

# Vandenberg Village Community Services District

## Water Rate Study



July 2023

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# Executive Summary

## Proposition 218

For VVCSD to adopt increases to its water and wastewater rates, it must comply with the requirements of Article XIII D of the California Constitution (Proposition 218). The requirements in Section 6(b) are “structured to place limitations on (1) the use of the revenue collected from property-related fees and charges; and (2) the allocation of the fee or charge, to ensure that it is proportionally allocated in accordance with the cost of providing the service attributable to each parcel” (California Special Districts Association, 2020).

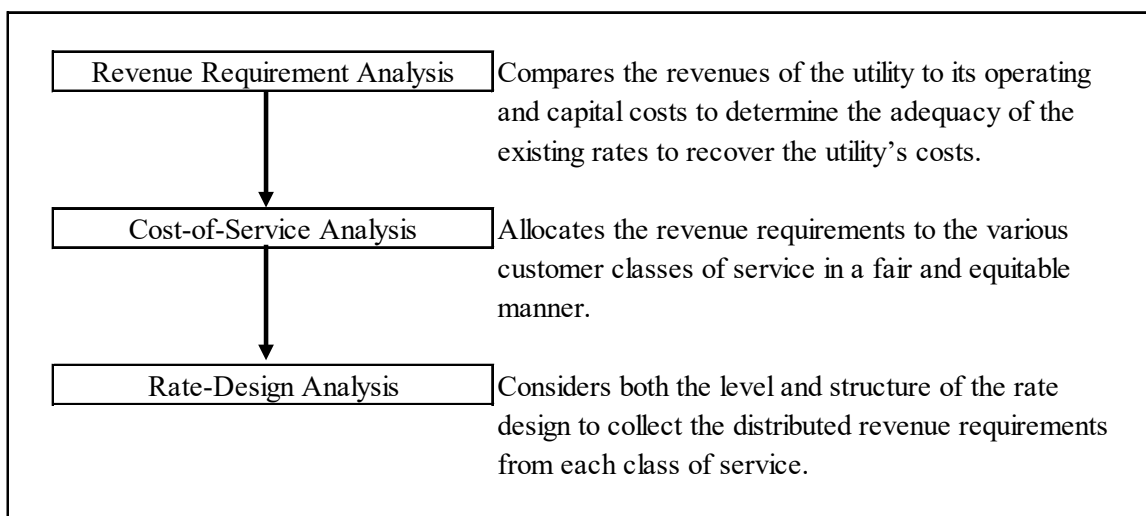
## Objectives

1. Ensure sufficient revenues to meet the current operational and capital needs of Vandenberg Village Community Services District (District).
2. Plan for adequate reserves to implement the District’s Capital Improvement Plan.
3. Ensure equitable and proportional rates for all classes of customers as required by current legal requirements.

## Methodology

Proposition 218 requires a nexus between the cost of providing the service and the rates charged to the customer. This study uses methodologies from the AWWA M1 Manual to allocate costs and design equitable rates. The AWWA process has been recognized by the water industry and has been accepted by state regulatory commissions and courts of law (Woodcock, Giardina, & Cristiano, 2017, p. 59).

The generally accepted method for designing rates is divided into three categories: revenue analysis, cost of service analysis, and rate design (Woodcock, Giardina, & Cristiano, 2017, pp. 4-5). **Figure 1** illustrates this process. The analysis of the District’s revenues will be presented in the **Revenue Requirements** section. In the **Cost of Service Analysis** section, we will analyze the cost of service and the **Rate Design Analysis** section will present our rate design.



**FIGURE 1 ANALYTICAL STEPS OF COST-BASED RATE-MAKING**



## Revenue Requirements Analysis

At the current rates, projected revenues are not sufficient to meet operating expenses even when excluding depreciation expense. Withdrawals from reserves would be necessary to balance the operating budget. The **Revenue Requirements** section analyzes the operational and maintenance expenses and capital-related costs of providing water service and determines the required revenue to meet the financial obligations of the district.

**TABLE 1 PROJECTED REVENUES AND EXPENSES - CURRENT RATES**

	FY 2023-2024 Adopted	FY 2024-2025 Projected	FY 2025-2026 Projected
<b>OPERATIONS</b>			
Operating Revenue	1,759,679	1,759,679	1,759,679
Operating Expenses (less depreciation)	1,870,867	1,945,702	2,023,530
<b>Net Income (Loss) from Operations</b>	<b>(111,188)</b>	<b>(186,023)</b>	<b>(263,851)</b>
<b>Cumulative Revenue Deficiency</b>	<b>-6%</b>	<b>-11%</b>	<b>-15%</b>

## Cost of Service Analysis

The **Cost of Service Analysis** section details the procedure utilized to allocate operating budget expenses to the fixed and variable charges utilizing the Commodity-Demand Method outlined in the AWWA M1 Manual (p. 67).

**TABLE 2 ALLOCATED FIXED AND VARIABLE CHARGES**

		Budgeted Expense Allocation	Projected Revenues from Charges
Fixed Charge Allocation	36.9%	786,842	786,787
Variable Charge Allocation	63.1%	1,334,024	1,340,460
		<b>2,120,867</b>	<b>2,127,247</b>

## Rate Design Analysis

The **Rate Design Analysis** section details the procedures used in calculating the proposed variable and fixed rates and charges.

$$Tier\ 1\ Rate = \frac{\text{Variable Charge Revenue Requirement}}{\text{Tier 1 Estimated Consumption} + (\text{Tier 2 Estimated Consumption} \times \text{Tier 2 Rate Differential})}$$

$$Tier\ 2\ Rate = \text{Tier 1 Rate} \times \text{Tier 2 Rate Differential}$$

**FIGURE 2 INCREASING BLOCK RATE EQUATIONS**

$$\text{Base charge for } \frac{5}{8} \times \frac{3}{4} \text{ meter} = \frac{\text{Fixed Charge Revenue Requirement}}{\text{annual number of bills mailed} \times \text{meter ratio for each meter size}}$$

**FIGURE 3 FIXED RATE EQUATION**

The revenue calculations assume a rate change effective date of January for each fiscal year. Therefore, the fiscal year revenues represent six months at the old rate and six months at the proposed rate for that period. The projections for fiscal year 2023-24 show a reserve contribution factor of eight percent.

**TABLE 3 PROJECTED REVENUES AND EXPENSES - PROPOSED RATES**

	FY 2023-2024 Adopted	FY 2024-2025 Projected	FY 2025-2026 Projected
<b>OPERATIONS</b>			
Operating Revenue	2,027,862	2,343,197	2,447,736
Operating Expenses (less depreciation)	1,870,867	1,945,702	2,023,530
<b>Reserve Contribution</b>	<b>156,995</b>	<b>397,495</b>	<b>424,206</b>
<b>Reserve Contribution Factor</b>	<b>8%</b>	<b>20%</b>	<b>21%</b>

## Customer Impact

The District’s “Average Residential Customer” with a summer usage of 17 units of water and a 1" meter will see an overall change of 18.2 percent. In the period since the rates were adopted, the cost of living has increased by 23.3 percent.

**TABLE 4 SAMPLE BILL**

		Current	Proposed	\$ Change	% Change
Usage - 1st tier	1 - 10 ccf	18.30	21.40	3.10	16.9%
Usage - 2nd tier	11 - 17 ccf	19.25	26.95	7.70	40.0%
Water Service Charge	1"	25.03	33.86	8.83	35.3%
	<b>Water Only Total</b>	<b>\$62.58</b>	<b>\$82.21</b>	<b>\$19.63</b>	<b>31.4%</b>
Sewer Service Charge					
	<b>Sewer Only Total</b>	<b>\$45.55</b>	<b>\$45.55</b>	<b>\$0.00</b>	<b>0.0%</b>
	<b>Total Bill</b>	<b>\$108.13</b>	<b>\$127.76</b>	<b>\$19.63</b>	<b>18.2%</b>

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# Overview

## Agency

Vandenberg Village Community Services District was established in 1983 as a local government agency under California Government Code Section 61000, et seq., to provide water and wastewater services to the community of Vandenberg Village, an unincorporated area of Santa Barbara County north of Lompoc. It is governed by a Board of five locally elected directors. Vandenberg Village Community Services District currently provides water and wastewater service to approximately 2,600 connections in Vandenberg Village.

In 1960, Vandenberg Utilities Company and Vandenberg Disposal Company were formed to provide water and sewer services to the Vandenberg Village area. In 1973, these two companies were authorized by the Public Utilities Commission to merge into Park Water Company to obtain the needed financial influence to join the City of Lompoc in the construction of a regional wastewater system. In June of 1974, Park Water Company entered into an agreement with the City of Lompoc and participated in the construction of the Lompoc Valley Regional Wastewater Management System. Not long afterward, sewer rates increased by 150 percent even though the construction was primarily financed by a grant from the Environmental Protection Agency.

Frustrated with the quality of local water and after being faced with some of the highest water and sewer rates in the State, Vandenberg Village property owners formed the Vandenberg Village Association Water and Sewer Committee. This Committee engaged consultants who determined it would be feasible to form a community services district to purchase Park Water Company, to capitalize on the tax-exempt status offered to publicly-owned utilities and gain local control over its management. In 1983, residents petitioned the Local Agency Formation Commission (LAFCO) and held an election in which voters approved the formation of a community services district with 1673 in favor and 253 against. Thereafter, the first five-member Board of Directors was elected to serve the District. Those directors were Jack Gabus, Howard Grantz, Charles McKenna III, Jock Sutherland, and Glenn Welch.

The first attempt to purchase Park Water Company failed. Residents passed a \$4 million bond measure in 1985 when 1,979 out of 2,180 ballots cast favored the measure. However, on July 29, 1987, the PUC appraised the utility at a higher rate than the VVCSD had anticipated, and a new bond election was then necessary. On June 28, 1988, despite opposition, the District's voters authorized an additional \$1.4 million bond issue for the acquisition of Park Water Company. At midnight on December 1, 1988, Park Water Company and VVCSD finally entered into an agreement for the purchase of water and sewer systems at the sale price of \$3,985,755.

The District currently operates 32 miles of water distribution system, three groundwater wells, one 500,000-gallon tank reservoir, one 300,000-gallon tank reservoir, two 1,000,000-gallon tank reservoirs, three booster stations, two pressure-reducing stations, and a pressure filter treatment system. The District utilizes standby diesel generators to maintain normal operations during power outages.

The District also operates 29 miles of wastewater collection system, with four pumping lift stations and 574 manholes. Until 1978, wastewater treatment was also provided locally. Since then, the Village's wastewater system has been connected to the Lompoc Regional Wastewater Reclamation Plant (LRWRP) for treatment and disposal. The District has a contractual entitlement to 0.89 million gallons per day (MGD), 16.18 percent, of Lompoc's 5.5 MGD plant capacity.

## Objectives

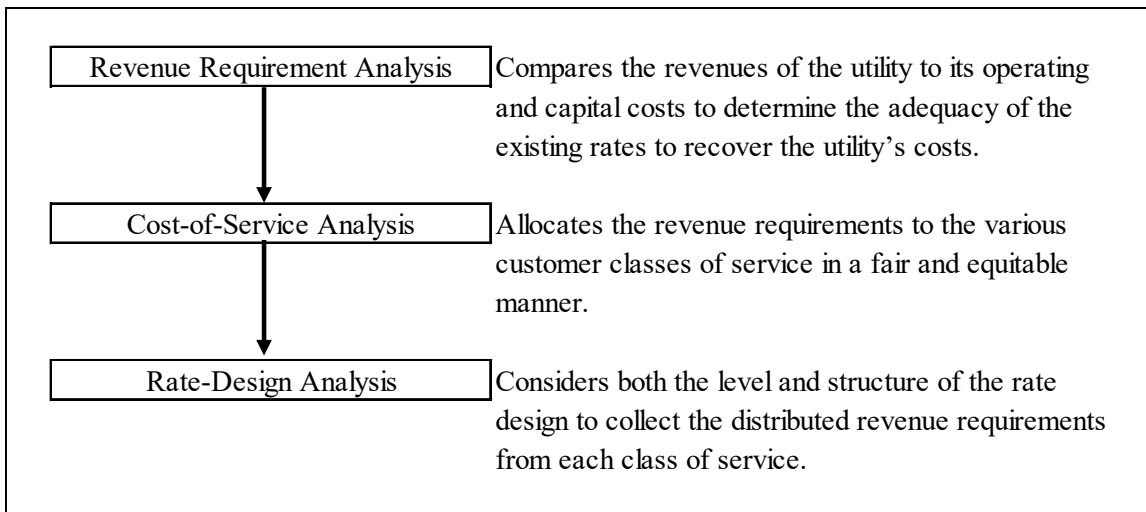
The objectives of this study are to:

1. Ensure sufficient revenues to meet the current operational and capital needs of the District.

2. Plan for adequate reserves to implement the District’s Capital Improvement Plan.
3. Ensure equitable and proportional rates for all classes of customers as required by current legal requirements.

## Rate Setting

The generally accepted method for designing rates is divided into three categories: revenue analysis, cost of service analysis, and rate design (Woodcock, Giardina, & Cristiano, 2017, pp. 4-5). **Figure 1** illustrates this process. The analysis of the District’s revenues will be presented in the **Revenue Requirements** section. In the **Cost of Service Analysis** section, we will analyze the cost of service and the **Rate Design Analysis** section will present our rate design.



**FIGURE 1 ANALYTICAL STEPS OF COST-BASED RATE-MAKING**

# Industry Standards and Legal Requirements

Proposition 218 was approved by the voters on November 5, 1996. “The “Right to Vote on Taxes Act,” Proposition 218 amended the California Constitution by adding articles XIII C...and XIII D..., which affect the ability of special districts and other local governments to levy and collect existing and future taxes, property based assessments, and property-related fees and charges” (California Special Districts Association, 2020). Although the proposition sets some limitations on rate setting, associations such as the California Special Districts Association and the American Water Works Association provide tools and guidance to assist water utilities in preparing fair and equitable rates.

## American Water Works Association

For over 100 years, AWWA has set the industry standards of minimum requirements, materials, equipment, and practices used by the water industry. Many consultants reference the AWWA M1 *Principles of Water Rates, Fees, and Charges* manual as part of their rate-setting analysis (Bartle Wells Associates, 2018; NBS, 2022; Raftelis, 2020; Tuckfield & Associates, 2022; Tuckfield & Associates, 2020). First published in 1954, the manual is currently in its 7<sup>th</sup> edition and is over 400 pages long. Additionally, AWWA recognized the limitations of the M1 Manual for smaller systems and the authors developed the M54 *Developing Rates for Small Systems* manual to be used in concert with the M1 manual by small systems.

## State of California

### California Constitution Article XIII D, Section 6 (Proposition 218)

For VVCSD to adopt increases to its water and wastewater rates, it must comply with the requirements of Article XIII D of the California Constitution (Proposition 218). The five substantive requirements in Section 6(b) outlined below “are structured to place limitations on (1) the use of the revenue collected from property-related fees and charges; and (2) the allocation of the fee or charge, to ensure that it is proportionally allocated in accordance with the cost of providing the service attributable to each parcel” (California Special Districts Association, 2020).

Per Article XIII D, Section 6(b), *a fee or charge 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.*
- (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. Standby charges, whether characterized as charges or assessments, shall be classified as assessments and shall not be imposed without compliance with Section 4.*
- (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. (State of California, 1996)*

**Figure 4** details the procedural and approval requirements of Proposition 218 (California Special Districts Association, 2020, p. 36). The District is required to hold a public hearing at least 45 days after mailing a notice to all property owners and tenants affected by the rate change. The board of directors may only approve the rate changes if fewer than a majority of written protests are received.

<b>Property-related Fees and Charges</b>		
<b>Type of Fee or Charge</b>	<b>Procedural Requirements</b>	<b>Approval</b>
Water, Sewer, and Trash	<p>(1) Hold noticed public hearing.</p> <p>(2) Notice of public hearing must be mailed to property owners of record and tenants directly responsible for the fee at least 45 days prior to the public hearing.</p> <p>(3) Notice must contain (a) the amount of the fee or charge proposed to be imposed; (b) the basis upon which it was calculated; (c) the reason for the fee or charge; (d) the date, time, and location of the public hearing.</p> <p>(4) May adopt a schedule of fees with automatic adjustments that pass through increases in wholesale charges for water, sewer treatment, and wastewater treatment from another public agency or adjustments for inflation; provided, (a) the adjustments are for a period not to exceed 5 years; (b) adjustments for inflation must have a clearly defined formula and any adjustment must not exceed the cost of providing the service; (c) notice of any adjustment pursuant to the schedule shall be given not less than 30 days before the effective date of the adjustment.</p>	<p>(1) If a majority of the affected property owners submit written protests prior to the close of the public hearing to the increase to the property-related fee or charge, it may not be increased. (2) Only one written protest per parcel, filed by an owner or a tenant of the parcel, shall be counted in calculating a majority protest.</p>
All other property-related fees and charges other than water, sewer and trash, e.g., stormwater service fees and charges	<p>(1) Hold noticed public hearing.</p> <p>(2) Notice of public hearing must be mailed to property owners of record and tenants directly responsible for the fee at least 45 days prior to the public hearing.</p> <p>(3) If there is not a majority protest, then must conduct an election of either the affected property owners or the electorate residing in the affected area. Election shall be conducted not less than 45 days after the majority protest public hearing.</p>	<p>(1) If a majority of the affected property owners submit written protests prior to the close of the public hearing to the increase to the property-related fee or charge, it may not be increased. (2) Only one written protest per parcel, filed by an owner or a tenant of the parcel, shall be counted in calculating a majority protest. If there is no majority protest, then the fee or charge must be approved by:</p> <p>(1) a majority vote of the property owners of the property subject to the fee; or, at the option of the special district,</p> <p>(2) a 2/3 vote of the electorate residing in the affected area.</p>

**FIGURE 4 PROPERTY RELATED FEES AND CHARGES**

## Subsidized Rates

Under article XIII D, Section 6(b)(3), rates may not exceed the proportional cost of the service. Under this provision, utilities subject to Prop 218 may not provide subsidies for one class of customer (senior, low-income, etc.) because it would cause other classes of customers to pay a higher proportional share.

## Court Decisions

In *Bighorn-Desert View Water Agency v. Verjil* (2006) 39 Cal.4th 205, the Supreme Court of California concluded that water and sewer rates and charges, except for connection fees, are property-related fees and subject to the provisions of article XIII D. “A fee for ongoing water service through an existing connection is imposed ‘as an incident of property ownership’ because it requires nothing other than normal ownership and use of property. But a fee for making a new connection to the system is not imposed ‘as an incident of property ownership’ because it results from the owner's voluntary decision to apply for the connection” (*Bighorn-Desert View Water Agency v. Verjil*, 2006).

In *Capistrano Taxpayers Assn., Inc. v. City of San Juan Capistrano* (2015) 235 Cal. App. 4th 1493, the California 4<sup>th</sup> District Court of Appeal concluded that the city’s allocation-based water rate structure violated article XIII D and the fees exceeded “the proportional cost of the service attributable to the parcel” (State of California, 1996). The courts did not invalidate all tiered pricing. The finding states that “we see nothing in Article XIII, Section 6, subdivision (b)(3) of the California Constitution that is incompatible with water agencies passing on the true, marginal cost of water to those consumers whose extra use of water forces water agencies to incur higher costs to supply that extra water” (*Capistrano Taxpayers Association, Inc. v. City of San Juan Capistrano*, 2015).

## California Constitution Article X, Section 2

Article X Section 2 of the California Constitution establishes the “reasonable use doctrine” and was enacted to ensure that California’s water remains available for all Californians in perpetuity. The article encourages water conservation and states that water resources “be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use ... be prevented...the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare ... The right to water ... shall be limited to such water as shall be reasonably required for the beneficial use to be served, and such right does not and shall not extend to the waste or unreasonable use” (State of California, 1976).

## Affordable Water

In 2012, Assembly Bill 685 added Section 106.3 to the California Water Code which states “every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.”

Senate Bill 200 (2020) expanded access to affordable drinking water by requiring identification by the State Water Resources Control Board of Disadvantaged (DAC) and Severely Disadvantaged (SDAC) Communities and their ability to meet the water board’s Affordability Threshold. A DAC is a service area of a community water system in which the Median Household Income (MHI) is less than 80% of the statewide annual MHI level. An SDAC is less than 60% of the statewide annual MHI level. Effective April 1, 2023, the MHI set by the State Water Resources Control Board for a DAC is \$67,278 and SDAC is \$50,458<sup>1</sup>. The Median Household Income for Vandenberg Village is \$95,747<sup>2</sup>.

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<sup>1</sup> [https://www.waterboards.ca.gov/drinking\\_water/services/funding/documents/srf/mhi.pdf](https://www.waterboards.ca.gov/drinking_water/services/funding/documents/srf/mhi.pdf)

<sup>2</sup> <https://www.census.gov/quickfacts/fact/table/vandenbergvillagecdpcalifornia,santabarbaracitycalifornia/INC110221>



**State Water Board Drinking Water and Wastewater Programs**

**Median Household Income**

**2021 California Statewide MHI**

**\$84,097**

**Disadvantaged Community (DAC) MHI**

**\$67,278**

(Less than 80% of the Statewide MHI)

**Severely Disadvantaged Community (SDAC) MHI**

**\$50,458**

(Less than 60% of the Statewide MHI)

State Water Board Drinking Water and Wastewater Programs utilize the American Community Survey 5-Year Estimates to determine MHI.

MHI Data Effective April 1, 2023

**FIGURE 5 STATE WATER BOARD MEDIAN HOUSEHOLD INCOME**

# Key Inputs and Assumptions

## Water User Classifications

As of June 30, 2023, the District had 2,587 water connections, 2,444 of which were residential connections. Residential water meters account for 94.5 percent of the District’s customer base. The remaining 5.5 percent are Bulk-Residential, Commercial, Schools, and Irrigation accounts.

The District separates its customers into five primary water user classifications:

- Residential – Single-family homes serviced by a single meter.
- Bulk-Residential – Multi-family apartments, condominiums, and duplexes serviced by a single meter.
- Commercial – Businesses serviced by a single meter.
- School – Schools serviced by a single meter.
- Irrigation – Irrigation accounts on a separate meter from domestic water service.

The number of active residential meters changes monthly as customers move in and out. Homes without an active account generate no water revenue. As a result, revenue projections must consider those vacant homes. **Table 5** details the average number of water bills mailed per month by classification and meter size.

**TABLE 5 AVERAGE NUMBER OF BILLS MAILED – CALENDAR YEAR 2022**

	Residential	Bulk Residential	Commercial	School	Irrigation	Average
<b>Metered Accounts</b>						
5/8" × 3/4"	1,243		5			1,248
3/4"	110					110
1"	1,058	30	26			1114
1 1/2"	8	4	13		7	32
2"		15	16		5	36
3"		5	4	1		10
4"				1	2	3
6"				1		1
<b>Average</b>	<b>2,419</b>	<b>54</b>	<b>64</b>	<b>3</b>	<b>14</b>	<b>2,554</b>
	94.71%	2.11%	2.51%	0.12%	0.55%	

## Growth Assumptions

Vandenberg Village is surrounded on three sides by the protected Burton Mesa Ecological Reserve and abuts the City of Lompoc and Vandenberg Space Force Base on the fourth side. As a result, additional growth is limited to the infill of existing parcels within the VVCSD sphere of influence. Resolution 163-03 was adopted in 2003 and restricted build-out to 600 Equivalent Dwelling Units (EDU), also known as Single Family Equivalents (SFE). Of the 600 EDU identified in the resolution, 123 EDU remain. Consequently, growth is not expected to be a significant factor in revenue calculations. **Table 6** details the parcels and their corresponding allotment.

In 2023, a vacant parcel behind the Shopping Center on Constellation Road (APN 097-371-072) was purchased and an application (23RZN-00002) was submitted to the Santa Barbara County Planning and Development Department to rezone the parcel from Commercial SC (shopping center) to Residential DR-30. The owner also submitted a development plan (23DVP-00011) asking for the Department to “allow for a new three-story hotel of approximately 49,820-sf with a parking lot containing 112 parking spaces. The Development Plan would also allow for 60 new residential units consisting of 24 one-bedroom townhouses and 36 two-bedroom townhouses, a

1,780-sf clubhouse and parking lot containing 78 parking spaces” (County of Santa Barbara, 2023). The agent for the owner has requested an Intent to Serve letter from the District and staff is currently evaluating the anticipated water usage to calculate the EDU. Because this parcel was zoned Commercial, it was not included in the Resolution 163-03 EDU calculations. This parcel was not included on the EDU chart in Resolution 163-03 due to its commercial zoning.

**TABLE 6 ALLOTMENT OF EQUIVALENT DWELLING UNITS PER RESOLUTION 163-03**

Project Name/Owner	APN	EDU		
		Allocated by 163-03	Built	Current
Senior Housing - Phase I	097-371-045	25	25	
Senior Housing - Phase II	097-371-045	10	10	
Providence Landing	097-371-021	390	390	
Falcon Heights (formerly Clubhouse Estates)	097-371-008	64	52	2
Oak Hills Estate (formerly Zelluck)	097-371-010	29		21
Villas on Oak Hill (formerly Stoker)	097-730-021	4		21
End of Tamarack Court (formerly Ebbert’s #1)	097-371-041	55		55
End of Apollo Way (formerly Ebbert’s #2)	097-371-019	23		24
<b>Total Units</b>		<b>600</b>	<b>477</b>	<b>123</b>

Per an agreement between Park Water Company and Ebbert’s dated December 13, 1985, in exchange for contributed capital provided by the developer to develop Tank Site #5 and build water Tank 5A, Park Water Company agreed to allow Ebbert’s to construct 400 more homes. Vandenberg Village CSD was a successor to this agreement. The agreement allowed the 400-home allotment to be reduced by all homes built by any developer within Vandenberg Village. As a result, in the adopted resolution, parcel #1 (APN 097-371-041) was fixed at 55 EDU and the allotment for parcel #2 (APN 097-371-019) was reduced by the number of completed homes from 1985 through present. At the time of this study, the two Ebbert’s properties had recently been sold to another party and the contracted allotments may no longer be in force.

## Metered Consumption

Table 7 details the five-year (calendar year 2018-2022) average water consumption by customer classification and meter size. The District uses a five-year average for budgeting purposes to smooth the peaks and valleys of consumption caused by weather patterns. Weather normalization is recommended when calculating water usage for this purpose provided it correlates with the average water use per customer over multiple years (Kim & Haberl, 2014; Woodcock, Giardina, & Cristiano, 2017, p. 23)

**TABLE 7 WATER CONSUMPTION BY METER SIZE (CCF)**

	Residential	Bulk	Commercial	School	Irrigation	Total
<b>Metered Accounts</b>						
5/8" × 3/4"	135,484		292			135,776
3/4"	8,277					8,277
1"	217,721	4,684	6,948			229,353
1 1/2"	1,802	2,504	12,483		12,263	29,052
2"		12,904	14,963		12,470	40,337
3"		8,693	3,053	2,720		14,466
4"				19,642	161	19,803
6"				36,091		36,091
<b>Total Metered Accounts</b>	<b>363,284</b>	<b>28,784</b>	<b>37,740</b>	<b>58,453</b>	<b>24,894</b>	<b>513,154</b>
	70.79%	5.61%	7.35%	11.39%	4.85%	

## Current Water Rates

**Table 8** details the current water usage rates and water service charges. The current rates were adopted on December 5, 2017 and became effective on January 4, 2018. At that time, rates and charges were reconfigured. The existing four water usage tiers were compressed into two tiers in response to the appellate court decision in the *Capistrano Taxpayers Association v. City of San Juan Capistrano* court case (Capistrano Taxpayers Association, Inc. v. City of San Juan Capistrano, 2015). The result of this compression was that water usage rates increased by an average of 40 percent. Water service charges were also reconfigured by adjusting the meter ratios or equivalent residential unit value (ERU). The charge for meters 2" and smaller was reduced by an average of 20 percent. The charge for meters 3" and larger was increased by an average of nine percent.

**TABLE 8 CURRENT WATER RATES (EFFECTIVE JANUARY 2018)**

	<b>Current Rate</b>
<b>Water Usage Rates</b>	
1 - 10 ccf	1.83
11+ ccf	2.75
<b>Water Service Charges</b>	
<i>Residential/Commercial/Irrigation</i>	
5/8" × 3/4"	17.04
3/4"	18.69
1"	25.03
1 1/2"	33.09
2"	53.80
3"	100.12
4"	125.98
6"	223.40
Residential/Commercial/Irrigation Reserve Replenishment (included in Water Service Charge)	4.24
<i>Apartment/Condominium</i>	
1"	20.79
1 1/2"	28.85
2"	49.56
3"	95.88
Apartment Surcharge (per dwelling unit)	4.24
Condominium Surcharge (per dwelling unit)	4.24

## Variable Rates

The District uses an increasing block rate design for Water Usage Rates. Water consumption is billed in two tiers. The first ten units of water (each unit is equal to one hundred cubic feet (ccf) or 748 gallons of water) are each billed at Tier 1. This tier represents the indoor water use for residential connections. **Table 9** illustrates the calculation for the 10-year average winter usage for residential customers<sup>3</sup>. This quotient is used as a proxy for indoor water usage. All water over 10 ccf is billed at Tier 2. This tier represents the outdoor water use and usage in this tier is generally peak demand water.

Increasing block usage rates are designed to incentivize water conservation to comply with California Constitution Article X, Section 2. As more water is used, the next tier threshold is reached, and the consumer is billed a higher rate for that water. Tiered water rates meet the requirements of Proposition 218 provided they reflect the proportionate cost of providing service for each tier (Raftelis, 2020).

**TABLE 9 AVERAGE WINTER USAGE PER CUSTOMER**

Calendar Year	Average Number of Residential Customers	Total Average (ccf) Dec, Jan, Feb	Average per Customer (ccf)
2013	2,465	25,163	10.2
2014	2,466	29,062	11.8
2015	2,508	22,601	9.0
2016	2,561	19,668	7.7
2017	2,532	20,693	8.2
2018	2,526	27,002	10.7
2019	2,554	21,779	8.5
2020	2,561	26,927	10.5
2021	2,569	26,193	10.2
2022	2,567	20,959	8.2
<b>AVERAGE</b>	<b>2,531</b>	<b>24,005</b>	<b>9.5</b>

## Fixed Rates

The water service charge is a fixed monthly charge that increases with the size of the meter. Customers pay a meter charge based on the size of the meter and are entitled to the ultimate capacity of water that can pass through that meter. **Table 10** details the flow rate per meter size. This ERU was used to calculate the water service charges in 2017 and represents the incremental increase in costs associated with providing service to that meter size.

**TABLE 10 METER EQUIVALENT RESIDENTIAL UNIT VALUE (ERU)**

Meter Size	ERU Value	Gallons per Minute Flow Rate
5/8" × 3/4"	1.000	20
3/4"	1.097	30
1"	1.469	50
1 1/2"	1.942	100
2"	3.157	160
3"	5.876	350
4"	7.393	400
6"	13.110	900
8"	18.268	1200
10"	22.661	1500

<sup>3</sup> VVCSD Analysis of Water Produced vs. Sold – Calendar Year

## Billed Revenue

**Table 11** details the *unaudited* water revenues for the fiscal year 2023 by customer class, meter size, and rate type. Overall, projected water sales are eight percent less than budgeted. Weather is a major factor in water sales. Vandenberg Village received 29.28 inches of rain during the 2022-2023 fiscal year. This resulted in 85,000 ccf less water being delivered than anticipated and the collection of \$149K less water revenue than budgeted. Bulk Residential came in over budget due to a calculation error in the budgeted fixed charges for that category.

**TABLE 11 CURRENT RATE REVENUES BY CUSTOMER CLASS AND METER SIZE**

	Residential		Bulk Residential		Commercial		School		Irrigation		Total
	Fixed	Variable	Fixed	Variable	Fixed	Variable	Fixed	Variable	Fixed	Variable	
<b>Metered Accounts</b>											
5/8" × 3/4"	255,396	243,812			1,022	406					500,636
3/4"	25,063	14,284									39,347
1"	319,158	430,751	13,397	8,339	7,509	14,393					788,182
1 1/2"	3,210	2,906	3,878	7,091	5,162	23,301			2,780	28,854	74,915
2"			20,776	30,195	10,330	26,301			3,228	25,027	105,082
3"			10,637	22,556	4,806	3,952	1,201	5,303			44,017
4"							1,512	30,098	3,024	0	34,633
6"							2,681	53,603			56,283
<b>Total</b>	<b>\$602,826</b>	<b>\$691,753</b>	<b>\$48,688</b>	<b>\$68,180</b>	<b>\$28,829</b>	<b>\$68,352</b>	<b>\$5,394</b>	<b>\$89,004</b>	<b>\$9,031</b>	<b>\$53,881</b>	<b>\$1,665,938</b>
Budget	\$599,980	\$797,060	\$26,390	\$76,730	\$29,130	\$82,100	\$5,394	\$102,847	\$9,026	\$63,683	\$1,792,340
Shortfall	<\$102,461>		\$13,748		<\$14,049>		<\$13,843>		<\$9,797>		<\$149,245>

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## Revenue Requirements

The purpose of the revenue analysis is to determine the revenue required to meet the financial obligations of the District. This section will analyze the operational and maintenance expenses and capital-related costs of providing water service.

### Revenues

**Table 12** illustrates the projected water revenues at the current rates. The variable revenues are calculated utilizing the five-year weather normalization average detailed on page 12. The fixed revenues are based on the average number of accounts shown in **Table 5**. This revenue projection will be used from here forward throughout the study to demonstrate the impact of no change in rates.

**TABLE 12 PROJECTED REVENUES**

	Residential		Bulk Residential		Commercial		School		Irrigation		Total
	Fixed	Variable	Fixed	Variable	Fixed	Variable	Fixed	Variable	Fixed	Variable	
<b>Metered Accounts</b>											
5/8" × 3/4"	254,169	283,409			1,022	628					539,228
3/4"	24,671	17,315									41,986
1"	317,781	455,434	13,386	11,993	7,809	14,934					821,337
1 1/2"	3,177	3,771	4,872	6,411	5,162	26,829			2,780	22,440	75,442
2"			20,776	33,041	10,330	32,160			3,228	22,815	122,350
3"			7,858	22,258	4,806	6,562	1,201	4,976			47,661
4"							1,512	36,196	3,024	294	41,026
6"							2,681	67,966			70,647
<b>Total</b>	<b>\$599,798</b>	<b>\$759,929</b>	<b>\$46,892</b>	<b>\$73,703</b>	<b>\$29,129</b>	<b>\$81,113</b>	<b>\$5,394</b>	<b>\$109,138</b>	<b>\$9,032</b>	<b>\$45,549</b>	<b>\$1,759,679</b>

### Expenses

**Table 13** shows the projected expenses for the next five years assuming a four percent inflation factor. Under the current rates, net operating income is projected to be a loss for all five years presented. Not only are current rates insufficient to meet operating expenses, but projected revenue will not fund depreciation. Although depreciation expense is not a cash burden, it is important for depreciation expense to “be borne by the customers benefiting from the use of the asset during its useful life” (Woodcock, Giardina, & Cristiano, 2017, p. 15). The additional revenue required to balance the budget noted as a line item on the table does not include the reserve contribution factor outlined in Resolution 176-06.



**TABLE 13 PROJECTED EXPENSES**

Category	FY 2023-2024 Adopted	FY 2024-2025 Projected	FY 2025-2026 Projected	FY 2026-2027 Projected	FY 2027-2028 Projected
Salaries & Benefits	943,900	981,656	1,020,922	1,061,759	1,104,229
Purchased Power	365,900	380,536	395,757	411,588	428,051
Treatment	165,625	172,250	179,140	186,306	193,758
Insurance	23,325	24,258	25,228	26,237	27,287
Depreciation	250,000	260,000	270,400	281,216	292,465
Source of Supply	91,500	95,160	98,966	102,925	107,042
Pumping	30,882	32,117	33,402	34,738	36,128
Transmission and Distribution	57,800	60,112	62,516	65,017	67,618
Customer Accounts	54,300	56,472	58,731	61,080	63,523
Administrative	116,385	121,040	125,882	130,917	136,154
Transportation	12,750	13,260	13,790	14,342	14,916
Tools/Equipment	5,125	5,330	5,543	5,765	5,996
Other	3,375	3,510	3,650	3,796	3,948
<b>Total Water Operating Expense Budget</b>	<b>\$2,120,867</b>	<b>\$2,205,702</b>	<b>\$2,293,930</b>	<b>\$2,385,687</b>	<b>\$2,481,114</b>
Less Depreciation	(250,000)	(260,000)	(270,400)	(281,216)	(292,465)
Total Cash Expenditures	1,870,867	1,945,702	2,023,530	2,104,471	2,188,650
Projected Revenue (from Table 12)	1,759,679	1,759,679	1,759,679	1,759,679	1,759,679
<b>Budget Shortfall (excluding Depreciation Expense)</b>	<b>(111,188)</b>	<b>(186,023)</b>	<b>(263,851)</b>	<b>(344,792)</b>	<b>(428,971)</b>
<b>Additional Revenue Required to Balance Budget and Fund Depreciation</b>	<b>361,188</b>	<b>446,023</b>	<b>534,251</b>	<b>626,008</b>	<b>721,436</b>

## Capital Expenditures

**Table 14** details the fiscal year 2023-2024 water capital expense budget items that are still open as of June 30, 2023. A water capital expense budget of \$1,076,500 was approved by the Board of Directors on April 4, 2023, which included \$520,850 for current projects. The remaining \$555,650 was budgeted in previous fiscal years and \$178,579 was left unexpended. As of June 30, 2023, three carryover projects have been completed leaving a remaining capital expense budget balance of \$648,040.

**TABLE 14 WATER CAPITAL EXPENSE BUDGET FY 2023-2024**

FYE Approved	Description	Adopted Budget	Expenses to Date	Percent Complete
<b>Capital Replacement Plan</b>				
15-16	Replace Security Systems at Office, Shop, Booster Building @ 50%	12,500	5,076	75%
21-22	SCADA Upgrade @ 70%	71,400	22,698	75%
21-22	SCADA Computer @ 70%	7,000	1,730	75%
21-22	Soft Starter	5,000		
22-23	Fence and Gate Repair-Site #1, #3, #5, Burton Mesa	37,000	10,752	75%
23-24 *	Well #1B Rehabilitation	33,600		
23-24	Soft Starter	6,000		
23-24 *	Filter Rehabilitation Project	450,000		
23-24	Computer Workstation (2 ea) @ 50%	1,250		
23-24 *	Lab Equipment	30,000		
	<b>Sub-Total Capital Replacement Plan</b>	<b>\$653,750</b>	<b>\$40,256</b>	
<b>Capital Outlay Plan</b>				
12-13	New Wells/Test Well	350,000	315,454	90%
	<b>Sub-Total Capital Outlay Plan</b>	<b>\$350,000</b>	<b>\$315,454</b>	
<b>Total Water Capital Budget</b>		<b>\$1,003,750</b>	<b>\$355,710</b>	<b>\$648,040</b>
* As scheduled on the Capital Improvement Plan				

The Capital Improvement Plan (CIP) was approved by the Board of Directors at their December 6, 2022 Regular Meeting and requires \$13,554,806 from reserves, \$101,194 from developers, and \$750,000 from rates over the next 20 years. While this plan looks ahead 20 years, there is no expectation that all of these expenditures will need to occur as planned. **Table 15** details the anticipated improvements over the next five years. Note the planned filter modification project on the CIP compared to the actual project on the Capital Expense Budget in **Table 14**.

**TABLE 15 CAPITAL IMPROVEMENT PLAN**

Description	Fiscal Year				
	23-24	24-25	25-26	26-27	27-28
Backhoe	-	-	-	-	83,000
Booster Station 1 Pump (75 hp)	-	10,000	-	-	-
Booster Station 2 Pump (75 hp)	-	10,000	-	-	-
Booster Station 3 Pump (100 hp)	-	10,000	-	-	-
Booster Station 5 (25 hp)	6,000	-	-	-	-
Clean Energy	-	-	-	-	25,000
Copy Machine	-	-	5,500	-	-
Hydrants (201 total)	-	125,000	-	-	141,000
Iron & Manganese Filter - Filter Pump (25 hp)	-	-	10,000	-	-
Iron & Manganese Filter - Inspect	-	-	6,000	-	-
Iron & Manganese Filter - Modify	75,000	-	-	-	-
Iron & Manganese Filter - Replace Media	-	-	-	75,000	-

Description	Fiscal Year				
	23-24	24-25	25-26	26-27	27-28
Lab Equipment	25,000	-	-	-	-
Pavement - Site 1 & Access Road	-	-	280,000	-	-
Pavement - Site 3	-	-	240,000	-	-
Pickup Truck F250	-	-	-	-	27,500
Pickup Trucks F150	-	25,000	-	-	-
Sedan	-	-	20,500	-	-
Valves (518 total)	-	-	125,000	-	-
Water Tanks - Inspections	-	16,000	-	-	18,000
Water Tanks - Tank 5A (1,000,000 gal)	-	-	-	193,000	-
Water Tanks - Tank 5B (1,000,000 gal)	-	-	-	193,000	-
Well 1B (100 hp)	28,000	-	-	-	-
Well 3A (150 hp)	-	-	-	-	83,000
Well 3B (100 hp)	-	-	30,000	-	-
Well Replacement	-	-	-	-	3,042,000
	<b>134,000</b>	<b>196,000</b>	<b>717,000</b>	<b>461,000</b>	<b>3,419,500</b>

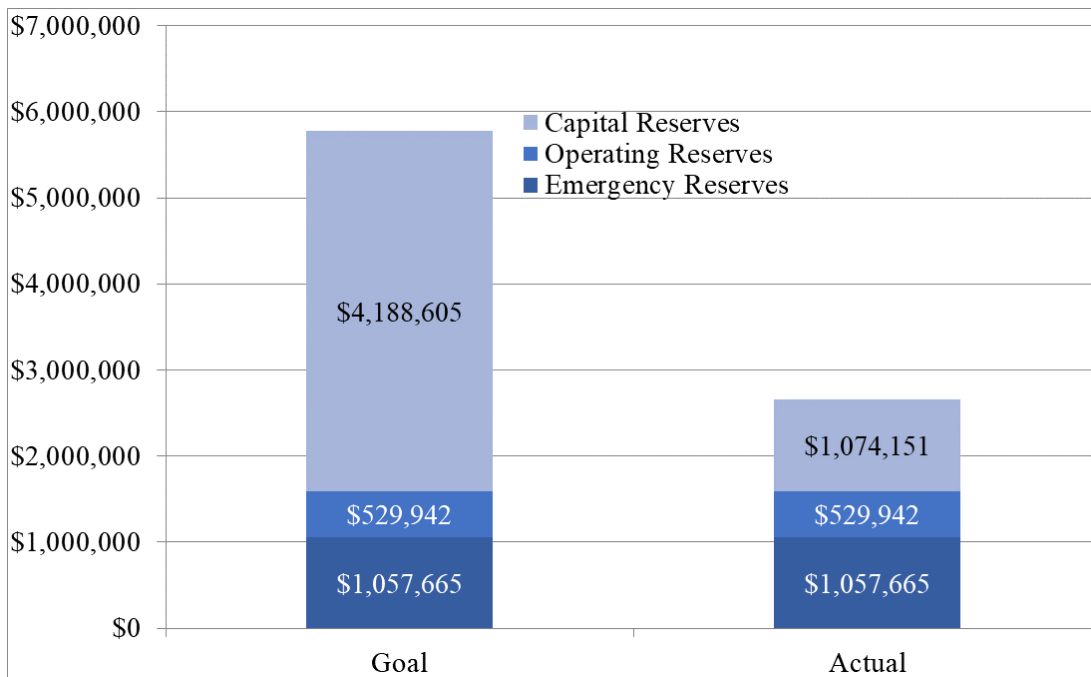
## Reserve Policy

American Water Works Association recognizes that there is no single capital financing strategy that works for every water utility. The AWWA M29 Water Utility Capital Financing Manual states each utility “must select a strategy specifically tailored to meet its own unique financial, operational, regulatory, and political challenges (Fedder, Hofeld, & Mastracchio, 2014).” Historically, VVCSD capital improvements have been funded through cash reserves. Apart from the water revenue bonds used to purchase the assets from Park Water Company, the Board of Directors has not endorsed the use of financing for water capital expenditures.

In 2006, the Vandenberg Village Community Services District Board of Directors rescinded Resolution 99-94 and adopted Resolution 176-06 to revise the reserve policy in response to the repayment of the \$5.4 million in revenue bonds and the subsequent discontinuance of the 20 percent bond covenant. The board established a reserve contribution factor and directed staff to incorporate that factor into the rate structure to help meet the reserve goals in the resolution. The Finance Director at the time expressed a desire for the goal to be equal to the 20 percent previously established by the bond covenant.

The reserves goals outlined in Resolution 176-06 are two-pronged. First, the resolution sets the monetary goals for capital, emergency, and operating reserves. Second, the resolution directs staff on how to set aside funds to meet those goals. However, as capital projects are completed, asset values and depreciation expenses increase. Accordingly, the reserve goals also increase. As a result of this annual change, achieving the goals each year may not be possible without large rate increases during periods of costly capital expenditures. The District staff intends to continue to pursue those goals with the understanding that those levels of funding may not be met exactly.

Because the combined balance for all three water reserves has not been reached, and following the purpose for each reserve fund as referenced in the resolution, staff has assigned a hierarchy to the funds held in reserve per guidance provided by GASB 54. “Amounts that are constrained by the government’s intent to be used for specific purposes, but are neither restricted nor committed, should be reported as assigned fund balance” (Governmental Accounting Standards Board, 2009, p. 6). Using this guidance, reserve funds are first assigned to Emergency Reserves then Operating Reserves, and, lastly, Capital Reserves. **Figure 6** illustrates the assigned fund balances for water reserves as of June 30, 2023.



**FIGURE 6 CASH RESERVES ASSIGNED FUND BALANCES**

### Depreciation Expense

“Depreciation expense allows for the systematic amortization and recovery of the original cost of the investment” (Woodcock, Giardina, & Cristiano, 2017, p. 43). **Figure 7** illustrates the equation used to calculate straight-line depreciation. Resolution 176-06 directs staff to include the annual depreciation expense on the operating budget and that the rates established for each year will include sufficient cash to fully fund that depreciation expense. The Fiscal Year 2023-2024 operating budget forecasts a water depreciation expense of \$250,000.

$$\text{Annual Depreciation Expense} = \frac{\text{Total Asset Value} - \text{Net Salvage Value}}{\text{Estimated Service Life}}$$

**FIGURE 7 STRAIGHT-LINE DEPRECIATION METHOD**

### Reserve Contribution Factor

Resolution 176-06 established a reserve contribution factor to be incorporated into the rate structure. This factor, expressed as a percentage of the annual water operating expense budget, is designed to generate revenues specifically for reserves. District staff is directed to consider the amount of money available in reserves relative to the goal, investment performance, the timing of planned and foreseeable capital projects, the strategic plan, and other pertinent considerations and present a factor to help achieve that goal.

### Emergency Reserves

Resolution 176-06 established a method for calculating the *Emergency Reserves* goal. The 99-94 goal was a flat \$500,000 to cover both water and wastewater emergencies. The 176-06 goal is 10 percent of the value of the water capital assets (\$1,057,665 *unaudited* as of June 30, 2023). Another term for this reserve is a *contingency fund*. This amount is intended as protection against catastrophic loss and to provide a cushion for miscalculations in long-range planning. “One method for determining the balance to maintain in such a reserve is to determine the cost of replacing the most expensive facility of the utility system and reserving an amount equal to that cost”

(Bradley, Giardina, & Matthews, 2017, p. 28). Note that the current *Emergency Reserves* goal is likely insufficient to replace the most expensive facility in the District’s system which would be approximately \$2.5 million for one water well.

### Operating Reserves

Resolution 176-06 reestablished an *Operating Reserves* and established a method for calculating the reserve goal. At the District’s formation, the board of directors established a water operating reserve of \$272,000 from the bond proceeds. The current goal is 25 percent of the current water operating expense budget (\$529,942 for Fiscal Year 2023-2024). This is equal to 90 days of expenses. Another term for this reserve is a *working capital reserve*. The purpose of this reserve is to provide consistent cash flow for normal operations and to ensure minimal impact from the seasonality of water revenues. It is not uncommon for water expenditures to exceed water revenues during the low water usage winter months. “A 45- to 90-day...O&M reserve is a frequently used industry norm” (Bradley, Giardina, & Matthews, 2017, p. 27).

### Capital Reserves

Resolution 176-06 changed *Replacement Reserves* to *Capital Reserves* and established a method for calculating the *Capital Reserves* goal. The 99-94 goal was to transfer the accumulated depreciation each quarter into the reserve account. The 176-06 goal is to maintain reserves equal to the accumulated depreciation (\$3,658,663 *unaudited* as of June 30, 2023) plus 25 percent of the current water operating expense budget (\$529,942 for Fiscal Year 2023-2024). The goal amount for Fiscal Year 2023-2024 is \$4,188,605. This amount is intended to replace assets and fund capital projects. “A minimum balance for this reserve is often defined based on a percentage...of the cost of system assets or a rolling-average of planned capital expenditures” (Bradley, Giardina, & Matthews, 2017, p. 28).

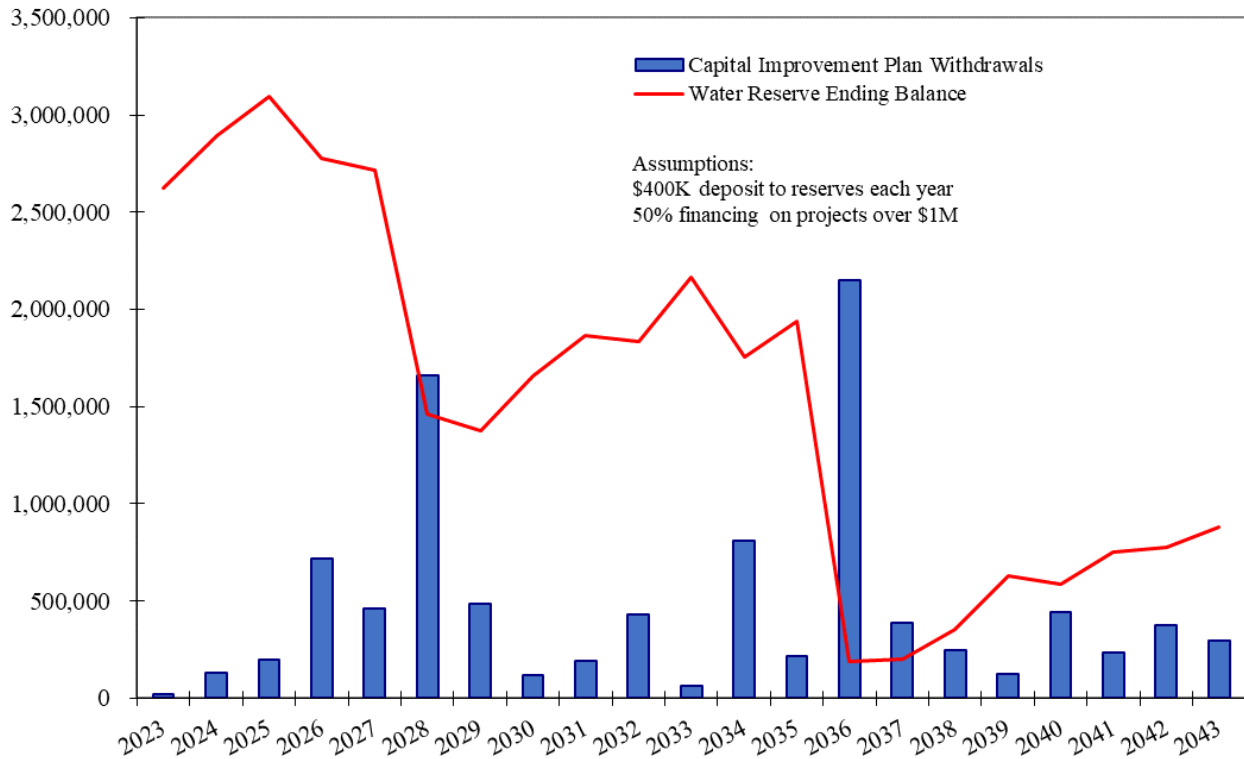
### Reserves Balances and Goals

**Table 16** details the calculated reserve balances and targets for the next five years. All five years require withdrawals from reserves to balance the operating budget and, by the end of year five, water capital reserves will be exhausted and capital improvements will have to be suspended so that emergency reserves and operating reserves are not depleted. Note that, for this projection, because capital projects can carry forward to the next fiscal year and are not always completed within the fiscal year budget period, reconciliation for the capital expenditures is applied to the year following the capital improvement plan schedule.

**TABLE 16 RESERVES BALANCES AND GOALS**

	FY 2023-2024	FY 2024-2025	FY 2025-2026	FY 2026-2027	FY 2027-2028
	Adopted	Projected	Projected	Projected	Projected
<b>RESERVES BALANCE</b>					
Beginning Cash Balance	2,524,390	2,390,202	2,070,178	1,610,327	548,535
Net Income (Loss) from Operations	(111,188)	(186,023)	(263,851)	(344,792)	(428,971)
Capital Improvement Plan Withdrawals	(23,000)	(134,000)	(196,000)	(717,000)	(461,000)
<b>Ending Reserves Balance</b>	<b>2,390,202</b>	<b>2,070,178</b>	<b>1,610,327</b>	<b>548,535</b>	<b>(341,436)</b>
<b>RESERVES GOAL</b>					
Emergency Reserve Goal	530,217	551,425	573,482	596,422	620,279
Operating Reserve Goal	1,057,665	1,059,965	1,073,365	1,092,965	1,164,665
Capital Reserve Goal	4,188,880	4,460,089	4,742,146	5,035,485	5,340,558
<b>Reserve Goal</b>	<b>5,776,762</b>	<b>6,071,479</b>	<b>6,388,993</b>	<b>6,724,872</b>	<b>7,125,502</b>
Reserve Shortfall	(3,386,560)	(4,001,301)	(4,778,666)	(6,176,337)	(7,466,938)

**Figure 8** illustrates the anticipated water reserves deposits and capital improvement plan withdrawals through 2043 assuming a \$400,000 deposit to reserves each year and 50 percent financing on all projects that are anticipated to cost more than \$1 million. Although the capital reserve goal is never met during this illustration period, there are sufficient funds to complete all projects outlined in the plan provided a minimum deposit to reserves is made each year and that the District can obtain financing for projects over \$1 million. The large withdrawals in 2028 and 2036 include expenditures for replacement water wells.



**FIGURE 8 PROJECTED WATER RESERVES**

**Status Quo**

The projected revenue in **Table 17** presents a status quo financial plan that assumes that current rates remain unchanged through Fiscal Year 2028 and that water usage remains consistent. Under this status quo financial plan, net operating cash is projected to be negative for all years presented. As previously stated, not only are current rates insufficient to meet operating expenses, but projected revenue is not sufficient to fund depreciation and cannot meet the reserve contribution factor outlined in Resolution 176-06.

**TABLE 17 REVENUE SUFFICIENCY EVALUATION**

	FY 2023-2024	FY 2024-2025	FY 2025-2026	FY 2026-2027	FY 2027-2028
	Adopted	Projected	Projected	Projected	Projected
<b>OPERATIONS</b>					
Operating Revenue (from Table 12)	1,759,679	1,759,679	1,759,679	1,759,679	1,759,679
Operating Expenses (less depreciation)	1,870,867	1,945,702	2,023,530	2,104,471	2,188,650
<b>Net Income (Loss) from Operations</b>	<b>(111,188)</b>	<b>(186,023)</b>	<b>(263,851)</b>	<b>(344,792)</b>	<b>(428,971)</b>
<b>Cumulative Revenue Deficiency</b>	<b>-6%</b>	<b>-11%</b>	<b>-15%</b>	<b>-20%</b>	<b>-24%</b>

**Table 18** details the amount of income required to meet the minimum reserve goal of funding the annual depreciation expense and contributing a reserve contribution factor of 20 percent.

**TABLE 18 MINIMUM RESERVE CONTRIBUTIONS**

	FY 2023- 2024 Adopted	FY 2024- 2025 Projected	FY 2025- 2026 Projected	FY 2026- 2027 Projected	FY 2027- 2028 Projected
Operating Income Required	174,173	181,140	188,386	195,921	203,758
Depreciation Contribution	250,000	260,000	270,400	281,216	292,465
<b>Minimum Annual Reserve Contributions</b>	<b>424,173</b>	<b>441,140</b>	<b>458,786</b>	<b>477,137</b>	<b>496,223</b>

## Historical Revenues and Expenses

**Table 19** summarizes historical revenues, expenses, and activity to cash reserves. The operating income reconciliation is to account for the lag between accounting accruals and cash flow. For example, revenues are posted when the customer is billed but cash is not posted until the customer pays their bill. Therefore, the cash for the revenues reported on June 30 may not be received until after July 1.

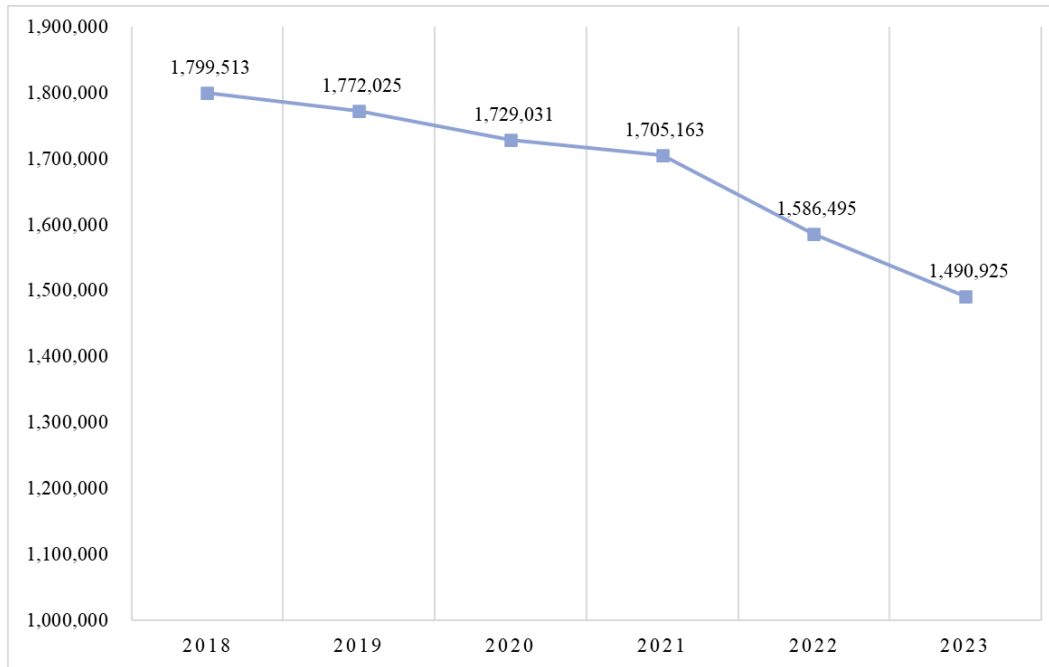
**TABLE 19 HISTORICAL REVENUES AND EXPENSES**

Category	FY 2018- 2019 Audited	FY 2019- 2020 Audited	FY 2020- 2021 Audited	FY 2021- 2022 Audited
<b>OPERATIONS</b>				
Operating Revenue	1,728,183	1,883,561	1,898,921	1,874,068
Operating Expenses	(1,852,421)	(1,856,048)	(1,829,523)	(1,732,280)
<b>Net operating income (loss)</b>	<b>(124,238)</b>	<b>27,513</b>	<b>69,398</b>	<b>141,788</b>
Less Purchase of Capital Assets	(44,407)	(112,993)	(1,070,280)	(286,068)
Plus (Less) Operating Income Reconciliation	(22,485)	89,589	63,465	(83,652)
Plus (Less) Interest Income/FMV Adjustments	34,671	73,822	21,078	(45,311)
Plus Depreciation	192,116	193,814	192,873	201,541
<b>Addition to/Withdrawal from Cash</b>	<b>35,657</b>	<b>271,745</b>	<b>(723,466)</b>	<b>(71,702)</b>
<b>Beginning Balance</b>	<b>2,249,671</b>	<b>3,355,060</b>	<b>3,626,805</b>	<b>2,903,339</b>
Addition to/Withdrawal from Cash	35,657	271,745	(723,466)	(71,702)
<b>Ending Balance</b>	<b>2,285,328</b>	<b>3,626,805</b>	<b>2,903,339</b>	<b>2,831,637</b>

In the period from January 2018 to June 2023, the Consumer Price Index (CPI-W West B/C) published by the U.S. Bureau of Labor Statistics (BLS) has increased by 23.3 percent. The graph in **Figure 9** utilizes the BLS CPI Inflation Calculator<sup>4</sup> to determine the buying power of the water rates currently in effect. Since the rates were

<sup>4</sup> [https://www.bls.gov/data/inflation\\_calculator.htm](https://www.bls.gov/data/inflation_calculator.htm)

adopted in 2017, the buying power of the \$1.8 million estimated revenue calculated for fiscal year 2018 has dropped by \$309K. That equates to a 17 percent reduction in buying power in 2023.



**FIGURE 9 BUYING POWER OF CURRENT WATER RATES**



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## Cost of Service Analysis

This section details the procedure used to allocate operating budget expenses to the fixed and variable charges. “Legal precedents have solidified this analysis as an industry-accepted method of developing rates” (Woodcock, Giardina, & Cristiano, 2017, p. 87).

### Methodology

Proposition 218 requires a nexus between the cost of providing the service and the rates charged to the customer. This study uses methodologies from the AWWA M1 Manual to allocate costs and design equitable rates. The AWWA process has been recognized by the water industry and has been accepted by state regulatory commissions and courts of law (Woodcock, Giardina, & Cristiano, 2017, p. 59).

### Peak Water Use Allocation

**Table 20** illustrates the total ccf per day used in the peak use allocation factors. Peak use factors are the calculated maximum rates of water use.

- **Average Day** – The 5-year average detailed in **Table 7** was used to calculate the Average Day usage demand.
- **Maximum Day** – The highest billing month (63,302 ccf) in the past five years was in September 2021<sup>5</sup> and was selected for the Maximum Day calculation.
- **Maximum Hour** – Maximum Hour is equal to the design maximum of the water system (2.2 MGD ÷ 748 gal/ccf = 2,941 ccf/day) and represents the maximum amount of water that can be produced by the water treatment plant.

The relationship between the maximum rate of use (Maximum Day) and the average daily usage (Average Day) is used to determine the costs associated with providing service for above-average usage. The relationship between the design maximum (Maximum Hour) and the average daily use is used to determine the costs associated with providing water for those infrequent periods when demand reaches the capacity of the system’s design.

**TABLE 20 AVERAGE DAY AND MAXIMUM DAY CALCULATIONS (CCF)**

	Annual Use Table 7	Average Day	Maximum Day (September 2021)
Single Family Residential	363,284	995	1,399
Bulk Residential	28,784	79	172
Commercial	37,739	103	111
School	58,453	160	232
Irrigation	24,894	68	195
<b>Total (ccf)</b>	<b>513,154</b>	<b>1,406</b>	<b>2,110</b>

**Table 21** illustrates the peaking factor and peaking allocation percentages using the water demand explained above. Usage by customer class was analyzed to determine the need for separate peaking factors by customer class. Although Residential and Bulk-Residential customers only use 76 percent of the water usage, they account for 85 percent of the combined water revenue. Therefore, it was determined that implementing peaking factors for

<sup>5</sup> During the study period, the District delivered more water in July 2020 (65,246 ccf). However, the usage was atypical due to the increased number of residents staying at home during the COVID-19 quarantine. As a bedroom community, most District residents who are employed leave the service area during the day and their work day water use is provided by other systems.

just 81 accounts would unnecessarily complicate the rate structure. Therefore, peaking factors based on customer class are not used in this study.

**TABLE 21 SYSTEM PEAKING ALLOCATION**

	Peaking Factor	Average Day	Max-Day	Max-Hour
Base	1.0	100%	0%	0%
Max Day	1.5	67%	33%	0%
Max Hour	2.1	48%	24%	28%

**Figure 10** and **Figure 11** illustrate the calculations used to determine the peaking allocation percentages in **Table 21** as they relate to the average daily usage (Raftelis, 2021). These peaking allocations are used for allocating costs and for calculating variable rates.

$$\frac{2110}{1406} = 1.5 \text{ Peaking Factor} \quad \frac{1406}{2110} = 67\% \quad \frac{2110 - 1406}{2110} = 33\%$$

**FIGURE 10 MAX-DAY CALCULATIONS**

$$\frac{2941}{1406} = 2.1 \text{ Peaking Factor} \quad \frac{1406}{2941} = 48\% \quad \frac{2110 - 1406}{2941} = 24\% \quad \frac{2941 - 2110}{2941} = 28\%$$

**FIGURE 11 MAX-HOUR CALCULATIONS**

## Allocated Costs of Service

**Table 22** illustrates the classifications used for budgeted costs utilizing the Commodity-Demand Method outlined in the AWWA M1 Manual (p. 67):

- **Base** – These are expenses that tend to vary with the quantity of water produced plus expenses and capital costs associated with service to customers under average load conditions. AWWA recommends that 100 percent of chemical costs and 71 percent of power be allocated to this category (p. 69).
- **Capacity** – These are the expenses associated with providing the facilities to accommodate **maximum day** (peak) demand and **maximum hour** (system design) demand. The remaining 29 percent of power costs are allocated to the maximum day category (p. 69). Distribution mains are designed to service maximum hour demands and are allocated 100 percent to that category (p. 67).
- **Customer** – These are the expenses associated with servicing the customers connected to the water system.
- **Direct Fire Protection** – These are the expenses associated with providing sufficient capacity in the system for fire protection.

The Peaking Allocation outlined in **Table 21** was used to allocate those expenses that are not appropriately assigned to only one category (e.g., Customer Accounts, General Plant, and Administrative). The Average Day/Max Hour calculation of 48 percent was allocated across the base, customer cost, and direct fire to approximate the general costs for each category. The Peaking Allocations were also used to allocate the totals for each column to fixed or variable costs as appropriate. As explained above, although base expenses tend to vary with the quantity of water produced they also include fixed expenses and capital costs associated with providing service to customers. Therefore, the percentage of base expenses was allocated based on the Average Day percentages. The sum of the percentages in the Fixed Charge Revenue Allocation row (37.1 percent) is the goal for water revenues collected from fixed charges and the sum of the percentages in the Variable Charge Revenue Allocation row (62.9 percent) is the goal for water revenues collected from variable charges.

**TABLE 22 ALLOCATED O&M EXPENSES**

Category	FY 2023-24 Budget	Base	Capacity		Customer Costs	Direct Fire Protection
			Maximum Day	Maximum Hour		
<i>Peaking Allocation (Table 21 Max Hour)</i>		18%	24%	28%	20%	10%
<b>Source of Supply</b>						
Supplies and Repairs	71,500	71,500				
Pump Tax	20,000	20,000				
Salaries & Benefits	0	0				
Depreciation	11,750	11,750				
<b>Pumping</b>						
Supplies and Repairs	30,882		30,882			
Purchased Power	365,900	259,789	106,111			
Salaries & Benefits	115,816		115,816			
Depreciation	38,950		38,950			
<b>Treatment</b>						
Supplies and Repairs	33,625		33,625			
Chemicals	132,000	132,000				
Salaries & Benefits	132,061		132,061			
Depreciation	12,860		12,860			
<b>Transmission and Distribution</b>						
Supplies and Repairs	2,300			2,300		
Reservoirs	5,500			5,500		
Mains	10,000			10,000		
Services	35,000				35,000	
Hydrants	5,000					5,000
Salaries – Operations	51,875			51,875		
Salaries – Reservoirs	1,095			1,095		
Salaries – Mains	31,857			31,857		
Salaries – Services	21,525				21,525	
Salaries – Hydrants	10,516					10,516
Depreciation – Reservoirs	58,370			58,370		
Depreciation – Mains	39,890			39,890		
Depreciation – Services	12,300				12,300	
Depreciation – Hydrants	9,990					9,990
<b>Customer Accounts</b>						
Expenses	54,300	9,774	13,032	15,204	10,860	5,430
Salaries – Admin	38,379	6,908	9,211	10,746	7,676	3,838
Salaries – Operations	80,703	14,527	19,369	22,597	16,141	8,070
Depreciation	8,540	1,537	2,050	2,391	1,708	854
<b>General Plant</b>						
Expenses	21,250	3,825	5,100	5,950	4,250	2,125
Salaries & Benefits	62,014	11,163	14,883	17,364	12,403	6,201
Depreciation	29,150	5,247	6,996	8,162	5,830	2,915
<b>Administrative</b>						
Expenses	143,311	25,796	34,395	40,127	28,662	14,331
Salaries & Benefits	394,458	71,002	94,670	110,448	78,892	39,446
Depreciation	28,200	5,076	6,768	7,896	5,640	2,820
<b>Total</b>	<b>2,120,867</b>	<b>649,894</b>	<b>676,778</b>	<b>441,773</b>	<b>240,886</b>	<b>111,536</b>
	<b>100.0%</b>	<b>30.6%</b>	<b>31.9%</b>	<b>20.8%</b>	<b>11.4%</b>	<b>5.3%</b>
<b>Fixed Charge Revenue Allocation</b>	<b>37.1%</b>	20.4%			11.4%	5.3%
<b>Variable Charge Revenue Allocation</b>	<b>62.9%</b>	10.2%	31.9%	20.8%		

One school of thought is that a higher proportionate share of the water expenses should be paid through the variable rate structure to give the customer more control over their expenses. Although shifting a majority of the water bill burden to the volumetric charges would give the customer greater control over their bill, experts caution that a water rate structure that is heavily weighted on volume charges can increase the risk of revenue erosion and increase revenue volatility (Woodcock, Giardina, & Cristiano, 2017, p. 153). It is our goal with this expense allocation to appropriately allocate the expenses for fixed and variable rate design and not artificially inflate one or the other.

**Table 23** illustrates the revenues and expenses after the fixed and variable charge allocations were applied. The detail for the projected revenues from charges can be found in **Table 25** and **Table 26**. The percentages calculated for the projected revenues are within 0.1 percent of the goal.

**TABLE 23 ALLOCATED FIXED AND VARIABLE CHARGES**

	<b>Table 22</b>	<b>Allocated Budgeted Expense</b>		<b>Projected Revenues from Charges</b>
Fixed Charge	37.1%	786,842	37.0%	786,787
Variable Charge	62.9%	1,334,025	63.0%	1,340,460
		<u><b>\$2,120,867</b></u>		<u><b>\$2,127,247</b></u>
Difference				\$6,380

# Rate Design Analysis

## Volume Rate Design

The District uses an increasing block rate design for Water Usage Rates. Water consumption is billed in two tiers. Tier 1 is designed to represent the indoor residential water use as calculated in **Table 9**. The threshold is set at 10 ccf (7,480 gallons). All water usage above the calculated indoor use threshold is billed at the Tier 2 rate. This tier represents outdoor water use and is the most controllable by the user. The usage in this tier is generally peak demand water as the usage in this tier is highly influenced by weather patterns and a high percentage of customers will increase their usage during dry periods. Therefore, the rate differential for Tier 2 is calculated by taking the average of the Max Day and the Max Hour peaking factors. **Table 24** illustrates the result of those calculations.

**TABLE 24 PEAKING ALLOCATION**

	Base	Max Day	Max Hour
<b>Peaking Factor</b>	1.0	1.5	2.1
Tier 1 Rate Differential	1.0		
Tier 2 Rate Differential			1.8

**Figure 12** details the equations used in **Table 25** to calculate the rate per ccf for Tier 1 and Tier 2 by applying the rate differential illustrated in **Table 24**. The allocated cost of service is divided by Tier 1 consumption plus Tier 2 consumption multiplied by their corresponding Rate Differentials.

$$\text{Tier 1 Rate} = \frac{\$1,334,025}{(373,807 \times 1.0) + (139,347 \times 1.8)} = \mathbf{\$2.14}$$

$$\text{Tier 2 Rate} = \$2.14 \times 1.80 = \mathbf{\$3.85}$$

**FIGURE 12 INCREASING BLOCK RATE EQUATIONS**

**TABLE 25 INCREASING BLOCK DESIGN**

	Consumption (ccf)	Consumption (%)	Rate Differential	Estimated Revenue	Rate per ccf (CY 2024)
Tier 1 (1-10 ccf)	373,807	73%	1.0	799,932	\$2.14
Tier 2 (11+ ccf)	139,347	27%	1.8	540,528	\$3.85
<b>Estimated Total</b>	<b>513,154</b>	<b>100%</b>		<b>\$1,340,460</b>	
Allocated Cost of Service				\$1,334,025	
Difference				\$6,435	

## Fixed Charge Design

The fixed water service charges were calculated using the meter ratio (ERU) established during the 2017 rate restructuring. Each meter size is assigned a factor relative to the District’s smallest meter (5/8" × 3/4"), which has a value of 1. **Figure 13** details the equation used in **Table 26** to calculate the base charge for a 5/8" × 3/4" meter. The allocated cost of service is divided by the annual number of bills mailed for that meter size multiplied by its corresponding meter ratio.

$$\text{Base charge for } \frac{5}{8} \times \frac{3}{4} \text{ meter} = \frac{\$746,842}{(1.000 \times 14976) + (1.097 \times 1320) + (1.469 \times 13368) + (1.942 \times 384) + (3.157 \times 432) + (5.875 \times 120) + (7.393 \times 36) + (13.11 \times 12)} = \$20.02$$

**FIGURE 13 FIXED RATE EQUATION**

**TABLE 26 FIXED CHARGE DESIGN**

Meter Size	Meter Ratio	Base Charge	Reserve Replenishment	Proposed Water Service Charge	Number of Bills Mailed Annually	Estimated Revenue from Base Charge	Estimated Revenue from Reserve Replenishment	
<i>Residential/Commercial/Irrigation</i>								
5/8" × 3/4"	1.000	20.02	4.45	24.47	14,976	299,820	66,643	
3/4"	1.097	21.96	4.45	26.41	1,320	28,987	5,874	
1"	1.469	29.41	4.45	33.86	13,008	382,565	57,886	
1 1/2"	1.942	38.88	4.45	43.33	336	13,064	1,495	
2"	3.157	63.20	4.45	67.65	252	15,926	1,121	
3"	5.876	117.64	4.45	122.09	60	7,058	267	
4"	7.393	148.01	4.45	152.46	36	5,328	160	
6"	13.110	262.46	4.45	266.91	12	3,150	53	
<b>Estimated Total - Residential/Commercial/Irrigation</b>					<b>30,000</b>	<b>\$755,898</b>	<b>\$133,500</b>	
Meter Size	Meter Ratio	Proposed Water Service Charge	Apartment / Condominium Surcharge	Number of Dwelling Units	Number of Bills Mailed Annually	Estimated Revenue from Water Service Charge	Estimated Revenue from Surcharge	
<i>Bulk Residential</i>								
1"	1.469	29.41	4.45	116	360	10,588	6,194	
1 1/2"	1.942	38.88	4.45	49	48	1,866	2,617	
2"	3.157	63.20	4.45	233	180	11,376	12,442	
3"	5.876	117.64	4.45	96	60	7,058	5,126	
<b>Estimated Total - Bulk Residential</b>					<b>494</b>	<b>648</b>	<b>\$30,888</b>	<b>\$26,380</b>
<b>Estimated Total Revenue</b>						<b>\$786,787</b>	<b>\$159,880</b>	
Allocated Cost of Service						\$786,842		
Difference							(\$55)	

Residential, Commercial, School, and Irrigation accounts are billed a monthly service charge equal to the base rate plus the reserve replenishment charge for one dwelling unit. Bulk-Residential accounts are billed a monthly service charge plus the reserve replenishment charge for each dwelling unit on that meter. For example, an 11-unit condominium building with a 2" meter currently pays \$96.20 per month (base charge of \$49.56 + the replenishment charge of \$4.24 × 11). Their new rate would be \$112.15 (\$63.20 + (4.45 × 11)). An increase of \$1.45 per dwelling unit per month.

## Proposed Water Rates

To meet the revenue requirements detailed in the **Revenue Requirements** section, District staff is recommending adjusting the variable and fixed rates as calculated in **Table 25** and **Table 26**. The proposed water rates detailed in **Table 27** for the next three years maintain the same structure as previously adopted with updated rates as calculated. It is recommended that the new rates take effect in January 2024, January 2025, and January 2026.

**TABLE 27 PROPOSED WATER RATES - THREE-YEAR IMPLEMENTATION**

Effective Date	Current	Proposed Rates					
	January 2018	January 2024		January 2025		January 2026	
<b>Water Usage Rate (per ccf)</b> (see Table 25)							
1st tier (1 - 10 ccf)	1.83	2.14	17%	2.23	4%	2.32	4%
2nd tier (11 - 17 ccf)	2.75	3.85	40%	4.01	4%	4.18	4%
<b>Water Service Charge</b> (see Table 26)							
<i>Residential and Commercial</i>							
5/8" × 3/4"	17.04	24.47	44%	25.49	4%	26.56	4%
3/4"	18.69	26.41	41%	27.51	4%	28.66	4%
1"	25.03	33.86	35%	35.26	4%	36.72	4%
1 1/2"	33.09	43.33	31%	45.11	4%	46.97	4%
2"	53.80	67.65	26%	70.40	4%	73.27	4%
3"	100.12	122.09	22%	127.02	4%	132.15	4%
4"	125.98	152.46	21%	158.60	4%	165.00	4%
6"	223.40	266.91	19%	277.63	4%	288.79	4%
<i>Reserve Replenishment (included in service charge)</i>							
	4.24	4.45	5%	4.67	5%	4.91	5%
<i>Bulk-Metered Residential (apartment/condominium)</i>							
1"	20.79	29.41	41%	30.59	4%	31.81	4%
1 1/2"	28.85	38.88	35%	40.44	4%	42.06	4%
2"	49.56	63.20	28%	65.73	4%	68.36	4%
3"	95.88	117.64	23%	122.35	4%	127.24	4%
<i>Apartment Surcharge (per dwelling unit)</i>							
	4.24	4.45	5%	4.67	5%	4.91	5%
<i>Condominium Surcharge (per dwelling unit)</i>							
	4.24	4.45	5%	4.67	5%	4.91	5%

## Projected Revenues

**Table 28** illustrates the projected revenues to be collected from the proposed fixed and variable charges and the resulting reserve contribution factor. The calculations assume an effective date of January for each fiscal year. Therefore, the fiscal year revenues represent six months at the old rate and six months at the proposed rate for that period. The first year still shows a budget deficit but overall results in a reserve contribution factor of eight percent.



**TABLE 28 PROJECTED REVENUES**

	<b>Current</b>	<b>FY 2023-2024</b>	<b>FY 2024-2025</b>	<b>FY 2025-2026</b>
<b>Fixed Charges</b>				
Residential	476,720	590,724	719,856	749,638
Commercial	25,870	30,047	34,909	36,306
Bulk Metered	23,530	27,209	31,507	32,768
School	5,241	5,789	6,464	6,723
Irrigation	8,319	9,464	10,823	11,256
Fire Sprinkler	924	1,014	1,104	1,104
Reserve Replenishment	150,760	155,320	163,961	172,243
	<b>691,364</b>	<b>819,567</b>	<b>968,624</b>	<b>1,010,038</b>
<b>Variable Charges</b>				
Residential	748,870	851,548	966,965	999,890
Commercial	96,720	99,940	115,657	130,803
Bulk Metered	76,820	88,752	104,991	111,602
School	109,138	119,132	133,567	140,802
Irrigation	44,582	48,923	53,392	54,600
	<b>1,076,130</b>	<b>1,208,295</b>	<b>1,374,573</b>	<b>1,437,698</b>
Operating Revenue	<b>1,767,494</b>	<b>2,027,862</b>	<b>2,343,197</b>	<b>2,447,736</b>
Operating Expenses (including depreciation)	<b>2,120,867</b>	<b>2,120,867</b>	<b>2,205,702</b>	<b>2,293,930</b>
<b>Net Income (Loss) from Operations</b>	<b>(353,373)</b>	<b>(93,005)</b>	<b>137,495</b>	<b>153,806</b>
Depreciation Contribution	250,000	250,000	260,000	270,400
<b>Reserve Contribution</b>	<b>(103,373)</b>	<b>156,995</b>	<b>397,495</b>	<b>424,206</b>
<b>Reserve Contribution Factor</b>	<b>-6%</b>	<b>8%</b>	<b>20%</b>	<b>21%</b>

## Customer Impact

Table 29, Table 30, and Table 31 illustrate the impact of the proposed rates on the “Average Residential Customer” who has a summer usage of 17 units of water with a 1" meter for the next three years.

**TABLE 29 BILL COMPARISON FOR AN AVERAGE RESIDENTIAL CUSTOMER - EFFECTIVE JANUARY 2024**

		<b>Current</b>	<b>Proposed</b>	<b>\$ Change</b>	<b>% Change</b>
Usage - 1st tier	1 - 10 ccf	18.30	21.40	3.10	16.9%
Usage - 2nd tier	11 - 17 ccf	19.25	26.95	7.70	40.0%
Water Service Charge	1"	25.03	33.86	8.83	35.3%
	<b>Water Only Total</b>	<b>\$62.58</b>	<b>\$82.21</b>	<b>\$19.63</b>	<b>31.4%</b>
Sewer Service Charge		45.55	45.55	0.00	0.0%
	<b>Sewer Only Total</b>	<b>\$45.55</b>	<b>\$45.55</b>	<b>\$0.00</b>	<b>0.0%</b>
	<b>Total Bill</b>	<b>\$108.13</b>	<b>\$127.76</b>	<b>\$19.63</b>	<b>18.2%</b>

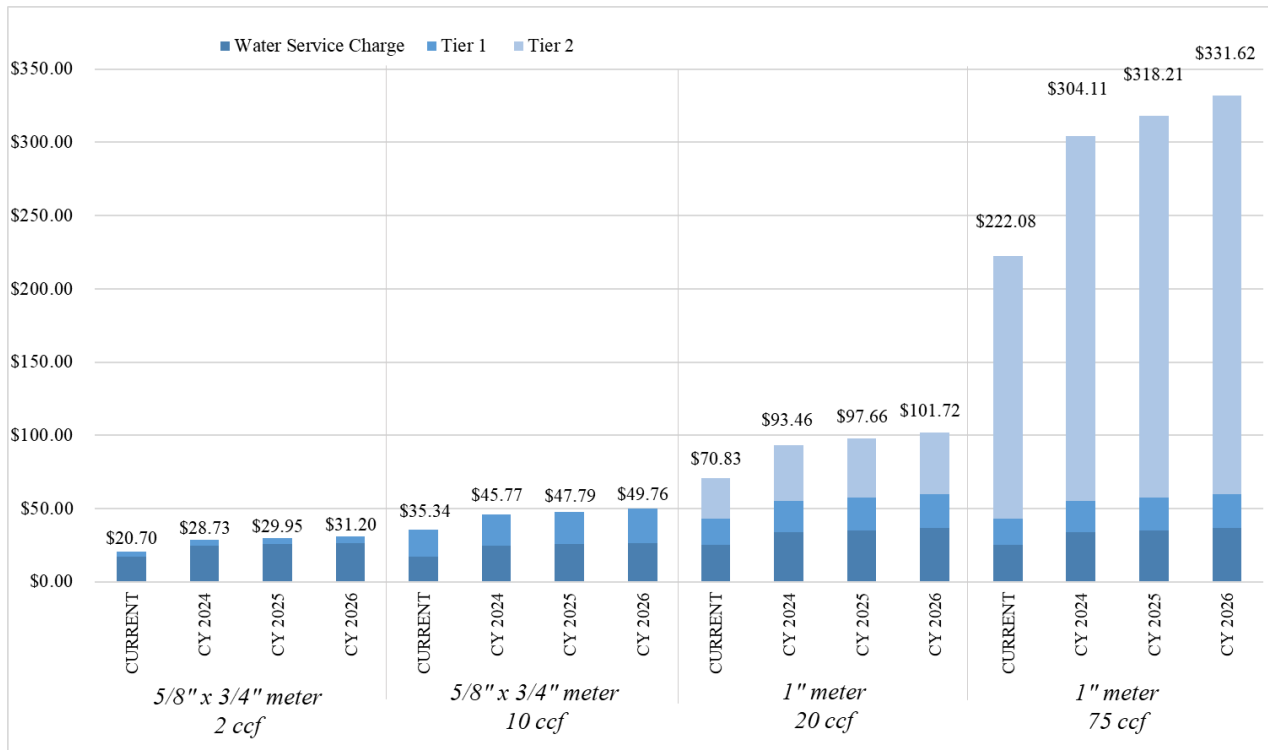
**TABLE 30 BILL COMPARISON FOR AN AVERAGE RESIDENTIAL CUSTOMER - EFFECTIVE JANUARY 2025**

		Current	Proposed	\$ Change	% Change
Usage - 1st tier	1 - 10 ccf	21.40	22.30	0.90	4.2%
Usage - 2nd tier	11 - 17 ccf	26.95	28.07	1.12	4.2%
Water Service Charge	1"	33.86	35.26	1.40	4.1%
	<b>Water Only Total</b>	<b>\$82.21</b>	<b>\$85.63</b>	<b>\$3.42</b>	<b>4.2%</b>
Sewer Service Charge		45.55	45.55	0.00	0.0%
	<b>Sewer Only Total</b>	<b>\$45.55</b>	<b>\$45.55</b>	<b>\$0.00</b>	<b>0.0%</b>
	<b>Total Bill</b>	<b>\$127.76</b>	<b>\$131.18</b>	<b>\$3.42</b>	<b>2.7%</b>

**TABLE 31 BILL COMPARISON FOR AN AVERAGE RESIDENTIAL CUSTOMER - EFFECTIVE JANUARY 2026**

		Current	Proposed	\$ Change	% Change
Usage - 1st tier	1 - 10 ccf	22.30	23.20	0.90	4.0%
Usage - 2nd tier	11 - 17 ccf	28.07	29.26	1.19	4.2%
Water Service Charge	1"	35.26	36.72	1.46	4.1%
	<b>Water Only Total</b>	<b>\$85.63</b>	<b>\$89.18</b>	<b>\$3.55</b>	<b>4.1%</b>
Sewer Service Charge		45.55	45.55	0.00	0.0%
	<b>Sewer Only Total</b>	<b>\$45.55</b>	<b>\$45.55</b>	<b>\$0.00</b>	<b>0.0%</b>
	<b>Total Bill</b>	<b>\$131.18</b>	<b>\$134.73</b>	<b>\$3.55</b>	<b>2.7%</b>

Residential customers with 5/8" x 3/4" and 1" meters make up 90 percent of the District’s customer base. The four scenarios illustrated in **Figure 14** represent the most common levels of water usage for those meter sizes and the impact the proposed rates will have on those customers.



**FIGURE 14 BILL COMPARISON**

## Affordability

The Environmental Protection Agency has set a threshold equal to 2.5 percent of median household income as affordability criteria for combined water and wastewater bills (American Water Works Association, 2021; United States Environmental Protection Agency, 2023). The Median Household Income for Vandenberg Village is \$95,747. This sets the affordability threshold at \$199.47 per household. **Figure 15** details the equation for calculating the affordability threshold.

$$\frac{\$95,747 \times 2.5\%}{12} = \$199.47$$

**FIGURE 15 AFFORDABILITY EQUATION**

Using the State Water Resources Control Board affordability measure of six hundred cubic feet (6 ccf) (State Water Resources Control Board, 2022) and the VVCSD average of 17 ccf to calculate the affordability threshold for the 2024 rates, **Table 32** illustrates that the proposed rates for January 2024 are below the affordability threshold for all residential customers.

**TABLE 32 AFFORDABILITY COMPARISON**

					Percent of MHI
Median Household Income (MHI) – Vandenberg Village					\$95,747
Affordability Threshold – Vandenberg Village					\$199.47 <b>2.50%</b>
Estimated Water and Wastewater Bill	Water Usage	Water Service	Sewer Service	Total	
5/8" x 3/4" and 6 ccf water	12.84	24.47	45.55	\$82.86	<b>1.04%</b>
3/4" and 6 ccf water	12.84	26.41	45.55	\$84.80	<b>1.06%</b>
1" and 6 ccf water	12.84	33.86	45.55	\$92.25	<b>1.16%</b>
1 1/2" and 6 ccf water	12.84	43.33	45.55	\$101.72	<b>1.27%</b>
5/8" x 3/4" and 17 ccf water	48.35	24.47	45.55	\$118.37	<b>1.48%</b>
3/4" and 17 ccf water	48.35	26.41	45.55	\$120.31	<b>1.51%</b>
1" and 17 ccf water	48.35	33.86	45.55	\$127.76	<b>1.60%</b>
1 1/2" and 17 ccf water	48.35	43.33	45.55	\$137.23	<b>1.72%</b>

## Appendix A

### Rate Comparison

**TABLE 33 RATE COMPARISON – VVCSD, MHCSO, AND CITY OF LOMPOC**

	VVCSD Current	VVCSD Proposed	MHCSO Current	Lompoc Current
<b>Water Usage Rate (per ccf)</b>				
1st tier	1.83	2.14	2.44	4.33
2nd tier	2.75	3.85	2.71	4.63
3rd tier	--	--	4.06	5.53
<b>Water Service Charge</b>				
5/8" × 3/4"	17.04	24.47	--	36.06
3/4"	18.69	26.41	44.32	47.15
1"	25.03	33.86	45.86	69.31
1 1/2"	33.09	43.33	47.92	124.72
2"	53.80	67.65	53.57	191.22
3"	100.12	122.09	95.21	346.37
4"	125.98	152.46	110.64	568.02
6"	223.40	266.91	--	1,122.15

### Bill Comparison

**Table 34** and **Table 35** illustrate what District customers would pay should the rates equal those charged by Mission Hills CSD or the City of Lompoc as detailed in **Table 33**. Although the rates charged by the City of Lompoc are much higher than are necessary for the District’s budget, the current rates for Mission Hills CSD are comparable to the rates required to meet our budgeted expenses.

**TABLE 34 BILL COMPARISON – VVCSD VS MHCSO**

		VVCSD Proposed Rate	MHCSO Rate	\$ Difference	% Difference
Usage - 1st tier	1 - 10 ccf	21.40	23.10	1.70	7.9%
Usage - 2nd tier	11 - 17 ccf	26.95	17.99	(8.96)	-33.2%
Water Service Charge	1"	33.86	43.26	9.40	27.8%
<b>Water Total</b>		<b>82.21</b>	<b>84.35</b>	<b>\$2.14</b>	<b>2.6%</b>

**TABLE 35 BILL COMPARISON – VVCSD VS CITY OF LOMPOC**

		VVCSD Proposed Rate	Lompoc Rate	\$ Difference	% Difference
Usage - 1st tier	1 - 10 ccf	21.40	61.30	39.90	186.4%
Usage - 2nd tier	11 - 17 ccf	26.95	45.92	18.97	70.4%
Water Service Charge	1"	33.86	79.50	45.64	134.8%
<b>Water Total</b>		<b>\$82.21</b>	<b>\$186.72</b>	<b>\$104.51</b>	<b>127.1%</b>

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## Appendix B

### VVCSD Water Rate History

	1/5/2018 Ordinance 4		7/1/2015 Ordinance 4		7/1/2014 Ordinance 4	
<b>Water Service Charge</b>						
5/8" × 3/4"	\$17.04	(31.6%)	\$24.92	4.8%	\$23.78	4.8%
3/4"	\$18.69	(29.0%)	\$26.34	4.8%	\$25.13	4.8%
1"	\$25.03	(21.3%)	\$31.81	4.8%	\$30.35	4.8%
1 1/2"	\$33.09	(14.6%)	\$38.76	4.8%	\$36.98	4.8%
2"	\$53.80	(5.0%)	\$56.61	4.8%	\$54.02	4.8%
3"	\$100.12	3.7%	\$96.54	4.8%	\$92.12	4.8%
4"	\$125.98	6.0%	\$118.84	4.8%	\$113.40	4.8%
6"	\$223.40	10.1%	\$202.82	4.8%	\$193.53	4.8%
8"	\$311.29	11.7%	\$278.59	4.8%	\$265.83	4.8%
10"	\$386.15	12.5%	\$343.13	4.8%	\$327.41	4.8%
<b>Water Service Charge - Bulk Residential</b>						
5/8" × 3/4"	\$12.80	(12.9%)	\$14.69	4.8%	\$14.02	4.8%
3/4"	\$14.45	(10.3%)	\$16.11	4.8%	\$15.37	4.8%
1"	\$20.79	(3.7%)	\$21.58	4.8%	\$20.59	4.8%
1 1/2"	\$28.85	1.1%	\$28.53	4.8%	\$27.22	4.8%
2"	\$49.56	6.9%	\$46.38	4.8%	\$44.26	4.8%
3"	\$95.88	11.1%	\$86.31	4.8%	\$82.36	4.8%
4"	\$121.74	12.1%	\$108.61	4.8%	\$103.64	4.8%
6"	\$219.16	13.8%	\$192.59	4.8%	\$183.77	4.8%
8"	\$307.05	14.4%	\$268.36	4.8%	\$256.07	4.8%
10"	\$381.91	14.7%	\$332.90	4.8%	\$317.65	4.8%
Apartment surcharge	\$4.24	(48.2%)	\$8.19	4.8%	\$7.81	4.8%
Condominium surcharge	\$4.24	(56.4%)	\$9.72	4.8%	\$9.28	4.8%
<b>Water Usage Rates</b>						
1-3 ccf	—		—		—	
+3 ccf	—		—		—	
1-10 ccf	—		—		—	
11-17 ccf	—		—		—	
17+ ccf	—		—		—	
1-10 ccf	\$1.83	33.6%	\$1.37	4.6%	\$1.31	4.8%
11-17 ccf	\$2.75	74.1%	\$1.58	5.3%	\$1.50	4.9%
17-49 ccf	\$2.75	54.5%	\$1.78	4.7%	\$1.70	4.9%
over 50 ccf	\$2.75	0.4%	\$2.74	5.0%	\$2.61	4.8%

	<b>7/5/2013</b>		<b>6/3/2008</b>		<b>6/5/2007</b>	
	<b>Ordinance 4</b>		<b>Amendment 8 to Ordinance 26</b>		<b>Amendment 6 to Ordinance 26</b>	
<b>Water Service Charge</b>						
5/8" × 3/4"	\$22.70	4.8%	\$21.66	3%	\$21.11	(10%)
3/4"	\$23.99	4.8%	\$22.89	3%	\$22.30	(10%)
1"	\$28.97	4.8%	\$27.63	3%	\$26.88	(8%)
1 1/2"	\$35.29	4.8%	\$33.66	3%	\$32.71	(7%)
2"	\$51.55	4.8%	\$49.19	3%	\$47.71	(4%)
3"	\$87.91	4.8%	\$83.87	3%	\$81.22	(2%)
4"	\$108.21	4.8%	\$103.25	3%	\$99.94	(2%)
6"	\$184.67	4.8%	\$176.20	3%	\$170.43	(0%)
8"	\$253.66	4.8%	\$242.04	3%	\$234.04	0%
10"	\$312.42	4.8%	\$298.10	3%	\$288.21	0%
<b>Water Service Charge - Bulk Residential</b>						
5/8" × 3/4"	\$13.38	4.8%	\$12.77	3%	\$12.34	1%
3/4"	\$14.67	4.8%	\$14.00	3%	\$13.53	1%
1"	\$19.65	4.8%	\$18.75	4%	\$18.11	1%
1 1/2"	\$25.97	4.8%	\$24.78	4%	\$23.94	1%
2"	\$42.23	4.8%	\$40.30	3%	\$38.94	1%
3"	\$78.59	4.8%	\$74.99	4%	\$72.45	1%
4"	\$98.89	4.8%	\$94.36	3%	\$91.17	1%
6"	\$175.35	4.8%	\$167.32	4%	\$161.66	1%
8"	\$244.34	4.8%	\$233.15	3%	\$225.27	1%
10"	\$303.10	4.8%	\$289.22	3%	\$279.44	1%
Apartment surcharge	\$7.45	4.8%	\$7.11	1%	\$7.02	(23%)
Condominium surcharge	\$8.85	4.9%	\$8.44	1%	\$8.33	(23%)
<b>Water Usage Rates</b>						
1-3 ccf	—		—		—	
+3 ccf	—		—		—	
1-10 ccf	—		\$1.19	3%	\$1.15	14%
11-17 ccf	—		\$1.37	7%	\$1.28	13%
17+ ccf	—		\$1.55	8%	\$1.43	13%
1-10 ccf	\$1.25	5.0%	—		—	
11-17 ccf	\$1.43	4.4%	—		—	
17-49 ccf	\$1.62	4.5%	—		—	
over 50 ccf	\$2.49	4.6%	—		—	

	<b>6/6/2006</b>		<b>10/4/2005</b>		<b>6/1/2004</b>	
	<b>Amendment 5 to</b>		<b>Amendment 3 to</b>		<b>Ordinance 26</b>	
	<b>Ordinance 26</b>		<b>Ordinance 26</b>			
<b>Water Service Charge</b>						
5/8" × 3/4"	\$23.56	7%	\$22.02	107%	\$10.66	17%
3/4"	\$24.73	7%	\$23.11	97%	\$11.75	16%
1"	\$29.27	7%	\$27.35	71%	\$15.99	16%
1 1/2"	\$35.02	7%	\$32.73	53%	\$21.37	16%
2"	\$49.85	7%	\$46.59	32%	\$35.23	17%
3"	\$82.97	7%	\$77.54	17%	\$66.18	16%
4"	\$101.48	7%	\$94.84	14%	\$83.48	16%
6"	\$171.15	7%	\$159.95	8%	\$148.59	17%
8"	\$234.03	7%	\$218.72	5%	\$207.36	17%
10"	\$287.57	7%	\$268.76	4%	\$257.40	17%
<b>Water Service Charge - Bulk Residential</b>						
5/8" × 3/4"	\$12.20	14%	—		—	
3/4"	\$13.37	14%	—		—	
1"	\$17.90	12%	—		—	
1 1/2"	\$23.66	11%	—		—	
2"	\$38.49	9%	—		—	
3"	\$71.61	8%	—		—	
4"	\$90.12	8%	—		—	
6"	\$159.79	8%	—		—	
8"	\$222.67	7%	—		—	
10"	\$276.21	7%	—		—	
Apartment surcharge	\$9.09	0%	—		—	
Condominium surcharge	\$10.79	0%	—		—	
<b>Water Usage Rates</b>						
1-3 ccf	—		—		—	
+3 ccf	—		—		—	
1-10 ccf	\$1.01	7%	\$0.94	0%	\$0.94	21%
11-17 ccf	\$1.13	7%	\$1.06	0%	\$1.06	20%
17+ ccf	\$1.26	7%	\$1.18	0%	\$1.18	20%
<b>Water Bond Charge (per dwelling unit)</b>						
Residential	—		—		\$11.36	0%
Apartments	—		—		\$9.09	0%
Condominiums	—		—		\$10.79	0%



	<b>6/3/2003</b>		<b>6/5/2001</b>		<b>6/6/1996</b>	
	<b>Amendment 2 to</b>		<b>Ordinance 24</b>		<b>Ordinance 20</b>	
	<b>Ordinance 24</b>					
<b>Water Service Charge</b>						
5/8" × 3/4"	\$9.15	6%	\$8.65	(19%)	\$10.65	0%
3/4"	\$10.09	6%	\$9.54	(19%)	\$11.72	0%
1"	\$13.73	6%	\$12.98	(19%)	\$15.98	0%
1 1/2"	\$18.35	6%	\$17.35	(19%)	\$21.36	0%
2"	\$30.24	6%	\$28.60	0%	\$28.60	0%
3"	\$56.81	6%	\$53.72	0%	\$53.72	0%
4"	\$71.66	0%	\$71.66	0%	\$71.66	0%
6"	\$127.54	6%	\$120.61	0%	\$120.61	0%
8"	\$177.99	0%	\$177.99	0%	\$177.99	0%
10"	\$220.94	0%	\$220.94	0%	\$220.94	0%
<b>Water Usage Rates</b>						
1-3 ccf	—		—		—	
+3 ccf	—		—		—	
1-10 ccf	\$0.78	4%	\$0.75	0%	\$0.75	(18%)
11-17 ccf	\$0.88	4%	\$0.85	0%	\$0.85	(23%)
17+ ccf	\$0.98	3%	\$0.95	0%	\$0.95	(17%)
<b>Water Bond Charge (per dwelling unit)</b>						
Residential	\$11.36	0%	\$11.36	0%	\$11.36	(9%)
Apartments	\$9.09	0%	\$9.09	0%	\$9.09	(27%)
Condominiums	\$10.79	0%	\$10.79	0%	\$10.79	(13%)

	6/1/1995 Resolution 117		7/7/1994 Ordinance 19		7/16/1992 Ordinance 12		4/1/1990 Ordinance 4
<b>Water Service Charge</b>							
5/8" × 3/4"	\$10.65	0%	\$10.65	4%	\$10.26	8%	\$9.50
3/4"	\$11.72	0%	\$11.72	4%	\$11.29	8%	\$10.45
1"	\$15.98	0%	\$15.98	4%	\$15.39	8%	\$14.25
1 1/2"	\$21.36	0%	\$21.36	4%	\$20.57	8%	\$19.05
2"	\$28.60	0%	\$28.60	4%	\$27.54	8%	\$25.50
3"	\$53.72	0%	\$53.72	4%	\$51.73	8%	\$47.90
4"	\$71.66	0%	\$71.66	4%	\$69.01	8%	\$63.90
6"	\$120.61	0%	\$120.61	4%	\$116.15	8%	\$107.55
8"	\$177.99	0%	\$177.99	4%	\$171.40	8%	\$158.70
10"	\$220.94	0%	\$220.94	4%	\$212.76	8%	\$197.00
<b>Water Usage Rates</b>							
1-3 ccf	–		\$1.11	4%	\$1.07	8%	\$0.99
+3 ccf	–		\$1.34	4%	\$1.29	8%	\$1.19
1-10 ccf	\$0.91	(44%)	–		–		–
11-17 ccf	\$1.10	(37%)	–		–		–
17+ ccf	\$1.15	(29%)	–		–		–
<b>Water Bond Charge (per dwelling unit)</b>							
Residential	\$12.45	127%	\$5.00	0%	\$5.00	0%	\$5.00
Apartments	\$12.45	98%	\$4.59		–		–
Condominiums	\$12.45	135%	\$4.59		–		–

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