City of San Jacinto

Water & Wastewater Rate Study

Final Report / July 1, 2020

RAFTELIS

SAN JACINTO

RAFTELIS

July 1, 2020

Ms. Michelle Holmes
Finance Director
City of San Jacinto
595 S. San Jacinto Avenue
San Jacinto, CA 92583

Subject: Water and Wastewater Rate Study Report

Dear Ms. Holmes,

Raftelis Financial Consultants, Inc. (Raftelis) is pleased to present this Water and Wastewater Rate Study Report (Study) for the City of San Jacinto (City) water and wastewater enterprises. The Study develops long-term financial plans and designs water and wastewater rates with technically sound methodologies which we believe meet the requirements of California Constitution Article XIII D, Section 6 (commonly referred to as Proposition 218).

The major objectives of the study include:

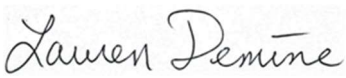
1. Developing a financial plan for each enterprise that meets the utilities' revenue requirements, including operations and maintenance (O&M) costs and the capital improvement plan (CIP) while adequately funding reserves in accordance with industry best practices and achieving debt coverage requirements.
2. Conducting cost-of-service analyses that develops the cost to serve customers in each class, per Proposition 218 and industry standards.
3. Reviewing the current rate structures, evaluating alternative rate structures, customer classes, and fixed and variable cost recovery for the water and wastewater operations.
4. Implementing five-year rate schedules that are compliant with Proposition 218.

The report includes a brief Executive Summary followed by a detailed discussion of Study key findings and recommendations related to the development of the financial plan, the cost-of-service allocations, and an in-depth derivation of proposed water and wastewater rates.

It has been a pleasure working with you and we wish to express our thanks for the support provided by you and City staff during this study.

Sincerely,

Steve Gagnon, PE
Senior Manager



Lauren Demine
Lead Consultant

Arisha Ashraf
Consultant

445 S Figueroa St, Suite 2270
Los Angeles CA 90071
www.raftelis.com

Table of Contents

List of Tables

List of Figures

This page intentionally left blank to facilitate two-sided printing.

1. Executive Summary

1.1. Study Background

In 2019, the City of San Jacinto (City) engaged Raftelis to conduct a Water and Wastewater Rate Study (Study) for its water and wastewater enterprises. The Study was to include five-year financial plans and water and wastewater rate derivations. This report presents the proposed financial plans and the resulting rates for implementation in July of 2020.

This Executive Summary describes the rate study methodology and resulting water and wastewater rates. The detailed assumptions used in the financial plans, proposed financial plan results, and full rate derivations are provided in Sections 2 through 6 for water and Sections 7 through 10 for wastewater. The City wishes to establish fair and equitable rates that:

1. Meet the City's fiscal operational expenses, reserve goals, and capital investments to maintain each enterprise
2. Are fair and equitable, and, therefore proportionately allocate the costs of providing service in accordance with California Constitution article XIII D, Section 6 (commonly referred to as Proposition 218)
3. Result in stable charges over time for customers

1.2. Rate Setting Methodology and Legal Requirements

1.2.1. Cost-Based Rate-Setting Methodology

To develop water and wastewater rates that comply with Proposition 218 and industry standards while meeting other emerging goals and objectives of the City, there are four major steps discussed below.

1.2.1.1. Calculate the Revenue Requirement

The rate-making process starts by determining the Test Year revenue requirement, which for this Study is Fiscal Year End (FYE) 2021 which runs from July 1, 2020 through June 30, 2021. The revenue requirement should sufficiently fund the utility's O&M expenses, debt service, capital expenses, and reserve funding.

1.2.1.2. Cost-of-Service Analysis

The annual cost of providing water and wastewater service is distributed among customer classes commensurate with their service requirements. A COS analysis involves the following:

1. Functionalize costs. Examples of functions for water are water supply costs, groundwater recharge costs, transmission and distribution, billing and customer service, and meter service.
2. Allocate functionalized costs to cost components. Water cost components include supply, base delivery, maximum day, maximum hour[1], meter service, customer billing and collection billing, and groundwater recharge costs. Wastewater cost components include collection and customer service.
3. Distribute costs to customer classes. Distribute cost, using unit costs, to customer classes in proportion to their demands and burdens on the water system. This is described in the M1 Manual published by AWWA.

[1] Collectively, maximum day and maximum hour costs are known as peaking costs or capacity costs.

A COS analysis for water considers both the average quantity of water consumed (base costs) and the peak rate at which it is consumed (peaking or capacity costs as identified by maximum day and maximum hour demands[2]). Peaking costs are incurred during peak times of consumption. There are additional costs associated with designing, constructing, and operating and maintaining facilities to meet peak demands. These peak demand costs should be allocated to those customers whose water usage patterns generate additional costs for the utility. In other words, not all customer classes and not all customers share the same responsibility for peaking related costs.

1.2.1.3. Rate Design and Calculations

Rates do more than simply recover costs. Within the legal framework and industry standards, properly designed rates should support and optimize a blend of utility objectives, such as conservation, affordability for essential needs, and revenue stability, among other objectives. Rates act as a public information tool in communicating these objectives to customers.

1.2.1.4. Rate Adoption

Rate adoption is the last step of the rate-making process. Raftelis documents the rate study results in this report which details the basis upon which the rates were calculated, the rationale and justifications behind the proposed charges, any changes to rate structures, and anticipated financial impacts to ratepayers.

1.2.2. Legal Requirements

1.2.2.1. California Constitution – Article XIII D, Section 6 (Proposition 218)

Proposition 218 was enacted by voters in 1996 to ensure, in part, that fees and charges imposed for ongoing delivery of a service to a property (property-related fees and charges) are proportional to and do not exceed the cost of providing service. Water and sewer service fees and charges are property-related fees and charges subject to the provisions of California Constitution Article XIII D, Section 6 (Proposition 218). The principal requirements, as they relate to public water and sewer service fees and charges are as follows:

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

As stated in AWWA's M1 Manual, "water rates and charges should be recovered from classes of customers in proportion to the cost of serving those customers." Raftelis follows industry standard rate setting methodologies set forth by the AWWA M1 Manual to ensure this Study meets Proposition 218 requirements and creates rates that do not exceed the proportionate cost of providing water services.

[2] System capacity is the system's ability to supply water to all delivery points at the time when demanded. Coincidental peaking factors are calculated for each customer class at the time of greatest system demand. The time of greatest demand is known as peak demand. Both the operating costs and capital asset related costs incurred to accommodate the peak flows are generally allocated to each customer class based upon the class's relative demands during the peak month, day, and hour events.

1.2.2.2. California Constitution – Article X, Section 2

Article X, Section 2 of the California Constitution states the following:

> *"It is hereby declared that because of the conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare."*

Article X, Section 2 of the State Constitution establishes the need to preserve the State's water supplies and to discourage the waste or unreasonable use of water by encouraging conservation. By definition, public agencies are constitutionally mandated to maximize the beneficial use of water, prevent waste, and encourage conservation.

In addition, Section 106 of the California Water Code declares that the highest priority use of water is for domestic purposes, with irrigation water secondary in importance. To meet the objectives of Article X, Section 2 and the California Water Code, a water purveyor may utilize its water rate design to incentivize the efficient use of water. The City established tiered water rates (also known as "inclining tier" or "inclining block") water rates to incentivize customers to use water in an efficient manner. The inclining tier rates (as well as rates for uniform rate classes) need to be based on the proportionate costs incurred to provide water to customer classes and within each customer class to achieve compliance with Proposition 218.

"Inclining" tier rate structures (which are synonymous with "increasing" tier rate structures and "tiered" rates), when properly designed and differentiated by customer class, allow a water utility to send conservation price signals to customers while proportionately allocating the costs of service. Due to a necessity to reduce water waste and increase efficiency, tiered water rates have gained widespread use, especially in relatively water-scarce regions like California. Tiered rates meet the requirements of Proposition 218 if the tiered rates reasonably reflect the proportionate cost of providing service in each tier.

1.3. Water - Results and Recommendations

The Study for the water enterprise includes three different recommended rate scenarios to be presented to the City Council on May 19, 2020. The difference between the three scenarios is the level of Capital Improvement Plan (CIP) spending during the Study Period. Each scenario fully funds the O&M expenses for the utility but differs in the proposed revenue adjustments and debt levels. Scenario 1 fully funds the CIP provided by the City through a combination of rates and debt. Scenario 2 is a scenario which funds 50 percent of the CIP and Scenario 3 funds 30 percent of the CIP.

1.3.1. Factors Affecting Revenue Adjustments

The following items affect the City's revenue requirement (i.e., costs) and thus its rates. The City's expenses include O&M expenses and capital expenses, including debt service.

- **Capital Funding:** Depending upon the selected scenario, the City has approximately $3.9 to $13.3 million in capital expenditures over the next five fiscal years. The capital replacement projects will be funded through a combination of cash from rates and debt. The City may elect to accelerate or postpone its Capital Improvement Plan (CIP) timeline based on system demand, available funds, and other conditions. A more

detailed discussion of the projected capital improvement projects to be funded through the five-year CIP is provided in Section 2.5 and Table 2-15, Table 2-16, and Table 2-17.

» **Reserve Funding:** The City does not currently have a reserve policy specific to the water enterprise. Raftelis recommends that the City establishes reserve policies to meet its cash flow needs, ensure adequate funding of repairs and replacements in the event of asset failure or other unforeseen circumstances or events, and protect ratepayers from rate spikes. The City's reserves are further discussed in Section 2.7 and reserve balances for the Proposed Financial Plan are shown in Figure 2-3, Figure 2-6, and Figure 2-9. Raftelis recommends establishing an operating reserve policy of a minimum of 90 days of operating expenses in cash to meet cash flow needs. Raftelis also recommends establishing a Water Capital Reserve with a minimum target balance of one year of average replacement capital costs.

1.3.2. Proposed Water Rates

Note that in this report, the terms rate and charge are often used interchangeably. There are two significant changes to the City's rate structure proposed in this Study; Raftelis proposes to 1) group customers together by traditional classes such as Single Family Residential (SFR), Multi-Family Residential (MFR), Commercial, Irrigation, Schools, Construction, and City Use, and 2) change the variable rate structure from tiered rates by meter size to a two tiered rate structure for SFR accounts and a uniform rate structure for all other customer classes. Additionally, Raftelis proposes to lower the Tier 1 breakpoint from the current 15 or 20 hundred cubic feet (hcf), depending on meter size, to 11 hcf.

City Staff and Raftelis reduced the Tier 1 breakpoint to reflect an updated estimate of indoor water usage. Using City water data, Raftelis calculated the minimum monthly water use for the three lowest billing periods during the year. These occur during the winter months and approximates indoor water use since outdoor irrigation is assumed to be minimal.

1.3.3. Scenario 1 – Funds 100% of CIP

Table 1-1 shows the proposed revenue adjustments[3] to fund 100 percent of the City's CIP and used to calculate the proposed rates. Although this table shows anticipated revenue adjustments for FYE 2021 through FYE 2025, the City will review and confirm the revenue adjustments on an annual basis. The revenue adjustment is the additional amount of revenue collected compared to the prior fiscal year. Note that the City's FYE runs from July 1 to June 30 of the following year. For example, FYE 2021 runs from July 1, 2020 through June 30, 2021.

Table 1-1: Proposed Yearly Revenue Adjustments – Scenario 1

	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Effective Month	July	July	July	July	July
Revenue Adjustment	48.0%	12.0%	8.0%	8.0%	8.0%

The City's rate structure is composed of two components: a monthly fixed charge and a variable volumetric rate (which when multiplied by a customer's water use, yields a commodity charge). Each of these charges is described below.

[3] Revenue adjustments do not necessarily equate to customer bill impacts but describe the total increase in revenue. Bill impacts are discussed in Section 6.

1.3.3.1. Fixed Charge

The proposed fixed charge is composed of two components:

$$Total\ Fixed\ Meter\ Service\ Charge = 1)\ Meter\ Service\ Charge + 2)\ Customer\ Service\ Charge$$

The first component, the meter service charge, is based on the meter size serving a property. The meter service charge is calculated to recover the cost to maintain and replace meters and to recover a portion of extra-capacity related costs (i.e., costs associated with meeting system capacity beyond that required for average daily demand). This cost is proportional to the safe potential flow (hydraulic capacity) through the meter and goes up with meter size. The second component is the customer service component. This component recovers costs associated with answering customer calls and billing customers. These costs are not related to meter size. The full derivation of the total charge is described in Section 5.2, and the ***total*** fixed charge is shown in Table 1-2. The proposed rates beginning FYE 2022 are adjusted by the revenue adjustment percentages shown in Table 1-1. The proposed revenue adjustments represent the increase in total revenue. All rates are rounded up to the nearest whole penny.

Table 1-2: Current and Proposed Monthly Fixed Charge – Scenario 1

Meter Size (inches)	Current Charges	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
5/8"	$15.36	$18.38	$20.59	$22.24	$24.02	$25.95
3/4"	$15.36	$18.38	$20.59	$22.24	$24.02	$25.95
1"	$24.04	$26.10	$29.23	$31.57	$34.10	$36.83
1 1/2"	$46.16	$45.39	$50.85	$54.92	$59.32	$64.07
2"	$69.25	$68.55	$76.78	$82.93	$89.57	$96.74
3"	$74.08	$141.88	$158.91	$171.63	$185.37	$200.20
4"	$126.98	$249.94	$279.94	$302.34	$326.53	$352.66
6"	$230.85	$508.52	$569.55	$615.12	$664.33	$717.48
8"	$334.75	$933.05	$1,045.02	$1,128.63	$1,218.93	$1,316.45

1.3.3.2. Volumetric Rate

Table 1-3 and Table 1-4 show the current and proposed volumetric rates by customer class, respectively. The rates are designed to recover the costs associated with serving each class and tier as discussed in Section 5.4.

Table 1-3: Current Volumetric Rates ($/hcf)

Meter Size (inches)	Current	Current
5/8" & 3/4"		
Tier 1	0-15 hcf	$1.53
Tier 2	>16 hcf	$2.12
1" to 2"		
Tier 1	0-20 hcf	$1.53
Tier 2	>21 hcf	$2.12
≥3"	uniform	$1.64
Bulk Water	uniform	$1.98
Construction	uniform	$1.98
Adjudication Surcharge	uniform	$1.12

Table 1-4: Proposed Volumetric Rates ($/hcf) – Scenario 1

Customer Class	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
SFR					
Tier 1	$2.99	$3.35	$3.62	$3.91	$4.23
Tier 2	$3.67	$4.12	$4.45	$4.81	$5.20
MFR/Mobile	$3.52	$3.95	$4.27	$4.62	$4.99
Commercial	$3.52	$3.95	$4.27	$4.62	$4.99
Irrigation	$3.52	$3.95	$4.27	$4.62	$4.99
Schools	$3.52	$3.95	$4.27	$4.62	$4.99
Construction/Bulk Water	$3.52	$3.95	$4.27	$4.62	$4.99
City Use	$3.52	$3.95	$4.27	$4.62	$4.99
GW Recharge	$1.23	$1.38	$1.50	$1.62	$1.75

1.3.3.3. Private Fire Service Charges

The City's current and proposed private fire service charges are shown in Table 1-5. The proposed private fire service charges are proportional to the potential flow through each fire connection size and are derived in Section 5.3.

Table 1-5: Current and Proposed Private Fire Charges – Scenario 1

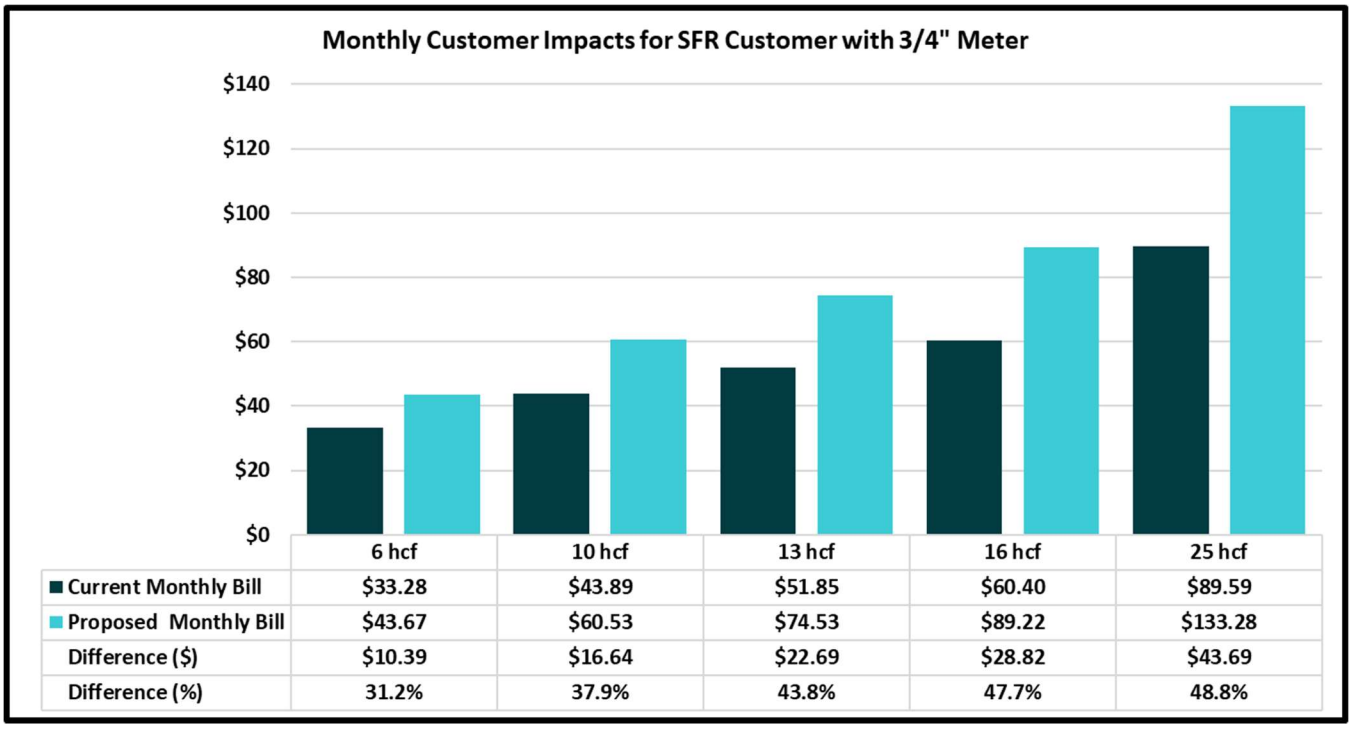
Private Fire Connection Size (inches)	Current Charges	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
4"	$15.36	$33.90	$37.97	$41.01	$44.30	$47.85
6"	$15.36	$98.47	$110.29	$119.12	$128.65	$138.95
8"	$15.36	$209.84	$235.03	$253.84	$274.15	$296.09
10"	$15.36	$377.37	$422.66	$456.48	$493.00	$532.44
12"	$15.36	$609.56	$682.71	$737.33	$796.32	$860.03

1.3.3.4. Bill Impacts

Figure 1-1 shows the Single Family Residential (SFR) customer bill impacts for Scenario 1 at various use points and assuming a 3/4-inch meter, which is the most common meter size for SFR customers. Bills are calculated at current rates and tiers and compared to proposed rates and tiers. The tables show the percentage and dollar change

between current and proposed rates. The levels of use shown represent bills from very low water use to above average water use. The approximate average water use for SFR customers is 13 hcf per month.

Figure 1-1: Single Family Bill Impacts – Scenario 1



	6 hcf	10 hcf	13 hcf	16 hcf	25 hcf
Current Monthly Bill	$33.28	$43.89	$51.85	$60.40	$89.59
Proposed Monthly Bill	$43.67	$60.53	$74.53	$89.22	$133.28
Difference ($)	$10.39	$16.64	$22.69	$28.82	$43.69
Difference (%)	31.2%	37.9%	43.8%	47.7%	48.8%

1.3.4. Scenario 2 – Funds 50% of CIP

Table 1-6 shows the proposed revenue adjustments[4] to fund 50 percent of the City's CIP and used to calculate the proposed rates. Although this table shows anticipated revenue adjustments for FYE 2021 through FYE 2025, the City will review and confirm the revenue adjustments on an annual basis. The revenue adjustment is the additional amount of revenue collected compared to the prior fiscal year.

Table 1-6: Proposed Yearly Revenue Adjustments – Scenario 2

	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Effective Month	July	July	July	July	July
Revenue Adjustment	24.0%	16.0%	7.0%	7.0%	7.0%

The City's rate structure is composed of two components: a monthly fixed charge and a variable volumetric rate (which when multiplied by a customer's water use, yields a commodity charge). Each of these charges is described below.

1.3.4.1. Fixed Charge

The City's current and proposed fixed charges for Scenario 2 are shown in Table 1-7. The full derivation of the total charge is described in Section 5.2. The proposed rates beginning FYE 2022 are adjusted by the revenue adjustment

[4] Revenue adjustments do not necessarily equate to customer bill impacts but describe the total increase in revenue. Bill impacts are discussed in Section 6.

percentage found in Table 1-6. The proposed revenue adjustments represent the increase in total revenue. All rates are rounded up to the nearest whole penny.

Table 1-7: Current and Proposed Monthly Fixed Charge – Scenario 2

Meter Size (inches)	Current Charges	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
5/8"	$15.36	$17.50	$20.30	$21.73	$23.26	$24.89
3/4"	$15.36	$17.50	$20.30	$21.73	$23.26	$24.89
1"	$24.04	$24.50	$28.42	$30.41	$32.54	$34.82
1 1/2"	$46.16	$41.99	$48.71	$52.12	$55.77	$59.68
2"	$69.25	$62.97	$73.05	$78.17	$83.65	$89.51
3"	$74.08	$129.43	$150.15	$160.67	$171.92	$183.96
4"	$126.98	$227.37	$263.76	$282.23	$301.99	$323.13
6"	$230.85	$461.74	$535.62	$573.12	$613.24	$656.17
8"	$334.75	$846.51	$981.95	$1,050.69	$1,124.24	$1,202.94

1.3.4.2. Volumetric Rate

Table 1-8 and Table 1-9 show the current and proposed volumetric rates by customer class, respectively. The rates are designed to recover the costs associated with serving each class and tier as discussed in Section 5.4.

Table 1-8: Current Volumetric Rates ($/hcf)

Meter Size (inches)	Current	Current
5/8" & 3/4"		
Tier 1	0-15 hcf	$1.53
Tier 2	>16 hcf	$2.12
1" to 2"		
Tier 1	0-20 hcf	$1.53
Tier 2	>21 hcf	$2.12
≥3"	uniform	$1.64
Bulk Water	uniform	$1.98
Construction	uniform	$1.98
Adjudication Surcharge	uniform	$1.12

Table 1-9: Proposed Volumetric Rates ($/hcf) – Scenario 2

Customer Class	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
SFR					
Tier 1	$2.20	$2.56	$2.74	$2.94	$3.15
Tier 2	$2.73	$3.17	$3.40	$3.64	$3.90
MFR/Mobile	$2.61	$3.03	$3.25	$3.48	$3.73
Commercial	$2.61	$3.03	$3.25	$3.48	$3.73
Irrigation	$2.61	$3.03	$3.25	$3.48	$3.73
Schools	$2.61	$3.03	$3.25	$3.48	$3.73
Construction/Bulk Water	$2.61	$3.03	$3.25	$3.48	$3.73
City Use	$2.61	$3.03	$3.25	$3.48	$3.73
GW Recharge	$1.23	$1.43	$1.54	$1.65	$1.77

1.3.4.3. Private Fire Service Charges

The City's current and proposed private fire service charges are shown in Table 1-10. The proposed private fire service charges are proportional to the potential flow through each fire connection size and are derived in Section 5.3.

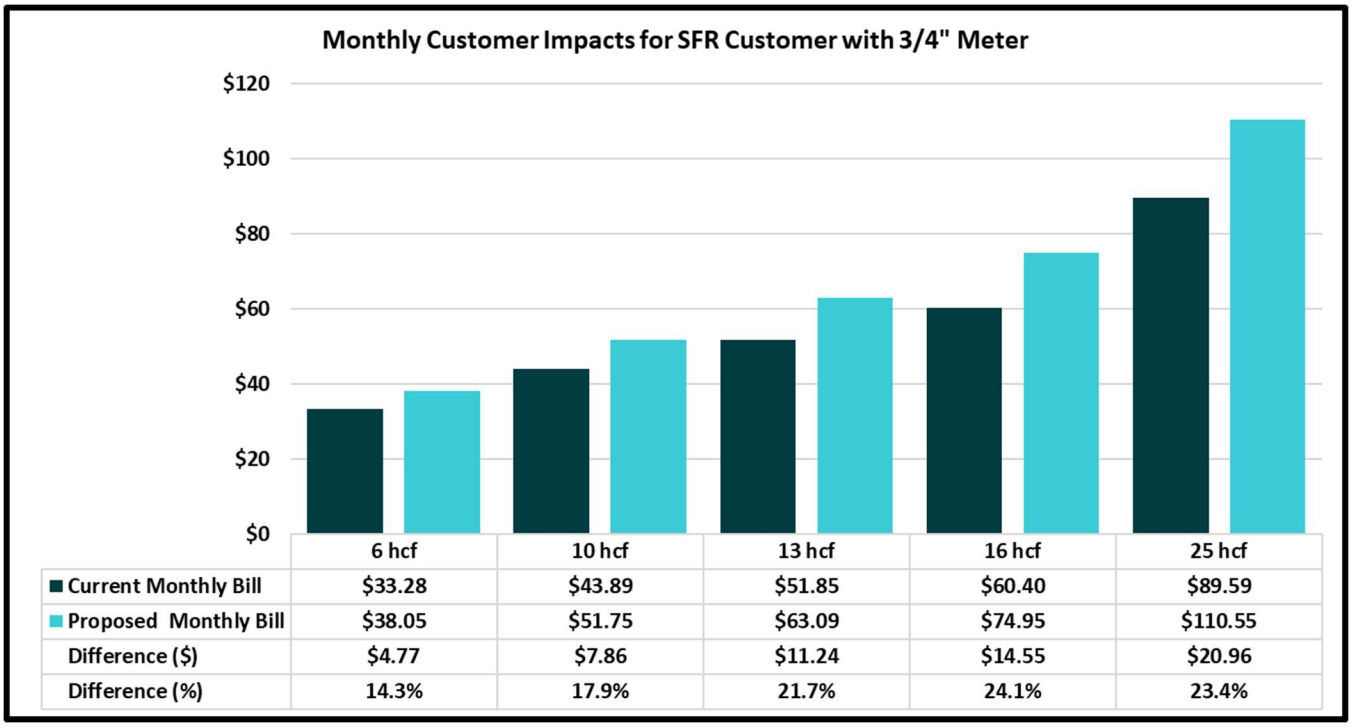
Table 1-10: Current and Proposed Private Fire Charges – Scenario 2

Private Fire Connection Size (inches)	Current Charges	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
4"	$15.36	$28.96	$33.60	$35.96	$38.48	$41.18
6"	$15.36	$84.14	$97.61	$104.45	$111.77	$119.60
8"	$15.36	$179.30	$207.99	$222.55	$238.13	$254.80
10"	$15.36	$322.44	$374.04	$400.23	$428.25	$458.23
12"	$15.36	$520.84	$604.18	$646.48	$691.74	$740.17

1.3.4.4. Bill Impacts

Figure 1-2 shows the Single Family Residential (SFR) customer bill impacts for Scenario 2 at various use points and assuming a 3/4-inch meter, which is the most common meter size for SFR customers. Bills are calculated at current rates and tiers and compared to proposed rates and tiers. The tables show the percentage and dollar change between current and proposed rates. The levels of use shown represent bills from very low water use to above average water use. The approximate average water use for SFR customers is 13 hcf per month.

Figure 1-2: Single Family Bill Impacts – Scenario 2



	6 hcf	10 hcf	13 hcf	16 hcf	25 hcf
Current Monthly Bill	$33.28	$43.89	$51.85	$60.40	$89.59
Proposed Monthly Bill	$38.05	$51.75	$63.09	$74.95	$110.55
Difference ($)	$4.77	$7.86	$11.24	$14.55	$20.96
Difference (%)	14.3%	17.9%	21.7%	24.1%	23.4%

1.3.5. Scenario 3 – Funds 30% of CIP

Table 1-11 shows the proposed revenue adjustments[5] to fund 30 percent of the City's CIP and used to calculate the proposed rates. Although this table shows anticipated revenue adjustments for FYE 2021 through FYE 2025, the City will review and confirm the revenue adjustments on an annual basis. The revenue adjustment is the additional amount of revenue collected compared to the prior fiscal year.

Table 1-11: Proposed Yearly Revenue Adjustments – Scenario 3

	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Effective Month	July	July	July	July	July
Revenue Adjustment	17.0%	13.0%	8.0%	8.0%	6.0%

The City's rate structure is composed of two components: a monthly fixed charge and a variable volumetric rate (which when multiplied by a customer's water use, yields a commodity charge). Each of these charges is described below.

1.3.5.1. Fixed Charge

The City's current and proposed fixed charges for Scenario 3 are shown in Table 1-12. The full derivation of the total charge is described in Section 5.2. The proposed rates beginning FYE 2022 are adjusted by the revenue adjustment percentage found in Table 1-11. The proposed revenue adjustments represent the increase in total revenue. All rates are rounded up to the nearest whole penny.

[5] Revenue adjustments do not necessarily equate to customer bill impacts but describe the total increase in revenue. Bill impacts are discussed in Section 6.

Table 1-12: Current and Proposed Monthly Fixed Charge – Scenario 3

Meter Size (inches)	Current Charges	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
5/8"	$15.36	$17.29	$19.54	$21.11	$22.80	$24.17
3/4"	$15.36	$17.29	$19.54	$21.11	$22.80	$24.17
1"	$24.04	$24.09	$27.23	$29.41	$31.77	$33.68
1 1/2"	$46.16	$41.09	$46.43	$50.15	$54.17	$57.43
2"	$69.25	$61.48	$69.48	$75.04	$81.05	$85.92
3"	$74.08	$126.07	$142.46	$153.86	$166.17	$176.15
4"	$126.98	$221.25	$250.02	$270.03	$291.64	$309.14
6"	$230.85	$449.01	$507.39	$547.99	$591.83	$627.34
8"	$334.75	$822.94	$929.93	$1,004.33	$1,084.68	$1,149.77

1.3.5.2. Volumetric Rate

Table 1-13 and Table 1-14 show the current and proposed volumetric rates by customer class, respectively. The rates are designed to recover the costs associated with serving each class and tier as discussed in Section 5.4.

Table 1-13: Current Volumetric Rates ($/hcf)

Meter Size (inches)	Current	Current
5/8" & 3/4"		
Tier 1	0-15 hcf	$1.53
Tier 2	>16 hcf	$2.12
1" to 2"		
Tier 1	0-20 hcf	$1.53
Tier 2	>21 hcf	$2.12
≥3"	uniform	$1.64
Bulk Water	uniform	$1.98
Construction	uniform	$1.98
Adjudication Surcharge	uniform	$1.12

Table 1-14: Proposed Volumetric Rates ($/hcf) – Scenario 3

Customer Class	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
SFR					
Tier 1	$1.97	$2.23	$2.41	$2.61	$2.77
Tier 2	$2.46	$2.78	$3.01	$3.26	$3.46
MFR/Mobile	$2.34	$2.65	$2.87	$3.10	$3.29
Commercial	$2.34	$2.65	$2.87	$3.10	$3.29
Irrigation	$2.34	$2.65	$2.87	$3.10	$3.29
Schools	$2.34	$2.65	$2.87	$3.10	$3.29
Construction/Bulk Wa	$2.34	$2.65	$2.87	$3.10	$3.29
City Use	$2.34	$2.65	$2.87	$3.10	$3.29
GW Recharge	$1.23	$1.39	$1.51	$1.64	$1.74

1.3.5.3. Private Fire Service Charges

The City's current and proposed private fire service charges are shown in Table 1-15. The proposed private fire service charges are proportional to the potential flow through each fire connection size and are derived in Section 5.3.

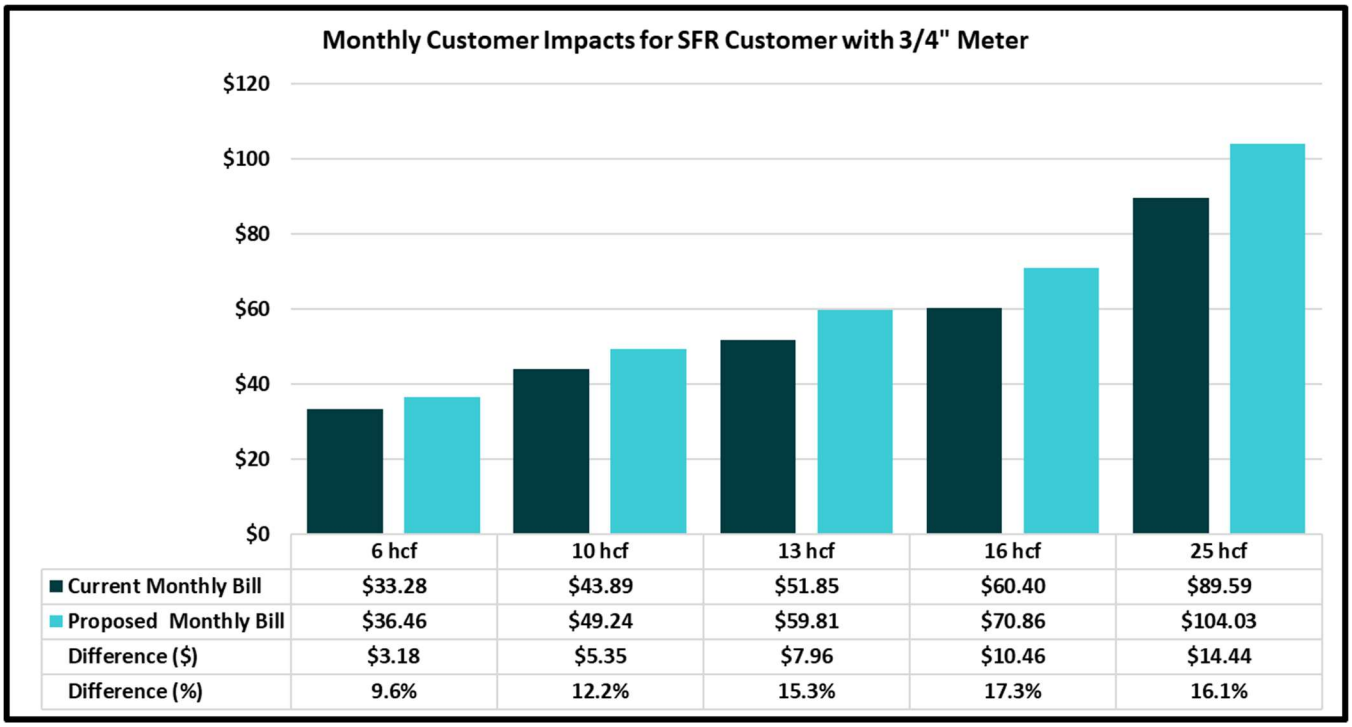
Table 1-15: Current and Proposed Private Fire Charges – Scenario 3

Private Fire Connection Size (inches)	Current Charges	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
4"	$15.36	$27.56	$31.15	$33.65	$36.35	$38.54
6"	$15.36	$80.05	$90.46	$97.70	$105.52	$111.86
8"	$15.36	$170.59	$192.78	$208.21	$224.87	$238.37
10"	$15.36	$306.79	$346.68	$374.42	$404.38	$428.65
12"	$15.36	$495.55	$559.97	$604.77	$653.16	$692.35

1.3.5.4. Bill Impacts

Figure 1-3 shows the Single Family Residential (SFR) customer bill impacts for Scenario 3 at various use points and assuming a 3/4-inch meter, which is the most common meter size for SFR customers. Bills are calculated at current rates and tiers and compared to proposed rates and tiers. The tables show the percentage and dollar change between current and proposed rates. The levels of use shown represent bills from very low water use to above average water use. The approximate average water use for SFR customers is 13 hcf per month.

Figure 1-3: Single Family Bill Impacts – Scenario 3



	6 hcf	10 hcf	13 hcf	16 hcf	25 hcf
Current Monthly Bill	$33.28	$43.89	$51.85	$60.40	$89.59
Proposed Monthly Bill	$36.46	$49.24	$59.81	$70.86	$104.03
Difference ($)	$3.18	$5.35	$7.96	$10.46	$14.44
Difference (%)	9.6%	12.2%	15.3%	17.3%	16.1%

1.4. Wastewater - Results and Recommendations

There is only one proposed scenario for the wastewater enterprise in which the Capital Improvement Plan is funded 100 percent.

1.4.1. Factors Affecting Revenue Adjustments

The following items affect the City's revenue requirement (i.e., costs) and thus its rates. The City's expenses include O&M expenses and capital expenses, including debt service.

- **Capital Funding:** The City has approximately $3.2 million in capital expenditures over the next five fiscal years. The capital replacement projects will be funded through a combination of cash reserves from rates and debt. The City may elect to accelerate or postpone its Capital Improvement Plan (CIP) timeline based on system demand, available funds, and other conditions. A more detailed discussion of the projected capital improvement projects to be funded through the five-year CIP is provided in Section 7.5 in Table 7-8.

- **Reserve Funding:** The City does not currently have a reserve policy specific to the wastewater enterprise. Raftelis recommends that the City establish reserve policies to meet its cash flow needs, ensure adequate funding of repairs and replacements in the event of asset failure or other unforeseen circumstances or events, and protect ratepayers from rate spikes. The City's reserves are further discussed in Section 7.7 and reserve balances for the selected Financial Plan are shown in Table 7-11. Raftelis recommends establishing an operating reserve policy of a minimum of 90 days of operating expenses in cash to meet cash flow needs. Raftelis also recommends establishing a Wastewater Capital Reserve with a reserve policy for the utility of a minimum target balance of one year of average replacement capital costs.

1.4.2. Proposed Wastewater Rates

Table 1-16 shows the proposed revenue adjustments[6] to calculate the proposed rates. Although this table shows anticipated revenue adjustments for FYE 2021 through FYE 2025, the City will review and confirm the revenue adjustments on an annual basis. The revenue adjustment is the additional amount of revenue collected compared to the prior fiscal year[7]. Note that the City's FYE runs from July 1 to June 30 of the following year. For example, FYE 2021 runs from July 1, 2020 through June 30, 2021.

Table 1-16: Proposed Yearly Revenue Adjustments for Wastewater

	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Effective Month	July	July	July	July	July
Revenue Adjustment	18.0%	12.0%	8.0%	8.0%	8.0%

The City's rate structure includes a charge per equivalent dwelling unit (EDU) for most customers and a rate based on sewer flow (in hcf) for some commercial customers. The majority of accounts are charged per EDU, with only roughly 150 accounts charged on a sewer flow-basis. Raftelis maintains this rate structure in the proposed rates. The EDU- and flow-based charges for both current and proposed rates are presented in Table 1-17.

[6] Revenue adjustments do not necessarily equate to customer bill impacts but describe the total increase in revenue.

Table 1-17: Current and Proposed Wastewater Rates

Charge Type	Current Rates	Proposed Rates
$/EDU	$4.92	$5.83
$/hcf	$0.45	$0.53

Note: 1 EDU = 11 hcf

2. Water Financial Plan

This section describes the Water Financial Plan assumptions to project operating and capital expenses as well as reserve policies and debt coverage requirements that determine the overall revenue adjustments required to ensure financial stability. Revenue adjustments represent the average increase in rates for the City's water enterprise.

2.1. Water System Background

The City's Water Department services approximately 30 percent of the total population of the jurisdiction, with the remaining residents being served by Eastern Municipal Water District (EMWD) and Lake Hemet Municipal Water District (LHMWD). The City estimates that the total size of the City's system will be approximately 6,000 service connections, serving a population base of 23,000 customers at eventual build-out.

The City is both a producer of water as well as a distributor. The City operates four wells, two treatment facilities, and three service connections to EMWD as well as a storage system of three reservoirs with a capacity of 3.5 million gallons. The distribution system consists of 125 miles of piping to distribute the water to the approximately 4,000 connections or about 15,200 residents within the service area. The City historically relies on its own pumping system to provide approximately 100 percent of its water supply from the Hemet/San Jacinto Basin (Basin), and only purchases water from EMWD during emergencies.

The Basin has been subject to overdraft which, on a long-term basis, threatens the City's water supply. Due to this threat, the City participated in a settlement and stipulated judgment of Soboba band of Luiseno Indians v. Metropolitan Water Districts of Southern California regarding a groundwater management plan for the Basin. The Soboba Water Rights negotiations were a key factor for the formation of the Hemet-San Jacinto Watermaster which is responsible for monitoring and addressing the use of groundwater within the Basin.

In 1994, Soboba, the U.S. Department of the Interior, and the U.S. Department of Justice started their water rights claim and noted that the stakeholders had over pumped the groundwater basins and that the groundwater basins should be managed as a condition of the settlement. After that, EMWD and LHMWD reached out to the cities of Hemet and San Jacinto, as well as local private water producers, to develop a mechanism for the groundwater management. In early 2000, the water distribution allocations were determined and the cities of Hemet and San Jacinto, EMWD, and LHMWD agreed to work together to resolve the groundwater management issues. In 2007, the "Hemet/San Jacinto Groundwater Area Water Management Plan" was finalized, which serves as the basis for the Watermaster's work.

A key component of the groundwater basin management was the construction of a series of recharge ponds located along Ramona Expressway and the San Jacinto River and the importation of water from the Metropolitan Water District (MWD) for recharging and balancing the Basin. Construction of the ponds was completed in July 2012. Imported water from MWD was initially received while the ponds were under construction in June of 2012 as part of the demonstration phase, in which EMWD tested the feasibility of recharge. The Stipulated Judgment was signed in April of 2013 and the Watermaster started its meetings in the same month.

As part of the settlement and resulting groundwater management plan for the Hemet/San Jacinto Groundwater Management Area, the City was mandated to purchase supplemental water in the amount of 938 acre feet (AF) per year to protect the Basin from further overdraft and ensure that the City has a continued reliable source of water for its customers. The supplemental water will be recharged into the Groundwater Management Area and will be

available to the Basin as a long-term water supply source. Water sources for recharge may include either State Water Project or Colorado River Water, depending on water management throughout the state.

2.2. Key Assumptions

2.2.1. Inflationary Cost Assumptions

The Study period is FYE 2021 to 2025, with proposed revenue adjustments and rates presented for the same period. Various types of assumptions and inputs are incorporated into the Study based on discussions with and/or direction from City staff. These include the projected number of accounts, water demand over time, and inflationary factors among others.

The inflation factors are used to project costs across the Study period. The factors are applied to all years beginning in FYE 2021. FYE 2020 relies on the City's adopted budget. Raftelis worked with City staff to escalate individual budget line items according to appropriate escalation factors. Inflationary factors are presented in Table 2-1.

A general inflation rate of 2.5 percent is based on the long-term change in the Consumer Price Index (CPI). Salaries and benefits tend to outpace general inflation, and City staff have estimated annual increases of 3 and 5 percent, respectively. Power and Water Purchases reflect the anticipated increase in the cost to pay for electricity and purchase water from EMWD, respectively. Capital cost escalation is estimated at 3.2 percent per year based on historical construction cost index (CCI) inflation. To predict non-operating revenues, the Study assumes that all recurring non-rate revenues (miscellaneous revenues) will not increase in future years and reserve interest earnings will increase at 1.3 percent per year through FYE 2025. Interest rates earned on reserves are based on conservative estimates in a low interest financial environment.

Table 2-1: Water Inflationary Assumptions

Escalation Factors	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
General	2.5%	2.5%	2.5%	2.5%	2.5%
Salary	3.0%	3.0%	3.0%	3.0%	3.0%
Benefits	5.0%	5.0%	5.0%	5.0%	5.0%
Power	5.0%	5.0%	5.0%	5.0%	5.0%
Water Purchases	5.0%	5.0%	5.0%	5.0%	5.0%
Capital	3.2%	3.2%	3.2%	3.2%	3.2%
Non-Rate Revenues	0.0%	0.0%	0.0%	0.0%	0.0%
Interest Income	1.3%	1.3%	1.3%	1.3%	1.3%

2.2.2. Account Growth and Water Demand Assumptions

To estimate future water rate revenue two factors are used – account growth from new connections and changes in annual water demand. As shown in Table 2-2, the financial plan projects minimal growth in new water service connections for the Study period.

The demand factor for water represents the change in water consumption per account. The assumption for the Study period is that there will be no change in the consumption per account and that the only change in use will result from growth in accounts.

Table 2-2: Water Growth and Demand Assumptions

	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Account Growth	0.2%	0.2%	0.2%	0.2%	0.2%
Demand Factor	100%	100%	100%	100%	100%

2.3. Revenues from Current Rates

Raftelis created a five-year Water Financial Plan which models anticipated revenues and expenses. To calculate the projected revenue (without rate adjustments), the number of accounts is multiplied by the monthly fixed charge and the total water use is multiplied by the appropriate volumetric rate. The revenues generated from existing rates and charges are compared to expenses. This serves as the basis for any required revenue adjustments. In other words, if revenues are not sufficient to cover expenses, revenues are adjusted.

The City charges customers a monthly service charge based on the customer's meter size. Additionally, the City charges each account a flat Energy Surcharge. The current fixed charges for FYE 2020 are listed in Table 2-3.

Table 2-3: Current Water Monthly Service Charges

Meter Size (inches)	Current Charges
5/8"	$15.36
3/4"	$15.36
1"	$24.04
1 1/2"	$46.16
2"	$69.25
3"	$74.08
4"	$126.98
6"	$230.85
8"	$334.75
Energy Surcharge	$2.00

Some customers pay a monthly private fire service charge for private fire protection. The rates for the monthly fire service charge are calculated to recover the costs associated with private fire service capacity in the water distribution system. The current rates for the fire service charge for private fire lines are shown in Table 2-4.

Table 2-4: Current Monthly Private Fire Service Charges

Private Fire Connection Size (inches)	Current Charges
4"	$15.36
6"	$15.36
8"	$15.36
10"	$15.36
12"	$15.36

The volumetric component of a customer's water bill is calculated based on the number of units of water delivered to a property, measured in hundred cubic feet (hcf), multiplied by the rates which vary by meter size and tier. The current tier widths and rates are shown in Table 2-5. Additionally, the City has an Adjudication Surcharge that is applied to every unit of water used per account. The Adjudication Surcharge was developed by the City to recover the costs of the groundwater recharge required by the Soboba settlement discussed in Section 2.1. The rates in Table 2-5, multiplied by the amount of water use in each respective tier, determine the volumetric component of a customer's bill.

Table 2-5: Current Commodity Tiers and Rates ($/hcf)

Meter Size (inches)	Current Tier Definition	Current Charges
5/8" & 3/4"		
Tier 1	0-15 hcf	$1.53
Tier 2	>16 hcf	$2.12
1" to 2"		
Tier 1	0-20 hcf	$1.53
Tier 2	>21 hcf	$2.12
≥3"	uniform	$1.64
Bulk Water	uniform	$1.98
Construction	uniform	$1.98
Adjudication Surcharge	uniform	$1.12

Table 2-6 shows the projected number of water accounts, including private fire connections, by meter size for the Study Period. Raftelis projected the number of meters using FYE 2018 meter data provided by the City and the account growth projections shown in Table 2-2. As shown in the bottom half of Table 2-6, the number of private fire connections is not projected to change during the Study period. The number of accounts is used to forecast the amount of fixed revenue the City will receive from monthly fixed charges.

Table 2-6: Projected Water Accounts by Meter Size

Meter Size (inches)	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
5/8"	337	338	338	339	340
3/4"	3,381	3,389	3,397	3,405	3,413
1"	273	273	274	275	275
1 1/2"	35	35	35	35	35
2"	130	131	131	131	132
3"	2	2	2	2	2
4"	11	11	11	11	11
6"	7	7	7	7	7
8"	0	0	0	0	0
Total	**4,176**	**4,186**	**4,196**	**4,206**	**4,216**

Private Fire Connection Size (inches)	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
4"	30	30	30	30	30
6"	14	14	14	14	14
8"	21	21	21	21	21
10"	0	0	0	0	0
12"	0	0	0	0	0
Total	**65**	**65**	**65**	**65**	**65**

Table 2-7 shows estimated water use by meter size and tier or customer class for the Study period. The water use was projected from FYE 2018 water use data by escalating the data using the water use growth trends shown in Table 2-2. The water use is shown in hcf, where one hcf equals approximately 748 gallons.

Table 2-7: Water Use Projections by Meter Size/Customer Class (hcf)

Meter Size / Customer	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
5/8" & 3/4"					
Tier 1	396,112	397,061	398,009	398,958	399,906
Tier 2	129,610	129,920	130,230	130,541	130,851
1" to 2"					
Tier 1	67,441	67,602	67,764	67,925	68,087
Tier 2	246,596	247,187	247,777	248,368	248,958
≥3"	63,577	63,729	63,881	64,034	64,186
Bulk Water/Construction	1,210	1,210	1,210	1,210	1,210
City Water Use	27,238	27,238	27,238	27,238	27,238
Total	**931,784**	**933,947**	**936,110**	**938,273**	**940,436**

Table 2-8 summarizes the projected revenues from current rates. Fixed charge , private fire service charge, and energy surcharge revenues are calculated by multiplying the current monthly fixed charges (shown in Table 2-3) and the number of accounts (shown in Table 2-6) by twelve billing periods. This calculation is done for all meter sizes and then summed to arrive at the total revenues shown in Table 2-8. The same process is used to calculate the annual private fire service revenues. The energy surcharge revenue is calculated by multiplying the energy surcharge shown in Table 2-3 by the total number of water accounts shown in Table 2-6 by twelve billing periods.

Revenues from commodity charges are calculated by multiplying the current commodity rate (shown in Table 2-5) by the projected water use in hcf (shown in Table 2-7). This calculation is repeated for all meter sizes and tiers or customer classes and then summed to arrive at the total commodity charge revenue shown in Table 2-8. The adjudication surcharge revenue is calculated by multiplying the current rate shown in Table 2-5 by the total projected water use shown in Table 2-7. The overall adequacy of water revenues is measured by comparing the total projected annual revenue required from rates with projected revenues from the existing rates.

Table 2-8: Projected Water Rate Revenue with Current Rates

Revenue Source	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Fixed Charges	$932,003	$934,229	$936,455	$938,681	$940,908
Private Fire Charges	$11,981	$11,981	$11,981	$11,981	$11,981
Energy Surcharge	$100,224	$100,464	$100,704	$100,944	$101,184
Commodity Charges	$1,613,455	$1,617,313	$1,621,170	$1,625,028	$1,628,886
Adjudication Surcharge	$1,046,393	$1,048,822	$1,051,252	$1,053,681	$1,056,110
Total	**$3,704,055**	**$3,712,809**	**$3,721,562**	**$3,730,315**	**$3,739,069**

The utility also derives revenues from other non-rate sources. These revenues consist of fees, interest income, and other operating revenues and are summarized in Table 2-9.

Table 2-9: Projected Water Non-Rate Revenues

Revenue Source	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Interest	$34,527	$21,372	$2,754	$954	$1,336
Fees	$232,200	$232,200	$232,200	$232,200	$232,200
Miscellaneous	$265,459	$265,459	$265,459	$265,459	$265,459
Capacity Fee Revenue	$29,300	$29,300	$29,300	$29,300	$29,300
Total	**$561,486**	**$548,331**	**$529,713**	**$527,913**	**$528,295**

2.4. Operating and Maintenance Expenses

2.4.1. Water Supply Costs

Line 1 of Table 2-10 shows the total water demand (sales) for each year of the Study period (from Table 2-7). In addition to the water sold to its customers, the City must also produce a certain amount of water each year to flush and maintain the water system, as shown in Line 2 of Table 2-10. Water is lost during the transmission and distribution to a variety of factors, such as real losses from leaks in distribution pipelines and paper losses from meter reading and billing errors. The City must account for this loss in estimating the supply needed to meet its demand. The City has an approximate 7.5 percent water loss on average. To project the required water supply (Line 5), the following equation is used to calculate water production:

Total Water Demand (Line 3) / [1 - Water Loss (Line 4)] = Total Water Production (Line 5)

Table 2-10: Projected Water Supply and Demand

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
1	Total Water Sales (hcf)	931,784	933,947	936,110	938,273	940,436
2	City Water Use (hcf)	138,542	138,542	138,542	138,542	138,542
3	**Total Water Demand (hcf)**	**1,070,326**	**1,072,489**	**1,074,652**	**1,076,816**	**1,078,979**
4	Water Loss	7.5%	7.5%	7.5%	7.5%	7.5%
5	**Total Water Production (hcf)**	**1,157,109**	**1,159,448**	**1,161,786**	**1,164,125**	**1,166,464**
6	Total Water Production (AF)	2,656	2,662	2,667	2,672	2,678

The City currently has two primary sources of water supply to meet demand:

- Local groundwater
- Purchased water from EMWD

Based on projections and input from City staff, we anticipate that the water supply mix for the Study period will be as shown in Table 2-11. Table 2-11 shows the supply mix required to meet the projected demand from Table 2-10 in acre feet[8] (AF). The amount for each water source is calculated by multiplying the percent available from each source times the total water production in AF shown in Line 6 of Table 2-10. In addition to water production and purchases to meet demand, the City must also purchase 938 AF annually to recharge the groundwater basin as stipulated in the Soboba settlement discussed in Section 2.1.

Table 2-11: Projected Water Supply by Source

	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Water Supply to Meet Demand (%)					
Groundwater	86%	86%	86%	86%	86%
EMWD Imported Water	14%	14%	14%	14%	14%
Water Supply to Meet Demand (AF)					
Groundwater	2,284	2,289	2,294	2,298	2,303
EMWD Imported Water	372	373	373	374	375
Total Water Production/Purchases (AF)	**2,656**	**2,662**	**2,667**	**2,672**	**2,678**
Groundwater Recharge Purchases (AF)	938	938	938	938	938

Table 2-12 shows the estimated unit cost of production or purchase for each water source. The volumetric costs to produce groundwater include pumping and treatment as shown in Lines 2 and 3. The volumetric cost to purchase supplemental water from EMWD to meet demand is shown in Line 4. Groundwater Recharge costs include the volumetric costs to purchase water from MWD through EMWD as shown in Lines 6 and 7, respectively. In addition to these costs, the City pays annual administrative costs to the Watermaster (Line 8) and recovers prior costs for historical water purchases (Line 9). Historically, the City was required to purchase water from MWD through EMWD during years in which MWD had ample water. The Groundwater Recharge costs shown in Lines 6 through 9 of Table 2-12 are currently recovered through the City's Adjudication Surcharge shown in Table 2-5. The unit costs for FYE 2022 and beyond are escalated based on the water cost inflationary assumptions shown in Table 2-1.

[8] One acre foot is equal to 435.6 hcf.

Table 2-12: Water Supply Unit Costs

Line No.	Water Supply Costs	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
1	**Groundwater**					
2	Groundwater Pumping ($/AF)	$118	$124	$130	$137	$144
3	Groundwater Treatment ($/AF)	$126	$130	$133	$137	$141
4	**EMWD Imported Water ($/AF)**	$355	$373	$391	$411	$431
5	**Groundwater Recharge**					
6	EMWD Delivery Rate ($/AF)	$178	$186	$196	$206	$216
7	MWD Untreated Water ($/AF)	$625	$656	$689	$723	$759
8	Watermaster Administration Cost ($/Year)	$55,000	$55,000	$55,000	$55,000	$55,000
9	Past Water Purchase Costs ($/Year)	$211,867	$211,867	$211,867	$211,867	$211,867

Table 2-13 shows the water supply costs associated with the City's water production and purchases. The quantities produced or purchased from each source (from Table 2-11) in AF are multiplied by the unit cost per AF (from Table 2-12) to determine the City's total water supply costs for groundwater, imported water, and groundwater recharge.

Table 2-13: Water Supply Cost

Water Costs	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Groundwater					
Groundwater Pumping	$269,879	$283,945	$298,744	$314,313	$330,691
Groundwater Treatment	$287,771	$296,590	$305,677	$315,042	$324,692
Total Groundwater	**$557,650**	**$580,535**	**$604,421**	**$629,354**	**$655,383**
EMWD Imported Water	$131,976	$138,855	$146,092	$153,705	$161,715
Total Water Supply	**$689,626**	**$719,390**	**$750,513**	**$783,060**	**$817,098**
Groundwater Recharge					
EMWD Delivery Rate	$166,463	$174,786	$183,525	$192,701	$202,336
MWD Untreated Water	$585,711	$614,997	$645,746	$678,034	$711,935
Watermaster Administration Cost	$55,000	$55,000	$55,000	$55,000	$55,000
Past Water Purchase Costs	$211,867	$211,867	$211,867	$211,867	$211,867
Total Groundwater Recharge	**$1,019,040**	**$1,056,649**	**$1,096,138**	**$1,137,602**	**$1,181,138**

2.4.2. O&M Expenses

Total projected O&M expenses are shown in Table 2-14 and are summarized by department. Water supply and groundwater recharge costs were derived in Table 2-13. Other expenses rely on FYE 2020 budgeted values inflated by the assumptions from Table 2-1.

Table 2-14: Water Projected O&M Expenses

Operating Expenditures	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Water Supply Costs	$689,626	$719,390	$750,513	$783,060	$817,098
GW Recharge	$1,019,040	$1,056,649	$1,096,138	$1,137,602	$1,181,138
O&M					
Finance	$375,040	$386,847	$399,054	$411,675	$424,724
Operations (Less Water Purchase Costs)	$2,504,949	$2,576,504	$2,650,244	$2,726,243	$2,804,576
City Attorney	$1,538	$1,576	$1,615	$1,656	$1,697
Total	**$4,590,193**	**$4,740,966**	**$4,897,564**	**$5,060,234**	**$5,229,233**

2.5. Capital Improvement Plan (CIP)

The Study for the water enterprise includes three different financial plan and rate scenarios based on the level of Capital Improvement Plan (CIP) spending during the Study Period. Each scenario fully funds the O&M expenses shown in Table 2-14 but differs in the amount of capital spending. The City may decide to fund less than 100 percent of its CIP to mitigate the impact to customers and avoid drastic rate adjustments. Scenario 1 fully funds the CIP as stated in the Water System Master Plan of approximately $13.3 million. Scenario 2 is a scenario which funds 50 percent of the CIP, or approximately $6.6 million, and Scenario 3 funds 30 percent of the CIP or approximately $4 million. The City plans on funding capital investments through a combination of rate revenue (also known as PAY-GO funding) and debt funding.

Table 2-15 shows the CIP projects for Scenario 1, the cumulative inflationary factor[9] for each fiscal year, and the total CIP. Raftelis indexed the capital expenditures by the cumulative inflationary rate shown in Table 2-1 to account for increased construction costs in future years.

Table 2-15: Water Detailed CIP – Scenario 1 (100%)

Project	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Grand Well Replacement	$1,300,000	$1,300,000	$0	$0	$0
New Booster Pump	$100,000	$0	$0	$0	$0
Infrastructure for Second Pressure Zone	$0	$0	$1,000,000	$1,000,000	$1,000,000
Pipeline Replacement	$0	$0	$244,900	$724,700	$678,100
New Bath Well Treatment Facility	$0	$0	$0	$0	$1,200,000
Grand Well Treatment Facility	$0	$0	$1,400,000	$1,300,000	$0
Water Master Project - Required	$320,000	$0	$0	$0	$0
Total CIP Expenditure	**$1,720,000**	**$1,300,000**	**$2,644,900**	**$3,024,700**	**$2,878,100**
Cumulative Inflationary Factor	107%	110%	113%	117%	121%
Inflated CIP	**$1,831,841**	**$1,428,836**	**$3,000,047**	**$3,540,632**	**$3,476,835**

Table 2-16 shows the CIP projects for Scenario 2, the cumulative inflationary factor for each fiscal year, and the total anticipated CIP. Raftelis indexed the capital expenditures by the cumulative inflationary rate shown in Table 2-1 to account for increased construction costs in future years.

[9] Note that the cumulative inflationary factors used in the financial plan were determined based on an annual inflationary factor of 3.2% and were not rounded to the nearest whole percentage. There may be differences due to rounding.

Table 2-16: Water Detailed CIP – Scenario 2 (50%)

Project	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Grand Well Replacement	$650,000	$650,000	$0	$0	$0
New Booster Pump	$50,000	$0	$0	$0	$0
Infrastructure for Second Pressure Zone	$0	$0	$500,000	$500,000	$500,000
Pipeline Replacement	$0	$0	$122,450	$362,350	$339,050
New Bath Well Treatment Facility	$0	$0	$0	$0	$600,000
Grand Well Treatment Facility	$0	$0	$700,000	$650,000	$0
Water Master Project - Required	$160,000	$0	$0	$0	$0
Total CIP Expenditure	**$860,000**	**$650,000**	**$1,322,450**	**$1,512,350**	**$1,439,050**
Cumulative Inflationary Factor	107%	110%	113%	117%	121%
Inflated CIP	**$915,921**	**$714,418**	**$1,500,023**	**$1,770,316**	**$1,738,417**

Table 2-17 shows the CIP projects for Scenario 3, the cumulative inflationary factor for each fiscal year, and the total CIP. Raftelis indexed the capital expenditures by the cumulative inflationary rate shown in Table 2-1 to account for increased construction costs in future years.

Table 2-17: Water Detailed CIP – Scenario 3 (30%)

Project	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Grand Well Replacement	$390,000	$390,000	$0	$0	$0
New Booster Pump	$30,000	$0	$0	$0	$0
Infrastructure for Second Pressure Zone	$0	$0	$300,000	$300,000	$300,000
Pipeline Replacement	$0	$0	$73,470	$217,410	$203,430
New Bath Well Treatment Facility	$0	$0	$0	$0	$360,000
Grand Well Treatment Facility	$0	$0	$420,000	$390,000	$0
Water Master Project - Required	$96,000	$0	$0	$0	$0
Total CIP Expenditure	**$516,000**	**$390,000**	**$793,470**	**$907,410**	**$863,430**
Cumulative Inflationary Factor	107%	110%	113%	117%	121%
Inflated CIP	**$549,552**	**$428,651**	**$900,014**	**$1,062,190**	**$1,043,050**

2.6. Existing Debt Service

The City has three outstanding long-term debt obligations. These include the 2015 installment sale with Opterra, the 2013 refinancing of water revenue bonds, and the City's portion of the groundwater recharge facilities as stipulated by the Soboba settlement discussed in Section 2.1. The City provided debt service schedules for each obligation. Table 2-18 shows the annual debt service for each year.

Table 2-18: Water Existing Annual Debt Service

Debt Service	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Opterra (City National)	$279,807	$247,688	$216,350	$227,465	$239,199
2013 Refunding Revenue Bonds (Zions Bank)	$149,389	$153,014	$151,129	$1,995	$0
City of San Jacinto's Portion of Recharge Facilities	$122,538	$122,538	$122,538	$122,538	$211,012
Total	**$551,734**	**$523,240**	**$490,017**	**$351,997**	**$450,210**

As mentioned in the previous section of this report, the City is considering issuing new debt to fund its CIP to mitigate rate increases to customers. The proposed new debt would be issued in FYE 2023 and the amount of debt issuance varies depending on the CIP scenarios shown in Table 2-15 through Table 2-17.

The financial plan model incorporates the proposed debt and financing assumptions shown in Table 2-19 for the three different CIP scenarios. The proposed debt issue for each scenario balances rate adjustment levels and moderate debt obligations. Issuing debt not only allows the City to provide a more immediate response to infrastructure needs but also stabilizes the financial impact of such expenses. Rather than requiring significant rate increases in the short term in order to pay as they go (PAYGO), loan repayments are equally spread over a longer period spreading costs amongst future users. This supports the City's ability to provide a more stable rate schedule with generally lower rate increases.

Table 2-19: Water Proposed Debt

	FYE 2023		
	Scenario 1 - 100% CIP	Scenario 2 - 50% CIP	Scenario 3 - 30% CIP
Debt Assumptions			
Interest	5.0%	5.0%	5.0%
Term (# of Years)	30	30	30
Issuance Cost	2.0%	2.0%	2.0%
Debt Reserve Requirement	6.5%	6.5%	6.5%
Debt Issue	$6,500,000	$3,000,000	$2,000,000
Debt Proceeds	$5,947,166	$2,744,846	$1,829,897
Annual Debt Service	$422,834	$195,154	$130,103

2.7. Financial Reserve Policy

The target reserves for the City are summarized below in Table 2-20 for each of the recommended financial plan scenarios. The City does not currently have a reserve policy specific to the water enterprise. Raftelis recommends that the City establishes reserve policies to meet its cash flow needs, ensure adequate funding of repairs and replacements in the event of asset failure or other unforeseen circumstances or events, and protect ratepayers from rate spikes.

Raftelis recommends establishing an operating reserve equal to 90 days of operating expenses in cash to meet cash flow needs. Raftelis also recommends establishing a capital reserve with a minimum target balance of one year of average capital costs. The capital reserve target and, therefore, the total reserve target varies depending on the selected CIP Scenario.

Table 2-20: Water Reserve Policies

Reserve	Policy	FYE 2021 Reserve Targets		
		Scenario 1 - 100% CIP	Scenario 2 - 50% CIP	Scenario 3 - 30% CIP
Operating Reserve	90 days of Operating Expenses	$1,147,548	$1,147,548	$1,147,548
Capital Reserve	Average Annual CIP over 5 Years	$2,655,638	$1,327,819	$796,691
Total		**$3,803,186**	**$2,475,367**	**$1,944,240**

2.8. Status Quo Financial Plan (No Revenue Increase)

Table 2-21 displays the operating cash flows assuming no revenue increases. The cash flow incorporates the revenues from current rates (Table 2-8), non-rate revenues (Table 2-9), O&M expenses (Table 2-14), capital improvement projects (using Scenario 3 from Table 2-17), and annual debt service payments (Table 2-18) to project the debt coverage ratio and projected ending balances. All projections shown in the table are based upon the City's current rate structure and do not include rate adjustments. Under the "status-quo" financial plan scenario, the City will face negative net income[10] starting in FYE 2021. Revenues generated from rates and other miscellaneous revenues will be inadequate to sufficiently recover operating expenses, capital expenditures, debt obligations, and to maintain adequate reserves throughout the Study period, as shown by negative net cash balance in Line 21 of Table 2-21. Reserves will fall well below the reserve targets shown in Line 27.

[10] Net Income = Total Revenues – Total Expenses

Table 2-21: Water Status Quo Financial Plan

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
1	**Revenue**					
2	Revenue from Exiting Rates	$3,704,055	$3,712,809	$3,721,562	$3,730,315	$3,739,069
3	Revenue Adjustments	$0	$0	$0	$0	$0
4	Interest	$34,527	$21,372	$2,754	$954	$1,336
5	Fees	$232,200	$232,200	$232,200	$232,200	$232,200
6	Miscellaneous	$265,459	$265,459	$265,459	$265,459	$265,459
7	**Total Revenues**	**$4,236,241**	**$4,231,840**	**$4,221,975**	**$4,228,929**	**$4,238,064**
8						
9	**O&M Expenses**					
10	Water Supply Costs	$689,626	$719,390	$750,513	$783,060	$817,098
11	GW Recharge	$1,019,040	$1,056,649	$1,096,138	$1,137,602	$1,181,138
12	Finance	$375,040	$386,847	$399,054	$411,675	$424,724
13	Operations	$2,504,949	$2,576,504	$2,650,244	$2,726,243	$2,804,576
14	City Attorney	$1,538	$1,576	$1,615	$1,656	$1,697
15	**Total O&M Expenses**	**$4,590,193**	**$4,740,966**	**$4,897,564**	**$5,060,234**	**$5,229,233**
16	Existing Debt Service	$551,734	$523,240	$490,017	$351,997	$450,210
17	Proposed Debt Service	$0	$0	$0	$0	$0
18	Rate Funded CIP	$549,552	$428,651	$900,014	$1,062,190	$1,043,050
19	**Total Expenses**	**$5,691,479**	**$5,692,857**	**$6,287,595**	**$6,474,421**	**$6,722,494**
20						
21	**Net Cash Flow**	**($1,455,238)**	**($1,461,017)**	**($2,065,620)**	**($2,245,492)**	**($2,484,430)**
22						
23	**Beginning Balance**	$2,353,171	$927,233	($504,484)	($2,540,804)	($4,756,995)
24	Net Cash Flow	($1,455,238)	($1,461,017)	($2,065,620)	($2,245,492)	($2,484,430)
25	Capacity Fee Revenue	$29,300	$29,300	$29,300	$29,300	$29,300
26	**Ending Balance**	**$927,233**	**($504,484)**	**($2,540,804)**	**($4,756,995)**	**($7,212,125)**
27	*Target Balance*	*$1,944,240*	*$2,086,680*	*$2,084,625*	*$1,994,451*	*$1,867,976*
28						
29	Calculated Debt Coverage Ratio	-82%	-127%	-184%	-362%	-414%
30	Required Debt Coverage Ratio	120%	120%	120%	120%	120%

2.9. Proposed Financial Plan – Scenario 1 (100% of CIP)

Table 2-22 shows the proposed revenue adjustment plan for Scenario 1. The proposed revenue adjustments help to attain adequate revenue to fund operating expenses, achieve reserve policy targets, fund the long-term capital program, and comply with existing debt covenants. Revenue adjustments represent the average increase in rates for the utility as a whole. Actual percentage increases (or decreases) in rates are dependent upon the cost-of-service analysis and are unique to each customer class and meter size. Revenue adjustments are assumed to take effect on July 1st of each fiscal year. The rates presented in Section 5 for this scenario are based on the proposed financial plan below.

Table 2-22: Water Proposed Revenue Adjustments – Scenario 1 (100%CIP)

	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Effective Month	July	July	July	July	July
Revenue Adjustment	48.0%	12.0%	8.0%	8.0%	8.0%

Similar to the Status Quo Financial Plan (Table 2-21), Table 2-23 shows the proposed financial plan but with the revenue adjustments shown in Table 2-22. The cash flow incorporates the revenues from current rates (Table 2-8), the revenue from increases in rates consistent with the proposed adjustments (Table 2-22), non-rate revenues (Table 2-9), O&M expenses (Table 2-14), capital improvement projects for Scenario 1 (Table 2-15), and existing annual debt service payments (Table 2-18) and proposed debt service (Table 2-19).

Although the net cash balance shows a deficit in FYE 2021, FYE 2022, and FYE 2025 (Line 21) due to the planned expenditures in capital facilities, the City will use reserves in these years to minimize customer impacts. The remaining years of the proposed financial plan have a positive net cashflow. Additionally, reserve balances begin to increase and meet the target balance in FYE 2024, and the debt coverage ratio exceeds the target debt coverage ratio of 120 percent in all years of the proposed financial plan, allowing the City to maintain its financial bond rating. In summary, the proposed financial plan ensures financial sufficiency and solvency for the City to meet projected expenditures and financial obligations including debt service, debt coverage, and reserve targets while funding CIP projects.

Table 2-23: Water Proposed Financial Plan – Scenario 1 (100%CIP)

Line		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
1	**Revenue**					
2	Revenue from Existing Rates	$3,704,055	$3,712,809	$3,721,562	$3,730,315	$3,739,069
3	Revenue Adjustments	$1,777,947	$2,441,543	$2,940,808	$3,481,968	$4,068,476
4	Interest	$34,527	$24,601	$18,624	$47,013	$45,763
5	Fees	$232,200	$232,200	$232,200	$232,200	$232,200
6	Miscellaneous	$265,459	$265,459	$265,459	$265,459	$265,459
7	**Total Revenues**	**$6,014,188**	**$6,676,612**	**$7,178,653**	**$7,756,956**	**$8,350,967**
8						
9	**O&M Expenses**					
10	Water Supply Costs	$689,626	$719,390	$750,513	$783,060	$817,098
11	GW Recharge	$1,019,040	$1,056,649	$1,096,138	$1,137,602	$1,181,138
12	Finance	$375,040	$386,847	$399,054	$411,675	$424,724
13	Operations	$2,504,949	$2,576,504	$2,650,244	$2,726,243	$2,804,576
14	City Attorney	$1,538	$1,576	$1,615	$1,656	$1,697
15	**Total O&M Expenses**	**$4,590,193**	**$4,740,966**	**$4,897,564**	**$5,060,234**	**$5,229,233**
16	Existing Debt Service	$551,734	$523,240	$490,017	$351,997	$450,210
17	Proposed Debt Service	$0	$0	$422,834	$422,834	$422,834
18	Rate Funded CIP	$1,831,841	$1,428,836	$0	$593,513	$3,476,835
19	**Total Expenses**	**$6,973,768**	**$6,693,042**	**$5,810,415**	**$6,428,579**	**$9,579,112**
20						
21	**Net Cash Flow**	**($959,580)**	**($16,430)**	**$1,368,238**	**$1,328,378**	**($1,228,146)**
22						
23	**Beginning Balance**	$2,353,171	$1,422,891	$1,435,761	$2,833,299	$4,190,976
24	Net Cash Flow	($959,580)	($16,430)	$1,368,238	$1,328,378	($1,228,146)
25	Capacity Fee Revenue	$29,300	$29,300	$29,300	$29,300	$29,300
26	**Ending Balance**	**$1,422,891**	**$1,435,761**	**$2,833,299**	**$4,190,976**	**$2,992,131**
27	*Target Balance*	*$3,803,186*	*$4,190,036*	*$4,091,838*	*$3,696,368*	*$3,176,202*
28						
29	Calculated Debt Coverage Ratio	332%	483%	289%	413%	472%
30	Required Debt Coverage Ratio	120%	120%	120%	120%	120%

Figure 2-1 through Figure 2-3 display the proposed financial plan information shown in Table 2-23 in graphical format. Figure 2-1 shows the City's expenses in stacked bars and the current and proposed revenue in solid and dashed gray lines, respectively. The stacked bars show the expenses broken down into the categories displayed in the legend. The yellow portion of the stacked bar below the x-axis shows the operating yearly deficit. In these years, the City will minimize customer bill impacts by drawing down reserves.

Figure 2-1: Proposed Financial Plan – Scenario 1

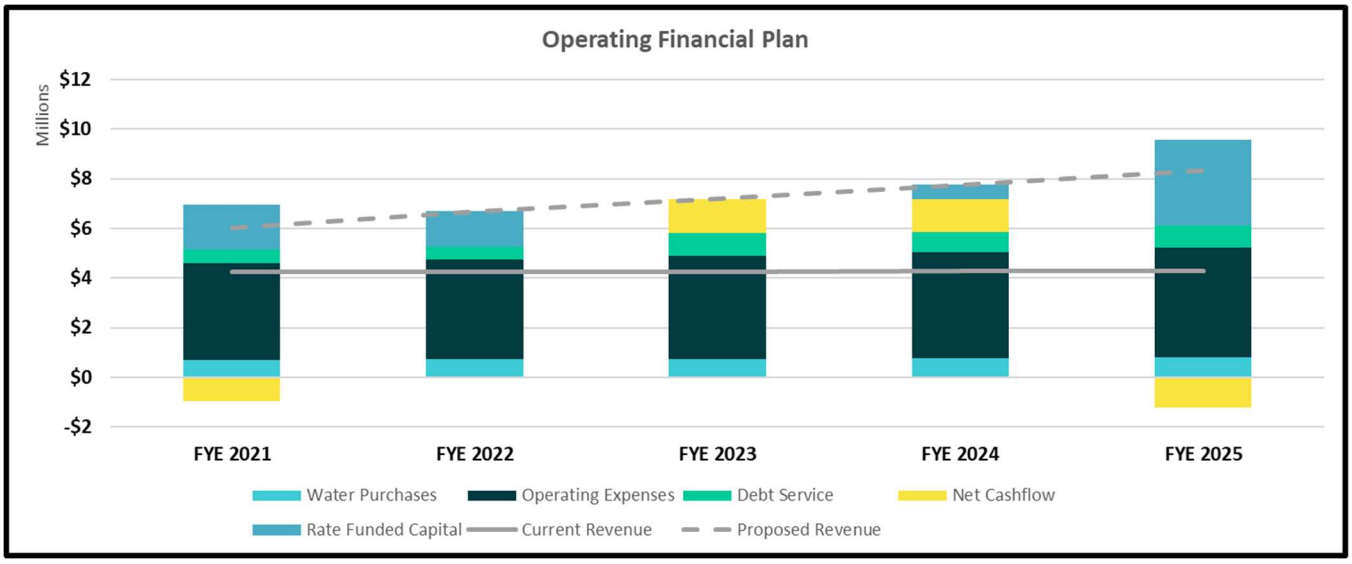


Figure 2-2 shows the total annual CIP over the Study Period and designates the portion to be funded by PAY-GO (which is a term used to designate rate funded CIP) and debt. The City anticipates funding the capital projects through a combination of rate revenue (PAY-GO) and debt issuance as shown in Table 2-19.

Figure 2-2: CIP and Funding Sources – Scenario 1

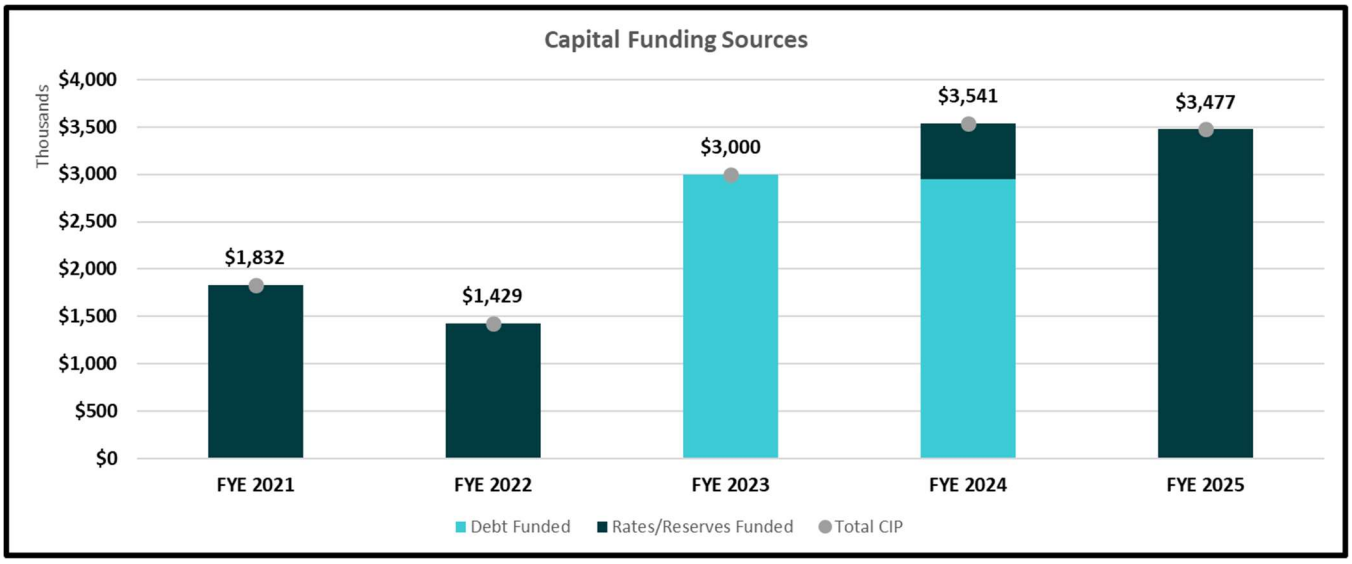
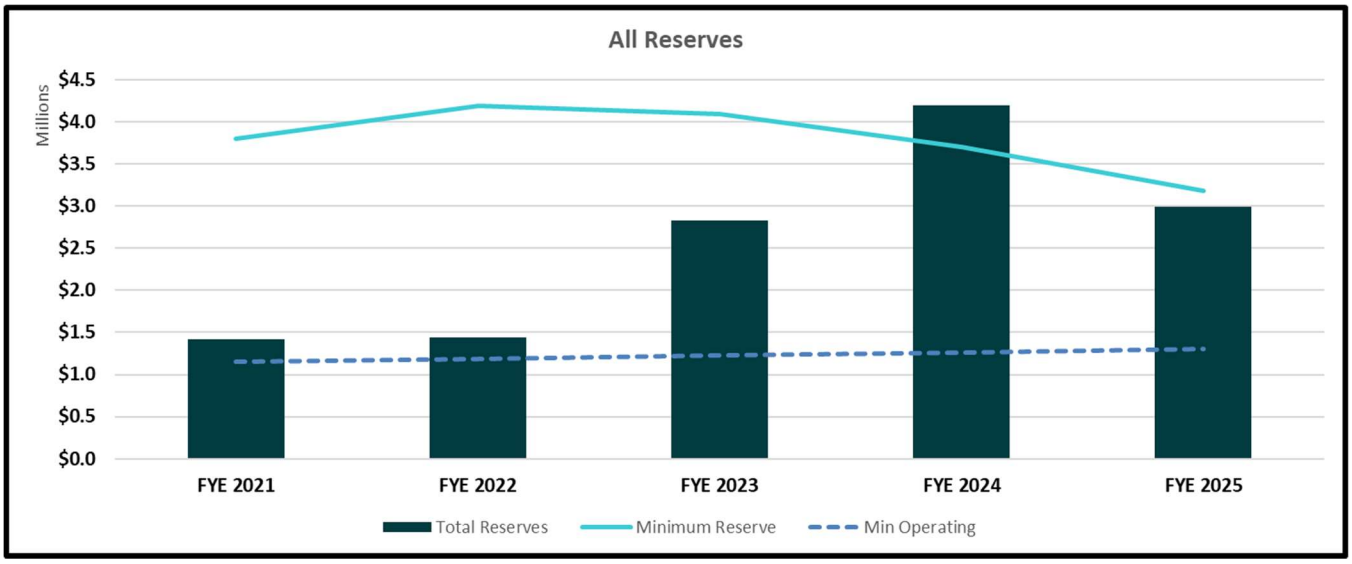


Figure 2-3 shows the ending total reserve balances. The City currently has an Operating Reserve. Raftelis recommends a Capital Reserve to ensure adequate funding of capital repairs and replacements. A typical minimum capital target balance is one year of average replacement capital cost.

The total Operating minimum reserve target shown in Table 2-20 is represented by the dashed blue line and is equal to 90 days of operating expenses. The total minimum reserve target for both the Operating and Capital reserves is represented by the solid blue line in Figure 2-3 and is equal to the total reserve balance target shown in Table 2-20. As shown in this figure, the City will begin building its reserves to meet the total minimum target beginning in FYE 2024 and meets the minimum operating reserve target in all years of the Study Period.

Figure 2-3: Water Ending Reserve Balances – Scenario 1



2.10. Proposed Financial Plan – Scenario 2 (50% of CIP)

Table 2-24 shows the proposed revenue adjustment plan for Scenario 2. The proposed revenue adjustments help to ensure adequate revenue to fund operating expenses, achieve reserve policy targets, fund the long-term capital program, and comply with existing debt covenants. Revenue adjustments represent the average increase in rates for the utility as a whole. Actual percentage increases (or decreases) in rates are dependent upon the cost-of-service analysis and are unique to each customer class and meter size. Revenue adjustments are proposed to be implemented on July 1st of each fiscal year. The rates presented in Section 5 for this scenario are based on the proposed financial plan below.

Table 2-24: Water Proposed Revenue Adjustments – Scenario 2 (50%CIP)

	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Effective Month	July	July	July	July	July
Revenue Adjustment	24.0%	16.0%	7.0%	7.0%	7.0%

Similar to the Status Quo Financial Plan (Table 2-21), Table 2-25 shows the proposed financial plan but with the revenue adjustments shown in Table 2-24. The cash flow incorporates the revenues from current rates (Table 2-8), the revenue from increases in rates consistent with the proposed adjustments (Table 2-24), non-rate revenues (Table 2-9), O&M expenses (Table 2-14), capital improvement projects for Scenario 2 (Table 2-16), and existing annual debt service payments (Table 2-18) and proposed debt service (Table 2-19).

Although the net cash balance shows a deficit in FYE 2021, FYE 2022, and FYE 2025 (Line 21) due to the planned expenditures in capital facilities, the City will use reserves in these years to minimize customer impacts. The remaining years have a positive net cashflow. Additionally, reserve balances begin to increase and meet the target balance in FYE 2024, and the debt coverage ratio exceeds the target debt coverage ratio of 120 percent in all years, allowing the City to maintain its financial bond rating. In summary, the proposed financial plan ensures financial sufficiency and solvency for the City to meet projected expenditures and financial obligations including debt service, debt coverage, and reserve targets while funding CIP projects.

Table 2-25: Water Proposed Financial Plan – Scenario 2 (50%CIP)

Line		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
1	**Revenue**					
2	Revenue from Existing Rates	$3,704,055	$3,712,809	$3,721,562	$3,730,315	$3,739,069
3	Revenue Adjustments	$888,973	$1,627,695	$2,006,249	$2,412,858	$2,849,551
4	Interest	$34,527	$24,777	$18,329	$30,374	$30,459
5	Fees	$232,200	$232,200	$232,200	$232,200	$232,200
6	Miscellaneous	$265,459	$265,459	$265,459	$265,459	$265,459
7	**Total Revenues**	**$5,125,215**	**$5,862,940**	**$6,243,799**	**$6,671,206**	**$7,116,739**
8						
9	**O&M Expenses**					
10	Water Supply Costs	$689,626	$719,390	$750,513	$783,060	$817,098
11	GW Recharge	$1,019,040	$1,056,649	$1,096,138	$1,137,602	$1,181,138
12	Finance	$375,040	$386,847	$399,054	$411,675	$424,724
13	Operations	$2,504,949	$2,576,504	$2,650,244	$2,726,243	$2,804,576
14	City Attorney	$1,538	$1,576	$1,615	$1,656	$1,697
15	**Total O&M Expenses**	**$4,590,193**	**$4,740,966**	**$4,897,564**	**$5,060,234**	**$5,229,233**
16	Existing Debt Service	$551,734	$523,240	$490,017	$351,997	$450,210
17	Proposed Debt Service	$0	$0	$195,154	$195,154	$195,154
18	Rate Funded CIP	$915,921	$714,418	$0	$525,494	$1,738,417
19	**Total Expenses**	**$6,057,847**	**$5,978,624**	**$5,582,735**	**$6,132,879**	**$7,613,015**
20						
21	**Net Cash Flow**	**($932,633)**	**($115,684)**	**$661,064**	**$538,327**	**($496,276)**
22						
23	**Beginning Balance**	$2,353,171	$1,449,838	$1,363,454	$2,053,818	$2,621,445
24	Net Cash Flow	($932,633)	($115,684)	$661,064	$538,327	($496,276)
25	Capacity Fee Revenue	$29,300	$29,300	$29,300	$29,300	$29,300
26	**Ending Balance**	**$1,449,838**	**$1,363,454**	**$2,053,818**	**$2,621,445**	**$2,154,469**
27	*Target Balance*	*$2,475,367*	*$2,687,639*	*$2,658,115*	*$2,480,713*	*$2,241,755*
28						
29	Calculated Debt Coverage Ratio	125%	280%	239%	379%	435%
30	Required Debt Coverage Ratio	120%	120%	120%	120%	120%

Figure 2-4 through Figure 2-6 display the proposed financial plan information shown in Table 2-25 in graphical format. Figure 2-4 shows the City's expenses in stacked bars and the current and proposed revenue in solid and dashed gray lines, respectively. The stacked bars show the expenses broken down into the categories displayed in the legend. The yellow portion of the stacked bar below the x-axis shows the operating yearly deficit. In these years, the City will minimize customer bill impacts by drawing down reserves.

Figure 2-4: Proposed Financial Plan – Scenario 2

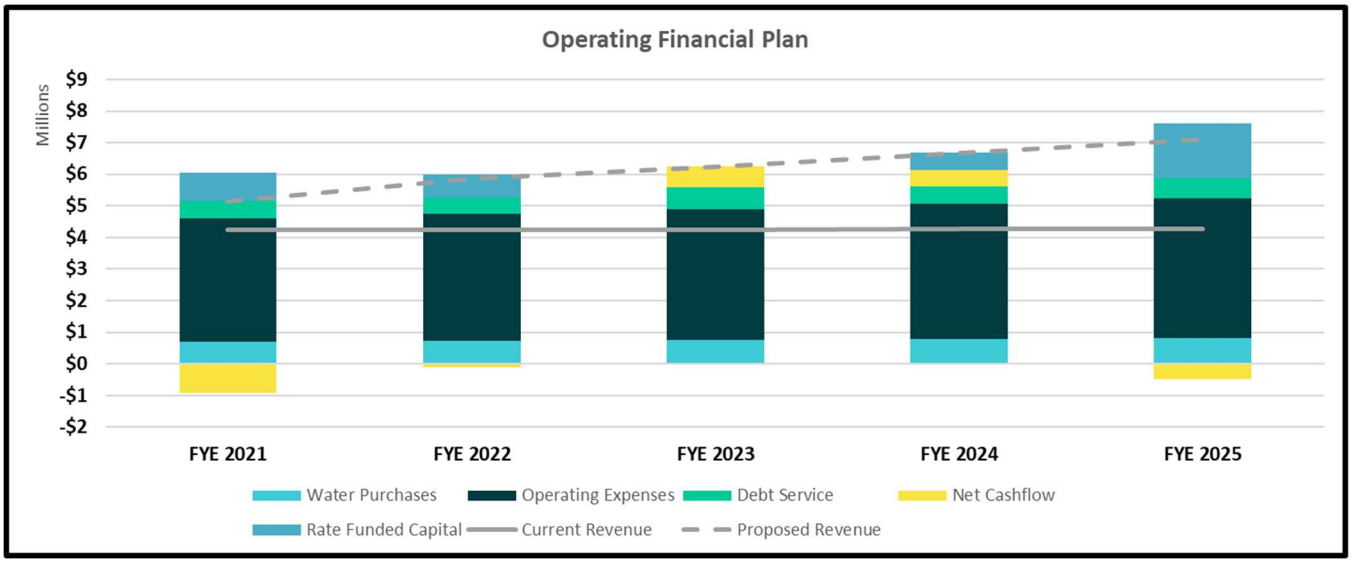
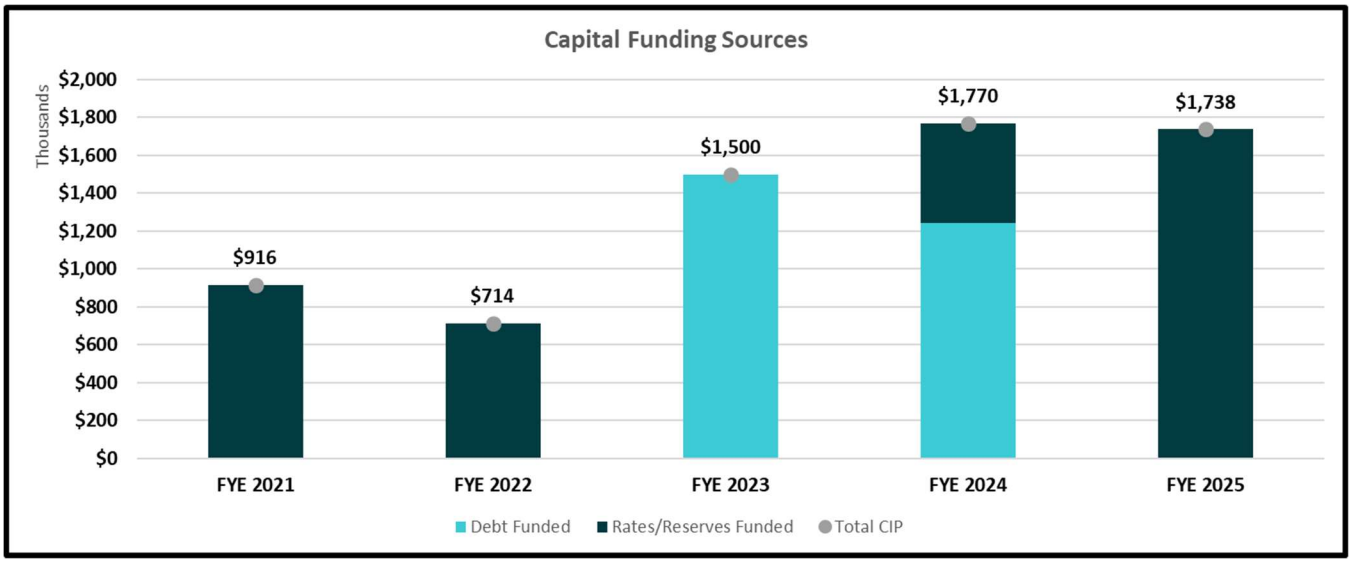


Figure 2-5 shows the total annual CIP over the Study Period and designates the portion to be funded by PAY-GO (which is a term used to designate rate funded CIP) and debt. The City anticipates funding the capital projects through a combination of rate revenue (PAY-GO) and debt issuance as shown in Table 2-19.

Figure 2-5: CIP and Funding Sources – Scenario 2

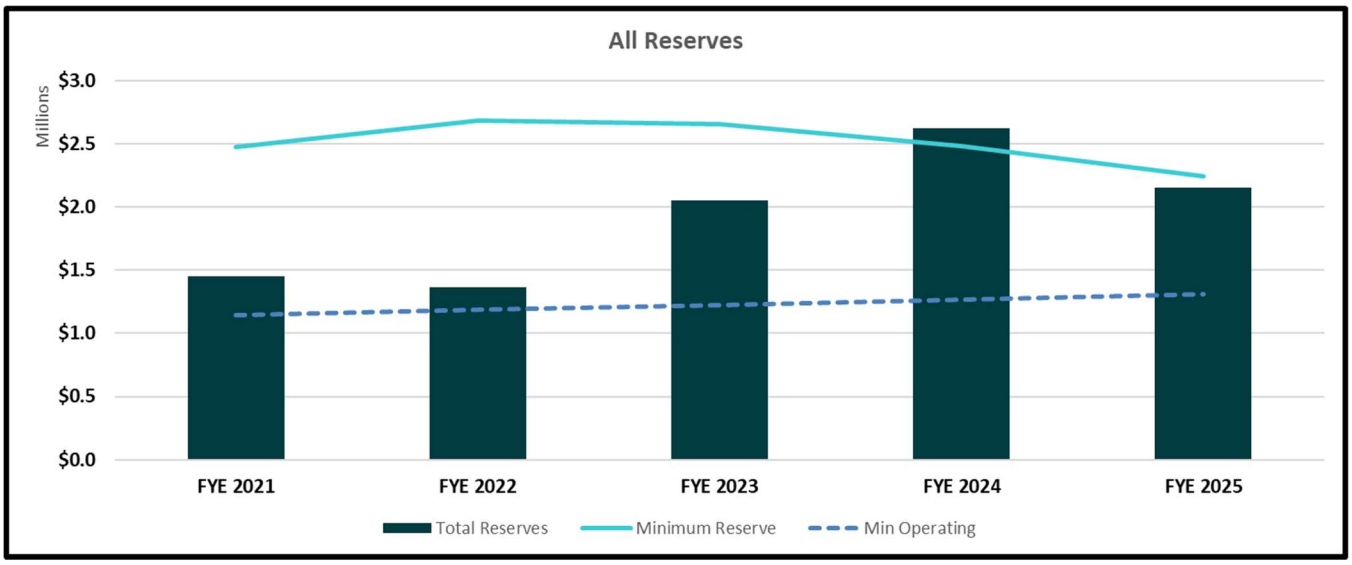


The total minimum reserve target for both the Operating and Capital reserves is represented by the solid blue line in Figure 2-6 and is equal to the total reserve balance target shown in Table 2-20. As shown in this figure, the City will begin building its reserves to meet the total minimum target beginning in FYE 2024 and meets the minimum operating reserve target in all years of the Study Period.

Figure 2-6 shows the ending total reserve balances. The City currently has an Operating Reserve. Raftelis recommends a Capital Reserve to ensure adequate funding of capital repairs and replacements. A typical minimum capital target balance is one year of average replacement capital cost.

The total minimum reserve target for both the Operating and Capital reserves is represented by the solid blue line in Figure 2-6 and is equal to the total reserve balance target shown in Table 2-20. As shown in this figure, the City will begin building its reserves to meet the total minimum target beginning in FYE 2024 and meets the minimum operating reserve target in all years of the Study Period.

Figure 2-6: Water Ending Reserve Balances – Scenario 2



2.11. Proposed Financial Plan – Scenario 3 (30% of CIP)

Table 2-26 shows the proposed revenue adjustments for Scenario 3. The revenue adjustments, beginning in FYE 2021, are assumed effective July 1st of each year. The proposed revenue adjustments promote adequate revenue to fund operating expenses, achieve reserve policy targets, fund the long-term capital program, and comply with existing debt covenants. Revenue adjustments represent the average increase in rates for the utility as a whole. Actual percentage increases (or decreases) in rates are dependent upon the cost-of-service analysis and are unique to each customer class and meter size. Revenue adjustments are proposed to be implemented on July 1st of each fiscal year. The rates presented in Section 5 for this scenario are based on the proposed financial plan below.

Table 2-26: Water Proposed Revenue Adjustments – Scenario 3 (30%CIP)

	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Effective Month	July	July	July	July	July
Revenue Adjustment	17.0%	13.0%	8.0%	8.0%	6.0%

Similar to the Status Quo Financial Plan (Table 2-21), Table 2-27 shows the proposed financial plan but with the revenue adjustments shown in Table 2-26. The cash flow incorporates the revenues from current rates (Table 2-8), the revenue from increases in rates consistent with the proposed adjustments (Table 2-26), non-rate revenues (Table 2-9), O&M expenses (Table 2-14), capital improvement projects for Scenario 3 (Table 2-17), and existing annual debt service payments (Table 2-18) and proposed debt service (Table 2-19).

Although the net cash balance shows a deficit in FYE 2021, FYE 2022, and FYE 2025 (Line 21) due to the planned expenditures in capital facilities, the City will use reserves in these years to minimize impacts to customers. The remaining years of the proposed financial plan have a positive net cashflow. Additionally, reserve balances begin to increase and meet the target balance in FYE 2024, and the debt coverage ratio exceeds the target debt coverage ratio

of 120 percent beginning in FYE 2022, allowing the City to maintain its financial bond rating. In summary, the proposed financial plan ensures financial sufficiency and solvency for the City to meet projected expenditures and financial obligations including debt service, debt coverage, and reserve targets while funding CIP projects.

Table 2-27: Water Proposed Financial Plan – Scenario 3 (30%CIP)

Line		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
1	**Revenue**					
2	Revenue from Existing Rates	$3,704,055	$3,712,809	$3,721,562	$3,730,315	$3,739,069
3	Revenue Adjustments	$629,689	$1,195,896	$1,592,337	$2,022,194	$2,372,900
4	Interest	$34,527	$25,474	$18,777	$25,553	$25,830
5	Fees	$232,200	$232,200	$232,200	$232,200	$232,200
6	Miscellaneous	$265,459	$265,459	$265,459	$265,459	$265,459
7	**Total Revenues**	**$4,865,931**	**$5,431,838**	**$5,830,336**	**$6,275,722**	**$6,635,458**
8						
9	**O&M Expenses**					
10	Water Supply Costs	$689,626	$719,390	$750,513	$783,060	$817,098
11	GW Recharge	$1,019,040	$1,056,649	$1,096,138	$1,137,602	$1,181,138
12	Finance	$375,040	$386,847	$399,054	$411,675	$424,724
13	Operations	$2,504,949	$2,576,504	$2,650,244	$2,726,243	$2,804,576
14	City Attorney	$1,538	$1,576	$1,615	$1,656	$1,697
15	**Total O&M Expenses**	**$4,590,193**	**$4,740,966**	**$4,897,564**	**$5,060,234**	**$5,229,233**
16	Existing Debt Service	$551,734	$523,240	$490,017	$351,997	$450,210
17	Proposed Debt Service	$0	$0	$130,103	$130,103	$130,103
18	Rate Funded CIP	$549,552	$428,651	$0	$132,307	$1,043,050
19	**Total Expenses**	**$5,691,479**	**$5,692,857**	**$5,517,684**	**$5,674,640**	**$6,852,596**
20						
21	**Net Cash Flow**	**($825,548)**	**($261,019)**	**$312,652**	**$601,082**	**($217,138)**
22						
23	**Beginning Balance**	$2,353,171	$1,556,923	$1,325,204	$1,667,155	$2,297,537
24	Net Cash Flow	($825,548)	($261,019)	$312,652	$601,082	($217,138)
25	Capacity Fee Revenue	$29,300	$29,300	$29,300	$29,300	$29,300
26	**Ending Balance**	**$1,556,923**	**$1,325,204**	**$1,667,155**	**$2,297,537**	**$2,109,699**
27	*Target Balance*	*$1,944,240*	*$2,086,680*	*$2,084,625*	*$1,994,451*	*$1,867,976*
28						
29	Calculated Debt Coverage Ratio	64%	172%	187%	338%	381%
30	Required Debt Coverage Ratio	120%	120%	120%	120%	120%

Figure 2-7 through Figure 2-9 display the proposed financial plan information shown in Table 2-27 in graphical format. Figure 2-7 shows the City's expenses in stacked bars and the current and proposed revenue in solid and dashed gray lines, respectively. The stacked bars show the expenses broken down into the categories displayed in the legend. The yellow portion of the stacked bar below the x-axis shows the operating yearly deficit. In these years, the City will minimize customer bill impacts by drawing down reserves.

Figure 2-7: Proposed Financial Plan – Scenario 3

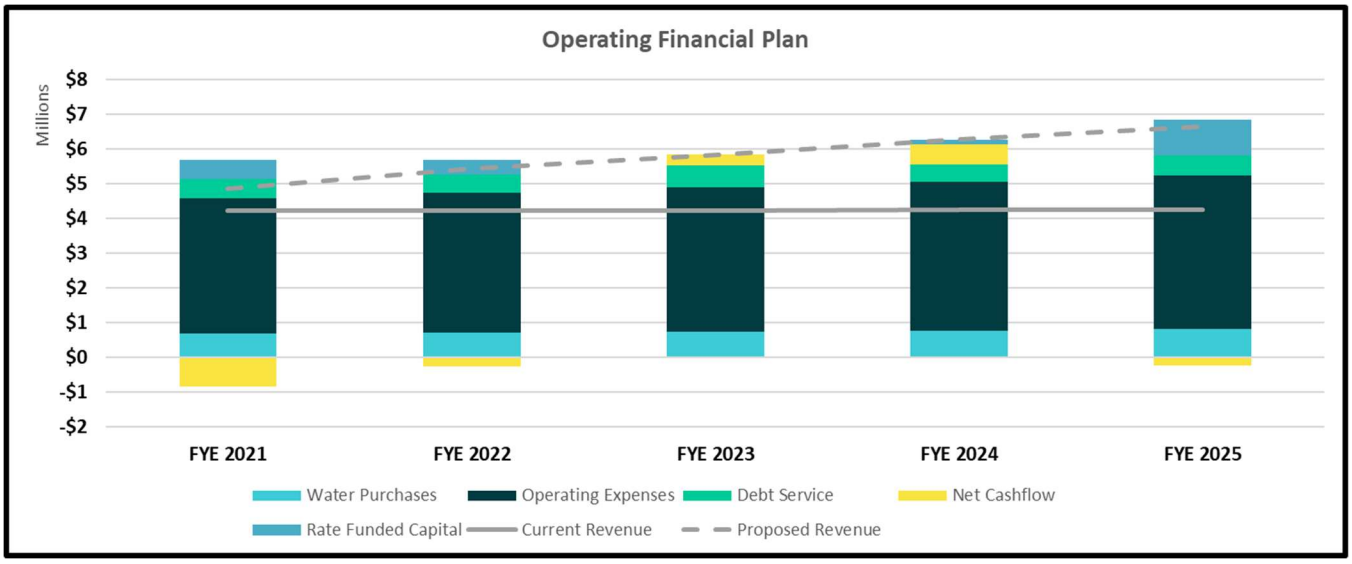


Figure 2-8 shows the total annual CIP and designates the portion to be funded by PAY-GO (which is a term used to designate rate funded CIP) and debt. The City anticipates funding the capital projects through a combination of rate revenue (PAY-GO) and debt issuance as shown in Table 2-19.

Figure 2-8: CIP and Funding Sources – Scenario 3

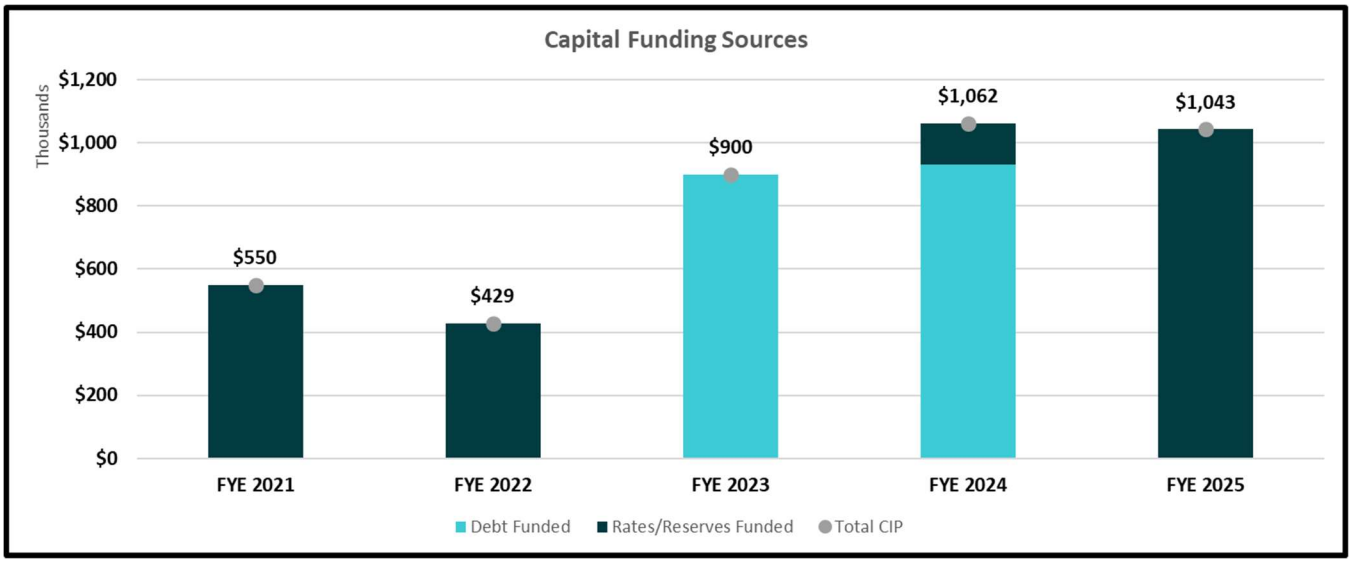
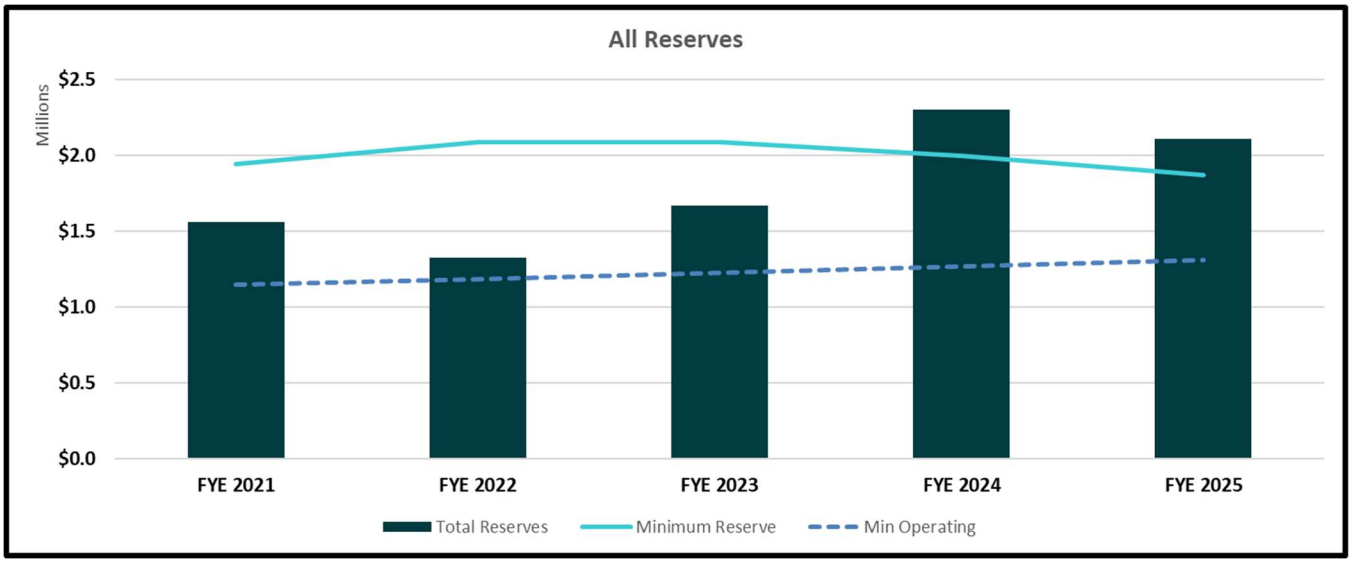


Figure 2-9 shows the ending total reserve balances. The City currently has an Operating Reserve. Raftelis recommends a Capital Reserve to ensure adequate funding of capital repairs and replacements. A typical minimum capital target balance is one year of average replacement capital cost.

The total minimum reserve target for both the Operating and Capital reserves is represented by the solid blue line in Figure 2-9 and is equal to the total reserve balance target shown in Table 2-20. As shown in this figure, the City will begin building its reserves to meet the total minimum target beginning in FYE 2024 and meets the minimum operating reserve target in all years of the Study Period.

Figure 2-9: Water Ending Reserve Balances – Scenario 3



3. Water Cost-of-Service Analysis

A Cost-of-Service (COS) analysis distributes a utility's revenue requirement (yearly revenue needed) to each customer class. To do so the revenue requirement is allocated to the cost causation components. The cost causation components include:

1. Water supply costs
2. Base (average) costs
3. Peaking costs (maximum day and maximum hour)
4. Meter service
5. Billing and customer service
6. Private fire protection costs
7. Groundwater recharge costs
8. General and administrative costs

Peaking costs are further divided into maximum day and maximum hour demand. The maximum day demand is the maximum amount of water used in a single day in a year. The maximum hour demand is the maximum hour use on the maximum use day. Both maximum day and maximum hour peaking demand are used to calculate peaking unit rates to distribute costs to customer classes. Peaking costs are allocated in proportion to how the different customer classes use water during peak day and hour demands. Different facilities such as distribution and storage facilities are designed to meet the peaking demands of customers. Therefore, extra capacity[11] costs include the O&M and capital costs associated with meeting peak customer demand. This method is consistent with the AWWA M1 Manual and is widely used in the water industry to perform COS analyses.

3.1. Allocation of Expenses to Cost Components

In a COS analysis, a utility's functionalized expenses are allocated to the cost causation components. To do so, system-wide peaking factors must be identified (shown in Column B, Table 3-1). The system-wide peaking factors are used to derive the cost component allocation bases (i.e., percentages) shown in Columns C through E of Table 3-1. Functionalized[12] expenses are then allocated to the cost components using the allocation basis shown in Column A. To understand the interpretation of the percentages shown in Columns C through E, base use must first be established as the average daily demand during the year, which is assigned an allocation basis of 1 as shown in Line 1, Column B of Table 3-1. If the base is the allocation basis used to allocate an expense, it means that the costs associated with that expense are to meet average daily demand related costs.

Expenses that are allocated to the cost causation components using the maximum day basis (Line 2) attribute 67 percent (1.00/1.50) of the demand (and therefore costs) to base use (average daily demand) and the remaining 33 percent to maximum day (peaking) use. Expenses allocated using the maximum hour basis (Line 3) assume 45 percent (1.00/2.23) of costs are due to base demands, 22 percent due to max day ((1.50-1.00)/2.23), and 33 percent ((2.23-1.50)/2.23) are due to max hour costs. Collectively the maximum day and hour cost components are known

[11] The terms extra capacity, peaking, and capacity costs are used interchangeably.
[12] Functions of a water utility are supply, treatment, transmission and distribution, storage, meter service, customer billing, general, conservation, and administration and fire protection.

as peaking costs. The average of the max day and max hour percentages are shown in Line 4. These allocation bases are used to assign functionalized O&M expenses, shown in Column A of Table 3-3, to the cost causation components shown across the top of Table 3-3.

Table 3-1: System-Wide Peaking Factors

Line No.	Allocation Factor (A)	System (B)	Base (C)	Max Day (D)	Max Hour (E)	Total (F)
1	Base	1.00	100%	0%	0%	100%
2	Max Day	1.50	67%	33%	0%	100%
3	Max Hour	2.23	45%	22%	33%	100%
4	Average Max Day/Max Hour		56%	28%	16%	100%

Table 3-2 shows the derivation of the peaking factors by customer class and tier, determined by dividing the total maximum monthly usage (Column C) by the average monthly usage (Column D) for each customer class and tier. For this analysis, the classes and tiers in the proposed rate schedule are employed. These peaking factors are used to allocate the peaking costs to each customer class and tier. See the Rate Derivation section of this report (Section 5) for a detailed discussion of tier widths and the use of peaking factors in determining rates.

Table 3-2: Customer Class Peaking Factors

Customer Class (A)	Selected Tier Width (hcf) (B)	Max Month (C)	Average Month (D)	Peaking Factor (E)
SFR				
Tier 1	11	30,673	27,954	1.10
Tier 2	11+	37,001	22,552	1.64
Non SFR		51,088	31,947	1.60

Table 3-3 shows the allocation of functionalized O&M expenses (in Column A) to the cost causation components. The resulting allocation to each cost component is shown in Line 8. The amounts shown in Line 8 are the summation of the percentages in each column multiplied by the amounts in Column B for each line (also known as the sum product).

The allocation basis, in Column C, are chosen based on the type of cost for each line item and the proportion of those costs associated with each cost causation component (max day, max hour, general, supply, etc.). For example, transmission and distribution costs (Line 4) are allocated using the max hour basis since these costs are associated with serving average day and peak day demands in proportion to max hour allocations identified in Table 3-1. Certain cost bases are identical to the cost causation components, such as meter and groundwater recharge, and, therefore, are easily allocated to the cost component with the same name. Line 9 shows the percentage allocation of all expenses to the cost causation components.

The total O&M expenses in Line 8, Column L equals the total FYE 2021 O&M Expenses in Table 2-14. This resulting allocation is used to allocate the City's operating revenue requirement (discussed in Section 3.2) to the cost components.

Table 3-3: Allocation of O&M Expenses to Cost Causation Components

Line No.	Functions	FYE 2021 Budget	Allocation Basis	Supply	Base Delivery	Max Day	Max Hour	Meter Service	Customer	Groundwater Recharge	General	Total
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)
1	Water Supply Costs Production & Purchases	$689,626	Supply/Max Day	80%		20%						100%
2	GW Recharge	$1,019,040	GW Recharge							100%		100%
3	Other Water Supply Costs	$487,073	Supply	100%								100%
4	Transmission & Distribution	$1,252,475	Max Hour		45%	22%	33%					100%
5	Billing and Customer Service	$364,188	Customer						100%			100%
6	Meter Service	$278,328	Meter					100%				100%
7	Admin & General	$499,463	General								100%	100%
8	**Total O&M Expenses**	**$4,590,193**		**$1,038,774**	**$562,008**	**$418,929**	**$409,463**	**$278,328**	**$364,188**	**$1,019,040**	**$499,463**	**$4,590,193**
9	*O&M Expense Allocation*			*23%*	*12%*	*9%*	*9%*	*6%*	*8%*	*22%*	*11%*	*100%*

The City's functionalized assets are allocated to the same cost components as the O&M expenses, which is representative of future project costs. Capital costs are allocated using the asset base of the water system in recognition that assets need to be refurbished and replaced over time. Correspondingly, capital expenses over time should correlate to the asset base and mix of infrastructure. This ensures that the allocations to the cost causation components, and ultimately the rates, remain relatively stable over time.

Raftelis, with assistance from City Staff, functionalized the capital assets and then allocated them to the cost causation components in the same manner as O&M expenses as shown in Table 3-4. The resulting total capital allocation is derived in the same manner as the O&M allocation in Table 3-3. Part of City's revenue requirement includes rate funded capital, which will be discussed in Section 3.2. This capital portion of the revenue requirement is allocated to the cost causation components using the asset allocation shown in Line 13 of Table 3-4.

Table 3-4: Allocation of CIP to Cost Causation Components

Line No.	Functions	Capital Assets	Allocation Basis	Supply	Base Delivery	Max Day	Max Hour	Meter Service	Customer	Groundwater Recharge	General	Total
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(K)
1	Source Of Supply	$6,316,512	Supply	100%								100%
2	Treatment	$1,563,852	Base		100%							100%
3	Pumping	$2,412,655	Max Day		67%	33%						100%
4	Storage	$2,293,451	Max Day		67%	33%						100%
5	Transmission & Distribution	$5,542,242	Max Hour		56%	28%	16%					100%
6	Fire	$0	Avg Max Day/Max Hour		45%	22%	33%					100%
7	Meters	$51,362	Meter					100%				100%
8	Buildings & Improvements	$153,516	General								100%	100%
9	Equipment	$413,696	General								100%	100%
10	Land & Easement	$115,316	General								100%	100%
11	Admin & General	$77,881	General								100%	100%
12	**Total Capital Assets**	**$18,940,482**		**$6,316,512**	**$7,792,121**	**$3,114,135**	**$905,943**	**$51,362**	**$0**	**$0**	**$760,410**	**$18,940,482**
13	*Capital Allocation*			*33%*	*41%*	*16%*	*5%*	*0%*	*0%*	*0%*	*4%*	*100%*

3.2. Revenue Requirement Determination

Table 3-5through Table 3-7show the revenue requirement determination for each of the three financial plan scenarios discussed in Sections 2.9, 2.10, and 2.11 of this report. The total revenue required from rates is shown in Line 19, Column E of each table. The total in Line 19, Column B of each table is the O&M revenue requirement that is allocated to the cost components using the percentages derived in Line 9 of Table 3-3. The capital revenue requirement in Line 19, Column C varies in each of the following tables depending on the CIP scenarios shown in Table 2-15 through Table 2-17 and the financial plans shown in Table 2-23, Table 2-25, and Table 2-27. The capital revenue requirement is allocated to the cost components using the percentages derived in Line 13 of Table 3-4.

Raftelis calculated the revenue requirement using projected FYE 2021 expenses, which includes O&M expenses, existing debt, proposed debt service, and capital expenses as shown in Lines 1 through 5 of Table 3-5through Table 3-7. To arrive at the rate revenue requirement in Line 19, Column E, revenue offsets from other (non-rate) revenues and an adjustment for cash balances are subtracted from the total revenue requirement shown in Line 6. The total revenue required from water rates in Line 19, Column E is the total amount that the City's fixed meter charges and volumetric rates are designed to collect if applied over a full fiscal year.

Note that Line 6, Column B, of Table 3-5 through Table 3-7 is the same as the value for FYE 2021 in Table 2-14. The revenue offsets are taken from the other revenues for FYE 2021 in Table 2-9. These non-rate revenues lower the revenue required from rates. The adjustment for cash balance in Line 15 is the net cash balance taken from Line 21 of Table 2-23,Table 2-25, or Table 2-27 depending on the scenario.

Table 3-5: Revenue Requirement Determination – Scenario 1 (100% CIP)

Line No.	FYE 2021 (A)	Operating (B)	Capital (C)	GW Recharge Debt (D)	Total (E)
1	**Revenue Requirements**				
2	Operating Costs	$4,590,193			$4,590,193
3	Existing Debt Service		$429,196	$122,538	$551,734
4	Proposed Debt Service		$0		$0
5	Rate Funded Capital		$1,831,841		$1,831,841
6	**Total Revenue Requirement**	**$4,590,193**	**$2,261,037**	**$122,538**	**$6,973,768**
7					
8	**Revenue Offsets**				
9	Interest	$34,527			$34,527
10	Fees	$232,200			$232,200
11	Miscellaneous	$265,459			$265,459
12	**Total Revenue Offsets**	**$532,186**	**$0**	**$0**	**$532,186**
13					
14	**Adjustments**				
15	Adjustment for Cash Balance	$0	$959,580	$0	$959,580
16	Adjustment for Mid-Year Increase	$0	$0	$0	$0
17	**Total Adjustments**	**$0**	**$959,580**	**$0**	**$959,580**
18					
19	**Revenue Required from Rates**	**$4,058,007**	**$1,301,458**	**$122,538**	**$5,482,002**

Table 3-6: Revenue Requirement Determination – Scenario 2 (50% CIP)

Line No.	FYE 2021	Operating	Capital	GW Recharge Debt	Total
	(A)	(B)	(C)	(D)	(E)
1	**Revenue Requirements**				
2	Operating Costs	$4,590,193			$4,590,193
3	Existing Debt Service		$429,196	$122,538	$551,734
4	Proposed Debt Service		$0		$0
5	Rate Funded Capital		$915,921		$915,921
6	**Total Revenue Requirement**	**$4,590,193**	**$1,345,117**	**$122,538**	**$6,057,847**
7					
8	**Revenue Offsets**				
9	Interest	$34,527			$34,527
10	Fees	$232,200			$232,200
11	Miscellaneous	$265,459			$265,459
12	**Total Revenue Offsets**	**$532,186**	**$0**	**$0**	**$532,186**
13					
14	**Adjustments**				
15	Adjustment for Cash Balance	$0	$932,633	$0	$932,633
16	Adjustment for Mid-Year Increase	$0	$0	$0	$0
17	**Total Adjustments**	**$0**	**$932,633**	**$0**	**$932,633**
18					
19	**Revenue Required from Rates**	**$4,058,007**	**$412,484**	**$122,538**	**$4,593,029**

Table 3-7: Revenue Requirement Determination – Scenario 3 (30% CIP)

Line No.	FYE 2021	Operating	Capital	GW Recharge Debt	Total
	(A)	(B)	(C)	(D)	(E)
1	**Revenue Requirements**				
2	Operating Costs	$4,590,193			$4,590,193
3	Existing Debt Service		$429,196	$122,538	$551,734
4	Proposed Debt Service		$0		$0
5	Rate Funded Capital		$549,552		$549,552
6	**Total Revenue Requirement**	**$4,590,193**	**$978,749**	**$122,538**	**$5,691,479**
7					
8	**Revenue Offsets**				
9	Interest	$34,527			$34,527
10	Fees	$232,200			$232,200
11	Miscellaneous	$265,459			$265,459
12	**Total Revenue Offsets**	**$532,186**	**$0**	**$0**	**$532,186**
13					
14	**Adjustments**				
15	Adjustment for Cash Balance	$0	$825,548	$0	$825,548
16	Adjustment for Mid-Year Increase	$0	$0	$0	$0
17	**Total Adjustments**	**$0**	**$825,548**	**$0**	**$825,548**
18					
19	**Revenue Required from Rates**	**$4,058,007**	**$153,200**	**$122,538**	**$4,333,745**

3.3. Preliminary Allocation of Costs to Cost Components

The total revenue requirement shown in Table 3-5 through Table 3-7 can now be allocated to the cost causation components. However, first the revenue offsets, shown in Line 12 of Table 3-5 through Table 3-7 , must be allocated to the cost components as shown in Table 3-8. The revenue offsets are the same for each of the three scenarios. As shown in the top portion of Table 3-8, the revenue offsets are allocated based on the operating allocation percentages shown in Line 9 of Table 3-3.

Table 3-8: Allocation of Revenue Offsets to Cost Components – All Scenarios

Line No.	Revenue Offsets	Allocation Basis	Supply	Base Delivery	Max Day	Max Hour	Meter Service	Customer	Groundwater Recharge	General	Total
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
1	Interest	O&M	0%	22%	17%	16%	11%	14%	0%	20%	100%
2	Fees	O&M	0%	22%	17%	16%	11%	14%	0%	20%	100%
3	Miscellaneous	O&M	0%	22%	17%	16%	11%	14%	0%	20%	100%
4											
5	Interest		$0	$7,663	$5,712	$5,583	$3,795	$4,965	$0	$6,810	$34,527
6	Fees		$0	$51,532	$38,413	$37,545	$25,521	$33,393	$0	$45,797	$232,200
7	Miscellaneous		$0	$58,913	$43,915	$42,922	$29,176	$38,176	$0	$52,357	$265,459
8	**Total Revenue Offsets**		**$0**	**$118,107**	**$88,039**	**$86,050**	**$58,491**	**$76,535**	**$0**	**$104,963**	**$532,186**

The expense allocation to cost components for each CIP scenario are shown below in Table 3-9 through Table 3-11. Line 1 in Table 3-9 through Table 3-11 allocates the operating revenue requirement to the cost components by distributing the total amount in Column K to the cost components using the percentages shown in Line 9 of Table 3-3. Similarly, the capital revenue requirement in Line 2 of these tables is allocated to the cost components using the percentages shown in Line 13 of Table 3-4. Line 3 of Table 3-9 through Table 3-11 allocates the debt related to groundwater recharge facilities to the groundwater recharge cost component. Line 4 of each table subtracts the revenue offsets that were allocated to the cost components in Table 3-8. Note that Line 4 in Table 3-9 through Table 3-11 is equal to the negative value of Line 8 in Table 3-8 because these are offsetting revenues.

Line 5 of Table 3-9 through Table 3-11 shows the cost allocation for each scenario before reallocating general and administrative costs in Line 7. Line 7 of each table reallocates general costs (Column J) to the other cost components, other than supply and groundwater recharge, in proportion to the share of total costs. This reflects the fact that general and administrative costs support the other functions in proportion to their share of costs. Supply and groundwater recharge costs only include direct cost allocations to maintain the actual cost of producing one unit of water and recharging one unit of groundwater and, therefore, do not include any distributed general cost allocations.

Note that the total cost of service shown in Line 8, Column K of tables Table 3-9 through Table 3-11 matches the respective revenue requirement for each scenario in Line 19, Column E of Table 3-5 through Table 3-7.

Table 3-9: Expense Allocation to Cost Components – Scenario 1

Line No.	(A)	Allocation Basis (B)	Supply (C)	Base Delivery (D)	Max Day (E)	Max Hour (F)	Meter Service (G)	Customer (H)	Groundwater Recharge (I)	General (J)	Total (K)
1	Operating Revenue Requirement	O&M	$1,038,774	$562,008	$418,929	$409,463	$278,328	$364,188	$1,019,040	$499,463	$4,590,193
2	Capital Revenue Requirement	Capital	$434,027	$535,420	$213,982	$62,250	$3,529	$0	$0	$52,250	$1,301,458
3	GW Recharge Debt	GW Recharge	$0	$0	$0	$0	$0	$0	$122,538	$0	$122,538
4	Revenue Offsets	O&M	$0	($118,107)	($88,039)	($86,050)	($58,491)	($76,535)	$0	($104,963)	($532,186)
5	**Total Cost of Service**		**$1,472,801**	**$979,320**	**$544,872**	**$385,663**	**$223,366**	**$287,653**	**$1,141,578**	**$446,750**	**$5,482,002**
6	Percent Excluding General			40%	23%	16%	9%	12%			
7	Allocation of General			$180,724	$100,551	$71,171	$41,220	$53,084		($446,750)	$0
8	**Total Adjusted Cost of Service**		**$1,472,801**	**$1,160,045**	**$645,423**	**$456,834**	**$264,586**	**$340,736**	**$1,141,578**	**$0**	**$5,482,002**

Table 3-10: Expense Allocation to Cost Components – Scenario 2

Line No.	(A)	Allocation Basis (B)	Supply (C)	Base Delivery (D)	Max Day (E)	Max Hour (F)	Meter Service (G)	Customer (H)	Groundwater Recharge (I)	General (J)	Total (K)
1	Operating Revenue Requirement	O&M	$1,038,774	$562,008	$418,929	$409,463	$278,328	$364,188	$1,019,040	$499,463	$4,590,193
2	Capital Revenue Requirement	Capital	$137,560	$169,696	$67,819	$19,730	$1,119	$0	$0	$16,560	$412,484
3	GW Recharge Debt	GW Recharge	$0	$0	$0	$0	$0	$0	$122,538	$0	$122,538
4	Revenue Offsets	O&M	$0	($118,107)	($88,039)	($86,050)	($58,491)	($76,535)	$0	($104,963)	($532,186)
5	**Total Cost of Service**		**$1,176,335**	**$613,597**	**$398,709**	**$343,143**	**$220,955**	**$287,653**	**$1,141,578**	**$411,060**	**$4,593,029**
6	Percent Excluding General			33%	21%	18%	12%	15%			
7	Allocation of General			$135,310	$87,923	$75,669	$48,725	$63,433		($411,060)	$0
8	**Total Adjusted Cost of Service**		**$1,176,335**	**$748,906**	**$486,632**	**$418,812**	**$269,680**	**$351,086**	**$1,141,578**	**$0**	**$4,593,029**

Table 3-11: Expense Allocation to Cost Components – Scenario 3

Line No.	(A)	Allocation Basis (B)	Supply (C)	Base Delivery (D)	Max Day (E)	Max Hour (F)	Meter Service (G)	Customer (H)	Groundwater Recharge (I)	General (J)	Total (K)
1	Operating Revenue Requirement	O&M	$1,038,774	$562,008	$418,929	$409,463	$278,328	$364,188	$1,019,040	$499,463	$4,590,193
2	Capital Revenue Requirement	Capital	$51,091	$63,027	$25,189	$7,328	$415	$0	$0	$6,151	$153,200
3	GW Recharge Debt	GW Recharge	$0	$0	$0	$0	$0	$0	$122,538	$0	$122,538
4	Revenue Offsets	O&M	$0	($118,107)	($88,039)	($86,050)	($58,491)	($76,535)	$0	($104,963)	($532,186)
5	**Total Cost of Service**		**$1,089,866**	**$506,927**	**$356,079**	**$330,741**	**$220,252**	**$287,653**	**$1,141,578**	**$400,650**	**$4,333,745**
6	Percent Excluding General			30%	21%	19%	13%	17%			
7	Allocation of General			$119,355	$83,838	$77,872	$51,858	$67,727		($400,650)	$0
8	**Total Adjusted Cost of Service**		**$1,089,866**	**$626,282**	**$439,917**	**$408,613**	**$272,110**	**$355,380**	**$1,141,578**	**$0**	**$4,333,745**

3.4. Equivalent Meters

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

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

The base meter is the most common smallest meter, in this case, a 3/4-inch meter. The actual number of meters by size is multiplied by the corresponding capacity ratio to calculate equivalent meters. Table 3-12 shows the equivalent meters for FYE 2021 water service. The number of annual equivalent meters is calculated by multiplying the equivalent meters by 12 billing periods. These totals are used as the denominator in developing unit costs for the rate components of the monthly fixed service charges.

Table 3-12: Water Equivalent Meters[13]

Meter Size - All Customer Classes	Capacity (gpm)	AWWA Ratio	Number of Meters	Equivalent Meters	Annual Equivalent Meters
5/8"	20	1.00	337	337	4,042
3/4"	30	1.00	3,381	3,381	40,573
1"	50	1.67	273	454	5,453
1 1/2"	100	3.33	35	117	1,403
2"	160	5.33	130	695	8,340
3"	350	11.67	2	23	281
4"	630	21.00	11	232	2,779
6"	1,300	43.33	7	304	3,649
8"	2,400	80.00	0	0	0
Total			**4,176**	**5,543**	**66,519**

3.5. Allocation of Fire Protection Costs – Public vs. Private

Water systems provide two types of fire protection: public fire protection for firefighting, which is generally visible as hydrants on a street, and private fire protection which provides fire flow to building and other structure sprinkler systems for fire suppression within private improvements. To determine the share of total fire costs responsible to each, Raftelis analyzes the potential flow of public hydrants and private fire lines.

Table 3-13 shows the steps to allocate costs between public and private fire service. Each fire connection size has a fire flow demand factor similar to a hydraulic capacity factor of a water meter. The diameter of the connection is raised to the 2.63 power to determine the fire flow demand factor[14]. The count of connections of a specific size is multiplied by the fire flow demand factor to derive total equivalent fire demand.

[13] Equivalent meters are rounded to the nearest whole number
[14] Hazen-Williams equation via AWWA M1 Manual

The potential fire demand (known as equivalent demand) of public and private fire accounts is calculated in Lines 5 and 13 of Table 3-13, respectively. Lines 2 through 4 calculate the potential flow through public fire hydrants using the Hazen-Williams equation for pipe flow. Lines 8 through 12 calculate the potential flow through private fire connections also using the Hazen-Williams equation. The resulting potential fire demand and, therefore, cost allocation for public fire and private fire costs, is shown in Column E of Lines 5 and 13 of Table 3-13. The total equivalent demand units in Column D are calculated by multiplying the potential demand (Column B) by the number of connections/hydrants in service (Column C). The analysis estimates that 85 percent of fire capacity, and therefore costs, relate to public fire and will be included and recovered on the monthly fixed charges. The remaining 15 percent is attributable to private fire service and will be recovered through private fire service charges.

Table 3-13: Derivation of Potential Flow to Private and Public Fire Connections

Line No.	Connection Size (A)	Fire Demand Potential (B)	Unit Counts (C)	Equivalent Demand (D)	Percent Allocation (E)
1	**Public Hydrants**				
2	1 x 2.5"	11.13	27	301	
3	1 x 4.5", 1 x 2.5"	63.37	603	38,210	
4	1 x 4.5", 2 x 2.5"	74.50	50	3,725	
5	**Total Public Hydrants**		**680**	**42,235**	**85%**
6					
7	**Private Fire Lines**				
8	4"	38.32	30	1,150	
9	6"	111.31	14	1,558	
10	8"	237.21	21	4,981	
11	10"	426.58	0	0	
12	12"	689.04	0	0	
13	**Total Private Fire Lines**		**65**	**7,689**	**15%**
14					
15	**Total Fire Demand**		**745**	**49,924**	**100%**

3.6. Unit Costs Derivation

The end goal of a cost-of-service analysis is to proportionately distribute the cost components to each user class and tier. To do so, unit costs for each component must be calculated which starts by assessing the total water demanded (or equivalent service units) for each cost component. Projected water use (annual units of service) for FYE 2021 is shown in Table 3-14. Daily use is calculated as annual use divided by 365 days. The capacity or peaking factor for each customer class was derived in Table 3-2. The max day and max hour capacities (Column G and J of Table 3-14) are calculated by multiplying the average daily use by the max day or max hour peaking factor for each class and tier. This results in the total capacity, with extra capacity (Columns H & K) calculated by subtracting the average daily use from the total capacity for max day (Column G minus Column E) and by subtracting the total capacity for max day from the total capacity for max hour (Column J minus Colum G), respectively. Demand requirements are detailed by proposed rate class. Values are rounded to the nearest hcf and may not equal the exact values shown in the table. The number of annual bills shown in Column N are calculated by multiplying the number of customers by 12 billing periods.

Table 3-14: Derivation of Cost Causation Component Units of Service

Customer Class	Monthly Tiers (hcf)	FYE 2021 Annual Use (hcf)	Average Daily Use (hcf/day)	Max Day			Max Hour			Number of Equivalent Meters/Lines	Number of Customers	Annual Bills
				Capacity Factor	Total Capacity (hcf/day)	Extra Capacity (hcf/day)	Capacity Factor	Total Capacity (hcf/day)	Extra Capacity (hcf/day)			
(A)	(B)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)
SFR		560,608								3,915	3,515	42,185
Tier 1	11	310,623	851	1.23	1,048	197	1.83	1,557	509			
Tier 2	11+	249,985	685	1.84	1,257	572	2.73	1,868	611			
MFR/Mobile	Uniform	139,583	382	1.79	685	303	2.66	1,018	333	533	289	3,464
Commercial	Uniform	124,233	340	1.79	610	269	2.66	906	296	697	302	3,621
Irrigation	Uniform	28,991	79	1.79	142	63	2.66	211	69	144	39	469
Schools	Uniform	49,921	137	1.79	245	108	2.66	364	119	255	31	373
Construction/Bulk Wat	Uniform	1,210	3	1.79	6	3	2.66	9	3			
City Use	Uniform	27,238	75	1.79	134	59	2.66	199	65			
Total		**931,784**	**2,553**		**4,127**	**1,574**		**6,132**	**2,005**	**5,543**	**4,176**	**50,112**

The calculation of public and private fire service capacity are shown in Table 3-15. Line 1 assumes the average fire lasts three hours. To fight that fire, fire services needs 3,000 gallons per minute (gpm). 85 percent of the City's fire costs are allocated to Public Fire due as derived in Line 5, Column E of Table 3-13. Max day capacity demanded for fire (Table 3-15, Line 4) is then determined by converting 3,000 gpm to gallons per hour, then multiplying it by the three hour duration of a typical fire. This is then converted to hcf. A similar calculation is done for the max hour capacity, multiplying the max day capacity by 24 hours less the capacity already allocated to Max Day. Public Fire is then allocated 85 percent each of those capacities as derived in Table 3-13. The values for max day and max hour total extra capacity shown in Line 8 of Table 3-15 are calculated by adding the total fire service capacity in Line 7 to the respective max day and max hour extra capacities shown in Columns H and K of Table 3-14. The percent of extra capacity required for public and private fire service are shown in Lines 9 and 10 of Table 3-15. These percentages are calculated by dividing the capacity needed for public or private fire (Lines 5 and 6) by the total extra capacity in Line 8 for both max day and max hour.

Table 3-15: Calculation of Fire Service Capacity

Line No.	Fire Estimate		Max Day	Max Hour
1	**Hours for Fire**	3		
2	**Gals/minute**	3,000		
3	**Cost to Public Fire**		85%	85%
4	**Capacity Demanded for Fire (hcf/day)**		722	5,053
5	Public Fire		611	4,275
6	Private Fire		111	778
7	**Total Fire**		**722**	**5053**
8	**Total Extra Capacity - Fire & Potable (hcf/day)**		**2,296**	**7,058**
9	% of Extra Capacity - Public		27%	61%
10	% of Extra Capacity - Private		5%	11%

3.7. Final Allocation of Costs to Cost Components

The cost-of-service allocation to the cost components can now be completed by making final adjustments shown in Table 3-16 through Table 3-18 for each of the three scenarios.

The adjusted cost of service in Line 1 of Table 3-16 through Table 3-18 is taken from Line 8 of Table 3-9 through Table 3-11, respectively. In Lines 2 and 3, the public and private fire protection costs are reallocated to the meter service (Column F) and private fire (Column I) cost components, respectively. These costs are calculated by multiplying the max day and max hour costs from Line 1 by the percentages shown in Lines 9 and 10 of Table 3-15 for public and private fire, respectively.

The last adjustment is shown in Line 4 of Table 3-16 through Table 3-18. A portion of max day and max hour costs are reallocated to the meter component so that these costs can be collected through a fixed charge. These costs are reallocated so that the City can meet revenue stability goals and collect approximately 22 percent of its revenue through a fixed charge. The final cost-of-service allocation to the cost components is shown in Line 5 of Table 3-16 through Table 3-18.

Utilizing the final cost of service (Line 5) as the numerator and the units of service derived in Table 3-12, Table 3-13, and Table 3-14 as the denominators (Line 7) allows us to derive unit costs of service in Line 10 of Table 3-16 through Table 3-18. The total cost of service is divided by the respective units of service to calculate the unit cost of each cost component as shown in Line 10.

Meter costs are divided by total meter equivalencies from Table 3-12 multiplied by 12 monthly bills to determine a cost per equivalent meter and annual customer costs are divided by the estimated number of annual monthly bills, from Column N of Table 3-14. Fire protection costs are divided by total equivalent private fire demand from Line 13, Column D in Table 3-13 to determine a cost per equivalent demand for private fire connections. The unit costs are used to distribute the cost components to the meter classes, commodity classes, and commodity tiers.

Once the City's expenses have been allocated to the cost causation components, rates for each customer class can be derived to collect the total amount shown in Column K of Table 3-16 through Table 3-18. This is discussed in detail in Section 5.

Table 3-16: Final Cost of Service Allocation to Cost Components – Scenario 1

Line No.	(A)	Supply (B)	Base Delivery (C)	Max Day (D)	Max Hour (E)	Meter Service (F)	Customer (G)	Groundwater Recharge (H)	Private Fire (I)	General (J)	Total (K)
1	Adjusted Cost of Service	$1,472,801	$1,160,045	$645,423	$456,834	$264,586	$340,736	$1,141,578		$0	$5,482,002
2	Allocation of Public Fire to Meter			($171,655)	($276,703)	$448,358					$0
3	Allocation to Private Fire			($31,251)	($50,376)				$81,628		$0
4	Allocation of Peak to Meter			($44,252)	($12,975)	$57,227					$0
5	**Final Cost of Service**	**$1,472,801**	**$1,160,045**	**$398,264**	**$116,779**	**$770,171**	**$340,736**	**$1,141,578**	**$81,628**	**$0**	**$5,482,002**
6											
7	Units of Service	931,784	931,784	1,574	2,005	66,519	50,112	931,784	7,689		
8	Units	hcf	hcf	hcf/day	hcf/day	equiv. line/yr	bills	hcf	equiv. demand		
9											
10	**Unit Cost of Service**	**$1.58**	**$1.24**	**$252.97**	**$58.26**	**$11.58**	**$6.80**	**$1.23**	**$10.62**		
11	Unit	hcf	hcf	hcf/day	hcf/day	equiv. line/month	per month	per hcf	equiv. demand/year		
12											
13									**$0.88**		
									equiv. demand/month		

Table 3-17: Final Cost of Service Allocation to Cost Components – Scenario 2

Line No.	(A)	Supply (B)	Base Delivery (C)	Max Day (D)	Max Hour (E)	Meter Service (F)	Customer (G)	Groundwater Recharge (H)	Private Fire (I)	General (J)	Total (K)
1	Adjusted Cost of Service	$1,176,335	$748,906	$486,632	$418,812	$269,680	$351,086	$1,141,578		$0	$4,593,029
2	Allocation of Public Fire to Meter			($129,424)	($253,673)	$383,097					$0
3	Allocation to Private Fire			($23,563)	($46,184)				$69,746		$0
4	Allocation of Peak to Meter			($33,365)	($11,896)	$45,260					$0
5	**Final Cost of Service**	**$1,176,335**	**$748,906**	**$300,281**	**$107,060**	**$698,037**	**$351,086**	**$1,141,578**	**$69,746**	**$0**	**$4,593,029**
6											
7	Units of Service	931,784	931,784	1,574	2,005	66,519	50,112	931,784	7,689		
8	Units	hcf	hcf	hcf/day	hcf/day	equiv. line/yr	bills	hcf	equiv. demand		
9											
10	**Unit Cost of Service**	**$1.26**	**$0.80**	**$190.74**	**$53.41**	**$10.49**	**$7.01**	**$1.23**	**$9.07**		
11	Unit	hcf	hcf	hcf/day	hcf/day	equiv. line/month	per month	per hcf	equiv. demand/year		
12											
13									**$0.76**		
									equiv. demand/month		

Table 3-18: Final Cost of Service Allocation to Cost Components – Scenario 3

Line No.	(A)	Supply (B)	Base Delivery (C)	Max Day (D)	Max Hour (E)	Meter Service (F)	Customer (G)	Groundwater Recharge (H)	Private Fire (I)	General (J)	Total (K)
1	Adjusted Cost of Service	$1,089,866	$626,282	$439,917	$408,613	$272,110	$355,380	$1,141,578		$0	$4,333,745
2	Allocation of Public Fire to Meter			($116,999)	($247,496)	$364,495					$0
3	Allocation to Private Fire			($21,301)	($45,059)				$66,360		$0
4	Allocation of Peak to Meter			($30,162)	($11,606)	$41,768					$0
5	**Final Cost of Service**	**$1,089,866**	**$626,282**	**$271,455**	**$104,453**	**$678,372**	**$355,380**	**$1,141,578**	**$66,360**	**$0**	**$4,333,745**
6											
7	Units of Service	931,784	931,784	1,574	2,005	66,519	50,112	931,784	7,689		
8	Units	hcf	hcf	hcf/day	hcf/day	equiv.	bills	hcf	equiv. demand		
9						line/yr					
10	**Unit Cost of Service**	**$1.17**	**$0.67**	**$172.43**	**$52.11**	**$10.20**	**$7.09**	**$1.23**	**$8.63**		
11	Unit	hcf	hcf	hcf/day	hcf/day	equiv.	per month	per hcf	equiv.		
12						line/mont			demand/year		
13									**$0.72**		
									equiv. demand/month		

3.8. Distribution of Cost Components to Customer Classes

The final step in a cost-of-service analysis is to distribute the cost components to the customer classes using the unit costs derived for each scenario in Table 3-16 through Table 3-18. This is the end goal of a cost-of-service analysis and yields the cost to serve each class. Table 3-19 through Table 3-21 shows the derivation of the cost to serve each class. The supply, base, peaking, and groundwater recharge cost components are collected through the commodity (volumetric) charges ($/hcf). Private fire protection, meters, customer, and a portion of peaking cost components are collected through the City's monthly fixed service charge ($/month) and private fire service charge ($/month).

To derive the cost to serve each class, the unit costs from Table 3-16 through Table 3-18 are multiplied by the respective units of service for each class (Table 3-12, Table 3-13, and Table 3-14). For example, the base costs for the Multi-Family Residential (MFR) class in Scenario 1 are calculated by multiplying the base unit cost of $1.24 by the annual MFR use (139,583 hcf) to arrive at a total of $173,777[15] (Line 4, Column C of Table 3-19). Similar calculations for each of the remaining user classes and cost components yield the total cost to serve each user class shown in the Column I of Table 3-19 through Table 3-21. Note that the total cost of service for each scenario in Line 11, Column J of Table 3-19 through Table 3-21 is equal to the revenue requirement in Line 5, Column K of Table 3-16 through Table 3-18, respectively. With the cost to serve each user class calculated we can proceed to derive rates to collect the cost to serve each class.

Table 3-19: Derivation of Cost to Serve Each Class – Scenario 1

Line No.	Customer Class	Supply	Base Delivery	Max Day	Max Hour	Meter Service	Customer	Groundwater Recharge	Private Fire	Total
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
1	**SFR**					$543,947	$286,837			$3,361,514
2	Tier 1	$490,979	$386,717	$49,805	$29,651			$380,561		
3	Tier 2	$395,132	$311,224	$144,814	$35,577			$306,270		
4	**MFR/Mobile**	$220,628	$173,777	$76,582	$19,386	$74,092	$23,555	$171,010		$759,031
5	**Commercial**	$196,366	$154,667	$68,161	$17,255	$96,794	$24,619	$152,205		$710,065
6	**Irrigation**	$45,823	$36,093	$15,906	$4,026	$19,962	$3,190	$35,518		$160,518
7	**Schools**	$78,906	$62,150	$27,389	$6,933	$35,375	$2,535	$61,161		$274,449
8	**Construction/Bulk Water**	$1,913	$1,507	$664	$168			$1,483		$5,734
9	**City Use**	$43,053	$33,911	$14,944	$3,783			$33,371		$129,062
10	**Private Fire Protection**								$81,628	$81,628
11	**Total**	**$1,472,801**	**$1,160,045**	**$398,264**	**$116,779**	**$770,171**	**$340,736**	**$1,141,578**	**$81,628**	**$5,482,002**

[15] Values are rounded to the nearest whole penny and hcf and may not be equal to the exact amounts shown.

Table 3-20: Derivation of Cost to Serve Each Class – Scenario 2

Line No.	Customer Class	Supply	Base Delivery	Max Day	Max Hour	Meter Service	Customer	Groundwater Recharge	Private Fire	Total
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
1	**SFR**					$493,002	$295,549			$2,840,240
2	Tier 1	$392,148	$249,658	$37,552	$27,183			$380,561		
3	Tier 2	$315,595	$200,921	$109,186	$32,616			$306,270		
4	**MFR/Mobile**	$176,217	$112,187	$57,741	$17,773	$67,153	$24,271	$171,010		$626,352
5	**Commercial**	$156,839	$99,850	$51,391	$15,818	$87,728	$25,366	$152,205		$589,198
6	**Irrigation**	$36,599	$23,301	$11,993	$3,691	$18,093	$3,287	$35,518		$132,481
7	**Schools**	$63,023	$40,123	$20,651	$6,356	$32,062	$2,612	$61,161		$225,988
8	**Construction/Bulk Water**	$1,528	$973	$501	$154			$1,483		$4,638
9	**City Use**	$34,387	$21,892	$11,267	$3,468			$33,371		$104,385
10	**Private Fire Protection**								$69,746	$69,746
11	**Total**	**$1,176,335**	**$748,906**	**$300,281**	**$107,060**	**$698,037**	**$351,086**	**$1,141,578**	**$69,746**	**$4,593,029**

Table 3-21: Derivation of Cost to Serve Each Class – Scenario 3

Line No.	Customer Class	Supply	Base Delivery	Max Day	Max Hour	Meter Service	Customer	Groundwater Recharge	Private Fire	Total
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
1	**SFR**					$479,113	$299,164			$2,688,623
2	Tier 1	$363,322	$208,780	$33,947	$26,521			$380,561		
3	Tier 2	$292,396	$168,023	$98,704	$31,821			$306,270		
4	**MFR/Mobile**	$163,264	$93,818	$52,198	$17,340	$65,261	$24,568	$171,010		$587,459
5	**Commercial**	$145,310	$83,501	$46,458	$15,433	$85,257	$25,677	$152,205		$553,840
6	**Irrigation**	$33,909	$19,486	$10,841	$3,601	$17,583	$3,327	$35,518		$124,265
7	**Schools**	$58,390	$33,553	$18,668	$6,202	$31,158	$2,644	$61,161		$211,777
8	**Construction/Bulk Water**	$1,416	$813	$453	$150			$1,483		$4,315
9	**City Use**	$31,859	$18,308	$10,186	$3,384			$33,371		$97,107
10	**Private Fire Protection**								$66,360	$66,360
11	**Total**	**$1,089,866**	**$626,282**	**$271,455**	**$104,453**	**$678,372**	**$355,380**	**$1,141,578**	**$66,360**	**$4,333,745**

4. Water Rate Structure Proposed Revisions

The City has a two-tier rate structure by meter size for meters up to 2 inches and a uniform rate for meters greater than or equal to 3 inches.

4.1. Existing Rate Structure and Rates

The City's rate structure has two main components: 1) a fixed charge component (monthly service charge) and 2) a variable volumetric charge component (commodity charge). The monthly fixed service charge is determined based on the size of the water meter serving a property and increases with meter size. Additionally, the City charges each account a flat Energy Surcharge. The rates for the current fixed service charge are shown in Table 4-1.

Table 4-1: Current Water Monthly Fixed Charges ($/month)

Meter Size (inches)	Current Charges
5/8"	$15.36
3/4"	$15.36
1"	$24.04
1 1/2"	$46.16
2"	$69.25
3"	$74.08
4"	$126.98
6"	$230.85
8"	$334.75
Energy Surcharge	$2.00

Some customers pay a monthly private fire service charge for private fire protection. The current rates for the private fire protection charge are shown in Table 4-2.

Table 4-2: Current Monthly Private Fire Service Charges ($/month)

Private Fire Connection Size (inches)	Current Charges
4"	$15.36
6"	$15.36
8"	$15.36
10"	$15.36
12"	$15.36

The volumetric component of a customer's water bill is calculated based on the number of units of water delivered to a property, measured in hcf, multiplied by the rates that vary by meter size and tier. Additionally, the City has an

Adjudication Surcharge that is applied to every unit of water used per account. The Adjudication Surcharge was developed by the City to recover the costs of groundwater recharge required by the Soboba settlement discussed in Section 2.1. The current tier widths and rates are shown in Table 4-3.

Table 4-3: Current Commodity Tiers and Rates ($/hcf)

Meter Size (inches)	Current	Current
5/8" & 3/4"		
Tier 1	0-15 hcf	$1.53
Tier 2	>16 hcf	$2.12
1" to 2"		
Tier 1	0-20 hcf	$1.53
Tier 2	>21 hcf	$2.12
≥3"	uniform	$1.64
Bulk Water	uniform	$1.98
Construction	uniform	$1.98
Adjudication Surcharge	uniform	$1.12

4.2. Proposed Rate Structure Changes

Raftelis discussed and worked with City staff to refine the proposed rate structure revisions.

Raftelis recommends a change to the monthly fixed charges; to eliminate the monthly flat Energy Surcharge per account and instead recover energy costs through the volumetric (commodity) rate. These energy costs are the costs to pump water from the ground to customers and should be collected across all water demand.

Raftelis recommends changes to the rate structures and tier definitions for the volumetric rate (commodity charges). The proposal recommends two changes: 1) grouping customers together by traditional customer classes such as Single Family Residential (SFR), Multi-Family Residential (MFR), Commercial, Irrigation, Schools, Construction, and City Use, and 2) changing the variable rate structure from tiered rates by meter size to a two tiered rate structure for SFR accounts and a uniform rate structure for all other customer classes. The proposal maintains the two-tiered rate structure for SFR accounts but revises the tier definitions based on water demand. The proposed changes and rationale are detailed in the following subsections.

4.2.1. Single Family Residential

The existing tiered rate structure includes the majority of SFR customers. However, the tier breakpoint for SFR customers varies depending on meter size. Raftelis recommends revising the rate structure so that all SFR customers have a two-tiered rate structure with revised tier definitions to reflect customer demand patterns.

Raftelis recommends using the average SFR winter water use of approximately 11 hcf per month as the basis for the Tier 1 definition as this represents essential indoor water demand.

4.2.2. All Other Customer Classes

The existing rate structure charges all customers with meters that are less than 3 inches a tiered rate that varies by meter size and a uniform rate to customers with meters greater than or equal to 3 inches. When customers are grouped together by meter size, several different customer classes may be combined. Raftelis recommends grouping

customers together by traditional classes (i.e., SFR, MFR, Commercial, Irrigation, etc.) because they use water similarly. These traditional customer classes usually show a difference in peaking factors by customer class; however, the City's water use data shows MFR, Commercial, Irrigation, and Schools customer classes all have similar peaking factors. Therefore, Raftelis recommends a uniform rate for Multi-Family and Commercial or Non-Residential accounts. For this Study, Multi-Family accounts are those with more than two residential units. Because the number of units may vary between multi-family complexes and each complex has a master meter to serve the total units, a uniform rate structure based on a blended rate is more equitable between complexes. Commercial, or Non-Residential, uses and related water needs are not as homogeneous as residential accounts. Consequently, developing a tiered rate structure that can be applied to all commercial types and uses and their corresponding water needs would not be practical. As an example, the water needs of a Starbucks versus a bookstore are substantially different and a "one-size fits all" tiered rate would unduly penalize certain commercial enterprises that use a high volume of water, even though the business may be extremely efficient with its water use. Therefore, a uniform rate for non-residential customers is a more equitable approach. It is important to note that with uniform rates, each customer class is still paying its proportionate share of the costs of providing the service based on the demand and burdens the class places on the system and is not being subsidized by another customer class. A uniform rate provides the most appropriate and equitable rate structure between accounts within this customer class.

Table 4-4 summarizes the proposed changes to the commodity rate structures.

Table 4-4: Proposed Water Commodity Definitions

Proposed Customer Class	Proposed Tier Definition
SFR	
Tier 1	11
Tier 2	11+
MFR/Mobile	Uniform
Commercial	Uniform
Irrigation	Uniform
Schools	Uniform
Construction/Bulk Water	Uniform
City Use	Uniform

5. Rate Design and Derivation

5.1. Proposed Rate Structure

In Table 3-16 through Table 3-18, the City's revenue requirement (depending upon the scenario) was allocated to each cost causation component. Table 5-1 through Table 5-3 shows how each cost component will be collected for each scenario; either through a fixed meter charge or a volumetric charge. It also restates the amount allocated to each cost component from the cost-of-service section. Total fixed revenue collection is from 22 to 25 percent of total revenue, depending on the scenario. Note that the total revenue collected in Table 5-1 through Table 5-3 matches the total in Column K of Table 3-16 through Table 3-18, respectively.

Table 5-1: Cost of Service & Fixed/Volumetric Revenue Collection – Scenario 1

Line No.	Cost Component	Amount	Fixed/ Volumetric
1	Supply	$1,472,801	Volumetric
2	Base Delivery	$1,160,045	Volumetric
3	Max Day	$398,264	Volumetric
4	Max Hour	$116,779	Volumetric
5	Meter Service	$770,171	Fixed
6	Customer	$340,736	Fixed
7	Groundwater Recharge	$1,141,578	Volumetric
8	Private Fire	$81,628	Fixed
9	**Total**	**$5,482,002**	100%
10	Total Fixed	$1,192,535	22%
11	Total Volumetric	$4,289,467	78%

Table 5-2: Cost of Service & Fixed/Volumetric Revenue Collection – Scenario 2

Line No.	Cost Component	Amount	Fixed/ Volumetric
1	Supply	$1,176,335	Volumetric
2	Base Delivery	$748,906	Volumetric
3	Max Day	$300,281	Volumetric
4	Max Hour	$107,060	Volumetric
5	Meter Service	$698,037	Fixed
6	Customer	$351,086	Fixed
7	Groundwater Recharge	$1,141,578	Volumetric
8	Private Fire	$69,746	Fixed
9	**Total**	**$4,593,029**	100%
10	Total Fixed	$1,118,868	24%
11	Total Volumetric	$3,474,160	76%

Table 5-3: Cost of Service & Fixed/Volumetric Revenue Collection – Scenario 3

Line No.	Cost Component	Amount	Fixed/ Volumetric
1	Supply	$1,089,866	Volumetric
2	Base Delivery	$626,282	Volumetric
3	Max Day	$271,455	Volumetric
4	Max Hour	$104,453	Volumetric
5	Meter Service	$678,372	Fixed
6	Customer	$355,380	Fixed
7	Groundwater Recharge	$1,141,578	Volumetric
8	Private Fire	$66,360	Fixed
9	**Total**	**$4,333,745**	100%
10	Total Fixed	$1,100,112	25%
11	Total Volumetric	$3,233,633	75%

5.2. Proposed Monthly Fixed Charge

Raftelis proposes that the City retain its schedule of monthly fixed charges by meter size for most customer classes. There are two cost components that comprise the ***total*** proposed monthly fixed charge: 1) meter service and 2) customer service. The monthly meter service charge recognizes the fact that they City incurs fixed costs related to maintaining/replacing meters and billing customers. It also collects a portion of capacity costs through the meter service charge. The customer component recovers costs associated with meter reading, customer billing and collection as well as customer service costs. These costs are the same for all meter sizes as it costs the same to provide billing and customer services to a small meter as it does a larger meter. Table 5-4 through Table 5-6 show the derivation of both components for the base meter size (3/4 inch). Note that the amounts in Lines 2 and 7 of Table 5-4 through Table 5-6 equal Lines 5 and 6 in Table 5-1 through Table 5-3, respectively.

Table 5-4: Monthly Meter and Customer Charge Derivation – Scenario 1

Line No.	Monthly Fixed Charge	
1	**Meter Service Charge Component**	
2	Meter Service Costs	$770,171
3	Annual Equivalent Meter Units	66,519
4	**Monthly Meter Service Charge**	**$11.58**
5		
6	**Customer Service Charge Component**	
7	Customer Service Costs	$340,736
8	Number of Annual Bills	50,112
9	**Monthly Customer Service Charge**	**$6.80**

Table 5-5: Monthly Meter and Customer Charge Derivation – Scenario 2

Line No.	Monthly Fixed Charge	
1	**Meter Service Charge Component**	
2	Meter Service Costs	$698,037
3	Annual Equivalent Meter Units	66,519
4	**Monthly Meter Service Charge**	**$10.49**
5		
6	**Customer Service Charge Component**	
7	Customer Service Costs	$351,086
8	Number of Annual Bills	50,112
9	**Monthly Customer Service Charge**	**$7.01**

Table 5-6: Monthly Meter and Customer Charge Derivation – Scenario 3

Line No.	Monthly Fixed Charge	
1	**Meter Service Charge Component**	
2	Meter Service Costs	$678,372
3	Annual Equivalent Meter Units	66,519
4	**Monthly Meter Service Charge**	**$10.20**
5		
6	**Customer Service Charge Component**	
7	Customer Service Costs	$355,380
8	Number of Annual Bills	50,112
9	**Monthly Customer Service Charge**	**$7.09**

Table 5-7 through Table 5-9 show the derivation of the total monthly fixed charge for each scenario, which represents the Meter Service and Customer cost components determined in Table 5-4 through Table 5-6. The meter component consists of costs to the City that vary based on meter size. It reflects the fact that larger meters have the potential to demand more capacity compared to smaller meters. The potential capacity demanded is proportional to the potential flow through each meter size as established by the AWWA hydraulic capacity ratios which are shown in the "Capacity Ratio" column of Table 5-7 through Table 5-9 and were derived in Table 3-12. The ratios show the potential flow through each meter size compared to the flow through a 3/4-inch meter. The Meter service component for larger meters shown in Table 5-7 through Table 5-9 are calculated by multiplying the capacity ratio by the monthly meter service charge shown in Line 4 of Table 5-4 through Table 5-6, respectively. Allocating capacity costs by meter size is a common way to reliably recover the fixed cost of operating the utility. The Meter and Customer components are combined to yield the total proposed fixed charge by meter size.

Table 5-7: Calculation of Total Fixed Charges– Scenario 1

Meter Size	Capacity Ratio	Meter Service	Customer	Proposed Charge
5/8"	1.00	$11.58	$6.80	$18.38
3/4"	1.00	$11.58	$6.80	$18.38
1"	1.67	$19.30	$6.80	$26.10
1 1/2"	3.33	$38.59	$6.80	$45.39
2"	5.33	$61.75	$6.80	$68.55
3"	11.67	$135.08	$6.80	$141.88
4"	21.00	$243.14	$6.80	$249.94
6"	43.33	$501.72	$6.80	$508.52
8"	80.00	$926.25	$6.80	$933.05

Table 5-8: Calculation of Total Fixed Charges– Scenario 2

Meter Size	Capacity Ratio	Meter Service	Customer	Proposed Charge
5/8"	1.00	$10.49	$7.01	$17.50
3/4"	1.00	$10.49	$7.01	$17.50
1"	1.67	$17.49	$7.01	$24.50
1 1/2"	3.33	$34.98	$7.01	$41.99
2"	5.33	$55.97	$7.01	$62.97
3"	11.67	$122.43	$7.01	$129.43
4"	21.00	$220.37	$7.01	$227.37
6"	43.33	$454.73	$7.01	$461.74
8"	80.00	$839.50	$7.01	$846.51

Table 5-9: Calculation of Total Fixed Charges– Scenario 3

Meter Size	Capacity Ratio	Meter Service	Customer	Proposed Charge
5/8"	1.00	$10.20	$7.09	$17.29
3/4"	1.00	$10.20	$7.09	$17.29
1"	1.67	$17.00	$7.09	$24.09
1 1/2"	3.33	$33.99	$7.09	$41.09
2"	5.33	$54.39	$7.09	$61.48
3"	11.67	$118.98	$7.09	$126.07
4"	21.00	$214.16	$7.09	$221.25
6"	43.33	$441.92	$7.09	$449.01
8"	80.00	$815.85	$7.09	$822.94

Table 5-10 compares the proposed charges for all three scenarios with the current charges.

Table 5-10: Proposed Fixed Charges – All Scenarios

Meter Size	Current Charge	FYE 2021 Proposed Charge		
		Scenario 1 - 100% CIP	Scenario 2 - 50% CIP	Scenario 3 - 30% CIP
5/8"	$15.36	$18.38	$17.50	$17.29
3/4"	$15.36	$18.38	$17.50	$17.29
1"	$24.04	$26.10	$24.50	$24.09
1 1/2"	$46.16	$45.39	$41.99	$41.09
2"	$69.25	$68.55	$62.97	$61.48
3"	$74.08	$141.88	$129.43	$126.07
4"	$126.98	$249.94	$227.37	$221.25
6"	$230.85	$508.52	$461.74	$449.01
8"	$334.75	$933.05	$846.51	$822.94

Table 5-11 through Table 5-13 show the total monthly fixed charge for the next five years for each scenario. They are derived by applying the revenue adjustments for each scenario shown in Table 2-22, Table 2-24, and Table 2-26 to the meter charges shown in Table 5-10. The Financial Plan, discussed in Section 2, assumes the rates shown are implemented in July of each year.

Table 5-11: Five Year Fixed Charges – Scenario 1

Meter Size (inches)	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
5/8"	$18.38	$20.59	$22.24	$24.02	$25.95
3/4"	$18.38	$20.59	$22.24	$24.02	$25.95
1"	$26.10	$29.23	$31.57	$34.10	$36.83
1 1/2"	$45.39	$50.85	$54.92	$59.32	$64.07
2"	$68.55	$76.78	$82.93	$89.57	$96.74
3"	$141.88	$158.91	$171.63	$185.37	$200.20
4"	$249.94	$279.94	$302.34	$326.53	$352.66
6"	$508.52	$569.55	$615.12	$664.33	$717.48
8"	$933.05	$1,045.02	$1,128.63	$1,218.93	$1,316.45

Table 5-12: Five Year Fixed Charges – Scenario 2

Meter Size (inches)	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
5/8"	$17.50	$20.30	$21.73	$23.26	$24.89
3/4"	$17.50	$20.30	$21.73	$23.26	$24.89
1"	$24.50	$28.42	$30.41	$32.54	$34.82
1 1/2"	$41.99	$48.71	$52.12	$55.77	$59.68
2"	$62.97	$73.05	$78.17	$83.65	$89.51
3"	$129.43	$150.15	$160.67	$171.92	$183.96
4"	$227.37	$263.76	$282.23	$301.99	$323.13
6"	$461.74	$535.62	$573.12	$613.24	$656.17
8"	$846.51	$981.95	$1,050.69	$1,124.24	$1,202.94

Table 5-13: Five Year Fixed Charges – Scenario 3

Meter Size (inches)	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
5/8"	$17.29	$19.54	$21.11	$22.80	$24.17
3/4"	$17.29	$19.54	$21.11	$22.80	$24.17
1"	$24.09	$27.23	$29.41	$31.77	$33.68
1 1/2"	$41.09	$46.43	$50.15	$54.17	$57.43
2"	$61.48	$69.48	$75.04	$81.05	$85.92
3"	$126.07	$142.46	$153.86	$166.17	$176.15
4"	$221.25	$250.02	$270.03	$291.64	$309.14
6"	$449.01	$507.39	$547.99	$591.83	$627.34
8"	$822.94	$929.93	$1,004.33	$1,084.68	$1,149.77

5.3. Proposed Private Fire Charges

Table 5-14 through Table 5-16 show the derivation of private fire charges for each scenario. The total amount associated with private fire protection is shown on Line 8 of Table 5-1 through Table 5-3. Line 3 calculates the yearly private fire charge for one unit of private fire demand by dividing Line 1 by Line 2. Line 4 divides Line 3 by 12 billing periods per year to create a monthly charge per unit of demand.

Table 5-14: Calculation of Private Fire Charge Components – Scenario 1

Line No.	Private Fire Protection	
1	Private Fire Protection Costs	$81,628
2	Equivalent Demand	7,689
3	Yearly Charge	$10.62
4	**Monthly Charge**	**$0.88**

Table 5-15: Calculation of Private Fire Charge Components – Scenario 2

Line No.	Private Fire Protection	
1	Private Fire Protection Costs	$69,746
2	Equivalent Demand	7,689
3	Yearly Charge	$9.07
4	**Monthly Charge**	**$0.76**

Table 5-16: Calculation of Private Fire Charge Components – Scenario 3

Line No.	Private Fire Protection	
1	Private Fire Protection Costs	$66,360
2	Equivalent Demand	7,689
3	Yearly Charge	$8.63
4	**Monthly Charge**	**$0.72**

Table 5-17 through Table 5-19 show the derivation of the monthly Private Fire Charge for each scenario. The proposed private fire charge was derived by multiplying the monthly charge shown in Line 4 of Table 5-14 through Table 5-16 by the potential demand ratios shown for each connection size (from Table 3-13).

Table 5-17: Calculation of Private Fire Charge – Scenario 1

Private Fire Connection Size	Potential Demand	Proposed Charge
	1.00	$0.88
4"	38.32	$33.90
6"	111.31	$98.47
8"	237.21	$209.84
10"	426.58	$377.37
12"	689.04	$609.56

Table 5-18: Calculation of Private Fire Charge – Scenario 2

Private Fire Connection Size	Potential Demand	Proposed Charge
	1.00	$0.76
4"	38.32	$28.96
6"	111.31	$84.14
8"	237.21	$179.30
10"	426.58	$322.44
12"	689.04	$520.84

Table 5-19: Calculation of Private Fire Charge – Scenario 3

Private Fire Connection Size	Potential Demand	Proposed Charge
	1.00	$0.72
4"	38.32	$27.56
6"	111.31	$80.05
8"	237.21	$170.59
10"	426.58	$306.79
12"	689.04	$495.55

Table 5-20 compares the proposed charges for all three scenarios with the current charges.

Table 5-20: Proposed Private Fire Service Charges – All Scenarios

Private Fire Connection Size	Current Charge	FYE 2021 Proposed Charge Scenario 1 - 100% CIP	Scenario 2 - 50% CIP	Scenario 3 - 30% CIP
4"	$15.36	$33.90	$28.96	$27.56
6"	$15.36	$98.47	$84.14	$80.05
8"	$15.36	$209.84	$179.30	$170.59
10"	$15.36	$377.37	$322.44	$306.79
12"	$15.36	$609.56	$520.84	$495.55

Table 5-21 through Table 5-23show the total monthly fixed Private Fire Service Charge for the next five years for each scenario. They are derived by applying the revenue adjustments for each scenario shown in Table 2-22, Table 2-24, and Table 2-26 to the meter charges shown in Table 5-20.

Table 5-21: Five-Year Fixed Private Fire Service Charges – Scenario 1

Private Fire Connection Size	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
4"	$33.90	$37.97	$41.01	$44.30	$47.85
6"	$98.47	$110.29	$119.12	$128.65	$138.95
8"	$209.84	$235.03	$253.84	$274.15	$296.09
10"	$377.37	$422.66	$456.48	$493.00	$532.44
12"	$609.56	$682.71	$737.33	$796.32	$860.03

Table 5-22: Five-Year Fixed Private Fire Service Charges – Scenario 2

Private Fire Connection Size	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
4"	$28.96	$33.60	$35.96	$38.48	$41.18
6"	$84.14	$97.61	$104.45	$111.77	$119.60
8"	$179.30	$207.99	$222.55	$238.13	$254.80
10"	$322.44	$374.04	$400.23	$428.25	$458.23
12"	$520.84	$604.18	$646.48	$691.74	$740.17

Table 5-23: Five-Year Fixed Private Fire Service Charges – Scenario 3

Private Fire Connection Size	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
4"	$27.56	$31.15	$33.65	$36.35	$38.54
6"	$80.05	$90.46	$97.70	$105.52	$111.86
8"	$170.59	$192.78	$208.21	$224.87	$238.37
10"	$306.79	$346.68	$374.42	$404.38	$428.65
12"	$495.55	$559.97	$604.77	$653.16	$692.35

5.4. Volumetric Rates

The term volumetric rate is often used interchangeably with commodity rate or commodity charge. Line 11 of Table 5-1 through Table 5-3 shows the total amount of revenue the volumetric rates are designed to collect. Each component of the volumetric rate will be derived for each customer class to collect this amount. First, the proposed Single Family Residential tier breakpoints must be defined.

5.4.1. Customer Classes

Raftelis proposes to maintain two main customer classes: 1) Single Family Residential customers and 2) Non-Single Family Residential, which includes Multi-Family Residential, Commercial, Irrigation, Schools, Construction and City Use customer classes.

These classes are based on analyzing each classes' peaking factors using FYE 2018 data. The classes are based on grouping customers together based on how they use the water system as evidenced by each classes' peaking factors. Peaking factors were calculated for each class and were very similar for Multi-Family, Commercial, and Irrigation customers. Therefore, it is reasonable to combine these customers into one class. Table 3-2 shows the derivation of peaking factors.

5.4.2. Volumetric Rate Derivation

The total volumetric rate is the summation of unit rates for each cost component. These include:

1. Supply
2. Base Delivery
3. Peaking (max day and hour)
4. Groundwater Recharge (Adjudication Surcharge)

Each unit rate is derived and summed to get the total volumetric rate for each tier and customer class. First, each cost component (unit rate component) must be derived.

5.4.2.1. Cost Component Definitions

Water Supply costs are costs associated with obtaining and treating water to make it ready for delivery from each water source including groundwater and imported purchased water from EMWD.

Base Delivery costs are the operating and capital costs associated with delivering water to all customers through the distribution system (not including distribution storage) at a constant average rate of use, also known as serving customers under average daily demand conditions (base use). Therefore, delivery costs are spread over all units of water which results in an equal delivery unit cost for all classes and tiers.

Peaking costs, or extra-capacity costs, are costs incurred to meet customer peak demands in excess of base use (or in excess of average daily demand). Peaking costs are shown in Line 3 and 4 of Table 5-1 through Table 5-3 for each scenario. For the portion of peaking costs collected through the volumetric rate, peaking costs are distributed to each tier and class using peaking factors derived from customer use data, which are discussed later in this section. For the portion of peaking costs collected through the meter service charge, AWWA hydraulic capacity factors are used to distribute peaking costs to the various meter sizes, as derived and discussed in Section 5.2.

Groundwater recharge (or Adjudication) costs are costs associated with groundwater recharge required by the Soboba settlement discussed in Section 2.1. These costs were allocated equally to all customer classes.

5.4.2.2. Unit Cost Derivation by Cost Component

Supply Unit Costs

Table 5-24 through Table 5-26 show the supply cost derivation by source for all three scenarios. The unit costs are shown in Line 8 and are derived by dividing Line 7 by Line 4. The total water supply revenue requirement, shown in Line 7, is equal to the water supply cost component shown in Line 1 of Table 5-1 through Table 5-3, respectively. This is the total cost of water supply including general and administrative costs. The actual water supply costs are shown in Line 5. The total water supply revenue requirement, Line 7 Column D, is allocated to each water source in proportion to the water supply cost shown in Line 6. As shown in Line 8, the unit supply cost for purchased water from EMWD is higher than groundwater.

Table 5-24: Supply Cost Derivation – Scenario 1

Line No.	(A)	Groundwater (B)	EMWD (C)	Total (D)
1	**Water Supplies**			
2	Water Sales (AF) *(From Table 2-11)*	2,284	372	2,656
3	% of Water Supply	86%	14%	100%
4	Water Sales by Source (hcf) *(Total from Table 2-10 x Line 3)*	801,334	130,450	931,784
5	**Water Supply Costs** *(From Table 2-13)*	$557,650	$131,976	$689,626
6	% of Water Supply Cost	81%	19%	100%
7	Water Supply Revenue Requirement *(Line 1 of Table 5-1 x Line 7)*	$1,190,946	$281,855	$1,472,801
8	**Unit Cost ($/hcf)** *(Line 7 / Line 4)*	**$1.49**	**$2.16**	**$1.58**

Table 5-25: Supply Cost Derivation – Scenario 2

Line No.	(A)	Groundwater (B)	EMWD (C)	Total (D)
1	**Water Supplies**			
2	Water Sales (AF) *(From Table 2-11)*	2,284	372	2,656
3	% of Water Supply	86%	14%	100%
4	Water Sales by Source (hcf) *(Total from Table 2-10 x Line 3)*	801,334	130,450	931,784
5	**Water Supply Costs** *(From Table 2-13)*	$557,650	$131,976	$689,626
6	% of Water Supply Cost	81%	19%	100%
7	Water Supply Revenue Requirement *(Line 1 of Table 5-1 x Line 7)*	$951,215	$225,120	$1,176,335
8	**Unit Cost ($/hcf)** *(Line 7 / Line 4)*	**$1.19**	**$1.73**	**$1.26**

Table 5-26: Supply Cost Derivation – Scenario 3

Line No.	(A)	Groundwater (B)	EMWD (C)	Total (D)
1	**Water Supplies**			
2	Water Sales (AF) *(From Table 2-11)*	2,284	372	2,656
3	% of Water Supply	86%	14%	100%
4	Water Sales by Source (hcf) *(Total from Table 2-10 x Line 3)*	801,334	130,450	931,784
5	**Water Supply Costs** *(From Table 2-13)*	$557,650	$131,976	$689,626
6	% of Water Supply Cost	81%	19%	100%
7	Water Supply Revenue Requirement *(Line 1 of Table 5-1 x Line 7)*	$881,294	$208,572	$1,089,866
8	**Unit Cost ($/hcf)** *(Line 7 / Line 4)*	**$1.10**	**$1.60**	**$1.17**

Allocating Water to Each Class and Tier

The amount and percentage of water available from each supply source is shown in Lines 2 and 3 of Table 5-24 through Table 5-26 above. Line 4, Columns B and C of Table 5-24 through Table 5-26 are calculated by multiplying Line 3, Columns B and C by the total use in Line 4, Column D.

The supply from each source (Line 4 of Table 5-24 through Table 5-26) is then allocated to each customer class in proportion to overall demand as shown in Table 5-27 through Table 5-29. For example, the Single Family Residential (SFR) customer class uses 60 percent of water annually (Column C of Table 5-27 through Table 5-29). The percent of annual use (Column C) is multiplied by the total amount of water available from each source (Line 4, Columns B and C in Table 5-24 through Table 5-26) to determine the water supply allocation by source shown in Columns D and E of Table 5-27 through Table 5-29. Note that the total amount of water available from each source in Line 11 of Table 5-27 through Table 5-29 is equal to the amount in Line 4 of Table 5-24 through Table 5-26.

The unit rates by tier are derived in Table 5-27 through Table 5-29. Total costs are determined as the sum-products of the unit costs from Table 5-24 through Table 5-26 (shown in Line 1) and the water required in each tier. Supply unit costs in Column G are calculated by dividing the total cost (Column F) by the annual water use (Column B). Note that Tier 2 for SFR as well as the Non-residential customer classes unit costs represent blended rates from both water sources. Also note that the total supply cost in Line 11, Column F of Table 5-27 through Table 5-29 matches the supply cost shown in Line 1 of Table 5-1 through Table 5-3, respectively.

Table 5-27: Customer Class Water Supply Allocations – Scenario 1

Line No.	Customer Class	Annual Use (hcf)	% of Use	Groundwater	EMWD	Total Cost	Supply Unit Cost
	(A)	(B)	(C)	(D)	(E)	(F)	(G)
1	Unit Cost of Supply			$1.49	$2.16		
2	**SFR**	**560,608**	60%	**482,123**	**78,485**	**$886,111**	**$1.58**
3	Tier 1	310,623		310,623	0	$461,650	$1.49
4	Tier 2	249,985		171,500	78,485	$424,462	$1.70
5	**MFR/Mobile**	**139,583**	15%	**120,041**	**19,542**	**$220,628**	**$1.58**
6	**Commercial**	**124,233**	13%	**106,841**	**17,393**	**$196,366**	**$1.58**
7	**Irrigation**	**28,991**	3%	**24,932**	**4,059**	**$45,823**	**$1.58**
8	**Schools**	**49,921**	5%	**42,932**	**6,989**	**$78,906**	**$1.58**
9	**Construction/Bulk Water**	**1,210**	0%	**1,041**	**169**	**$1,913**	**$1.58**
10	**City Use**	**27,238**	3%	**23,425**	**3,813**	**$43,053**	**$1.58**
11	**Total**	**931,784**	**100%**	**801,334**	**130,450**	**$1,472,801**	**$1.58**

Table 5-28: Customer Class Water Supply Allocations – Scenario 2

Line No.	Customer Class	Annual Use (hcf)	% of Use	Groundwater	EMWD	Total Cost	Supply Unit Cost
	(A)	(B)	(C)	(D)	(E)	(F)	(G)
1	Unit Cost of Supply			$1.19	$1.73		
2	**SFR**	**560,608**	60%	**482,123**	**78,485**	**$707,743**	**$1.26**
3	Tier 1	310,623		310,623	0	$368,722	$1.19
4	Tier 2	249,985		171,500	78,485	$339,020	$1.36
5	**MFR/Mobile**	**139,583**	15%	**120,041**	**19,542**	**$176,217**	**$1.26**
6	**Commercial**	**124,233**	13%	**106,841**	**17,393**	**$156,839**	**$1.26**
7	**Irrigation**	**28,991**	3%	**24,932**	**4,059**	**$36,599**	**$1.26**
8	**Schools**	**49,921**	5%	**42,932**	**6,989**	**$63,023**	**$1.26**
9	**Construction/Bulk Water**	**1,210**	0%	**1,041**	**169**	**$1,528**	**$1.26**
10	**City Use**	**27,238**	3%	**23,425**	**3,813**	**$34,387**	**$1.26**
11	**Total**	**931,784**	**100%**	**801,334**	**130,450**	**$1,176,335**	**$1.26**

Table 5-29: Customer Class Water Supply Allocations – Scenario 3

Line No.	Customer Class (A)	Annual Use (hcf) (B)	% of Use (C)	Groundwater (D)	EMWD (E)	Total Cost (F)	Supply Unit Cost (G)
1	Unit Cost of Supply			$1.10	$1.60		
2	**SFR**	**560,608**	60%	**482,123**	**78,485**	**$655,718**	**$1.17**
3	Tier 1	310,623		310,623	0	$341,618	$1.10
4	Tier 2	249,985		171,500	78,485	$314,100	$1.26
5	**MFR/Mobile**	**139,583**	15%	**120,041**	**19,542**	**$163,264**	**$1.17**
6	**Commercial**	**124,233**	13%	**106,841**	**17,393**	**$145,310**	**$1.17**
7	**Irrigation**	**28,991**	3%	**24,932**	**4,059**	**$33,909**	**$1.17**
8	**Schools**	**49,921**	5%	**42,932**	**6,989**	**$58,390**	**$1.17**
9	**Construction/Bulk Water**	**1,210**	0%	**1,041**	**169**	**$1,416**	**$1.17**
10	**City Use**	**27,238**	3%	**23,425**	**3,813**	**$31,859**	**$1.17**
11	**Total**	**931,784**	**100%**	**801,334**	**130,450**	**$1,089,866**	**$1.17**

Delivery Cost

The delivery rate is derived in Table 5-30 through Table 5-32 below by dividing the delivery (Base) costs identified shown in Line 1 (equal to Line 2 of Table 5-1 through Table 5-3) by the total water use in Line 2. The delivery rate is the unit cost to deliver water under ***average daily demand (ADD)*** conditions. This delivery cost is the same for all classes and for all tiers.

Table 5-30: Derivation of the Delivery Unit Cost – Scenario 1

Line No.	Delivery Rate Derivation	
1	Delivery Costs	$1,160,045
2	Total Use	931,784
3	**Delivery Rate**	**$1.24**

Table 5-31: Derivation of the Delivery Unit Cost – Scenario 2

Line No.	Delivery Rate Derivation	
1	Delivery Costs	$748,906
2	Total Use	931,784
3	**Delivery Rate**	**$0.80**

Table 5-32: Derivation of the Delivery Unit Cost – Scenario 3

Line No.	Delivery Rate Derivation	
1	Delivery Costs	$626,282
2	Total Use	931,784
3	**Delivery Rate**	**$0.67**

Peaking Rate

Peaking costs represent the cost of providing max day and max hour capacity to each customer class based on the demand characteristics of each. Table 5-33 through Table 5-35 combines the max day and max hour costs in Table 3-19 through Table 3-21, respectively, into peaking costs. These costs are divided by total annual use by class and

tier to arrive at the peaking unit cost for each. Note that the total peaking costs in Line 10, Column C of Table 5-33 through Table 5-35 are equal to the sum of Lines 3 and 4 in Table 5-1 through Table 5-3 for each scenario.

Table 5-33: Derivation of Peaking Rate – Scenario 1

Line No.	Customer Class (A)	Annual Use (hcf) (B)	Peaking Costs (Max (C)	Unit Cost (D)
1	**SFR**			
2	Tier 1	310,623	$79,456	$0.26
3	Tier 2	249,985	$180,390	$0.72
4	**MFR/Mobile**	139,583	$95,969	$0.69
5	**Commercial**	124,233	$85,415	$0.69
6	**Irrigation**	28,991	$19,932	$0.69
7	**Schools**	49,921	$34,322	$0.69
8	**Construction/Bulk Water**	1,210	$832	$0.69
9	**City Use**	27,238	$18,727	$0.69
10	**Total**	**931,784**	**$515,044**	

Table 5-34: Derivation of Peaking Rate – Scenario 2

Line No.	Customer Class (A)	Annual Use (B)	Peaking (C)	Unit Cost (D)
1	**SFR**			
2	Tier 1	310,623	$64,735	$0.21
3	Tier 2	249,985	$141,802	$0.57
4	**MFR/Mobile**	139,583	$75,514	$0.54
5	**Commercial**	124,233	$67,210	$0.54
6	**Irrigation**	28,991	$15,684	$0.54
7	**Schools**	49,921	$27,007	$0.54
8	**Construction/Bulk Water**	1,210	$655	$0.54
9	**City Use**	27,238	$14,736	$0.54
10	**Total**	**931,784**	**$407,341**	

Table 5-35: Derivation of Peaking Rate – Scenario 3

Line No.	Customer Class (A)	Annual Use (hcf) (B)	Peaking Costs (Max (C)	Unit Cost (D)
1	**SFR**			
2	Tier 1	310,623	$60,468	$0.19
3	Tier 2	249,985	$130,526	$0.52
4	**MFR/Mobile**	139,583	$69,538	$0.50
5	**Commercial**	124,233	$61,891	$0.50
6	**Irrigation**	28,991	$14,443	$0.50
7	**Schools**	49,921	$24,870	$0.50
8	**Construction/Bulk Water**	1,210	$603	$0.50
9	**City Use**	27,238	$13,570	$0.50
10	**Total**	**931,784**	**$375,908**	

Groundwater Recharge Rate (Adjudication Surcharge)

Table 5-36 shows the groundwater recharge rate derivation for all customers and for all scenarios. The groundwater recharge rate is derived by dividing the groundwater recharge costs shown in Line 1 (equal to Line 7 of Table 5-1 through Table 5-3) by the City's annual water use in Line 2 of Table 5-36. The groundwater recharge costs are the same for each scenario and, therefore, the rate is the same for each scenario.

Table 5-36: Derivation of Groundwater Recharge Rate – Scenario 1 through 3

Line No.	Groundwater Recharge Rate Derivation	
1	Groundwater Recharge Cost	$1,141,578
2	Total Use (hcf)	931,784
3	**Groundwater Recharge Rate**	**$1.23**

5.4.3. Final Rate Derivation

Table 5-37 through Table 5-39 show the total volumetric rate derivation for all customer classes in Column E. This is the summation of the supply, base delivery, and peaking rate components (Columns B, C, and D) derived in earlier tables in this section. The total volumetric rate shown in Column E is designed to collect the volumetric costs (before groundwater recharge costs are added) shown in Table 5-1 through Table 5-3 for each scenario. Note that the groundwater recharge costs are collected through a separate volumetric rate shown in Column F of Table 5-37 through Table 5-39.

Table 5-37: Derivation of Rates by Tier and Class – Scenario 1

Line No.	Customer Class	Supply	Base Delivery	Peaking	Total Proposed Rate ($/hcf)	Proposed GW Recharge Rate ($/hcf)
	(A)	(B)	(C)	(D)	(E)	(F)
1	**SFR**					
2	Tier 1	$1.49	$1.24	$0.26	**$2.99**	$1.23
3	Tier 2	$1.70	$1.24	$0.72	**$3.67**	$1.23
4	**MFR/Mobile**	$1.58	$1.24	$0.69	**$3.52**	$1.23
5	**Commercial**	$1.58	$1.24	$0.69	**$3.52**	$1.23
6	**Irrigation**	$1.58	$1.24	$0.69	**$3.52**	$1.23
7	**Schools**	$1.58	$1.24	$0.69	**$3.52**	$1.23
8	**Construction/Bulk Water**	$1.58	$1.24	$0.69	**$3.52**	$1.23
9	**City Use**	$1.58	$1.24	$0.69	**$3.52**	$1.23

Table 5-38: Derivation of Rates by Tier and Class – Scenario 2

Line No.	Customer Class	Supply	Base Delivery	Peaking	Total Proposed Rate ($/hcf)	Proposed GW Recharge Rate ($/hcf)
	(A)	(B)	(C)	(D)	(E)	(F)
1	**SFR**					
2	Tier 1	$1.19	$0.80	$0.21	**$2.20**	$1.23
3	Tier 2	$1.36	$0.80	$0.57	**$2.73**	$1.23
4	**MFR/Mobile**	$1.26	$0.80	$0.54	**$2.61**	$1.23
5	**Commercial**	$1.26	$0.80	$0.54	**$2.61**	$1.23
6	**Irrigation**	$1.26	$0.80	$0.54	**$2.61**	$1.23
7	**Schools**	$1.26	$0.80	$0.54	**$2.61**	$1.23
8	**Construction/Bulk Water**	$1.26	$0.80	$0.54	**$2.61**	$1.23
9	**City Use**	$1.26	$0.80	$0.54	**$2.61**	$1.23

Table 5-39: Derivation of Rates by Tier and Class – Scenario 3

Line No.	Customer Class	Supply	Base Delivery	Peaking	Total Proposed Rate ($/hcf)	Proposed GW Recharge Rate ($/hcf)
	(A)	(B)	(C)	(D)	(E)	(F)
1	**SFR**					
2	Tier 1	$1.10	$0.67	$0.19	**$1.97**	$1.23
3	Tier 2	$1.26	$0.67	$0.52	**$2.46**	$1.23
4	**MFR/Mobile**	$1.17	$0.67	$0.50	**$2.34**	$1.23
5	**Commercial**	$1.17	$0.67	$0.50	**$2.34**	$1.23
6	**Irrigation**	$1.17	$0.67	$0.50	**$2.34**	$1.23
7	**Schools**	$1.17	$0.67	$0.50	**$2.34**	$1.23
8	**Construction/Bulk Water**	$1.17	$0.67	$0.50	**$2.34**	$1.23
9	**City Use**	$1.17	$0.67	$0.50	**$2.34**	$1.23

Table 5-40 compares the proposed charges for all three scenarios with the current charges. Note that the current rate for MFR and Commercial customer classes currently varies by meter size.

Table 5-40: Proposed Volumetric Rates – All Scenarios

Customer Class	Proposed Tier Widths (hcf)	Current Charge	FYE 2021 Proposed Charge		
			Scenario 1 - 100% CIP	Scenario 2 - 50% CIP	Scenario 3 - 30% CIP
SFR					
Tier 1	0-11	$1.53	$2.99	$2.20	$1.97
Tier 2	>11	$2.12	$3.67	$2.73	$2.46
MFR/Mobile	Uniform	varies	$3.52	$2.61	$2.34
Commercial	Uniform	varies	$3.52	$2.61	$2.34
Irrigation	Uniform	$1.64	$3.52	$2.61	$2.34
Schools	Uniform	$1.64	$3.52	$2.61	$2.34
Construction/Bulk Water	Uniform	$1.98	$3.52	$2.61	$2.34
City Use	Uniform	N/A	$3.52	$2.61	$2.34
Groundwater Recharge	Uniform	$1.12	$1.23	$1.23	$1.23

Table 5-41 through Table 5-43 show the total proposed volumetric rates for each customer class and tier for the next five years for each scenario. They are derived by applying the revenue adjustments for each scenario shown in Table 2-22, Table 2-24, and Table 2-26 to the volumetric rates shown in Table 5-40.

Table 5-41: Five Year Volumetric Rates – Scenario 1

Customer Class	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
SFR					
Tier 1	$2.99	$3.35	$3.62	$3.91	$4.23
Tier 2	$3.67	$4.12	$4.45	$4.81	$5.20
MFR/Mobile	$3.52	$3.95	$4.27	$4.62	$4.99
Commercial	$3.52	$3.95	$4.27	$4.62	$4.99
Irrigation	$3.52	$3.95	$4.27	$4.62	$4.99
Schools	$3.52	$3.95	$4.27	$4.62	$4.99
Construction/Bulk Water	$3.52	$3.95	$4.27	$4.62	$4.99
City Use	$3.52	$3.95	$4.27	$4.62	$4.99
GW Recharge	$1.23	$1.38	$1.50	$1.62	$1.75

Table 5-42: Five Year Volumetric Rates – Scenario 2

Customer Class	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
SFR					
Tier 1	$2.20	$2.56	$2.74	$2.94	$3.15
Tier 2	$2.73	$3.17	$3.40	$3.64	$3.90
MFR/Mobile	$2.61	$3.03	$3.25	$3.48	$3.73
Commercial	$2.61	$3.03	$3.25	$3.48	$3.73
Irrigation	$2.61	$3.03	$3.25	$3.48	$3.73
Schools	$2.61	$3.03	$3.25	$3.48	$3.73
Construction/Bulk Water	$2.61	$3.03	$3.25	$3.48	$3.73
City Use	$2.61	$3.03	$3.25	$3.48	$3.73
GW Recharge	$1.23	$1.43	$1.54	$1.65	$1.77

Table 5-43: Five Year Volumetric Rates – Scenario 3

Customer Class	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
SFR					
Tier 1	$1.97	$2.23	$2.41	$2.61	$2.77
Tier 2	$2.46	$2.78	$3.01	$3.26	$3.46
MFR/Mobile	$2.34	$2.65	$2.87	$3.10	$3.29
Commercial	$2.34	$2.65	$2.87	$3.10	$3.29
Irrigation	$2.34	$2.65	$2.87	$3.10	$3.29
Schools	$2.34	$2.65	$2.87	$3.10	$3.29
Construction/Bulk Water	$2.34	$2.65	$2.87	$3.10	$3.29
City Use	$2.34	$2.65	$2.87	$3.10	$3.29
GW Recharge	$1.23	$1.39	$1.51	$1.64	$1.74

6. Bill Impacts

Note that customer bill impacts will vary with each customers' meter size and volumetric water use.

6.1. Single Family Monthly Bill Impacts

Table 6-1 through Table 6-3 show the Single Family Residential customer bill impacts for each scenario at various use points and assuming a 3/4-inch meter, which is the most common meter size for Single Family Residential customers. Bills are calculated at current rates and tiers and compared to proposed rates and tiers. The tables show the percentage and dollar change between current and proposed rates. The levels of use shown represent bills from very low water use to above average water use. Table 6-1 through Table 6-3 also show the approximate average water use.

Table 6-1: Single Family Bill Impacts (3/4" Meter) – Scenario 1

SFR 3/4-inch meter	Use (hcf)	Current Bill	Proposed Bill	Difference ($)	Difference (%)
	6	$33.28	$43.67	$10.39	31.2%
	10	$43.89	$60.53	$16.64	37.9%
Average	13	$51.85	$74.53	$22.69	43.8%
	16	$60.40	$89.22	$28.82	47.7%
	25	$89.59	$133.28	$43.69	48.8%

Table 6-2: Single Family Bill Impacts (3/4" Meter) – Scenario 2

SFR 3/4-inch meter	Use (hcf)	Current Bill	Proposed Bill	Difference ($)	Difference (%)
	6	$33.28	$38.05	$4.77	14.3%
	10	$43.89	$51.75	$7.86	17.9%
Average	13	$51.85	$63.09	$11.24	21.7%
	16	$60.40	$74.95	$14.55	24.1%
	25	$89.59	$110.55	$20.96	23.4%

Table 6-3: Single Family Bill Impacts (3/4" Meter) – Scenario 3

SFR 3/4-inch meter	Use (hcf)	Current Bill	Proposed Bill	Difference ($)	Difference (%)
	6	$33.28	$36.46	$3.18	9.6%
	10	$43.89	$49.24	$5.35	12.2%
Average	13	$51.85	$59.81	$7.96	15.3%
	16	$60.40	$70.86	$10.46	17.3%
	25	$89.59	$104.03	$14.44	16.1%

6.2. Multi-Family Monthly Bill Impacts

Table 6-4 through Table 6-6 show monthly Multi-Family customer bill impacts for each scenario at various use points, assuming a 3/4-inch meter, which is the most common meter size for Multi-Family customers. The average Multi-Family use is approximately 40 hcf.

Table 6-4: Multi-Family Bill Impacts (3/4" Meter) – Scenario 1

MFR/Mobile 3/4-inch meter	Use (hcf)	Current Bill	Proposed Bill	Difference ($)	Difference (%)
	20	$73.37	$113.28	$39.91	54.4%
Average	40	$138.23	$208.18	$69.95	50.6%
	60	$203.09	$303.09	$100.00	49.2%
	80	$267.95	$397.99	$130.04	48.5%
	100	$332.81	$492.89	$160.08	48.1%

Table 6-5: Multi-Family Bill Impacts (3/4" Meter) – Scenario 2

MFR/Mobile 3/4-inch meter	Use (hcf)	Current Bill	Proposed Bill	Difference ($)	Difference (%)
	20	$73.37	$94.20	$20.83	28.4%
Average	40	$138.23	$170.91	$32.68	23.6%
	60	$203.09	$247.61	$44.52	21.9%
	80	$267.95	$324.31	$56.36	21.0%
	100	$332.81	$401.02	$68.21	20.5%

Table 6-6: Multi-Family Bill Impacts (3/4" Meter) – Scenario 3

MFR/Mobile 3/4-inch meter	Use (hcf)	Current Bill	Proposed Bill	Difference ($)	Difference (%)
	20	$73.37	$88.59	$15.22	20.7%
Average	40	$138.23	$159.90	$21.67	15.7%
	60	$203.09	$231.20	$28.11	13.8%
	80	$267.95	$302.50	$34.55	12.9%
	100	$332.81	$373.81	$41.00	12.3%

6.3. Commercial Monthly Bill Impacts

Table 6-7 through Table 6-9 show the Commercial customer bill impacts for each scenario at various use points and assuming a 3/4-inch meter, the most common meter size for this class. The average Commercial use is approximately 35 hcf.

Table 6-7: Commercial Bill Impacts (3/4" Meter) – Scenario 1

Commercial

3/4-inch meter	Use (hcf)	Current Bill	Proposed Bill	Difference ($)	Difference (%)
	15	$57.16	$89.55	$32.40	56.7%
Average	35	$122.02	$184.46	$62.44	51.2%
	55	$186.88	$279.36	$92.49	49.5%
	75	$251.74	$374.26	$122.53	48.7%
	95	$316.60	$469.17	$152.57	48.2%

Table 6-8: Commercial Bill Impacts (3/4" Meter) – Scenario 2

Commercial

3/4-inch meter	Use (hcf)	Current Bill	Proposed Bill	Difference ($)	Difference (%)
	15	$57.16	$75.03	$17.87	31.3%
Average	35	$122.02	$151.73	$29.72	24.4%
	55	$186.88	$228.43	$41.56	22.2%
	75	$251.74	$305.14	$53.40	21.2%
	95	$316.60	$381.84	$65.24	20.6%

Table 6-9: Commercial Bill Impacts (3/4" Meter) – Scenario 3

Commercial

3/4-inch meter	Use (hcf)	Current Bill	Proposed Bill	Difference ($)	Difference (%)
	15	$57.16	$70.77	$13.61	23.8%
Average	35	$122.02	$142.07	$20.06	16.4%
	55	$186.88	$213.37	$26.50	14.2%
	75	$251.74	$284.68	$32.94	13.1%
	95	$316.60	$355.98	$39.38	12.4%

6.4. Irrigation Monthly Bill Impacts

Table 6-10 through Table 6-12 show the Irrigation customer bill impacts for each scenario at various use points and assuming a 2-inch meter, the most common meter size for this class. The average Irrigation use is approximately 60 hcf.

Table 6-10: Irrigation Bill Impacts (2" Meter) – Scenario 1

Irrigation 2-inch meter	Use (hcf)	Current Bill	Proposed Bill	Difference ($)	Difference (%)
	20	$124.31	$163.45	$39.14	31.5%
	40	$189.17	$258.36	$69.19	36.6%
Average	60	$254.03	$353.26	$99.23	39.1%
	80	$318.89	$448.16	$129.27	40.5%
	100	$383.75	$543.06	$159.31	41.5%

Table 6-11: Irrigation Bill Impacts (2" Meter) – Scenario 2

Irrigation 2-inch meter	Use (hcf)	Current Bill	Proposed Bill	Difference ($)	Difference (%)
	20	$124.31	$139.68	$15.37	12.4%
	40	$189.17	$216.38	$27.21	14.4%
Average	60	$254.03	$293.08	$39.05	15.4%
	80	$318.89	$369.78	$50.89	16.0%
	100	$383.75	$446.49	$62.74	16.3%

Table 6-12: Irrigation Bill Impacts (2" Meter) – Scenario 3

Irrigation 2-inch meter	Use (hcf)	Current Bill	Proposed Bill	Difference ($)	Difference (%)
	20	$124.31	$132.78	$8.47	6.8%
	40	$189.17	$204.09	$14.92	7.9%
Average	60	$254.03	$275.39	$21.36	8.4%
	80	$318.89	$346.69	$27.80	8.7%
	100	$383.75	$418.00	$34.25	8.9%

6.5. School Monthly Bill Impacts

Table 6-13 through Table 6-15 show the Schools customer bill impacts for each scenario at various use points and assuming a 2-inch meter, the most common meter size for this class. The average Schools use is approximately 134 hcf.

Table 6-13: Schools Bill Impacts (2" Meter) – Scenario 1

Schools 2-inch meter	Use	Current	Proposed	Difference	Difference
	50	$221.60	$305.81	$84.21	38.0%
	100	$383.75	$543.06	$159.31	41.5%
	120	$448.61	$637.97	$189.36	42.2%
Average	134	$494.01	$704.40	$210.39	42.6%
	160	$578.33	$827.77	$249.44	43.1%

Table 6-14: Schools Bill Impacts (2" Meter) – Scenario 2

Schools 2-inch meter	Use	Current	Proposed	Difference	Difference
	50	$221.60	$254.73	$33.13	15.0%
	100	$383.75	$446.49	$62.74	16.3%
	120	$448.61	$523.19	$74.58	16.6%
Average	134	$494.01	$576.88	$82.87	16.8%
	160	$578.33	$676.60	$98.27	17.0%

Table 6-15: Schools Bill Impacts (2" Meter) – Scenario 3

Schools 2-inch meter	Use	Current	Proposed	Difference	Difference
	50	$221.60	$239.74	$18.14	8.2%
	100	$383.75	$418.00	$34.25	8.9%
	120	$448.61	$489.30	$40.69	9.1%
Average	134	$494.01	$539.21	$45.20	9.1%
	160	$578.33	$631.91	$53.58	9.3%

7. Wastewater Financial Plan

This section describes the Wastewater Financial Plan assumptions used in projecting operating and capital expenses as well as reserve policies and debt coverage requirements that determine the overall revenue adjustments required to ensure the financial stability of the wastewater enterprise. Revenue adjustments represent the average rate increase for the City's wastewater enterprise as a whole. The section ends with comparing the status quo to the financial plan proposed by Raftelis.

7.1. Wastewater System Background

The City's wastewater collection system is made up of approximately 178 miles of sewer pipelines and 2,772 manholes. As the City does not own a treatment system, all sewage is transferred to Eastern Municipal Water District's (EMWD) treatment plant. EMWD treatment charges are directly passed through to customers. The City has over 11,000 sewer accounts, and roughly 65 percent are billed through EMWD. In a reciprocal manner, EMWD passes through the City's collection costs to EMWD water customers. The City reconciles the difference to EMWD monthly since total EMWD treatment charges exceed the City's collection charges.

7.2. Key Assumptions

7.2.1. Inflationary Cost Assumptions

The Study period is FYE 2021 to 2025, with proposed revenue adjustments and rates presented for the same period. Various assumptions and inputs are incorporated into the Study based on discussions with and/or direction from City staff.

The inflation factors project increases in various cost categories across the Study period and are applied to all years beginning in FYE 2021. FYE 2020 relies on the City's adopted budget. Raftelis worked with City staff to escalate individual budget line items according to appropriate escalation factors. Inflationary factors are presented in Table 7-1.

A general inflation rate of 2.5 percent is based on the long-term change in the Consumer Price Index (CPI). Salaries and benefits tend to outpace general inflation, and City staff have estimated annual increases of 3 and 5 percent, respectively. Capital cost escalation is estimated at 3.2 percent per year based on the historical growth rate of the Construction Cost Index (CCI). To predict non-operating revenues, the Study assumes that all recurring non-rate revenues (miscellaneous revenues) will not increase in future years and reserve interest earnings will increase at 1.3 percent per year through FYE 2025. Interest rates earned on reserves are based on conservative estimates in a low interest financial environment.

Table 7-1: Wastewater Inflationary Assumptions

Escalation Factors	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
General	2.5%	2.5%	2.5%	2.5%	2.5%
Salary	3.0%	3.0%	3.0%	3.0%	3.0%
Benefits	5.0%	5.0%	5.0%	5.0%	5.0%
Power	5.0%	5.0%	5.0%	5.0%	5.0%
Capital	3.2%	3.2%	3.2%	3.2%	3.2%
Non-Inflated	0.0%	0.0%	0.0%	0.0%	0.0%
Non-Rate Revenues	0.0%	0.0%	0.0%	0.0%	0.0%
Interest Income	1.3%	1.3%	1.3%	1.3%	1.3%

7.2.2. Account Growth Assumptions

During the Study period, the City projects that wastewater accounts will increase by 100 Equivalent Dwelling Units (EDUs) annually as shown in Table 7-2. The demand factor represents the change in wastewater flow per account. The assumption for the Study period is that there will be no change in wastewater flow.

Table 7-2: Account Growth and Demand Assumptions

	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Account Growth (# of EDUs)	100	100	100	100	100
Demand Factor	100%	100%	100%	100%	100%

7.3. Revenues from Current Rates

Raftelis created a five-year Wastewater Financial Plan modeling anticipated revenues and expenses as shown in Table 7-14. The City currently bills the majority of customers based on the number of EDUs per account, where 1 EDU equals 11 hcf of wastewater flow. There are also roughly 150 commercial accounts billed based on flow.

To calculate projected revenue without rate adjustments, the total number of EDUs are multiplied by the monthly EDU charge ($/EDU) and the total flow from commercial accounts is multiplied by the flow charge ($/hcf). The revenues generated from existing rates and charges are assessed for the ability to meet the City's projected revenue requirements. This is the basis for any required revenue adjustments.

Table 7-3: Current Wastewater Rates

Charge Type	Current Rates
$/EDU	$4.92
$/hcf	$0.45

Note: 1 EDU = 11 hcf

Table 7-4 shows the account growth projections across all customer classes for both EDU-based and flow-based accounts. Based on City recommendations, single-family accounts billed directly through the City are projected to increase by 100 EDUs across the Study period. All other accounts, whether EDU-based or flow-based, are not projected to increase during the Study period.

Table 7-4: EDU and Flow-based Account Projections

Customer Class	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
City of San Jacinto Customers					
Single Unit Accounts	3,558	3,658	3,758	3,858	3,868
Multi-Unit Accounts	1,866	1,866	1,866	1,866	1,866
City Customers billed through EMWD					
Single Unit Accounts	7,279	7,279	7,279	7,279	7,279
Multi-Unit Accounts	696	696	696	696	696
Commercial	1,308	1,308	1,308	1,308	1,308
Total EDUs	**14,707**	**14,807**	**14,907**	**15,007**	**15,017**
Billed Flow					
Per Consumption Accounts	44,024	44,024	44,024	44,024	44,024
Total Wastewater Flow (ccf)	**44,024**	**44,024**	**44,024**	**44,024**	**44,024**

The projected wastewater rate revenue is calculated by multiplying the EDU-based or flow-based charge (Table 7-3) by the account and flow projections (Table 7-4), respectively. The projected rate revenues for the Study period are listed in Table 7-5.

Table 7-5: Projected Wastewater Rate Revenue with Current Rates

Customer Class	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
City of San Jacinto Customers					
Single Unit Accounts	$210,064	$215,968	$221,872	$227,776	$228,367
Multi-Unit Accounts	$110,169	$110,169	$110,169	$110,169	$110,169
City Customers billed through EMWD					
Single Unit Accounts	$429,752	$429,752	$429,752	$429,752	$429,752
Multi-Unit Accounts	$41,092	$41,092	$41,092	$41,092	$41,092
Commercial	$77,238	$77,238	$77,238	$77,238	$77,238
Billed Flow					
Per Consumption Accounts	$23,773	$23,773	$23,773	$23,773	$23,773
Total Wastewater Rate Revenue	**$892,088**	**$897,992**	**$903,896**	**$909,800**	**$910,391**

The City also derives wastewater revenues from other non-rate sources. These revenues consist of interest income and miscellaneous fees and are summarized in Table 7-6.

Table 7-6: Projected Wastewater Non-Rate Revenues

Non-Rate Revenues	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Interest	$36,757	$25,103	$14,759	$17,505	$10,388
Misc Fees	$2,500	$2,500	$2,500	$2,500	$2,500
Total Non-Rate Revenues	**$39,257**	**$27,603**	**$17,259**	**$20,005**	**$12,888**

7.4. Operating and Maintenance Expenses

Total projected O&M expenses are shown in Table 7-7 and are summarized by department. The Study uses City estimated costs where known or rely on FYE 2020 budgeted values inflated by the assumptions from Table 7-1.

Table 7-7: Wastewater Projected O&M Expenses

Operating Expenditures	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Finance	$167,679	$173,069	$178,645	$184,415	$190,386
Public Works Administration	$0	$0	$0	$0	$0
Operations	$963,099	$993,406	$1,024,735	$1,057,124	$1,090,613
City Attorney	$513	$525	$538	$552	$566
Total Expenditures	**$1,131,290**	**$1,167,000**	**$1,203,919**	**$1,242,092**	**$1,281,565**

7.5. Capital Improvement Plan (CIP)

Table 7-8 shows the CIP which is escalated using the cumulative inflationary factor shown near the bottom of the table. Raftelis indexed the capital expenditures by the cumulative inflationary rate shown first in Table 7-1 to account for increased construction costs in future years.

Table 7-8: Wastewater Detailed CIP

Project	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Vehicle Replacement - Combination Cleaning Truck	$0	$0	$0	$580,000	$0
Required Sewer Pipeline Replacements	$221,000	$0	$0	$0	$0
Flow Monitoring Station	$0	$75,000	$0	$0	$0
Prepare GIS Database and Map Book	$100,000	$0	$0	$0	$0
Pipeline Upgrades - EMAs (SPRP)	$400,000	$350,000	$550,000	$0	$210,000
Update Hydraulic Model	$0	$75,000	$0	$0	$0
Lift Station Improvements - Mistletoe	$0	$30,000	$0	$0	$0
Vehicle Addition - Sewer Inspection Truck	$0	$0	$0	$340,000	$0
Total CIP Expenditure	**$721,000**	**$530,000**	**$550,000**	**$920,000**	**$210,000**
Cumulative Inflationary Factor	103%	106%	110%	113%	117%
Inflated CIP	**$743,730**	**$563,943**	**$603,674**	**$1,041,615**	**$245,255**

7.6. Debt Service

The City has a lease payment for a vactor truck which ends in FYE 2024. As the CIP in Table 7-8 shows, there is another vactor truck that is projected to be purchased in FYE 2024. There is no other outstanding debt for the wastewater enterprise. Raftelis proposes issuing debt in FYE 2023 to meet revenue requirements, as indicated in Table 7-10 and the proposed financial plan in Table 7-14.

Table 7-9: Wastewater Existing Annual Debt Service

Debt Service	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Vactor Truck Debt	$92,656	$92,686	$92,656	$92,656	$0
Total Debt Service	**$92,656**	**$92,686**	**$92,656**	**$92,656**	**$0**

Table 7-10: Proposed Debt

Proposed Debt Terms	FYE 2023
Interest	5.0%
Term (# of Years)	30
Issuance Cost	2.0%
Debt Reserve Requireme	10.0%
Proposed Debt Issue	$1,300,000
Issuance Expenses	$26,000
Annual Debt Service	$84,567
Debt Proceeds	$1,189,433

7.7. Financial Reserve Policy

The target reserves for the City are summarized below in Table 7-11. The City does not currently have a reserve policy for the wastewater enterprise. As with the water enterprise, Raftelis recommends the City establish reserve policies to meet cashflow needs, ensure adequate funding of repairs and replacements in case of asset failure or other unforeseen events, and protect ratepayers from rate spikes.

Raftelis recommends establishing an operating reserve policy of a minimum of 90 days of operating expenses in cash to meet cash flow needs. Raftelis also recommends establishing a capital reserve with a minimum target balance of one year of average capital costs.

Table 7-11: Wastewater Reserve Policies and Balances

Reserve	Policy	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Operating Reserve	90 days of Operating Expenses	$282,823	$291,750	$300,980	$310,523	$320,391
Capital Reserve	Average Annual CIP over 5 Years	$639,643	$623,414	$647,320	$641,953	$433,630
Total		**$922,466**	**$915,164**	**$948,300**	**$952,475**	**$754,021**

7.8. Status Quo Financial Plan (No Revenue Increase)

Table 7-12 shows the wastewater operating cash flow assuming no revenue increases across the Study period. The cash flow incorporates the revenues from current rates (Table 7-5), non-rate revenues (Table 7-6), O&M expenses (Table 7-7), capital improvement projects (Table 7-8), and annual debt service payments (Table 7-9) to project the ending balances for the Study period. As indicated in Line 20, net cashflow is negative throughout the Study period under the "status-quo" financial plan. Reserve balances are also depleted, falling to a negative balance in FYE 2023. The City will be unable to maintain fiscal sustainability and solvency under the current rates.

Table 7-12: Wastewater Status Quo Financial Plan

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
1	**Revenue**					
2	Revenue at Existing Rates	$892,088	$897,992	$903,896	$909,800	$910,391
3	Revenue Adjustments	$0	$0	$0	$0	$0
4	Interest	$35,713	$21,125	$9,715	$0	$0
5	Miscellaneous Fees	$2,500	$2,500	$2,500	$2,500	$2,500
6	**Total Revenue**	**$930,301**	**$921,617**	**$916,112**	**$912,300**	**$912,891**
7						
8	**O&M Expenses**					
9	Finance	$167,679	$173,069	$178,645	$184,415	$190,386
10	Operations	$963,099	$993,406	$1,024,735	$1,057,124	$1,090,613
11	City Attorney	$513	$525	$538	$552	$566
12	**Total O&M Expenses**	**$1,131,290**	**$1,167,000**	**$1,203,919**	**$1,242,092**	**$1,281,565**
13	**Debt Service**					
14	Vactor Truck Debt	$92,656	$92,686	$92,656	$92,656	$0
15	Proposed Debt	$0	$0	$0	$0	$0
16	**Total Debt Service**	**$92,656**	**$92,686**	**$92,656**	**$92,656**	**$0**
17	**Rate Funded Capital**	$743,730	$563,943	$603,674	$1,041,615	$245,255
18	**Total Expenses**	**$1,967,676**	**$1,823,629**	**$1,900,248**	**$2,376,362**	**$1,526,820**
19						
20	**Net Cashflow**	**($1,037,375)**	**($902,012)**	**($984,137)**	**($1,464,062)**	**($613,929)**
21						
22	**Beginning Balance**	$2,447,304	$1,429,930	$547,918	($416,219)	($1,860,281)
23	Net Cashflow	($1,037,375)	($902,012)	($984,137)	($1,464,062)	($613,929)
24	Capacity Fee Revenue	$20,000	$20,000	$20,000	$20,000	$2,000
25	**Ending Balance**	**$1,429,930**	**$547,918**	**($416,219)**	**($1,860,281)**	**($2,472,210)**
26	*Target Balance*	*$922,466*	*$915,164*	*$948,300*	*$952,475*	*$754,021*

7.9. Proposed Financial Plan

The proposed revenue adjustments that will allow the wastewater enterprise to meet its revenue requirements are shown in Table 7-13. The proposed revenue adjustments help promote adequate revenue to fund operating expenses, achieve reserve policy targets, fund the long-term capital program, and comply with debt covenants. Revenue adjustments represent the average increase in rates for the utility as a whole. Actual percentage increases (or decreases) in rates are dependent upon the cost-of-service analysis and are unique to each customer class and meter size. Revenue adjustments are proposed to take effect on July 1st of each fiscal year.

Table 7-13 shows the proposed revenue adjustment plan. Although anticipated revenue adjustments for FYE 2021 through FYE 2025 are also presented, the City will review the required revenue adjustments annually. The rates presented in Section 9 are based on the proposed financial plan in Table 7-14.

Table 7-13: Wastewater Proposed Revenue Adjustments

	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Effective Month	July	July	July	July	July
Revenue Adjustment	18.0%	12.0%	8.0%	8.0%	8.0%

Table 7-14shows the proposed financial plan but with the revenue adjustments shown in Table 7-13. The cash flow incorporates the revenues from current rates (Table 7-3), the revenue from increases in rates consistent with the proposed adjustments (Table 7-13), non-rate revenues (Table 7-6), O&M expenses (Table 7-7), capital improvement projects (Table 7-8), and existing annual debt service payments (Table 7-9) and proposed debt service (Table 7-10).

The net cashflow is negative across the 5-year Study period which means the City will use reserves to minimize impacts to customers. Additionally, reserve balances begin meet the target balance through FYE 2023. Thus, the proposed financial plan ensures financial sufficiency and solvency for the City to meet projected expenditures and financial obligations including debt service, debt coverage, and reserve targets while funding CIP projects.

Table 7-14: Wastewater Proposed Financial Plan

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
1	**Revenue**					
2	Revenue at Existing Rates	$892,088	$897,992	$903,896	$909,800	$910,391
3	Revenue Adjustments	$160,576	$288,794	$386,260	$492,670	$605,260
4	Interest	$36,757	$25,103	$14,759	$17,505	$10,388
5	Miscellaneous Fees	$2,500	$2,500	$2,500	$2,500	$2,500
6	**Total Revenue**	**$1,091,921**	**$1,214,390**	**$1,307,415**	**$1,422,476**	**$1,528,539**
7						
8	**O&M Expenses**					
9	Finance	$167,679	$173,069	$178,645	$184,415	$190,386
10	Operations	$963,099	$993,406	$1,024,735	$1,057,124	$1,090,613
11	City Attorney	$513	$525	$538	$552	$566
12	**Total O&M Expenses**	**$1,131,290**	**$1,167,000**	**$1,203,919**	**$1,242,092**	**$1,281,565**
13	**Debt Service**					
14	Vactor Truck Debt	$92,656	$92,686	$92,656	$92,656	$0
15	Proposed Debt	$0	$0	$84,567	$84,567	$84,567
16	**Total Debt Service**	**$92,656**	**$92,686**	**$177,223**	**$177,223**	**$84,567**
17	**Rate Funded Capital**	$743,730	$563,943	$0	$455,855	$245,255
18	**Total Expenses**	**$1,967,676**	**$1,823,629**	**$1,381,141**	**$1,875,170**	**$1,611,387**
19						
20	**Net Cashflow**	**($875,755)**	**($609,239)**	**($73,726)**	**($452,694)**	**($82,848)**
21						
22	**Beginning Balance**	$2,447,304	$1,591,549	$1,002,310	$948,584	$515,890
23	Net Cashflow	($875,755)	($609,239)	($73,726)	($452,694)	($82,848)
24	Capacity Fee Revenue	$20,000	$20,000	$20,000	$20,000	$2,000
25	**Ending Balance**	**$1,591,549**	**$1,002,310**	**$948,584**	**$515,890**	**$435,042**
26	*Target Balance*	*$922,466*	*$915,164*	*$948,300*	*$952,475*	*$754,021*

Figure 7-1: Proposed Financial Planthrough Figure 7-3 visually display the proposed financial plan from Table 7-14. Figure 7-1Figure 7-1: Proposed Financial Plan shows the City's expenses in stacked bars and the current and proposed revenue in solid and dashed gray lines, respectively. The stacked bars show the expenses broken down into the categories displayed in the legend. The yellow portion of the stacked bar below the x-axis shows the operating yearly deficit. In these years, the City will minimize customer bill impacts by drawing down reserves.

Figure 7-1: Proposed Financial Plan

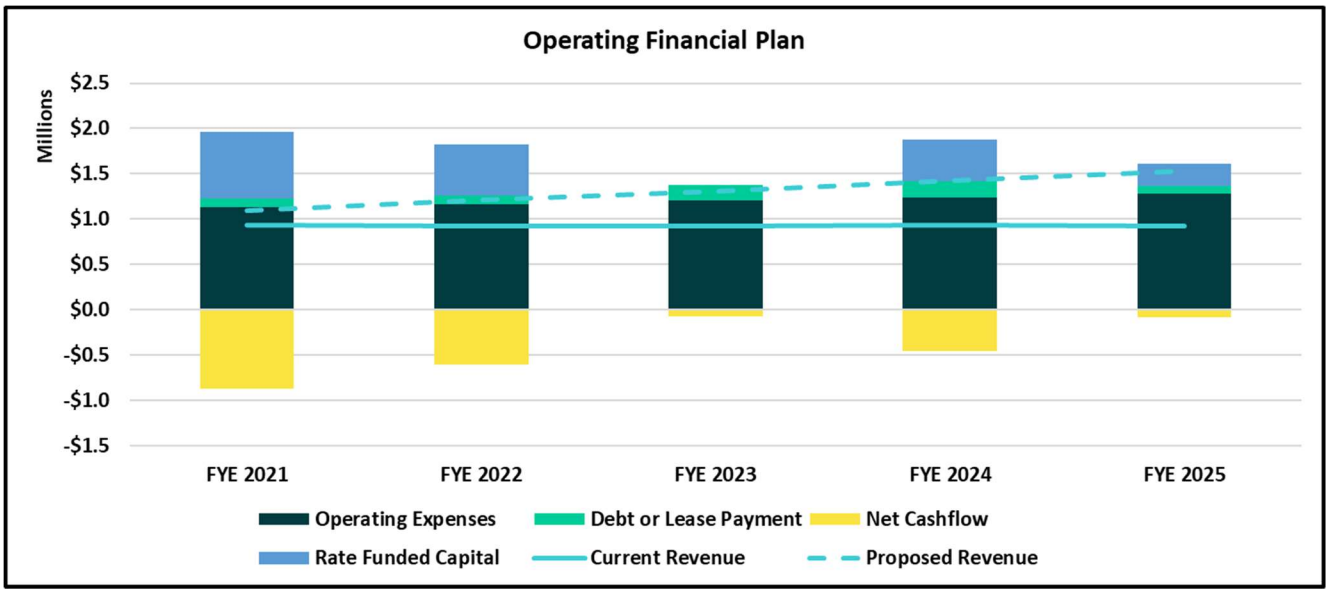


Figure 7-2 shows the total annual CIP over the Study period and shows the portion to be funded by PAY-GO (which is synonymous with rate-funded CIP) and debt. The City anticipates funding the capital projects through a combination of rate revenue (PAY-GO) and debt issuance.

Figure 7-2: CIP and Funding Sources

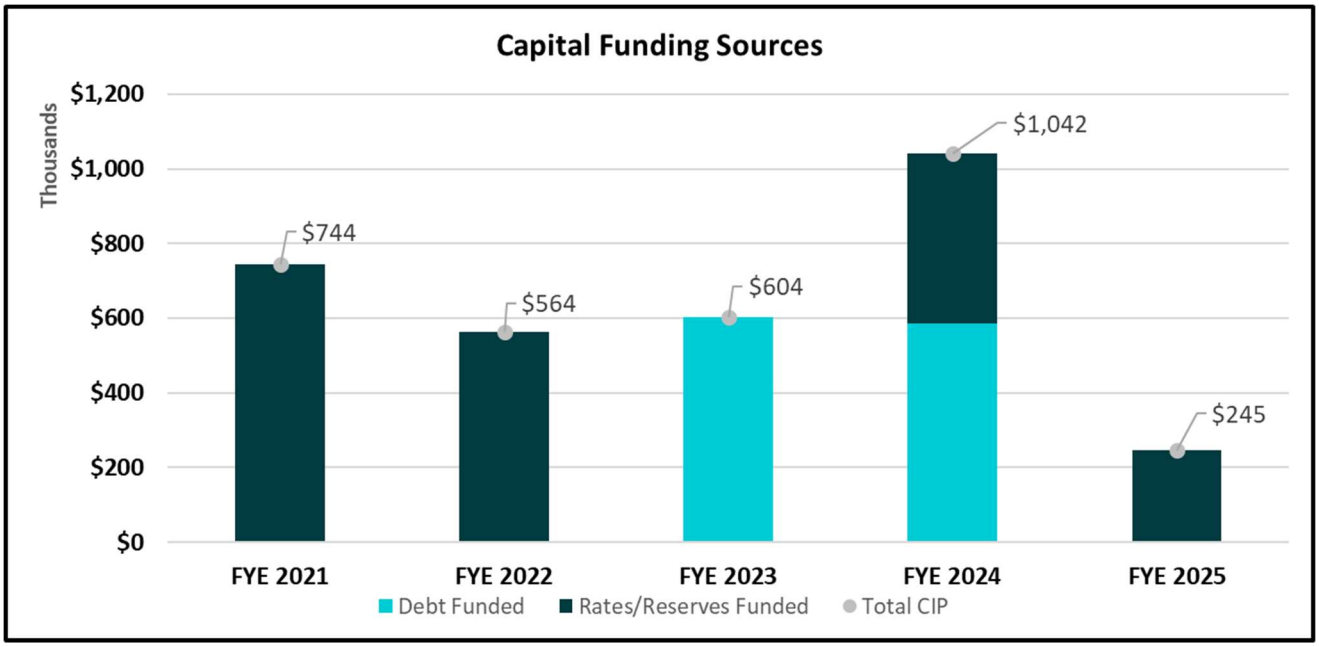
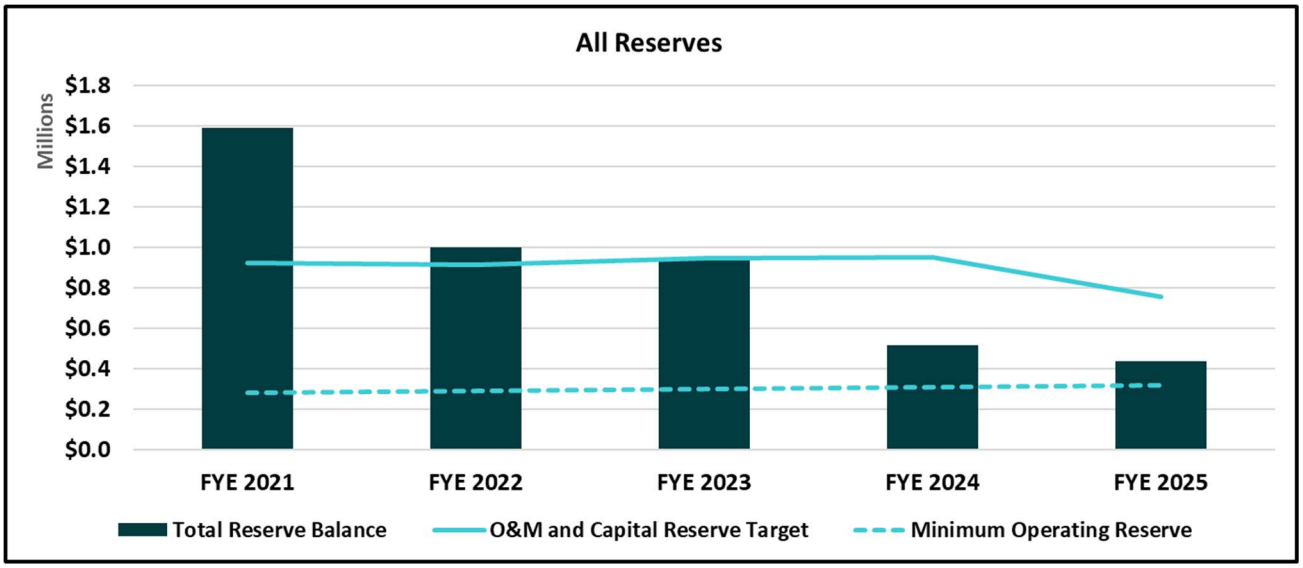


Figure 7-3 shows the ending total reserve balances. The City currently has an Operating Reserve. Raftelis recommends a Capital Reserve to ensure adequate funding of capital repairs and replacements. A typical minimum capital target balance is one year of average replacement capital cost.

The total Operating minimum reserve target shown in Table 7-11 is represented by the dashed blue line and is equal to 90 days of operating expenses. The total minimum reserve target for both the Operating and Capital reserves is represented by the solid blue line in Figure 7-3 and is equal to the total reserve balance target shown in Table 7-11. The City meets the minimum operating reserve target in all years of the Study period and is short of the capital reserve in the last two years of the Study. However, many factors can affect this financial project 5-years hence.

Figure 7-3: Wastewater Ending Reserve Balances



8. Wastewater Cost-of-Service (COS) Analysis

Due both to the City's straightforward, collection-only wastewater system and decision to maintain a relatively uniform rate structure, Raftelis streamlined the COS analysis. The only step is the determination of the revenue requirement as shown in Table 8-1. Raftelis used projected FYE 2021 expenses, which include O&M expenses (Lines 2 – 4), existing and proposed debt service (Lines 5 – 6), and capital expenses funded by rates (Line 7). To arrive at the rate revenue requirement in Line 20, Column D, revenue offsets from other (non-rate) revenues (Lines 10 – 13) and adjustments for cash balances (Lines 15 – 18) are subtracted from the revenue requirement (Line 8). The total revenue requirement (Line 20) is ultimately used to determine rates, as discussed in Section 9.

Table 8-1: Revenue Requirement Determination

Line No.	FY 2021 (A)	Operating (B)	Capital (C)	Total (D)
1	**Revenue Requirement**			
2	Finance	$167,679		$167,679
3	Operations	$963,099		$963,099
4	City Attorney	$513		$513
5	Vactor Truck Debt		$92,656	$92,656
6	Proposed Debt		$0	$0
7	Rate Funded Capital Expenditures		$743,730	$743,730
8	**Total Revenue Requirement**	**$1,131,290**	**$836,386**	**$1,967,676**
9				
10	**Revenue Offsets**			
11	Interest	$36,757		$36,757
12	Miscellaneous Fees	$2,500		$2,500
13	**Total Revenue Offsets**	**$39,257**	**$0**	**$39,257**
14				
15	**Adjustments**			
16	Adjustment for Cash Balance	$875,755		$875,755
17	Adjustment for Mid-Year Increase	$0		$0
18	**Total Adjustments**	**$875,755**	**$0**	**$875,755**
19				
20	**Revenue Required from Rates**	**$216,279**	**$836,386**	**$1,052,664**

9. Rate Derivation

Wastewater rates were relatively straightforward to derive. Raftelis maintained the current rate structure. Thus, rate adjustments are based entirely on the increased revenue requirement in FYE 2021. The flow-based commercial accounts were first converted to EDUs as shown in Table 9-1. The total EDUs, including those in Table 9-1, are tabulated in Table 9-2.

Table 9-1: Converting Commercial Flow-Based to EDUs

Line No.	Commercial Flow-Based Accounts	hcf
1	Total Annual Flow (hcf)	44,024
2	Average Monthly Flow (hcf)	3,669
3	1 EDU converted to hcf	11
4		**EDU**
5	Monthly EDU (Line 2 ÷ Line 3)	334

Table 9-2: EDUs by Customer Class

Line No.	Customer Class	No. of EDUs
1	**City of San Jacinto Customers**	
2	Single Unit Accounts	3,558
3	24 Mobile Home Park	12
4	36 Mobile Home Park	76
5	Multi-Unit Accounts	1,778
6	Commercial Flow Based EDUs	334
7	**City Customers billed through EMWD**	
8	Single Unit Accounts	7,279
9	Average Multi-Unit Account	696
10	Average Commercial Account	1,308
11	**Total EDUs**	**15,041**

Raftelis used the total revenue requirement taken from Table 8-4 and restated in Table 9-3 (Line 3) and divided this by the total number of EDUs projected in FYE 2021 (Line 5). The proposed monthly EDU rate is shown in Line 7. For the flow-based rate, Line 7 was divided by 11 hcf. This is because 1 EDU is equal to 11 hcf of wastewater flow.

Table 9-3: Wastewater Rate Derivation

Line No.	Revenue Requirement	Total
1	O&M Expenses	$216,279
2	Capital Expenses	$836,386
3	**Subtotal**	**$1,052,664**
4		
5	**Total EDUs**	**15,041**
6		
7	**Monthly Rate (per EDU)**	**$5.83**
8	**Flow-Based Charges ($/hcf)**	**$0.53**

10. Bill Impacts

All customers will experience a similar increase in their monthly wastewater bills, as summarized in Table 10-1. Customers charged by EDU will experience an 18.5 percent increase in their monthly wastewater bill. Those commercial customers billed on flow (which includes schools, churches, and other non-residential properties) will experience a $0.08 increase in their unit rate resulting in an almost 18 percent increase in their monthly wastewater bills.

Table 10-1: Bill Impacts

Customer Billed by EDU		**Current Bill ($)**	**Proposed Bill ($)**	**Difference ($)**	**Difference (%)**
All Accounts per EDU		$4.92	$5.83	$0.91	18.5%
Customer Billed on Flow	**Average hcf**				
Commercial, School, Church	25	$11.25	13.25	$2.00	17.8%