

**Roberts Creek Water District  
Water Rate Study  
April 2017**

**Introduction**

At the request of the Roberts Creek Water District Board of Commissioners, a Water Rate Study was completed April 2017 to assess the design and adequacy of the current water rate structure. The last rate increase, effective October 2009, was adopted to provide sufficient funding to repay the new debt associated with the \$7,000,000 water treatment plant upgrade. The purpose of this rate study is to provide the Board of Commissioners with recommendations for new water utility rates that are equitable, affordable and adequate to ensure that the District may continue to provide the same level of high quality drinking water and customer service.

**Background**

The best rate structure is one that remains affordable while providing adequate resources to fund current District operations and future capital improvements. The 2016 Roberts Creek Water District Master Plan Update, prepared by MAP Engineering, was considered in the determination and valuation of the District's future infrastructure requirements. District audited financial reports from the previous 4 fiscal years were used to evaluate operating cost trends. Those trends, along with projected District growth, anticipated operations and inflation factors were used to develop District funding requirements for the next four years.

The District's financial structure consists of two budgetary funds; the General Fund accounts for normal operations of the District, and Capital Projects Fund accounts for Capital Improvements and related Debt Service, such as the water treatment plant upgrade loan. As resources are collected, they are primarily accounted for in the General Fund. From the General Fund annual operations, budgeted transfers are made to the Capital Projects Fund for both capital improvements and debt service. Revenues from meter sales and interest income also provide resources for the Capital Projects Fund.

**Requirements**

15-year improvements detailed in the Master Plan Update estimate total costs, adjusted for inflation, at approximately \$3.4 million or \$229,000 annually. These improvements include the addition of a Town Tank with mixers, and various transmission and distribution piping improvements. With 15-year estimated interest income of \$297,000, necessary transfers to Capital Projects total \$3.1 million. The District plans to maintain annual transfers of \$200,000 for the next 8 years, followed by annual transfers of \$225,000 for 7 years. For purposes of this rate study, we focus on transfers for the next 4 years.

The water treatment plant upgrade loan, originally issued through the State Safe Drinking Water Revolving Loan Fund, was refinanced in February 2017. With a remaining balance of \$4.97 million, the loan is set to mature in 2032. Annual principal and interest payments amount to approximately \$397,000. The refinance of the loan resulted in debt service savings of approximately \$38,000 per year over the remaining life of the loan. This savings reduces the annual amount required to be

transferred from the General Fund by \$40,000. For purposes of determining new water rates, the savings has lessened the potential increase in water rates.

Including the annual transfers to the Capital Projects Fund noted above, the annual operating costs accounted for in the General Fund are currently at \$1.9 million. It is projected that operating costs will increase to over \$2.1 million by fiscal year 2021-22. One major cost affecting this increase is the expected replacement of the filter membranes at the water treatment plant. The filter membranes are a vital part of the treatment process. Unfortunately, the life span of the membranes is showing to be shorter than specifications listed. Several hundred filter membranes will need to be replaced in the next 5 years. At a cost of approximately \$1,000 each, total replacement costs will reach close to \$500,000. Necessary operating costs, such as compensation, supplies, materials, and utilities also increase due to inflation and other environmental factors.

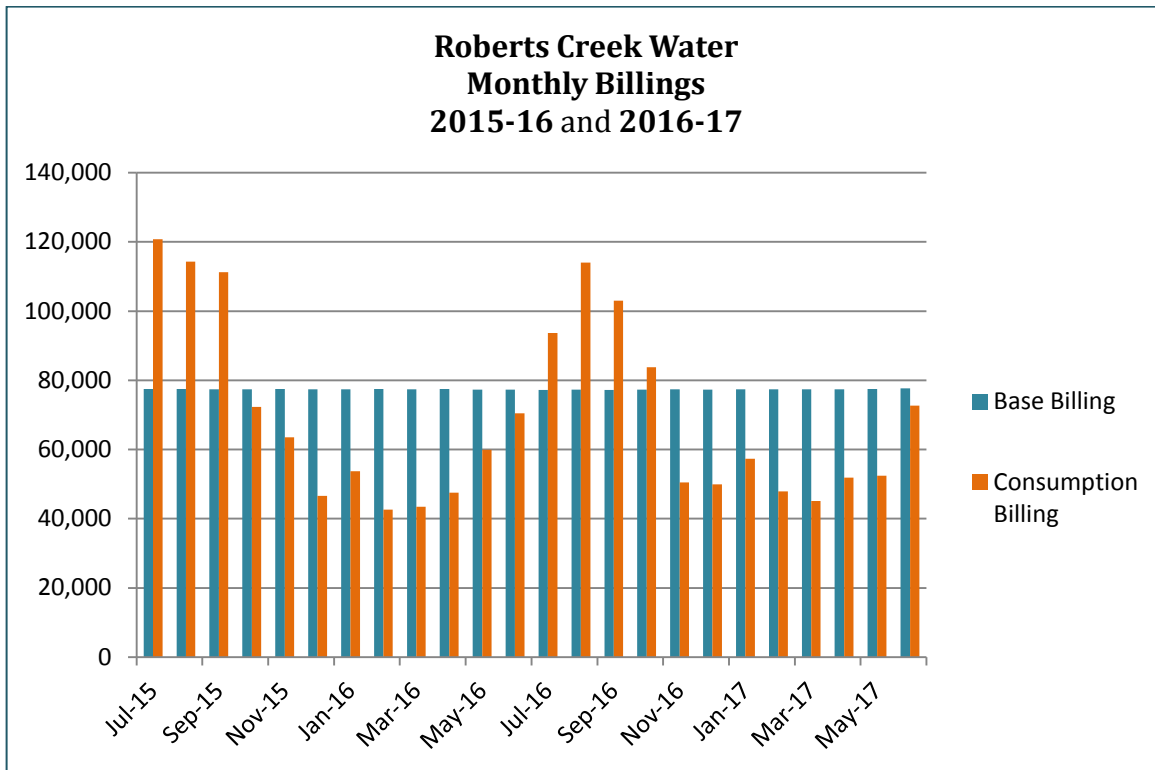
In July 2017, the water utility billing department will make a change to a new billing statement format. The new bill format serves to keep customers better informed about their water utility and ensure proper delivery of their bills. While it may appear that the new bill format bears a much higher cost than the previous postcard style bill, the increase in billing costs will be minimal and will not have an impact on the new water rates. Because the bills will be printed and mailed from BMS Technologies in Bend, OR, the District is able to benefit from BMS' high production volumes and government utility discounted prices. Other savings realized by the District come from reduced printing costs, lower bankcard processing rates and a paperless bill option for customers.

### **Rate Design**

In developing new water rates for Roberts Creek Water District, we consulted and utilized the principles and best practices described in the American Water Works Association manual of water supply practices (M1) "Principles of Water Rates, Fees, and Charges." The District currently uses a base charge and a uniform-volume rate charge.

#### *Base Water Charge*

It has come to our attention that many customers were not aware they paid a base charge for their water. After review, it is determined that there are several components to a base charge that are beneficial to both the District and its customers. A base charge represents a recovery of a portion of the District's fixed costs. Whether customers are using water or not, the District must still operate to treat water, maintain transmission and distribution lines, maintain facilities, and cover administrative costs. It is expected that the instant a faucet is turned on, high-quality drinking water will be there, and that is what the District strives to ensure. A base charge also provides for consistent cash flow for operations. Roughly 40 percent of the District's water consumption occurs during the summer months. If the District only charged a volume rate for water, cash flow resources would fluctuate significantly throughout the year, resulting in financial uncertainty and instability. On top of this instability, volume rates would have to be more than double what they currently are, with even higher peak seasonal rates. For the customer, the base charge means more consistency with water bills throughout the year, and lower volume rates. The graph on the next page reflects monthly billings separated by base charges and volume charges. Note the fluctuation in volume charge billings throughout the year, while the base charges remain fairly consistent. The base charge billings add consistency to cash flows.



The base charge for Roberts Creek Water District customers varies by meter size. 97% of our customers are residential, and have a 5/8 x 3/4" meter, which is the smallest meter size. Higher volume users, such as RV Parks or Industrial users, require larger meters. Each meter size specifies a safe maximum operating capacity, measured in gallons per minute (gpm). The base charge for meter sizes 1" and greater are determined by taking the base charge for a 5/8 x 3/4" meter and multiplying it by the maximum operating capacity of the meter in comparison to a 5/8 x 3/4" meter. For example, a 1" meter has a maximum operating capacity of 50 gpm, which is 2.5 times the operating capacity of 20 gpm for a 5/8 x 3/4" meter. The base charge for a 1" meter is then calculated as 2.5 x the base charge for a 5/8 x 3/4" meter.

*Volume, or Consumption Charge*

The District also utilizes a uniform volume rate for water consumption, which is billed in 1,000 gallon increments. The rate is considered uniform because it does not increase or decrease with consumption levels and it does not vary by user type. All customers are currently charged the same volume rate. A uniform volume rate also encourages water conservation because a higher bill signals to customers that they are using more water, and it does so in a simplified manner as opposed to more complex rate structures. A uniform volume rate also provides some revenue stability when compared to more complex rate structures such as increasing block rates, decreasing block rates, or seasonal rates.

After review, we determined that the current rate structure, although simple in comparison to more complex models, is appropriate for Roberts Creek Water District and its customers. The current structure is fair, encourages water conservation, and provides for District financial stability.

### Developing New Rates

Once determined that the District will need to implement a rate increase in order to maintain the current level of operations and provide for future improvements, we are tasked with formulate new water rates that will remain affordable and equitable for our customers. The new rates must reflect an increase to both the base and volume charge. An increase allocated to the base charge alone would have to be a significant increase, and would mostly affect our customers who are on fixed incomes and consume very little water. On the other hand, an increase to the volume charge alone would result in increased bill fluctuation and has the potential to lead to revenue instability.

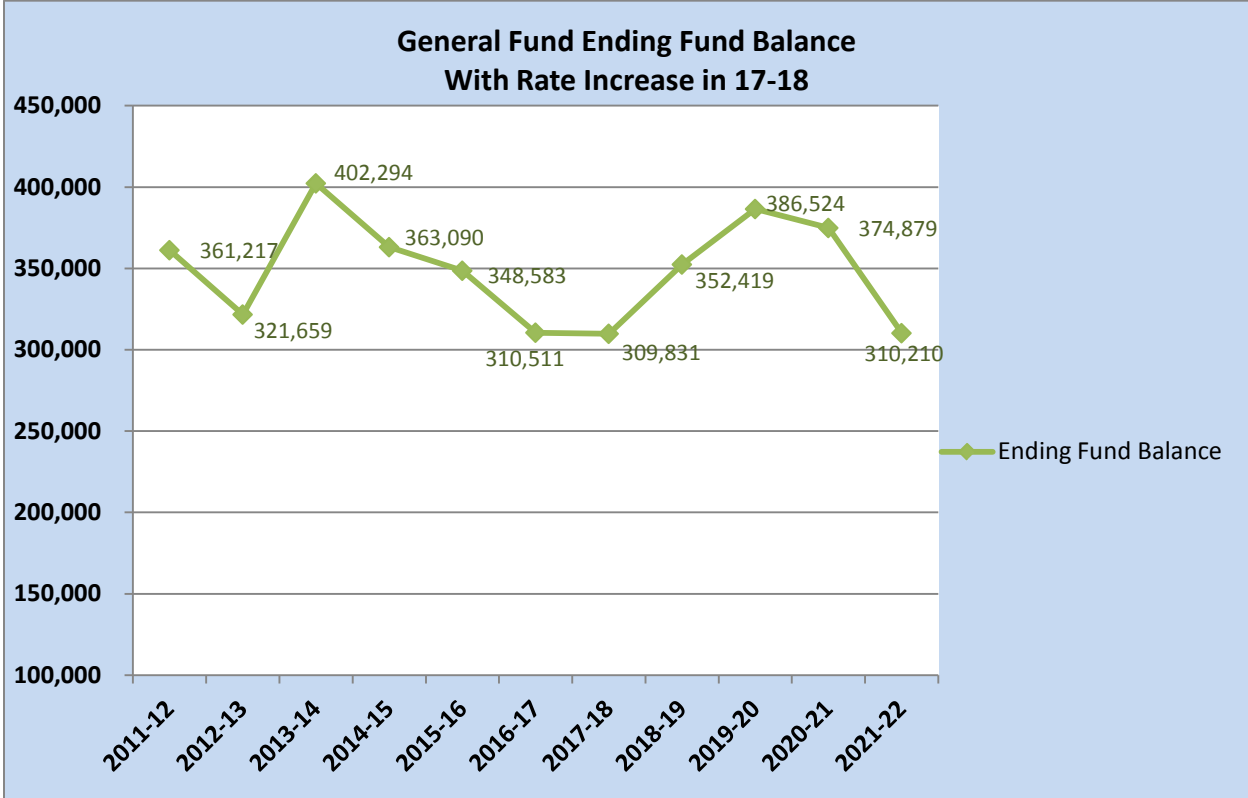
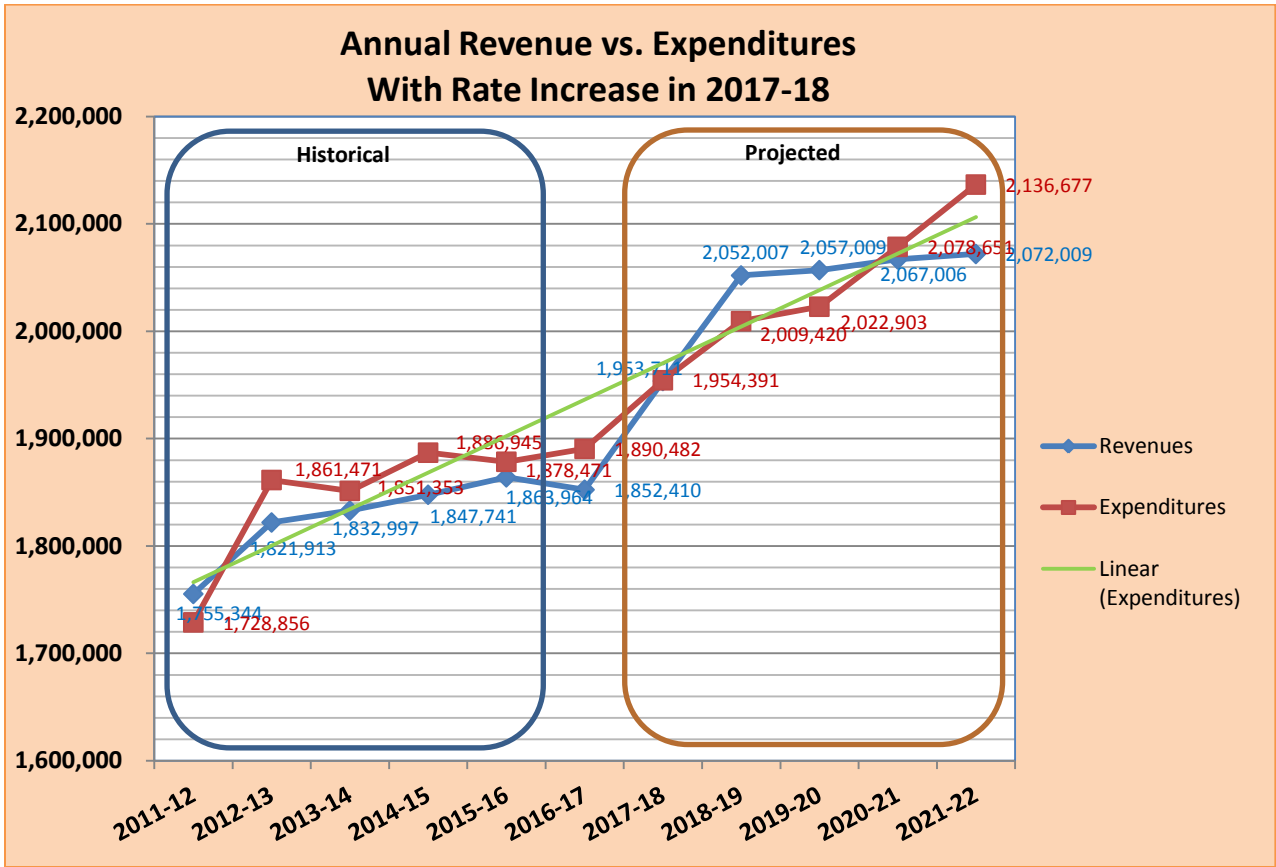
Based on our analysis, we are making recommendations to the Roberts Creek Water District Board of Commissioners to increase the base water charge for connections with a 5/8 x 3/4" meter from \$21.50 per month to \$23.00. For customers who reside outside of District boundaries, the base residential charge would be increased by the same amount of \$1.50 per month. Connections with larger meter sizes would be increased by their operating capacity multiplying factor, which is common practice according to AWWA. Additionally, we recommend that the volume charge be increased by \$.40 per 1,000 gallons billed - from \$2.45 to \$2.85 per 1,000 gallons. This increase would be applied to all meter sizes and would be the same for customers outside of district boundaries. It is recommended that the increases be implemented in November 2017, after the summer season has passed.

### How will customers be affected?

The effect the new rates will have on customers' bills will depend on consumption and meter size, however, we estimate that residential customers who irrigate in the summer and use significantly less water during the rainy season will see an average bill increase of \$5.75. We offer some bill examples below:

Average Bill Increase Standard Residential		Average Bill Increase 1" Meter	
<u>Consumption</u>		<u>Consumption</u>	
<u>(gallons)</u>	<u>Bill Increase</u>	<u>(gallons)</u>	<u>Bill Increase</u>
2,000	\$2.30	5,000	\$5.75
5,000	\$3.50	10,000	\$7.75
10,000	\$5.50	15,000	\$9.75
15,000	\$7.50	20,000	\$11.75
20,000	\$9.50	30,000	\$15.75

The graphs on the following page illustrate the operations financial trends of the District, with the rate increase effective November 2017:



**Conclusion**

In determining whether it was necessary to increase rates, and what the implemented rates would be, we wanted to ensure that the new rates were fair, while providing adequate resources to maintain high quality water service to our customers for years to come. In retrospect, to have gone 8 years without a rate increase demonstrates that the District is financially stable and responsible. However, additional revenues eventually become necessary to keep up with the rising cost of operations and maintenance. It is not projected that there will be significant growth within the District in the next several years, so the District cannot rely on additional revenues from an increased customer base. It is projected that these rate increases will provide sufficient resources for the next 4 years. At the fourth year, fiscal year 2020-21, management will conduct another study to evaluate whether water rates should remain the same or if a rate increase is necessary.

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