

County of Fresno

County Service Area 32

Cantua Creek

Water Rate Analysis

December 16, 2022

Prepared for:
County of Fresno
Department of Public Works
Fresno, CA

Prepared by:
Provost & Pritchard Consulting Group
455 W. Fir Avenue, Clovis, CA 93611

Report Prepared for:

County of Fresno
Department of Public Works and Planning | Design Division
2220 Tulare Street, Sixth Floor
Fresno, CA 93721

Contact:
Sebastian Artal, P.E.
Supervising Engineer
(559) 600-4109

Report Prepared by:

Provost & Pritchard Consulting Group
455 W. Fir Avenue
Clovis, CA 93611

Contact:
Matthew W. Kemp, PE 66088
Principal Engineer
(559) 449-2700



Date
Signed 12-16-22

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Abbreviations

AWWA	American Water Works Association
County	County of Fresno
CSA	County Service Area
DWR	Department of Water Resources
EDU	Equivalent Dwelling Unit
FYE	Fiscal Year End
gpd	gallons per day
HAA5	haloacetic acids
MCL	Maximum Contaminant Level
MG	Million Gallons
O&M	operation and maintenance
SWRCB	State Water Resources Control Board
SWTP	Surface Water Treatment Plant
TTHM	total trihalomethanes
WWD	Westlands Water District

1 Introduction

1.1 Purpose and Objectives

Provost and Pritchard Consulting Group was retained by the County of Fresno to conduct a water rate analysis for County Service Area 32. The County owns and operates the CSA 32 potable water system that serves the community of Cantua Creek in Fresno County, California. The existing water system has many deficiencies and operating costs have increased due to more frequent maintenance and repairs. Operating revenue has not been sufficient to cover these operation and maintenance expenses.

The County is in the process of constructing new water supply and distribution infrastructure to replace existing facilities. The source of water will change from surface water to groundwater. The existing surface water treatment plant will be abandoned, and two new groundwater wells will supply the water system. Wellhead treatment will be installed to reduce manganese levels below the secondary Maximum Contaminant Level.

The purpose of this rate analysis is to determine revenue required to cover cash needs for operation of the new water system during the next 5 years. The primary objective of this analysis is to develop customer water rates consistent with American Water Works Association (AWWA) Manual M1, “Principles of Water Rates, Fees and Charges”. It is the intent of the County to adopt new water rates, based on the approval of customers, in conformance with the legal requirements of Article XIII D of the California Constitution, which is in Proposition 218.

1.2 Background

Cantua Creek is located approximately 0.5 miles west of the intersection of South San Mateo Avenue and West Clarkson Avenue in Fresno County, CA. Cantua Creek is classified as a community water system and is operated by the County of Fresno under CSA 32. The water system supplies municipal water to 73 residential customers within the existing service area boundary and 6 out-of-district customers, that were recently annexed into CSA 32, including Cantua Creek Elementary School, school housing, a mobile home park and 3 homes.

Cantua Creek relies on raw water obtained from the California Aqueduct and conveyed to a surface water treatment plant through Westlands Water District laterals #13-R and #14-R. Existing facilities at Cantua Creek include a package surface water treatment plant with the following treatment process: coagulation with poly-aluminum chloride, flocculation, flow through an up-flow clarifier, flow through contact clarifier, packaged filtration plant, chlorination station, and storage tank. Treated water is delivered to the distribution system using a booster pump station that employs one variable frequency drive (VFD) booster pump. The surface water treatment facility is currently the sole source of water supply to the community.

Historically, the surface water treatment plant has not complied with the secondary MCL for total haloacetic acids (HAA5) and total trihalomethanes (TTHM). As such, the County of Fresno investigated developing groundwater wells to replace the current surface water supply. The County secured grant funds from the State Water Resource Control Board (SWRCB) to construct the groundwater supply wells. The County is in the process of constructing two wells to supply the water system. The wells will be equipped with wellhead treatment to reduce manganese levels below the secondary MCL.

Section One: Project Background

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The County also secured funding through the Department of Water Resources (DWR) to replace the existing water distribution system. Construction of the new distribution system is complete. New infrastructure includes a water main in Clarkson Avenue and San Mateo Avenue. The new water main will extend service to Cantua Creek Vineyards IV. The existing Cantua Creek Vineyards IV water system has been annexed into CSA 32 as a single connection and serves 13 homes, a farm workshop and post office located northeast of Clarkson and San Mateo. The Cantua Creek Vineyards IV water system is located approximately 0.5-mile east of Cantua Creek and is supplied by one groundwater well as the sole source of water. The existing groundwater well exceeds the MCL for arsenic. The system does not have existing water treatment or storage facilities. Cantua Creek Vineyards IV has been annexed into CSA 32 as shown in Figure 1-1. Additionally, the out of district customers currently served by CSA 32 have also been annexed into the district.

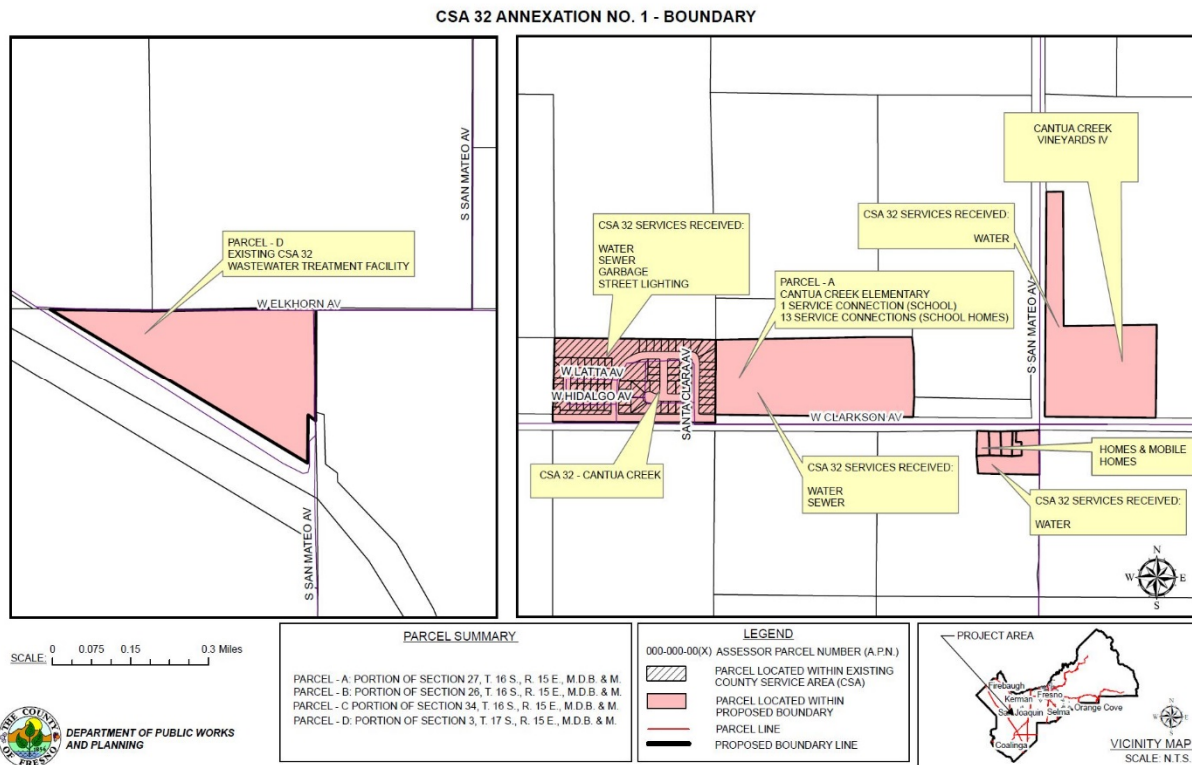


Figure 1-1. CSA 32 Previous and Current Service Area Boundary

1.3 Information Provided by the County

The County provided the following information and documents for reference in the water rate analysis.

- Customer account list
- Current master fee schedule
- Line-item expenditure summary for FYE 2017 through 2020
- Policy Establishing Minimum Reserve Levels for Special Districts (November 7, 2006)
- Financial Audits FYE 2016 through 2020
- Water usage data for 2017 through 2020
- Summary of negative cash balance and held charges for unpaid labor
- County of Fresno Resolution Nos. 17-121 and 17-122 of the Board of Supervisors (February 2, 2017), Establishing County Service Area Revolving Fund and Policy for Use

2 Existing Water System

2.1 Customer Accounts and Water Rates

The CSA 32 water system currently serves 79 customers which is comprised of single-family residential homes, a mobile home park, the Cantua Elementary School building and homes, and other out-of-district service connections. The customer accounts and water rates are summarized in the table below. A Proposition 218 public hearing was held, and current water rates were adopted by the County Board of Supervisors. Current water rates are listed in the table below.

Table 2-1. Customer Accounts and Water Rates

Customer Accounts and Water Rates		
Customer Classification	Number of Accounts	Rate
Monthly Base Water Fee		
Residential	73	\$70.34
Out of District	3	\$110.13
School Building	1	\$356.00
School Homes	1	\$1,094.21
Mobile Home Park	1	\$1,248.60
Total	79	
Commodity Fee		
Tier 1 Rate per 1000 gallons		\$2.03
Residential / Out of District	<i>Usage up to 20,500 gallons per month</i>	
School Building (Treated Water)	<i>Usage up to 170,800 gallons per month</i>	
School Homes	<i>Usage up to 266,500 gallons per month</i>	
Mobile Home Park	<i>Usage up to 343,450 gallons per month</i>	
Tier 2 Rate per 1000 gallons		\$4.66
Residential / Out of District	<i>Usage above 20,501 gallons per month</i>	
School Building (Treated Water)	<i>Usage above 170,801 gallons per month</i>	
School Homes	<i>Usage above 266,501 gallons per month</i>	
Mobile Home Park	<i>Usage above 343,451 gallons per month</i>	
Untreated Water (Raw Water)		Actual Cost
Cantua Elementary School	<i>Irrigation Water</i>	

Water rates are charged monthly and include fixed and variable components. The fixed charge is billed monthly regardless of the amount of water used by each customer. This charge is intended to recover the fixed operating costs of the water system. The fixed charge for the school, mobile home park and out-of-district connections are based on the estimated number of equivalent dwelling units (EDUs) for each service, excluding the cost to purchase untreated water for the surface water treatment plant.

The variable charge is billed based on water consumption and is intended to recover the cost to purchase untreated water from Westlands Water District (WWD). Each customer is charged the same rate for every 1000 gallons of water that passes through their meter. The County reads meters and charges based on water consumption every month. The variable charge has a tiered rate structure based on water consumption. Water consumption below the specified threshold is charged at the Tier 1 rate. Water consumption above the threshold is charged at the higher Tier 2 rate. The school is supplied with untreated surface water (raw water) for the separate irrigation system. Raw water is charged to the school based on actual costs charged by WWD for surface water.

Water rate revenue can be estimated using the fixed monthly charge for each customer and annual water consumption. An estimate of revenue is summarized in the following table using average water consumption for a 12-month period. Annual water consumption is based on measured water usage from 2017 through 2020. The estimated annual revenue is \$128,303 but actual revenue will vary based on the number of active accounts, water consumption from year-to-year, and collections from active customers. The split between fixed and variable revenue is approximately 76% fixed and 24% variable.

Table 2-2. Revenue Estimate Based on Current Water Rates

Revenue Estimate Based on Current Water Rates			
Customer Classification	Number of Accounts	Rate	Total Charges
Monthly Base Water Fee			
Residential	73	\$70.34	\$61,618
Out of District	3	\$110.13	\$3,965
School Building	1	\$356.00	\$4,272
School Homes	1	\$1,094.21	\$13,131
Mobile Home Park	1	\$1,248.60	\$14,983
Total Fixed Charge	79		\$97,968
Commodity Fee			
Total Water Sales (in gallons) ¹	14,943,000		
Tier 1 Rate per 1000 gallons		\$2.03	
Total Water Usage Charge			\$30,334
Estimated Annual Revenue			\$128,303

Note:

1. Total water consumption represents water usage for a 12-month period based on historic average water use from 2017 through 2020 (See Table 2-3).

2.2 Historical Water Usage

Total water consumption of the CSA 32 community is summarized in the following table. Historic water usage data was provided by the County for 2017 through 2020. The data was obtained from meter register records which represents the total potable water consumption of customers as measured from their water meters. Total annual water consumption ranged from 13.6 to 16.4 million gallons (MG) with a 4-year annual average of 14.9 MG.

The water usage does not represent the amount of source water purchased from WWD. Source water requirements would be higher, accounting for additional water required for filter backwashing at the surface water treatment plant, leaks in the distribution system, unmetered fire hydrant use, and other water loss in the water system. Irrigation water used by the school is not included in the water usage data in the table. Surface water purchased from WWD is conveyed to the school in a separate pipeline to supply water to the irrigation system.

Table 2-3. Historical Water Usage (in Gallons)

Historical Water Usage (in Gallons)					
Month	2017	2018	2019	2020	4-Year Average
January	1,088,750	554,600	596,646	848,454	772,113
February	1,010,410	786,650	574,535	881,742	813,334
March	1,071,020	758,620	833,950	957,697	905,322
April	1,382,800	1,149,750	1,270,010	799,913	1,150,618
May	1,585,740	1,291,730	1,006,880	2,224,190	1,527,135
June	1,432,680	1,493,000	1,089,610	1,315,583	1,332,718
July	1,667,390	2,143,215	2,460,115	2,574,477	2,211,299
August	1,503,090	1,976,170	1,829,898	1,780,437	1,772,399
September	1,699,040	1,057,950	1,545,477	1,903,503	1,551,493
October	1,519,310	1,282,085	1,037,768	1,419,497	1,314,665
November	841,640	584,125	1,155,636	799,060	845,115
December	903,570	566,867	590,254	924,966	746,414
Total	15,705,440	13,644,762	13,990,779	16,429,519	14,942,625

Notes:

1. Water usage is based on individual customer billing register totals provided by the County and does not include school irrigation water.
2. Only 69 residential water services were active during this record period according to County.

No records were available to determine historic water consumption of Cantua Creek Vineyards IV. Therefore, water consumption for residential customers in Cantua Creek were used to estimate the additional demand. The average daily water consumption per residential connection in Cantua Creek is 317 gallons per day (gpd) based on meter data by customer classification. There are 13 single-family homes, a farm workshop and post office in Cantua Creek Vineyards IV. The estimated water demand is approximately 1.6 MG based on a demand of 317 gpd for each equivalent dwelling unit. The number of EDUs attributed to the farm workshop and post office in Cantua Creek Vineyards IV is shown in section 2.3, below.

2.3 Equivalent Dwelling Units

Equivalent dwelling units (EDUs) were calculated for the mobile home park, out-of-district connections and Cantua Creek Vineyards IV. Average annual water usage by customer classification from 2017 through 2020 is shown in the table below. The average annual water use was divided by the number of active accounts for each customer classification to determine average water use for each connection. The average water use of a single-family residential account is equal to one EDU. The equivalent dwelling units for all other customer classifications were calculated by dividing by the single-family residential water use.

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The Cantua Creek Early Childhood Education Center has the same size meter as residential connections and was therefore assigned 1 EDU. The Cantua Creek Vineyards IV water connection provides service to 13 homes, a farm workshop and post office and was assigned 14 EDUs assigning one EDU to the farm workshop and post office combined. The total number of water service connections will increase to 81 with the consolidation of Cantua Creek Vineyards IV into CSA 32 water system. The out-of-district customers will be charged under the residential rate classification since consolidation is complete. The total number of EDUs for the community is 148.

Table 2-4. Equivalent Dwelling Units (EDUs)

Equivalent Dwelling Units							
Customer Classification	Active Accounts (2017-2020)	Average Annual Use (gallons)	Water Usage per Account (gal / account)	Equivalent Dwelling Units (EDUs)	Current Number of Accounts	EDUs	Total EDUs
Residential	69	7,995,329	115,874	1	73	1.0	73.0
Childhood Education Center	-	-	-	-	1	1.0	1.0
Out of District (residential)	3	305,725	101,908	1	3	1.0	3.0
School Building	1	2,053,100	2,053,100	18	1	18.0	18.0
School Homes	1	2,908,500	2,908,500	25	1	25.0	25.0
Mobile Home Park	1	1,679,971	1,679,971	14	1	14.0	14.0
Cantua Creek Vineyards IV	-	-	-	-	1	14.0	14.0
Total	75	14,942,625			81		148.0

Notes:

1. Water usage per account is based on average annual water use by customer classification and active accounts from 2017 through 2020.
2. Average water use per residential customer is one equivalent dwelling unit.

2.4 Operating Costs

The County provided an expense summary for water system expenditures for fiscal year ending (FYE) 2017 through 2020. The fiscal year begins on July 1st each year and ends on June 30th. Expenses are segregated into the expense accounts listed in the following table.

Table 2-5. Operating Expense Accounts

Operating Expenses Accounts	
Operating Expenses – 7000 Service & Supplies	Description
07010 Agriculture	Raw water purchase for surface water treatment plant
07070 Household Expense	Solid waste cost
07101 General Liability Insurance	
07205 Maintenance-Equipment	Outside vendor charges for repairs
07220 Maintenance-Buildings & Grounds	Equipment, materials and chemical costs
07250 Memberships	
07265 Office Expense	
07268 Postage	
07287 Peoplesoft Financial Charge	Financial software charge per transaction
07295 Professional & Specialized Services	County staff administration and operator labor charges
07296 Data Processing Services	EWON plant operator alarm service fee
07385 Small Tools & Instruments	
07430 Utilities	Utility company electricity charges

The total annual operating expenses range from \$113,552 to \$166,774 with an average of \$134,644. Assuming customer approval of the water rates, under Proposition 218, operating costs will change since the water source will transition from surface water to groundwater. If such customer approval is obtained, (i) some expenses such as the agriculture line-item for surface water purchases will be eliminated after the surface water treatment plant (SWTP) is taken offline, and (ii) it is anticipated that most of the administrative costs will be relatively unchanged, however, other costs specific to operating the new water system supplied by groundwater wells will change. Operating cost changes are addressed later in this report.

Table 2-6. Historical Water Fund Expenditures

Historical Water Fund Expenditures					
Account	FYE 2017	FYE 2018	FYE 2019	FYE 2020	Average
07010 Agriculture	\$31,375.28	\$39,132.61	\$38,439.69	\$19,582.40	\$32,132.50
07070 Household Expense	0.00	0.00	0.00	0.00	0.00
07101 General Liability Insurance	554.21	603.74	752.11	586.83	624.22
07205 Maintenance-Equipment	6,365.88	20,968.80	5,399.86	2,502.02	8,809.14
07220 Maintenance-Buildings & Grounds	2,762.71	0.00	22,458.55	28,615.47	13,459.18
07250 Memberships	161.20	155.54	154.23	0.00	117.74
07265 Office Expense	25.87	0.00	13.55	0.00	0.00
07268 Postage	1,205.00	956.85	901.07	530.52	898.36
07287 Peoplesoft Financial Charge	4,394.08	4,889.40	4,234.17	2,241.66	3,939.83
07295 Professional & Specialized Services	66,621.75	46,839.92	94,420.27	83,083.92	72,741.47
07296 Data Processing Services	0.00	0.00	0.00	120.40	30.10
07385 Small Tools & Instruments	85.72	0.00	0.00	58.26	36.00
07430 Utilities	0.00	0.00	0.00	0.00	0.00
Subtotal Expenditures	\$113,551.70	\$113,546.86	\$166,773.50	\$137,321.48	\$132,788.53
Held Charges	0.00	0.00	0.00	7,421.35	1,855.34
Total Expenditures	\$113,551.70	\$113,546.86	\$166,773.50	\$144,742.83	\$134,643.87

Note:

1. Held charges are expenses that could not be applied to the water system account due to an exceedance of the adopted annual budget.

2.5 Negative Cash and Held Charges

Water rate revenue has not been sufficient to cover operating costs for multiple years. The existing surface water treatment plant facilities and distribution system (in the process of being replaced) are old and have a high operating cost associated with maintenance and repairs. The high operating cost has been a major contributor to recurring insufficient revenues.

A budget is established each fiscal year and adopted by the Board of Supervisors. Due to the inadequacy of the rate revenue the expenses of the water system typically exceed the budget before the end of the fiscal year. Once the budget has been exceeded, costs are held in suspense, and tracked separately by the Department of Public Works and Planning for accounting purposes. During that period, costs are not charged to the water system's account. As a result, held charges are temporarily allocated to other County funds and those charges are applied to the water system at the beginning of the next fiscal year. When the water system's cash balance is exhausted, expenses are paid with other County funds (e.g. - purchase of chemicals, materials, electricity, and cost of repairs) and as a result there is a negative cash balance for accounting purposes. The engineer preparing this report is informed by the County that the negative cash balance, and the manner of tracking costs and unpaid held charges causing such negative balance, does not relieve the water system, including its customers, of its obligation for the full payment of those expenses.

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The water system currently has a negative cash balance and unpaid held charges that need to be repaid to other County public funding sources to make them whole. Solely to ensure that other County public funding sources are made whole, the negative cash is expected to be charged interest by the County Auditor-Controller/Treasurer-Tax Collector at the County then-current pooled funds rate. The County pooled funds rate changes each quarter and is published on the County’s website. The rate for the quarter ending March 31, 2022 was 1.312% which was used to calculate estimated interest for the purpose of the rate analysis.

The negative cash balance and held charges will be repaid with water rate revenue. It is anticipated that new water rates referenced in this report will go into effect on March 1, 2023. Repayment of the negative cash balance and held charges will be incorporated into those new water rates. The current balance of negative cash and unpaid held charges is summarized in the following table, Table 2-7. Estimated payment amount on outstanding expenses referenced in Table 2-7 was calculated assuming quarterly payments over 5 years.

The Board of Supervisors’ approval of this report is not any approval or ratification, either express or implied, of the manner in which any negative cash balances, and unpaid held charges causing such negative balance, should be treated or accounted for, and in no way does the Board of Supervisors’ approval of this report operate, either expressly or impliedly, as a waiver or release of the right of the County to obtain the water system’s full payment of all water charges (including interest thereon for any negative cash balances and unpaid held charges causing such negative balance) as and when they are due.

Table 2-7. Summary of Negative Cash and Held Charges

Summary of Negative Cash and Held Charges	
Item	Amount
Negative Cash and Held Charges Balance	
Negative Cash Balance as of 4/28/22	\$2,884,905.89
Unpaid Held Charges Accrued FY 2020-21	\$35,180.89
Estimated Unpaid Held Charges Accrued FY 2021-22	\$20,000.00
Total Negative Cash and Held Charges	\$2,940,086.78
Less SWRCB Grant (Project T90121) – Claim 6	(\$733,738.33)
Less SWRCB Grant (Project T90121) – Unclaimed	(\$836,271.12)
Less DWR Grant (Labor Project S32PIPE) – Unclaimed	(\$1,330,751.03)
Adjusted Total Negative Cash and Held Charges	\$39,326.30
Estimated Payments on Outstanding Expenses	
Annual Interest Rate ¹	1.312%
Repayment Period (in years)	5
Payments per Year (quarterly)	4
Estimated Payment Amount	\$2,034.74
Estimated Annual Payment Amount	\$8,138.95

Note:

1. Interest rate is equal to County Pooled Funds interest as of quarter ending March 31, 2022.

The negative cash balance shown in the table includes negative cash from operations and expenditures for the active water system improvement projects funded by the SWRCB and DWR. The County executed funding agreements for CSA 30 and 32 with the SWRCB for construction of new groundwater wells and manganese

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treatment, and the DWR for construction of distribution system replacement. Construction of improvements for both water systems are combined under the same construction contracts. For administrative purposes, the County is tracking grant proceeds and construction expenditures for both water systems under the CSA 32 accounts. Cash outlays for the improvement projects will be reimbursed by SWRCB and DWR grant funding. The remaining negative cash balance from operations will be paid with water rate revenue. Interest will continue to be accrued on the negative cash balance from operations until new water rates go into effect. The County provided an estimate of held charges for FYE 2022 that have been added to the total amount to be repaid.

3 New Water System Operating Costs

3.1 Cost Determination

Operating costs for a water system supplied by groundwater wells will be different from that of the existing surface water treatment facility. Budgetary operating costs were developed based on assumptions for typical operations of a water system supplied by groundwater wells with manganese treatment. The County reviewed budgetary operating costs to provide input based on similar County-operated systems. Historic operating costs for CSA 32 were used to develop budgetary estimates for administrative costs which are not anticipated to change significantly. Operating costs will need to be monitored by the County and actual costs should be used to adjust water rates accordingly in the future.

3.2 Budgetary Operating Costs

Budgetary operating costs were grouped into four major categories described in the following sections. The basis of operating costs is summarized in tables included in Appendix A.

3.2.1 Professional and Specialized Services

This category includes office and operator labor and laboratory testing expenses anticipated for the water system. Office labor includes staff time associated with bookkeeping, billing and collections, accounts payable, and related tasks to support administrative functions of the water system. Operator labor includes travel expense and staff time for routine site visits for water system operation and maintenance. The water system operator will combine routine visits to Cantua Creek with site visits to El Porvenir since both water systems are nearby. Projected labor and travel costs were estimated in total for both systems and the cost were distributed to each system based on proportionate size of the water systems. Laboratory tests includes water quality testing of samples for compliance with regulatory requirements.

3.2.2 Utilities and Chemicals

This category includes utility and chemical costs for the well and storage tank site equipment. Utilities include electricity and subscription to operator alarm service. Energy usage was estimated based on pump equipment power requirements and annual operating hours based on estimated annual average water pumping. Electricity costs are based on estimates of annual energy usage and unit cost of energy. The average unit cost of energy, in dollars per kilowatt hour, was derived from utility billing records provided by the County for the existing system. An alarm service notifies the operator of equipment status and faults. Costs for alarm service is based on existing subscription cost. Chemicals include purchase and delivery of chlorine to the well site. Chlorine will be used for the manganese treatment process and disinfection of drinking water.

3.2.3 Maintenance and Repairs

This category includes maintenance and repairs of equipment and facilities. The budgetary cost for annual maintenance and repairs was set with input from County staff.

3.2.4 Other Expenses

This category includes other expenses such as general liability insurance, financial software service fees and other office and administrative expenses. It is not anticipated that administrative expenses will change significantly to operate the new water system. Budgetary expenses for this category of expenses were set relative to average costs observed in FYE 2017 through 2020.

3.3 Summary of Operating Budget

3.3.1 Transition from Surface Water to Groundwater Supply

The County is still in the process of constructing the multi-phase water system improvement project that will transfer the water supply from surface water to groundwater. The project is anticipated to be complete by March 1, 2025. New water rates will initially be set for the first two years based on the expected continued operation of the SWTP, and then for the subsequent three years based on the expected operation of groundwater wells. Operating budgets were developed based on operation of groundwater wells beginning in 2025 and interim operation of the SWTP in 2023 and 2024. The timeline to transition the water source from surface water to groundwater is an estimate based on the anticipated time to complete construction. The timing will be subject to actual completion of construction and receiving approval from the SWRCB to place the new groundwater wells into service. Budgetary operating and non-operating expenses are discussed in the following sections.

3.3.2 Operating Expenses – Groundwater Well Operation

Proposed budgetary operating costs for the new water system are summarized in Table 3-1. Current average costs are the average cost from FYE 2017 through 2020 taken from Table 2-6. These costs are included in the summary for reference. The new budgeted cost represents the proposed operating budget for the new system after the groundwater wells are in service. Costs specific to operating the new water system were developed based on new equipment and operations as discussed in the previous sections. These costs are shown under Professional and Specialized Services; Utilities and Chemicals; and Maintenance and Repairs.

Professional and Specialized Services are anticipated to decrease from current levels. Utilities and chemical costs show an overall increase due to estimated electricity cost. Electricity cost is expected to be higher for groundwater pumping. The utility expense shown in Table 3-1 does not have any expense which clearly does not represent actual previous costs. The zero charges are due to negative cash and held charges that could not be applied as discussed in previous sections. In general, maintenance and repair costs are anticipated to be lower since old facilities will be replaced with all new equipment. However, the change in this category is minimal which also may be attributed to negative cash and held charges. Other expenses consisting primarily of administrative costs are not anticipated to change significantly as stated.

As stated above, it is anticipated that water rates for groundwater well operation will go into effect on March 1, 2025. The new budgeted costs are escalated by an annual rate of 4% over 2.5 years to project expenses from present value to the first year of operation. New water rates based on groundwater well operation will not go into effect until approval is received from the SWRCB to place new groundwater wells into service.

Operating expenses are categorized as fixed costs, variable costs or partially fixed and variable costs by percentage. Fixed costs are usually recovered proportionately to customer service size or equivalent dwelling units, independent of monthly water usage. Expenses are typically classified as fixed costs based on the benefit to customers regardless of level of water usage. Expenses are classified as variable costs to the extent

Section Three: Existing Water System CSA 32 (Cantua Creek) - Water Rate Analysis

that costs are more directly related to water usage (e.g. - electricity, chemicals, and repairs). The distribution of fixed and variable operating costs is 69% fixed and 31% variable (excluding Non-Operating Expenses).

Table 3-1. Summary of New Budgetary Operating Expenses (Groundwater Well Operation)

Summary of New Budgetary Operating Expenses (Groundwater Well Operation)						
Expense Item	Current Average Costs	New Budgeted Cost ¹	New Cost First Year of Operation ²	Percent Fixed Cost	Fixed Cost	Variable Cost
Professional and Specialized Services						
07295 Professional & Specialized Services	\$72,741.47	<i>\$60,600</i>	\$66,843	100%	\$66,843	\$0
Utilities and Chemicals						
07010 Agriculture	32,132.50	-	-	-	-	-
07220 Maintenance-Buildings & Grounds (cost to purchase chlorine)	13,459.18	<i>3,800</i>	4,191	0%	0	4,191
07430 Utilities	0.00	<i>23,900</i>	26,362	0%	0	26,362
Maintenance and Repairs						
07205 Maintenance-Equipment	8,809.14	<i>7,300</i>	8,052	50%	4,026	4,026
Other Expenses						
07101 General Liability Insurance	624.22	625	689	100%	689	0
07250 Memberships	117.74	160	176	100%	176	0
07265 Office Expense	0.00	600	662	100%	662	0
07268 Postage	898.36	1,000	1,103	100%	1,103	0
07287 Peoplesoft Financial Charge	3,939.83	4,500	4,964	100%	4,964	0
07296 Data Processing Services	30.10	120	132	100%	132	0
07385 Small Tools & Instruments	36.00	0	0	100%	0	0
Subtotal Operating Expenses	132,788.53	102,605	113,174		78,595	34,579
Held Charges ³	1,855.34	-	-		-	-
Total Operating Expenses	134,643.87	102,605	113,174		78,595	34,579
Percent Fixed and Variable Cost					69%	31%
Non-Operating Expenses						
Payment of Outstanding Expenses ⁴			8,139	100%	8,139	0
Operating Reserve Set-Aside ⁵			11,780	100%	11,780	0
Replacement Reserve Set-Aside ⁵			7,000	100%	7,000	0
Total Operating + Non-Operating Expenses			\$140,093		\$105,514	\$34,579
Percent Fixed and Variable Cost					75%	25%

Notes:

1. New budgeted cost values (*italicized*) are estimated costs for new water system facilities. All other expenses are administrative and were derived from historic expenditures (FYE 2017 through FYE 2020).
2. First year of operation is assumed to begin on March 1, 2025.
3. Held charges represent expenses that exceeded the annual water system budget.
4. See Table 2-7 for payment calculation
5. See Section 3.3.3 for non-operating expense determination.

3.3.3 Non-Operating Expenses – Groundwater Well Operation

Non-operating expenses include payment of outstanding expenses, capital expenditures and funds set aside for reserves. The cost recovery for all non-operating expenses is included entirely as a fixed cost. The distribution of total fixed and variable operating and non-operating costs combined is 75% fixed and 25% variable.

Reserve funds are necessary to provide funds for capital improvements, emergency repairs and eventual replacement of equipment. The new water rates incorporate a minimum operating reserve and equipment replacement reserve as described below. No new capital projects were identified by the County since all facilities are in the process of being replaced as a part of the current water system improvement projects discussed in Section 2.5. Therefore, reserves for future capital improvement projects were not included in the new rate calculation.

The County Board of Supervisors adopted a policy establishing minimum reserve levels for special districts on November 7, 2006. For water service districts, the reserve amount target is 50% of the annual average of 3 years of operation, maintenance and administration expenditures (excluding extraordinary infrastructure or fixed asset projects) or \$13,000 for dissolution and reorganization costs, whichever is greater. The minimum operating reserve level incorporated into the new water rates is based on 50% of the annual average 3 years of operation, maintenance and administrative expenditures since this amount is greater than \$13,000. The operating reserve set-aside amount shown in Table 3-1 is 50% of the total operating expenses divided by the 5-year rate study period. The operating reserve will increase year-to-year as expenses increase with inflation.

Reserves for equipment replacement are incorporated into the new rates. Major equipment cost and service life was used to calculate the amount that should be set aside each year to build the needed reserve for future equipment replacement. A summary of equipment reserve amounts is included in Appendix A (see Table A-3).

3.3.4 Operating Expenses - Interim Surface Water Treatment Plant (SWTP) Operation

Proposed budgetary operating expenses for continued operation of the SWTP are summarized in Table 3-2. Current average costs are taken from Table 3-1 for reference. The new budgeted costs are the average historic costs escalated by an annual rate of 4% to March 1, 2023, since new water rates are planned to go into effect on March 1, 2023. The distribution of fixed and variable operating costs (excluding Non-Operating Expenses) is 82% fixed and 18% variable. The distribution of total fixed and variable operating and non-operating costs is 85% fixed and 15% variable. A distribution of total fixed and variable cost of 75% fixed and 25% variable is used in the final rate calculation. This is consistent with the existing rate structure and revenue distribution calculated in Section 2.1. The non-operating expenses are the same as those shown in Table 3-1. Operating and equipment replacement reserve set-asides are based on long-term groundwater system operations.

The cost to purchase surface water from Westlands Water District (WWD) is not included in Table 3-2. The rate charged for surface water is set by WWD and varies seasonally. Customers will be billed a separate “commodity” charge to recover the cost of surface water. Customers will be charged based on the amount of water used at the rate set by WWD plus 10% to account for water losses. The SWTP requires additional surface water to backwash and clean filters. The backwash water is disposed and represents a loss of water that cannot be used to supply the community water system. The backwash rate is estimated to be 10% of treated water.

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Table 3-2. Summary of Interim SWTP Budgetary Operating Expenses

Summary of Interim SWTP Budgetary Operating Expenses					
Expense Item	Current Average Costs	Interim Budgeted Cost ¹	Percent Fixed Cost	Fixed Cost	Variable Cost
Professional and Specialized Services					
07295 Professional & Specialized Services	\$72,741.47	\$80,235	100%	\$80,235	\$0
Utilities and Chemicals					
07220 Maintenance-Buildings & Grounds (cost to purchase chlorine)	13,459.18	14,846	0%	0	14,846
07430 Utilities	0.00	0	0%	0	0
Maintenance and Repairs					
07205 Maintenance-Equipment	8,809.14	9,717	50%	4,859	4,859
Other Expenses					
07101 General Liability Insurance	624.22	689	100%	689	0
07250 Memberships	117.74	130	100%	130	0
07265 Office Expense	0.00	0	100%	0	0
07268 Postage	898.36	991	100%	991	0
07287 Peoplesoft Financial Charge	3,939.83	4,346	100%	4,346	0
07296 Data Processing Services	30.10	33	100%	33	0
07385 Small Tools & Instruments	36.00	40	100%	40	0
Subtotal Operating Expenses	100,656.04	111,027		91,323	19,705
Held Charges ²	1,855.34	2,046	50%	1,023	1,023
Total Operating Expenses	102,511.37	113,073		92,346	20,728
Percent Fixed and Variable Cost				82%	18%
Non-Operating Expenses					
Payment of Outstanding Expenses ³		8,139	100%	8,139	0
Operating Reserve Set-Aside ⁴		11,780	100%	11,780	0
Replacement Reserve Set-Aside ⁴		7,000	100%	7,000	0
Total Operating + Non-Operating Expenses		\$139,992		\$119,265	\$20,728
Percent Fixed and Variable Cost				85%	15%

Notes:

1. Expenses were derived from historic expenditures (FYE 2017 through FYE 2020). Interim budgeted cost is assumed to begin on March 1, 2023.
2. Held charges represent expenses that exceeded the annual water system budget.
3. See Table 2-7 for payment calculation
4. See Section 3.3.3 for non-operating expense determination.

4 Payment of Outstanding Expenses

4.1 County Service Area Revolving Fund Loan

The negative cash balance and held charges will need to be repaid with water rate revenue as discussed in Section 2.5. The County of Fresno established a County Service Area Revolving Fund pursuant to Government Code §25214.5 which allows county service areas to borrow from the County General Fund. The fund was established and funded through Board of Supervisor adoption of Resolution Nos. 17-121 and 17-122 on February 7, 2017. The Department of Public Works and Planning plans to recommend that the Board of Supervisors authorize a loan to CSA 32 from the revolving fund to pay the negative cash balance and held charges. The loan from the County Service Area Revolving Fund would be subject to approval by the Board of Supervisors.

5 Proposed Water Rates

5.1 Cash Flow Analysis

A 5-year cash flow model was developed to determine the revenue requirement to fund budgetary operating costs, non-operating costs and target reserves. Two cash flow scenarios were reviewed for the water rate analysis. The first scenario is based on operating expenses for continued operation of the SWTP in year 1 and 2 and operation of the new groundwater wells and manganese treatment system in year 3, 4 and 5. The second scenario is based on operating expenses for continued operation of the SWTP in all 5 years. The County will need to continue charging rates that will recover the higher operating cost of the SWTP if the new groundwater wells are not in service on schedule. The second scenario was developed so that water rates can be calculated for year 3, 4 and 5 based on continued SWTP operation. The cash flow analysis is included in Appendix B and explained below:

- The beginning operating reserve in year 1 is zero since the water system is currently operating in a deficit
- Interest is earned on future operating reserve balances at an estimated average rate of 1.5%. The interest rate is based a conservative estimate of County pooled funds rates using historic rates.
- Operating expenses are escalated by 4% each year to account for price inflation.
- Revenue is escalated by 3% each year to meet the revenue requirement during the 5-year period.
- The Department of Public Works and Planning intends to recommend that the Board of Supervisors provide a loan from the County Service Area Revolving Fund to pay the negative cash balance and unpaid held charges. The principal and interest amount for repayment over the 5-year rate period is included in the cash flow analysis.
- The operating reserve is set at 50% of the average previous 3-year operating and maintenance total expenditures. The operating reserve is based on the operating cost for the last 3 years when the groundwater wells will be in service.
- Funds are set-aside and added to the equipment replacement reserve each year.
- The revenue requirement was determined by setting the revenue at amounts sufficient to pay continued operating expenses for the SWTP, future operating expense of the groundwater wells and payment of outstanding expenses with enough surplus revenue each year to build reserves to the minimum total reserve amount by Year 5.

5.2 Water Rate Determination

Proposed water rate calculations are included in Appendix C. The revenue is segregated into fixed and variable rates based on the cost distributions shown in Table 3-1 and Table 3-2 for groundwater system operation and interim SWTP operation, respectively. Water rates were calculated for both scenarios discussed in the previous section. The fixed and variable water rate calculations are explained below.

- **Fixed Charge:** The total annual revenue is multiplied by the percent fixed rate to calculate the total fixed revenue requirement. The total fixed revenue is divided by the total equivalent dwelling units (EDU). Services for single-family homes are charged a fixed rate for 1 EDU. Non-residential and services with multiple homes are charged based on the total number of EDUs for each metered service connection. The fixed rate for each service is charged to customers each month independent of water usage.

- **Variable Charge:** The total annual revenue is multiplied by the percent variable rate to calculate total variable revenue requirement. The total variable revenue is divided by the average annual water usage. All water customers, regardless of service class, are charged at the variable water rate (dollars per 1,000 gallons used). While the SWTP continues to be in operation, the variable charge for each customer class is divided into two parts: (1) operations and (2) commodity.
 - **Operations:** The operations charge includes recovery of variable operating costs only.
 - **Commodity:** The commodity charge is the cost to purchase surface water from WWD adjusted for water loss. For every 1 gallon of water delivered to customers, 1.1 gallons of surface water must be purchased from WWD to provide sufficient water for the treatment process. The cost to purchase surface water is currently \$432.37 per acre-foot. Therefore, the cost to supply water to customers would be \$475.61 per acre-foot (\$1.46 per 1000 gallon) after applying a water loss factor of 1.1. The cost to purchase surface water varies seasonally. The variable commodity charge will be adjusted when WWD rates change to recover actual costs whenever surface water rates change. After the groundwater wells are in service, the commodity charge will be eliminated.
 - **School Irrigation:** Charges to the school for irrigation water will be based on the commodity rate charged by Westlands Water District. No adjustment for water loss will be made since the school uses untreated water for irrigation.

5.3 Summary of Proposed Water Rates

The proposed 5-year water rate schedule is included in Appendix D. Water rate schedules are provided for the following scenarios: (1) continued operation of the SWTP until year 3 when the new groundwater wells and manganese treatment system is anticipated to be in service, and (2) continual operation of the SWTP for all 5 years in the event the new system is not in service on schedule.

Appendices

Appendix A: Summary of Budgetary Operating Costs and Reserves

Table A-1
ESTIMATE OF EXPENSES FOR WELLS AND MANGANESE TREATMENT

Expense Item	Assumed Values	Combined Expense		CSA 30 Expense Allocation		CSA 32 Expense	
		Monthly	Annual	Allocation	Annual	Allocation	Annual
Professional and Specialized Services							
Administrative Labor							
Hours per week	4						
Hourly labor rate	\$81						
Total expense		\$1,404	\$16,848	40%	\$6,739	60%	\$10,109
Operator Labor & Travel Expense							
Site visits per week	4						
Hours per site visit	4						
Travel cost per trip	\$71						
Hourly labor rate	\$81						
Total expense		\$6,848	\$82,181	40%	\$32,872	60%	\$49,308
Laboratory Testing							
Cost per test	\$35						
Manganese							
Tests per year	40						
Cost			\$1,400	50%	\$700	50%	\$700
Other							
Tests per year	28						
Cost			\$980	50%	\$490	50%	\$490
Total lab testing expense					\$1,190		\$1,190
Total P&S Services			\$101,409		\$40,802		\$60,607
Maintenance & Repairs							
CSA 30 budgeted amount					\$6,450		
CSA 32 budgeted amount							\$7,300
Total Maintenance & Repairs					\$6,450		\$7,300
Utilities							
Electricity					\$10,692		\$23,924
(see energy usage calculations)							
Total Utilities					\$10,692		\$23,924
Chemicals							
Chlorine							
Cost per gallon	\$4.00						
Gallons per year	816			276	\$1,104	540	\$2,160
Delivery charges	\$200						
Deliveries per year	16			8	\$1,600	8	\$1,600
Total Chemicals					\$2,704		\$3,760
Total					\$60,647		\$95,591

Notes:

1. Travel cost is \$0.79/mile x 90 miles.
2. Pump equipment cost based on cost opinion.
3. Maintenance and repair cost includes media replacement.
4. Labor expense is allocated to CSA 30 and 32 based on proportionate water system size.
5. Maintenance & Repair budget developed with input from Fresno County.

Table A-2
CSA 32 - Cantua Creek
ENERGY USAGE CALCULATIONS

Equipment	Value	Notes
Well Pumps		
Water Pumped Annually (MG)	16.6	Average annual water usage (at customer meter) over last 4 years
Additional 10% Pumping for Filter Backwash	1.7	I need to confirm the 10%
Total Pumped Annually (MG)	18.2	
Pump Flow Rate (gpm)	173	Well 1 and 2 design flow rate
Annual Pumping Time (hrs)	1,755	
Motor Power (kW)	37.3	50 HP motor
Total Energy Usage (kW-hr)	65,501	
Booster Pumps		
Water Pumped Annually (MG)	16.6	Total pumping into distribution system. Losses for distribution system leaks are not included
Pump Flow Rate (gpm)	254	Duty booster pumps design flow rate
Annual Pumping Time (hrs)	1,087	
Motor Power (kW)	11.2	15 HP motor
Total Energy Usage (kW-hr)	12,174	
Other Equipment		
Additional Energy Usage (Estimated)	10%	Other equipment (compressor, high capacity pump, chemical pump, lights, etc.)
Total Energy Usage (kW-hr)	7,767	
Total Energy Usage (kW-hr)	85,442	
\$ per kW-hr (to be verified)	\$0.280	Average energy unit cost for existing system per PG&E records
Total Energy Usage		
Estimated Total Annual Energy Cost	\$23,924	
Estimated Average Monthly Energy Cost	\$1,994	

Table A-3
CSA 32 - Cantua Creek
EQUIPMENT REPLACEMENT RESERVE

Equipment	Quantity	Estimated Cost	Total Reserve	Life Expect. (Years)	Annual Set-Aside
Well Pump and Motor	2	\$60,000	\$120,000	25	\$4,800
Duty Booster Pump	2	\$15,000	\$30,000	25	\$1,200
Air Compressor	1	\$3,000	\$3,000	15	\$200
Dosing Pump	1	\$2,500	\$2,500	10	\$250
PLC/HMI	1	\$5,000	\$5,000	10	\$500
Total			\$160,500		\$6,950

Rounded \$7,000

Notes:

1. Equipment life expectancies taken from State Water Board equipment life expectancy guidance

Appendix B: Future Cash Flow Projection

Table B-1
CSA 32 - Cantua Creek
CASH FLOW PROJECTION - SURFACE WATER (FIRST 2 YEARS) AND GROUNDWATER (LAST 3 YEARS)

	March 1, 2023	March 1, 2024	March 1, 2025	March 1, 2026	March 1, 2027
Rate Adjustment %		3.00%		3.00%	3.00%
Beginning Operating Reserve	\$0	\$18,853	\$37,714	\$57,068	\$76,429
REVENUES					
Water Rate	\$139,992	\$144,200	\$140,093	\$144,300	\$148,600
Interest Earnings 1.5%	\$0	\$300	\$600	\$900	\$1,100
Other	\$0	\$0	\$0	\$0	\$0
Subtotal	\$139,992	\$144,500	\$140,693	\$145,200	\$149,700
EXPENSES					
Operating & Maintenance		Surface Water		Groundwater	
Professional & Specialized Services 4.0%	\$80,200	\$83,400	\$66,800	\$69,500	\$72,300
Utilities & Chemicals 4.0%	\$14,800	\$15,400	\$30,600	\$31,800	\$33,100
Maintenance & Repairs 4.0%	\$11,800	\$12,300	\$8,100	\$8,400	\$8,700
Other Expenses 4.0%	\$6,200	\$6,400	\$7,700	\$8,000	\$8,300
Subtotal	\$113,000	\$117,500	\$113,200	\$117,700	\$122,400
Payment of Unpaid Expenses					
Negative Cash Balance & Held Charges	\$8,139	\$8,139	\$8,139	\$8,139	\$8,139
Subtotal	\$8,139	\$8,139	\$8,139	\$8,139	\$8,139
Total Expenses	\$121,139	\$125,639	\$121,339	\$125,839	\$130,539
Revenue Less Expenses	\$18,853	\$18,861	\$19,354	\$19,361	\$19,161
Ending Operating Reserve	\$18,853	\$37,714	\$57,068	\$76,429	\$95,590
Target Reserve					
Min Operating Reserve (50% of 3 year avg O&M)	\$58,900	\$58,900	\$58,900	\$58,900	\$58,900
Equipment Replacement	\$7,000	\$14,000	\$21,000	\$28,000	\$35,000
Subtotal	\$65,900	\$72,900	\$79,900	\$86,900	\$93,900
Actual Reserve Less Target (See Note 2)	(\$47,047)	(\$35,186)	(\$22,832)	(\$10,471)	\$1,690

Notes:

1. Target operating reserve is based on the average operating cost during the last 3 years.
2. Amount that actual reserve are above or below target reserve.

Table B-2
CSA 32 - Cantua Creek
CASH FLOW PROJECTION - SURFACE WATER (ALL 5 YEARS)

	March 1, 2023	March 1, 2024	March 1, 2025	March 1, 2026	March 1, 2027
Rate Adjustment %		3.00%	3.00%	3.00%	3.00%
Beginning Operating Reserve	\$0	\$18,853	\$37,714	\$56,475	\$75,036
REVENUES					
Water Rate	\$139,992	\$144,200	\$148,500	\$153,000	\$157,600
Interest Earnings 1.5%	\$0	\$300	\$600	\$800	\$1,100
Other	\$0	\$0	\$0	\$0	\$0
Subtotal	\$139,992	\$144,500	\$149,100	\$153,800	\$158,700
EXPENSES					
Operating & Maintenance	Surface Water				
Professional & Specialized Services 4.0%	\$80,200	\$83,400	\$86,700	\$90,200	\$93,800
Utilities & Chemicals 4.0%	\$14,800	\$15,400	\$16,000	\$16,600	\$17,300
Maintenance & Repairs 4.0%	\$11,800	\$12,300	\$12,800	\$13,300	\$13,800
Other Expenses 4.0%	\$6,200	\$6,400	\$6,700	\$7,000	\$7,300
Subtotal	\$113,000	\$117,500	\$122,200	\$127,100	\$132,200
Payment of Unpaid Expenses					
Negative Cash Balance & Held Charges	\$8,139	\$8,139	\$8,139	\$8,139	\$8,139
Subtotal	\$8,139	\$8,139	\$8,139	\$8,139	\$8,139
Total Expenses	\$121,139	\$125,639	\$130,339	\$135,239	\$140,339
Revenue Less Expenses	\$18,853	\$18,861	\$18,761	\$18,561	\$18,361
Ending Operating Reserve	\$18,853	\$37,714	\$56,475	\$75,036	\$93,397
Target Reserve					
Min Operating Reserve (50% of 3 year avg O&M)	\$58,900	\$58,900	\$58,900	\$58,900	\$58,900
Equipment Replacement	\$7,000	\$14,000	\$21,000	\$28,000	\$35,000
Subtotal	\$65,900	\$72,900	\$79,900	\$86,900	\$93,900
Actual Reserve Less Target (See Note 2)	(\$47,047)	(\$35,186)	(\$23,425)	(\$11,864)	(\$503)

Notes:

1. Target operating reserve is based on the average operating cost during the last 3 years.
2. Amount that actual reserve are above or below target reserve.

Appendix C: Water Rate Calculation

Table C-1
CSA 32 - Cantua Creek
PROPOSED WATER RATE CALCULATIONS
SURFACE WATER (FIRST 2 YEARS) AND GROUNDWATER (LAST 3 YEARS)

	Current Rate	March 1, 2023	March 1, 2024	March 1, 2025	March 1, 2026	March 1, 2027	
Total Rate Revenue		\$139,992	\$144,200	\$140,093	\$144,300	\$148,600	
Rate Increase (%)			3.00%	-2.85%	3.00%	3.00%	
Fixed Rate Revenue		\$104,994	\$108,150	\$105,514	\$108,683	\$111,921	
% Fixed		75%	75%	75%	75%	75%	
Total EDUs		148.0	148.0	148.0	148.0	148.0	
Fixed Rate per EDU							
Annual		\$709.42	\$730.74	\$712.93	\$734.34	\$756.22	
Monthly		\$59.12	\$60.90	\$59.41	\$61.20	\$63.02	
Customer Classification	EDU						
Residential	1.0	\$70.34	\$59.12	\$60.90	\$59.41	\$61.20	\$63.02
Childhood Education Center	1.0		\$59.12	\$60.90	\$59.41	\$61.20	\$63.02
Out of District	1.0	\$110.13	-	-	-	-	-
School Building	18.0	\$356.00	\$1,064.13	\$1,096.11	\$1,069.40	\$1,101.51	\$1,134.34
School Homes	25.0	\$1,094.21	\$1,477.96	\$1,522.38	\$1,485.28	\$1,529.88	\$1,575.47
Mobile Home Park	14.0	\$1,248.60	\$827.66	\$852.53	\$831.75	\$856.73	\$882.26
Cantua Creek Vineyards IV	14.0		\$827.66	\$852.53	\$831.75	\$856.73	\$882.26
Variable Rate - Operations		\$34,998	\$36,050	\$34,579	\$35,617	\$36,679	
% Variable		25%	25%	25%	25%	25%	
Annual Water Sales (MG)		16.6	16.6	16.6	16.6	16.6	
Rate per 1,000 gallons		-	\$2.11	\$2.18	\$2.09	\$2.15	\$2.21
Variable Rate - Commodity							
Rate per 1,000 gallons	\$2.03	Actual Cost		-	-	-	

Notes:

1. Commodity variable rate is the cost to purchase surface water from Westlands. Actual cost will vary seasonally based on availability of water. CSA customer cost would be \$1.46 per 1000 gallons based on Westlands rates as of May 2022. Westlands rates shall be adjusted by a factor of 1.1 to account for water loss. Commodity charge to be eliminated after groundwater wells are in service.

2. New water rates are expected to go into effect on March 1, 2023.

Table C-2
CSA 32 - Cantua Creek
PROPOSED WATER RATE CALCULATIONS - SURFACE WATER (ALL 5 YEARS)

	Current Rate	March 1, 2023	March 1, 2024	March 1, 2025	March 1, 2026	March 1, 2027
Total Rate Revenue		\$139,992	\$144,200	\$148,500	\$153,000	\$157,600
Rate Increase (%)			3.00%	3.00%	3.00%	3.00%
Fixed Rate Revenue		\$104,994	\$108,150	\$111,375	\$114,750	\$118,200
% Fixed		75%	75%	75%	75%	75%
Total EDUs		148.0	148.0	148.0	148.0	148.0
Fixed Rate per EDU						
Annual		\$709.42	\$730.74	\$752.53	\$775.34	\$798.65
Monthly		\$59.12	\$60.90	\$62.71	\$64.61	\$66.55
Customer Classification	EDU					
Residential	1.0	\$70.34	\$59.12	\$60.90	\$62.71	\$64.61
Childhood Education Center	1.0		\$59.12	\$60.90	\$62.71	\$64.61
Out of District	1.0	\$110.13	-	-	-	-
School Building	18.0	\$356.00	\$1,064.13	\$1,096.11	\$1,128.80	\$1,163.01
School Homes	25.0	\$1,094.21	\$1,477.96	\$1,522.38	\$1,567.78	\$1,615.29
Mobile Home Park	14.0	\$1,248.60	\$827.66	\$852.53	\$877.96	\$904.56
Cantua Creek Vineyards IV	14.0		\$827.66	\$852.53	\$877.96	\$904.56
Variable Rate - Operations		\$34,998	\$36,050	\$37,125	\$38,250	\$39,400
% Variable		25%	25%	25%	25%	25%
Annual Water Sales (MG)		16.6	16.6	16.6	16.6	16.6
Rate per 1,000 gallons	-	\$2.11	\$2.18	\$2.24	\$2.31	\$2.38
Variable Rate - Commodity						
Rate per 1,000 gallons	\$2.03	Actual Cost				

Notes:

1. Commodity variable rate is the cost to purchase surface water from Westlands. Actual cost will vary seasonally based on availability of water. CSA customer cost would be \$1.46 per 1000 gallons based on Westlands rates as of May 2022. Westlands rates shall be adjusted by a factor of 1.1 to account for water loss. Commodity charge to be eliminated after groundwater wells are in service.

2. New water rates are expected to go into effect on March 1, 2023.

Table C-3
CSA 32 - Cantua Creek
FORMULA FOR WATER RATE CALCULATION

Fixed Rate

[Monthly Fixed Rate] = [Total Fixed Expenses] / [Total EDUs] / [12 months]

[Total Fixed Expenses] = Total fixed operating and non-operating expenses from Table 3-1

Note: Payment of unpaid expenses is included in the non-operating expense. Payment amount is summarized in Table 2-7 (see calculation in Appendix Table C-5).

[Total EDUs] = See Table 2-4

Variable Rate

[Usage Rate per 1000 gal] = [Total Variable Expenses] / [Average Annual Water Sales in MG / 1000]

[Total Variable Expenses] = Total variable operating and non-operating expenses from Table 3-1

[Average Annual Water Sales in MG] = Average water usage of 14.9 MG from Table 2-3 plus estimated water usage of 1.6 MG for Cantua Creek Vineyards (16.6 MG total)

Variable Rate - Commodity

The commodity charge is the cost to purchase surface water from Westlands Water District (WWD). Every 1 acre-foot (AF) of treated surface water produced by the existing treatment plant requires an estimated 1.1 acre-feet of surface water supply to account for water losses associated with filter backwashing for the surface water treatment system.

[WWD Surface Water Cost] = WWD surface water cost per 1 AF charged to the County.

[Customer Surface Water Charge] = Charge to customers per 1 AF of surface water adjusted for water loss.

[Usage Rate] = Charge to customer per unit (1000 gallon) of water used (1 AF = 325.8 units).

Table C-4

CSA 32 - Cantua Creek

EXAMPLE WATER RATE CALCULATION FOR MARCH 1, 2025 WATER RATE

Fixed Rate

[Monthly Fixed Rate] = $\$105,514.00 / 148.0 / 12 = \59.41

[Total Fixed Expenses] = \$105,514.00

Note: Payment of unpaid expenses is included in the non-operating expense. Payment amount is summarized in Table 2-7 (see calculation in Appendix Table C-5).

[Total EDUs] = 148.0

Variable Rate

[Usage Rate] = $\$34,579.00 / 16.56 / 1,000 = \2.09 per 1000 gallons

[Total Variable Expenses] = \$34,579.00

[Average Annual Water Sales in MG] = 16.6 MG

Variable Rate - Commodity

The commodity charge is the cost to purchase surface water from Westlands Water District (WWD). Every 1 acre-foot (AF) of treated surface water produced by the existing treatment plant requires an estimated 1.1 acre-feet of surface water supply to account for water losses associated with filter backwashing for the surface water treatment system.

[WWD Surface Water Cost] = \$432.37 per 1 AF (supplied to water system)

Note: WWD unit cost to purchase surface as of May 2022. Unit cost changes seasonally. Variable commodity charges to customers will be based on actual cost of water.

[Customer Surface Water Charge] = \$475.61 per 1 AF

Note: Customer surface water charge is multiplied by 1.1 water loss factor.

[Usage Rate] = \$1.46 per 1000 gallons

Table C-5
CSA 32 - Cantua Creek
PAYMENT CALCULATION

Payment Formula

Payment amount is calculated assuming quarterly payments using the following equation:

$$P = \frac{r(PV)}{1 - (1 + r)^{-n}}$$

Terms:

P = Quarterly payment

PV = Present Value of Principal (Total Negative Cash Balance and Held Charges shown in Table 2-7)

r = rate per period (County pooled funds rate of 1.312% / 4 quarters)

n = number of periods (4 quarters x 5 years) = 20 periods

[Annual Payment Amount] = [P] x 4 quarters

Calculation:

P = \$2,034.74

PV = \$39,326.30

r = 0.328%

n = 20

[Annual Payment Amount] = \$8,138.95

Appendix D: Proposed Water Rate Schedule

Table D-1

CSA 32 - Cantua Creek

PROPOSED WATER RATE SUMMARY - SURFACE WATER (FIRST 2 YEARS) AND GROUNDWATER (LAST 3 YEARS)

		Current Rate	Proposed Rates				
			March 1, 2023	March 1, 2024	March 1, 2025	March 1, 2026	March 1, 2027
CSA 32 - CANTUA CREEK							
Fixed Rate							
Customer Classification	EDU						
Residential	1.0	\$70.34	\$59.12	\$60.90	\$59.41	\$61.20	\$63.02
Childhood Education Center	1.0		\$59.12	\$60.90	\$59.41	\$61.20	\$63.02
School Building	18.0	\$356.00	\$1,064.13	\$1,096.11	\$1,069.40	\$1,101.51	\$1,134.34
School Homes	25.0	\$1,094.21	\$1,477.96	\$1,522.38	\$1,485.28	\$1,529.88	\$1,575.47
Mobile Home Park	14.0	\$1,248.60	\$827.66	\$852.53	\$831.75	\$856.73	\$882.26
Cantua Creek Vineyards IV	14.0		\$827.66	\$852.53	\$831.75	\$856.73	\$882.26
Variable Rate - Operations							
Rate per 1,000 gallons		-	\$2.11	\$2.18	\$2.09	\$2.15	\$2.21
Variable Rate - Commodity							
Rate per 1,000 gallons		\$2.03	See Note 1		-	-	-
Untreated Water (Raw Water)							
Cantua Elementary School		Actual Cost	Actual Cost				

Notes:

1. Commodity variable rate is the cost to purchase surface water from Westlands. Actual cost will vary seasonally based on availability of water. CSA customer cost would be \$1.46 per 1000 gallons based on Westlands rates as of May 2022. Westlands rates shall be adjusted by a factor of 1.1 to account for water loss. Commodity charge to be eliminated after groundwater wells are in service.
2. New water rates are expected to go into effect on March 1, 2023.

Table D-2

CSA 32 - Cantua Creek

PROPOSED WATER RATE SUMMARY - SURFACE WATER (ALL 5 YEARS)

		Current Rate	Proposed Rates				
			March 1, 2023	March 1, 2024	March 1, 2025	March 1, 2026	March 1, 2027
CSA 32 - CANTUA CREEK							
Fixed Rate							
Customer Classification	EDU						
Residential	1.0	\$70.34	\$59.12	\$60.90	\$62.71	\$64.61	\$66.55
Childhood Education Center	1.0		\$59.12	\$60.90	\$62.71	\$64.61	\$66.55
School Building	18.0	\$356.00	\$1,064.13	\$1,096.11	\$1,128.80	\$1,163.01	\$1,197.97
School Homes	25.0	\$1,094.21	\$1,477.96	\$1,522.38	\$1,567.78	\$1,615.29	\$1,663.85
Mobile Home Park	14.0	\$1,248.60	\$827.66	\$852.53	\$877.96	\$904.56	\$931.76
Cantua Creek Vineyards IV	14.0		\$827.66	\$852.53	\$877.96	\$904.56	\$931.76
Variable Rate - Operations							
Rate per 1,000 gallons		-	\$2.11	\$2.18	\$2.24	\$2.31	\$2.38
Variable Rate - Commodity							
Rate per 1,000 gallons		\$2.03	See Note 1				
Untreated Water (Raw Water)							
Cantua Elementary School		Actual Cost	Actual Cost				

Notes:

1. Commodity variable rate is the cost to purchase surface water from Westlands. Actual cost will vary seasonally based on availability of water. CSA customer cost would be \$1.46 per 1000 gallons based on Westlands rates as of May 2022. Westlands rates shall be adjusted by a factor of 1.1 to account for water loss. Commodity charge to be eliminated after groundwater wells are in service.

2. New water rates are expected to go into effect on March 1, 2023.