

# Water Rate Study

## Safe Drinking Water and Water Quality

Project No. P84C-1502724-001C

### Quail Valley Water District

Prepared for

Quail Valley Water District  
Tehachapi, CA 93581

26 September 2015



# Contents

Section	Page
1. INTRODUCTION.....	4
1.1 Purpose.....	4
1.2 Overview of the Study .....	4
1.3 Rate Study Methodology.....	5
Rate Study Methodology .....	5
Rate Design Criteria .....	6
Rate Structure Issues .....	6
1.4 Key Financial Assumptions.....	7
Funding of Capital Projects .....	7
Reserve Targets.....	8
Inflation and Growth Projections .....	8
2. WATER RATE STUDY.....	9
2.1 Key Water Rate Study Issues .....	9
Developing Unit Costs.....	9
Determining Revenue Requirements by Customer Class.....	9
Rate Design and Fixed vs. Variable Costs.....	10
2.2 Water Utility Revenue Requirements .....	10
Meeting Net Revenue Requirements.....	10
Building and Maintaining Reserve Funds .....	10
2.3 Current and Proposed Water Rates.....	13
2.4 Drought Rates.....	15
2.5 Non-Potable Water Rates.....	15
3. RECOMMENDATIONS AND NEXT STEPS .....	17
3.1 Consultant Recommendations .....	17
3.2 Next Steps.....	17
3.3 Principal Assumptions and Considerations .....	18
APPENDIX 1: WATER RATE ANALYSIS.....	19



# 1. INTRODUCTION

---

## 1.1 Purpose

The Quail Valley Water District ("District" or "QVWD") retained REVE Environmental (REVE) to re-evaluate its water rates for a number of reasons, including meeting future funding requirements, improving rate design to be more fair and equitable, and responding to public input. The rates developed in this study meet basic Proposition 218 (Prop 218) requirements and were developed using industry standards and reflect the District's priority of maintaining transparent communications between the District and its customers.

In developing proposed new water rates, REVE and District Staff worked cooperatively with the District's Board and presented an overview of study results and rate alternatives on August 29, 2015. During this workshop, and in subsequent meetings, the Board reviewed recommendations and provided REVE and District Staff with direction and feedback. Based on input from the District Board and District Staff, REVE has recommended the water rates summarized in this report.

## 1.2 Overview of the Study

**Key Issues Addressed** - In addition to ensuring water rates collect sufficient revenue to meet the annual operating and capital improvement plans, there are a number of key issues that were specifically addressed in this study, including:

Overall Rate Design - Fairness, equity and the impacts of rate increases on customer bills are significant concerns to the District Board and staff. Therefore, the overall rate design, in the form of the amount of revenue collected from fixed monthly charges vs. volumetric rates, were carefully examined and numerous rate alternatives were evaluated prior to arriving at the proposed rates.

Drought Rates - Drought rates that could be implemented if the District is required to reduce overall water consumption due to the continuing drought were studied. However, given the environmental and habitat conditions of the Quail Valley area and historically very moderate per capita water consumption the District is not proposing to implement drought rates at this time.

Financial Planning - The longer-range financial plans of the water utility was closely examined and adjusted to best meet annual operating and broader capital

improvement costs. Capital improvement funding alternatives were evaluated, including funding of the anticipated Prop. 84 Construction Grant at the 33% and 50% levels.

Recommendations - As a part of the long-range financial plan, REVE evaluated projected revenues and expenditures and developed net revenue requirements. REVE recommends the District adopt the water service rates summarized in this report.

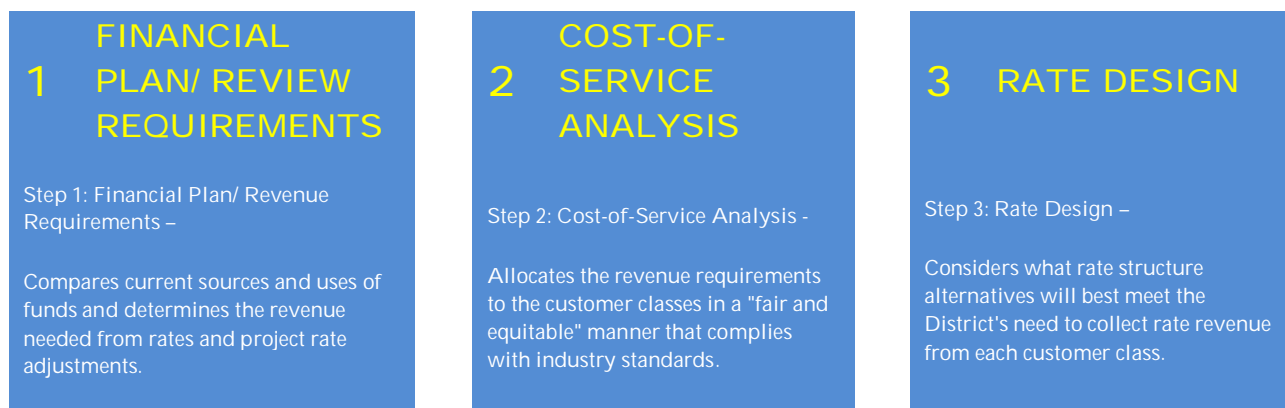
### 1.3 Rate Study Methodology

A comprehensive utility rate study typically encompasses three major components: the utility's overall revenue requirements and financial plan, the cost-of-service for each customer class, and rate structure design.

#### Rate Study Methodology

As a part of this rate study, REVE projected revenues, expenditures, and net revenue requirements, performed cost-of-service rate analyses, and recommended new water rates. Significant rate increases -- or more accurately, increases in the total revenue collected from water rates -- are recommended. The following sections in this report present an overview of the methodologies, assumptions, and data used along with the financial plans and rates developed during this study.

The three components of the applied rate study methodology that were used in this study are summarized in Figure 1.



**Figure 1. PRIMARY COMPONENTS OF A RATE STUDY**

The components shown in Figure 1 are based on industry standard cost-of-service-methodologies specifically developed by the American Water Works Association (AWWA)<sup>1</sup> in collaboration with water utilities across the country. These steps address general requirements for equity and fairness. In terms of the chronology of the study, these three steps represent the order they were performed in this study.

## **Rate Design Criteria**

Several criteria are typically considered in setting rates and developing sound rate structures. The fundamentals of this process have been documented in a number of rate-setting manuals including the work credited to James C. Bonbright<sup>2</sup> which outlines pricing policies, theories, and economic concepts along with various rate designs, and the AWWA Manual M1<sup>1</sup>. The following is a simplified list of the attributes of a sound rate structure:

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

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

## **Rate Structure Issues**

The starting point in considering rate structures is the relationship between fixed costs and variable costs. Fixed costs typically do not vary with the amount of water consumed. Debt service and District personnel are examples of a fixed cost. In contrast, variable costs such as the cost of chemicals and electricity tend to change with the

---

<sup>1</sup>*Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices, M1, AWWA, 6th edition, 2012*

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

quantity of water sold. The vast majority of rate structures contain a fixed or minimum charge in combination with a volumetric charge.

The District's rate design objectives are not necessarily the same as those in other communities. For example, some communities, particularly those with very expensive purchased water costs, place a very high priority on conservation-oriented rates. Other communities, particularly those who have many low-income customers, want to implement low-income subsidies. Additionally, AWWA's Manual M1 notes that "other community objectives" can and should be considered in designing rate structures:

"...the costs of water rates and charges should be recovered from classes of customers in proportion to the cost of serving those customers. However ... other considerations may be equally or more important in determining rates and charges and may better reflect emerging objectives of the utility or the community it serves."

and

"...pricing policies may support a community's social, economic, political, and environmental concerns."

## 1.4 Key Financial Assumptions

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

### **Funding of Capital Projects**

The District is currently in the planning phase of two major construction projects, namely a Prop. 84 Facility Improvement project<sup>3</sup> that will be financed as 100% loan forgiveness, and a SRF Construction Loan<sup>4</sup> to be financed at one half the current bond rate. After extensive review of the planned capital improvement projects (CIP) and funding requirements by the District, the District has decided that the water utility will be able to set aside funds for the full amortization of the SRF loan over 30 years but only be able to set aside the replacement funds for one-half (50%) of the planned Prop. 84 CIP costs.

---

<sup>3</sup> Approximately \$4.2M for the construction of supply, treatment, conveyance and storage to be in compliance with State Drinking Water Standards.

<sup>4</sup> Approximately \$300K for the repair of existing water facilities and improvements not eligible for Prop. 84 funding.



## **Reserve Targets**

Target reserves for operations and maintenance (O&M) and capital rehabilitation and replacement (R&R), which essentially follow industry standards for utility fund management, are set at the following levels:

- Water Utility Operating & Maintenance Reserve – 90-days of O&M expenses.
- Water Capital Rehabilitation and Replacement Reserve – corresponding to complete facility replacement on average every 33 years.

## **Inflation and Growth Projections**

Inflation and growth projections are assumed to be modest and approximately corresponding to the historical trajectory of the last 10 years.

- Customer growth is assumed to be about 2 to 4% per year, which translates into 1 to 3 new connections<sup>5</sup> per year.
- General costs (such as professional and contractual services, fuel, vehicle maintenance, electricity, etc.) are inflated at 3% annually.
- Operating expenses, which include among other things labor costs, health benefits, and retirement benefits, are also inflated at a rate of 3% annually.

The next section discusses the water rate study including key assumptions, revenue requirements in light of proposed Prop 84 and SRF loan CIP, present and proposed future water rates.

---

<sup>5</sup> The District has approximately 50 undeveloped lots alongside the proposed facility improvements, but only a small portion are expected to be developed within the timeframe of this study. The slow rate of development, 1 to 3 lots per year, is primarily due to historically low rate of development in the area as a whole compounded by the relatively high connection cost for electric power.

## 2. WATER RATE STUDY

---

### 2.1 Key Water Rate Study Issues

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

- Generate the revenue needed to meet projected funding requirements,
- Adjust the percent of water rate revenue collected from volumetric rates vs. fixed monthly charges to maintain financial stability. Currently the District's water rates collect approximately 79% of rate revenue from fixed charges and 21% from volumetric rates.
- Provide the District with a flat water rate structure for residential customers in order to simplify the administrative burden.
- Add additional water meter sizes to accommodate residential sprinkler demands and "large" residential users.
- Base the fixed water charge on meter size and eliminate the "first" water (supply) allowance currently included in the fixed meter charge.
- Revise the "unit" quantity from 700 gallons per unit to the customary 748 gallons per unit (i.e. 100 cubic feet per unit).

REVE developed multiple water rate alternatives over the course of this study. All rate structure alternatives were developed using industry standards and cost-of-service principles. The rate alternative recommended in this report reflects the input from District staff and from the public.

The fixed and volume-based charges were calculated based on the net revenue requirements, number of customer accounts, water consumption, and other District-provided information. The following are the basic components included in this analysis:

#### **Developing Unit Costs**

The water revenue requirements were "functionalized" into three categories: (1) customer service costs; (2) fixed capacity costs; and (3) variable (or volume-based) costs. Unit costs for each of these functions were determined based on allocations to functional areas, water consumption, peaking factors, number of accounts by meter size, and customer class.

#### **Determining Revenue Requirements by Customer Class**

The total revenue that should be collected from each customer class was determined using the unit costs and the total units belonging to each class. For example, customer costs are allocated based on number of meters, while volume-related costs are allocated

based on the water consumption for each class. Once the costs are allocated and the revenue requirement for each customer class is determined, collecting these revenue requirements from each customer class is addressed in the rate design task.

### **Rate Design and Fixed vs. Variable Costs**

The revenue requirements for each customer class are collected from both fixed service charges and variable commodity charges. The cost of service analysis indicated that approximately 78% of the District's costs are fixed and 22% are variable. Although state regulatory agencies, such as the California Urban Water Conservation Council, would like urban water utilities to collect at least 70% of rate revenue from volumetric rates, many utilities prefer to collect less than 70% from volumetric rates. Because of the relatively small size of the District and the fact that nearly 100% of current water consumption is for indoor uses or livestock watering, REVE recommends the rates proposed in this report continue to collect approximately 75 to 80% of revenue from fixed charges and 20 to 25% of revenue from volumetric charges given that the District is in a rural area and that the District's customers are already proactively conserving available water resources.

## **2.2 Water Utility Revenue Requirements**

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

### **Meeting Net Revenue Requirements**

For Year 2016 through 2020, the projected net revenue requirement (i.e., total annual expenses plus rate-funded capital costs, less non-rate revenues) is approximately \$850K. The District's water utility is currently running a structural surplus that resulted in annual surplus of \$6K in Year 2015. However, the surplus will quickly turn into a structural deficit of \$60K in Year 2017 to more than \$237K by Year 2020. Recommended annual rate increases of 20%, 10%, 10%, 10% and 10% are needed to fund all O&M and CIP.

### **Building and Maintaining Reserve Funds**

The District should maintain sufficient reserves for the Water Utility. REVE recommends that the District adopt and maintain the following reserve fund target balances:

- Operating Reserve cushion for normal operations. An Operating Reserve is intended to promote financial viability in the event of any short-term fluctuation in revenues and/or expenditures. Fluctuations might be caused by weather patterns, the natural inflow and outflow of cash during billing cycles, natural variability in demand-based revenue streams (e.g., variable charges), and - particularly in periods of economic distress - changes or trends in age of receivables. The Operating Reserve should normally equal to 25% to 50% of the Utility's budgeted annual operating expenses, which is equal to a three to six-month (or \$25,000 to \$50,000) cash.
- Capital Rehabilitation and Replacement (R&R) Reserve should typically be equal to a minimum of 3% of net depreciable capital assets, which equates to a 33-year replacement cycle for capital assets. The District has decided to adopt a target of half this amount, or 1.5% which targets a 66-year replacement cycle. This target serves simply as a starting point for addressing long-term capital repair and replacement needs.
- Debt Reserve is the reserve requirement for any outstanding loans. The District has no outstanding loans at this time.

Table 1 summarizes the sources and uses of funds, net revenue requirements, and the recommended annual percent increases in total rate revenue for the next five years. As this table shows, the water utility can run at a positive cash flow by adjusting actual contributions to the Capital Rehabilitation and Replacement (R&R) Reserve with the intent to meet the targeted reserve-fund balance at some time in the future. Here, the Capital Rehabilitation and Replacement (R&R) Reserve is not fully funded until Year 2023/24, after which time there is a surplus. These surpluses are required to build up further reserves, with the intent to meet likely water supply shortages and treatment requirements and inevitable facility replacement and repairs in the future.

TABLE 1. Summary of Sources and Uses of Funds and Net Revenue Requirements	Budget	Projected				
	FY2015	FY2016	FY2017	FY 2018	FY 2019	FY 2020
<b>Sources of Water Funds</b>						
Rate Revenue Under Prevailing Rates	\$66,500	\$68,503	\$70,305	\$72,108	\$73,911	\$75,714
Non-Rate Revenues	\$6,000	\$11,515	\$11,530	\$11,546	\$11,563	\$11,580
Property Tax Redistribution	\$36,000	\$37,080	\$38,192	\$39,338	\$40,518	\$41,734
<b>Total Sources of Funds</b>	<b>\$108,500</b>	<b>\$117,098</b>	<b>\$120,028</b>	<b>\$122,993</b>	<b>\$125,992</b>	<b>\$129,027</b>

TABLE 1. Summary of Sources and Uses of Funds and Net Revenue Requirements	Budget	Projected				
	FY2015	FY2016	FY2017	FY 2018	FY 2019	FY 2020
<b>Uses of Water Funds</b>						
Operating Expenses	\$92,700	\$99,361	\$113,965	\$118,143	\$121,568	\$125,095
Existing Debt Service	\$0	\$0	\$0	\$0	\$0	\$0
New O&M	\$10,000	\$10,000	\$10,300	\$10,609	\$10,927	\$11,255
New Debt Service (\$300K)	\$0	\$0	\$13,395	\$13,395	\$13,395	\$13,395
Rate-Funded Replacement Reserves	\$0	\$0	\$41,889	\$41,889	\$41,889	\$41,889
<b>Total Use of Funds</b>	<b>\$102,700</b>	<b>\$109,361</b>	<b>\$179,549</b>	<b>\$184,037</b>	<b>\$187,779</b>	<b>\$191,634</b>
Additional Revenue from Rate Increases	-	\$13,701	\$22,498	\$32,593	\$44,140	\$57,309
<b>Surplus (Deficiency) after Rate Increase</b>	<b>\$5,800</b>	<b>\$21,437</b>	<b>(\$37,023)</b>	<b>(\$28,451)</b>	<b>(\$17,648)</b>	<b>(\$5,298)</b>
<b>Projected Annual Rate Requirement</b>	-	20%	10%	10%	10%	10%
<b>Net Revenue Requirement<sup>1</sup></b>	<b>\$66,500</b>	<b>\$82,203</b>	<b>\$92,803</b>	<b>\$104,701</b>	<b>\$118,050</b>	<b>\$133,023</b>

<sup>1</sup> Total use of Funds less non-rate revenue earnings. This is the annual amount needed from water rates.

Table 2 summarizes the projected reserve fund balances and reserve targets, for the next five years. A summary of the water utility's proposed long-range financial plan is included in Appendix A - Water Rate Study Summary Tables. These tables include revenue requirements, reserve funds, revenue source and proposed rate increases for the nearest 5-year period followed by an assumed constant rate increase of 4% per year. Four rate scenarios are presented: A "No Change" Scenario assuming a 0% Rate Increase, an "Only Inflation" scenario assuming a 3% rate increase (on par with an assumed rate of inflation), a "Moderate" scenario assuming a 7.5% rate increase for each of the following 5 years followed by a 4% rate increase, and lastly, the proposed "CIP" scenario assuming an initial 20% rate increase Year 2016 followed by subsequent 10% increases for the following 4 years. The revenue projections for the "CIP" scenario predict that the Capital Rehabilitation & Replacement Reserve (Prop 84) fund will be made whole in Year 2023/24 provided that the proposed rate increases are implemented, and provided that a further 4% rate increase is implemented in Year 2021.

TABLE 2. Beginning Reserve Fund Balances and Recommended Reserve Targets Requirements	Budget	Projected				
	FY2015	FY2016	FY2017	FY 2018	FY 2019	FY 2020
<b>Operating Reserve</b>						
Ending Balance	\$10,000	\$20,000	\$30,300	\$40,909	\$51,836	\$63,091
<i>Recommended Minimum Target</i>	---	\$54,700	\$62,000	\$64,700	\$66,500	\$68,400
<b>Capital Rehabilitation &amp; Replacement Reserve (Prop 84)</b>						
Ending Balance <sup>1</sup>	\$5,800	\$27,237	\$32,104	\$45,542	\$69,783	\$106,374
<i>Recommended Minimum Target</i>	---	---	\$41,889	\$83,779	\$125,668	\$167,558
<b>Debt Reserve (SRF)</b>						
Ending Balance	\$0.00	\$0.00	\$13,395	\$26,790	\$40,185	\$53,580
<i>Recommended Minimum Target</i>	---	---	\$13,395	\$26,790	\$40,185	\$53,580
<b>Total Ending Balance</b>	<b>\$15,800</b>	<b>\$47,237</b>	<b>\$75,799</b>	<b>\$113,241</b>	<b>\$161,804</b>	<b>\$223,046</b>
<b>Total Recommended Minimum Target</b>	<b>\$0</b>	<b>\$54,700</b>	<b>\$117,284</b>	<b>\$175,269</b>	<b>\$232,353</b>	<b>\$289,538</b>

1 Cumulative backlog is cleared once Total Ending Balance = Total Recommended Minimum Target, which is predicted to occur in Year 2023/24 assuming a 4% rate increase after Year 2020

## 2.3 Current and Proposed Water Rates

Currently, the District charges all customer classes and water accounts a monthly fixed charge of \$65.00, which includes 2,000 gallons or 2.66 units<sup>6</sup> of water, plus a uniform commodity charge of \$6.00 per 700 gallons for all water consumed that is greater than 2,000 gallons or 2.66 units. For an average monthly bill of \$75.00 the average cost per unit of water is \$4.54/HCF<sup>6</sup>. The proposed new rate structure includes a strict fixed charge/volumetric charge rate structure that include a meter charge and a commodity charge for residential customers. Because of the significant similarities in typical water use of residential customers in QVWD's service area (e.g. very limited outdoor irrigation and landscape use combined with historically low per capita water consumption), uniform commodity charges will be applied to their consumption. This is a common approach for smaller water districts in arid and semi-arid areas with overall low to very low per capita consumption patterns, and the primary reason why

<sup>6</sup> One unit of QVWD water is currently equal to 700 gallons. In the present study it is recommended that the District apply the more customary unit for water sold, e.g. one unit of water equals to 100 cubic feet (HCF), which corresponds to 748 gallons.

tiered rates aren't used for this customer class.

Table 3 provides a comparison of the current and proposed rates for Fiscal Year 2016 through 2020.

TABLE 3. Water Rate Schedule		Current Rates <sup>1</sup>	Proposed Rates - Rate Alternative #1				
			FY2016	FY2017	FY 2018	FY 2019	FY 2020
<i>Projected Increase in Rate Revenue per Financial Plan:</i>			20.00%	10.00%	10.00%	10.00%	10.00%
<b>Fixed Service Charge</b>							
<b>Monthly Service Charge by Meter Size:</b>							
5/8-inch	\$65.00	\$70.60	\$77.66	\$85.42	\$93.96	\$103.36	
3/4-inch	N/A	\$70.60	\$77.66	\$85.42	\$93.96	\$103.36	
1- inch	N/A	\$81.19	\$89.31	\$98.24	\$108.06	\$118.87	
<b>Commodity Charges for All Water Customers</b>							
<b>Rate Per HCF of Water Consumed</b>							
<b>Residential Uniform Rates</b>							
Uniform Rate (All Water Consumed)	\$6.00	\$4.54	\$4.99	\$5.49	\$6.04	\$6.64	
<b>Non-Potable Water Rates</b>							
Uniform Rate (All Water Consumed)	--	\$3.40	\$3.74	\$4.12	\$4.53	\$4.98	

<sup>1</sup> Current Monthly charge includes up to 2,000 gallons. It is recommended to replace the current rate structure to a fixed charge/commodity charge type structure.

Table 4 shows a comparison of monthly bills for residential customers under current and proposed rates at varying levels of water consumption.

TABLE 4. Comparison of Monthly Water Bills for Single-Family Residential Customers						
Monthly Water Consumption (HCF)	Current	New Rates, Meter Size 5/8 or 3/4				
	Rates	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
2	\$65.00	\$79.67	\$87.64	\$96.40	\$106.04	\$116.64
4	\$73.53	\$88.74	\$97.61	\$107.38	\$118.11	\$129.93
6	\$86.35	\$97.81	\$107.59	\$118.35	\$130.19	\$143.21
7	\$92.76	\$102.35	\$112.58	\$123.84	\$136.23	\$149.85
8	\$99.17	\$106.88	\$117.57	\$129.33	\$142.26	\$156.49
10	\$112.00	\$115.96	\$127.55	\$140.31	\$154.34	\$169.77

## 2.4 Drought Rates

The District is not proposing to implement drought rates at this time. However, it may be subject to drought-related cutbacks and may need to implement drought rates at some point to both offset potential lost revenue and to encourage customers to reduce consumption levels. Assuming these reductions are required, the District's water utility would experience a net loss of revenue that, in the long run, would be financially unsustainable. Table 5 shows the drought rates developed to offset these drought-related reductions.

TABLE 5. Calculated Drought Surcharges	Non- Drought	Drought Stages			
		Stage 1	Stage 2	Stage 3	Stage 4
<b>Drought-Stage Factors</b>					
Percent Reduction by Stage	0.00%	10.00%	20.00%	30.00%	40.00%
Price Increase Needed to Meet Reduction <sup>1</sup>	0.00%	25.00%	40.00%	50.00%	66.70%
<b>Calculated Drought-Stage Volumetric Rates</b>					
<b>All Customers:</b>					
Proposed Uniform Volumetric Rate	\$4.54	\$6.24	\$7.68	\$9.06	\$11.07

<sup>1</sup> Based on the price elasticity, this is the price increase needed to achieve the "price-induced" reduction in water sales.

## 2.5 Non-Potable Water Rates

The District has non-potable water supplies that may be used for construction, dust control, landscape and crop irrigation, equipment washing, etc. Typically, non-potable water is available at some well sites that are not currently or will not be used for the potable water supply once the planned water facility improvements have been completed. The District is proposing to adopt non-potable water rates at this time as a means to offset potable water use for those activities where drinking water quality water is not required for public health reasons.

However, it may be subject to drought-related cutbacks and may need to adopt drought rates at some point to both offset potential lost revenue and to encourage customers to reduce consumption levels. Assuming these reductions are required, the District's water utility would experience a net loss of revenue that, in the long run, would be financially unsustainable. Table 6 shows the non-potable water rates developed to offset potable water use where feasible.



TABLE 6. Non-Potable Water Rate Schedule	Current Rates <sup>1</sup>	Proposed Rates - Rate Alternative				
		FY2016	FY2017	FY 2018	FY 2019	FY 2020
<i>Projected Increase in Rate Revenue per Financial Plan:</i>		20.00%	10.00%	10.00%	10.00%	10.00%
<b>Fixed Service Charge</b>						
<b>Monthly Service Charge for Temporary Meter<sup>1</sup>:</b>						
1- inch	N/A	\$105.00	\$108.15	\$111.39	\$114.74	\$118.18
<b>Commodity Charges for All Water Customers</b>						
<b>Non-Potable Water Rates</b>						
Uniform Rate (All Water Consumed) (\$/HCF)	N/A	See Table 3	See Table 3	See Table 3	See Table 3	See Table 3

<sup>1</sup> Temporary Meter Charge is a Service Charge

# 3. RECOMMENDATIONS AND NEXT STEPS

---

## 3.1 Consultant Recommendations

REVE recommends the District take the following actions for the water rates:

**Approve and Accept This Study Report:** REVE recommends the District Board formally approve and adopt this report and its recommendations. This will provide documentation of the rate study analyses and the basis for analyzing potential changes to future rates.

**Complete a Review by a Qualified Attorney:** This rate study outlines proposed new rates. Prior to adoption, these rates should be reviewed by competent legal counsel with respect to compliance with Proposition 218 and related State laws, as well as legal assistance developing acceptable language for new resolutions to implement these rates.

**Implement Recommended Levels of Rate Increases and Proposed Rates:** Based on the analysis presented in this report, the District Board should implement the proposed drinking water and non-potable water rates recommended in this report for the next five years as shown in Table 3 and Table 6, respectively. These rate adjustments are structured based on industry standards. Furthermore, these rate adjustments are necessary to ensure the following objectives are met:

- Provides a robust financing plan for vital water infrastructure improvements required to comply with State drinking water standards.
- Water rates promote continued water conservation and reflect the cost of providing water service to each customer.
- Separation of meter fee and residential volumetric (commodity) charges improve equity between customers.
- Maintain the financial health of the District's water operations.

**Adopt Reserve Fund Targets:** REVE recommends the District Board adopt the consultant proposed reserve fund targets described in Section 2.2 of this report. The District should periodically evaluate reserve fund levels and make it a long-term goal to achieve these fund levels for the Operating, Capital, and Debt Reserves.

## 3.2 Next Steps

**Annually Review Rates and Revenue -** Any time an Agency adopts new utility rates or rate structures, those new rates should be closely monitored over the next several years

to ensure the revenue generated is sufficient to meet the annual revenue requirements. Changing economic and drought-related water consumption patterns underscore the need for this review, as well as potential and unseen changing revenue requirements, particularly those related to environmental regulations that can significantly affect capital improvements and repair and replacement costs.

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

### 3.3 Principal Assumptions and Considerations

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

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

APPENDIX 1  
**WATER RATE ANALYSIS**

**Rate Increase Alternatives and  
Long Range Financial Projections**



# Contents

## Section

1.	EXPLANATION OF FINANCIAL PLAN LINE ITEMS.....	A-4
2.	RATE ALTERNATIVE: "NO CHANGE" - 0% INCREASE.....	A-5
4.	RATE ALTERNATIVE: "ONLY INFLATION" - 3% INCREASE.....	A-9
5.	RATE ALTERNATIVE: "MODERATE" - 7.5% INCREASE.....	A-12
6.	RATE ALTERNATIVE: "CIP" - 20%, 10%, 10%, 10%, 10% INCREASE.....	A-15

## EXPLANATION OF FINANCIAL PLAN LINE ITEMS

Explanation of Line Items Used for Financial Projections and Associated Assumptions

LINE	EXPENSES AND SOURCE OF FUNDS	DESCRIPTION
1	<b>OPERATION AND MAINTENANCE (O&amp;M) EXPENSES</b>	
2	Pers. Costs Salaries and Benefits	Staff costs and salaries for current (2015) water system
3	Additional Pers. Costs for SRF (Prop. 84 Grant)	Additional staff costs and salaries for water system (Prop. 84 Grant facility improvements)
4	Additional Pers. Costs for SRF (Loan)	Additional staff costs and salaries for water system (SRF Loan facility improvements)
5	Power and Other Utilities	Power costs constant - fewer meters balanced by somewhat higher consumption, adj. for inflation
6	Fees Regulatory	Regulatory fees constant, adj. for inflation
7	Treatment Media/Chemicals	Treatment media/chemicals - replacement greensand and sodium hypochlorite, adj. for inflation
8	Coliform Monitoring	Laboratory costs, adj. for inflation
9	Chemical Monitoring	Laboratory costs, adj. for inflation
10	Transportation	Transportation cost, adj. for inflation
11	Materials, Supplies, and Parts	Materials, supplies, parts and tools, adj. for inflation
12	Office Supplies	Office supplies, IT, copy, etc., adj. for inflation
13		Total O&M Expenses: Sum of Line Items: 2-12
14		
15	<b>GENERAL AND ADMINISTRATIVE EXPENSES</b>	
16	Engineering Services	Engineering services, surveying, annual report, etc., adj. for inflation
17	Legal Services	Legal services w. increase to \$4,000 in 2016, \$3,000 in 2021, adj. for inflation
18	Insurance, Licenses	Insurance & Licenses w. increase to \$4,000 in 2016 and 2017, \$5,000 in 2018 adj. for inflation
19	Existing Contribution to CIP	Existing contribution to CIP fund to split into two 2016. See line items 20 and 21.
20	O&M Reserve	O&M Reserve fund to commence in 2016, adj. contributions with inflation
21	Other Reserves	Misc. Reserve fund to commence in 2016, adj. contributions with inflation
22	Prop 84 Grant 50% Amortization (\$4.2M, 50, 0%)	Set aside 50% of construction cost of Prop.84 facility improvement project
23	Debt Service (\$300k, 30, 2%)	Straight amortization of SRF Loan (\$300K, 30, 2%)
24	** Vacant	
25		Total General and Administrative Expenses: Sum of Line Items: 16-24
26		TOTAL EXPENSES Sum of Line Items: 13 and 24
27		
28	<b>REVENUES RECEIVED</b>	
29	Cash Revenues (Water Rates)	Includes water meter fee and estimated water consumption fee assuming constant per capita consumption.
30	Power Rebates/Incentives	Not available
31	Depreciation Reserves	Not available
32	Fees and Services	Not included - could include OVWD fee for installation of service connections, laterals, pressure booster, etc.
33	New Meter Fee (New Hookup)	Current cost for installation of meter box and meter for new connection is \$5,500
34	Withdrawal from CIP or Other Reserve	Not used - for illustration purposes may be used to balance projected Net Loss
35	Other Fund Sources: Property Tax redistribution	Kern County redistribution of property taxes paid on properties located within District Boundaries, adj. for inflation
36	Prop 84 Grant	Assumed as a one time payment in 2017.
37	SRF Loan (\$300,000; i=2%; N=30 yrs)	Assumed as a one time payment in 2017.
38	** Vacant	Vacant
39		TOTAL REVENUE Sum of Line Items: 29-38
40		NET LOSS OR GAIN: Sum of Line Items: 27 and 40
41		
42	Number of Connections	Estimated growth assumed to be at historical rate of growth, e.g. 1-3 cnew connections per year
43		
44	<b>RATE SCENARIO ASSUMPTIONS</b>	
45	Percent Increase	Assumed Percent Increase: For Time Duration 1
46	Percent Increase	Assumed Percent Increase: For Time Duration 2
47	Percent Increase	Assumed Percent Increase: For Time Duration 3
48		
49	<b>IMPACT: ESTIMATED AVERAGE BILL PER CONNECTION</b>	
50	Property Tax Redistribution per Connection	See Line Item 35
51	Average Cost (Out of Pocket) per Connection	Estimated Cost per Connection for Current Rate Increase Scenario (Line Item 45)
52	Cost Recovery per Connection	Sum of Line Items 50 and 51
53		
54	<b>ANALYSIS: FOR 100% COST RECOVERY EACH YEAR</b>	
55	Total Cost per Connection	Total Expenses (Line Item 31) divided by Number of Connections (Line Item 42)
56	Net Loss or Gain per Connection	Line Item 52 - Line Item 55
57	Total Annual Net Loss or Gain	Total (District) Net Loss or Gain per year
58		
59	<b>ANALYSIS: CASH FLOW AND SAVINGS BACKLOG</b>	
60	Cashflow	a "YES" means there is sufficient cash on hand to operate with funds on hand
61	CIP and Amortization Backlog	A negative value (in brackets) means that funds dedicated for CIP and Depreciation are/have been diverted for operations and that a deficit backlog has been created. Future (surplus) revenues shall be redirected to balance CIP and Depreciation accumulated shortfalls.



RATE ALTERNATIVE: "NO CHANGE" - 0% INCREASE

FIVE YEAR BUDGET - NO RATE INCREASE

Quail Valley Water District

Inflation Factor (%) 3.0%

LINE	EXPENSES AND SOURCE OF FUNDS	2013/15	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
1	OPERATION AND MAINTENANCE (O&M) EXPENSES																
2	Pers. Costs Salaries and Benefits	65,000	66,950	66,950	68,959	71,027	73,158	75,353	77,613	79,942	82,340	84,810	87,355	89,975	92,674	95,455	98,318
3	Additional Pers. Costs for SRF (Prop. 84 Grant)	-	-	11,611	11,960	12,318	12,688	13,068	13,461	13,864	14,280	14,709	15,150	15,604	16,073	16,555	17,051
4	Additional Pers. Costs for SRF (Loan)	-	-	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610	2,688	2,768	2,852	2,937	3,025
5	Power and Other Utilities	6,000	6,180	6,365	6,556	6,753	6,956	7,164	7,379	7,601	7,829	8,063	8,305	8,555	8,811	9,076	9,348
6	Fees Regulatory	1,200	1,236	1,273	1,311	1,351	1,391	1,433	1,476	1,520	1,566	1,613	1,661	1,711	1,762	1,815	1,870
7	Treatment Media/Chemicals	0	0	200	206	212	219	225	232	239	246	253	261	269	277	285	294
8	Coliform Monitoring	700	721	743	765	788	811	836	861	887	913	941	969	998	1,028	1,059	1,091
9	Chemical Monitoring	1,800	1,854	1,910	1,967	2,026	2,087	2,149	2,214	2,280	2,349	2,419	2,492	2,566	2,643	2,723	2,804
10	Transportation	5,000	5,150	5,305	5,464	5,628	5,796	5,970	6,149	6,334	6,524	6,720	6,921	7,129	7,343	7,563	7,790
11	Materials, Supplies, and Parts	3,000	3,090	3,183	3,278	3,377	3,478	3,582	3,690	3,801	3,914	4,032	4,153	4,277	4,406	4,538	4,674
12	Office Supplies	4,000	4,120	4,244	4,371	4,502	4,637	4,776	4,919	5,067	5,219	5,376	5,537	5,703	5,874	6,050	6,232
13	Total O&M Expenses:	86,700	89,301	103,843	106,958	110,167	113,472	116,876	120,382	123,994	127,713	131,545	135,491	139,556	143,743	148,055	152,497
14																	
15	GENERAL AND ADMINISTRATIVE EXPENSES																
16	Engineering Services	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610	2,688	2,768	2,852	2,937	3,025	3,116
17	Legal Services	2,000	4,000	4,000	4,000	4,000	4,000	3,000	3,090	3,183	3,278	3,377	3,478	3,582	3,690	3,800	3,914
18	Insurance, licenses	2,000	4,000	4,000	5,000	5,150	5,305	5,464	5,628	5,796	5,970	6,149	6,334	6,524	6,720	6,921	7,129
19	Existing Contribution to CIP	10,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	O&M Reserve	-	8,000	8,240	8,487	8,742	9,004	9,274	9,552	9,839	10,134	10,438	10,751	11,074	11,406	11,748	12,101
21	Other Reserves	-	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610	2,688	2,768	2,852	2,937	3,025
22	Prop 84 Grant 50% Amortization (\$4.2M , 50, 0%)	-	-	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889
23	Debt Service (\$300k, 30, 2%)	-	-	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395
24	** Vacant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	Total General and Administrative Expenses:	16,000	20,060	75,706	77,079	77,613	78,163	77,729	78,402	79,096	79,810	80,546	81,304	82,084	82,888	83,716	84,569
26	TOTAL EXPENSES	102,700	109,361	179,549	184,037	187,779	191,634	194,605	198,784	203,089	207,524	212,091	216,795	221,640	226,631	231,771	237,066
27																	
28	REVENUES RECEIVED																
29	Cash Revenues (Water Rates)	66,500	68,503	70,305	72,108	73,911	75,714	78,418	81,122	83,826	86,530	89,234	91,938	94,642	97,346	100,050	102,754
30	Power Rebates/Incentives	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	Depreciation Reserves	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	Fees and Services	500	515	530	546	563	580	597	615	633	652	672	692	713	734	756	779
33	New Meter Fee (New Hookup)	5,500	11,000	11,000	11,000	11,000	11,000	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500
34	Withdrawal from CIP or Other Reserve	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	Other Fund Sources: Property Tax redistribution	36,000	37,080	38,192	39,338	40,518	41,734	42,986	44,275	45,604	46,972	48,381	49,832	51,327	52,867	54,453	56,087
36	Prop 84 Grant	-	-	4,200,000	-	-	-	-	-	-	-	-	-	-	-	-	-
37	SRF Loan (\$300,000; i=2%; N=30 yrs)	-	-	300,000	-	-	-	-	-	-	-	-	-	-	-	-	-
38	** Vacant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	TOTAL REVENUE	108,500	117,098	120,028	122,993	125,992	129,027	138,500	142,512	146,563	150,654	154,787	158,962	163,182	167,447	171,760	176,120
40	NET LOSS OR GAIN:	5,800	7,737	(59,521)	(61,044)	(61,788)	(62,607)	(56,104)	(56,272)	(56,527)	(56,870)	(57,304)	(57,833)	(58,458)	(59,183)	(60,012)	(60,946)
41																	
42	Number of Customers:	74	76	78	80	82	84	87	90	93	96	99	102	105	108	111	114

43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61

RATE INCREASE SCENARIO ASSUMPTIONS		Percent	Period
Percent Increase		0.0%	2016-20
Percent Increase		0.0%	2021-
Percent Increase			

IMPACT: ESTIMATED AVERAGE BILL PER CONNECTION	2013/15	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Property Tax Redistribution per Connection	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Average Cost (Out of Pocket) per Connection	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
Cost Recovery per Connection	116	116	116	116	116	117	116	116	116	116	116	116	116	116	116	116
ANALYSIS: FOR 100% COST RECOVERY EACH YEAR	2013/15	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total Cost per Connection	116	120	192	192	191	190	186	184	182	180	179	177	176	175	174	173
Net Loss or Gain per Connection	-	(4)	(76)	(76)	(75)	(74)	(70)	(68)	(66)	(64)	(63)	(61)	(60)	(59)	(58)	(57)
Total Annual Net Loss or Gain	5,800	7,737	(59,521)	(61,044)	(61,788)	(62,607)	(56,104)	(56,272)	(56,527)	(56,870)	(57,304)	(57,833)	(58,458)	(59,183)	(60,012)	(60,946)
ANALYSIS: CASH FLOW AND SAVINGS BACKLOG	2013/15	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Cashflow	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
CIP and Amortization Backlog	5,800	13,537	(45,984)	(107,028)	(168,816)	(231,423)	(287,527)	(343,800)	(400,326)	(457,196)	(514,500)	(572,332)	(630,790)	(689,974)	(749,985)	(810,931)



O&M AND  
REPLACEMENT FUND IN  
DEFICIT

RATE ALTERNATIVE: "ONLY INFLATION" - 3% INCREASE

FIVE YEAR BUDGET - 3% RATE INCREASE 2016-  
 Quail Valley Water District

Inflation Factor (%) 3.0%

LINE	EXPENSES AND SOURCE OF FUNDS	2013/15	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
1	OPERATION AND MAINTENANCE (O&M) EXPENSES																
2	Pers. Costs Salaries and Benefits	65,000	66,950	66,950	68,959	71,027	73,158	75,353	77,613	79,942	82,340	84,810	87,355	89,975	92,674	95,455	98,318
3	Additional Pers. Costs for SRF (Prop. 84 Grant)	-	-	11,611	11,960	12,318	12,688	13,068	13,461	13,864	14,280	14,709	15,150	15,604	16,073	16,555	17,051
4	Additional Pers. Costs for SRF (Loan)	-	-	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610	2,688	2,768	2,852	2,937	3,025
5	Power and Other Utilities	6,000	6,180	6,365	6,556	6,753	6,956	7,164	7,379	7,601	7,829	8,063	8,305	8,555	8,811	9,076	9,348
6	Fees Regulatory	1,200	1,236	1,273	1,311	1,351	1,391	1,433	1,476	1,520	1,566	1,613	1,661	1,711	1,762	1,815	1,870
7	Treatment Media/Chemicals	0	0	200	206	212	219	225	232	239	246	253	261	269	277	285	294
8	Coliform Monitoring	700	721	743	765	788	811	836	861	887	913	941	969	998	1,028	1,059	1,091
9	Chemical Monitoring	1,800	1,854	1,910	1,967	2,026	2,087	2,149	2,214	2,280	2,349	2,419	2,492	2,566	2,643	2,723	2,804
10	Transportation	5,000	5,150	5,305	5,464	5,628	5,796	5,970	6,149	6,334	6,524	6,720	6,921	7,129	7,343	7,563	7,790
11	Materials, Supplies, and Parts	3,000	3,090	3,183	3,278	3,377	3,478	3,582	3,690	3,800	3,914	4,032	4,153	4,277	4,406	4,538	4,674
12	Office Supplies	4,000	4,120	4,244	4,371	4,502	4,637	4,776	4,919	5,067	5,219	5,376	5,537	5,703	5,874	6,050	6,232
13	Total O&M Expenses:	86,700	89,301	103,843	106,958	110,167	113,472	116,876	120,382	123,994	127,713	131,545	135,491	139,556	143,743	148,055	152,497
14																	
15	GENERAL AND ADMINISTRATIVE EXPENSES																
16	Engineering Services	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610	2,688	2,768	2,852	2,937	3,025	3,116
17	Legal Services	2,000	4,000	4,000	4,000	4,000	4,000	3,000	3,090	3,183	3,278	3,377	3,478	3,582	3,690	3,800	3,914
18	Insurance, licenses	2,000	4,000	4,000	5,000	5,150	5,305	5,464	5,628	5,796	5,970	6,149	6,334	6,524	6,720	6,921	7,129
19	Existing Contribution to CIP	10,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	O&M Reserve	-	8,000	8,240	8,487	8,742	9,004	9,274	9,552	9,839	10,134	10,438	10,751	11,074	11,406	11,748	12,101
21	Other Reserves	-	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610	2,688	2,768	2,852	2,937	3,025
22	Prop 84 Grant 50% Amortization (\$4.2M , 50, 0%)	-	-	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889
23	Debt Service (\$300k, 30, 2%)	-	-	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395
24	** Vacant																
25	Total General and Administrative Expenses:	16,000	20,060	75,706	77,079	77,613	78,163	77,729	78,402	79,096	79,810	80,546	81,304	82,084	82,888	83,716	84,569
26	TOTAL EXPENSES	102,700	109,361	179,549	184,037	187,779	191,634	194,605	198,784	203,089	207,524	212,091	216,795	221,640	226,631	231,771	237,066
27																	
28	REVENUES RECEIVED																
29	Cash Revenues (Water Rates)	66,500	70,558	74,587	78,794	83,187	87,773	93,635	99,769	106,188	112,902	119,923	127,263	134,937	142,956	151,335	160,087
30	Power Rebates/Incentives	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	Depreciation Reserves	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	Fees and Services	500	515	530	546	563	580	597	615	633	652	672	692	713	734	756	779
33	New Meter Fee (New Hookup)	5,500	11,000	11,000	11,000	11,000	11,000	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500
34	Withdrawal from CIP or Other Reserve	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	Other Fund Sources: Property Tax redistribution	36,000	37,080	38,192	39,338	40,518	41,734	42,986	44,275	45,604	46,972	48,381	49,832	51,327	52,867	54,453	56,087
36	Prop 84 Grant	-	-	4,200,000	-	-	-	-	-	-	-	-	-	-	-	-	-
37	SRF Loan (\$300,000; i=2%; N=30 yrs)	-	-	300,000	-	-	-	-	-	-	-	-	-	-	-	-	-
38	** Vacant																
39	TOTAL REVENUE	108,500	119,153	124,310	129,679	135,268	141,086	153,718	161,160	168,925	177,026	185,476	194,288	203,477	213,057	223,044	233,453
40	NET LOSS OR GAIN:	5,800	9,792	(55,239)	(54,358)	(52,511)	(50,548)	(40,887)	(37,625)	(34,164)	(30,498)	(26,615)	(22,507)	(18,163)	(13,574)	(8,727)	(3,613)
41																	
42	Number of Customers:	74	76	78	80	82	84	87	90	93	96	99	102	105	108	111	114

43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61

RATE INCREASE SCENARIO ASSUMPTIONS		Percent	Period
Percent Increase		3.0%	2016-20
Percent Increase		3.0%	2021-
Percent Increase			

IMPACT: ESTIMATED AVERAGE BILL PER CONNECTION	2013/15	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Property Tax Redistribution per Connection	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Average Cost (Out of Pocket) per Connection	75	77	80	82	85	87	90	92	95	98	101	104	107	110	114	117
Cost Recovery per Connection	116	118	120	123	126	128	131	133	136	139	142	145	148	151	154	158

ANALYSIS: FOR 100% COST RECOVERY EACH YEAR	2013/15	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total Cost per Connection	116	120	192	192	191	190	186	184	182	180	179	177	176	175	174	173
Net Loss or Gain per Connection	-	(2)	(71)	(69)	(65)	(62)	(56)	(51)	(46)	(41)	(37)	(32)	(28)	(24)	(20)	(15)
Total Annual Net Loss or Gain	5,800	9,792	(55,239)	(54,358)	(52,511)	(50,548)	(40,887)	(37,625)	(34,164)	(30,498)	(26,615)	(22,507)	(18,163)	(13,574)	(8,727)	(3,613)

ANALYSIS: CASH FLOW AND SAVINGS BACKLOG	2013/15	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Cashflow	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
CIP and Amortization Backlog	5,800	15,592	(39,647)	(94,005)	(146,516)	(197,064)	(237,951)	(275,576)	(309,740)	(340,238)	(366,853)	(389,360)	(407,523)	(421,097)	(429,824)	(433,436)

O&M AND  
REPLACEMENT FUND IN  
DEFICIT

RATE ALTERNATIVE: "MODERATE" - 7.5% INCREASE

FIVE YEAR BUDGET - 7.5% RATE INCREASE 2016-2020 + 4% RATE INCREASE 2021-  
 Quail Valley Water District

Inflation Factor (%) 3.0%

LINE	EXPENSES AND SOURCE OF FUNDS	2013/15	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
1	OPERATION AND MAINTENANCE (O&M) EXPENSES																
2	Pers. Costs Salaries and Benefits	65,000	66,950	66,950	68,959	71,027	73,158	75,353	77,613	79,942	82,340	84,810	87,355	89,975	92,674	95,455	98,318
3	Additional Pers. Costs for SRF (Prop. 84 Grant)	-	-	11,611	11,960	12,318	12,688	13,068	13,461	13,864	14,280	14,709	15,150	15,604	16,073	16,555	17,051
4	Additional Pers. Costs for SRF (Loan)	-	-	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610	2,688	2,768	2,852	2,937	3,025
5	Power and Other Utilities	6,000	6,180	6,365	6,556	6,753	6,956	7,164	7,379	7,601	7,829	8,063	8,305	8,555	8,811	9,076	9,348
6	Fees Regulatory	1,200	1,236	1,273	1,311	1,351	1,391	1,433	1,476	1,520	1,566	1,613	1,661	1,711	1,762	1,815	1,870
7	Treatment Media/Chemicals	0	0	200	206	212	219	225	232	239	246	253	261	269	277	285	294
8	Coliform Monitoring	700	721	743	765	788	811	836	861	887	913	941	969	998	1,028	1,059	1,091
9	Chemical Monitoring	1,800	1,854	1,910	1,967	2,026	2,087	2,149	2,214	2,280	2,349	2,419	2,492	2,566	2,643	2,723	2,804
10	Transportation	5,000	5,150	5,305	5,464	5,628	5,796	5,970	6,149	6,334	6,524	6,720	6,921	7,129	7,343	7,563	7,790
11	Materials, Supplies, and Parts	3,000	3,090	3,183	3,278	3,377	3,478	3,582	3,690	3,800	3,914	4,032	4,153	4,277	4,406	4,538	4,674
12	Office Supplies	4,000	4,120	4,244	4,371	4,502	4,637	4,776	4,919	5,067	5,219	5,376	5,537	5,703	5,874	6,050	6,232
13	Total O&M Expenses:	86,700	89,301	103,843	106,958	110,167	113,472	116,876	120,382	123,994	127,713	131,545	135,491	139,556	143,743	148,055	152,497
14																	
15	GENERAL AND ADMINISTRATIVE EXPENSES																
16	Engineering Services	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610	2,688	2,768	2,852	2,937	3,025	3,116
17	Legal Services	2,000	4,000	4,000	4,000	4,000	4,000	3,000	3,090	3,183	3,278	3,377	3,478	3,582	3,690	3,800	3,914
18	Insurance, licenses	2,000	4,000	4,000	5,000	5,150	5,305	5,464	5,628	5,796	5,970	6,149	6,334	6,524	6,720	6,921	7,129
19	Existing Contribution to CIP	10,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	O&M Reserve	-	8,000	8,240	8,487	8,742	9,004	9,274	9,552	9,839	10,134	10,438	10,751	11,074	11,406	11,748	12,101
21	Other Reserves	-	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610	2,688	2,768	2,852	2,937	3,025
22	Prop 84 Grant 50% Amortization (\$4.2M , 50, 0%)	-	-	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889
23	Debt Service (\$300k, 30, 2%)	-	-	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395
24	** Vacant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	Total General and Administrative Expenses:	16,000	20,060	75,706	77,079	77,613	78,163	77,729	78,402	79,096	79,810	80,546	81,304	82,084	82,888	83,716	84,569
26	TOTAL EXPENSES	102,700	109,361	179,549	184,037	187,779	191,634	194,605	198,784	203,089	207,524	212,091	216,795	221,640	226,631	231,771	237,066
27																	
28	REVENUES RECEIVED																
29	Cash Revenues (Water Rates)	66,500	73,640	81,247	89,580	98,706	108,697	117,082	125,964	135,369	145,325	155,861	167,008	178,797	191,261	204,437	218,361
30	Power Rebates/Incentives	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	Depreciation Reserves	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	Fees and Services	500	515	530	546	563	580	597	615	633	652	672	692	713	734	756	779
33	New Meter Fee (New Hookup)	5,500	11,000	11,000	11,000	11,000	11,000	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500
34	Withdrawal from CIP or Other Reserve	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	Other Fund Sources: Property Tax redistribution	36,000	37,080	38,192	39,338	40,518	41,734	42,986	44,275	45,604	46,972	48,381	49,832	51,327	52,867	54,453	56,087
36	Prop 84 Grant	-	-	4,200,000	-	-	-	-	-	-	-	-	-	-	-	-	-
37	SRF Loan (\$300,000; i=2%; N=30 yrs)	-	-	300,000	-	-	-	-	-	-	-	-	-	-	-	-	-
38	** Vacant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	TOTAL REVENUE	108,500	122,235	130,970	140,464	150,787	162,010	177,165	187,354	198,106	209,449	221,414	234,032	247,337	261,363	276,147	291,727
40	NET LOSS OR GAIN:	5,800	12,874	(48,579)	(43,573)	(36,993)	(29,624)	(17,440)	(11,430)	(4,983)	1,926	9,324	17,237	25,697	34,732	44,375	54,661
41																	
42	Number of Customers:	74	76	78	80	82	84	87	90	93	96	99	102	105	108	111	114



43			
44	<b>RATE INCREASE SCENARIO ASSUMPTIONS</b>	Percent	Period
45	Percent Increase	7.5%	2016-20
46	Percent Increase	4.0%	2021-
47	Percent Increase		
48			

49	<b>IMPACT: ESTIMATED AVERAGE BILL PER CONNECTION</b>	2013/15	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
50	Property Tax Redistribution per Connection	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
51	Average Cost (Out of Pocket) per Connection	75	81	87	93	100	108	112	117	121	126	131	136	142	148	153	160
52	Cost Recovery per Connection	116	121	128	134	141	149	153	158	162	167	172	177	183	188	194	201
53																	
54	<b>ANALYSIS: FOR 100% COST RECOVERY EACH YEAR</b>	2013/15	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
55	Total Cost per Connection	116	120	192	192	191	190	186	184	182	180	179	177	176	175	174	173
56	Net Loss or Gain per Connection	-	1	(64)	(57)	(49)	(41)	(33)	(26)	(20)	(13)	(7)	0	7	14	20	27
57	Total Annual Net Loss or Gain	5,800	12,874	(48,579)	(43,573)	(36,993)	(29,624)	(17,440)	(11,430)	(4,983)	1,926	9,324	17,237	25,697	34,732	44,375	54,661
58																	
59	<b>ANALYSIS: CASH FLOW AND SAVINGS BACKLOG</b>	2013/15	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
60	Cashflow	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
61	CIP and Amortization Backlog	5,800	18,674	(29,905)	(73,478)	(110,470)	(140,095)	(157,535)	(168,965)	(173,948)	(172,022)	(162,699)	(145,461)	(119,765)	(85,033)	(40,657)	14,003



RATE ALTERNATIVE: "CIP" - 20%, 10%, 10%, 10%, 10% INCREASE

FIVE YEAR BUDGET - 20%, 10%, 10%, 10%, 10% RATE INCREASE 2016-2020 + 4% RATE INCREASE 2021-  
 Quail Valley Water District

Inflation Factor (%) 3.0%

LINE	EXPENSES AND SOURCE OF FUNDS	2013/15	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
1	OPERATION AND MAINTENANCE (O&M) EXPENSES																
2	Pers. Costs Salaries and Benefits	65,000	66,950	66,950	68,959	71,027	73,158	75,353	77,613	79,942	82,340	84,810	87,355	89,975	92,674	95,455	98,318
3	Additional Pers. Costs for SRF (Prop. 84 Grant)	-	-	11,611	11,960	12,318	12,688	13,068	13,461	13,864	14,280	14,709	15,150	15,604	16,073	16,555	17,051
4	Additional Pers. Costs for SRF (Loan)	-	-	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610	2,688	2,768	2,852	2,937	3,025
5	Power and Other Utilities	6,000	6,180	6,365	6,556	6,753	6,956	7,164	7,379	7,601	7,829	8,063	8,305	8,555	8,811	9,076	9,348
6	Fees Regulatory	1,200	1,236	1,273	1,311	1,351	1,391	1,433	1,476	1,520	1,566	1,613	1,661	1,711	1,762	1,815	1,870
7	Treatment Media/Chemicals	0	0	200	206	212	219	225	232	239	246	253	261	269	277	285	294
8	Coliform Monitoring	700	721	743	765	788	811	836	861	887	913	941	969	998	1,028	1,059	1,091
9	Chemical Monitoring	1,800	1,854	1,910	1,967	2,026	2,087	2,149	2,214	2,280	2,349	2,419	2,492	2,566	2,643	2,723	2,804
10	Transportation	5,000	5,150	5,305	5,464	5,628	5,796	5,970	6,149	6,334	6,524	6,720	6,921	7,129	7,343	7,563	7,790
11	Materials, Supplies, and Parts	3,000	3,090	3,183	3,278	3,377	3,478	3,582	3,690	3,800	3,914	4,032	4,153	4,277	4,406	4,538	4,674
12	Office Supplies	4,000	4,120	4,244	4,371	4,502	4,637	4,776	4,919	5,067	5,219	5,376	5,537	5,703	5,874	6,050	6,232
13	Total O&M Expenses:	86,700	89,301	103,843	106,958	110,167	113,472	116,876	120,382	123,994	127,713	131,545	135,491	139,556	143,743	148,055	152,497
14																	
15	GENERAL AND ADMINISTRATIVE EXPENSES																
16	Engineering Services	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610	2,688	2,768	2,852	2,937	3,025	3,116
17	Legal Services	2,000	4,000	4,000	4,000	4,000	4,000	3,000	3,090	3,183	3,278	3,377	3,478	3,582	3,690	3,800	3,914
18	Insurance, licenses	2,000	4,000	4,000	5,000	5,150	5,305	5,464	5,628	5,796	5,970	6,149	6,334	6,524	6,720	6,921	7,129
19	Existing Contribution to CIP	10,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	O&M Reserve	-	8,000	8,240	8,487	8,742	9,004	9,274	9,552	9,839	10,134	10,438	10,751	11,074	11,406	11,748	12,101
21	Other Reserves	-	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610	2,688	2,768	2,852	2,937	3,025
22	Prop 84 Grant 50% Amortization (\$4.2M , 50, 0%)	-	-	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889	41,889
23	Debt Service (\$300k, 30, 2%)	-	-	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395	13,395
24	** Vacant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	Total General and Administrative Expenses:	16,000	20,060	75,706	77,079	77,613	78,163	77,729	78,402	79,096	79,810	80,546	81,304	82,084	82,888	83,716	84,569
26	TOTAL EXPENSES	102,700	109,361	179,549	184,037	187,779	191,634	194,605	198,784	203,089	207,524	212,091	216,795	221,640	226,631	231,771	237,066
27																	
28	REVENUES RECEIVED																
29	Cash Revenues (Water Rates)	66,500	82,203	92,803	104,701	118,050	133,023	143,284	154,154	165,664	177,849	190,743	204,384	218,811	234,065	250,190	267,229
30	Power Rebates/Incentives	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	Depreciation Reserves	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	Fees and Services	500	515	530	546	563	580	597	615	633	652	672	692	713	734	756	779
33	New Meter Fee (New Hookup)	5,500	11,000	11,000	11,000	11,000	11,000	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500
34	Withdrawal from CIP or Other Reserve	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	Other Fund Sources: Property Tax redistribution	36,000	37,080	38,192	39,338	40,518	41,734	42,986	44,275	45,604	46,972	48,381	49,832	51,327	52,867	54,453	56,087
36	Prop 84 Grant	-	-	4,200,000	-	-	-	-	-	-	-	-	-	-	-	-	-
37	SRF Loan (\$300,000; i=2%; N=30 yrs)	-	-	300,000	-	-	-	-	-	-	-	-	-	-	-	-	-
38	** Vacant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	TOTAL REVENUE	108,500	130,798	142,526	155,586	170,131	186,336	203,367	215,545	228,401	241,973	256,296	271,408	287,351	304,167	321,899	340,595
40	NET LOSS OR GAIN:	5,800	21,437	(37,023)	(28,451)	(17,648)	(5,298)	8,762	16,760	25,312	34,449	44,205	54,613	65,711	77,536	90,128	103,529
41																	
42	Number of Customers:	74	76	78	80	82	84	87	90	93	96	99	102	105	108	111	114

43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61

RATE INCREASE SCENARIO ASSUMPTIONS		Percent	Period
Percent Increase	20.0%	2016	
Percent Increase	10.0%	2017-20	
Percent Increase	4.0%	2021-	

IMPACT: ESTIMATED AVERAGE BILL PER CONNECTION	2013/15	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Property Tax Redistribution per Connection	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Average Cost (Out of Pocket) per Connection	75	90	99	109	120	132	137	143	148	154	161	167	174	181	188	195
Cost Recovery per Connection	116	131	140	150	161	173	178	184	189	195	201	208	214	221	229	236
ANALYSIS: FOR 100% COST RECOVERY EACH YEAR	2013/15	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total Cost per Connection	116	120	192	192	191	190	186	184	182	180	179	177	176	175	174	173
Net Loss or Gain per Connection	-	11	(52)	(42)	(30)	(17)	(8)	(0)	7	15	23	31	38	47	55	63
Total Annual Net Loss or Gain	5,800	21,437	(37,023)	(28,451)	(17,648)	(5,298)	8,762	16,760	25,312	34,449	44,205	54,613	65,711	77,536	90,128	103,529
ANALYSIS: CASH FLOW AND SAVINGS BACKLOG	2013/15	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Cashflow	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
CIP and Amortization Backlog	5,800	27,237	(9,786)	(38,237)	(55,885)	(61,183)	(52,421)	(35,660)	(10,348)	24,101	68,306	122,919	188,630	266,166	356,294	459,823

YEAR WHEN O&M AND REPLACEMENT FUND IS MADE WHOLE