

CITY OF  
**Whittier**

**Water and Sewer Comprehensive Cost-of-  
Service Rate Study - DRAFT**

Draft Report / September 2024





September 5, 2024

Mr. Kyle Cason  
Director of Public Works and City Engineer  
City of Whittier  
11579 Hadley St  
Whittier, CA 90606

**Subject: Water and Sewer Comprehensive Cost-of-Service Rate Study**

Dear Mr. Cason,

Raftelis Financial Consultants, Inc. is pleased to provide this report to the City of Whittier for the Water and Sewer Comprehensive Cost-of-Service Rate Study. This report presents the analyses, rationales, and methodologies utilized to determine utility rates informed by California Constitution Article XIII D, Section 6 (commonly referred to as Proposition 218).

The study involved a comprehensive review of the City's current water and sewer cost requirements to determine rates that meet the City's objectives. The main objectives that informed the study include:

- » Adequately recovering costs to ensure the financial sufficiency of the City's utilities
- » Determining feasible capital financing plans
- » Developing long-term financial plans
- » Calculating cost of service-based rates for the water and sewer utilities
- » Minimizing customer impacts from changes to the rate structures

We are confident that the proposed rates developed during this study are fair and equitable for the City's customers. It was a pleasure working with you and your team, and we wish to express our gratitude for the support you and other City staff provided us during the study. If you have any questions, please do not hesitate to call me at 303-909-5575.

Sincerely,

*Raftelis Financial Consultants, Inc.*

A handwritten signature in blue ink that reads "John Wright".

**John Wright**  
*Senior Manager*

A handwritten signature in blue ink that reads "Brian Bass".

**Brian Bass**  
*Manager*

DRAFT

# Contents

|           |   |           |
|-----------|---|-----------|
| <b>1.</b> | <b>EXECUTIVE SUMMARY</b>                            | <b>1</b>  |
| 1.1.      | STUDY BACKGROUND                                    | 1         |
| 1.2.      | CURRENT RATES                                       | 1         |
| 1.3.      | PROCESS AND APPROACH                                | 2         |
| 1.4.      | LEGAL FRAMEWORK                                     | 3         |
| 1.5.      | RESULTS AND RECOMMENDATIONS                         | 3         |
| 1.6.      | PROPOSED RATES                                      | 4         |
| 1.7.      | CUSTOMER BILL IMPACTS                               | 8         |
| <b>2.</b> | <b>ASSUMPTIONS</b>                                  | <b>10</b> |
| 2.1.      | CUSTOMER DEMAND GROWTH                              | 10        |
| 2.2.      | REVENUE INFLATION FACTORS                           | 10        |
| 2.3.      | EXPENSE INFLATION FACTORS                           | 10        |
| <b>3.</b> | <b>WATER FINANCIAL PLAN</b>                         | <b>12</b> |
| 3.1.      | PROJECTED DEMAND                                    | 12        |
| 3.2.      | PROJECTED REVENUES                                  | 12        |
| 3.3.      | PROJECTED O&M EXPENSES                              | 13        |
| 3.4.      | DEBT SERVICE  | 13        |
| 3.5.      | CAPITAL PROJECTS                                    | 13        |
| 3.6.      | WATER FINANCIAL PLAN WITHOUT RATE INCREASES         | 16        |
| 3.7.      | PROPOSED WATER FINANCIAL PLAN                       | 20        |
| <b>4.</b> | <b>WATER COST-OF-SERVICE</b>                        | <b>25</b> |
| 4.1.      | REVENUE REQUIREMENT DETERMINATION                   | 25        |
| 4.2.      | ALLOCATION OF EXPENSES TO COST CAUSATION COMPONENTS | 25        |
| 4.3.      | UNITS OF SERVICE                                    | 30        |

|             |   |           |
|-------------|---|-----------|
| 4.3.1.      | Customer and Meter Equivalents .....                            | 30        |
| 4.3.2.      | Customer class Water Usage and Peaking.....                     | 31        |
| 4.3.3.      | Cost Distributions to the Cost Causation components .....       | 32        |
| <b>5.</b>   | <b>WATER RATE DESIGN.....</b>                                   | <b>35</b> |
| <b>5.1.</b> | <b>PROPOSED BI-MONTHLY SERVICE CHARGE.....</b>                  | <b>35</b> |
| <b>5.2.</b> | <b>PROPOSED BI-MONTHLY PRIVATE FIRE PROTECTION CHARGE .....</b> | <b>35</b> |
| <b>5.3.</b> | <b>VOLUMETRIC RATES.....</b>                                    | <b>36</b> |
| 5.3.1.      | Customer Classes.....   | 36        |
| 5.3.2.      | Tier Definitions.....   | 36        |
| 5.3.3.      | Commodity Cost Component Definitions .....                      | 36        |
| <b>5.4.</b> | <b>5-YEAR RATE SCHEDULE.....</b>                                | <b>38</b> |
| <b>5.5.</b> | <b>CUSTOMER BILL IMPACTS .....</b>                              | <b>39</b> |
| <b>6.</b>   | <b>SEWER FINANCIAL PLAN .....</b>                               | <b>41</b> |
| <b>6.1.</b> | <b>PROJECTION OF CUSTOMER DATA .....</b>                        | <b>41</b> |
| <b>6.2.</b> | <b>PROJECTED REVENUES .....</b>                                 | <b>41</b> |
| <b>6.3.</b> | <b>PROJECTED O&amp;M EXPENSES.....</b>                          | <b>43</b> |
| <b>6.4.</b> | <b>DEBT SERVICE .....</b>                                       | <b>43</b> |
| <b>6.5.</b> | <b>CAPITAL PROJECTS .....</b>                                   | <b>43</b> |
| <b>6.6.</b> | <b>CURRENT FINANCIAL PLAN – STATUS QUO .....</b>                | <b>44</b> |
| <b>6.7.</b> | <b>PROPOSED FINANCIAL PLAN .....</b>                            | <b>45</b> |
| <b>7.</b>   | <b>SEWER COST OF SERVICE AND RATES.....</b>                     | <b>47</b> |
| <b>7.1.</b> | <b>PROCESS AND APPROACH .....</b>                               | <b>47</b> |
| <b>7.2.</b> | <b>REVENUE REQUIREMENT DETERMINATION .....</b>                  | <b>47</b> |
| <b>7.3.</b> | <b>ALLOCATION OF EXPENSES TO COST COMPONENTS .....</b>          | <b>48</b> |
| <b>7.4.</b> | <b>UNITS OF SERVICE .....</b>                                   | <b>49</b> |
| 7.4.1.      | Sewer Cost of Service .....                                     | 50        |
| 7.4.2.      | Sewer Class Cost of Service .....                               | 50        |

**7.4.3. Sewer Rates And Customer Bill Impacts .....50**

DRAFT

# List of Tables

|  |    |
|--|----|
| Table 1-1: Current Bi-Monthly Water Service Charges (\$/meter size).....                             | 1  |
| Table 1-2: Current Commodity Charges (\$/hcf of water) .....   | 2  |
| Table 1-3: Current Sewer Rates .....   | 2  |
| Table 1-4: Proposed Rate Revenue Increases .....   | 4  |
| Table 1-5: Proposed Monthly Water Service Charges (\$/meter size).....                               | 5  |
| Table 1-6: Proposed Water Usage Rates (\$/hcf of water) .....  | 6  |
| Table 1-7: Proposed Sewer Rates .....  | 6  |
| Table 1-8: Proposed Single Family Customer Bi-Monthly Water Bill Impacts (5/8” meter, varying hcf) . | 9  |
| Table 1-9: Proposed Residential Customer Annual Sewer Bill Impacts .....                             | 9  |
| Table 2-1: Customer Demand Growth Projections .....  | 10 |
| Table 2-2: Revenue Inflation Factors .....   | 10 |
| Table 2-3: Expense Inflation Factors.....  | 11 |
| Table 3-1: Projected Water Demand.....   | 12 |
| Table 3-2: Projected Operating Fund Water Revenues (Status Quo).....                                 | 13 |
| Table 3-3: Projected Water O&M Expenses.....   | 13 |
| Table 3-4: Existing Water Debt Service.....  | 13 |
| Table 3-5: Inflated Water Capital Projects .....   | 15 |
| Table 3-6: Projected Water Operating Fund Financial Plan (Status Quo).....                           | 17 |
| Table 3-7: Projected Water Capital Fund Financial Plan (Status Quo).....                             | 18 |
| Table 3-8: Proposed Water Revenue Adjustments.....   | 20 |
| Table 3-9: Projected Water Operating Financial Plan (Proposed Rate Revenue Adjustments) .....        | 21 |
| Table 3-10: Projected Water Capital Financial Plan (Proposed Revenue Adjustments).....               | 22 |
| Table 4-1: FY 2024 Potable Revenue Requirements .....  | 25 |
| Table 4-2: System Peaking Factors, Conversions, and Cost Component Allocations .....                 | 27 |
| Table 4-3: Water O&M Allocation Factors.....   | 28 |
| Table 4-4: Water O&M Allocations.....  | 28 |
| Table 4-5: Water Asset Allocation Factors .....  | 29 |
| Table 4-6: Water Asset Allocations .....   | 29 |
| Table 4-7: Customer and Equivalent Meter Units .....   | 30 |
| Table 4-8: Public Hydrants and Private Fire Lines .....  | 31 |
| Table 4-9: Class Peaking Factors .....   | 31 |
| Table 4-10: Units of Service .....   | 33 |
| Table 4-11: Unit Cost of Service .....   | 33 |
| Table 4-12: Class Cost of Service.....   | 34 |
| Table 5-1: Bi-Monthly Fixed Charge Derivation by Meter Size .....                                    | 35 |
| Table 5-2: Bi-Monthly Private Fire Charge Derivation by Meter Size.....                              | 36 |
| Table 5-3: Current Volumetric Tiers .....  | 36 |
| Table 5-4: Water Supply Unit Costs .....   | 37 |
| Table 5-5: Delivery and Peaking Unit Rates .....   | 37 |
| Table 5-6: Commodity Rate Calculation .....  | 38 |
| Table 5-7: Proposed FY 2025 – FY 2029 Water Rates .....  | 38 |
| Table 5-8: Proposed Single Family Customer Bi-Monthly Bill Impacts (5/8” meter, varying ccf).....    | 40 |
| Table 6-1: Account Growth And Usage Demand Factors .....   | 41 |
| Table 6-2: Projected Sewer Units and Usage (hcf) .....   | 41 |

|   |    |
|---|----|
| Table 6-3: Current Sewer Rates (FY 2025).....   | 42 |
| Table 6-4: Projected Sewer Rate Revenue .....   | 42 |
| Table 6-5: Projected Sewer Revenues Summary .....   | 42 |
| Table 6-6: Projected Sewer O&M Expenses .....   | 43 |
| Table 6-7: Projected Sewer Capital Projects .....   | 43 |
| Table 6-8: Projected Sewer Operating Financial Plan (Status Quo).....                     | 44 |
| Table 6-9: Projected Sewer Capital Financial Plan (Status Quo) .....                      | 45 |
| Table 6-10: Proposed Sewer Revenue Adjustments .....                                      | 45 |
| Table 6-11: Projected Sewer Operating Financial Plan (Proposed Revenue Adjustments) ..... | 46 |
| Table 6-12: Projected Sewer Capital Financial Plan (Proposed Revenue Adjustments) .....   | 46 |
| Table 7-1: Sewer Revenue Requirement.....   | 48 |
| Table 7-2: Sewer O&M Allocation Factors to Cost Components .....                          | 48 |
| Table 7-3: Sewer O&M Allocation to Cost Components .....                                  | 49 |
| Table 7-4: Sewer Units of Service.....  | 50 |
| Table 7-5: Sewer Cost of Service.....   | 50 |
| Table 7-6: Sewer Class Cost of Service .....  | 50 |
| Table 7-7: Sewer Rate Calculation.....  | 51 |
| Table 7-8: Proposed FY 2025 – FY 2029 Sewer Rates.....                                    | 51 |
| Table 7-9: Sewer Bill Impacts.....  | 52 |

DRAFT

# List of Figures

|   |    |
|---|----|
| Figure 1: Water Operating Fund Ending Cash Balance (Status Quo) .....         | 19 |
| Figure 2: Water Capital Fund Ending Cash Balance (Status Quo) .....           | 19 |
| Figure 3: Water Operating Fund Ending Balance (Proposed Financial Plan) ..... | 23 |
| Figure 4: Water Capital Fund Ending Balance (Proposed Financial Plan) .....   | 24 |

## Abbreviations

|          |  |
|----------|--|
| AWWA     | American Water Works Association                         |
| CIP      | Capital Improvement Plan                                 |
| City     | City of Whittier   |
| CPI      | Consumer Price Index                                     |
| FY       | Fiscal Year  |
| HCF      | Hundred Cubic Feet                                       |
| O&M      | Operations and Maintenance                               |
| PFAS     | Per- and Polyfluoroalkyl Substances                      |
| Raftelis | Raftelis Financial Consultants, Inc.                     |
| SFR      | Single Family Residential                                |
| Study    | Water and Sewer Comprehensive Cost of Service Rate Study |
| T&D      | Transmission and Distribution                            |
| WEF      | Water Environment Federation                             |

# 1. Executive Summary

## 1.1. Study Background

In 2023, the City of Whittier (City) retained the services of Raftelis Financial Consultants, Inc. (Raftelis) to conduct a Water and Sewer Comprehensive Cost of Service Rate Study (study). The study included developing long-term water and sewer financial plans and proposed cost-of-service rates. This report presents the financial plans for each utility for a five-year study period, along with proposed cost-of-service rates commencing January 2025 and in January of every year thereafter until 2029.

This Executive Summary outlines the proposed financial plans and resulting rates and describes the rate study methodology and recommendations. The main objectives that informed the Study include:

- » Adequately recovering all costs to ensure the financial sufficiency of the City’s utilities
- » Determining feasible capital financing plans
- » Developing long-term financial plans
- » Calculating cost-of-service-based rates for all utilities
- » Minimizing customer impacts from changes to the rate structures

## 1.2. Current Rates

The City’s current water rates were last updated on July 1, 2023. The bi-monthly water service charges consist of a fixed service charge varied by meter sizes and a commodity charge for water usage. Commodity rates for Single Family Residential (SFR) customers are charged per 100 cubic feet (hcf) of water, subject to a two-tiered inclining block rate structure. The commodity rates for all other customers are charged at a uniform \$/hcf rate. The fire service charge is imposed on parcels with a private fire service line and is a fixed charge based on the size of the private fire meter. **Table 1-1** shows the current monthly service charges and **Table 1-2** shows the water commodity rates by customer class.

**Table 1-1: Current Bi-Monthly Water Service Charges (\$/meter size)**

| Line | A          | B             | C            | D               | E          | E          | F            |
|------|------------|---------------|--------------|-----------------|------------|------------|--------------|
|      | Meter Size | Single-Family | Multi-Family | Non-Residential | Landscape  | Reclaimed  | Private Fire |
| 1    | 3/4"       | \$80.03       | \$107.97     | \$90.82         | \$113.62   | \$90.82    | \$0.87       |
| 2    | 1"         | \$131.87      | \$178.43     | \$149.84        | \$187.85   | \$149.84   | \$1.90       |
| 3    | 1 ½"       | \$261.45      | \$354.58     | \$297.40        | \$373.42   | \$297.40   | N/A          |
| 4    | 2"         | \$416.94      | \$565.96     | \$474.47        | \$596.11   | \$474.47   | \$11.79      |
| 5    | 3"         | \$831.60      | \$1,129.64   | \$946.65        | \$1,189.93 | \$946.65   | \$34.22      |
| 6    | 4"         | \$1,298.10    | \$1,763.78   | \$1,477.85      | \$1,857.98 | \$1,477.85 | \$72.92      |
| 7    | 6"         | \$2,593.91    | \$3,525.29   | \$2,953.42      | \$3,713.68 | \$2,953.42 | \$211.81     |
| 8    | 8"         | \$4,148.88    | \$5,639.09   | \$4,724.10      | \$5,940.52 | \$4,724.10 | \$451.38     |
| 9    | 10"        | N/A           | N/A          | N/A             | N/A        | N/A        | \$811.75     |
| 10   | 12"        | N/A           | N/A          | N/A             | N/A        | N/A        | \$1,311.19   |

**Table 1-2: Current Commodity Charges (\$/hcf of water)**

| Line | A                      | B                      | C           |
|------|------------------------|------------------------|-------------|
|      | Customer Class         | Bi-Monthly Tiers (hcf) | \$/hcf Rate |
| 1    | <b>SFR</b>             |                        |             |
| 2    | Tier 1                 | 0-22                   | \$2.54      |
| 3    | Tier 2                 | >22                    | \$4.15      |
| 4    | <b>Multi-Family</b>    | Uniform                | \$2.58      |
| 5    | <b>Non-Residential</b> | Uniform                | \$2.62      |
| 6    | <b>Landscape</b>       | Uniform                | \$3.03      |
| 7    | <b>Reclaimed</b>       | Uniform                | \$2.13      |

The City’s current sewer rates were last updated on July 1, 2023. Rates for residential and non-residential customers are based on a fixed customer service charge and a uniform \$/hcf commodity rate for billed water usage. Sewer customers are billed annually. **Table 1-3** shows the current rate structure effective July 1, 2023.

**Table 1-3: Current Sewer Rates**

| Line | A                           | B                              | C                |
|------|-----------------------------|--------------------------------|------------------|
|      | Customer Class              | Annual Customer Service Charge | Commodity Charge |
|      | <b>Residential</b>          |                                |                  |
| 1    | Single-Family               | \$8.45                         | \$1.17           |
| 2    | Multi-Family                | \$8.45                         | \$1.17           |
| 3    | <b>Commercial</b>           | \$8.45                         | \$1.17           |
| 4    | <b>Private Development</b>  | \$8.45                         | \$0.83           |
| 5    | <b>Qualified Low Income</b> | \$8.45                         | \$0.65           |

### 1.3. Process and Approach

The City’s cost-of-service study process involved staff participation and feedback. During the study, City staff and Raftelis conducted a series of meetings to discuss and understand the challenges the City’s utilities face and to provide guidance to finalize the rate recommendations detailed in this report.

During these meetings, Raftelis presented the various assumptions, inputs, and scenario analyses to develop the water and sewer financial plans. City staff discussed the upcoming capital project requirements, including those related to per- and poly-fluoroalkyl (PFAS) substances, which are the main drivers for the revenue adjustments in the final recommendations presented in this report. Raftelis designed and presented financial planning and rate models to analyze various scenarios, such as those related to revenue adjustments, reserve requirements, and capital costs.

The proposed financial plans detailed in this report were developed using industry-standard practices for long-term financial planning. Raftelis worked closely with City staff to determine the most accurate methodology for projecting future revenues and expenses to reinforce sound fiscal management practices. When the City did not directly provide the assumptions used in the financial plans, they were based on commonly accepted assumptions such as those related to projected inflation.

The cost-of-service analysis utilized to develop the proposed water and sewer rates followed the industry-standard guidelines for allocating costs as outlined in the American Water Works Association (AWWA) publication *Manual of Water Supply Practices M1 Principles of Water Rates, Fees, and Charges, Manual M1* (AWWA Manual M1) and in the Water Environment Federation (WEF) publication *Manual of Practice No. 27, Financing and Charges for Wastewater*

Systems (WEF Manual 27). These guidelines and principles ensure that the proposed water and sewer reflect the costs incurred to serve each customer class based on their unique demand characteristics.

The financial plans for the water and sewer utilities include the five-year study period from FY 2025<sup>1</sup> to FY 2029. The proposed rates were developed for implementation on January 1, 2025 (in FY 2025) and in January of every year thereafter until 2029.

## 1.4. Legal Framework

California Constitution Article XIII D, Section 6, commonly referred to as Proposition 218, was enacted in 1996 to ensure that rates and fees are reasonable and proportionate to the cost of providing service. The principal requirements for the fairness of the fees, as they relate to public water and sewer service, are as follows:

1. A property-related charge (such as water and sewer rates) imposed by a public agency on a parcel shall not exceed the costs required to provide the property-related service.
2. Revenues derived from the charge shall not be used for any other purpose other than that for which the charge was imposed.
3. The amount of the charge imposed upon any parcel shall not exceed the proportional cost of service attributable to the parcel.
4. No charge may be imposed for a service unless that service is actually used or immediately available to the owner of the property.
5. A written notice of the proposed charge shall be mailed to the record owner of each parcel at least 45 days before the public hearing when the agency considers all written protests against the charge.

Proposition 218 requires that rates cannot be “arbitrary and capricious,” meaning that the rate-setting methodology must be sound and that there must be a nexus between the costs and the rates charged.

## 1.5. Results and Recommendations

Raftelis worked closely with City staff to define the final results and recommendations of the water and sewer rate study. The recommendations presented in this report will ensure the financial sufficiency and stability of the City’s utilities to fund all necessary operating and capital costs and to maintain sufficient cash balances. To maximize the equity of the rate structures, which is a key objective that informed the study approach, Raftelis recommends that the City retain the current rate structures for the water and sewer systems.

### Water Utility

- » The water operations and maintenance (O&M) expenses are expected to increase, on average, by 4.5 percent each year of the study based on the City’s FY 2024 budget and inflationary assumptions.
- » The City plans to spend approximately \$43 million on capital projects from FY 2025 to FY 2029 and transfer \$1.75 million a year into a reserve fund for future PFAS or emerging contaminants projects.
- » The Study team proposes the annual revenue adjustments shown in **Table 1-4** from FY 2025 to FY 2029 to fund capital project spending and maintain sufficient cash balances.

---

<sup>1</sup> A fiscal year is the year starting on July 1 and ending on June 30. For example, FY 2024 begins on July 1, 2023 and ends on June 30, 2024.

## Sewer Utility

- » The sewer O&M expenses are expected to increase, on average, by 4 percent each year of the study based on the City's FY 2024 budget and inflationary assumptions.
- » The City plans to spend approximately \$21 million on capital projects from FY 2025 to FY 2029.
- » The Study team recommends the annual revenue adjustments shown in **Table 1-4**.

**Table 1-4: Proposed Rate Revenue Increases**

| A       | B       | C       | D       | E       | F       |
|---------|---------|---------|---------|---------|---------|
| Utility | FY 2025 | FY 2026 | FY 2027 | FY 2028 | FY 2029 |
| Water   | 5%      | 5%      | 5%      | 5%      | 5%      |
| Sewer   | 5%      | 3%      | 3%      | 3%      | 3%      |

## 1.6. Proposed Rates

The proposed monthly service charges and \$/hcf commodity rates for the City's water customers are shown in **Table 1-5** and **Table 1-6**. The proposed sewer rates are shown in **Table 1-7**. The FY 2025 rates were determined through cost-of-service calculations, and the FY 2026 through FY 2029 rates were determined by increasing FY 2025 rates by the recommended revenue adjustments. The City will implement rates equal to or lower than the cost-of-service-based rates.

**Table 1-5: Proposed Monthly Water Service Charges (\$/meter size)**

| Line                   | A               | B                 | C                           | D                  | E                  | F                  | G                  |
|------------------------|-----------------|-------------------|-----------------------------|--------------------|--------------------|--------------------|--------------------|
|                        | Service Charges | FY 2025 (Current) | CY 2025 (Jan 2025) Proposed | CY 2026 (Jan 2026) | CY 2027 (Jan 2027) | CY 2028 (Jan 2028) | CY 2029 (Jan 2029) |
| <b>Single-Family</b>   |                 |                   |                             |                    |                    |                    |                    |
| 1                      | 3/4"            | \$80.03           | \$79.25                     | \$83.22            | \$87.39            | \$91.76            | \$96.35            |
| 2                      | 1"              | \$131.87          | \$128.36                    | \$134.78           | \$141.52           | \$148.60           | \$156.03           |
| 3                      | 1 1/2"          | \$261.45          | \$251.15                    | \$263.71           | \$276.90           | \$290.75           | \$305.29           |
| 4                      | 2"              | \$416.94          | \$398.49                    | \$418.42           | \$439.35           | \$461.32           | \$484.39           |
| 5                      | 3"              | \$831.60          | \$865.07                    | \$908.33           | \$953.75           | \$1,001.44         | \$1,051.52         |
| 6                      | 4"              | \$1,298.10        | \$1,552.67                  | \$1,630.31         | \$1,711.83         | \$1,797.43         | \$1,887.31         |
| 7                      | 6"              | \$2,593.91        | \$3,197.99                  | \$3,357.89         | \$3,525.79         | \$3,702.08         | \$3,887.19         |
| 8                      | 8"              | \$4,148.88        | \$5,899.26                  | \$6,194.23         | \$6,503.95         | \$6,829.15         | \$7,170.61         |
| <b>Multi-Family</b>    |                 |                   |                             |                    |                    |                    |                    |
| 9                      | 3/4"            | \$107.97          | \$86.36                     | \$90.68            | \$95.22            | \$99.99            | \$104.99           |
| 10                     | 1"              | \$178.43          | \$140.22                    | \$147.24           | \$154.61           | \$162.35           | \$170.47           |
| 11                     | 1 1/2"          | \$354.58          | \$274.87                    | \$288.62           | \$303.06           | \$318.22           | \$334.14           |
| 12                     | 2"              | \$565.96          | \$436.44                    | \$458.27           | \$481.19           | \$505.25           | \$530.52           |
| 13                     | 3"              | \$1,129.64        | \$948.08                    | \$995.49           | \$1,045.27         | \$1,097.54         | \$1,152.42         |
| 14                     | 4"              | \$1,763.78        | \$1,702.09                  | \$1,787.20         | \$1,876.56         | \$1,970.39         | \$2,068.91         |
| 15                     | 6"              | \$3,525.29        | \$3,506.32                  | \$3,681.64         | \$3,865.73         | \$4,059.02         | \$4,261.98         |
| 16                     | 8"              | \$5,639.09        | \$6,468.48                  | \$6,791.91         | \$7,131.51         | \$7,488.09         | \$7,862.50         |
| <b>Non-Residential</b> |                 |                   |                             |                    |                    |                    |                    |
| 17                     | 3/4"            | \$90.82           | \$87.23                     | \$91.60            | \$96.18            | \$100.99           | \$106.04           |
| 18                     | 1"              | \$149.84          | \$141.66                    | \$148.75           | \$156.19           | \$164.00           | \$172.20           |
| 19                     | 1 1/2"          | \$297.40          | \$277.75                    | \$291.64           | \$306.23           | \$321.55           | \$337.63           |
| 20                     | 2"              | \$474.47          | \$441.06                    | \$463.12           | \$486.28           | \$510.60           | \$536.13           |
| 21                     | 3"              | \$946.65          | \$958.18                    | \$1,006.09         | \$1,056.40         | \$1,109.22         | \$1,164.69         |
| 22                     | 4"              | \$1,477.85        | \$1,720.27                  | \$1,806.29         | \$1,896.61         | \$1,991.45         | \$2,091.03         |
| 23                     | 6"              | \$2,953.42        | \$3,543.83                  | \$3,721.03         | \$3,907.09         | \$4,102.45         | \$4,307.58         |
| 24                     | 8"              | \$4,724.10        | \$6,537.73                  | \$6,864.62         | \$7,207.86         | \$7,568.26         | \$7,946.68         |
| <b>Landscape</b>       |                 |                   |                             |                    |                    |                    |                    |
| 25                     | 3/4"            | \$113.62          | \$96.86                     | \$101.71           | \$106.80           | \$112.14           | \$117.75           |
| 26                     | 1"              | \$187.85          | \$157.71                    | \$165.60           | \$173.88           | \$182.58           | \$191.71           |
| 27                     | 1 1/2"          | \$373.42          | \$309.84                    | \$325.34           | \$341.61           | \$358.70           | \$376.64           |
| 28                     | 2"              | \$596.11          | \$492.40                    | \$517.02           | \$542.88           | \$570.03           | \$598.54           |
| 29                     | 3"              | \$1,189.93        | \$1,070.50                  | \$1,124.03         | \$1,180.24         | \$1,239.26         | \$1,301.23         |
| 30                     | 4"              | \$1,857.98        | \$1,922.43                  | \$2,018.56         | \$2,119.49         | \$2,225.47         | \$2,336.75         |
| 31                     | 6"              | \$3,713.68        | \$3,960.99                  | \$4,159.04         | \$4,367.00         | \$4,585.35         | \$4,814.62         |
| 32                     | 8"              | \$5,940.52        | \$7,307.89                  | \$7,673.29         | \$8,056.96         | \$8,459.81         | \$8,882.81         |
| <b>Reclaimed</b>       |                 |                   |                             |                    |                    |                    |                    |
| 33                     | 3/4"            | \$90.82           | \$77.83                     | \$81.73            | \$85.82            | \$90.12            | \$94.63            |
| 34                     | 1"              | \$149.84          | \$126.00                    | \$132.30           | \$138.92           | \$145.87           | \$153.17           |
| 35                     | 1 1/2"          | \$297.40          | \$246.43                    | \$258.76           | \$271.70           | \$285.29           | \$299.56           |
| 36                     | 2"              | \$474.47          | \$390.94                    | \$410.49           | \$431.02           | \$452.58           | \$475.21           |
| 37                     | 3"              | \$946.65          | \$848.56                    | \$890.99           | \$935.54           | \$982.32           | \$1,031.44         |
| 38                     | 4"              | \$1,477.85        | \$1,522.94                  | \$1,599.09         | \$1,679.05         | \$1,763.01         | \$1,851.17         |
| 39                     | 6"              | \$2,953.42        | \$3,136.64                  | \$3,293.48         | \$3,458.16         | \$3,631.07         | \$3,812.63         |
| 40                     | 8"              | \$4,724.10        | \$5,786.00                  | \$6,075.30         | \$6,379.07         | \$6,698.03         | \$7,032.94         |
| <b>Fire</b>            |                 |                   |                             |                    |                    |                    |                    |
| 41                     | 3/4"            | \$0.87            | \$5.97                      | \$6.27             | \$6.59             | \$6.92             | \$7.27             |
| 42                     | 1"              | \$1.90            | \$6.42                      | \$6.75             | \$7.09             | \$7.45             | \$7.83             |
| 43                     | 1 1/2"          | N/A               | N/A                         | N/A                | N/A                | N/A                | N/A                |
| 44                     | 2"              | \$11.79           | \$10.76                     | \$11.30            | \$11.87            | \$12.47            | \$13.10            |
| 45                     | 3"              | \$34.22           | \$20.63                     | \$21.67            | \$22.76            | \$23.90            | \$25.10            |
| 46                     | 4"              | \$72.92           | \$37.66                     | \$39.55            | \$41.53            | \$43.61            | \$45.80            |
| 47                     | 6"              | \$211.81          | \$98.76                     | \$103.70           | \$108.89           | \$114.34           | \$120.06           |
| 48                     | 8"              | \$451.38          | \$204.16                    | \$214.37           | \$225.09           | \$236.35           | \$248.17           |
| 49                     | 10"             | \$811.75          | \$362.69                    | \$380.83           | \$399.88           | \$419.88           | \$440.88           |
| 50                     | 12"             | \$1,311.19        | \$576.84                    | \$605.69           | \$635.98           | \$667.78           | \$701.17           |

**Table 1-6: Proposed Water Usage Rates (\$/hcf of water)**

| Line       | A                      | B                      | C                 | D                           | E                  | F                  | G                  | H                  |
|------------|------------------------|------------------------|-------------------|-----------------------------|--------------------|--------------------|--------------------|--------------------|
|            | Customer Class         | Bi-Monthly Tiers (hcf) | FY 2025 (Current) | CY 2025 (Jan 2025) Proposed | CY 2026 (Jan 2026) | CY 2027 (Jan 2027) | CY 2028 (Jan 2028) | CY 2029 (Jan 2029) |
| <b>SFR</b> |                        |                        |                   |                             |                    |                    |                    |                    |
| 1          | Tier 1                 | 0-22                   | \$2.54            | \$2.81                      | \$2.96             | \$3.11             | \$3.27             | \$3.44             |
| 2          | Tier 2                 | >22                    | \$4.15            | \$4.66                      | \$4.90             | \$5.15             | \$5.41             | \$5.69             |
| 3          | <b>Multi-Family</b>    | Uniform                | \$2.58            | \$3.51                      | \$3.69             | \$3.88             | \$4.08             | \$4.29             |
| 4          | <b>Non-Residential</b> | Uniform                | \$2.62            | \$2.90                      | \$3.05             | \$3.21             | \$3.38             | \$3.55             |
| 5          | <b>Landscape</b>       | Uniform                | \$3.03            | \$3.94                      | \$4.14             | \$4.35             | \$4.57             | \$4.80             |
| 6          | <b>Reclaimed</b>       | Uniform                | \$2.13            | \$3.37                      | \$3.54             | \$3.72             | \$3.91             | \$4.11             |

**Table 1-7: Proposed Sewer Rates**

| Line | A  | B              | C                 | D                           | E                  | F                  | G                  |                    |
|------|--|----------------|-------------------|-----------------------------|--------------------|--------------------|--------------------|--------------------|
|      |  | Customer Class | FY 2025 (Current) | CY 2025 (Jan 2025) Proposed | CY 2026 (Jan 2026) | CY 2027 (Jan 2027) | CY 2028 (Jan 2028) | CY 2029 (Jan 2029) |
| 1    | R<br>e<br>s<br>i<br>d<br>e<br>n<br>t<br>i<br>a<br>l                |                | \$1.17            | \$1.22                      | \$1.26             | \$1.30             | \$1.34             | \$1.39             |
| 2    | i<br>n<br>g<br>l<br>e<br>-<br>F<br>a<br>m<br>i<br>l<br>y           |                | \$1.17            | \$1.22                      | \$1.26             | \$1.30             | \$1.34             | \$1.39             |
| 3    | u<br>l<br>t<br>i<br>-<br>F<br>a<br>m<br>i<br>l<br>y<br>C<br>o<br>m |                | \$1.17            | \$1.22                      | \$1.26             | \$1.30             | \$1.34             | \$1.39             |

m  
e  
r  
c  
i  
a  
l  
P  
r  
i  
v  
a  
t  
e  
D  
e  
v  
e  
l  
o  
p  
m  
e  
n  
t  
Q  
u  
a  
l  
i  
f  
i  
e  
d  
L  
o  
w  
I  
n  
c  
o  
m  
e  
A  
n  
n  
u  
a  
l  
F  
i  
x  
e  
d  
C  
h  
a  
r  
g  
e

4

\$0.83      \$1.22      \$1.26      \$1.30      \$1.34      \$1.39

5

\$0.65      \$0.68      \$0.70      \$0.72      \$0.74      \$0.77

6

\$8.45      \$11.25      \$11.59      \$11.94      \$12.30      \$12.67

## 1.7. Customer Bill Impacts

**Table 1-8** outlines the proposed customer bi-monthly water bill impacts for SFR customers with a 3/4” meter with various amounts of billed water usage each billing period. The table compares a bill under the current rate structure to one under the proposed FY 2025 rates. The impact for an average customer using 26 hcf on a bi-monthly basis will increase by \$6.99.

DRAFT

**Table 1-8: Proposed Single Family Customer Bi-Monthly Water Bill Impacts (3/4” meter, varying hcf)**

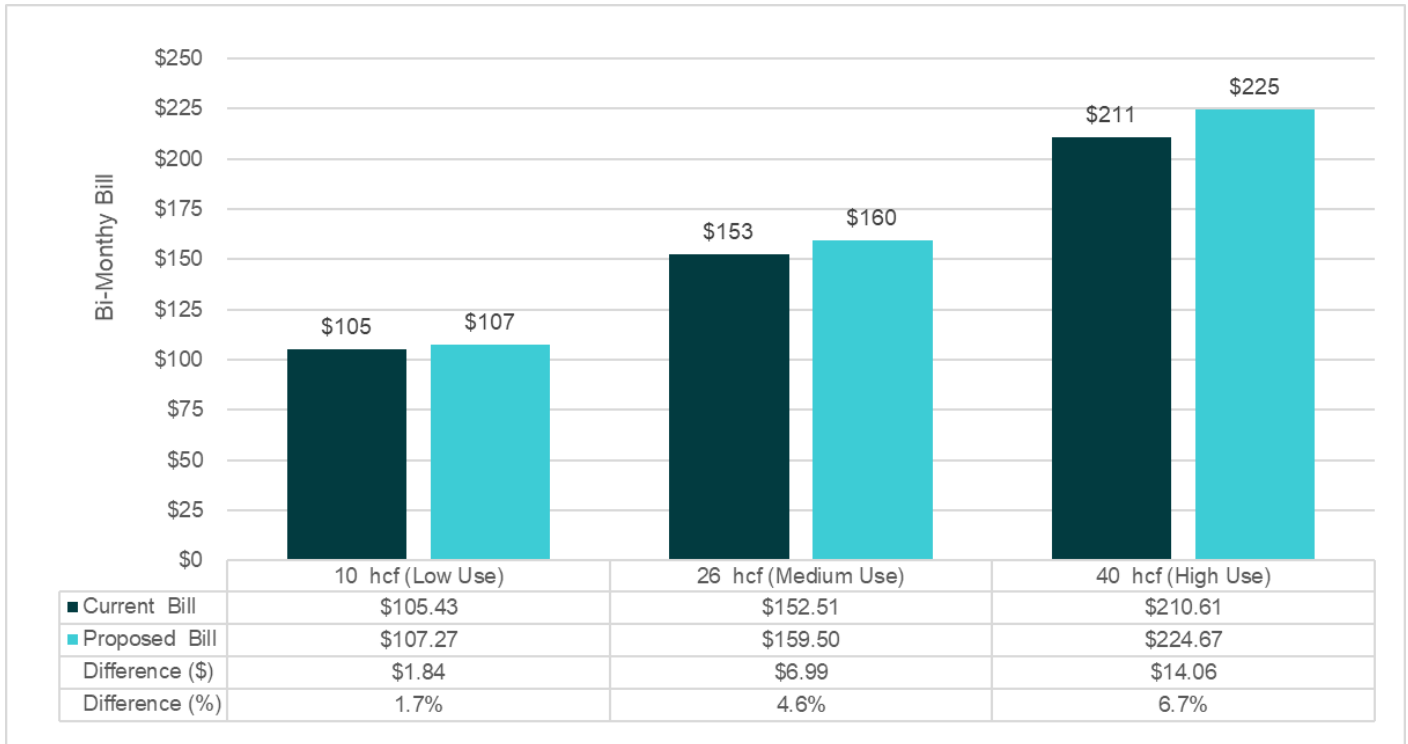
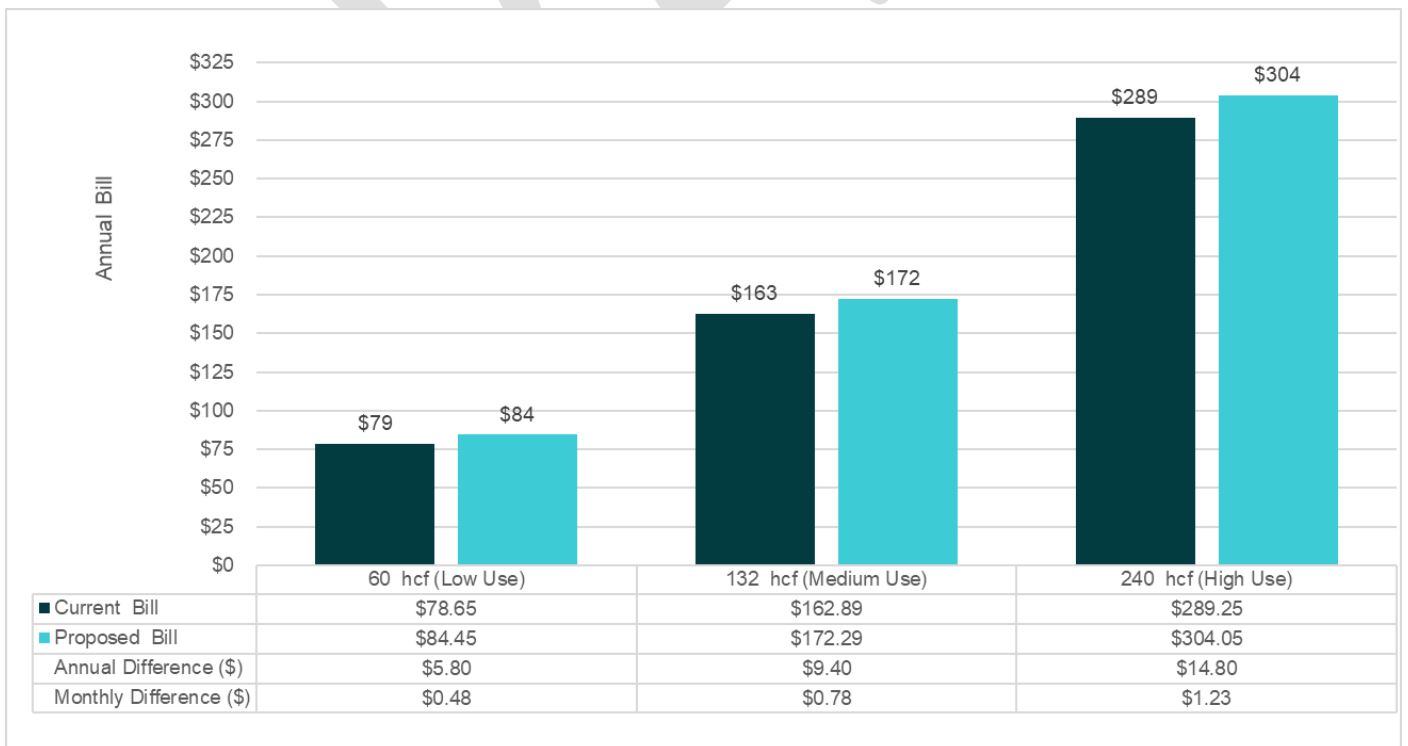


Table 1-9 outlines the proposed annual sewer bill impacts for Residential customers.

**Table 1-9: Proposed Residential Customer Annual Sewer Bill Impacts**



## 2. Assumptions

The assumptions outlined in this report section were utilized to project the number of customer accounts, revenues, and expenses for future years. City staff provided data on customer accounts and usage for FY 2021 and FY 2022, actual revenues and expenses for FY 2021 to FY 2023, and budget revenue and expenses for FY 2024. The remaining years of the study, from FY 2025 to FY 2029, were projected based on the assumptions discussed in this section.

### 2.1. Customer Demand Growth

Table 2-1 shows the customer account growth projections for each customer class. Account growth factors are applied to the previous year’s estimate of accounts, and Raftelis modeled a modest 0.5% growth factor for the number of accounts. For use per account, Raftelis modeled a 0.5% usage reduction each year, in line with conservation efforts and appliance efficiencies.

Table 2-1: Customer Demand Growth Projections

| Line                  | A<br>Growth Assumptions | B<br>FY 2025 | C<br>FY 2026 | D<br>FY 2027 | E<br>FY 2028 | F<br>FY 2029 |
|-----------------------|-------------------------|--------------|--------------|--------------|--------------|--------------|
| <b>Account Growth</b> |                         |              |              |              |              |              |
| 1                     | Single-Family           | 0.5%         | 0.5%         | 0.5%         | 0.5%         | 0.5%         |
| 2                     | Multi-Family            | 0.5%         | 0.5%         | 0.5%         | 0.5%         | 0.5%         |
| 3                     | Non-Residential         | 0.5%         | 0.5%         | 0.5%         | 0.5%         | 0.5%         |
| 4                     | Landscape               | 0.5%         | 0.5%         | 0.5%         | 0.5%         | 0.5%         |
| 5                     | Private Fire            | 0.5%         | 0.5%         | 0.5%         | 0.5%         | 0.5%         |
| 6                     | Reclaimed               | 0.5%         | 0.5%         | 0.5%         | 0.5%         | 0.5%         |

### 2.2. Revenue Inflation Factors

Table 2-2 shows the revenue inflation factors used to project future revenues and calculate investment income. The reserve interest rate is used to calculate the investment income based on projected fund balances and is conservative compared to the U.S. Department of the Treasury's long-term rate of approximately 4.19% as of August 2024.

Table 2-2: Revenue Inflation Factors

| Line | A<br>Revenue Escalation Assumptions | B<br>FY 2025 | C<br>FY 2026 | D<br>FY 2027 | E<br>FY 2028 | F<br>FY 2029 |
|------|-------------------------------------|--------------|--------------|--------------|--------------|--------------|
| 1    | Miscellaneous Revenues              | 2.0%         | 2.0%         | 2.0%         | 2.0%         | 2.0%         |
| 2    | Reserve Interest Rate               | 1.5%         | 1.5%         | 1.5%         | 1.5%         | 1.5%         |

### 2.3. Expense Inflation Factors

Table 2-3 shows the expense inflation factors used to project future operating and capital project expenses for the study period. These factors were determined with input from City staff.

**Table 2-3: Expense Inflation Factors**

| Line | A                             | B       | C       | D       | E       | F       |
|------|-------------------------------|---------|---------|---------|---------|---------|
|      | Expense Inflation Assumptions | FY 2025 | FY 2026 | FY 2027 | FY 2028 | FY 2029 |
| 1    | General                       | 3.0%    | 3.0%    | 3.0%    | 3.0%    | 3.0%    |
| 2    | Salary                        | 5.5%    | 5.5%    | 5.5%    | 5.5%    | 5.5%    |
| 3    | Benefits                      | 5.5%    | 5.5%    | 5.5%    | 5.5%    | 5.5%    |
| 4    | Utilities                     | 6.0%    | 6.0%    | 6.0%    | 6.0%    | 6.0%    |
| 5    | Chemicals                     | 6.0%    | 6.0%    | 6.0%    | 6.0%    | 6.0%    |
| 6    | Transfer                      | 3.0%    | 3.0%    | 3.0%    | 3.0%    | 3.0%    |
| 7    | Recurring CIP                 | 3.0%    | 3.0%    | 3.0%    | 3.0%    | 3.0%    |

DRAFT

# 3. Water Financial Plan

This section of the report details the water utility’s long-term financial plan, based on the projected revenues, expenses, debt service, and capital project costs. Raftelis modeled the financial plan without revenue adjustments (status quo) and with proposed revenue adjustments to ensure the financial sustainability and solvency of the water utility.

## 3.1. Projected Demand

City staff provided a count of accounts served and volumes sold for FY 2021 and FY 2022. Raftelis forecasted future bills using the growth factors presented in **Table 2-1**. **Table 3-1** shows the assumed growth in the number of bills and usage.

**Table 3-1: Projected Water Demand**

| Line | A<br>Bills and Usage   | B<br>FY 2024     | C<br>FY 2025     | D<br>FY 2026     | E<br>FY 2027     | F<br>FY 2028     | G<br>FY 2029     |
|------|------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|      | <b>Bills</b>           |                  |                  |                  |                  |                  |                  |
| 1    | Single-Family          | 4,585            | 4,608            | 4,631            | 4,654            | 4,677            | 4,701            |
| 2    | Multi-Family           | 938              | 943              | 948              | 953              | 957              | 962              |
| 3    | Non-Residential        | 522              | 524              | 527              | 530              | 532              | 535              |
| 4    | Landscape              | 71               | 71               | 71               | 72               | 72               | 73               |
| 5    | Reclaimed              | 4                | 4                | 4                | 4                | 4                | 4                |
| 6    | Private Fire           | 85               | 86               | 86               | 87               | 87               | 85               |
| 7    | <b>Total</b>           | <b>6,205</b>     | <b>6,236</b>     | <b>6,267</b>     | <b>6,299</b>     | <b>6,330</b>     | <b>6,362</b>     |
|      | <b>Water Use (hcf)</b> |                  |                  |                  |                  |                  |                  |
| 8    | Single-Family          | 1,525,200        | 1,525,162        | 1,525,124        | 1,525,085        | 1,525,047        | 1,525,009        |
| 9    | Multi-Family           | 745,724          | 745,706          | 745,687          | 745,668          | 745,650          | 745,631          |
| 10   | Non-Residential        | 566,165          | 566,151          | 566,137          | 566,122          | 566,108          | 566,094          |
| 11   | Landscape              | 142,949          | 142,946          | 142,942          | 142,939          | 142,935          | 142,932          |
| 12   | Reclaimed              | <u>35,606</u>    | <u>35,605</u>    | <u>35,604</u>    | <u>35,603</u>    | <u>35,603</u>    | <u>35,602</u>    |
| 13   | <b>Total</b>           | <b>3,015,645</b> | <b>3,015,569</b> | <b>3,015,494</b> | <b>3,015,418</b> | <b>3,015,343</b> | <b>3,015,268</b> |

## 3.2. Projected Revenues

City staff provided the actual FY 2023 revenues and budgeted FY 2024 revenues for the water utility, which were used to confirm calculated rate revenues and project miscellaneous revenues for the remainder of the study period. Rate revenues on Line 1 were calculated using the units of service shown in **Table 3-1** and the rates are shown in **Table 1-1** and **Table 1-2**. **Table 3-2** shows the projected water revenues under the status quo.

The City expects minor increases in water rate revenues for all years of the study due to increases in customer accounts. The interest income (Line 2) is calculated using the reserve interest rate (**Table 2-2**, Line 2). The remaining revenues are inflated using the non-rate revenue inflation factor (**Table 2-2**, Line 1).

**Table 3-2: Projected Operating Fund Water Revenues (Status Quo)**

| Line | A<br>Revenue         | B<br>FY 2024        | C<br>FY 2025        | D<br>FY 2026        | E<br>FY 2027        | F<br>FY 2028        | G<br>FY 2029        |
|------|----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| 1    | <b>Rate Revenue</b>  | \$18,737,405        | \$18,787,255        | \$18,837,356        | \$18,887,708        | \$18,938,313        | \$18,989,172        |
|      | <b>Other Revenue</b> |                     |                     |                     |                     |                     |                     |
| 2    | Interest Income      | \$155,304           | \$65,175            | \$62,406            | \$59,319            | \$56,062            | \$52,609            |
| 3    | Other Revenues       | \$1,272,014         | \$706,238           | \$720,363           | \$734,770           | \$749,466           | \$764,455           |
| 4    | <b>Total Revenue</b> | <b>\$20,164,723</b> | <b>\$19,558,669</b> | <b>\$19,620,124</b> | <b>\$19,681,797</b> | <b>\$19,743,841</b> | <b>\$19,806,237</b> |

### 3.3. Projected O&M Expenses

City staff provided the actual FY 2023 O&M expenses and budgeted FY 2024 O&M expenses for the water utility based on expense function. **Table 3-3** shows the projected O&M expenses for the study period summarized by the department. The expenses for the departments in column A include several categories such as salary, benefits, maintenance, etc., and each line item within that department’s budget is escalated based on the expense inflation factors (**Table 2-3**).

**Table 3-3: Projected Water O&M Expenses**

| Line | A<br>O&M Expenses                         | B<br>FY 2024        | C<br>FY 2025        | D<br>FY 2026        | E<br>FY 2027        | F<br>FY 2028        | G<br>FY 2029        |
|------|---|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|      | <b>Department</b>                         |                     |                     |                     |                     |                     |                     |
| 1    | WQPP                                      | \$1,378,316         | \$1,442,300         | \$1,509,559         | \$1,580,275         | \$1,654,636         | \$1,732,843         |
| 2    | Water Administration                      | \$11,648,076        | \$12,043,075        | \$12,590,007        | \$13,165,140        | \$13,769,995        | \$14,406,177        |
| 3    | Wells                                     | \$81,867            | \$86,779            | \$91,986            | \$97,505            | \$103,355           | \$109,557           |
| 4    | Pumping Plant                             | \$176,478           | \$184,358           | \$192,629           | \$201,313           | \$210,432           | \$220,009           |
| 5    | Facilities Maintenance<br>Mains, Hydrants | \$215,407           | \$228,188           | \$233,291           | \$247,176           | \$261,889           | \$277,481           |
| 6    | Maintenance<br>Meter Services             | \$372,627           | \$394,726           | \$418,140           | \$442,951           | \$469,239           | \$497,095           |
| 7    | Maintenance                               | \$71,574            | \$75,704            | \$80,078            | \$84,708            | \$89,612            | \$94,804            |
| 8    | Warehouse Operations                      | <u>\$77,801</u>     | <u>\$82,072</u>     | <u>\$86,578</u>     | <u>\$91,331</u>     | <u>\$96,345</u>     | <u>\$101,635</u>    |
| 9    | <b>Total</b>                              | <b>\$14,022,146</b> | <b>\$14,537,201</b> | <b>\$15,202,269</b> | <b>\$15,910,399</b> | <b>\$16,655,503</b> | <b>\$17,439,600</b> |

### 3.4. Debt Service

The City currently has two existing revenue bonds for the water utility. **Table 3-4** shows the annual payments for the Series 2012 and Series 2020 Water Revenue Bonds.

**Table 3-4: Existing Water Debt Service**

| Line | A<br>Existing Debt Service | B<br>FY 2024       | C<br>FY 2025       | D<br>FY 2026       | E<br>FY 2027       | F<br>FY 2028       | G<br>FY 2029       |
|------|----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 1    | 2012 Water Revenue Bond    | \$680,575          | \$681,575          | \$676,325          | \$680,325          | \$678,325          | \$682,650          |
| 2    | 2020 Water Revenue Bond    | <u>\$429,600</u>   | <u>\$430,400</u>   | <u>\$425,800</u>   | <u>\$426,000</u>   | <u>\$430,800</u>   | <u>\$430,000</u>   |
| 3    | <b>Total</b>               | <b>\$1,110,175</b> | <b>\$1,111,975</b> | <b>\$1,102,125</b> | <b>\$1,106,325</b> | <b>\$1,109,125</b> | <b>\$1,112,650</b> |

### 3.5. Capital Projects

City staff provided the capital improvement plan (CIP) for the water utility for the study period. **Table 3-5** shows the CIP costs for the study period in future dollars after being adjusted by 3.0% annually for construction cost inflation. Projects are funded through a combination of water rate revenues and grant proceeds. In addition to the

capital plan below, the City plans to transfer \$1.75 million annually into an emerging contaminants reserve to prepare for PFAS-related expenditures in the future.

*[Remainder of page intentionally left blank]*

DRAFT

**Table 3-5: Inflated Water Capital Projects**

| Line | Capital Improvement Program                          | FYE 2024           | FYE 2025           | FYE 2026           | FYE 2027           | FYE 2028           | FYE 2029           |
|------|--|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 1    | <b>Distribution System Improvements</b>              |                    |                    |                    |                    |                    |                    |
| 2    | West Distribution System Improvements Group No. 1    | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
| 3    | West Distribution System Improvements Group No. 2    | \$4,503,080        | \$0                | \$1,055,558        | \$1,368,457        | \$1,125,509        | \$0                |
| 4    | Central Distribution System Improvements Group No. 1 | \$0                | \$1,030,000        | \$2,121,800        | \$2,185,454        | \$1,547,555        | \$1,159,274        |
| 5    | Central Distribution System Improvements Group No. 2 | \$0                | \$0                | \$1,060,900        | \$1,092,727        | \$2,251,018        | \$2,318,548        |
| 6    | South Distribution System Improvements Group No. 1   | \$0                | \$0                | \$0                | \$0                | \$879,505          | \$1,451,796        |
| 7    | South Distribution System Improvements Group No. 2   | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
| 8    | South Distribution System Improvements Group No. 3   | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
| 9    | <b>Water Facility Replacement</b>                    | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
| 10   | Murphy West and East Reservoir Replacement           | \$3,505,776        | \$1,462,158        | \$0                | \$0                | \$0                | \$0                |
| 11   | Washington Pump Station Replacement                  | \$0                | \$0                | \$0                | \$0                | \$0                | \$1,159,274        |
| 12   | Greenleaf/Hoover Storage Replacement                 | \$0                | \$0                | \$398,580          | \$1,092,727        | \$1,125,509        | \$2,318,548        |
| 13   | Murphy Hills Pump Station                            | \$0                | \$0                | \$0                | \$0                | \$0                | \$1,159,274        |
| 14   | Rideout Reservoir Replacement                        | \$0                | \$0                | \$2,657,198        | \$0                | \$0                | \$0                |
| 15   | Starlight Reservoir Redundancy                       | \$0                | \$0                | \$0                | \$1,368,457        | \$0                | \$0                |
| 16   | Hazzard Reservoir Replacement                        | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
| 17   | College Hills Reservoir Replacement                  | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
| 18   | Booster Station Repair                               | \$0                | \$0                | \$265,720          | \$0                | \$0                | \$0                |
| 19   | Oceanview Reservoir Improvements                     | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
| 20   | <b>Pipeline Replacement Program</b>                  | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
| 21   | Cylindrical Steel Pipeline Replacement Program       | \$0                | \$386,971          | \$398,580          | \$410,537          | \$422,853          | \$0                |
| 22   | <b>Valve Replacement Program</b>                     | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
| 23   | Large Valve Replacement Program                      | \$0                | \$142,212          | \$153,802          | \$166,337          | \$179,893          | \$0                |
| 24   | Valve Replacement Program                            | \$0                | \$142,212          | \$0                | \$158,417          | \$171,327          | \$0                |
| 25   | <b>Interconnection Improvements</b>                  | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
| 26   | Santa Fe Springs Transmission Main                   | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
| 27   | <b>Pipeline Replacement (combined)</b>               | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
| 28   | Non Master Plan Improvements                         | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
| 29   | Well Rehab   | \$0                | \$142,212          | \$153,802          | \$166,337          | \$179,893          | \$0                |
| 30   | City Yard Improvements                               | \$0                | \$71,106           | \$76,901           | \$83,168           | \$89,947           | \$0                |
| 31   | Emergency Water Main Repair                          | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
| 32   | WTR CIP PALM Avenue                                  | \$300,000          | \$2,575,000        | \$0                | \$0                | \$0                | \$0                |
| 33   | WTR CIP Greenleaf Avenue                             | \$0                | \$2,369,000        | \$0                | \$0                | \$0                | \$0                |
| 34   | WTR CIP Norino Transmission Main                     | \$0                | \$1,133,000        | \$0                | \$0                | \$0                | \$0                |
| 35   | WTR Well 8 Rehab                                     | \$565,402          | \$0                | \$0                | \$0                | \$0                | \$0                |
|      | <b>Total</b>   | <b>\$8,874,258</b> | <b>\$9,453,869</b> | <b>\$8,342,840</b> | <b>\$8,092,617</b> | <b>\$7,973,009</b> | <b>\$9,566,714</b> |

### 3.6. Water Financial Plan without Rate Increases

DRAFT

**Table 3-6** shows the projected water financial plan without revenue adjustments (also referred to as the status quo financial plan). Rate revenues and other revenues are derived from projected revenues (**Table 3-2**) using growth and inflation factors. O&M expenses are derived from projected O&M expenses using inflation factors (**Table 3-3**), existing debt service is from the annual debt service payments for outstanding debt (**Table 3-4**), and rate-funded capital projects are from the capital financing plan (**Table 3-5**).

The status quo scenario uses approximately \$3.5 million in grant funding for FY 2024, and the remainder of capital projects are rate-funded. Raftelis modeled operating and capital fund cashflows. The distinction between funds allows us to observe how utility rates recover operational costs and what remains to fund capital investments compared to the required level of investment. The need for rate increases arises from the gap between the capital investment currently funded by rate revenues and the capital investment required by the utility. The operating fund maintains a balance equal to the operating reserve target, with any excess rate revenues transferred to the capital fund's cash flow. The capital fund is used to finance capital projects and allocate funds to an emergency reserve for PFAS-related or emerging contaminant expenditures.

For the operating cash flow (

**Table 3-6**), the net cash flow (Line 7) is calculated by subtracting O&M expenses (Line 5) and debt service (Line 6) from total revenues (Line 4). Lines 8 through 10 display the beginning and ending balances concerning the operating reserve, which targets 60 days' worth of operating expenses. Any difference between the required operating reserve and the actual balance is transferred to the capital fund to support capital projects (Line 11).

The debt service coverage ratio is shown on Line 13. It is calculated by dividing net revenues (Line 4 minus Line 5) by the annual debt service payment (Line 6). When you compare Line 13 to Line 14, the City meets its required debt service coverage requirement of 1.25 times the annual debt service.

In the capital cash flow (**Table 3-7**), the total sources of funds (Line 4) consist of grant proceeds, interest earnings, and transfers from the operating reserve. These funds are used to finance capital projects and maintain an emergency reserve. However, since the total sources (Line 4) are less than the total uses (Line 7), the result is a negative net cash flow, leading to a depletion of reserves to fund capital projects and the emergency reserve. By the end of the study period for the status quo, there is a deficit of \$5 million, indicating that current rates are insufficient to cover ongoing operational costs, necessary investments in the system, and an emergency fund.

DRAFT

**Table 3-6: Projected Water Operating Fund Financial Plan (Status Quo)**

| Line | A                                    | B                  | C                | D                | E                | F                | G                |
|------|--------------------------------------|--------------------|------------------|------------------|------------------|------------------|------------------|
|      | Financial Plan                       | FY 2024            | FY 2025          | FY 2026          | FY 2027          | FY 2028          | FY 2029          |
|      | <b>Revenues</b>                      |                    |                  |                  |                  |                  |                  |
| 1    | Rate Revenues                        | \$18,737,405       | \$18,787,255     | \$18,837,356     | \$18,887,708     | \$18,938,313     | \$18,989,172     |
| 2    | Revenue Adjustments                  | \$0                | \$0              | \$0              | \$0              | \$0              | \$0              |
| 3    | Other Revenues                       | <u>\$1,427,318</u> | <u>\$771,414</u> | <u>\$782,769</u> | <u>\$794,089</u> | <u>\$805,528</u> | <u>\$817,064</u> |
| 4    | <b>Total Revenues</b>                | \$20,164,723       | \$19,558,669     | \$19,620,124     | \$19,681,797     | \$19,743,841     | \$19,806,237     |
| 5    | <b>O&amp;M Expenses</b>              | \$14,022,146       | \$14,537,201     | \$15,202,269     | \$15,910,399     | \$16,655,503     | \$17,439,600     |
| 6    | <b>Debt Service</b>                  | \$1,110,175        | \$1,111,975      | \$1,102,125      | \$1,106,325      | \$1,109,125      | \$1,112,650      |
| 7    | <b>Net Cash Flow</b>                 | \$5,032,402        | \$3,909,492      | \$3,315,730      | \$2,665,074      | \$1,979,213      | \$1,253,987      |
| 8    | <b>Beginning Balance</b>             | \$2,337,024        | \$2,422,867      | \$2,533,711      | \$2,651,733      | \$2,775,917      | \$2,906,600      |
| 9    | Ending Balance                       | \$7,369,427        | \$6,332,359      | \$5,849,442      | \$5,316,807      | \$4,755,130      | \$4,160,587      |
| 10   | Reserve Target                       | \$2,337,024        | \$2,422,867      | \$2,533,711      | \$2,651,733      | \$2,775,917      | \$2,906,600      |
| 11   | <b>Transfer to Capital</b>           | \$4,946,560        | \$3,798,648      | \$3,197,709      | \$2,540,890      | \$1,848,530      | \$1,116,450      |
| 12   | <b>Ending Balance After Transfer</b> | \$2,422,867        | \$2,533,711      | \$2,651,733      | \$2,775,917      | \$2,906,600      | \$3,044,137      |
| 13   | Calculated Debt Coverage             | 5.53               | 4.52             | 4.01             | 3.41             | 2.78             | 2.13             |
| 14   | <b>Required Debt Coverage</b>        | 1.25               | 1.25             | 1.25             | 1.25             | 1.25             | 1.25             |

**Table 3-7: Projected Water Capital Fund Financial Plan (Status Quo)**

| Line | A                                   | B   | C             | D             | E             | F             | G             | H              |
|------|-------------------------------------|---|---------------|---------------|---------------|---------------|---------------|----------------|
|      | Financial Plan                      | Description                                     | FY 2024       | FY 2025       | FY 2026       | FY 2027       | FY 2028       | FY 2029        |
| 1    | Beginning Unrestricted Balance      | --  | \$24,860,010  | \$23,044,698  | \$15,929,608  | \$9,221,708   | \$2,003,542   | -\$5,870,937   |
|      | <b>Sources of Funds</b>             |   |               |               |               |               |               |                |
| 2    | Grant Proceeds                      | --  | \$3,505,776   | \$0           | \$0           | \$0           | \$0           | \$0            |
| 3    | Interest Earnings                   | --  | \$356,611     | \$290,131     | \$187,231     | \$83,563      | \$0           | \$0            |
| 4    | Transfer from Operating             | --  | \$4,946,560   | \$3,798,648   | \$3,197,709   | \$2,540,890   | \$1,848,530   | \$1,116,450    |
| 5    | <b>Total Sources</b>                | Sum of Lines 2 through 4                        | \$8,808,947   | \$4,088,779   | \$3,384,940   | \$2,624,453   | \$1,848,530   | \$1,116,450    |
|      | <b>Uses of Funds</b>                |   |               |               |               |               |               |                |
| 6    | Cash Funded Capital                 | --  | \$8,874,258   | \$9,453,869   | \$8,342,840   | \$8,092,617   | \$7,973,009   | \$9,566,714    |
| 7    | Transfer to Emergency Fund          | --  | \$1,750,000   | \$1,750,000   | \$1,750,000   | \$1,750,000   | \$1,750,000   | \$1,750,000    |
| 8    | <b>Total Uses</b>                   | Sum of Lines 6 and 7                            | \$10,624,258  | \$11,203,869  | \$10,092,840  | \$9,842,617   | \$9,723,009   | \$11,316,714   |
| 9    | <b>Net Cash Flow</b>                | Line 5 – Line 8                                 | (\$1,815,312) | (\$7,115,090) | (\$6,707,900) | (\$7,218,165) | (\$7,874,479) | (\$10,200,264) |
| 10   | Ending Unrestricted Balance         | Line 1 + Line 9                                 | \$23,044,698  | \$15,929,608  | \$9,221,708   | \$2,003,542   | (\$5,870,937) | (\$16,071,201) |
| 11   | Beginning Emergency Balance         |   | \$0           | \$1,763,125   | \$3,552,697   | \$5,369,112   | \$7,212,774   | \$9,084,091    |
| 12   | Ending Emergency Balance            | Line 11 + Line 7 + Interest Earnings on Balance | \$1,763,125   | \$3,552,697   | \$5,369,112   | \$7,212,774   | \$9,084,091   | \$10,983,477   |
| 13   | <b>Ending Total Capital Balance</b> | Line 10 + Line 12                               | \$24,807,823  | \$19,482,305  | \$14,590,820  | \$9,216,317   | \$3,213,154   | (\$5,087,724)  |
| 14   | <i>Target For Emergency</i>         | --  | \$10,000,000  | \$10,000,000  | \$10,000,000  | \$10,000,000  | \$10,000,000  | \$10,000,000   |

Figure 1: Water Operating Fund Ending Cash Balance (Status Quo)

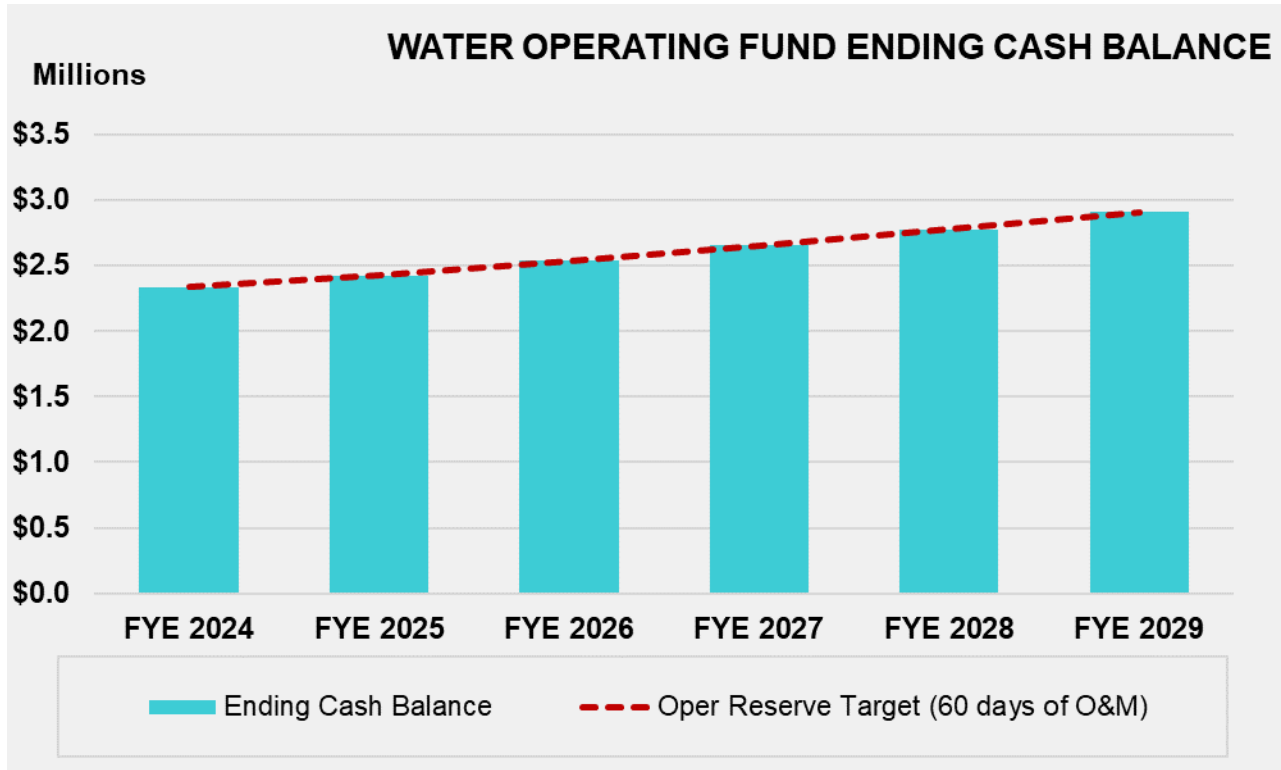
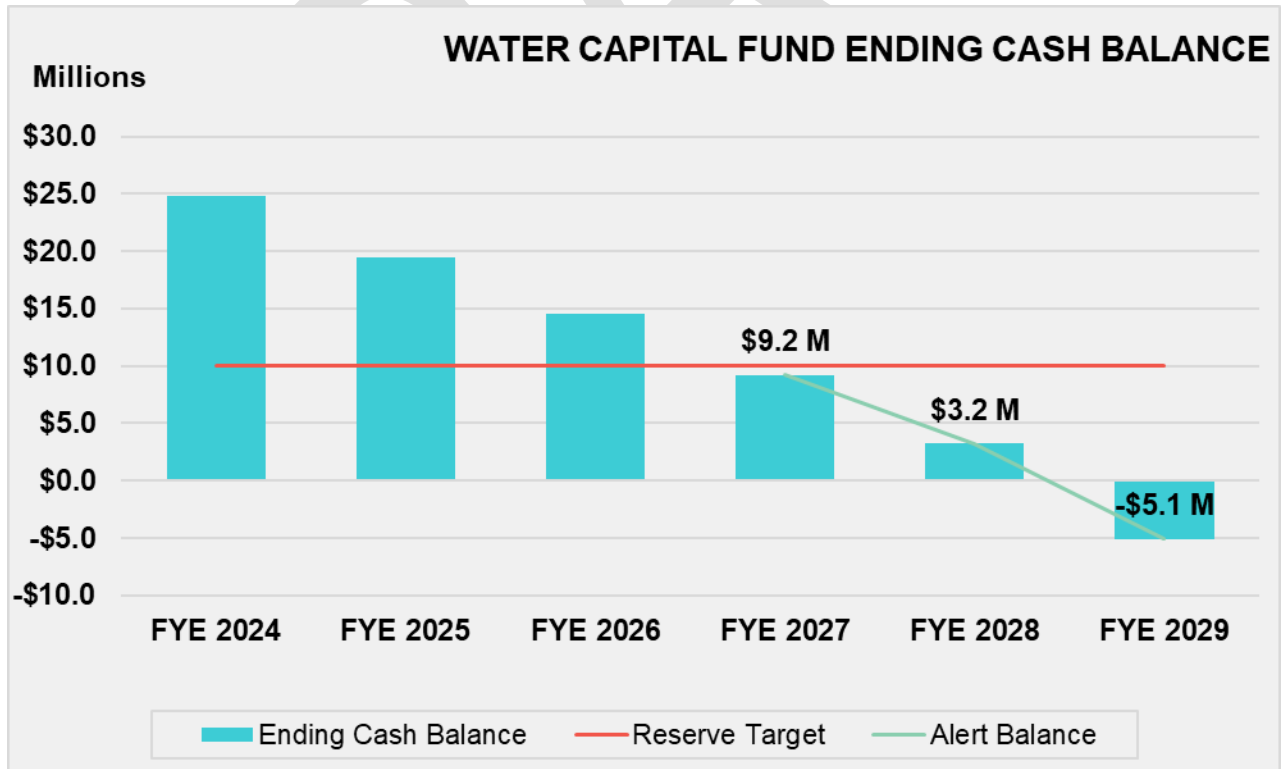


Figure 2: Water Capital Fund Ending Cash Balance (Status Quo)



### 3.7. Proposed Water Financial Plan

The projected financial plan under the status quo scenario in

DRAFT

**Table 3-6** and **Table 3-7** shows that the City’s current water rate revenues are insufficient to sustain the water utility and meet all of the anticipated capital revenue requirements.

The proposed revenue adjustments for the study period are effective on January 1 of each year and are shown in

**Table 3-8.** The proposed revenue adjustments were designed as an interim measure to start funding an emerging contaminants reserve, align available revenue after covering operational costs with the expenses of capital improvement projects, and help mitigate the impact of rate increases on residents.

**Table 3-8: Proposed Water Revenue Adjustments**

| Line | A<br>Fiscal Year | B<br>Revenue Adjustment | C<br>Month Effective |
|------|------------------|-------------------------|----------------------|
| 1    | 2025             | 5.0%                    | January              |
| 2    | 2026             | 5.0%                    | January              |
| 3    | 2027             | 5.0%                    | January              |
| 4    | 2028             | 5.0%                    | January              |
| 5    | 2029             | 5.0%                    | January              |

**Table 3-9** shows the projected water operating financial plan with the proposed revenue adjustments from

**Table 3-8.** The transfer to the capital fund (Line 11) has increased compared to the status quo, which means more funds are available for capital expenditures. In the capital cash flow, these transfers help to reconcile the difference between the sources and uses of funds, but a negative cash flow persists. The City continues to rely on its reserves to fund capital projects; however, due to the rate increases, reserves are not fully depleted by the end of the forecast period. Lines 8 through 10 indicate that in FY 2029, the City will need to tap into the emerging contaminants fund due to insufficient unrestricted reserves, and the City will be short of its \$10 million reserve target. The overall balance of the capital fund, shown in Line 10, represents the sum of the unrestricted deficit ending balance and the emergency funds.

**Table 3-9: Projected Water Operating Financial Plan (Proposed Rate Revenue Adjustments)**

| Line | A                                    | B                  | C                | D                | E                | F                | G                |
|------|--------------------------------------|--------------------|------------------|------------------|------------------|------------------|------------------|
|      | Financial Plan                       | FY 2024            | FY 2025          | FY 2026          | FY 2027          | FY 2028          | FY 2029          |
|      | <b>Revenues</b>                      |                    |                  |                  |                  |                  |                  |
| 1    | Rate Revenues                        | \$18,737,405       | \$18,787,255     | \$18,837,356     | \$18,887,708     | \$18,938,313     | \$18,989,172     |
| 2    | Revenue Adjustments                  | \$0                | \$469,681        | \$1,436,348      | \$2,456,583      | \$3,533,238      | \$4,669,322      |
| 3    | Other Revenues                       | <u>\$1,427,318</u> | <u>\$774,936</u> | <u>\$793,541</u> | <u>\$812,514</u> | <u>\$832,027</u> | <u>\$852,084</u> |
| 4    | <b>Total Revenues</b>                | \$20,164,723       | \$20,031,873     | \$21,067,245     | \$22,156,804     | \$23,303,579     | \$24,510,578     |
| 5    | <b>O&amp;M Expenses</b>              | \$14,022,146       | \$14,537,201     | \$15,202,269     | \$15,910,399     | \$16,655,503     | \$17,439,600     |
| 6    | <b>Debt Service</b>                  | \$1,110,175        | \$1,111,975      | \$1,102,125      | \$1,106,325      | \$1,109,125      | \$1,112,650      |
| 7    | <b>Net Cash Flow</b>                 | \$5,032,402        | \$4,382,696      | \$4,762,851      | \$5,140,081      | \$5,538,950      | \$5,958,328      |
| 8    | <b>Beginning Balance</b>             | \$2,337,024        | \$2,422,867      | \$2,533,711      | \$2,651,733      | \$2,775,917      | \$2,906,600      |
| 9    | Ending Balance                       | \$7,369,427        | \$6,805,563      | \$7,296,563      | \$7,791,814      | \$8,314,868      | \$8,864,928      |
| 10   | Reserve Target                       | \$2,337,024        | \$2,422,867      | \$2,533,711      | \$2,651,733      | \$2,775,917      | \$2,906,600      |
| 11   | <b>Transfer to Capital</b>           | \$4,946,560        | \$4,271,852      | \$4,644,830      | \$5,015,896      | \$5,408,268      | \$5,820,792      |
| 12   | <b>Ending Balance After Transfer</b> | \$2,422,867        | \$2,533,711      | \$2,651,733      | \$2,775,917      | \$2,906,600      | \$3,044,137      |
| 13   | Calculated Debt Coverage             | 5.53               | 4.94             | 5.32             | 5.65             | 5.99             | 6.36             |
| 14   | <b>Required Debt Coverage</b>        | 1.25               | 1.25             | 1.25             | 1.25             | 1.25             | 1.25             |

**Table 3-10: Projected Water Capital Financial Plan (Proposed Revenue Adjustments)**

| Line | A<br>Financial Plan                 | B<br>Description                                | C<br>FY 2024  | D<br>FY 2025  | E<br>FY 2026  | F<br>FY 2027  | G<br>FY 2028  | H<br>FY 2029  |
|------|-------------------------------------|---|---------------|---------------|---------------|---------------|---------------|---------------|
| 1    | Beginning Unrestricted Balance      | --  | \$24,860,010  | \$23,044,698  | \$16,406,361  | \$11,163,586  | \$6,468,119   | \$2,218,038   |
|      | <b>Sources of Funds</b>             |   |               |               |               |               |               |               |
| 2    | Grant Proceeds                      | --  | \$3,505,776   | \$0           | \$0           | \$0           | \$0           | \$0           |
| 3    | Interest Earnings                   | --  | \$356,611     | \$293,680     | \$205,235     | \$131,253     | \$64,661      | \$0           |
| 4    | Transfer from Operating             | --  | \$4,946,560   | \$4,271,852   | \$4,644,830   | \$5,015,896   | \$5,408,268   | \$5,820,792   |
| 5    | <b>Total Sources</b>                | Sum of Lines 2 through 4                        | \$8,808,946   | \$4,565,532   | \$4,850,065   | \$5,147,150   | \$5,472,929   | \$5,820,792   |
|      | <b>Uses of Funds</b>                |   |               |               |               |               |               |               |
| 6    | Cash Funded Capital                 | --  | \$8,874,258   | \$9,453,869   | \$8,342,840   | \$8,092,617   | \$7,973,009   | \$9,566,714   |
| 7    | Transfer to Emergency Fund          | --  | \$1,750,000   | \$1,750,000   | \$1,750,000   | \$1,750,000   | \$1,750,000   | \$1,750,000   |
| 8    | <b>Total Uses</b>                   | Sum of Lines 6 and 7                            | \$10,624,258  | \$11,203,869  | \$10,092,840  | \$9,842,617   | \$9,723,009   | \$11,316,714  |
| 9    | <b>Net Cash Flow</b>                | Line 5 – Line 8                                 | (\$1,815,312) | (\$6,638,337) | (\$5,242,775) | (\$4,695,467) | (\$4,250,080) | (\$5,495,923) |
| 10   | Ending Unrestricted Balance         | Line 1 + Line 9                                 | \$23,044,698  | \$16,406,361  | \$11,163,586  | \$6,468,119   | \$2,218,038   | (\$3,277,884) |
| 11   | Beginning Emergency Balance         |   | \$0           | \$1,763,125   | \$3,552,697   | \$5,369,112   | \$7,212,774   | \$9,084,091   |
| 12   | Ending Emergency Balance            | Line 11 + Line 7 + Interest Earnings on Balance | \$1,763,125   | \$3,552,697   | \$5,369,112   | \$7,212,774   | \$9,084,091   | \$10,983,477  |
| 13   | <b>Ending Total Capital Balance</b> | Line 10 + Line 12                               | \$24,807,823  | \$19,959,058  | \$16,532,699  | \$13,680,893  | \$11,302,129  | \$7,705,593   |
| 14   | <i>Target For Emergency</i>         | --  | \$10,000,000  | \$10,000,000  | \$10,000,000  | \$10,000,000  | \$10,000,000  | \$10,000,000  |

Figure 3: Water Operating Fund Ending Balance (Proposed Financial Plan)

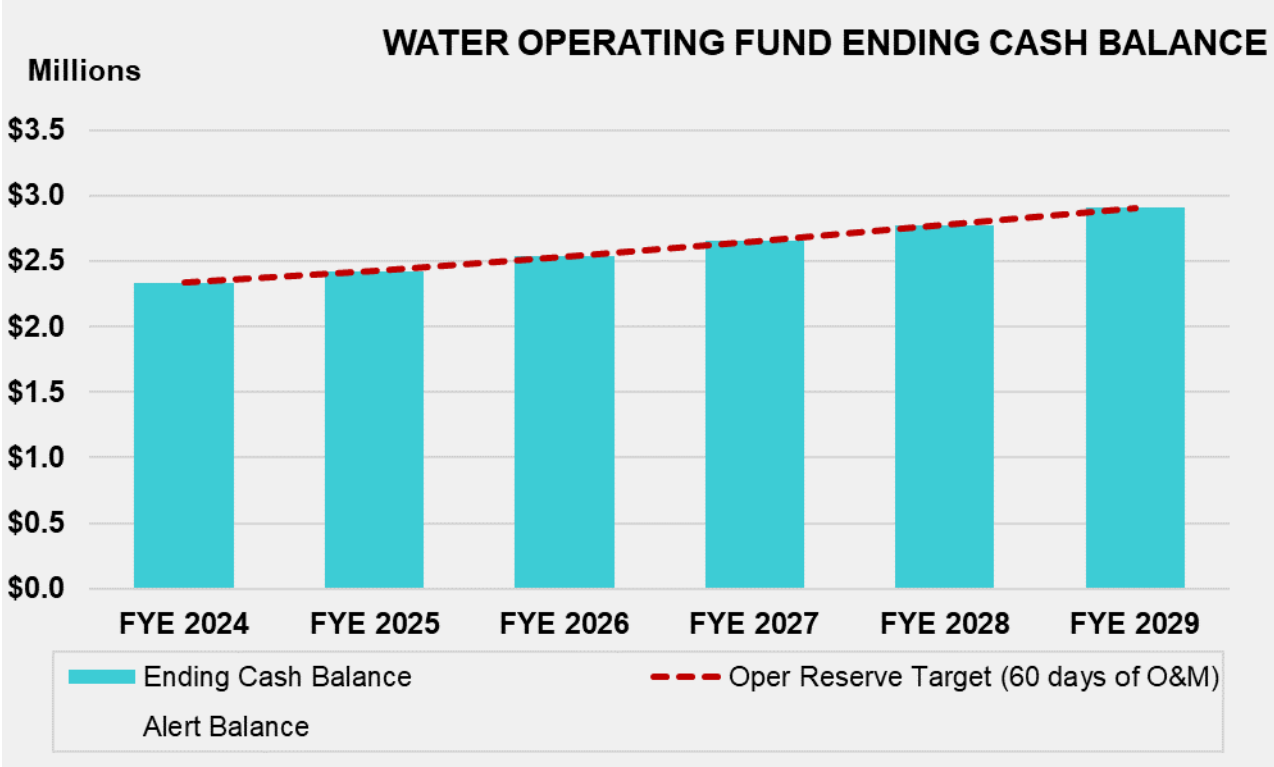
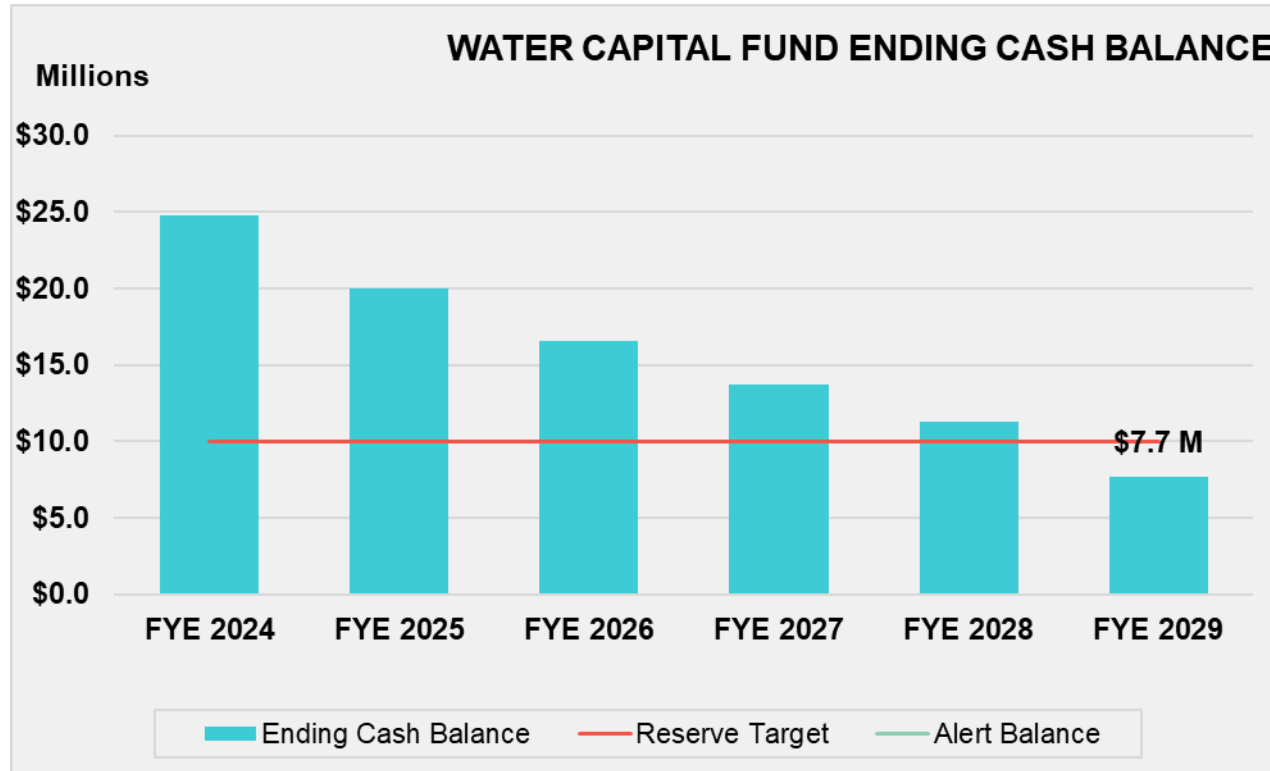


Figure 4: Water Capital Fund Ending Balance (Proposed Financial Plan)



# 4. Water Cost-of-Service

A cost-of-service analysis distributes a utility’s revenue requirements from rates (costs) to each customer class based on their proportionate share of total system water demand. The cost-of-service analysis completed by Raftelis followed industry standard cost allocation principles as presented in AWWA Manual M1.

## 4.1. Revenue Requirement Determination

The starting point of the water COS analysis is to identify the operating and capital cost components of the annual revenue requirement from rates. **Table 4-1** shows the FY 2025 revenue requirement derivation, which results in the total revenue required from water rates (Line 21). The revenue requirement comprises the Operating (Column B, Line 14) and Capital (Column C, Line 14) revenue requirements, which will be allocated to the cost causation components based on the proportion of O&M expense and capital asset functions, respectively.

**Table 4-1: FY 2024 Potable Revenue Requirements**

| Line | A<br>Potable Water FY 2025 Requirements   | B<br>Operating      | C<br>Capital       | D<br>Total          |
|------|---|---------------------|--------------------|---------------------|
|      | <b>Revenue Requirements</b>               |                     |                    |                     |
| 1    | O&M Expenses                              |                     |                    |                     |
| 2    | WQPP                                      | \$1,442,300         |                    | \$1,442,300         |
| 3    | Water Administration                      | \$12,043,075        |                    | \$12,043,075        |
| 4    | Wells                                     | \$86,779            |                    | \$86,779            |
| 5    | Pumping Plant                             | \$184,358           |                    | \$184,358           |
| 6    | Facilities Maintenance                    | \$228,188           |                    | \$228,188           |
| 7    | Mains, Hydrants, Maintenance              | \$394,726           |                    | \$394,726           |
| 8    | Meter Services Maintenance                | \$75,704            |                    | \$75,704            |
| 9    | Warehouse Operations                      | \$82,072            |                    | \$82,072            |
| 10   | Existing Debt Service                     |                     | \$1,111,975        | \$1,111,975         |
| 11   | Proposed Debt Service                     |                     | \$0                | \$0                 |
| 12   | Capital Projects                          |                     |                    |                     |
|      | Rate Funded Capital Projects (Transfer to |                     |                    |                     |
| 13   | Capital Fund)                             |                     | \$4,271,852        | \$4,271,852         |
| 14   | <b>Total Revenue Requirements</b>         | <b>\$14,537,201</b> | <b>\$5,383,827</b> | <b>\$19,921,028</b> |
|      | <b>Less: Revenue Offsets</b>              |                     |                    |                     |
| 15   | Miscellaneous Revenues                    | \$706,238           |                    | \$706,238           |
| 16   | Interest Income                           | \$68,698            |                    | \$68,698            |
| 17   | <b>Total Revenue Offsets</b>              | <b>\$774,936</b>    | <b>\$0</b>         | <b>\$774,936</b>    |
|      | <b>Less: Adjustments</b>                  |                     |                    |                     |
| 18   | Adjustment for Cash Balance               |                     | -\$110,845         | -\$110,845          |
| 19   | Adjustment for Midyear Increase           | -\$469,681          |                    | -\$469,681          |
| 20   | <b>Total Adjustments</b>                  | <b>-\$469,681</b>   | <b>-\$110,845</b>  | <b>-\$580,526</b>   |
| 21   | <b>Revenue Requirement from Rates</b>     | <b>\$14,231,946</b> | <b>\$5,494,671</b> | <b>\$19,726,618</b> |

## 4.2. Allocation of Expenses to Cost Causation Components

After determining the FY 2025 operating and capital cost revenue requirement components, the next step in the cost of service process is to assign the revenue requirement from rates to specific functional categories and cost

causation components. The assignment of costs to functional categories answers the question, what water utility functions are supported by (i.e., paid for) the rate revenue provided by customers? Functional categories for water utilities may include, but not necessarily be limited to, the supply, wells, reservoirs, treatment, pumping, transmission and distribution, customer service, and general and administration functions.

Cost causation components reflect the types of demands the water utility must have the ability to serve. The allocation of costs to cost causation components answers the question, what types of customer demands are met by (i.e., paid for) each function of the water utility system? Cost causation components used in the study include:

1. Water supply
2. Base delivery costs to meet average day demands
3. Peaking costs to meet maximum day and maximum hour demands
4. Meter service
5. Billing and customer service
6. Fire protection
7. General and administrative costs (legal, office supplies, minor equipment purchases, miscellaneous materials and supplies, training, uniforms, etc.)

Water utility peaking demands are separated into maximum day and maximum hour demands. Maximum day demand is the maximum amount of water used on a single day in a year. Maximum hour demand is the maximum hour usage on the maximum usage day. Both maximum day and maximum hour demands are used to calculate peaking factors that are critical in distributing costs to customer classes. In the COS analysis, the operating and capital costs incurred by a water utility are allocated to customer classes based on their unique maximum day and maximum hour peaking factors. This method is consistent with the AWWA M1 Manual and is widely used in the water industry to perform cost-of-service analyses.

The significance of considering peaking demands in the cost allocation process is best explained by looking at the City's infrastructure investments. The extra capacity costs incurred to build, maintain, and operate infrastructure to serve maximum day and maximum hour demands are significantly higher than the costs associated with meeting average day demands. For example, the larger pipelines, storage tanks, and pumps used to serve peak demands are more expensive and add to the City's costs to provide water service.

The City's system-wide water utility peaking factors are shown in **Table 4-2**. The system-wide peaking factors (Column B) are used to derive the cost component allocation percentages (Columns C through E). These peaking factors are from the City's water system engineering master plan. To understand the interpretation of the percentages, we must first establish the base use as the average daily demand during the year – which is assigned an allocation basis of 100 percent. If the base allocation basis is used to allocate an expense, the associated costs are used to meet average day demand (base) related costs.

Expenses allocated to the cost causation components on a maximum day basis are those attributed to ensuring the water system can accommodate the expected maximum daily demand. The maximum day allocation (Line 2) attributes 50.0% ( $1.00/2.00$ ) of the demand (and therefore costs) to base use (average day demand) and the remainder to maximum day use. Expenses allocated on a maximum hour basis (Line 3) assume 32.9% ( $1.00/3.04$ ) of costs are due to base use, 32.9% are due to maximum day use ( $(2.00-1.00)/3.04$ ), and the remaining 34.2% are due to maximum hour use. The maximum day and maximum hour cost components are called peaking costs. The peaking factors were obtained from the City's water system engineering master plan. The system-wide maximum month ratio is (Line 4) calculated by dividing maximum month demand by average month demand. The monthly to maximum day ratio (Line 5) is calculated by dividing the maximum month by the maximum day. The maximum day-to-

maximum hour ratio (Line 6) is calculated by dividing the maximum day by the maximum hour. These allocation bases assign City O&M expenses and capital costs to the cost causation components.

**Table 4-2: System Peaking Factors, Conversions, and Cost Component Allocations**

|      | A                               | B      | C             | D       | E        | F     |
|------|---------------------------------|--------|---------------|---------|----------|-------|
| Line | Description                     | Factor | Base Delivery | Max Day | Max Hour | Total |
| 1    | Base                            | 1.00   | 100%          | 0%      | 0%       | 100%  |
| 2    | Max Day                         | 2.00   | 50.0%         | 50.0%   | 0%       | 100%  |
| 3    | Max Hour                        | 3.04   | 32.9%         | 32.9%   | 34.2%    | 100%  |
| 4    | System-Wide Max Month           | 1.43   |               |         |          |       |
| 5    | System-Wide Max Day to Max Hour | 1.52   |               |         |          |       |

The allocation basis for each expense is chosen based on the type of cost for each line item and the proportion of those costs associated with each cost causation component (Base or average demand, Max Day, Max Hour, General, etc.). The allocation is based on the design basis of the different components of the water system. For example, pumps on wells are often designed to meet Max Day demands and costs are allocated 50.0 percent to Base and 50.0 percent to Max Day as shown in **Table 4-3**.

Actual O&M expenses are then allocated to the cost components, as shown in **Table 4-4**. The O&M allocation percentages (Line 11) are then used to allocate the Operating revenue requirement (**Table 4-1**, Column B, Line 14) in a later section.

Assets are allocated in a similar process, as shown in **Table 4-5** and **Table 4-6**. The capital allocation percentages (**Table 4-6**, Line 11) are then used to allocate the Capital revenue requirement (**Table 4-1**, Column C, Line 14) in a later section. Annual capital project costs are not used to allocate the Capital revenue requirement because they tend to vary from year to year, and so Capital assets are often used to allocate the Capital revenue requirement to reduce rate fluctuations. Assets represent the utility’s long-term investments in its capital infrastructure and do not fluctuate as much each year.

**Table 4-3: Water O&M Allocation Factors**

| Line | A                      | B      | C             | D       | E        | F      | G        | H    | I       | J     |
|------|------------------------|--------|---------------|---------|----------|--------|----------|------|---------|-------|
| Line | Potable O&M Allocation | Supply | Base Delivery | Max Day | Max Hour | Meters | Customer | Fire | General | Total |
| 1    | Supply                 | 100%   |               |         |          |        |          |      |         | 100%  |
| 2    | Pumping                |        | 50%           | 50%     |          |        |          |      |         | 100%  |
| 3    | Treatment              |        | 100%          |         |          |        |          |      |         | 100%  |
| 4    | Storage                |        | 50%           | 50%     |          |        |          |      |         | 100%  |
| 5    | T&D                    |        | 32.9%         | 32.9%   | 34.2%    |        |          |      |         | 100%  |
| 6    | Meters                 |        |               |         |          | 100%   |          |      |         | 100%  |
| 7    | Customer Service       |        |               |         |          |        | 100%     |      |         | 100%  |
| 8    | Fire Protection        |        |               |         |          |        |          | 100% |         | 100%  |
| 9    | General                |        |               |         |          |        |          |      | 100%    | 100%  |

Note: T&D - Transmission and Distribution

**Table 4-4: Water O&M Allocations**

| Line | A                             | B               | C                  | D               | E           | F                  | G                | H           | I                  | J                   |
|------|-------------------------------|-----------------|--------------------|-----------------|-------------|--------------------|------------------|-------------|--------------------|---------------------|
| Line | Potable O&M Cost              | Supply          | Base Delivery      | Max Day         | Max Hour    | Meters             | Customer         | Fire        | General            | Total               |
| 1    | Supply                        | \$86,779        | \$0                | \$0             | \$0         | \$0                | \$0              | \$0         | \$0                | \$86,779            |
| 2    | Pumping                       | \$0             | \$92,179           | \$92,179        | \$0         | \$0                | \$0              | \$0         | \$0                | \$184,358           |
| 3    | Treatment                     | \$0             | \$1,442,300        | \$0             | \$0         | \$0                | \$0              | \$0         | \$0                | \$1,442,300         |
| 4    | Storage                       | \$0             | \$0                | \$0             | \$0         | \$0                | \$0              | \$0         | \$0                | \$0                 |
| 5    | T&D                           | \$0             | \$0                | \$0             | \$0         | \$0                | \$0              | \$0         | \$0                | \$0                 |
| 6    | Meters                        | \$0             | \$0                | \$0             | \$0         | \$4,049,919        | \$0              | \$0         | \$0                | \$4,049,919         |
| 7    | Customer Service              | \$0             | \$0                | \$0             | \$0         | \$0                | \$240,862        | \$0         | \$0                | \$240,862           |
| 8    | Fire Protection               | \$0             | \$0                | \$0             | \$0         | \$0                | \$0              | \$0         | \$0                | \$0                 |
| 9    | General                       | \$0             | \$0                | \$0             | \$0         | \$0                | \$0              | \$0         | \$8,532,984        | \$8,532,984         |
| 10   | <b>Total O&amp;M Expenses</b> | <b>\$86,779</b> | <b>\$1,534,478</b> | <b>\$92,179</b> | <b>\$0</b>  | <b>\$4,049,919</b> | <b>\$240,862</b> | <b>\$0</b>  | <b>\$8,532,984</b> | <b>\$14,537,201</b> |
| 11   | <b>O&amp;M Allocation</b>     | <b>0.6%</b>     | <b>10.6%</b>       | <b>0.6%</b>     | <b>0.0%</b> | <b>27.9%</b>       | <b>1.7%</b>      | <b>0.0%</b> | <b>58.7%</b>       | <b>100.0%</b>       |

**Table 4-5: Water Asset Allocation Factors**

| Line | A                        | B      | C             | D       | E        | F      | G        | H    | I       | J     |
|------|--------------------------|--------|---------------|---------|----------|--------|----------|------|---------|-------|
|      | Potable Asset Allocation | Supply | Base Delivery | Max Day | Max Hour | Meters | Customer | Fire | General | Total |
| 1    | Supply                   | 100%   |               |         |          |        |          |      |         | 100%  |
| 2    | Pumping                  |        | 50%           | 50%     |          |        |          |      |         | 100%  |
| 3    | Treatment                |        | 100%          |         |          |        |          |      |         | 100%  |
| 4    | Storage                  |        | 50%           | 50%     |          |        |          |      |         | 100%  |
| 5    | T&D                      |        | 32.9%         | 32.9%   | 34.2%    |        |          |      |         | 100%  |
| 6    | Meters                   |        |               |         |          | 100%   |          |      |         | 100%  |
| 7    | Customer Service         |        |               |         |          |        | 100%     |      |         | 100%  |
| 8    | Fire Protection          |        |               |         |          |        |          | 100% |         | 100%  |
| 9    | General                  |        |               |         |          |        |          |      | 100%    | 100%  |

**Table 4-6: Water Asset Allocations**

| Line | A                         | B                  | C                   | D                   | E                  | F           | G           | H           | I                  | J                   |
|------|---------------------------|--------------------|---------------------|---------------------|--------------------|-------------|-------------|-------------|--------------------|---------------------|
|      | Potable Assets            | Supply             | Base Delivery       | Max Day             | Max Hour           | Fire        | Meter       | Customer    | General            | Total               |
| 1    | Supply                    | \$1,520,407        | \$0                 | \$0                 | \$0                | \$0         | \$0         | \$0         | \$0                | \$1,520,407         |
| 2    | Pumping                   | \$0                | \$10,877,301        | \$10,877,301        | \$0                | \$0         | \$0         | \$0         | \$0                | \$21,754,602        |
| 3    | Treatment                 | \$0                | \$90,687            | \$0                 | \$0                | \$0         | \$0         | \$0         | \$0                | \$90,687            |
| 4    | Storage                   | \$0                | \$11,053,036        | \$11,053,036        | \$0                | \$0         | \$0         | \$0         | \$0                | \$22,106,071        |
| 5    | T&D                       | \$0                | \$8,439,569         | \$8,439,569         | \$8,777,152        | \$0         | \$0         | \$0         | \$0                | \$25,656,289        |
| 6    | Meters                    | \$0                | \$0                 | \$0                 | \$0                | \$0         | \$0         | \$0         | \$0                | \$0                 |
| 7    | Customer Service          | \$0                | \$0                 | \$0                 | \$0                | \$0         | \$0         | \$0         | \$0                | \$0                 |
| 8    | Fire Protection           | \$0                | \$0                 | \$0                 | \$0                | \$0         | \$0         | \$0         | \$0                | \$0                 |
| 9    | General                   | \$0                | \$0                 | \$0                 | \$0                | \$0         | \$0         | \$0         | \$2,959,169        | \$2,959,169         |
| 10   | <b>TOTAL ASSETS</b>       | <b>\$1,520,407</b> | <b>\$30,460,592</b> | <b>\$30,369,905</b> | <b>\$8,777,152</b> | <b>\$0</b>  | <b>\$0</b>  | <b>\$0</b>  | <b>\$2,959,169</b> | <b>\$74,087,225</b> |
| 11   | <i>Capital Allocation</i> | <i>2.1%</i>        | <i>41.1%</i>        | <i>41.0%</i>        | <i>11.8%</i>       | <i>0.0%</i> | <i>0.0%</i> | <i>0.0%</i> | <i>4.0%</i>        | <i>100.0%</i>       |

### 4.3. Units of Service

Once all expenses have been allocated to the appropriate cost components, the next step is to determine the units of service over which the costs will be recovered. The service units are number of customers, equivalent meter units (EMUs), annual water use, and extra capacity units. Private fire connections and city hydrants are also used in the calculation of private fire charges.

#### 4.3.1. CUSTOMER AND METER EQUIVALENTS

**Table 4-7** summarizes customer and equivalent meter units. Meter counts can be found in **Table 3-1**. EMUs represent the potential demand that meters can place on the system. The AWWA M1 Manual provides data about the potential demand that each standard meter size can place on the system. For this study, the base meter is the 3/4-inch meter, which is the most common meter size. The AWWA ratio (Column C) is calculated by dividing the capacity in gallons per minute (gpm) (Column B) for each meter size by the capacity of a 3/4-inch meter (Column B, Line 1). EMUs for each class are derived by multiplying the AWWA ratio (Column C) by the number of accounts at a given meter size. The numbers shown in the tables of this section are rounded. Therefore, hand calculations based on the displayed numbers, such as summing or multiplying, may not equal the exact results shown.

**Table 4-7: Customer and Equivalent Meter Units**

| Line | A<br>Meter Size | B<br>Capacity (gpm) | C<br>AWWA Ratio | D<br>SFR EMUs | E<br>MFR EMUs | F<br>Non-Residential EMUs | G<br>Landscape EMUs | H<br>Reclaimed Water EMUs | I<br>EMUs     |
|------|-----------------|---------------------|-----------------|---------------|---------------|---------------------------|---------------------|---------------------------|---------------|
| 1    | 3/4"            | 30                  | 1.00            | 7,431         | 1,247         | 365                       | 12                  | 0                         | 9,056         |
| 2    | 1"              | 50                  | 1.67            | 2,797         | 485           | 335                       | 61                  | 0                         | 3,679         |
| 3    | 1 1/2"          | 100                 | 3.33            | 244           | 853           | 471                       | 108                 | 0                         | 1,677         |
| 4    | 2"              | 160                 | 5.33            | 176           | 439           | 1,189                     | 248                 | 11                        | 2,062         |
| 5    | 3"              | 350                 | 11.67           | 0             | 61            | 548                       | 128                 | 35                        | 772           |
| 6    | 4"              | 630                 | 21.00           | 0             | 95            | 1,308                     | 78                  | 42                        | 1,524         |
| 7    | 6"              | 1,300               | 43.33           | 0             | 0             | 284                       | 0                   | 0                         | 284           |
| 8    | 8"              | 2,400               | 80.00           | 0             | 0             | 175                       | 0                   | 0                         | 175           |
| 9    | <b>Total</b>    |                     |                 | <b>10,649</b> | <b>3,181</b>  | <b>4,676</b>              | <b>634</b>          | <b>89</b>                 | <b>19,229</b> |

Equivalent fire accounts are treated similarly, using the Hazen Williams equation for pipe flow<sup>2</sup>, demonstrated in **Table 4-8**. The fire ratios (Column B) are applied to the number of private fire connections to determine the number of 6-inch fire line equivalents; the same is applied to fire hydrants (Column E), which assumes a 6-inch diameter line. The proportion of equivalent fire lines allocated to private and public fire protection (Line 10) are used in **Table 4-11** to calculate the cost of providing private fire protection service.

<sup>2</sup> The potential flow is the diameter of the connection raised to the 2.63 power – the Hazen Williams equation for pipe flow. For a 2" pipe the 6" equivalent demand factor would be  $(2/6)^{2.63} = .056$ .

**Table 4-8: Public Hydrants and Private Fire Lines**

| Line | A                        | B          | C          | D            | E            | F            |
|------|--------------------------|------------|------------|--------------|--------------|--------------|
|      | Line Size                | Fire Ratio | Lines      | Eq. Lines    | Hydrants     | Eq. Hydrants |
| 1    | 2"                       | 0.06       | 2          | 0            |              |              |
| 2    | 3"                       | 0.16       | 0          | 0            |              |              |
| 3    | 4"                       | 0.34       | 73         | 25           |              |              |
| 4    | 6"                       | 1.00       | 55         | 55           |              |              |
| 5    | 8"                       | 2.13       | 37         | 80           |              |              |
| 6    | 10"                      | 3.83       | 4          | 15           |              |              |
| 7    | 12"                      | 6.19       | 1          | 6            |              |              |
| 8    | 6"                       | 1.00       |            |              | 1,054        | 1,054        |
| 9    | <b>Total</b>             |            | <b>172</b> | <b>181</b>   | <b>1,054</b> | <b>1,054</b> |
| 10   | <i>% of Equiv. Lines</i> |            |            | <i>14.7%</i> |              | <i>98.3%</i> |

**4.3.2. CUSTOMER CLASS WATER USAGE AND PEAKING**

Service units also include annual water use and peaking units. **Table 4-9** shows the calculation of peaking factors (Columns F and G) for each customer class and tier. The Max Day and Max Hour peaking factors were calculated using the System Wide Monthly to Max Day conversion factor as explained in the previous section. A weekly usage adjustment in columns D and E was then applied to account for daily variations in usage. For example, multi-family has a Max Day weekly usage adjustment factor of 1.17 because it assumes 6 days of max water usage out of 7 total days (7 total days divided by 6 days of water usage equals 1.17). The Max Day demand for multi-family in Column F is calculated by multiplying the Max Month from the billing data in Column C times the system conversion factor of 1.43 times the weekly usage adjustment in Column D (1.86 x 1.43 x 1.17 equals 3.10).

**Table 4-9: Class Peaking Factors**

| Line           | A               | B                    | C         | D                            | E                            | F       | G        |
|----------------|-----------------|----------------------|-----------|------------------------------|------------------------------|---------|----------|
|                | Customer Class  | Proposed Tiers (hcf) | Max Month | Weekly Usage Adjustment (MD) | Weekly Usage Adjustment (MH) | Max Day | Max Hour |
| <b>SFR</b>     |                 |                      |           |                              |                              |         |          |
| 1              | Tier 1          | 0-22                 | 1.35      | 1.00                         | 1.00                         | 1.92    | 2.92     |
| 2              | Tier 2          | 22+                  | 2.11      | 1.75                         | 1.50                         | 5.27    | 12.01    |
| <b>Non-SFR</b> |                 |                      |           |                              |                              |         |          |
| 4              | Multi-Family    |                      | 1.86      | 1.17                         | 1.50                         | 3.10    | 7.07     |
| 5              | Non-Residential |                      | 1.37      | 1.00                         | 1.50                         | 1.96    | 4.46     |
| 6              | Landscape       |                      | 1.95      | 1.40                         | 1.50                         | 3.91    | 8.90     |
| 7              | Reclaimed       |                      | 1.98      | 1.00                         | 1.50                         | 2.83    | 6.45     |
| 8              | Private Fire    |                      |           |                              |                              |         |          |

**Table 4-10** shows the calculation of extra capacity units for each class. Annual usage (Column C) is the total amount of water each class is forecasted to use in the test year, which is also shown in **Table 3-1**. Average day (Column D) is equal to annual use divided by 365 days.

The Max Day peaking factor (Column E) was derived in **Table 4-9**. The Max Day peaking factor is multiplied by the average day used to determine the Max Day total capacity (Column F). The extra capacity required to serve water under Max Day conditions (Column G) is the difference between the Max Day total capacity and the average day use. These extra capacity units are used to distribute peaking costs between the classes.

The same steps as described above are applied to calculate Max Hour total capacity (Column I). The extra capacity for Max Hour use is calculated by subtracting the Max Day total capacity from the Max Hour total capacity.

### 4.3.3. COST DISTRIBUTIONS TO THE COST CAUSATION COMPONENTS

**Table 4-11** summarizes the results of the cost allocation to the cost causation components and the final unit costs for each cost causation component. The operating revenue requirement (Column J, Line 1) is from **Table 4-1** and is allocated based on the operating allocation percentages from **Table 4-3**. The capital revenue requirement (Column J, Line 2) is also from **Table 4-1** and is allocated based on the capital allocation percentages from **Table 4-5**. Note that the total revenue requirement (**Table 4-11**, Column J, Line 3) is equal to the total revenue required from rates (**Table 4-1**, Column D, Line 14).

General costs (Column I) are reallocated back to all other components based on the proportion of costs within each cost component in the total cost of service (Line 3). Public fire protection costs (Line 5) are reallocated based on the percentage of equivalent fire lines for public fire hydrants (**Table 4-8**, Line 10); these costs are recovered from ratepayers in their fixed meter charge. Finally, the City chooses to reallocate 25 percent of extra capacity peaking costs to the equivalent meter basis to reach revenue stability goals. Peaking costs can be recovered in proportion to meter size. Total adjusted costs (Line 8), fully allocated to the appropriate cost causation components, are used to determine the final unit costs.

The unit costs (Line 11) are the result of dividing the adjusted cost of service (Line 8) for each cost causation component by the units of service (Line 9), which were summarized in **Table 4-10**. Unit costs on Line 11 for meters, customers, and fire protection are per bill.

**Table 4-12** presents the results of the cost-of-service analysis. Using the unit costs calculated in **Table 4-11** and the detailed units of service in **Table 4-10**, the costs are distributed to each customer class. Supply and Base Delivery are distributed to each customer class and tier based on annual water use (**Table 4-10**, Column C). Max Day and Max Hour costs are distributed based on extra capacity units for each component (**Table 4-10**, Columns G and J, respectively). Fire costs are distributed based on equivalent fire lines (**Table 4-10**, Column M, Line 5). Fire capacity costs are based on MD capacity units in **Table 4-10** columns N and O. Meter costs are distributed based on EMUs (**Table 4-10**, Column K). Finally, Customer costs are distributed based on the number of bills (**Table 4-10**, Column L multiplied by 12).

**Table 4-10: Units of Service**

| Line | A               | B                   | C                | D                 | E                  | F                 | G                 | H                  | I                 | J                 | K             | L             | M          | N                       | O                       |
|------|-----------------|---------------------|------------------|-------------------|--------------------|-------------------|-------------------|--------------------|-------------------|-------------------|---------------|---------------|------------|-------------------------|-------------------------|
|      | Customer Class  | Monthly Tiers (hcf) | Annual Use (hcf) | Average Daily Use | MD Capacity Factor | MD Total Capacity | MD Extra Capacity | MH Capacity Factor | MH Total Capacity | MH Extra Capacity | EMUs          | Accounts      | Eq. Lines  | Public Fire MD Capacity | Public Fire MH Capacity |
| 1    | <b>SFR</b>      |                     |                  |                   |                    |                   |                   |                    |                   |                   | 10,649        | 9,216         |            | 201                     | 2,206                   |
| 2    | Tier 1          | 0-22                | 945,413          | 2,590             | 1.92               | 4,978             | 2,388             | 2.92               | 7,567             | 2,589             |               |               |            |                         |                         |
| 3    | Tier 2          | 22+                 | 579,749          | 1,588             | 5.27               | 8,369             | 6,781             | 12.01              | 19,081            | 10,712            |               |               |            |                         |                         |
| 4    | Multi-family    |                     | 745,706          | 2,043             | 3.10               | 6,335             | 4,292             | 7.07               | 14,443            | 8,109             | 3,181         | 1,886         |            | 361                     | 3,970                   |
| 5    | Non-Residential |                     | 566,151          | 1,551             | 1.96               | 3,034             | 1,483             | 4.46               | 6,918             | 3,884             | 4,676         | 1,049         |            | 722                     | 5,053                   |
| 6    | Landscape       |                     | 142,946          | 392               | 3.91               | 1,529             | 1,138             | 8.90               | 3,487             | 1,958             | 634           | 142           |            | 160                     | 1,765                   |
| 7    | Reclaimed       |                     | 35,605           | 98                | 2.83               | 276               | 179               | 6.45               | 630               | 353               | 89            | 7             |            |                         |                         |
| 8    | Private Fire    |                     |                  |                   |                    |                   |                   |                    |                   |                   |               | 172           | 181        |                         |                         |
| 9    | <b>Total</b>    |                     | <b>3,015,569</b> |                   |                    | <b>24,522</b>     | <b>16,260</b>     |                    | <b>52,127</b>     | <b>27,605</b>     | <b>19,229</b> | <b>12,472</b> | <b>181</b> | <b>1,444</b>            | <b>12,994</b>           |

**Table 4-11: Unit Cost of Service**

| Line | A                                     | B                | C                  | D                  | E                | F                  | G                | H                | I                  | J                       | K                       | L                   |
|------|---------------------------------------|------------------|--------------------|--------------------|------------------|--------------------|------------------|------------------|--------------------|-------------------------|-------------------------|---------------------|
|      | Cost of Service                       | Supply           | Base Delivery      | Max Day            | Max Hour         | Meters             | Customer         | Fire             | General            | Public Fire MD Capacity | Public Fire MH Capacity | Total               |
| 1    | Operating Expenses                    | \$84,957         | \$1,502,257        | \$90,243           | \$0              | \$3,964,878        | \$235,804        | \$0              | \$8,353,807        |                         |                         | \$14,231,946        |
| 2    | Capital Expenses                      | \$112,761        | \$2,259,107        | \$2,252,381        | \$650,957        | \$0                | \$0              | \$0              | \$219,466          |                         |                         | \$5,494,671         |
| 3    | <b>Total Cost of Service</b>          | <b>\$197,718</b> | <b>\$3,761,364</b> | <b>\$2,342,624</b> | <b>\$650,957</b> | <b>\$3,964,878</b> | <b>\$235,804</b> | <b>\$0</b>       | <b>\$8,573,273</b> |                         |                         | <b>\$19,726,618</b> |
| 4    | Allocation of General Cost            | \$151,980        | \$2,891,258        | \$1,800,712        | \$500,373        | \$3,047,694        | \$181,256        | \$0              | -\$8,573,273       |                         |                         |                     |
| 5    | Allocation of Public Fire Cost        |                  |                    | -\$310,275         | -\$279,027       |                    |                  |                  |                    | \$310,275               | \$279,027               |                     |
| 6    | Allocation of Private Fire Cost       |                  |                    | -\$53,301          | -\$47,933        |                    |                  | \$101,234        |                    |                         |                         |                     |
| 7    | Allocation of Peaking Cost to Meter   |                  | \$0                | -\$1,035,834       | -\$287,832       | \$1,323,666        |                  |                  |                    |                         |                         |                     |
| 8    | <b>Total Adjusted Cost of Service</b> | <b>\$349,698</b> | <b>\$6,652,622</b> | <b>\$2,743,925</b> | <b>\$536,538</b> | <b>\$8,336,239</b> | <b>\$417,060</b> | <b>\$101,234</b> | <b>\$0</b>         | <b>\$310,275</b>        | <b>\$279,027</b>        | <b>\$19,726,618</b> |
| 9    | Unit of Service                       | 3,015,569        | 3,015,569          | 16,260             | 27,605           | 19,229             | 74,833           | 1,086            |                    | 1,444                   | 12,994                  |                     |
| 10   | Unit                                  | <i>hcf</i>       | <i>hcf</i>         | <i>hcf</i>         | <i>hcf</i>       | <i>EMU's</i>       | <i>bills</i>     | <i>EMU's</i>     |                    | <i>gpm</i>              | <i>gpm</i>              |                     |
| 11   | Unit Cost                             | \$0.12           | \$2.21             | \$168.75           | \$19.44          | \$72.26            | \$5.57           | \$93.19          |                    | \$214.91                | \$21.47                 |                     |

**Table 4-12: Class Cost of Service**

|      | A                        | B                | C                  | D                  | E                | F                  | G                | H                | I                       | J                       | K                   |
|------|--------------------------|------------------|--------------------|--------------------|------------------|--------------------|------------------|------------------|-------------------------|-------------------------|---------------------|
| Line | Cost of Service by Class | Supply           | Base Delivery      | Max Day            | Max Hour         | Meters             | Customer         | Fire             | Public Fire MD Capacity | Public Fire MH Capacity | Total               |
| 1    | <b>SFR</b>               |                  |                    |                    |                  | \$4,616,591        | \$308,176        |                  | \$43,094                | \$47,366                | \$5,015,227         |
| 2    | Tier 1                   | \$109,634        | \$2,085,667        | \$402,997          | \$50,315         |                    |                  |                  |                         |                         | \$2,648,613         |
| 3    | Tier 2                   | \$67,230         | \$1,278,979        | \$1,144,260        | \$208,212        |                    |                  |                  |                         |                         | \$2,698,681         |
| 4    | Multi-family             | \$86,475         | \$1,645,095        | \$724,243          | \$157,602        | \$1,379,095        | \$63,074         |                  | \$77,569                | \$85,258                | \$4,218,411         |
| 5    | Non-Residential          | \$65,653         | \$1,248,980        | \$250,281          | \$75,488         | \$2,027,300        | \$35,075         |                  | \$155,138               | \$108,510               | \$3,966,425         |
| 6    | Landscape                | \$16,577         | \$315,352          | \$192,012          | \$38,051         | \$274,865          | \$4,757          |                  | \$34,475                | \$37,892                | \$913,982           |
| 7    | Reclaimed                | \$4,129          | \$78,548           | \$30,133           | \$6,869          | \$38,387           | \$236            |                  | \$0                     | \$0                     | \$158,303           |
| 8    | Private Fire             |                  |                    |                    |                  |                    | \$5,742          | \$101,234        |                         |                         | \$106,975           |
| 9    | <b>Total</b>             | <b>\$349,698</b> | <b>\$6,652,622</b> | <b>\$2,743,925</b> | <b>\$536,538</b> | <b>\$8,336,239</b> | <b>\$417,060</b> | <b>\$101,234</b> | <b>\$310,275</b>        | <b>\$279,027</b>        | <b>\$19,726,618</b> |

# 5. Water Rate Design

While the cost-of-service analysis determines how much revenue should be recovered from each customer class, the rate design process determines how and on what basis. Costs are allocated to the fixed and volume charges of each class to recover costs in a manner that is equitable and meets the City’s goals.

## 5.1. Proposed Bi-Monthly Service Charge

The bi-monthly service charge recovers three types of costs:

1. costs associated with maintaining and servicing meters,
2. capacity (also known as peaking) costs, and
3. and the proportion of public fire cost representative to master plan fire flow criteria.

The bi-monthly service charges increase as the meter size increases and are proportional to the AWWA hydraulic capacity ratios shown in **Table 4-7**. The AWWA capacity ratios, which are a function of a meter’s safe maximum flow rate, are used to increase the meter service component for larger capacity meters which impose a greater demand on the system and require larger systems and therefore are responsible for higher costs. This assumes that the potential capacity (peaking) demand is proportional to the potential flow through each meter size as established by the AWWA capacity ratios.

The Customer component ( **Table 4-11**, Column G, Line 11) recovers costs associated with meter reading, customer billing, and collection, as well as answering customer calls. These costs are the same for all meter sizes as it costs the same to bill a small meter as it does a larger meter. Customer costs (Column D) are the same for all meter sizes. Because fire flow assumptions differ for each customer class, each class is allocated a share of the public fire cost based on its specific fire flow needs. As a result, this cost component varies between customer classes. Reclaimed water does not receive any fire costs. The bi-monthly fixed charge per class is the summation of the meter charge (column C), customer charge (column D), and the fire component applicable to the class.

**Table 5-1: Bi-Monthly Fixed Charge Derivation by Meter Size**

| Line | A          | B          | C          | D        | E                  | F                 | G                    | H              |
|------|------------|------------|------------|----------|--------------------|-------------------|----------------------|----------------|
|      | Meter Size | AWWA Ratio | Meter      | Customer | Single Family Fire | Multi-Family Fire | Non-Residential Fire | Landscape Fire |
| 1    | 3/4"       | 1.00       | \$72.26    | \$5.57   | \$1.42             | \$8.53            | \$9.40               | \$19.02        |
| 2    | 1"         | 1.67       | \$120.43   | \$5.57   | \$2.36             | \$14.22           | \$15.66              | \$31.71        |
| 3    | 1 1/2"     | 3.33       | \$240.85   | \$5.57   | \$4.72             | \$28.44           | \$31.32              | \$63.41        |
| 4    | 2"         | 5.33       | \$385.36   | \$5.57   | \$7.55             | \$45.50           | \$50.12              | \$101.46       |
| 5    | 3"         | 11.67      | \$842.98   | \$5.57   | \$16.52            | \$99.53           | \$109.63             | \$221.94       |
| 6    | 4"         | 21.00      | \$1,517.36 | \$5.57   | \$29.73            | \$179.15          | \$197.33             | \$399.50       |
| 7    | 6"         | 43.33      | \$3,131.06 | \$5.57   | \$61.35            | \$369.68          | \$407.19             | \$824.36       |
| 8    | 8"         | 80.00      | \$5,780.42 | \$5.57   | \$113.26           | \$682.48          | \$751.74             | \$1,521.89     |

## 5.2. Proposed Bi-Monthly Private Fire Protection Charge

**Table 5-2** shows the derivation of the bi-monthly private fire charge (Column E). The fire cost in Column C is calculated for each line size by multiplying the unit cost of fire protection (**Table 4-11**, Column H, Line 11) by the flow ratios in Column B. The proposed private fire charge is calculated by adding the scaled fire cost (Column C)

to the customer billing charge (Column D). The proposed private fire charges are proportional to the potential flow through each private fire connection.

**Table 5-2: Bi-Monthly Private Fire Charge Derivation by Meter Size**

| Line | A<br>Line Size | B<br>Flow Ratio | C<br>Fire | D<br>Customer | E<br>Proposed Charge |
|------|----------------|-----------------|-----------|---------------|----------------------|
| 1    | 3/4"           | 0.00            | \$0.39    | \$5.57        | \$5.97               |
| 2    | 1"             | 0.01            | \$0.84    | \$5.57        | \$6.41               |
| 3    | 2"             | 0.06            | \$5.18    | \$5.57        | \$10.76              |
| 4    | 3"             | 0.16            | \$15.05   | \$5.57        | \$20.63              |
| 5    | 4"             | 0.34            | \$32.08   | \$5.57        | \$37.65              |
| 6    | 6"             | 1.00            | \$93.19   | \$5.57        | \$98.76              |
| 7    | 8"             | 2.13            | \$198.58  | \$5.57        | \$204.15             |
| 8    | 10"            | 3.83            | \$357.12  | \$5.57        | \$362.69             |
| 9    | 12"            | 6.19            | \$576.84  | \$0.00        | \$576.84             |

### 5.3. Volumetric Rates

#### 5.3.1. CUSTOMER CLASSES

Raftelis does not recommend changes to volumetric rate structures. SFR customers are more homogenous and conservation rate structures with inclining tiers are common for this class based on customer usage patterns. Specifically, SFR customers are more likely to have predictable peaking patterns based on seasonality: water use during the summer months tends to peak more due to increased irrigation needs. The City incurs costs specific to accommodating such peak demand with infrastructure sized to provide capacity. To ensure that customers with higher use due to peaking cover the costs proportionally, tiered rates are proposed for SFR customers. The remaining customers vary significantly in size and use and generally are subject to uniform rates.

#### 5.3.2. TIER DEFINITIONS

Table 5-3 shows the current tier definitions for customer classes.

**Table 5-3: Current Volumetric Tiers**

| Line | A<br>Tier        | B<br>Current |
|------|------------------|--------------|
|      | <b>SFR</b>       |              |
| 1    | Tier 1           | 0-22         |
| 2    | Tier 2           | 22 and above |
| 3    | <b>All Other</b> | Uniform      |

A uniform rate for all other customer classes is appropriate because of smaller peaking requirements. Commercial customers tend to be much less homogenous and their individual water needs vary significantly. Such customers do not place peak demand on the system in the same way as single-family residential customers. For example, a large commercial customer, such as a hospital, may use large volumes of water consistently. It may be inequitable to charge most of its use at Tier 3 rates and therefore uniform rates are common for industrial customers.

#### 5.3.3. COMMODITY COST COMPONENT DEFINITIONS

The commodity rates for each class and tier are derived by summing the unit rates (\$/hcf) for:

1. Water Supply
2. Base Delivery
3. Peaking

Supply costs are the operating and capital costs associated with obtaining and maintaining a utility's water supply. Therefore, supply costs are spread over all units of water which results in a uniform delivery unit cost for all classes and tiers. The supply unit rate for all customers (**Table 4-11**, Column B, Line 11) was developed in the cost-of-service analysis.

**Table 5-4: Water Supply Unit Costs**

| Line | A<br>Description   | F<br>Total    |
|------|--------------------|---------------|
| 1    | Water Demand (hcf) | 3,015,569     |
| 2    | Supply Costs       | \$349,698     |
| 3    | Unit Cost per hcf  | <b>\$0.12</b> |

Base Delivery costs are the operating and capital costs associated with delivering water to all customers through the distribution system (pipelines and storage reservoirs) at a constant average rate of use – also known as serving customers under average daily demand conditions. Therefore, delivery costs are spread over all units of water which results in a uniform delivery unit cost for all classes and tiers. The delivery unit rate for all customers (**Table 4-11**, Column C, Line 11) was developed in the cost-of-service analysis.

Peaking costs, or extra-capacity costs, represent costs incurred to meet customer peak demands above average daily demand. These costs are calculated in **Table 5-5**. The Max Day and Max Hour costs and represent capital and operating costs associated with system oversizing to meet peak demands. The cost for each class is divided by the forecasted use for the class as shown in Columns D and F.

**Table 5-5: Delivery and Peaking Unit Rates**

| Line | A<br>Class             | B<br>Usage (hcf) | C<br>Base Cost | D<br>Base Unit Rate | E<br>Peaking Cost | F<br>Peaking Unit Rate |
|------|------------------------|------------------|----------------|---------------------|-------------------|------------------------|
|      | <b>SFR</b>             |                  |                |                     |                   |                        |
| 1    | Tier 1                 | 945,413          | \$2,085,667    | \$2.21              | \$453,312         | \$0.48                 |
| 2    | Tier 2                 | 579,749          | \$1,278,979    | \$2.21              | \$1,352,472       | \$2.33                 |
| 3    | <b>Multi-Family</b>    | 745,706          | \$1,645,095    | \$2.21              | \$881,844         | \$1.18                 |
| 4    | <b>Non-Residential</b> | 566,151          | \$1,248,980    | \$2.21              | \$325,769         | \$0.58                 |
| 5    | <b>Landscape</b>       | 142,946          | \$315,352      | \$2.21              | \$230,064         | \$1.61                 |
| 6    | <b>Reclaimed</b>       | 35,605           | \$78,548       | \$2.21              | \$37,002          | \$1.04                 |

**Table 5-6** combines each of the volumetric rate components derived in **Table 5-4** and **Table 5-5**.

**Table 5-6: Commodity Rate Calculation**

| Line       | A<br>Class             | B<br>Tiers | C<br>Usage (hcf) | D<br>Supply | E<br>Base | F<br>Peaking | G<br>Total |
|------------|------------------------|------------|------------------|-------------|-----------|--------------|------------|
| <b>SFR</b> |                        |            |                  |             |           |              |            |
| 1          | Tier 1                 | 0-22       | 945,413          | \$0.12      | \$2.21    | \$0.48       | \$2.81     |
| 2          | Tier 2                 | >22        | 579,749          | \$0.12      | \$2.21    | \$2.33       | \$4.66     |
| 3          | <b>Multi-Family</b>    | Uniform    | 745,706          | \$0.12      | \$2.21    | \$1.18       | \$3.51     |
| 4          | <b>Non-Residential</b> | Uniform    | 566,151          | \$0.12      | \$2.21    | \$0.58       | \$2.90     |
| 5          | <b>Landscape</b>       | Uniform    | 142,946          | \$0.12      | \$2.21    | \$1.61       | \$3.94     |
| 6          | <b>Reclaimed</b>       | Uniform    | 35,605           | \$0.12      | \$2.21    | \$1.04       | \$3.37     |

## 5.4. 5-Year Rate Schedule

Table 5-7 and Table 5-8 show the proposed five-year water rate schedules commencing January 2025 and in January of every year thereafter until 2029. These rates are developed by applying the revenue increases determined in Table 3-8 to the cost of service rates in Table 5-1, Table 5-2, and Table 5-6. The City will implement rates equal to or lower than the cost-of-service rates.

**Table 5-7: Proposed Water Usage Rates (\$/hcf of water)**

| Line       | A                      | B           | C       | D                     | E                     | F                     | G                     | H                     |
|------------|------------------------|-------------|---------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|            | Class                  | Description | Current | CY 2025<br>(Jan 2025) | CY 2026<br>(Jan 2026) | CY 2027<br>(Jan 2027) | CY 2028<br>(Jan 2028) | CY 2029<br>(Jan 2029) |
| <b>SFR</b> |                        |             |         |                       |                       |                       |                       |                       |
| 1          | Tier 1                 | 0-22        | \$2.54  | \$2.81                | \$2.96                | \$3.11                | \$3.27                | \$3.44                |
| 2          | Tier 2                 | >22         | \$4.15  | \$4.66                | \$4.90                | \$5.15                | \$5.41                | \$5.69                |
| 3          | <b>Multi-Family</b>    | Uniform     | \$2.58  | \$3.51                | \$3.69                | \$3.88                | \$4.08                | \$4.29                |
| 4          | <b>Non-Residential</b> | Uniform     | \$2.62  | \$2.90                | \$3.05                | \$3.21                | \$3.38                | \$3.55                |
| 5          | <b>Landscape</b>       | Uniform     | \$3.03  | \$3.94                | \$4.14                | \$4.35                | \$4.57                | \$4.80                |
| 6          | <b>Reclaimed</b>       | Uniform     | \$2.13  | \$3.37                | \$3.54                | \$3.72                | \$3.91                | \$4.11                |

**Table 5-8: Proposed Monthly Water Service Charges (\$/meter size)**

| Line                   | A      | B          | C                     | D                     | E                     | F                     | G                     |
|------------------------|--------|------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|                        | Class  | CY 2025    | CY 2025<br>(Jan 2025) | CY 2026<br>(Jan 2026) | CY 2027<br>(Jan 2027) | CY 2028<br>(Jan 2028) | CY 2029<br>(Jan 2029) |
| <b>Single-Family</b>   |        |            |                       |                       |                       |                       |                       |
| 1                      | 3/4"   | \$80.03    | \$79.25               | \$83.22               | \$87.39               | \$91.76               | \$96.35               |
| 2                      | 1"     | \$131.87   | \$128.36              | \$134.78              | \$141.52              | \$148.60              | \$156.03              |
| 3                      | 1 1/2" | \$261.45   | \$251.15              | \$263.71              | \$276.90              | \$290.75              | \$305.29              |
| 4                      | 2"     | \$416.94   | \$398.49              | \$418.42              | \$439.35              | \$461.32              | \$484.39              |
| 5                      | 3"     | \$831.60   | \$865.07              | \$908.33              | \$953.75              | \$1,001.44            | \$1,051.52            |
| 6                      | 4"     | \$1,298.10 | \$1,552.67            | \$1,630.31            | \$1,711.83            | \$1,797.43            | \$1,887.31            |
| 7                      | 6"     | \$2,593.91 | \$3,197.99            | \$3,357.89            | \$3,525.79            | \$3,702.08            | \$3,887.19            |
| 8                      | 8"     | \$4,148.88 | \$5,899.26            | \$6,194.23            | \$6,503.95            | \$6,829.15            | \$7,170.61            |
| <b>Multi-Family</b>    |        |            |                       |                       |                       |                       |                       |
| 9                      | 3/4"   | \$107.97   | \$86.36               | \$90.68               | \$95.22               | \$99.99               | \$104.99              |
| 10                     | 1"     | \$178.43   | \$140.22              | \$147.24              | \$154.61              | \$162.35              | \$170.47              |
| 11                     | 1 1/2" | \$354.58   | \$274.87              | \$288.62              | \$303.06              | \$318.22              | \$334.14              |
| 12                     | 2"     | \$565.96   | \$436.44              | \$458.27              | \$481.19              | \$505.25              | \$530.52              |
| 13                     | 3"     | \$1,129.64 | \$948.08              | \$995.49              | \$1,045.27            | \$1,097.54            | \$1,152.42            |
| 14                     | 4"     | \$1,763.78 | \$1,702.09            | \$1,787.20            | \$1,876.56            | \$1,970.39            | \$2,068.91            |
| 15                     | 6"     | \$3,525.29 | \$3,506.32            | \$3,681.64            | \$3,865.73            | \$4,059.02            | \$4,261.98            |
| 16                     | 8"     | \$5,639.09 | \$6,468.48            | \$6,791.91            | \$7,131.51            | \$7,488.09            | \$7,862.50            |
| <b>Non-Residential</b> |        |            |                       |                       |                       |                       |                       |
| 17                     | 3/4"   | \$90.82    | \$87.23               | \$91.60               | \$96.18               | \$100.99              | \$106.04              |
| 18                     | 1"     | \$149.84   | \$141.66              | \$148.75              | \$156.19              | \$164.00              | \$172.20              |
| 19                     | 1 1/2" | \$297.40   | \$277.75              | \$291.64              | \$306.23              | \$321.55              | \$337.63              |
| 20                     | 2"     | \$474.47   | \$441.06              | \$463.12              | \$486.28              | \$510.60              | \$536.13              |
| 21                     | 3"     | \$946.65   | \$958.18              | \$1,006.09            | \$1,056.40            | \$1,109.22            | \$1,164.69            |

| Line | A                | B          | C                     | D                     | E                     | F                     | G                     |
|------|------------------|------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|      | Class            | CY 2025    | CY 2025<br>(Jan 2025) | CY 2026<br>(Jan 2026) | CY 2027<br>(Jan 2027) | CY 2028<br>(Jan 2028) | CY 2029<br>(Jan 2029) |
| 22   | 4"               | \$1,477.85 | \$1,720.27            | \$1,806.29            | \$1,896.61            | \$1,991.45            | \$2,091.03            |
| 23   | 6"               | \$2,953.42 | \$3,543.83            | \$3,721.03            | \$3,907.09            | \$4,102.45            | \$4,307.58            |
| 24   | 8"               | \$4,724.10 | \$6,537.73            | \$6,864.62            | \$7,207.86            | \$7,568.26            | \$7,946.68            |
|      | <b>Landscape</b> |            |                       |                       |                       |                       |                       |
| 25   | 3/4"             | \$113.62   | \$96.86               | \$101.71              | \$106.80              | \$112.14              | \$117.75              |
| 26   | 1"               | \$187.85   | \$157.71              | \$165.60              | \$173.88              | \$182.58              | \$191.71              |
| 27   | 1 1/2"           | \$373.42   | \$309.84              | \$325.34              | \$341.61              | \$358.70              | \$376.64              |
| 28   | 2"               | \$596.11   | \$492.40              | \$517.02              | \$542.88              | \$570.03              | \$598.54              |
| 29   | 3"               | \$1,189.93 | \$1,070.50            | \$1,124.03            | \$1,180.24            | \$1,239.26            | \$1,301.23            |
| 30   | 4"               | \$1,857.98 | \$1,922.43            | \$2,018.56            | \$2,119.49            | \$2,225.47            | \$2,336.75            |
| 31   | 6"               | \$3,713.68 | \$3,960.99            | \$4,159.04            | \$4,367.00            | \$4,585.35            | \$4,814.62            |
| 32   | 8"               | \$5,940.52 | \$7,307.89            | \$7,673.29            | \$8,056.96            | \$8,459.81            | \$8,882.81            |
|      | <b>Reclaimed</b> |            |                       |                       |                       |                       |                       |
| 33   | 3/4"             | \$90.82    | \$77.83               | \$81.73               | \$85.82               | \$90.12               | \$94.63               |
| 34   | 1"               | \$149.84   | \$126.00              | \$132.30              | \$138.92              | \$145.87              | \$153.17              |
| 35   | 1 1/2"           | \$297.40   | \$246.43              | \$258.76              | \$271.70              | \$285.29              | \$299.56              |
| 36   | 2"               | \$474.47   | \$390.94              | \$410.49              | \$431.02              | \$452.58              | \$475.21              |
| 37   | 3"               | \$946.65   | \$848.56              | \$890.99              | \$935.54              | \$982.32              | \$1,031.44            |
| 38   | 4"               | \$1,477.85 | \$1,522.94            | \$1,599.09            | \$1,679.05            | \$1,763.01            | \$1,851.17            |
| 39   | 6"               | \$2,953.42 | \$3,136.64            | \$3,293.48            | \$3,458.16            | \$3,631.07            | \$3,812.63            |
| 40   | 8"               | \$4,724.10 | \$5,786.00            | \$6,075.30            | \$6,379.07            | \$6,698.03            | \$7,032.94            |
|      | <b>Fire</b>      |            |                       |                       |                       |                       |                       |
| 41   | 3/4"             | \$0.87     | \$5.97                | \$6.27                | \$6.59                | \$6.92                | \$7.27                |
| 42   | 1"               | \$1.90     | \$6.42                | \$6.75                | \$7.09                | \$7.45                | \$7.83                |
| 43   | 1 1/2"           | N/A        | N/A                   | N/A                   | N/A                   | N/A                   | N/A                   |
| 44   | 2"               | \$11.79    | \$10.76               | \$11.30               | \$11.87               | \$12.47               | \$13.10               |
| 45   | 3"               | \$34.22    | \$20.63               | \$21.67               | \$22.76               | \$23.90               | \$25.10               |
| 46   | 4"               | \$72.92    | \$37.66               | \$39.55               | \$41.53               | \$43.61               | \$45.80               |
| 47   | 6"               | \$211.81   | \$98.76               | \$103.70              | \$108.89              | \$114.34              | \$120.06              |
| 48   | 8"               | \$451.38   | \$204.16              | \$214.37              | \$225.09              | \$236.35              | \$248.17              |
| 49   | 10"              | \$811.75   | \$362.69              | \$380.83              | \$399.88              | \$419.88              | \$440.88              |
| 50   | 12"              | \$1,311.19 | \$576.84              | \$605.69              | \$635.98              | \$667.78              | \$701.17              |

## 5.5. Customer Bill Impacts

Table 5-9 outlines the proposed bi-monthly bill impacts for SFR customers with a 3/4" meter using various amounts of water as shown. The table compares a bill under the current rate structure to one under the proposed FY 2025 rates. The impact for an average customer using 26 hcf on a bi-monthly basis will increase by \$6.99.

**Table 5-9: Proposed Single Family Customer Bi-Monthly Bill Impacts (3/4" meter, varying ccf)**



DRAFT

# 6. Sewer Financial Plan

This report section details the sewer utility’s long-term financial plan, based on the projected revenues, expenses, debt service, and capital project costs. Raftelis modeled the financial plan without revenue adjustments (status quo) and with proposed revenue adjustments to ensure the financial sustainability and solvency of the sewer utility.

## 6.1. Projection of Customer Data

City staff provided the actual units (accounts) for each customer class and billed usage for all customers for FY 2022. Raftelis forecasted these for the study period using a growth factor of 0.5% for each customer class as shown in **Table 6-1**. For billed usage, Raftelis forecasted a 0.5% usage reduction, in line with conservation. **Table 6-2** shows a summary of the results of the customer unit and billed usage forecast.

**Table 6-1: Account Growth And Usage Demand Factors**

|      | A                          | B       | C       | D       | E       | F       | G       |
|------|----------------------------|---------|---------|---------|---------|---------|---------|
| Line | Account Growth             | FY 2024 | FY 2025 | FY 2026 | FY 2027 | FY 2028 | FY 2029 |
| 1    | Residential                | 0.5%    | 0.5%    | 0.5%    | 0.5%    | 0.5%    | 0.5%    |
| 2    | Multi-Residential          | 0.5%    | 0.5%    | 0.5%    | 0.5%    | 0.5%    | 0.5%    |
| 3    | Commercial                 | 0.5%    | 0.5%    | 0.5%    | 0.5%    | 0.5%    | 0.5%    |
| 4    | Private Development        | 0.5%    | 0.5%    | 0.5%    | 0.5%    | 0.5%    | 0.5%    |
| 5    | Qualified Low Income       | 0.5%    | 0.5%    | 0.5%    | 0.5%    | 0.5%    | 0.5%    |
| 6    | Billed Usage (all classes) | 0.0%    | -0.5%   | -0.5%   | -0.5%   | -0.5%   | -0.5%   |

**Table 6-2: Projected Sewer Units and Usage (hcf)**

|                           | A                         | B                | C                | D                | E                | F                | G                |
|---------------------------|---------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Line                      | Customer Class            | FY 2024          | FY 2025          | FY 2026          | FY 2027          | FY 2028          | FY 2029          |
| <b>Units</b>              |                           |                  |                  |                  |                  |                  |                  |
| 1                         | Residential               | 19,063           | 19,158           | 19,254           | 19,350           | 19,447           | 19,544           |
| 2                         | Multi-Residential         | 1,892            | 1,902            | 1,911            | 1,921            | 1,931            | 1,940            |
| 3                         | Commercial                | 1,733            | 1,741            | 1,750            | 1,759            | 1,768            | 1,776            |
| 4                         | Private Development       | 0                | 0                | 0                | 0                | 0                | 0                |
| 5                         | Qualified Low Income      | 5                | 5                | 5                | 5                | 5                | 5                |
| 6                         | <b>Total Units</b>        | <b>22,693</b>    | <b>22,806</b>    | <b>22,920</b>    | <b>23,035</b>    | <b>23,150</b>    | <b>23,266</b>    |
| <b>Billed Usage (hcf)</b> |                           |                  |                  |                  |                  |                  |                  |
| 7                         | Residential               | 2,921,613        | 2,907,005        | 2,892,470        | 2,878,008        | 2,863,618        | 2,849,299        |
| 8                         | Multi-Family              | 416,390          | 414,308          | 412,237          | 410,175          | 408,124          | 406,084          |
| 9                         | Commercial                | 1,441,213        | 1,434,007        | 1,426,837        | 1,419,703        | 1,412,604        | 1,405,541        |
| 10                        | Private Development       | 0                | 0                | 0                | 0                | 0                | 0                |
| 11                        | Qualified Low Income      | 351              | 349              | 347              | 346              | 344              | 342              |
| 12                        | <b>Total Billed Usage</b> | <b>4,779,567</b> | <b>4,755,669</b> | <b>4,731,891</b> | <b>4,708,231</b> | <b>4,684,690</b> | <b>4,661,267</b> |

## 6.2. Projected Revenues

The current sewer rates are listed below in **Table 6-3**.

**Table 6-3: Current Sewer Rates (FY 2025)**

|      | A                                 | B       |
|------|-----------------------------------|---------|
| Line | Description                       | FY 2025 |
| 1    | <b>Annual Fixed Charge</b>        | \$8.45  |
|      | <b>Volumetric Charge (\$/hcf)</b> |         |
| 2    | Residential                       | \$1.17  |
| 3    | Multi-Residential                 | \$1.17  |
| 4    | Commercial                        | \$1.17  |
| 5    | Private Development               | \$0.83  |
| 6    | Qualified Low Income              | \$0.65  |

Using the current rates in **Table 6-3** and the projected units and usage in **Table 6-2** Raftelis prepared a forecast of revenue by customer class shown in **Table 6-4**.

**Table 6-4: Projected Sewer Rate Revenue**

| Line | A<br>Customer Class                 | B<br>FY 2024       | C<br>FY 2025       | D<br>FY 2026       | E<br>FY 2027       | F<br>FY 2028       | G<br>FY 2029       |
|------|-------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|      | <b>Fixed Charge Revenue</b>         |                    |                    |                    |                    |                    |                    |
| 1    | Residential                         | \$161,081          | \$161,886          | \$162,696          | \$163,509          | \$164,327          | \$165,148          |
| 2    | Multi-Residential                   | \$15,991           | \$16,071           | \$16,151           | \$16,232           | \$16,313           | \$16,395           |
| 3    | Commercial                          | \$14,641           | \$14,714           | \$14,787           | \$14,861           | \$14,936           | \$15,010           |
| 4    | Private Development                 | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
| 5    | Qualified Low Income                | \$42               | \$43               | \$43               | \$43               | \$43               | \$44               |
| 6    | <b>Total - Fixed Charge Revenue</b> | <b>\$191,755</b>   | <b>\$192,714</b>   | <b>\$193,677</b>   | <b>\$194,646</b>   | <b>\$195,619</b>   | <b>\$196,597</b>   |
|      | <b>Consumption Charge Revenue</b>   |                    |                    |                    |                    |                    |                    |
| 7    | Residential                         | \$3,418,287        | \$3,401,196        | \$3,384,190        | \$3,367,269        | \$3,350,433        | \$3,333,680        |
| 8    | Multi-Residential                   | \$487,176          | \$484,740          | \$482,317          | \$479,905          | \$477,506          | \$475,118          |
| 9    | Commercial                          | \$1,686,219        | \$1,677,788        | \$1,669,399        | \$1,661,052        | \$1,652,747        | \$1,644,483        |
| 10   | Private Development                 | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
| 11   | Qualified Low Income                | \$228              | \$227              | \$226              | \$225              | \$224              | \$223              |
| 12   | <b>Total - Consumption Revenue</b>  | <b>\$5,591,911</b> | <b>\$5,563,951</b> | <b>\$5,536,132</b> | <b>\$5,508,451</b> | <b>\$5,480,909</b> | <b>\$5,453,504</b> |
| 13   | <b>Total - Rate Revenue</b>         | <b>\$5,783,666</b> | <b>\$5,756,665</b> | <b>\$5,729,809</b> | <b>\$5,703,097</b> | <b>\$5,676,528</b> | <b>\$5,650,101</b> |

City staff provided the actual FY 2022 and FY 2023 revenues and budgeted FY 2024 revenues for the sewer utility, which were used to project revenues for the remainder of the study period. **Table 6-5** shows the projected sewer revenues based on the demand in **Table 6-2** and the current rates in **Table 1-3**.

If the City continues existing rates, the City expects modest increases in sewer rate revenues for all years of the study based on account growth. The investment income (Line 3) is calculated using the reserve interest rate (**Table 2-2**, Line 2). Miscellaneous revenues include interdepartmental transfers and NPDES Fog Inspection fees.

**Table 6-5: Projected Sewer Revenues Summary**

| Line | A<br>Revenue          | B<br>FY 2024       | C<br>FY 2025       | D<br>FY 2026       | E<br>FY 2027       | F<br>FY 2028       | G<br>FY 2029       |
|------|-----------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 1    | <b>Rate Revenue</b>   | \$5,783,666        | \$5,756,665        | \$5,729,809        | \$5,703,097        | \$5,676,528        | \$5,650,101        |
|      | <b>Other Revenue</b>  |                    |                    |                    |                    |                    |                    |
| 2    | Interest Income       | \$58,201           | \$28,440           | \$27,602           | \$17,824           | \$17,226           | \$16,606           |
| 3    | Miscellaneous Revenue | \$24,487           | \$24,977           | \$25,476           | \$25,986           | \$26,506           | \$27,036           |
| 4    | <b>Total</b>          | <b>\$5,866,354</b> | <b>\$5,810,082</b> | <b>\$5,782,888</b> | <b>\$5,746,906</b> | <b>\$5,720,259</b> | <b>\$5,693,743</b> |

### 6.3. Projected O&M Expenses

City staff provided the actual FY 2023 O&M expenses and budgeted FY 2024 O&M expenses for the sewer utility. **Table 6-6** shows the projected O&M expenses for the study period, inflated for FY 2024 and beyond using the expense inflation factors (**Table 2-3**).

**Table 6-6: Projected Sewer O&M Expenses**

| Line | A                               | B                  | C                  | D                  | E                  | F                  | G                  |
|------|---------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|      | Revenue                         | FY 2024            | FY 2025            | FY 2026            | FY 2027            | FY 2028            | FY 2029            |
| 1    | Salaries and Wages              | \$766,239          | \$866,702          | \$914,370          | \$964,661          | \$1,017,717        | \$1,073,691        |
| 2    | Paid Leave                      | \$4,809            | \$4,905            | \$5,175            | \$5,459            | \$5,760            | \$6,076            |
| 3    | Labor Charges                   | \$31,715           | \$148,225          | \$156,377          | \$164,978          | \$174,052          | \$183,625          |
| 4    | Employee Benefits               | \$364,640          | \$517,271          | \$532,789          | \$548,772          | \$565,236          | \$582,193          |
| 5    | Dues, Memberships, Publications | \$22,145           | \$22,180           | \$22,845           | \$23,531           | \$24,237           | \$24,964           |
| 6    | Rentals                         | \$3,273            | \$3,345            | \$3,546            | \$3,758            | \$3,984            | \$4,223            |
| 7    | Taxes & Assessments             | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
| 8    | Bad Debt Cost                   | \$109              | \$111              | \$114              | \$118              | \$121              | \$125              |
| 9    | Insurance                       | \$630,883          | \$541,022          | \$557,253          | \$573,970          | \$591,189          | \$608,925          |
| 10   | Professional and Contractual    | \$327,666          | \$266,541          | \$274,537          | \$282,773          | \$291,257          | \$299,994          |
| 11   | Utilities and Related Programs  | \$2,292            | \$2,343            | \$2,484            | \$2,633            | \$2,791            | \$2,958            |
| 12   | Travel and Allowances           | \$5,313            | \$2,898            | \$2,985            | \$3,074            | \$3,167            | \$3,262            |
| 13   | Miscellaneous Services          | \$3,686            | \$3,767            | \$3,880            | \$3,996            | \$4,116            | \$4,240            |
| 14   | Repairs and Maintenance         | \$254,233          | \$259,826          | \$275,416          | \$291,940          | \$309,457          | \$328,024          |
| 15   | Operating Materials             | \$6,000            | \$6,132            | \$6,500            | \$6,890            | \$7,303            | \$7,742            |
| 16   | Supplies                        | \$31,970           | \$32,674           | \$34,634           | \$36,713           | \$38,915           | \$41,250           |
| 17   | City Charges                    | \$130,708          | \$137,112          | \$141,225          | \$145,462          | \$149,826          | \$154,321          |
| 18   | Mobile Equipment Rentals        | \$122,730          | \$128,792          | \$136,520          | \$144,711          | \$153,393          | \$162,597          |
| 19   | Operating Transfer Out          | \$174,309          | \$40,594           | \$41,812           | \$43,066           | \$44,358           | \$45,689           |
| 20   | <b>Total - O&amp;M Expenses</b> | <b>\$2,882,720</b> | <b>\$2,984,439</b> | <b>\$3,112,462</b> | <b>\$3,246,507</b> | <b>\$3,386,879</b> | <b>\$3,533,898</b> |

### 6.4. Debt Service

The City currently has no existing debt for the sewer utility, and the financial plan does not propose any new issuances in the study period.

### 6.5. Capital Projects

City staff provided the CIP for the sewer utility for the study period.

**Table 6-7** presents the forecasted CIP for the five-year period in current year dollars (Line 5) and inflated (Line 7) using the inflation factors (Line 6). The City plans to fully cash-fund its sewer CIP for all years of the study period.

**Table 6-7: Projected Sewer Capital Projects**

| Line | A                                      | B                  | C                  | D                  | E                  | F                  | G                  |
|------|--|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|      | Capital Projects                       | FY 2024            | FY 2025            | FY 2026            | FY 2027            | FY 2028            | FY 2029            |
| 1    | Sewer cleaning for hard-to-reach areas | \$208,547          | \$55,747           | \$56,974           | \$58,227           | \$59,508           | \$60,608           |
| 2    | Sewer Replacement                      | \$0                | \$3,501,410        | \$3,607,648        | \$3,717,083        | \$3,829,812        | \$3,946,142        |
| 3    | Repair asphalt after sewer projects    | \$0                | \$25,000           | \$25,000           | \$25,000           | \$25,000           | \$25,000           |
| 4    | Palm Project                           | \$3,000,000        | \$0                | \$0                | \$0                | \$0                | \$0                |
| 5    | <b>Total Funded CIP</b>                | <b>\$3,208,547</b> | <b>\$3,582,157</b> | <b>\$3,689,622</b> | <b>\$3,800,310</b> | <b>\$3,914,320</b> | <b>\$4,031,750</b> |
| 6    | Cumulative Capital Inflation Factor    | 100.0%             | 103.0%             | 106.1%             | 109.3%             | 112.6%             | 115.9%             |
| 7    | <b>Total Inflated CIP</b>              | <b>\$3,208,547</b> | <b>\$3,689,622</b> | <b>\$3,914,320</b> | <b>\$4,152,701</b> | <b>\$4,405,602</b> | <b>\$4,673,903</b> |

## 6.6. Current Financial Plan – Status Quo

Table 6-8 shows the projected sewer financial plan without revenue adjustments (also referred to as status quo). Rate revenues and other revenues are derived from projected revenues (Table 6-5). O&M expenses are derived from projected O&M expenses (Table 6-6).

The status quo scenario assumes all capital projects to be rate-funded. Raftelis modeled two separate cash flows, an operating fund cash flow and a capital fund cash flow. The distinction between funds allows us to observe how utility rates recover operational costs and what remains to fund capital investments compared to the required level of investment. The need for rate increases arises from the gap between the capital investment currently funded by rate revenues and the capital investment required by the utility. The operating fund maintains a balance equal to the operating reserve target, with any excess rate revenues transferred to the capital fund's cash flow. The capital fund uses existing reserves and transfers from the operating fund to fund cash-funded capital projects.

On the operating cash flow (Table 6-8) the net cash flow (Line 6) is calculated by subtracting O&M expenses (Line 5) from the total revenues (Line 4). The transfer to the capital fund (line 10) is determined by the differential in available funds resulting from the net cash flow and the required operating reserve which is 60 days of operating expenses. On the capital cash flow (Table 6-8) you can observe the total sources of funds on line 3 in comparison to the total uses of funds on cash-funded capital on line 5. The net cash flow, line 6, is negative and the ending balance, line 7, is depleted at the end of the study period- necessitating for additional funds from the operating fund, thereby a rate increase,

**Table 6-8: Projected Sewer Operating Financial Plan (Status Quo)**

| Line | A<br>Financial Plan        | B<br>FY 2024       | C<br>FY 2025       | D<br>FY 2026       | E<br>FY 2027       | F<br>FY 2028       | G<br>FY 2029       |
|------|----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|      | <b>Revenues</b>            |                    |                    |                    |                    |                    |                    |
| 1    | Rate Revenues              | \$5,783,666        | \$5,756,665        | \$5,729,809        | \$5,703,097        | \$5,676,528        | \$5,650,101        |
| 2    | Revenue Adjustments        | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
| 3    | Other Revenues             | \$82,688           | \$53,417           | \$53,079           | \$43,810           | \$43,731           | \$43,642           |
| 4    | <b>Total Revenues</b>      | <b>\$5,866,354</b> | <b>\$5,810,082</b> | <b>\$5,782,888</b> | <b>\$5,746,906</b> | <b>\$5,720,259</b> | <b>\$5,693,743</b> |
| 5    | <b>O&amp;M Expenses</b>    | <b>\$2,882,720</b> | <b>\$2,984,439</b> | <b>\$3,112,462</b> | <b>\$3,246,507</b> | <b>\$3,386,879</b> | <b>\$3,533,898</b> |
| 6    | <b>Net Cash Flow</b>       | <b>\$2,983,634</b> | <b>\$2,825,643</b> | <b>\$2,670,426</b> | <b>\$2,500,400</b> | <b>\$2,333,380</b> | <b>\$2,159,844</b> |
| 7    | <b>Beginning Balance</b>   | <b>\$480,453</b>   | <b>\$497,407</b>   | <b>\$518,744</b>   | <b>\$541,084</b>   | <b>\$564,480</b>   | <b>\$588,983</b>   |
| 8    | Ending Balance             | \$3,464,087        | \$3,323,049        | \$3,189,169        | \$3,041,484        | \$2,897,860        | \$2,748,827        |
| 9    | Reserve Target             | \$480,453          | \$497,407          | \$518,744          | \$541,084          | \$564,480          | \$588,983          |
| 10   | <b>Transfer to Capital</b> | <b>\$2,966,681</b> | <b>\$2,804,306</b> | <b>\$2,648,085</b> | <b>\$2,477,004</b> | <b>\$2,308,877</b> | <b>\$2,134,177</b> |

**Table 6-9: Projected Sewer Capital Financial Plan (Status Quo)**

| Line                    | A<br>Financial Plan         | B<br>FY 2024 | C<br>FY 2025 | D<br>FY 2026 | E<br>FY 2027 | F<br>FY 2028 | G<br>FY 2029 |
|-------------------------|-----------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Sources of Funds</b> |                             |              |              |              |              |              |              |
| 1                       | Interest Earnings           | \$95,931     | \$88,916     | \$74,114     | \$35,440     | \$16,933     | \$0          |
| 2                       | Transfer from Operating     | \$2,966,681  | \$2,804,306  | \$2,648,085  | \$2,477,004  | \$2,308,877  | \$2,134,177  |
| 3                       | <b>Total Sources</b>        | \$3,062,612  | \$2,893,222  | \$2,722,198  | \$2,512,445  | \$2,325,810  | \$2,134,177  |
| <b>Uses of Funds</b>    |                             |              |              |              |              |              |              |
| 4                       | Cash Funded Capital         | \$3,208,547  | \$3,689,622  | \$3,914,320  | \$4,152,701  | \$4,405,602  | \$4,673,903  |
| 5                       | <b>Total Uses</b>           | \$3,208,547  | \$3,689,622  | \$3,914,320  | \$4,152,701  | \$4,405,602  | \$4,673,903  |
| 6                       | <b>Net Cash Flow</b>        | (\$145,935)  | (\$796,400)  | (\$1,192,12) | (\$1,640,25) | (\$2,079,79) | (\$2,539,72) |
| 7                       | Ending Unrestricted Balance | \$6,370,418  | \$5,574,018  | \$4,381,897  | \$2,741,640  | \$661,848    | (\$1,877,87) |

## 6.7. Proposed Financial Plan

The projected financial plans under the status quo scenario in Table 6-8 and Table 6-9 show the projected financial plan without revenue adjustments. Table 6-9 shows that the City’s sewer utility would slowly draw down reserves. Table 6-10 shows the proposed revenue adjustments for the study period, effective in July of each year. The City proposes to implement small increases over time and slowly draw down reserves as opposed to avoiding increases necessitating a larger increase in the future.

**Table 6-10: Proposed Sewer Revenue Adjustments**

| Line | A<br>Fiscal Year | B<br>Revenue Adjustment | C<br>Month Effective |
|------|------------------|-------------------------|----------------------|
| 1    | 2025             | 5%                      | January              |
| 2    | 2026             | 3%                      | January              |
| 3    | 2027             | 3%                      | January              |
| 4    | 2028             | 3%                      | January              |
| 5    | 2029             | 3%                      | January              |

**Table 6-11** and **Table 6-12** shows the projected sewer financial plan with the proposed revenue adjustments from **Table 6-10**. The proposed financial plan shows cash reserves are needed to fund capital projects, and the rate increases prevent the reserves from being depleted. The wastewater utility is projected to have a higher ending cash position at the end of the study period compared to the status quo.

**Table 6-11: Projected Sewer Operating Financial Plan (Proposed Revenue Adjustments)**

| Line | A<br>Financial Plan        | B<br>FY 2024       | C<br>FY 2025       | D<br>FY 2026       | E<br>FY 2027       | F<br>FY 2028       | G<br>FY 2029       |
|------|----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|      | <b>Revenues</b>            |                    |                    |                    |                    |                    |                    |
| 1    | Rate Revenues              | \$5,783,666        | \$5,756,665        | \$5,729,809        | \$5,703,097        | \$5,676,528        | \$5,650,101        |
| 2    | Revenue                    |                    |                    |                    |                    |                    |                    |
| 3    | Adjustments                | \$0                | \$143,917          | \$376,735          | \$557,321          | \$741,662          | \$929,859          |
| 4    | Other Revenues             | \$82,688           | \$54,496           | \$55,904           | \$46,596           | \$47,439           | \$48,291           |
| 4    | <b>Total Revenues</b>      | <b>\$5,866,354</b> | <b>\$5,955,078</b> | <b>\$6,162,448</b> | <b>\$6,307,014</b> | <b>\$6,465,629</b> | <b>\$6,628,251</b> |
| 5    | <b>O&amp;M Expenses</b>    | <b>\$2,882,720</b> | <b>\$2,984,439</b> | <b>\$3,112,462</b> | <b>\$3,246,507</b> | <b>\$3,386,879</b> | <b>\$3,533,898</b> |
| 6    | <b>Net Cash Flow</b>       | <b>\$2,983,634</b> | <b>\$2,970,639</b> | <b>\$3,049,986</b> | <b>\$3,060,507</b> | <b>\$3,078,750</b> | <b>\$3,094,352</b> |
| 7    | <b>Beginning Balance</b>   | <b>\$480,453</b>   | <b>\$497,407</b>   | <b>\$518,744</b>   | <b>\$541,084</b>   | <b>\$564,480</b>   | <b>\$588,983</b>   |
| 8    | Ending Balance             | \$3,464,087        | \$3,468,045        | \$3,568,730        | \$3,601,591        | \$3,643,230        | \$3,683,335        |
| 9    | Reserve Target             | \$480,453          | \$497,407          | \$518,744          | \$541,084          | \$564,480          | \$588,983          |
| 10   | <b>Transfer to Capital</b> | <b>\$2,966,681</b> | <b>\$2,949,302</b> | <b>\$3,027,645</b> | <b>\$3,037,112</b> | <b>\$3,054,247</b> | <b>\$3,068,685</b> |

**Table 6-12: Projected Sewer Capital Financial Plan (Proposed Revenue Adjustments)**

| Line | A<br>Financial Plan         | B<br>FY 2024       | C<br>FY 2025       | D<br>FY 2026       | E<br>FY 2027        | F<br>FY 2028        | G<br>FY 2029        |
|------|-----------------------------|--------------------|--------------------|--------------------|---------------------|---------------------|---------------------|
|      | <b>Sources of Funds</b>     |                    |                    |                    |                     |                     |                     |
| 1    | Interest Earnings           | \$95,931           | \$90,004           | \$79,151           | \$43,548            | \$31,649            | \$17,182            |
| 2    | Transfer from Operating     | \$2,966,681        | \$2,949,302        | \$3,027,645        | \$3,037,112         | \$3,054,247         | \$3,068,685         |
| 3    | <b>Total Sources</b>        | <b>\$3,062,612</b> | <b>\$3,039,305</b> | <b>\$3,106,797</b> | <b>\$3,080,660</b>  | <b>\$3,085,896</b>  | <b>\$3,085,867</b>  |
|      | <b>Uses of Funds</b>        |                    |                    |                    |                     |                     |                     |
| 4    | Cash Funded Capital         | \$3,208,547        | \$3,689,622        | \$3,914,320        | \$4,152,701         | \$4,405,602         | \$4,673,903         |
| 5    | <b>Total Uses</b>           | <b>\$3,208,547</b> | <b>\$3,689,622</b> | <b>\$3,914,320</b> | <b>\$4,152,701</b>  | <b>\$4,405,602</b>  | <b>\$4,673,903</b>  |
| 6    | <b>Net Cash Flow</b>        | <b>(\$145,935)</b> | <b>(\$650,316)</b> | <b>(\$807,523)</b> | <b>(\$1,072,04)</b> | <b>(\$1,319,70)</b> | <b>(\$1,588,03)</b> |
| 7    | Ending Unrestricted Balance | \$6,370,418        | \$5,720,102        | \$4,912,578        | \$3,840,537         | \$2,520,831         | \$932,794           |

# 7. Sewer Cost of Service and Rates

This report section details the cost-of-service analysis and rate calculation process to determine the proposed sewer rates. The goal of this process is to determine the cost of providing sewer service to each of the City's sewer customer classes and to ensure equity and fairness among the various classes.

## 7.1. Process and Approach

The cost-of-service analysis utilized to develop the sewer rates followed the guidelines for allocating costs outlined in the WEF Manual No. 27. The cost-of-service analysis and rate design process consists of six major steps, as outlined below:

1. Determine the revenue requirement, equal to the revenue to be recovered from rates.
2. Functionalize O&M expenses and capital assets into functional categories such as flow, customer, general, and treatment.
3. Develop customer class characteristics and units of service by cost causation component.
4. Calculate the cost causation component unit rates by dividing the total cost in each cost causation component by the total units of service for that component.
5. Calculate the cost for each customer class by multiplying the unit cost by the units of service for each customer class.
6. Design rates to meet the City's objectives.

## 7.2. Revenue Requirement Determination

**Table 7-1** shows the revenue requirement derivation for FY 2025. The revenue requirement is comprised of the Operating (Column B, Line 9) and Capital (Column C, Line 3) revenue requirements. The adjustment for cash balance (Line 8) is equal to the net cash flow for FY 2024.

**Table 7-1: Sewer Revenue Requirement**

| Line | A   | B                  | C                  | D                  |
|------|---|--------------------|--------------------|--------------------|
|      | Sewer FY 2024 Revenue Requirements        | Operating          | Capital            | Total              |
|      | <b>Revenue Requirements</b>               |                    |                    |                    |
| 1    | O&M Expenses                              | \$2,984,439        |                    | \$2,984,439        |
| 2    | Rate Funded Capital Projects              |                    | \$2,949,302        | \$2,949,302        |
| 3    | <b>Subtotal</b>                           | <b>\$2,984,439</b> | <b>\$2,949,302</b> | <b>\$5,933,741</b> |
|      | <b>Other Revenue</b>                      |                    |                    |                    |
| 4    | Other Revenue                             | \$24,977           |                    | \$24,977           |
| 5    | Interest Income                           | \$29,519           |                    | \$29,519           |
| 6    | <b>Subtotal</b>                           | <b>\$54,496</b>    | <b>\$0</b>         | <b>\$54,496</b>    |
|      | <b>Adjustments</b>                        |                    |                    |                    |
| 7    | Adjustment to Annualize Rate Increase     | (\$143,917)        |                    | (\$143,917)        |
| 8    | Adjustments for Annual Cash Balance       |                    | (\$21,337)         | (\$21,337)         |
| 9    | <b>Subtotal</b>                           | <b>(\$143,917)</b> | <b>(\$21,337)</b>  | <b>(\$165,254)</b> |
| 10   | <b>Revenue to be Recovered from Rates</b> | <b>\$3,073,860</b> | <b>\$2,970,639</b> | <b>\$6,044,498</b> |

### 7.3. Allocation of Expenses to Cost Components

Sewer Expenses are allocated similarly to the water cost of service described above. O&M is allocated in **Table 7-2** and **Table 7-3**.

**Table 7-2: Sewer O&M Allocation Factors to Cost Components**

| Line | A                               | B    | C        | D       | F     |
|------|---------------------------------|------|----------|---------|-------|
|      | O&M Allocation                  | Flow | Customer | General | Total |
| 1    | Salaries and Wages              | 80%  | 10%      | 10%     | 100%  |
| 2    | Paid Leave                      | 80%  | 10%      | 10%     | 100%  |
| 3    | Labor Charges                   | 80%  | 10%      | 10%     | 100%  |
| 4    | Employee Benefits               | 80%  | 10%      | 10%     | 100%  |
| 5    | Dues, Memberships, Publications |      |          |         | 100%  |
| 6    | Rentals                         |      |          |         | 100%  |
| 7    | Taxes & Assessments             |      |          |         | 100%  |
| 8    | Bad Debt Cost                   |      |          | 100%    | 100%  |
| 9    | Insurance                       |      |          | 100%    | 100%  |
| 10   | Professional and Contractual    | 100% |          |         | 100%  |
| 11   | Utilities and Related Programs  | 100% |          |         | 100%  |
| 12   | Travel and Allowances           | 80%  |          |         | 100%  |
| 13   | Miscellaneous Services          | 80%  | 20%      |         | 100%  |
| 14   | Repairs and Maintenance         | 100% |          |         | 100%  |
| 15   | Operating Materials             | 100% |          |         | 100%  |
| 16   | Supplies                        | 100% |          |         | 100%  |
| 17   | City Charges                    | 60%  | 20%      |         | 100%  |
| 18   | Mobile Equipment Rentals        | 60%  | 20%      |         | 100%  |
| 19   | Operating Transfer Out          | 60%  | 20%      |         | 100%  |

**Table 7-3: Sewer O&M Allocation to Cost Components**

| Line | A<br>Allocation                    | B<br>Flow          | C<br>Customer    | D<br>General     | F<br>Total         |
|------|------------------------------------|--------------------|------------------|------------------|--------------------|
| 1    | Salaries and Wages                 | \$693,361          | \$86,670         | \$86,670         | \$866,702          |
| 2    | Paid Leave                         | \$3,924            | \$491            | \$491            | \$4,905            |
| 3    | Labor Charges                      | \$118,580          | \$14,823         | \$14,823         | \$148,225          |
| 4    | Employee Benefits                  | \$413,817          | \$51,727         | \$51,727         | \$517,271          |
| 5    | Dues, Memberships,<br>Publications | \$0                | \$0              | \$22,180         | \$22,180           |
| 6    | Rentals                            | \$0                | \$0              | \$3,345          | \$3,345            |
| 7    | Taxes & Assessments                | \$0                | \$0              | \$0              | \$0                |
| 8    | Bad Debt Cost                      | \$0                | \$0              | \$111            | \$111              |
| 9    | Insurance                          | \$0                | \$0              | \$541,022        | \$541,022          |
| 10   | Professional and<br>Contractual    | \$266,541          | \$0              | \$0              | \$266,541          |
| 11   | Utilities and Related<br>Programs  | \$2,343            | \$0              | \$0              | \$2,343            |
| 12   | Travel and Allowances              | \$2,318            | \$0              | \$580            | \$2,898            |
| 13   | Miscellaneous Services             | \$3,014            | \$753            | \$0              | \$3,767            |
| 14   | Repairs and Maintenance            | \$259,826          | \$0              | \$0              | \$259,826          |
| 15   | Operating Materials                | \$6,132            | \$0              | \$0              | \$6,132            |
| 16   | Supplies                           | \$32,674           | \$0              | \$0              | \$32,674           |
| 17   | City Charges                       | \$82,267           | \$27,422         | \$27,422         | \$137,112          |
| 18   | Mobile Equipment Rentals           | \$77,275           | \$25,758         | \$25,758         | \$128,792          |
| 19   | Operating Transfer Out             | \$24,356           | \$8,119          | \$8,119          | \$40,594           |
| 20   | <b>Total O&amp;M Expenses</b>      | <b>\$1,986,429</b> | <b>\$215,763</b> | <b>\$782,247</b> | <b>\$2,984,439</b> |
| 21   | <i>O&amp;M Allocation</i>          | <i>67%</i>         | <i>7%</i>        | <i>26%</i>       | <i>100%</i>        |

## 7.4. Units of Service

Once all expenses have been allocated to the appropriate cost components, the next step is to determine the units of service over which the costs will be recovered. The units used in this study are hcf of sewer flow and annual bills. These are presented in **Table 7-4**.

**Table 7-4: Sewer Units of Service**

| Line | A<br>Customer Class | B<br>Units    | C<br># of<br>Accounts | D<br>Water Usage (HCF) | E<br>Return Factor | F<br>Estimated Flow | G<br>% of<br>Flow |
|------|---------------------|---------------|-----------------------|------------------------|--------------------|---------------------|-------------------|
| 1    | Residential         | 19,158        | 19,158                | 2,907,005              | 100%               | 2,907,005           | 61.13%            |
| 2    | Multi-Residential   | 1,902         | 1,902                 | 414,308                | 100%               | 414,308             | 8.71%             |
| 3    | Commercial          | 1,741         | 1,741                 | 1,434,007              | 100%               | 1,434,007           | 30.15%            |
| 4    | Private Development | 0             | 0                     | 0                      | 100%               | 0                   | 0.00%             |
| 5    | Low Income          | 5             | 5                     | 349                    | 100%               | 349                 | 0.01%             |
| 6    | <b>Total</b>        | <b>22,806</b> | <b>22,806</b>         | <b>4,755,669</b>       |                    | <b>4,755,669</b>    | <b>100%</b>       |

### 7.4.1. SEWER COST OF SERVICE

As shown in **Table 7-5**, the cost-of-service calculation allocates the operating revenue requirement (Column E, Line 1) based on the operating allocation percentages (**Table 7-3**, Line 21) and the capital revenue requirement (Column E, Line 2) to flow since these costs are all for the City’s collection system. The City total (Column E) is the total revenue required in **Table 7-1**. The unit costs (Line 7) are the result of dividing the total adjusted costs (Line 5) by the units of service (Line 6), which were developed in **Table 7-4**.

**Table 7-5: Sewer Cost of Service**

| Line | A<br>Cost of Service        | B<br>Flow          | C<br>Customer    | D<br>General     | E<br>Total         |
|------|-----------------------------|--------------------|------------------|------------------|--------------------|
| 1    | Operating Expenses          | \$2,045,947        | \$222,228        | \$805,685        | \$3,073,860        |
| 2    | Capital Expenses            | \$2,970,639        | \$0              | \$0              | \$2,970,639        |
| 3    | <b>Subtotal</b>             | <b>\$5,016,585</b> | <b>\$222,228</b> | <b>\$805,685</b> | <b>\$6,044,498</b> |
| 4    | Allocation of General Costs | \$771,509          | \$34,177         | (\$805,685)      |                    |
| 5    | <b>Total Adjusted COS</b>   | <b>\$5,788,094</b> | <b>\$256,405</b> | <b>\$0</b>       | <b>\$6,044,498</b> |
| 6    | Units of Service            | 4,755,669          | 22,806           |                  |                    |
| 7    | <i>Units</i>                | <i>hcf</i>         | <i>bills</i>     |                  |                    |
| 8    | <b>Unit Cost</b>            | <b>\$1.22</b>      | <b>\$11.24</b>   |                  |                    |

### 7.4.2. SEWER CLASS COST OF SERVICE

The next step is to allocate these costs to each customer class. The unit costs in **Table 7-5** are applied to the class units of service in **Table 7-4**. **Table 7-6** presents the derivation of the cost to collect sewer from each class.

**Table 7-6: Sewer Class Cost of Service**

| Line | A<br>Customer Class | B<br>Flow          | C<br>Customer    | D<br>Total         |
|------|---------------------|--------------------|------------------|--------------------|
| 1    | Residential         | \$3,538,097        | \$215,389        | <b>\$3,753,486</b> |
| 2    | Multi-Residential   | \$504,252          | \$21,382         | <b>\$525,634</b>   |
| 3    | Commercial          | \$1,745,320        | \$19,577         | <b>\$1,764,897</b> |
| 4    | Private Development | \$0                | \$0              | <b>\$0</b>         |
| 5    | Low Income          | \$425              | \$57             | <b>\$482</b>       |
| 6    | <b>Total</b>        | <b>\$5,788,094</b> | <b>\$256,405</b> | <b>\$6,044,498</b> |

### 7.4.3. SEWER RATES AND CUSTOMER BILL IMPACTS

**Table 7-7** presents the rate calculation for all classes. The total cost of service per rate component (Columns C and D) is divided by the relevant units of service (Columns E and F) to determine the rates (Columns G and H).

**Table 7-8** shows the proposed five-year sewer rate schedule commencing January 2025 and in January of every year thereafter until 2030 the rates are forecasted using the required cost of service revenues increases from **Table 6-10**. The City will implement rates equal to or lower than the cost of service-based rates.

**Table 7-7: Sewer Rate Calculation**

| Line | A<br>Class          | B<br>Cost of Service | C<br>Flow Cost of Service | D<br>Customer Cost of Service | E<br>Flow Units of Service | F<br>Customer Units of Service | G<br>Flow Rate | H<br>Customer Rate |
|------|---------------------|----------------------|---------------------------|-------------------------------|----------------------------|--------------------------------|----------------|--------------------|
| 1    | Residential         | \$3,753,486          | 3,538,097                 | \$215,389                     | 2,907,005                  | 19,158                         | \$1.22         | \$11.24            |
| 2    | Multi-Residential   | \$525,634            | 504,252                   | \$21,382                      | 414,308                    | 1,902                          | \$1.22         | \$11.24            |
| 3    | Commercial          | \$1,764,897          | 1,745,320                 | \$19,577                      | 1,434,007                  | 1,741                          | \$1.22         | \$11.24            |
| 4    | Private Development | \$0                  | 0                         | \$0                           | -                          | -                              |                |                    |
| 5    | Low Income          | \$482                | 425                       | \$57                          | 349                        | 5                              | \$1.22         | \$11.24            |

**Table 7-8: Proposed Sewer Rates**

| Line | A<br>Class           | B<br>(Current) | C<br>CY 2025<br>(Jan 2025) | D<br>CY 2026<br>(Jan 2026) | E<br>CY 2027<br>(Jan 2027) | F<br>CY 2028<br>(Jan 2028) | G<br>CY 2029<br>(Jan 2029) |
|------|----------------------|----------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| 1    | Residential          | \$1.17         | \$1.22                     | \$1.26                     | \$1.30                     | \$1.34                     | \$1.39                     |
| 2    | Multi-Residential    | \$1.17         | \$1.22                     | \$1.26                     | \$1.30                     | \$1.34                     | \$1.39                     |
| 3    | Commercial           | \$1.17         | \$1.22                     | \$1.26                     | \$1.30                     | \$1.34                     | \$1.39                     |
| 4    | Private Development  | \$0.83         | \$1.22                     | \$1.26                     | \$1.30                     | \$1.34                     | \$1.39                     |
| 5    | Qualified Low Income | \$0.65         | \$1.22                     | \$1.26                     | \$1.30                     | \$1.34                     | \$1.39                     |
| 6    | Annual Fixed Charge  | \$8.45         | \$11.25                    | \$11.59                    | \$11.94                    | \$12.30                    | \$12.67                    |

As presented in **Table 7-8**, the City also has a Reduced Rate customer class for low-income customers. This study does not calculate a proposed Reduced Rate due to the constraints imposed by the requirements of Proposition 218 which prohibit the redistribution of costs from one class to another unless there is a demonstrated relationship to the cost of providing the service. In this case, there is no justification for redistributing the cost from the reduced rate customers to other customers as there is no relationship between the cost to serve customers and their household income. However, the Utility can choose to continue offering the program, but it must be funded through a non-rate revenue source, such as the City General Fund, or a non-operating utility revenue (e.g. lease revenues).

**Table 7-9** presents a series of typical bills for various customer classes. The tables compare the bill at different levels of usage under the current rates and the proposed rates.

**Table 7-9: Sewer Bill Impacts**



DRAFT