

# Apple Valley Foothill County Water District Rate Analysis

Water System #CA3600008



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**October 2024**

Funded by: State of  
California State Water  
Resources Control Board





October 26, 2024

Emma Blankenship  
Small Community Technical Assistance  
Division of Financial Assistance  
State Water Resources Control Engineer  
1001 I St. 16<sup>th</sup> Floor  
PO Box 944212  
Sacramento, CA 95814

**Subject: Apple Valley Foothill County Water District Rate Study AR #7084**

Dear Emma:

Enclosed please find the final report for Apple Valley Foothill County Water District water rate study.

Several rate adjustment options were presented to the Apple Valley Foothill County Water District board and general manager for consideration. From the several options, the board selected one they feel will best fit their community. Notification of a public hearing was posted in the newspaper on June 7, 2024, and mailed out to customers. The Prop 218 hearing was held on July 23, 2024, and new rates were adopted. Rates went into effect August 1, 2024.

If you have any additional questions, feel free to contact Paul Sterling at 725-277-2821 or Kimberly Bennett at 916-508-3031.

Sincerely,

*Kimberly Bennett*

Kimberly Bennett  
RCAC, Regional Field Manager  
Community & Environmental Services

Enclosure: Apple Valley Foothill County Water District Rate Study

CC: Apple Valley Foothill County Water District

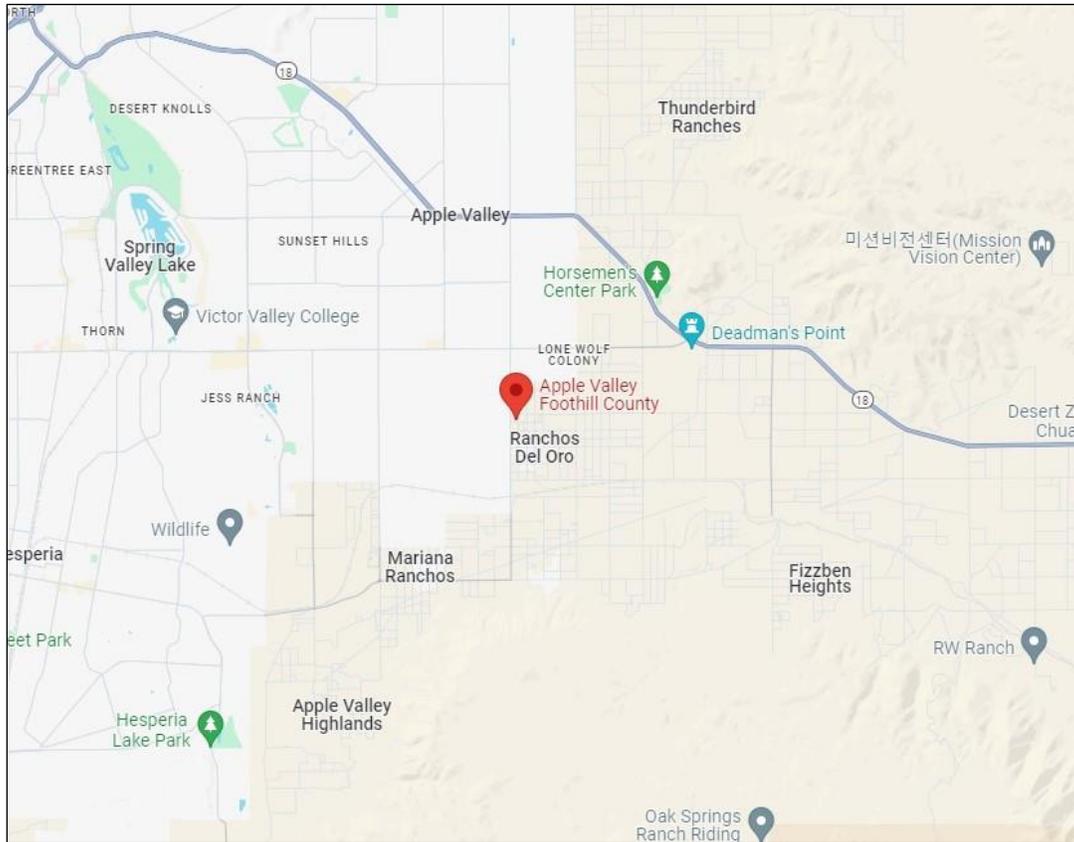
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# 1. Apple Valley Foothill County Water District

## Community

The Town of Apple Valley is located in the heart of the Victor Valley in the County of San Bernardino, at an elevation of 3,000 feet. Known as the "High Desert", Apple Valley is strategically located 95 miles northeast of the Los Angeles metropolitan area, 140 miles north of San Diego, and 185 miles south of Las Vegas. The Town has 78 square miles in its incorporated boundaries, and a sphere of influence encompassing 200 square miles.



## Water district

Apple Valley Foothill County Water District (AVFCWD) was formed July 1, 1957, under the provision of the California Water Code. Its boundaries encompass approximately 717 acres. AVFCWD is governed by the board of directors (five members) elected by the voters within AVFCWD for two-to-four-year terms. AVFCWD provides water to customers within its boundaries. At the time of this analysis the existing water system served 235 residential service connections. All water service connections are metered using 1" meters. There are no commercial or industrial connections within the service area.

## Water system

AVFCWD owns, operates, and maintains its water supply, storage, and distribution systems. The system does not have water system deficiencies that are the result of inadequate attention or capabilities of AVFCWD's operators or management.

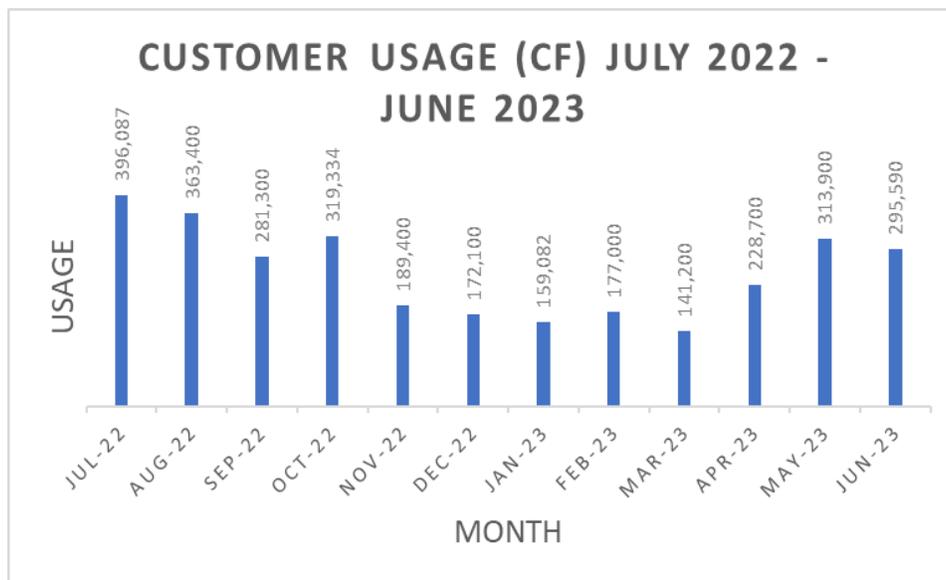
- **Source of Supply** - The District produces water for distribution from two water wells (Well 01 and Well 02). Approximately 85 acre-feet of water are needed each year to serve AVFCWD's customers.
- **Pumping** – From the wells, water is pumped uphill to storage tanks that are at an elevation to provide sufficient pressure to much of the distribution system. Water pressure is boosted using a VFD pump to a minimum of 30 PSI in the neighborhoods surrounding the water storage tanks.
- **Operations and Distribution** - AVFCWD uses water mains, storage reservoirs, and pumps to keep the water flowing through the system. System reliability requires monitoring, repairing, installing, and maintaining AVFCWD's facilities.
- **Meter Services** - All water delivered to AVFCWD's customers is measured through individual meters.

## Customer usage

When analyzing water rates, it is important to understand existing patterns of consumption among the system's customers. A large portion of customers may use a small percentage of water, and a small portion of customers may use a large percentage. Understanding how customers use water is important when examining seasonal operational needs, infrastructure replacement and water use efficiency, to name a few considerations.

## Seasonal usage

The water system saw the highest water usage during the months of May through October, with sixty-five percent of the annual water usage occurring during these months. Water usage declined in the months of November through April.



### Customer usage by tier

Month	Up to 900	1000 - 3400	3500 and above	Total
Jul-22	43,487	189,600	163,000	396,087
Aug-22	57,800	182,300	123,300	363,400
Sep-22	55,600	133,500	92,200	281,300
Oct-22	51,134	168,000	100,200	319,334
Nov-22	68,100	103,700	17,600	189,400
Dec-22	63,100	90,200	18,8001	172,100
Jan-23	66,182	81,000	11,900	159,082
Feb-23	70,600	81,700	24,700	177,000
Mar-23	75,400	62,300	3,500	141,200
Apr-23	62,000	142,200	24,500	228,700
May-23	56,900	184,600	72,400	313900
Jun-23	49,600	182,590	63,400	295590
<b>Total Annual Usage</b>	719,903	1,601,690	715,500	3,037,093

### Number of connections in each tier of usage

Month	Up to 900	1000 - 3400	3500 and above	Total
Jul-22	106	102	32	240
Aug-22	127	98	20	245
Sep-22	140	88	17	245
Oct-22	126	101	18	245
Nov-22	170	72	3	245
Dec-22	144	98	3	245
Jan-23	179	63	3	245
Feb-23	180	61	4	245
Mar-23	194	50	1	245
Apr-23	146	94	5	245
May-23	127	105	13	245
Jun-23	122	110	13	245

### Customer usage summary

	Up to 900 CF	1,000 - 3400	3500 and above	Total
Average # of customers	147	87	11	245
Average Monthly usage	59,992	133,466	59,625	253,083
% of Customers	60%	36%	4%	100%
% of Usage	24%	53%	23%	100%

### Current rates

All AVFCWD customers have 1” meters. Customers are billed a base rate of \$38.00 plus a capital replacement reserve fee of \$7.00 and a monthly tank surcharge of \$14.63. Water use is measured and billed in units of 100 cubic feet (CCF). One hundred cubic feet is equal to 748 gallons.

Monthly Base Rates			
Base Rate	Monthly Tank Surcharge	Capital Improvement Reserve Fund	Total Monthly Base Rate
\$ 38.00	\$ 14.63	\$7.00	\$59.63

Usage Rates	
Usage	Rate
Up to 1000 CF	\$ 1.24
1,000 – 3,500 CF	\$ 1.38
Over 3,500 CF	\$ 2.11

### Additional fees

In addition to monthly water rates, AVFCWD currently has the following fees:

Fee Type	Fee Amount
Late fees	\$15.00
Yellow Tag Notice	\$25.00
Customer Request Turn Off	\$25.00
Customer Request Turn On	\$25.00
Returned check fee	\$25.00
Customer Account Deposit	\$204.26
Non-Payment	\$100.00

### Proposed rate structure

RCAC offered several rate adjustment options for AVFCWD’s consideration. The AVFCWD’s Board of Directors has determined to raise the base rate to \$61.15 and the usage rate to \$2.00 for the first year. Annual increases to both the base rates and the usage rates in the amount of the higher of the annual Consumer Price Index (CPI) or 2.6% will be implemented after the first year. The usage rate no longer includes tiers in order to be in line with current Proposition 218 case law.

	Year #1	Year #2	Year #3	Year #4	Year #5
Base Rate					
1” Meter	\$ 61.15	\$ 62.56	\$ 64.00	\$ 65.47	\$ 66.97
Usage Rate					
Rate per 100 CF	\$ 2.00	\$ 2.05	\$ 2.09	\$ 2.14	\$ 2.19

## **2. Guiding principles of this rate study**

### ***Sustainability***

Water rates should cover the costs to the water utility to allow it to provide water services for the foreseeable future.

### ***Fair***

Water rates should be fair to all rate payers. No single rate payer or group of rate payers should be singled out for different rates. Therefore, the proposed rates do not make any distinction between domestic, commercial, or agricultural users. The rates are the same for all.

The water enterprise should not charge more for water than the cost to provide the water. However, the costs should include operations, repairs, reserves, and all other costs related to the production, treatment, and distribution of potable water now and in the foreseeable future.

### ***Conservation***

Water rates should promote conservation. Water is a limited resource and should be conserved.

### ***Justifiable***

Water rates must be based on the actual financial needs of the water enterprise. Revenue generated from water rates cannot be used for anything except to pay for the costs of procuring, treating, and distributing water within its service area, plus any administrative costs and reserves.

Therefore, the proposed rates are based on AVFCWD's capital replacement program and a sales forecast.

### ***Purpose of this study***

The purpose of this study is to provide AVFCWD with recommended rates. The water system must be able to build reserves to cover emergencies, periods of low cash flow and the inevitable need to replace all components of the operation.

### ***Board decision***

While this document recommends certain rates, the ultimate decision rests with AVFCWD's board.

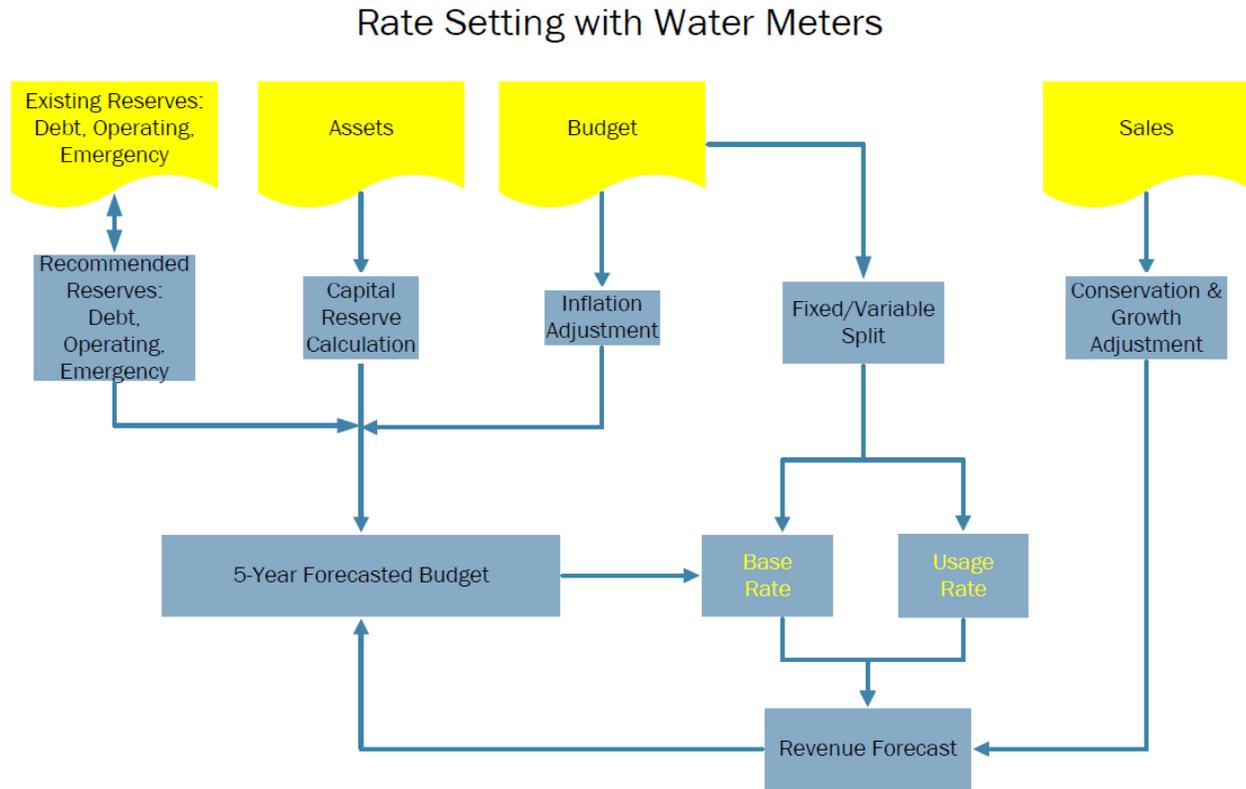
However, the board has a fiduciary responsibility to set the rates at such a level that the water enterprise will be able to continue to operate in the future, including providing funds to replace all parts of the system as they wear out.

### **Disclaimer**

*The recommendations contained in this rate study are based on financial information provided to RCAC by AVFCWD. Although every effort was made to ensure the reliability of this information, no warranty is expressed or implied as to the correctness, accuracy or completeness of the information contained herein. Any opinions, findings, conclusions, or recommendations expressed in this material are solely the responsibility of the authors and do not necessarily represent the official views of SWRCB, who funded this rate study. For accounting advice, a CPA should be consulted. For legal advice, the company should seek the advice of an attorney.*

### 3. Rate study process

The figure<sup>1</sup> below explains the process of setting rates. We begin with the list of all capitalized assets, the current budget, and the current sales history as provided by the administration of AVFCWD.



- Existing reserves are compared to target reserves.
- From the list of assets the required reserves are calculated (Section 4 of this report) and incorporated into a five-year budget projection (Section 5).
- The annual budget is reviewed line by line to develop a five-year budget projection. Line items are adjusted by inflation (estimated to be 4% per year) or by another measure to match AVFCWD’s expected expenses over the next five years.
- The sales of customers are adjusted for unpaying customers, undeveloped lots, future water conservation and community growth reasonably expected to occur in the next five years.

The budgeted annual expenses and reserve expenses are split between fixed and variable costs, which leads to a recommended base rate (meter charge) and usage charges. The calculated rates are then applied to the forecasted sales to arrive at a revenue estimate.

<sup>1</sup> All yellow fields and cells in the figures of this report are based on external data. All blue fields or cells are calculated.

## 4. Reserve funding

As of June 30, 2022, AVFCWD water enterprise held \$42,580 in cash and cash equivalents. AWWA standards recommend a review of four types of reserves:

1. **Debt reserve:** While AVFCWD has a loan with CoBank, there is no debt requiring a debt reserve fund at the time of this analysis.
2. **Operating reserve:** Operating reserves are established to provide the utility with the ability to withstand short-term cash-flow fluctuations. The industry standard calls for 1.5 times the operating expenses during a billing cycle, assuming billing monthly. With the cash on hand during the time of the analysis, which is considered adequate to carry the utility through unexpected periods of low cash flow.
3. **Emergency reserve:** Emergency reserves are intended to help utilities deal with short-term emergencies, such as mainline breaks or pump failures. An emergency reserve is intended to fund the immediate replacement or reconstruction of the system's single most critical asset. The emergency reserve should be set at the replacement cost of the most expensive component that, if it failed, would result in the inability to provide water to customers. In the case of AVFWCD, it was determined that \$25,000 in emergency reserves would be sufficient. That amount is included in the cash balance as of June 30, 2023.
4. **Capital replacement reserve (CRP):** This reserve is strictly to be used to fund the company portion of any replacement of capital assets that are worn out. AVFCWD had \$18,636 in CRP reserves as of June 30, 2023. Currently, of the AVFCWD monthly base fee of \$59.63, \$7.00 is designated for CRP reserves and \$14.63. for monthly tank surcharge.

The table below shows the existing reserves and the reserve targets for each of the four reserve categories. These reserves have different time horizons. Operating reserves and emergency reserves should be readily available, while CRP funds can be invested with different maturity dates to coincide with the planned need for capital replacements.

These four different reserves should require different policies related to:

- a. Investment terms and vehicles.
- b. What the funds can be used for.
- c. Who can access the funds.
- d. What procedure must be followed to access the funds.

Reserve Type	Existing Reserves	Targeted Reserves over Five-Year Period	Amount to Fund over Five-Year Period
Debt Reserve	\$29,000	\$0	\$29,000
Operating Reserve	\$0	\$4,076	\$20,378
Emergency Reserve	\$25,000	\$125,000	\$25,000
Capital Replacement Reserve	\$18,636	\$463,000	\$444,364
<b>Total Reserves</b>	<b>\$72,636</b>	<b>\$592,076</b>	<b>\$518,742</b>

## 5. Capital replacement program

### Overview

The capital replacement program (CRP) provides a detail of the reserves needed to replace existing assets, currently funded asset replacement projects, and future capital assets. The total line of the CRP table, \$281,160, is the amount the AVFCWD must set aside each year to be able to replace the assets listed when they reach the end of their life expectancy. This can be seen in detail in Table 1.

The data in the CRP comes from the data supplied by the company and AWWA industry standards. The list of the components, their installation date, and their original costs were all supplied or estimated by the utility. AVFCWD has set the capitalization threshold at \$2,500. The cost of some of the purchases on the list are below the threshold and should, most likely, be expensed rather than recorded as assets. The normal estimated life is based on AWWA industry standards. The estimated remaining life is based on the general manager's and operator's best judgments.

Funding for the replacement of components can only come from cash saved by the company, a grant, or a loan. In reviewing funding options to replace existing equipment, the general manager assumed AVFCWD would be poised to pay cash for equipment up to \$100,000 and would provide cash for 20% of the cost of replacements beyond \$100,000. AVFCWD is hoping to acquire loans to fund the remaining 80% of the costs for the replacement of assets valued over \$100,000. RCAC cautions that grants may not be available when the time comes to replace these assets.

### Default funding of CRP

Asset Valuation		Funding Source		
From	Up To	Cash	Grant	Loan
\$0	\$20,000	100%	0%	0%
\$20,001	\$100,000	100%	0%	0%
\$100,001	\$500,000	20%	0%	80%
\$500,001	\$9,999,999	20%	0%	80%

**TABLE 1: Capital replacement program**

Asset	Year Acquired	Purchase Cost	Estimated Remaining Life	Past Inflation Rate	Future Inflation Rate	Estimated Future Cost	Existing Reserves	Amount to Fund In Reserves	% to be Funded through Reserves	Annual Reserve Required
<i>Description</i>			<b>Yrs</b>			<b>Cost</b>				<b>Required</b>
Administratve Office	1980	\$150,000.00	10	3.50%	4.00%	\$1,008,788.31	\$2,110.14	\$1,006,678.18	20%	\$19,514.95
Furniture Workstations	2010	\$3,000.00	5	3.50%	4.00%	\$0.00	\$0.00	\$0.00	0%	\$0.00
Office Equipment	2010	\$12,000.00	5	3.50%	4.00%	\$0.00	\$0.00	\$0.00	0%	\$0.00
District Vehicle	2015	\$20,000.00	6	3.50%	4.00%	\$0.00	\$0.00	\$0.00	0%	\$0.00
Meters, Pupe, Repairs Clamps Fittings & Misc Supplies	2020	\$10,000.00	6	3.50%	4.00%	\$14,519.83	\$177.65	\$14,342.17	100%	\$2,360.29
3 KW Emergency Generator, Generac, GP 325	2023	\$500.00	9	3.50%	4.00%	\$736.56	\$8.01	\$728.55	100%	\$0.00
200 KW Emergency Genertor w/sounf	2006	\$150,000.00	2	3.50%	4.00%	\$301,359.05	\$862.70	\$300,496.34	20%	\$29,629.40
Well #1 Shed	1980	\$5,000.00	5	3.50%	4.00%	\$27,638.35	\$351.69	\$27,286.66	100%	\$5,402.33
Well #1 Telemetry System	2010	\$10,000.00	1	3.50%	4.00%	\$16,834.42	\$250.60	\$16,583.82	100%	\$16,583.82
Well #1 Pump w/Motor, Vertical Turbine, Bowl	2019	\$80,000.00	20	3.50%	4.00%	\$208,189.36	\$294.20	\$207,895.16	20%	\$1,970.02
Well #2 Shed	1980	\$5,000.00	5	3.50%	4.00%	\$27,638.35	\$351.69	\$27,286.66	100%	\$5,402.33
Well #2 Pump w/Motor Vertical Turbine, Bowl	2017	\$80,000.00	18	3.50%	4.00%	\$206,192.35	\$315.15	\$205,877.20	20%	\$2,177.69
Personal Prop erty & Portable Equipment Licensed Vehicles	2023	\$1,000.00	4	3.50%	4.00%	\$1,210.80	\$16.02	\$1,194.78	100%	\$0.00
Misc/ Equipment (Fire Hydrant, Valves, Water)	1990	\$1,000,000.00	5	3.50%	4.00%	\$3,918,669.07	\$9,972.77	\$3,908,696.30	20%	\$153,192.56
Tussing Ranch Road Shed	1980	\$5,000.00	5	3.50%	4.00%	\$27,638.35	\$351.69	\$27,286.66	100%	\$5,402.33
Tussing Ranch Road Telemetry System	2010	\$10,000.00	1	3.50%	4.00%	\$16,834.42	\$250.60	\$16,583.82	100%	\$16,583.82
Tussing Ranch Road Pump w/Motor, Centrifugal, VFD, MCC, Piping, Valves, Tank	2023	\$30,000.00	39	3.50%	4.00%	\$143,338.16	\$96.14	\$143,242.02	20%	\$665.09
Tussing Ranch Road Tank, Welded Steel, 30' Dia X 20' High	2022	\$200,000.00	38	3.50%	4.00%	\$950,993.59	\$663.37	\$950,330.22	20%	\$4,539.79
Thomson Family Waater Storage - 150,000 Gal Bolted Steel Tanks, 38' X 24;	2023	\$800,000.00	39	3.50%	4.00%	\$3,822,351.04	\$2,563.74	\$3,819,787.30	20%	\$17,735.77
<b>Total</b>		<b>\$2,571,500.00</b>				<b>\$10,692,932.02</b>	<b>\$18,636.16</b>	<b>\$10,674,295.86</b>		<b>\$281,160.20</b>

## Alternative

AVFCWD’s current monthly rate of \$59.63 includes \$7.00 for CRP reserves and \$14.63 for tank surcharges. Because the number of connections is projected to increase by 0.5% annually, the rate adjustment options in this analysis do not break out an amount to be charged for CRP and well maintenance reserves. All costs are recovered through one base rate and the usage. The amount of grants and/or loans obtained for future projects has a very substantial impact on water rates. Therefore, this study recommends a new rate study every five years or when the new system has been constructed.

## 6. Budget

### Overview

The 5- year budget expenses were calculated using the 2023 board-approved budget and projecting forward for five years assuming an annual inflation rate of 4%. This can be seen in detail in Table 2.

Several assumptions were made about projected revenue.

**Conservation Factor** - higher water rates may cause a reduction in the quantity of water sold as customers adjust their consumption to the new rates. The AVFCWD president and general manager indicated that there could be a small decrease in customer use habits usage from year 1 to year 3.

Sales adjustment over base year	Year 1	Year 2	Year 3	Year 4	Year 5
Conservation factor	-3.0%	-2.0%	-1.0%	0.0%	0.0%

**Growth Factor** - The number of connections is anticipated to be steady over the next 5 years.

Sales adjustment over base year	Year 1	Year 2	Year 3	Year 4	Year 5
Growth factor	1.5%	1.5%	1.5%	1.5%	1.5%

**Receivable Write Off** - AVFCWD expects that most, if not all, delinquent accounts are collectible. A minor dollar amount of uncollectible accounts was assumed in this rate analysis.

Receivable Write-Off (% of Billing)	Year 1	Year 2	Year 3	Year 4	Year 5
	0.20%	0.20%	0.20%	0.20%	0.20%

### Alternatives

If the utility does not set water rates to collect enough revenue to cover all expenses in the projected 5-year budget, it does not necessarily equate to the utility not being able to pay its bills. The 5-year budget produced includes the funding of reserves including a CRP reserve designed to save money for the future replacement of the capital assets. A failure to adequately fund reserves does put the water system at risk of failing to guarantee continued operation of the water system in the future. The utility and board have a fiduciary responsibility to set rates to a level where the system can continue to operate and provide clean, safe water for the foreseeable future.

**TABLE 2: Five-year projected budget**

Operating Expenses	Actual 2023	Budget/2024	Projected 2025	Projected 2026	Projected 2027	Projected 2028	Projected 2029
Electricity-Tank Site	\$ 4,489.41	\$ 6,000.00	\$ 6,240.00	\$ 6,489.60	\$ 6,749.18	\$ 7,019.15	\$ 7,299.92
Electricity-Well Site	\$ 15,552.85	\$ 17,000.00	\$ 17,680.00	\$ 18,387.20	\$ 19,122.69	\$ 19,887.60	\$ 20,683.10
Repairs & Maintenance	\$ 22,351.34	\$ 20,000.00	\$ 20,800.00	\$ 21,632.00	\$ 22,497.28	\$ 23,397.17	\$ 24,333.06
Standby Fees/Water	\$ 687.08	\$ 1,000.00	\$ 1,040.00	\$ 1,081.60	\$ 1,124.86	\$ 1,169.86	\$ 1,216.65
Supplies	\$ 4,001.60	\$ 5,000.00	\$ 5,200.00	\$ 5,408.00	\$ 5,624.32	\$ 5,849.29	\$ 6,083.26
Utility Markings	\$ 130.75	\$ 100.00	\$ 104.00	\$ 108.16	\$ 112.49	\$ 116.99	\$ 121.67
Wages-Maintenance	\$ 14,466.68	\$ 15,000.00	\$ 15,600.00	\$ 16,224.00	\$ 16,872.96	\$ 17,547.88	\$ 18,249.79
Well Monitoring	\$ 2,210.00	\$ 3,000.00	\$ 3,120.00	\$ 3,244.80	\$ 3,374.59	\$ 3,509.58	\$ 3,649.96
Engineering	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Accounting & Legal	\$ 8,120.00	\$ 10,000.00	\$ 10,400.00	\$ 10,816.00	\$ 11,248.64	\$ 11,698.59	\$ 12,166.53
Advertising	\$ 161.00	\$ 200.00	\$ 208.00	\$ 216.32	\$ 224.97	\$ 233.97	\$ 243.33
Automobile Expense	\$ 116.00	\$ 500.00	\$ 520.00	\$ 540.80	\$ 562.43	\$ 584.93	\$ 608.33
Gasoline	\$ 1,290.00	\$ 1,500.00	\$ 1,560.00	\$ 1,622.40	\$ 1,687.30	\$ 1,754.79	\$ 1,824.98
Bank Charges	\$ 100.00	\$ 150.00	\$ 156.00	\$ 162.24	\$ 168.73	\$ 175.48	\$ 182.50
Dues & Subscriptions	\$ 4,385.00	\$ 3,500.00	\$ 3,640.00	\$ 3,785.60	\$ 3,937.02	\$ 4,094.50	\$ 4,258.29
Fees (Auditor Controller LAFCO)	\$ 47.00	\$ 300.00	\$ 312.00	\$ 324.48	\$ 337.46	\$ 350.96	\$ 365.00
Insurance	\$ 6,134.00	\$ 6,000.00	\$ 6,240.00	\$ 6,489.60	\$ 6,749.18	\$ 7,019.15	\$ 7,299.92
Insurance-WC	\$ 1,506.00	\$ 1,500.00	\$ 1,560.00	\$ 1,622.40	\$ 1,687.30	\$ 1,754.79	\$ 1,824.98
Licenses & Permits	\$ 1,611.00	\$ 1,000.00	\$ 1,040.00	\$ 1,081.60	\$ 1,124.86	\$ 1,169.86	\$ 1,216.65
Meeting Fees	\$ 1,815.00	\$ 3,200.00	\$ 3,328.00	\$ 3,461.12	\$ 3,599.56	\$ 3,743.55	\$ 3,893.29
Mileage	\$ 695.00	\$ 1,000.00	\$ 1,040.00	\$ 1,081.60	\$ 1,124.86	\$ 1,169.86	\$ 1,216.65
Office Expense	\$ 7,513.00	\$ 4,000.00	\$ 4,160.00	\$ 4,326.40	\$ 4,499.46	\$ 4,679.43	\$ 4,866.61
Payroll Tax Expense	\$ 5,504.00	\$ 6,000.00	\$ 6,240.00	\$ 6,489.60	\$ 6,749.18	\$ 7,019.15	\$ 7,299.92
Penalties	\$ -	\$ 100.00	\$ 104.00	\$ 108.16	\$ 112.49	\$ 116.99	\$ 121.67
Security	\$ 1,189.00	\$ 1,000.00	\$ 1,040.00	\$ 1,081.60	\$ 1,124.86	\$ 1,169.86	\$ 1,216.65
Telephone	\$ 2,946.00	\$ 3,000.00	\$ 3,120.00	\$ 3,244.80	\$ 3,374.59	\$ 3,509.58	\$ 3,649.96
Uniforms	\$ -	\$ 300.00	\$ 312.00	\$ 324.48	\$ 337.46	\$ 350.96	\$ 365.00
Utilities	\$ 2,121.00	\$ 2,000.00	\$ 2,080.00	\$ 2,163.20	\$ 2,249.73	\$ 2,339.72	\$ 2,433.31
Wages-Clerical	\$ 8,450.00	\$ 8,400.00	\$ 8,736.00	\$ 9,085.44	\$ 9,448.86	\$ 9,826.81	\$ 10,219.88
Wages-General Mgr	\$ 35,100.00	\$ 36,000.00	\$ 37,440.00	\$ 38,937.60	\$ 40,495.10	\$ 42,114.91	\$ 43,799.50
<b>Total Operating Expense</b>	<b>153252.71</b>	<b>156,750.00</b>	<b>163,020.00</b>	<b>169,540.80</b>	<b>176,322.43</b>	<b>183,375.33</b>	<b>190,710.34</b>
<b>Reserves</b>							
Operating Reserve Funding	\$ -	\$ -	\$ 4,075.50	\$ 4,075.50	\$ 4,075.50	\$ 4,075.50	\$ 4,075.50
Emergency Reserve Funding	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Debt Reserve Funding	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Replacement of Existing Capital Assets	\$ -	\$ -	\$ 70,000.00	\$ 70,000.00	\$ 108,000.00	\$ 108,000.00	\$ 107,000.00
Replacement of Funded Project Assets	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reserves for Additional Capital Assets	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Debt Service	\$ -	\$ -	\$ 53,582.00	\$ 53,582.00	\$ 14,891.55	\$ 14,891.55	\$ 14,891.55
<b>Total Costs</b>	<b>\$ 153,252.71</b>	<b>\$ 156,750.00</b>	<b>\$ 290,677.50</b>	<b>\$ 297,198.30</b>	<b>\$ 303,289.48</b>	<b>\$ 310,342.37</b>	<b>\$ 316,677.39</b>

## 7. Fixed versus variable expenses

### Overview

A careful review of the budget was conducted between the operator and RCAC to determine which of the costs were fixed and which were variable. Fixed costs are costs necessary to ensure that water can be provided if needed but remains the same regardless of the volume of potable water produced by the water district. An example of this would be insurance costs. Other expenses vary by the volume of water sold. For example, electricity costs will go up when more water is processed and is considered a variable cost. Percentages are used to estimate the ratio of fixed to variable because many expenses are somewhere in between.

In AVFCWD's case, 83% of all expenses are fixed and only 17% are variable. It is not unusual for smaller water systems to have a high percentage of fixed costs.

### Alternatives

While fixed expenses should be covered by the base rate (the same every month), variable costs should be covered by the usage rate (based on the quantity sold). Should fixed costs not be recovered by the base rate, but by variable income (usage charges), there may be seasonal shortfalls in cashflow. The water district would have to dip into its operating reserves to cover these seasonal shortfalls. AVFCWD management and board selected a base rate that will recover only 71.5% of the fixed costs. If water usage were to drop significantly overall, this could also begin to affect the balancing of the annual budget. AVFCWD should ensure that revenues cover expenses annually.

**TABLE 3: Fixed/variable costs**

<b>MAINTENANCE EXPENSES</b>	<b>5-Year Average</b>	<b>% Fixed</b>	<b>\$ Fixed</b>	<b>\$ Variable</b>
Electricity-Tank Site	\$ 6,759.57	0%	\$ -	\$ 6,759.57
Electricity-Well Site	\$ 19,152.12	0%	\$ -	\$ 19,152.12
Repairs & Maintenance	\$ 22,531.90	75%	\$ 16,898.93	\$ 5,632.98
Standby Fees/Water	\$ 1,126.60	100%	\$ 1,126.60	\$ -
Supplies	\$ 5,632.98	100%	\$ 5,632.98	\$ -
Utility Markings	\$ 112.66	100%	\$ 112.66	\$ -
Wages-Maintenance	\$ 16,898.93	100%	\$ 16,898.93	\$ -
Well Monitoring	\$ 3,379.79	100%	\$ 3,379.79	\$ -
Engineering	\$ -	100%	\$ -	\$ -
Accounting & Legal	\$ 11,265.95	100%	\$ 11,265.95	\$ -
Advertising	\$ 225.32	100%	\$ 225.32	\$ -
Automobile Expense	\$ 563.30	100%	\$ 563.30	\$ -
Gasoline	\$ 1,689.89	100%	\$ 1,689.89	\$ -
Bank Charges	\$ 168.99	100%	\$ 168.99	\$ -
Dues & Subscriptions	\$ 3,943.08	100%	\$ 3,943.08	\$ -
Fees (Auditor Controller LAFCO)	\$ 337.98	100%	\$ 337.98	\$ -
Insurance	\$ 6,759.57	100%	\$ 6,759.57	\$ -
Insurance-WC	\$ 1,689.89	100%	\$ 1,689.89	\$ -
Licenses & Permits	\$ 1,126.60	100%	\$ 1,126.60	\$ -
Meeting Fees	\$ 3,605.10	100%	\$ 3,605.10	\$ -
Mileage	\$ 1,126.60	100%	\$ 1,126.60	\$ -
Office Expense	\$ 4,506.38	100%	\$ 4,506.38	\$ -
Payroll Tax Expense	\$ 6,759.57	100%	\$ 6,759.57	\$ -
Penalties	\$ 112.66	100%	\$ 112.66	\$ -
Security	\$ 1,126.60	100%	\$ 1,126.60	\$ -
Telephone	\$ 3,379.79	100%	\$ 3,379.79	\$ -
Uniforms	\$ 337.98	100%	\$ 337.98	\$ -
Utilities	\$ 2,253.19	0%	\$ -	\$ 2,253.19
Wages-Clerical	\$ 9,463.40	100%	\$ 9,463.40	\$ -
Wages-General Mgr	\$ 40,557.42	100%	\$ 40,557.42	\$ -
Professional Fees	\$ -	100%	\$ -	\$ -
<b>Total Operation and Maintenance Expenses</b>	<b>\$ 176,593.78</b>		<b>\$ 142,795.93</b>	<b>\$ 33,797.85</b>
<b>General &amp; Administrative Expenses</b>				
Operating Reserve Funding	\$ 4,075.50	100%	\$ 4,075.50	\$ -
Emergency Reserve Funding	\$ -	100%	\$ -	\$ -
Debt Reserve Funding	\$ -	100%	\$ -	\$ -
Replacement of Existing Capital Assets	\$ 92,600.00	80%	\$ 74,080.00	\$ 18,520.00
Replacement of Funded Project Assets	\$ -	100%	\$ -	\$ -
Reserves for Additional Capital Assets	\$ -	100%	\$ -	\$ -
Debt Service	\$ 30,367.73	100%	\$ 30,367.73	\$ -
<b>Total Operation and Maintenance Expenses</b>	<b>\$ 127,043.23</b>		<b>\$ 108,523.23</b>	<b>\$ 18,520.00</b>
<b>Total of all Expenses</b>	<b>\$ 303,637.01</b>		<b>\$ 251,319.16</b>	<b>\$ 52,317.85</b>
<b>Fixed-Variable as % of all Expenses</b>			<b>83%</b>	<b>17%</b>

## 8. Proposed rate calculation

### Theoretical base rate calculation

In theory, fixed expenses should be covered by fixed income (base charges) and variable expenses should be covered by variable income (usage charges). This is accomplished by using the total fixed cost and allocating it between total customers, based on the customer's potential demand as approximated by meter size.

The theoretical base rate is calculated by determining the maximum demand for each meter according to AWWA's safe maximum operating capacity, multiplying by the number of meters of that size in the system, and determining the percentage of total fixed costs that are allocated by meter size. This calculation results in the following:

**TABLE 4: Theoretical base rate calculation**

Meter Size in Inches	Decimal Size	Number of Meters	AWWA Safe Maximum Operating Cap. (GPM)	Max Demand (GPM)	% Of Max Demand by Meter Size	Total Fixed Costs Allocated by Meter Size	Theoretical Monthly Base Rate by Meter Size
A	B	C	D	E= D * C	F= % of total	G= % * total	H=G/C/12
1"	1.00	245	50	12,250	100.00%	\$251,319	\$85.48

### Adjusted base rate calculation

Because full recovery of all the fixed costs in the base rate created a rate structure the board felt would be too onerous for the community, the rate adjustment was set to recover 71.5% of fixed costs in the base rate in the first year. Subsequent years will require a 2.6% increase to fully fund targeted reserves over the five-year period and to offset the impact of increased costs due to inflation, estimated to be 4% annually. The goal was to set a uniform rate in such a way that it generates enough revenue to balance the budget. AVFCWD is advised that by setting the base rate so low, if usage declines, recovering all fixed costs may not be possible.

**TABLE 5: Adjusted base rate calculation**

		Base Rate Adjustment Calculation		Proposed Base Charges				
Meter Size	Existing Base Rate	Theoretical Base Rate	71.5% of Theoretical Base Rate	Year 1	Year 2	Year 3	Year 4	Year 5
1"	\$59.63	\$85.48	\$61.15	\$61.15	\$62.56	\$64.00	\$65.47	\$66.97

In the rate adjustment, full funding of reserves will be possible. In the first 2 years, the targeted amount to be put into CRP reserves is \$70,000 for each year. In years three and four, the targeted CRP reserve contributions will be \$108,000 for each year. The targeted amount for year five will be \$107,000 for a total of \$463,000 over the five-year period.

### **Usage rate calculation**

Because the base rate adjustment will not fully recover fixed costs, AVFCWD will rely heavily on the usage rates to balance the budget. The usage rate will increase 2.3% every year after year #1. The board-proposed usage rate increases are indicated in Table 6.

**TABLE 6: Adjusted usage rates**

<b>Usage Rate</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
<b>Per to 100 CF</b>	\$2.00	\$2.05	\$2.09	\$2.14	\$2.19

### **Seasonal cash flow**

By setting the base rate to less than the theoretical rate and relying on usage charges to balance the budget, seasonal cash flow issues may occur, particularly in the event of drought restrictions. Subsequent to the first year, an annual increase of 2.3% for all rates is recommended to provide

### **Estimated profit and loss with new rates**

The revenue generated by the adjusted rates is compared against projected expenses (as shown in the budget) and discloses the estimated profit/loss. Included in the calculations are the estimated annual contributions to the reserves.

**TABLE 7: Estimated profit/loss with new rates**

<b>Estimated Profit/(Loss) after Rate Adjustment</b>	<b>Year #1</b>	<b>Year #2</b>	<b>Year #3</b>	<b>Year #4</b>	<b>Year #5</b>	<b>5-Year Total</b>
<b>Revenue</b>						
Base/Usage Rate Revenue	239,612	245,744	252,032	258,479	264,424	1,260,291
Uncollectible Receivables	(479)	(491)	(504)	(517)	(529)	(2,521)
Meter Installation Fees	30,300	30,300	30,300	30,300	30,300	151,500
Property Tax Apportionment	21,840	21,840	21,840	21,840	21,840	109,200
<b>Total Revenue</b>	<b>291,273</b>	<b>297,393</b>	<b>303,668</b>	<b>310,102</b>	<b>316,035</b>	<b>\$1,518,470</b>
<b>Costs</b>						
Operating Costs	316,421	329,077	342,241	355,930	370,167	1,713,836
Debt Service	53,582	53,582	14,892	14,892	14,892	151,839
Reserves for Replacement of Existing Capital Assets	70,000	70,000	108,000	108,000	107,000	463,000
Operating Reserve Funding	4,076	4,076	4,076	4,076	4,076	20,378
<b>Total Costs</b>	<b>\$290,678</b>	<b>\$297,198</b>	<b>\$303,289</b>	<b>\$310,342</b>	<b>\$316,677</b>	<b>\$1,518,185</b>
<b>Estimated Profit/(Loss) after Rate Adjustment</b>	<b>\$595</b>	<b>\$195</b>	<b>\$379</b>	<b>(\$240)</b>	<b>(\$642)</b>	<b>\$285</b>

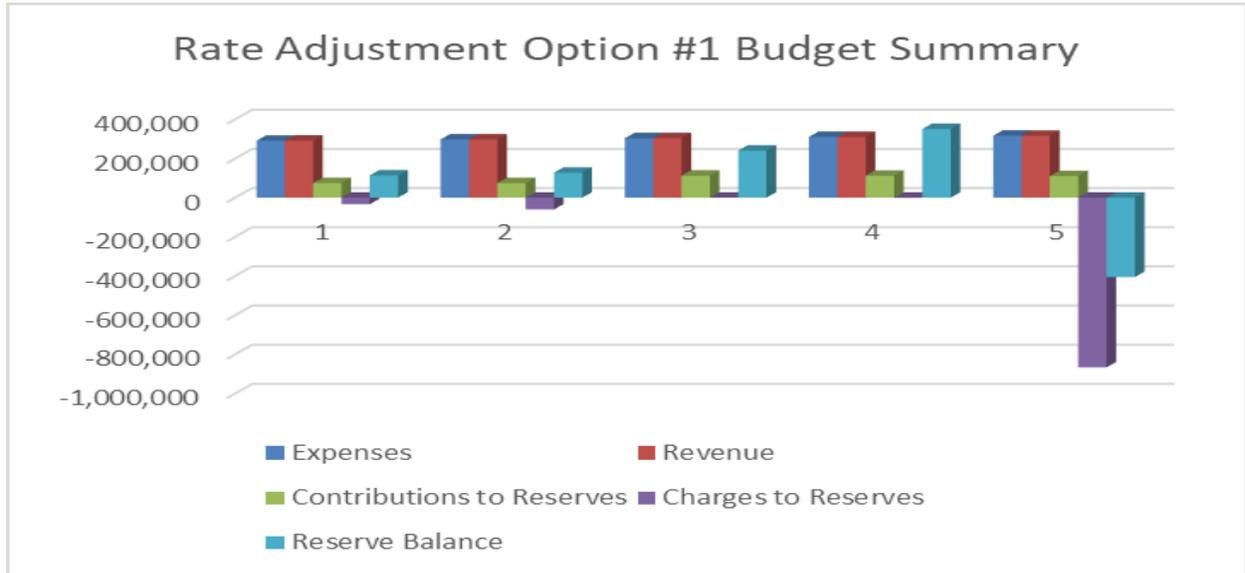
**Affordability index**

The “affordability index” was calculated by dividing the average annual water bill of all residences by the MHI. The 2023 United States Census Bureau indicated the median household income for Apple Valley, California of \$39,504. While the future rates result in a relatively high affordability index, any number below 4% is generally considered “affordable.” Low-income residents who are served by AVFCWD should reach out to AVFCWD to apply for assistance with their water bills through the California Department of Community Services and Development Low Income Household Water Assistance Program.

**TABLE 8: Affordability index**

Year 1	Year 2	Year 3	Year 4	Year 5
2.48%	2.54%	2.60%	2.67%	2.73%

**Impacts of the rate adjustment**



- **Expenses (darker blue bar)** - shows a slight increase each year due to inflation.
- **Revenue (red bar)** - climbs each year starting the first year as AVFCWD continues to contribute a fixed revenue to the existing CRP for asset replacement.
- **Contributions to reserves (green bar)** - shows a contribution to capital reserves each year targeted at \$463,000 over the five-year period.
- **Charges to reserves (purple bar)** – indicates the need to dip into reserves.
- **The reserve balance (light blue bar)** - is the amount available to replace the system in future years. The reserve balance shows that an adequate balance to fund replacement of equipment below \$100,000 will be available at the end of the five-year period. Continued contribution to reserves will be necessary to fund partial replacement of equipment valued over \$100,000 and new equipment as it is put into service.

**Estimated bill with rate adjustment**

The average water usage for AVFCWD customers is 622.5 cubic feet per month. The average monthly bill for customers over the next five years can be seen in Table 9.

**TABLE 9: Average monthly bill by meter size**

Meter Size	Current	Year 1	Year 2	Year 3	Year 4	Year 5
1.00	\$73.60	\$81.50	\$83.59	\$85.73	\$87.92	\$89.94

## 9. Proposition 218

California approved Proposition 218 in 1996 requiring agencies to adopt property fees and charges in accordance with a defined public process found in article XIII D or by associated court decision. Water and wastewater rates are user fees under the definition and must meet the following requirements:

- Revenues derived from the fee or charge must not exceed the funds required to provide the property-related service.
- Revenue from the fee or charge must not be used for any purpose other than that for which the fee or charge is imposed.
- No fee or charge may be imposed for general governmental services, such as police, fire, ambulance, or libraries, where the service is available to the public in substantially the same manner as it is to property owners.
- The amount of a fee or charge imposed upon any parcel or person as an incident of property ownership must not exceed the proportional cost of the service attributable to the parcel.
- The fee or charge may not be imposed for service, unless the service is used by, or immediately available to, the owner of the property in question.

Written notice should be given to both the record owners and customers within the area subject to the fee or charge. The notice shall include the following:

- The formula or schedule of charges by which the property owner or customer can easily calculate their own potential charge.
- The basis upon which the amount of the proposed fee or charge is to be imposed on each parcel. An explanation of the costs which the proposed fee will cover and how the costs are allocated among property owners.
- Date, time, and location of a public hearing on the rate adjustment. The public hearing must occur 45 or more days after the mailing of the notice.
- California Senate Bill No. 323 statement, “Any judicial action or proceeding to attack, review, set aside, void, validate, or annul an ordinance, resolution, or motion adopting a fee or charge for water or sewer service, or modifying or amending an existing fee or charge for water or sewer service, shall be commenced within 120 days of the effective date or of the date of the final passage, adoption, or approval of the ordinance, resolution, or motion, whichever is later.”

California’s Proposition 218 provides that a customer of AVFCWD or owner of record of a parcel or parcels subject to the proposed rate increases may submit a protest against any or all of the proposed rate increases by filing a written protest with AVFCWD at or before the time the public hearing has concluded. Only one protest per parcel is counted. If written protests are filed by a majority of the affected parcels, the proposed rate increases will not be imposed.