HANSFORD ECONOMIC CONSULTING LLC

American Valley Community Services District

Utility Rates and Fees Study

FINAL

March 14, 2022

HEC No. 210339

The following report was prepared by Hansford Economic Consulting LLC.

The analyses and findings contained within this report are based on primary data provided by the American Valley Community Services District, as well as additional secondary sources of data available as of the date of this report. Updates to information used in this report could change or invalidate the findings contained herein. While it is believed that the primary and secondary sources of information are accurate, this is not guaranteed.

Every reasonable effort has been made in order that the data contained in this study reflect the most accurate and timely information possible. No responsibility is assumed for inaccuracies in reporting by the client, its consultants and representatives, or any other data source used in the preparation of this study. No warranty or representation is made that any of the projected values or results contained in this study will actually be achieved. There will usually be differences between forecasted or projected results and actual results due to changes in events and circumstances.

Changes in economic and social conditions due to events including, but not limited to, major recessions, droughts, major environmental problems or disasters that would negatively affect operations, expenses and revenues may affect the result of the findings in this study. In addition, other factors not considered in the study may influence actual revenues achieved. Any applications for financing, or bond sales analyses, should re-evaluate the financial health and projection of revenues and expenses at the time of the application or preparation for bond sale.

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Section 1: INTRODUCTION AND SUMMARY OF FINDINGS

1.1 BACKGROUND AND PURPOSE OF THE STUDY

The American Valley Community Services District (District or AVCSD) provides water and wastewater utility services to residents and businesses in the communities of Quincy and East Quincy, Plumas County, California. The District was formed with the consolidation of the Quincy Community Service District (now the "West Zone") and the East Quincy Services District (now the "East Zone") on January 11, 2018. The organization and operations of the two previously separated systems have been integrated into the single entity except for the fee structures. In 2021, the District contracted with Hansford Economic Consulting LLC (HEC) to complete this final consolidation piece.

The purpose of this Utilities Rates and Fees Study (Study) is to determine the level of funding required over the next seven years (fiscal years 2023 through 2029) to adequately fund the District so that it can safely operate both utility systems, meet State and Federal regulatory requirements, demonstrate cost of service (proportionality of rates) in adherence to California's Constitution[1], and show the District's ability to repay debts for capital projects. The Study updates three types of fees:

- Property-related fees (interchangeably termed "rates"),
- Capacity fees (only charged to new development), and
- Regulatory fees (termed "administrative fees" by AVCSD).

Included in this report are the property-related fees and capacity fees analysis. The regulatory fees analysis is addressed in a separate memorandum.

The current utilities rates were adopted by the two predecessor utility service providers (Quincy and East Quincy). For the two WATER systems, rates were last increased July 1, 2015 in the West Zone, and July 1, 2017 in the East Zone. For WASTEWATER, rates were last increased July 1, 2021 as the last year of increases adopted in 2017 by both service providers.

Property-Related Fees. This report provides an explanation and justification of calculated water and wastewater utility fees for the next seven years and documents adherence to the law regarding setting of rates by a special district. Per California Constitution Article 13D, utility rates are property-related fees that shall not be extended, imposed, or increased by any agency unless it meets all of the following requirements:

(1) Revenues derived from the fee or charge shall not exceed the funds required to provide the property related service.

[1] Pursuant to Government Code 54999.7 (c) a public agency providing public utility service shall complete a cost of service study at least once every 10 years that addresses the cost of providing public utility service to public schools.

(2) Revenues derived from the fee or charge shall not be used for any purpose other than that for which the fee or charge was imposed.

(3) The amount of a fee or charge imposed upon any parcel or person as an incident of property ownership shall not exceed the proportional cost of the service attributable to the parcel.

(4) No fee or charge may be imposed for a service unless that service is actually used by, or immediately available to, the owner of the property in question. Fees or charges based on potential or future use of a service are not permitted.

(5) No fee or charge may be imposed for general governmental services including, but not limited to, police, fire, ambulance or library, services, where the service is available to the public-at-large in substantially the same manner as it is to property owners.

Capacity Fees. Under the authority of the Mitigation Fee Act (1987) contained in California Government Code Section 66000 et. seq., the District is authorized to collect water and wastewater capacity and connection fees. When a municipality adopts or updates a capacity or connection fee, it must demonstrate that the fees shall not exceed the estimated reasonable cost of providing the service for which the fee is imposed. This report calculates updated AVCSD water and wastewater capacity fees, demonstrating compliance with the Mitigation Fee Act.

1.2 RATE SETTING PRINCIPLES AND REPORT ORGANIZATION

In California, rate studies are typically conducted every five years to ensure revenue sufficiency. The utilities financial model presented in this report projects revenues and expenses, and calculates water and wastewater rates, for the next seven fiscal years because there are some large water system capital improvement projects anticipated that do not necessarily need to be completed within the next five years; however, the financial plan must take the cost of the capital improvements project (CIP) into account. In addition, on the wastewater side, the new wastewater treatment plant is expected to be complete in the next 12 months and it is helpful to have a longer-term outlook on revenues and expenses for the wastewater system accounting for the new debt service due for the project.

As part of the regular periodic review of utility rates, best practices include maintaining financially self-sustaining utilities, setting policies or guidelines on appropriate reserve levels, including depreciation in the rates, and continual customer outreach to educate on the value of the services provided. This report was prepared using the principles established by the American Water Works Association (AWWA), the Water Environment Federation (WEF), and Government Finance Officers Association (GFOA).

The AWWA “Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices M1 (the “M1 Manual”) establishes commonly accepted professional standards for water cost-of-service studies. This manual is referenced in the water rates methodology in this report.

The wastewater rates analysis uses standard industry practices outlined in the WEF Manual of Practice No. 27 and guidelines prepared by the California State Water Resources Control Board for State Revolving Fund financing.

The GFOA publishes guidelines on sufficient cash balances for enterprise funds. Minimum cash balance targets for AVCSD presented in this Study are based on the GFOA guidelines.

Organization of the Report

The report is presented in five sections. Following this introduction and summary of findings, Section 2 describes the customer base, financial health of the District, debt, current assets and needed capital improvements. Section 3 provides the water fees methodology and calculations. Section 4 provides the wastewater fees methodology and calculations. Section 5 provides a summary of impact of the calculated rates on the District's financial health and provides a fee impact analysis for existing and new District customers.

Study support tables are provided in Appendices A through C.

1.3 WATER FEES FINDINGS

- Water fees need to increase each year, starting fiscal year 2023 (July 1, 2022), to maintain revenue sufficiency for water operations and to complete the capital improvements identified as necessary in the next seven years.

- The CIP financing strategy includes a short-term loan from the wastewater fund to the water fund of $500,000 in fiscal year ending 2027 allowing the District to not incur any debt for the water system.

- In addition to the increase in rates in both West and East Zones, so that there is one set of rates applicable to all customers, the cost-of-service analysis allocates costs proportionately to customer groups based on use characteristics. This results in some customer groups having a greater cost increase than other groups.

- Water capacity fees need to increase July 1, 2022 to ensure that growth pays for its share of water system capacity costs and it should be tied to an index to keep pace with inflation.

A summary of proposed changed to the water fees structures is shown in **Table 1** on the next page.

Table 1
Summary of Changes – Water Fees

	Changes to Water Fees Structures
Property-related fees **Fee structure and amounts will be the same in both zones beginning July 1, 2022**	**WEST ZONE:** Fixed monthly charges include a customer charge in addition to the current meter service charge by meter size. Removal of water usage tiers for all customer types – the same rate will apply to every 1,000 gallons of water used; residential units will have a base allowance of 4,000 gallons per month. **EAST ZONE:** Fixed monthly customer charge same for all customer types (currently different). Monthly meter service charge by meter size continues. Removal of base allowance for all customer types, the same rate will apply to every 1,000 gallons of water used; residential units will have a base allowance of 4,000 gallons per month.
Capacity fees	**No change to structure** – Residential and Nonresidential continue to pay per plumbing fixture unit but the same fee will be paid in both West and East Zones.

The new rate structure would be applied to all water customers as follows. All water customers are metered:

Active Water Accounts

1. Customer charge: A flat monthly fee billed to the account holder.
2. Service charge: A flat monthly fee billed per meter by size of meter. One account may only be charged one customer charge but more than one service charge if more than one meter or private fire service is associated with the account.
3. Water usage charge: A fee charged per thousand gallons of water recorded through each metered connection every month. Residential units will not be billed the first 4,000 gallons of use each month.

Inactive Water Accounts

1. Customer charge: A flat monthly fee billed to the account holder.
2. Service charge: A flat monthly fee billed by meter size. One account may only be charged one customer charge but more than one service charge if more than one meter or private fire service is associated with the account.

Private Fire Hydrants or Pipes Accounts

1. Customer charge: A flat monthly fee billed to the account holder.
2. Service charge: A flat monthly fee billed for a 5/8" meter.

Inactive water accounts only pay customer and service charges because they are not currently taking water from the water system. They still incur customer-related costs and costs to maintain capacity in the water system, which are recouped in the service charge.

The proposed water rate schedule, per direction from the Board of Directors (Board) is provided in **Table 2**. The proposed rate schedule increases fees to customers to keep pace with inflation, add needed staffing, keep up with needed system rehabilitation costs, and to maintain prudent reserves as recommended by GFOA.

Table 2
Proposed Water Rates Schedule

Charge Type	Billing Method	2023 Year 1	2024 Year 2	2025 Year 3	2026 Year 4	2027 Year 5	2028 Year 6	2029 Year 7
CUSTOMER CHARGE								
All Accounts	per account, per month	$15.68	$16.49	$17.33	$18.21	$19.14	$20.12	$21.14
SERVICE CHARGE								
5/8"	per meter, per month	$19.80	$20.82	$21.89	$23.00	$24.18	$25.40	$26.69
3/4"	per meter, per month	$29.70	$31.23	$32.84	$34.50	$36.27	$38.10	$40.04
1"	per meter, per month	$49.50	$52.05	$54.73	$57.50	$60.45	$63.50	$66.73
1.5"	per meter, per month	$99.00	$104.10	$109.45	$115.00	$120.90	$127.00	$133.45
2"	per meter, per month	$158.40	$166.56	$175.12	$184.00	$193.44	$203.20	$213.52
3"	per meter, per month	$346.50	$364.35	$383.08	$402.50	$423.15	$444.50	$467.08
4"	per meter, per month	$594.00	$624.60	$656.70	$690.00	$725.40	$762.00	$800.70
6"	per meter, per month	$1,237.50	$1,301.25	$1,368.13	$1,437.50	$1,511.25	$1,587.50	$1,668.13
8"	per meter, per month	$2,376.00	$2,498.40	$2,626.80	$2,760.00	$2,901.60	$3,048.00	$3,202.80
Inactive Property Charge	per account, per month	Customer Charge plus Service Charge @ size of meter						
Private Fire Hydrant or Pipe Charge	per service, per month	$35.48	$37.31	$39.22	$41.21	$43.32	$45.52	$47.83
USE CHARGE								
Residential								
Up to 4,000 gallons per unit, per month		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
4,001+ gallons / unit / mo	per 1,000 gallons	$1.93	$2.03	$2.13	$2.24	$2.35	$2.47	$2.60
Non-Residential								
All Non-Residential	per 1,000 gallons	$1.93	$2.03	$2.13	$2.24	$2.35	$2.47	$2.60

Source: AVCSD and HEC 2021 rate study. sum w1

The maximum justifiable water capacity fee per plumbing fixture unit increases from $149.14 in the West Zone and $156.06 in the East Zone to $208.66 applicable in both zones beginning July 1, 2022.

1.4 WASTEWATER FEES FINDINGS

- Wastewater fees need to increase over the next 7 years to maintain revenue sufficiency for wastewater operations. Debt service and capital projects will be paid for using accumulated reserves from the last rate increase.

- In creating one set of rates applicable to all customers (West and East zones), some customer types will have a greater change in allocated costs than others. The cost-of-service analysis shows that the collection of revenues between the customer types needs to shift so that customers are paying for their proportionate share of the system's annual costs.

- Provided the realized costs of the new wastewater treatment plant do not run excessively over the estimated cost, there should be sufficient revenue to fund an annual program of inspection, maintenance, and repair in the wastewater collection systems. This program is not a Board-approved CIP item but has been included in the rate study.

- It is projected that there will be sufficient revenues to provide the water fund a short-term loan of $500,000 in fiscal year ending 2027 to construct capital improvements that fully integrate the systems and provide greater fire protection.

- Customers in both zones will be subject to collection surcharges to pay for debt service belonging to their zone. A condition of consolidation was that debt incurred prior to consolidation must remain the financial responsibility of each zone.

- The wastewater capacity fee needs to increase July 1, 2022 to ensure that growth pays for its share of water system capacity costs and it should be tied to an index to keep pace with inflation.

A summary of proposed changed to the wastewater fees structures is shown in **Table 3** on the next page.

Table 3
Summary of Changes – Wastewater Fees

	Changes to Wastewater Fees Structures
Property-related fees **Fee structure and amounts will be the same in both zones beginning July 1, 2022 *with the exception of the collection surcharge.***	**WEST ZONE:** Residential continues to pay a fixed charge per month per unit. Removal of base paid by meter size for nonresidential; nonresidential will pay a customer charge that is fixed per account per month, plus a monthly use charge that is based on average winter month water use. The average use Jan-Mar is applied all 12 months of the year and multiplied by the flow charge per 1,000 gallons. The flow charge varies depending on customer strength of wastewater. Unmetered accounts continue to pay per Dwelling Unit Equivalent (DUE). New: Fixed monthly collection surcharge for debt service (different in each zone). **EAST ZONE:** Residential continues to pay a fixed charge per month per unit. Nonresidential categorization as large and small commercial abandoned; nonresidential will pay a customer charge that is fixed per account per month plus a monthly use charge that is based on average winter month water use. The average use Jan-Mar is applied all 12 months of the year and multiplied by the flow charge per 1,000 gallons. The flow charge varies depending on customer strength of wastewater. Unmetered accounts pay per DUE. New: Fixed monthly collection surcharge for debt service (different in each zone).
Capacity fees	**No change to structure** – Residential and Nonresidential continue to pay per drainage fixture unit. Due to collection system debt, the fee is different in the West and East Zones.

The new rate structure would be applied as follows:

<u>Active Wastewater Accounts</u>

1. Customer charge: A flat monthly fee billed to the account holder.
2. Collection Surcharge: A flat monthly fee billed to the account holder for debt service in the zone in which they are located.
3. Service and flow charge (metered accounts): A flat monthly fee billed per Residential Unit. A flat monthly fee billed to Nonresidential metered accounts based on average month water use January through March each year (updated each year) and wastewater strength category of the customer (domestic, low, medium, or high).

4. Service and flow charge (unmetered accounts): A flat monthly fee billed per Unmetered EDU.

Inactive Wastewater Accounts

1. Customer charge: A flat monthly fee billed to the account holder.
2. Collection Surcharge: A flat monthly fee billed to the account holder for debt service in the zone in which they are located.
3. Service charge: A flat monthly fee based on each inactive account counting as one EDU.

Inactive wastewater accounts only pay customer and service charges (and zone-specific collection surcharges) because they are not currently generating wastewater. They still incur customer-related costs and costs to maintain capacity in the wastewater system, which are recouped in the collection surcharge and service charge.

The calculated wastewater rate schedule per direction of the Board is provided in **Table 4** on the next page.

Wastewater Capacity Fee. The current and calculated maximum justified wastewater capacity fee per drainage fixture unit is shown below:

	Wastewater Capacity Fee per Drainage Fixture Unit			
	West – Current	**West – July 1, 2022**	**East - Current**	**East – July 1, 2022**
Collection	$121.54	$202.03	$73.63	$149.94
Treatment	$85.07	$51.60	$85.07	$51.60
Total	**$206.61**	**$253.62**	**$158.70**	**$201.54**

Table 4
Proposed Wastewater Rates Schedule

Customer Type	2023 Year 1	2024 Year 2	2025 Year 3	2026 Year 4	2027 Year 5	2028 Year 6	2029 Year 7
RESIDENTIAL	**per unit per month // (A) + (B) East // (A) + (C) West**						
(A) Single Family	$69.32	$69.32	$72.30	$75.41	$78.65	$82.03	$85.56
(A) Multi-Family	$60.37	$60.37	$62.96	$65.67	$68.50	$71.44	$74.51
East Zone Debt Surcharge							
(B) Single Family	$0.55	$0.55	$0.55	$0.55	$0.55	$0.55	$0.55
(B) Multi-Family	$0.55	$0.55	$0.55	$0.55	$0.55	$0.55	$0.55
West Zone Debt Surcharge							
(C) Single Family	$6.58	$6.58	$6.58	$6.58	$6.58	$6.58	$6.58
(C) Multi-Family	$6.58	$6.58	$6.58	$6.58	$6.58	$6.58	$6.58
NON-RESIDENTIAL	**per account per month // (A) + (B) + (D) East // (A) + (C) + (D) West**						
(A) All Non-residential Accounts	$15.27	$15.27	$15.93	$16.62	$17.33	$18.08	$18.85
(B) East Zone Debt Surcharge	$0.55	$0.55	$0.55	$0.55	$0.55	$0.55	$0.55
(C) West Zone Debt Surcharge	$6.58	$6.58	$6.58	$6.58	$6.58	$6.58	$6.58
Non-Residential (Metered)	**per 1,000 gallons of wintertime monthly average use [7]**						
(D) Domestic Strength [1]	$11.88	$11.88	$12.39	$12.92	$13.48	$14.06	$14.66
(D) Low Strength [2]	$12.90	$12.90	$13.46	$14.04	$14.64	$15.27	$15.93
(D) Medium Strength [3]	$16.35	$16.35	$17.05	$17.78	$18.55	$19.34	$20.18
(D) High Strength [4]	$21.19	$21.19	$22.10	$23.05	$24.04	$25.07	$26.15
(D) Schools	$11.12	$11.12	$11.60	$12.10	$12.62	$13.16	$13.72
Non-Residential (Unmetered)	**per DUE per month // (A) + (B) + (E) East // (A) + (C) + (E) West**						
(E) Domestic Strength [5]	$69.32	$69.32	$72.30	$75.41	$78.65	$82.03	$85.56
(E) Low Strength [6]	$65.95	$65.95	$68.78	$71.74	$74.82	$78.04	$81.40
INACTIVE	**per account per month // (A) + (B) East // (A) + (C) West**						
(A) All Inactive Accounts	$46.22	$46.22	$48.21	$50.28	$52.44	$54.70	$57.05
(B) East Zone Debt Surcharge	$0.49	$0.49	$0.49	$0.49	$0.49	$0.49	$0.49
(C) West Zone Debt Surcharge	$6.52	$6.52	$6.52	$6.52	$6.52	$6.52	$6.52

Source: HEC 2021 rate study. ww sum

[1] Mixed use accounts.

[2] Includes retail, office, churches, banks, dental/doctor offices, storage, beauty shops, car washes, and light manufacturing.

[3] Includes auto repair and service, gas station with markets, heavy manufacturing/industrial, and laundromats.

[4] Includes grocery markets, funeral homes, restaurants, fast food and bakeries.

[5] In the West zone, Feather River College and RV Park are included.

[6] In the West Zone, includes Plumas Co. Annex and Gansner Park bathrooms.

[7] Wintertime average use calculated using Jan-Mar inclusive water meter reads (applied to every month of the year).

1.5 COMBINED UTILITIES IMPACTS

District Impacts. The impact of adopting the proposed water and wastewater rates would be to keep the District in a financially-sound position while operating the systems, meeting debt service obligations, completing needed planned capital improvements and maintaining a prudent cash reserve.

Based on GFOA guidelines, it is recommended that the District have minimum operating reserves equal to one year of operating expenses and rate stabilization reserves of six months of operating expenses in each fund. In addition, target minimum capital fund cash balances of $250,000 for water and $1,000,000 for wastewater, are recommended.

Figures 1 and **2** show the projected District unrestricted cash balances and minimum target cash balances (operating and capital combined) for the water fund and wastewater fund, respectively, over the next seven fiscal years. The financing strategy includes an interfund loan from the wastewater fund to the water fund so that the District does not need to incur additional debt to construct the new water tank and the full intertie between the West and East zones. The water fund would pay the wastewater fund back over a period of time determined by the Board. Any time a special district does an interfund loan, it must adopt a resolution stating the amount loaned from one fund to another and the terms and conditions upon which it will be repaid.

The rate study calculates new rates over the next seven years and it reapportions costs among customers of joined utility systems. With the proposed rate changes the District should maintain prudent levels of unrestricted cash reserves throughout the seven-year projection. While California requires that revenues derived from the fee or charge shall not exceed the funds required to provide the property-related service, the Constitution allows for utility providers to maintain prudent reserves in the determination of cost to provide the service.

The projected unrestricted cash reserves are based on today's best information and many assumptions for changing costs over the next seven years; some of these assumptions are difficult to make due to inflation and supply shortages issues, which have increased prices since the Covid-19 pandemic.

A review of wastewater rates is recommended after completion of the wastewater treatment plant when total costs of the project are known, new operating costs have been established, and the full annual debt service payments are being made.

Figure 1
Projected Water Fund Year-End Cash Balances (Unrestricted)

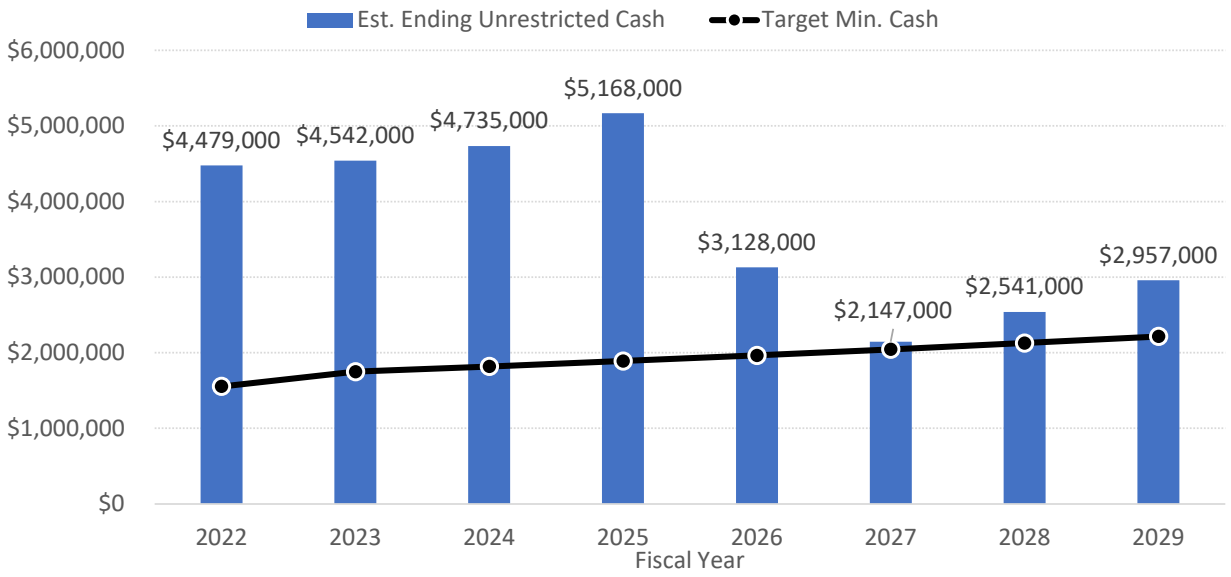
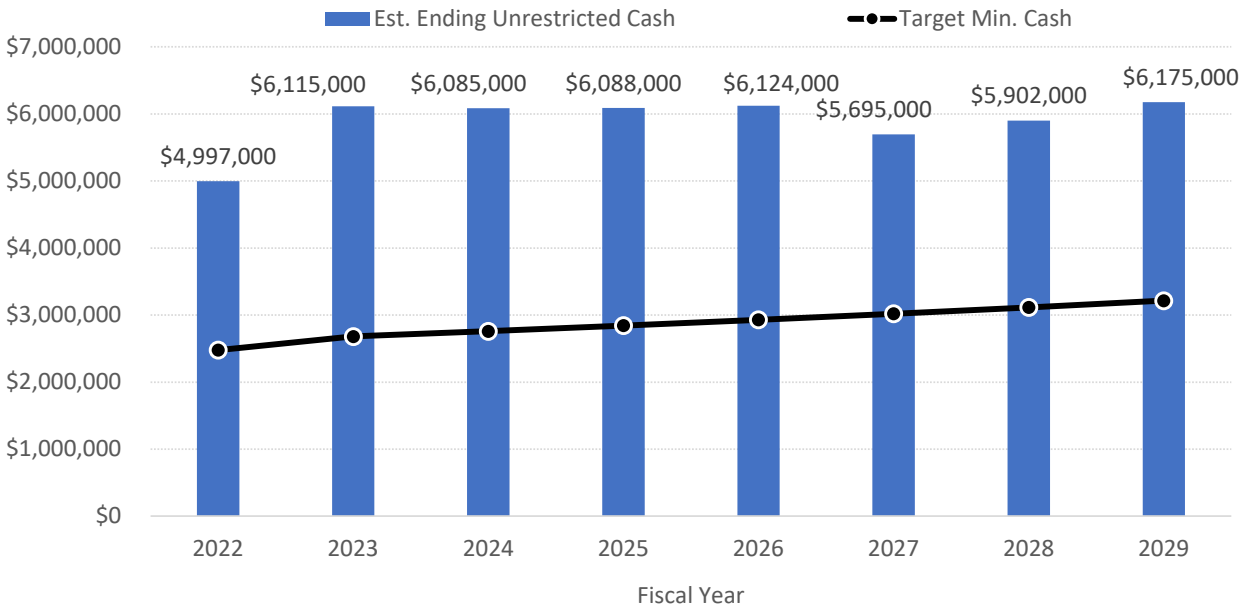


Figure 2
Projected Wastewater Fund Year-End Cash Balances (Unrestricted)

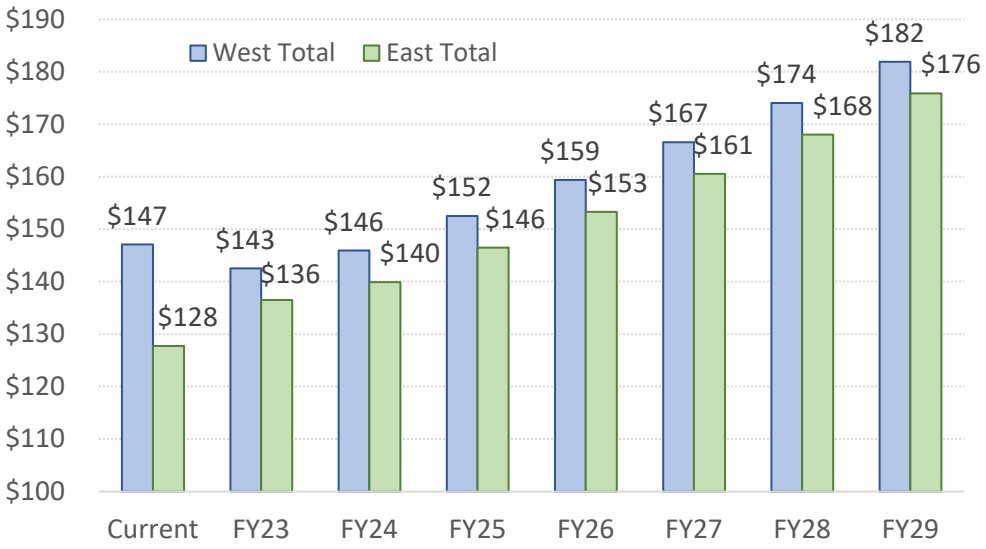


Existing Customers Impacts. Account holders receive monthly utility bills that include charges for water and wastewater services; therefore, it is important to look at the combined impact of the calculated rates on customer bills.

Residential

Figure 3 shows the total bill impact to a home with a ¾" water meter using 15,000 gallons in the month with a base allowance of 4,000 gallons. The total bill for a home in the West Zone decreases in the first year as a result of changes to the water and wastewater fees, then is greater than the current bill in year 3 (fiscal year ending 2025). The total bill for a home in the East Zone increases each year.

Figure 3
Utility Bill Projection for a Home using 15,000 Gallons
With a ¾" Water Meter and base allowance of 4,000 gallons



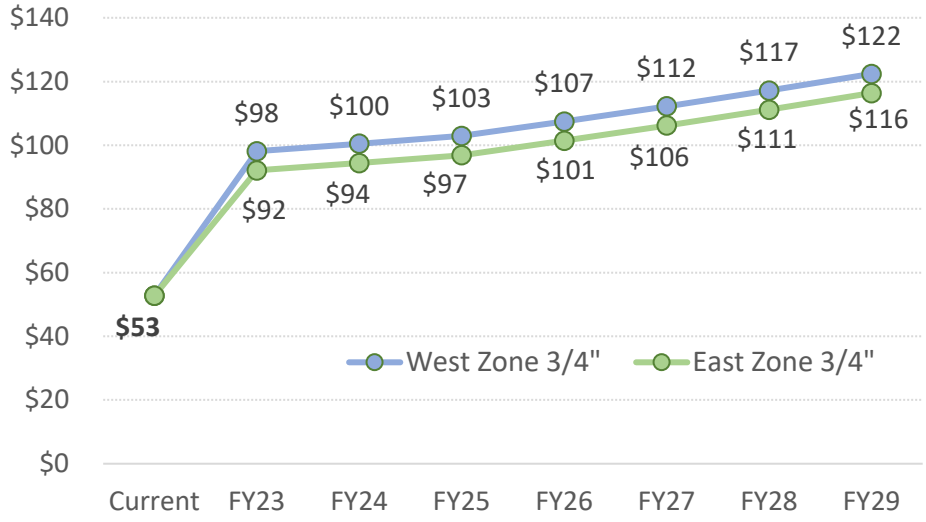
Inactive

Figure 4 shows the monthly bill impact to an inactive property with a ¾" water meter. The increase in bills is proportionately greater for inactive properties than residential properties because they are currently not paying their full cost of service.

Private Fire Hydrants and Services

The monthly charge for a private fire hydrant or pipe increases from $26.75 in the West Zone and $13.60 in the East Zone to $35.48 applicable in both zones beginning July 1, 2022.

Figure 4
Inactive ¾" Meter Account Projected Monthly Bill



Nonresidential

It is difficult to show the impacts to nonresidential because every property will have a different impact depending on water meter size, wastewater strength, and location (East or West zone).

Figure 5 shows a few examples of bill impacts to randomly selected utility account holders in the first year of the rate structure changes (beginning July 1, 2022) in the West Zone. Nonresidential customers that will experience the greatest impact are those that have little irrigation. Currently, the inclusion of irrigation water in the rate structure dilutes the sewer bills by making the cost per 1,000 gallons lower. Under the new structure, which is much better tied to cost of service, customers who are irrigating will only be paying for irrigation water in their water bill.

Figure 6 shows a few examples of bill impacts to randomly selected utility account holders in the first year of the rate structure changes (beginning July 1, 2022) in the East Zone. Nonresidential customers that will experience the greatest impact are those that use a lot of water, because the current rate structure does not account for flow or strength of wastewater generation.

Figure 5
Impact to Average Monthly Bill for Nonresidential – West Zone

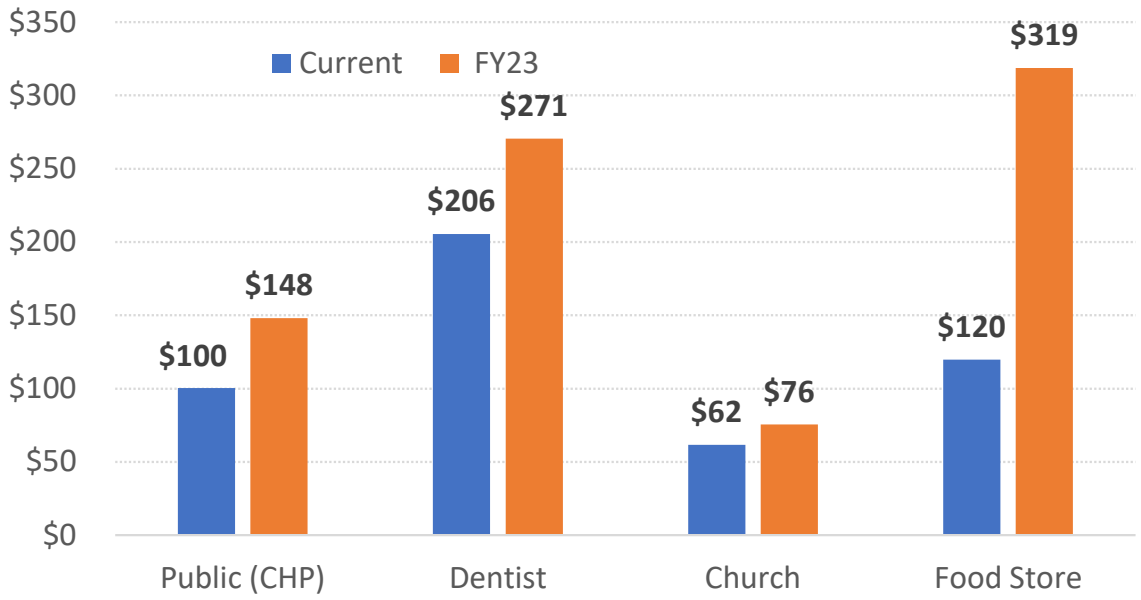
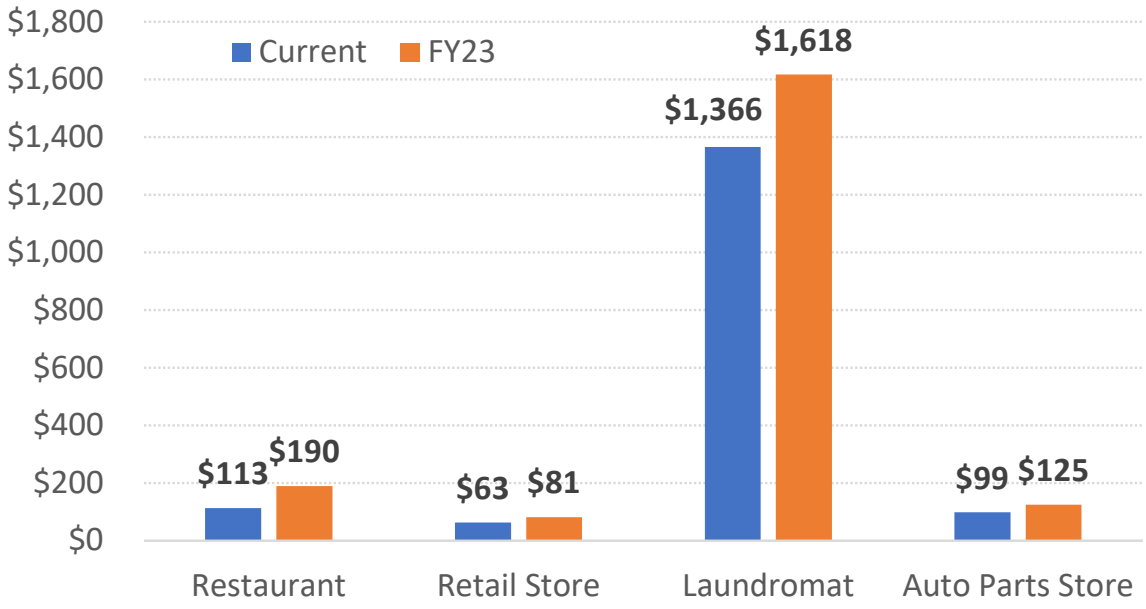


Figure 6
Impact to Average Monthly Bill for Nonresidential – East Zone



New Customers Impacts. Table 5 presents the calculated updated capacity fees a per plumbing fixture unit for water and per drainage fixture unit for wastewater. Under the new fee schedule the fees will be the same regardless of the new service location for water. For wastewater, there is a difference in the collection fee component of the capacity fee because of the infrastructure that was financed in each zone.

It is recommended that AVCSD include an automatic inflator that is applied to the capacity fees in the ordinance or resolution adopting the revised fee schedules. The fees are based on cost estimates of capital facilities in fiscal year 2021-2022. Automatic inflators (such as the Engineering News Record or Western Region Consumer Price Index) help keep fees from falling behind as goods and services become more expensive.

Table 5
Current and Calculated Updated Capacity Fees

	Fee per Fixture Unit	
Capacity Fee	Current	1-Jul-22
	WEST	
Water	**$149.14**	**$208.66**
Wastewater		
Collection	$121.54	$202.03
Treatment	$85.07	$51.60
Total Wastewater	**$206.61**	**$253.62**
Total	**$355.75**	**$462.29**
	EAST	
Water	**$156.06**	**$208.66**
Wastewater		
Collection	$73.63	$149.94
Treatment	$85.07	$51.60
Total Wastewater	**$158.70**	**$201.54**
Total	**$314.76**	**$410.20**

Source: AVCSD and HEC 2021 rate study. cap sum

Section 2: CUSTOMER BASE, FINANCIAL HEALTH AND CAPITAL PROJECTS

2.1 CUSTOMER BASE

The District serves the communities of Quincy and East Quincy, the largest concentration of population in Plumas County, although the area is not incorporated. **Table 6** below shows the estimated historical change in population and housing units in AVCSD's service territory. According to the U.S. Census, the total population of the area has decreased since 2010. The California Department of Finance projects the population decrease to continue. Based on these estimates the rate model holds the current number of customers and water demand (and wastewater generation) constant for the next seven years.

Table 6
Historical Population and Housing Units Change

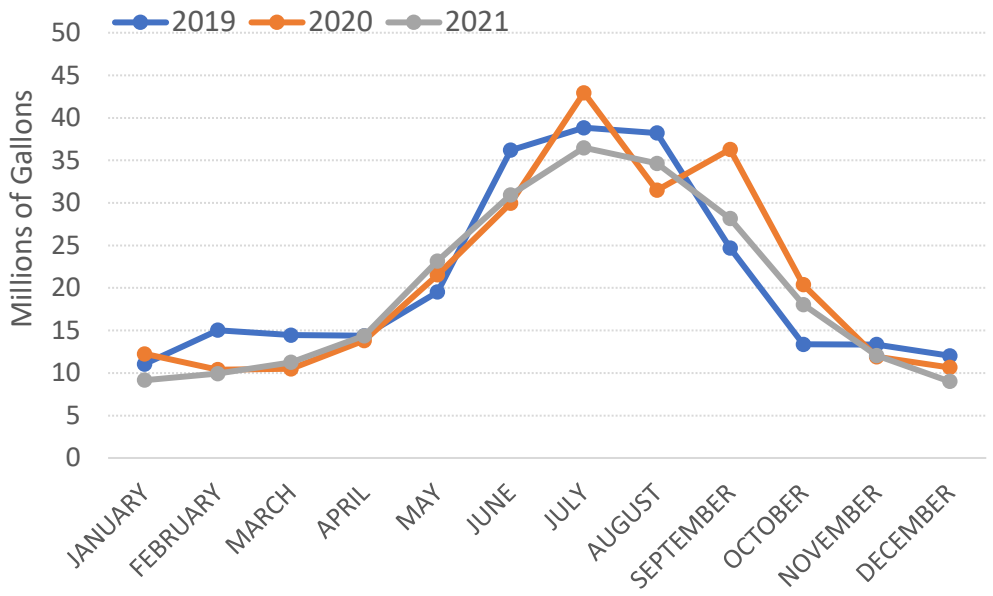
	Population			Housing Units		
Year	**Quincy**	**East Quincy**	**Total**	**Quincy**	**East Quincy**	**Total**
2010	1,529	2,706	**4,235**	872	1,400	2,272
2011	1,376	2,847	**4,223**	780	1,350	2,130
2012	1,385	2,687	**4,072**	780	1,278	2,058
2013	1,442	2,560	**4,002**	821	1,258	2,079
2014	1,439	2,633	**4,072**	795	1,180	1,975
2015	1,543	2,827	**4,370**	826	1,250	2,076
2016	1,582	2,749	**4,331**	815	1,220	2,035
2017	1,936	2,494	**4,430**	876	1,168	2,044
2018	1,895	2,622	**4,517**	843	1,152	1,995
2019	1,952	2,210	**4,162**	921	1,063	1,984
Change	**423**	**-496**	**-73**	**49**	**-337**	**-288**

Source: US Census 5-year ACS estimates. stats

AVCSD provides water and wastewater services but not all customers have both services. Some wastewater customers have their own source of water supply. All District water customers are metered. Nonresidential comprises 12% of water accounts but uses 21% of water consumed annually. Residential comprises 88% of water accounts but uses 79% of water consumed annually. As noted above, projected water demand is not anticipated to change for purposes of the Study as shown in **Appendix A Table A-1**.

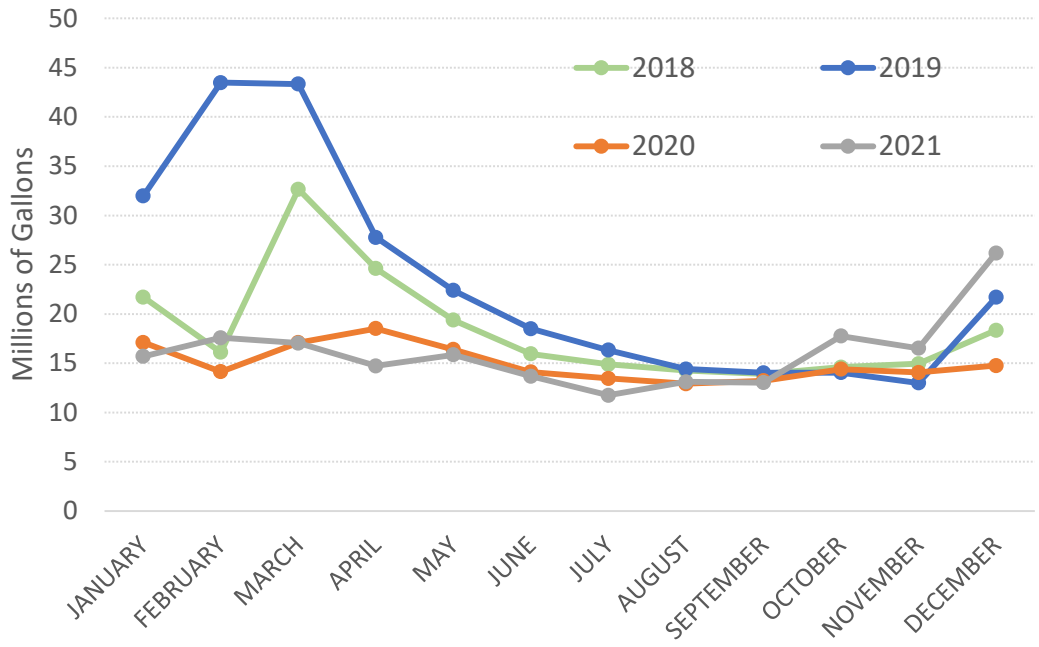
Water production fluctuates through the seasons to meet customer demands. Historical water production by zone is provided in **Appendix A Table A-2**. **Figure 7** shows monthly water production over the last three calendar years. About 58% of water production satisfies a base demand, as measured by consumption during the winter months November through March, and 42% of water production satisfies the additional water demands May through October.

Figure 7
Water Production (2019-2021)



Wastewater generation is about 0.42 million gallons per day dry weather flow. **Figure 8** shows monthly wastewater flow into the wastewater treatment plant for the past four calendar years. Flow is directly influenced by weather events; during the winter months heavy rainfall affects plant operations. Source data is included in **Appendix Table A-3**.

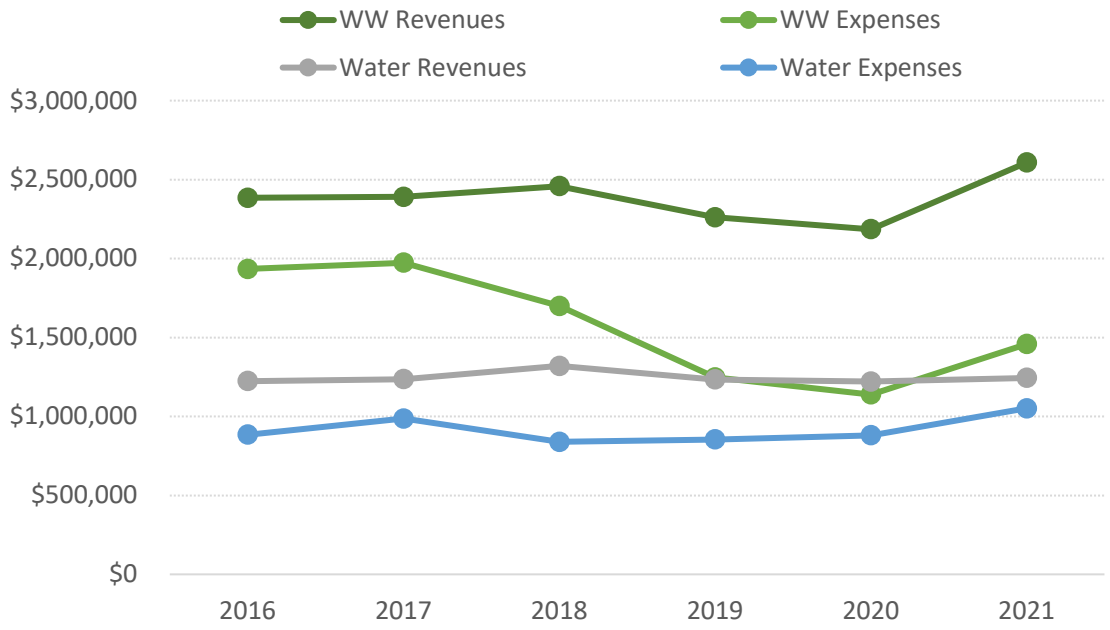
Figure 8
Historical Wastewater Flow



2.2 Financial Health

The District is currently in a healthy financial position. Consolidated financial statements are available for AVCSD since fiscal year 2019; prior to this year the financials were separate for the two service providers, Quincy Community Services District and East Quincy Services District. Revenues exceeded expenses in all the past three fiscal years, and a reserve has been maintained for emergencies and planned repairs as well as facility additions to the water and wastewater systems. **Figure 9** shows revenues and expenses for the water and wastewater funds since fiscal year 2016. Note that the wastewater treatment plant replacement project revenues and expenses are excluded from the graph.

Figure 9
Historical Revenues and Expenses by Fund



Consolidated data for both utility systems is presented in **Appendix Table A-5** since fiscal year 2016. Detailed water and wastewater revenues and expenses data for AVCSD since fiscal year 2019 is provided in **Appendix Table A-4**.

Sources of water and wastewater revenues are illustrated in **Figures 10** and **11** respectively. About 82% of water revenues are generated by service charges (rates), 10% by property taxes, and the remaining revenues are from new connection/capacity fees, administrative fees and other sources.

In a typical year about 85% of wastewater revenues are generated by service charges (rates), 6% by assessments that are used strictly to pay for East Zone collection system debt service, 5% by property taxes, and the remaining revenues are from new connection/capacity fees, administrative fees, and other sources.

Figure 10
Historical Water Revenues

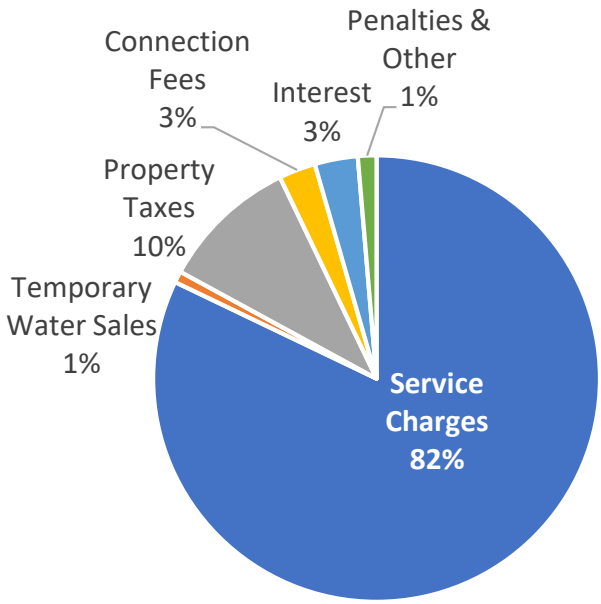
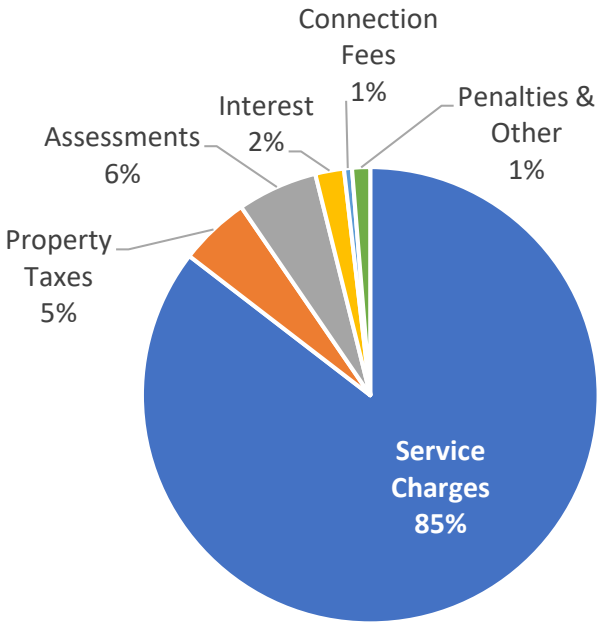


Figure 11
Historical Wastewater Revenues



Current Rate Structures. The current water rates are presented in **Table 7**.

Table 7
Current Monthly Water Rates

Charge	East Zone	West Zone
	per month	per month
Minimum Charge, per Meter	$13.60	$13.60
Service Charge	**per month**	**per month**
5/8"	$14.97	$26.75
3/4"	$16.47	$38.88
1"	$20.87	$63.15
1.5"	$26.87	$123.80
2"	$43.29	$196.58
3"	$164.02	$366.43
4"	$208.74	$609.06
Hydrant	$13.60	$26.75
Plus Monthly Charge by Customer Type:		
Single Family Residential	$11.49	
Multi-Family Residential	$9.57	
Small Commercial	$5.74	
Large Commercial [1]	$11.49	

	Tier 1	Tier 2	Tier 1	Tier 2	Tier 3	Tier 4
Use Charge	**per 1,000 gallons**			**per 1,000 gallons**		
Single Family Residential	$0.00	$1.92	$1.58	$1.99	$2.35	$2.72
Allowance per unit	*6,000*	*6,001+*	*4,000*	*next 4,000*	*next 4,000*	*12,001+*
Multi-Family Residential	$0.00	$1.92	$1.58	$1.99	$2.35	$2.72
Allowance per unit	*5,000*	*5,001+*	*4,000*	*next 4,000*	*next 4,000*	*12,001+*
Small Commercial	$0.00	$1.92				
Allowance per meter	*3,000*	*3,001+*				
Large Commercial [1]	$0.00	$1.92				
Allowance per meter	*6,000*	*6,001+*				
Commercial No Irrigation			$1.58	$1.99		
Allowance per meter			*4,000*	*4,001+*		
Commercial with Irrigation			$1.58	$1.99	$2.35	$2.72
Allowance per meter			*4,000*	*next 4,000*	*next 4,000*	*12,001+*

Source: American Valley CSD. curr

[1] Charge also applies to extraordinary flow.

Currently, the rates are different by zone. The East Zone includes a base allowance for every customer type and a monthly customer charge. The West Zone does not have a base allowance and does not include a monthly customer charge. The West Zone has four water usage tiers with rates increasing at higher amounts of water use, whereas the East Zone has one uniform rate applied to all water use above the base allowance. Both zones include a fixed monthly charge based on water meter size.

The current wastewater rates are presented in **Table 8**.

Table 8
Current Monthly Wastewater Rates

Customer	**East Zone**			**West Zone**		
Minimum Charge	$39.11	per account, per month				
	per unit per month			**per unit per month**		
Residential	**total**	treatment	collection	**total**	treatment	collection
Single Family	$82.52	$51.69	$30.83	$76.34	$51.69	$24.65
Multi Family	$64.79	$46.87	$17.92	$69.04	$46.87	$22.17
Non-Residential	**per account**					
Small Commercial	$41.91					
Large Commercial	$82.52					
--Monthly minimum	$41.91					
Base by Meter Size				**per month**	**per month**	
5/8"				$14.22		
3/4"				$18.17		
1"				$28.08		
1.5"				$54.02		
2"				$83.87		
3"				$153.59		
4"				$253.07		
plus per DUE charge					$51.69	
Use Charge (Non-Residential)				**[1]**		
Low Strength User				$0.88	per 1,000 gallons	
Medium Strength User				$1.08	per 1,000 gallons	
High Strength User				$1.60	per 1,000 gallons	
Schools				$0.81	per 1,000 gallons	

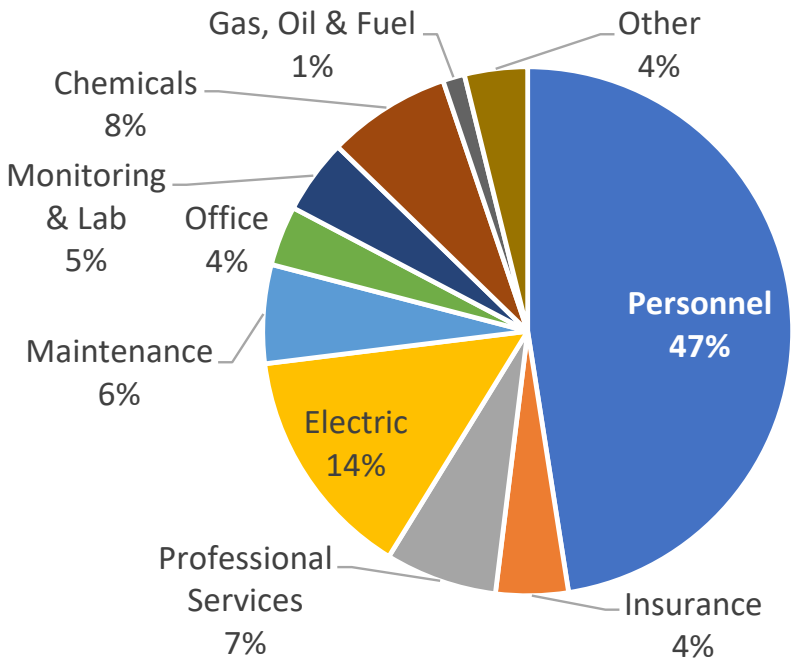
Source: American Valley CSD. curr rates

[1] Commercial and public (governmental) accounts with irrigation are adjusted, upon application, if there is 1,000 square feet or more of irrigated lawn and landscape.

Nonresidential users will experience the greatest difference in wastewater service charges between the zones. In the East Zone, nonresidential customers are classified as either small commercial or large commercial and pay a flat monthly fee for service. In the West Zone, nonresidential customers are classified by wastewater strength (low, medium, high, and schools). The nonresidential customers are charged a rate per 1,000 gallons for water use every month according to wastewater strength. Customers may apply for an adjustment if their property has 1,000 square feet or more of irrigated lawn and landscape. In addition, West Zone nonresidential customers pay a fixed monthly wastewater fee based water meter size.

Fiscal Year 2022 Budget. The fiscal year 2022 budget forms the basis of projected expenses for the next seven years in the financial model. Operating expenses include personnel costs (salaries, wages, and benefits), power, chemicals, routine maintenance of infrastructure, office supplies, vehicle costs, and other miscellaneous costs. **Tables A-6** and **A-7** in **Appendix A** show the District's water and wastewater budgets for fiscal year 2022. Combined, the largest cost category is for personnel, which make up about one-half of all operating costs as shown in **Figure 12** below.

Figure 12
Budgeted FY2022 Operating Expenses



2.3 Capital Projects and Debt

The District has several key projects that need to be completed in the next five-to-ten years. **Table 9** shows that water projects are estimated to cost $4.97 million, and wastewater projects $1.80 million, excluding the new wastewater treatment plant, for a total CIP estimated cost of $6.78 million in current dollars. Identified funding sources for the CIP include grants and cash reserves. No

new debt, other than debt fore the new wastewater treatment plant, is anticipated within the Study period.

Water system key projects include the intertie and new tank. A potential new program to inspect, maintain and repair the wastewater collection pipes is included at a total cost of $1.50 million ($250,000 per year). This is a good practice typically included in a Sanitary Sewer Master Plan (SSMP) and it is projected that there would be sufficient revenue to support such a program.

The cost estimates have been inflated for rate study purposes at 4.5% per year. The cost estimates in future dollars total $8.25 million for both utilities. Details supporting the capital improvement projects for each utility is provided in **Appendix A Tables A-8** through **A-11**.

Table 9
Estimated CIP Items and Costs

Utility	Current $	Inflated $
Water		
New Tank	$2,000,000	$2,492,400
Full Intertie	$1,500,000	$1,953,400
RTU Tank Upgrade	$53,000	$56,800
Water Meter Replacement & Upgrade	$570,200	$622,900
Mapping	$12,000	$12,600
Tank Siting	$9,200	$10,100
Water Planning Project	$500,000	$522,500
Generator Project	$330,000	$345,000
Total Water	**$4,974,400**	**$6,015,700**
Wastewater Collection		
Mapping project CAD-GPS-GIS (1/3)	$12,000	$12,540
Lift Station Generators	$220,000	$229,900
Routine Inspect, Repair [1]	$1,500,000	$1,916,272
TV Sewer Lines	$70,000	$76,400
Total Wastewater Collection	**$1,802,000**	**$2,235,112**
Total Water and Wastewater [1]	**$6,776,400**	**$8,250,812**
--- Grant Funded	$798,000	$604,100
--- Reserve Funded	$5,978,400	$7,646,712

Source: AVCSD CIP and HEC 2021 rate study. tot cip

[1] Not adopted by the AVCSD Board; this includes potential spending on a new routine inspect, maintain and repair program.

[2] Excludes the wastewater treatment plant.

The District is currently completing a replacement of its wastewater treatment plant. **Table 10** shows the total estimated project cost and funding sources. Of the estimated $43.70 million project

cost, $21.13 million is grant-funded by State and Federal agencies. The remaining cost will be paid through a USDA loan and District reserves. The estimated debt service schedule for the USDA loan is provided in **Appendix A Table A-12**.

Table 10
Estimated Wastewater Treatment Plant Replacement Cost and Funding Sources

Funding Items	Estimated Cost	Funding Sources
Construction		
Meyers Bid	$36,800,000	CWSRF / USDA
Sierra Controls	$291,991	CWSRF / USDA
Total Construction	**$37,091,991**	
Soft Costs		
Bond Counsel	$60,000	USDA / District
Planning Costs	$399,062	USDA / District
Design	$3,077,356	USDA / District
Construction Management	$2,129,820	USDA / District
Interim Financing	$300,000	USDA / District
Contingency	$638,484	USDA / District
Total Soft Costs	**$6,604,722**	
Total Project Costs	**$43,696,713**	
	Funding	
Grants		
Grant-Funded (USDA)	$7,981,936	
Grant-Funded (CWSRF)	$13,150,936	
Total Grants	**$21,132,872**	
Total District Cash	$1,995,841	
Total USDA Loans	$20,568,000	
Total Funding	**$43,696,713**	

Source: AVCSD. plant proj

Other Debt. The water system does not have any debt. The wastewater system has two loans outstanding, one in each zone.

The West Zone obtained a loan from the USDA in 2012 to improve its collection system; $2,633,000 principal remains outstanding. The loan will be repaid fully in 2052. The remaining repayment schedule is provided in **Table A-13**. The West Zone debt service is paid for with rates from the West Zone customers.

The East Zone sold assessment district improvement bonds in 1993; there is $1,357,500 outstanding principal and these bonds will be repaid fully in 2035. The remaining repayment schedule is provided in **Table A-14**. The East Zone debt service is paid for with assessments from the East Zone

customers; however, the assessments do not fully cover the debt service. About $11,600 per year must be paid in rates by East Zone customers to keep the repayment paid for solely by that zone.

2.4 SYSTEMS ASSETS AND DEPRECIATION

In addition to accounting for the District's operating expenses, capital project costs and debt, utility rates should collect for future costs to rehabilitate existing assets. Depreciation is used as the basis for which to collect rates for system rehabilitation costs. Inclusion of system rehabilitation costs demonstrates fiscal responsibility toward the assets to potential future investors and helps to establish good credit[2].

Table 11 shows the total amount of depreciation included in the rate model for system rehabilitation. The rate study includes 100% of annual depreciation in the rates for the water system and 0% of annual depreciation in the rates for the wastewater system. This difference is explained in Sections 3 and 4 of the Study. The revenue collected may be used for capital improvement projects as they arise; and, until they do, they will remain as District cash on hand (reserves). **Table A-15** shows the depreciation for water and wastewater assets included in the District's annual audited financial records. **Table A-16** in **Appendix A** shows the estimated additional depreciation that would be added upon completion of the new facilities listed in the CIP.

Table 11
System Rehabilitation Costs in Rates

Item		2023 Year 1	2024 Year 2	2025 Year 3	2026 Year 4	2027 Year 5	2028 Year 6	2029 Year 7
WATER								
Existing - West		$290,271	$290,271	$282,479	$274,727	$264,807	$264,567	$257,454
Existing - East		$72,452	$72,452	$66,725	$56,447	$56,447	$52,357	$50,225
New Assets		$97,167	$111,947	$111,947	$111,947	$111,947	$42,947	$42,947
Total Estimated Depreciation		**$459,890**	**$474,670**	**$461,151**	**$443,121**	**$433,201**	**$359,870**	**$350,627**
Average Annual Depreciation		$426,076	$426,076	$426,076	$426,076	$426,076	$426,076	$426,076
Annual Inflation of Depreciation	4.5%	**$426,076**	**$445,249**	**$465,285**	**$486,223**	**$508,103**	**$530,968**	**$554,861**
Percentage Inclusion in Rates		100%	100%	100%	100%	100%	100%	100%
Collection for System Rehabilitation		**$426,076**	**$445,249**	**$465,285**	**$486,223**	**$508,103**	**$530,968**	**$554,861**
WASTEWATER								
Existing - West Collection		$258,384	$258,384	$250,680	$245,266	$233,713	$233,538	$233,538
Existing - East Collection		$183,222	$183,222	$181,417	$181,417	$181,417	$181,417	$181,417
Existing - Treatment Plant		$222,761	$222,761	$179,119	$110,109	$107,394	$107,394	$107,363
New Assets - Collection		$22,000	$22,000	$22,000	$22,000	$22,000	$22,000	$22,000
New Assets - Treatment Plant		$728,279	$728,279	$728,279	$728,279	$728,279	$728,279	$728,279
Total Estimated Depreciation		**$1,414,645**	**$1,414,645**	**$1,361,495**	**$1,287,070**	**$1,272,804**	**$1,272,629**	**$1,272,598**
Average Annual Depreciation		$1,327,984	$1,327,984	$1,327,984	$1,327,984	$1,327,984	$1,327,984	$1,327,984
Annual Inflation of Depreciation	4.5%	**$1,327,984**	**$1,387,743**	**$1,450,191**	**$1,515,450**	**$1,583,645**	**$1,654,909**	**$1,729,380**
Percentage Inclusion in Rates		0%	0%	0%	0%	0%	0%	0%
Collection for System Rehabilitation		**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Source: AVCSD depreciation schedules and HEC rate study 2021. tot depr

[2] Per Governmental Accounting Standards Board (GASB) 34, local governments must report on the value of their infrastructure assets and plan for asset maintenance (including collecting sufficient revenue) to obtain good credit when issuing bonds or procuring other forms of financing for long-term construction projects.

Section 3: Water Fee Calculations

3.1 Water Revenue Requirement

According to the AWWA M1 Manual, the first step in the ratemaking analysis is to determine the adequate and appropriate funding of a utility. This is referred to as the "revenue requirement" analysis. This analysis considers the short- and long-term service objectives of the utility over a planning horizon, including capital facilities and system operations and maintenance, to determine the adequacy of a utility's existing rates to recover its costs. Specifically, the revenue requirement refers to the amount of money that must be raised for revenue sufficiency of the water fund through rates. The projection of revenue requirement is the cornerstone for rate calculation. This section explains the derivation of the water system revenue requirement. Revenue requirements include:

- Operating Expenses
- System Rehabilitation

Figure 13 shows the components of the projected water system revenue requirement over the next seven years. Budgeted fiscal year 2022 rate revenue is shown in the figure. The District currently covers all operating costs and collects for system rehabilitation. Without a rate increase, the amount available for system rehabilitation would erode, and by fiscal year 2028, it is projected that the District would no longer be able to cover operating costs.

Figure 13
Components of Water Revenue Requirement

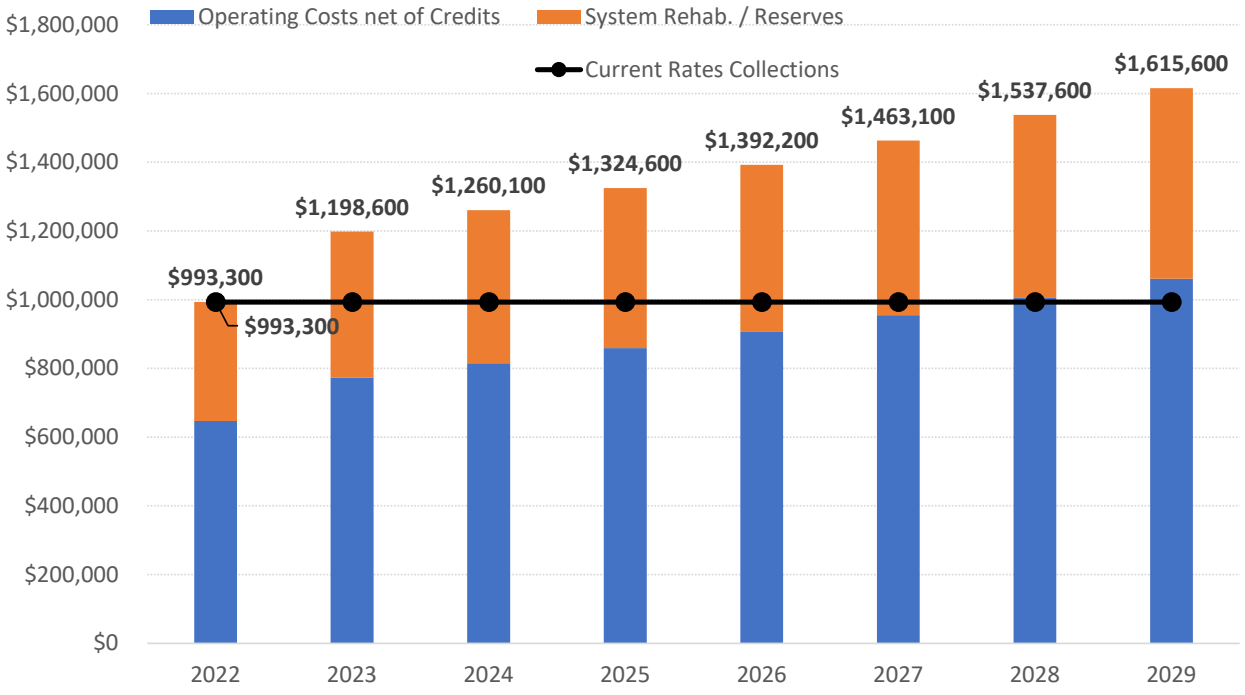


Table 12 shows the calculation of revenue requirement by line item. Operating expenses are increased from the fiscal year 2022 budget based on historical annual percentage increases for each cost category and interviews with staff regarding future operations. Due to an anticipated change in personnel costs in the first year of the study (fiscal year 2023), operating costs are projected to increase by almost 15% in year one, and just shy of 5% each year thereafter.

Currently, the District is funding about 95% of annual water system depreciation. The rate analysis includes 100% of estimated annual depreciation to fund system rehabilitation costs, continuing the District's best practice.

Credited against the described costs are non-operating credits; namely, property taxes, interest income, connection fees, penalties, the Quincy High School irrigation revenues, and administrative fees. The total water system revenue requirement is projected to increase from $993,300 in fiscal year 2022 to $1,615,500 in fiscal year 2029.

Table 12
Projected Water Revenue Requirement

Revenues and Expenses	Inflator	2022 Budget	Fiscal Year Ending 2023 Year 1	2024 Year 2	2025 Year 3	2026 Year 4	2027 Year 5	2028 Year 6	2029 Year 7
Operating Expenses									
Personnel	5.5%	$408,855	$431,341	$455,065	$480,094	$506,499	$534,356	$563,746	$594,752
New Office Staff	5.5%		$90,000	$94,950	$100,172	$105,682	$111,494	$117,626	$124,096
Insurance	4.0%	$41,200	$42,848	$44,562	$46,344	$48,198	$50,126	$52,131	$54,216
Professional Services	3.0%	$71,014	$73,144	$75,339	$77,599	$79,927	$82,325	$84,794	$87,338
Electric	3.5%	$127,800	$132,273	$136,903	$141,694	$146,653	$151,786	$157,099	$162,597
Maintenance	4.5%	$90,000	$94,050	$98,282	$102,705	$107,327	$112,156	$117,203	$122,478
Office	3.0%	$39,140	$40,314	$41,524	$42,769	$44,052	$45,374	$46,735	$48,137
Monitoring & Lab	2.5%	$11,000	$11,275	$11,557	$11,846	$12,142	$12,445	$12,757	$13,076
Gas, Oil & Fuel	3.5%	$13,240	$13,703	$14,183	$14,679	$15,193	$15,725	$16,275	$16,845
Other	3.5%	$67,740	$70,111	$72,565	$75,105	$77,733	$80,454	$83,270	$86,184
Total Operating Expenses		**$869,989**	**$999,060**	**$1,044,929**	**$1,093,008**	**$1,143,407**	**$1,196,242**	**$1,251,637**	**$1,309,719**
System Rehabilitation	4.5%	$346,410	$426,076	$445,249	$465,285	$486,223	$508,103	$530,968	$554,861
TOTAL COSTS		**$1,216,399**	**$1,425,136**	**$1,490,178**	**$1,558,293**	**$1,629,630**	**$1,704,346**	**$1,782,605**	**$1,864,581**
Credits									
Property Taxes	2.0%	$135,960	$138,679	$141,453	$144,282	$147,167	$150,111	$153,113	$156,175
Interest		$41,200	$41,200	$41,200	$41,200	$41,200	$41,200	$41,200	$41,200
Connection Fees	2.0%	$10,300	$10,506	$10,716	$10,930	$11,149	$11,372	$11,599	$11,831
Penalties	2.0%	$11,330	$11,557	$11,788	$12,023	$12,264	$12,509	$12,759	$13,015
Backflow Testing	2.0%	$6,695	$6,829	$6,965	$7,105	$7,247	$7,392	$7,540	$7,690
Quincy High School Irrigation	2.0%	$8,500	$8,670	$8,843	$9,020	$9,201	$9,385	$9,572	$9,764
Set Up Fees	2.0%	$1,648	$1,681	$1,715	$1,749	$1,784	$1,820	$1,856	$1,893
Other		$7,465	$7,465	$7,465	$7,465	$7,465	$7,465	$7,465	$7,465
Subtotal Credits		**$223,098**	**$226,587**	**$230,145**	**$233,775**	**$237,477**	**$241,253**	**$245,105**	**$249,034**
Total Revenue Requirement		**$993,301**	**$1,198,549**	**$1,260,033**	**$1,324,518**	**$1,392,153**	**$1,463,092**	**$1,537,500**	**$1,615,547**
Current		$993,300	$993,300	$993,300	$993,300	$993,300	$993,300	$993,300	$993,300
Increase			**$205,249**	**$266,733**	**$331,218**	**$398,853**	**$469,792**	**$544,200**	**$622,247**

Source: American Valley CSD and HEC. rev req

3.2 COST CLASSIFICATION AND ALLOCATION

After determining a utility's revenue requirements, a utility's next step is determining the cost of service. Utilizing a public agency's approved budget, financial reports, operating data, and capital improvement plans, the rate study categorizes (functionalizes) the assets and costs of the water system among major operating functions to determine the cost of service. Functional cost allocation for the water system is provided in **Appendix B Table B-1**.

Actual fiscal year 2021 water fund expenditures were allocated to the different functions of water service based on one of four methodologies described below.

1. **Plant in Service.** Plant in service allocation is shown in **Table B-2**. Plant in service costs include the original cost of current water system assets. Total cost is allocated 13% to customers, 81% to capacity, and 6% to commodity costs.

2. **Utilities.** Utilities costs (electricity) are allocated 100% to use. Electricity costs are driven by water demand.

3. **Customers.** Costs such as most administrative staff costs, water membership/dues, printing and postage are allocated 100% to customer costs. These costs are not affected by the amount of capacity available, or the quantity of water delivered.

4. **Average of Classified Costs.** Some expenses are allocated to multiple functions of water service because they do not directly relate to customer functions, water system capacity, or water deliveries quantity. These expenses are allocated among the customer, capacity, and commodity functions based on the combined percentage allocation of all other classified costs.

The cost classification provides a *guideline* for the District in determining the portion of revenue requirement to collect through customer and service charges versus usage charges. Customer and service charges are fixed as they remain the same each month. Usage charges are variable because they depend on the quantity of water consumed.

Fixed Costs. Fixed costs generally consist of costs that a utility incurs to serve customers irrespective of the amount or rate of water used.[3] These typically include (1) customer-related costs such as administrative and billing costs associated with meter reading, postage, and billing, and (2) the infrastructure (capacity-related facilities) required to provide service to customers, also referred to as the "readiness-to-service capacity".

Customer costs are allocated to customers based on the number of water accounts. Capacity costs are allocated to customers based on the number of equivalent meter units, determined by the relative hydraulic capacity of the meter size relative to a one-inch water meter.

[3] M1 Manual, pp. 137-138.

Variable Costs. Variable costs are those that change in total as the volume of water consumption changes, as measured in a specific time period or that are incurred to provide capacity during peak demand periods. These include well pumping and distribution electricity costs, and costs related to plant in service, the largest of which is maintenance costs; as well as other costs determined in the functional allocation. Variable costs are recovered through use charges applied per thousand gallons consumed.

For AVCSD, fixed costs are about 75% of the functional allocation, and 25% of costs are variable. **Table 13** shows allocation of the revenue requirement between fixed charges (customer and service charges), and variable charges (use charges).

Table 13
Water Revenue Requirement Allocation

Costs		Fiscal Year Ending 2023	2024	2025	2026	2027	2028	2029
Revenue Requirement		**$1,198,549**	**$1,260,033**	**$1,324,518**	**$1,392,153**	**$1,463,092**	**$1,537,500**	**$1,615,547**
FIXED CHARGES								
Customer Allocation	[1]	25%	25%	25%	25%	25%	25%	25%
Customer Fixed Charges Share		**$301,643**	**$317,117**	**$333,346**	**$350,368**	**$368,222**	**$386,948**	**$406,590**
Readiness-to-Serve Allocation	[1]	50%	50%	50%	50%	50%	50%	50%
Readiness-to-Serve Fixed Charges Share		**$598,871**	**$629,592**	**$661,813**	**$695,608**	**$731,054**	**$768,233**	**$807,230**
TOTAL Fixed Charges		**$900,514**	**$946,709**	**$995,159**	**$1,045,976**	**$1,099,275**	**$1,155,181**	**$1,213,820**
USE CHARGES								
Capacity Peaking Allocation	[1]	14%	14%	14%	14%	14%	14%	14%
Capacity Peaking Use Share		**$168,960**	**$177,627**	**$186,718**	**$196,252**	**$206,252**	**$216,742**	**$227,744**
Commodity Allocation	[1]	11%	11%	11%	11%	11%	11%	11%
Commodity Use Share		**$129,075**	**$135,697**	**$142,641**	**$149,925**	**$157,565**	**$165,578**	**$173,983**
TOTAL Use Charges		**$298,035**	**$313,324**	**$329,359**	**$346,177**	**$363,817**	**$382,320**	**$401,727**

Source: HEC 2021 rate study. cost alloc

[1] Percentages rounded to nearest 1%.

3.3 WATER RATE CALCULATIONS

Fixed Charges (Active and Inactive Accounts)

Fixed charges include two components:

1. Customer charge
2. Service charge

Calculations for both charges are shown in **Table 14**. The customer charge is calculated as customer costs divided by the number of accounts. The service charge is calculated as the readiness-to-serve capacity costs divided by the number of equivalent meter units. Meter size is an indicator of potential capacity or demand requirement that each customer places on the water system. The

ratio at which the meter charge increases is a function of the meter's safe operating capacity as established by the AWWA. These meter ratios are used because a significant portion of a water system's design, and in turn, the utility's operating and capital costs, are related to meeting capacity needs.

For example, a 5/8" meter has a maximum flow rate of 20 gpm and a one-inch meter has a maximum flow rate of 100 gpm. The flow rate of a one-inch meter is 2.5 times that of a 5/8" meter therefore the ratio for a one-inch meter is 2.5. **Appendix B Table B-3** shows the total number of accounts and water meters used in the derivation of equivalent meter units for AVCSD shown in **Table 15**.

Table 14
Fixed Charges (Active and Inactive Accounts) Calculation

		Fiscal Year						
Item		**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**
CUSTOMER CHARGE								
Allocated Costs		$301,643	$317,117	$333,346	$350,368	$368,222	$386,948	$406,590
Number of Accounts		1,603	1,603	1,603	1,603	1,603	1,603	1,603
Cost per Account		**$188**	**$198**	**$208**	**$219**	**$230**	**$241**	**$254**
Monthly Customer Charge		**$15.68**	**$16.49**	**$17.33**	**$18.21**	**$19.14**	**$20.12**	**$21.14**
READINESS-TO-SERVE CHARGE								
Allocated Costs		$598,871	$629,592	$661,813	$695,608	$731,054	$768,233	$807,230
Est. Billable Meter Equivalents		2,520	2,520	2,520	2,520	2,520	2,520	2,520
Meter Size	**Meter Ratio**		per month			per month		
5/8"	**1.00**	**$19.80**	**$20.82**	**$21.89**	**$23.00**	**$24.18**	**$25.40**	**$26.69**
3/4"	1.50	$29.70	$31.23	$32.84	$34.50	$36.27	$38.10	$40.04
1"	2.50	$49.50	$52.05	$54.73	$57.50	$60.45	$63.50	$66.73
1.5"	5.00	$99.00	$104.10	$109.45	$115.00	$120.90	$127.00	$133.45
2"	8.00	$158.40	$166.56	$175.12	$184.00	$193.44	$203.20	$213.52
3"	17.50	$346.50	$364.35	$383.08	$402.50	$423.15	$444.50	$467.08
4"	30.00	$594.00	$624.60	$656.70	$690.00	$725.40	$762.00	$800.70
6"	62.50	$1,237.50	$1,301.25	$1,368.13	$1,437.50	$1,511.25	$1,587.50	$1,668.13
8"	120.00	$2,376.00	$2,498.40	$2,626.80	$2,760.00	$2,901.60	$3,048.00	$3,202.80

Source: AWWA Manual M6 Water Meters - Fifth Edition, November 2018, AVCSD, and HEC. charge

Table 15
Estimated Equivalent Meter Units

Meter Size	Number of Billing Meters	Meter Flow (gpm)	Ratio to 5/8" Service	Equivalent Meter Units
	[1]	[2]		
5/8"	756	20	1.00	756
3/4"	703	30	1.50	1,055
1"	82	50	2.50	205
1.5"	38	100	5.00	190
2"	23	160	8.00	184
3"	4	350	17.50	70
4"	2	600	30.00	60
6"		1,250	62.50	0
8"		2,400	120.00	0
10"		3,800	190.00	0
TOTAL	**1,608**			**2,520**

Source: American Water Works Association (AWWA), AVCSD, and HEC. m equiv

[1] There are 8 private fire protection lines included in the number of 5/8" meters.

[2] Maximum flow rates, AWWA, M6 Water Meters - Fifth Edition, pages 63-65.

Use Charges

The calculation of use charges is based on allocated cost and projected water demand, and the usage characteristics of water customers. As previously discussed in Chapter 2, projected water demand is assumed to not change over the next seven years. Water usage characteristics are shown in **Table 16** on the next page. Water usage characteristics inform the design of both the water and wastewater rate structures.

The data shows that the single family customer group uses about four times the amount of water during the peak summer months as during the winter months, while multi-family uses about three times. All customer types, except industrial, use at least twice as much water during the summer than in the winter.

Capacity peaking costs and commodity costs were allocated to customer types based on their share of maximum day use and annual water use, respectively (shown in **Appendix Tables B-4** and **B-5**). Allocating costs by customer type was discussed with the District; however, this was not pursued in the rate design due to the large number of changes being made in the rate structure. The data presented is informational and may be used in future rate models.

Table 16
Water Customers Usage Characteristics

Customer Type	Number of Meters	Number of Units	Average Month Use	Average Winter Monthly Use [1]	Avg. Winter Gallons per Day	Median Monthly Use	Winter Month Median	Summer Month Median	Summer to Winter Ratio
					Accounts recording use every month				
Residential			*per unit*		[2]	*use per unit in gallons*			
Single Unit	1,171	1,171	8,805	4,628	157	5,300	3,600	15,220	4.2
Multi-Family	128	711	6,117	3,873	131	3,948	3,114	8,325	2.7
Non-Residential			*per meter*			*use per meter, in gallons*			
Mixed Use	9	17	30,701	22,802	760	11,630	6,050	14,820	2.4
Commercial	215		9,706	7,319	244	3,100	2,200	4,700	2.1
Industrial	6		10,136	10,418	347	7,950	7,600	3,500	0.5
Public	26		39,778	15,987	533	4,750	2,800	16,500	5.9
Schools	4		31,542	13,342	445	14,750	13,350	43,400	3.3
Irrigation [2]	5		128,297					188,200	
Total	**1,564**	**1,899**							

Source: AVCSD and HEC. char

[1] January through March consumption.

[2] Irrigation figures are for the seven-month period of watering (April through October).

The rate study examined four alternatives for recouping the variable costs, as shown in **Table 17**. These include:

- **Alt. 1A (no base allowance)** – All customers pay the same per 1,000 gallons consumed.
- **Alt. 1B (no base allowance)** – All customers pay the same per 1,000 gallons consumed; however, the price is lower during the winter months and higher during the summer months to reflect the cost-of-service difference driven by electricity use in peak months.
- **Alt. 2A (Residential base allowance)** – All customers pay the same per 1,000 gallons consumed but Residential customers do not pay for the first 4,000 gallons each month.
- **Alt. 2B (Residential base allowance)** – The same as Alt. 2A but the price is lower during the winter months and higher during the summer months to reflect the cost-of-service difference driven by electricity use in peak months.

Residential Base Allowance: Extensive analysis of water usage data was conducted to determine the appropriate base allowance per month for residential users. Residential encompasses both single family and multi-family housing types. Usually, when a base allowance is provided, it is intended to cover indoor water use; winter month water use is the best proxy for indoor water use for residential customers. Median winter monthly water use for multi-family units is just over 3,000 gallons per month and the median winter monthly water use for single family units is 3,600 gallons per month. This means that more than half of residential customers are billed for water use that is lower than 4,000 gallons per month during winter months. Additionally, the average winter

monthly use per unit is 4,630 gallons for single family units and 3,870 gallons per month for multi-family units. This data points to 4,000 gallons per month as the appropriate base allowance.

During the course of a year, 40% of all water used would be included in the base allowance for residential customers at 4,000 gallons allowance per unit. **Appendix Table B-6** shows the projected water demand in the base allowance and greater than the base allowance by single-family and multi-family customer groups.

Table 17
Calculation of Use Charges per Thousand Gallons

Customer Group	Fiscal Year						
	2023	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**
Allocated Cost	**$298,035**	**$313,324**	**$329,359**	**$346,177**	**$363,817**	**$382,320**	**$401,727**
Consumption (1,000 of Gallons)	224,867	224,867	224,867	224,867	224,867	224,867	224,867
Cost per Thousand Gallons	$1.33	$1.39	$1.46	$1.54	$1.62	$1.70	$1.79
Calculated Rates	use in thousands of gallons						
Residential Use Above Allowance [1]	107,104	107,104	107,104	107,104	107,104	107,104	107,104
Non-Residential Water Use [2]	47,387	47,387	47,387	47,387	47,387	47,387	47,387
Total Billed Water Estimate	**154,491**	**154,491**	**154,491**	**154,491**	**154,491**	**154,491**	**154,491**
Water Cost per 1,000 Galls	**$1.93**	**$2.03**	**$2.13**	**$2.24**	**$2.35**	**$2.47**	**$2.60**

Source: AVCSD customer records and HEC 2021 rate study. cons

[1] Water use greater than base allowance of 4,000 gallons per residential unit per month.

[2] All water recorded through the water meter.

New Water Rate Schedule

The new water rate schedule includes the fixed monthly customer and service charges and variable use charges per thousand gallons. Tiered water rates that are currently in place in the West Zone were removed in favor of the East Zone current structure. In 2015, the San Juan Capistrano decision reaffirmed that water rates must be proportional to the costs of service received. To support a tiered rate structure, additional analysis would have to be conducted on the marginal cost of water at greater consumption levels. This is an item that may be visited in a future rate study.

The calculated water rates schedule for the next seven fiscal years is provided in **Table 18**.

Table 18
Summary of Calculated Water Rates

Charge Type	Billing Method	2023 Year 1	2024 Year 2	2025 Year 3	2026 Year 4	2027 Year 5	2028 Year 6	2029 Year 7
CUSTOMER CHARGE								
All Accounts	per account, per month	$15.68	$16.49	$17.33	$18.21	$19.14	$20.12	$21.14
SERVICE CHARGE								
5/8"	per meter, per month	$19.80	$20.82	$21.89	$23.00	$24.18	$25.40	$26.69
3/4"	per meter, per month	$29.70	$31.23	$32.84	$34.50	$36.27	$38.10	$40.04
1"	per meter, per month	$49.50	$52.05	$54.73	$57.50	$60.45	$63.50	$66.73
1.5"	per meter, per month	$99.00	$104.10	$109.45	$115.00	$120.90	$127.00	$133.45
2"	per meter, per month	$158.40	$166.56	$175.12	$184.00	$193.44	$203.20	$213.52
3"	per meter, per month	$346.50	$364.35	$383.08	$402.50	$423.15	$444.50	$467.08
4"	per meter, per month	$594.00	$624.60	$656.70	$690.00	$725.40	$762.00	$800.70
6"	per meter, per month	$1,237.50	$1,301.25	$1,368.13	$1,437.50	$1,511.25	$1,587.50	$1,668.13
8"	per meter, per month	$2,376.00	$2,498.40	$2,626.80	$2,760.00	$2,901.60	$3,048.00	$3,202.80
Inactive Property Charge	per account, per month	Customer Charge plus Service Charge @ size of meter						
Private Fire Hydrant or Pipe Charge	per service, per month	$35.48	$37.31	$39.22	$41.21	$43.32	$45.52	$47.83
USE CHARGE								
Residential								
Up to 4,000 gallons per unit, per month		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
4,001+ gallons / unit / mo	per 1,000 gallons	$1.93	$2.03	$2.13	$2.24	$2.35	$2.47	$2.60
Non-Residential								
All Non-Residential	per 1,000 gallons	$1.93	$2.03	$2.13	$2.24	$2.35	$2.47	$2.60

Source: AVCSD and HEC 2021 rate study. sum w1

In summary, the proposed rate structure is applied to customers as follows:

Active Water Accounts

4. Customer charge: A flat monthly fee billed to the account holder.
5. Service charge: A flat monthly fee billed per meter by size of meter. One account may only be charged one customer charge but more than one service charge if more than one meter or private fire service is associated with the account.
6. Water usage charge: A fee charged per thousand gallons of water recorded through each metered connection every month. Residential units will not be billed the first 4,000 gallons of use each month.

Inactive Water Accounts

3. Customer charge: A flat monthly fee billed to the account holder.
4. Service charge: A flat monthly fee billed by meter size. One account may only be charged one customer charge but more than one service charge if more than one meter or private fire service is associated with the account.

Private Fire Hydrants or Pipes Accounts

3. Customer charge: A flat monthly fee billed to the account holder.
4. Service charge: A flat monthly fee billed for a 5/8" meter.

Inactive water accounts only pay customer and service charges because they are not currently taking water from the water system. They still incur customer-related costs and costs to maintain capacity in the water system, which are recouped in the service charge.

3.4 WATER BILL IMPACT

Appendix Table B-7 provides a comparison of water bills at different annual water usage levels for a home with a ¾" water meter in the East and West Zones currently. **Figure 14** displays this information for water bills using 6,000 gallons, 15,000 gallons, 30,000 gallons and 60,000 gallons. The figure shows that water bills in the East Zone are lower than water bills in the West Zone at these usage levels currently.

Figure 14
Current Water Bills at Different Usage Levels

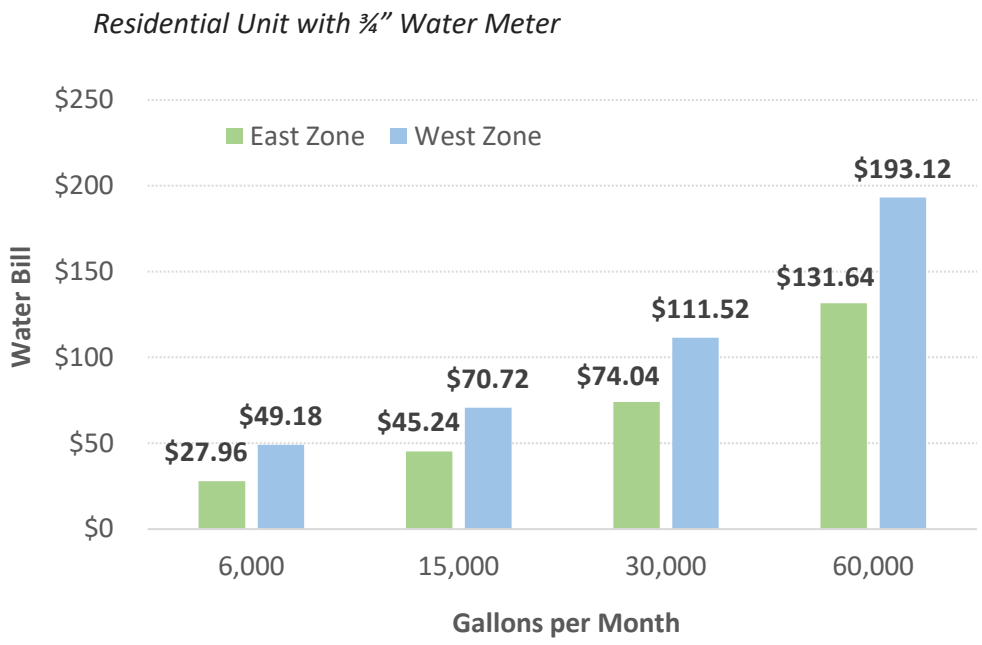


Figure 15 shows monthly water bills with the calculated rates for fiscal year 2023 with the base allowance of 4,000 gallons per unit) of a residential unit for a ¾" water meter using 6,000 gallons, 15,000 gallons, 30,000 gallons and 60,000 gallons. Water bills may be higher or lower with the new rate structure July 1, 2022 depending on which zone the customer is in and their monthly water usage.

Figure 15
Comparison of Current and FY2023 Water Bills

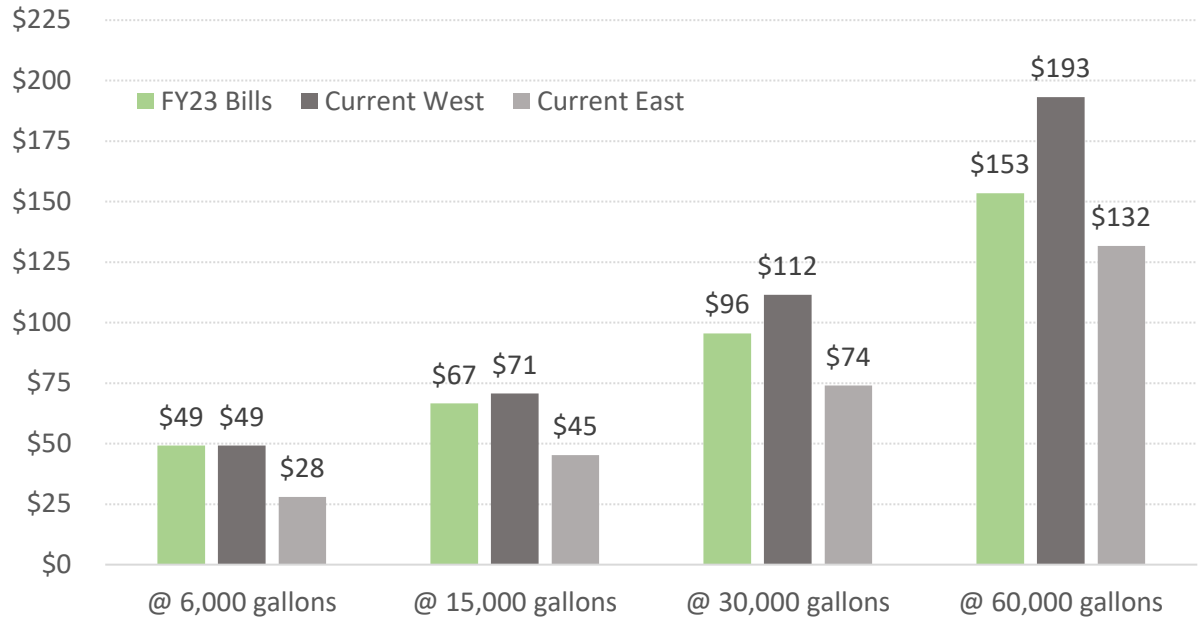


Figure 16 shows the bill impact to a home with a ¾" water meter using 6,000 gallons per month and 15,000 gallons per month. For a home in the West Zone, the water bill will stay the same at 6,000 gallons and decrease at 15,000 gallons.

Figure 16
Water Bill Impact for a Home for the Next 7 Years

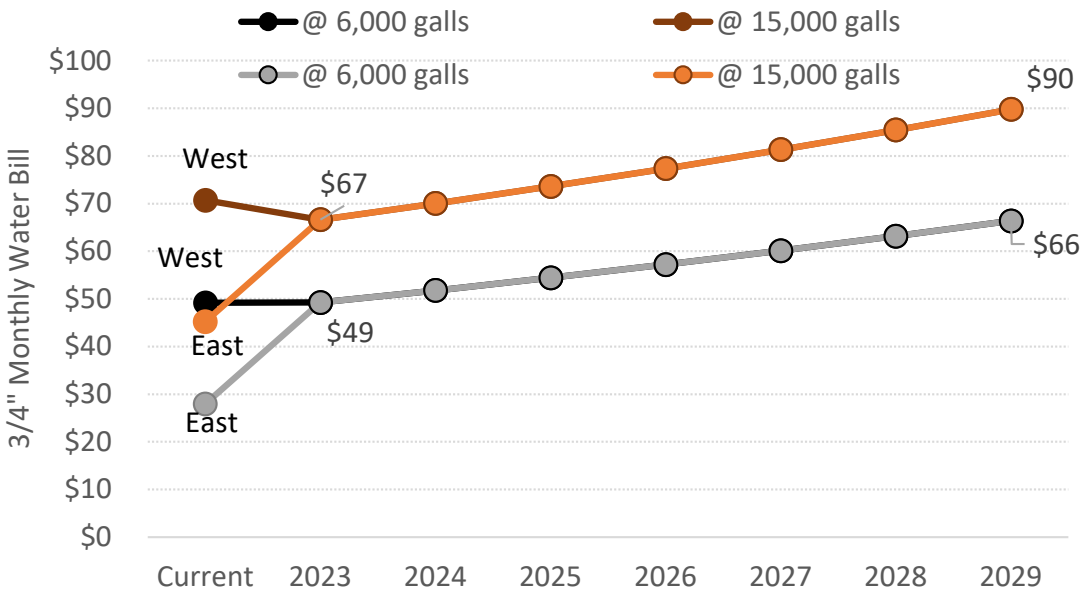


Table 19 shows a total monthly bills comparison for increments of water used by residential customers with 5/8-inch and ¾-inch water meters. the water bill is greater than under the current rates until 6,000 gallons are used. **Appendix Table B-8** provides the current water bills for a 5/8" water meter customer and **Table B-9** provides the water bill calculations for both 5/8-inch and ¾-inch customers under the Fiscal Year 2023 water rates.

Table 19
Comparison Residential Water Bills – Current and Calculated FY23

Monthly	Current		Calculated	Current		Calculated
Use (galls)	WEST	EAST	(with base)	WEST	EAST	(with base)
		5/8" meter			3/4" meter	
1,000	$28.33	$26.46	$35.48	$40.46	$27.96	$45.38
2,000	$29.91	$26.46	$35.48	$42.04	$27.96	$45.38
3,000	$31.49	$26.46	$35.48	$43.62	$27.96	$45.38
4,000	$33.07	$26.46	$35.48	$45.20	$27.96	$45.38
5,000	$35.06	$26.46	$37.41	$47.19	$27.96	$47.31
6,000	$37.05	$26.46	$39.34	$49.18	$27.96	$49.24
7,000	$39.04	$28.38	$41.27	$51.17	$29.88	$51.17
8,000	$41.03	$30.30	$43.20	$53.16	$31.80	$53.10
9,000	$43.38	$32.22	$45.13	$55.51	$33.72	$55.03
10,000	$45.73	$34.14	$47.06	$57.86	$35.64	$56.96
12,000	$50.43	$37.98	$50.91	$62.56	$39.48	$60.81
15,000	$58.59	$43.74	$56.70	$70.72	$45.24	$66.60
20,000	$72.19	$53.34	$66.35	$84.32	$54.84	$76.25
25,000	$85.79	$62.94	$75.99	$97.92	$64.44	$85.89
30,000	$99.39	$72.54	$85.64	$111.52	$74.04	$95.54
35,000	$112.99	$82.14	$95.28	$125.12	$83.64	$105.18
40,000	$126.59	$91.74	$104.93	$138.72	$93.24	$114.83
45,000	$140.19	$101.34	$114.58	$152.32	$102.84	$124.48
50,000	$153.79	$110.94	$124.22	$165.92	$112.44	$134.12
55,000	$167.39	$120.54	$133.87	$179.52	$122.04	$143.77
60,000	$180.99	$130.14	$143.51	$193.12	$131.64	$153.41

Sources: AVCSD rate schedules and HEC 2021 rate study. comp

Figure 17 shows the impact of first-year calculated rates on water bills for a residential unit with a ¾-inch water meter at different usage levels. **Figure 18** shows the impact of first-year calculated rates on water bills for a residential unit with a 5/8-inch water meter at different usage levels.

Figure 17
Water Bills at Different Water Usage Levels – ¾" Meter

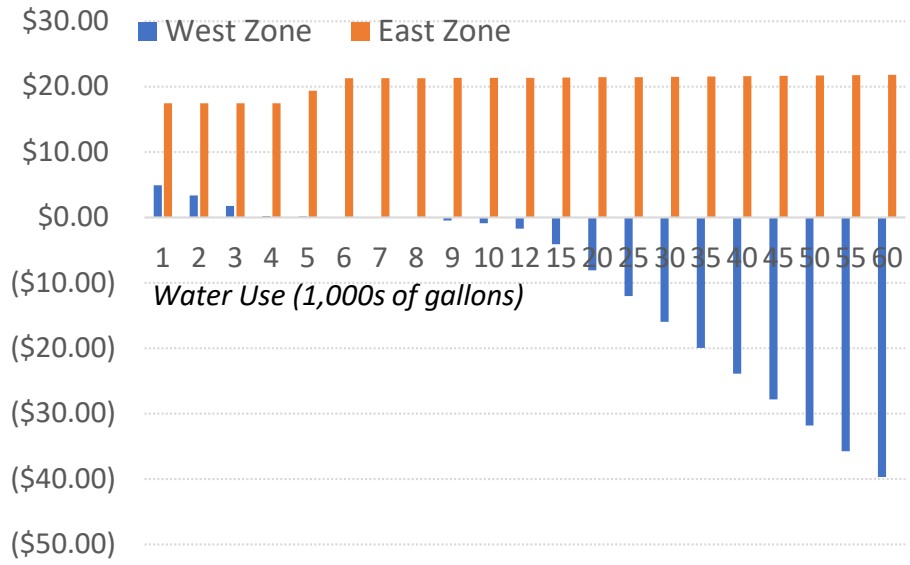


Figure 18
Water Bills at Different Water Usage Levels – 5/8" Meter

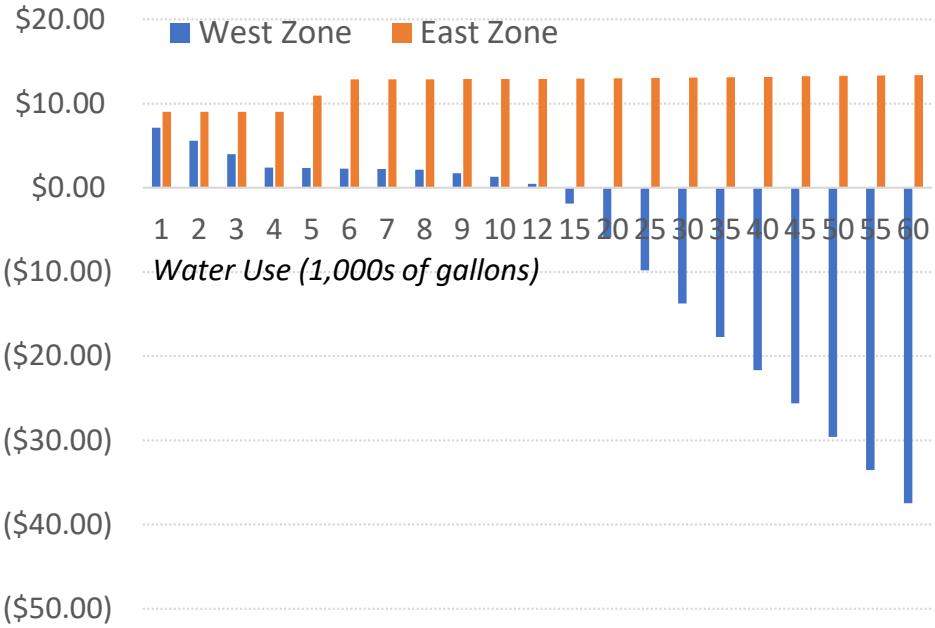
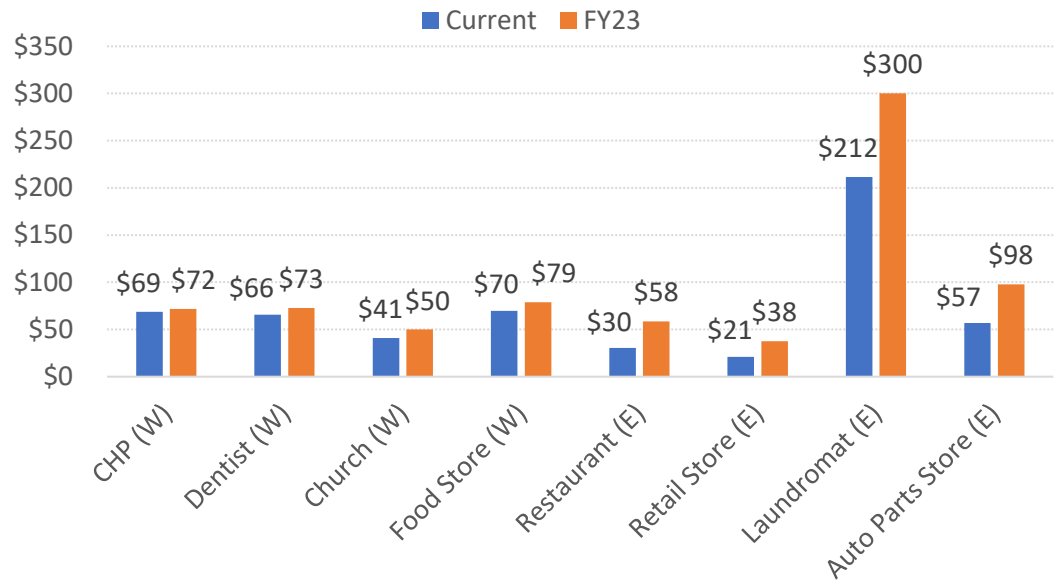


Figure 19 shows the impact to water bills of randomly selected nonresidential accounts in both zones.

Figure 19
Change in Average Monthly Water Bills for Select Nonresidential Accounts



3.5 WATER CAPACITY FEES

The District may impose a capacity fee pursuant to Government Code Section 66013(b)(3) for (a) public facilities in existence at the time a charge is imposed (a "buy-in" fee) and/or (b) charges for new public facilities to be acquired or constructed in the future that are of proportional benefit to the person or property being charged (a "new facilities" fee). The fee may include supply or capacity contracts for rights or entitlements, real property interest, and entitlements and other rights of the local agency involving capital expense relating to its use of existing or new public facilities.

Buy-In Fee
Table B-10 provides a list of the District's water assets, their original cost, and estimated replacement cost. The estimated total water asset replacement cost (replacement cost less depreciation) is $11.49 million. The cost of land is added as it is not a depreciable asset. The cost basis for the Buy-In Fee is $11.54 million.

New Facilities Fee
The water CIP incudes a new tank, a full intertie, and other 10-year improvements detailed in **Table 9**. Capacity fees are calculated using today's estimates of CIP costs, as the fees should be indexed to inflation and be adjusted automatically every fiscal year. Total New Facilities Fee costs are estimated at $4.16 million (total CIP costs less grant-funded improvement costs).

The total water capacity fee costs of $15.70 million are divided by the number of estimated meter equivalent units to determine the capacity fee per meter equivalent unit, which is also the same as the fee per equivalent dwelling unit (EDU or DUE) because one meter equivalent is equal to one

EDU. An administrative fee of 3% is added for collection and handling of the fees, public hearing costs, and periodic updates of the fee (Government Code 66016 (c)).

The District charges the water capacity fee on a per plumbing fixture unit per ordinance. The District has established that one equivalent meter unit is comprised of 25 plumbing fixture units; therefore, the fee per EDU is divided by 25 to calculate the water capacity fee per plumbing fixture unit. **Table 20** shows the water capacity fee calculation. The capacity fees should be evaluated at least every five years; over time, inflationary adjustments to fees alone may be insufficient as development plans change, anticipated pace of development changes, and infrastructure solutions to service provision are revised.

Currently, the water capacity fee per plumbing fixture unit is $149.14 in the West Zone and $156.06 in the East Zone. The new, higher, water capacity fee per plumbing fixture unit of $208.66 would be applicable in both zones.

Table 20
Water Capacity Fee Calculation

Item		Fee Calculation
Buy-In Fee		
Depreciated Assets Value		$11,486,297
Plus Land		$50,300
Total Buy-In Facilities Cost	**a**	**$11,536,597**
New Facilities Fee		
New Tank		$2,000,000
Full Intertie		$1,500,000
Other 10-Year Plan Improvements [1]		$741,900
less Grant-Funded Projects		($78,000)
Total New Facilities Cost	**b**	**$4,163,900**
Total Water Capacity Fee Costs	**c = a+b**	**$15,700,497**
Total Meter Equivalents [2]	d	3,100
Water Capacity Fee per EMU	**e = c/d**	**$5,065**
Administrative Charge 3%	f = 3%*e	$152
Capacity Fee per EMU	**g = e+f**	**$5,217**
Water Capacity Fee per Plumbing Fixture Unit [3]	**h = g/25**	**$208.66**

Source: AVCSD and HEC 2021 rate study. water cap

[1] RTU Tank, Meters, and Well Generators replacements.

[2] Current number of meter equivalents. One meter equivalent = one EDU.

[3] Per District rules, one EDU has 25 water plumbing fixture units.

Section 4: WASTEWATER FEE CALCULATIONS

The wastewater rates analysis was prepared using the principles established by the WEF Manual of Practice No. 27 and guidelines prepared by the California SWRCB.

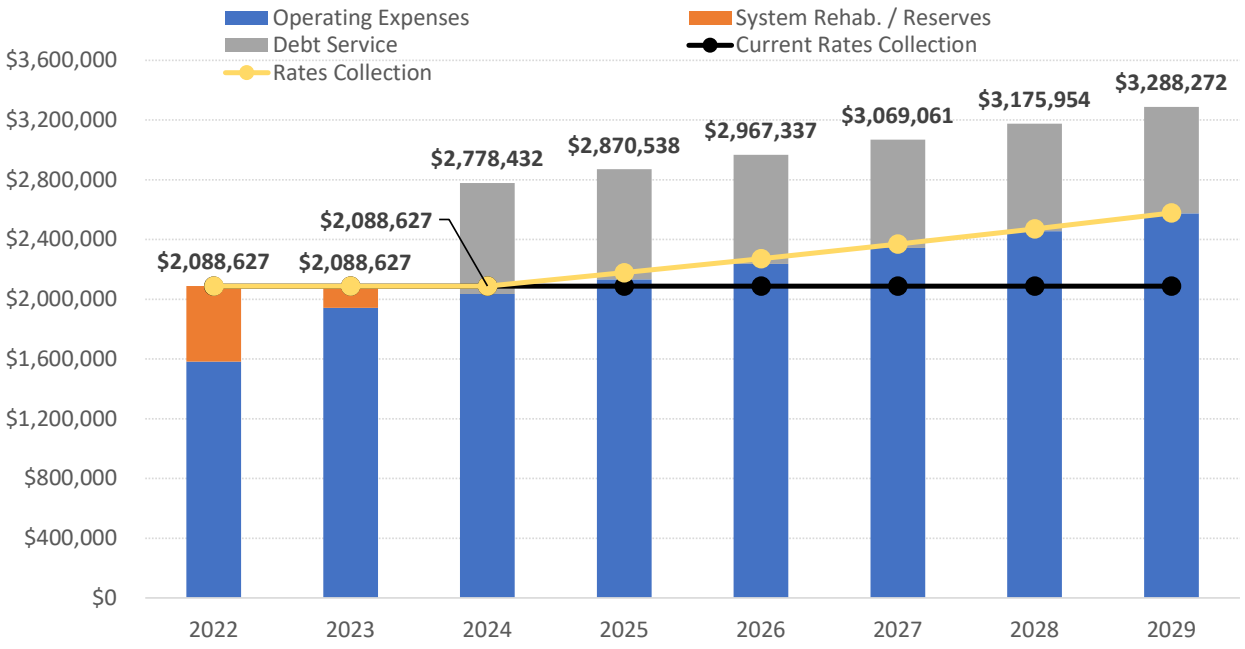
4.1 WASTEWATER REVENUE REQUIREMENT

As previously described for the water fees calculations, the revenue requirement describes the amount of money that must be raised through monthly fee collections. Components of the wastewater revenue requirement include:

- Operating Expenses
- System Rehabilitation
- Debt Service

The projected revenue requirement through fiscal year 2029 for wastewater is presented in **Table 21**. The total revenue requirement is projected to increase from $2,088,600 in fiscal year 2022 to $3,288,300 in fiscal year 2029. Because the District has been collecting for debt service associated with the new wastewater treatment plant for several years before it has needed to pay for the debt service, the amount that needs to be collected in rates is to cover operating costs only. Components of the projected revenue requirement and rates collection are shown in **Figure 20**.

Figure 20
Components of Wastewater Revenue Requirement



The wastewater rates also do not include collection for system rehabilitation costs after fiscal year 2023 because there is an accumulation of reserves in the wastewater fund for this purpose. Credited against the described costs are non-operating credits: property taxes, administrative fees, interest and penalties, and smaller miscellaneous revenues.

Table 21
Projected Wastewater Revenue Requirement

Revenues and Expenses	Inflator	2022 Budget	Fiscal Year Ending 2023 Year 1	2024 Year 2	2025 Year 3	2026 Year 4	2027 Year 5	2028 Year 6	2029 Year 7
Operating Expenses - Collection									
Personnel	5.5%	$548,235	$578,388	$610,199	$643,760	$679,167	$716,521	$755,930	$797,506
New Office Staff	5.5%		$90,000	$94,950	$100,172	$105,682	$111,494	$117,626	$124,096
Insurance	4.0%	$51,780	$53,851	$56,005	$58,245	$60,575	$62,998	$65,518	$68,139
Professional Services	3.0%	$76,200	$78,486	$80,841	$83,266	$85,764	$88,337	$90,987	$93,716
Electric	3.5%	$145,420	$150,510	$155,778	$161,230	$166,873	$172,713	$178,758	$185,015
Maintenance	4.5%	$50,900	$53,191	$55,584	$58,085	$60,699	$63,431	$66,285	$69,268
Office	3.0%	$43,454	$44,758	$46,100	$47,483	$48,908	$50,375	$51,886	$53,443
State Monitoring Fees	2.5%	$33,008	$33,833	$34,679	$35,546	$36,435	$37,346	$38,279	$39,236
Gas, Oil & Fuel	3.5%	$15,240	$15,773	$16,325	$16,897	$17,488	$18,100	$18,734	$19,390
Other	3.5%	$21,405	$22,154	$22,930	$23,732	$24,563	$25,422	$26,312	$27,233
Total Operating Expenses		**$985,642**	**$1,120,944**	**$1,173,391**	**$1,228,417**	**$1,286,153**	**$1,346,738**	**$1,410,316**	**$1,477,042**
Operating Expenses - Treatment									
Personnel	5.5%	$311,144	$328,257	$346,311	$365,358	$385,453	$406,653	$429,019	$452,615
Insurance	4.0%	$25,000	$26,000	$27,040	$28,122	$29,246	$30,416	$31,633	$32,898
Professional Services	3.0%	$35,000	$36,050	$37,132	$38,245	$39,393	$40,575	$41,792	$43,046
Electric	3.5%	$107,310	$111,066	$114,953	$118,977	$123,141	$127,451	$131,911	$136,528
Maintenance	4.5%	$20,000	$20,900	$21,841	$22,823	$23,850	$24,924	$26,045	$27,217
Office	3.0%	$15,000	$15,450	$15,914	$16,391	$16,883	$17,389	$17,911	$18,448
State Monitoring Fees	2.5%	$27,600	$28,290	$28,997	$29,722	$30,465	$31,227	$32,008	$32,808
Lab	4.0%	$50,000	$52,000	$54,080	$56,243	$58,493	$60,833	$63,266	$65,797
Chemicals	4.0%	$201,275	$209,326	$217,699	$226,407	$235,463	$244,882	$254,677	$264,864
Gas, Oil & Fuel	3.5%	$7,000	$7,245	$7,499	$7,761	$8,033	$8,314	$8,605	$8,906
Other	3.5%	$13,500	$13,973	$14,462	$14,968	$15,492	$16,034	$16,595	$17,176
New WWTP Op. Costs [1]	3.5%		$191,232	$197,925	$204,852	$212,022	$219,443	$227,123	$235,073
Total Operating Expenses		**$812,829**	**$1,039,788**	**$1,083,851**	**$1,129,869**	**$1,177,934**	**$1,228,139**	**$1,280,585**	**$1,335,375**
Debt Service									
2020 USDA WWTP		$0	$0	$742,698	$736,913	$731,128	$725,343	$719,559	$713,774
Total Debt Service [2]		**$0**	**$0**	**$742,698**	**$736,913**	**$731,128**	**$725,343**	**$719,559**	**$713,774**
System Rehabilitation	4.5%	$505,541	$146,311	$0	$0	$0	$0	$0	$0
TOTAL COSTS		**$2,304,012**	**$2,307,043**	**$2,999,940**	**$3,095,199**	**$3,195,215**	**$3,300,220**	**$3,410,459**	**$3,526,191**
Credits									
Property Taxes	2.0%	$126,690	$129,224	$131,808	$134,444	$137,133	$139,876	$142,674	$145,527
Interest		$55,020	$55,020	$55,020	$55,020	$55,020	$55,020	$55,020	$55,020
Franchises (trash)	2.0%	$2,060	$2,101	$2,143	$2,186	$2,230	$2,274	$2,320	$2,366
Penalties	2.0%	$19,330	$19,717	$20,111	$20,513	$20,923	$21,342	$21,769	$22,204
Set Up Fees	2.0%	$1,430	$1,459	$1,488	$1,518	$1,548	$1,579	$1,610	$1,643
Connection Fees	2.0%	$2,045	$2,086	$2,128	$2,170	$2,214	$2,258	$2,303	$2,349
Other		$8,810	$8,810	$8,810	$8,810	$8,810	$8,810	$8,810	$8,810
Subtotal Credits		**$215,385**	**$218,416**	**$221,508**	**$224,661**	**$227,878**	**$231,159**	**$234,506**	**$237,919**
Total Revenue Requirement [2]		**$2,088,627**	**$2,088,627**	**$2,778,432**	**$2,870,538**	**$2,967,337**	**$3,069,061**	**$3,175,954**	**$3,288,272**
Current		$2,088,627	$2,088,627	$2,088,627	$2,088,627	$2,088,627	$2,088,627	$2,088,627	$2,088,627
Use of Reserve			$0	($689,805)	($692,100)	($695,226)	($699,250)	($704,240)	($710,275)
Rates Collection			**$2,088,627**	**$2,088,627**	**$2,178,438**	**$2,272,111**	**$2,369,812**	**$2,471,713**	**$2,577,997**
Change			$0	$0	$89,811	$183,484	$281,185	$383,086	$489,370

Source: American Valley CSD and HEC. ww rev req

[1] Additional annual costs of new plant estimated by PACE Engineering in 2017, inflated to current dollars.

[2] Excludes debt costs specific to each zone for collection system improvements.

4.2 COST CLASSIFICATION AND ALLOCATION

Cost classification and functional allocation for the wastewater system is provided in **Appendix C Table C-1**. Actual fiscal year 2021 wastewater fund expenditures were allocated to the different functions of wastewater service based on one of four methodologies described below.

1. **Plant in Service.** Plant in-service allocation is shown in **Table C-2**. Plant in-service costs include the original cost of current wastewater system assets. Total cost is allocated 9% to customers, 55% to capacity, and 36% to flow and strength related costs.

2. **Utilities.** Utilities costs (electricity), monitoring costs, and biosolids disposal costs are allocated 100% to use because these costs are directly related to the quantity of effluent generated.

3. **Customers.** Costs such as administrative staff costs, office supplies, telephones, and memberships are allocated 100% to customer costs. These costs are not affected by the amount of capacity available, or the quantity of disposed effluent.

4. **Average of Classified Costs.** Some expenses are allocated to multiple functions of wastewater service because they do not directly relate to customer functions, capacity of the wastewater system, or quantity of disposed effluent. These expenses are allocated among the customer, capacity, and flow functions based on the combined percentage allocation of all other classified costs.

4.3 WASTEWATER RATES CALCULATIONS

As a result of the functional cost allocation, customer costs are charged by account and the capacity-related costs and flow-related costs are allocated to customer types by estimated wastewater flow generation and strength. Inactive accounts are not charged the flow-related costs as no wastewater is generated.

Customer-related costs. The customer-related costs are divided by the number of accounts to determine the annual charge per account.

Service-related costs. The allocated service charge costs are divided by the number of billing units measured as residential units and average wintertime flow of nonresidential customers. Customers that do not have water meters are assigned a number of equivalent dwelling units as billing units. An equivalent dwelling unit (EDU) is equal to the wastewater flow of one single family unit, calculated to be 157 gallons of wastewater generated per day.

Flow-related costs. For all active customers, the methodology is the same as for service-related costs. Inactive accounts are excluded from this calculation.

The following four steps detail how wastewater rates are calculated such that the monthly wastewater rates meet California's legal requirements.

1. **Establish the Wastewater Customer Base and User Characteristics** – The wastewater customer base is summarized in **Table 22**. Wastewater inflow at the treatment plant averages about 0.42 million gallons per day (MGD). The number of customers and total calculated flow for each customer and customer category, Biological Oxygen Demand (BOD) [4] and Suspended Solids (SS) [5] characteristics are summarized in **Table 23**. Wastewater flow and strength data is based on AVCSD flow measurements and industry standards.

Table 22
Summary of Wastewater Customers

Customer Type	# Accounts	# Units
Residential		
Single Family	1,219	1,219
Multi-Family	171	868
Non-Residential (Metered)		
Schools	4	
Domestic	9	17
Low Strength	170	
Medium Strength	31	
High Strength	45	
Inactive (Min. Charge)	28	
Non-Residential (Unmetered)	**# Accounts**	**# DUEs**
Domestic Strength	2	74
Low Strength	23	40
Medium Strength	0	0
High Strength	0	0

Source: AVCSD customer records. ww cust

2. **Allocate the Revenue Requirement to Collection and Treatment** – The projected revenue requirement is allocated to collection and treatment functions of the system using industry guidelines.

3. **Allocate Revenue Requirement based on Flow and Strength and Determine Unit Costs** – The revenue requirement is allocated based on flow and strength depending on the percentage distribution of operations and maintenance attributed to flow, BOD, and SS. Per unit revenue requirement for each projected year is determined by dividing the allocated revenue

[4] BOD demand is the amount of dissolved oxygen needed by aerobic biological organisms in a body of water to break down organic material present in a given water sample at certain temperature over a specific time period.
[5] Total SS is a measure of the combined content of all inorganic and organic substances contained in a liquid in molecular, ionized or micro-granular (colloidal sol) suspended form.

requirement by the demand for each customer type. **Table C-3** in Appendix C shows the calculation of unit costs by cost category for flow, BOD, and SS. Collection costs are strictly related to flow and therefore 100 percent of the collection costs are allocated to flow. The offsetting revenues are allocated by cost category for flow, BOD, and SS using the subtotal percentages from the collection and treatment cost allocations.

The allocated costs from **Table C-3** are then divided by total annual capacity from **Table 23** to determine the unit cost by flow, BOD, and SS units of measurement. These unit costs are used to determine the cost allocated to each customer type in the next step.

Table 23
Wastewater User Characteristics

			Wastewater Characteristics			Treatment Capacity/Load			Annual Capacity/Load		
Customer	No.	No. Billing	Flow	BOD	SS	Avg. Day Dry	BOD	SS	Flow	BOD	SS
Category	Accounts	Units	GPD	MG/L	MG/L	Weather Flow	Lbs/Day	Lbs/Day	MG	Lbs/Year	Lbs/Year
		(A)	*(B)*	*(C)*	*(D)*	*(E)=(A)x(B)/1000000*	*(F)= (C)x(E)x8.34*	*(G)= (D)x(E)x8.34*	*(H)=(E)x365*	*(I)=(C)x(H)x8.34*	*(J)=(D)x(H)x8.34*
Residential		**unit**				Millions Galls/Day					
Single Family	1,219	1,219	157	220	225	0.19	351.15	359.13	69.85	128,170	131,083
Multi-Family	171	868	131	220	225	0.11	208.63	213.37	41.50	76,150	77,881
Non-Residential (Metered)		**account**									
Domestic Strength [1]	9	9	787	220	225	0.01	13.00	13.29	2.59	4,743	4,851
Low Strength [2]	170	170	284	180	165	0.05	72.48	66.44	17.62	26,454	24,250
Medium Strength [3]	31	31	263	350	335	0.01	23.80	22.78	2.98	8,686	8,314
High Strength [4]	45	45	231	820	660	0.01	71.09	57.22	3.79	25,948	20,885
Schools	4	4	578	230	165	0.00	4.43	3.18	0.84	1,619	1,161
Non-Residential (Unmetered)		**DUE**									
Domestic Strength [5]	106	197	157	220	225	0.03	56.86	58.15	11.31	20,752	21,224
Low Strength [6]	23	40	157	180	165	0.01	9.35	8.57	2.27	3,413	3,128
		account									
Inactive Customers [7]	28	28	157	220	225	0.00	8.07	8.25	1.60	2,944	3,011
TOTAL	**1,806**					**0.42**	**818.85**	**810.38**	**154.37**	**298,880**	**295,788**

Source: AVCSD billing records and HEC 2021 rate study. char

[1] Mixed use accounts.
[2] Includes retail, office, churches, banks, dental/doctor offices, storage, beauty shops, car washes, and light manufacturing.
[3] Includes auto repair and service, gas station with markets, heavy manufacturing/industrial, and laundromats.
[4] Includes grocery markets, funeral homes, restaurants, fast food and bakeries.
[5] In the West zone, Feather River College and RV Park are included.
[6] In the West Zone, includes Plumas Co. Annex and Gansner Park bathrooms. [7] Treated as a one DUE regardless of customer type.

Step 4. Determine Revenue Requirement by Customer Type

The unit costs determined in **Table C-4** in Appendix C are multiplied by the flow, BOD, or SS for each customer type for capacity (**Table C-5**) and flow (**Table C-6**). These costs are then summed to determine the total costs allocated to each customer type. The analysis is shown for the fiscal year 2023-2024, which is the first year with full debt service for the wastewater treatment plant. The same analysis is repeated for each subsequent fiscal year.

Cost per 1,000 Gallons

Total allocated costs to each customer category net of customer-related costs are shown in **Table 24**. Residential customers are responsible for 71% of the total costs net of customer-related costs, and nonresidential uses, including schools, are responsible for 28%. Total treatment cost per 1,000

gallons is greatest for high strength customers and lowest for the low-strength nonresidential customers.

Table 24
Calculated Cost per Thousand Gallons of Wastewater

Customer Type	Allocated Cost	Percentage of Cost	Annual Flow (MG)	Cost per 1,000 Gallons
Residential				
Single Family	$790,557	45%	69.85	$11.32
Multi-Family	$469,700	27%	41.50	$11.32
Subtotal Residential	**$1,260,257**	**72%**	**111.36**	**$11.32**
Non-Residential (Metered)				
Domestic Strength [1]	$29,258	2%	2.59	$11.32
Low Strength [2]	$186,990	11%	17.62	$10.61
Medium Strength [3]	$38,714	2%	2.98	$13.01
High Strength [4]	$70,617	4%	3.79	$18.61
Schools	$9,251	1%	0.84	$10.96
Non-Residential (Unmetered)				
Domestic Strength [5]	$128,000	7%	11.31	$11.32
Low Strength [6]	$24,122	1%	2.27	$10.61
Subtotal Non-Residential	**$486,951**	**28%**	**41.40**	**$11.76**
Inactive Customers [7]	$10,398	1%	1.60	$6.48
TOTAL COST NET OF CUSTOMER-RELATED COSTS	**$1,757,606**	**100%**	**154.37**	**$11.39**

Source: AVCSD financials and HEC 2021 rate study. cos

[1] Mixed use accounts.
[2] Includes retail, office, churches, banks, dental/doctor offices, storage, beauty shops, car washes, and light manufacturing.
[3] Includes auto repair and service, gas station with markets, heavy manufacturing/industrial, and laundromats.
[4] Includes grocery markets, funeral homes, restaurants, fast food and bakeries.
[5] In the West zone, Feather River College and RV Park are included.
[6] In the West Zone, includes Plumas Co. Annex and Gansner Park bathrooms.
[7] Treated as a one DUE regardless of customer type.

Separate Collection Surcharges by Zone: One of the consolidation requirements was that any debt that had been incurred in one zone prior to consolidation would remain within that zone. In the West Zone, the 2012 USDA loan is entirely paid for by the West Zone Surcharge under the new rate structure. In the East Zone, an existing assessment is charged to pay for the 1993 assessment district improvement bonds; however, the assessment amount does not fully cover the annual debt service. The East Zone surcharge pays for the remaining cost-of-debt service not covered by the assessments. The calculation of the zone surcharges for wastewater collection debt is provided in **Appendix Tables C-7** and **C-8**.

The calculated wastewater rate components are shown in **Table 25.** The calculated wastewater rate schedule is shown in **Table 26**.

Table 25
Calculated Wastewater Rate Components

	Customer Charge			Capacity Charge			Flow Charge		
Customer Category	**No. Accounts**	**Customer Charges**	**Monthly Customer Charge**	**No. Billing Units**	**Capacity Charges**	**Capacity Charge per Billing Unit**	**No. Billing Units**	**Flow Charges**	**Flow Charge per Billing Unit**
	a	*b*	*c = b/a/12*	*d*					
Residential			**per account**	**units**		**per unit**			**per unit**
Single Family	1,219	$223,430	$15.27	1,219	$452,670	$30.95	1,219	$337,887	$23.10
Multi-Family	171	$31,343	$15.27	868	$268,948	$25.82	868	$200,752	$19.27
Non-Residential (Metered)				**1,000 galls [7]**		**per 1,000 galls**	**1,000 galls [7]**		**per 1,000 galls**
Domestic Strength [1]	9	$1,650	$15.27	2,463	$16,753	$6.80	2,463	$12,505	$5.08
Low Strength [2]	170	$31,159	$15.27	14,490	$107,069	$7.39	14,490	$79,920	$5.52
Medium Strength [3]	31	$5,682	$15.27	2,368	$22,167	$9.36	2,368	$16,546	$6.99
High Strength [4]	45	$8,248	$15.27	3,333	$40,435	$12.13	3,333	$30,182	$9.06
Schools	4	$733	$15.27	832	$5,297	$6.37	832	$3,954	$4.75
Non-Residential (Unmetered)			**per account**	**DUEs**		**per DUE**			**per DUE**
Domestic Strength [5]	106	$19,429	$15.27	197	$73,292	$30.95	197	$54,708	$23.10
Low Strength [6]	23	$4,216	$15.27	40	$13,812	$29.01	40	$10,310	$21.66
			per account			**per account**			
Inactive Customers [7]	28	$5,132	$15.27	28	$10,398	$30.95			
TOTAL COST	**1,806**	**$331,021**			**$1,010,841**			**$746,764**	

Source: AVCSD financials and HEC 2021 rate study. ww calcs

[1] Mixed use accounts.

[2] Includes retail, office, churches, banks, dental/doctor offices, storage, beauty shops, car washes, and light manufacturing.

[3] Includes auto repair and service, gas station with markets, heavy manufacturing/industrial, and laundromats.

[4] Includes grocery markets, funeral homes, restaurants, fast food and bakeries.

[5] In the West zone, Feather River College and RV Park are included.

[6] In the West Zone, includes Plumas Co. Annex and Gansner Park bathrooms.

[7] Wintertime average use calculated using Jan-Mar inclusive water meter reads (applied to every month of the year).

The new rate structure would be applied as follows:

Active Wastewater Accounts

5. Customer charge: A flat monthly fee billed to the account holder.
6. Collection Surcharge: A flat monthly fee billed to the account holder for debt service in the zone in which they are located.
7. Service and flow charge (metered accounts): A flat monthly fee billed per Residential Unit. A flat monthly fee billed to Nonresidential metered accounts based on average month water use January through March each year (updated each year) and wastewater strength category of the customer (domestic, low, medium, or high).
8. Service and flow charge (unmetered accounts): A flat monthly fee billed per Unmetered EDU.

Inactive Wastewater Accounts

4. Customer charge: A flat monthly fee billed to the account holder.
5. Collection Surcharge: A flat monthly fee billed to the account holder for debt service in the zone in which they are located.
6. Service charge: A flat monthly fee based on each inactive account counting as one EDU.

Inactive wastewater accounts only pay customer and service charges (and zone-specific collection surcharges) because they are not currently generating wastewater. They still incur customer-related costs and costs to maintain capacity in the wastewater system, which are recouped in the collection surcharge and service charge.

Table 26
Summary of Calculated Wastewater Rates

Customer Type	2023 Year 1	2024 Year 2	2025 Year 3	2026 Year 4	2027 Year 5	2028 Year 6	2029 Year 7
RESIDENTIAL	**per unit per month // (A) + (B) East // (A) + (C) West**						
(A) Single Family	$69.32	$69.32	$72.30	$75.41	$78.65	$82.03	$85.56
(A) Multi-Family	$60.37	$60.37	$62.96	$65.67	$68.50	$71.44	$74.51
East Zone Debt Surcharge							
(B) Single Family	$0.55	$0.55	$0.55	$0.55	$0.55	$0.55	$0.55
(B) Multi-Family	$0.55	$0.55	$0.55	$0.55	$0.55	$0.55	$0.55
West Zone Debt Surcharge							
(C) Single Family	$6.58	$6.58	$6.58	$6.58	$6.58	$6.58	$6.58
(C) Multi-Family	$6.58	$6.58	$6.58	$6.58	$6.58	$6.58	$6.58
NON-RESIDENTIAL	**per account per month // (A) + (B) + (D) East // (A) + (C) + (D) West**						
(A) All Non-residential Accounts	$15.27	$15.27	$15.93	$16.62	$17.33	$18.08	$18.85
(B) East Zone Debt Surcharge	$0.55	$0.55	$0.55	$0.55	$0.55	$0.55	$0.55
(C) West Zone Debt Surcharge	$6.58	$6.58	$6.58	$6.58	$6.58	$6.58	$6.58
Non-Residential (Metered)	**per 1,000 gallons of wintertime monthly average use [7]**						
(D) Domestic Strength [1]	$11.88	$11.88	$12.39	$12.92	$13.48	$14.06	$14.66
(D) Low Strength [2]	$12.90	$12.90	$13.46	$14.04	$14.64	$15.27	$15.93
(D) Medium Strength [3]	$16.35	$16.35	$17.05	$17.78	$18.55	$19.34	$20.18
(D) High Strength [4]	$21.19	$21.19	$22.10	$23.05	$24.04	$25.07	$26.15
(D) Schools	$11.12	$11.12	$11.60	$12.10	$12.62	$13.16	$13.72
Non-Residential (Unmetered)	**per DUE per month // (A) + (B) + (E) East // (A) + (C) + (E) West**						
(E) Domestic Strength [5]	$69.32	$69.32	$72.30	$75.41	$78.65	$82.03	$85.56
(E) Low Strength [6]	$65.95	$65.95	$68.78	$71.74	$74.82	$78.04	$81.40
INACTIVE	**per account per month // (A) + (B) East // (A) + (C) West**						
(A) All Inactive Accounts	$46.22	$46.22	$48.21	$50.28	$52.44	$54.70	$57.05
(B) East Zone Debt Surcharge	$0.49	$0.49	$0.49	$0.49	$0.49	$0.49	$0.49
(C) West Zone Debt Surcharge	$6.52	$6.52	$6.52	$6.52	$6.52	$6.52	$6.52

Source: HEC 2021 rate study. ww sum

[1] Mixed use accounts.

[2] Includes retail, office, churches, banks, dental/doctor offices, storage, beauty shops, car washes, and light manufacturing.

[3] Includes auto repair and service, gas station with markets, heavy manufacturing/industrial, and laundromats.

[4] Includes grocery markets, funeral homes, restaurants, fast food and bakeries.

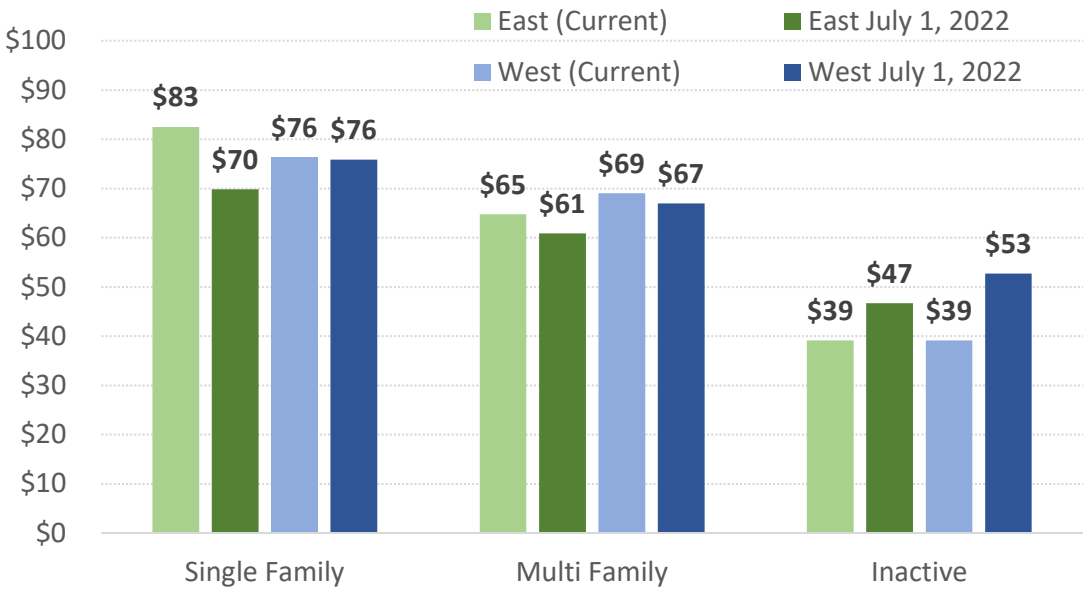
[5] In the West zone, Feather River College and RV Park are included.

[6] In the West Zone, includes Plumas Co. Annex and Gansner Park bathrooms.

[7] Wintertime average use calculated using Jan-Mar inclusive water meter reads (applied to every month of the year).

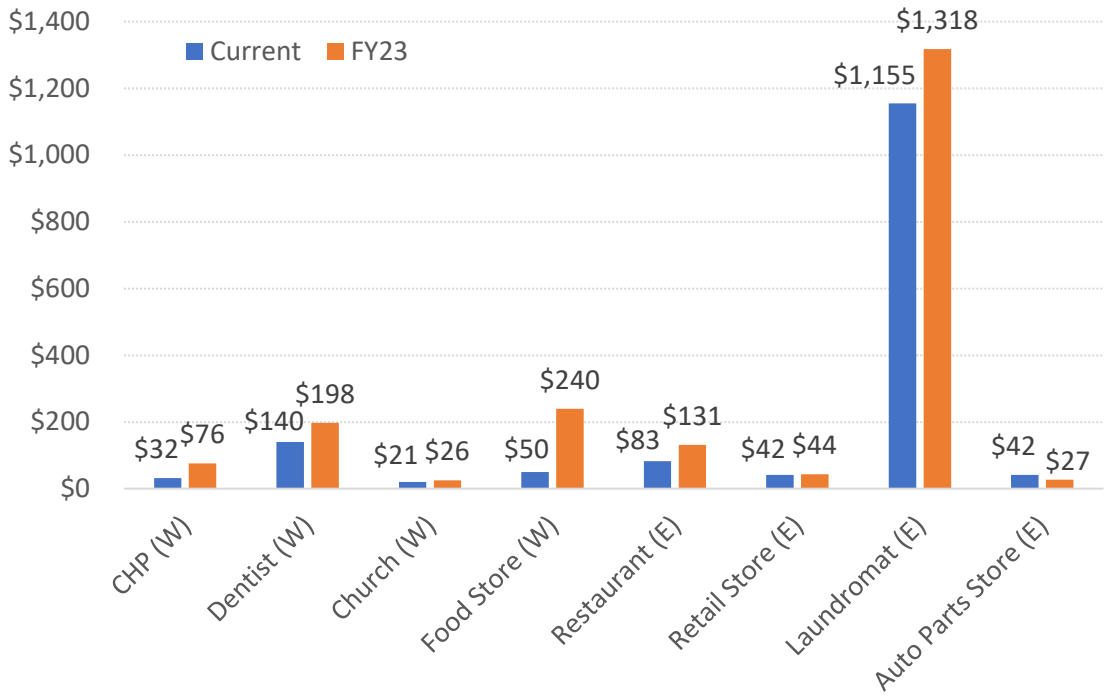
Figure 21 shows the impact of the new fee structure on monthly wastewater bills for single family and multi-family residential units, and inactive accounts. Residential units would have a lower wastewater bill in the East Zone while bills in the West Zone would stay about the same. Bills would increase for inactive accounts to reflect true cost of service.

Figure 21
Wastewater Bill Impact – Residential and Inactive



For many nonresidential customers, the wastewater bill will increase, but for some, it will decrease. **Figure 22** illustrates the bills impacts for a few randomly selected accounts in each zone. The chart shows how variable the change in bills would be for different customers under the new rate structure.

Figure 22
Change in Average Monthly Wastewater Bills for Select Nonresidential Accounts



4.4 WASTEWATER CAPACITY FEES

The capacity fees are comprised of two components: (1) a buy-in fee to pay for the portion of capacity in existing facilities that the new customer will use, and (2) a new facilities fee to pay for estimated costs of new infrastructure and infrastructure upgrades that expand capacity to the benefit of new users.

Buy-In Fee
The wastewater capacity buy-in fee is comprised of a collection fee and a treatment fee. **Table C-9** provides a list of the District's wastewater assets, their original cost, and estimated replacement cost.

- The estimated collection wastewater asset replacement cost (original cost less depreciation) is $10.27 million but it is separated by zone because there is debt associated with the collection system in each zone. Outstanding principal is deducted from the total asset value for each collection system making the buy-in cost $2.80 million in the West Zone and $3.47 million in the East Zone.

- The estimated treatment wastewater asset replacement cost (original cost less depreciation) is $0.90 million. The cost of the wastewater treatment plant land is added as it is not a depreciable asset. The cost basis for the treatment buy-in fee is $1.05 million.

Whereas the water capacity fee uses the replacement cost less depreciation value for the existing assets, the wastewater capacity fee uses the original cost less depreciation value. This difference is because the wastewater treatment plant is being replaced.

New Facilities Fee

The wastewater CIP incudes a new wastewater treatment plant. Grant funding and outstanding principal on the loans for the new plant are deducted from the total project cost. Capacity fees are calculated using today's estimates of CIP costs, as the fees should be indexed to inflation and be adjusted automatically every fiscal year. Total New Facilities Fee costs are estimated at $2.00 million.

The collection and treatment costs are divided by the number of estimated EDUs to determine the total capacity costs per EDU. An administrative fee of 3% is added for collection and handling of the fees, public hearing costs and periodic updates of the fee (Government Code 66016 (c)).

The District charges the wastewater capacity fee on a per drainage fixture unit per ordinance. The District has established that one EDU is comprised of 21 plumbing fixture units; therefore, the fee per EDU is divided by 21 to calculate the wastewater capacity fee per drainage fixture unit.

Currently, the wastewater capacity fee per drainage fixture unit is $206.61 in the West Zone and $158.70 in the East Zone. The calculated updates fees per drainage fixture unit are $253.62 in the West Zone and $201.54 in the East Zone.

Table 27 shows the wastewater capacity fee calculation.

Table 27
Wastewater Capacity Fee Calculation

Item		West Zone	East Zone	Both Zones
Collection				
Depreciated Assets Value		$5,437,086	$4,830,158	$10,267,244
less Outstanding Principal		($2,633,000)	($1,357,500)	($3,990,500)
Collection Fee Costs	**a**	**$2,804,086**	**$3,472,658**	**$6,276,744**
Total Equivalent Dwelling Units [1]	b	1,320	1,580	2,900
Total Collection Fee per EDU	**c = a/b**	**$4,119**	**$3,057**	**n.a.**
Administrative Fee 3%	d = c*3%	$124	$92	
Collection Capacity Fee per EDU	**e = c+d**	**$4,243**	**$3,149**	**n.a.**
Wastewater Collection Fee per Drainage Fixture Unit [2]	**f = e/21**	**$202.03**	**$149.94**	**n.a.**
Treatment				
Buy-In Fee				
Depreciated Assets Value				$901,785
Plus Land				$153,095
Treatment Buy-In Fee Costs	**g**	**n.a.**	**n.a.**	**$1,054,880**
New Facilities Fee				
New Wastewater Treatment Plant				$43,696,713
less Grant-funded New WWTP				($21,132,872)
less Outstanding Principal				($20,568,000)
Treatment New Facilities Cost	**h**	**n.a.**	**n.a.**	**$1,995,841**
Total Treatment Fee Costs	**i = g+h**			**$3,050,721**
Total Equivalent Dwelling Units [1]	j			2,900
Treatment Capacity Fee per EDU	**k = i/j**			**$1,052**
Administrative Charge 3%	l = k*3%			$32
Treatment Capacity Fee per EDU	**m = k+l**	**n.a.**	**n.a.**	**$1,084**
Wastewater Treatment Fee per Drainage Fixture Unit [2]	**n = m/21**	**$51.60**	**$51.60**	**$51.60**
Wastewater Capcity Fee per Drainage Fixture Unit [2]	**o = f+n**	**$253.62**	**$201.54**	**n.a.**

Source: AVCSD and HEC 2021 rate study. ww cap calc

[1] Number of EDUs based on recorded dry weather flow to the plant divided by 155 gallons per day which is the average use of a single-family (one EDU) during the winter months (best proxy of wastewater generation).

[2] Per District rules, one EDU has 21 wastewater plumbing fixture units.

Section 5: DISTRICT AND CUSTOMER IMPACTS

This section of the report describes impacts of the calculated new rates on the District and its customers.

5.1 DISTRICT FINANCIAL IMPACTS

As a best management practice, utility providers need sufficient cash balance to:

- Serve cash flow needs
- Pay for emergency and unplanned necessary repairs
- Accumulate for system rehabilitation (planned improvements)
- Provide rate stabilization

While each utility needs to assess its risks on an individual basis using knowledge based on the current status of infrastructure, regulatory requirements, cash flow "bumps" and so forth, there are some general guidelines to measure what a prudent reserve would be for the utility. The GFOA best practice is to start with a baseline of 90 days of operating expenses and adjust depending on local circumstance. GFOA guidelines to adjust the target for local circumstances include:

- Frequency of revenue collection - AVCSD bills monthly and has fairly predictable water and wastewater revenues. AVCSD does not have a pressing cash flow concern.

- Diversity of the customer base – timely payments and cash flow is less of a concern with a diverse customer base. AVCSD has a predominantly residential database (about 85% of customers).

- Unpredictable weather events – large weather events can cause need for costly emergency work. The community is located in elevated, forested terrain that receives colder temperatures and snow during the winter months. Cold temperatures during the winter and wildfires during the summer are probably of greatest concern; landslides can also occur.

- Ever-increasing California environmental standards / requirements for wastewater and water treatment – may require new infrastructure and/or monitoring expenses. The District is subject to potential future cost increases due to new State regulations.

- Rate stabilization – raising rates is unappealing. When there are sufficient reserves, more gradual rate increases can be introduced.

Based on these GFOA guidelines, the target minimum cash balances for the District recommended by this Study is one year of operating expenses and six months of operating expenses for rate stabilization in each fund, and minimum targets of $250,000 for emergency repairs in the water fund and $1,000,000 for emergency repairs in the wastewater fund.

The projected cash flow for the water fund is presented in **Table 28**, and the cash flow for the wastewater fund is presented in **Table 29.** Throughout the rate study timeline, with implementation of calculated new rates, it is projected that revenue sufficiency will be achieved to cover all projected costs and the District will meet the minimum recommended target levels of operating and capital reserves.

For the wastewater fund, having sufficient net revenues to meet debt service coverage is important to demonstrate to its creditors. It is projected that debt service coverage of at least 1.2 times net revenues will be achieved through the Study period, which keeps the District on solid footing.

Table 28
Projected Water Fund Cash Flow

Revenues and Expenses	**2022** Current	**2023** Year 1	**2024** Year 2	**2025** Year 3	**2026** Year 4	**2027** Year 5	**2028** Year 6	**2029** Year 7
New Rates Effective ----->		*Jul 1, 2022*	*Jul 1, 2023*	*Jul 1, 2024*	*Jul 1, 2025*	*Jul 1, 2026*	*Jul 1, 2027*	*Jul 1, 2028*
Revenues								
Water Fees	$1,000,000	$1,066,183	$1,229,291	$1,292,276	$1,358,336	$1,427,623	$1,500,296	$1,576,524
Property Taxes	$135,960	$138,679	$141,453	$144,282	$147,167	$150,111	$153,113	$156,175
All Other	$87,138	$87,907	$88,692	$89,493	$90,309	$91,142	$91,992	$92,858
Total Revenues	**$1,223,098**	**$1,292,770**	**$1,459,436**	**$1,526,050**	**$1,595,812**	**$1,668,876**	**$1,745,401**	**$1,825,557**
Operating Expenses	**$869,989**	**$999,060**	**$1,044,929**	**$1,093,008**	**$1,143,407**	**$1,196,242**	**$1,251,637**	**$1,309,719**
Net Revenue	**$353,110**	**$293,709**	**$414,507**	**$433,043**	**$452,406**	**$472,633**	**$493,764**	**$515,838**
Debt Service	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Debt Service Coverage	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*
Net Income	**$353,110**	**$293,709**	**$414,507**	**$433,043**	**$452,406**	**$472,633**	**$493,764**	**$515,838**
Beginning Balance	**$4,639,273**	**$4,479,083**	**$4,541,992**	**$4,734,799**	**$5,167,842**	**$3,127,847**	**$2,147,081**	**$2,540,845**
Net Income	$353,110	$293,709	$414,507	$433,043	$452,406	$472,633	$493,764	$515,838
Capital Projects	($513,300)	($230,800)	($221,700)	$0	($2,492,400)	($1,953,400)	$0	$0
Interfund Loan from the WW Fund	$0	$0	$0	$0	$0	$500,000	$0	$0
Repayment of Interfund Loan	$0	$0	$0	$0	$0	$0	($100,000)	($100,000)
Est. Ending Cash Balance (Unrestricted)	**$4,479,083**	**$4,541,992**	**$4,734,799**	**$5,167,842**	**$3,127,847**	**$2,147,081**	**$2,540,845**	**$2,956,683**
Target Minimum Balance								
Rate Stabilization Fund [1]	$434,994	$499,530	$522,465	$546,504	$571,703	$598,121	$625,819	$654,860
System Rehabilitation Fund [2]	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000
One Year Op. Expenses [3]	$869,989	$999,060	$1,044,929	$1,093,008	$1,143,407	$1,196,242	$1,251,637	$1,309,719
Total Target Min. Balance	**$1,554,983**	**$1,748,591**	**$1,817,394**	**$1,889,511**	**$1,965,110**	**$2,044,364**	**$2,127,456**	**$2,214,579**

Source: American Valley CSD and HEC. flow

[1] Six months of operating expenses.
[2] $250,000 for emergency repairs.
[3] One year of operating expenses.

The financing strategy includes an interfund loan from the wastewater fund to the water fund so that the District does not need to incur additional debt to construct the new water tank and the full intertie between the West and East zones. The water fund would pay the wastewater fund back over a period of time to be determined by the Board. Any time a special district does an interfund loan it must adopt a resolution stating the amount loaned from one fund to another and the terms and conditions upon which it will be repaid.

Table 29
Projected Wastewater Fund Cash Flow

Revenues and Expenses	2022 Current	2023 Year 1	2024 Year 2	2025 Year 3	2026 Year 4	2027 Year 5	2028 Year 6	2029 Year 7
New Rates Effective ----->		*Jul 1, 2022*	*Jul 1, 2023*	*Jul 1, 2024*	*Jul 1, 2025*	*Jul 1, 2026*	*Jul 1, 2027*	*Jul 1, 2028*
Revenues								
Wastewater Fees (both zones)	$2,088,627	$2,088,627	$2,088,627	$2,178,438	$2,272,111	$2,369,812	$2,471,713	$2,577,997
Property Taxes	$126,690	$129,224	$131,808	$134,444	$137,133	$139,876	$142,674	$145,527
Assessments (E. Quincy)	$125,000	$125,000	$125,000	$125,000	$125,000	$125,000	$125,000	$125,000
East Zone Rates for 1996 Loan [1]		$11,600	$11,600	$11,600	$11,600	$11,600	$11,600	$11,600
West Zone Rates for 2012 Loan [1]		$129,940	$129,940	$129,940	$129,940	$129,940	$129,940	$129,940
All Other	$88,695	$89,192	$89,700	$90,217	$90,745	$91,283	$91,832	$92,392
Total Revenues	**$2,429,012**	**$2,573,583**	**$2,576,675**	**$2,669,639**	**$2,766,529**	**$2,867,511**	**$2,972,759**	**$3,082,456**
Operating Expenses	**$985,642**	**$1,120,944**	**$1,173,391**	**$1,228,417**	**$1,286,153**	**$1,346,738**	**$1,410,316**	**$1,477,042**
Net Revenue	**$1,443,370**	**$1,452,639**	**$1,403,284**	**$1,441,222**	**$1,480,376**	**$1,520,773**	**$1,562,443**	**$1,605,415**
Debt Service								
2020 USDA WWTP	$0	$0	$742,698	$736,913	$731,128	$725,343	$719,559	$713,774
USDA 2012 Loan (West)	$133,174	$108,537	$129,933	$128,283	$126,633	$125,808	$123,333	$90,429
1996 USDA (East)	$136,340	$136,414	$136,503	$136,501	$136,596	$135,701	$135,709	$135,783
Total Debt Service	**$269,514**	**$244,951**	**$1,009,134**	**$1,001,696**	**$994,356**	**$986,852**	**$978,600**	**$939,986**
Debt Service Coverage	*5.4*	*5.9*	*1.4*	*1.4*	*1.5*	*1.5*	*1.6*	*1.7*
Net Income	**$1,173,856**	**$1,207,688**	**$394,150**	**$439,526**	**$486,019**	**$533,921**	**$583,843**	**$665,429**
Beginning Balance	**$4,084,194**	**$5,245,510**	**$6,376,798**	**$6,485,648**	**$6,627,074**	**$6,801,594**	**$6,509,915**	**$6,853,558**
Net Income	$1,173,856	$1,207,688	$394,150	$439,526	$486,019	$533,921	$583,843	$665,429
Capital Projects [2]	($12,540)	($76,400)	($285,300)	($298,100)	($311,500)	($325,600)	($340,200)	($355,500)
Interfund Loan to the Water Fund	$0	$0	$0	$0	$0	($500,000)	$0	$0
Repayment of Interfund Loan	$0	$0	$0	$0	$0	$0	$100,000	$100,000
Est. Ending Cash Balance	**$5,245,510**	**$6,376,798**	**$6,485,648**	**$6,627,074**	**$6,801,594**	**$6,509,915**	**$6,853,558**	**$7,263,487**
Restricted Balance								
Debt Service Reserve (W. Quincy)	$112,148	$125,306	$125,306	$125,306	$125,306	$125,306	$125,306	$125,306
Debt Service Reserve (E. Quincy)	$136,000	$136,000	$136,000	$136,000	$136,000	$136,000	$136,000	$136,000
WWTP Debt Service Reserve (new)	$0	$0	$74,270	$147,961	$221,074	$293,608	$365,564	$436,941
WWTP Short-Lived Asset Reserve (new)	$0	$0	$64,874	$129,874	$194,874	$259,874	$324,874	$389,874
Total Restricted Balance	**$248,148**	**$261,306**	**$400,450**	**$539,141**	**$677,254**	**$814,789**	**$951,744**	**$1,088,122**
Unrestricted Balance	**$4,997,362**	**$6,115,492**	**$6,085,198**	**$6,087,933**	**$6,124,339**	**$5,695,126**	**$5,901,813**	**$6,175,365**
Target Unrestricted Balance								
Rate Stabilization Fund [3]	$492,821	$560,472	$586,696	$614,209	$643,077	$673,369	$705,158	$738,521
System Rehabilitation Fund [4]	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Operating Reserve [5]	$985,642	$1,120,944	$1,173,391	$1,228,417	$1,286,153	$1,346,738	$1,410,316	$1,477,042
Total Target Min. Balance	**$2,478,463**	**$2,681,416**	**$2,760,087**	**$2,842,626**	**$2,929,230**	**$3,020,107**	**$3,115,474**	**$3,215,563**

Source: American Valley CSD and HEC 2021 rate study. ww flow

[1] Fee revenue based on the greatest annual debt service in the period.

[2] Excludes the remainder of the wastewater treatment plant upgrade and expansion project cost as this is paid for with grants and loans, the latter which is included in the debt service.

[3] Six months of operating expenses.

[4] $1,000,000 for emergency repairs.

[5] One year of operating expenses.

5.2 EXISTING CUSTOMER BILL IMPACTS

Residential

Figure 23 compares the current and July 1, 2022 projected AVCSD utility bills for a home with a ¾" meter using 15,000 gallons with those of other regional communities and other comparable communities. AVCSD customer bills would stay within the middle of the range of comparable communities. The combined bill for a home in the East Zone would increase. The combined bill for a home in the West Zone would decrease at 15,000 gallons water use in a month.

Figure 23
Utilities Bill Comparison for Home with a ¾" Meter using 15,000 Gallons

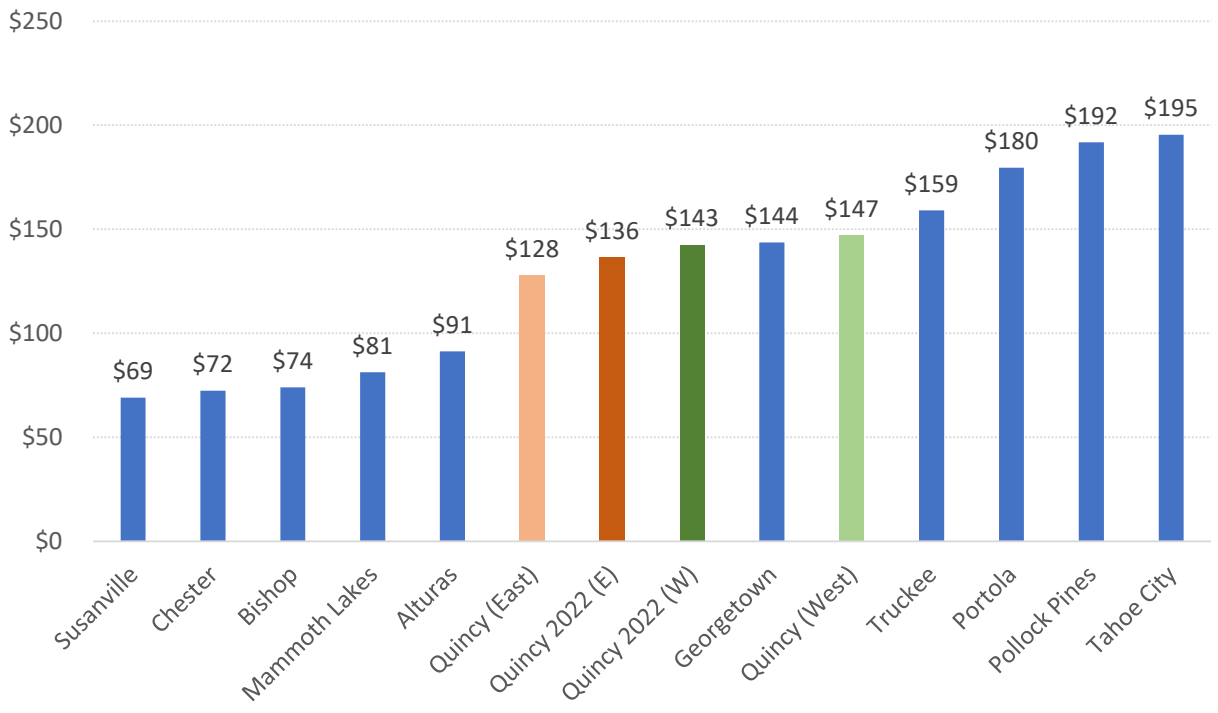
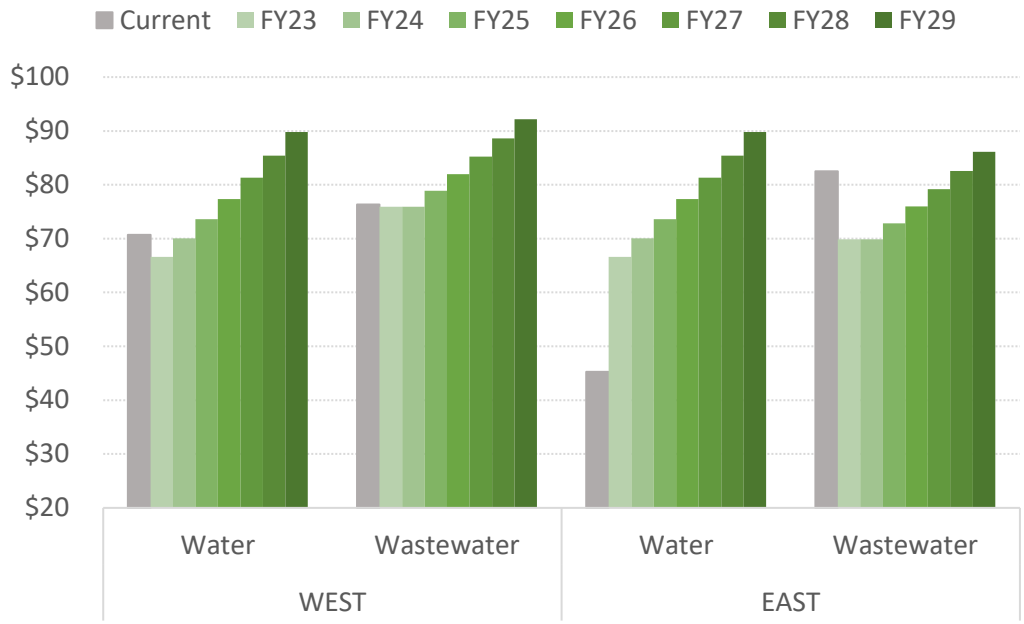


Figure 24 shows how the monthly bill for a single family home is projected to change over the next seven years in both zones for a residential unit with a ¾" meter using 15,000 gallons. The water bill increases in both zones with the exception of the West Zone in the first and second years. The wastewater bill stays about the same in the West Zone the first two years and decreases in the East Zone until year 7.

Figure 24
Projected Single Family Utilities Bill Components by Zone
with a ¾" Water Meter with a base allowance of 4,000 gallons



Nonresidential
It is difficult to show the impacts to nonresidential because every property will have a different impact depending on water meter size, the wastewater strength, and location (East or West zone). **Figures 25** and **26** show example changes to combined water and wastewater bills for randomly selected customers in the West and East zones in fiscal year 2023.

Figure 25
Combined Average Monthly Bill Impact for Nonresidential – West Zone

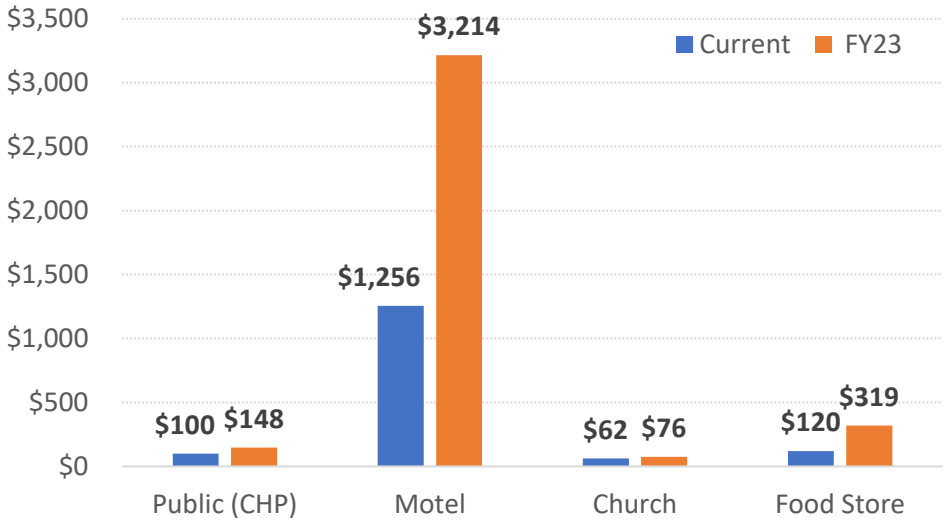
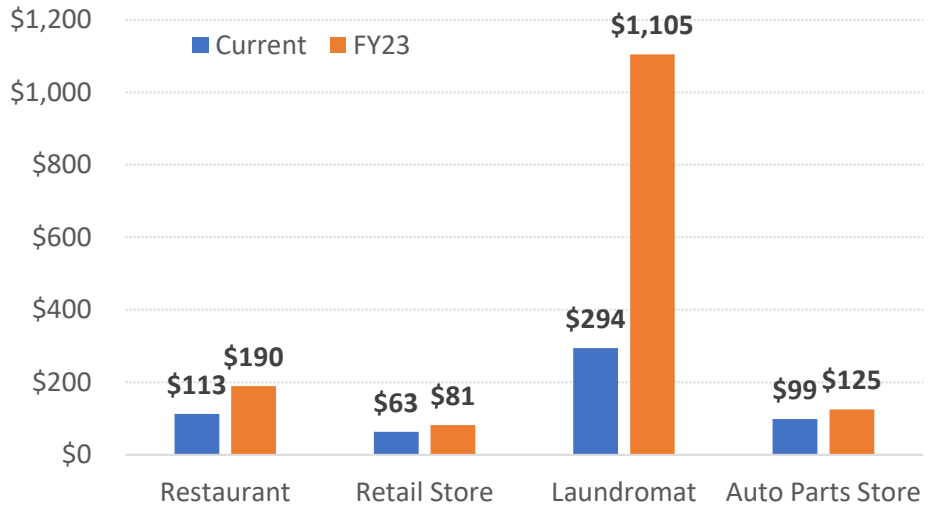


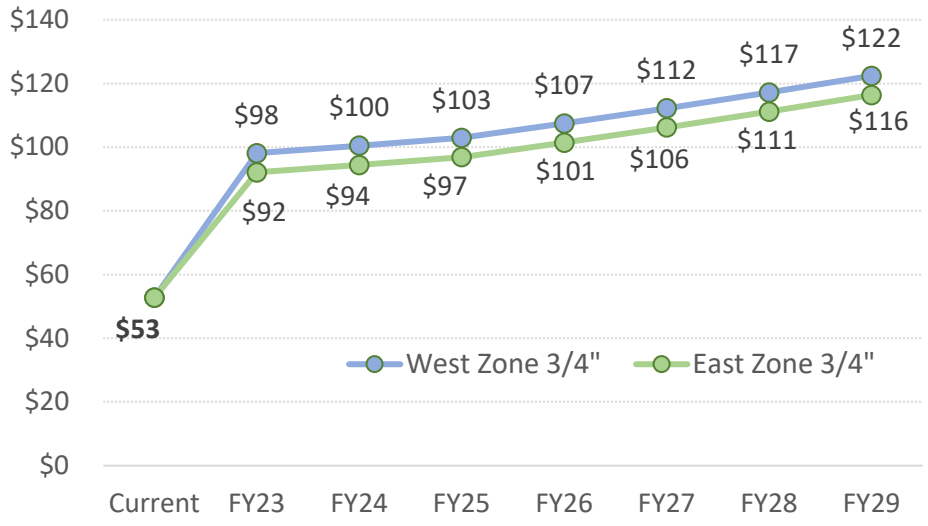
Figure 26
Combined Average Monthly Bill Impact for Nonresidential – East Zone



Inactive Accounts

The monthly bill for inactive accounts would increase in both the West Zone and the East Zone as shown in **Figure 27**. The increase in bills is proportionately greater for inactive properties than residential properties because they are currently not paying full cost of service.

Figure 27
Inactive ¾" Meter Account Projected Monthly Bills



5.3 NEW CUSTOMER FEE IMPACTS

Table 30 presents the calculated updated capacity fees per plumbing fixture unit for water and per drainage fixture unit for wastewater. Under the new fee schedule, the fees will be the same regardless of location of the new service for water. For wastewater, there is a difference in the collection fee component because of the infrastructure that was financed in each zone.

It is recommended that AVCSD include an automatic inflator that is applied to the capacity fees in the ordinance or resolution adopting the revised fee schedules. The fees are based on estimates of costs of capital facilities in fiscal year 2021-2022. Automatic inflators (such as the Engineering News Record or Western Region Consumer Price Index) help keep fees from falling behind as goods and services become more expensive.

Table 30
Current and Calculated Capacity Fees

	Fee per Fixture Unit	
Capacity Fee	Current	1-Jul-22
	WEST	
Water	**$149.14**	**$208.66**
Wastewater		
Collection	$121.54	$202.03
Treatment	$85.07	$51.60
Total Wastewater	**$206.61**	**$253.62**
Total	**$355.75**	**$462.29**
	EAST	
Water	**$156.06**	**$208.66**
Wastewater		
Collection	$73.63	$149.94
Treatment	$85.07	$51.60
Total Wastewater	**$158.70**	**$201.54**
Total	**$314.76**	**$410.20**

Source: AVCSD and HEC 2021 rate study. cap sum

Table 31 shows how the capacity fees are applied. The example is for a new residential development (one single family home). The overall increase in capacity fees is 30% for the home regardless of which zone it is located in.

Table 31
Increase in Capacity Fees for a Typical Home

Item	Water	Sewer	Total
# Fixture Units	25	21	
WEST			
Current Fees per Fixture Unit	$149.14	$206.61	$355.75
Updated Fees per Fixture Unit	$208.66	$253.62	$462.29
Percentage Change	*40%*	*23%*	*30%*
Current Fees (1 EDU)	$3,728.50	$4,338.81	$8,067.31
Updated Fees (1 EDU)	$5,216.62	$5,326.11	$10,542.72
Change in West Fees	**$1,488.12**	**$987.30**	**$2,475.41**
EAST			
Current Fees per Fixture Unit	$156.06	$158.70	$314.76
Updated Fees per Fixture Unit	$208.66	$201.54	$410.20
Percentage Change	*34%*	*27%*	*30%*
Current Fees (1 EDU)	$3,901.50	$3,332.70	$7,234.20
Updated Fees (1 EDU)	$5,216.62	$4,232.31	$9,448.92
Change in East Fees	**$1,315.12**	**$899.61**	**$2,214.72**

Source: AVCSD and HEC 2021 rate study. cap change

APPENDIX A

FINANCIAL AND

CAPITAL IMPROVEMENT PROJECT INFORMATION

Table A-1
American Valley CSD Utility Rates Study
Projected Water Demand

Billable Water Use	2020 Annual Demand	# Units / Accounts	2020 Water Billed	Share of Use	Fiscal Year 2023	2024	2025	2026	2027	2028	2029
	gallons		gallons								
Residential	**per unit**										
Single Unit	105,664	1,170	123,627,116	55%	123,627,116	123,627,116	123,627,116	123,627,116	123,627,116	123,627,116	123,627,116
Multi-Family	75,743	711	53,853,289	24%	53,853,289	53,853,289	53,853,289	53,853,289	53,853,289	53,853,289	53,853,289
Subtotal Residential			**177,480,405**	**79%**	**177,480,405**	**177,480,405**	**177,480,405**	**177,480,405**	**177,480,405**	**177,480,405**	**177,480,405**
Non-Residential	**per account**										
Mixed Use	368,414	9	3,315,730	1%	3,315,730	3,315,730	3,315,730	3,315,730	3,315,730	3,315,730	3,315,730
Commercial	118,282	210	24,839,220	11%	24,839,220	24,839,220	24,839,220	24,839,220	24,839,220	24,839,220	24,839,220
Industrial	121,635	6	729,810	0%	729,810	729,810	729,810	729,810	729,810	729,810	729,810
Public	477,340	26	12,410,840	6%	12,410,840	12,410,840	12,410,840	12,410,840	12,410,840	12,410,840	12,410,840
Schools	200,130	8	1,601,040	1%	1,601,040	1,601,040	1,601,040	1,601,040	1,601,040	1,601,040	1,601,040
Irrigation	898,080	5	4,490,400	2%	4,490,400	4,490,400	4,490,400	4,490,400	4,490,400	4,490,400	4,490,400
Subtotal Non-Residential			**47,387,040**	**21%**	**47,387,040**	**47,387,040**	**47,387,040**	**47,387,040**	**47,387,040**	**47,387,040**	**47,387,040**
Total			**224,867,445**	**100%**	**224,867,445**	**224,867,445**	**224,867,445**	**224,867,445**	**224,867,445**	**224,867,445**	**224,867,445**

Source: AVCSD and HEC. demand

Note: No increase in demand assumed. The California Department of Finance projects population decrease for Plumas County between 2020 and 2040.

Table A-2
American Valley CSD Utility Rates Study

Well Production Data ***all figures in GALLONS***

Month	WEST				EAST				TOTAL					
	2019	2020	2021	Average	2019	2020	2021	Average	2019	2020	2021	Average		Peaking
Jan	5,849,000	6,130,000	4,302,000	5,427,000	5,204,556	6,121,730	4,862,621	5,663,143	11,053,556	12,251,730	9,164,621	11,652,643	5%	0.96
Feb	9,829,000	5,162,000	4,707,000	6,566,000	5,204,556	5,230,970	5,226,914	5,217,763	15,033,556	10,392,970	9,933,914	12,713,263	5%	1.05
Mar	8,105,000	5,016,000	5,082,000	6,067,667	6,345,040	5,474,410	6,176,529	5,909,725	14,450,040	10,490,410	11,258,529	12,470,225	5%	1.03
Apr	7,531,000	6,445,300	5,495,700	6,490,667	6,842,950	7,377,540	8,879,554	7,110,245	14,373,950	13,822,840	14,375,254	14,098,395	6%	1.16
May	10,841,000	10,188,000	9,700,600	10,243,200	8,678,520	11,343,430	13,457,358	10,010,975	19,519,520	21,531,430	23,157,958	20,525,475	8%	1.69
Jun	15,169,000	14,543,000	12,646,100	14,119,367	21,033,700	15,434,620	18,297,372	18,234,160	36,202,700	29,977,620	30,943,472	33,090,160	13%	**2.72**
Jul	15,169,000	18,854,000	15,935,400	16,652,800	23,658,410	24,092,620	20,544,279	23,875,515	38,827,410	42,946,620	36,479,679	40,887,015	16%	**3.36**
Aug	19,337,000	15,381,000	15,845,200	16,854,400	18,871,240	16,099,670	18,802,329	17,485,455	38,208,240	31,480,670	34,647,529	34,844,455	14%	**2.86**
Sep	13,348,000	15,850,000	12,817,100	14,005,033	11,350,130	20,432,670	15,349,793	15,891,400	24,698,130	36,282,670	28,166,893	30,490,400	12%	**2.51**
Oct	6,329,000	9,202,000	7,026,000	7,519,000	7,048,600	11,185,462	11,022,314	9,117,031	13,377,600	20,387,462	18,048,314	16,882,531	7%	1.39
Nov	6,301,000	5,743,000	5,202,000	5,748,667	7,048,600	6,177,968	6,853,345	6,613,284	13,349,600	11,920,968	12,055,345	12,635,284	5%	1.04
Dec	5,692,000	5,259,000	2,766,900	4,572,633	6,333,850	5,395,770	6,239,862	5,864,810	12,025,850	10,654,770	9,006,762	11,340,310	5%	0.93
Total	**123,500,000**	**117,773,300**	**101,526,000**	**114,266,433**	**127,620,152**	**134,366,860**	**135,712,270**	**130,993,506**	**251,120,152**	**252,140,160**	**237,238,270**	**251,630,156**	**100%**	***A***
Base Monthly Flow (November through March)				5,676,393				5,853,745				12,162,345		*B*
Base Annual Flow				**68,116,720**				**70,244,940**				**145,948,140**		***C = D*12***
Base Flow as Percentage of Total				*60%*				*54%*				***58%***		
Additional Flow				**46,149,713**				**60,748,566**				**105,682,016**		***D = A-C***
Additional Flow as Percentage of Total				*40%*				*46%*				*42%*		

well prodn

Table A-3
American Valley CSD Utility Rates Study
Historical Effluent Flow at the WWTP

MONTH	2018	2019	2020	2021	Average 2019-2021
JANUARY	21.72	31.98	17.11	15.71	21.60
FEBRUARY	16.10	43.49	14.15	17.59	25.07
MARCH	32.67	43.35	17.09	17.04	25.83
APRIL	24.62	27.77	18.53	14.73	20.34
MAY	19.38	22.39	16.40	15.86	18.21
JUNE	15.95	18.51	14.11	13.69	15.43
JULY	14.89	16.34	13.46	11.76	13.85
AUGUST	14.27	14.41	12.92	13.11	13.48
SEPTEMBER	13.91	14.03	13.23	13.04	13.43
OCTOBER	14.60	14.05	14.40	17.76	15.40
NOVEMBER	14.96	13.00	14.07	16.53	14.53
DECEMBER	18.35	21.69	14.76	26.19	20.88
Average Dry Weather Flow (Aug-Sep) per Month	**14.09**	**14.22**	**13.07**	**13.07**	**13.45**
Days	30.50	30.50	30.50	30.50	30.50
ADWF per Day in Millions of Gallons	**0.46**	**0.47**	**0.43**	**0.43**	**0.44**

Source: AVCSD records. eff

Table A-4
American Valley CSD Utility Rates Study
Historical Revenues and Expenses by Enterprise Fund

Revenues and	Water						Wastewater					
Expenses	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Revenues												
Utility Revenue	$1,009,752	$1,012,419	$1,082,583	$995,671	$991,001	$1,045,928	$1,593,116	$1,598,283	$1,626,011	$1,733,772	$1,695,115	$1,841,266
Other Operating Revenue	$25,150	$46,513	$35,832	$67,559	$52,935	$41,673	$365,571	$367,858	$430,729	$97,843	$7,110	$52,269
Interest Income	$12,821	$17,740	$33,342	$39,050	$48,092	$28,135	$2,749	$4,948	$26,505	$55,583	$66,253	$24,496
Property Taxes	$173,131	$157,940	$163,973	$121,440	$120,375	$128,149	$62,367	$55,535	$58,326	$113,529	$120,375	$126,025
WWTP Capital	$0	$0	$0	$0	$0	$0	$187,313	$186,237	$162,511	$88,002	$122,578	$369,487
Grants	$0	$0	$0	$0	$0	$0	$114,159	$390,020	$485,461	$81,543	$335,879	$11,853,617
System Facility Fees	$0	$0	$0	$0	$0	$0	$126,149	$130,182	$121,037	$131,412	$123,719	$153,988
Other Non-Operating Revenue	$3,137	$2,021	$4,766	$10,233	$8,678	$947	$47,357	$47,096	$33,060	$41,122	$50,214	$40,143
Total Revenues	**$1,223,991**	**$1,236,633**	**$1,320,496**	**$1,233,953**	**$1,221,081**	**$1,244,832**	**$2,498,781**	**$2,780,159**	**$2,943,640**	**$2,342,806**	**$2,521,243**	**$14,461,291**
Expenses												
Salaries & Benefits	$526,658	$630,381	$470,746	$525,169	$515,763	$440,899	$716,029	$852,993	$586,105	$612,711	$570,302	$561,077
Insurance	$38,620	$26,011	$26,951	$12,979	$29,628	$33,953	$39,317	$26,511	$26,951	$20,554	$26,264	$29,144
Legal, Accounting & Prof. Services	$46,851	$58,287	$53,772	$58,506	$57,436	$44,897	$92,288	$46,569	$47,760	$60,071	$62,715	$46,156
Utilities	$142,278	$119,219	$149,667	$100,344	$107,218	$128,204	$111,300	$123,162	$118,955	$122,976	$89,713	$116,420
Vehicles	$4,724	$1,683	$4,549	$0	$0		$7,161	$5,237	$5,825	$0	$0	$0
Dues & Permits	$22,960	$19,642	$15,935	$10,525	$19,733	$5,361	$9,571	$6,618	$9,386	$4,946	$4,449	$4,384
Sewage Supplies, Monitoring & Disposal	$0	$0	$0	$0	$0	$13,321	$634,108	$568,586	$566,930	$85,243	$153,931	$163,699
Repairs & Maintenance	$59,498	$59,614	$47,089	$85,650	$77,648	$342,216	$55,388	$66,963	$58,229	$73,050	$43,793	$59,025
Office	$28,584	$31,389	$35,770	$32,797	$37,344	$36,974	$30,587	$32,952	$32,047	$32,638	$35,882	$38,400
Directors Fees	$2,763	$2,681	$3,316	$0	$0	$0	$1,929	$2,081	$3,275	$0	$0	$0
Other Expenses	$12,012	$37,702	$31,356	$28,618	$15,902	$6,261	$68,335	$76,820	$84,674	$79,555	$4,561	$11,694
Debt Issuance Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$274,000
Interest Expense	$0	$0	$0	$0	$20,633	$0	$168,063	$165,061	$159,769	$155,393	$147,541	$154,107
Total Expenses	**$884,948**	**$986,609**	**$839,151**	**$854,588**	**$881,305**	**$1,052,086**	**$1,934,076**	**$1,973,553**	**$1,699,906**	**$1,247,137**	**$1,139,151**	**$1,458,106**
Net Revenues	**$339,043**	**$250,024**	**$481,345**	**$379,365**	**$339,776**	**$192,746**	**$564,705**	**$806,606**	**$1,243,734**	**$1,095,669**	**$1,382,092**	**$13,003,185**

Source: AVCSD audited financials. audits

Table A-5

American Valley CSD Utility Rates Study
Historical Revenues and Expenses

Revenues and Expenses	Water	Wastewater Treatment	Wastewater Collection	FYE 2019 Total	Water	Wastewater Treatment	Wastewater Collection	FYE 2020 Total	Water	Wastewater Treatment	Wastewater Collection	FYE 2021 Total
Revenues												
Service Charges	$995,671	$941,391	$792,381	$2,729,443	$991,001	$892,513	$802,602	$2,686,116	$1,045,928	$1,027,430	$813,836	$2,887,194
Fire Protection Charges	$1,879	$0	$0	$1,879	$1,879	$0	$0	$1,879	$1,879	$0	$0	$1,879
WW Treatment Capital	$0	$88,002	$0	$88,002	$0	$122,578	$0	$122,578	$0	$170,198	$0	$170,198
O&M Reserve	$0	$15,484	$0	$15,484	$0	$28,070	$0	$28,070	$0	$29,091	$0	$29,091
WWT Plant Improvements	$0	$0	$0	$0	$0	$229,219	$0	$229,219	$0	$199,289	$0	$199,289
Subtotal Rates Collection	**$997,550**	**$1,044,877**	**$792,381**	**$2,834,808**	**$992,880**	**$1,272,380**	**$802,602**	**$3,067,862**	**$1,047,807**	**$1,426,008**	**$813,836**	**$3,287,651**
Set Up Fees	$1,476	$603	$987	$3,066	$1,650	$525	$1,195	$3,370	$12,058	$9,677	$8,538	$30,273
Miscellaneous	$10,851	$29	$0	$10,880	$11,416	$0	$1,040	$12,456	$8,289	$4,058	$786	$13,133
Connection Fees	$47,444	$5,581	$5,335	$58,360	$31,386	$1,196	$1,207	$33,789	$19,447	$8,224	$18,980	$46,651
Reclaimed Water Sales	$0	$1,890	$0	$1,890	$0	$1,947	$0	$1,947	$0	$2,006	$0	$2,006
Backflow Testing	$5,909	$0	$0	$5,909	$6,604	$0	$0	$6,604	$2,124	$0	$0	$2,124
Property Taxes	$121,440	$0	$113,529	$234,969	$120,375	$0	$120,375	$240,750	$126,025	$0	$126,025	$252,050
Rents/Leases	$0	$165	$660	$825	$0	$0	$1,980	$1,980	$0	$0	$1,980	$1,980
Interest	$39,050	$26,627	$28,956	$94,633	$48,092	$29,060	$37,193	$114,345	$28,135	$11,848	$12,648	$52,631
Penalties	$10,233	$8,299	$9,816	$28,348	$8,678	$7,664	$9,181	$25,523	$947	$968	$678	$2,593
Grants	$0	$81,543	$83,417	$164,960	$0	$0	$106,660	$106,660	$0	$11,850,112	$202,794	$12,052,906
Rural Electric Capital Credits	$0	$4,305	$394	$4,699	$0	$3,319	$0	$3,319	$0	$3,016	$410	$3,426
System Facility Fees (East Assessments)	$0	$0	$131,412	$131,412	$0	$0	$123,719	$123,719	$0	$0	$153,988	$153,988
Franchise Fees	$0	$0	$2,000	$2,000	$0	$0	$0	$0	$0	$0	$4,000	$4,000
Total Revenues	**$1,233,953**	**$1,173,919**	**$1,168,887**	**$3,576,759**	**$1,221,081**	**$1,316,091**	**$1,205,152**	**$3,742,324**	**$1,244,832**	**$13,315,917**	**$1,344,663**	**$15,905,412**
Expenses												
Salaries & Wages	$279,667	$189,086	$119,322	$588,075	$238,036	$176,042	$109,221	$523,299	$184,798	$154,580	$88,351	$427,729
Overtime Wages	$12,444	$6,589	$6,195	$25,228	$11,614	$10,420	$1,654	$23,688	$1,767	$10,576	$832	$13,175
Pager Duty	$17,720	$4,433	$13,117	$35,270	$15,886	$4,348	$11,587	$31,821	$10,712	$4,383	$6,328	$21,423
Employee Benefits	$215,338	$138,387	$135,253	$488,978	$216,322	$115,929	$107,195	$439,446	$243,520	$161,132	$134,710	$539,362
Subtotal Personnel	**$525,169**	**$338,495**	**$273,887**	**$1,137,551**	**$481,858**	**$306,739**	**$229,657**	**$1,018,254**	**$440,797**	**$330,671**	**$230,221**	**$1,001,689**
Insurance	$12,979	$13,438	$7,116	$33,533	$29,628	$12,837	$13,427	$55,892	$33,953	$14,916	$14,229	$63,098
Memberships	$5,415	$2,873	$2,073	$10,361	$5,014	$2,138	$2,310	$9,462	$4,962	$2,192	$2,192	$9,346
Office	$27,358	$13,726	$13,883	$54,967	$32,179	$15,076	$15,669	$62,924	$31,676	$16,118	$16,228	$64,022
Printing, Postage & Publication	$5,439	$2,506	$2,522	$10,467	$5,165	$2,581	$2,556	$10,302	$5,298	$2,621	$2,467	$10,385
Travel/Training/Meetings	$6,348	$2,407	$3,395	$12,150	$2,011	$1,620	$386	$4,017	$1,283	$648	$318	$2,249
Professional Services	$58,506	$22,970	$37,101	$118,577	$57,436	$34,466	$28,249	$120,151	$44,897	$78,981	$22,548	$146,426
Mapping & CAD Services	$3,237	$385	$2,120	$5,742	$0	$0	$964	$964	$225	$0	$225	$450
Telemetering Maintenance	$20,019	$10,859	$6,038	$36,916	$6,883	$0	$1,520	$8,403	$3,801	$0	$391	$4,192
Gas, Oil & Fuel	$12,104	$7,836	$7,037	$26,977	$4,582	$2,146	$2,560	$9,288	$7,630	$2,995	$3,590	$14,215
Operating Supplies	$24	$27,171	$12	$27,207	$0	$43,168	$32,862	$76,030	$1,644	$22,424	0	$24,068
Monitor & Lab / DHS Perm	$5,110	$0	$0	$5,110	$14,719	$0	$0	$14,719	$399	$0	$0	$399
Utilities - Electric	$78,591	$76,255	$44,354	$199,200	$103,698	$77,290	$0	$180,988	$116,727	$73,556	$32,324	$222,606
Utilities - Other	$2,410	$1,164	$1,214	$4,788	$6,898	$3,393	$4,325	$14,616	$3,847	$1,763	$2,192	$7,802
Maintenance	$65,631	$24,869	$31,284	$121,784	$70,765	$12,628	$29,644	$113,037	$167,473	$20,229	$38,796	$226,498
Water Purchases	$19,343	$30,142	$0	$49,485	$0	$0	$0	$0	$0	$0	$0	$0
USGS Spanish Creek Monitoring	$0	$0	$0	$0	$0	$15,321	$0	$15,321	$0	$36,100	$0	$36,100
NPDES Costs	$0	$58,060	$0	$58,060	$0	$42,460	$0	$42,460	$0	$46,346	$2,848	$49,194
Conservation Expense	$724	$0	$0	$724	$766	$0	$0	$766	$0	$0	$0	$0
Safety Expense	$1,944	$1,465	$1,587	$4,996	$1,354	$688	$678	$2,720	$522	$375	$374	$1,272
State Monitoring Fees	$4,114	$0	$4,572	$8,686	$3,680	$0	$5,250	$8,930	$9,520	$0	$0	$9,520
Interest Expense	$0	$0	$155,393	$155,393	$20,633	$0	$147,541	$168,174	$0	$0	$154,101	$154,101
Biosolids Disposal	$0	$18,601	$0	$18,601	$0	$14,869	$0	$14,869	$0	$0	$0	$0
Capital Expenses	$0	$0	$0	$0	$0	$0	$0	$0	$174,743	$0	$0	$174,743
Other Expenses	$123	$245	$82	$450	$131	$164	$65	$360	$2,689	$283,889	$1,239	$287,817
Total Expenses	**$854,588**	**$653,467**	**$593,670**	**$2,101,725**	**$847,400**	**$587,584**	**$517,663**	**$1,952,647**	**$1,052,087**	**$933,824**	**$524,282**	**$2,510,192**
Net Revenues	**$379,365**	**$520,452**	**$575,217**	**$1,475,034**	**$373,681**	**$728,507**	**$687,489**	**$1,789,677**	**$192,745**	**$12,382,093**	**$820,381**	**$13,395,220**

Source: AVCSD audit financial statements.

rev&exp

Table A-6
American Valley CSD Utility Rates Study
Fiscal Year 2022 Budget - WATER

Revenues and Expenses	WATER		
	WEST	EAST	TOTAL
Revenues			
Service Charges	$550,000	$450,000	$1,000,000
Set Up Fees	$824	$824	$1,648
Fire Protection	$1,800	$0	$1,800
Miscellaneous	$515	$5,150	$5,665
Connection Fees	$2,060	$8,240	$10,300
Backflow Testing	$5,150	$1,545	$6,695
Property Taxes	$70,040	$65,920	$135,960
Interest	$20,600	$20,600	$41,200
Penalties	$6,180	$5,150	$11,330
Total Water Revenues	**$657,169**	**$557,429**	**$1,214,598**
Expenses			
Salaries & Wages	$133,900	$128,750	$262,650
Overtime Wages	$5,150	$7,000	$12,150
Pager Duty	$9,270	$0	$9,270
Employee Benefits	$61,800	$61,800	$123,600
OPEB	$1,030	$0	$1,030
Insurance	$20,600	$20,600	$41,200
Memberships	$4,120	$4,120	$8,240
Office Expense	$15,450	$15,450	$30,900
Postage/printing	$4,120	$4,120	$8,240
Travel/training	$6,180	$6,180	$12,360
Professional Services	$30,357	$30,357	$60,714
Mapping & CAD	$5,150	$5,150	$10,300
Telemetering Maint.	$12,360	$12,360	$24,720
Gas, Oil, Propane & Fuel	$4,120	$9,120	$13,240
DHS Permit	$8,000	$6,180	$14,180
Electric	$39,000	$88,800	$127,800
Security Systems	$2,060	$2,060	$4,120
Maintenance	$45,000	$45,000	$90,000
Conservation	$0	$0	$0
Safety	$2,060	$2,060	$4,120
State Monitoring Fees	$6,000	$5,000	$11,000
Payroll Expense	$77	$77	$155
Total Expenses	**$415,804**	**$454,184**	**$869,989**
Net Revenues	**$241,365**	**$103,245**	**$344,610**

water bud

Table A-7
American Valley CSD Utility Rates Study
Fiscal Year 2022 Budget - WASTEWATER

Revenues and Expenses	West Collection	East Collection	Total Collection	Total Treatment	TOTAL
Revenues					
Service Charges	$225,000	$375,000	$600,000	$1,100,000	$1,700,000
O&M Reserves	$0	$0	$0	$29,096	$29,096
WWT Capital	$0	$0	$0	$160,531	$160,531
WWT Plant Improvement	$0	$0	$0	$199,000	$199,000
Subtotal Rates	**$225,000**	**$375,000**	**$600,000**	**$1,488,627**	**$2,088,627**
Set Up Fees	$412	$618	$1,030	$400	$1,430
Miscellaneous	$412	$0	$412	$1,947	$2,359
Connection Fees	$515	$1,030	$1,545	$500	$2,045
Property Taxes	$64,890	$61,800	$126,690	$0	$126,690
Rents/Leases	$2,039	$0	$2,039	$0	$2,039
Franchises (Garbage)	$2,060	$0	$2,060	$0	$2,060
Interest	$17,510	$17,510	$35,020	$20,000	$55,020
Penalties	$5,665	$5,665	$11,330	$8,000	$19,330
Grants	$0	$0	$0	$0	$0
Rural Electric Credits	$412	$0	$412	$4,000	$4,412
W. Quincy Debt Service	$150,000	$0	$150,000	$0	$150,000
E. Quincy Debt Service (Assessment)	$0	$125,000	$125,000	$0	$125,000
Total Wastewater Revenues	**$468,915**	**$586,623**	**$1,055,538**	**$1,523,474**	**$2,579,012**
Expenses					
Salaries & Wages	$72,100	$72,100	$144,200	$200,000	$344,200
Overtime Wages	$2,060	$3,090	$5,150	$15,000	$20,150
Pager Duty	$4,738	$0	$4,738	$4,738	$9,476
Employee Benefits	$36,050	$46,350	$82,400	$90,000	$172,400
Post-Employment Benefits	$500	$0	$500	$1,200	$1,700
Insurance	$13,390	$13,390	$26,780	$25,000	$51,780
Memberships	$1,442	$1,442	$2,884	$3,000	$5,884
Office Expenses	$8,240	$8,240	$16,480	$15,000	$31,480
Postage/Printing	$1,545	$1,545	$3,090	$3,000	$6,090
Travel/Training	$2,575	$2,575	$5,150	$5,000	$10,150
Professional Services	$16,480	$16,480	$32,960	$35,000	$67,960
Mapping & CAD	$4,120	$4,120	$8,240	$0	$8,240
Telemetering Maint.	$2,060	$2,060	$4,120	$0	$4,120
Gas, Oil, Propane & Fuel	$3,090	$5,150	$8,240	$7,000	$15,240
Chemicals	$0	$0	$0	$201,275	$201,275
Electric	$22,660	$15,450	$38,110	$107,310	$145,420
Security Systems	$1,030	$1,545	$2,575	$1,500	$4,075
Maintenance	$15,450	$15,450	$30,900	$20,000	$50,900
Lab	$0	$0	$0	$50,000	$50,000
Safety	$1,030	$1,030	$2,060	$1,000	$3,060
State & USGS Monitoring Fees	$2,704	$2,704	$5,408	$27,600	$33,008
Biosolids Disposal	$0	$0		$20,375	$20,375
Payroll	$52	$52	$103	$206	$309
Total Expenses	**$211,316**	**$212,773**	**$424,088**	**$833,204**	**$1,257,292**

Source: AVCSD.

ww bud

Table A-8
American Valley CSD Utility Rates Study
Water Capital Improvements

Project Description	East or West	Source	Total	2022	2023	2024	2025	2026	2027	2028	2029
New Tank	W & E	Reserve	$2,000,000					$2,000,000			
Full Intertie	W & E	Reserve	$1,500,000						$1,500,000		
RTU Tank Upgrade	E	Reserve	$28,000		$28,000						
RTU Tank Upgrade	W	Reserve	$25,000	$25,000							
Water Meter Replacement & Upgrade	W	Reserve	$158,300		$34,000	$124,300					
Water Meter Replacement & Upgrade	E	Reserve	$411,900	$202,000	$140,000	$69,900					
Mapping	E	Reserve	$12,000	$12,000							
Tank Siting	W & E	Reserve	$9,200		$9,200						
Water Planning Project	W	Grant	$500,000	$500,000							
Generator Project - Wells Grant-Funded	W & E	Grant	$78,000	$78,000							
Generator Project (Remaining)		Reserve	$252,000	$252,000							
TOTAL Estimated Cost			**$4,974,400**	**$1,069,000**	**$211,200**	**$194,200**	**$0**	**$2,000,000**	**$1,500,000**	**$0**	**$0**
Funded By											
Grant			$578,000	$578,000	$0	$0	$0	$0	$0	$0	$0
Reserve			$4,396,400	$491,000	$211,200	$194,200	$0	$2,000,000	$1,500,000	$0	$0
Total			**$4,974,400**	**$1,069,000**	**$211,200**	**$194,200**	**$0**	**$2,000,000**	**$1,500,000**	**$0**	**$0**

Source: AVCSD and HEC.

water cap

Table A-9
American Valley CSD Utility Rates Study
Water Capital Improvements Inflated

Project Description	East or West	Source	Total	2022	2023	2024	2025	2026	2027	2028	2029
					Costs Inflated 4.5%		***Timing of Projects may deviate from this schedule***				
New Tank	W & E	Reserve	$2,492,400	$0	$0	$0	$0	$2,492,400	$0	$0	$0
Full Intertie	W & E	Reserve	$1,953,400	$0	$0	$0	$0	$0	$1,953,400	$0	$0
RTU Tank Upgrade	E	Reserve	$30,600	$0	$30,600	$0	$0	$0	$0	$0	$0
RTU Tank Upgrade	W	Reserve	$26,200	$26,200	$0	$0	$0	$0	$0	$0	$0
Water Meter Replacement & Upgrade	W	Reserve	$179,100	$0	$37,200	$141,900	$0	$0	$0	$0	$0
Water Meter Replacement & Upgrade	E	Reserve	$443,800	$211,100	$152,900	$79,800	$0	$0	$0	$0	$0
Mapping	E	Reserve	$12,600	$12,600	$0	$0	$0	$0	$0	$0	$0
Tank Siting	W & E	Reserve	$10,100	$0	$10,100	$0	$0	$0	$0	$0	$0
Water Planning Project	W	Grant	$522,500	$522,500	$0	$0	$0	$0	$0	$0	$0
Generator Project - Wells Grant-Funded	W & E	Grant	$81,600	$81,600	$0	$0	$0	$0	$0	$0	$0
Generator Project (Remaining)	"-"	Reserve	$263,400	$263,400	$0	$0	$0	$0	$0	$0	$0
TOTAL Estimated Cost			**$6,015,700**	**$1,117,400**	**$230,800**	**$221,700**	**$0**	**$2,492,400**	**$1,953,400**	**$0**	**$0**
Funded By											
Grant			$604,100	$604,100	$0	$0	$0	$0	$0	$0	$0
Reserve			$5,411,600	$513,300	$230,800	$221,700	$0	$2,492,400	$1,953,400	$0	$0
Total			**$6,015,700**	**$1,117,400**	**$230,800**	**$221,700**	**$0**	**$2,492,400**	**$1,953,400**	**$0**	**$0**

Source: AVCSD and HEC.

water cap infl

Table A-10
American Valley CSD Utility Rates Study
Wastewater Collection and Treatment Plant Improvements

Item Description	East or West	Funding Source	Total	2022	2023	2024	2025	2026	2027	2028	2029
Collection											
Mapping project CAD-GPS-GIS (1/3)	E	Reserve	$12,000	$12,000							
Lift Station Generators	E	Grant	$220,000	$220,000							
Routine Inspect, Repair [1]	E & W	Reserve	$1,500,000			$250,000	$250,000	$250,000	$250,000	$250,000	$250,000
TV Sewer Lines	E	Reserve	$70,000		$70,000						
Total Collection Improvements			**$1,802,000**	**$232,000**	**$70,000**	**$250,000**	**$250,000**	**$250,000**	**$250,000**	**$250,000**	**$250,000**
Treatment Plant											
No improvements identified											
Total Treatment Plant Improvements			**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Total Wastewater Improvement Costs			**$1,802,000**	**$232,000**	**$70,000**	**$250,000**	**$250,000**	**$250,000**	**$250,000**	**$250,000**	**$250,000**
Funded by:											
Grant			$220,000	$220,000	$0	$0	$0	$0	$0	$0	$0
Reserve			$1,582,000	$12,000	$70,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000
Total Estimated Costs			**$1,802,000**	**$232,000**	**$70,000**	**$250,000**	**$250,000**	**$250,000**	**$250,000**	**$250,000**	**$250,000**

Source: AVCSD and HEC.

ww cap

[1] Not adopted by the AVCSD Board; this includes potential spending on a new routine inspect, maintain and repair program.

Table A-11
American Valley CSD Utility Rates Study
Wastewater Collection and Treatment Plant Improvements - Inflated

Item Description	East or West	Funding Source	Total	2022	2023	2024	2025	2026	2027	2028	2029
					Costs Inflated	*4.5%*	***Timing of Projects may deviate from this schedule***				
Collection											
Mapping project CAD-GPS-GIS (1/3)	E	Reserve	$12,540	$12,540	$0	$0	$0	$0	$0	$0	$0
Lift Station Generators	E	Grant	$229,900	$229,900	$0	$0	$0	$0	$0	$0	$0
Routine Inspect, Repair [1]	E & W	Reserve	$1,916,200	$0	$0	$285,300	$298,100	$311,500	$325,600	$340,200	$355,500
TV Sewer Lines	E	Reserve	$76,400	$0	$76,400	$0	$0	$0	$0	$0	$0
Total Collection Improvements			**$2,235,040**	**$242,440**	**$76,400**	**$285,300**	**$298,100**	**$311,500**	**$325,600**	**$340,200**	**$355,500**
Treatment Plant											
No improvements identified											
Total Treatment Plant Improvements											
Total Wastewater Improvement Costs			**$2,235,040**	**$242,440**	**$76,400**	**$285,300**	**$298,100**	**$311,500**	**$325,600**	**$340,200**	**$355,500**
Funded by:											
Grant			$229,900	$229,900	$0	$0	$0	$0	$0	$0	$0
Reserve			$2,005,140	$12,540	$76,400	$285,300	$298,100	$311,500	$325,600	$340,200	$355,500
Total Estimated Costs			**$2,235,040**	**$242,440**	**$76,400**	**$285,300**	**$298,100**	**$311,500**	**$325,600**	**$340,200**	**$355,500**

Source: AVCSD and HEC.

ww cap infl

[1] Not adopted by the AVCSD Board; this includes potential spending on a new routine inspect. maintain and repair program.

Table A-12
American Valley CSD Utility Rates Study
Estimated USDA Debt Service for New WWTP

Due Date		Principal	Interest	Payment Total	FY Total	Remaining Principal	Reserve Deposits	Debt Service Reserve
		40 Years	1.125%		*total borrowed*	*----$20,568,000*		
Dec	2023	$514,200	$115,695	$629,895		$20,053,800		$0
Jun	2024		$112,803	$112,803	$742,698	$20,053,800	$74,270	$74,270
Dec	2024	$514,200	$112,803	$627,003		$19,539,600		$74,270
Jun	2025		$109,910	$109,910	$736,913	$19,539,600	$73,691	$147,961
Dec	2025	$514,200	$109,910	$624,110		$19,025,400		$147,961
Jun	2026		$107,018	$107,018	$731,128	$19,025,400	$73,113	$221,074
Dec	2026	$514,200	$107,018	$621,218		$18,511,200		$221,074
Jun	2027		$104,126	$104,126	$725,343	$18,511,200	$72,534	$293,608
Dec	2027	$514,200	$104,126	$618,326		$17,997,000		$293,608
Jun	2028		$101,233	$101,233	$719,559	$17,997,000	$71,956	$365,564
Dec	2028	$514,200	$101,233	$615,433		$17,482,800		$365,564
Jun	2029		$98,341	$98,341	$713,774	$17,482,800	$71,377	$436,941
Dec	2029	$514,200	$98,341	$612,541		$16,968,600		$436,941
Jun	2030		$95,448	$95,448	$707,989	$16,968,600	$70,799	$507,740
Dec	2030	$514,200	$95,448	$609,648		$16,454,400		$507,740
Jun	2031		$92,556	$92,556	$702,204	$16,454,400	$70,220	$577,961
Dec	2031	$514,200	$92,556	$606,756		$15,940,200		$577,961
Jun	2032		$89,664	$89,664	$696,420	$15,940,200	$69,642	$647,603
Dec	2032	$514,200	$89,664	$603,864		$15,426,000		$647,603
Jun	2033		$86,771	$86,771	$690,635	$15,426,000	$69,063	$716,666
Dec	2033	$514,200	$86,771	$600,971		$14,911,800		$716,666
Jun	2034		$83,879	$83,879	$684,850	$14,911,800	$68,485	$785,151
Dec	2034	$514,200	$83,879	$598,079		$14,397,600		$785,151
Jun	2035		$80,987	$80,987	$679,065	$14,397,600		$785,151
Dec	2035	$514,200	$80,987	$595,187		$13,883,400		$785,151
Jun	2036		$78,094	$78,094	$673,281	$13,883,400		$785,151
Dec	2036	$514,200	$78,094	$592,294		$13,369,200		$785,151
Jun	2037		$75,202	$75,202	$667,496	$13,369,200		$785,151
Dec	2037	$514,200	$75,202	$589,402		$12,855,000		$785,151
Jun	2038		$72,309	$72,309	$661,711	$12,855,000		$785,151
Dec	2038	$514,200	$72,309	$586,509		$12,340,800		$785,151
Jun	2039		$69,417	$69,417	$655,926	$12,340,800		$785,151
Dec	2039	$514,200	$69,417	$583,617		$11,826,600		$785,151
Jun	2040		$66,525	$66,525	$650,142	$11,826,600		$785,151
Dec	2040	$514,200	$66,525	$580,725		$11,312,400		$785,151
Jun	2041		$63,632	$63,632	$644,357	$11,312,400		$785,151
Dec	2041	$514,200	$63,632	$577,832		$10,798,200		$785,151
Jun	2042		$60,740	$60,740	$638,572	$10,798,200		$785,151
Dec	2042	$514,200	$60,740	$574,940		$10,284,000		$785,151
Jun	2043		$57,848	$57,848	$632,787	$10,284,000		$785,151
Dec	2043	$514,200	$57,848	$572,048		$9,769,800		$785,151
Jun	2044		$54,955	$54,955	$627,003	$9,769,800		$785,151
Dec	2044	$514,200	$54,955	$569,155		$9,255,600		$785,151
Jun	2045		$52,063	$52,063	$621,218	$9,255,600		$785,151
Dec	2045	$514,200	$52,063	$566,263		$8,741,400		$785,151
Jun	2046		$49,170	$49,170	$615,433	$8,741,400		$785,151
Dec	2046	$514,200	$49,170	$563,370		$8,227,200		$785,151
Jun	2047		$46,278	$46,278	$609,648	$8,227,200		$785,151
Dec	2047	$514,200	$46,278	$560,478		$7,713,000		$785,151
Jun	2048		$43,386	$43,386	$603,864	$7,713,000		$785,151
Dec	2048	$514,200	$43,386	$557,586		$7,198,800		$785,151
Jun	2049		$40,493	$40,493	$598,079	$7,198,800		$785,151
Dec	2049	$514,200	$40,493	$554,693		$6,684,600		$785,151
Jun	2050		$37,601	$37,601	$592,294	$6,684,600		$785,151
Dec	2050	$514,200	$37,601	$551,801		$6,170,400		$785,151
Jun	2051		$34,709	$34,709	$586,509	$6,170,400		$785,151
Dec	2051	$514,200	$34,709	$548,909		$5,656,200		$785,151
Jun	2052		$31,816	$31,816	$580,725	$5,656,200		$785,151
Dec	2052	$514,200	$31,816	$546,016		$5,142,000		$785,151
Jun	2053		$28,924	$28,924	$574,940	$5,142,000		$785,151
Dec	2053	$514,200	$28,924	$543,124		$4,627,800		$785,151
Jun	2054		$26,031	$26,031	$569,155	$4,627,800		$785,151
Dec	2054	$514,200	$26,031	$540,231		$4,113,600		$785,151
Jun	2055		$23,139	$23,139	$563,370	$4,113,600		$785,151
Dec	2055	$514,200	$23,139	$537,339		$3,599,400		$785,151
Jun	2056		$20,247	$20,247	$557,586	$3,599,400		$785,151
Dec	2056	$514,200	$20,247	$534,447		$3,085,200		$785,151
Jun	2057		$17,354	$17,354	$551,801	$3,085,200		$785,151
Dec	2057	$514,200	$17,354	$531,554		$2,571,000		$785,151
Jun	2058		$14,462	$14,462	$546,016	$2,571,000		$785,151
Dec	2058	$514,200	$14,462	$528,662		$2,056,800		$785,151
Jun	2059		$11,570	$11,570	$540,231	$2,056,800		$785,151
Dec	2059	$514,200	$11,570	$525,770		$1,542,600		$785,151
Jun	2060		$8,677	$8,677	$534,447	$1,542,600		$785,151
Dec	2060	$514,200	$8,677	$522,877		$1,028,400		$785,151
Jun	2061		$5,785	$5,785	$528,662	$1,028,400		$785,151
Dec	2061	$514,200	$5,785	$519,985		$514,200		$785,151
Jun	2062		$2,892	$2,892	$522,877	$514,200		$785,151
Dec	2062	$514,200	$2,892	$517,092		$0		$785,151
Jun	2063		$0	$0	$517,092	$0		
Totals		**$20,568,000**	**$4,627,800**	**$25,195,800**	**$25,195,800**		**$785,151**	

Source: AVCSD.

proj debt

Table A-13
American Valley CSD Utility Rates Study
Wastewater System 2012 USDA Loan

West Zone Only - Collection

Due Date	Principal	Interest	Payment Total	FY Total	Remaining Principal	Reserve Deposits	Accummulated Reserve
	40 Years	2.75%		*total borrowed*	*----$3,040,000*		
9/1/2020	$48,000	$37,524	$85,524		$2,681,000	$0	$87,803
3/1/2021		$36,864	$36,864	$122,388	$2,681,000	$12,239	$100,041
9/1/2021	$48,000	$36,864	$84,864		$2,633,000	$0	$100,041
3/1/2022		$36,204	$36,204	$121,068	$2,633,000	$12,107	$112,148
9/1/2022	$60,000	$36,204	$60,000		$2,573,000	$0	$112,148
3/1/2023		$35,379	$35,379	$95,379	$2,573,000	$13,158	$125,306
9/1/2023	$60,000	$35,379	$95,379		$2,513,000	$0	$125,306
3/1/2024		$34,554	$34,554	$129,933	$2,513,000	$0	$125,306
9/1/2024	$60,000	$34,554	$94,554		$2,453,000	$0	$125,306
3/1/2025		$33,729	$33,729	$128,283	$2,453,000	$0	$125,306
9/1/2025	$60,000	$33,729	$93,729		$2,393,000	$0	$125,306
3/1/2026		$32,904	$32,904	$126,633	$2,393,000	$0	$125,306
9/1/2026	$60,000	$33,729	$93,729		$2,333,000	$0	$125,306
3/1/2027		$32,079	$32,079	$125,808	$2,333,000	$0	$125,306
9/1/2027	$60,000	$32,079	$92,079		$2,273,000	$0	$125,306
3/1/2028		$31,254	$31,254	$123,333	$2,273,000	$0	$125,306
9/1/2028	$60,000	$31,254	$60,000		$2,213,000	$0	$125,306
3/1/2029		$30,429	$30,429	$90,429	$2,213,000	$0	$125,306
9/1/2029	$72,000	$30,429	$72,000		$2,141,000	$0	$125,306
3/1/2030		$29,439	$29,439	$101,439	$2,141,000	$0	$125,306
9/1/2030	$72,000	$29,439	$101,439		$2,069,000	$0	$125,306
3/1/2031		$28,449	$28,449	$129,888	$2,069,000	$0	$125,306
9/1/2031	$72,000	$28,449	$100,449		$1,997,000	$0	$125,306
3/1/2032		$27,459	$27,459	$127,908	$1,997,000	$0	$125,306
9/1/2032	$72,000	$27,459	$99,459		$1,925,000	$0	$125,306
3/1/2033		$26,469	$26,469	$125,928	$1,925,000	$0	$125,306
9/1/2033	$72,000	$26,469	$98,469		$1,853,000	$0	$125,306
3/1/2034		$25,479	$25,479	$123,948	$1,853,000	$0	$125,306
9/1/2034	$72,000	$25,479	$97,479		$1,781,000	$0	$125,306
3/1/2035		$24,489	$24,489	$121,968	$1,781,000	$0	$125,306
9/1/2035	$73,000	$24,489	$73,000		$1,708,000	$0	$125,306
3/1/2036		$23,485	$23,485	$96,485	$1,708,000	$0	$125,306
9/1/2036	$84,000	$23,485	$84,000		$1,624,000	$0	$125,306
3/1/2037		$22,330	$22,330	$106,330	$1,624,000	$0	$125,306
9/1/2037	$84,000	$22,330	$106,330		$1,540,000	$0	$125,306
3/1/2038		$21,175	$21,175	$127,505	$1,540,000	$0	$125,306
9/1/2038	$84,000	$21,175	$105,175		$1,456,000	$0	$125,306
3/1/2039		$20,020	$20,020	$125,195	$1,456,000	$0	$125,306
9/1/2039	$84,000	$20,020	$104,020		$1,372,000	$0	$125,306
3/1/2040		$18,865	$18,865	$122,885	$1,372,000	$0	$125,306
9/1/2040	$84,000	$18,865	$84,000		$1,288,000	$0	$125,306
3/1/2041		$17,710	$17,710	$101,710	$1,288,000	$0	$125,306
9/1/2041	$96,000	$17,710	$113,710		$1,192,000	$0	$125,306
3/1/2042		$16,390	$16,390	$130,100	$1,192,000	$0	$125,306
9/1/2042	$96,000	$16,390	$112,390		$1,096,000	$0	$125,306
3/1/2043		$15,070	$15,070	$127,460	$1,096,000	$0	$125,306
9/1/2043	$96,000	$15,070	$111,070		$1,000,000	$0	$125,306
3/1/2044		$13,750	$13,750	$124,820	$1,000,000	$0	$125,306
9/1/2044	$96,000	$13,750	$96,000		$904,000	$0	$125,306
3/1/2045		$12,430	$12,430	$108,430	$904,000	$0	$125,306
9/1/2045	$107,000	$12,430	$107,000		$797,000	$0	$125,306
3/1/2046		$10,959	$10,959	$117,959	$797,000	$0	$125,306
9/1/2046	$108,000	$10,959	$118,959		$689,000	$0	$125,306
3/1/2047		$9,474	$9,474	$128,433	$689,000	$0	$125,306
9/1/2047	$108,000	$9,474	$117,474		$581,000	$0	$125,306
3/1/2048		$7,989	$7,989	$125,463	$581,000	$0	$125,306
9/1/2048	$108,000	$7,989	$115,989		$473,000	$0	$125,306
3/1/2049		$6,504	$6,504	$122,493	$473,000	$0	$125,306
9/1/2049	$113,000	$6,504	$119,504		$360,000	$0	$125,306
3/1/2050		$4,950	$4,950	$124,454	$360,000	$0	$125,306
9/1/2050	$120,000	$4,950	$124,950		$240,000	$0	$125,306
3/1/2051		$3,300	$3,300	$128,250	$240,000	$0	$125,306
9/1/2051	$120,000	$3,300	$123,300		$120,000	$0	$125,306
3/1/2052		$1,650	$1,650	$124,950	$120,000	$0	$125,306
9/1/2052	$120,000	$1,650	$121,650	$121,650	$0	$0	

Source: American Valley CSD.

usda debt

Table A-14
American Valley CSD Utility Rates Study
East Zone Sewage Collection A.D. 1996 USDA Bonds

Due Date	Principal	Interest	Period Total	FY Total	Remaining Principal
	$2,400,020	**5.125%**		*East Zone Only*	
9/2/2021	$65,100	$36,454	$101,554	$0	$1,357,500
3/2/2022	$0	$34,786	$34,786	$136,340	
9/2/2022	$68,600	$34,786	$103,386	$0	$1,288,900
3/2/2023	$0	$33,028	$33,028	$136,414	
9/2/2023	$72,300	$33,028	$105,328	$0	$1,216,600
3/2/2024	$0	$31,175	$31,175	$136,503	
9/2/2024	$76,100	$31,175	$107,275	$0	$1,140,500
3/2/2025	$0	$29,225	$29,225	$136,501	
9/2/2025	$80,200	$29,225	$109,425	$0	$1,060,300
3/2/2026	$0	$27,170	$27,170	$136,596	
9/2/2026	$83,500	$27,170	$110,670	$0	$976,800
3/2/2027	$0	$25,031	$25,031	$135,701	
9/2/2027	$87,900	$25,031	$112,931	$0	$888,900
3/2/2028	$0	$22,778	$22,778	$135,709	
9/2/2028	$92,600	$22,778	$115,378	$0	$796,300
3/2/2029	$0	$20,405	$20,405	$135,783	
9/2/2029	$97,600	$20,405	$118,005	$0	$698,700
3/2/2030	$0	$17,904	$17,904	$135,909	
9/2/2030	$102,800	$17,904	$120,704	$0	$595,900
3/2/2031	$0	$15,270	$15,270	$135,974	
9/2/2031	$107,300	$15,270	$122,570	$0	$488,600
3/2/2032	$0	$12,520	$12,520	$135,090	
9/2/2032	$113,000	$12,520	$125,520	$0	$375,600
3/2/2033	$0	$9,625	$9,625	$135,145	
9/2/2033	$119,100	$9,625	$128,725	$0	$256,500
3/2/2034	$0	$6,573	$6,573	$135,298	
9/2/2034	$125,400	$6,573	$131,973	$0	$131,100
3/2/2035	$0	$3,359	$3,359	$135,332	
9/2/2035	$131,100	$3,359	$134,459	$134,459	$0

Source: American Valley CSD. ad debt

Table A-15
American Valley CSD Utility Rates Study
Annual Depreciation of Existing Assets

Asset Type	2023 Year 1	2024 Year 2	2025 Year 3	2026 Year 4	2027 Year 5	2028 Year 6	2029 Year 7
WEST							
Water	$290,271	$290,271	$282,479	$274,727	$264,807	$264,567	$257,454
Wastewater	$258,384	$258,384	$250,680	$245,266	$233,713	$233,538	$233,538
EAST							
Water	$72,452	$72,452	$66,725	$56,447	$56,447	$52,357	$50,225
Wastewater	$183,222	$183,222	$181,417	$181,417	$181,417	$181,417	$181,417
WW Plant	$222,761	$222,761	$179,119	$110,109	$107,394	$107,394	$107,363
Total Existing Assets	**$1,027,090**	**$1,027,090**	**$960,421**	**$867,966**	**$843,780**	**$839,274**	**$829,999**

Source: AVCSD depreciation schedules. old depr

Table A-16
American Valley CSD Utility Rates Study
Estimated Annual Depreciation of New Assets

Asset	East or West	Life (Years)	2023 Year 1	2024 Year 2	2025 Year 3	2026 Year 4	2027 Year 5	2028 Year 6	2029 Year 7
WATER									
RTU Tank Upgrade	E	40	$765	$765	$765	$765	$765	$765	$765
RTU Tank Upgrade	W	40	$655	$655	$655	$655	$655	$655	$655
Water Meter Replacement & Upgrade	W	15	$2,480	$11,940	$11,940	$11,940	$11,940	$11,940	$11,940
Water Meter Replacement & Upgrade	E	15	$24,267	$29,587	$29,587	$29,587	$29,587	$29,587	$29,587
Mapping	E	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Tank Siting	W & E	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Water Planning Project	W	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Generator Project - Wells Grant-Funded	W & E	5	$16,320	$16,320	$16,320	$16,320	$16,320	$0	$0
Generator Project (Remaining)	"-"	5	$52,680	$52,680	$52,680	$52,680	$52,680	$0	$0
Total New Water Assets Est. Depreciation			**$97,167**	**$111,947**	**$111,947**	**$111,947**	**$111,947**	**$42,947**	**$42,947**
WASTEWATER									
Collection									
Mapping project CAD-GPS-GIS (1/3)	E	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Lift Station Generators	E	10	$22,000	$22,000	$22,000	$22,000	$22,000	$22,000	$22,000
TV Sewer Lines	E	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Treatment Plant									
2020 New Plant	W & E	60	$728,279	$728,279	$728,279	$728,279	$728,279	$728,279	$728,279
Total New Wastewater Assets Est. Depreciation			**$750,279**	**$750,279**	**$750,279**	**$750,279**	**$750,279**	**$750,279**	**$750,279**

Source: AVCSD and HEC 2021 rate study.

new depr

APPENDIX B

WATER FEES

SUPPORT TABLES

Table B-1
American Valley CSD Utility Rates Study
Functional Allocation of Operating Costs - WATER

Expenditures	ACTUAL FY 2021	Allocation Basis	Customer	Capacity (Readiness-to-serve)	Capacity (Peaking)	Commodity (Use)	Unclassified
Personnel Costs - 70%	$308,558	Customers	100%	0%	0%	0%	0%
Personnel Costs - 30%	$132,239	Avg. of Classified	0%	0%	0%	0%	100%
Insurance	$33,953	Avg. of Classified	0%	0%	0%	0%	100%
Memberships	$4,962	Customers	100%	0%	0%	0%	0%
Office	$31,676	Avg. of Classified	0%	0%	0%	0%	100%
Printing, Postage & Publication	$5,298	Customers	100%	0%	0%	0%	0%
Travel/Training/Meetings	$1,283	Avg. of Classified	0%	0%	0%	0%	100%
Professional Services	$44,897	Plant in Service	13%	64%	18%	6%	0%
Mapping & CAD Services	$225	Customers	100%	0%	0%	0%	0%
Telemetering Maintenance	$3,801	Utilities	0%	0%	0%	100%	0%
Gas, Oil & Fuel	$7,630	Plant in Service	13%	64%	18%	6%	0%
Operating Supplies	$1,644	Plant in Service	13%	64%	18%	6%	0%
Monitor & Lab / DHS Perm	$399	Plant in Service	13%	64%	18%	6%	0%
Utilities - Electric	$116,727	Utilities	0%	0%	0%	100%	0%
Utilities - Other	$3,847	Avg. of Classified	0%	0%	0%	0%	100%
Maintenance	$167,473	Plant in Service	13%	64%	18%	6%	0%
Safety Expense	$522	Avg. of Classified	0%	0%	0%	0%	100%
State Monitoring Fees	$9,520	Utilities	0%	0%	0%	100%	0%
Interest Expense	$0	Plant in Service	13%	64%	18%	6%	0%
Other Expenses	$2,689	Avg. of Classified	0%	0%	0%	0%	100%
Total Operating Expenses	**$877,344**		**$347,123**	**$141,229**	**$39,845**	**$142,937**	**$206,210**
Reallocate As All Others			$106,656	$43,393	$12,243	$43,918	
Allocation of Operating Expenses	**$877,344**		**$453,779**	**$184,622**	**$52,088**	**$186,855**	
			52%	21%	6%	21%	
Capital Expenses	$174,743	Plant in Service	$22,099	$111,144	$31,357	$10,144	
Accumulated Depreciation	$1,685,945	Plant in Service	$213,212	$1,072,328	$302,536	$97,868	
			13%	64%	18%	6%	
TOTAL ALLOCATED EXPENSES	**$2,738,032**		**$689,090**	**$1,368,094**	**$385,981**	**$294,867**	
Percentage of Allocation	100.0%		25%	50%	14%	11%	
Base	**75%**						
Use	**25%**						

Source: AVCSD and 2021 HEC rate study. water func

Table B-2
American Valley CSD Utility Rates Study
Functional Allocation of Plant in Service (Water)

Plant in Service	Customer	Capacity (Readiness-to-serve)	Capacity (Peaking)	Commodity (Use)	Total Cost	Customer	Capacity (Readiness-to-serve)	Capacity (Peaking)	Commodity (Use)
Wells		50%	20%	30%	$2,210,199	$0	$1,105,100	$442,040	$663,060
Distribution Pipes	10%	70%	20%		$6,632,766	$663,277	$4,642,936	$1,326,553	$0
Meters	100%				$567,512	$567,512	$0	$0	$0
Public Fire Hydrants	5%	75%	20%		$2,259,449	$112,972	$1,694,587	$451,890	$0
Vehicles	50%	50%			$180,815	$90,408	$90,408	$0	$0
Buildings & Equipmen	50%	50%			$702,604	$351,302	$351,302	$0	$0
Tanks		70%	20%	10%	$1,564,998	$0	$1,095,499	$313,000	$156,500
Total					**$14,118,343**	**$1,785,471**	**$8,979,831**	**$2,533,482**	**$819,560**
Percentage of Plant In Service					**100%**	**13%**	**64%**	**18%**	**6%**

Source: AVCSD and HEC.

plant

Table B-3
American Valley CSD Utility Rates Study
Summary of Meters by Category

Meter Size	Number of Accounts	Total Meters	Number of Meters by Category								
			MIN	SFR	MFR	MIX	NR	NRI	NRP	SCH	IRR
NONE	3		1	0	0	0	0	0	0	0	2
5/8"	748	748	21	581	34	5	103	1	3	0	0
3/4"	703	703	13	570	52	1	59	0	7	0	1
1"	82	82	2	20	19	2	28	4	6	1	0
1.5"	38	38	0	0	15	1	18	0	3	1	0
2"	23	23	0	0	7	0	6	1	5	0	4
3"	4	4	0	0	1	0	1	0	0	2	0
4"	2	2	0	0	0	0	0	0	2	0	0
TOTAL	**1,603**	**1,600**	**37**	**1,171**	**128**	**9**	**215**	**6**	**26**	**4**	**7**

meters

Table B-4
American Valley CSD Utility Rates Study
Calculation of Share of Maximum Day Water Use by Customer Category

Use Item	Total System	Residential		Non-Residential					
		Single	MF	Mixed Use	Commercial	Industrial	Public	Schools	Irrigation
max month	*July*	*July*	*July*	*July*	*July*	*September*	*September*	*July*	*July*
Average Month Consumption	18,738,954	10,302,260	4,487,774	276,311	2,069,936	60,818	1,034,237	133,420	2,005,371
Non-Coincident Max. Month Use	39,252,012	21,769,552	7,378,430	363,740	3,309,730	84,820	2,351,890	284,110	4,065,700
Max. Month Peaking Factors	**2.09**	**2.11**	**1.64**	**1.32**	**1.60**	**1.39**	**2.27**	**2.13**	**2.03**
System Adjustment Factor		2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09
Weekly Usage Factor		1.40	1.17	1.22	1.08	1.00	1.40	1.56	1.75
Max. Daily Peaking Factor		6.20	4.02	3.36	3.61	2.92	6.67	6.94	7.43
Max. Month Daily Peaking Factor	1.34	0.20	0.13	0.11	0.12	0.10	0.22	0.22	0.24
Percent of Peaking Capacity	**100%**	**15%**	**10%**	**8%**	**9%**	**7%**	**17%**	**17%**	**18%**

Source: AVCSD use records, and HEC 2021 rate study. max share

Table B-5
American Valley CSD Utility Rates Study
Cost of Service Allocation of Use Charges to Customer Groups

Customer Type	Allocation	Fiscal Year 2023 Year 1	2024 Year 2	2025 Year 3	2026 Year 4	2027 Year 5	2028 Year 6	2029 Year 7
Capacity Peaking Costs		**$168,960**	**$177,627**	**$186,718**	**$196,252**	**$206,252**	**$216,742**	**$227,744**
Residential								
Single Unit	*14.9%*	$25,254	$26,550	$27,908	$29,333	$30,828	$32,396	$34,040
Multi-Family	*9.7%*	$16,374	$17,214	$18,095	$19,019	$19,989	$21,005	$22,071
Subtotal Residential	***24.6%***	**$41,628**	**$43,764**	**$46,004**	**$48,353**	**$50,817**	**$53,401**	**$56,112**
Non-Residential								
Mixed Use	*8.1%*	$13,681	$14,383	$15,119	$15,891	$16,700	$17,550	$18,441
Commercial	*8.7%*	$14,700	$15,454	$16,245	$17,074	$17,944	$18,857	$19,814
Industrial	*7.3%*	$12,303	$12,934	$13,596	$14,290	$15,018	$15,782	$16,583
Public	*16.6%*	$28,084	$29,524	$31,035	$32,620	$34,282	$36,026	$37,854
Schools	*16.7%*	$28,277	$29,728	$31,249	$32,845	$34,519	$36,274	$38,115
Irrigation	*17.9%*	$30,288	$31,841	$33,471	$35,180	$36,973	$38,853	$40,825
Subtotal Non-Residential	***75.4%***	**$127,331**	**$133,863**	**$140,714**	**$147,899**	**$155,436**	**$163,341**	**$171,632**
Commodity Costs		**$129,075**	**$135,697**	**$142,641**	**$149,925**	**$157,565**	**$165,578**	**$173,983**
Residential								
Single Unit	*55.0%*	$70,963	$74,603	$78,421	$82,425	$86,626	$91,031	$95,652
Multi-Family	*23.9%*	$30,912	$32,498	$34,161	$35,905	$37,735	$39,654	$41,667
Subtotal Residential	***78.9%***	**$101,875**	**$107,101**	**$112,582**	**$118,331**	**$124,361**	**$130,685**	**$137,319**
Non-Residential								
Mixed Use	*1.5%*	$1,903	$2,001	$2,103	$2,211	$2,323	$2,441	$2,565
Commercial	*11.0%*	$14,258	$14,989	$15,756	$16,561	$17,405	$18,290	$19,218
Industrial	*0.3%*	$419	$440	$463	$487	$511	$537	$565
Public	*5.5%*	$7,124	$7,489	$7,873	$8,275	$8,696	$9,139	$9,602
Schools	*0.7%*	$919	$966	$1,016	$1,067	$1,122	$1,179	$1,239
Irrigation	*2.0%*	$2,578	$2,710	$2,848	$2,994	$3,146	$3,306	$3,474
Subtotal Non-Residential	***21.1%***	**$27,200**	**$28,596**	**$30,059**	**$31,594**	**$33,204**	**$34,893**	**$36,664**
		Total Costs to be Recovered through Use Charges						
Residential								
Single Unit	*32.3%*	$96,217	$101,153	$106,329	$111,759	$117,454	$123,427	$129,692
Multi-Family	*15.9%*	$47,287	$49,712	$52,256	$54,925	$57,724	$60,659	$63,738
Subtotal Residential	***48.1%***	**$143,503**	**$150,865**	**$158,586**	**$166,684**	**$175,177**	**$184,086**	**$193,431**
Non-Residential								
Mixed Use	*5.2%*	$15,584	$16,383	$17,222	$18,101	$19,024	$19,991	$21,006
Commercial	*9.7%*	$28,957	$30,443	$32,001	$33,635	$35,349	$37,147	$39,032
Industrial	*4.3%*	$12,721	$13,374	$14,059	$14,776	$15,529	$16,319	$17,148
Public	*11.8%*	$35,207	$37,013	$38,908	$40,895	$42,978	$45,164	$47,457
Schools	*9.8%*	$29,196	$30,694	$32,265	$33,912	$35,640	$37,453	$39,354
Irrigation	*11.0%*	$32,865	$34,551	$36,319	$38,174	$40,119	$42,159	$44,299
Subtotal Non-Residential	***51.9%***	**$154,532**	**$162,459**	**$170,773**	**$179,493**	**$188,640**	**$198,233**	**$208,296**
Total Use Charges	***100.0%***	**$298,035**	**$313,324**	**$329,359**	**$346,177**	**$363,817**	**$382,320**	**$401,727**

Source: AVCSD and HEC 2021 rate study. use alloc

Table B-6
American Valley CSD Utility Rates Study
Projected Residential Consumption Greater than Allowance

Customer Group	Monthly Allowance	Fiscal Year 2023	2024	2025	2026	2027	2028	2029
Residential SF	**Galls / Unit**				**Gallons**			
% of Use in Allowance		35%	35%	35%	35%	35%	35%	35%
Water Use In Allowance	4,000	**43,232,146**	**43,232,146**	**43,232,146**	**43,232,146**	**43,232,146**	**43,232,146**	**43,232,146**
Water Use Greater than Allowance		80,394,970	80,394,970	80,394,970	80,394,970	80,394,970	80,394,970	80,394,970
Total Residential SF		**123,627,116**	**123,627,116**	**123,627,116**	**123,627,116**	**123,627,116**	**123,627,116**	**123,627,116**
Residential MF								
% of Use in Allowance		50%	50%	50%	50%	50%	50%	50%
Water Use In Allowance	4,000	**27,144,479**	**27,144,479**	**27,144,479**	**27,144,479**	**27,144,479**	**27,144,479**	**27,144,479**
Water Use Greater than Allowance		26,708,810	26,708,810	26,708,810	26,708,810	26,708,810	26,708,810	26,708,810
Total Residential MF		**53,853,289**	**53,853,289**	**53,853,289**	**53,853,289**	**53,853,289**	**53,853,289**	**53,853,289**
Total Residential Use		**177,480,405**	**177,480,405**	**177,480,405**	**177,480,405**	**177,480,405**	**177,480,405**	**177,480,405**
Residential Use below Allowance		70,376,625	70,376,625	70,376,625	70,376,625	70,376,625	70,376,625	70,376,625
Residential Use above Allowance		107,103,780	107,103,780	107,103,780	107,103,780	107,103,780	107,103,780	107,103,780

Source: AVCSD and HEC 2021 rate study.

resid cons

Table B-7
American Valley CSD Utility Rates Study
Current Water Bills - East and West Zones - Residential SF 3/4"

Monthly	WEST ZONE						EAST ZONE			
Water Use	Base	Tier 1	Tier 2	Tier 3	Tier 4	Total	Base	Tier 1	Tier 2	Total
Gallons	*3/4"*	*$1.58*	*$1.99*	*$2.35*	*$2.72*		*3/4"*	*$0.00*	*$1.92*	
1,000	$38.88	$1.58				$40.46	$27.96	$0.00		$27.96
2,000	$38.88	$3.16				$42.04	$27.96	$0.00		$27.96
3,000	$38.88	$4.74				$43.62	$27.96	$0.00		$27.96
4,000	$38.88	$6.32				$45.20	$27.96	$0.00		$27.96
5,000	$38.88	$6.32	$1.99			$47.19	$27.96	$0.00		$27.96
6,000	$38.88	$6.32	$3.98			$49.18	$27.96	$0.00		$27.96
7,000	$38.88	$6.32	$5.97			$51.17	$27.96	$0.00	$1.92	$29.88
8,000	$38.88	$6.32	$7.96			$53.16	$27.96	$0.00	$3.84	$31.80
9,000	$38.88	$6.32	$7.96	$2.35		$55.51	$27.96	$0.00	$5.76	$33.72
10,000	$38.88	$6.32	$7.96	$4.70		$57.86	$27.96	$0.00	$7.68	$35.64
12,000	$38.88	$6.32	$7.96	$9.40		$62.56	$27.96	$0.00	$11.52	$39.48
15,000	$38.88	$6.32	$7.96	$9.40	$8.16	$70.72	$27.96	$0.00	$17.28	$45.24
20,000	$38.88	$6.32	$7.96	$9.40	$21.76	$84.32	$27.96	$0.00	$26.88	$54.84
25,000	$38.88	$6.32	$7.96	$9.40	$35.36	$97.92	$27.96	$0.00	$36.48	$64.44
30,000	$38.88	$6.32	$7.96	$9.40	$48.96	$111.52	$27.96	$0.00	$46.08	$74.04
35,000	$38.88	$6.32	$7.96	$9.40	$62.56	$125.12	$27.96	$0.00	$55.68	$83.64
40,000	$38.88	$6.32	$7.96	$9.40	$76.16	$138.72	$27.96	$0.00	$65.28	$93.24
45,000	$38.88	$6.32	$7.96	$9.40	$89.76	$152.32	$27.96	$0.00	$74.88	$102.84
50,000	$38.88	$6.32	$7.96	$9.40	$103.36	$165.92	$27.96	$0.00	$84.48	$112.44
55,000	$38.88	$6.32	$7.96	$9.40	$116.96	$179.52	$27.96	$0.00	$94.08	$122.04
60,000	$38.88	$6.32	$7.96	$9.40	$130.56	$193.12	$27.96	$0.00	$103.68	$131.64

Sources: AVCSD rate schedules.

curr 3levels

Table B-8
American Valley CSD Utility Rates Study

Current Water Bills - East and West Zones - Residential SF 5/8"

Monthly	WEST ZONE						EAST ZONE			
Water Use	**Base**	**Tier 1**	**Tier 2**	**Tier 3**	**Tier 4**	**Total**	**Base**	**Tier 1**	**Tier 2**	**Total**
Gallons	*5/8"*	*$1.58*	*$1.99*	*$2.35*	*$2.72*		*5/8"*	*$0.00*	*$1.92*	
1,000	$26.75	$1.58				$28.33	$26.46	$0.00		$26.46
2,000	$26.75	$3.16				$29.91	$26.46	$0.00		$26.46
3,000	$26.75	$4.74				$31.49	$26.46	$0.00		$26.46
4,000	$26.75	$6.32				$33.07	$26.46	$0.00		$26.46
5,000	$26.75	$6.32	$1.99			$35.06	$26.46	$0.00		$26.46
6,000	$26.75	$6.32	$3.98			$37.05	$26.46	$0.00		$26.46
7,000	$26.75	$6.32	$5.97			$39.04	$26.46	$0.00	$1.92	$28.38
8,000	$26.75	$6.32	$7.96			$41.03	$26.46	$0.00	$3.84	$30.30
9,000	$26.75	$6.32	$7.96	$2.35		$43.38	$26.46	$0.00	$5.76	$32.22
10,000	$26.75	$6.32	$7.96	$4.70		$45.73	$26.46	$0.00	$7.68	$34.14
12,000	$26.75	$6.32	$7.96	$9.40		$50.43	$26.46	$0.00	$11.52	$37.98
15,000	$26.75	$6.32	$7.96	$9.40	$8.16	$58.59	$26.46	$0.00	$17.28	$43.74
20,000	$26.75	$6.32	$7.96	$9.40	$21.76	$72.19	$26.46	$0.00	$26.88	$53.34
25,000	$26.75	$6.32	$7.96	$9.40	$35.36	$85.79	$26.46	$0.00	$36.48	$62.94
30,000	$26.75	$6.32	$7.96	$9.40	$48.96	$99.39	$26.46	$0.00	$46.08	$72.54
35,000	$26.75	$6.32	$7.96	$9.40	$62.56	$112.99	$26.46	$0.00	$55.68	$82.14
40,000	$26.75	$6.32	$7.96	$9.40	$76.16	$126.59	$26.46	$0.00	$65.28	$91.74
45,000	$26.75	$6.32	$7.96	$9.40	$89.76	$140.19	$26.46	$0.00	$74.88	$101.34
50,000	$26.75	$6.32	$7.96	$9.40	$103.36	$153.79	$26.46	$0.00	$84.48	$110.94
55,000	$26.75	$6.32	$7.96	$9.40	$116.96	$167.39	$26.46	$0.00	$94.08	$120.54
60,000	$26.75	$6.32	$7.96	$9.40	$130.56	$180.99	$26.46	$0.00	$103.68	$130.14

Sources: AVCSD rate schedules.

curr5 levels

Table B-9
American Valley CSD Utility Rates Study
Calculated Single Family Bills FY23

Monthly	5/8-inch meter service			3/4-inch meter service		
Water	Base	Use	**Total**	Base	Use	**Total**
Gallons		$1.93		3/4"	$1.93	
1,000	$35.48	$0.00	**$35.48**	$45.38	$0.00	**$45.38**
2,000	$35.48	$0.00	**$35.48**	$45.38	$0.00	**$45.38**
3,000	$35.48	$0.00	**$35.48**	$45.38	$0.00	**$45.38**
4,000	$35.48	$0.00	**$35.48**	$45.38	$0.00	**$45.38**
5,000	$35.48	$1.93	**$37.41**	$45.38	$1.93	**$47.31**
6,000	$35.48	$3.86	**$39.34**	$45.38	$3.86	**$49.24**
7,000	$35.48	$5.79	**$41.27**	$45.38	$5.79	**$51.17**
8,000	$35.48	$7.72	**$43.20**	$45.38	$7.72	**$53.10**
9,000	$35.48	$9.65	**$45.13**	$45.38	$9.65	**$55.03**
10,000	$35.48	$11.57	**$47.06**	$45.38	$11.57	**$56.96**
12,000	$35.48	$15.43	**$50.91**	$45.38	$15.43	**$60.81**
15,000	$35.48	$21.22	**$56.70**	$45.38	$21.22	**$66.60**
20,000	$35.48	$30.87	**$66.35**	$45.38	$30.87	**$76.25**
25,000	$35.48	$40.51	**$75.99**	$45.38	$40.51	**$85.89**
30,000	$35.48	$50.16	**$85.64**	$45.38	$50.16	**$95.54**
35,000	$35.48	$59.80	**$95.28**	$45.38	$59.80	**$105.18**
40,000	$35.48	$69.45	**$104.93**	$45.38	$69.45	**$114.83**
45,000	$35.48	$79.09	**$114.58**	$45.38	$79.09	**$124.48**
50,000	$35.48	$88.74	**$124.22**	$45.38	$88.74	**$134.12**
55,000	$35.48	$98.39	**$133.87**	$45.38	$98.39	**$143.77**
60,000	$35.48	$108.03	**$143.51**	$45.38	$108.03	**$153.41**

Sources: AVCSD rate schedules and HEC 2021 rate study. w bills2

Table B-10
American Valley CSD Utility Rates Study
Water Assets

Description	Base Year	Life (Years)	Years Depreciated	Remaining Years	Cost Basis	Annual Depreciation	Accum. Depreciation	Current Book Value	Replacement Factor	Replacement Cost Est.	Annual Depreciation	Accum. Depreciation	Remaining Value
		a	*b*	*c = a-b*	*d*	*e = d/a*	*f = b*e*	*g = d-f*	*h*	*i = d*h*	*j = i/a*	*k = j*b*	*l = i-k*
Buildings and Equipment													
STRUCTURES	1989	40	32	8	$2,772	$69	$2,218	$554	3.31	$9,166	$229	$7,333	$1,833
GENERATOR	2008	5	13	0	$1,880	$0	$1,880	$0	1.63	$3,056	$0	$3,056	$0
ASSET PER AUDIT ADJ 2018	2018	5	3	2	$8,436	$1,687	$5,062	$3,374	1.12	$9,437	$1,887	$5,662	$3,775
GRANT PLANNING	2020	10	1	9	$864	$86	$86	$778	1.04	$897	$90	$90	$807
PROGRAM UPGRADES	2000	5	21	0	$8,132	$0	$8,132	$0	2.19	$17,825	$0	$17,825	$0
OFFICE FURNITURE	2000	10	21	0	$1,434	$0	$1,434	$0	2.19	$3,143	$0	$3,143	$0
AIR COMPRESSOR	2001	10	20	0	$2,250	$0	$2,250	$0	2.11	$4,751	$0	$4,751	$0
HYPERTHERM PLASMA CUTTER	2002	10	19	0	$1,125	$0	$1,125	$0	2.03	$2,288	$0	$2,288	$0
4 SMASUNG MONITORS	2004	5	17	0	$2,567	$0	$2,567	$0	1.89	$4,846	$0	$4,846	$0
CEMENT MIXER	2004	10	17	0	$1,134	$0	$1,134	$0	1.89	$2,141	$0	$2,141	$0
LAPTOP DELL	2004	5	17	0	$467	$0	$467	$0	1.89	$882	$0	$882	$0
HP LASERJET 435	2007	5	14	0	$898	$0	$898	$0	1.69	$1,515	$0	$1,515	$0
DELL COMPUTER	2007	5	14	0	$364	$0	$364	$0	1.69	$614	$0	$614	$0
DELL COMPUTER	2007	5	14	0	$365	$0	$365	$0	1.69	$616	$0	$616	$0
COPIER	2014	5	7	0	$3,718	$0	$3,718	$0	1.30	$4,830	$0	$4,830	$0
PHONE SYSTEM	2015	5	6	0	$5,414	$0	$5,414	$0	1.25	$6,775	$0	$6,775	$0
MAPPING PROJECT WIP	2015	15	6	9	$1,276	$85	$510	$766	1.25	$1,597	$106	$639	$958
EMAIL SERVER	2015	5	6	0	$5,796	$0	$5,796	$0	1.25	$7,253	$0	$7,253	$0
OPERATING SERVER	2015	5	6	0	$18,915	$0	$18,915	$0	1.25	$23,670	$0	$23,670	$0
GRANT PLANNING APP WWC - WIP	2016	5	5	0	$8,475	$0	$8,475	$0	1.21	$10,216	$0	$10,216	$0
ARROW BOARD	2019	10	2	8	$3,134	$313	$627	$2,507	1.08	$3,377	$338	$675	$2,702
OFFICE BLDG & MISC	1967	33	54	0	$27,980	$0	$27,980	$0	7.52	$210,521	$0	$210,521	$0
FHMA PROJETCT	1984	33	37	0	$431,549	$0	$431,549	$0	3.99	$1,720,119	$0	$1,720,119	$0
NEW FURNACE	1989	10	32	0	$3,150	$0	$3,150	$0	3.31	$10,416	$0	$10,416	$0
WATER SAMPLING STATION	1992	10	29	0	$1,844	$0	$1,844	$0	2.96	$5,451	$0	$5,451	$0
OFFICE CARPET - WATER	1993	10	28	0	$1,724	$0	$1,724	$0	2.85	$4,909	$0	$4,909	$0
FENCE - WATER	1993	15	28	0	$3,300	$0	$3,300	$0	2.85	$9,397	$0	$9,397	$0
MONITORING STATIONS-WATER	1993	10	28	0	$1,281	$0	$1,281	$0	2.85	$3,648	$0	$3,648	$0
CABLE LOCATOR - WATER	1996	5	25	0	$592	$0	$592	$0	2.55	$1,507	$0	$1,507	$0
WELL MONITORING EQUIPMENT	1997	10	24	0	$41,899	$0	$41,899	$0	2.45	$102,739	$0	$102,739	$0
OFFICE REMODEL - WATER	1998	15	23	0	$2,918	$0	$2,918	$0	2.36	$6,893	$0	$6,893	$0
OFFICE CABINETS - WATER	1998	15	23	0	$847	$0	$847	$0	2.36	$2,001	$0	$2,001	$0
2 STORAGE BINS - WATER	1998	15	23	0	$3,651	$0	$3,651	$0	2.36	$8,624	$0	$8,624	$0
LANDSCAPING - WATER	1998	15	23	0	$1,270	$0	$1,270	$0	2.36	$3,000	$0	$3,000	$0
COMPUTER UPGRADE	1998	3	23	0	$125	$0	$125	$0	2.36	$295	$0	$295	$0
BUSINESS WORKS SOFTWARE	1999	3	22	0	$955	$0	$955	$0	2.28	$2,173	$0	$2,173	$0
POWER SUPPLY FOR H603	2000	10	21	0	$1,301	$0	$1,301	$0	2.19	$2,852	$0	$2,852	$0
JACK HAMMER	2000	5	21	0	$1,080	$0	$1,080	$0	2.19	$2,367	$0	$2,367	$0
SOFTWARE & COMP. UPGRD	2001	5	20	0	$5,968	$0	$5,968	$0	2.11	$12,602	$0	$12,602	$0
RADIO 1/2	2002	5	19	0	$998	$0	$998	$0	2.03	$2,030	$0	$2,030	$0
SOFTWARE	2002	3	19	0	$1,463	$0	$1,463	$0	2.03	$2,976	$0	$2,976	$0
SHOP	2005	30	16	14	$55,010	$1,834	$29,339	$25,671	1.82	$100,030	$3,334	$53,349	$46,681
OFFICE FURNITURE	2006	5	15	0	$1,000	$0	$1,000	$0	1.75	$1,752	$0	$1,752	$0
COMPUTER	2005	5	16	0	$386	$0	$386	$0	1.82	$702	$0	$702	$0
SCADA COMPUTER UPGRADE	2005	5	16	0	$8,324	$0	$8,324	$0	1.82	$15,136	$0	$15,136	$0
CAL TRANS MANHOLE PROJECT	2006	20	15	5	$2,000	$100	$1,500	$500	1.75	$3,503	$175	$2,628	$876
NEW METAL OFFICE ROOF	2008	40	13	27	$6,088	$152	$1,979	$4,109	1.63	$9,896	$247	$3,216	$6,680
SHOP/STORAGE BLDG IMPROVE	2007	15	14	1	$4,402	$293	$4,109	$293	1.69	$7,428	$495	$6,933	$495
WINDOWS	2009	40	12	28	$2,715	$68	$815	$1,901	1.57	$4,251	$106	$1,275	$2,976
OFFICE PARKING LOT	2011	20	10	10	$9,368	$468	$4,684	$4,684	1.45	$13,613	$681	$6,806	$6,806
Total Buildings & Equipment					**$702,604**	**$5,157**	**$657,466**	**$45,138**		**$2,389,723**			**$74,589**
Distribution													
WATER LINES FMHA	1990	40	31	9	$138,736	$3,468	$107,520	$31,216	3.19	$441,911	$11,048	$342,481	$99,430
AIRPORT WATER LINES	1990	40	31	9	$81,000	$2,025	$62,775	$18,225	3.19	$258,006	$6,450	$199,955	$58,051
AUSTIN WATER LINE	1991	30	30	0	$560	$0	$560	$0	3.07	$1,718	$0	$1,718	$0
MAIN ST. WATER LINE	1991	40	30	10	$11,279	$282	$8,459	$2,820	3.07	$34,609	$865	$25,957	$8,652
HIGH ST LINE	1995	40	26	14	$12,859	$321	$8,358	$4,501	2.64	$33,978	$849	$22,086	$11,892
SUBSURFACE LINES	1996	20	25	0	$107,959	$0	$107,959	$0	2.55	$274,803	$0	$274,803	$0
TELEMETRY SYSTEM	1999	15	22	0	$12,322	$0	$12,322	$0	2.28	$28,038	$0	$28,038	$0
SPRING LINE PIPE	2000	40	21	19	$944	$24	$496	$448	2.19	$2,069	$52	$1,086	$983
EAST ST MAINLINE REPLACE	2001	30	20	10	$10,209	$340	$6,806	$3,403	2.11	$21,557	$719	$14,371	$7,186
SPRING LINE BOOSTER PUMP	2001	10	20	0	$984	$0	$984	$0	2.11	$2,078	$0	$2,078	$0
TELEMETRY UPGRADE	2001	3	20	0	$5,309	$0	$5,309	$0	2.11	$11,210	$0	$11,210	$0
1885 FT 6" DT	2002	40	19	21	$328,254	$8,206	$155,921	$172,333	2.03	$667,712	$16,693	$317,163	$350,549

Table B-10
American Valley CSD Utility Rates Study
Water Assets

Description	Base Year	Life (Years)	Years Depreciated	Remaining Years	Cost Basis	Annual Depreciation	Accum. Depreciation	Current Book Value	Replacement Factor	Replacement Cost Est.	Annual Depreciation	Accum. Depreciation	Remaining Value
		a	*b*	*c = a-b*	*d*	*e = d/a*	*f = b*e*	*g = d-f*	*h*	*i = d*h*	*j = i/a*	*k = j*b*	*l = i-k*
5960 FT 8" KUBE DT	2002	40	19	21	$1,037,874	$25,947	$492,990	$544,884	2.03	$2,111,174	$52,779	$1,002,808	$1,108,366
700 FT PIPELINE SPRING	2002	20	19	1	$23,310	$1,166	$22,145	$1,166	2.03	$47,416	$2,371	$45,045	$2,371
8" LINE UPGRADE AT WII	2003	30	18	12	$1,980	$66	$1,188	$792	1.96	$3,880	$129	$2,328	$1,552
90 LF 8" LINE HWY 70	2003	40	18	22	$16,650	$416	$7,493	$9,158	1.96	$32,626	$816	$14,682	$17,944
SPRING LINE INTERCONNECTION	2003	35	18	17	$1,053	$30	$542	$511	1.96	$2,063	$59	$1,061	$1,002
TELEMETRY UPGRADE	2004	3	17	0	$12,689	$0	$12,689	$0	1.89	$23,952	$0	$23,952	$0
DWR PHASE 2	2004	35	17	18	$1,976,682	$56,477	$960,103	$1,016,579	1.89	$3,731,258	$106,607	$1,812,325	$1,918,932
WATER SYSTEM IMPROVEMENT	2004	10	17	0	$1,068	$0	$1,068	$0	1.89	$2,016	$0	$2,016	$0
SPRING LINE INTERTIE	2004	40	17	23	$950	$24	$404	$546	1.89	$1,793	$45	$762	$1,031
JONES ALLEY PIPELINE	2005	30	16	14	$1,423	$47	$759	$664	1.82	$2,588	$86	$1,380	$1,208
SPRING LINE AND TWRS	2006	40	15	25	$48,936	$1,223	$18,351	$30,585	1.75	$85,721	$2,143	$32,145	$53,575
TELEMETRY EQUIPMENT	2006	10	15	0	$1,305	$0	$1,305	$0	1.75	$2,286	$0	$2,286	$0
SPRING LINE	2009	40	12	28	$1,545	$39	$464	$1,082	1.57	$2,419	$60	$726	$1,694
PUMP #6 DICKENS	2010	5	11	0	$9,513	$0	$9,513	$0	1.51	$14,350	$0	$14,350	$0
VALLEY VIEW WATER LINE	2011	40	10	30	$161,226	$4,031	$40,307	$120,920	1.45	$234,283	$5,857	$58,571	$175,712
RAILWAY WATER LINE	2011	40	10	30	$65,493	$1,637	$16,373	$49,120	1.45	$95,170	$2,379	$23,792	$71,377
WATER VALAVES TO GRADE	2012	40	9	31	$9,900	$248	$2,228	$7,673	1.40	$13,858	$346	$3,118	$10,740
LEONARD/ANDY'S WAY LOOP	2013	20	8	12	$16,942	$847	$6,777	$10,165	1.35	$22,846	$1,142	$9,138	$13,708
TELEMETRY	2014	10	7	3	$11,254	$1,125	$7,878	$3,376	1.30	$14,619	$1,462	$10,233	$4,386
SUMMERFIELD LINE REPL.	2017	15	4	11	$5,181	$345	$1,382	$3,799	1.16	$6,016	$401	$1,604	$4,412
SPRING SYSTEM IMPR - WATER	2016	5	5	0	$9,281	$0	$9,281	$0	1.21	$11,188	$0	$11,188	$0
SUMMERFIELD PRJ WATER	2016	15	5	10	$273,414	$18,228	$91,138	$182,276	1.21	$329,589	$21,973	$109,863	$219,726
MAPPING PROJECT WATER WIP	2016	15	5	10	$16,049	$1,070	$5,350	$10,699	1.21	$19,346	$1,290	$6,449	$12,898
GRANT PLANNING WATER WIP	2016	5	5	0	$12,456	$0	$12,456	$0	1.21	$15,015	$0	$15,015	$0
SUMMERFIELD WATER LINE RE	2017	15	4	11	$15,770	$1,051	$4,205	$11,565	1.16	$18,313	$1,221	$4,883	$13,429
GRANT PLANNING WIP	2017	5	4	1	$13,035	$2,607	$10,428	$2,607	1.16	$15,137	$3,027	$12,109	$3,027
SPRING SYSTEM IMPR - WATER	2019	10	2	8	$3,737	$374	$747	$2,990	1.08	$4,027	$403	$805	$3,222
GRANT PLANNING WIP	2019	10	2	8	$6,203	$620	$1,241	$4,962	1.08	$6,684	$668	$1,337	$5,348
MAINS	1989	20	32	0	$67,342	$0	$67,342	$0	3.31	$222,670	$0	$222,670	$0
PUMPING	1967	33	54	0	$61,563	$0	$61,563	$0	7.52	$463,198	$0	$463,198	$0
DISTRIBUTION	1967	50	54	0	$470,219	$0	$470,219	$0	7.52	$3,537,911	$0	$3,537,911	$0
BELL LANE EXTENSION - WAT	1993	33	28	5	$54,010	$1,637	$45,827	$8,183	2.85	$153,790	$4,660	$130,488	$23,302
FOREST KNOLL IRON PIPE -W	1996	50	25	25	$10,000	$200	$5,000	$5,000	2.55	$25,454	$509	$12,727	$12,727
CENTER ST. WATER MAIN - W	1997	33	24	9	$13,538	$410	$9,846	$3,692	2.45	$33,196	$1,006	$24,143	$9,053
PARKING LOT - WATER	1997	15	24	0	$592	$0	$592	$0	2.45	$1,452	$0	$1,452	$0
WATER TELEMETRY WIRING -W	1998	10	23	0	$1,057	$0	$1,057	$0	2.36	$2,497	$0	$2,497	$0
LEBROOK ADDITION	2003	40	18	22	$8,870	$222	$3,992	$4,879	1.96	$17,381	$435	$7,821	$9,560
DECLORINATOR	2004	10	17	0	$2,369	$0	$2,369	$0	1.89	$4,472	$0	$4,472	$0
SCADA UPGRADE	2008	20	13	7	$85,575	$4,279	$55,624	$29,951	1.63	$139,105	$6,955	$90,418	$48,687
BELL LANE WATER EXTENSION	2009	33	12	21	$452,985	$13,727	$164,722	$288,263	1.57	$709,332	$21,495	$257,939	$451,393
LEE RD WATER EXTENSION	2009	33	12	21	$352,324	$10,676	$128,118	$224,206	1.57	$551,707	$16,718	$200,621	$351,086
FOREST KNOLL WATER MAIN L	2011	40	10	30	$333,424	$8,336	$83,356	$250,068	1.45	$484,509	$12,113	$121,127	$363,382
CONCRETE IMPROVEMENTS - 0	2011	15	10	5	$5,924	$395	$3,949	$1,975	1.45	$8,608	$574	$5,739	$2,869
FAIRGROUNDS	2012	40	9	31	$191,576	$4,789	$43,105	$148,471	1.40	$268,173	$6,704	$60,339	$207,834
SCADA IMPROVEMENTS 2013	2012	5	9	0	$3,145	$0	$3,145	$0	1.40	$4,402	$0	$4,402	$0
SCADA IMPROVEMENTS 2014	2013	5	8	0	$38,827	$0	$38,827	$0	1.35	$52,357	$0	$52,357	$0
VALVE CLUSTER - PINE STRE	2014	5	7	0	$10,440	$0	$10,440	$0	1.30	$13,562	$0	$13,562	$0
ENGINEERING WIP HEAT/AIR	2016	5	5	0	$3,652	$0	$3,652	$0	1.21	$4,402	$0	$4,402	$0
Total Distribution					**$6,632,766**	**$176,956**	**$3,419,014**	**$3,213,752**		**$15,345,504**			**$5,662,297**
Fire Hydrants (Public)													
JACKSON ST. FIRE HYDRANT	1996	40	25	15	$6,273	$157	$3,921	$2,352	2.55	$15,968	$399	$9,980	$5,988
29M FT W LINE 23 HYD	2000	65	21	44	$2,209,228	$33,988	$713,751	$1,495,477	2.19	$4,842,626	$74,502	$1,564,541	$3,278,085
HYDRANTS DT HWY	2002	40	19	21	$40,037	$1,001	$19,018	$21,019	2.03	$81,441	$2,036	$38,684	$42,756
FIRE HYD - HWY 70 W	2003	40	18	22	$3,500	$88	$1,575	$1,925	1.96	$6,858	$171	$3,086	$3,772
HYD FLOOR JACK	2007	5	14	0	$411	$0	$411	$0	1.69	$694	$0	$694	$0
Total Fire Hydrants (Public)					**$2,259,449**	**$35,233**	**$738,675**	**$1,520,774**		**$4,947,586**			**$3,330,602**
Meters													
SENSUS ACUMAG	2014	10	7	3	$5,940	$594	$4,158	$1,782	1.30	$7,716	$772	$5,401	$2,315
JACKSON ST. METER PROJECT	1996	30	25	5	$21,861	$729	$18,218	$3,644	2.55	$55,646	$1,855	$46,372	$9,274
738 METERS	2000	30	21	9	$342,274	$11,409	$239,592	$102,682	2.19	$750,264	$25,009	$525,185	$225,079
ULTRA MAG TESTER	2006	5	15	0	$3,138	$0	$3,138	$0	1.75	$5,497	$0	$5,497	$0
MAGNETIC LOCATOR	2007	5	14	0	$2,322	$0	$2,322	$0	1.69	$3,918	$0	$3,918	$0
METERS & SUPPLIES WIP	2017	10	4	6	$24,144	$2,414	$9,658	$14,486	1.16	$28,037	$2,804	$11,215	$16,822
WATER METERS ROUTE 1	2017	10	4	6	$24,897	$2,490	$9,959	$14,938	1.16	$28,911	$2,891	$11,565	$17,347

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Water Assets

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		a	*b*	*c = a-b*	*d*	*e = d/a*	*f = b*e*	*g = d-f*	*h*	*i = d*h*	*j = i/a*	*k = j*b*	*l = i-k*
WATER METER	2018	10	3	7	$45,058	$4,506	$13,517	$31,541	1.12	$50,404	$5,040	$15,121	$35,283
WATER METER	2019	10	2	8	$32,400	$3,240	$6,480	$25,920	1.08	$34,915	$3,491	$6,983	$27,932
METERS	1989	20	32	0	$14,833	$0	$14,833	$0	3.31	$49,046	$0	$49,046	$0
HYDRANT METER	1997	20	24	0	$715	$0	$715	$0	2.45	$1,753	$0	$1,753	$0
WATER METERS - WATER	1997	20	24	0	$2,505	$0	$2,505	$0	2.45	$6,142	$0	$6,142	$0
WATER METERS - WATER	1997	20	24	0	$2,626	$0	$2,626	$0	2.45	$6,439	$0	$6,439	$0
WATER METERS - WATER	1997	20	24	0	$1,706	$0	$1,706	$0	2.45	$4,183	$0	$4,183	$0
WATER METERS - WATER	1997	20	24	0	$1,929	$0	$1,929	$0	2.45	$4,730	$0	$4,730	$0
WATER METERS - WATER	1998	20	23	0	$15,939	$0	$15,939	$0	2.36	$37,650	$0	$37,650	$0
WATER METERS - WATER	1998	20	23	0	$1,487	$0	$1,487	$0	2.36	$3,512	$0	$3,512	$0
METERS - WATER	1998	20	23	0	$719	$0	$719	$0	2.36	$1,698	$0	$1,698	$0
METERS - WATER	1999	20	22	0	$1,798	$0	$1,798	$0	2.28	$4,091	$0	$4,091	$0
METERS - WATER	1999	20	22	0	$946	$0	$946	$0	2.28	$2,153	$0	$2,153	$0
METERS - WATER	1999	20	22	0	$1,798	$0	$1,798	$0	2.28	$4,091	$0	$4,091	$0
METERS	1999	20	22	0	$2,397	$0	$2,397	$0	2.28	$5,454	$0	$5,454	$0
METERS	1999	20	22	0	$1,261	$0	$1,261	$0	2.28	$2,869	$0	$2,869	$0
METERS	1999	20	22	0	$1,615	$0	$1,615	$0	2.28	$3,675	$0	$3,675	$0
METERS	2000	20	21	0	$476	$0	$476	$0	2.19	$1,043	$0	$1,043	$0
WATER METERS	2000	20	21	0	$867	$0	$867	$0	2.19	$1,900	$0	$1,900	$0
WATER METERS	2000	20	21	0	$526	$0	$526	$0	2.19	$1,153	$0	$1,153	$0
WATER METERS	2001	20	20	0	$770	$0	$770	$0	2.11	$1,626	$0	$1,626	$0
WATER METERS	2001	20	20	0	$501	$0	$501	$0	2.11	$1,058	$0	$1,058	$0
WATER METERS	2001	20	20	0	$1,359	$0	$1,359	$0	2.11	$2,870	$0	$2,870	$0
WATER METERS	2001	20	20	0	$1,002	$0	$1,002	$0	2.11	$2,116	$0	$2,116	$0
WATER METERS	2001	20	20	0	$501	$0	$501	$0	2.11	$1,058	$0	$1,058	$0
METERS 3/4 - 12	2001	20	20	0	$1,002	$0	$1,002	$0	2.11	$2,116	$0	$2,116	$0
METERS 5/8 - 6	2001	20	20	0	$334	$0	$334	$0	2.11	$705	$0	$705	$0
METERS 3/4 - 24	2002	20	19	1	$1,776	$89	$1,687	$89	2.03	$3,613	$181	$3,432	$181
METERS 5/8 - 5	2002	20	19	1	$306	$15	$291	$15	2.03	$622	$31	$591	$31
METERS SRII 1 - 2	2002	20	19	1	$294	$15	$279	$15	2.03	$598	$30	$568	$30
METERS 5/8 -7	2002	20	19	1	$428	$21	$407	$21	2.03	$871	$44	$827	$44
METER NUTS ETC	2001	20	20	0	$464	$0	$464	$0	2.11	$980	$0	$980	$0
METERS	2002	20	19	1	$608	$30	$578	$30	2.03	$1,237	$62	$1,175	$62
METERS	2002	20	19	1	$989	$49	$940	$49	2.03	$2,012	$101	$1,911	$101
METERS	2003	20	18	2	$1,001	$50	$901	$100	1.96	$1,961	$98	$1,765	$196
Total Meters					**$567,512**	**$25,652**	**$372,199**	**$195,313**		**$1,130,335**			**$334,696**
Tanks (Storage)													
GOODWIN TANK 2012	2012	10	9	1	$8,665	$867	$7,799	$867	1.40	$12,130	$1,213	$10,917	$1,213
BOYLE TANK 2012	2012	10	9	1	$27,667	$2,767	$24,900	$2,767	1.40	$38,729	$3,873	$34,856	$3,873
TELEMETRY	2013	10	8	2	$6,347	$635	$5,078	$1,269	1.35	$8,559	$856	$6,847	$1,712
SCADA	2013	10	8	2	$17,973	$1,797	$14,378	$3,595	1.35	$24,236	$2,424	$19,389	$4,847
UPGRADE BOYLE/GOODWIN TANK	2020	10	1	9	$2,577	$258	$258	$2,319	1.04	$2,675	$268	$268	$2,408
TANKS	1989	50	32	18	$430,101	$8,602	$275,265	$154,836	3.31	$1,422,153	$28,443	$910,178	$511,975
TELEMETRY GOODWIN TANK	2001	15	20	0	$1,925	$0	$1,925	$0	2.11	$4,065	$0	$4,065	$0
BOYLE TANK REHAB	2009	10	12	0	$378,749	$0	$378,749	$0	1.57	$593,086	$0	$593,086	$0
TANK 2 GOODWIN	2009	20	12	8	$71,581	$3,579	$42,949	$28,632	1.57	$112,089	$5,604	$67,254	$44,836
GOODWIN TANK 2	2009	10	12	0	$35,766	$0	$35,766	$0	1.57	$56,006	$0	$56,006	$0
BOYLE STORAGE TANK 2013	2013	10	8	2	$27,667	$2,767	$22,134	$5,533	1.35	$37,308	$3,731	$29,847	$7,462
GOODWIN TANK 2013	2013	10	8	2	$8,665	$867	$6,932	$1,733	1.35	$11,685	$1,168	$9,348	$2,337
BOYLE TANK #1	2014	10	7	3	$27,667	$2,767	$19,367	$8,300	1.30	$35,940	$3,594	$25,158	$10,782
GOODWIN TANK #2 REHAB	2014	10	7	3	$9,619	$962	$6,733	$2,886	1.30	$12,495	$1,250	$8,747	$3,749
BOYLE TANK #1 REHAB	2014	10	7	3	$30,711	$3,071	$21,498	$9,213	1.30	$39,894	$3,989	$27,926	$11,968
GOODWIN TANK #2 REHAB	2014	10	7	3	$9,619	$962	$6,733	$2,886	1.30	$12,495	$1,250	$8,747	$3,749
GOODWIN STORAGE TANK - W	2016	10	5	5	$9,619	$962	$4,810	$4,810	1.21	$11,595	$1,160	$5,798	$5,798
BOYLE STORAGE TANK - WATER	2016	10	5	5	$30,711	$3,071	$15,356	$15,356	1.21	$37,021	$3,702	$18,510	$18,510
STORAGE TANK #1 R&M	2017	10	4	6	$30,711	$3,071	$12,284	$18,427	1.16	$35,663	$3,566	$14,265	$21,398
STORAGE TANK #2 R&M	2017	10	4	6	$10,677	$1,068	$4,271	$6,406	1.16	$12,399	$1,240	$4,959	$7,439
STORAGE TANK #1	2018	10	3	7	$34,089	$3,409	$10,227	$23,862	1.12	$38,133	$3,813	$11,440	$26,693
STORAGE TANK #2	2018	10	3	7	$10,677	$1,068	$3,203	$7,474	1.12	$11,944	$1,194	$3,583	$8,361
GRANT PLANNING WIP	2018	10	3	7	$4,912	$491	$1,474	$3,438	1.12	$5,495	$549	$1,648	$3,846
STORAGE TANK #1 R&M	2019	10	2	8	$34,089	$3,409	$6,818	$27,271	1.08	$36,735	$3,673	$7,347	$29,388
STORAGE TANK #2 R&M	2019	10	2	8	$10,677	$1,068	$2,135	$8,542	1.08	$11,506	$1,151	$2,301	$9,205
WATER TANK FENCING	2019	10	2	8	$25,439	$2,544	$5,088	$20,351	1.08	$27,413	$2,741	$5,483	$21,931
TANKS	1989	50	32	18	$57,165	$1,143	$36,586	$20,579	3.31	$189,019	$3,780	$120,972	$68,047
FENCE TANK	1996	15	25	0	$1,090	$0	$1,090	$0	2.55	$2,775	$0	$2,775	$0

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		a	*b*	*c = a-b*	*d*	*e = d/a*	*f = b*e*	*g = d-f*	*h*	*i = d*h*	*j = i/a*	*k = j*b*	*l = i-k*
WATER TANK #1	1986	50	35	15	$29,408	$588	$20,586	$8,822	3.70	$108,776	$2,176	$76,143	$32,633
TANK #1 REHAB	1986	50	35	15	$38,440	$769	$26,908	$11,532	3.70	$142,184	$2,844	$99,529	$42,655
TANK REPAIR	2002	5	19	0	$7,888	$0	$7,888	$0	2.03	$16,045	$0	$16,045	$0
TANK #2 REHAB	2005	50	16	34	$121,682	$2,434	$38,938	$82,744	1.82	$221,266	$4,425	$70,805	$150,461
TANK #1 FENCE	2009	20	12	8	$12,425	$621	$7,455	$4,970	1.57	$19,456	$973	$11,674	$7,783
Total Tanks (Storage)					**$1,564,998**	**$55,614**	**$1,075,578**	**$489,420**		**$3,350,969**			**$1,065,055**
Vehicles													
50% DODGE RAM 1500	2000	5	21	0	$13,740	$0	$13,740	$0	2.19	$30,118	$0	$30,118	$0
VACTOR TRUCK 01 F65	2002	20	19	1	$7,720	$386	$7,334	$386	2.03	$15,704	$785	$14,918	$785
VEHICLE REPLACEMENT WATER	2019	10	2	8	$15,079	$1,508	$3,016	$12,063	1.08	$16,249	$1,625	$3,250	$12,999
1999 GMC TRUCK	2000	15	21	0	$23,267	$0	$23,267	$0	2.19	$51,001	$0	$51,001	$0
F350 TRUCK 05	2004	5	17	0	$19,061	$0	$19,061	$0	1.89	$35,980	$0	$35,980	$0
BACKHOE	2013	7	8	0	$35,826	$0	$35,826	$0	1.35	$48,311	$0	$48,311	$0
F 250	2014	7	7	0	$14,858	$0	$14,858	$0	1.30	$19,301	$0	$19,301	$0
TRUCK - FORD 2002	2002	7	19	0	$19,209	$0	$19,209	$0	2.03	$39,074	$0	$39,074	$0
2015 DODGE RAM 2500	2016	5	5	0	$18,805	$0	$18,805	$0	1.21	$22,669	$0	$22,669	$0
JOHN DEER BACKHOE	2016	5	5	0	$13,250	$0	$13,250	$0	1.21	$15,972	$0	$15,972	$0
Total Vehicles					**$180,815**	**$1,894**	**$168,366**	**$12,449**		**$294,378**			**$13,785**
Water Sources													
WELLS	1989	30	32	0	$15,000	$0	$15,000	$0	3.31	$49,598	$0	$49,598	$0
WELL1FMHA IMPROVEMENT	1990	30	31	0	$13,504	$0	$13,504	$0	3.19	$43,014	$0	$43,014	$0
WELL 2FMHA IMPROVEMENT	1990	25	31	0	$67,026	$0	$67,026	$0	3.19	$213,495	$0	$213,495	$0
NORTON WELL	1996	30	25	5	$70,511	$2,350	$58,759	$11,752	2.55	$179,481	$5,983	$149,568	$29,914
NORTON WELL BUILDING	1996	40	25	15	$10,670	$267	$6,669	$4,001	2.55	$27,160	$679	$16,975	$10,185
NORTON WELL PUMP	1996	25	25	0	$9,901	$0	$9,901	$0	2.55	$25,202	$0	$25,202	$0
MOTOR SAVER	1997	10	24	0	$638	$0	$638	$0	2.45	$1,564	$0	$1,564	$0
METER-BELLAMY WELL	1999	30	22	8	$678	$23	$497	$181	2.28	$1,543	$51	$1,131	$411
GENERATOR - BOOSTER PUMP	2000	20	21	0	$1,609	$0	$1,609	$0	2.19	$3,527	$0	$3,527	$0
METER NORTON WELL	2000	30	21	9	$1,834	$61	$1,284	$550	2.19	$4,020	$134	$2,814	$1,206
PRV PUMP HSE EQ CON	2000	30	21	9	$560,083	$18,669	$392,058	$168,025	2.19	$1,227,702	$40,923	$859,391	$368,310
COBURN PUMP WELL	2000	20	21	0	$6,949	$0	$6,949	$0	2.19	$15,232	$0	$15,232	$0
NUGGET WELL ENGINEER	2004	10	17	0	$3,986	$0	$3,986	$0	1.89	$7,524	$0	$7,524	$0
WELL #4 PUMP	2004	25	17	8	$9,190	$368	$6,249	$2,941	1.89	$17,347	$694	$11,796	$5,551
TELEMETERING	2004	10	17	0	$1,860	$0	$1,860	$0	1.89	$3,511	$0	$3,511	$0
COBURN WELL HOUSE	2005	40	16	24	$3,857	$96	$1,543	$2,314	1.82	$7,014	$175	$2,805	$4,208
BOYLE #1 TEST WELL	2005	10	16	0	$34,577	$0	$34,577	$0	1.82	$62,875	$0	$62,875	$0
GOODWIN TEST WELL	2005	10	16	0	$34,057	$0	$34,057	$0	1.82	$61,929	$0	$61,929	$0
NUGGET LAND TEST WELL	2005	10	16	0	$15,245	$0	$15,245	$0	1.82	$27,721	$0	$27,721	$0
BELLAMY WELL PUMP	2005	20	16	4	$4,808	$240	$3,846	$962	1.82	$8,743	$437	$6,994	$1,749
GROUNDWATER MONITOR	2005	10	16	0	$45,190	$0	$45,190	$0	1.82	$82,173	$0	$82,173	$0
WELL PROBE	2005	7	16	0	$596	$0	$596	$0	1.82	$1,084	$0	$1,084	$0
HIGH SCHOOL WELL PUMP	2006	10	15	0	$1,949	$0	$1,949	$0	1.75	$3,414	$0	$3,414	$0
WELL #6 SUNSET	2006	30	15	15	$415,004	$13,833	$207,502	$207,502	1.75	$726,959	$24,232	$363,479	$363,479
TELEMETRY	2006	10	15	0	$653	$0	$653	$0	1.75	$1,144	$0	$1,144	$0
PUMP - SS	2007	5	14	0	$1,605	$0	$1,605	$0	1.69	$2,708	$0	$2,708	$0
GENERATOR	2008	5	13	0	$1,880	$0	$1,880	$0	1.63	$3,056	$0	$3,056	$0
BOYLE #7	2010	30	11	19	$80,762	$2,692	$29,613	$51,149	1.51	$121,827	$4,061	$44,670	$77,157
SPRING IMPROVEMENT	2014	10	7	3	$4,390	$439	$3,073	$1,317	1.30	$5,703	$570	$3,992	$1,711
GENERATOR BELLAMY WELL	2020	10	1	9	$4,715	$472	$472	$4,244	1.04	$4,895	$489	$489	$4,405
GENERATOR PROJECT ENGINEER	2020	10	1	9	$7,073	$707	$707	$6,366	1.04	$7,342	$734	$734	$6,608
GENERATOR BELLAMY WELL	2020	10	1	9	$2,070	$207	$207	$1,863	1.04	$2,149	$215	$215	$1,934
GENERATOR PROJECT ENGINEER	2020	10	1	9	$3,105	$311	$311	$2,795	1.04	$3,223	$322	$322	$2,901
CONTROL PANEL NORTON WELL	2000	15	21	0	$12,714	$0	$12,714	$0	2.19	$27,869	$0	$27,869	$0
SPRING LINE IMPROVEMENTS	2000	20	21	0	$6,034	$0	$6,034	$0	2.19	$13,227	$0	$13,227	$0
WELL 7 SCADA	2011	10	10	0	$16,014	$0	$16,014	$0	1.45	$23,270	$0	$23,270	$0
BELLAMY WELL PUMP	2018	10	3	7	$12,981	$1,298	$3,894	$9,087	1.12	$14,521	$1,452	$4,356	$10,165
FILTERS	1989	25	32	0	$3,561	$0	$3,561	$0	3.31	$11,775	$0	$11,775	$0
WELLS	1989	15	32	0	$6,857	$0	$6,857	$0	3.31	$22,673	$0	$22,673	$0
BACKFLOW PREVENTER	1991	20	30	0	$1,421	$0	$1,421	$0	3.07	$4,360	$0	$4,360	$0
SOURCE OF SUPPLY	1967	50	54	0	$178,156	$0	$178,156	$0	7.52	$1,340,439	$0	$1,340,439	$0
WELL #8	1992	33	29	4	$134,982	$4,090	$118,621	$16,361	2.96	$398,988	$12,091	$350,626	$48,362
WELL #8 REHAB - WATER	1999	33	22	11	$21,145	$641	$14,097	$7,048	2.28	$48,115	$1,458	$32,077	$16,038
WELL #8	1999	33	22	11	$385	$12	$257	$128	2.28	$876	$27	$584	$292
GENERATOR & IMPR. - WELL	2001	10	20	0	$32,459	$0	$32,459	$0	2.11	$68,540	$0	$68,540	$0

Table B-10
American Valley CSD Utility Rates Study
Water Assets

Description	Base Year	Life (Years)	Years Depreciated	Remaining Years	Cost Basis	Annual Depreciation	Accum. Depreciation	Current Book Value	Replacement Factor	Replacement Cost Est.	Annual Depreciation	Accum. Depreciation	Remaining Value
		a	*b*	*c = a-b*	*d*	*e = d/a*	*f = b*e*	*g = d-f*	*h*	*i = d*h*	*j = i/a*	*k = j*b*	*l = i-k*
WELL 9 DEVELOPMENT	2001	20	20	0	$8,503	$0	$8,503	$0	2.11	$17,955	$0	$17,955	$0
WELL 9 DEVELOPMENT	2002	20	19	1	$91,075	$4,554	$86,521	$4,554	2.03	$185,259	$9,263	$175,996	$9,263
WELL #4	2002	20	19	1	$13,192	$660	$12,532	$660	2.03	$26,834	$1,342	$25,493	$1,342
FENCE - WELL #9	2003	20	18	2	$5,875	$294	$5,288	$588	1.96	$11,512	$576	$10,361	$1,151
WELL #9	2003	20	18	2	$177,029	$8,851	$159,326	$17,703	1.96	$346,891	$17,345	$312,202	$34,689
FENCE - WELL #9	2003	20	18	2	$5,875	$294	$5,288	$588	1.96	$11,512	$576	$10,361	$1,151
ROAD FOR WELL #9	2003	20	18	2	$14,929	$746	$13,436	$1,493	1.96	$29,254	$1,463	$26,328	$2,925
WELL #9 ADDITIONS	2003	20	18	2	$844	$42	$760	$84	1.96	$1,654	$83	$1,488	$165
WELL #1 PUMP	2008	10	13	0	$8,762	$0	$8,762	$0	1.63	$14,243	$0	$14,243	$0
PUMP REPLACEMENT	2008	10	13	0	$9,866	$0	$9,866	$0	1.63	$16,038	$0	$16,038	$0
PUMPS WELLS 8&9	2013	5	8	0	$12,565	$0	$12,565	$0	1.35	$16,944	$0	$16,944	$0
Total Water Sources (Wells)					**$2,210,199**			**$524,254**		**$5,606,628**			**$1,005,274**
TOTAL ASSETS VALUE					**$14,118,343**			**$6,001,101**		**$33,065,123**			**$11,486,297**

Source: AVCSD records.

w buyin

[1] Adjusted by the average annual rate of inflation in California since 1955.

APPENDIX C

WASTEWATER FEES

SUPPORT TABLES

Table C-1
American Valley CSD Utility Rates Study
Functional Allocation of Wastewater Costs

Expenditures	ACTUAL FY 2021	Allocation Basis	Customer Related	Capacity Related	Flow & Strength Related	Unclassified
Personnel Costs - 70%	$392,624	Customers	100%	0%	0%	0%
Personnel Costs - 30%	$168,268	Avg. of Classified	0%	0%	0%	100%
Insurance	$29,145	Avg. of Classified	0%	0%	0%	100%
Memberships	$4,384	Customers	100%	0%	0%	0%
Office	$32,346	Avg. of Classified	0%	0%	0%	100%
Printing, Postage & Publication	$5,088	Customers	100%	0%	0%	0%
Travel/Training/Meetings	$966	Avg. of Classified	0%	0%	0%	100%
Professional Services	$101,529	Plant in Service	9%	55%	36%	0%
Mapping & CAD Services	$225	Customers	100%	0%	0%	0%
Telemetering Maintenance	$391	Utilities	0%	0%	100%	0%
Gas, Oil & Fuel	$6,585	Plant in Service	9%	55%	36%	0%
Operating Supplies	$22,424	Plant in Service	9%	55%	36%	0%
Utilities - Electric	$105,880	Utilities	0%	0%	100%	0%
Utilities - Other	$3,955	Avg. of Classified	0%	0%	0%	100%
Maintenance	$59,025	Plant in Service	9%	55%	36%	0%
USGS Spanish Creek Monitoring	$36,100	Flow & Strength	0%	0%	100%	0%
NPDES Costs	$49,194	Flow & Strength	0%	0%	100%	0%
Safety Expense	$749	Avg. of Classified	0%	0%	0%	100%
State Monitoring Fees	$0	Flow & Strength	0%	0%	100%	0%
Interest Expense	$154,101	Plant in Service	9%	55%	36%	0%
Biosolids Disposal	$0	Flow & Strength	0%	0%	100%	0%
Other Expenses	$285,128	Avg. of Classified	0%	0%	0%	100%
Total Expenses	**$1,458,106**		**$432,308**	**$189,154**	**$316,088**	**$520,556**
			$240,030	$105,024	$175,501	
Total Allocated Expenses	**$1,458,106**		**$672,338**	**$294,178**	**$491,589**	
Accumulated Depreciation	$6,194,635	Plant in Service	9%	55%	36%	
Total Depreciation			**$540,526**	**$3,409,550**	**$2,244,559**	
Total Costs	**$7,652,740**		**$1,212,864**	**$3,703,729**	**$2,736,148**	
Percentage of Costs by Function			**16%**	**48%**	**36%**	

Source: AVCSD financials and HEC 2021 rate study. ww func

Table C-2
American Valley CSD Utility Rates Study
Wastewater Plant In Service

Plant In Service	Customer	Capacity	Flow	Total Cost	Customer Related	Capacity Related	Flow & Strength Related
Pipes	10%	40%	50%	$18,843,122	$1,884,312	$7,537,249	$9,421,561
Manholes			100%	$47,412	$0	$0	$47,412
Lift Stations		60%	40%	$630,305	$0	$378,183	$252,122
Treatment Plant		90%	10%	$9,057,936	$0	$8,152,142	$905,794
Buildings & Equipment	90%	10%		$749,791	$674,812	$74,979	$0
Total				**$29,328,566**	**$2,559,124**	**$16,142,553**	**$10,626,889**
Percentage of Plant in Service					**9%**	**55%**	**36%**

ww plant

Table C-3

American Valley CSD Utility Rates Study

Projected Costs and Distribution between Collection and Treatment System **Fiscal Year Ending 2024**

Expenditures	Projected Total	Net Total Allocated [1]	Allocation		Collection			Treatment		
			Collection	Treatment	Operations	Capital	Total	Operations	Capital	Total
Operating		*84%*								
Personnel	$1,051,460	$884,817	60%	40%	$530,890		$530,890	$353,927		$353,927
Insurance	$83,045	$69,884	20%	80%	$13,977		$13,977	$55,907		$55,907
Professional Services	$117,972	$99,275	60%	40%	$59,565		$59,565	$39,710		$39,710
Electric	$270,731	$227,823	15%	85%	$34,173		$34,173	$193,650		$193,650
Maintenance	$77,425	$65,154	40%	60%	$26,061		$26,061	$39,092		$39,092
Office	$62,014	$52,185	80%	20%	$41,748		$41,748	$10,437		$10,437
State Monitoring Fees	$63,676	$53,584	20%	80%	$10,717		$10,717	$42,868		$42,868
Lab	$54,080	$45,509	0%	100%	$0		$0	$45,509		$45,509
Chemicals	$217,699	$183,196	0%	100%	$0		$0	$183,196		$183,196
Gas, Oil & Fuel	$23,824	$20,048	15%	85%	$3,007		$3,007	$17,041		$17,041
Other	$37,391	$31,465	20%	80%	$6,293		$6,293	$25,172		$25,172
New WWTP Op. Costs [1]	$197,925	$166,556	0%	100%	$0		$0	$166,556		$166,556
Subtotal Operating	**$2,257,242**	**$1,899,497**			**$726,432**	**$0**	**$726,432**	**$1,173,065**	**$0**	**$1,173,065**
Debt Service	$742,698	$624,989	0%	100%		$0	$0		$624,989	$624,989
System Rehabilitation	$0	$0	70%	30%		$0	$0		$0	$0
Total Expenditures	**$2,999,940**	**$2,524,487**			**$726,432**	**$0**	**$726,432**	**$1,173,065**	**$624,989**	**$1,798,054**
Less Offsetting Revenue	($221,508)	($186,402)								
Use of Rate Reserves	($689,805)	($580,480)								
Total Costs Allocated	**$2,088,627**	**$1,757,606**								

Source: AVCSD financial records and HEC 2021 rate study. ww alloc

[1] Net total allocated excludes costs that are in the customer charge.

Table C-4
American Valley CSD Utility Rates Study
Unit Cost Determination **Fiscal Year Ending 2024**

Cost Category	Allocated Costs	Percent Allocation			Cost			Total Influent			Unit Cost Per:		
		Flow	BOD	SS	Flow	BOD	SS	Flow MG	BOD Klbs	SS Klbs	Mgal of Flow ($/Mgal)	Klb of BOD ($/Klb)	Klb of SS ($/Klb)
	(A)	*(B)*	*(C)*	*(D)*	*(E) = (A)*(B)*	*(F)=(A)*(C)*	*(G)=(A)*(D)*	*(H)*	*(I)*	*(J)*	*(K)=(E)/(H)*	*(L)=(F)/(I)*	*(M)=(G)/(J)*
Operating Costs													
Collection System Costs	$726,432	100%	0%	0%	$726,432	$0	$0	154	299	296	$4,706	$0	$0
Treatment Costs	$1,173,065	60%	20%	20%	$703,839	$234,613	$234,613	154	299	296	$4,559	$785	$793
Capital Costs													
Collection System Costs	$0	100%	0%	0%	$0	$0	$0	154	299	296	$0	$0	$0
Treatment Costs	$624,989	60%	20%	20%	$374,994	$124,998	$124,998	154	299	296	$2,429	$418	$423
Subtotal Collection Costs	**$726,432**	**100%**	**0%**	**0%**	**$726,432**	**$0**	**$0**	**154**	**299**	**296**	**$4,706**	**$0**	**$0**
Subtotal Treatment Costs	**$1,798,054**	**60%**	**20%**	**20%**	**$1,078,833**	**$359,611**	**$359,611**	**154**	**299**	**296**	**$6,989**	**$1,203**	**$1,216**
Subtotal Costs	**$2,524,487**	**72%**	**14%**	**14%**	**$1,805,265**	**$359,611**	**$359,611**	**154**	**299**	**296**	**$11,695**	**$1,203**	**$1,216**
Other Costs													
Less Offsetting Revenue	($186,402)	72%	14%	14%	($133,296)	($26,553)	($26,553)	154	299	296	($863)	($89)	($90)
Use of Rate Reserves	($580,480)	72%	14%	14%	($415,102)	($82,689)	($82,689)	154	299	296	($2,689)	($277)	($280)
TOTAL COSTS	**$1,757,606**				**$1,256,867**	**$250,369**	**$250,369**				**$8,142**	**$838**	**$846**

Source: HEC 2021 rate study. units

Table C-5
American Valley CSD Utility Rates Study
Allocation of Costs to Flow, BOD and SS by Customer Category for Capacity **Fiscal Year Ending 2024**

Unit Cost / Customer Category	Flow MG/Yr	BOD Klb/Yr	SS Klb/Yr	Collection Flow $/Mgal	Treatment Flow $/Mgal	Treatment BOD $/Klb	Treatment SS $/Klb	Other Flow $/Mgal	Other BOD $/Klb	Other SS $/Klb	TOTAL
Unit Cost 58%				***$2,706***	***$4,019***	***$692***	***$699***	***($2,043)***	***($210)***	***($212)***	
Residential											
Single Family	70	128	131	$189,059	$280,773	$88,692	$91,656	($142,724)	($26,943)	($27,843)	$452,670
Multi-Family	42	76	78	$112,327	$166,818	$52,695	$54,456	($84,798)	($16,008)	($16,543)	$268,948
Non-Residential (Metered)											
Domestic Strength [1]	3	5	5	$6,997	$10,391	$3,282	$3,392	($5,282)	($997)	($1,030)	$16,753
Low Strength [2]	18	26	24	$47,694	$70,830	$18,306	$16,956	($36,005)	($5,561)	($5,151)	$107,069
Medium Strength [3]	3	9	8	$8,054	$11,961	$6,011	$5,813	($6,080)	($1,826)	($1,766)	$22,167
High Strength [4]	4	26	21	$10,269	$15,250	$17,955	$14,603	($7,752)	($5,454)	($4,436)	$40,435
Schools	1	2	1	$2,284	$3,392	$1,120	$812	($1,724)	($340)	($247)	$5,297
Non-Residential (Unmetered)											
Domestic Strength [5]	11	21	21	$30,611	$45,460	$14,360	$14,840	($23,109)	($4,362)	($4,508)	$73,292
Low Strength [6]	2	3	3	$6,153	$9,137	$2,362	$2,187	($4,645)	($717)	($664)	$13,812
Inactive Customers [7]	2	3	3	$4,343	$6,449	$2,037	$2,105	($3,278)	($619)	($640)	$10,398
TOTAL				**$417,789**	**$620,463**	**$206,821**	**$206,821**	**($315,397)**	**($62,827)**	**($62,827)**	**$1,010,841**

Source: HEC 2021 rate study. alloc cap

[1] Mixed use accounts.

[2] Includes retail, office, churches, banks, dental/doctor offices, storage, beauty shops, car washes, and light manufacturing.

[3] Includes auto repair and service, gas station with markets, heavy manufacturing/industrial, and laundromats.

[4] Includes grocery markets, funeral homes, restaurants, fast food and bakeries.

[5] In the West zone, Feather River College and RV Park are included.

[6] In the West Zone, includes Plumas Co. Annex and Gansner Park bathrooms.

Table C-6
American Valley CSD Utility Rates Study
Allocation of Costs to Flow, BOD and SS by Customer Category for Flow **Fiscal Year Ending 2024**

Unit Cost / Customer Category	Flow MG/Yr	BOD Klb/Yr	SS Klb/Yr	Collection Flow $/Mgal	Treatment Flow $/Mgal	Treatment BOD $/Klb	Treatment SS $/Klb	Other Flow $/Mgal	Other BOD $/Klb	Other SS $/Klb	TOTAL
Unit Cost 42%				***$2,020***	***$3,000***	***$517***	***$522***	***($1,525)***	***($157)***	***($159)***	
Residential											
Single Family	70	128	131	$141,120	$209,578	$66,202	$68,415	($106,534)	($20,111)	($20,783)	$337,887
Multi-Family	42	76	78	$83,845	$124,518	$39,333	$40,648	($63,296)	($11,949)	($12,348)	$200,752
Non-Residential (Metered)											
Domestic Strength [1]	3	5	5	$5,223	$7,756	$2,450	$2,532	($3,943)	($744)	($769)	$12,505
Low Strength [2]	18	26	24	$35,600	$52,870	$13,664	$12,657	($26,875)	($4,151)	($3,845)	$79,920
Medium Strength [3]	3	9	8	$6,012	$8,928	$4,487	$4,339	($4,538)	($1,363)	($1,318)	$16,546
High Strength [4]	4	26	21	$7,665	$11,383	$13,403	$10,900	($5,786)	($4,071)	($3,311)	$30,182
Schools	1	2	1	$1,705	$2,532	$836	$606	($1,287)	($254)	($184)	$3,954
Non-Residential (Unmetered)											
Domestic Strength [5]	11	21	21	$22,849	$33,933	$10,719	$11,077	($17,249)	($3,256)	($3,365)	$54,708
Low Strength [6]	2	3	3	$4,592	$6,820	$1,763	$1,633	($3,467)	($535)	($496)	$10,310
TOTAL				**$308,610**	**$458,320**	**$152,857**	**$152,806**	**($232,976)**	**($46,435)**	**($46,419)**	**$746,764**

Source: HEC 2021 rate study. alloc flow

[1] Mixed use accounts.

[2] Includes retail, office, churches, banks, dental/doctor offices, storage, beauty shops, car washes, and light manufacturing.

[3] Includes auto repair and service, gas station with markets, heavy manufacturing/industrial, and laundromats.

[4] Includes grocery markets, funeral homes, restaurants, fast food and bakeries.

[5] In the West zone, Feather River College and RV Park are included.

[6] In the West Zone, includes Plumas Co. Annex and Gansner Park bathrooms.

Table C-7

American Valley CSD Utility Rates Study

West Zone Collection Debt Service for USDA 2012 Bonds WEST

Customer Category	No. Accounts	Flow (GPD)	Avg. Daily Flow (MGD)	Customer Charge		No. Billing Units	Capacity Charge		Flow Charge	
				Customer Charges	Monthly Customer Charge		Capacity Charges	Monthly Capacity Charge	Flow Charges	Monthly Flow Charge
Residential				**16%**	**per account**	**units**	**48%**		**36%**	
Single Family	520	155	0.08	$14,109	$2.26	520	$26,572	$4.26	$19,791	$0.06
Multi-Family	68	117	0.05	$1,845	$2.26	453	$23,149	$4.26	$17,241	$0.06
Non-Residential (Metered)					**per account**	**1,000 galls**				
Domestic Strength	0	0	0.00	$0	n.a.	0	$0	n.a.	$0	n.a.
Low Strength	101	256	0.03	$2,740	$2.26	101	$5,161	$4.26	$3,844	$0.06
Medium Strength	15	409	0.01	$407	$2.26	15	$767	$4.26	$571	$0.06
High Strength	38	242	0.01	$1,031	$2.26	38	$1,942	$4.26	$1,446	$0.06
Schools	3	616	0.00	$81	$2.26	3	$153	$4.26	$114	$0.06
Non-Residential (Unmetered)					**per account**	**DUEs**				
Domestic Strength	2	155	0.01	$54	$2.26	74	$3,764	$4.26	$2,804	$0.06
Low Strength	2	155	0.00	$54	$2.26	17	$869	$4.26	$647	$0.06
					per account	**accounts**				
Inactive Customers [7]	10	155	0.00	$271	$2.26	10	$511	$4.26		
TOTAL	**759**		**0.19**	**$20,594**		**1,231**	**$62,888**		**$46,459**	

Source: AVCSD billing records and HEC 2021 rate study. wzone

Table C-8

American Valley CSD Utility Rates Study
East Zone Collection Debt Service for USDA 1996 Bonds EAST

Customer Category	No. Accounts	Flow (GPD)	Avg. Daily Flow (MGD)	Customer Charge: Customer Charges	Customer Charge: Monthly Customer Charge	No. Billing Units	Capacity Charge: Capacity Charges	Capacity Charge: Monthly Capacity Charge	Flow Charge: Flow Charges	Flow Charge: Monthly Flow Charge
Residential				**16%**	**per account**	**units**	**48%**		**36%**	
Single Family	699	158	0.11	$1,227	$0.15	699	$2,843	$0.34	$2,128	$0.06
Multi-Family	103	144	0.06	$181	$0.15	415	$1,688	$0.34	$1,263	$0.06
Non-Residential (Metered)					**per account**	**1,000 galls**				
Domestic Strength	9	787	0.01	$16	$0.15	9	$37	$0.34	$27	$0.06
Low Strength	69	337	0.02	$121	$0.15	69	$281	$0.34	$210	$0.06
Medium Strength	16	158	0.00	$28	$0.15	16	$65	$0.34	$49	$0.06
High Strength	7	177	0.00	$12	$0.15	7	$28	$0.34	$21	$0.06
Schools	1	467	0.00	$2	$0.15	1	$4	$0.34	$3	$0.06
Non-Residential (Unmetered)					**per account**	**DUEs**				
Domestic Strength	104	158	0.02	$183	$0.15	123.71	$503	$0.34	$377	$0.06
Low Strength	21	158	0.00	$37	$0.15	22.67	$92	$0.34	$69	$0.06
					per account	**accounts**				
Inactive Customers [7]	18	158	0.00	$32	$0.15	18	$73	$0.34		
TOTAL [1]	**1,047**		**0.23**	**$1,838**		**1,380**	**$5,614**		**$4,147**	

Source: AVCSD billing records and HEC 2021 rate study. e1996

[1] Debt service remaining after applying assessments.

Table C-9
American Valley CSD Utility Rates Study
Wastewater Assets

Description	Base Year	Life (years)	Years Depreciated	Remaining Years	Cost Basis	Annual Depreciation	Accum. Depreciation	Current Book Value	Replacement Factor	Replacement Cost Est.	Annual Depreciation	Accum. Depreciation	Remaining Value
		a	*b*	*c = a-b*	*d*	*e = d/a*	*f = b*e*	*g = d-f*	*h*	*i = d*h*	*j = i/a*	*k = j*b*	*l = i-k*
Collection System													
WATER BUILDING	1989	34	32	2	$52,422	$1,542	$49,338	$3,084	3.31	$173,336	$5,098	$163,140	$10,196
HEADWORKS BUILDING	1989	34	32	2	$93,681	$2,755	$88,170	$5,511	3.31	$309,761	$9,111	$291,540	$18,221
I&I SITE WORK	1989	35	32	3	$3,824	$109	$3,496	$328	3.31	$12,644	$361	$11,560	$1,084
INTERCEPTOR	1989	35	32	3	$400,501	$11,443	$366,172	$34,329	3.31	$1,324,279	$37,837	$1,210,769	$113,510
SEWER REHAB	1989	23	32	0	$1,250,717	$0	$1,250,717	$0	3.31	$4,135,566	$0	$4,135,566	$0
AIRPORT LIFT STATION	1990	15	31	0	$29,514	$0	$29,514	$0	3.19	$94,010	$0	$94,010	$0
AIRPORT SEWER LINE	1990	40	31	9	$54,382	$1,360	$42,146	$12,236	3.19	$173,221	$4,331	$134,246	$38,975
SUBSURFACE LINES	1996	20	25	0	$301,745	$0	$301,745	$0	2.55	$768,073	$0	$768,073	$0
SP CRK OVERCROSSING	1997	50	24	26	$131,952	$2,639	$63,337	$68,615	2.45	$323,555	$6,471	$155,306	$168,249
MANHOLES	1997	30	24	6	$2,042	$68	$1,634	$408	2.45	$5,007	$167	$4,006	$1,001
FOOTHILL SEWER LINES	1998	40	23	17	$35,272	$882	$20,281	$14,991	2.36	$83,317	$2,083	$47,907	$35,410
FOOTHILL SEWER LINES	1999	40	22	18	$12,359	$309	$6,797	$5,562	2.28	$28,123	$703	$15,467	$12,655
GRINDER PUMP AP LIFT STATION	2000	15	21	0	$1,522	$0	$1,522	$0	2.19	$3,336	$0	$3,336	$0
TELEMETERING CONN EQ	2001	15	20	0	$2,902	$0	$2,902	$0	2.11	$6,128	$0	$6,128	$0
TELEMETERING CMP UPGRADE	2001	5	20	0	$5,309	$0	$5,309	$0	2.11	$11,210	$0	$11,210	$0
8" PIPELINE 63'N H70	2002	30	19	11	$23,540	$785	$14,909	$8,631	2.03	$47,883	$1,596	$30,326	$17,557
ANNEX 10" PIPE 50LF	2002	30	19	11	$16,750	$558	$10,608	$6,142	2.03	$34,072	$1,136	$21,579	$12,493
ANNEX 12" PIPE 803 LF	2002	30	19	11	$252,965	$8,432	$160,211	$92,754	2.03	$514,565	$17,152	$325,891	$188,674
ANNEX 6" PIPE 63LF	2002	30	19	11	$21,735	$725	$13,766	$7,970	2.03	$44,212	$1,474	$28,001	$16,211
ANNEX 6" PIPE MET	2002	30	19	11	$20,034	$668	$12,688	$7,346	2.03	$40,752	$1,358	$25,809	$14,942
PARK LIFT STATION	2002	20	19	1	$36,000	$1,800	$34,200	$1,800	2.03	$73,229	$3,661	$69,567	$3,661
PARK LIFT STATION BLDG	2002	30	19	11	$70,000	$2,333	$44,333	$25,667	2.03	$142,389	$4,746	$90,180	$52,209
PARK LIFT STATION GENERATOR	2002	20	19	1	$10,000	$500	$9,500	$500	2.03	$20,341	$1,017	$19,324	$1,017
PARK LIFT STATION MOTOR	2002	15	19	0	$10,000	$0	$10,000	$0	2.03	$20,341	$0	$20,341	$0
PARK LIFT STATION PIPE	2002	30	19	11	$110,411	$3,680	$69,927	$40,484	2.03	$224,591	$7,486	$142,241	$82,350
PARK LIFT STATION PUMP	2002	15	19	0	$20,000	$0	$20,000	$0	2.03	$40,683	$0	$40,683	$0
PARK LIFT STATION PUMP	2002	15	19	0	$20,000	$0	$20,000	$0	2.03	$40,683	$0	$40,683	$0
PARK LIFT STATION ULTRA	2002	15	19	0	$10,000	$0	$10,000	$0	2.03	$20,341	$0	$20,341	$0
SEWER RELOCATION 6" PIPE	2002	30	19	11	$89,937	$2,998	$56,960	$32,977	2.03	$182,944	$6,098	$115,864	$67,079
SEWER RELOCATION PIPE	2002	15	19	0	$320,461	$0	$320,461	$0	2.03	$651,860	$0	$651,860	$0
VACTOR TRUCK 01 F65	2002	20	19	1	$108,082	$5,404	$102,678	$5,404	2.03	$219,853	$10,993	$208,861	$10,993
INSP CAMERA 1306B	2002	10	19	0	$26,771	$0	$26,771	$0	2.03	$54,456	$0	$54,456	$0
GOLDEN EAGLE LINE	2002	30	19	11	$144,472	$4,816	$91,499	$52,973	2.03	$293,875	$9,796	$186,121	$107,754
PUMP 2 AP LIFT STATION	2002	15	19	0	$2,442	$0	$2,442	$0	2.03	$4,967	$0	$4,967	$0
CHANNEL MONSTER GROUND	2002	30	19	11	$35,875	$1,196	$22,721	$13,154	2.03	$72,975	$2,432	$46,217	$26,757
100 FT 8" LINE	2003	30	18	12	$43,315	$1,444	$25,989	$17,326	1.96	$84,876	$2,829	$50,926	$33,951
MANHOLE MAIN ACRS CO	2003	30	18	12	$6,487	$216	$3,892	$2,595	1.96	$12,711	$424	$7,627	$5,085
MANHOLE MAIN BUCKS	2003	30	18	12	$6,487	$216	$3,892	$2,595	1.96	$12,711	$424	$7,627	$5,085
MANHOLE MAIN COURT	2003	30	18	12	$6,487	$216	$3,892	$2,595	1.96	$12,711	$424	$7,627	$5,085
32 LF 8" SEWER	2003	40	18	22	$6,434	$161	$2,895	$3,539	1.96	$12,608	$315	$5,673	$6,934
TELEMETERING	2003	3	18	0	$7,306	$0	$7,306	$0	1.96	$14,316	$0	$14,316	$0
HVAC HEADWORKS	2003	20	18	2	$4,375	$219	$3,938	$438	1.96	$8,573	$429	$7,716	$857
TELEMETERING UPGRADE	2004	15	17	0	$10,062	$0	$10,062	$0	1.89	$18,993	$0	$18,993	$0
FOOTHILL PROJECT	2004	35	17	18	$100,717	$2,878	$48,920	$51,797	1.89	$190,117	$5,432	$92,343	$97,775
SRS IMPELLER PROP	2004	10	17	0	$2,481	$0	$2,481	$0	1.89	$4,683	$0	$4,683	$0
FOOTHILL SEWER PROJECT	2004	10	17	0	$3,429	$0	$3,429	$0	1.89	$6,473	$0	$6,473	$0
TELEMETERING UPGRADE	2004	10	17	0	$5,530	$0	$5,530	$0	1.89	$10,439	$0	$10,439	$0
AIRPORT LIFT STATION PAVE	2005	20	16	4	$3,500	$175	$2,800	$700	1.82	$6,364	$318	$5,092	$1,273
FLOW METER HEADWORKS	2006	15	15	0	$910	$0	$910	$0	1.75	$1,594	$0	$1,594	$0
CAMERA	2006	10	15	0	$3,990	$0	$3,990	$0	1.75	$6,989	$0	$6,989	$0
TELEMETERING EQUIPMENT	2006	10	15	0	$979	$0	$979	$0	1.75	$1,715	$0	$1,715	$0
ANTENNA	2006	5	15	0	$1,189	$0	$1,189	$0	1.75	$2,083	$0	$2,083	$0
HEADWORKS IMP PHS 1	2007	35	14	21	$78,980	$2,257	$31,592	$47,388	1.69	$133,274	$3,808	$53,309	$79,964
MAGNETIC LOCATOR	2007	5	14	0	$2,322	$0	$2,322	$0	1.69	$3,918	$0	$3,918	$0
SOLAR PANELS	2007	5	14	0	$25,173	$0	$25,173	$0	1.69	$42,478	$0	$42,478	$0
HEADWORKS PHS II	2007	5	14	0	$13,081	$0	$13,081	$0	1.69	$22,073	$0	$22,073	$0
HEADWORKS PHS II IMPROVE	2007	5	14	0	$415,684	$0	$415,684	$0	1.69	$701,440	$0	$701,440	$0
CHAIN CUTTER KIT	2008	5	13	0	$2,116	$0	$2,116	$0	1.63	$3,440	$0	$3,440	$0
GENERATOR	2008	5	13	0	$1,880	$0	$1,880	$0	1.63	$3,056	$0	$3,056	$0
SOLAR PANELS	2008	5	13	0	$33,679	$0	$33,679	$0	1.63	$54,746	$0	$54,746	$0
HEADWORKS PHS III	2008	35	13	22	$161,005	$4,600	$59,802	$101,203	1.63	$261,719	$7,478	$97,210	$164,509
HEADWORKS PHS III	2009	35	12	23	$73,010	$2,086	$25,032	$47,978	1.57	$114,327	$3,266	$39,198	$75,129
JACKSON ST SEWER PROJECT	2009	40	12	28	$83,256	$2,081	$24,977	$58,279	1.57	$130,371	$3,259	$39,111	$91,260
SEWER LINES CLEANOUTS 2012	2012	30	9	21	$5,782	$193	$1,735	$4,047	1.40	$8,094	$270	$2,428	$5,666
MANHOLES TO GRADE	2012	40	9	31	$9,000	$225	$2,025	$6,975	1.40	$12,598	$315	$2,835	$9,764
SCADA 2013	2013	10	8	2	$8,986	$899	$7,189	$1,797	1.35	$12,117	$1,212	$9,694	$2,423
TELEMETRY	2013	15	8	7	$7,505	$500	$4,003	$3,502	1.35	$10,120	$675	$5,398	$4,723
COLLECTION SYSTEM PROJECT	2013	40	8	32	$5,317,715	$132,943	$1,063,543	$4,254,172	1.35	$7,170,823	$179,271	$1,434,165	$5,736,659
SEWER CLAN OUTS	2012	30	9	21	$8,408	$280	$2,522	$5,886	1.40	$11,770	$392	$3,531	$8,239
SEWER LINES AND CLEANOUTS	2015	30	6	24	$2,743	$91	$549	$2,194	1.25	$3,432	$114	$686	$2,746
COLLECTION SYSTEM PROJECT	2014	40	7	33	$7,774	$194	$1,360	$6,414	1.30	$10,099	$252	$1,767	$8,331
GRANT PLANNING WIP	2017	10	4	6	$208,783	$20,878	$83,513	$125,270	1.16	$242,447	$24,245	$96,979	$145,468
GRANT PLANNING	2018	10	3	7	$62,544	$6,254	$18,763	$43,781	1.12	$69,964	$6,996	$20,989	$48,975
GRANT PLANNING WWC	2019	10	2	8	$106,521	$10,652	$21,304	$85,217	1.08	$114,788	$11,479	$22,958	$91,830
GRINDER REPLACEMENT	2019	10	2	8	$18,669	$1,867	$3,734	$14,935	1.08	$20,118	$2,012	$4,024	$16,094
WWC REHAB PROJECT	2019	10	2	8	$415	$42	$83	$332	1.08	$447	$45	$89	$358
VEHICLE REPLACEMENT WWC	2019	10	2	8	$7,540	$754	$1,508	$6,032	1.08	$8,125	$813	$1,625	$6,500
ARROW BOARD	2019	10	2	8	$3,134	$313	$627	$2,507	1.08	$3,377	$338	$675	$2,702
GRANT PLANNING WWC	2020	10	1	9	$107,477	$10,748	$10,748	$96,729	1.04	$111,570	$11,157	$11,157	$100,413
PUMPS (2)	1998	10	23	0	$24,812	$0	$24,812	$0	2.36	$58,609	$0	$58,609	$0

Table C-9
American Valley CSD Utility Rates Study
Wastewater Assets

Description	Base Year	Life (years)	Years Depreciated	Remaining Years	Cost Basis	Annual Depreciation	Accum. Depreciation	Current Book Value	Replacement Factor	Replacement Cost Est.	Annual Depreciation	Accum. Depreciation	Remaining Value
		a	*b*	*c = a-b*	*d*	*e = d/a*	*f = b*e*	*g = d-f*	*h*	*i = d*h*	*j = i/a*	*k = j*b*	*l = i-k*
ELECTRICAL TELEMETRY	1998	10	23	0	$33,000	$0	$33,000	$0	2.36	$77,950	$0	$77,950	$0
GENERATOR	1998	20	23	0	$25,998	$0	$25,998	$0	2.36	$61,410	$0	$61,410	$0
PUMPS	1998	10	23	0	$19,581	$0	$19,581	$0	2.36	$46,253	$0	$46,253	$0
ELECTRICAL TELEMETRY	1998	10	23	0	$44,300	$0	$44,300	$0	2.36	$104,642	$0	$104,642	$0
GENERATOR	1998	20	23	0	$18,780	$0	$18,780	$0	2.36	$44,361	$0	$44,361	$0
PUMPS	1998	10	23	0	$19,134	$0	$19,134	$0	2.36	$45,197	$0	$45,197	$0
ELECTRICAL TELEMETRY	1998	10	23	0	$40,150	$0	$40,150	$0	2.36	$94,839	$0	$94,839	$0
GENERATOR	1998	20	23	0	$19,564	$0	$19,564	$0	2.36	$46,212	$0	$46,212	$0
FLOW METERS	1998	10	23	0	$14,305	$0	$14,305	$0	2.36	$33,790	$0	$33,790	$0
ELECTRICAL TELEMETRY	1998	10	23	0	$10,750	$0	$10,750	$0	2.36	$25,393	$0	$25,393	$0
OFFICE ADA MODIFICATION	1998	10	23	0	$17,253	$0	$17,253	$0	2.36	$40,754	$0	$40,754	$0
TELEMETRY CONTROL STATION	1998	10	23	0	$34,000	$0	$34,000	$0	2.36	$80,312	$0	$80,312	$0
SIGN STANDS	1998	10	23	0	$633	$0	$633	$0	2.36	$1,495	$0	$1,495	$0
MESH CONSTRUCTION SIGNS	1998	10	23	0	$1,086	$0	$1,086	$0	2.36	$2,565	$0	$2,565	$0
MANHOLE VENTILATOR BLOWER	1999	10	22	0	$552	$0	$552	$0	2.28	$1,256	$0	$1,256	$0
SELF CONTAINED BREATHING	1998	10	23	0	$1,566	$0	$1,566	$0	2.36	$3,699	$0	$3,699	$0
BODY HARNESS	1998	10	23	0	$78	$0	$78	$0	2.36	$184	$0	$184	$0
LANDYARD - MANHOLE	1998	10	23	0	$43	$0	$43	$0	2.36	$102	$0	$102	$0
MAGNETIC LOCATOR	1998	10	23	0	$862	$0	$862	$0	2.36	$2,036	$0	$2,036	$0
F250 TRUCK	1998	10	23	0	$22,780	$0	$22,780	$0	2.36	$53,809	$0	$53,809	$0
BUMPER CRANE	1998	10	23	0	$6,408	$0	$6,408	$0	2.36	$15,136	$0	$15,136	$0
TRUCK TOOL BOX	1998	10	23	0	$656	$0	$656	$0	2.36	$1,550	$0	$1,550	$0
SEWER INSPECTION SYSTEM	1998	10	23	0	$25,204	$0	$25,204	$0	2.36	$59,535	$0	$59,535	$0
MOTOROLA HAND HELD RADIO	1998	10	23	0	$2,420	$0	$2,420	$0	2.36	$5,716	$0	$5,716	$0
TRAFFIC BARRICADES	1998	10	23	0	$267	$0	$267	$0	2.36	$631	$0	$631	$0
TRAFFIC CANES	1998	10	23	0	$214	$0	$214	$0	2.36	$505	$0	$505	$0
INFRASTRUCTURE PIPE	1998	50	23	27	$8,830,215	$176,604	$4,061,899	$4,768,316	2.36	$20,858,001	$417,160	$9,594,680	$11,263,320
UPGRADE COMPUTER	1998	10	23	0	$645	$0	$645	$0	2.36	$1,524	$0	$1,524	$0
BUSINESS WORKS SOFTWARE	1999	3	22	0	$955	$0	$955	$0	2.28	$2,173	$0	$2,173	$0
SEWER CONSTRUCTION COSTS	2000	10	21	0	$4,454	$0	$4,454	$0	2.19	$9,763	$0	$9,763	$0
JACK HAMMER	2000	5	21	0	$1,080	$0	$1,080	$0	2.19	$2,367	$0	$2,367	$0
MANHOLES	2001	50	20	30	$3,266	$65	$1,306	$1,960	2.11	$6,896	$138	$2,759	$4,138
GRINDER	2002	20	19	1	$30,213	$1,511	$28,702	$1,511	2.03	$61,457	$3,073	$58,384	$3,073
MANHOLE BLOWER FOR CAMERA	2002	5	19	0	$1,628	$0	$1,628	$0	2.03	$3,312	$0	$3,312	$0
RADIO SYSTEM 1/2	2003	5	18	0	$998	$0	$998	$0	1.96	$1,956	$0	$1,956	$0
LATERAL SIERRA WAY	2003	50	18	32	$3,345	$67	$1,204	$2,141	1.96	$6,555	$131	$2,360	$4,195
LATERAL BUUS	2003	50	18	32	$2,058	$41	$741	$1,317	1.96	$4,033	$81	$1,452	$2,581
GRINDER TELEMETRY	2003	5	18	0	$946	$0	$946	$0	1.96	$1,854	$0	$1,854	$0
SOTTWARE	2003	3	18	0	$1,463	$0	$1,463	$0	1.96	$2,867	$0	$2,867	$0
MONITORING COMPUTER	2003	5	18	0	$700	$0	$700	$0	1.96	$1,372	$0	$1,372	$0
RESCUE EQUIPMENT	2003	5	18	0	$1,189	$0	$1,189	$0	1.96	$2,330	$0	$2,330	$0
SEWER JET TRUCK & TRAILER	2004	5	17	0	$12,372	$0	$12,372	$0	1.89	$23,354	$0	$23,354	$0
FLOWMETERS - 2	2004	5	17	0	$9,733	$0	$9,733	$0	1.89	$18,372	$0	$18,372	$0
STORAGE BUILDINGS	2004	5	17	0	$1,709	$0	$1,709	$0	1.89	$3,226	$0	$3,226	$0
SHOP	2005	30	16	14	$45,191	$1,506	$24,102	$21,089	1.82	$82,175	$2,739	$43,827	$38,348
OFFICE FURNITURE	2006	5	15	0	$2,835	$0	$2,835	$0	1.75	$4,966	$0	$4,966	$0
COMPUTER	2005	5	16	0	$386	$0	$386	$0	1.82	$702	$0	$702	$0
SCADA UPGRADE	2005	5	16	0	$8,325	$0	$8,325	$0	1.82	$15,138	$0	$15,138	$0
CAL-TRANS MANHOLE PROJECT	2006	50	15	35	$10,340	$207	$3,102	$7,238	1.75	$18,112	$362	$5,434	$12,679
PUMP REPLACE/REPAIR	2006	10	15	0	$11,760	$0	$11,760	$0	1.75	$20,600	$0	$20,600	$0
SCADA UPGRADE	2008	20	13	7	$22,748	$1,137	$14,786	$7,962	1.63	$36,978	$1,849	$24,035	$12,942
NEW METAL OFFICE ROOF	2008	40	13	27	$6,088	$152	$1,979	$4,109	1.63	$9,896	$247	$3,216	$6,680
NEW PUMP	2006	10	15	0	$5,283	$0	$5,283	$0	1.75	$9,254	$0	$9,254	$0
SHOP/STORAGE BLDG IMPROVE	2007	15	14	1	$4,402	$293	$4,109	$293	1.69	$7,428	$495	$6,933	$495
GRINDER	2009	5	12	0	$15,255	$0	$15,255	$0	1.57	$23,888	$0	$23,888	$0
WINDOWS	2008	40	13	27	$2,715	$68	$882	$1,833	1.63	$4,413	$110	$1,434	$2,979
THERMO-SCIENTIFIC DOPPLER	2009	6	12	0	$5,460	$0	$5,460	$0	1.57	$8,550	$0	$8,550	$0
OFFICE PARKING LOT	2011	20	10	10	$9,368	$468	$4,684	$4,684	1.45	$13,613	$681	$6,806	$6,806
SCADA IMPROVEMENTS	2012	5	9	0	$3,145	$0	$3,145	$0	1.40	$4,402	$0	$4,402	$0
SCADA UPGRADE 2014	2013	5	8	0	$38,827	$0	$38,827	$0	1.35	$52,357	$0	$52,357	$0
SUBMERSIBLE PUMP WELL #9	2014	5	7	0	$9,552	$0	$9,552	$0	1.30	$12,408	$0	$12,408	$0
WASTEWATER GRINDER	2015	5	6	0	$16,392	$0	$16,392	$0	1.25	$20,512	$0	$20,512	$0
ENGINEERING WIP HEAT /AIR	2016	5	5	0	$3,652	$0	$3,652	$0	1.21	$4,402	$0	$4,402	$0
Lift Pump	2018	10	3	7	$11,007	$1,101	$3,302	$7,705	1.12	$12,313	$1,231	$3,694	$8,619
2015 DODGE RAM 2500	2016	5	5	0	$18,805	$0	$18,805	$0	1.21	$22,669	$0	$22,669	$0
John Deere Backhoe	2016	5	5	0	$13,250	$0	$13,250	$0	1.21	$15,972	$0	$15,972	$0
Total Collection System					**$20,270,630**			**$10,267,244**		**$42,205,369**			**$19,125,651**
--West Zone					***$10,714,479***			***$5,437,086***		***$19,885,268***			***$7,758,795***
--East Zone					***$9,556,151***			***$4,830,158***		***$22,320,101***			***$11,366,856***
Treatment Plant													
POND FILLING	1989	40	32	8	$8,749	$219	$6,999	$1,750	3.31	$28,929	$723	$23,143	$5,786
PIPING	1989	20	32	0	$346,482	$0	$346,482	$0	3.31	$1,145,662	$0	$1,145,662	$0
SLUICE GATES	1989	50	32	18	$82,877	$1,658	$53,041	$29,836	3.31	$274,037	$5,481	$175,384	$98,653
3" PORTABLE PUMP	1989	5	32	0	$11,646	$0	$11,646	$0	3.31	$38,508	$0	$38,508	$0
5000 GAL NAOH TANK	1989	5	32	0	$8,200	$0	$8,200	$0	3.31	$27,114	$0	$27,114	$0
AERATOR #1	1989	15	32	0	$10,522	$0	$10,522	$0	3.31	$34,792	$0	$34,792	$0
AIR GAP TANK	1989	5	32	0	$5,565	$0	$5,565	$0	3.31	$18,401	$0	$18,401	$0
AIR LIFT PUMP #1	1989	9	32	0	$5,965	$0	$5,965	$0	3.31	$19,724	$0	$19,724	$0
AIR LIFT PUMP #2	1989	9	32	0	$5,965	$0	$5,965	$0	3.31	$19,724	$0	$19,724	$0
BREAKER PANEL	1989	24	32	0	$357	$0	$357	$0	3.31	$1,180	$0	$1,180	$0
CABINETRY LAB	1989	9	32	0	$17,500	$0	$17,500	$0	3.31	$57,865	$0	$57,865	$0
CHLORINE BASIN	1989	34	32	2	$231,282	$6,802	$217,677	$13,605	3.31	$764,747	$22,493	$719,762	$44,985
CL2 ROOM HOIST	1989	14	32	0	$8,300	$0	$8,300	$0	3.31	$27,444	$0	$27,444	$0

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Wastewater Assets

Description	Base Year	Life (years)	Years Depreciated	Remaining Years	Cost Basis	Annual Depreciation	Accum. Depreciation	Current Book Value	Replacement Factor	Replacement Cost Est.	Annual Depreciation	Accum. Depreciation	Remaining Value
		a	*b*	*c = a-b*	*d*	*e = d/a*	*f = b*e*	*g = d-f*	*h*	*i = d*h*	*j = i/a*	*k = j*b*	*l = i-k*
COMPRESSOR MOTOR	1989	37	32	5	$308	$8	$266	$42	3.31	$1,018	$28	$881	$138
DEWATERING	1989	40	32	8	$33,937	$848	$27,150	$6,787	3.31	$112,215	$2,805	$89,772	$22,443
EARTHWORK & GRADING	1989	40	32	8	$39,678	$992	$31,742	$7,936	3.31	$131,198	$3,280	$104,958	$26,240
ELECT TRANSFORMER	1989	24	32	0	$477	$0	$477	$0	3.31	$1,577	$0	$1,577	$0
ENCLOSER SAMPLE	1989	34	32	2	$664	$20	$625	$39	3.31	$2,196	$65	$2,066	$129
F&P MAG ULTRASONICE	1989	44	32	12	$790	$18	$575	$215	3.31	$2,612	$59	$1,900	$712
FENCING	1989	15	32	0	$21,515	$0	$21,515	$0	3.31	$71,141	$0	$71,141	$0
FIBERGLASS WEIR EAST	1989	34	32	2	$254	$7	$239	$15	3.31	$840	$25	$790	$49
FIBERGLASS WEIR WEST	1989	34	32	2	$254	$7	$239	$15	3.31	$840	$25	$790	$49
FILTER REGULATOR	1989	24	32	0	$48	$0	$48	$0	3.31	$159	$0	$159	$0
FLOOR CRANE	1989	24	32	0	$960	$0	$960	$0	3.31	$3,174	$0	$3,174	$0
FRESH WATER PUMP I	1989	44	32	12	$3,447	$78	$2,507	$940	3.31	$11,398	$259	$8,289	$3,108
FRESH WATER PUMP 2	1989	44	32	12	$3,370	$77	$2,451	$919	3.31	$11,143	$253	$8,104	$3,039
GALLEY FLOOD CENSOR	1989	24	32	0	$238	$0	$238	$0	3.31	$787	$0	$787	$0
GENERAL LIGHTING	1989	34	32	2	$1,861	$55	$1,752	$109	3.31	$6,154	$181	$5,792	$362
GENERAL LIGHTING	1989	37	32	5	$848	$23	$733	$115	3.31	$2,804	$76	$2,425	$379
GENERAL LIGHTING	1989	34	32	2	$1,097	$32	$1,032	$65	3.31	$3,627	$107	$3,414	$213
GENERAL LIGHTING	1989	34	32	2	$2,040	$60	$1,920	$120	3.31	$6,745	$198	$6,349	$397
GENERAL LIGHTING	1989	34	32	2	$848	$25	$798	$50	3.31	$2,804	$82	$2,639	$165
GENERAL LIGHTING	1989	44	32	12	$5,386	$122	$3,917	$1,469	3.31	$17,809	$405	$12,952	$4,857
GENERAL LIGHTING	1989	34	32	2	$1,950	$57	$1,835	$115	3.31	$6,448	$190	$6,069	$379
GENERAL LIGHTING	1989	34	32	2	$4,060	$119	$3,821	$239	3.31	$13,425	$395	$12,635	$790
GENERATOR BUILDING	1989	34	32	2	$220,689	$6,491	$207,707	$12,982	3.31	$729,720	$21,462	$686,796	$42,925
GRAVEL BUILDING	1989	7	32	0	$5,840	$0	$5,840	$0	3.31	$19,310	$0	$19,310	$0
GRAVEL ROAD	1989	34	32	2	$190,299	$5,597	$179,105	$11,194	3.31	$629,234	$18,507	$592,220	$37,014
GRIT CHAMBER	1989	14	32	0	$5,667	$0	$5,667	$0	3.31	$18,738	$0	$18,738	$0
GRIT SCREW WASHER	1989	24	32	0	$79	$0	$79	$0	3.31	$261	$0	$261	$0
H20 GAUGE #1	1989	24	32	0	$79	$0	$79	$0	3.31	$261	$0	$261	$0
H2O PRESSURE GAUGE	1989	44	32	12	$34	$1	$25	$9	3.31	$112	$3	$82	$31
HOSE BIB	1989	34	32	2	$34	$1	$32	$2	3.31	$112	$3	$106	$7
HOSE BIB	1989	34	32	2	$34	$1	$32	$2	3.31	$112	$3	$106	$7
HOSE BIB CL2 BASIN	1989	34	32	2	$34	$1	$32	$2	3.31	$112	$3	$106	$7
HOSE BIB CL2 BASIN 1	1989	34	32	2	$34	$1	$32	$2	3.31	$112	$3	$106	$7
HOSE BIB CL2 BASIN 3	1989	34	32	2	$34	$1	$32	$2	3.31	$112	$3	$106	$7
HOSE BIB CL2 BASIN 4	1989	34	32	2	$34	$1	$32	$2	3.31	$112	$3	$106	$7
HOSE BIB CL2 BASIN 5	1989	34	32	2	$34	$1	$32	$2	3.31	$112	$3	$106	$7
HOSE BRIB GRIT CHAMBER 1	1989	34	32	2	$34	$1	$32	$2	3.31	$112	$3	$106	$7
HOSE BIB OPS BLDG 1	1989	44	32	12	$34	$1	$25	$9	3.31	$112	$3	$82	$31
HOSE BIB RBC GALLERY 1	1989	34	32	2	$34	$1	$32	$2	3.31	$112	$3	$106	$7
HOSE BIB RBC GALLERY 2	1989	34	32	2	$34	$1	$32	$2	3.31	$112	$3	$106	$7
HOSE BIB SRS 1	1989	34	32	2	$34	$1	$32	$2	3.31	$112	$3	$106	$7
HOSE BIB SRS 2	1989	34	32	2	$34	$1	$32	$2	3.31	$112	$3	$106	$7
HYDRO TANK	1989	54	32	22	$7,481	$139	$4,433	$3,048	3.31	$24,736	$458	$14,659	$10,078
HYDRONEUMATIC TANK	1989	14	32	0	$5,838	$0	$5,838	$0	3.31	$19,304	$0	$19,304	$0
LANDSCAPING	1989	40	32	8	$30,091	$752	$24,073	$6,018	3.31	$99,498	$2,487	$79,598	$19,900
LEVEL DILLUTION UNIT	1989	49	32	17	$548	$11	$358	$190	3.31	$1,812	$37	$1,183	$629
LEVEL FLOAT LINE 1	1989	24	32	0	$187	$0	$187	$0	3.31	$618	$0	$618	$0
MAG X CALIBRATOR	1989	24	32	0	$712	$0	$712	$0	3.31	$2,354	$0	$2,354	$0
MAG X TRANS FP	1989	44	32	12	$870	$20	$633	$237	3.31	$2,877	$65	$2,092	$785
MOTOR CONTROL CENTER	1989	9	32	0	$17,500	$0	$17,500	$0	3.31	$57,865	$0	$57,865	$0
MOTOR CONTROL CENTER	1989	14	32	0	$19,252	$0	$19,252	$0	3.31	$63,658	$0	$63,658	$0
MUD VALVE #1	1989	44	32	12	$219	$5	$159	$60	3.31	$724	$16	$527	$197
MUD VALVE #2	1989	44	32	12	$219	$5	$159	$60	3.31	$724	$16	$527	$197
NEW FUEL TANK	1989	20	32	0	$7,406	$0	$7,406	$0	3.31	$24,488	$0	$24,488	$0
OPERATIONS BUILDING	1989	34	32	2	$263,557	$7,752	$248,054	$15,503	3.31	$871,466	$25,631	$820,203	$51,263
PARSHALL FLUME	1989	44	32	12	$1,753	$40	$1,275	$478	3.31	$5,796	$132	$4,216	$1,581
PARSHALL FLUME	1989	44	32	12	$1,757	$40	$1,278	$479	3.31	$5,810	$132	$4,225	$1,584
PAVING	1989	10	32	0	$77,873	$0	$77,873	$0	3.31	$257,491	$0	$257,491	$0
PIPING	1989	20	32	0	$253,457	$0	$253,457	$0	3.31	$838,070	$0	$838,070	$0
PLANT STORAGE	1989	34	32	2	$4,000	$118	$3,765	$235	3.31	$13,226	$389	$12,448	$778
PLUG VALVE #1	1989	44	32	12	$2,016	$46	$1,466	$550	3.31	$6,666	$152	$4,848	$1,818
PLUG VALVE #2	1989	44	32	12	$2,016	$46	$1,466	$550	3.31	$6,666	$152	$4,848	$1,818
PLUG VALVE #3	1989	44	32	12	$307	$7	$223	$84	3.31	$1,015	$23	$738	$277
PLUG VALVE #3	1989	44	32	12	$2,016	$46	$1,466	$550	3.31	$6,666	$152	$4,848	$1,818
PLUG VALVE #4	1989	44	32	12	$2,016	$46	$1,466	$550	3.31	$6,666	$152	$4,848	$1,818
PLUG VALVE 8"	1989	44	32	12	$878	$20	$639	$239	3.31	$2,903	$66	$2,111	$792
PLUG VALVE 8"	1989	44	32	12	$877	$20	$638	$239	3.31	$2,900	$66	$2,109	$791
PLUG VALVE 8"	1989	44	32	12	$877	$20	$638	$239	3.31	$2,900	$66	$2,109	$791
PLUG VALVE 8"	1989	44	32	12	$877	$20	$638	$239	3.31	$2,900	$66	$2,109	$791
RAPID MIXER	1989	14	32	0	$5,629	$0	$5,629	$0	3.31	$18,613	$0	$18,613	$0
RAW SEWAGE PUMP	1989	9	32	0	$6,754	$0	$6,754	$0	3.31	$22,332	$0	$22,332	$0
RAW SEWAGE PUMP #2	1989	9	32	0	$6,754	$0	$6,754	$0	3.31	$22,332	$0	$22,332	$0
RBC BASIN STRUCTURE	1989	34	32	2	$603,771	$17,758	$568,255	$35,516	3.31	$1,996,403	$58,718	$1,878,967	$117,435
RBC COVER A-1	1989	9	32	0	$5,300	$0	$5,300	$0	3.31	$17,525	$0	$17,525	$0
RBC COVER A-2	1989	9	32	0	$5,300	$0	$5,300	$0	3.31	$17,525	$0	$17,525	$0
RBC COVER A-3	1989	9	32	0	$5,300	$0	$5,300	$0	3.31	$17,525	$0	$17,525	$0
RBC COVER B-1	1989	9	32	0	$5,300	$0	$5,300	$0	3.31	$17,525	$0	$17,525	$0
RBC COVER B-2	1989	9	32	0	$5,300	$0	$5,300	$0	3.31	$17,525	$0	$17,525	$0
RBC COVER B-3	1989	9	32	0	$5,300	$0	$5,300	$0	3.31	$17,525	$0	$17,525	$0
RECYCLE DECANT #2	1989	9	32	0	$5,737	$0	$5,737	$0	3.31	$18,970	$0	$18,970	$0
SO2 ROOM HOIST	1989	5	32	0	$8,300	$0	$8,300	$0	3.31	$27,444	$0	$27,444	$0

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		a	*b*	*c = a-b*	*d*	*e = d/a*	*f = b*e*	*g = d-f*	*h*	*i = d*h*	*j = i/a*	*k = j*b*	*l = i-k*
SEAL GAUGE #1	1989	24	32	0	$79	$0	$79	$0	3.31	$261	$0	$261	$0
SEAL GAUGE #2	1989	24	32	0	$79	$0	$79	$0	3.31	$261	$0	$261	$0
SECONDARY PONDS	1989	39	32	7	$138,192	$3,543	$113,388	$24,804	3.31	$456,940	$11,716	$374,925	$82,015
SEPT GRINDER #1 GAUGE	1989	24	32	0	$79	$0	$79	$0	3.31	$261	$0	$261	$0
SEPT GRINDER #2	1989	14	32	0	$6,188	$0	$6,188	$0	3.31	$20,461	$0	$20,461	$0
SEPT GRINDER #2 GAUGE	1989	24	32	0	$79	$0	$79	$0	3.31	$261	$0	$261	$0
SEPT PUMP #1 GAUGE	1989	24	32	0	$79	$0	$79	$0	3.31	$261	$0	$261	$0
SEPT PUMP #2 GAUGE	1989	24	32	0	$79	$0	$79	$0	3.31	$261	$0	$261	$0
SEPTAGE GRINDER #1	1989	14	32	0	$6,188	$0	$6,188	$0	3.31	$20,461	$0	$20,461	$0
SEPTAGE RECEIVING	1989	34	32	2	$296,527	$8,721	$279,084	$17,443	3.31	$980,483	$28,838	$922,808	$57,675
SHEAR GATE VALVE	1989	44	32	12	$167	$4	$121	$46	3.31	$552	$13	$402	$151
SHOP	1989	34	32	2	$254,412	$7,483	$239,447	$14,965	3.31	$841,227	$24,742	$791,744	$49,484
SLUICE GATES	1989	44	32	12	$6,066	$138	$4,412	$1,654	3.31	$20,058	$456	$14,587	$5,470
SLUICE GATES	1989	44	32	12	$6,054	$138	$4,403	$1,651	3.31	$20,018	$455	$14,558	$5,459
SLUICE GATES	1989	44	32	12	$6,066	$138	$4,412	$1,654	3.31	$20,058	$456	$14,587	$5,470
SLUICE GATES	1989	44	32	12	$6,054	$138	$4,403	$1,651	3.31	$20,018	$455	$14,558	$5,459
SLUICE GATES #1	1989	44	32	12	$6,054	$138	$4,403	$1,651	3.31	$20,018	$455	$14,558	$5,459
SLUICE GATES #2	1989	44	32	12	$6,054	$138	$4,403	$1,651	3.31	$20,018	$455	$14,558	$5,459
SLUICE GATES #3	1989	44	32	12	$6,054	$138	$4,403	$1,651	3.31	$20,018	$455	$14,558	$5,459
SLUICE GATES #4	1989	44	32	12	$6,054	$138	$4,403	$1,651	3.31	$20,018	$455	$14,558	$5,459
STORM DRAIN SYSTEM	1989	34	32	2	$35,063	$1,031	$33,000	$2,063	3.31	$115,938	$3,410	$109,118	$6,820
THROTTLING VALVES	1989	44	32	12	$184	$4	$134	$50	3.31	$608	$14	$442	$166
WEIR	1989	34	32	2	$84	$2	$79	$5	3.31	$278	$8	$261	$16
WEIR	1989	34	32	2	$84	$2	$79	$5	3.31	$278	$8	$261	$16
WEIR A TRAIN	1989	34	32	2	$254	$7	$239	$15	3.31	$840	$25	$790	$49
WEIR A TRAIN	1989	34	32	2	$254	$7	$239	$15	3.31	$840	$25	$790	$49
WEIR A TRAIN	1989	34	32	2	$254	$7	$239	$15	3.31	$840	$25	$790	$49
WEIR B TRAIN	1989	34	32	2	$254	$7	$239	$15	3.31	$840	$25	$790	$49
WEIR B TRAIN	1989	34	32	2	$254	$7	$239	$15	3.31	$840	$25	$790	$49
WEIR B TRAIN	1989	34	32	2	$254	$7	$239	$15	3.31	$840	$25	$790	$49
BAR SCREEN	1989	34	32	2	$491	$14	$462	$29	3.31	$1,624	$48	$1,528	$96
SLUICE GATES	1989	44	32	12	$6,066	$138	$4,412	$1,654	3.31	$20,058	$456	$14,587	$5,470
MAIN WATER VALVE	1989	44	32	12	$132	$3	$96	$36	3.31	$436	$10	$317	$119
FLOW METER CL2 BASIN	1991	20	30	0	$1,292	$0	$1,292	$0	3.07	$3,964	$0	$3,964	$0
RBC GEAR DRIVE B-1 D	1992	20	29	0	$11,006	$0	$11,006	$0	2.96	$32,532	$0	$32,532	$0
RBC GEAR DRIVE B-2 D	1992	20	29	0	$11,006	$0	$11,006	$0	2.96	$32,532	$0	$32,532	$0
RBC MOTOR B-1	1992	20	29	0	$714	$0	$714	$0	2.96	$2,110	$0	$2,110	$0
RBE MOTOR B-2	1992	20	29	0	$714	$0	$714	$0	2.96	$2,110	$0	$2,110	$0
RAW SEWAGE PUMP 3	1993	20	28	0	$12,002	$0	$12,002	$0	2.85	$34,175	$0	$34,175	$0
RBC GEAR DRIVE A-2	1993	20	28	0	$12,576	$0	$12,576	$0	2.85	$35,809	$0	$35,809	$0
RBC MOTOR A-2	1993	20	28	0	$608	$0	$608	$0	2.85	$1,731	$0	$1,731	$0
GRIT SCREW AUGER	1994	15	27	0	$2,602	$0	$2,602	$0	2.74	$7,137	$0	$7,137	$0
RBC GEAR DRIVE B-3	1994	20	27	0	$11,679	$0	$11,679	$0	2.74	$32,035	$0	$32,035	$0
RBC MOTOR B-3	1994	20	27	0	$672	$0	$672	$0	2.74	$1,843	$0	$1,843	$0
DISSOLVED OXY METER	1994	15	27	0	$1,076	$0	$1,076	$0	2.74	$2,951	$0	$2,951	$0
MILTRONICS SONIC	1995	15	26	0	$2,921	$0	$2,921	$0	2.64	$7,718	$0	$7,718	$0
SUMP PUMP	1995	15	26	0	$117	$0	$117	$0	2.64	$309	$0	$309	$0
SUMP PUMP SPARE	1995	15	26	0	$117	$0	$117	$0	2.64	$309	$0	$309	$0
SRS LEVEL INDICATOR	1995	15	26	0	$697	$0	$697	$0	2.64	$1,842	$0	$1,842	$0
NAHSO3 TANK INSIDE	1995	15	26	0	$11,911	$0	$11,911	$0	2.64	$31,473	$0	$31,473	$0
RBC GEAR DRIVE A-1	1995	20	26	0	$12,489	$0	$12,489	$0	2.64	$33,001	$0	$33,001	$0
RBC MOTOR A-1	1995	20	26	0	$587	$0	$587	$0	2.64	$1,551	$0	$1,551	$0
AERATOR #2	1995	15	26	0	$10,608	$0	$10,608	$0	2.64	$28,030	$0	$28,030	$0
CONCRETE TANK PAD	1995	15	26	0	$2,582	$0	$2,582	$0	2.64	$6,823	$0	$6,823	$0
NAHSO3 PING	1995	9	26	0	$5,539	$0	$5,539	$0	2.64	$14,636	$0	$14,636	$0
DMT CONTROL GEN	1996	10	25	0	$6,185	$0	$6,185	$0	2.55	$15,744	$0	$15,744	$0
SRS PUMP	1996	15	25	0	$5,852	$0	$5,852	$0	2.55	$14,896	$0	$14,896	$0
RBC GEAR DRIVE A-3 DODGE	1997	20	24	0	$12,113	$0	$12,113	$0	2.45	$29,702	$0	$29,702	$0
RBC MOTOR A-3	1997	20	24	0	$600	$0	$600	$0	2.45	$1,471	$0	$1,471	$0
AERATOR #3	1997	15	24	0	$10,779	$0	$10,779	$0	2.45	$26,431	$0	$26,431	$0
AERATOR #4	1997	15	24	0	$10,779	$0	$10,779	$0	2.45	$26,431	$0	$26,431	$0
RECYCLE DECAN #1	1998	10	23	0	$9,078	$0	$9,078	$0	2.36	$21,443	$0	$21,443	$0
BARN FOR WELL	1998	20	23	0	$804	$0	$804	$0	2.36	$1,899	$0	$1,899	$0
GRIT CHAMBER REFER	1998	12	23	0	$852	$0	$852	$0	2.36	$2,013	$0	$2,013	$0
ISCO SAMPLER PUMP	1998	12	23	0	$2,333	$0	$2,333	$0	2.36	$5,511	$0	$5,511	$0
GEOTHERM HEATING UNIT	1998	12	23	0	$6,123	$0	$6,123	$0	2.36	$14,463	$0	$14,463	$0
GRIT CHAMBER AL GRAT	1998	15	23	0	$604	$0	$604	$0	2.36	$1,427	$0	$1,427	$0
PORTABLE PUMP TRLR	1999	25	22	3	$23,484	$939	$20,666	$2,818	2.28	$53,437	$2,137	$47,025	$6,412
SRS DATA TRMNL	1999	7	22	0	$7,093	$0	$7,093	$0	2.28	$16,140	$0	$16,140	$0
SRS VAUGHN PUMP	1999	15	22	0	$11,138	$0	$11,138	$0	2.28	$25,344	$0	$25,344	$0
PLANT TELEMETRY METER	2000	14	21	0	$6,801	$0	$6,801	$0	2.19	$14,908	$0	$14,908	$0
REMODEL CHEMICAL BLDG	2000	30	21	9	$94,064	$3,135	$65,845	$28,219	2.19	$206,188	$6,873	$144,332	$61,856
AUTO LEVEL W/TRIPOD	2000	13	21	0	$636	$0	$636	$0	2.19	$1,394	$0	$1,394	$0
BOARD MGR OFFICE REMODEL	2000	30	21	9	$8,401	$280	$5,881	$2,520	2.19	$18,415	$614	$12,890	$5,524
OFFICE REMODEL OLD SHOP	2000	30	21	9	$11,800	$393	$8,260	$3,540	2.19	$25,866	$862	$18,106	$7,760
RBC GEAR DRIVE SPARE	2000	20	21	0	$6,617	$0	$6,617	$0	2.19	$14,504	$0	$14,504	$0
CHEMICAL PUMP	2000	9	21	0	$2,668	$0	$2,668	$0	2.19	$5,848	$0	$5,848	$0
CHEMICAL PUMP	2000	9	21	0	$2,668	$0	$2,668	$0	2.19	$5,848	$0	$5,848	$0
AGITATOR MIXER	2001	10	20	0	$8,306	$0	$8,306	$0	2.11	$17,539	$0	$17,539	$0
EPOXY SEAL CHLORINE CNT B	2001	10	20	0	$37,500	$0	$37,500	$0	2.11	$79,185	$0	$79,185	$0
PORTABLE SAMPLER LAB	2001	10	20	0	$2,471	$0	$2,471	$0	2.11	$5,218	$0	$5,218	$0

Table C-9
American Valley CSD Utility Rates Study
Wastewater Assets

Description	Base Year	Life (years)	Years Depreciated	Remaining Years	Cost Basis	Annual Depreciation	Accum. Depreciation	Current Book Value	Replacement Factor	Replacement Cost Est.	Annual Depreciation	Accum. Depreciation	Remaining Value
		a	*b*	*c = a-b*	*d*	*e = d/a*	*f = b*e*	*g = d-f*	*h*	*i = d*h*	*j = i/a*	*k = j*b*	*l = i-k*
VACTOR TRUCK	2002	20	19	1	$38,601	$1,930	$36,671	$1,930	2.03	$78,520	$3,926	$74,594	$3,926
AIR FLOW METERS GRIT	2002	10	19	0	$3,629	$0	$3,629	$0	2.03	$7,382	$0	$7,382	$0
SECURITY SYSTEM	2002	10	19	0	$930	$0	$930	$0	2.03	$1,892	$0	$1,892	$0
HYPERTHERM CUTTER	2002	10	19	0	$1,125	$0	$1,125	$0	2.03	$2,288	$0	$2,288	$0
RBC A1 TRAIN UNIT	2003	15	18	0	$58,871	$0	$58,871	$0	1.96	$115,359	$0	$115,359	$0
RBC A3 TRAIN UNIT	2003	15	18	0	$58,871	$0	$58,871	$0	1.96	$115,359	$0	$115,359	$0
8" PLUG VALVE	2003	15	18	0	$902	$0	$902	$0	1.96	$1,767	$0	$1,767	$0
8" PLUG VALVE	2003	15	18	0	$902	$0	$902	$0	1.96	$1,767	$0	$1,767	$0
8" PLUG VALVE	2003	15	18	0	$902	$0	$902	$0	1.96	$1,767	$0	$1,767	$0
CHEM METERING PUMP	2003	10	18	0	$1,575	$0	$1,575	$0	1.96	$3,086	$0	$3,086	$0
IRON FILTRATION	2003	10	18	0	$21,034	$0	$21,034	$0	1.96	$41,216	$0	$41,216	$0
RBC A2 TRAIN UNIT	2003	15	18	0	$58,871	$0	$58,871	$0	1.96	$115,359	$0	$115,359	$0
SODIUM HYPOCHLORIDE PUMP	2003	10	18	0	$1,457	$0	$1,457	$0	1.96	$2,855	$0	$2,855	$0
CHLORINE ANALYZER	2004	10	17	0	$2,992	$0	$2,992	$0	1.89	$5,648	$0	$5,648	$0
SALES TAX RBC UNITS	2004	20	17	3	$15,901	$795	$13,516	$2,385	1.89	$30,015	$1,501	$25,513	$4,502
SCREEN IN PROJECT	2004	10	17	0	$90,183	$0	$90,183	$0	1.89	$170,233	$0	$170,233	$0
RBC B1 TRAIN	2004	15	17	0	$63,678	$0	$63,678	$0	1.89	$120,201	$0	$120,201	$0
RBC B2 TRAIN	2004	15	17	0	$63,678	$0	$63,678	$0	1.89	$120,201	$0	$120,201	$0
RBC B3 TRAIN	2004	15	17	0	$63,678	$0	$63,678	$0	1.89	$120,201	$0	$120,201	$0
SAFETY RAILING GRIT CHAMBER	2005	10	16	0	$1,636	$0	$1,636	$0	1.82	$2,975	$0	$2,975	$0
NAHSO3 PIPING	2005	15	16	0	$3,634	$0	$3,634	$0	1.82	$6,608	$0	$6,608	$0
PUMP	2005	10	16	0	$5,640	$0	$5,640	$0	1.82	$10,256	$0	$10,256	$0
RECOTE CONTACT BASIN	2005	10	16	0	$36,000	$0	$36,000	$0	1.82	$65,462	$0	$65,462	$0
AUTOCLAVE BRINKMAN	2006	15	15	0	$5,247	$0	$5,247	$0	1.75	$9,191	$0	$9,191	$0
TELEMETRY EQUIP	2006	10	15	0	$979	$0	$979	$0	1.75	$1,715	$0	$1,715	$0
ANALYTICAL BAL - LAB	2006	5	15	0	$4,060	$0	$4,060	$0	1.75	$7,112	$0	$7,112	$0
HYDRAULIC FLOOR JACK	2007	5	14	0	$411	$0	$411	$0	1.69	$694	$0	$694	$0
UNDERCOUNTER REFER	2007	5	14	0	$3,195	$0	$3,195	$0	1.69	$5,391	$0	$5,391	$0
GENERATOR	2008	5	13	0	$1,880	$0	$1,880	$0	1.63	$3,056	$0	$3,056	$0
GEOTHERM 8 TON LOOP	2008	30	13	17	$6,460	$215	$2,799	$3,661	1.63	$10,501	$350	$4,550	$5,951
WETLAND IMPROVEMENT	2009	35	12	23	$22,318	$638	$7,652	$14,666	1.57	$34,948	$999	$11,982	$22,966
GLASSWARE WASHER	2009	10	12	0	$10,489	$0	$10,489	$0	1.57	$16,425	$0	$16,425	$0
WETALND PROJECT	2009	35	12	23	$11,630	$332	$3,987	$7,643	1.57	$18,211	$520	$6,244	$11,968
50% DODGE RAM 1500	2010	5	11	0	$13,740	$0	$13,740	$0	1.51	$20,726	$0	$20,726	$0
REMOTE TELEMETERING	2010	5	11	0	$8,237	$0	$8,237	$0	1.51	$12,425	$0	$12,425	$0
DIFFUSER	2010	25	11	14	$277,908	$11,116	$122,280	$155,628	1.51	$419,215	$16,769	$184,454	$234,760
ANALYZER DIFFUSER	2011	7	10	0	$13,928	$0	$13,928	$0	1.45	$20,239	$0	$20,239	$0
WATER SYSTEM UPGRADE	2012	15	9	6	$10,597	$706	$6,358	$4,239	1.40	$14,834	$989	$8,900	$5,934
GENERATOR PROJECT 2012	2012	15	9	6	$106,009	$7,067	$63,605	$42,404	1.40	$148,394	$9,893	$89,037	$59,358
GENERATOR IMPROVEMENTS	2012	15	9	6	$11,426	$762	$6,856	$4,570	1.40	$15,994	$1,066	$9,597	$6,398
SCADA 2013	2013	10	8	2	$8,986	$899	$7,189	$1,797	1.35	$12,117	$1,212	$9,694	$2,423
TELEMETRY 2013	2013	15	8	7	$10,387	$692	$5,540	$4,847	1.35	$14,007	$934	$7,470	$6,536
EMERGENCY BERM REPAIR	2013	20	8	12	$31,426	$1,571	$12,570	$18,856	1.35	$42,377	$2,119	$16,951	$25,426
AUTO SAMPLER	2014	5	7	0	$7,153	$0	$7,153	$0	1.30	$9,292	$0	$9,292	$0
GRIT AUGER	2014	10	7	3	$9,798	$980	$6,859	$2,939	1.30	$12,728	$1,273	$8,909	$3,818
PROP 50 WWT IMPR	2015	30	6	24	$24,817	$827	$4,963	$19,854	1.25	$31,055	$1,035	$6,211	$24,844
DIFFUSER ENHANCE WWT	2016	7	5	2	$41,294	$5,899	$29,496	$11,798	1.21	$49,778	$7,111	$35,556	$14,222
FEASABILITY STUDY	2016	5	5	0	$119,742	$0	$119,742	$0	1.21	$144,344	$0	$144,344	$0
VALVES AND PUMPS	2016	5	5	0	$12,926	$0	$12,926	$0	1.21	$15,582	$0	$15,582	$0
DIFFUSER PROJECT	2017	10	4	6	$122,685	$12,269	$49,074	$73,611	1.16	$142,467	$14,247	$56,987	$85,480
FEASABILITY STUDY	2017	5	4	1	$208,561	$41,712	$166,849	$41,712	1.16	$242,189	$48,438	$193,751	$48,438
CHLORINE ANALYZER	2018	10	3	7	$8,302	$830	$2,491	$5,811	1.12	$9,287	$929	$2,786	$6,501
HYDRO TANK	2017	10	4	6	$71,343	$7,134	$28,537	$42,806	1.16	$82,846	$8,285	$33,139	$49,708
WWT GRANT PLANNING	2018	10	3	7	$147,863	$14,786	$44,359	$103,504	1.12	$165,406	$16,541	$49,622	$115,784
GRANT PLANNING WWT	2019	10	2	8	$4,512	$451	$902	$3,610	1.08	$4,862	$486	$972	$3,890
WWT IMPROVEMENTS	2019	10	2	8	$673	$67	$135	$538	1.08	$725	$73	$145	$580
VEHICLE REPLACEMENT WWT	2019	10	2	8	$7,540	$754	$1,508	$6,032	1.08	$8,125	$813	$1,625	$6,500
NEW WWTP PROJ	2020	60	1	59	$1,994,762	$33,246	$33,246	$1,961,516	1.04	$2,070,721	$34,512	$34,512	$2,036,209
SHELVING	1997	40	24	16	$360	$9	$216	$144	2.45	$883	$22	$530	$353
WORKSTATION COMPUTERS	1999	4	22	0	$9,185	$0	$9,185	$0	2.28	$20,900	$0	$20,900	$0
1999 GMC DUMP TRUCK	2000	15	21	0	$23,267	$0	$23,267	$0	2.19	$51,001	$0	$51,001	$0
OFFICE FURNITURE	2000	10	21	0	$1,933	$0	$1,933	$0	2.19	$4,237	$0	$4,237	$0
AIR COMPRESSOR AND HAMMER	2001	10	20	0	$2,250	$0	$2,250	$0	2.11	$4,751	$0	$4,751	$0
OKIDATA 3410 PRINTER	2003	7	18	0	$861	$0	$861	$0	1.96	$1,687	$0	$1,687	$0
SAMSUNG MONITOR	2003	5	18	0	$396	$0	$396	$0	1.96	$776	$0	$776	$0
4 SAMSUNG MONITORS	2004	5	17	0	$2,567	$0	$2,567	$0	1.89	$4,846	$0	$4,846	$0
CEMENT MIXER	2004	10	17	0	$1,134	$0	$1,134	$0	1.89	$2,141	$0	$2,141	$0
FORD F350	2004	5	17	0	$25,000	$0	$25,000	$0	1.89	$47,191	$0	$47,191	$0
LAPTOP DELL	2004	5	17	0	$467	$0	$467	$0	1.89	$882	$0	$882	$0
COMPTER UPGRADE	2005	5	16	0	$831	$0	$831	$0	1.82	$1,511	$0	$1,511	$0
5 CPU'S INSPIRON	2006	5	15	0	$4,662	$0	$4,662	$0	1.75	$8,166	$0	$8,166	$0
HP LASERJET 4350	2007	5	14	0	$898	$0	$898	$0	1.69	$1,515	$0	$1,515	$0
DELL COMPUTER	2007	5	14	0	$365	$0	$365	$0	1.69	$616	$0	$616	$0
DELL COMPUTER	2007	5	14	0	$364	$0	$364	$0	1.69	$614	$0	$614	$0
BACKHOE WWT	2013	7	8	0	$17,913	$0	$17,913	$0	1.35	$24,155	$0	$24,155	$0
BACKHOE WWC	2013	7	8	0	$17,913	$0	$17,913	$0	1.35	$24,155	$0	$24,155	$0
F250 WWT	2014	7	7	0	$7,429	$0	$7,429	$0	1.30	$9,650	$0	$9,650	$0
F250 WWC	2014	7	7	0	$7,429	$0	$7,429	$0	1.30	$9,650	$0	$9,650	$0
NEW OFFICE COPIER WWT	2014	7	7	0	$1,859	$0	$1,859	$0	1.30	$2,415	$0	$2,415	$0
PHONE SYSTEM REPLACE WWT	2015	7	6	1	$3,979	$568	$3,411	$568	1.25	$4,979	$711	$4,268	$711
MAPPING PROJECT WWT	2015	15	6	9	$2,346	$156	$938	$1,408	1.25	$2,936	$196	$1,174	$1,761

Table C-9
American Valley CSD Utility Rates Study
Wastewater Assets

Description	Base Year	Life (years)	Years Depreciated	Remaining Years	Cost Basis	Annual Depreciation	Accum. Depreciation	Current Book Value	Replacement Factor	Replacement Cost Est.	Annual Depreciation	Accum. Depreciation	Remaining Value
		a	*b*	*c = a-b*	*d*	*e = d/a*	*f = b*e*	*g = d-f*	*h*	*i = d*h*	*j = i/a*	*k = j*b*	*l = i-k*
NEW OFFICE COPIER WWC	2014	7	7	0	$1,859	$0	$1,859	$0	1.30	$2,415	$0	$2,415	$0
PHONE SYSTEM REPLACE WWC	2015	7	6	1	$3,979	$568	$3,411	$568	1.25	$4,979	$711	$4,268	$711
MAPPING PROJECT WWC	2015	15	6	9	$1,127	$75	$451	$676	1.25	$1,410	$94	$564	$846
FORD F250	1995	5	26	0	$22,117	$0	$22,117	$0	2.64	$58,441	$0	$58,441	$0
DISPOSAL SYSTEM	1989	24	32	0	$658,715	$0	$658,715	$0	3.31	$2,178,078	$0	$2,178,078	$0
EMERGENCY STORAGE	1989	24	32	0	$156,810	$0	$156,810	$0	3.31	$518,501	$0	$518,501	$0
IRRIGATION POND	1989	24	32	0	$83,142	$0	$83,142	$0	3.31	$274,914	$0	$274,914	$0
HOLDING POND IMPR.	1997	7	24	0	$8,770	$0	$8,770	$0	2.45	$21,505	$0	$21,505	$0
TELEMETERING SYSTEM	1999	15	22	0	$6,161	$0	$6,161	$0	2.28	$14,019	$0	$14,019	$0
BERM REPAIR #4 IRR DAM	2000	25	21	4	$4,000	$160	$3,360	$640	2.19	$8,768	$351	$7,365	$1,403
EMERG POND LEVEE REPAIR	2000	20	21	0	$21,572	$0	$21,572	$0	2.19	$47,286	$0	$47,286	$0
SPANISH CREEK PUMP #3	2000	20	21	0	$1,018	$0	$1,018	$0	2.19	$2,231	$0	$2,231	$0
MOTOR SVR IRR FLOW	2001	10	20	0	$401	$0	$401	$0	2.11	$847	$0	$847	$0
MOTOR SVR IRRIG FLOW	2001	10	20	0	$392	$0	$392	$0	2.11	$828	$0	$828	$0
SLIDE GATE	2002	15	19	0	$5,971	$0	$5,971	$0	2.03	$12,146	$0	$12,146	$0
SLIDE GATE 72X48	2002	15	19	0	$7,655	$0	$7,655	$0	2.03	$15,571	$0	$15,571	$0
IRRIGATION FLOW PROJECT	2002	30	19	11	$83,847	$2,795	$53,103	$30,744	2.03	$170,556	$5,685	$108,019	$62,537
INSTALL 48X60	2002	15	19	0	$3,220	$0	$3,220	$0	2.03	$6,550	$0	$6,550	$0
INSTALL 72X48	2002	15	19	0	$3,220	$0	$3,220	$0	2.03	$6,550	$0	$6,550	$0
EMERGENCY POND	2003	30	18	12	$7,349	$245	$4,409	$2,940	1.96	$14,400	$480	$8,640	$5,760
20" VALVE	2004	35	17	18	$4,586	$131	$2,227	$2,359	1.89	$8,657	$247	$4,205	$4,452
SOLAR PANELS	2004	15	17	0	$1,582	$0	$1,582	$0	1.89	$2,986	$0	$2,986	$0
VELOCITY FLOW METER	2004	15	17	0	$3,259	$0	$3,259	$0	1.89	$6,152	$0	$6,152	$0
MINI PURE UV SYSTEM	2005	15	16	0	$332	$0	$332	$0	1.82	$604	$0	$604	$0
QUANLL TRAY 2000	2005	15	16	0	$3,461	$0	$3,461	$0	1.82	$6,293	$0	$6,293	$0
MAPPING PROJECT WWT WIP	2016	15	5	10	$13,543	$903	$4,514	$9,029	1.21	$16,326	$1,088	$5,442	$10,884
DISTRICT MAPPING WWC WIP	2016	15	5	10	$19,056	$1,270	$6,352	$12,704	1.21	$22,971	$1,531	$7,657	$15,314
Total Wastewater Treatment Plant					**$9,057,936**			**$2,863,301**		**$21,011,482**		**$17,284,958**	**$3,726,524**
Total Wastewater Assets					**$29,328,566**			**$13,130,545**		**$63,216,851**			**$22,852,175**

Source: AVCSD records.

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[1] Adjusted by the average annual rate of inflation in California since 1955.