



MESA WATER DISTRICT

Water Cost of Service and Rate Study

FINAL REPORT / OCTOBER 31, 2023



October 31, 2023

Mr. Paul E. Shoenberger, P.E.
General Manager
Mesa Water District
1965 Placentia Ave
Costa Mesa, CA 92627

Subject: Potable and Recycled Water Cost of Service and Rate Study Report – FINAL

Dear Mr. Shoenberger:

Raftelis is pleased to provide this Water Cost-of-Service and Rate Study Report for the Mesa Water District (Mesa Water). This report includes an updated financial plan for fiscal year (FY) 2024 to FY 2034 (study period). Mesa Water is proposing to set water charges and rates for FY 2024 through FY 2028.

The Report objectives include the following:

- Update Mesa Water's ten-year financial plan to support financial sufficiency, meet projected operation and maintenance (O&M) costs, and ensure funding to meet debt obligations and fund necessary capital expenditures;
- Conduct a water cost-of-service study that is based on Mesa Water's costs to align with Proposition 218 requirements;
- Calculate updated water charges and rates for FY 2024 through FY 2028;
- Conduct a customer impact analysis for the proposed rates and charges; and
- Develop a report that demonstrates the nexus between Mesa Water's costs and the proposed rates and charges, to align with the requirements of Proposition 218.

This report summarizes the key findings and recommendations related to the development of the financial plan and the associated water charges and rates.

It has been a pleasure working with you, Marwan Khalifa, and other Mesa Water staff.

Sincerely,



Steve Gagnon, PE (AZ)

Vice President

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Abbreviations and Acronyms

Terms	Descriptions
AF	Acre foot /Acre feet, 1 AF = 435.6 hcf
AWWA	American Water Works Association
BPP	Basin pumping percentage
ccf	Hundred cubic feet, 1 ccf = 748 gallons
COS	Cost of service
FY	Fiscal year
G&A or Admin	General and administration
gpm	Gallons per minute
LRP	Local Resource Program
M1 Manual	“Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices M1”, 7th edition published by AWWA
Mesa Water	Mesa Water District
MWD	Metropolitan Water District of Southern California
MWDOC	Municipal Water District of Orange County
MWRF	Mesa Water Reliability Facility
OCWD	Orange County Water District
O&M	Operations and Maintenance
Paygo	Pay-As-You-Go
Prop 218	Proposition 218
Raftelis	Raftelis Financial Consultants, Inc.
T&D	Transmission & Distribution

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1. Executive Summary

Since 1960, Mesa Water District (Mesa Water) has been providing clean, safe, reliable drinking water at a reasonable cost to approximately 110,000 residents in an 18-square-mile area in Costa Mesa, parts of Newport Beach, and certain unincorporated areas of Orange County, including John Wayne Airport.

Mesa Water's primary source of water is groundwater, pumped from Orange County's natural groundwater basin via seven wells. More than two decades ago, Mesa Water's Board of Directors set a goal to reduce reliance on imported water from Northern California and the Colorado River by increasing Mesa Water's production capacity of groundwater and recycled water. The completion of the Mesa Water Reliability Facility (MWRF) in January 2013 has achieved Mesa Water's goal to provide 100 percent local and reliable water to its customers.

Mesa Water's five clear-water wells pump water from 200-600 feet below the surface and provide up to 85 percent of the water needs for Mesa Water's service area. The two deep-water wells pump water from 1,200 feet below the surface and provide the remaining water needed for Mesa Water customers. The aquifer extends down to 2,000 feet below the surface. The MWRF treats amber groundwater from a previously unusable aquifer, providing Mesa Water with an additional potable water source.

Mesa Water also sells recycled water for irrigation purposes to a limited number of customers. The recycled water is purchased from Orange County Water District (OCWD) and replaces potable water that would otherwise have been used for irrigation. OCWD owns the recycled water distribution system and is responsible for the maintenance and replacement of the recycled water system. Mesa Water is the retail provider and bills customers for such recycled water service.

In 2009, to improve Mesa Water's credit rating to a strong AAA in seven years, the Board adopted additional financial goals to further measure its creditworthiness at the end of each fiscal year by using the Days Cash Ratio and Cash on Hand metrics. The Days Cash Ratio is defined as total cash available divided by Operating Expenses per day and is a measurement of an agency's ability to meet known and unanticipated expenses.

In January 2022, the Board updated the long-term financial plan and adopted multi-year rate increases from FY 2023 to FY 2027. The previously adopted water charges and rates were developed as part of the five-year rate adoption in the 2021 Rate Study, with the first charges and rates adjustments effective as of January 1, 2023, and the last charge/rate adjustments going into effect as of January 1, 2027. Since extraordinary inflation significantly impacted Mesa Water's costs in 2022 and 2023, Mesa Water engaged Raftelis Financial Consultants (Raftelis) in July 2023 to conduct an updated comprehensive water rate study for Mesa Water services.

The major objectives of this study include the following:

1. Develop a 10-year financial plan to ensure financial sufficiency and funding for operation and maintenance, capital improvement, and capital replacement expenses.
2. Conduct a cost-of-service analysis for water services, and proportionately allocate the costs of providing services.
3. Develop proposed water rates and charges for five years and perform a customer impact analysis.

4. Prepare a report that demonstrates the nexus between Mesa Water’s costs and rates and charges, to align with the requirements of Proposition 218.

This report summarizes the water rate study’s financial plan and rate development key findings and recommendations.

1.1. Methodology

Raftelis and Mesa Water developed the proposed rates and charges, which are based on the costs to serve water to Mesa Water customers. The charges align with the requirements of Proposition 218.

1.2. Proposed Financial Plan and Revenue Adjustments

The financial planning model provides information for Mesa Water to set rates and charges to generate sufficient revenue to meet its short-term and long-term obligations, including reserve fund requirements, and avoid significant future rate fluctuations.

Table 1-1, on the next page, shows the proposed financial plan incorporating the proposed revenue adjustments and self-insurance program funding (Line 32). Mesa Water is proposing to set rates for FY 2024 through FY 2028.

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Table 1-1: Proposed Financial Plan Cashflow

Line No.	Line Item	Fiscal Year				
		2024	2025	2026	2027	2028
1	Revenue Under Existing Rates	\$40,896,287	\$41,042,636	\$41,189,615	\$41,337,226	\$41,485,472
	Revenue Adjustments					
	FY Mo. Effctv. Adjustment					
2	2024 6 11.20%	\$2,290,192	\$4,596,775	\$4,613,237	\$4,629,769	\$4,646,373
3	2025 6 10.0%		\$2,281,971	\$4,580,285	\$4,596,700	\$4,613,184
4	2026 6 7.0%			\$1,763,410	\$3,539,459	\$3,552,152
5	2027 6 7.0%				\$1,893,610	\$3,800,803
6	2028 6 7.0%					\$2,033,429
7	2029 6 3.0%					
8	2030 6 3.0%					
9	2031 6 3.0%					
10	2032 6 3.0%					
11	2033 6 3.0%					
12	2034 6 3.0%					
13	Total Adjusted Revenue	\$2,290,192	\$6,878,746	\$10,956,932	\$14,659,538	\$18,645,941
14	Capital Charge Revenue - Existing Rates	\$6,021,785	\$7,474,370	\$7,474,370	\$7,474,370	\$7,474,370
15	Capital Charge Revenue - Proposed Adj.	\$0	\$373,718	\$1,898,490	\$4,259,793	\$6,764,484
16	Total Rate & Capital Charge Revenue	\$49,208,264	\$55,769,470	\$61,519,407	\$67,730,926	\$74,370,267
	Other Revenue					
17	Misc Net Revenues	\$345,000	\$395,975	\$396,955	\$397,940	\$398,929
18	Interest Income	\$332,175	\$266,983	\$202,110	\$208,792	\$260,292
19	Total Revenue	\$49,885,439	\$56,432,428	\$62,118,471	\$68,337,658	\$75,029,488
	O&M Expenses					
20	Imported/Basin Managed Water Costs	\$539,000	\$576,034	\$610,176	\$646,349	\$684,516
21	Clear Water Costs	\$10,996,970	\$12,185,855	\$13,472,015	\$14,772,037	\$16,201,074
22	Amber Water Costs	\$2,914,686	\$3,180,754	\$3,463,598	\$3,752,029	\$4,062,529
23	Transmission & Distribution	\$9,980,555	\$10,331,855	\$10,696,029	\$11,073,567	\$11,480,878
24	General & Administrative	\$10,987,174	\$11,439,925	\$11,910,450	\$12,399,470	\$12,903,879
25	Recycled Water Costs	\$1,064,640	\$1,148,983	\$1,223,159	\$1,302,123	\$1,386,186
26	Total O&M Expenses	\$36,483,025	\$38,863,405	\$41,375,427	\$43,945,576	\$46,719,062
27	Net Revenues	\$13,402,414	\$17,569,023	\$20,743,044	\$24,392,082	\$28,310,426
	Debt Service					
28	Existing	\$6,848,450	\$6,898,200	\$6,921,450	\$4,723,950	\$3,976,200
29	Proposed	\$0	\$0	\$0	\$0	\$0
30	Total Debt Service	\$6,848,450	\$6,898,200	\$6,921,450	\$4,723,950	\$3,976,200
31	Capital-Related (Paygo)	\$0	\$5,464,260	\$3,180,100	\$3,311,143	\$3,446,117
32	Pension Liability Prepayment	\$110,000	\$0	\$0	\$0	\$0
33	Self Insurance Program Funding	\$11,987,500	\$12,220,000	\$12,831,000	\$13,472,550	\$14,146,178
34	Annual Surplus/(Deficit)	(\$5,543,536)	(\$7,013,437)	(\$2,189,506)	\$2,884,439	\$6,741,932
35	Beginning Balance	\$27,447,189	\$21,903,653	\$14,890,217	\$12,700,711	\$15,585,150
36	Ending Operating* Balance	\$21,903,653	\$14,890,217	\$12,700,711	\$15,585,150	\$22,327,081
37	Ending Balance Operating* & Capital Funds**	\$24,095,009	\$14,890,217	\$12,700,711	\$15,585,150	\$22,327,081
38	Captive Funds Ending Balance	\$38,389,480	\$53,362,025	\$69,890,604	\$88,102,961	\$108,136,317

* Customer & Development Deposits + Other Funds + Liquidity Funds

** Capital Replacement Fund

Line 1 shows revenue from current Basic, Fireline, and Volume rates and charges, assuming no increase in the rates and charges. Revenue from current rates and charges includes water, recycled water, and private fire customers and consumption, where applicable. Line 13 shows the additional revenue received from the revenue adjustments proposed in Table 1-2. Line 14 shows the projected capital charge revenue under the prior approved Jan 1, 2023 and Jan. 1, 2024 rates. Line 15 shows the projected capital charge revenue from the proposed capital charge revenue adjustments. Line 16 shows the total rate-based revenues. Lines 17 and 18 show other revenues. Interest revenues (Line 18) decreases in FY 2025 and FY 2026 due to declining reserve balances caused by the deficit (Line 34) to fund the self-insurance program over the 12-year program timeline. Line 19 shows total projected revenues. Lines 20 – 25 summarize the O&M expense projections. Line 27 shows net revenues, which are revenues less O&M expenses. Lines 28 and 29 show the existing and proposed debt service, respectively. Line 31 shows the cash funding of capital improvement projects on an on-going basis (also called “Paygo”). Line 32 shows a final payment into the pension liability prepayment in FY 2024. Line 33 shows the projected self-insurance program funding. Line 34 shows the annual surplus/deficit. Due to initial self-insurance program funding levels, the operating cash balance is initially drawn down. Lines 35 and 36 show the beginning and ending operating fund balance, respectively. Line 37 shows the ending balance including the capital replacement fund. Line 38 shows the projected self-insurance program funds balance, which includes projected interest earnings for the fund. The proposed financial plan strongly supports financial sufficiency and solvency for Mesa Water to meet projected expenditures and financial obligations, including debt service, debt coverage, and most reserve fund targets while also funding the self-insurance program.

Figure 1-1 graphically illustrates the operating Financial Plan – it compares existing (current) and proposed revenues with projected expenses. The stacked bars show expenses, including O&M expenses, debt service, and rate-funded CIP. Total revenues at existing and proposed rates and charges are shown by horizontal black and green lines, respectively. Current revenue from existing rates and charges, in black, does not meet future total expenses and shows the need for the proposed revenue adjustments.

Figure 1-1: Proposed Financial Plan

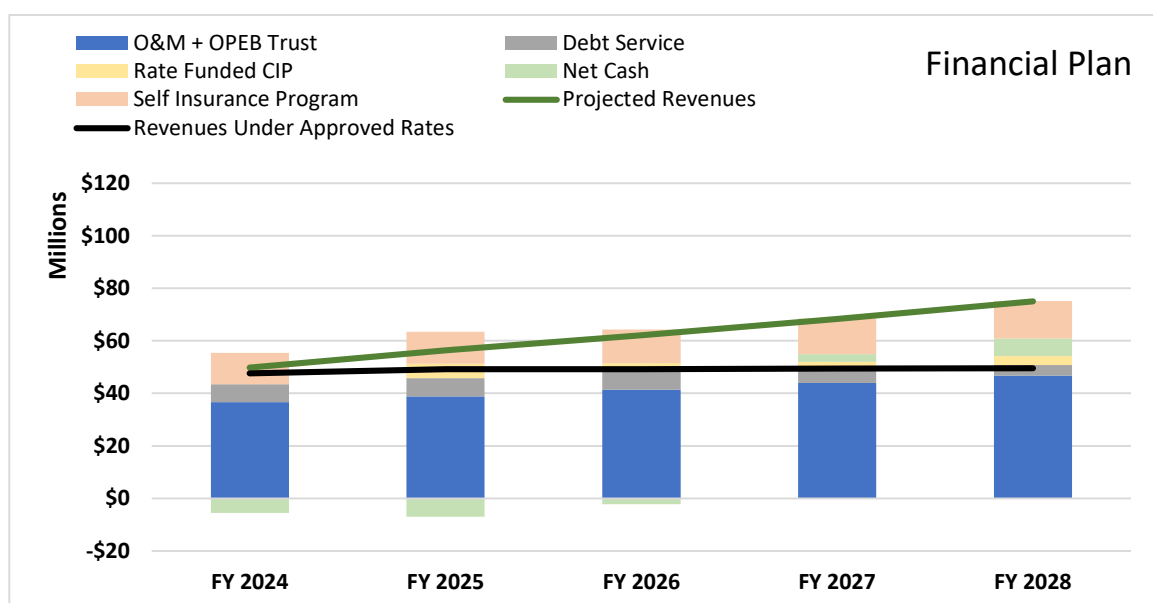


Table 1-2 shows the proposed revenue adjustments and 12-year self-insurance program funding selected by the Board of Directors at the October 25, 2023, Board Meeting. The self-insurance program funding is treated as an integral part of the financial plan for purposes of this water rate study. The proposed financial plan implements an initial higher level of revenue adjustments to make up for higher-than-anticipated inflation, then levels off at ten percent (10%) per fiscal year. Revenue adjustments occur on January 1 for each year. This proposed scenario allows Mesa Water to build the self-insurance program over 12 years and maintain reserves.

Table 1-2: Proposed Revenue Adjustments Including Self-Insurance Program Funding

Fiscal Year	Proposed Revenue Adjustment		Overall Adjustment	Self-Insurance Program
	Basic, Fireline, Volume	Capital Charge		
2024	11%	64%*	13%	\$11,987,500
2025	10%	10%	10%	\$12,220,000
2026	7%	28%	10%	\$12,831,000
2027	7%	23%	10%	\$13,472,550
2028	7%	20%	10%	\$14,146,178

* Already approved and enacted from prior study.

1.3. Proposed Five-Year Rate Schedule

1.3.1. Fixed Bi-Monthly and Monthly Basic Fireline Service Charges

Basic charges recover costs associated with billing, meter reading, meter maintenance and public fire service. To develop the proposed bi-monthly and monthly basic charges, Raftelis used AWWA meter capacity ratios. Raftelis also assisted Mesa Water in evaluating different fixed revenue levels to enhance future revenue stability. Mesa Water currently collects about 27 percent of its rate revenue from fixed meter basic charges, fireline service charges, and capital charges. Proposed basic and fireline charges have been rounded up to the nearest cent.

Private fireline charges recover costs associated with the billing, meter reading, capital and operating costs associated with delivering private fireline service. Raftelis and Mesa Water developed the proposed fireline charges, which are based on the costs to serve water to Mesa Water's private fireline customers. The charges align with the requirements of Proposition 218. The District-provided information on the portion of system capacity for fire protection. The proposed charges are in proportion to the potential flow through each connection size. In discussions with Mesa Water staff, a 1-inch service line was deemed the smallest service line; and thus, the charges for meters of 1-inch or smaller are billed at the 1-inch charge.

Table 1-3 shows the previously adopted January 2023 and proposed bi-monthly and monthly basic charges. Table 1-4 shows the adopted January 2023 and the proposed bi-monthly and monthly fireline service charges. The proposed fireline service charges apply to all Mesa Water customers with private fireline service connections. The charges for the current and proposed bi-monthly and monthly basic charges and fireline service charges are calculated based on the meter size and diameter of the fire line serving a property, respectively. The proposed charges are rounded up to the nearest cent.

Table 1-3: Adopted Jan. 2023 and Proposed (FY 2024 – FY 2028) Bi-Monthly and Monthly Basic Charge

Proposed Rates	Fiscal Year					
	2023	2024	2025	2026	2027	2028
Effective Date	Jan 2023	Jan 2024	Jan 2025	Jan 2026	Jan 2027	Jan 2028
Bi-Monthly Potable Water & Recycled Water Basic Charge, \$/bi-mo						
Meter Size						
5/8-inch	\$29.55	\$32.93	\$36.22	\$38.75	\$41.47	\$44.37
3/4-inch	\$36.30	\$41.27	\$45.40	\$48.58	\$51.98	\$55.62
1-inch	\$49.79	\$57.97	\$63.76	\$68.23	\$73.00	\$78.11
1 1/2-inch	\$83.52	\$99.70	\$109.67	\$117.35	\$125.56	\$134.35
2-inch	\$124.00	\$149.78	\$164.76	\$176.29	\$188.63	\$201.83
3-inch	\$252.17	\$308.36	\$339.20	\$362.94	\$388.35	\$415.54
4-inch	\$441.06	\$542.07	\$596.28	\$638.02	\$682.68	\$730.46
6-inch	\$960.50	\$1,184.76	\$1,303.23	\$1,394.46	\$1,492.07	\$1,596.52
8-inch	\$1,635.11	\$2,019.42	\$2,221.36	\$2,376.85	\$2,543.23	\$2,721.26
10-inch	\$2,579.55	\$3,187.94	\$3,506.73	\$3,752.20	\$4,014.86	\$4,295.90
Monthly Potable Water & Recycled Water Basic Charge, \$/mo						
Meter Size						
5/8-inch	\$22.81	\$24.58	\$27.04	\$28.93	\$30.96	\$33.12
3/4-inch	\$26.18	\$28.75	\$31.63	\$33.84	\$36.21	\$38.75
1-inch	\$32.92	\$37.10	\$40.81	\$43.67	\$46.72	\$49.99
1 1/2-inch	\$49.79	\$57.97	\$63.76	\$68.23	\$73.00	\$78.11
2-inch	\$70.03	\$83.01	\$91.31	\$97.70	\$104.54	\$111.85
3-inch	\$134.11	\$162.30	\$178.53	\$191.03	\$204.40	\$218.71
4-inch	\$228.56	\$279.15	\$307.07	\$328.56	\$351.56	\$376.17
6-inch	\$488.28	\$600.50	\$660.54	\$706.78	\$756.26	\$809.20
8-inch	\$825.58	\$1,017.82	\$1,119.61	\$1,197.98	\$1,281.84	\$1,371.57
10-inch	\$1,297.81	\$1,602.09	\$1,762.30	\$1,885.66	\$2,017.65	\$2,158.89

Table 1-4: Adopted Jan. 2023 and Proposed (FY 2024 – FY 2028) Bi-Monthly and Monthly Fireline Charges

Proposed Rates	Fiscal Year					
	2023	2024	2025	2026	2027	2028
Effective Date	Jan 2023	Jan 2024	Jan 2025	Jan 2026	Jan 2027	Jan 2028
Bi-Monthly Fireline Class I and II, \$/bi-mo						
Fireline Service Size						
5/8-inch	\$17.38	\$17.52	\$19.27	\$20.62	\$22.06	\$23.61
3/4-inch	\$17.38	\$17.52	\$19.27	\$20.62	\$22.06	\$23.61
1-inch	\$17.38	\$17.52	\$19.27	\$20.62	\$22.06	\$23.61
1 1/2-inch	\$19.90	\$19.97	\$21.97	\$23.50	\$25.15	\$26.91
2-inch	\$24.24	\$24.19	\$26.61	\$28.48	\$30.47	\$32.60
3-inch	\$39.81	\$39.35	\$43.29	\$46.32	\$49.56	\$53.03
4-inch	\$66.67	\$65.50	\$72.05	\$77.10	\$82.50	\$88.27
6-inch	\$163.09	\$159.36	\$175.29	\$187.56	\$200.69	\$214.74
8-inch	\$329.38	\$321.23	\$353.36	\$378.09	\$404.56	\$432.88
10-inch	\$579.52	\$564.73	\$621.20	\$664.68	\$711.21	\$761.00
Monthly Fireline Class I and II, \$/mo						
Fireline Service Size						
5/8-inch	\$16.72	\$16.88	\$18.56	\$19.86	\$21.25	\$22.74
3/4-inch	\$16.72	\$16.88	\$18.56	\$19.86	\$21.25	\$22.74
1-inch	\$16.72	\$16.88	\$18.56	\$19.86	\$21.25	\$22.74
1 1/2-inch	\$17.98	\$18.10	\$19.91	\$21.30	\$22.80	\$24.39
2-inch	\$20.15	\$20.21	\$22.23	\$23.79	\$25.46	\$27.24
3-inch	\$27.93	\$27.79	\$30.57	\$32.71	\$35.00	\$37.45
4-inch	\$41.37	\$40.87	\$44.96	\$48.10	\$51.47	\$55.07
6-inch	\$89.57	\$87.79	\$96.57	\$103.33	\$110.57	\$118.31
8-inch	\$172.72	\$168.73	\$185.61	\$198.60	\$212.50	\$227.38
10-inch	\$297.79	\$290.48	\$319.53	\$341.90	\$365.83	\$391.44

1.3.2. Capital Charges

The capital charge recovers capital-related costs, as well as certain fixed operating and maintenance costs via a fixed charge. The capital charge is collected by the Orange County Treasurer-Tax Collector's office by way of the annual County property tax roll process. Table 1-5 shows the adopted January 2023 and January 2024 charges and the proposed, annual capital charge based on customer meter size. Certain properties may have more than one water meter and the capital charge would be imposed and levied accordingly. Raftelis did not evaluate parcel data. Mesa Water customers who do not receive a property tax bill would be billed the capital charge directly.

**Table 1-5 Adopted Jan. 2023, Adopted Jan. 2024 and Proposed (FY 2024 – FY 2028)
Capital Charge, \$/yr**

Proposed Rates	Fiscal Year					
	2023	2024	2025	2026	2027	2028
Potable Water Meter Size						
5/8-inch	\$99.92	\$163.45	\$180.00	\$231.00	\$284.00	\$340.00
3/4-inch	\$149.88	\$245.17	\$270.00	\$346.00	\$425.00	\$510.00
1-inch	\$249.79	\$408.61	\$450.00	\$576.00	\$708.00	\$850.00
1 1/2-inch	\$499.57	\$817.21	\$899.00	\$1,151.00	\$1,416.00	\$1,699.00
2-inch	\$799.31	\$1,307.54	\$1,439.00	\$1,842.00	\$2,265.00	\$2,718.00
3-inch	\$1,748.49	\$2,860.23	\$3,147.00	\$4,028.00	\$4,954.00	\$5,945.00
4-inch	\$3,147.29	\$5,148.40	\$5,664.00	\$7,249.00	\$8,917.00	\$10,700.00
6-inch	\$6,993.96	\$11,440.89	\$12,585.00	\$16,109.00	\$19,814.00	\$23,777.00
8-inch	\$11,989.65	\$19,612.96	\$21,575.00	\$27,616.00	\$33,967.00	\$40,760.00
10-inch	\$18,983.61	\$31,053.84	\$34,160.00	\$43,724.00	\$53,781.00	\$64,537.00

1.3.3. Proposed Water Usage Rates

The remaining revenue (i.e., the revenue that is not collected through the fixed meter basic charge, the fireline charges, and the capital charge) for potable, construction, fireline, and recycled water usage would be recovered by usage rates under the proposed rate structure described herein. As with the fixed and capital charges, the proposed FY 2024 – FY 2028 usage rates are based on cost to serve water. The proposed rates are rounded up to the nearest cent. Table 1-6 shows usage rates for the previously adopted January 2023 rates and the following five years.

Table 1-6: Adopted Jan. 2023 and Proposed (FY 2024 – FY 2028) Usage Rates by Class, \$/ccf

Proposed Rates	Fiscal Year					
	2023	2024	2025	2026	2027	2028
Usage, \$/ccf	Jan 2023	Jan 2024	Jan 2025	Jan 2026	Jan 2027	Jan 2028
Potable Water (1)	\$4.87	\$5.42	\$5.96	\$6.38	\$6.83	\$7.30
Recycled Water	\$3.40	\$3.47	\$3.82	\$4.09	\$4.38	\$4.68

(1) also applies to construction and fireline water use.

1.3.4. Average Customer Bill Impacts

Table 1-7 illustrates the customer bill impact for an average single-family residential water customer with a 5/8" meter using an average of 22 ccf in a bi-monthly billing period (60 days). While the capital charge is billed on the property tax roll, it is shown on a bi-monthly equivalent to show the total bill impact.

Table 1-7: Proposed Bi-Monthly Bill for an Average 5/8" Single-Family Customer

	Proposed					
	Jan. 1, 2023	Jan. 1, 2024	Jan. 1, 2025	Jan. 1, 2026	Jan. 1, 2027	Jan. 1, 2028
Bi-monthly Basic Charge: 5/8"	\$29.55	\$32.93	\$36.22	\$38.75	\$41.47	\$44.37
Capital Charge, 5/8" (\$/bi-mo)	\$21.95	\$27.24	\$30.00	\$38.50	\$47.33	\$56.67
Usage Charge (ccf): 22	\$107.14	\$119.23	\$131.15	\$140.33	\$150.15	\$160.67
Total Water Bill + Capital Charge	\$158.64	\$179.40	\$197.37	\$217.59	\$238.96	\$261.70
% Change		13.1%	10.0%	10.2%	9.8%	9.5%

Note: Jan. 1, 2023 capital charge is the average equivalent bi-monthly charge over FY2023.

2. Introduction

2.1. Overview of Mesa Water District

Since 1960, Mesa Water District (Mesa Water) has been providing clean, safe, reliable drinking water at a reasonable cost to approximately 110,000 residents in 18-square-mile service area, which encompasses Costa Mesa, parts of Newport Beach, and some unincorporated areas of Orange County, including John Wayne Airport.

Mesa Water currently owns and maintains 317 miles of mainlines, 3,383 fire hydrants, 2 booster pump stations, 2 storage reservoirs, and 7 groundwater wells. Mesa Water's five clear-water wells pump water from 200-600 feet below the surface and provide up to 85 percent of the water needs for Mesa Water's service area. The two deep-water wells pump water from 1,200 feet below the surface and provide the remaining water needed to meet the needs of Mesa Water customers. The aquifer extends down to 2,000 feet below the surface. The MWRf treats amber groundwater from a previously unusable aquifer, providing Mesa Water with an additional potable water source. Amber groundwater from this lower aquifer is more expensive to produce than clear groundwater produced from the upper aquifer. However, the treatment cost of amber groundwater is substantially less expensive than purchasing imported water.

Mesa Water also sells recycled water for irrigation purposes. The recycled water is purchased from Orange County Water District (OCWD) and replaces potable water that would otherwise have been used for irrigation. OCWD owns the recycled water distribution system and is responsible for the maintenance and replacement of the recycled water system.

In 2017, the Board established a Days Cash goal of 600 days. The Days Cash Ratio is defined as total cash available divided by the Operating Expenses per day and is a measurement of an agency's ability to meet known and unanticipated expenses. Due to creating a self-insurance program fund, which can be included in the calculation of Days Cash, Mesa Water is also calculating a new, unofficial, operating minimum target of 120 days that excludes money in the self-insurance program fund.

Mesa Water's revenues result solely from its activities as a governmental water utility. It receives no tax revenue of any kind. However, as discussed within this report, Mesa Water has some water-related costs collected through the Orange County Treasurer-Tax Collector's office. The majority of Mesa Water's revenue comes from meter basic charges and usage (volumetric) charges. Other revenues include non-operating revenue such as delinquent payment charges, new service establishment fees, interest income, development-related revenue, etc. In addition, Mesa Water receives reimbursement from MWD's Local Resource Program (LRP) for a portion of its water production costs from Mesa Water's MWRf (through FY 2025).

2.2. Methodology

Raftelis and Mesa Water developed the proposed rates and charges, which are based on the costs to serve water to Mesa Water customers. The charges align with the requirements of Proposition 218.

3. Rate Setting Methodology

The process and approach Raftelis utilized in the study to determine water rates is informed by Mesa Water’s policy objectives, the current water system and rates, and the legal requirements in California (namely, Proposition 218). The resulting financial plan, cost-of-service analysis, and rate design process follows five key steps, outlined below, to determine proposed rates that achieve Mesa Water’s objectives, meet industry standards, and align with relevant regulations.

1. **Financial Plan - Projections:** The first step is to develop a multi-year financial plan that projects Mesa Water’s revenues, expenses, capital project financing, annual debt service, and reserve funding. The financial plan is used to determine the revenue adjustment, which allows Mesa Water to recover adequate revenues to fund expenses and reserves.
2. **Financial Plan - Revenue Requirement Determination:** After completing the financial plan, the rate-making process determines the revenue requirement for the test year, also known as the rate-setting year. The test year for this study is FY 2024. The revenue requirement should sufficiently fund Mesa Water’s operating costs, annual debt service (including coverage requirements), capital expenditures, and reserve funding as projected based on the annual budget estimates.
3. **Cost-of-Service Analysis:** The annual cost of providing water service, or the revenue requirement, is then distributed to customer classes commensurate with their use of and burden on the water system. A cost-of-service analysis involves the following steps:
 - a. Functionalize costs – the different components of the revenue requirement are categorized into functions such as supply, transmission/distribution, storage, customer service, etc.
 - b. Allocate to cost causation components – the functionalized costs are then allocated to cost-causation components such as volume, public or private fire, meter, recycled water, etc.
 - c. Develop unit costs – unit costs for each cost-causation component are determined using units of service, such as total use, equivalent meters, number of customers, etc., for each component.
 - d. Distribute cost components – the cost components are allocated to each customer class using the unit costs in proportion to their units of service (demand and burden on the system).
4. **Rate Design:** After allocating the revenue requirement to each customer class, the project team designs and calculates rates. Rates do more than simply recover costs; within the legal framework and industry standards, properly designed rates should support and optimize Mesa Water’s policy objectives. Rates also act as a public information tool in communicating these policy objectives to customers. This process also includes a rate impact analysis and sample customer bill impacts.
5. **Report Preparation and Rate Adoption:** The final step in a rate study is to develop the report in conjunction with the rate adoption process. The report documents the study results and presents the methodologies, rationale, justifications, and calculations used to determine the proposed rates.

Values shown in report tables and figures are rounded to the digit shown. Therefore, any manual reproduction of the calculations shown may not match the precise results displayed in this report.

4. General Assumptions

This section describes the assumptions used to project annual revenues and expenses including reserve targets and required debt coverage ratios to determine the revenue adjustments required to support Mesa Water's financial stability.

4.1. Key Information Used in this Report

The report utilized the following key information provided by Mesa Water;

- FY 2023 and FY 2024 operating budget
- Debt service schedule(s) for all outstanding debt
- Historical and forecast number of services and consumption sales for water services
- Actual and budgeted capital improvement project expenditures for FY 2024 - FY 2034
- Water asset list
- Historical water charges and rates and previously approved water charge/rate adjustment for January 1, 2023 (and FY 2024 for the capital charge).
- Estimated FY 2024 beginning reserve fund balances

4.2. Reserve Funds and Targets

Mesa Water has four specific reserve funds with funding levels for each designated by the Board as shown in Table 4-1. The minimum operating-related reserve funds total 350 days of O&M and the maximum totals 430 days of O&M.

Table 4-1: Current Reserve Policy

Reserve Fund	Minimum Target	Maximum Target
Administration & General	20 days O&M	25 days O&M
Catastrophe	150 days O&M	180 days O&M
Operating	120 days O&M	150 days O&M
Rate Stabilization	60 days O&M	75 days O&M

Mesa Water also has an overall desired target of 600 days of O&M. Additionally, the minimum debt coverage ratio required by Mesa Water's outstanding 2020 Revenue Certificates of Participation is 1.25 times the net revenue.

4.3. Cost Escalation Factors

The study period comprises FY 2024 through FY 2034. Various assumptions and inputs were incorporated into the water rate study based on Raftelis research and direction from Mesa Water staff. Table 4-2 shows the cost escalation factors assumed in the water rate study.

Table 4-2: Cost Escalation Factors

Cost Type	Escalation
General	4.5% per year FY 2025 - FY 2027, 4% per year through FY 2029, then 3% per year
Payroll	3.0% per year FY 2025 - FY 2027, then 3.5% per year
Utilities	6.6% per year
Basin RA	Actual forecasted costs through FY 2028, then 6.8% per year
Imported Variable Costs	7.0% for FY2025, 6% per year for FY 2026 – FY 2029, then 5% per year
Fixed Purchase Water Supply Costs	7.0% for FY2025, then 6% per year
Capital Cost	4.5% per year FY 2025 and FY 2026, then 3.0% per year

5. 5-Year Financial Plan

Reviewing a utility’s revenue requirement is a key first step in the rate study process. Raftelis analyzed annual operating revenue under the status quo (without rate increases), operation and maintenance (O&M) expenses, and reserve requirements. This report section provides a discussion of the projected revenues, O&M expenses, reserve funding requirements, and the revenue adjustments needed to support fiscal sustainability and solvency. Raftelis reviewed a 10-year financial plan and this report shows the first five years coinciding with the rate-setting period.

5.1. Revenue from Current Water Rates and Charges

5.1.1. Current Water Rates and Charges

The current water charges and rates, adopted by Mesa Water Resolution No. 1559¹, include the following components: bi-monthly and monthly meter basic charge by meter size and uniform volumetric water rates. Table 5-1 shows the current bi-monthly and monthly basic charges applied to both water and recycled water meters.

Table 5-1: Current Potable & Recycled Water Basic Meter Charge

Existing Rates	1-Jan-23	1-Jan-23
Meter Size	Bi-Monthly	Monthly
5/8-inch	\$29.55	\$22.81
3/4-inch	\$36.30	\$26.18
1-inch	\$49.79	\$32.92
1 1/2-inch	\$83.52	\$49.79
2-inch	\$124.00	\$70.03
3-inch	\$252.17	\$134.11
4-inch	\$441.06	\$228.56
6-inch	\$960.50	\$488.28
8-inch	\$1,635.11	\$825.58
10-inch	\$2,579.55	\$1,297.81

Table 5-2 shows the current fireline charges for bi-monthly and monthly customers.

¹ Resolution No. 1559 Adopted January 12, 2022.

Table 5-2: Current Fireline Class I and II Charges

Existing Rates	1-Jan-23	1-Jan-23
Connection Size	Bi-Monthly	Monthly
1-inch	\$17.38	\$16.72
1 1/2-inch	\$19.90	\$17.98
2-inch	\$24.24	\$20.15
3-inch	\$39.81	\$27.93
4-inch	\$66.67	\$41.37
6-inch	\$163.09	\$89.57
8-inch	\$329.38	\$172.72
10-inch	\$579.52	\$297.79

Table 5-3 summarizes the 2023 and 2024 capital charges².

Table 5-3: Current Capital Charges (\$/yr)

Existing Rates	1-Jan-23	1-Jan-24
Meter Size	\$/yr	\$/yr
5/8-inch	\$99.92	\$163.45
3/4-inch	\$149.88	\$245.17
1-inch	\$249.79	\$408.61
1 1/2-inch	\$499.57	\$817.21
2-inch	\$799.31	\$1,307.54
3-inch	\$1,748.49	\$2,860.23
4-inch	\$3,147.29	\$5,148.40
6-inch	\$6,993.96	\$11,440.89
8-inch	\$11,989.65	\$19,612.96
10-inch	\$18,983.61	\$31,053.84

Table 5-4 summarizes the current and adopted usage rates per ccf for potable, construction, fire and recycled water. Construction use is the temporary use of water for construction from a meter installed on a fire hydrant.

Table 5-4: Current Usage Rates (\$/ccf)

Existing Rates	1-Jan-23
Potable Water (1)	\$4.87
Recycled Water	\$3.40

(1) Includes construction and fireline water.

5.1.2. Account and Water Use Growth Assumptions

The two factors used to estimate future water rate revenue are new account growth and annual water demand changes. Table 5-5 shows the financial plan assumptions in new water service connections and water use growth for the study period. Mesa Water staff anticipate little-to-no account growth. Mesa Water also

² Since property taxes are due November 1 and February 1, the previously adopted Jan. 1, 2024 charges have been submitted to the County for the February 2024 collection.

anticipates a slight increase in water service demand over time. Mesa Water estimates a 6.5 – 7.0 percent water loss assumption for the study period. Mesa must produce more water than it sells to account for water losses in the system, such as water lost during treatment, leaks in pipes, etc.

Table 5-5: Account Growth, Water Use, and Water Loss Assumptions

Line Item	Assumption
Account Growth	none
Water Use Growth	0.43% per year
Water Loss	7.0% per year

Table 5-6 shows the actual (FY 2023) number of Mesa Water’s water service customer accounts, not including fireline service, by meter size for the study period. The number of accounts is used to forecast the amount of fixed revenue Mesa Water will receive from the basic charge. The number of potable water accounts (about 99.8 percent of the bi-monthly accounts and all of the monthly accounts) are used to forecast the amount of capital charge revenue. As stated in Table 5-5, the study does not presume any growth in accounts.

Table 5-6: Potable and Recycled Water Accounts by Meter Size and Billing Period, FY2023

Meter Size	Bi-Monthly	Monthly
5/8-inch	16,850	0
3/4-inch	2,178	0
1-inch	3,081	5
1 1/2-inch	911	11
2-inch	1,075	24
3-inch	7	55
4-inch	5	35
6-inch	3	18
8-inch	1	11
10-inch	0	0
Total	24,111	159

Table 5-7 shows the projected water use totals by class. Water use by class is escalated by the water use growth assumption shown in Table 5-5.

5.1.3. Revenue Projections

Table 5-8 shows the projected water revenue based on the previously approved January 1, 2023, rates and charges, the previously approved capital charge commencing on January 1, 2024, and the account and usage projections presented above.

Table 5-9 presents the projection of other revenues, which includes other charges and services, interest income, and non-operating revenues.

Table 5-7: Projected Water Use by Customer Class (ccf)

Usage, ccf	Fiscal Year				
	2024	2025	2026	2027	2028
% Growth	0.43%	0.43%	0.43%	0.43%	0.43%
Potable Water Customer Classes (1)					
Bi-Monthly	5,801,640	5,826,587	5,851,642	5,876,804	5,902,074
Monthly	846,324	849,963	853,618	857,288	860,975
Total Potable Use (ccf)	6,647,964	6,676,550	6,705,259	6,734,092	6,763,048
Fireline BiMo (ccf)	1,243	1,249	1,254	1,259	1,265
Fireline Mo (ccf)	744	747	751	754	757
RW BiMo Usage (ccf)	485,158	487,244	489,339	491,443	493,556
Total (ccf)	7,135,109	7,165,790	7,196,603	7,227,548	7,258,627

(1) includes construction water

Table 5-8: Potable Water Revenues, Adopted Rates

Line Item	Fiscal Year				
	2024	2025	2026	2027	2028
Fixed (Potable, Recycled, Fireline)					
Bi-monthly	\$6,328,678	\$6,328,678	\$6,328,678	\$6,328,678	\$6,328,678
Monthly	\$532,810	\$532,810	\$532,810	\$532,810	\$532,810
Capital	\$6,021,785	\$7,474,370	\$7,474,370	\$7,474,370	\$7,474,370
Subtotal	\$12,883,272	\$14,335,857	\$14,335,857	\$14,335,857	\$14,335,857
Use	\$34,034,799	\$34,181,149	\$34,328,128	\$34,475,739	\$34,623,984
Total	\$46,918,072	\$48,517,006	\$48,663,985	\$48,811,596	\$48,959,841

Table 5-9: Projected Other Revenue

Misc. Revenues	Fiscal Year				
	2024	2025	2026	2027	2028
Budget					
Other Charges & Services					
New Service Establishment Fee	\$50,000	\$50,250	\$50,501	\$50,754	\$51,008
Delinquent Fees	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000
Loss Recovery	\$10,000	\$10,050	\$10,100	\$10,151	\$10,202
Cross Connection Testing Fee	\$5,000	\$5,025	\$5,050	\$5,075	\$5,101
Plan Check Fees	\$100,000	\$100,500	\$101,003	\$101,508	\$102,015
OC-44 HB contract revenue	\$15,000	\$15,075	\$15,150	\$15,226	\$15,302
Sale of brass & scrap	\$5,000	\$5,025	\$5,050	\$5,075	\$5,101
Other operating revenue	\$15,000	\$15,075	\$15,150	\$15,226	\$15,302
Interest Income	\$332,175	\$266,983	\$202,110	\$208,792	\$260,292
Other Non-Operating					
Loss on Disposal of Equipment	-\$50,000	\$0	\$0	\$0	\$0
Non-Operating Revenue	\$25,000	\$25,125	\$25,251	\$25,377	\$25,504
Non-Operating Expense	-\$25,000	-\$25,125	-\$25,251	-\$25,377	-\$25,504
COPS Trustee Expense	-\$5,000	-\$5,025	-\$5,050	-\$5,075	-\$5,101
Total	\$677,175	\$662,958	\$599,065	\$606,732	\$659,221

5.2. Operating and Maintenance Expenses

5.2.1. Water Supply Costs

Mesa Water's primary water source for potable water service to customers is groundwater, pumped from Orange County's natural groundwater basin via seven groundwater wells. The groundwater basin stretches 350-square miles from the Orange County line at Seal Beach and Long Beach, along the coast, down to the 55 freeway and east to Yorba Linda. Backup for Mesa Water's well water for potable water service to customers is imported water purchased from Metropolitan Water District of Southern California (MWD) through MWD's wholesaler the Municipal Water District of Orange County (MWDOC). The completion of the Mesa Water Reliability Facility (MWRF) in January 2013 allows Mesa Water to provide nearly all, or all, of its water needs locally.

Mesa Water's five clear-water wells pump water from 200-600 feet below the surface and provide up to 85 percent of the water needs for Mesa Water's service area. The two deep-water wells pump water from 1,200 feet below the surface and provide the remaining water needed to meet the service needs of Mesa Water customers. The groundwater aquifer extends down to 2,000 feet below the surface. The MWRF treats amber groundwater from a previously unusable aquifer, providing Mesa Water with an additional potable water source. Amber groundwater from this lower aquifer is more expensive to produce than clear groundwater produced from the upper aquifer. However, the treatment cost of amber groundwater is substantially less expensive than purchasing imported water.

From time-to-time various programs are implemented by OCWD or MWDOC to manage water on a county-wide basis. The "Basin Managed Water" program, aka the in-lieu program, is set up to manage the basin and to replenish the basin in an efficient way to keep the basin level as high as reasonably possible. At times, it

may be preferable from a groundwater basin management standpoint to take surface water to put as much, and to leave as much, water in the basin.

Table 5-10 summarizes the projected potable water production by water supply sources. Mesa Water's clear water basin pumping percentage (BPP) is expected to be 85 percent. The remaining demand will be met by amber water.

Table 5-10: Projected Potable Water Production

Water Supply Sources	Fiscal Year				
	2024	2025	2026	2027	2028
Total Potable Water Sales, AF	15,264	15,330	15,396	15,462	15,529
Potable Water Loss	6.5%	7.0%	7.0%	7.0%	7.0%
Total Water Demand, AF	16,324	16,484	16,555	16,626	16,698
Water Sources					
Clear Water	13,875	14,011	14,072	14,132	14,193
Amber Water	2,449	2,473	2,483	2,494	2,505
Basin Managed Water	0	0	0	0	0
Imported Water (MWD, MWDOC)	0	0	0	0	0
Total Water Sources, AF	16,324	16,484	16,555	16,626	16,698

Table 5-11 shows the projected purchased water variable unit rate for the supply sources based on Mesa Water's projections. Mesa Water pays OCWD the Basin Replenishment Assessment for clear water and amber water pumped from the basin. Mesa Water does not plan to buy imported water from MWD/MWDOC during the study period. However, Mesa Water will continue to pay MWDOC the retail meter charge and share of pipeline replacement costs. In addition, to the Basin Replenishment Assessment, Mesa Water also incurs the variable costs for pumping and treatment of the pumped groundwater. The chemical and utility unit costs for FY 2025 and beyond are escalated from budgeted FY 2024 numbers by the general and utilities escalation factors from Table 4-2, respectively.

Table 5-11: Projected Water Supply Unit Costs

Water Supply Costs	Fiscal Year				
	2024	2025	2026	2027	2028
Variable Costs, \$/AF					
Basin Replenishment Assessment	\$624	\$692	\$769	\$846	\$931
Basin Managed Water Variable Cost	\$1,230	\$1,296	\$1,380	\$1,463	\$1,551
Fixed Water Supply Costs (1)	\$509,500	\$545,165	\$577,875	\$612,547	\$649,300
Other Water Supply Costs					
Clear Water Unit Cost, \$/AF					
Chemical	\$29.14	\$30.45	\$31.82	\$33.25	\$34.58
Utility	\$109.74	\$116.93	\$124.60	\$132.76	\$141.46
Amber Water Unit Cost, \$/AF					
Chemical	\$200.99	\$210.03	\$219.48	\$229.36	\$238.54
Utility	\$223.39	\$238.03	\$253.63	\$270.24	\$287.95

(1) Includes Readiness-to-serve, retail meter charge, and shared pipeline maintenance costs.

Using the water production quantity from Table 5-10 and unit water costs from Table 5-11, Table 5-12 summarizes the calculated water supply costs and projected water supply-related costs such as labor, parts, and materials for each supply source.

Table 5-12: Projected Potable Water Supply Costs

Line Item	Fiscal Year				
	2024	2025	2026	2027	2028
Imported/Basin Managed Water Expenses					
Imported Water Fixed Costs	\$509,500	\$545,165	\$577,875	\$612,547	\$649,300
Imported Water Variable Costs	\$0	\$0	\$0	\$0	\$0
Basin Managed Water	\$0	\$0	\$0	\$0	\$0
Chemicals and Treatment	\$0	\$0	\$0	\$0	\$0
Utilities - Imported	\$2,000	\$2,131	\$2,271	\$2,419	\$2,578
Labor Import	\$0	\$0	\$0	\$0	\$0
Parts and Materials - Import	\$15,000	\$15,675	\$16,380	\$17,117	\$17,802
Support Services - Import	\$12,500	\$13,063	\$13,650	\$14,265	\$14,835
In-Lieu Water	\$0	\$0	\$0	\$0	\$0
Clear Water Expenses					
Chemicals - Clear	\$404,271	\$426,616	\$447,731	\$469,891	\$490,788
Basin Replenishment Assessment - Clear	\$8,658,000	\$9,690,282	\$10,821,096	\$11,955,802	\$13,213,611
Well Land Leases - Clear	\$0	\$0	\$0	\$0	\$0
BEA (Rebilled to Segerstrom)	\$0	\$0	\$0	\$0	\$0
Utilities - Clear	\$1,522,699	\$1,638,417	\$1,753,275	\$1,876,184	\$2,007,709
Labor Clear	\$0	\$0	\$0	\$0	\$0
Parts and Materials - Clear	\$125,000	\$130,625	\$136,503	\$142,646	\$148,352
Support Services - Clear	\$287,000	\$299,915	\$313,411	\$327,515	\$340,615
Amber Water Expenses					
Chemicals - Amber	\$492,221	\$519,328	\$545,031	\$572,006	\$597,445
Basin Replenishment Assessment - Amber	\$1,528,176	\$1,710,050	\$1,909,605	\$2,109,847	\$2,331,814
Utilities - Amber	\$547,089	\$588,552	\$629,811	\$673,963	\$721,209
Labor Amber	\$0	\$0	\$0	\$0	\$0
Parts and Materials - Amber	\$60,000	\$62,700	\$65,522	\$68,470	\$71,209
Support Services - Amber	\$287,200	\$300,124	\$313,630	\$327,743	\$340,853
Total Potable Water Supply Costs	\$14,450,656	\$15,942,642	\$17,545,790	\$19,170,416	\$20,948,119

Mesa Water also sells recycled water for irrigation purposes. The recycled water is purchased from OCWD and replaces potable water that would otherwise have been used for irrigation. Table 5-13 displays the FY 2024 estimated 1,114 AF of recycled water demand and FY 2024-unit rate. The unit rate is escalated per the imported variable costs factor in Table 4-2.

Table 5-13: Projected Recycled Water Purchase Costs

Line Item	Fiscal Year				
	2024	2025	2026	2027	2028
Unit Rate, \$/AF	\$960	\$1,027	\$1,089	\$1,154	\$1,223
Demand, AF	1,114	1,119	1,123	1,128	1,133
Total	\$1,069,218	\$1,148,983	\$1,223,159	\$1,302,123	\$1,386,186

5.2.2. Water Operating Expense

Error! Reference source not found. projects the annual water operating and maintenance expenses, which includes the potable water supply costs, recycled water costs, and Mesa Water's budgeted and projected O&M expenses.

Table 5-14: Projected Water O&M Expenses

Line Item	Fiscal Year				
	2024	2025	2026	2027	2028
Board of Directors	\$522,196	\$538,462	\$555,243	\$572,555	\$592,823
Office of General Manager	\$1,911,288	\$1,984,452	\$2,060,522	\$2,139,619	\$2,220,526
Water Operations					
Water Costs					
Total Imported Water Costs	\$539,000	\$576,034	\$610,176	\$646,349	\$684,516
Total Clear Water Costs	\$10,996,970	\$12,185,855	\$13,472,015	\$14,772,037	\$16,201,074
Total Amber Water Costs	\$2,914,686	\$3,180,754	\$3,463,598	\$3,752,029	\$4,062,529
Recycled Water Costs	\$1,064,640	\$1,148,983	\$1,223,159	\$1,302,123	\$1,386,186
Other Water Operations	\$8,591,470	\$8,896,177	\$9,212,139	\$9,539,789	\$9,891,546
Subtotal Water Operations	\$24,106,766	\$25,987,803	\$27,981,088	\$30,012,328	\$32,225,850
Engineering	\$1,389,085	\$1,435,678	\$1,483,889	\$1,533,779	\$1,589,332
Customer Service	\$997,933	\$1,031,120	\$1,065,449	\$1,100,960	\$1,140,730
Financial Services	\$2,223,786	\$2,303,460	\$2,386,107	\$2,471,842	\$2,563,287
Public Affairs	\$1,483,663	\$1,542,040	\$1,602,792	\$1,666,018	\$1,729,604
Admin Services	\$2,269,892	\$2,401,889	\$2,539,371	\$2,682,572	\$2,824,357
Human Resources	\$752,796	\$780,720	\$809,722	\$839,845	\$871,271
Water Policy	\$825,620	\$857,784	\$891,245	\$926,058	\$961,283
Total	\$36,483,025	\$38,863,405	\$41,375,427	\$43,945,576	\$46,719,062

5.3. Debt Service

Mesa Water is currently obligated to make annual debt service payments for two outstanding revenue certificates of participation securities:

- Mesa Water District 2017 Revenue Certificates of Participation
- Mesa Water District 2020 Revenue Certificates of Participation

Table 5-15 shows the annual debt service associated with the two outstanding revenue certificates of participation. This water rate study assumes Mesa Water will not incur additional debt during the study period.

Table 5-15: Annual Debt Service

Bond Issue	Fiscal Year				
	2024	2025	2026	2027	2028
2017 Revenue COP (senior)	\$4,282,250	\$4,332,000	\$4,355,250	\$2,157,750	
2020 COPS (subordinate)	\$2,566,200	\$2,566,200	\$2,566,200	\$2,566,200	\$3,976,200
Total Existing Debt Service	\$6,848,450	\$6,898,200	\$6,921,450	\$4,723,950	\$3,976,200

5.4. Capital Improvement Program

Table 5-16 summarizes Mesa Water’s capital improvement plan. Mesa Water has approximately \$75 million in capital expenditures projected from FY 2024 -- FY 2034, some of which are covered by the remaining 2020 Revenue Certificates of Participation funds. Thereafter, Mesa Water plans to expend about \$4 to \$8 million per year (uninflated) on capital projects. Mesa Water plans to finance its capital projects over the study period through System Development Charges (Capacity Fees) and rate revenues (also known as “Paygo” funding). The Capital Improvement Plan below shows line items in uninflated dollars and the total in both uninflated and inflated dollars³.

Table 5-16: Proposed Capital Improvement Plan

Categories	Fiscal Year				
	2024	2025	2026	2027	2028
Reservoirs	\$13,205,600	\$0	\$0	\$0	\$0
Other	\$777,285				
Undesignated	\$0	\$17,200,000	\$4,000,000	\$4,000,000	\$4,000,000
Total Uninflated	\$13,982,885	\$17,200,000	\$4,000,000	\$4,000,000	\$4,000,000
Total Inflated	\$13,982,885	\$17,974,000	\$4,368,100	\$4,499,143	\$4,634,117

5.5. Proposed Financial Plan and Revenue Adjustments

The proposed financial plan enables Mesa Water to set rates and charges to generate sufficient revenues to meet its short-term and long-term obligations and avoid significant future rate fluctuations. The plan shows the revenues that will be used to maintain designated reserve levels and provide adequate debt service coverage while maintaining a sensitivity to rate increases.

Two financial plans were reviewed with the Board as part of the water rate study process. Table 5-17 shows the proposed revenue adjustments selected by the Board of Directors at the October 25, 2023, Board Meeting. The proposed financial plan implements an initial higher level of revenue adjustments to make up for higher-than-anticipated inflation, then decreases to 10 percent per year. Revenue adjustments would take effect on January 1 each year. This proposed scenario allows Mesa Water to continue building the self-insurance program over 12 years and maintain reserves.

Table 5-17: Proposed Revenue Adjustments

Fiscal Year	Proposed Revenue Adjustment		
	Basic, Fireline, Volume	Capital	Overall
2024	11%	64%	13%
2025	10%	10%	10%
2026	7%	28%	10%
2027	7%	23%	10%
2028	7%	20%	10%

Table 5-18 shows the proposed financial plan incorporating the proposed revenue adjustments and self-insurance program. The District is setting rates for FY 2024 through FY 2028. Line 1 shows revenue from

³ Capital inflation percentages are shown in Table 4-2.

current Basic, Fireline, and Volume rates and charges, assuming no increase in the rates and charges. Revenue from current rates and charges includes water, recycled water, private fire customers, capital charge, and usage. Rate revenues were calculated using the water use and customer account assumptions shown in Section 5.1. Lines 2 through 12 show the additional revenue received from the revenue adjustments proposed in Table 5-17. Line 13 shows the additional revenue received from the revenue adjustments proposed in Table 1-2. Line 14 shows the projected capital charge revenue under the prior approved Jan 1, 2023 and Jan. 1, 2024 rates. Line 15 shows the projected capital charge revenue from the proposed capital charge revenue adjustments. Line 16 shows the total rate-based revenues. Lines 17 and 18 show other revenues. Interest revenues (Line 18) decreases in FY 2025 and FY 2026 due to declining reserve balances caused by the deficit (Line 34) to fund the self-insurance program over the 12-year program timeline. Line 19 shows projected revenues. Lines 20 – 25 summarize the O&M expense projections. Line 27 shows net revenues, which are revenues less O&M expenses. Lines 28 and 29 show the existing and proposed debt service, respectively. Line 31 shows the cash funding of capital improvement projects on an on-going basis (also called “Paygo”). Line 32 shows a final payment into the pension liability prepayment in FY 2024. Line 33 shows the projected self-insurance program funding. Line 34 shows the annual surplus/deficit. Due to initial self-insurance program funding levels, the operating cash balance is initially drawn down. Lines 35 and 36 show the beginning and ending operating fund balance, respectively. Line 37 shows the ending balance including the capital replacement fund. Line 38 shows the projected self-insurance program funds balance, which includes projected interest earnings for the fund. The proposed financial plan strongly supports financial sufficiency and solvency for Mesa Water to meet projected expenditures and financial obligations, including debt service, debt coverage, and most reserve targets while also funding the self-insurance program.

Table 5-18: Proposed Financial Plan Cashflow

Line No.	Line Item			2024	2025	Fiscal Year 2026	2027	2028
1	Revenue Under Existing Rates			\$40,896,287	\$41,042,636	\$41,189,615	\$41,337,226	\$41,485,472
	Revenue Adjustments							
	FY	Mo. Effctv.	Adjustment					
2	2024	6	11.20%	\$2,290,192	\$4,596,775	\$4,613,237	\$4,629,769	\$4,646,373
3	2025	6	10.0%		\$2,281,971	\$4,580,285	\$4,596,700	\$4,613,184
4	2026	6	7.0%			\$1,763,410	\$3,539,459	\$3,552,152
5	2027	6	7.0%				\$1,893,610	\$3,800,803
6	2028	6	7.0%					\$2,033,429
7	2029	6	3.0%					
8	2030	6	3.0%					
9	2031	6	3.0%					
10	2032	6	3.0%					
11	2033	6	3.0%					
12	2034	6	3.0%					
13	Total Adjusted Revenue			\$2,290,192	\$6,878,746	\$10,956,932	\$14,659,538	\$18,645,941
14	Capital Charge Revenue - Existing Rates			\$6,021,785	\$7,474,370	\$7,474,370	\$7,474,370	\$7,474,370
15	Capital Charge Revenue - Proposed Adj.			\$0	\$373,718	\$1,898,490	\$4,259,793	\$6,764,484
16	Total Rate & Capital Charge Revenue			\$49,208,264	\$55,769,470	\$61,519,407	\$67,730,926	\$74,370,267
	Other Revenue							
17	Misc Net Revenues			\$345,000	\$395,975	\$396,955	\$397,940	\$398,929
18	Interest Income			\$332,175	\$266,983	\$202,110	\$208,792	\$260,292
19	Total Revenue			\$49,885,439	\$56,432,428	\$62,118,471	\$68,337,658	\$75,029,488
	O&M Expenses							
20	Imported/Basin Managed Water Costs			\$539,000	\$576,034	\$610,176	\$646,349	\$684,516
21	Clear Water Costs			\$10,996,970	\$12,185,855	\$13,472,015	\$14,772,037	\$16,201,074
22	Amber Water Costs			\$2,914,686	\$3,180,754	\$3,463,598	\$3,752,029	\$4,062,529
23	Transmission & Distribution			\$9,980,555	\$10,331,855	\$10,696,029	\$11,073,567	\$11,480,878
24	General & Administrative			\$10,987,174	\$11,439,925	\$11,910,450	\$12,399,470	\$12,903,879
25	Recycled Water Costs			\$1,064,640	\$1,148,983	\$1,223,159	\$1,302,123	\$1,386,186
26	Total O&M Expenses			\$36,483,025	\$38,863,405	\$41,375,427	\$43,945,576	\$46,719,062
27	Net Revenues			\$13,402,414	\$17,569,023	\$20,743,044	\$24,392,082	\$28,310,426
	Debt Service							
28	Existing			\$6,848,450	\$6,898,200	\$6,921,450	\$4,723,950	\$3,976,200
29	Proposed			\$0	\$0	\$0	\$0	\$0
30	Total Debt Service			\$6,848,450	\$6,898,200	\$6,921,450	\$4,723,950	\$3,976,200
31	Capital-Related (Paygo)			\$0	\$5,464,260	\$3,180,100	\$3,311,143	\$3,446,117
32	Pension Liability Prepayment			\$110,000	\$0	\$0	\$0	\$0
33	Self Insurance Program Funding			\$11,987,500	\$12,220,000	\$12,831,000	\$13,472,550	\$14,146,178
34	Annual Surplus/(Deficit)			(\$5,543,536)	(\$7,013,437)	(\$2,189,506)	\$2,884,439	\$6,741,932
35	Beginning Balance			\$27,447,189	\$21,903,653	\$14,890,217	\$12,700,711	\$15,585,150
36	Ending Operating* Balance			\$21,903,653	\$14,890,217	\$12,700,711	\$15,585,150	\$22,327,081
37	Ending Balance Operating* & Capital Funds**			\$24,095,009	\$14,890,217	\$12,700,711	\$15,585,150	\$22,327,081
38	Captive Funds Ending Balance			\$38,389,480	\$53,362,025	\$69,890,604	\$88,102,961	\$108,136,317

* Customer & Development Deposits + Other Funds + Liquidity Funds

** Capital Replacement Fund

Figure 5-1 graphically illustrates the proposed operating Financial Plan – it compares the existing (current) and proposed revenues with projected expenses. The stacked bars show expenses, including O&M expenses, debt service, and rate-funded CIP. The light green bars show the net cash. Net cash below the line indicates a drawdown of reserves during the noted period. Total revenues at existing and proposed rates and charges are shown by horizontal black and green lines, respectively. Current revenue from existing rates and charges does not meet future total expenses and shows the need for the proposed revenue adjustments.

Figure 5-1: Proposed Financial Plan

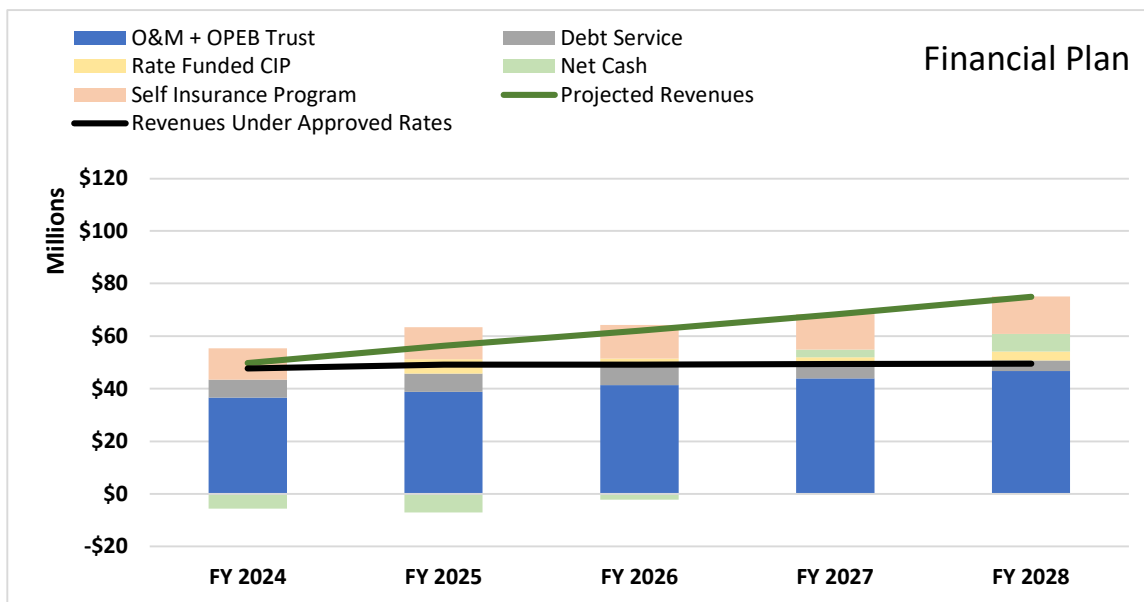


Figure 5-2 graphs the calculated and minimum debt coverage requirements as shown by the blue and peach lines, respectively. The debt coverage ratios increase due to Mesa Water's outstanding 2017 Certificates of Participation having a final maturity in FY 2027 (Table 5 14).

Figure 5-2: Projected Debt Coverage Ratios

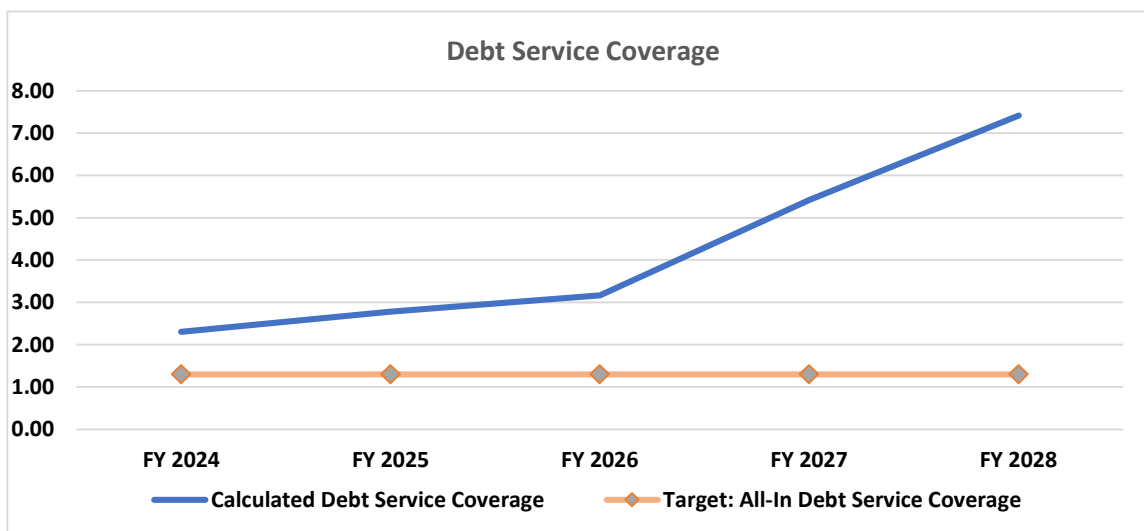


Figure 5-3 summarizes the projected (bond-funded and rate-funded) inflated CIP.

Figure 5-3: Proposed Capital Financing Plan

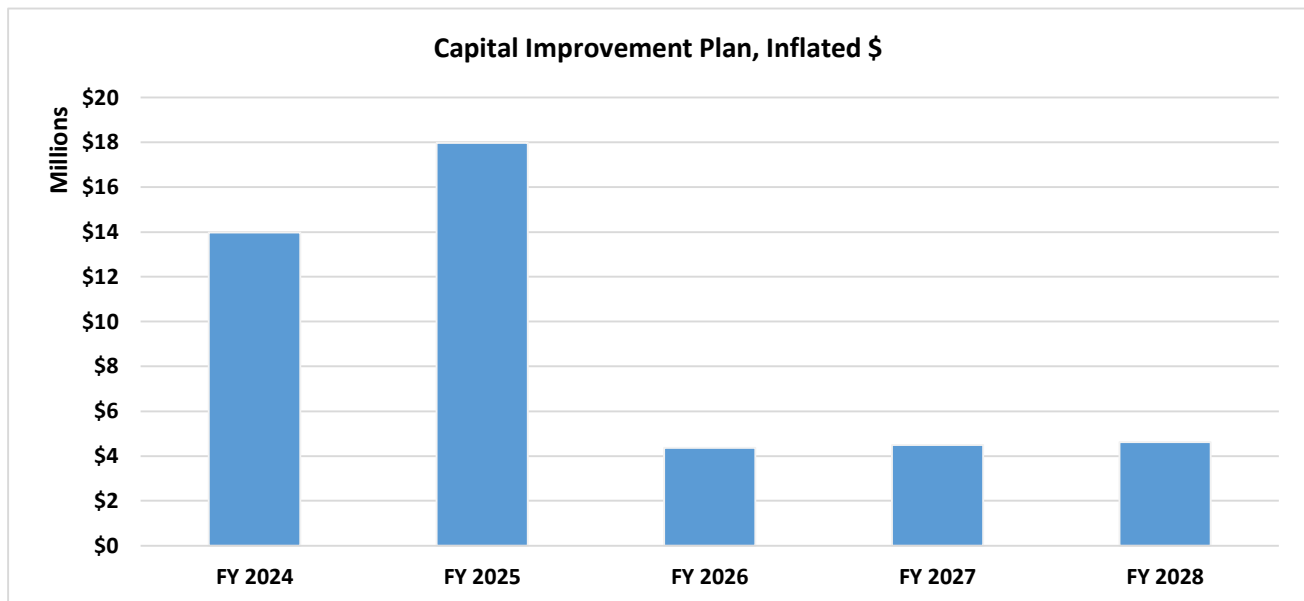
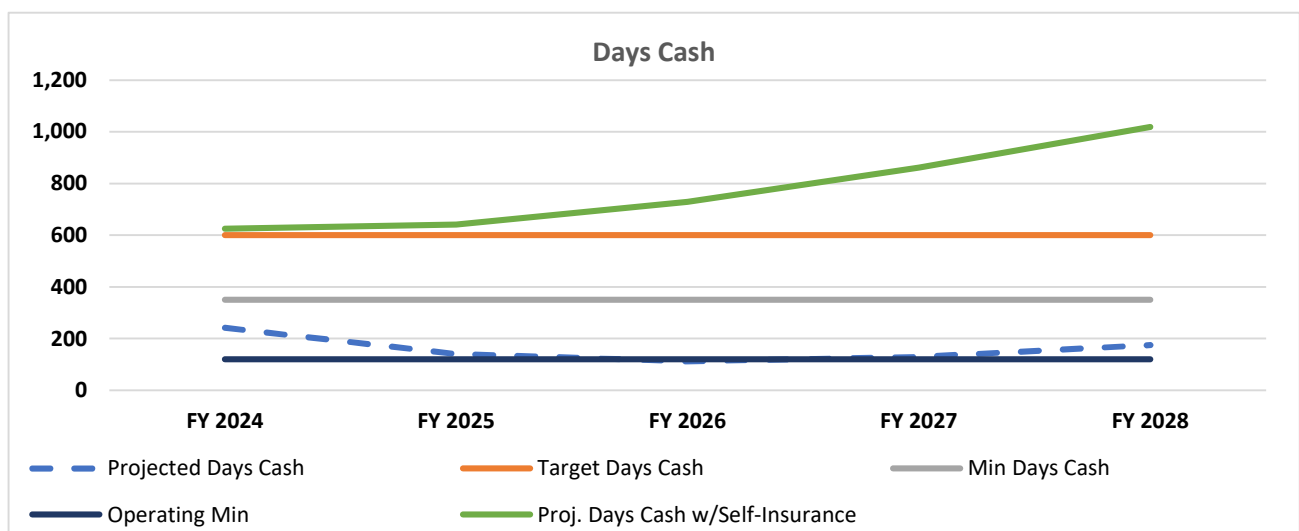


Figure 5-4 shows the Water Utility Fund projected days cash both without the self-insurance program fund (blue dashed line) and with the self-insurance program fund (solid green line). The projected days cash without the self-insurance program fund stays above the operating minimum of 120 days with the proposed revenue adjustments. This demonstrates the necessity for the proposed revenue adjustments in the proposed financial plan.

Figure 5-4: Projected Days Cash vs Targets



6. Cost-of-Service Analysis

Once the revenue requirements are known, the costs to provide service to customer classes, also known as the cost-of-service, can be allocated to customer classes. These net revenue requirements must be recovered through rates and charges. The cost-of-service analysis is the process of determining the cost of providing water service to each of the customer classifications. This analysis includes the functionalization and allocation of water system revenue requirements (the costs-of-service) followed by the distribution of costs to customer classifications based on the annual usage and customer, meter or capacity-related costs for each class. The allocations of these costs to functions (described in Section 6.2) then cost centers, and ultimately to the customer classes take into account the quantity of water used, the number of customers, and meter size. The allocation process ultimately determines the costs on a unit basis (e.g., number of customers, usage). The unit rates then help guide the process for setting rates and charges. This analysis is done for a test year, in this case, FY 2024.

A cost-of-service analysis distributes a utility's revenue requirement, i.e., the yearly revenue needed, to each customer class by allocating the utility's revenue requirement to the cost-causation components. The cost-causation components include:

1. Volume
2. Meter service
3. Billing and customer service
4. Direct public fire protection
5. Recycled water
6. General and administrative costs

6.1. Net Revenue Requirements

The costs allocated to the customer classes consist of the total revenue requirement less income received from other sources (net revenue requirements). Table 6-1 shows the development of the costs that must be recovered through the Basic, Fireline, and Volume rates and charges for the test year. Raftelis calculated the revenue requirement using the FY 2024 projections of O&M expenses, net capital expenses, existing debt service, self-insurance program funding, and pension liability prepayments as shown in Lines 1 – 5. Line 7 shows the capital charge revenue under enacted rates for the test year. Lines 8 and 9 show the other operating revenues. Lines 7 through 9 are shown as negative because they reduce the amount of revenue needed from the basic, variable, and fireline charges. The adjustments in Lines 11 and 12 ensure the cost-of-service accounts for the annual cash balances and that the impending rate adjustment will take place six months into FY 2024. Line 14 shows the total revenue required from the Basic, Fireline, and Volume rates and charges, calculated by subtracting capital charge revenue and other operating revenue (Line 10) and adjustments (Line 13) from the Total Revenue Requirements subtotal (Line 6). Line 14 shows a small amount of net capital-related costs. This indicates that the projected revenue from the capital charge in FY 2024 is not sufficient to cover all anticipated capital-related costs for FY 2024.

Table 6-1: Net Revenue Requirements, Test Year

No. Line Item	Operating	Capital-Related	Total
Total Revenue Requirements			
1 O&M	\$36,483,025		\$36,483,025
2 Total Debt Service		\$6,848,450	\$6,848,450
3 Cash Funded Capital		\$0	\$0
4 Self-insurance Funding	\$11,987,500		\$11,987,500
5 Pension Liability Prepayment	\$110,000		\$110,000
6 Subtotal	\$48,580,525	\$6,848,450	\$55,428,975
Cap Charge Revenue & Other Operating Revenue			
7 Capital Charge Revenue - Existing Rates	\$0	-\$6,021,785	-\$6,021,785
8 Misc. Revenues	-\$345,000		-\$345,000
9 Interest Income	-\$332,175		-\$332,175
10 Subtotal	-\$677,175	-\$6,021,785	-\$6,698,960
Adjustments			
11 Change in Funds Available (1)	-\$5,543,536	\$0	-\$5,543,536
12 Annualized Rate Adjustment	\$2,290,192	\$0	\$2,290,192
13 Subtotal	-\$3,253,344	\$0	-\$3,253,344
14 Costs to be Recovered from Rates	\$44,650,006	\$826,665	\$45,476,671

(1) A negative amount indicates a drawdown of the available operating fund balance to cover expenses. A positive amount indicates an addition to the balance, which is an increase to the costs to be recovered from rate-based revenue.

6.2. Functionalizing Net Revenue Requirement

Utilizing a public agency's approved budget, financial reports, operating data, and capital improvement plans, a rate study first categorizes ("functionalizes") the agency's costs among major operating functions. The water utility costs are categorized into the following functions:

- Water Supply – direct water supply costs to purchase and produce potable water
- Treatment – costs associated with treating water to potable water standards
- Transmission & Distribution (T&D) – costs of transmission and distribution systems
- Storage – costs associated with water storage within the distribution or transmission systems
- Direct Public Fire protection – costs associated with installing and maintaining fire hydrants. Facilities of the water system are used for providing water service, including public fire hydrants, which are used for supplying construction water through hydrant meters, flushing mains, and connecting fire trucks to the system in order to pump water at the higher pressures needed to fight fires. State law also mandates that domestic water systems provide pressures sufficient to fight fires. Meeting that State mandate is a cost of domestic water service.
- Customer Service – billing costs including meter reading, billing and collection costs associated with preparing a water customer bill and processing funds received from water users. Customer service costs include costs associated with administering customer accounts such as processing complaints, responding to customer inquiries, resolution of customer issues, performing rereads, etc.
- Meter services – costs associated with providing customer water meters and associated with testing and replacements.
- General & Administrative (G&A) – represents all other costs that do not serve a specific function referenced above.

Appendix A shows the functionalization of annual test year O&M costs based on input from Mesa Water staff. The annual capital-related costs are also allocated to functions in proportion to water asset investment (the existing plant's functionalization) recognizing that the functional make-up of the system is stable over time. Table 6-2 shows the functionalization of the water system assets.

Table 6-2: Functionalized Water Asset Investment, Replacement Cost Less Depreciation

Functional Category	Replacement Cost Less Depreciation, 2022	Allocation
Supply	\$20,959,924	10.1%
Treatment	\$16,978,119	8.2%
T&D	\$144,702,927	69.6%
Storage	\$11,796,025	5.7%
Meter	\$2,962,406	1.4%
Customer	\$0	0.0%
GA	\$2,349,178	1.1%
Public Fire	\$8,034,436	3.9%
Recycled Water	\$21,648	0.0%
Total	\$207,804,663	100.0%

The net revenue requirements are then allocated to the functions. Table 6-3 shows the net revenue requirements for the test year allocated to the functions shown above.

Table 6-3: Net Revenue Requirements Allocation to Functions, Test Year

Functional Category	Net O&M	Capital-Related	Net Revenue Requirements
Supply	\$16,998,560	\$83,380	\$17,081,940
Treatment	\$2,599,654	\$67,540	\$2,667,194
T&D	\$7,153,463	\$575,641	\$7,729,104
Storage	\$539,319	\$46,926	\$586,244
Meter	\$85,518	\$11,785	\$97,302
Customer	\$1,676,321	\$0	\$1,676,321
G&A	\$13,577,427	\$9,345	\$13,586,772
Public Fire	\$334,349	\$31,962	\$366,311
Recycled Water	\$1,685,396	\$86	\$1,685,482
Total	\$44,650,006	\$826,665	\$45,476,671

6.3. Allocation to Cost Components

The next step is to allocate the net revenue requirement in the functions to cost-causation components.

6.3.1. Allocation of Fire Capacity

Transmission, distribution and storage each have a fire-related capacity component. Mesa Water provided an estimate that 30 percent of transmission, distribution, and storage is for fire-fighting capacity. The fire-related portion of costs are then allocated between public and private fire based on equivalent hydrants.

Water systems provide two types of fire protection: 1) private fire protection that provides dedicated fire flow to buildings and other structure-type sprinkler systems for fire suppression within private improvements, and 2) public fire protection for firefighting, generally in the form of hydrants on the street. Mesa Water's system is designed to provide fire flow to customers with private fire connections. Raftelis uses, as recommended in the AWWA M1 Manual⁴, the potential flow of private fire lines and public hydrants to determine the share of total fire costs responsible for each.

Table 6-4 shows the equivalent potential demand from public fire hydrants and private fire lines. The Hazen-Williams equation is used to calculate the relative flow capacity by raising the pipeline's diameter to the power of 2.63⁴. Different fire connection sizes have a different fire flow demand factor like the hydraulic capacity factor of a water meter⁵. Since hydrants are typically on a 6-inch line, the equivalent hydrant ratio is determined based on the 6-inch line. The public fire hydrants and private fireline connections by size are each multiplied by the equivalent hydrant ratio to derive total equivalent connections and the allocation between public and private fire.

Table 6-4: Equivalent Hydrants and Private Fire Connections

Fire Line Size	Relative Flow Capacity Factor (1)	Equivalent Hydrant Ratio	Public Fire Hydrants	Private Fire Connections
1"	1.0	0.01		13
1.5"	2.9	0.03		0
2"	6.2	0.06		61
3"	18.0	0.16		13
4"	38.3	0.34		121
6"	111.3	1.00	3,383	283
8"	237.2	2.13		162
10"	426.6	3.83		23
Total			3,383	676
Equivalent Hydrant Ratio x No. of Hydrants or Connections			3,383	764
Allocation			81.6%	18.4%

(1) Equivalent flow basis per the Continuity Equation where flow equals pipe area times velocity ($Q = A \times V$). Velocity is set based on the Hazen-Williams Equation ($V = 1.318 \times C \times R^{0.63} \times S^{0.54}$) where the hydraulic radius (R) is equal to the pipe area divided by its wetted perimeter, which reduces to the pipe diameter divided by 4. Since the coefficient (C), head loss (S), and all coefficients cancel out in the equation when used in a ratio with another pipe, the Continuity Equation results in the ratio of different pipe diameters to the 2.63 power.

6.3.2. Allocation of O&M and Capital

Table 6-5 shows the allocation of functions to cost-causation components for net O&M costs. The percentages shown are used to allocate the functionalized costs to each cost-causation component. The allocation basis is

⁴ Hazen-Williams equation via AWWA M1 Manual

⁵ Total demand for fire connections is based on line diameter and will vary from potable demand, based on meter size.

selected based on the type of cost for each line item and the proportion of those costs associated with each cost-causation component (e.g., general, customer, etc.). Certain cost bases are identical to the cost-causation components, such as Meter, and are easily allocated to the cost component with the same name. The 30 percent of fire capacity for transmission, distribution, and storage is allocated between public and private fire using the allocation from Table 6-4.

Table 6-6 shows the distribution of Mesa Water’s test year net O&M expenses to the cost-causation components based on the allocations shown in Table 6-5. The Total line shows the result of the allocation of all O&M expenses to the cost-causation components and the total matches the “Net O&M” total from Table 6-3.

Net capital-related functional costs are allocated to cost components as shown in Table 6-7. Table 6-8 summarizes the allocation of Mesa Water’s capital-related net revenue requirements to the cost-causation components for the test year.

Table 6-5: Allocation of Functions to O&M Cost Components, Test Year

Functions	Allocation Basis	Total	Volume	Bills	Meter	Public Fire	Private Fire	Recycled Water
Supply	Volume	100%	100.0%		0.0%			
Treatment	Volume	100%	100.0%		0.0%			
T&D	Volume	100%	61.5%		8.5%	24.5%	5.5%	0.0%
Storage	Volume	100%	55.0%		15.0%	24.5%	5.5%	0.0%
Meter	Meter	100%			100.0%			
Customer	Customer	100%		100.0%	0.0%			
G&A	Note 1	100%	82.7%	5.7%	2.6%	7.5%	1.4%	
Direct Fire	Meter	100%				100.0%		
Recycled Water	Recycled Water	100%						100.0%

(1) As all other costs except recycled water.

Table 6-6: Allocation of Net O&M Expenses to Cost Causation Components, Test Year

Functions	Allocation Basis	Net Rev. Req.	Volume	Bills	Meter	Public Fire	Private Fire	Recycled Water
Volume	Volume	\$16,998,560	\$16,998,560	\$0	\$0	\$0	\$0	\$0
Treatment	Volume	\$2,599,654	\$2,599,654	\$0	\$0	\$0	\$0	\$0
T&D	Volume	\$7,153,463	\$4,399,380	\$0	\$608,044	\$1,750,830	\$395,209	\$0
Storage	Volume	\$539,319	\$296,625	\$0	\$80,898	\$132,000	\$29,796	\$0
Meter	Meter	\$85,518	\$0	\$0	\$85,518	\$0	\$0	\$0
Customer	Customer	\$1,676,321	\$0	\$1,676,321	\$0	\$0	\$0	\$0
G&A	Note 1	\$13,577,427	\$11,224,383	\$774,492	\$357,815	\$1,024,378	\$196,360	\$0
Direct Fire	Meter	\$334,349	\$0	\$0	\$0	\$334,349	\$0	\$0
Recycled Water	Recycled Water	\$1,685,396	\$0	\$0	\$0	\$0	\$0	\$1,685,396
Total		\$44,650,006	\$35,518,601	\$2,450,812	\$1,132,275	\$3,241,556	\$621,365	\$1,685,396

(1) As all other costs except recycled water.

Table 6-7: Allocation of Functions to Capital Cost Components, Test Year

Functions	Allocation Basis	Total	Volume	Bills	Meter	Public Fire	Private Fire	Recycled Water
Supply	Volume	100%	100.0%					
Treatment	Volume	100%	100.0%		0.0%			
T&D	Volume, Meter, Fire	100%	55.0%		15.0%	24.5%	5.5%	
Storage	Volume, Fire	100%	70.0%			24.5%	5.5%	
Meter	Meter	100%			100.0%			
Customer	Bills	100%		100.0%				
G&A	Volume	100%	100.0%					
Direct Fire	Public Fire	100%				100.0%		
Recycled Water	Recycled Water	100%						100.0%

Table 6-8: Allocation of Net Capital to Cost Causation Components, Test Year

Functions	Allocation Basis	Net Rev. Req.	Volume	Bills	Meter	Public Fire	Private Fire	Recycled Water
Supply	Volume	\$83,380	\$83,380	\$0	\$0	\$0	\$0	\$0
Treatment	Volume	\$67,540	\$67,540	\$0	\$0	\$0	\$0	\$0
T&D	Volume, Meter, Fire	\$575,641	\$316,603	\$0	\$86,346	\$140,890	\$31,803	\$0
Storage	Volume, Fire	\$46,926	\$32,848	\$0	\$0	\$11,485	\$2,593	\$0
Meter	Meter	\$11,785	\$0	\$0	\$11,785	\$0	\$0	\$0
Customer	Bills	\$0	\$0	\$0	\$0	\$0	\$0	\$0
G&A	Capital Charge	\$9,345	\$9,345	\$0	\$0	\$0	\$0	\$0
Public Fire	Public Fire	\$31,962	\$0	\$0	\$0	\$31,962	\$0	\$0
Recycled Water	Recycled Water	\$86	\$0	\$0	\$0	\$0	\$0	\$86
Total		\$826,665	\$509,717	\$0	\$98,131	\$184,337	\$34,395	\$86

6.4. Units of Service

Units of service are developed for each customer class. The following units are used for the cost-causative components.

- Volume
- Bills (annual number of bills)
- Equivalent meters (number of equivalent meters)
- Hydrants and equivalent fire connections (number of hydrants or connections)

For example, base costs vary with the volume of water. Therefore, the unit cost for the volume cost-center is the total volume cost divided by the total volume served. Similar determinations of the units associated for equivalent meters are made for each of the customer classes.

The number of potable and recycled meters as well as average day usage are discussed in Section 5. Development of equivalent meters is discussed below.

The concept of equivalent meters needs to be understood to allocate meter-related costs appropriately. By using equivalent meters instead of a total meter count, the analysis accounts for the fact that larger meters impose greater demands on the system and are also more expensive to install, maintain, and replace than smaller meters. Equivalent meters are used in calculating meter service costs.

Equivalent meters are based on meter hydraulic capacity. Equivalent meters represent the potential demand on the water system in terms of the base meter size. A ratio of hydraulic capacity is calculated by dividing large meter capacities by the base meter capacity. The capacity ratio is calculated using the meter capacity in gallons per minute (gpm) provided in the AWWA M1 Manual Principles of Water Rates, Fees, and Charges (7th Edition), as shown in Table 6-9.

Table 6-9: AWWA Capacity Ratio

Meter Size	Capacity (gpm)	AWWA Ratio
5/8"	20	1.00
3/4"	30	1.50
1"	50	2.50
1.5"	100	5.00
2"	160	8.00
3"	350	17.50
4"	630	31.50
6"	1,400	70.00
8"	2,400	120.00
10"	3,800	190.00

The base meter is the most common, smallest meter, in this case, a 5/8-inch meter. The capacity ratio is proportional to the potential flow through each meter size. For example, the flow through a 4-inch meter is 31.50 times that of a 5/8-inch meter, and therefore, the meter capacity component of the basic meter charge should be 31.50 times that of the 5/8-inch meter. Table 6-10 shows the total equivalent potable water meters (Column D) and equivalent recycled water meters (Column F), calculated by taking the number of meters by size (Column C or Column E) and multiplying by the corresponding capacity ratio (Column B). These

equivalent meter totals (Column D and Column F) are used as the denominator in developing unit costs for the components of the basic charge.

Table 6-10: Equivalent Water Meters

Meter Size (A)	Capacity Ratio (B)	Total Potable Meters (C)	Equivalent Potable Meters (D)	Total Recycle Meters (E)	Equivalent Recycle Meters (F)
5/8-inch	1.00	16,850	16,850	0	0
3/4-inch	1.50	2,178	3,267	0	0
1-inch	2.50	3,079	7,698	7	18
1 1/2-inch	5.00	921	4,605	1	5
2-inch	8.00	1,081	8,648	18	144
3-inch	17.50	56	980	6	105
4-inch	31.50	35	1,103	5	158
6-inch	70.00	18	1,260	3	210
8-inch	120.00	11	1,320	1	120
10-inch	190.00	0	0	0	0
Total		24,229	45,730	41	759

6.5. Unit Cost-of-Service Derivation

The end goal of a cost-of-service analysis is to distribute the revenue requirement to each customer class. Raftelis calculated unit costs for every cost component by assessing the total water demand, meter count (number of accounts/bills), or equivalent service units. Table 6-11 shows the derivation of the unit cost for the test year. The equivalent meters from Table 6-10 are summarized in the “Equivalent Meters” column.

Table 6-11: Derivation of Cost-Causation Components Units of Service, Test Year

Customer Class	Acts No.	Bills No.	Equivalent Meters No.	Annual Use ccf	Private Fire Protection Eq. Hydrants
Potable Water	24,229	146,328	45,730	6,647,964	
Private Fire Protection	676	4,398			764
Total Potable Water	24,905	150,726	45,730	6,647,964	764
Recycled Water	41	246	759	485,158	
Total Water	24,946	150,972	46,489	7,133,121	

These units of service are divided into the net revenue requirements to determine the unit costs-of-service, which is shown at the bottom of Table 6-12 for the test year. The “Net Operating” line matches the total from Table 6-6 and the “Capital-Related” line matches the total from Table 6-8.

Table 6-12: Unit Costs of Service, Test Year

Line Item	Total	Volume	Bills	Meter Maintenance	Public Fire	Private Fire	Recycled Water
		ccf	No.	Equiv. Mtrs	Equiv. Mtrs	Equiv. Hydrants	ccf
Units of Service		6,647,964	150,972	46,489	46,489	764	485,158
Net Operating, \$	\$44,650,006	\$35,518,601	\$2,450,812	\$1,132,275	\$3,241,556	\$621,365	\$1,685,396
Net Capital-Related, \$	\$826,665	\$509,717	\$0	\$98,131	\$184,337	\$34,395	\$86
Total	\$45,476,671	\$36,028,317	\$2,450,812	\$1,230,406	\$3,425,893	\$655,760	\$1,685,482
Unit Cost, \$/unit		\$5.42	\$16.23	\$26.47	\$73.69	\$858.74	\$3.47

These resulting unit costs-of-service can be applied to each customer class' demand on the system to determine each class' share of the cost-of-service, which is shown on Table 6-13. The units of service from the last row of Table 6-12 are repeated in the top row of Table 6-13. These unit costs are applied to the units-of-service associated with each customer class (Table 6-11) to derive the total costs associated with serving each class.

Table 6-13: Allocation of Unit Costs of Service to Customer Classes

Line Item	Total	Volume	Bills	Meter Maintenance	Public Fire	Private Fire	Recycled Water
		ccf	No.	Equiv. Mtrs	Equiv. Mtrs	Eq. Hydrants	ccf
Unit Cost of Service		\$5.42	\$16.23	\$26.47	\$73.69	\$858.74	\$3.47
Potable Water/Construction							
Units		6,647,964	146,328	45,730	45,730	0	
Costs	\$42,984,018	\$36,028,317	\$2,375,424	\$1,210,317	\$3,369,960	\$0	
Recycled Water							
Units			246	759	759	0	485,158
Costs	\$1,765,497	\$0	\$3,993	\$20,088	\$55,933	\$0	\$1,685,482
Private Fire							
Units		0	4,398	0	0	764	
Costs	\$727,156	\$0	\$71,395	\$0	\$0	\$655,760	
Total	\$45,476,671	\$36,028,317	\$2,450,812	\$1,230,406	\$3,425,893	\$655,760	\$1,685,482

Table 6-14 shows that the projected test year cost-of-service is 11 percent higher than revenue under existing Basic, Fireline, and Volumetric rates and charges, which is consistent with the financial plan revenue adjustment for these rates in FY 2024, shown in Table 5-17.

Table 6-14: Comparison of Cost of Service with Revenue Under Existing Rates, Test Year

Customer Class	Revenue		
	Proposed COS	Under Existing Rates	Rev. Inc. (Decr.) from COS
Potable Water & Construction	\$42,984,018	\$38,427,393	12%
Recycled Water	\$1,765,497	\$1,714,930	3%
Private Fire Protection	\$727,156	\$753,964	-4%
Total	\$45,476,671	\$40,896,287	11%

6.6. Capital Charge – Net Revenue Requirements

In FY 2023 Mesa Water added a capital charge to its rate schedule to recover a portion of capital and operating costs. Mesa Water also intends to increase the overall amount of revenue requirements (capital and operating) recovered through this charge over time. Table 6-15 shows the capital-related expenses for the rate-setting period. Capital expenses comprise debt service and Paygo funded capital. The adjustment reflects that rate adjustments will take place six months into each fiscal year.

Table 6-15: Capital-Related Revenue Requirement Projection

Line Item	2024	2025	2026	2027	2028
Capital Revenue Requirements					
Debt Service	\$6,848,450	\$6,898,200	\$6,921,450	\$4,723,950	\$3,976,200
Rate-Funded	\$0	\$5,464,260	\$3,180,100	\$3,311,143	\$3,446,117
Subtotal	\$6,848,450	\$12,362,460	\$10,101,550	\$8,035,093	\$7,422,317
Adjustments					
Annualized Rate Adjustment	\$0	\$373,718	\$1,151,053	\$1,210,250	\$1,294,441
Subtotal	\$0	\$373,718	\$1,151,053	\$1,210,250	\$1,294,441
Net Capital Rev. Req.	\$6,848,450	\$12,736,178	\$11,252,603	\$9,245,343	\$8,716,759

Table 6-16 shows the projected capital charge revenue based on the capital charge adjustments shown in Table 1-2. The table also shows the amount of capital costs recovered through the Basic and Variable charges. This basic and variable value is positive if the projected capital charge revenue is not enough to cover the projected net capital revenue requirements. If this value is negative, it means that some operating costs are recovered by the capital charge. The total in Table 6-16 matches the total in Table 6-15.

Table 6-16: Cost-Recovery Split

Line Item	2024	2025	2026	2027	2028
Projected Capital Charge Revenue	\$6,021,785	\$7,848,088	\$9,372,859	\$11,734,162	\$14,238,853
Capital Recovered by Basic/Variable	\$826,665	\$4,888,090	\$1,879,743	(\$2,488,819)	(\$5,522,095)
Total	\$6,848,450	\$12,736,178	\$11,252,603	\$9,245,343	\$8,716,759

7. Proposed Water Rates and Charges

This section calculates water rates and charges based on the cost-of-service analysis (Section 6). The rates and charges developed in this section may, in some cases, be referred to as the cost-of-service rates.

7.1. Basic Service Charge

Raftelis proposes that Mesa Water retain its bi-monthly and monthly water basic service charge on the basis of meter size for potable and recycled water service. Three cost components comprise the total proposed basic service charge:

- Customer Billing
- Meter Service
- Public Fire

The Customer Billing component recovers costs associated with meter reading, customer billing, as well as customer service costs. These costs are the same for all meter sizes because it costs Mesa Water the same to provide billing and customer services to any account, regardless of meter size. The Meter Service cost component recognizes the fact that Mesa Water incurs fixed costs related to maintaining/replacing meters. These costs increase with meter size increases, as it takes less time and resources to repair and maintain a smaller meter compared to a larger meter. Public Fire costs are recovered through the basic charge and also recognize that properties with larger meters generally have larger fire-fighting requirements.

Table 7-1 shows the derivation of the monthly and bi-monthly basic service charge for FY 2024. As discussed in Section 6, the 5/8-inch meter is the base meter size. Therefore, the unit rates shown for the 5/8-inch meter match the unit rates shown for “Bills”, “Equivalent Meters”, and “Public Fire” from Table 6-12. The meter and public fire components of the basic charge for the other meter sizes are calculated by multiplying the 5/8-inch unit rate by the capacity ratios shown in Table 6-10, Column B. The total basic charge is the sum of the billing component plus the sum of the annual meter and public fire components divided by the number of billing periods per year (6 for bi-monthly and 12 for monthly). The total charge is rounded up to the nearest cent.

Table 7-1: Derivation of Monthly and Bi-Monthly Basic Charge, Test Year

Meter Size	Meter			Total	
	Billing \$/bill	Maintenance \$/mtr/yr	Public Fire \$/mtr/yr	Total \$/bi-mo	Total \$/mo
5/8-inch	\$16.23	\$26.47	\$73.69	\$32.93	\$24.58
3/4-inch	\$16.23	\$39.70	\$110.54	\$41.27	\$28.75
1-inch	\$16.23	\$66.17	\$184.23	\$57.97	\$37.10
1 1/2-inch	\$16.23	\$132.33	\$368.46	\$99.70	\$57.97
2-inch	\$16.23	\$211.73	\$589.54	\$149.78	\$83.01
3-inch	\$16.23	\$463.17	\$1,289.62	\$308.36	\$162.30
4-inch	\$16.23	\$833.70	\$2,321.32	\$542.07	\$279.15
6-inch	\$16.23	\$1,852.66	\$5,158.48	\$1,184.76	\$600.50
8-inch	\$16.23	\$3,175.99	\$8,843.11	\$2,019.42	\$1,017.82
10-inch	\$16.23	\$5,028.65	\$14,001.58	\$3,187.94	\$1,602.09

Table 7-2 presents the current January 1, 2023 basic charges and the proposed basic charges for potable and recycled water customers for FY 2024 – FY 2028. The proposed charges are rounded up to the nearest cent.

Table 7-2: Adopted and Proposed (FY 2024-FY 2028) Basic Charge

Proposed Rates	Fiscal Year					
	2023	2024	2025	2026	2027	2028
Effective Date	Jan 2023	Jan 2024	Jan 2025	Jan 2026	Jan 2027	Jan 2028
Bi-Monthly Potable Water & Recycled Water Basic Charge, \$/bi-mo						
Meter Size						
5/8-inch	\$29.55	\$32.93	\$36.22	\$38.75	\$41.47	\$44.37
3/4-inch	\$36.30	\$41.27	\$45.40	\$48.58	\$51.98	\$55.62
1-inch	\$49.79	\$57.97	\$63.76	\$68.23	\$73.00	\$78.11
1 1/2-inch	\$83.52	\$99.70	\$109.67	\$117.35	\$125.56	\$134.35
2-inch	\$124.00	\$149.78	\$164.76	\$176.29	\$188.63	\$201.83
3-inch	\$252.17	\$308.36	\$339.20	\$362.94	\$388.35	\$415.54
4-inch	\$441.06	\$542.07	\$596.28	\$638.02	\$682.68	\$730.46
6-inch	\$960.50	\$1,184.76	\$1,303.23	\$1,394.46	\$1,492.07	\$1,596.52
8-inch	\$1,635.11	\$2,019.42	\$2,221.36	\$2,376.85	\$2,543.23	\$2,721.26
10-inch	\$2,579.55	\$3,187.94	\$3,506.73	\$3,752.20	\$4,014.86	\$4,295.90
Monthly Potable Water & Recycled Water Basic Charge, \$/mo						
Meter Size						
5/8-inch	\$22.81	\$24.58	\$27.04	\$28.93	\$30.96	\$33.12
3/4-inch	\$26.18	\$28.75	\$31.63	\$33.84	\$36.21	\$38.75
1-inch	\$32.92	\$37.10	\$40.81	\$43.67	\$46.72	\$49.99
1 1/2-inch	\$49.79	\$57.97	\$63.76	\$68.23	\$73.00	\$78.11
2-inch	\$70.03	\$83.01	\$91.31	\$97.70	\$104.54	\$111.85
3-inch	\$134.11	\$162.30	\$178.53	\$191.03	\$204.40	\$218.71
4-inch	\$228.56	\$279.15	\$307.07	\$328.56	\$351.56	\$376.17
6-inch	\$488.28	\$600.50	\$660.54	\$706.78	\$756.26	\$809.20
8-inch	\$825.58	\$1,017.82	\$1,119.61	\$1,197.98	\$1,281.84	\$1,371.57
10-inch	\$1,297.81	\$1,602.09	\$1,762.30	\$1,885.66	\$2,017.65	\$2,158.89

7.2. Private Fireline Charges

Private fireline service charges are composed of two cost components: billing & customer service and the fire capacity costs components. The customer billing component recovers costs associated with meter reading and customer billing. These costs are the same for all meter sizes as it costs Mesa Water the same to provide billing and customer services to private fireline accounts, regardless of fire line service size. The fire capacity cost component recovers fixed costs related to reading, maintaining, and replacing fire meters. Meter maintenance costs generally increase with meter size, as it takes less time and resources to repair and maintain a smaller meter compared to a larger meter.

Table 7-3 shows the calculation of the total bi-monthly and monthly private fireline service charge for each private fire connection size. The total proposed private fireline service charge is calculated by combining the billing and firefighting capacity costs. The customer billing component (Table 6-12, Bills) applies uniformly to all private fire customers. Firefighting capacity costs are proportional to the potential flow through each private fireline service, (Table 6-4), with a 6-inch base service line size. The firefighting capacity unit cost at the 6-inch service line equals the private fireline unit cost from Table 6-12 (Private Fire). The unit cost for the other fireline service line sizes are determined by multiplying the 6-inch unit rate by the fireline service capacity ratios shown in Table 6-4. The bi-monthly and monthly charges are the capacity unit rate divided by the number of billing periods plus the billing cost (per bill). The proposed charges are rounded up to the nearest cent.

Table 7-3: Derivation of Private Fireline Charges

Fire Service Line	Billing	Capacity	Fireline Services, Bi-monthly	Fireline Services, Monthly
Size	\$/bill	\$/yr	\$/bi-mo	\$/mo
1-inch	\$16.23	\$7.71	\$17.52	\$16.88
1 1/2-inch	\$16.23	\$22.41	\$19.97	\$18.10
2-inch	\$16.23	\$47.76	\$24.19	\$20.21
3-inch	\$16.23	\$138.72	\$39.35	\$27.79
4-inch	\$16.23	\$295.62	\$65.50	\$40.87
6-inch	\$16.23	\$858.74	\$159.36	\$87.79
8-inch	\$16.23	\$1,829.99	\$321.23	\$168.73
10-inch	\$16.23	\$3,290.96	\$564.73	\$290.48

Table 7-4 presents the previously adopted January 1, 2023, fireline service charges and the proposed charges for FY 2024 – FY 2028.

Table 7-4: Adopted and Proposed (FY 2023-FY 2027) Fireline Service Charges

Proposed Rates	Fiscal Year					
	2023	2024	2025	2026	2027	2028
Effective Date	Jan 2023	Jan 2024	Jan 2025	Jan 2026	Jan 2027	Jan 2028
Bi-Monthly Fireline Class I and II, \$/bi-mo						
Fireline Service Size						
5/8-inch	\$17.38	\$17.52	\$19.27	\$20.62	\$22.06	\$23.61
3/4-inch	\$17.38	\$17.52	\$19.27	\$20.62	\$22.06	\$23.61
1-inch	\$17.38	\$17.52	\$19.27	\$20.62	\$22.06	\$23.61
1 1/2-inch	\$19.90	\$19.97	\$21.97	\$23.50	\$25.15	\$26.91
2-inch	\$24.24	\$24.19	\$26.61	\$28.48	\$30.47	\$32.60
3-inch	\$39.81	\$39.35	\$43.29	\$46.32	\$49.56	\$53.03
4-inch	\$66.67	\$65.50	\$72.05	\$77.10	\$82.50	\$88.27
6-inch	\$163.09	\$159.36	\$175.29	\$187.56	\$200.69	\$214.74
8-inch	\$329.38	\$321.23	\$353.36	\$378.09	\$404.56	\$432.88
10-inch	\$579.52	\$564.73	\$621.20	\$664.68	\$711.21	\$761.00
Monthly Fireline Class I and II, \$/mo						
Fireline Service Size						
5/8-inch	\$16.72	\$16.88	\$18.56	\$19.86	\$21.25	\$22.74
3/4-inch	\$16.72	\$16.88	\$18.56	\$19.86	\$21.25	\$22.74
1-inch	\$16.72	\$16.88	\$18.56	\$19.86	\$21.25	\$22.74
1 1/2-inch	\$17.98	\$18.10	\$19.91	\$21.30	\$22.80	\$24.39
2-inch	\$20.15	\$20.21	\$22.23	\$23.79	\$25.46	\$27.24
3-inch	\$27.93	\$27.79	\$30.57	\$32.71	\$35.00	\$37.45
4-inch	\$41.37	\$40.87	\$44.96	\$48.10	\$51.47	\$55.07
6-inch	\$89.57	\$87.79	\$96.57	\$103.33	\$110.57	\$118.31
8-inch	\$172.72	\$168.73	\$185.61	\$198.60	\$212.50	\$227.38
10-inch	\$297.79	\$290.48	\$319.53	\$341.90	\$365.83	\$391.44

Table 7-5 presents the projected revenues from basic and fireline charges using the charges shown above and projections of meters and usage discussed earlier in this report.

Table 7-5: Projected Revenues from Basic and Fireline Charges, FY 2024-FY 2028

Estimated	Fiscal Year				
	2024	2025	2026	2027	2028
Basic & Fireline Rev.					
Basic Revenues	\$7,035,715	\$7,739,287	\$8,281,037	\$8,860,710	\$9,480,959
Fireline Services Revenues	\$727,156	\$799,871	\$855,862	\$915,773	\$979,877
Total Basic & Fireline Revenues	\$7,762,871	\$8,539,158	\$9,136,899	\$9,776,482	\$10,460,836

7.3. Proposed Potable Water and Recycled Water Usage Rates (\$/ccf)

Mesa Water employs a uniform usage rate for potable water (including construction and fireline) use as well as recycled water use. Table 7-6 shows the calculation of the test year usage rates for potable and recycled water. The “Cost-of-Service” column matches the total from Table 6-13. To ensure full cost recovery, the total “Usage Cost Recovery” amount is first determined by subtracting the class-specific “Basic/Private Fire Cost Recovery” from the cost-of-service for each customer class. The total unit rate for each class is the respective quotient of the “Usage Cost Recovery” and “Annual Usage” for each customer class.

Table 7-6: Calculation of Usage Rate, Test Year

	Basic/Private				
	Cost-of-Service	Fire Cost	Usage Cost	Annual Usage	Total
		Recovery	Recovery		
	\$	\$	\$	ccf	\$/ccf
Potable Water (1)	\$43,711,174	\$7,682,857	\$36,028,317	6,647,964	\$5.42
Recycled Water	\$1,765,497	\$80,014	\$1,685,482	485,158	\$3.47
Total	\$45,476,671	\$7,762,871	\$37,713,800		

(1) includes construction & fireline

The volumetric rates for FY 2025 – FY 2028 are calculated by multiplying the prior year rate by the Basic/Volume increase shown in Table 1-2. The proposed usage rates are rounded up to the nearest cent.

Table 7-7: Adopted and Proposed (FY 2023-FY 2027) Usage Rates, \$/ccf

Proposed Rates	Fiscal Year					
	2023	2024	2025	2026	2027	2028
Usage, \$/ccf	Jan 2023	Jan 2024	Jan 2025	Jan 2026	Jan 2027	Jan 2028
Potable Water (1)	\$4.87	\$5.42	\$5.96	\$6.38	\$6.83	\$7.30
Recycled Water	\$3.40	\$3.47	\$3.82	\$4.09	\$4.38	\$4.68

(1) also applies to construction and fireline water use.

7.4. Capital Charge

Table 7-8 shows the adopted January 1, 2023, and January 1, 2024, charges and the projected charges for January 1, 2025 through January 1, 2028. The unit rates for FY 2025 through FY 2028 are the prior year rate adjusted by the capital charge increase shown in Table 1-2 rounded to the nearest dollar.

Table 7-8: Estimated Annual Capital Charge, FY 2023-FY 2027

Proposed Rates	Fiscal Year					
	2023	2024	2025	2026	2027	2028
Capital Charge, \$/yr	Current	Jan 2024	Jan 2025	Jan 2026	Jan 2027	Jan 2028
Potable Water Meter Size						
5/8-inch	\$99.92	\$163.45	\$189.07	\$212.07	\$241.58	\$286.28
3/4-inch	\$149.88	\$245.17	\$283.61	\$318.11	\$362.37	\$429.42
1-inch	\$249.79	\$408.61	\$472.68	\$530.18	\$603.95	\$715.70
1 1/2-inch	\$499.57	\$817.21	\$945.35	\$1,060.35	\$1,207.90	\$1,431.40
2-inch	\$799.31	\$1,307.54	\$1,512.56	\$1,696.56	\$1,932.64	\$2,290.24
3-inch	\$1,748.49	\$2,860.23	\$3,308.73	\$3,711.23	\$4,227.65	\$5,009.90
4-inch	\$3,147.29	\$5,148.41	\$5,955.71	\$6,680.21	\$7,609.77	\$9,017.82
6-inch	\$6,993.96	\$11,440.89	\$13,234.90	\$14,844.90	\$16,910.60	\$20,039.60
8-inch	\$11,989.65	\$19,612.96	\$22,688.40	\$25,448.40	\$28,989.60	\$34,353.60
10-inch	\$18,983.61	\$31,053.85	\$35,923.30	\$40,293.30	\$45,900.20	\$54,393.20

This capital charge is for each meter and presumes a direct correlation between parcels on the tax record and metered potable water accounts. Certain parcels may have several meters and would be billed accordingly.

7.5. Projected Basic/Volume/Private Fireline Revenues Under Cost-of-Service Rates & Charges

Table 7-9 shows the projected revenues based on the projected number of bills, water usage, and charges/rates. This is compared against the projected cost of service.

Table 7-9: Projected Revenues Under Cost-of-Service Rates & Charges, Test Year

	Basic/Standby Charges	Use Revenue	Total Revenue	Cost-of- Service	Rev. as Percent of Cost-of- Service
PW Customers					
PW & Construction	\$6,955,701	\$36,028,317	\$42,984,018		
Fireline	\$727,156	\$10,771	\$737,927		
Total Potable Water	\$7,682,857	\$36,039,089	\$43,721,945	\$43,711,174	100.0%
Recycled Water	\$80,014	\$1,685,482	\$1,765,497	\$1,765,497	100.0%
Total	\$7,762,871	\$37,724,571	\$45,487,442	\$45,476,671	100.0%

The capital charges for the test year are not changing.

7.6. Customer Impact Analysis

Table 7-10 illustrates the customer bill impact for an average residential water service customer with a 5/8" meter using an average of 22 ccf in a bi-monthly billing period (60 days). Current customer bills are shown for the previously approved service rates and charges for January 1, 2023, and for the proposed service rates and charges for FY 2024 – FY 2028, each with effective dates of January 1. The capital charge line shows the equivalent bi-monthly charge.

Table 7-10: Average Single-Family Customer, Bi-Monthly Bill Impact

	Jan. 1, 2023	Jan. 1, 2024	Jan. 1, 2025	Proposed Jan. 1, 2026	Jan. 1, 2027	Jan. 1, 2028
Bi-monthly Basic Charge: 5/8"	\$29.55	\$32.93	\$36.22	\$38.75	\$41.47	\$44.37
Capital Charge, 5/8" (\$/bi-mo)	\$21.95	\$27.24	\$30.00	\$38.50	\$47.33	\$56.67
Usage Charge (ccf): 22	\$107.14	\$119.23	\$131.15	\$140.33	\$150.15	\$160.67
Total Water Bill + Capital Charge	\$158.64	\$179.40	\$197.37	\$217.59	\$238.96	\$261.70
% Change		13.1%	10.0%	10.2%	9.8%	9.5%

Note: Jan. 1, 2023 capital charge is the average equivalent bi-monthly charge over FY2023.

APPENDIX A:

Test Year O&M Functionalization



Table A-1 shows the functionalization of annual test year O&M costs based on input from Mesa Water staff. Chemicals are 100 percent functionalized as treatment costs. The utilities costs for clear water are to pump water from the groundwater basin; thus, 100 percent is functionalized as supply. Half of the utilities costs for amber water are related to pumping from the groundwater basin and the other 50 percent is for treatment.

Table A-1: Functionalization of Test Year O&M Expenses

Line Item	FY 2024	Supply	Treat-ment	T&D	Storage	Meter	Customer	G&A	Direct Fire (Fire Hydrants)	Recycled Water	Total
Other General & Admin	\$9,989,241							97.0%		3.0%	100.0%
Engineering	\$1,389,085	1.0%		90.7%	5.0%	0.3%				3.0%	100.0%
Customer Service	\$997,933						80.0%	20.0%			100.0%
Water Operations											
Payroll	\$5,460,584	15.4%	10.2%	30.3%	5.0%	0.8%	11.5%	18.8%	3.1%	5.0%	100.0%
Non-payroll	\$3,130,886			91.9%	3.0%	0.8%			3.1%	1.2%	100.0%
Imported/Basin Managed Water Expenses											
Imported Water Fixed Costs	\$509,500	100.0%									100.0%
Imported Water Variable Costs	\$0	100.0%									100.0%
Basin Managed Water	\$0	100.0%									100.0%
Chemicals and Treatment	\$0		100.0%								100.0%
Utilities - Imported	\$2,000	100.0%									100.0%
Labor Import	\$0	100.0%									100.0%
Parts and Materials - Import	\$15,000	100.0%									100.0%
Support Services - Import	\$12,500	100.0%									100.0%
In-Lieu Water	\$0	100.0%									100.0%
Clear Water Expenses											
Chemicals - Clear	\$404,271		100.0%								100.0%
Basin Replenishment Assessment - Clear	\$8,658,000	100.0%									100.0%
Well Land Leases - Clear	\$0	100.0%									100.0%
BEA (Rebilled to Segerstrom)	\$0	100.0%									100.0%
Utilities - Clear	\$1,522,699	100.0%									100.0%
Labor Clear	\$0	100.0%									100.0%
Parts and Materials - Clear	\$125,000	100.0%									100.0%
Support Services - Clear	\$287,000	75.0%	25.0%								100.0%
Amber Water Expenses											
Chemicals - Amber	\$492,221		100.0%								100.0%
Basin Replenishment Assessment - Amber	\$1,528,176	100.0%									100.0%
Utilities - Amber	\$547,089	50.0%	50.0%								100.0%
Labor Amber	\$0	25.0%	75.0%								100.0%
Parts and Materials - Amber	\$60,000	20.0%	80.0%								100.0%
Support Services - Amber	\$287,200	10.0%	90.0%								100.0%
Recycled Water Costs	\$1,064,640									100.0%	100.0%
Total	\$36,483,025	\$13,755,026	\$2,103,608	\$5,788,495	\$436,410	\$69,200	\$1,426,314	\$10,916,832	\$270,551	\$1,716,590	
Allocation	100.0%	37.7%	5.8%	15.9%	1.2%	0.2%	3.9%	29.9%	0.7%	4.7%	