



# CITY OF LA HABRA

## DEPARTMENT OF PUBLIC WORKS

### Wastewater Cost of Service and Rate Study

Draft Report / October 7, 2021



RAFTELIS





445 S. Figueroa Street,  
Suite #1925  
Los Angeles, CA 90071

Phone 626 . 583 . 1894  
Fax 828.484.2442

[www.raftelis.com](http://www.raftelis.com)

October 7, 2021

Mr. Brian Jones  
Water/Sewer Manager  
City of La Habra Department of Public Works  
621 W Lambert Road  
Baldwin Park, CA 91706

**Subject: Wastewater Cost of Service Study Report**

Dear Mr. Jones:

Raftelis is pleased to present this wastewater cost of service study to the City of La Habra Department of Public Works (City). This study involved a comprehensive review of the City's wastewater rate structure and long-range financial plan, and the calculation of cost of service-based wastewater rates.

We are confident that the calculated rates are fair and equitable for the City's customers, and compliant with Proposition 218 requirements. This report includes an Executive Summary, a detailed presentation of the five-year financial plan, cost of service analysis, and rate derivation, for the wastewater utility.

It was a pleasure working with you and we wish to express our thanks for the support you, Ms. Zukie Chiu, and other City staff members provided during the study. If you have any questions, please do not hesitate to call me at (626) 583-1894.

Sincerely,  
**RAFTELIS FINANCIAL CONSULTANTS, INC.**

A blue ink signature of Sudhir D. Pardiwala.

**Sudhir D. Pardiwala, PE**  
*Executive Vice President*

A blue ink signature of Ethan Edwards.

**Ethan Edwards**  
*Associate Consultant*

# TABLE OF CONTENTS

---

- 1 EXECUTIVE SUMMARY..... 1**
  - 1.1 Financial Plan..... 1
  - 1.2 Proposed Rates..... 4
  - 1.3 Customer Impacts..... 5
- 2 FINANCIAL PLAN ..... 7**
  - 2.1 Customer Data and Growth..... 7
  - 2.2 Revenues ..... 8
  - 2.3 O&M Expenses ..... 10
  - 2.4 Capital Improvement Plan ..... 12
  - 2.5 Debt Service ..... 12
  - 2.6 Proposed Financial Plan..... 12
- 3 RATE DERIVATION..... 16**
  - 3.1 Revenue Requirement Determination ..... 16
  - 3.2 Wastewater Flow Estimates ..... 17
  - 3.3 Cost Allocation..... 19
  - 3.4 Rate Derivation..... 20
  - 3.5 Proposed Wastewater Rates ..... 21
  - 3.6 Customer Impacts..... 22
  - 3.7 Sewer Rate Survey ..... 24

## LIST OF TABLES

|  |    |
|--|----|
| Table 1-1: Proposed Wastewater Rates .....                         | 5  |
| Table 1-2: Monthly Single Family Residential Customer Impacts..... | 5  |
| Table 1-3: Monthly Apartment Customer Impacts .....                | 6  |
| Table 1-4: Monthly Non-Residential Customer Impacts .....          | 6  |
| Table 2-1: Wastewater Account and Usage Growth Assumptions .....   | 7  |
| Table 2-2: Projected Customer Account and Usage Data .....         | 8  |
| Table 2-3: Revenue Inflationary Assumptions .....                  | 8  |
| Table 2-4: Current Wastewater Rates .....                          | 9  |
| Table 2-5: Calculated Wastewater Rate Revenues .....               | 10 |
| Table 2-6: Projected Revenues at Current Rates .....               | 10 |
| Table 2-7: Expense Inflationary Assumptions.....                   | 11 |
| Table 2-8: Projected O&M Expenses.....                             | 11 |
| Table 2-9: Inflated Capital Projects .....                         | 12 |
| Table 2-10: Projected Capital Financing Plan.....                  | 12 |
| Table 2-11: Proposed Revenue Adjustments .....                     | 13 |
| Table 2-12: Proposed Financial Plan.....                           | 14 |
| Table 2-13: Projected Fund Balances.....                           | 15 |
| Table 3-1: Revenue Requirement.....                                | 17 |
| Table 3-2: Residential Wastewater Flow Estimation.....             | 18 |
| Table 3-3: Estimated Wastewater Flow by Customer Class.....        | 19 |
| Table 3-4: Cost Allocation by Customer Class .....                 | 19 |
| Table 3-5: Wastewater Rate Derivation .....                        | 21 |
| Table 3-6: Proposed Wastewater Rate Schedule.....                  | 22 |
| Table 3-7: Single Family Residential Customer Impacts .....        | 22 |
| Table 3-8: Apartment Customer Impacts .....                        | 23 |
| Table 3-9: Monthly Non-Residential Customer Impacts .....          | 23 |

## LIST OF FIGURES

|   |    |
|---|----|
| Figure 1-1: Proposed Revenue Adjustments .....    | 2  |
| Figure 1-2: Projected Financial Plan .....        | 2  |
| Figure 1-3: Proposed Capital Financing Plan ..... | 3  |
| Figure 1-4: Projected Ending Balances .....       | 4  |
| Figure 3-1: Sewer Rate Survey.....                | 24 |

# 1 EXECUTIVE SUMMARY

---

The City of La Habra Department of Public Works (City) engaged Raftelis to develop a comprehensive financial plan and cost of service rate study for the wastewater utility for implementation in January 2022. This report documents the assumptions, methodologies, analyses, and proposed rates and connection fees developed in the study.

The major objectives of the study include the following:

1. Ensure *Revenue Sufficiency* to meet the operation and maintenance (O&M) and capital needs of the City's wastewater utility.
2. Plan for *Rate and Revenue Stability* to prevent rate spikes, preserve the overall financial health of the utility, and maintain adequate operating and capital reserves under varying demand conditions.
3. Ensure that rates are *Fair and Equitable*, in accordance with *Cost of Service* guidelines under Proposition 218.

This executive summary provides an overview of the study, including recommendations for wastewater rates beginning in January 2022. In this report, FY 2022 means the year starting July 1, 2021, and ending June 30, 2022.

## 1.1 FINANCIAL PLAN

To determine the revenue requirements needed to fund the City's ongoing expenses, Raftelis projected the O&M costs, capital improvement costs, debt service payments, reserve requirements, etc. for the study period between FY 2022 to FY 2026.

O&M expenses include personnel services, materials and supplies, professional services, capital outlay, and other miscellaneous costs and totals approximately \$12.6 million over the five-year planning period. The City plans to spend approximately \$2.2 million on capital expenditures from FY 2022 to FY 2026. This figure includes annual programs such as the Annual Sewer Lateral Program and one-time projects such as the County Island Sewer System Design for the sewer projects department. The City plans to fully fund its capital expenses through wastewater rates and has no existing debt.

**Figure 1-1** shows the proposed revenue adjustments for FY 2022 through FY 2026. The first revenue adjustment, which is a reduction of 10 percent, will be effective January 2022, and there are no additional revenue adjustments proposed for the remaining four years.

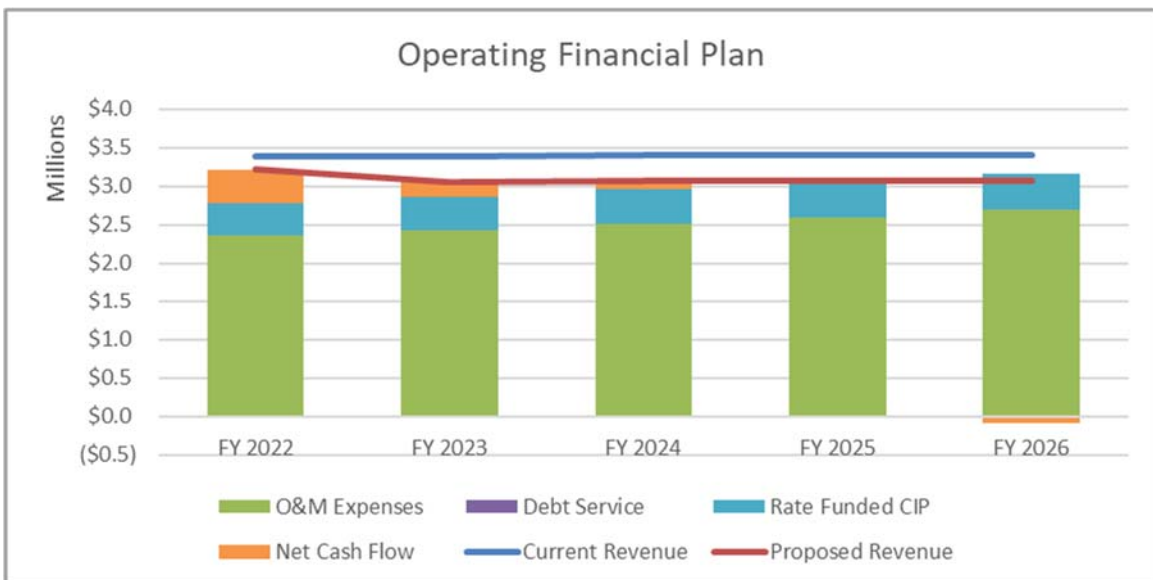
Overall, O&M expenses are expected to increase 3.3 percent annually during the study period. The City has approximately \$2.2 million in planned capital projects over the planning period, all of which are funded through wastewater rates.

**Figure 1-1: Proposed Revenue Adjustments**



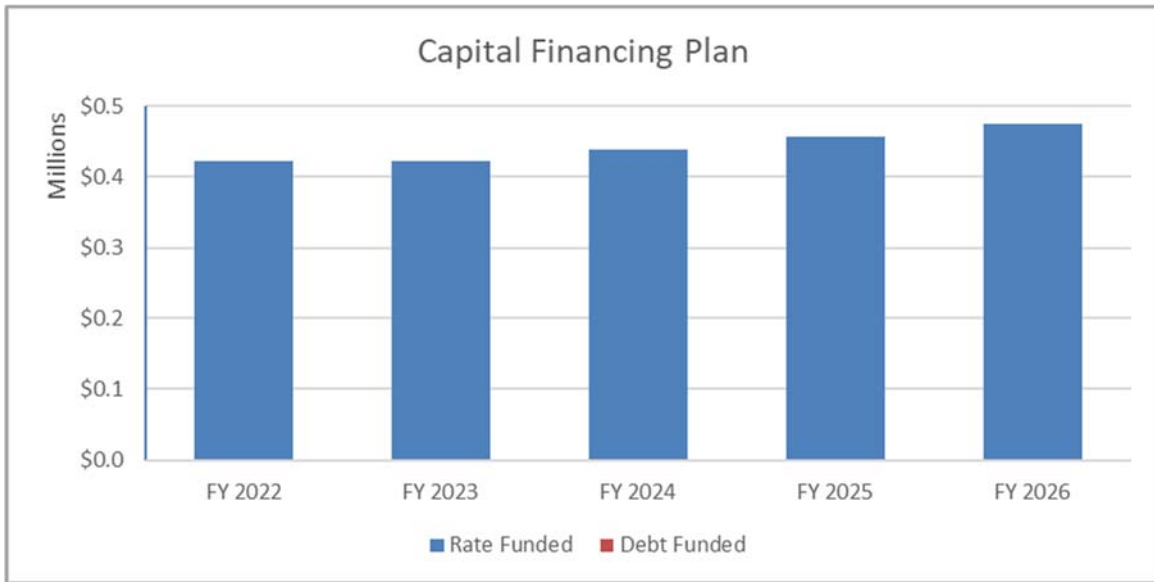
**Figure 1-2** shows the City’s financial plan over the planning period. The blue line represents the City’s current wastewater revenues, and the red line represents the City’s proposed revenue with the revenue adjustments shown in **Figure 1-1**. The green bars represent the O&M expenses and the turquoise bars represent the rate funded capital projects. The orange bars represent the City’s net annual cash flow. If the orange bars are negative, then the City is drawing from reserves; if the bars are positive, then the City is replenishing reserves.

**Figure 1-2: Projected Financial Plan**



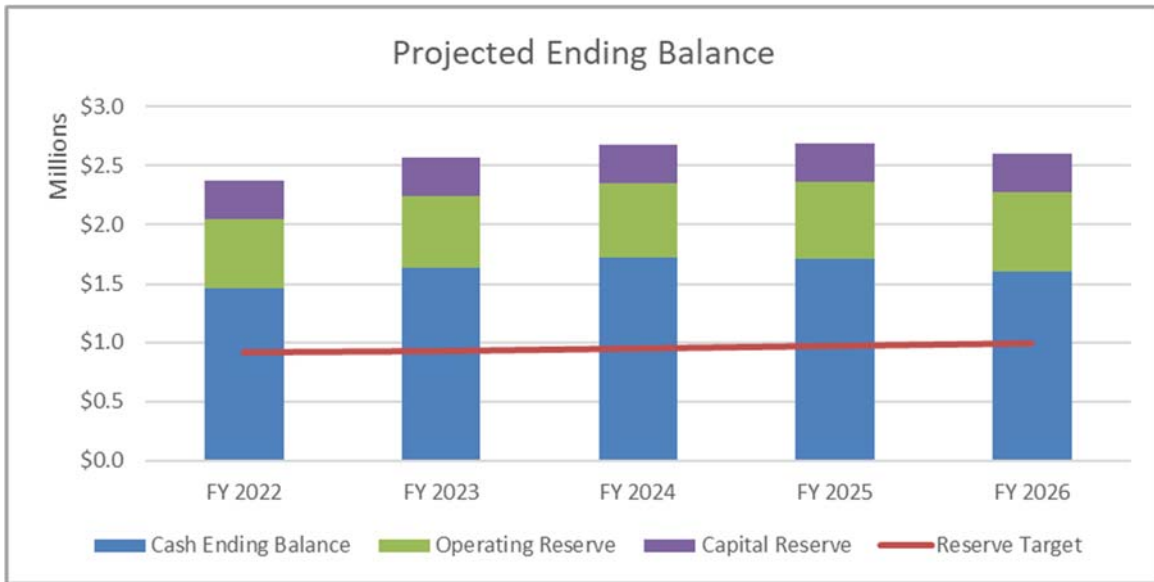
**Figure 1-3** shows the total annual wastewater capital projects and their funding sources. The City is expected to spend approximately \$2.2 million on capital projects from FY 2022 to FY 2026. As the City is not planning to issue any debt during the study period, all wastewater capital projects will be funded by rates.

**Figure 1-3: Proposed Capital Financing Plan**



**Figure 1-4** shows the City’s wastewater reserve ending balances. The proposed revenue adjustments offset the depletion of reserves due to increasing O&M expenses and capital project spending. The reserve policy to calculate the reserve target levels shown in the graph is equal to 25 percent of annual O&M expenses and 100 percent of the average ten-year capital improvement plan (CIP). The reserves are increasing every year even with the negative revenue adjustment. However, it is expected that there will be a significant capital project expenses related to sewerage septic tank users which will draw the reserves down.

**Figure 1-4: Projected Ending Balances**



## 1.2 PROPOSED RATES

We have retained the current wastewater rate structure which consists of a monthly fixed charge per dwelling unit for residential customers and a variable charge per hundred cubic feet (ccf) of wastewater and water for all customer classes. Commercial, municipal, and church customers are subject to a minimum charge equal to the Apartment charge with 7 ccf of wastewater flow each month, which represents the average flow for apartments. **Table 1-1** shows the proposed five-year wastewater rate schedule.

The revenue requirements for each customer class are allocated by the amount of wastewater flow generated by that class. The City currently operates a collection-only system; therefore, wastewater flow is the most defensible rationale for allocating revenue requirements across different classes.

Note that the rate per unit of wastewater is the same for all residential customers, however the rate based on water is different because of the higher return factor for apartments as compared to single family residences which have higher irrigation usage. Return factor is the amount of water returned to the sewer as wastewater.

In this report, Residential means single family residential, which is consistent with the City's designation of classes.

**Table 1-1: Proposed Wastewater Rates**

|   | January 2022 | January 2023 | January 2024 | January 2025 | January 2026 |
|---|--------------|--------------|--------------|--------------|--------------|
| <b>Monthly Fixed Charge</b>   |              |              |              |              |              |
| Class   |              |              |              |              |              |
| Single Family Residential   | \$4.80       | \$4.80       | \$4.80       | \$4.80       | \$4.80       |
| Apartment   | \$4.10       | \$4.10       | \$4.10       | \$4.10       | \$4.10       |
| Sewer Only Residential  | \$13.83      | \$13.83      | \$13.83      | \$13.83      | \$13.83      |
| Non-Residential Minimum Chrg  | \$9.49       | \$9.49       | \$9.49       | \$9.49       | \$9.49       |
| *Non-residential customers subject to a minimum charge equal to fixed charge for Apartment customers with an average month (ccf) of wastewater flow (7 ccf) |              |              |              |              |              |
| <b>Sewer Use Charge (per ccf of water flow)</b>   |              |              |              |              |              |
| Single Family Residential   | \$0.44       | \$0.44       | \$0.44       | \$0.44       | \$0.44       |
| Apartment   | \$0.60       | \$0.60       | \$0.60       | \$0.60       | \$0.60       |
| Non- Residential  | \$1.19       | \$1.19       | \$1.19       | \$1.19       | \$1.19       |
| <b>Sewer Use Charge (per ccf of wastewater flow)</b>  |              |              |              |              |              |
| Single Family Residential   | \$0.77       | \$0.77       | \$0.77       | \$0.77       | \$0.77       |
| Apartment   | \$0.77       | \$0.77       | \$0.77       | \$0.77       | \$0.77       |
| Non- Residential  | \$1.32       | \$1.32       | \$1.32       | \$1.32       | \$1.32       |

**1.3 CUSTOMER IMPACTS**

Error! Reference source not found. shows the single family residential wastewater customer impacts at various levels of water usage, assuming a 5/8” meter. The average monthly water usage for this class is estimated at 14 ccf per month.

**Table 1-2: Monthly Single Family Residential Customer Impacts**

|                       | Current Sewer | Proposed Sewer Charge | Difference (\$) | Difference (%) |
|-----------------------|---------------|-----------------------|-----------------|----------------|
| 4 ccf of water usage  | \$7.16        | \$6.56                | (\$0.60)        | -8.4%          |
| 8 ccf of water usage  | \$9.12        | \$8.32                | (\$0.80)        | -8.8%          |
| 14 ccf of water usage | \$12.06       | \$10.96               | (\$1.10)        | -9.1%          |
| 18 ccf of water usage | \$14.02       | \$12.72               | (\$1.30)        | -9.3%          |
| 28 ccf of water usage | \$18.92       | \$17.12               | (\$1.80)        | -9.5%          |
| 36 ccf of water usage | \$22.84       | \$20.64               | (\$2.20)        | -9.6%          |
| 40 ccf of water usage | \$24.80       | \$22.40               | (\$2.40)        | -9.7%          |

Error! Reference source not found. shows the apartment customer impacts at various levels of water usage, assuming a 2” meter and a 10 unit apartment building. **Table 1-4** shows the non-residential customer impacts, assuming a 1” meter.

**Table 1-3: Monthly Apartment Customer Impacts**

|                       | Current Sewer | Proposed Sewer Charge | Difference (\$) | Difference (%) |
|-----------------------|---------------|-----------------------|-----------------|----------------|
| 10 ccf of water usage | \$51.90       | \$47.00               | (\$4.90)        | -9.4%          |
| 15 ccf of water usage | \$55.35       | \$50.00               | (\$5.35)        | -9.7%          |
| 24 ccf of water usage | \$61.56       | \$55.40               | (\$6.16)        | -10.0%         |
| 30 ccf of water usage | \$65.70       | \$59.00               | (\$6.70)        | -10.2%         |
| 35 ccf of water usage | \$69.15       | \$62.00               | (\$7.15)        | -10.3%         |
| 40 ccf of water usage | \$72.60       | \$65.00               | (\$7.60)        | -10.5%         |
| 45 ccf of water usage | \$76.05       | \$68.00               | (\$8.05)        | -10.6%         |

**Table 1-4: Monthly Non-Residential Customer Impacts**

|                       | Current Sewer Charge | Proposed Sewer Charge | Difference (\$) | Difference (%) |
|-----------------------|----------------------|-----------------------|-----------------|----------------|
| 4 ccf of water usage  | \$11.50              | \$9.49                | (\$2.01)        | -17.5%         |
| 8 ccf of water usage  | \$11.50              | \$9.52                | (\$1.98)        | -17.2%         |
| 16 ccf of water usage | \$19.84              | \$19.04               | (\$0.80)        | -4.0%          |
| 24 ccf of water usage | \$29.76              | \$28.56               | (\$1.20)        | -4.0%          |
| 32 ccf of water usage | \$39.68              | \$38.08               | (\$1.60)        | -4.0%          |
| 48 ccf of water usage | \$59.52              | \$57.12               | (\$2.40)        | -4.0%          |
| 60 ccf of water usage | \$74.40              | \$71.40               | (\$3.00)        | -4.0%          |

## 2 FINANCIAL PLAN

---

This section describes the long-range financial plan for the City’s wastewater utility, including wastewater account and flow projections, operating and capital expenses, non-rate revenues, and capital financing options. The financial plan determines the overall revenue adjustments needed to maintain the utility’s financial stability.

The City is responsible for collecting the wastewater from its customers and conveying it to the Orange County Sanitation Districts (OCSD) through OCSD’s mains and interceptors. OCSD bills customers directly on the property tax roll for treatment and disposal of the wastewater.

### 2.1 CUSTOMER DATA AND GROWTH

**Table 2-1** shows the account and usage growth factors that were used to project customer accounts and usage for the study. City staff provided customer account and usage data for FY 2021. The number of single family residential customer accounts is expected to grow by 0.25 percent annually, and the other classes are not expected to have account growth. It is expected that there will not be any increase in the usage per account. The rate model will, however, allow for changes to usage per account. To project water usage for FY 2022 and beyond, Raftelis projected the amount of water usage by the account growth factor and the usage growth factor.

**Table 2-1: Wastewater Account and Usage Growth Assumptions**

|                           | FY 2022 | FY 2023 | FY 2024 | FY 2025 | FY 2026 | FY 2027 |
|---------------------------|---------|---------|---------|---------|---------|---------|
| <b>Account Growth</b>     |         |         |         |         |         |         |
| Single Family Residential | 0.25%   | 0.25%   | 0.25%   | 0.25%   | 0.25%   | 0.25%   |
| Multi-Family Residential  | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    |
| Non-Residential           | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    |
| Sewer Only Customers      | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    |
| <b>Usage Growth</b>       |         |         |         |         |         |         |
| Water and Sewer Accounts  | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    |

**Table 2-2** shows the projected wastewater accounts by meter size and water usage in ccf. The accounts and usage projections for FY 2022 and beyond are projected from FY 2021 data, as provided by the City. The City provides sewer only service to a small number of customers near its boundary.

**Table 2-2: Projected Customer Account and Usage Data**

|   | FY 2021          | FY 2022          | FY 2023          | FY 2024          | FY 2025          | FY 2026          |
|---|------------------|------------------|------------------|------------------|------------------|------------------|
| <b>Water Usage (ccf)</b>                        |                  |                  |                  |                  |                  |                  |
| Single Family Residential                       | 1,762,257        | 1,766,663        | 1,771,079        | 1,775,507        | 1,779,946        | 1,784,396        |
| Apartment                                       | 977,776          | 977,776          | 977,776          | 977,776          | 977,776          | 977,776          |
| Commercial (flow >10 ccf)                       | 414,882          | 414,882          | 414,882          | 414,882          | 414,882          | 414,882          |
| Municipal (flow >10 ccf)                        | 23,526           | 23,526           | 23,526           | 23,526           | 23,526           | 23,526           |
| Church (flow >10 ccf)                           | 4,929            | 4,929            | 4,929            | 4,929            | 4,929            | 4,929            |
| <b>Total, ccf</b>                               | <b>3,183,370</b> | <b>3,187,776</b> | <b>3,192,192</b> | <b>3,196,620</b> | <b>3,201,059</b> | <b>3,205,509</b> |
| <b>Residential Units (sewer only customers)</b> | 144              | 144              | 144              | 144              | 144              | 144              |
| <b>Units</b>                                    |                  |                  |                  |                  |                  |                  |
| Single Family Residential                       | 10,885           | 10,912           | 10,939           | 10,967           | 10,994           | 11,022           |
| Apartment                                       | 9,541            | 9,541            | 9,541            | 9,541            | 9,541            | 9,541            |
| Commercial                                      | 774              | 774              | 774              | 774              | 774              | 774              |
| Municipal                                       | 31               | 31               | 31               | 31               | 31               | 31               |
| Church  | 19               | 19               | 19               | 19               | 19               | 19               |
| <b>Total Units</b>                              | <b>21,250</b>    | <b>21,277</b>    | <b>21,304</b>    | <b>21,332</b>    | <b>21,359</b>    | <b>21,387</b>    |
| <b>Non-Residential Minimum Charge Per Year</b>  | <b>4,126</b>     | <b>4,136</b>     | <b>4,147</b>     | <b>4,157</b>     | <b>4,167</b>     | <b>4,178</b>     |

## 2.2 REVENUES

To project non-rate revenues for future years, Raftelis utilizes the inflationary assumptions shown in **Table 2-3**. The non-rate revenue inflation factor is used to project all non-rate revenues that are inflated for future years. In this study, non-rate revenues are not expected to increase from year to year; thus, the non-rate revenue inflationary factor is 0 percent. The reserve interest rate is used to calculate interest income for future years.

**Table 2-3: Revenue Inflationary Assumptions**

|                                    | FY 2021 | FY 2022 | FY 2023 | FY 2024 | FY 2025 | FY 2026 |
|------------------------------------|---------|---------|---------|---------|---------|---------|
| <b>Revenues Escalation Factors</b> |         |         |         |         |         |         |
| Non-Rate Revenues                  | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    |
| Reserve Interest Rate              | 0.0%    | 1.0%    | 1.0%    | 1.0%    | 1.0%    | 1.0%    |

**Table 2-4** shows the City’s current wastewater rates that are used to calculate the revenues under the status quo conditions.

**Table 2-4: Current Wastewater Rates**

|  | Current | January 2022 | January 2023 | January | January | January |
|--|---------|--------------|--------------|---------|---------|---------|
| <b>Monthly Fixed Charge</b>                          |         |              |              |         |         |         |
| Class  |         |              |              |         |         |         |
| Single Family Residential                            | \$5.20  | \$4.68       | \$4.68       | \$4.68  | \$4.68  | \$4.68  |
| Apartment  | \$4.50  | \$4.05       | \$4.05       | \$4.05  | \$4.05  | \$4.05  |
| Sewer Only Residential                               | \$13.44 | \$12.10      | \$12.10      | \$12.10 | \$12.10 | \$12.10 |
| Non-Residential Minimum Charge                       | \$11.50 | \$10.35      | \$10.35      | \$10.35 | \$10.35 | \$10.35 |
| <b>Sewer Use Charge (per ccf of water flow)</b>      |         |              |              |         |         |         |
| Single Family Residential                            | \$0.49  | \$0.45       | \$0.45       | \$0.45  | \$0.45  | \$0.45  |
| Apartment  | \$0.69  | \$0.63       | \$0.63       | \$0.63  | \$0.63  | \$0.63  |
| Non- Residential                                     | \$1.24  | \$1.12       | \$1.12       | \$1.12  | \$1.12  | \$1.12  |
| <b>Sewer Use Charge (per ccf of wastewater flow)</b> |         |              |              |         |         |         |
| Single Family Residential                            | \$0.87  | \$0.80       | \$0.80       | \$0.80  | \$0.80  | \$0.80  |
| Apartment  | \$0.90  | \$0.83       | \$0.83       | \$0.83  | \$0.83  | \$0.83  |
| Non- Residential                                     | \$1.38  | \$1.25       | \$1.25       | \$1.25  | \$1.25  | \$1.25  |

**Table 2-5** shows the calculated wastewater rate revenues for the monthly fixed charge and the sewer use charge for metered and unmetered customers. The increases in rate revenues result from growth in the number of accounts and the corresponding increase in usage.

The monthly fixed charge revenue is calculated by multiplying the monthly charge for each account or dwelling unit by the number of accounts or dwelling units for the entire year. For example, **Table 2-2** shows 9,541 apartment units in FY 2021. To calculate the monthly fixed charge revenue for that class for that year, the effective rate of \$4.26, which is an average of the two fixed rates of the 2021 fiscal year, is multiplied by 9,541 units for 12 months. ( $\$4.26 \times 9,541 \times 12 = \$487,163$ ).

The sewer use charge revenue for metered accounts is calculated by multiplying the sewer use charge per ccf of water by the actual water usage for each customer class.

The sewer use charge for unmetered accounts is calculated by multiplying the number of sewer only accounts by the fixed charge for the entire year.

**Table 2-5: Calculated Wastewater Rate Revenues**

|  | FY 2021            | FY 2022            | FY 2023            | FY 2024            | FY 2025            | FY 2026            |
|--|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| <b>Monthly Fixed Charge (Dwelling Units)</b> |                    |                    |                    |                    |                    |                    |
| Single Family Residential                    | \$642,650          | \$680,922          | \$682,624          | \$684,331          | \$686,042          | \$687,757          |
| Apartment                                    | \$487,163          | \$515,214          | \$515,214          | \$515,214          | \$515,214          | \$515,214          |
| Sewer Only Residential                       | \$21,980           | \$23,224           | \$23,224           | \$23,224           | \$23,224           | \$23,224           |
| Non-Residential Minimum Charge               | \$44,788           | \$47,568           | \$47,687           | \$47,806           | \$47,925           | \$48,045           |
| <b>Total</b>                                 | <b>\$1,196,582</b> | <b>\$1,266,928</b> | <b>\$1,268,749</b> | <b>\$1,270,575</b> | <b>\$1,272,405</b> | <b>\$1,274,240</b> |
| <b>Sewer Use Charge (per ccf of water)</b>   |                    |                    |                    |                    |                    |                    |
| Single Family Residential                    | \$804,782          | \$865,665          | \$867,829          | \$869,998          | \$872,173          | \$874,354          |
| Apartment                                    | \$633,704          | \$674,665          | \$674,665          | \$674,665          | \$674,665          | \$674,665          |
| Commercial                                   | \$483,162          | \$514,454          | \$514,454          | \$514,454          | \$514,454          | \$514,454          |
| Municipal                                    | \$27,398           | \$29,172           | \$29,172           | \$29,172           | \$29,172           | \$29,172           |
| Church                                       | \$5,740            | \$6,112            | \$6,112            | \$6,112            | \$6,112            | \$6,112            |
| <b>Total - Usage Charge</b>                  | <b>\$1,954,786</b> | <b>\$2,090,068</b> | <b>\$2,092,232</b> | <b>\$2,094,402</b> | <b>\$2,096,577</b> | <b>\$2,098,757</b> |
| <b>Total Rate Revenues</b>                   | <b>\$3,151,368</b> | <b>\$3,356,996</b> | <b>\$3,360,981</b> | <b>\$3,364,977</b> | <b>\$3,368,982</b> | <b>\$3,372,997</b> |

**Table 2-6** shows the City’s total projected wastewater revenues at current rates over the study period. “Service Fees – Sewer” revenues correlate with the variable charge revenues in **Table 2-5**; “Construction – Sewer” revenues correlate with the fixed charge revenues in **Table 2-5**. Interest income is calculated using the reserve interest rate and all other revenues are inflated using the non-rate revenue inflationary assumption in **Table 2-3**.

**Table 2-6: Projected Revenues at Current Rates**

|                                   | Adopted<br>FY 2021 | Projected<br>FY 2022 | Projected<br>FY 2023 | Projected<br>FY 2024 | Projected<br>FY 2025 | Projected<br>FY 2026 |
|-----------------------------------|--------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Interest Income                   | (\$6)              | \$21,520             | \$24,684             | \$26,190             | \$26,742             | \$26,295             |
| Gain/Loss on Investment           | \$0                | \$0                  | \$0                  | \$0                  | \$0                  | \$0                  |
| Unrealized Gain/(Loss)            | \$0                | \$0                  | \$0                  | \$0                  | \$0                  | \$0                  |
| Misc Contract/Agreement Reimb     | \$0                | \$0                  | \$0                  | \$0                  | \$0                  | \$0                  |
| Penalties/Interest                | \$0                | \$0                  | \$0                  | \$0                  | \$0                  | \$0                  |
| Service Use Fees - Sewer          | \$1,954,786        | \$2,090,068          | \$2,092,232          | \$2,094,402          | \$2,096,577          | \$2,098,757          |
| Construction - Sewer              | \$1,196,582        | \$1,266,928          | \$1,268,749          | \$1,270,575          | \$1,272,405          | \$1,274,240          |
| Sewer Connection Fee - Prop Tx    | \$1,564            | \$1,564              | \$1,564              | \$1,564              | \$1,564              | \$1,564              |
| Fog Inspection Fee Revenue        | \$0                | \$0                  | \$0                  | \$0                  | \$0                  | \$0                  |
| Miscellaneous Sewer Revenue       | \$2,595            | \$2,595              | \$2,595              | \$2,595              | \$2,595              | \$2,595              |
| Accrual - Sewer Service Fees      | \$60,035           | \$0                  | \$0                  | \$0                  | \$0                  | \$0                  |
| Accrual - Sewer Construction Fees | \$90,052           | \$0                  | \$0                  | \$0                  | \$0                  | \$0                  |
| <b>Total</b>                      | <b>\$3,305,607</b> | <b>\$3,382,674</b>   | <b>\$3,389,824</b>   | <b>\$3,395,326</b>   | <b>\$3,399,883</b>   | <b>\$3,403,451</b>   |

### 2.3 O&M EXPENSES

To ensure that future costs are reasonably projected, inflationary assumptions are utilized with input from City staff. City staff provided the adopted FY 2021 budget; the remaining years are projected using the following inflationary assumptions shown in

Table 2-7.

**Table 2-7: Expense Inflationary Assumptions**

|                          | FY 2021 | FY 2022 | FY 2023 | FY 2024 | FY 2025 | FY 2026 |
|--------------------------|---------|---------|---------|---------|---------|---------|
| <b>Inflation Factors</b> |         |         |         |         |         |         |
| General                  | 3.0%    | 3.0%    | 3.0%    | 3.0%    | 3.0%    | 3.0%    |
| Salary                   | 3.5%    | 3.5%    | 3.5%    | 3.5%    | 3.5%    | 3.5%    |
| Benefits                 | 5.0%    | 5.0%    | 5.0%    | 5.0%    | 5.0%    | 5.0%    |
| Utilities                | 5.0%    | 5.0%    | 5.0%    | 5.0%    | 5.0%    | 5.0%    |
| Capital                  | 4.0%    | 4.0%    | 4.0%    | 4.0%    | 4.0%    | 4.0%    |
| Non-Inflated             | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    |

The City’s wastewater O&M budget is shown in **Table 2-8**, which incorporates the inflationary assumptions in

Table 2-7 to project expenses for years beyond FY 2022.

**Table 2-8: Projected O&M Expenses**

|                                     | Adopted<br>FY 2021 | Projected<br>FY 2022 | Projected<br>FY 2023 | Projected<br>FY 2024 | Projected<br>FY 2025 | Projected<br>FY 2026 |
|-------------------------------------|--------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <b>Sewer Operations</b>             |                    |                      |                      |                      |                      |                      |
| <b>Personnel Services</b>           |                    |                      |                      |                      |                      |                      |
| Salaries - Full Time                | \$430,187          | \$445,244            | \$460,827            | \$476,956            | \$493,649            | \$510,927            |
| Salaries - Part Time                | \$33,088           | \$34,246             | \$35,445             | \$36,685             | \$37,969             | \$39,298             |
| Salaries - Overtime                 | \$18,941           | \$19,604             | \$20,291             | \$21,001             | \$21,736             | \$22,496             |
| Benefits                            | \$257,583          | \$270,462            | \$283,985            | \$298,184            | \$313,094            | \$328,748            |
| Allowances                          | \$0                | \$0                  | \$0                  | \$0                  | \$0                  | \$0                  |
| <b>Subtotal</b>                     | <b>\$739,799</b>   | <b>\$769,556</b>     | <b>\$800,547</b>     | <b>\$832,826</b>     | <b>\$866,448</b>     | <b>\$901,470</b>     |
| <b>Operations &amp; Maintenance</b> |                    |                      |                      |                      |                      |                      |
| Materials & Supplies                | \$32,958           | \$33,947             | \$34,965             | \$36,014             | \$37,094             | \$38,207             |
| Dues & Subscriptions                | \$649              | \$668                | \$688                | \$709                | \$730                | \$752                |
| Training & Meetings                 | \$520              | \$536                | \$552                | \$568                | \$585                | \$603                |
| Repair & Maintenance                | \$27,365           | \$28,186             | \$29,031             | \$29,902             | \$30,799             | \$31,723             |
| Rent & Leases                       | \$736,179          | \$758,264            | \$781,012            | \$804,443            | \$828,576            | \$853,433            |
| Professional Services               | \$176,809          | \$182,113            | \$187,576            | \$193,204            | \$199,000            | \$204,970            |
| Special Departmental                | \$514,012          | \$529,432            | \$545,315            | \$561,674            | \$578,525            | \$595,880            |
| Miscellaneous                       | \$21,646           | \$22,295             | \$22,964             | \$23,653             | \$24,362             | \$25,093             |
| Interfund Transfers Out             | \$16,250           | \$16,738             | \$17,240             | \$17,757             | \$18,290             | \$18,838             |
| <b>Subtotal</b>                     | <b>\$1,526,386</b> | <b>\$1,572,178</b>   | <b>\$1,619,343</b>   | <b>\$1,667,924</b>   | <b>\$1,717,961</b>   | <b>\$1,769,500</b>   |
| <b>Capital Outlay</b>               |                    |                      |                      |                      |                      |                      |
| Land & Buildings                    | \$0                | \$0                  | \$0                  | \$0                  | \$0                  | \$0                  |
| Furnishings & Fixtures              | \$0                | \$0                  | \$0                  | \$0                  | \$0                  | \$0                  |
| Equipment                           | \$0                | \$0                  | \$0                  | \$0                  | \$0                  | \$0                  |
| Improvements                        | \$15,209           | \$15,818             | \$16,450             | \$17,108             | \$17,793             | \$18,504             |
| Professional Services               | (\$1,566)          | (\$1,628)            | (\$1,693)            | (\$1,761)            | (\$1,831)            | (\$1,905)            |
| <b>Subtotal</b>                     | <b>\$13,644</b>    | <b>\$14,190</b>      | <b>\$14,757</b>      | <b>\$15,347</b>      | <b>\$15,961</b>      | <b>\$16,600</b>      |
| <b>Total - Sewer Operations</b>     | <b>\$2,279,830</b> | <b>\$2,355,924</b>   | <b>\$2,434,648</b>   | <b>\$2,516,098</b>   | <b>\$2,600,371</b>   | <b>\$2,687,570</b>   |

## 2.4 CAPITAL IMPROVEMENT PLAN

**Table 2-9** shows the City's five-year wastewater CIP. City staff provided capital projects in current dollars from FY 2022 to FY 2026. Starting in FY 2022, the capital project expenditures are inflated for future dollars using the capital escalation factor in

**Table 2-7.**

**Table 2-9: Inflated Capital Projects**

|   | FY 2022          | FY 2023          | FY 2024          | FY 2025          | FY 2026          | FY 2027          |
|---|------------------|------------------|------------------|------------------|------------------|------------------|
| <b>Annual Programs</b>                  |                  |                  |                  |                  |                  |                  |
| Annual Sewer Lateral Program            | \$41,600         | \$43,264         | \$44,995         | \$46,794         | \$48,666         | \$50,613         |
| Sewer Lining/Point Repairs              | \$104,000        | \$378,560        | \$393,702        | \$409,450        | \$425,829        | \$442,862        |
| <b>Subtotal</b>                         | <b>\$145,600</b> | <b>\$421,824</b> | <b>\$438,697</b> | <b>\$456,245</b> | <b>\$474,495</b> | <b>\$493,474</b> |
| <b>One Time Projects</b>                |                  |                  |                  |                  |                  |                  |
| County Island Sewer System Design       | \$260,000        | \$0              | \$0              | \$0              | \$0              | \$0              |
| Public Works Yard Assessment            | \$17,680         | \$0              | \$0              | \$0              | \$0              | \$0              |
| County Island Sewer System Construction | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| <b>Subtotal</b>                         | <b>\$277,680</b> | <b>\$0</b>       | <b>\$0</b>       | <b>\$0</b>       | <b>\$0</b>       | <b>\$0</b>       |
| <b>Total Capital Costs</b>              | <b>\$423,280</b> | <b>\$421,824</b> | <b>\$438,697</b> | <b>\$456,245</b> | <b>\$474,495</b> | <b>\$493,474</b> |

**Table 2-10** shows the proposed capital financing plan for the CIP shown in **Table 2-9**. As the City does not expect to issue any debt for the wastewater utility, all capital projects will be funded by rates during the study period. The model allows the City to issue debt if it incurs larger capital expenses or if it decides to fund the CIP through debt.

**Table 2-10: Projected Capital Financing Plan**

|                               | FY 2022          | FY 2023          | FY 2024          | FY 2025          | FY 2026          | FY 2027          |
|-------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| <b>Total Capital Projects</b> | <b>\$423,280</b> | <b>\$421,824</b> | <b>\$438,697</b> | <b>\$456,245</b> | <b>\$474,495</b> | <b>\$493,474</b> |
| Debt Proceeds                 | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| Debt Proceeds Balance         | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| Rate Funded                   | \$423,280        | \$421,824        | \$438,697        | \$456,245        | \$474,495        | \$493,474        |
| Debt Funded                   | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |

## 2.5 DEBT SERVICE

The City does not currently have any debt for its wastewater utility and does not plan to issue any new debt during the planning period.

## 2.6 PROPOSED FINANCIAL PLAN

The City has adequate reserves and the correct billing for apartments should generate adequate revenues so we are proposing an overall reduction in revenue adjustments as shown in the table below in the first year. Even with the reduction in revenues the wastewater utility will have adequate revenues to fund operating expenses, capital projects, and reserve requirements. The financial planning model assumes the revenue adjustment occurs in January of 2022; no additional revenue adjustments are proposed for subsequent years.

**Table 2-11** shows the proposed revenue adjustments for FY 2022 through FY 2026.

**Table 2-11: Proposed Revenue Adjustments**

| Year     | Revenue Adjustment |
|----------|--------------------|
| Jan 2022 | -10%               |
| Jan 2023 | 0%                 |
| Jan 2024 | 0%                 |
| Jan 2025 | 0%                 |
| Jan 2026 | 0%                 |

**Table 2-12** shows the operating cash flow detail for the study period, including the proposed revenue adjustments. The second to last line of the table show the Net Cash Flow after including the capital expenses to be funded from rates. The last line shows the Net Operating Revenue, which excludes capital expenses.

**Table 2-12: Proposed Financial Plan**

|  |                                   |              |               | FY 2022            | FY 2023            | FY 2024            | FY 2025            | FY 2026            | FY 2027            |
|--|-----------------------------------|--------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| <b>Revenues</b>                          |                                   |              |               |                    |                    |                    |                    |                    |                    |
|  | <b>Calculated</b>                 |              |               |                    |                    |                    |                    |                    |                    |
|  | Service Use Fees - Sewer          |              |               | \$2,090,068        | \$2,092,232        | \$2,094,402        | \$2,096,577        | \$2,098,757        | \$2,100,943        |
|  | Construction - Sewer              |              |               | \$1,266,928        | \$1,268,749        | \$1,270,575        | \$1,272,405        | \$1,274,240        | \$1,276,080        |
| <b>Revenue Adjustments</b>               |                                   |              |               |                    |                    |                    |                    |                    |                    |
| <b>Year</b>                              | <b>Effective</b>                  | <b>Month</b> | <b>% Adj.</b> |                    |                    |                    |                    |                    |                    |
| FY 2022                                  | 6                                 | January      | -10.0%        | (\$167,850)        | (\$336,098)        | (\$336,498)        | (\$336,898)        | (\$337,300)        | (\$337,702)        |
| FY 2023                                  | 6                                 | January      | 0.0%          |                    | \$0                | \$0                | \$0                | \$0                | \$0                |
| FY 2024                                  | 6                                 | January      | 0.0%          |                    |                    | \$0                | \$0                | \$0                | \$0                |
| FY 2025                                  | 6                                 | January      | 0.0%          |                    |                    |                    | \$0                | \$0                | \$0                |
| FY 2026                                  | 6                                 | January      | 0.0%          |                    |                    |                    |                    | \$0                | \$0                |
| FY 2027                                  | 6                                 | January      | 0.0%          |                    |                    |                    |                    |                    | \$0                |
| <b>Subtotal</b>                          |                                   |              |               | <b>(\$167,850)</b> | <b>(\$336,098)</b> | <b>(\$336,498)</b> | <b>(\$336,898)</b> | <b>(\$337,300)</b> | <b>(\$337,702)</b> |
| <b>Total Revenues from Rates</b>         |                                   |              |               | <b>\$3,189,146</b> | <b>\$3,024,883</b> | <b>\$3,028,479</b> | <b>\$3,032,084</b> | <b>\$3,035,698</b> | <b>\$3,039,321</b> |
| <b>Other Revenues</b>                    |                                   |              |               |                    |                    |                    |                    |                    |                    |
|  | Interest Income                   |              |               | \$21,520           | \$24,684           | \$26,190           | \$26,742           | \$26,295           | \$24,800           |
|  | Gain/Loss on Investment           |              |               | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
|  | Unrealized Gain/(Loss)            |              |               | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
|  | Misc Contract/Agreement Reimb     |              |               | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
|  | Penalties/Interest                |              |               | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
|  | Sewer Connection Fee - Prop Tx    |              |               | \$1,564            | \$1,564            | \$1,564            | \$1,564            | \$1,564            | \$1,564            |
|  | Fog Inspection Fee Revenue        |              |               | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
|  | Miscellaneous Sewer Revenue       |              |               | \$2,595            | \$2,595            | \$2,595            | \$2,595            | \$2,595            | \$2,595            |
|  | Accrual - Sewer Service Fees      |              |               | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
|  | Accrual - Sewer Construction Fees |              |               | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
| <b>Subtotal</b>                          |                                   |              |               | <b>\$25,678</b>    | <b>\$28,842</b>    | <b>\$30,349</b>    | <b>\$30,901</b>    | <b>\$30,453</b>    | <b>\$28,959</b>    |
| <b>Total Revenues</b>                    |                                   |              |               | <b>\$3,214,824</b> | <b>\$3,053,726</b> | <b>\$3,058,828</b> | <b>\$3,062,985</b> | <b>\$3,066,151</b> | <b>\$3,068,279</b> |
| <b>O&amp;M Expenses</b>                  |                                   |              |               |                    |                    |                    |                    |                    |                    |
|  | Personnel Services                |              |               | \$769,556          | \$800,547          | \$832,826          | \$866,448          | \$901,470          | \$937,953          |
|  | Operations & Maintenance          |              |               | \$1,572,178        | \$1,619,343        | \$1,667,924        | \$1,717,961        | \$1,769,500        | \$1,822,585        |
|  | Capital Outlay                    |              |               | \$14,190           | \$14,757           | \$15,347           | \$15,961           | \$16,600           | \$17,264           |
| <b>Total O&amp;M Expenses</b>            |                                   |              |               | <b>\$2,355,924</b> | <b>\$2,434,648</b> | <b>\$2,516,098</b> | <b>\$2,600,371</b> | <b>\$2,687,570</b> | <b>\$2,777,802</b> |
| <b>Debt Service and Capital Projects</b> |                                   |              |               |                    |                    |                    |                    |                    |                    |
|  | Existing Debt Service             |              |               | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
|  | Proposed Debt Service             |              |               | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
|  | Rate Funded Capital Projects      |              |               | \$423,280          | \$421,824          | \$438,697          | \$456,245          | \$474,495          | \$493,474          |
| <b>Total Capital</b>                     |                                   |              |               | <b>\$423,280</b>   | <b>\$421,824</b>   | <b>\$438,697</b>   | <b>\$456,245</b>   | <b>\$474,495</b>   | <b>\$493,474</b>   |
| <b>Net Cash Flow</b>                     |                                   |              |               | <b>\$435,621</b>   | <b>\$197,254</b>   | <b>\$104,033</b>   | <b>\$6,369</b>     | <b>(\$95,914)</b>  | <b>(\$202,997)</b> |
|  | Net Operating Revenue             |              |               | \$858,901          | \$619,078          | \$542,730          | \$462,614          | \$378,581          | \$290,477          |

**Table 2-13** shows the projected fund balances for the Utility Authority Fund – Sewer over the study period. The reserve target is equal to 25 percent of the utility’s annual O&M expenses and 100 percent of the average ten-year CIP. Funds in excess of the target are unrestricted funds. The reserves increase every year of the study period.

**Table 2-13: Projected Fund Balances**

|                                       | FY 2022            | FY 2023            | FY 2024            | FY 2025            | FY 2026            | FY 2027            |
|---------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| <b>Utility Authority Fund - Sewer</b> |                    |                    |                    |                    |                    |                    |
| <b>Beginning Balance</b>              |                    |                    |                    |                    |                    |                    |
| Unrestricted Cash                     | \$1,042,065        | \$1,458,662        | \$1,636,235        | \$1,719,906        | \$1,705,207        | \$1,587,493        |
| Operating Reserves                    | \$569,957          | \$588,981          | \$608,662          | \$629,024          | \$650,093          | \$671,893          |
| Capital Reserves                      | \$322,123          | \$322,123          | \$322,123          | \$322,123          | \$322,123          | \$322,123          |
| <b>Sources of Funds</b>               |                    |                    |                    |                    |                    |                    |
| Rate Revenues                         | \$3,189,146        | \$3,024,883        | \$3,028,479        | \$3,032,084        | \$3,035,698        | \$3,039,321        |
| Other Revenues                        | \$4,158            | \$4,158            | \$4,158            | \$4,158            | \$4,158            | \$4,158            |
| Debt Proceeds                         | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
| Interest Income                       | \$21,520           | \$24,684           | \$26,190           | \$26,742           | \$26,295           | \$24,800           |
| <b>Subtotal</b>                       | <b>\$3,214,824</b> | <b>\$3,053,726</b> | <b>\$3,058,828</b> | <b>\$3,062,985</b> | <b>\$3,066,151</b> | <b>\$3,068,279</b> |
| <b>Uses of Funds</b>                  |                    |                    |                    |                    |                    |                    |
| O&M Expenses                          | \$2,355,924        | \$2,434,648        | \$2,516,098        | \$2,600,371        | \$2,687,570        | \$2,777,802        |
| Debt Service                          | \$0                | \$0                | \$0                | \$0                | \$0                | \$0                |
| Capital Projects                      | \$423,280          | \$421,824          | \$438,697          | \$456,245          | \$474,495          | \$493,474          |
| <b>Subtotal</b>                       | <b>\$2,779,204</b> | <b>\$2,856,472</b> | <b>\$2,954,794</b> | <b>\$3,056,616</b> | <b>\$3,162,065</b> | <b>\$3,271,276</b> |
| <b>Total Ending Balance</b>           |                    |                    |                    |                    |                    |                    |
| Unrestricted Cash Ending Balance      | \$1,458,662        | \$1,636,235        | \$1,719,906        | \$1,705,207        | \$1,587,493        | \$1,361,938        |
| Operating Reserves                    | \$588,981          | \$608,662          | \$629,024          | \$650,093          | \$671,893          | \$694,450          |
| Capital Reserves                      | \$322,123          | \$322,123          | \$322,123          | \$322,123          | \$322,123          | \$322,123          |

## 3 RATE DERIVATION

---

This section details the wastewater rate derivation process and cost of service allocation methodology.

### 3.1 REVENUE REQUIREMENT DETERMINATION

**Table 3-1** shows the revenue requirement derivation with the total revenue required to be recovered from rates. Raftelis calculated the revenue requirement using FY 2022 expenses, which includes O&M expenses and rate funded capital projects. Revenue offsets, such as miscellaneous non-rate revenue, are subtracted from the revenue requirements. Finally, adjustments are made to account for the annual cash balance (equal to the net cash flow for FY 2022) and mid-year rate increases. The total revenue requirement is the amount that the proposed rates are designed to recover.

**Table 3-1: Revenue Requirement**

|                                  | FY 2022            |                  |                    |
|----------------------------------|--------------------|------------------|--------------------|
|                                  | Operating          | Capital          | Total              |
| <b>Revenue Requirements</b>      |                    |                  |                    |
| O&M Expenses                     | \$2,355,924        | \$0              | \$2,355,924        |
| Debt Service                     | \$0                | \$0              | \$0                |
| Rate Funded CIP                  | \$0                | \$423,280        | \$423,280          |
| <b>Subtotal</b>                  | <b>\$2,355,924</b> | <b>\$423,280</b> | <b>\$2,779,204</b> |
| <b>Less Revenue Offsets</b>      |                    |                  |                    |
| Interest Income                  | \$0                | \$21,520         | \$21,520           |
| Gain/Loss on Investment          | \$0                | \$0              | \$0                |
| Unrealized Gain/(Loss)           | \$0                | \$0              | \$0                |
| Misc Contract/Agreement          | \$0                | \$0              | \$0                |
| Penalties/Interest               | \$0                | \$0              | \$0                |
| Sewer Connection Fee - Pro       | \$0                | \$1,564          | \$1,564            |
| Fog Inspection Fee Revenue       | \$0                | \$0              | \$0                |
| Miscellaneous Sewer Reve         | \$2,595            | \$0              | \$2,595            |
| Accrual - Sewer Service Fee      | \$0                | \$0              | \$0                |
| Accrual - Sewer Constructi       | \$0                | \$0              | \$0                |
| <b>Subtotal</b>                  | <b>\$2,595</b>     | <b>\$23,083</b>  | <b>\$25,678</b>    |
| <b>Less Adjustments</b>          |                    |                  |                    |
| Additional Revenue to            |                    |                  |                    |
| Annualize Rate Increase          | \$167,850          | \$0              | \$167,850          |
| Transfers from (to) reserves     | (\$435,621)        | \$0              | (\$435,621)        |
| <b>Subtotal</b>                  | <b>(\$267,771)</b> | <b>\$0</b>       | <b>(\$267,771)</b> |
| <b>Revenue to be Recovered f</b> | <b>\$2,621,100</b> | <b>\$400,197</b> | <b>\$3,021,296</b> |

### 3.2 WASTEWATER FLOW ESTIMATES

**Table 3-2** shows the wastewater flow derivation for residential customer classes (Residential and Apartment). Residential customers are single family residential; Apartment customers are multi-family residential.

The number of total occupied housing units was determined from the FY 2021 usage data that the City provided. The average household size for Residential and Apartment customers was determined using census data that consisted of number of households of a certain household size and number of dwelling units.

For example, the census data provided the number of one-person households that have one or multiple units, the number of two-people households that have one or more units, etc. One unit

households are considered Residential; the remaining households are considered Apartment. The population density per household was determined by dividing the total number of people (provided by the summing the number of people in each type of unit) by the total number of units for each customer class.

The annual wastewater flow in gallons is estimated by multiplying the total occupied housing units with the average household size by 55 gallons per capita per day (gpcd) of wastewater flow by 365 days in a year. 55 gpcd of wastewater is the provisional standard for domestic use for the state of California.<sup>1</sup> This annual wastewater flow in gallons is converted to ccf and compared to the actual water usage for each class in FY 2022, as shown in **Table 2-2**.

The return factor is estimated by dividing the total estimated wastewater flow by total water usage. Sewer only households are assumed to be single family residential customers, however, because the City has no record of their water use, the wastewater flow is estimated to be 10 ccf per month to ensure adequate cost recovery. This flow estimate is in line with the current wastewater charge for these customers which would represent about 17 ccf of water use at 57 percent return factor calculated for the remaining single family customers. Apartments have little irrigation use and have higher return factors of 77 percent.

**Table 3-2: Residential Wastewater Flow Estimation**

|  | Residential | Apartment   |
|--|-------------|-------------|
| Total occupied housing units             | 10,885      | 9,541       |
| Average household size                   | 3.43        | 2.93        |
| Gallons per capita per day of wastewater | 55          | 55          |
| Days per year                            | 365         | 365         |
| Total wastewater flow in gallons         | 749,511,166 | 561,199,235 |
| Total wastewater flow in ccf             | 1,002,020   | 750,266     |
| Total water usage in ccf                 | 1,766,663   | 977,776     |
| Estimated return factor                  | 57%         | 77%         |
| <br>                                     |             |             |
| Sewer only households                    | 144         |             |
| Total wastewater flow in ccf             | 17,280      |             |
| Total water usage in ccf                 | 30,466      |             |

**Table 3-3** shows the water usage and estimated wastewater flow for all customer classes. For non-residential customer classes (Commercial, Municipal, Church), the estimated return factor is 90 percent. This is based on industry standards since non-residential customers generally do not have much irrigation usage.

<sup>1</sup> California Senate Bill No. 7, Chapter 4

Note that the water usage for all customer classes, except for Sewer Only Residential, is obtained from **Table 2-2**. The wastewater flow for residential customer classes (Residential, Apartment, Sewer Only Residential) is derived from **Table 3-2**. The wastewater flow for non-residential classes is calculated by multiplying the water usage in each class with the 90 percent return factor.

**Table 3-3: Estimated Wastewater Flow by Customer Class**

| Customer Class                                    | Water Usage      | Wastewater       |
|---|------------------|------------------|
| Single Family Residential                         | 1,766,663        | 1,002,020        |
| Apartment   | 977,776          | 750,266          |
| Sewer Only Residential                            | 30,466           | 17,280           |
| Commercial (flow > 7 ccf)                         | 421,193          | 379,074          |
| Municipal (flow > 7 ccf)                          | 23,778           | 21,400           |
| Church (flow > 7 ccf)                             | 5,070            | 4,563            |
| <b>Non-Residential Subtotal (flow &gt; 7 ccf)</b> | <b>450,041</b>   | <b>405,037</b>   |
| <b>Total</b>                                      | <b>3,224,946</b> | <b>2,174,604</b> |

### 3.3 COST ALLOCATION

The total revenue requirement, as shown in **Table 3-1**, is \$3,021,296. To calculate the total cost to serve each customer class, the revenue requirement is allocated based on wastewater flow since the City is only responsible for the collection system. **Table 3-4** shows the allocation of the revenue requirement by the wastewater flow generated by each customer class.

**Table 3-4: Cost Allocation by Customer Class**

| Customer Class                  | Wastewater Flow  | Cost Allocation to Classes |
|---------------------------------|------------------|----------------------------|
| Total revenue requirement       | \$3,021,296      |                            |
| Single Family Residential       | 1,002,020        | \$1,392,162                |
| Apartment                       | 750,266          | \$1,042,386                |
| Sewer Only Residential          | 17,280           | \$24,008                   |
| <b>Non-Residential Subtotal</b> | <b>405,037</b>   | <b>\$562,740</b>           |
| <b>Total</b>                    | <b>2,174,604</b> | <b>\$3,021,296</b>         |

### **3.4 RATE DERIVATION**

After deriving the total cost to serve each customer class, the wastewater rates for each class are calculated. The majority of the City's costs are fixed therefore for the Residential and Apartment classes, 45 percent of the revenue requirement for each class is recovered through a fixed charge; the remaining 55 percent will be recovered through a variable charge. The City wants to ensure that there is a reasonable stable source of revenues collected through the fixed charges, while providing an incentive for conservation. Sewer Only Residential classes are not metered and are therefore charged only a fixed rate. Because non-residential customers can have a large variation in flow amongst them, Commercial, Municipal, and Church classes are charged only a variable rate subject to a minimum charge, which is equal to the Apartment charge with 7 ccf of wastewater per month. The minimum charge is set to ensure recovery of fixed costs as the City incurs higher operational costs to meet the service needs of these customers during non-working hours to minimize disruption of their businesses.

**Table 3-5** shows the wastewater rate derivation for each class.

For Residential and Apartment classes, 45 percent of the cost allocation derived in **Table 3-4** is allocated to a fixed charge. The fixed charge allocation of the revenue requirement is then divided by the dwelling units for each customer class shown in **Table 3-2**, and further divided by 12 months to derive the monthly fixed charge. The remaining 55 percent of the revenue requirement allocation is divided by the wastewater flow for each class to determine the variable charge per ccf of wastewater.

For the Sewer Only Residential class, in the absence of water use records, the entirety of the allocated revenue requirement will be recovered through a fixed charge. The fixed charge allocation of the revenue requirement is divided by the total number of dwelling units for that class shown in **Table 3-2**, and further divided by 12 months to derive the monthly fixed charge.

For the Commercial, Municipal, and Church customer classes, the entirety of the allocated revenue requirement will be recovered through a variable charge. The variable charge allocation for each class is divided by the wastewater flow for the corresponding class to derive the variable charge per ccf of wastewater flow.

**Table 3-5: Wastewater Rate Derivation**

|                                 | Wastewater Flow  | Fixed Charge Allocation | Monthly Fixed Charge / Minimum Charge (Non-Residential) | Variable Charge Allocation | Variable Rate (per ww ccf) |
|---------------------------------|------------------|-------------------------|---|----------------------------|----------------------------|
| Total revenue requirement       | \$3,021,296      |                         |   |                            |                            |
| Fixed revenue percentage        | 45%              |                         |   |                            |                            |
| Variable revenue percentage     | 55%              |                         |   |                            |                            |
| <b>Customer Class</b>           |                  |                         |   |                            |                            |
| Single Family Residential       | 1,002,020        | \$626,473               | \$4.80  | \$765,689                  | \$0.76                     |
| Apartment                       | 750,266          | \$469,074               | \$4.10  | \$573,312                  | \$0.76                     |
| Sewer Only Residential          | 17,280           | \$24,008                | \$13.82   |                            |                            |
| <b>Non-Residential Subtotal</b> | 405,037          | \$31,493                | \$9.45  | \$531,247                  | \$1.31                     |
| <b>Total</b>                    | <b>2,174,604</b> |                         |   |                            |                            |

### 3.5 PROPOSED WASTEWATER RATES

Table 3-6 shows the proposed five-year wastewater rate schedule. The first year of rates in January 2022 are derived in

**Table 3-5.** The remaining four years of rates is increased across the board using the revenue adjustments in

**Table 2-11.** All rates are rounded up to the nearest penny.

The sewer use charge per ccf of water is determined by multiplying the sewer use charge per ccf of wastewater by the estimated return factor for each customer class. For example, the Non-Residential return factor is 90 percent, and therefore, the Non-Residential sewer use charge per ccf of water is 90 percent of the sewer use charge per ccf of wastewater (\$1.31 x 90% = \$1.24).

The non-residential customers are subject to a minimum charge equal to the average Apartment customer (assuming 7 ccf of wastewater flow) to ensure that the City is able recover its fixed costs and provide revenue stability to the utility. Again, this ensures adequate recovery of the fixed costs associated with maintenance of the collection system and is consistent with the California State Water Resources Board Guidelines.

**Table 3-6: Proposed Wastewater Rate Schedule**

|   | January 2022 | January 2023 | January 2024 | January 2025 | January 2026 |
|---|--------------|--------------|--------------|--------------|--------------|
| <b>Monthly Fixed Charge</b>   |              |              |              |              |              |
| Class   |              |              |              |              |              |
| Single Family Residential   | \$4.80       | \$4.80       | \$4.80       | \$4.80       | \$4.80       |
| Apartment   | \$4.10       | \$4.10       | \$4.10       | \$4.10       | \$4.10       |
| Sewer Only Residential  | \$13.83      | \$13.83      | \$13.83      | \$13.83      | \$13.83      |
| Non-Residential Minimum Charge  | \$9.49       | \$9.49       | \$9.49       | \$9.49       | \$9.49       |
| *Non-residential customers subject to a minimum charge equal to fixed charge for Apartment customers with an average month (ccf) of wastewater flow (7 ccf) |              |              |              |              |              |
| <b>Sewer Use Charge (per ccf of water flow)</b>   |              |              |              |              |              |
| Single Family Residential   | \$0.44       | \$0.44       | \$0.44       | \$0.44       | \$0.44       |
| Apartment   | \$0.60       | \$0.60       | \$0.60       | \$0.60       | \$0.60       |
| Non- Residential  | \$1.19       | \$1.19       | \$1.19       | \$1.19       | \$1.19       |
| <b>Sewer Use Charge (per ccf of wastewater flow)</b>  |              |              |              |              |              |
| Single Family Residential   | \$0.77       | \$0.77       | \$0.77       | \$0.77       | \$0.77       |
| Apartment   | \$0.77       | \$0.77       | \$0.77       | \$0.77       | \$0.77       |
| Non- Residential  | \$1.32       | \$1.32       | \$1.32       | \$1.32       | \$1.32       |

### 3.6 CUSTOMER IMPACTS

**Table 3-7** shows the customer impacts for the Single Family Residential class at various levels of water usage, assuming a 5/8” meter. The average monthly water usage for this class is estimated at 14 ccf per month.

Table 3-8 shows the apartment customer impacts at various levels of water usage, assuming a 2” meter and a 10 unit apartment building. **Table 3-9** shows the non-residential customer impacts, assuming a 1” meter. The average monthly water usage for this class is estimated at 14 ccf per month.

**Table 3-7: Single Family Residential Customer Impacts**

|                       | Current Sewer | Proposed Sewer Charge | Difference (\$) | Difference (%) |
|-----------------------|---------------|-----------------------|-----------------|----------------|
| 4 ccf of water usage  | \$7.16        | \$6.56                | (\$0.60)        | -8.4%          |
| 8 ccf of water usage  | \$9.12        | \$8.32                | (\$0.80)        | -8.8%          |
| 14 ccf of water usage | \$12.06       | \$10.96               | (\$1.10)        | -9.1%          |
| 18 ccf of water usage | \$14.02       | \$12.72               | (\$1.30)        | -9.3%          |
| 28 ccf of water usage | \$18.92       | \$17.12               | (\$1.80)        | -9.5%          |
| 36 ccf of water usage | \$22.84       | \$20.64               | (\$2.20)        | -9.6%          |
| 40 ccf of water usage | \$24.80       | \$22.40               | (\$2.40)        | -9.7%          |

**Table 3-8: Apartment Customer Impacts**

|                       | Current Sewer | Proposed Sewer Charge | Difference (\$) | Difference (%) |
|-----------------------|---------------|-----------------------|-----------------|----------------|
| 10 ccf of water usage | \$51.90       | \$47.00               | (\$4.90)        | -9.4%          |
| 15 ccf of water usage | \$55.35       | \$50.00               | (\$5.35)        | -9.7%          |
| 24 ccf of water usage | \$61.56       | \$55.40               | (\$6.16)        | -10.0%         |
| 30 ccf of water usage | \$65.70       | \$59.00               | (\$6.70)        | -10.2%         |
| 35 ccf of water usage | \$69.15       | \$62.00               | (\$7.15)        | -10.3%         |
| 40 ccf of water usage | \$72.60       | \$65.00               | (\$7.60)        | -10.5%         |
| 45 ccf of water usage | \$76.05       | \$68.00               | (\$8.05)        | -10.6%         |

**Table 3-9: Monthly Non-Residential Customer Impacts**

|                       | Current Sewer Charge | Proposed Sewer Charge | Difference (\$) | Difference (%) |
|-----------------------|----------------------|-----------------------|-----------------|----------------|
| 4 ccf of water usage  | \$11.50              | \$9.49                | (\$2.01)        | -17.5%         |
| 8 ccf of water usage  | \$11.50              | \$9.52                | (\$1.98)        | -17.2%         |
| 16 ccf of water usage | \$19.84              | \$19.04               | (\$0.80)        | -4.0%          |
| 24 ccf of water usage | \$29.76              | \$28.56               | (\$1.20)        | -4.0%          |
| 32 ccf of water usage | \$39.68              | \$38.08               | (\$1.60)        | -4.0%          |
| 48 ccf of water usage | \$59.52              | \$57.12               | (\$2.40)        | -4.0%          |
| 60 ccf of water usage | \$74.40              | \$71.40               | (\$3.00)        | -4.0%          |

### 3.7 SEWER RATE SURVEY

Figure 3-1 shows the Orange County sewer rate survey for comparable utilities in the same area as the City. The total bill calculations assume 14 ccf of water for applicable utilities. The red bars show the City’s current and proposed bill; the blue line represents the average bill, which is \$21.65 per month.

Figure 3-1: Sewer Rate Survey

