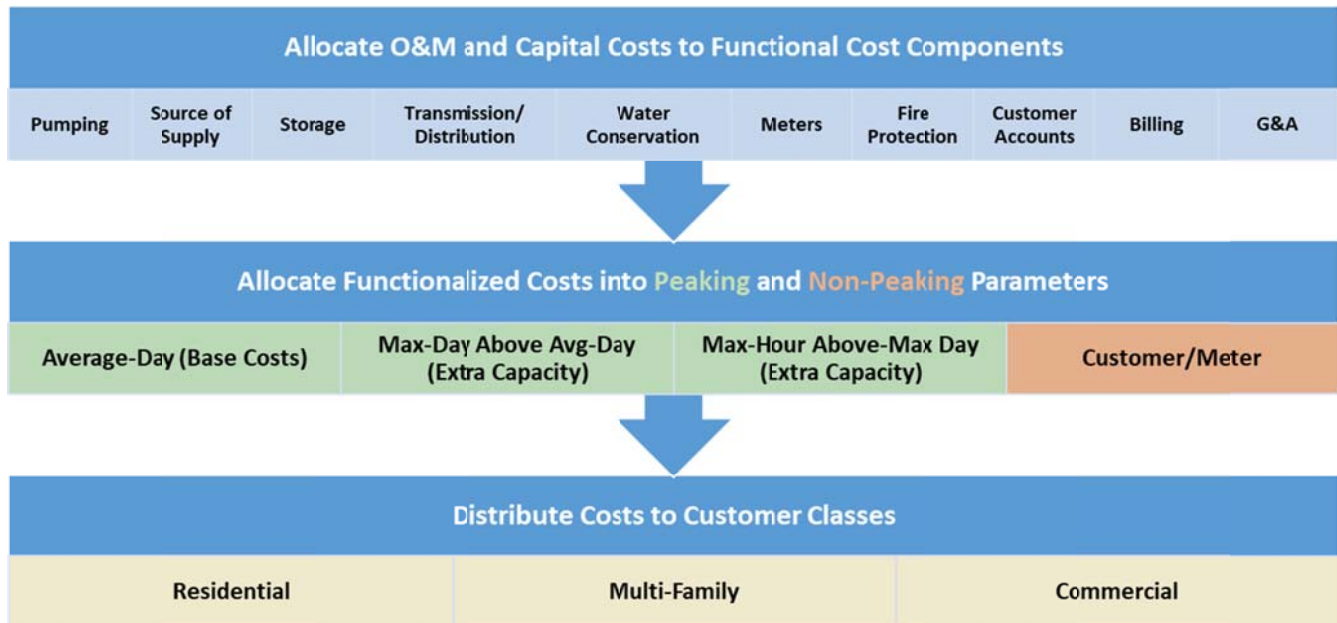
The purpose of Cost of Service Analysis (CoS) is to allocate costs among the customers commensurate with their service requirements. The concept of proportionate allocation of costs to customer classes implies that allocations should take into consideration not only the relative quantity of water used by each class but also the peak rate at which it is consumed. For example, there are costs associated with a pumping station capable of meeting peak demands. These costs need to be allocated appropriately so that the customer class with higher peak demands pays proportionately more to offset the costs of its peak demands.

Figure 2. Composition of Cost of Service Analysis for Single-Family Residential Customers



The District is composed of various facilities that serve a particular function to provide water service. These facilities are designed and operated to meet the average-day and peak demands as well as customer-related requirements. In using the base-extra capacity method described in the American Water Works Association (AWWA) M1 - the manual on water rates - costs are typically separated into three broad cost components: “Base,” “Extra Capacity,” and “Customer.” Peaking factors are used as a proxy for determining and allocating the cost of providing extra capacity in the District to meet peak demands. A CoS analysis considers both the average quantity of water consumed in a day (base costs) and the peak rate at which it is consumed (peaking or capacity costs as identified by maximum day and maximum hour demands). There are additional costs associated with designing, constructing, and operating and maintaining facilities to meet peak demands. “Customer” and “Meter” are non-peaking parameters and measured by the number of billings in a year and equivalent meter counts, respectively.

Figure 3. Cost of Service Analysis Process



RDN computed peaking factors based on the District’s provided data for each customer class and zone. Table 4 presents peaking and non-peaking parameters by customer class and zone.

Table 4. Peaking and Non-peaking Parameters by Customer Class

| Cost Parameters | Average Day | | Max Day | | | Max Hour | | | Meters | Customer Service |
|------------------------------------|----------------|-------------|---------|--------------|-----------------------|----------|--------------|------------------------|-------------------------|------------------|
| | a | b | c | d | e | f | g | h | | |
| Customer Accounts | Annual | Base | Factor | Total | Extra | Factor | Total | Extra | Total | Total |
| | | $b = a/365$ | | $d = bxc$ | $e = d-b$ | | $g = bxf$ | $h = g-d$ | | |
| | HCF | HCF/Day | % | HCF/Day | Max Day Above Avg Day | % | HCF/Day | Max Hour Above Max Day | Equivalent Meter Counts | # of bills |
| Single Family Residential - Zone 1 | 171,705 | 470 | 181% | 850 | 380 | 271% | 1,276 | 425 | 1,332 | 15,882 |
| Multi Family Residential - Zone 1 | 22,555 | 62 | 148% | 92 | 30 | 223% | 137 | 46 | 392 | 108 |
| Commercial - Zone 1 | 17,703 | 49 | 128% | 62 | 14 | 192% | 93 | 31 | 109 | 600 |
| Single Family Residential - Zone 2 | 114,865 | 315 | 253% | 797 | 483 | 380% | 1,196 | 399 | 596 | 6,785 |
| Single Family Residential - Zone 3 | 6,824 | 19 | 181% | 34 | 15 | 271% | 51 | 17 | 75 | 900 |
| Single Family Residential - Zone 4 | 13,885 | 38 | 181% | 69 | 31 | 271% | 103 | 34 | 126 | 1,506 |
| Multi Family Residential - Zone 4 | 1,518 | 4 | 148% | 6 | 2 | 223% | 9 | 3 | 38 | 24 |
| Commercial - Zone 4 | 1,554 | 4 | 128% | 5 | 1 | 192% | 8 | 3 | 5 | 60 |
| Private Fire Protection | - | - | - | - | - | - | - | - | 17 | 72 |
| Total | 350,610 | 961 | | 1,916 | 955 | | 2,874 | 958 | 2,690 | 25,938 |

Figure 4 presents the percentage allocation for base, maximum day (Max Day), maximum hour (Max Hour) classifications.

Figure 4. Base, Max Day, and Max Hour Usage and Peaking Factors by Customer Class

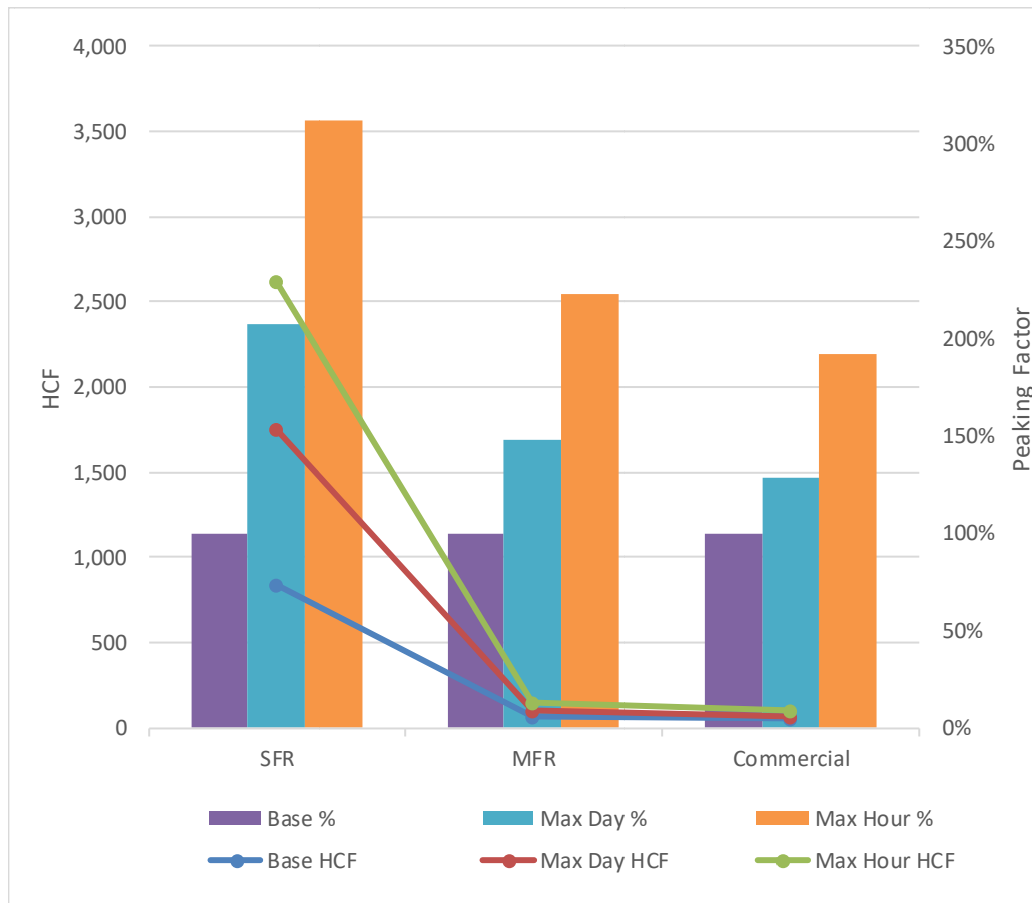


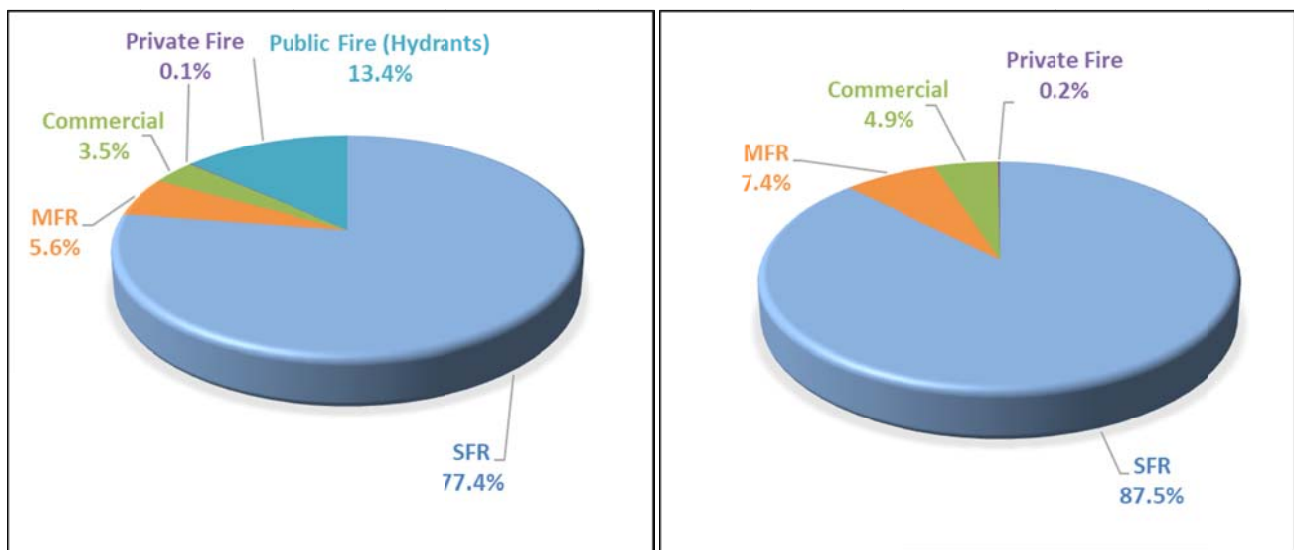
Table 5 summarizes the result of the CoS analysis for FY 2017-18. The cost for public fire protection service was reallocated to the other customer classes using the distribution percentages determined by the CoS analysis. The direct costs such as O&M expenses for the District’s conservation effort (\$81,000) were allocated to single-family residential customers’ Tier 2, Tier 3, and Tier 4. The cost budgeted for new water (\$25,000) was allocated to single-family customers’ Tier 3 and Tier 4. The CIP expenses for conservation effort (\$8,900) will be recovered from the water usage that exceeds each customer’s individual water budget, which was newly established under the District’s Water Budget Program. The total direct cost of \$115,000 was offset by property tax revenues of \$35,000, resulting in the approximately \$80,000 total direct cost shown in Table 5. The non-operating revenues from property tax was used to reduce single-family residential customers’ Tier 1 rate to assure that very small users, whose water usage is less than 5 HCF per month, will be rewarded for their conservation effort.

Table 5. CoS Summary for FY 2017-18

| Customer Class | CoS \$ | CoS % | Public Fire Allocation | CoS \$ with Public Fire | CoS % with Public Fire | Direct Costs/ Revenues | Final CoS % |
|------------------------|-------------|-------|------------------------|-------------------------|------------------------|------------------------|-------------|
| SFR | \$1,977,158 | 77.4% | \$248,722 | \$2,225,880 | 87.2% | \$79,911 | 87.5% |
| MFR | \$142,921 | 5.6% | \$50,266 | \$193,187 | 7.6% | - | 7.4% |
| Commercial | \$89,947 | 3.5% | \$39,946 | \$129,893 | 5.1% | - | 4.9% |
| Private Fire | \$2,301 | 0.1% | \$2,033 | \$4,334 | 0.2% | - | 0.2% |
| Public Fire (Hydrants) | \$340,967 | 13.4% | - | - | - | - | - |

Figure 5 displays the result of the CoS analysis before and after the costs of public fire protection service, and direct costs and revenues are allocated to each customer class as discussed in page 6.

Figure 5. CoS Distribution Before and After Re-allocation of Public Fire Protection Service, and Direct Costs/ Revenues for FY 2017-18

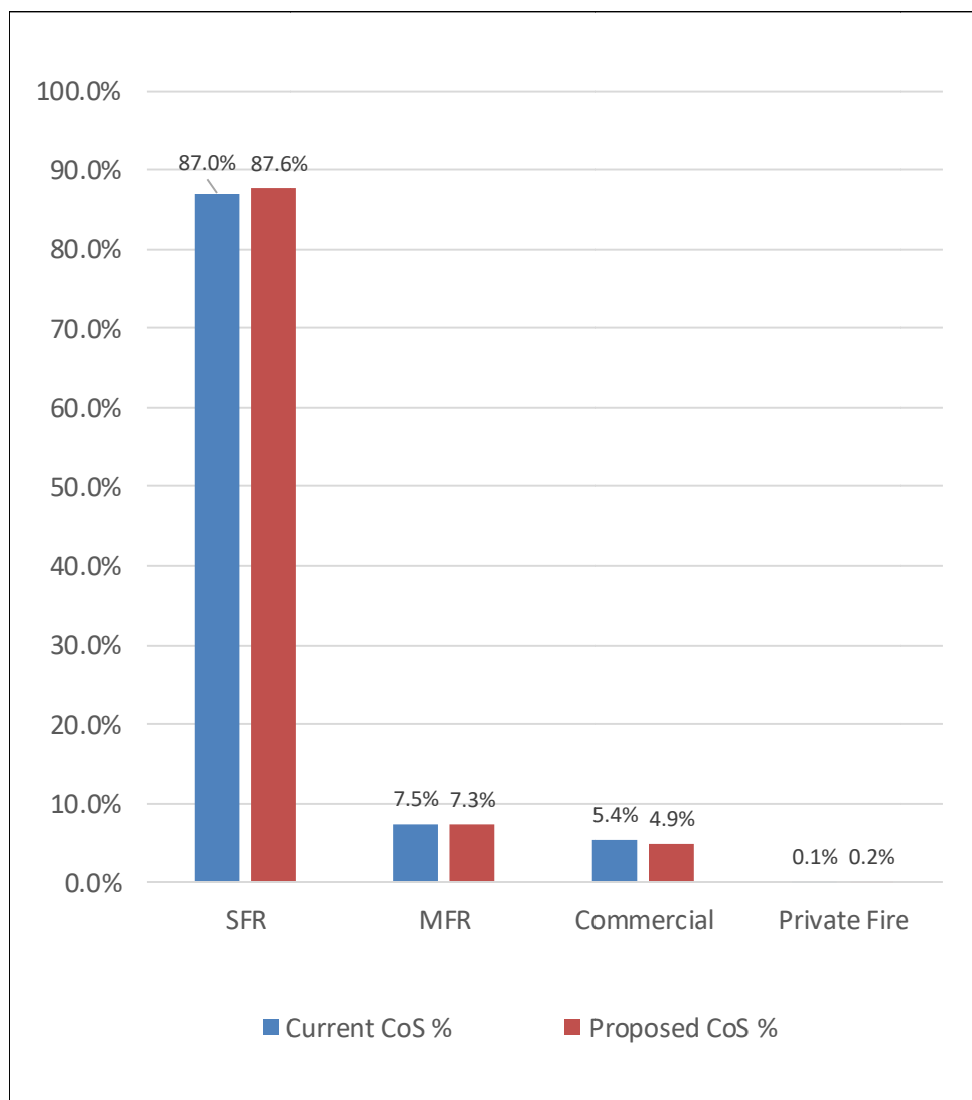


Rate Setting Analysis

The District’s rate schedule was designed to sufficiently recover rate revenue requirements and to be consistent with the results from the CoS analysis. The District’s recommended rate schedule should support and optimize its objectives: be compliant with all legal and regulatory standards, encourage efficiency of water use, meet the net cash balance target of \$1 million by the end of FY 2022-23, and minimize adverse impacts to customers. The proposed rates should work as an information tool in communicating these objectives to customers.

Figure 6 presents the current CoS versus the proposed CoS shares by customer class. The difference of the two percentages for each customer class is the gap that must be filled by designing a rate structure that recovers revenues based on the new CoS shares among customer classes.

Figure 6. CoS Allocation Current vs, Proposed, FY 2017-18



RDN proposes to keep the four-tiered rate structure for single-family residential customers, and uniform rate structure for multi-family residential and commercial customers under proposed rates.

In order to design the most effective tiered rate structure for single-family residential customers that is equitable not only by customer class but also by user size, the new tier widths were set as shown in Table 6. The Tier widths were determined based on careful analysis on the District customers' usage pattern. The average of the District's customers' water usage is 12 HCF, and approximately 65 percent of total single-family residential customers use less than 12 HCF of water per month, thus the combined widths of Tier 1 and Tier 2 were set at 12 HCF. Furthermore, approximately 98 percent of total single-family customers use less than 45 HCF of water per month. However, more than 50 percent of the District's over usage when compared to their water budgets is from the remaining two percent of the customers who consume over 45 HCF monthly. Based on this information between Tier 3 and Tier 4 break point was set at 45 HCF. Accordingly, RDN determined that the tier widths for Tier 1 through Tier 4 shown in Table 6 represent the most efficient and equitable break points.

Table 6. Current vs. Proposed Tier Width for Single-Family Residential Customers

| Tiers | Current Tier Width | Proposed Tier Width |
|---------------|---------------------------|----------------------------|
| Tier 1 | 5 HCF | 5 HCF |
| Tier 2 | 7 HCF | 7 HCF |
| Tier 3 | 18 HCF | 33 HCF |
| Tier 4 | 30+ HCF | 45+ HCF |

Based on the new tier widths and the newly determined single-family customers' CoS share, the tiered rates were set as shown in Table 7. RDN utilized peaking factors for Max Day and Max Hour (discussed on page 6), and compared them to the base cost to create rate differentials between each tier's price. The conservation costs associated with O&M activities were applied to Tier 2, 3, and 4. Another budgeted cost identified as "new water" was allocated to Tier 3 and Tier 4. Finally, the property tax revenue was applied to Tier 1 to offset the rate to make Tier 1 water more affordable.

Table 7. Proposed Rates for Single-Family Residential Customers for FY 2017-18 – FY 2022-23

| Tiers | FY 2017-18 | FY 2018-19 | FY 2019-20 | FY 2020-21 | FY 2021-22 | FY 2022-23 |
|---------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Tier 1 | \$4.48 | \$4.76 | \$5.06 | \$5.37 | \$5.71 | \$6.06 |
| Tier 2 | \$5.09 | \$5.41 | \$5.74 | \$6.10 | \$6.48 | \$6.88 |
| Tier 3 | \$7.15 | \$7.60 | \$8.07 | \$8.57 | \$9.11 | \$9.67 |
| Tier 4 | \$9.80 | \$10.41 | \$11.06 | \$11.75 | \$12.48 | \$13.25 |

Table 8 shows sample bills for customers at different usage levels. These sample bills are computed with a ¾" or 1" meter base charge of \$10 with no additional dwelling charges.

Table 8. Sample Customer Bills by User Size, Current vs. Proposed for FY 2017-18

| User Type | # of HCF Used | Current Bills | | Proposed Bills |
|---------------------------|---------------|-----------------|-----------------|-----------------|
| | | Zone 1 & 4 | Zone 2 & 3 | |
| Big (>45) | 65 | \$433.47 | \$461.80 | \$500.20 |
| Medium (11-45) | 25 | \$149.57 | \$160.30 | \$161.06 |
| Small (5-10) | 10 | \$51.60 | \$55.75 | \$57.87 |
| Very small (<5) | 3 | \$21.97 | \$23.17 | \$23.45 |

Table 9 summarizes average bill increases by user type. The users were categorized as “Very small” users who use less than 5 HCF of water per month, “Small” users with between 6 and 10 HCF of water use per month, “Medium” users with usage between 11 and 45 HCF per month, and “Big” users who use over 45 HCF per month of water on average.

Table 9. Average Bill Increase by User Type

| User Size (HCF/month) | Average Increase % | # of Accounts |
|---------------------------|--------------------|---------------|
| Big (>45) | 8.9% | 36 |
| Medium (11-45) | 7.7% | 900 |
| Small (5-10) | 8.3% | 703 |
| Very small (<5) | 5.5% | 382 |
| Average | 7.5% | |

Table 10 presents multi-family residential customers proposed rates based on their CoS share determined by the CoS analysis.

Table 10. Multi-Family Residential Customers Proposed Rates for FY 2017-18 – FY 2022-23

| Tiers | FY 2017-18 | FY 2018-19 | FY 2019-20 | FY 2020-21 | FY 2021-22 | FY 2022-23 |
|---------------|------------|------------|------------|------------|------------|------------|
| Tier 1 | \$5.50 | \$5.85 | \$6.22 | \$6.62 | \$7.04 | \$7.49 |
| Tier 2 | \$5.50 | \$5.85 | \$6.22 | \$6.62 | \$7.04 | \$7.49 |
| Tier 3 | \$5.50 | \$5.85 | \$6.22 | \$6.62 | \$7.04 | \$7.49 |
| Tier 4 | \$5.50 | \$5.85 | \$6.22 | \$6.62 | \$7.04 | \$7.49 |

Table 11 presents commercial customers proposed rates based on their CoS share determined by the CoS analysis.

Table 11. Commercial Customers Proposed Rates for FY 2017-18 – FY 2022-23

| Tiers | FY 2017-18 | FY 2018-19 | FY 2019-20 | FY 2020-21 | FY 2021-22 | FY 2022-23 |
|---------------|------------|------------|------------|------------|------------|------------|
| Tier 1 | \$5.50 | \$5.63 | \$5.77 | \$5.91 | \$6.05 | \$6.44 |
| Tier 2 | \$5.50 | \$5.63 | \$5.77 | \$5.91 | \$6.05 | \$6.44 |
| Tier 3 | \$5.50 | \$5.63 | \$5.77 | \$5.91 | \$6.05 | \$6.44 |
| Tier 4 | \$5.50 | \$5.63 | \$5.77 | \$5.91 | \$6.05 | \$6.44 |

The CoS shares of multi-family residential and commercial customers increased only by 2.2 percent and 1.6 percent respectively for FY 2017-18 compared with current rates. The rate increases for each customer class for FY 2018-19 – FY 2022-23 were summarized in Table 12.

Table 12. Proposed Annual Rate Increase for FY 2017-18 – FY 2022-23

| | FY 2017-18 | FY 2018-19 | FY 2019-20 | FY 2020-21 | FY 2021-22 | FY 2022-23 |
|----------------------------------|------------|------------|------------|------------|------------|------------|
| Single Family Residential | 7.5% | 6.2% | 6.2% | 6.2% | 6.2% | 6.2% |
| Multi-Family Residential | 2.2% | 6.3% | 6.3% | 6.3% | 6.3% | 6.3% |
| Commercial | 1.6% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% |

Note: The values for FY 2017-18 shown above represent a revenue increase

Noe: The values for FY 2018-19 – FY 2022-23 shown above represent a rate increase

The District as a whole will require an overall 6.2 percent rate increase annually for FY 2018-19 through FY 2022-23. Base and additional dwelling charges as well as private fire protection service rates will be increased using the overall rate increase of 6.2 percent for the study period. The overall revenue increase for FY 2017-18 from FY 2016-17 is 4.1 percent.

Table 13. Proposed Charges for Private Fire Protection Service and Additional Dwelling for FY 2017-18 – FY 2022-23

| | FY 2017-18 | FY 2018-19 | FY 2019-20 | FY 2020-21 | FY 2021-22 | FY 2022-23 |
|--------------------------------|------------|------------|------------|------------|------------|------------|
| Private Fire Protection | \$40.91 | \$59.72 | \$63.42 | \$67.35 | \$71.53 | \$75.97 |
| Additional Dwelling | \$5.00 | \$5.31 | \$5.64 | \$5.99 | \$6.36 | \$6.76 |

The District and the Board of Directors have voted to keep the base charge at \$10.00 per month for $\frac{3}{4}$ " and 1" meters for FY 2017-18. The charges for bigger meter sizes also remain the same for FY 2017-18. The cost differentials were determined using the equivalent meter size capacity ratios recommended by American Water Works Association (Table 14).

Table 14. Proposed Base Charges for FY 2017-18 – FY 2022-23

| Meter Size | FY 2017-18 | FY 2018-19 | FY 2019-20 | FY 2020-21 | FY 2021-22 | FY 2022-23 |
|-----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 3/4 & 1-in | \$10.00 | \$10.62 | \$11.28 | \$11.98 | \$12.72 | \$13.51 |
| 1-in | \$10.00 | \$10.62 | \$11.28 | \$11.98 | \$12.72 | \$13.51 |
| 1 1/2-in | \$33.30 | \$35.37 | \$37.56 | \$39.89 | \$42.36 | \$44.99 |
| 2-in | \$53.30 | \$56.61 | \$60.12 | \$63.85 | \$67.80 | \$72.01 |
| 4-in | \$210.00 | \$223.04 | \$236.87 | \$251.55 | \$267.15 | \$283.72 |

Table 15 displays how revenue requirements and the target net cash balance were met at the end of five-year study period under the proposed rate structure.

Table 15. Water Sales by Customer Class and Revenue Requirements with Cumulative Net Cash Balance

| Single Family Residential Customers | FY 2017-18 | FY 2018-19 | FY 2019-20 | FY 2020-21 | FY 2021-22 | FY 2022-23 |
|--|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Water Volumetric Sales | | | | | | |
| Tier 1 | \$537,684 | \$614,353 | \$711,274 | \$755,515 | \$802,508 | \$852,424 |
| Tier 2 | \$514,129 | \$587,439 | \$680,114 | \$722,417 | \$767,351 | \$815,081 |
| Tier 3 | \$536,157 | \$612,607 | \$709,253 | \$753,368 | \$800,228 | \$850,002 |
| Tier 4 | \$111,921 | \$127,879 | \$148,054 | \$157,263 | \$167,044 | \$177,435 |
| Volumetric Sales Total | \$1,699,891 | \$1,942,278 | \$2,248,694 | \$2,388,563 | \$2,537,131 | \$2,694,941 |
| Usage | 307,279 | 330,535 | 360,272 | 360,272 | 360,272 | 360,272 |
| Fixed Revenue | \$255,420 | \$271,463 | \$287,587 | \$303,581 | \$319,603 | \$335,651 |
| ADC | \$10,787 | \$11,456 | \$12,167 | \$12,921 | \$13,722 | \$14,574 |
| Penalty Fees | \$8,893 | \$9,445 | \$9,997 | \$10,548 | \$11,099 | \$11,651 |
| Total | \$1,974,991 | \$2,234,643 | \$2,558,445 | \$2,715,613 | \$2,881,556 | \$3,056,816 |
| Multi Family Residential Customers | | | | | | |
| Water Volumetric Sales | | | | | | |
| Tier 1 | \$3,729 | \$4,265 | \$4,944 | \$5,257 | \$5,591 | \$5,945 |
| Tier 2 | \$4,911 | \$5,618 | \$6,512 | \$6,925 | \$7,364 | \$7,830 |
| Tier 3 | \$12,256 | \$14,019 | \$16,249 | \$17,279 | \$18,375 | \$19,540 |
| Tier 4 | \$111,621 | \$127,681 | \$147,991 | \$157,373 | \$167,351 | \$177,961 |
| Volumetric Sales Total | \$132,516 | \$151,583 | \$175,695 | \$186,834 | \$198,680 | \$211,276 |
| Usage | 24,073 | 25,895 | 28,225 | 28,225 | 28,225 | 28,225 |
| Fixed Revenue | \$7,637 | \$8,111 | \$8,585 | \$9,058 | \$9,531 | \$10,005 |
| ADC | \$25,796 | \$27,397 | \$29,096 | \$30,899 | \$32,815 | \$34,852 |
| Total | \$165,949 | \$187,091 | \$213,376 | \$226,791 | \$241,026 | \$256,133 |
| Commercial Customers | | | | | | |
| Water Volumetric Sales | | | | | | |
| Tier 1 | \$11,078 | \$12,208 | \$13,632 | \$13,966 | \$14,309 | \$15,216 |
| Tier 2 | \$10,784 | \$11,884 | \$13,271 | \$13,596 | \$13,929 | \$14,812 |
| Tier 3 | \$21,184 | \$23,345 | \$26,069 | \$26,708 | \$27,362 | \$29,097 |
| Tier 4 | \$62,789 | \$69,196 | \$77,269 | \$79,162 | \$81,101 | \$86,243 |
| Volumetric Sales Total | \$105,835 | \$116,634 | \$130,241 | \$133,432 | \$136,701 | \$145,368 |
| Usage | 19,257 | 20,715 | 22,579 | 22,579 | 22,579 | 22,579 |
| Fixed Revenue | \$13,674 | \$14,523 | \$15,371 | \$16,218 | \$17,066 | \$17,915 |
| ADC | \$900 | \$956 | \$1,015 | \$1,078 | \$1,145 | \$1,216 |
| Total | \$120,408 | \$132,112 | \$146,627 | \$150,728 | \$154,912 | \$164,498 |
| Private Fire Protection | \$4,334 | \$4,603 | \$4,872 | \$5,140 | \$5,409 | \$6,004 |
| Water Sales Revenues | \$2,265,682 | \$2,558,449 | \$2,923,320 | \$3,098,272 | \$3,282,903 | \$3,483,452 |
| Other Operating Revenues | \$9,000 | \$12,040 | \$12,080 | \$12,201 | \$12,528 | \$12,963 |
| O&M | -\$1,848,187 | -\$1,899,890 | -\$1,956,792 | -\$2,015,124 | -\$2,073,326 | -\$2,134,552 |
| New Water | -\$25,000 | -\$25,500 | -\$26,010 | -\$26,530 | -\$27,061 | -\$27,602 |
| Property Tax | \$35,000 | \$35,000 | \$35,000 | \$35,000 | \$35,000 | \$35,000 |
| Other non-operating Revenues | \$15,500 | \$10,000 | \$10,000 | \$10,000 | \$10,000 | \$10,000 |
| CIP Expenses | -\$969,607 | -\$969,607 | -\$969,607 | -\$969,607 | -\$969,607 | -\$969,607 |
| Conservation Program | -\$89,911 | -\$91,753 | -\$93,793 | -\$95,824 | -\$97,754 | -\$99,741 |
| Depreciation | \$240,000 | \$244,800 | \$249,696 | \$254,690 | \$259,784 | \$264,979 |
| Net Balance from Operation | -\$367,523 | -\$126,461 | \$183,896 | \$303,079 | \$432,467 | \$574,893 |
| Cumulative Net Balance | | -\$493,984 | -\$310,088 | -\$7,010 | \$425,457 | \$1,000,350 |
| Revenue Requirement | -\$2,633,205 | -\$2,684,910 | -\$2,739,425 | -\$2,795,194 | -\$2,850,435 | -\$2,908,559 |

Table 16 displays proposed rate adjustments and generated revenues from each customer class for FY 2018-2022. Figure 7 presents rate adjustments for single-family customers by tier for the same period.

Table 16. Current vs. Proposed Rates and Revenues and proposed Rate Adjustments for FY 2018-2022

Single-Family Residential Customers

| Effective Rates | | | 2/15/2018 | 1/15/2019 | 1/15/2020 | 1/15/2021 | 1/15/2022 |
|-----------------|-----------------------|-----------------------|-----------|-----------|-----------|-----------|-----------|
| | Current Zone 1 & 4 | Current Zone 2 & 3 | Proposed | Proposed | Proposed | Proposed | Proposed |
| Tier 1 | \$3.99 | \$4.39 | \$4.48 | \$4.76 | \$5.06 | \$5.37 | \$5.71 |
| Tier 2 | \$4.33 | \$4.76 | \$5.09 | \$5.41 | \$5.74 | \$6.10 | \$6.48 |
| Tier 3 | \$6.87 | \$7.31 | \$7.15 | \$7.60 | \$8.07 | \$8.57 | \$9.11 |
| Tier 4 | \$7.13 | \$7.57 | \$9.80 | \$10.41 | \$11.06 | \$11.75 | \$12.48 |

Multi-Family Residential Customers

| Effective Rates | | | 2/15/2018 | 1/15/2019 | 1/15/2020 | 1/15/2021 | 1/15/2022 |
|-----------------|-----------------------|-----------------------|-----------|-----------|-----------|-----------|-----------|
| | Current Zone 1 & 4 | Current Zone 2 & 3 | Proposed | Proposed | Proposed | Proposed | Proposed |
| Tier 1 | \$5.35 | \$5.89 | \$5.50 | \$5.85 | \$6.22 | \$6.62 | \$7.04 |
| Tier 2 | \$5.35 | \$5.89 | \$5.50 | \$5.85 | \$6.22 | \$6.62 | \$7.04 |
| Tier 3 | \$5.35 | \$5.89 | \$5.50 | \$5.85 | \$6.22 | \$6.62 | \$7.04 |
| Tier 4 | \$5.35 | \$5.89 | \$5.50 | \$5.85 | \$6.22 | \$6.62 | \$7.04 |

Commercial Customers

| Effective Rates | | | 2/15/2018 | 1/15/2019 | 1/15/2020 | 1/15/2021 | 1/15/2022 |
|-----------------|-----------------------|-----------------------|-----------|-----------|-----------|-----------|-----------|
| | Current Zone 1 & 4 | Current Zone 2 & 3 | Proposed | Proposed | Proposed | Proposed | Proposed |
| Tier 1 | \$5.35 | \$5.89 | \$5.50 | \$5.63 | \$5.77 | \$5.91 | \$6.05 |
| Tier 2 | \$5.35 | \$5.89 | \$5.50 | \$5.63 | \$5.77 | \$5.91 | \$6.05 |
| Tier 3 | \$5.35 | \$5.89 | \$5.50 | \$5.63 | \$5.77 | \$5.91 | \$6.05 |
| Tier 4 | \$5.35 | \$5.89 | \$5.50 | \$5.63 | \$5.77 | \$5.91 | \$6.05 |

Figure 7. Single-Family Customers Current vs. Proposed Rates and proposed Rate Adjustments by Tiers for FY 2018-2022

