Public Hearing
April 11, 2022

Water Cost-of-Service Rate Study

LIVERMORE
CALIFORNIA

IB CONSULTING

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Executive Summary

The City of Livermore (City) periodically reviews its rates to determine if adjustments are required to continue meeting its operational costs, system improvements, and to adequately fund reserves based on adopted reserve policies. The last cost-of-service study in 2017 set rates for Fiscal Year (FY) 2018 through FY 2022. With the City at the end of its previously noticed rates, the City hired IB Consulting to conduct a comprehensive cost-of-service water rate study. This study was developed using industry recognized water rate setting principles and the base-extra capacity methodology outlined in the American Water Works Association (AWWA) M1 Manual (Base-Extra Capacity Methodology). In addition, this Report provides a basis for developing and implementing water rates which are cost-based, equitable and in compliance with the requirements of California Constitution Article XIII D, section 6 (Proposition 218).

The City's Municipal Code (Municipal Code) also includes a Water Conservation Contingency Plan (Chapter 13.26) with six different conservation stages reflecting reduced water usage. The City Council may enact conservation surcharges during water shortage events to recover the appropriate amount of revenue to fund water system operations from a reduced volume of water sold. Therefore, conservation surcharges are included as Appendix A for each conservation stage.

This Report provides a proposed financial plan for the City's water utility from FY 2023 through FY 2027 (Financial Plan Period) and corresponding rates for each fiscal year.

Water Utility

Updating the water utility's long-term financial plan and performing a comprehensive cost-of-service analysis is a prudent business practice to ensure the City can fully fund its revenue needs through FY 2027 and beyond. As part of reviewing and updating water rates, the first step is to conduct a thorough review of the financial health of the City's water utility. Based on a financial review of the water utility, the City is in a strong financial position with a healthy reserve balance that currently exceeds the recommended target. The capital replacement reserves have built up because of reduced annual capital spending than planned. However, the previously planned capital still remains outstanding, and as the City continues to address ongoing capital repair and replacement, capital replacement reserves will be utilized as a funding source. Therefore, the proposed financial plan includes an increase in capital spending and the use of capital replacement reserves as a primary funding source over the next ten years. Using reserves coupled with annual rate revenue to fund capital replacement will minimize rate increases and draw down reserves over the Financial Plan Period.

The City's water rate structure includes a monthly fixed charge based on meter size and variable rates that differ by customer class. The City purchases water from Zone 7 Water Agency (Zone 7) and incurs annual fixed charges and variable costs based on total water purchased. Residential customers have a two-tiered rate structure. The Tier 1 allotment is seven hundred cubic feet (CCF), reflecting the minimum monthly winter usage as a proxy for indoor use as outdoor watering is minimal. The Tier 1 allotment is consistent with meeting State AB 1668 and SB 6060 efficiency targets to achieve 55 gallons per capita per day (gpcd) by 2023. Non-Residential, Irrigation, and Recycled customers have uniform rates.

The proposed rate structure is similar to the existing rate structure with a slight adjustment to Multi-Family Residential customers. Multi-Family Residential will switch from a two-tiered rate structure to a uniform rate. The change to the rate structure eliminates the need for the City to compile and keep track of dwelling units associated with each multi-family complex. In addition, certain multi-family complexes have multiple meters, which requires the City to assign the number of occupied dwelling units served by each meter.

The proposed financial plan within this Report projects revenue adjustments over the Financial Plan Period, with no adjustment in FY 2023 and 1% revenue adjustments each year for FY 2024 through FY 2027. Beyond the Financial Plan Period, the City will continue to use capital replacement reserves to fund a portion of its capital plan.

By adopting the proposed financial plan and approving rates through FY 2027, the utility will continue to generate positive net income above operating expenses, fully fund its capital projects and maintain healthy reserve balances. The 1% revenue adjustments over the Financial Plan Period, along with modest revenue adjustments between FY 2028 through FY 2031, will slowly increase annual rate revenue to cover capital spending as excess capital replacement reserves are used. This measured approach over the long term will mitigate future rate spikes and smooth out rate adjustments over multiple years.

The proposed rates have been incorporated into a Proposition 218 Notice and mailed to each customer. A Public Hearing is scheduled for April 11, 2022, on the proposed rates identified in Table 1 through Table 5. Table 2 and Table 5 identify the current Zone 7 charges, and the City will continue to pass-through[1] any increases by Zone 7 for FY 2023 through FY 2027. If there's not a majority protest, proposed rates for FY 2023 will go into effect on January 1, 2023, with subsequent adjustments occurring each January 1st thereafter.

[1] Government Code 53756 allows an agency to authorize automatic adjustments that pass-through increases or decreases in wholesale charges for water established by the outside agency.

Table 1: Proposed Monthly Fixed City Service Charges by Meter Size

Service Charges by Meter Size ($/Month)					
Meter Size	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
5/8"	$22.92	$23.40	$23.88	$24.37	$24.86
3/4"	$30.22	$30.89	$31.57	$32.26	$32.95
1" w/Fire	$22.92	$23.40	$23.88	$24.37	$24.86
1"	$44.81	$45.87	$46.94	$48.02	$49.12
1 1/2"	$81.28	$83.32	$85.38	$87.46	$89.56
1 1/2" T	$95.87	$98.30	$100.75	$103.23	$105.73
2"	$125.05	$128.26	$131.50	$134.77	$138.08
2" T	$146.94	$150.73	$154.56	$158.43	$162.34
3"	$325.67	$334.24	$342.90	$351.64	$360.47
4"	$555.46	$570.17	$585.03	$600.04	$615.20
6"	$1,175.53	$1,206.82	$1,238.42	$1,270.34	$1,302.58
8"	$2,050.93	$2,105.62	$2,160.86	$2,216.65	$2,273.00
10"	$3,072.23	$3,154.22	$3,237.03	$3,320.67	$3,405.14
12"	$3,874.68	$3,978.12	$4,082.59	$4,188.11	$4,294.68

Table 2: Proposed Monthly Zone 7 Fixed Charges [2]

Zone 7 Fixed Meter Charges ($/Month)					
Meter Size	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
5/8"	$24.41	FY 2023 Charge + Annual Pass-Throughs			
3/4"	$36.62	FY 2023 Charge + Annual Pass-Throughs			
1" w/Fire	$24.41	FY 2023 Charge + Annual Pass-Throughs			
1"	$61.03	FY 2023 Charge + Annual Pass-Throughs			
1 1/2"	$122.05	FY 2023 Charge + Annual Pass-Throughs			
1 1/2" T	$146.46	FY 2023 Charge + Annual Pass-Throughs			
2"	$195.28	FY 2023 Charge + Annual Pass-Throughs			
2" T	$231.90	FY 2023 Charge + Annual Pass-Throughs			
3"	$530.92	FY 2023 Charge + Annual Pass-Throughs			
4"	$915.38	FY 2023 Charge + Annual Pass-Throughs			
6"	$1,952.80	FY 2023 Charge + Annual Pass-Throughs			
8"	$3,417.40	FY 2023 Charge + Annual Pass-Throughs			
10"	$5,126.10	FY 2023 Charge + Annual Pass-Throughs			
12"	$6,468.65	FY 2023 Charge + Annual Pass-Throughs			

Table 3: Proposed Dedicated Fire Line Charges

Fixed Dedicated Fire Line Charges ($/Month)					
Connection Size	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
5/8"	$1.27	$1.29	$1.31	$1.33	$1.35
3/4"	$1.52	$1.54	$1.56	$1.58	$1.60
1"	$2.02	$2.05	$2.08	$2.11	$2.14
1 1/2"	$3.03	$3.07	$3.11	$3.15	$3.19
2"	$4.04	$4.09	$4.14	$4.19	$4.24
3"	$6.06	$6.13	$6.20	$6.27	$6.34
4"	$8.08	$8.17	$8.26	$8.35	$8.44
6"	$12.12	$12.25	$12.38	$12.51	$12.64
8"	$16.16	$16.33	$16.50	$16.67	$16.84
10"	$20.20	$20.41	$20.62	$20.83	$21.04
12"	$24.24	$24.49	$24.74	$24.99	$25.24

[2] Zone 7 Fixed Charges shown in Table 2 are in currently in effect and applicable through December 2022. The Zone 7 Fixed Charges are subject to a pass-through from any adjustments by Zone 7 on January 1, 2023.

Table 4: Proposed City Distribution Rates

Distribution Rates ($/CCF)					
Customer Class	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Single-Family					
Tier 1	$1.35	$1.39	$1.43	$1.47	$1.51
Tier 2	$1.95	$2.00	$2.05	$2.10	$2.15
Multi-Family	$1.58	$1.62	$1.66	$1.70	$1.74
Non-Residential	$1.55	$1.59	$1.63	$1.67	$1.71
Irrigation	$1.76	$1.80	$1.84	$1.88	$1.92
Recycled	$2.74	$2.77	$2.80	$2.83	$2.86

Table 5: Proposed Zone 7 Variable Rates [3]

Zone 7 Variable Rates ($/CCF)					
Customer Class	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Single-Family					
Tier 1	$2.06	FY 2023 Charge + Annual Pass-Throughs			
Tier 2	$2.06	FY 2023 Charge + Annual Pass-Throughs			
Multi-Family	$2.06	FY 2023 Charge + Annual Pass-Throughs			
Non-Residential	$2.06	FY 2023 Charge + Annual Pass-Throughs			
Irrigation	$2.06	FY 2023 Charge + Annual Pass-Throughs			
Recycled	N/A	N/A	N/A	N/A	N/A

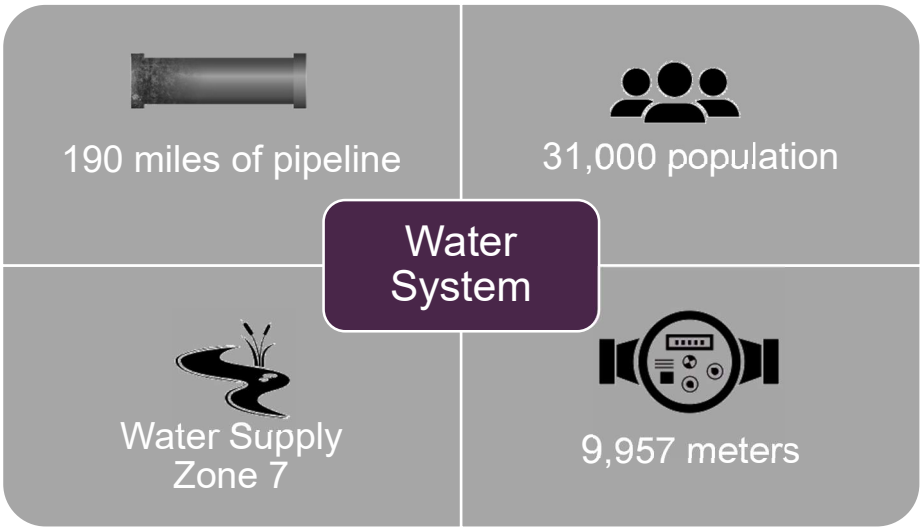
[3] Zone 7 Variable Rate shown in Table 5 are currently in effect and applicable through December 2022. The Zone 7 Variable Rate is subject to a pass-through from any adjustments by Zone 7 on January 1, 2023.

Water Enterprise

Water System

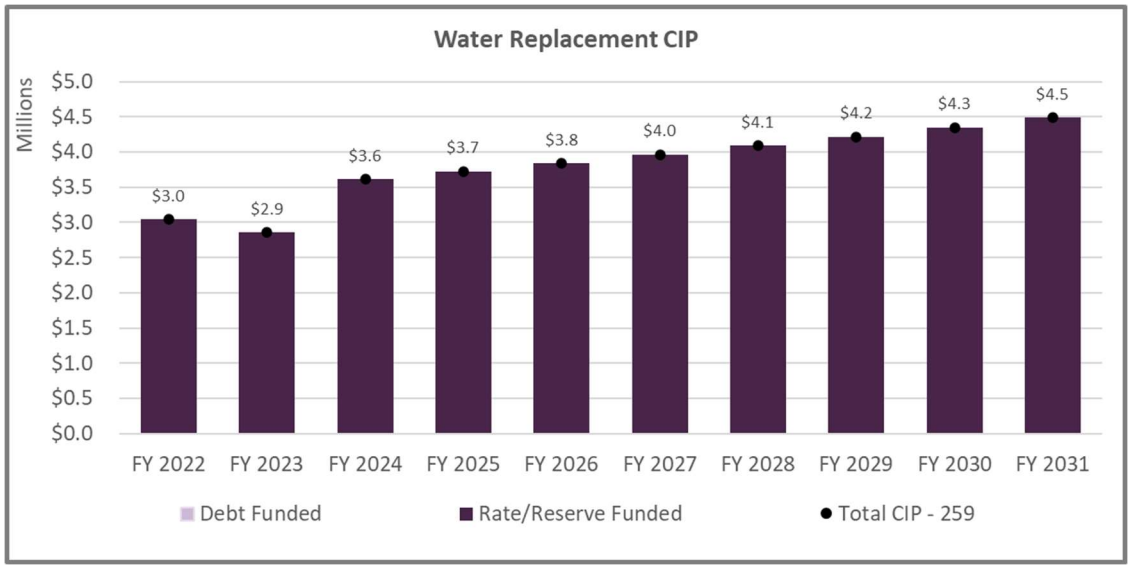
The City provides potable and recycled water service to portions of the City, located in the eastern part of Alameda County in the Tri-Valley. The City's water service area consists of three water service area zones: Zone 1 is west of Isabel Avenue and covers portions on both sides of the I-580 freeway; Zone 2 is on the eastern side of the City north of I-580; and Zone 3 is on the eastern side of the City, south of I-580. The remaining areas of the City are served by California Water Service Company (Cal Water). The City serves a population of around 31,000 residents through approximately 10,000 potable and recycled connections. The City receives all of its potable water from Zone 7. The water system spans approximately 190 miles of transmission and distribution lines ranging from 2" to 24" in diameter. Recycled water is produced by the City's Water Reclamation Plant and serves 15 business connections within Zone 1.

Figure 1: City of Livermore Water System



The City prepared an Asset Management Plan in 2016 (Asset Management Plan) and a Water Master Plan in 2017 (Master Plan). Through these two studies, the City developed a detailed Capital Improvement Plan (CIP) through FY 2025, with $3.5M in future years based on the Asset Management Plan. The City's average annual capital spending has been less than $3.5M, and capital replacement reserves have increased above the recommended target. Therefore, the City plans to draw down its capital replacement reserve as part of the proposed financial plan over the next 5-10 years. Figure 2 shows the City's capital plan through FY 2031.

Figure 2: Capital Improvement Plan



Customers

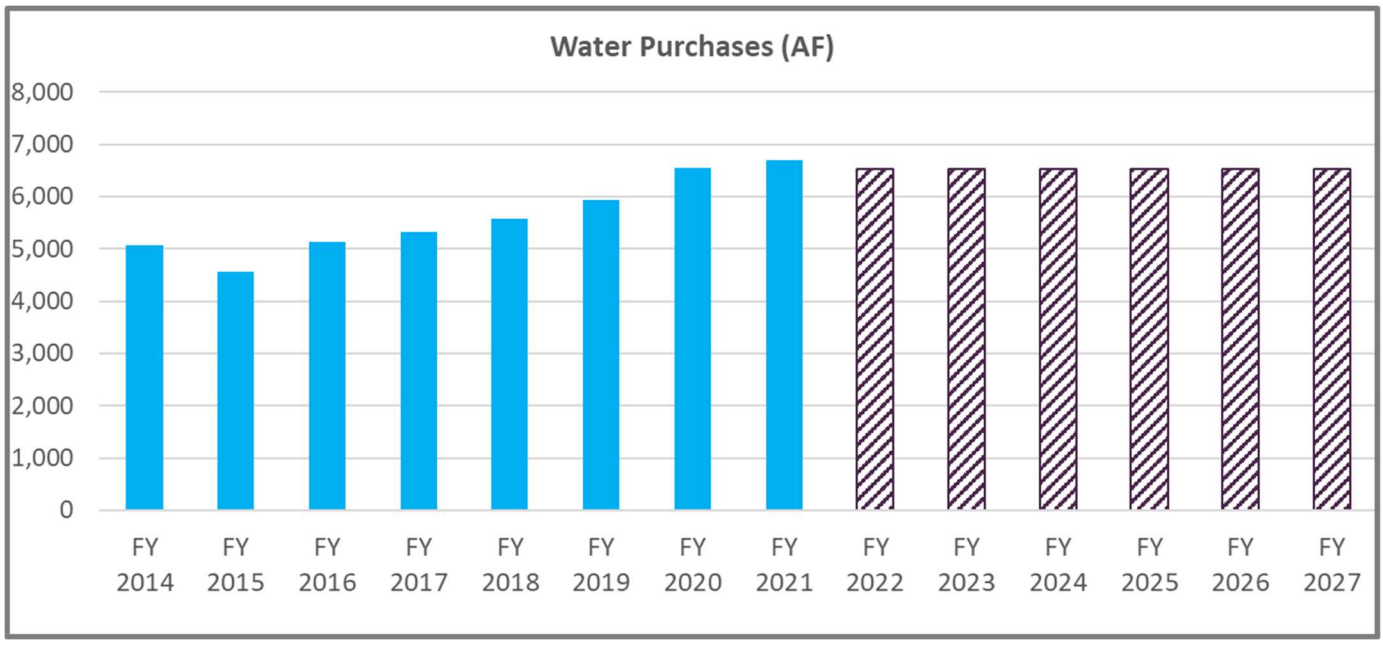
The City serves 9,957 meters, with approximately 87% of accounts classified as Residential. Table 6 provides a summary of meters by meter size.

Table 6: Meters by Meter Size

Meter Size	Number of Meters
5/8"	4,239
3/4"	102
1" w/Fire	4,482
1"	420
1 1/2"	219
1 1/2" T	105
2"	273
2" T	80
3"	28
4"	7
6"	1
8"	-
10"	-
12"	1
Total	9,957

In 2015 the State issued mandatory conservation requirements to combat the effects of the prolonged drought on California's water supplies. City customers responded by significantly reducing their water consumption. Since eliminating the mandatory conservation, sales have slowly rebounded through FY 2019. FY 2020 and FY 2021 were impacted by the COVID-19 pandemic with an increase in residential water usage from "stay-at-home orders" and a larger remote workforce. Figure 3 shows historical and projected purchased water in Acre-Feet (AF). For FY 2022 and beyond, a slight reduction from FY 2021 is assumed and equals 6,531 AF of purchased water.

Figure 3: Water Sales



As previously mentioned, the existing rate structure consists of a monthly fixed meter charge and variable rates that vary by customer class. Current monthly fixed charges are identified in Table 7 and Table 8, followed by variable rates shown in Table 9.

Table 7: FY 2022 Monthly Fixed Charges

Fixed Meter Charges ($/Month)		
Meter Size	City Service Charge	Zone 7 Fixed Charge
5/8"	$22.85	$24.40
3/4"	$30.46	$36.60
1" w/Fire	$22.85	$24.40
1"	$45.66	$61.00
1 1/2"	$83.68	$122.00
1 1/2" T	$98.89	$146.40
2"	$129.31	$195.20
2" T	$152.12	$231.80
3"	$338.42	$530.70
4"	$577.95	$915.00
6"	$1,224.29	$1,952.00
8"	$2,136.79	$3,416.00
10"	$3,201.35	$5,124.00
12"	$3,838.11	$6,466.00

Table 8: FY 2022 Monthly Fire Line Charges

Fire Line Charges ($/Month)	
Connection Size	Fixed Charge
1"	$2.82
1 1/2"	$4.23
2"	$5.63
3"	$8.44
4"	$11.25
6"	$16.86
8"	$22.48
10"	$28.08

Table 9: FY 2022 Variable Rates ($/CCF)

Variable Rates ($/CCF)		
Customer Class	City Distribution Rates	Zone 7 Variable Rate
Single-Family		
Tier 1	$1.25	$2.06
Tier 2	$1.74	$2.06
Multi-Family	$1.25	$2.06
Non-Residential	$1.35	$2.06
Irrigation	$1.74	$2.06
Recycled	$3.30	N/A

Financial Plan Overview

Financial Planning

Financial planning incorporates numerous considerations, including projecting revenues and forecasting expected costs using various inflationary adjustments. Utilities also need to account for changes in water demand driven by variations in weather, water availability, state mandates, growth, and economic factors. In addition, system maintenance and reinvestment, reserves, and debt compliance all influence the revenues needed in future years. Therefore, a comprehensive financial plan reviews the following:

1) Historical water sales and consumption patterns to determine an appropriate usage level for projecting future water demands.
2) Operational costs that may change over the planning period because of inflation and any new expenditures added to meet strategic goals, state mandates, or changes in operations.
3) Multi-year system improvement needs and scheduling based on priority. This review also considers available funding sources to complete projects such as pay-as-you-go (PAYGO), grants, loans, and debt financing.
4) Reserve funding to meet adopted reserve policies. The goal is to generate adequate cash on hand to mitigate financial risks related to operating cashflow needs, unexpected increases in expenses, shortages in system reinvestment, and mitigating potential system failures.

Figure 4 illustrates the key elements when developing a long-term financial plan.

Figure 4: Financial Plan Key Elements

Financial Planning Assumptions

Developing a long-term financial plan requires understanding the utility's financial position by evaluating existing revenue streams, ongoing expenses, how those expenses will change over time, existing debt requirements, and reserve policies. With these considerations, certain assumptions are required for projecting revenues, expenses, and expected ending fund balances. Through discussions with staff and their understanding of historical budget data and future obligations, Table 10 identifies assumptions used for forecasting revenues. Table 11 identifies assumptions used to forecast expense increases over the Financial Plan Period. Increases in purchased water are not assumed as the City will capture any increases or decreases from Zone 7 rate adjustments through a direct pass-through.

Table 10: Assumptions for Forecasting Revenues

Key Assumptions	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Revenue Escalation						
Non-Rate Revenues	0%	0%	0%	0%	0%	0%
Reserve Interest	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Account Growth	0%	0%	0%	0%	0%	0%
Water Sales (CCF)	2,860,942	2,860,942	2,860,942	2,860,942	2,860,942	2,860,942

Table 11: Assumptions for Forecasting Expense Requirements

Key Assumptions	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Expenditure Escalation						
Benefits	Budget	Budget	3.0%	3.0%	3.0%	3.0%
Capital Construction	Budget	Budget	3.2%	3.2%	3.2%	3.2%
Energy Costs	Budget	Budget	5.0%	5.0%	5.0%	5.0%
General Costs	Budget	Budget	2.4%	2.4%	2.4%	2.4%
Non-Inflated	Budget	Budget	0.0%	0.0%	0.0%	0.0%
Retirement - CalPers	Budget	Budget	3.0%	3.0%	3.0%	3.0%
Salaries	Budget	Budget	3.0%	3.0%	3.0%	3.0%
Water Purchases (Fixed)	Pass-Through					
Water Purchases (Variable)	Pass-Through					
Water Loss	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%

Current Financial Position

Revenues

Based on the forecasting assumptions, revenues were calculated using existing rates and account data, with projected total water sales shown in Table 10 as the baseline for usage. Table 12 shows the calculated rate revenues through the Financial Plan Period. The detailed calculations can be found in the rate model on file with the City. Table 13 summarizes calculated rate revenues and other non-rate revenues available through the Financial Plan Period with projections rounded to the nearest thousands.

Table 12: Calculated Rate Revenues

Fixed Revenues	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
City Fixed Charge						
Single-Family	$2,356,833	$2,356,833	$2,356,833	$2,356,833	$2,356,833	$2,356,833
Multi-Family	$218,427	$218,427	$218,427	$218,427	$218,427	$218,427
Non-Residential	$601,827	$601,827	$601,827	$601,827	$601,827	$601,827
Irrigation	$437,672	$437,672	$437,672	$437,672	$437,672	$437,672
Recycled	$181,123	$181,123	$181,123	$181,123	$181,123	$181,123
Total City Fixed Charge	$3,795,881	$3,795,881	$3,795,881	$3,795,881	$3,795,881	$3,795,881
Zone 7 Fixed Charge						
Single-Family	$2,301,264	$2,519,105	$2,519,105	$2,519,105	$2,519,105	$2,519,105
Multi-Family	$299,845	$328,229	$328,229	$328,229	$328,229	$328,229
Non-Residential	$803,310	$879,352	$879,352	$879,352	$879,352	$879,352
Irrigation	$574,413	$628,788	$628,788	$628,788	$628,788	$628,788
Recycled	$0	$0	$0	$0	$0	$0
Total Zone 7 Fixed Charge	$3,978,833	$4,355,473	$4,355,473	$4,355,473	$4,355,473	$4,355,473
Fireline Revenue	$144,916	$144,916	$144,916	$144,916	$144,916	$144,916

Variable Revenues	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
City Variable						
Single-Family						
Tier 1	$707,841	$707,841	$707,841	$707,841	$707,841	$707,841
Tier 2	$1,255,507	$1,255,507	$1,255,507	$1,255,507	$1,255,507	$1,255,507
Single-Family Variable Revenue	$1,963,349	$1,963,349	$1,963,349	$1,963,349	$1,963,349	$1,963,349
Multi-Family						
Tier 1	$14,129	$14,129	$14,129	$14,129	$14,129	$14,129
Tier 2	$325,556	$325,556	$325,556	$325,556	$325,556	$325,556
Multi-Family Variable Revenue	$339,684	$339,684	$339,684	$339,684	$339,684	$339,684
Non-Residential	$603,003	$603,003	$603,003	$603,003	$603,003	$603,003
Irrigation	$1,092,022	$1,092,022	$1,092,022	$1,092,022	$1,092,022	$1,092,022
Recycled	$991,455	$991,455	$991,455	$991,455	$991,455	$991,455
Total City Variable	$4,989,514	$4,989,514	$4,989,514	$4,989,514	$4,989,514	$4,989,514
Zone 7 Variable						
Single-Family						
Tier 1	$1,180,339	$1,166,522	$1,166,522	$1,166,522	$1,166,522	$1,166,522
Tier 2	$1,504,011	$1,486,405	$1,486,405	$1,486,405	$1,486,405	$1,486,405
Single-Family Variable Revenue	$2,684,351	$2,652,928	$2,652,928	$2,652,928	$2,652,928	$2,652,928
Multi-Family						
Tier 1	$23,560	$23,284	$23,284	$23,284	$23,284	$23,284
Tier 2	$389,993	$385,428	$385,428	$385,428	$385,428	$385,428
Multi-Family Variable Revenue	$413,553	$408,712	$408,712	$408,712	$408,712	$408,712
Non-Residential	$920,138	$920,138	$920,138	$920,138	$920,138	$920,138
Irrigation	$1,292,854	$1,292,854	$1,292,854	$1,292,854	$1,292,854	$1,292,854
Recycled	$0	$0	$0	$0	$0	$0
Total Zone 7 Variable	$5,310,896	$5,274,632	$5,274,632	$5,274,632	$5,274,632	$5,274,632
Total Rate Revenue	$18,220,039	$18,560,415	$18,560,415	$18,560,415	$18,560,415	$18,560,415

Table 13: Projected Revenues

Revenue Summary	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Rate Revenues						
City Fixed Charge	$3,796,000	$3,796,000	$3,796,000	$3,796,000	$3,796,000	$3,796,000
Zone 7 Fixed Charge	$3,979,000	$4,355,000	$4,355,000	$4,355,000	$4,355,000	$4,355,000
Fireline Revenue	$145,000	$145,000	$145,000	$145,000	$145,000	$145,000
City Variable	$4,990,000	$4,990,000	$4,990,000	$4,990,000	$4,990,000	$4,990,000
Zone 7 Variable	$5,311,000	$5,275,000	$5,275,000	$5,275,000	$5,275,000	$5,275,000
Subtotal Rate Revenues	$18,221,000	$18,561,000	$18,561,000	$18,561,000	$18,561,000	$18,561,000
Operating Revenues						
Sale Of Water Mtr-Taxabl	$28,000	$28,000	$28,000	$28,000	$28,000	$28,000
Misc Sales-Taxable	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000
Contract Recycled Revenue	$55,000	$55,000	$55,000	$55,000	$55,000	$55,000
Subtotal Operating Revenues	$88,000	$88,000	$88,000	$88,000	$88,000	$88,000
Other Revenues						
Interest Income (F250)	$44,000	$44,000	$27,000	$28,000	$28,000	$28,000
Cell Tower Rent	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000
Administrative Cost Rvry	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000
Miscellaneous Revenue	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000
Subtotal Other Revenues	$94,000	$94,000	$77,000	$78,000	$78,000	$78,000
Total Revenues	$18,403,000	$18,743,000	$18,726,000	$18,727,000	$18,727,000	$18,727,000

Expenses

The biennial FY 2022 / FY 2023 budget was used as the baseline expenses of the utility and adjusted in subsequent years based on the escalation factors shown in Table 11. Table 14 provides projected Operational & Maintenance (O&M) costs through FY 2027 with projections rounded to the nearest thousands. Each expense category includes detailed line-item expenditures that were discussed with staff to determine the appropriate escalation factor to use for forecasting how costs will increase over time. The price of purchased water is held constant because any increase will be captured through the pass-through provisions of Government Code section 53756.

Table 14: Projected O&M Expenses

O&M Expenses	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Purchased Water Costs						
Purchase of Water - Fixed	$3,975,000	$4,357,000	$4,357,000	$4,357,000	$4,357,000	$4,357,000
Purchase of Water - Variable	$5,337,000	$5,275,000	$5,275,000	$5,275,000	$5,275,000	$5,275,000
Purchased of Water - Water Loss	$593,000	$586,000	$586,000	$586,000	$586,000	$586,000
Subtotal Purchased Water Costs	$9,905,000	$10,218,000	$10,218,000	$10,218,000	$10,218,000	$10,218,000
Operating Expenses (250)						
Administrative & General	$3,069,000	$3,037,000	$3,116,000	$3,197,000	$3,280,000	$3,365,000
Water Pumping	$467,000	$386,000	$403,000	$422,000	$441,000	$462,000
Water Transmission & Distribution	$2,143,000	$2,071,000	$2,131,000	$2,193,000	$2,256,000	$2,322,000
Water Customer Accounts	$762,000	$773,000	$795,000	$817,000	$839,000	$862,000
Recycled Water	$81,000	$263,000	$275,000	$287,000	$299,000	$313,000
Subtotal Operating Expenses (250)	$6,522,000	$6,530,000	$6,720,000	$6,916,000	$7,115,000	$7,324,000
Total Expenses (before capital & capital-related debt)	$16,427,000	$16,748,000	$16,938,000	$17,134,000	$17,333,000	$17,542,000

Reserves

Figure 5: Water Utility Reserves

Established reserves include an Operating Fund and Capital Replacement Fund. These reserves help mitigate risks to the utility by ensuring sufficient cash is on hand for daily operations and to fund annual system improvements. In addition, these reserves help smooth rates and mitigate rate spikes due to emergencies or above-average system costs. Over the Financial Plan Period, the City plans to use capital replacement reserves to fund a portion of capital each year to keep rates as low as possible and draw down the Capital Replacement Fund to its recommended target. Table 15 summarizes each reserve's minimum reserve requirements and ideal funding targets.

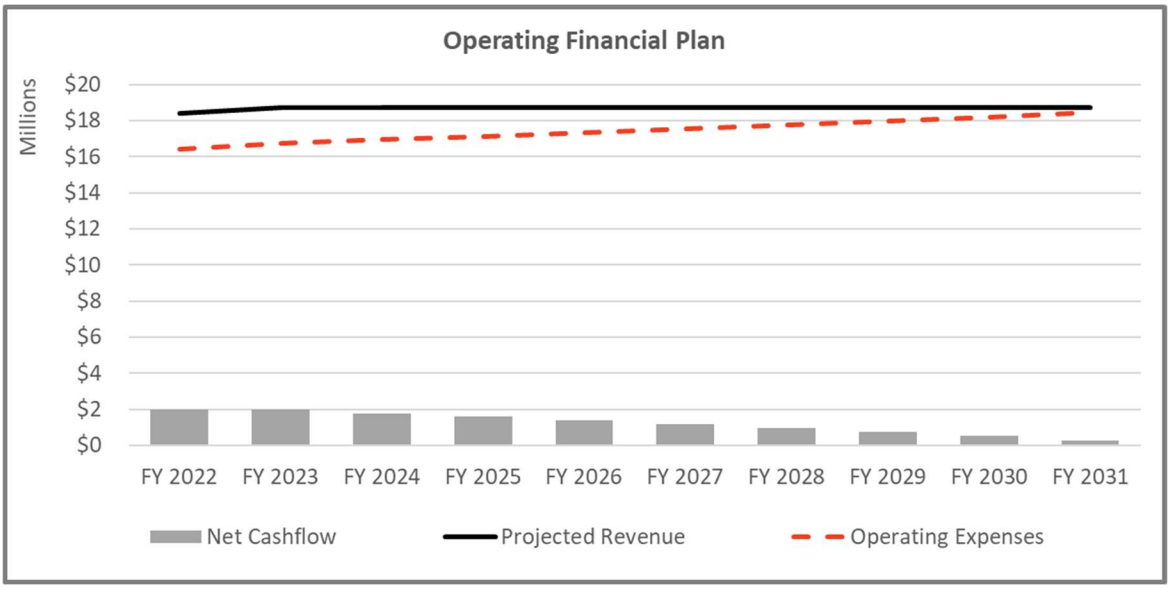
Table 15: Reserve Requirements and Targets

Reserve	Minimum Requirement	Reserve Target
Operating Fund	120 days of operating	180 days of operating
Capital Replacement Fund	2x annual depreciation	4x annual depreciation

Financial Outlook at Existing Rates

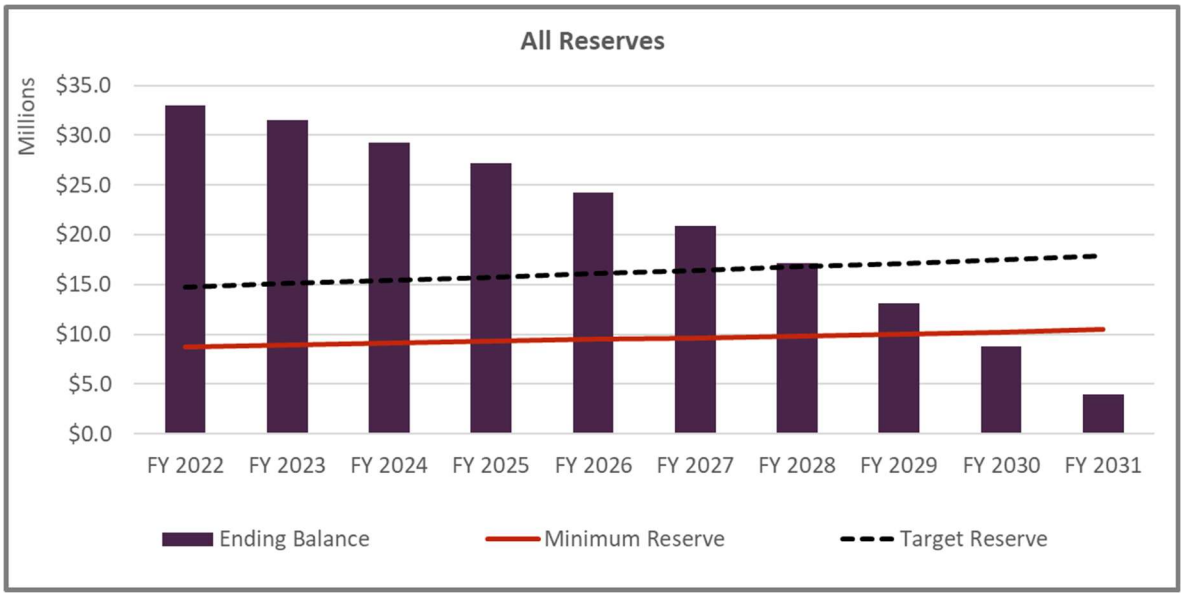
Calculating revenue using existing rates and projecting expenses helps determine the current financial health of the utility. Revenues from existing rates are sufficient to fund O&M and generate positive net operating income but continue to decline throughout the Financial Plan Period and beyond. Net operating income funds the utility's capital plan and reserves. However, the projected net operating income is not sufficient to fully fund capital on its own. As a result, reserves are needed to cover system reinvestment, which will be used over the Financial Plan Period, but is not sustainable long-term. Figure 6 illustrates the operating position of the utility, where O&M expenses are identified with the dashed red trendline, and the horizontal black trendline shows total revenues at existing rates. The bars represent the net operating income available for capital spending and reserve funding.

Figure 6: Current Operating Financial Position



With capital spending increasing each year, as shown in Figure 2, reserves will cover the remaining capital expenses to ensure necessary projects continue to move forward as scheduled. Figure 7 reflects the projected ending balances of reserves after funding operating and capital projects. By FY 2027, reserves are reduced to approximately $20.8M and fall below the minimum reserve requirement by FY 2030.

Figure 7: Projected Ending Reserves at Existing Rates



Proposed Financial Plan

From the financial outlook at existing rates, a proposed financial plan can be developed to fund the multi-year revenue requirements, while maintaining positive annual net operating income each year. The proposed financial plan generates approximately $1.5M in additional revenue over the Financial Plan Period. The additional revenue maintains a positive net operating income of at least $1.8M each year. However, annual net operating income is not enough to cover the utility's annual capital spending. Therefore, the proposed financial plan uses capital replacement reserves to fund a significant portion of planned capital. This approach minimizes rate increases and reduces the capital replacement reserve balance over time. Table 16 forecasts projected revenues and expenses through FY 2027.

Table 16: Proposed Financial Plan – Projected Reveues and Expenses Through FY 2027

Revenue	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Rate Revenues						
City Fixed Charge	$3,796,000	$3,796,000	$3,796,000	$3,796,000	$3,796,000	$3,796,000
Zone 7 Fixed Charge	$3,979,000	$4,355,000	$4,355,000	$4,355,000	$4,355,000	$4,355,000
Fireline Revenue	$145,000	$145,000	$145,000	$145,000	$145,000	$145,000
City Variable	$4,990,000	$4,990,000	$4,990,000	$4,990,000	$4,990,000	$4,990,000
Zone 7 Variable	$5,311,000	$5,275,000	$5,275,000	$5,275,000	$5,275,000	$5,275,000
Total Rate Revenues	**$18,221,000**	**$18,561,000**	**$18,561,000**	**$18,561,000**	**$18,561,000**	**$18,561,000**
Additional Revenue *(from revenue adjustments)*:						
Fiscal Year / Revenue Adjustment / Effective Month						
FY 2024 / 1.0% / January			$92,000	$185,000	$185,000	$185,000
FY 2025 / 1.0% / January				$93,000	$187,000	$187,000
FY 2026 / 1.0% / January					$94,000	$189,000
FY 2027 / 1.0% / January						$95,000
Total Additional Revenue	**$0**	**$0**	**$92,000**	**$278,000**	**$466,000**	**$656,000**
Projected Rate Revenues	**$18,221,000**	**$18,561,000**	**$18,653,000**	**$18,839,000**	**$19,027,000**	**$19,217,000**
Operating Revenues						
Sale Of Water Mtr-Taxabl	$28,000	$28,000	$28,000	$28,000	$28,000	$28,000
Misc Sales-Taxable	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000
Contract Recycled Revenue	$55,000	$55,000	$55,000	$55,000	$55,000	$55,000
Subtotal Operating Revenues	**$88,000**	**$88,000**	**$88,000**	**$88,000**	**$88,000**	**$88,000**
Other Revenues						
Interest Income (F250)	$44,000	$44,000	$27,000	$28,000	$28,000	$28,000
Cell Tower Rent	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000
Administrative Cost Rvry	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000
Miscellaneous Revenue	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000
Subtotal Other Revenues	**$94,000**	**$94,000**	**$77,000**	**$78,000**	**$78,000**	**$78,000**
Total Revenues	**$18,403,000**	**$18,743,000**	**$18,818,000**	**$19,005,000**	**$19,193,000**	**$19,383,000**

O&M Expenses	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Purchased Water Costs						
Purchase of Water - Fixed	$3,975,000	$4,357,000	$4,357,000	$4,357,000	$4,357,000	$4,357,000
Purchase of Water - Variable	$5,337,000	$5,275,000	$5,275,000	$5,275,000	$5,275,000	$5,275,000
Purchased of Water - Water Loss	$593,000	$586,000	$586,000	$586,000	$586,000	$586,000
Subtotal Purchased Water Costs	**$9,905,000**	**$10,218,000**	**$10,218,000**	**$10,218,000**	**$10,218,000**	**$10,218,000**
Operating Expenses (250)						
Administrative & General	$3,069,000	$3,037,000	$3,116,000	$3,197,000	$3,280,000	$3,365,000
Water Pumping	$467,000	$386,000	$403,000	$422,000	$441,000	$462,000
Water Transmission & Distribution	$2,143,000	$2,071,000	$2,131,000	$2,193,000	$2,256,000	$2,322,000
Water Customer Accounts	$762,000	$773,000	$795,000	$817,000	$839,000	$862,000
Recycled Water	$81,000	$263,000	$275,000	$287,000	$299,000	$313,000
Subtotal Operating Expenses (250)	**$6,522,000**	**$6,530,000**	**$6,720,000**	**$6,916,000**	**$7,115,000**	**$7,324,000**
Total Expenses (before capital & debt)	**$16,427,000**	**$16,748,000**	**$16,938,000**	**$17,134,000**	**$17,333,000**	**$17,542,000**
Net Cashflow	**$1,976,000**	**$1,995,000**	**$1,880,000**	**$1,871,000**	**$1,860,000**	**$1,841,000**

Figure 8 through Figure 10 extends beyond the Financial Plan Period and spans a ten-year outlook to show how the combination of revenue adjustments and the use of capital replacement reserves reduces the current reserve balance down to within the City's reserve requirements. For FY 2028 through FY 2031, 3% revenue adjustments are assumed but may not be adopted by City Council at that time and will be confirmed/updated as part of the next cost-of-service study. Figure 8 identifies the operating position based on the proposed financial plan, and Figure 9 and Figure 10 show the capital plan with funding sources and projected ending reserve balances, respectively.

Figure 8: Proposed Operating Position

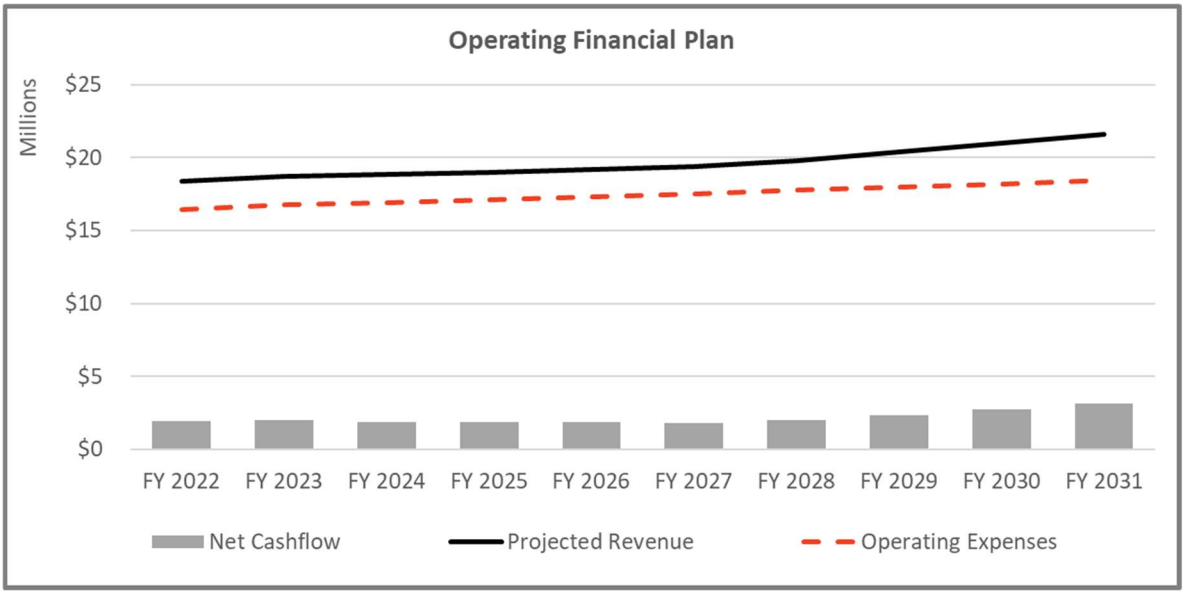


Figure 9: Capital Improvement Plan with Funding Sources

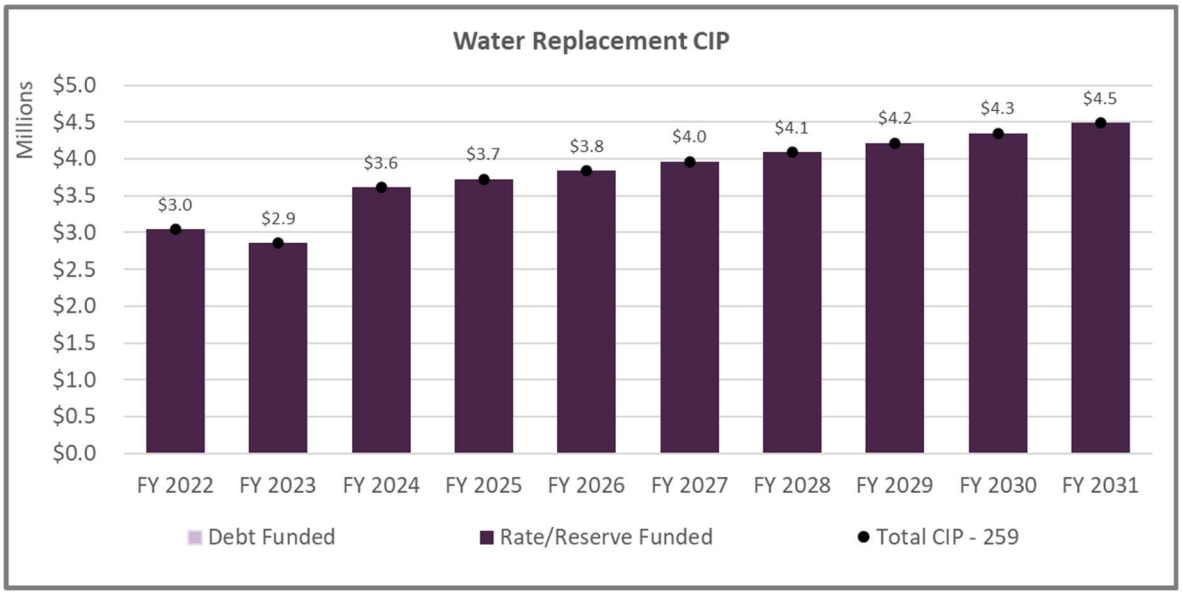
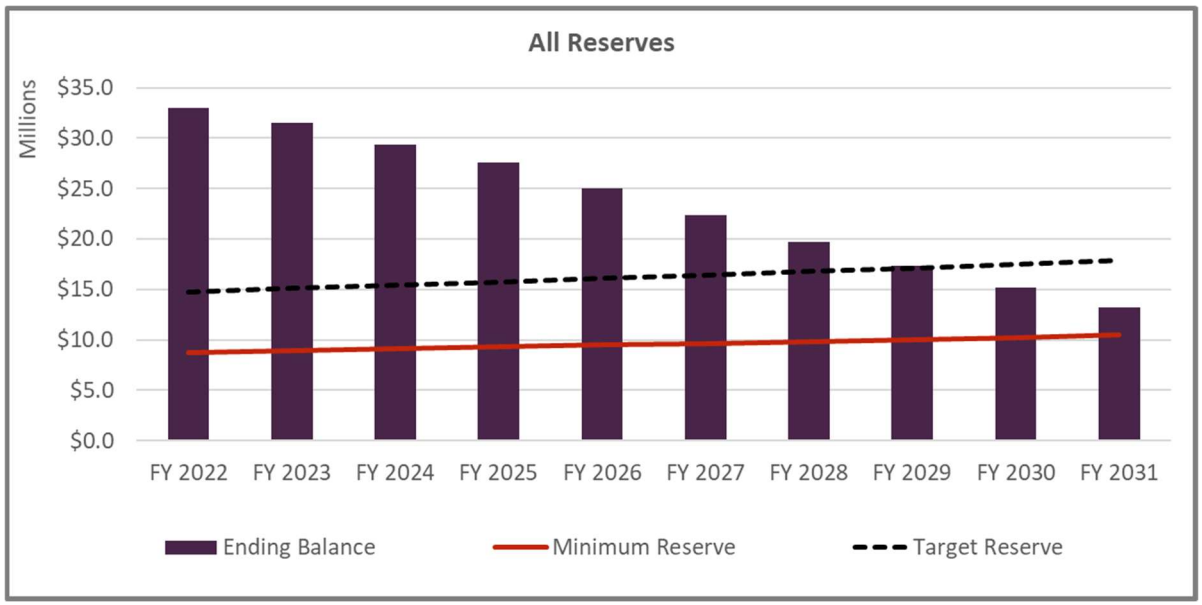


Figure 10: Proposed Ending Reserves



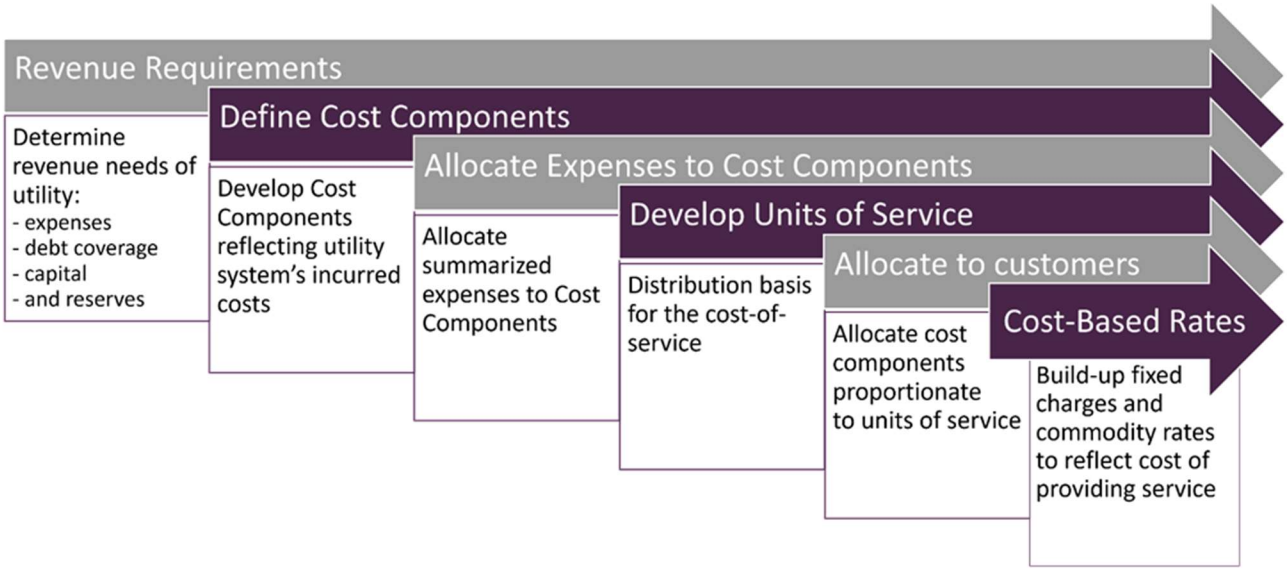
Cost-of-Service Analysis

Cost-of-Service Process

The next step in developing rates is to perform a cost-of-service analysis. Developing cost-based and equitable rates are significant considerations in developing proposed water rates. Meeting the statutory requirements of Proposition 218 is of paramount importance in the development of water rates. Proposition 218 does not provide a particular methodology for establishing cost-based rates. This study uses the Base-Extra Capacity Methodology for developing water rates and adheres to the cost-of-service provisions of Proposition 218.

It is important to understand **how** costs are incurred in order to determine the most appropriate way to recover these costs. The following graphic summarizes the cost-of-service process. This process allocates costs incurred to customers and tiers based on their proportional share. As a result, proposed rates are cost-based and reflect the costs incurred to deliver water service to all customers.

Figure 11: Cost-of-Service Process



Revenue Requirements

With FY 2023 as the first year of the proposed rate schedule, revenue requirements are determined for FY 2023 and used for the cost-of-service. Revenue requirements include O&M expenses, available offsets from non-rate revenues, annual net income, and any mid-year adjustments if rates are implemented after the start of the fiscal year. The proposed revenue adjustments and corresponding rates collectively accumulate the necessary funding over the Financial Plan Period to fund total revenue requirements while drawing down reserves and maintaining annual net operating income of at least $1.8M. The results of the financial plan analysis are summarized in Table 17 and represent the revenue required from rates over the Financial Plan Period.

Table 17: FY 2022 Revenue Requirements

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Revenue Requirements					
Purchased Water Costs					
Purchase of Water - Fixed	$4,357,000	$4,357,000	$4,357,000	$4,357,000	$4,357,000
Purchase of Water - Variable	$5,275,000	$5,275,000	$5,275,000	$5,275,000	$5,275,000
Purchased of Water - Water Loss	$586,000	$586,000	$586,000	$586,000	$586,000
Total Purchased Water Costs	$10,218,000	$10,218,000	$10,218,000	$10,218,000	$10,218,000
Operating Expenses (250)					
Administrative & General	$3,037,000	$3,116,000	$3,197,000	$3,280,000	$3,365,000
Water Pumping	$386,000	$403,000	$422,000	$441,000	$462,000
Water Transmission & Distribution	$2,071,000	$2,131,000	$2,193,000	$2,256,000	$2,322,000
Water Customer Accounts	$773,000	$795,000	$817,000	$839,000	$862,000
Recycled Water	$263,000	$275,000	$287,000	$299,000	$313,000
Total Operating Expenses (250)	$6,530,000	$6,720,000	$6,916,000	$7,115,000	$7,324,000
Total Operating Expenditures	$16,748,000	$16,938,000	$17,134,000	$17,333,000	$17,542,000
Revenue Offsets					
Sale Of Water Mtr-Taxabl	($28,000)	($28,000)	($28,000)	($28,000)	($28,000)
Misc Sales-Taxable	($5,000)	($5,000)	($5,000)	($5,000)	($5,000)
Contract Recycled Revenue - Golf Course	($55,000)	($55,000)	($55,000)	($55,000)	($55,000)
Other Revenues	($94,000)	($77,000)	($78,000)	($78,000)	($78,000)
Total Revenue Offsets	($182,000)	($165,000)	($166,000)	($166,000)	($166,000)
Adjustments					
Reserve Funding	$1,995,000	$1,880,000	$1,871,000	$1,860,000	$1,841,000
Adjustment for Mid-Year Increase	$0	$92,000	$93,000	$94,000	$95,000
Total Adjustments	$1,995,000	$1,972,000	$1,964,000	$1,954,000	$1,936,000
Revenue Requirement from Rates	$18,561,000	$18,745,000	$18,932,000	$19,121,000	$19,312,000

Define Cost Components

The utility incurs costs to accommodate total water demand and peak demands that vary throughout the year, days, and hours. Therefore, to determine the most appropriate way to recover the utility's expenses, cost components are identified to allocate expenses based on how they are incurred. By reviewing the revenue requirements and understanding the utility system, it is appropriate and reasonable to utilize the base-extra capacity methodology outlined in the American Water Works Association M1 Manual. This methodology accounts for the utility's costs as a function of meeting both total volume and peak use demands. For example, if a utility's average use and peak use were equivalent, the utility system could be sized solely to accommodate the average demand on the system. However, customer water usage peaks at different times, such as in the morning when everyone wakes up, evenings when customers are home from work/school, and other times of the year as outdoor water needs fluctuate based on the weather. The cost components shown in Figure 12 reflect the cost components used for this study.

Figure 12: Cost Components

Zone 7 Fixed – Fixed monthly water supply costs incurred by the City from its water wholesaler, Zone 7.
Account Services – Fixed expenses that do not necessarily fluctuate based on usage and are not a function of meter size.
Meter Capacity – O&M expenses associated with meters, including a portion of capital and reserves.
Fire Flow Demand – Portion of Peaking costs to meet fire flow demand inherent to the water system.
Purchased Water – Water supply costs from the purchase of treated water from Zone 7.
Delivery – Operating and capital expenses of the water system associated with serving customers at a constant average use or average daily demand. These costs tend to vary with the total water used.
Peaking – Expenses incurred to meet customer peak demands in excess of average day usage.
Recycled Water – Direct expenses associated with treating recycled water.

The analysis herein establishes cost components for developing fixed charges and utilizes the base-extra capacity method for developing variable rates. Total volume and usage patterns of customers and tiers are analyzed to allocate expenses proportionately based on total usage and peak demands. Peak demand is a function of Max Day Demand (Max Day) and Max Hour Demand (Max Hour) placed on the system in comparison to Average Day Demand (Avg Day). The system is configured with distribution and transmission lines ranging in size from 2" diameter to 24" diameter. This system configuration provides fire flow demand inherent to a utility system and accounts for peak water demands generated by how customers use water above Avg Day. Max Day is the maximum amount of water used in a single day of a calendar year, and Max Hour reflects the peak hourly use on the system compared to Avg Day.

Allocate Expenses to Cost Components

When allocating expenses to the defined costs components, it is important to have a sound basis as to why an expense was allocated to a certain fixed cost component versus a variable cost component or split between both fixed and variable. The distribution of expenses to the cost components should be straight-forward to ensure the method of apportionment is **understandable** and easily **correlates to how expenses are incurred**. A description of each expense category is identified below.

Expense Categories:

Purchase of Water – Fixed: Fixed costs from Zone 7.

Purchase of Water – Variable: Costs incurred based on total AF purchased from Zone 7 to cover water usage from City customers.

Purchase of Water – Water Loss: Costs incurred based on total AF purchased from Zone 7 to cover system loss of 10%.

Administrative & General: Costs associated with the daily operations and management of the City's water utility, including, but not limited to, personnel, supplies, repairs, meter services, rent, contract services, central services support, inspections, and regulatory fees.

Water Pumping: Costs associated with repairs and maintenance, supplies, rent, ground maintenance, regulatory fees, and contract services related to pumping water.

Water Transmission & Distribution: Costs associated with the daily operational costs related to transmission and distribution including, but not limited to, employee salaries and benefits, supplies and materials, rent, and contract services.

Water Customer Accounts: Costs associated with salaries and benefits, supplies, overhead, billing, and contract services related to customer accounts.

Recycled Water: Costs associated with salaries and benefits of the staff dedicated to the recycled utility, portion of overhead, and tertiary treatment costs.

System peaking characteristics are used to allocate costs to Avg Day (Delivery) and Max Day / Max Hour (collectively, Peaking). Avg Day is assigned a factor of 1.0, signifying no peaking demands. The Max Day and Max Hour factors shown in Table 18 are from the City's Water Resource Division. A Max Day peaking factor of 2.07 means that the system delivers just over double the average daily demand during a peak day. A Max Hour peaking factor of 3.97 means that the system delivers almost 4 times the average daily demand during peak hour. To determine the percentage allocations for Avg Day, Max Day, and Max Hour, the following calculations are used:

Avg Day – 100% to Base (no peak)

Max Day – Max Day peak factor is 2.07. Therefore, the base factor of 1.0 makes up 48.3% of the Max Day (1.0 / 2.07 = 0.483) and Max Day is 51.7% of demand.

Max Hour – The Max Hour peak factor is 3.97. Therefore, the base factor of 1.0 makes up 25.2% of Max Hour (1.0 / 3.97 = 0.252), and the Max Day increment above Avg Day of 1.07 (2.07 - 1.0 = 1.07) makes up 27.0% of the Max Hour Demand (1.07 / 3.97 = 0.27). Therefore, the Max Hour increment equals the remainder of 47.9%.

These peaking factors are specific to the City of Livermore and reflect the peaking characteristics of the City's water system. The corresponding allocations between Delivery and Peaking provide a means to spread costs incurred as a function of serving Max Day and Max Hour proportionately. Table 18 summarizes the percentage between Delivery and Peaking using Avg Day, Max Day, and Max Hour.

Table 18: System Peaking Factors and Distribution Basis

System Peak	Factor	Base [A]	Max Day [B]	Max Hour [C]	Delivery [D] = A	Peaking [E] = B+C
Avg Day	1.00	100.0%	0.0%	0.0%	100.0%	0.0%
Max Day	2.07	48.3%	51.7%	0.0%	48.3%	51.7%
Max Hour	3.97	25.2%	27.0%	47.9%	25.2%	74.8%

In addition to Max Day and Max Hour demand, a water system is also configured to accommodate Fire Flow Demand (FFD) for fire suppression to meet Max Day and Max Hour demand. FFD can be incorporated into this analysis as a component of Max Day and Max Hour. Based on the City's system requirements, the maximum fire flow needs vary by land use from 1,500 gallons per minute (gpm) for single-family residential uses up to 3,500 gpm for non-residential uses. Fire flow requirements were weighted by the corresponding accounts to derive the typical fire flow requirement needed during a probable fire event within the City's service area. Table 19 derives the weighted fire flow requirement. Table 20 identifies the Max Day and Max Hour demand in gallons from the City's Master Plan (Table 5-1), converts them to gpm by dividing daily gallons by total minutes in a day (60 mins x 24 hours = 1,440 mins), and adds the fire flow requirement derived in Table 19. The FDD percentages of Max Day and Max Hour are determined assuming a fire event.

Table 19: Fire Flow Requirement within City's Service Area

FFD by Land Use	FFD (gpm) [A]	Accounts [B]	% Allocation [C] = B as %	Weighted FFD (gpm) [D] = A x C
Single-Family	1,500	8,579	92%	1,381
Multi-Family	2,500	151	2%	41
Non-Residential	3,500	586	6%	220
Total		9,316	100%	1,642

Table 20: Fire Flow Demand as Percentage of Max Day and Max Hour

Line #	System and FFD Demands	Gallons [A]	Max Day Demand (gpm) [B] = A ÷ 1,440 min	Gallons [C]	Max Hour Demand (gpm) [D] = C ÷ 1,440 min
1	System Demand	11,410,000	7,924 gpm	21,890,000	15,201 gpm
2	Fire Flow Demand		1,642 gpm		1,642 gpm
3	Total *(System Demand plus FFD)*		9,566 gpm		16,843 gpm
FDD % of MDD/MHD (Line #2 ÷ Line #3)			17.2%		9.7%

Table 21 summarizes the percent allocation of water supply costs to the applicable cost components. The City must purchase additional water from Zone 7 due to water loss in the system. The costs related to water loss are spread equally over all usage and customers and was allocated to Delivery. Table 22 reflects the dollars to each cost component based on the percent allocations in Table 21.

Table 21: Water Supply Expense Allocation to Cost Components (%)

Functionalized Expenses	Methodology / Allocation Basis	Zone 7 Fixed	Zone 7 Variable	Delivery	Total
Purchase of Water - Fixed	Specific	100.0%	0.0%	0.0%	100%
Purchase of Water - Variable	Specific	0.0%	100.0%	0.0%	100%
Purchased of Water - Water Loss	Specific	0.0%	0.0%	100.0%	100%

Table 22: Water Supply Expense Allocation to Cost Components ($)

Functionalized Expenses	Methodology / Allocation Basis	Zone 7 Fixed	Zone 7 Variable	Delivery	Total
Purchase of Water - Fixed	Specific	$4,357,000	$0	$0	$4,357,000
Purchase of Water - Variable	Specific	$0	$5,275,000	$0	$5,275,000
Purchased of Water - Water Loss	Specific	$0	$0	$586,000	$586,000
Total Allocation ($)		$4,357,000	$5,275,000	$586,000	$10,218,000

Table 23 summarizes the percent allocation of O&M Revenue Requirements to the cost components, and Table 24 uses the percent allocations in Table 23 to allocate expenses in dollars to each cost component. The amount of Administration & General allocated to Meter Capacity is based on identifying specific expense line items with City Staff that are fixed costs to operate the system and; therefore, assigned to Meters (contract services, GIS service charge, software, public outreach, administrative surcharge, IT, liability, use of City property, and regulatory fees).

Table 23: O&M Expense Allocation to Cost Components (%)

Functionalized Expenses	Methodology / Allocation Basis	Account Services	Meter Capacity	Fire Flow Demand	Delivery	Peaking	Revenue Offset	Recycled	Total
Administrative & General	Specific	0.0%	66.8%	0.0%	33.2%	0.0%	0.0%	0.0%	100.0%
Water Pumping	Max Day	0.0%	0.0%	0.0%	48.3%	51.7%	0.0%	0.0%	100.0%
Water Transmission & Distribution	MH plus Fire Flow	0.0%	0.0%	9.7%	22.7%	67.5%	0.0%	0.0%	100.0%
Water Customer Accounts	Specific	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Recycled Water	Specific	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%

Table 24: O&M Expense Allocation to Cost Components ($)

Functionalized Expenses	Methodology / Allocation Basis	Account Services	Meter Capacity	Fire Flow Demand	Delivery	Peaking	Revenue Offset	Recycled	Total
Administrative & General	Specific	$0	$2,028,672	$0	$1,008,328	$0	$0	$0	$3,037,000
Water Pumping	Max Day	$0	$0	$0	$186,473	$199,527	$0	$0	$386,000
Water Transmission & Distribution	MH plus Fire Flow	$0	$0	$201,896	$470,807	$1,398,297	$0	$0	$2,071,000
Water Customer Accounts	Specific	$773,000	$0	$0	$0	$0	$0	$0	$773,000
Recycled Water	Specific	$0	$0	$0	$0	$0	$0	$263,000	$263,000
Total Allocation ($)		$773,000	$2,028,672	$201,896	$1,665,609	$1,597,824	$0	$263,000	$6,530,000
O&M Allocation (%)		11.8%	31.1%	3.1%	25.5%	24.5%	0.0%	4.0%	100.0%

Other Funding includes contract recycled revenue that directly offsets Recycled, other operating and non-operating revenues, and Reserve Funding. Besides recycled contract revenue, other items are allocated based on O&M percentages derived in Table 24 to proportionately allocate revenue offsets and reserve funding to the cost components. Table 25 summarizes the percent allocation to the cost components, and Table 26 uses the percent allocations in Table 25 to allocate expenses in dollars to each cost component. Table 27 summarizes the revenue requirement derived in Table 17 by cost component.

Table 25: Other Funding to Cost Components (%)

Functionalized Expenses	Methodology / Allocation Basis	Account Services	Meter Capacity	Fire Flow Demand	Delivery	Peaking	Recycled	Total
Sale Of Water Mtr-Taxabl	O&M Allocation	11.8%	31.1%	3.1%	25.5%	24.5%	4.0%	100.0%
Misc Sales-Taxable	O&M Allocation	11.8%	31.1%	3.1%	25.5%	24.5%	4.0%	100.0%
Contract Recycled Revenue	Specific	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
Other Revenues	O&M Allocation	11.8%	31.1%	3.1%	25.5%	24.5%	4.0%	100.0%
Reserve Funding	O&M Allocation	11.8%	31.1%	3.1%	25.5%	24.5%	4.0%	100.0%

Table 26: Other Funding Allocation to Cost Components ($)

Functionalized Expenses	Methodology / Allocation Basis	Account Services	Meter Capacity	Fire Flow Demand	Delivery	Peaking	Recycled	Total
Sale Of Water Mtr-Taxabl	O&M Allocation	($3,315)	($8,699)	($866)	($7,142)	($6,851)	($1,128)	($28,000)
Misc Sales-Taxable	O&M Allocation	($592)	($1,553)	($155)	($1,275)	($1,223)	($201)	($5,000)
Contract Recycled Revenue	Specific	$0	$0	$0	$0	$0	($55,000)	($55,000)
Other Revenues	O&M Allocation	($11,127)	($29,203)	($2,906)	($23,977)	($23,001)	($3,786)	($94,000)
Reserve Funding	O&M Allocation	$236,162	$619,786	$61,682	$508,865	$488,156	$80,350	$1,995,000
Total Allocation ($)		$221,128	$580,331	$57,755	$476,471	$457,080	$20,235	$1,813,000

Table 27: FY 2023 Cost-of-Service Requirements by Cost Component

	Fixed				Variable				
Revenue Requirement	Zone 7 Fixed	Account Services	Meter Capacity	Fire Flow Demand	Zone 7 Variable	Delivery	Peaking	Recycled	Total
Purchased Water Costs	$4,357,000	$0	$0	$0	$5,275,000	$586,000	$0	$0	$10,218,000
Operating	$0	$773,000	$2,028,672	$201,896	$0	$1,665,609	$1,597,824	$263,000	$6,530,000
Other Funding	$0	$221,128	$580,331	$57,755	$0	$476,471	$457,080	$20,235	$1,813,000
Total	$4,357,000	$994,128	$2,609,003	$259,651	$5,275,000	$2,728,080	$2,054,904	$283,235	$18,561,000

Rate Design

Develop Units of Service

Unit rates for each cost component are derived by spreading the corresponding revenue requirements over appropriate units of service (distribution basis). This approach provides a clear connection between costs incurred and the proportionate share attributable to each customer class, corresponding tier, and customer account. When designing rates, the most critical component is to connect costs to the proposed rates, resulting in a rate structure that is cost-based and in compliance with Proposition 218. The previous section summarized costs by expense category and then allocated to cost components based on how each cost is incurred. The next step in designing rates is to allocate each cost component to customers in relation to their use of the system and facilities. The method of apportionment considers each customer's share of system costs and is reflected by the units of service used to equitably distribute the cost components to each customer account.

The distribution basis varies by cost component and includes total accounts, Meter Equivalents (MEs), which reflects demand placed on the system based on meter size, total water sales, usage by tier, and usage weighted by peaking by customer class and tier. In Table 28, each meter size was assigned an equivalency factor based on the flow characteristics of a 5/8" meter based on the safe maximum operating flow capacity by meter type, as identified in the AWWA M1 Manual, 6th Edition, Table B-2.

The safe maximum operating flow capacity for each meter was divided by the base meters safe operating flow capacity of 20 gpm (5/8") to determine the equivalent meter ratio. The Capacity Ratios represent the potential flow through each meter size compared to the flow through a 5/8" meter to establish parity between meter sizes. Total MEs are determined by multiplying the number of meters by the Capacity Ratio and then multiplying the result by the billing periods in a year. Table 28 summarizes the units of service related to total Accounts and MEs for all accounts (Potable and Recycled combined) and Zone 7 accounts (Potable only).

Table 28: Accounts and Meter Equivalents

Meter Size	AWWA Capacity (gpm) [A]	Capacity Ratio [B] = A ÷ 20	Potable / Recycled Accounts [C]	Zone 7 Potable Accounts [D]	Potable / Recycled Meter Equivalents [E] = B x C	Zone 7 Potable Meter Equivalents [F] = B x D
5/8"	20	1.00	4,239	4,232	4,239	4,232
3/4"	30	1.50	102	100	153	150
1" w/Fire	20	1.00	4,482	4,482	4,482	4,482
1"	50	2.50	420	365	1,050	913
1 1/2"	100	5.00	219	183	1,095	915
1 1/2" T	120	6.00	105	105	630	630
2"	160	8.00	273	233	2,184	1,864
2" T	190	9.50	80	80	760	760
3"	435	21.75	28	27	609	587
4"	750	37.50	7	7	263	263
6"	1,600	80.00	1	1	80	80
8"	2,800	140.00	0	0	0	0
10"	4,200	210.00	0	0	0	0
12"	5,300	265.00	1	0	265	0
Total			9,957	9,815	15,810	14,875
Annual Units (Total x 12 billing periods)			119,484	117,780	189,714	178,503

Total usage and peaking factors must be calculated for each customer class and tier to derive the units of service for allocating variable costs. Table 29 provides the projected usage for FY 2023 from Table 10, broken out by customer class, including the usage characteristics of each customer class. The peaking factors were determined using the most recently completed Fiscal Year of consumption (FY 2021). Based on the consumption analysis, peaking factors were derived by taking each customer class' usage per account during the max monthly summer billing period (July) divided by the average annual usage per account of each customer class.

Table 29: Usage and Peaking Factors by Customer Class

Customer Class	All Usage [A]	Avg Usage Per Account [B]	Max Usage Per Account [C]	Peaking [D] = C ÷ B	Weighted Peak [E] = A x D
Single-Family	1,287,829	13.80	20.84	1.51	1,944,808
Multi-Family	198,404	123.29	174.26	1.41	280,427
Non-Residential	446,669	68.99	84.01	1.22	543,915
Irrigation	627,599	122.35	203.19	1.66	1,042,271
Recycled	300,441	207.14	358.07	1.73	519,354
Variable Units	2,860,942				4,330,775

Table 30 provides the tiered usages characteristics for Single-Family Residential. The tiered usage characteristics will be used to further apportion the total variable costs allocated to Single-Family Residential to the corresponding tiers. Allocating variable costs to customer classes first, then to tiers, ensures each customer class is recovering its proportionate share of costs. For Single-Family Residential, the Tier 1 allotment is based on minimum winter usage (7 CCF) as a proxy for indoor usage as outdoor watering demand

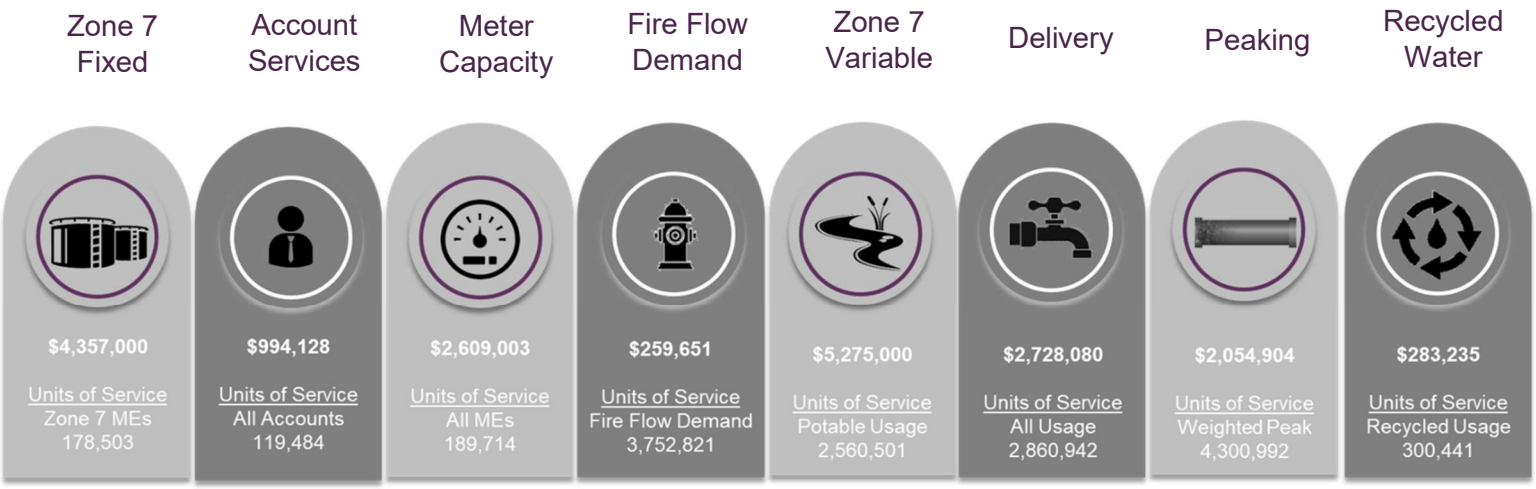
is minimal during the winter. The Single-Family Residential Tier 2 allotment captures any usage over Tier 1. Tier 1 is assigned a peak factor of 1.0 to reflect indoor usage for Single-Family Residential [4].

Table 30: Usage (CCF) and Peaking Factors for Tiers

Tier Usage Characteristics	Tier Allotments	Projected Usage [A]	Usage per Account [B]	Peaking Factor [C] = B ÷7	Weighted Peak [D] = A x C
Single-Family					
Tier 1	7	566,273	7.00	1.00	566,273
Tier 2	> 7	721,556	18.15	2.59	1,870,743
Total		1,287,829			2,437,016

With the units of service shown in Table 28, Table 29, and Table 30, the distribution basis can be identified for each cost component. Figure 13 identifies the total revenue requirements by cost component from Table 27 and the corresponding units of service.

Figure 13: Distribution Basis and Units of Service by Cost Component



Using the FY 2023 revenue requirements, the cost-of-service allocates expenses to customer classes, and corresponding tiers based on the service demands that each place on the system (cost causation). This approach ensures that each customer proportionately shares in the total annual revenue requirements of the utility. For the following unit rate computations for each cost component, unit rates were rounded up to the nearest penny.

[4] For Single-Family Residential Tier 1, the full allotment of 7 CCF is used for Column B as total indoor usage is considered no peak.

Fixed Cost Recovery

Zone 7 Fixed

Zone 7 Fixed costs are incurred by the City based on the percentage of total purchases using a 2-year historical rolling average. The Zone 7 fixed costs are then apportioned to City customers as a fixed charge based on meter size, which reflects the total potential water demand from potable customers (Zone 7 MEs; excludes recycled water MEs).

Table 31: Zone 7 Calendar Year 2022 Fixed Cost Monthly Unit Rate

Zone 7 Fixed Component Unit Rate	
Revenue Requirement	$4,357,000
÷ Zone 7 ME's	178,503
Monthly Unit Rate	$24.41

Account Services

Account Services costs are incurred by each customer regardless of the type of land use, meter size, or total amount of water used. These costs should be spread equally across all accounts. This is achieved by using the distribution basis of Total Bills. Total Bills are determined by multiplying the number of accounts by the number of billing periods over the fiscal year. Therefore, the revenue requirement for Account Services is apportioned based on the Total Bills to determine the monthly unit cost-of-service shown in Table 32.

Table 32: FY 2023 Account Services Monthly Unit Rate

Account Services Component Unit Rate	
Revenue Requirement	$994,128
÷ Total Bills	119,484
Monthly Unit Rate	$8.33

Meter Capacity

The Meter Capacity Component includes system-wide operations costs and a portion of capital and reserve funding. The revenue requirement for Meter Capacity is apportioned based on meter size. Larger sized meters can generate a greater demand on the system from the amount of potential water flow that may pass through the meter in gpm. The revenue requirement for Meter Capacity is apportioned to meter size as represented by All MEs.

Table 33: FY 2023 Meter Capacity Monthly Unit Rate

Meter Capacity Component Unit Rate	
Revenue Requirement	$2,609,003
÷ All ME's	189,714
Monthly Unit Rate	$13.76

Fire Flow Demand

System fire flow revenue requirements are allocated between hydrants and dedicated fire lines based on fire flow demand of all connections. All meters recover the portion associated with the fire flow demand of hydrants as a means to quantify the standby services rendered to all accounts for system fire flow capacity. Table 34 identifies all connections by size (in diameter inches) between dedicated fire lines and hydrants. The cross-sectional diameter of the line is multiplied by total connections of each size and the result is then raised to the 2.63 power, using the principals of the Hazen-Williams equation for the relative flow potential through pressure conduits which is a function of the diameter size. Table 35 takes the portion associated with fire flow demand of the water system's connected hydrants and spreads the cost to potable meters based on MEs. The portion related to dedicated fire lines is recovered proportionately based on the size of the connection (per diameter inch) derived in Table 36.

Table 34: FY 2023 Fire Flow Demand Allocations

Fire Lines	Connections [A]	Size of Line [B]	Diameter inches [C] = A x B	Fire Flow Demand [D] = C^2.63	% Allocation [E] = D as %	Revenue Requirment [F] = $259,651 x E
System Fire Flow						
Public Hydrants						
6"	1,687	6.00	10,122	187,782		
Subtotal Public Hydrants	**1,687**		**10,122**	**187,782**	**60.04%**	**$155,907**
Dedicated Fire Lines						
5/8"	0	0.63	0	-		
3/4"	0	0.75	0	-		
1"	6	1.00	6	6		
1 1/2"	0	1.50	0	-		
2"	84	2.00	168	520		
3"	16	3.00	48	288		
4"	86	4.00	344	3,295		
6"	140	6.00	840	15,584		
8"	174	8.00	1,392	41,274		
10"	150	10.00	1,500	63,987		
12"	0	12.00	0	-		
Subtotal Dedicated Fire Lines	**656**		**4,298**	**124,954**	**39.96%**	**$103,744**
Total Firelines	*2,343*		*14,420*	*312,735*	*100.00%*	*$259,651*

Table 35: FY 2023 Fire Flow Demand Monthly Unit Rate

Fire Flow Demand Component	
Revenue Requirement	$155,907
÷ All ME's	189,714
Monthly Unit Rate	$0.83

Table 36: FY 2023 Dedicated Fire Line Monthly Unit Rate per Diameter Inch

Dedicated Fire Line - Unit Rate	
Revenue Requirement	$103,744
÷ Annual Diameter inches	51,576
Monthly Unit Rate	$2.02

Variable Cost Recovery

The remaining cost components are recovered through the variable rates. The existing and proposed variable rate structure is similar to the current rate structure, except Multi-Family Residential variable rates were adjusted from a two-tiered rate structure to a uniform rate.

Water Supply

The City purchases treated water from Zone 7 to serve its potable customers. Therefore, the revenue requirement for Purchased Water is apportioned over potable usage identified in . Table 37 derives the unit rate for the Zone 7 Variable component, which is subject to adjustments using the pass-through provision, commencing on January 1, 2023. Recycled customers are not subject to Zone 7 water supply costs.

Table 37: Zone 7 Calendar Year 2022 Supply Cost Unit Rate per CCF

Zone 7 Variable Component - Unit Rate	
Revenue Requirement	$5,275,000
÷ Potable Usage	2,560,501
Unit Rate	$2.06

Delivery

Delivery costs are incurred based on the total volume of water produced and delivered to customers at a constant average demand throughout the year. Therefore, the revenue requirement for Delivery is apportioned based on projected total usage identified in Table 29 to determine the unit cost-of-service, irrespective of tier, as shown in Table 38.

Table 38: FY 2023 Delivery Cost Unit Rate per CCF

Delivery Component Unit Rate	
Revenue Requirement	$2,728,080
÷ All Usage	2,860,942
Unit Rate	$0.96

Peaking

Peaking costs are incurred based not only on the total volume of water produced and delivered but also as a function of the peaking characteristics of customer classes and tiers. Therefore, the revenue requirement for Peaking is first allocated to each customer class based on the Weighted Peaking derived in Table 29 and the results are identified in Table 39. The revenue requirement for Peaking from Table 27 ($2,054,904) is allocated to each customer class using the percentages of Weighted Peak (Table 39 – Column D). Table 40 takes the Peaking cost allocated to Single-Family Residential ($927,449) and further apportions the costs to the corresponding tiers utilizing the Weighted Peaking derived in Table 30.

Table 39: FY 2023 Peaking Allocation to Customer Classes

Customer Class	All Usage [A]	Peaking Factors [B]	Weighted Peak [C] = A x B	% Allocation [D] = C as %	Revenue Requirement [E] = $2,054,904 X D	Unit Rate per CCF [F] = E ÷ A
Single-Family	1,287,829	1.51	1,941,185	45.1%	$927,449	*further allocated*
Multi-Family	198,404	1.28	254,222	5.9%	$121,461	$0.62
Non-Residential	446,669	1.22	543,899	12.6%	$259,861	$0.59
Irrigation	627,599	1.66	1,042,315	24.2%	$497,992	$0.80
Recycled	300,441	1.73	519,370	12.1%	$248,142	$0.83
Total	2,860,942		4,300,992	100.0%	$2,054,904	

Table 40: FY 2023 Peaking Unit Rate by Tier

Tier Usage Characteristics	Tier Allotments	Projected Usage [A]	Usage per Account [B]	Peaking Factor [C] = B ÷7	Weighted Peak [D] = A x C	% Allocation [E] = D as %	Revenue Requirement [F] = $927,449 X E	Unit Rate per CCF [G] = F ÷ A
Single-Family								
Tier 1	7	566,273	7.00	1.00	566,273	23.2%	$215,505	**$0.39**
Tier 2	> 7	721,556	18.15	2.59	1,870,743	76.8%	$711,944	**$0.99**
Total		1,287,829			2,437,016	100.0%	$927,449	

Recycled Water

The City employs additional staffing to support the recycled utility and incurs additional O&M costs related to tertiary treatment. Since these costs are incurred specifically for the recycled customers, the costs have been allocated solely to recycled customers and spread equally over all recycled water usage. Table 41 derives the variable unit rate for the Recycled Water Component.

Table 41: FY 2023 Recycled Water Cost Unit Rate

Recycled Component Unit Rate	
Revenue Requirement	$283,235
÷ Recycled Usage	300,441
Unit Rate	$0.95

Cost-Based Rates Summary

Financial Plan Summary

The financial plan developed for the City identifies revenue adjustments through FY 2027. Based on the review of the City's current rate revenue and multi-year revenue requirements, rate revenue through the Financial Plan Period will generate approximately $1.5M in additional revenue, which reflects no increase in FY 2023 and a 1% increase in total rate revenue each year for FY 2024 through FY 2027. These recommended revenue adjustments will allow the City to generate positive net income of at least $1.8M each year, while drawing down capital replacement reserves for a majority of the City's capital spending. The financial plan should be updated annually to review actual revenue recovered, capture new accounts, update changes in water usage, and track capital expenses as estimates change. As the baseline assumptions change, the proposed revenue adjustments may also need to be revised to reflect updated conditions.

Cost-of-Service and Rate Summary

The City's proposed fixed charges are structured similarly to the existing rate structure, with fixed charges separated between the City and Zone 7. The variable rate structure is also similar to existing rates, except for Multi-Family Residential. The 2-tiered rate structure has been updated to a uniform rate to eliminate the need for the City to track the number of dwelling units at each complex and assignment of occupied dwelling units to each meter for complexes that have multiple meters. In addition, variable rates are separated between City variable rates and the Zone 7 variable rate.

The City also plans to continue to utilize the pass-through provisions of the Proposition 218 Omnibus Implementation Act (Government Code Section 53756) for any rate adjustments adopted by Zone 7 each January. There will be two separate pass-throughs, one for increases / decreases in fixed charges and the other for increases / decreases in variable rates.

The comprehensive cost-of-service analysis and rate development meet the requirements of Proposition 218, and identify the costs components that make up the proposed fixed charges and variable rates. Proposition 218 requires the following conditions:

1. An agency cannot collect revenue beyond what is necessary to provide service.

   The long-term financial plan identifies the City's revenue requirements including operating expense, capital improvement program, debt coverage, and reserves. Water utility reserves are healthy and the City plans to use replacement reserves to fund a majority of its capital, minimizing the need to increase rates higher than would otherwise be necessary.

2. Revenues derived by the charge shall not be used for any other purpose other than that for which the charge was imposed.

   The City's water fund is a separate business enterprise to track revenues and expenses. Costs from other departments, such as central services support, are identified within the budget, and the water fund only pays its proportionate share.

3. The amount of the fee may not exceed the proportional cost of service for the parcel.

   The comprehensive cost-of-service analysis and updated fixed charges and variable rates reflect each customer's proportionate share of cost. Through this update, each account is paying for the cost of providing water service to the parcel.

4. No charge may be imposed for a service unless that service is actually used or immediately available to the owner of a property.

   The proposed fixed charges and variable rates connect directly to the City's budget and projected future revenue requirements of the water enterprise and are recovered from all active accounts receiving service.

5. A written notice of the proposed charge shall be mailed to the record owner of each parcel at least 45 days prior to the public hearing.

   Notices were mailed to each affected parcel at least 45 days prior to the April 11, 2022, Public Hearing.

The proposed fixed charges and the proposed variable rates for FY 2023 are shown in the following section. If a majority protest does not exist at the April 11th Public Hearing, the City Council may adopt the rates with an effective date of January 1, 2023.

Proposed Monthly Fixed Charges

Table 42 reflects the combined charges of the City's fixed charge of Account Services, Meter Capacity, and Fire Flow Demand. Account Service is constant for all meter sizes. Meter Capacity and Fire Flow Demand are multiplied by the corresponding Capacity Ratios of each meter size to derive the City's fixed charge schedule. The proposed Zone 7 fixed charges for FY 2023 are shown in Table 43. The Zone 7 fixed charge per ME calculated in Table 31 is multiplied by the Capacity Ratio for each meter size to derive the Zone 7 fixed charge schedule. Lastly, Table 44 provides the proposed FY 2023 monthly dedicated fire line charges by connection size (diameter inch).

Table 42: FY 2023 City Service Charges by Meter Size

Meter Size	Account Services [A]	Capacity Ratios [B]	Meter Capacity [C] = $13.76 x B	Fire Flow Demand [D] = $0.83 x B	City Service Charges [E] = A + C + D
5/8"	$8.33	1.00	$13.76	$0.83	**$22.92**
3/4"	$8.33	1.50	$20.64	$1.25	**$30.22**
1" w/Fire	$8.33	1.00	$13.76	$0.83	**$22.92**
1"	$8.33	2.50	$34.40	$2.08	**$44.81**
1 1/2"	$8.33	5.00	$68.80	$4.15	**$81.28**
1 1/2" T	$8.33	6.00	$82.56	$4.98	**$95.87**
2"	$8.33	8.00	$110.08	$6.64	**$125.05**
2" T	$8.33	9.50	$130.72	$7.89	**$146.94**
3"	$8.33	21.75	$299.28	$18.06	**$325.67**
4"	$8.33	37.50	$516.00	$31.13	**$555.46**
6"	$8.33	80.00	$1,100.80	$66.40	**$1,175.53**
8"	$8.33	140.00	$1,926.40	$116.20	**$2,050.93**
10"	$8.33	210.00	$2,889.60	$174.30	**$3,072.23**
12"	$8.33	265.00	$3,646.40	$219.95	**$3,874.68**

Table 43: FY 2023 Zone 7 Fixed Charges [5]

Meter Size	Capacity Ratio [A]	Zone 7 Fixed Charges [B] = $24.41 x A
5/8"	1.00	$24.41
3/4"	1.50	$36.62
1" w/Fire	1.00	$24.41
1"	2.50	$61.03
1 1/2"	5.00	$122.05
1 1/2" T	6.00	$146.46
2"	8.00	$195.28
2" T	9.50	$231.90
3"	21.75	$530.92
4"	37.50	$915.38
6"	80.00	$1,952.80
8"	140.00	$3,417.40
10"	210.00	$5,126.10
12"	265.00	$6,468.65

Table 44 FY 2023 Dedicated Fire Line Monthly Fixed Charges

Conenction Size	Diameter Inch [A]	Dedicated Fire Line Charge [B] = $2.02 x A
5/8"	0.63	$1.27
3/4"	0.75	$1.52
1"	1.00	$2.02
1 1/2"	1.50	$3.03
2"	2.00	$4.04
3"	3.00	$6.06
4"	4.00	$8.08
6"	6.00	$12.12
8"	8.00	$16.16
10"	10.00	$20.20
12"	12.00	$24.24

[5] Subject to pass-through adjustments each January 1, commencing on January 1, 2023

Table 45 and Table 46 provide the five-year City fixed charge schedule through FY 2027 for all meters and dedicated file lines, respectively.

Table 45: City Monthly Service Charges – FY 2023 through FY 2027

Service Charges by Meter Size ($/Month)					
Meter Size	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
5/8"	$22.92	$23.40	$23.88	$24.37	$24.86
3/4"	$30.22	$30.89	$31.57	$32.26	$32.95
1" w/Fire	$22.92	$23.40	$23.88	$24.37	$24.86
1"	$44.81	$45.87	$46.94	$48.02	$49.12
1 1/2"	$81.28	$83.32	$85.38	$87.46	$89.56
1 1/2" T	$95.87	$98.30	$100.75	$103.23	$105.73
2"	$125.05	$128.26	$131.50	$134.77	$138.08
2" T	$146.94	$150.73	$154.56	$158.43	$162.34
3"	$325.67	$334.24	$342.90	$351.64	$360.47
4"	$555.46	$570.17	$585.03	$600.04	$615.20
6"	$1,175.53	$1,206.82	$1,238.42	$1,270.34	$1,302.58
8"	$2,050.93	$2,105.62	$2,160.86	$2,216.65	$2,273.00
10"	$3,072.23	$3,154.22	$3,237.03	$3,320.67	$3,405.14
12"	$3,874.68	$3,978.12	$4,082.59	$4,188.11	$4,294.68

Table 46: Monthly Dedicated Fire Line Fixed Charges – FY 2023 through FY 2027

Fire Line Charges ($/Month)					
Connection Size	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
5/8"	$1.27	$1.29	$1.31	$1.33	$1.35
3/4"	$1.52	$1.54	$1.56	$1.58	$1.60
1"	$2.02	$2.05	$2.08	$2.11	$2.14
1 1/2"	$3.03	$3.07	$3.11	$3.15	$3.19
2"	$4.04	$4.09	$4.14	$4.19	$4.24
3"	$6.06	$6.13	$6.20	$6.27	$6.34
4"	$8.08	$8.17	$8.26	$8.35	$8.44
6"	$12.12	$12.25	$12.38	$12.51	$12.64
8"	$16.16	$16.33	$16.50	$16.67	$16.84
10"	$20.20	$20.41	$20.62	$20.83	$21.04

Proposed Variable Rates

The proposed variable rates for FY 2023 are shown in Table 47 for each customer class and tier, reflecting the combined rate components of Purchased Water, Delivery, Peaking, and Recycled Water. Table 48Table 49 provides the five-year variable rate schedule through FY 2027 for the City portion of the variable rates (less Zone 7 Variable).

Table 47: FY 2023 Variable Rates by Customer Class and Tier

Customer Class	Tier Allotments (CCF)	Zone 7 Variable [A]	Delivery [B]	Peaking [C]	Recycled [D]	2023 Proposed Variable Rate [E] = A + B + C + D
Single-Family						
Tier 1	7	$2.06	$0.96	$0.39	$0.00	**$3.41**
Tier 2	> 7	$2.06	$0.96	$0.99	$0.00	**$4.01**
Multi-Family	(Uniform)	$2.06	$0.96	$0.62	$0.00	**$3.64**
Non-Residential	(Uniform)	$2.06	$0.96	$0.59	$0.00	**$3.61**
Irrigation	(Uniform)	$2.06	$0.96	$0.80	$0.00	**$3.82**
Recycled	(Uniform)	$0.00	$0.96	$0.83	$0.95	**$2.74**

Table 48: City Distribution Rates – FY 2023 through FY 2027 [6]

Distribution Rates ($/CCF)					
Customer Class	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Single-Family					
Tier 1	$1.35	$1.39	$1.43	$1.47	$1.51
Tier 2	$1.95	$2.00	$2.05	$2.10	$2.15
Multi-Family	$1.58	$1.62	$1.66	$1.70	$1.74
Non-Residential	$1.55	$1.59	$1.63	$1.67	$1.71
Irrigation	$1.76	$1.80	$1.84	$1.88	$1.92
Recycled	$2.74	$2.77	$2.80	$2.83	$2.86

[6] Potable customers are also subject to the Zone 7 Variable charge equal to $2.06, which are subject to pass-through adjustments each January 1, commencing on January 1, 2023

Appendix A – Conservation Surcharges

The City's Municipal Code (Municipal Code) includes a Water Conservation Contingency Plan (Chapter 13.26) with six different conservation stages reflecting reduced water usage. When conservation stages are enacted and the conservation measures realize reductions in water usage, revenues will also reduce causing the utility not to meet its revenue requirements. As such, the Municipal Code also includes the implementation of Conservation Water Rates (Conservation Surcharges) to recover projected lost revenues from each conservation stage. Stage 1 assumes a 10% reduction with each subsequent stage projecting an additional 10% reduction in water usage up to a 60% reduction in stage 6.

The City Council may enact Conservation Surcharges during water shortage events to recover the appropriate amount of revenue to fund water system operations from a reduced volume of water sold. Therefore, Conservation Surcharges are higher than the proposed variable rates identified in Table 48 and increase for each stage.

The proposed Conservation Surcharges are shown by stage for FY 2023 through FY 2027. Water use reductions were applied pro-rata to Residential - Tier 2 and Irrigation usage. The usage within these two classes has the highest potential for cuts and the greatest revenue loss to recover for developing Conservation Surcharges. At 60% reduction in Stage 6, all the Residential – Tier 2 and Irrigation usage is depleted. The additional usage reductions needed to meet the 60% reduction are taken pro-rata from Multi-Family and Non-Residential customers.

Table 49 identifies the total reduction in CCF needed to achieve each conservation stage, and Table 50 summarizes where the reductions are assumed to occur from customer classes and tiers.

Table 49: Total Usage Reductions by Conservation Stage

Baseline Usage (CCF)	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
	10.0%	20.0%	30.0%	40.0%	50.0%	60.0%
2,560,501	256,050	512,100	768,150	1,024,200	1,280,251	1,536,301

Table 50: Usage Reductions by Customer Class and Tier

% Reduction

Customer Class	Baseline Usage (CCF)	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Single-Family							
Tier 1	566,273	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Tier 2	721,556	19.0%	38.0%	56.9%	75.9%	94.9%	100.0%
Multi-Family	198,404	0.0%	0.0%	0.0%	0.0%	0.0%	29.0%
Non-Residential	446,669	0.0%	0.0%	0.0%	0.0%	0.0%	29.0%
Irrigation	627,599	19.0%	38.0%	56.9%	75.9%	94.9%	100.0%
	2,560,501						

Usage Reduction

Customer Class	Baseline Usage (CCF)	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Single-Family							
Tier 1	566,273	-	-	-	-	-	-
Tier 2	721,556	136,941	273,882	410,823	547,764	684,704	721,556
Multi-Family	198,404	-	-	-	-	-	57,560
Non-Residential	446,669	-	-	-	-	-	129,585
Irrigation	627,599	119,109	238,218	357,328	476,437	595,546	627,599
Projected Usage Reduction		256,050	512,100	768,150	1,024,200	1,280,251	1,536,301

With reductions identified in Table 50, the remaining usage is summarized in Table 51 and the corresponding reduced revenue for FY 2023 is shown in Table 52 by taking the usage in Table 51 and multiplying it by the proposed FY 2023 City variable rates.

Table 51: Remaining Usage by Conservation Stage

Customer Class	Baseline Usage (CCF)	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Single-Family							
Tier 1	566,273	566,273	566,273	566,273	566,273	566,273	566,273
Tier 2	721,556	584,615	447,674	310,733	173,792	36,852	0
Multi-Family	198,404	198,404	198,404	198,404	198,404	198,404	140,844
Non-Residential	446,669	446,669	446,669	446,669	446,669	446,669	317,084
Irrigation	627,599	508,490	389,381	270,271	151,162	32,053	0
Total Projected Water Sales (CCF)	2,560,501	2,304,451	2,048,401	1,792,351	1,536,301	1,280,251	1,024,200
% Reduction from Baseline		*10.0%*	*20.0%*	*30.0%*	*40.0%*	*50.0%*	*60.0%*

Table 52: Projected Revenue and Potential Revenue Loss

Commodity Rates ($/CCF)						FY 2023
Customer Class	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	Selected
Single-Family						
Tier 1	$1.35	$1.39	$1.43	$1.47	$1.51	**$1.35**
Tier 2	$1.95	$2.00	$2.05	$2.10	$2.15	**$1.95**
Multi-Family	$1.58	$1.62	$1.66	$1.70	$1.74	**$1.58**
Non-Residential	$1.55	$1.59	$1.63	$1.67	$1.71	**$1.55**
Irrigation	$1.76	$1.80	$1.84	$1.88	$1.92	**$1.76**

Projected Commodity Revenue			FY 2023					
Line #	Customer Class	Baseline [A]	Stage 1 [B]	Stage 2 [C]	Stage 3 [D]	Stage 4 [E]	Stage 5 [F]	Stage 6 [G]
1	Single-Family							
2	Tier 1	$764,468	$764,468	$764,468	$764,468	$764,468	$764,468	$764,468
3	Tier 2	$1,407,034	$1,140,000	$872,965	$605,930	$338,895	$71,861	$0
4	Multi-Family	$313,478	$313,478	$313,478	$313,478	$313,478	$313,478	$222,533
5	Non-Residential	$692,337	$692,337	$692,337	$692,337	$692,337	$692,337	$491,479
6	Irrigation	$1,104,574	$894,942	$685,310	$475,678	$266,045	$56,413	$0
7	Total Projected Commodity Revenue	**$4,281,892**	**$3,805,225**	**$3,328,558**	**$2,851,891**	**$2,375,225**	**$1,898,558**	**$1,478,481**
	Revenue Loss Calculation in Line 8		*B7 - A7*	*C7 - A7*	*D7 - A7*	*E7 - A7*	*F7 - A7*	*G7 - A7*
8	Projected Lost Revenue		**$476,667**	**$953,334**	**$1,430,001**	**$1,906,668**	**$2,383,335**	**$2,803,411**
	% Lost Revenue		*11%*	*22%*	*33%*	*45%*	*56%*	*65%*

In addition to revenue losses, the City will also see a reduction in water loss expenses (included within the City's Delivery component), generating cost savings. Table 53 calculates the cost savings from reduced water loss, and Table 54 reflects the FY 2023 net impact of revenue loss to be recovered from Conservation Surcharges for each stage.

Table 53: Water Loss Expense – Cost Savings

Variable Purchased Water Unit Cost	
Variable Purchased Water Costs	$586,000
÷ Baseline Usage (CCF)	2,560,501
Variable Purchased Water Unit Cost ($/CCF)	**$0.23**

Purchased Water Cost Savings	*Source*	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Reduction in usage (CCF)	*Table 50*	256,050	512,100	768,150	1,024,200	1,280,251	1,536,301
× Variable Purchased Water Unit Cost		$0.23	$0.23	$0.23	$0.23	$0.23	$0.23
Purchased Water Cost Savings		**$58,600**	**$117,200**	**$175,800**	**$234,400**	**$293,000**	**$351,600**

Table 54: FY 2023 Net Impact from Conservation Stages

Incremenal Impact from Conservation Stages	*Source*	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Lost Revenue	*Table 52*	$476,667	$953,334	$1,430,001	$1,906,668	$2,383,335	$2,803,411
Less Purchased Water Cost Savings	*Table 53*	($58,600)	($117,200)	($175,800)	($234,400)	($293,000)	($351,600)
Incremenal Impact from Conservation Stages ($)		**$418,067**	**$836,134**	**$1,254,201**	**$1,672,268**	**$2,090,335**	**$2,451,811**

Table 55 takes the net revenue loss in Table 54 and recovers it from the remaining usage from Table 51 to derive Conservation Surcharges for FY 2023, which would be applied to all City variable rates. Table 55

through Table 59 identify the Conservation Surcharges for FY 2024 through FY 2027, respectively, using the same approach shown for FY 2023.

Table 55: FY 2023 Conservation Surcharges

Drought Rate (CCF)	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Incremenal Impact from Conservation Stages ($)	$418,067	$836,134	$1,254,201	$1,672,268	$2,090,335	$2,451,811
÷ Projected Water Sales (CCF)	2,304,451	2,048,401	1,792,351	1,536,301	1,280,251	1,024,200
Drought Rate (CCF)	**$0.19**	**$0.41**	**$0.70**	**$1.09**	**$1.64**	**$2.40**

Table 56: FY 2024 Conservation Surcharges

Drought Rate (CCF)	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Incremenal Impact from Conservation Stages ($)	$429,678	$859,357	$1,289,035	$1,718,713	$2,148,392	$2,520,479
÷ Projected Water Sales (CCF)	2,304,451	2,048,401	1,792,351	1,536,301	1,280,251	1,024,200
Drought Rate (CCF)	**$0.19**	**$0.42**	**$0.72**	**$1.12**	**$1.68**	**$2.47**

Table 57: FY 2025 Conservation Surcharges

Drought Rate (CCF)	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Incremenal Impact from Conservation Stages ($)	$441,290	$882,580	$1,323,869	$1,765,159	$2,206,449	$2,589,146
÷ Projected Water Sales (CCF)	2,304,451	2,048,401	1,792,351	1,536,301	1,280,251	1,024,200
Drought Rate (CCF)	**$0.20**	**$0.44**	**$0.74**	**$1.15**	**$1.73**	**$2.53**

Table 58: FY 2026 Conservation Surcharges

Drought Rate (CCF)	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Incremenal Impact from Conservation Stages ($)	$452,901	$905,802	$1,358,704	$1,811,605	$2,264,506	$2,657,814
÷ Projected Water Sales (CCF)	2,304,451	2,048,401	1,792,351	1,536,301	1,280,251	1,024,200
Drought Rate (CCF)	**$0.20**	**$0.45**	**$0.76**	**$1.18**	**$1.77**	**$2.60**

Table 59: FY 2027 Conservation Surcharges

Drought Rate (CCF)	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Incremenal Impact from Conservation Stages ($)	$464,513	$929,025	$1,393,538	$1,858,050	$2,322,563	$2,726,481
÷ Projected Water Sales (CCF)	2,304,451	2,048,401	1,792,351	1,536,301	1,280,251	1,024,200
Drought Rate (CCF)	**$0.21**	**$0.46**	**$0.78**	**$1.21**	**$1.82**	**$2.67**