CITY OF

El Segundo

Water and Wastewater Rate Study

Draft Report / December 2020

RAFTELIS

RAFTELIS

December 10, 2020

Mr. Joseph Lillio
Director of Finance
City of El Segundo
350 Main Street
El Segundo, CA 90245

Subject: Water, Recycled Water, and Wastewater Rate Study Report

Dear Mr. Lillio,

Raftelis is pleased to present this water, recycled water, and wastewater rate study report. The rate study involved a comprehensive review of the City's financial plan, an assessment of alternative tiered rate structures, and an allocation of costs to customer classes and tiers using Cost of Service principles.

The report includes a brief Executive Summary followed by a detailed discussion regarding study assumptions and an in-depth rate derivation.

It was a pleasure working with you and we wish to express our thanks for the support from you and your staff. If you have any questions, please call me at 213 327 4405.

Sincerely,

Sanjay Gaur
Vice President

445 S Figueroa Street, Suite 2270
Los Angeles, CA 90017
www.raftelis.com

Table of Contents

List of Tables

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

1. Executive Summary

1.1 Background

In the summer of 2019, the City of El Segundo (City) engaged Raftelis to conduct a Water, Recycled Water and Wastewater Rate Study (Study) which included a Financial Plan, Cost of Service Study and rate calculations. This report presents the Financial Plan and the resulting rates for implementation in April of 2021.

This Executive Summary summarizes the water, recycled water, and wastewater rates and contains a description of the methodology, results, and recommendations. The City's last rate adjustment, which consisted of an inflationary increase in water rates, was effective on January 1, 2020. The City wishes to establish fair and equitable rates that:

1. Meet the City's fiscal needs in terms of operational expenses, reserve goals, and capital investment to maintain the system
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 Methodology

The water rates presented in this report are developed using cost of service principles set forth by the American Water Works Association M1 Manual titled *Principles of Water Rates, Fees and Charges* (AWWA M1 Manual). Cost of service principles endeavor to distribute costs to customer classes in accordance with the way each class uses the water system. This methodology is described in detail in Sections 4 and 5. The Base-Extra Capacity Method of the AWWA M1 Manual was used to distribute costs to customer classes and tiers. This method separates costs into four main[1] components: (1) base costs, (2) extra capacity costs, (3) customer costs, and (4) fire protection costs. Base costs are costs associated with meeting average daily demand needs and include operations and maintenance costs and capital costs designed to meet average load conditions. Extra capacity costs are costs (both operating and capital costs) associated with meeting peak demand. Customer costs are associated with servicing customers, such as meter reading, billing, and customer service, etc. Fire protection costs are related solely to the fire protection function of a water system, such as fire hydrants and related mains and valves.

Wastewater rates are derived in accordance with the Water Environment Federations Manual of Practice No. 27, *Financing and Charges for Wastewater Systems.* The City has two wastewater systems; wastewater from the east side of PCH is served by LA County; wastewater treatment costs are billed directly to those customers on their annual property tax bills. Wastewater from the west side of PCH is treated by the City of Los Angeles, which bills the City of El Segundo. Therefore, rates and charges must be different for these groups of customers.

[1] There can be other cost components such as conservation and supply; however, the four mentioned are almost always used in rate studies.

1.3 Results and Recommendations

Table 1-1 shows the revenue adjustments for the water and wastewater as part of the selected Financial Plan. The revenue adjustment is the additional amount of gross rate revenue collected for each enterprise compared to the amount collected by current rates[2].

Table 1-1: Recommended Yearly Revenue Adjustments

Effective Month	FY 2021 April 1	FY 2022 January 1	FY 2023 January 1	FY 2024 January 1	FY 2025 January 1
Water Revenue Adjustment	0.0%	3.0%	3.0%	3.0%	3.0%
Wastewater Rate Adjustment	9.0%	9.0%	9.5%	9.5%	9.5%

1.3.1 FACTORS AFFECTING REVENUE ADJUSTMENTS

The following items affect the City's revenue requirement (i.e., costs) and thus its rates for each enterprise. The City's expenses include Operation and Maintenance (O&M) expenses, capital expenses, debt service (for water and wastewater), and reserve funding.

- **O&M Expenses:** The City's O&M expenses (excluding water costs) increase each year, in line with general cost inflation. Wastewater treatment costs from the City of Los Angeles are expected to increase 91% from FY 2019 to FY 2021.
- **Capital Investment:** The City plans to invest millions in each system and each enterprise as discussed in the capital improvement section. Water and wastewater system improvements total $16.5 million and $3.4 million, respectively, over the next five years.
- **Reserve Balances:** While the water utility is in a strong financial position, the wastewater utility currently has less than the recommended reserve target and will sustain steep deficits in the coming years if no adjustments are made.

The City will purposely make use of fund balances, as shown herein, to minimize customer rate impacts. Using fund balances to fund operating and capital costs lowers the amount of required rate revenue and therefore lowers the impact to customer bills.

1.4 Water

1.4.1 PROPOSED WATER RATES

In this report, the terms fee and charge are often used interchangeably. The City currently charges a set of volumetric rates for residential customers and a set of rates for nonresidential customers. Raftelis recommends adding a distinct Chevron[3] rate and adjusting the residential rate structure in accordance with updated costs of service. The City's water rate structure includes two components: (1) a fixed monthly service charge, and (2) a variable usage charge. Each of these charges is described below.

[3] Chevron is large purchaser of potable water from El Segundo, accounting for approximately 50% of water sales with its own district usage patterns.

1.4.2 FIXED SERVICE CHARGE

The City's proposed Fixed Service Charge includes four components. The first component is the Meter Service Charge and it is based on the meter size serving a property. The Fixed Service Charge is calculated to recover the cost to maintain and replace meters as well as 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 size of the meter and goes up with meter size according to standards set forth by the AWWA. The second component is the customer service cost. This component recovers costs associated with meter reading, answering customer calls, and billing customers. These costs are not related to the size of the meter. The service charge also includes a portion of water supply costs and public fire protection costs. The full derivation of the total Fixed Service Charge is described in Section 5, and the *total* Fixed Service Charge is shown in Table 1-2.

Table 1-2: Current and Proposed Monthly Fixed Service Charge

Meter Size	Current 2020	April 1 2021	Jan 1 2022	Jan 1 2023	Jan 1 2024	Jan 1 2025
5/8" and 3/4"	$ 11.95	$ 18.18	$ 18.73	$ 19.30	$ 19.88	$ 20.48
1"	27.10	24.71	25.46	26.23	27.02	27.84
1 1/2"	33.94	41.05	42.29	43.56	44.87	46.22
2"	62.90	60.65	62.47	64.35	66.29	68.28
3"	141.61	122.74	126.43	130.23	134.14	138.17
4"	251.25	214.23	220.66	227.28	234.10	241.13
6"	469.74	433.16	446.16	459.55	473.34	487.55
8"	823.49	923.29	950.99	979.52	1,008.91	1,039.18
10"	1,288.35	1,380.75	1,422.18	1,464.85	1,508.80	1,554.07

1.4.3 POTABLE COMMODITY RATE

Error! Reference source not found. shows the current and proposed commodity rates by customer class respectively. The rates are designed to recover the costs associated with serving each class and tier as discussed in Sections 4 and 5. The City's current rate structure consists of two customer groups; 1) Single Family Residential customers and 2) non-residential customers. The proposed rate structure adds a third rate for Chevron, which is a large user with its own distinct usage patterns. The revised customer groups reflect customer behaviors, patterns, and use of the water system based on updated water usage data.

Changes to the volumetric rate structure also include redefining the volumes included in each tier. For residential customers, Raftelis proposes including only the first 9 Ccf of usage in the first tier and an additional 4 Ccf in the second tier. The third and final tier will include all usage above 13 Ccf. Non-residential customers and Chevron will have a uniform volumetric rate.

Table 1-3: Proposed Commodity Rates ($ / Ccf) for All Classes

Class	Current 2020	April 1 2021	Jan 1 2022	Jan 1 2023	Jan 1 2024	Jan 1 2025
Residential						
Tier 1	$ 2.82	$ 2.88	$ 2.97	$ 3.06	$ 3.16	$ 3.26
Tier 2	5.19	5.47	5.64	5.81	5.99	6.17
Tier 3	5.90	6.86	7.07	7.29	7.51	7.74
Non-Residential	$ 3.43	$ 4.17	$ 4.30	$ 4.43	$ 4.57	$ 4.71
Chevron	$ 3.43	$ 4.90	$ 5.05	$ 5.21	$ 5.37	$ 5.54

1.4.4 RECYCLED WATER SURCHARGE

Customers who receive recycled water currently pay two charges: a direct pass-through rate of the cost for the City to purchase recycled water from West Basin Municipal Water District and a surcharge paid to the City. Raftelis proposes eliminating the surcharge for regular retail customers. The surcharge for recycled water used by Chevron will remain in place and increase at the same pace as the required revenue adjustments each year, per the existing contract between Chevron and the City.

Table 1-4: Recycled Water Surcharges

Recycled Surcharge	Current 2020	April 1 2021	Jan 1 2022	Jan 1 2023	Jan 1 2024	Jan 1 2025
Chevron	$ 1.01	$ 1.01	$ 1.05	$ 1.09	$ 1.13	$ 1.17
Non-City	0.31	-	-	-	-	-

1.5 Wastewater

1.5.1 PROPOSED WASTEWATER RATES

The City's current wastewater rates include a monthly Sewer Service Charge, Treatment Charge for customers on the west side and a volumetric Charge. The volumetric rate is based on actual water use. After discussion with City staff, Raftelis proposes several significant adjustments to the rate structure. Single family residential customers will be billed a flat rate each month based on 9 Ccf of usage. Other classes will have the same 9 Ccf minimum bill with an additional volumetric charge for usage above 9. The volume rate, and minimum bill, will depend on whether the customer is a west side or east side resident. Table 1-5 shows the current and proposed five-year wastewater rates. More detail on current wastewater rates can be found in Section 6.

Table 1-5: Current and Proposed Five-Year Wastewater Rates

Minimum Charge Includes 9 Ccf*	Current 2020	April 1 2021	Jan 1 2022	Jan 1 2023	Jan 1 2024	Jan 1 2025
SFR	$ 23.23	$ 39.07	$ 42.60	$ 46.65	$ 51.09	$ 55.95
MFR	38.04	39.07	42.60	46.65	51.09	55.95
Institutional West	21.98	39.07	42.60	46.65	51.09	55.95
Commercial West	26.88	58.23	63.47	69.50	76.11	83.35
Industrial West	22.87	65.22	71.10	77.86	85.26	93.36
Non-Res East	7.26	14.86	16.21	17.75	19.44	21.29
ADU		16.02	17.47	19.13	20.95	22.95

Volumetric (per Ccf) Usage above 9	Current 2020	April 1 2021	Jan 1 2022	Jan 1 2023	Jan 1 2024	Jan 1 2025
SFR	$ 0.73	N/A				
MFR	0.91	4.01	4.37	4.79	5.25	5.75
Institutional West	0.91	4.01	4.37	4.79	5.25	5.75
Commercial West	1.04	6.13	6.69	7.33	8.03	8.80
Industrial West	1.04	6.91	7.54	8.26	9.05	9.91
Non-Res East	1.04	1.32	1.44	1.58	1.74	1.91

The main body of this report contains the City's detailed five-year financial plan, rate derivation, and customer bill impacts for the water and wastewater utilities.

2. Legal Framework and Rate Methodology

2.1 Legal Framework

This section of the report describes the legal framework surrounding rate setting and calculating cost of service rates that provide a fair and equitable cost allocation to customer classes.

2.1.1 CALIFORNIA CONSTITUTION - ARTICLE XIII D, SECTION 6 (PROPOSITION 218)

Proposition 218 was enacted in 1996. It amended the California Constitution by adding Article XIII C and XIII D. Article XIII D, section 6 established procedural requirements for the imposition of property-related fees and charges and substantive provisions governing the amount that may be imposed and the use of such fees charged by local agencies. The substantive requirements for such fees and charges are as follows:

1. A property-related charge (such as water and sewer service fees and charges) imposed by a public agency on a parcel shall not exceed the costs required to provide the property-related service.
2. Revenues derived by the charge shall not be used for any other purpose other than that for which the charge was imposed.
3. The amount of the charge imposed upon any parcel shall not exceed the proportional cost of service attributable to the parcel.
4. No charge may be imposed for a service unless that service is actually used or immediately available to the owner of the property.
5. No fee or charge may be imposed for general governmental services including, but not limited to, police, fire, ambulance or library services, where the service is available to the public at large in substantially the same manner as it is to property owners.

Raftelis follows industry-standard rate setting methodologies set forth by the AWWA *M1 Manual,* WEF *Manual No. 27,* and the restrictions and requirements in Proposition 218 to ensure this study creates rates that do not exceed the cost of providing water service and are proportionate to the cost of providing water service.

2.1.2 CALIFORNIA CONSTITUTION - ARTICLE X, SECTION 2

Article X, Section 2 of the California Constitution (established in 1976) 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."

As stated above Article X, section 2 of the State Constitution institutes the need to preserve the State's water supplies and to discourage the wasteful or unreasonable use of water by encouraging conservation. As such, public agencies are constitutionally mandated to maximize the beneficial use of water, prevent waste, and encourage conservation.

In addition, Section 106 of the Water Code declares that the highest priority use of water is for domestic purposes, with irrigation secondary. To meet the objectives of Article X, section 2, Water Code Section 375 et seq., a water purveyor may utilize its water rate design to incentivize the efficient use of water as long is the rates also comply with other articles of the Constitution. The proposed tiered rates were designed in compliance with California Constitution Article XIII D, section 6 by allocating a proportionately greater share of the cost of providing service to those whose apply greater demands and burdens on a water system and the City's water resources, and therefore generates additional costs for the City. The tiered rates also have the incidental effect of encouraging conservation by sending a price signal to customers to use less water.

Inclining block rate structures (which are synonymous with tiered rates), when properly designed and differentiated by type of use, allow a water utility to send conservation price incentives to customers. Due to heightened interest in water conservation, tiered rates have gained widespread use, especially in relatively water-scarce regions, such as Southern California.

2.2 Cost-Based Rate-Setting Methodology

The AWWA M1 Manual states "the costs of water rates and charges should be recovered from classes of customers in proportion to the cost of serving those customers." To develop utility rates that comply with Proposition 218 and industry standards, while meeting other emerging goals and objectives of the utility, there are four major steps discussed below.

1.) Calculate Revenue Requirement

The rate-making process starts by determining the test year revenue requirement - which for this study is FY 2020. The revenue requirement is the amount a utility needs to sufficiently fund the utility's O&M, debt service, and capital expenses, and reserve funding.

2.) Cost of Service Analysis (COS)

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

1. Functionalizing costs. This process takes each cost item in the City's budget and organizes the items collectively based on what function is served. Examples of cost functions are supply, treatment, transmission, distribution, storage, meter servicing and customer billing and collection.
2. Allocating functionalized costs to cost components. This process allocates the functionalized costs to cost components. Cost components include base, maximum day, maximum hour[4], meter service, customer service and conservation costs.
3. Distributing the cost components. The cost of service analyses distribute the cost components, using unit costs, to customer classes in proportion to their demands on the water and wastewater systems. These processes are described in the M1 Manual published by AWWA and Manual No. 27 published by WEF. Wastewater costs

[4] *Collectively maximum day and maximum hour costs are known as peaking costs or capacity costs.*

A COS analysis 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).[5] Peaking costs are costs that 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 need to be allocated to those customers and customer classes whose water usage results in the City incurring the associated costs. In other words, not all customer classes share the same responsibility for peaking related costs.

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 various utility objectives, such as conservation, affordability for essential needs, and revenue stability, among other objectives. Rates may also act as a public information tool in communicating these objectives to customers.

4.) Rate Adoption

Rate adoption is the last step of the rate-making process to comply with Proposition 218. Raftelis documented the rate study results in this Study Report to help educate the public about the proposed changes, the rationale and justifications behind the changes, and their anticipated financial impacts in lay terms.

[5] System capacity is the system's ability to supply water to all delivery points at the time when demanded. Coincident 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 contribution to the peak month, day and hour event.

3. Water Enterprise Financial Plan

This section describes the water enterprise rate study, starting with the water financial plan, followed by the cost of service study, rate design and customer bill impacts.

3.1 Financial Plan Assumptions

3.1.1 NUMBER OF ACCOUNTS

Raftelis created a five-year financial plan which models anticipated revenue and expenses. This report shows the financial plan and assumptions for the next five years (FY 2021 to FY 2025) to correspond with the rate development for these years. Estimated rate revenue (without adjustments) is calculated by multiplying the number of accounts by the monthly Fixed Service Charge and multiplying the total water use in each tier by the commodity rate. Table 3-1 shows the actual number of water accounts, including private fire protection accounts by meter size and class for FY 2019. This year is shown because this is the basis for the forecast. The number of accounts are used to forecast the amount of fixed revenue the City will receive from Fixed Service Charges.

Table 3-1: Projected Accounts by Meter Size (FY 2019)

Meter Size	Residential	Non Residential	Fire Service	Total
5/8" and 3/4"	2,602	550	-	**3,153**
1"	386	473	-	**863**
1 1/2"	6	353	-	**369**
2"	4	346	11	**398**
3"	-	83	12	**98**
4"	-	42	96	**143**
6"	-	29	115	**150**
8"	-	1	146	**147**
10"	-	1	38	**39**
Total	**2,998**	**1,878**	**418**	**5,360**

3.1.2 ACCOUNT AND WATER USE GROWTH ASSUMPTIONS

The revenue calculated for each fiscal year in the Financial Plan is a function of the number of accounts, account growth, water use trends, and existing rates. Based on discussions with City staff, the Financial Plan assumes a conservative 0% growth in customer accounts and per capita water usage.

3.1.3 WATER USE

Table 3-2 shows the estimated FY 2020 number of accounts and water use by customer class. The number of accounts and water use are based on FY 2019 account and water use data and the assumption of no growth. The number of accounts in Table 3-2 does not include Fire Protection accounts.

Table 3-2: Water Use in Ccf by Customer Class - FY 2019

Class	Accounts	Consumption	% of Accounts	% of Consumption
SFR	2,998	361,251	60.7%	5.0%
Non-Residential	1,878	1,184,820	38.0%	16.3%
Chevron		1,559,501		21.4%
Recycled	66	4,174,777	1.3%	57.3%
Total	4,942	7,280,349	100.0%	100.0%

3.1.4 INFLATIONARY AND WATER PURCHASE COST ASSUMPTIONS

To ensure future O&M costs are reasonably projected, Raftelis made informed assumptions about inflationary factors, water costs, and water use. Table 3-3 shows the inflationary categories used to escalate the City's FY 2020 operations and maintenance (O&M) expense budget, which is part of the Financial Plan. The inflationary factors in Table 3-3 reflect long-term averages for general and capital (construction) inflation and energy prices.

Table 3-3: Inflationary Assumptions

	Expense Escalation Categories	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
1	Salaries	3.0%	3.0%	3.0%	3.0%	3.0%
2	Benefits	8.0%	8.0%	8.0%	8.0%	8.0%
3	Supplies	3.0%	3.0%	3.0%	3.0%	3.0%
4	Electricity	5.0%	5.0%	5.0%	5.0%	5.0%
5	Fuel	3.0%	3.0%	3.0%	3.0%	3.0%
6	Contractual	3.0%	3.0%	3.0%	3.0%	3.0%
7	Purchased Water - Potable	6.0%	6.0%	6.0%	6.0%	6.0%
8	Purchased Water - Reclaimed	6.0%	6.0%	6.0%	6.0%	6.0%
9	Equipment	3.0%	3.0%	3.0%	3.0%	3.0%
10	General	3.0%	3.0%	3.0%	3.0%	3.0%
11	Sewage Treatment	6.0%	6.0%	6.0%	6.0%	6.0%
12	Capital Projects	3.1%	3.1%	3.1%	3.1%	3.1%

Raftelis used the assumptions shown in Table 3-31 through Table 2-3 to develop the City's Water Financial Plan. The plan uses projected annual operating expenses and revenues, capital expenditures, reserve fund balances, and annual debt service coverage ratios to estimate the amount of additional rate revenue needed each year. The following sub-sections provide a discussion of O&M expenses, the Capital Improvement Plan (CIP), reserve funding, projected revenue under existing rates, and the revenue adjustments needed to ensure the fiscal sustainability and solvency of the Water Enterprise.

3.1.5 WATER SYSTEM EXPENSES

The City's expenses include O&M expenses, capital expenses, and debt service payments, each of which is described below.

3.1.6 O&M EXPENSES

Table 3-4 shows the City's O&M budget by fiscal year. The O&M budget incorporates the inflationary factors in Table 3-3, using the FY 2020 budget as the base year. Approximately 84% of the O&M budget is water purchase costs, which are not directly controllable by the City.

Table 3-4: Projected O&M Expenses

	Water Operating Expenses	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
1	Salaries	$ 1,160,791	$ 1,195,615	$ 1,231,483	$ 1,268,428	$ 1,306,480	$ 1,345,675
2	Benefits	649,147	701,079	757,165	817,738	883,157	953,810
3	Supplies	248,800	256,264	263,952	271,870	280,027	288,427
4	Utilities	31,800	33,366	35,010	36,735	38,545	40,445
5	Potable Water	10,573,713	11,166,623	11,836,620	12,546,818	13,299,627	14,097,604
6	Recycled Water	13,227,296	13,574,090	14,388,535	15,251,848	16,166,958	17,136,976
7	Service Charges	2,445,867	2,519,243	2,594,820	2,672,665	2,752,845	2,835,430
8	**Total: Water Operating Expenses**	$ 28,337,414	$ 29,446,280	$ 31,107,586	$ 32,866,101	$ 34,727,639	$ 36,698,368

3.1.7 CAPITAL IMPROVEMENT PLAN (CIP)

Table 3-5 summarizes the City's five-year CIP. The City is funding capital investment through rate revenue and reserve funds (also known as PAY-GO funding) rather than issuing debt.

Table 3-5: Capital Improvement Plan

	Water Projects	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
1	Water Main Improvement on Grand Ave.	$1,500,000	-	-	-	-	-
2	Water Infrastructure Replacement	-	2,300,000	3,000,000	3,000,000	3,000,000	3,000,000

3.1.8 DEBT SERVICE

The City does not currently have any outstanding utility debt and the Financial Plan does not propose issuing any bonds in the study period.

3.1.9 RESERVE BALANCES

Raftelis recommends adopting an updated formal financial reserve policy. The City should maintain the following in reserves:

1. Operating Reserve equal to four months of O&M expenses
2. Capital Reserve equal to the average annual forecasted capital spending of the next 10 years
3. Rate Stabilization Reserve equal to 25% of annual potable and surcharge revenue

The water utility currently has sufficient cash to fully fund each of these reserves. Table 2-6 shows a forecast of the balance for each fund through the study period.

Table 3-6: Fund Balance Forecast

Water EoY Fund Balances	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Operating Reserve	$ 20,443,420	$ 21,453,127	$ 22,151,119	$ 22,453,466	$ 22,323,325
Target	*9,680,969*	*10,227,152*	*10,805,293*	*11,417,306*	*12,065,217*
Capital Reserve	$ 3,528,930	$ 3,690,666	$ 3,803,884	$ 3,915,540	$ 4,022,497
Target	*3,488,001*	*3,670,173*	*3,783,582*	*3,900,494*	*4,021,020*
Rate Stabilization Reserve	$ 4,479,869	$ 4,614,265	$ 4,752,693	$ 4,895,274	$ 5,042,132
Target	*4,479,869*	*4,614,265*	*4,752,693*	*4,895,274*	*5,042,132*
Total Reserves	**$ 28,452,219**	**$ 29,758,058**	**$ 30,707,696**	**$ 31,264,280**	**$ 31,387,954**
Target	*17,648,839*	*18,511,590*	*19,341,568*	*20,213,075*	*21,128,369*

3.1.10 REVENUE ADJUSTMENTS

Using the assumed number of accounts and water use described above, Raftelis developed a financial plan using projected operating and capital expenses, revenues, and resulting yearly cash balances for the financial plan study period - from FY 2021 to FY 2025. The financial plan is used to determine the overall revenue adjustments required to ensure water enterprise financial stability. Revenue adjustments represent the average increase in rates as a whole; rate changes for individual classes will depend on the cost of service – since a cost of service analysis allocates costs to each customer class. Therefore, the revenue adjustment may not be the same as the average bill impact for each customer class. This study establishes rates for FY 2021 through FY 2025.

The proposed revenue adjustments help ensure adequate revenue to fund operating expenses, capital expenditures, and compliance with any bond covenants. Financial Plan modelling assumes revenue adjustments will occur in January of each year. The proposed revenue adjustments would enable the City to cover operating expenses and execute the CIP shown in Table 3-5.

Table 3-7 shows the proposed revenue adjustments selected by the City. The rates presented in Section 5 are based on these revenue adjustments.

Table 3-7: Proposed Rate Adjustments

Effective Month	FY 2021 April 1	FY 2022 January 1	FY 2023 January 1	FY 2024 January 1	FY 2025 January 1
Water Revenue Adjustment	0.0%	3.0%	3.0%	3.0%	3.0%

3.2 Proposed Financial Plan

Table 3-8 shows the City's cash flow projection over the study period assuming the revenue adjustments shown in Table 3-7. Line 1 shows retail rate revenue, including the fixed monthly capacity charge and

volume charge. Line 2 shows the revenue from the surcharge applied to recycled water by the City. Line 3 shows the additional revenue from the revenue adjustments. Revenue on line 4 shows the charges from West Basin the City passes through and collects from recycled customers; this revenue equals the expense on line 6 of Table 2-4.

Line 11 shows the yearly ending cash flow after subtracting operating and capital expenses from total revenue (in line 6). Non-Rate revenue includes meter installations, interest income, and other miscellaneous items. Balances for each of the reserve funds are tracked in lines 12 to 14.

Table 3-8: Five-Year Water Operating Cash Flow

	Operating Cash Flow	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
	Revenues						
1	Fixed Monthly and Volum	$ 16,456,948	$ 16,456,948	$ 16,456,948	$ 16,456,948	$ 16,456,948	$ 16,456,948
2	Recycled Surcharge Rever	4,168,194	4,161,513	4,161,513	4,161,513	4,161,513	4,161,513
3	Additional Revenue from	-	-	463,915	1,096,387	1,747,832	2,418,821
4	Recycled Pass-through	13,227,296	13,574,090	14,388,535	15,251,848	16,166,958	17,136,976
5	Non-Rate Revenue	171,360	141,985	130,777	135,826	139,316	140,827
6	**Total: Revenue**	$ 34,023,798	$ 34,334,536	$ 35,601,689	$ 37,102,521	$ 38,672,567	$ 40,315,085
7	**Revenue Adjustment**		**0.00%**	**3.00%**	**3.00%**	**3.00%**	**3.00%**
	Expenses						
8	O&M	$ 28,337,414	$ 29,446,280	$ 31,107,586	$ 32,866,101	$ 34,727,639	$ 36,698,368
9	Capital	4,750,000	2,650,000	3,350,000	3,400,000	3,500,000	3,600,000
10	**Total: Expenses**	$ 33,087,414	$ 32,096,280	$ 34,457,586	$ 36,266,101	$ 38,227,639	$ 40,298,368
11	**Op. Surplus/(Deficit)**	$ 936,384	$ 2,238,257	$ 1,144,103	$ 836,420	$ 444,928	$ 16,717
12	Op. Reserve	22,685,032	20,443,420	21,453,127	22,151,119	22,453,466	22,323,325
13	RS. Reserve	-	4,479,869	4,614,265	4,752,693	4,895,274	5,042,132
14	Cap. Reserve	3,250,000	3,528,930	3,690,666	3,803,884	3,915,540	4,022,497
15	**Total Reserve**	**$ 25,935,032**	**$ 28,452,219**	**$ 29,758,058**	**$ 30,707,696**	**$ 31,264,280**	**$ 31,387,954**
16	***Target Balance***	*17,027,569*	*17,648,839*	*18,511,590*	*19,341,568*	*20,213,075*	*21,128,369*
17	**CIP (Uninflated)**	1,500,000	2,300,000	3,000,000	3,000,000	3,000,000	3,000,000

4. Water Cost of Service Analysis

A Cost of Service analysis distributes a utility's revenue requirement (yearly revenues needed from rates) to each customer class. This is done by allocating the City's revenue requirement to the **cost causation components**. The cost causation components include:

1. Base (average) costs[6]
2. Peaking costs (maximum day and maximum hour)
3. Meter service
4. Billing and customer service
5. Fire protection
6. General and administrative costs

Additional cost components can include pumping zone costs and supply 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 usage on the maximum usage day. Both maximum day and maximum hour peaking demand is 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[7] 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 cost of service analyses.

4.1 Revenue Requirement Determination

Table 4-1 shows the test year revenue requirement derivation. The total revenue required from water rates is shown on line 9. The total in line 5, column B, is the O&M revenue requirement that is allocated to cost components in the following steps. The capital revenue requirement in line 5, column C, is allocated to the cost components using a similar methodology. The total on line 5, column D, is the total amount of revenue required by the financial plan in Table 2-7, row 6 in FY 2020.

To arrive at the rate revenue requirement in line 9, column D, other non-rate revenues on lines 6 and 7 are subtracted from the total revenue requirements. This is the total amount the City's Fixed Service Charges and Commodity Charges are designed to collect in the test year.

A major source of offsetting revenue is the surcharge Chevron pays to the City on all recycled water it uses. The impact of this surcharge on retail rates will be discussed in more detail in Section 5.4.1.

[6] The base component can be further divided into supply and base/delivery cost components as discussed in Section 4.
[7] The terms extra capacity, peaking and capacity costs are used interchangeably.

Table 4-1: Revenue Requirement Determination

	Revenue Requirements	Operating	Capital	Total
	(A)	(B)	(C)	(D)
1	Operations and Maintenance	$ 28,337,414		$ 28,337,414
2	Debt Service		-	-
3	PAYGO		4,750,000	4,750,000
4	Contribution to Operating Reserve		936,384	936,384
5	**Subtotal: Revenue Requirements**	$ 28,337,414	$ 5,686,384	$ 34,023,798
	Less: Adjustments			
6	Misc. Revenue	$ 171,360	$ -	$ 171,360
7	Chevron Recycled Water Surcharge	4,168,194		4,168,194
8	**Subtotal: Adjustments**	$ 4,339,554	$ -	$ 4,339,554
9	**Total: Net Revenue Required**	$ 23,997,860	$ 5,686,384	$ 29,684,244

4.2 Allocation of Expenses to Functions

The first step of the Cost of Service analysis is to analyze operating costs and determine the functions they serve. Each budgeted line item is assigned to a function. For example, 33% of salary costs, on line 1, is estimated to be associated with maintaining the City's transmission system. Raftelis determined these allocations in consultation with City staff. Table 4-2 shows the functionalization results. The total amount in row 39, column B, is the Operating revenue requirement shown in Table 4-1, line 5.

A similar analysis is conducted to functionalize capital costs, shown in Table 4-3. The City's current assets are assigned to functions. For example, Raftelis estimated that 66% of the City's water pipes are used for water transmission. The resulting allocations are used to functionalize cash basis capital expenses proportionately. The complete analysis shows that 48% of the City's assets are used for transmission, therefore 48% of the test year cash basis capital costs are assigned to that function. The total Capital Budget on row 11, column B, matches that shown in Table 4-1, line 5, column C.

Table 4-2: Functionalization of Operating Expenses

	O&M Line Item		Test Year Amount	Potable Supply	Reclaimed Supply	Transmission	Distribution	Storage	Meters	Customers	General
	(A)		(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
1	7102-4101	Salaries Full-Time	$ 928,191			33%	33%	15%	9%	10%	
2	7102-4102	Salaries Part Time	184,600			33%	33%	15%	9%	10%	
3	7102-4103	Overtime	20,000			33%	33%	15%	9%	10%	
4	7102-4116	Standby Pay	22,000			33%	33%	15%	9%	10%	
5	7102-4201	Retirement CalPERS	247,071			33%	33%	15%	9%	10%	
6	7102-4202	FICA	83,879			33%	33%	15%	9%	10%	
7	7102-4203	Workers' Compensation	80,025			33%	33%	15%	9%	10%	
8	7102-4204	Group Insurance	208,538			33%	33%	15%	9%	10%	
9	7102-4209	PARS Expense	10,000			33%	33%	15%	9%	10%	
10	7102-4210	OPEB Expense	17,634			33%	33%	15%	9%	10%	
11	7102-4215	Uniform Replacement	2,000			33%	33%	15%	9%	10%	
12	7102-5204	Operating Supplies	42,800			33%	33%	15%	9%	10%	
13	7102-5207	Small Tools & Equipment	192,000			33%	33%	15%	9%	10%	
14	7102-5215	Vehicle Gasoline Charge	14,000			33%	33%	15%	9%	10%	
15	7102-6101	Gas Utility	1,200			33%	33%	15%	9%	10%	
16	7102-6102	Electricity Utility	30,600								100%
17	7102-6201	Advertising/Publishing	8,000							100%	
18	7102-6205	Other Printing & Binding	2,500								100%
19	7102-6206	Contractual Services	284,795								100%
20	7102-6207	Equipment Replacement Charge	34,187								100%
21	7102-6208	Dues & Subscriptions	14,560								100%
22	7102-6211	Insurance & Bonds	1,146,300								100%
23	7102-6212	Laundry & Cleaning	10,000								100%
24	7102-6213	Meetings & Travel	1,600								100%
25	7102-6214	Professional & Technical	68,440								100%
26	7102-6215	Repairs & Maintenance	43,000								100%
27	7102-6217	Software Maintenance	4,000								100%
28	7102-6219	Network Operating Charge	10,300								100%
29	7102-6223	Training & Education	7,500								100%
30	7102-6224	Vehicle Operating Charge	10,000								100%
31	7102-6253	Postage	32,000							100%	
32	7102-6254	Telephone	32,000								100%
33	7102-6256	Pavement Rehabilitation	18,000								100%
34	7102-6260	Equipment Leasing Costs	4,600								100%
35	7102-6283	Water Purchases - Potable	10,573,713	100%							
36	7102-6285	Water Purchases - Reclaimed Water	13,227,296		100%						
37	7102-6286	General Admin Charges	714,085								100%
38	7102-6354	Lifeline Expense	6,000								100%
39	**Total: O&M**		$ 28,337,414	$10,573,713	$13,227,296	$ 677,800	$ 677,800	$ 308,091	$ 184,854	$ 245,394	$2,442,467

Table 4-3: Functionalization of Capital Expenses

	Asset Item	Test Year Amount	Pumping	Transmission	Distribution	Storage	Meters
	(A)	(B)	(C)	(D)	(E)	(F)	(G)
1	Water Pipes	$ 90,000,000		66%	34%		
2	Water Meters	2,500,000					100%
3	6.3 MG Reservoir	15,000,000				100%	
4	3 MG Reservoir	10,000,000				100%	
5	.2 MG Elevated Tank	3,000,000				100%	
6	Booster Pump Station	2,500,000	100%				
7	**Total: Assets**	$ 123,000,000	$ 2,500,000	$ 59,400,000	$ 30,600,000	$ 28,000,000	$ 2,500,000
8	**% Allocation**		2.03%	48.29%	24.88%	22.76%	2.03%
	Capital Item						
9	Rate Funded Capital	4,750,000	96,545	2,293,902	1,181,707	1,081,301	96,545
10	Contribution to/(Use of) Reserves	936,384	19,032	452,205	232,954	213,161	19,032
11	**Total: Capital Budget**	$ 5,686,384	$ 115,577	$ 2,746,108	$ 1,414,661	$ 1,294,461	$ 115,577

4.3 Allocation of Expenses to Cost Components

In a Cost of Service analysis, the City's expenses are allocated to the cost causation components. To do so it is necessary to identify system-wide peaking factors which are shown in column B, Table 4-4. 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 4-4. These peaking factors are based on a review of system data in similar oceanfront communities in California. Functionalized expenses are then allocated to the cost components using the allocation bases shown in column A. To understand the interpretation of the percentages shown in columns B through E we must first establish the base use as the average daily demand during the year – which is assigned an allocation basis of 1. If the base allocation basis is used to allocate an expense, it means that the costs associated with that expense are to meet average daily demand (base) related costs.

Expenses that are allocated to the cost causation components using the maximum day basis are those attributed to ensuring the water system is able to accommodate the maximum expected daily demand. The Max Day allocation attributes 63% (1.00/1.58) of the demand (and therefore costs) to base use (average daily demand) and the remaining 37% to maximum day use (peaking). Maximum hour costs are costs associated with meeting the highest of peaks within a day – typically these costs are associated with the distribution system. Expenses allocated using the maximum hour bases assume 39% (1.00/2.57) of costs are due to base demands, 23% due to max day ((1.58-1)/2.67) and 39% (1-0.39-0.23) are due to max hour costs. Collectively the maximum day and maximum hour cost components are known as peaking costs. These allocation bases are used to assign City O&M functions, shown in column A of Table 4-5 (which were determined on row 39 of Table 4-2), to the cost causation components also shown across the top of Table 4-5.

Table 4-4: System-Wide Peaking Factors and Allocation to Cost Components

Allocation Factor	System Peaking	Base	Max Day	Max Hour
(A)	(B)	(C)	(D)	(E)
Base	1.00	100%		
Max Day	1.58	63%	37%	0%
Max Hour	2.57	39%	23%	39%

The allocation bases 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, etc.). For example, distribution, line 4, is allocated using the max hour basis since distribution costs are associated with serving both average day demands and peak day demands in proportion to max hour allocations identified in Table 4-4. The distribution system must be sized, constructed, operated, and maintained to meet max hour demands. Certain cost bases are identical to the cost causation components – such as water supply – and therefore are easily allocated to the system cost causation component with the same name. Lines 9 and 10 show the resulting allocation of all expenses to the cost causation components. General overhead costs are proportionally reallocated to all other cost causation components, except for water supply costs.

The expenses in column B of Tables 4-5 and 4-6 correspond to the total expenses in Tables 4-2 and 4-3.

Table 4-5: Allocation of O&M Expenses to Cost Causation Components

	Function	Test Year Amount	Potable Supply	Reclaimed Supply	Base	Max Day	Max Hour	Meters	Customer	General
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(I)	(J)	(K)
1	Potable Supply	$ 10,573,713	100.0%							
2	Reclaimed Supply	13,227,296		100.0%						
3	Transmission	677,800			63.3%	36.7%				
4	Distribution	677,800			38.9%	22.6%	38.5%			
5	Storage	308,091			63.3%	36.7%				
6	Meters	184,854						100.0%		
7	Customers	245,394							100.0%	
8	General	2,442,467								100.0%
9	**Total: O&M**	$ 28,337,414	$ 10,573,713	$ 13,227,296	$ 887,716	$ 514,876	$ 261,098	$ 184,854	$ 245,394	$ 2,442,467
10	**Reallocation of O&M:**		$ 10,573,713	$ 13,227,296	$ 1,923,190	$ 1,115,450	$ 565,655	$ 400,477	$ 531,633	
11	**Allocation %**		37.31%	46.68%	6.79%	3.94%	2.00%	1.41%	1.88%	

Table 4-6: Allocation of Capital Expenses to Cost Causation Components

	Function	Test Year Amount	Potable Supply	Reclaimed Supply	Base	Max Day	Max Hour	Meters	Customer	General
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(I)	(J)	(K)
1	Pumping	115,577			38.9%	22.6%	38.5%			
2	Transmission	2,746,108			63.3%	36.7%				
3	Distribution	1,414,661			38.9%	22.6%	38.5%			
4	Storage	1,294,461			63.3%	36.7%				
5	Meters	115,577						100.0%		
6	**Total: Capital Costs**	$ 5,686,384	$ -	$ -	$ 3,223,351	$ 1,802,509	$ 544,947	$ 115,577	$ -	$ -
7	**Allocation %**		0.00%	0.00%	56.69%	31.70%	9.58%	2.03%	0.00%	

4.4 Units of Service

Once all expenses have been allocated to the appropriate cost components, the next step is to determine the units of service over which the costs will be recovered. The standard units are number of customers, 5/8" meter- equivalents (the base meter), annual water use, and extra capacity units. Private fire connections and city hydrants are also used in the calculation of private fire charges.

4.4.1 CUSTOMER AND METER EQUIVALENTS

Table 4-7 summarizes customer and meter units. Accounts in columns D and E can be found in Table 2-1. Equivalent meter units account for the potential flow through larger meters and equate this flow to the total flow through the base meter – in this case - the 5/8-inch meter. Equivalent meters for each class are derived by multiplying the AWWA ratio in column C by the number of accounts at a given meter size. For example, 386 residential 1" accounts are equivalent to 1.7 * 386 = 643 5/8" meters. The same step is repeated for each meter size and for all residential and non-residential accounts.

Table 4-7: Customer and Equivalent Meter Units

Equivalent Meters Meter Size	Capacity	AWWA Ratio	Residential Accounts	Non-Res Accounts	Residential EQ. Meters	Non-Res EQ. Meters	Total EQ. Meters
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
5/8" and 3/4"	30	1.0	2,602	550	2,602	550	3,152
1"	50	1.7	386	473	643	788	1,432
1 1/2"	100	3.3	6	353	20	1,177	1,197
2"	160	5.3	4	346	21	1,845	1,867
3"	350	11.7	-	83	-	968	968
4"	630	21.0	-	42	-	882	882
6"	1300	43.3	-	29	-	1,257	1,257
8"	2800	93.3	-	1	-	93	93
10"	4200	140.0	-	1	-	140	140
Total			2,998	1,878	**3,287**	**7,701**	**10,987**

Equivalent fire accounts are treated similarly, using the Hazen Williams equation for pipe flow,[8] demonstrated in Table 4-8. The ratios calculated in column B are applied to the number of private fire connections to determine the number of 6" hydrant equivalents. The percentages derived at the bottom of Table 4-8 are used in Table 4-10 to calculate the cost of providing fire protection service.

[8] The potential flow is the diameter of the outlet/connection raised to the 2.63 power – the Hazen Williams equation for pipe flow. For a 2" outlet the 6" equivalent demand factor would be (2/6)^2.63 = .056.

Table 4-8: Fireline 6" Equivalents

Equivalent Fire Meters Meter Size	Hazen-Williams	Private Fire	Private Fire Eq.	Hydrants
(A)	(B)	(C)	(D)	(E)
5/8" and 3/4"	0.004	-	-	-
1"	0.009	-	-	-
1 1/2"	0.026	-	-	-
2"	0.056	11	1	-
3"	0.162	12	2	-
4"	0.344	96	33	-
6"	1.000	115	115	608
8"	2.131	146	311	-
10"	3.832	38	146	-
Total		418	**607**	**608**
			49.97%	50.03%

4.4.2 WATER USAGE AND PEAKING

Other relevant units include annual water usage and peaking units. Table 4-9 shows the calculation of extra capacity units for each class. The single-family residential tier definitions in columns B and C are discussed in detail in Section 5.3.

Annual usage in column D is the total amount of water each class is forecasted to use in the test year, which is also shown in Table 2-2. Average day in column E is column D divided by 365. The maximum day peaking factor in column F is based on a detailed analysis of billing data. It represents the relationship between a forecasted average month and the single highest month of usage (maximum month) for a given class. The peaking factor in column F is multiplied by the average day use in Column E to determine the maximum total capacity in column G. Column H is the difference of column E and column G; these extra capacity units are used to distribute peaking costs between the classes. The maximum hour peaking ratios are estimated by multiplying the maximum hour peak by the ratio of the system max hour to max day (2.57/1.58=1.63) from Table 4-4. The same steps are applied to calculate maximum hour total units, subtracting units in column G from those in column J to determine maximum hour extra capacity units.

Extra capacity units for public and private fire connections are also included in rows 7 and 8 of Table 4-9. Detail for these units can be found in Table 4-10. City staff estimates that reasonable concurrent maximum fire flow is approximately 3,500 gallons for 3 hours, shown in lines 1 and 2. This is equivalent to 842 Ccf maximum day demand (3.5 thousand gallons per minute * 3 hours * 60 minutes, converted to Ccf) and 5,895 Ccf maximum hour demand (3.5 thousand gallons per minute * 24 hours * 60 minutes – maximum day demand, converted to Ccf). These demands are then allocated between public and private fire protection. The percentages on line 3 of Table 4-10, are the result of the fire equivalencies from Table 4-8. These are applied to the capacity calculated on row 4 to determine the units on rows 5 and 6.

Columns L and M of Table 4-9 contain a summary of the customer units determined in Tables 4-7 and 4-8.

Table 4-9: Units of Service

	Customer Class	Tier Size	Percent in Tier	Annual Use	Average Day	Max Day Peak	Max Day Total	Max Day Extra	Max Hour Peak	Max Hour Total	Max Hour Extra	Customer	Equivalent Meters
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
1	**Single Family Residential**			361,251								2,998	3,287
2	*Tier 1*	*1-9*	*66.62%*	*240,677*	659	1.07	707	48	1.74	1,150	443		
3	*Tier 2*	*10-13*	*15.00%*	*54,186*	148	1.37	203	54	2.22	330	127		
4	*Tier 3*	*>13*	*18.38%*	*66,387*	182	1.69	307	125	2.74	499	192		
5	**Non-Residential**			1,184,820	3,246	1.30	4,217	971	2.11	6,860	2,642	1,878	7,701
6	**Chevron**			1,559,501	4,273	1.33	5,682	1,410	2.16	9,243	3,561		
7	**Private Fire Service**				-		421	421		2,946	2,946	418	607
8	**Public Fire Service**						421	421		2,949	2,949		608
9	**Total**			3,105,572	8,508		11,959	3,451		23,978	12,861	5,294	12,203

Table 4-10: Fire Flow Calculation

	Fire Estimate	Max Day	Max Hour
	(A)	(B)	(C)
1	**Hours for Fire**	3.0	
2	**Kgals/minute**	3.5	3.5
3	**Cost to Public Fire**	50.03%	50.03%
4	**Required Capacity (Ccf)**	842	5,895
5	Public Fire	421	2,949
6	Private Fire	421	2,946
7	**Total Fire**	**842**	**5,895**

4.4.3 COST DISTRIBUTIONS TO THE COST COMPONENTS

Table 4-11 summarizes the results of the cost allocation to the cost components and units of service determination in Tables 4-5, 4-6, and 4-9. The total cost to be recovered on row 5, column B can also be found in Table 4-1 row 9, column D.

The unit costs on row 7 are the result of dividing the cost on row 5 for each cost component by the units of service on row 6.

Table 4-12 presents the results of the cost of service process. Using the unit costs calculated in Table 4-11 and the detailed units of service in Table 4-9, the costs are distributed to each customer class. For example, the base unit cost is multiplied by the base units for the SFR Tier 1 class ($1.66 dollars per Ccf * 240,677 Ccf = $398,849) in row 2, column E. The same step is applied for each class and each cost component. The total cost of service by class, shown in Column B, is the total amount of revenue to be collected from each class and is the basis for the rate design in Section 5.

Table 4-11: Unit Costs

	Cost Center	Total	Potable Supply	Reclaimed Supply	Base	Max Day	Max Hour	Meters	Customer	Revenue Offset
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(I)	(J)	(L)
1	**Operating Expenses**	$ 28,337,414	$ 10,573,713	$ 13,227,296	$ 1,923,190	$ 1,115,450	$ 565,655	$ 400,477	$ 531,633	
2	**Capital Expenses**	5,686,384	-	-	3,223,351	1,802,509	544,947	115,577	-	
3	**Revenue Offsets**	(171,360)								(171,360)
4	**Surcharge Offset**	(4,168,194)								(4,168,194)
5	**Total: Costs**	$ 29,684,244	$ 10,573,713	$ 13,227,296	$ 5,146,541	$ 2,917,959	$ 1,110,602	$ 516,054	$ 531,633	$ (4,339,554)
6	**Units of Service**		3,105,572 *Potable Ccf*	4,174,260 *Rec. Ccf*	3,105,572 *Potable Ccf*	3,451 *Ccf/Day*	12,861 *Ccf/Hour*	10,987 *Eq. Meters*	5,294 *Accounts*	
7	**Unit Cost**		$ 3.40	$ 3.17	$ 1.66	$ 845.65	$ 86.35	$ 46.97	$ 100.42	

Table 4-12: Class Cost of Service

	Customer Class	Total	Potable Supply	Reclaimed Supply	Base	Max Day	Max Hour	Meters	Customer	Revenue Offset
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(I)	(J)	(L)
1	**Single Family Residential**	$ 2,542,232						$ 154,368	$ 301,064	
2	Tier 1		819,447		398,849	40,494	38,270			
3	Tier 2		184,492		89,798	46,086	10,982			
4	Tier 3		226,033		110,017	105,727	16,606			
5	**Non-Residential**	7,597,157	4,034,022		1,963,479	821,194	228,184	361,686	188,592	
6	**Chevron**	9,393,847	5,309,720		2,584,399	1,192,259	307,470	-	-	
7	**Private Fire Service**	652,298	-		-	355,911	254,411		41,976	
8	**Public Fire Service**	610,968	-		-	356,288	254,680		-	
9	**Recycled**	13,227,296		13,227,296						
10	**Total**	$ 29,684,244	$ 10,573,713	$ 13,227,296	$ 5,146,541	$ 2,917,959	$ 1,110,602	$ 516,054	$ 531,633	$ (4,339,554)

5. Rate Derivation

5.1 Existing Rate Structure and Rates

The City's existing rate structure consists of a fixed monthly charge[9] by meter size and a set of volumetric rates depending on customer type and amount of usage. The City has a four-tier volumetric rate structure with different unit rates depending on customer class. Table 5-1 shows the existing rate structure and rates. Raftelis recommends adjusting the number and size of the single-family residential tiers, creating a uniform rate for non-residential customers, and creating a separate uniform rate for Chevron.

Table 5-1: Existing Monthly Rate Structure and Rates

Monthly Capacity Charges	
5/8" & 3/4"	$ 11.95
1"	27.10
1 1/2"	33.94
2"	62.90
3"	141.61
4"	251.25
6"	469.74
8"	823.49
10"	1,288.35
12"	1,855.05
16"	3,293.96
20"	5,144.59

Volumetric Charges per Ccf		
Single Family Residential		
Tier I	0-10	$ 2.82
Tier II	10-20	5.19
Tier III	20-50	5.90
Tier IV	50+	5.19
Non-Residential		
Tier I	0-10	$ 3.43
Tier II	10-20	4.19
Tier III	20-50	4.44
Tier IV	50+	4.66

5.2 Recycled Water Rates

In addition to directly passing through the cost to purchase recycled water from West Basin, the City currently imposes a surcharge on all recycled water used by its customers. The surcharge is $0.31 per Ccf for regular retail customers and $1.0075 per Ccf for Chevron.

Raftelis recommends eliminating the surcharge on regular retail customers. Given that the City is only responsible for maintaining the meter and providing customer service, each recycled customer should pay the same meter charge as potable customers, derived in section 5.3. The pass through supply costs should remain unchanged.

The surcharge paid by Chevron in set by contract with the City. In accordance with the contract, that rate should increase by the same percentage as potable rates in the future.

5.3 Proposed Monthly Service Charge

5.3.1 MONTHLY SERVICE CHARGE COMPONENTS

The proposed monthly service charge has four components, which are discussed below. Table 5-2 shows the derivation of these components for 5/8-inch meters. The units for lines 1 to 3, in column C, are

[9] Although rates are calculated and charged on a monthly basis, the City sends bills to residential customers bimonthly.

equivalent meters; units for line 4 are customer accounts, including private fire service accounts. The annual unit costs are the result of dividing the total cost by the number of units.

Table 5-2: Monthly Meter and Customer Charge Derivation

	Cost Component	Total Cost	Units	Annual Unit Cost	Monthly Unit Cost
	(A)	(B)	(C)	(D)	(E)
1	Water Supply Cost	$ 165,444	10,987	$ 15.06	$ 1.25
2	Meter Cost	516,054	10,987	46.97	3.91
3	Public Fire Cost	610,968	10,987	55.61	4.63
4	Customer Service	531,633	5,294	100.42	8.37
5	**Total**	$ 1,824,098		$ 218.05	$ 18.17

5.3.2 WATER SUPPLY COMPONENT

Although most the City's water supply costs are variable, approximately $165,000 of the annual total is billed to the City on a fixed basis. The City has decided to recover this portion of supply costs on the fixed service charge.

5.3.3 METER COMPONENT

The meter service component recovers two types of costs: 1) costs associated with maintaining and servicing meters (meter service component) and 2) capacity (also known as peaking) costs. Both costs increase as the meter size increases and are proportional to the AWWA hydraulic capacity ratios shown in column B of Table 5-3. The capacity ratios, which are a function of a meter's safe maximum flow rate, are used to increase the meter service component for larger capacity meters. This assumes that the potential capacity (peaking) demand is proportional to the potential flow through each meter size as established by the AWWA hydraulic capacity ratios. The ratios shown in column B are the ratio of potential flow through each meter size compared to the flow through a 5/8-inch meter. The 5/8-inch meter is used as the base since it is the smallest and most numerous meter size. Larger meters have the potential to demand more water instantaneously and generate greater peak demands. The meter service component for a 5/8-inch meter was derived in Table 5-2. As shown in columns D, E, and G, the meter service component, water supply component, and public fire component for larger meters are relative to the AWWA capacity ratios shown in column B of Table 5-3.

5.3.4 CUSTOMER COMPONENT

The customer component derivation, shown in line 4 of Table 5-2, recovers costs associated with meter reading, customer billing and collection, as well as answering customer calls. These costs are the same for all meter sizes as it costs the same to bill a small meter as it does a larger meter.

5.3.5 TOTAL MONTHLY SERVICE CHARGE FOR ALL METERS

Table 5-3 shows the derivation of the monthly service charge by meter size in column H, which is the addition of columns D through G. The water supply, meters, and public fire charges increase in proportion to AWWA Capacity ratios (shown in column C), while the customer charge is the same at each meter size (column E).

Table 5-3: Monthly Service Charge Derivation by Meter Size

	Meter Size	AWWA Ratio	No. of Accounts	Water Supply	Meters	Customer	Public Fire	Total Proposed
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
1	5/8" and 3/4"	1.00	3,152	$ 1.25	$ 3.91	$ 8.37	$ 4.63	$ 18.17
2	1"	1.67	859	2.09	6.52	8.37	7.72	24.71
3	1 1/2"	3.33	359	4.18	13.05	8.37	15.45	41.04
4	2"	5.33	350	6.69	20.87	8.37	24.71	60.65
5	3"	11.67	83	14.64	45.66	8.37	54.06	122.73
6	4"	21.00	42	26.35	82.19	8.37	97.31	214.23
7	6"	43.33	29	54.38	169.61	8.37	200.80	433.15
8	8"	93.33	1	117.12	365.31	8.37	432.50	923.29
9	10"	140.00	1	175.67	547.96	8.37	648.74	1,380.75

Table 5-4 shows the monthly Fixed Service Charge for the next five fiscal years. They are derived by applying the revenue adjustments shown in Table 3-7 to the service charges for FY 2020 shown in Table 5-3. Charges are rounded up to the nearest whole penny and may not match the unrounded values in Table 5-3.

Table 5-4: Five Year Fixed Service Charges

Meter Size	Current 2020	April 1 2021	Jan 1 2022	Jan 1 2023	Jan 1 2024	Jan 1 2025
5/8" and 3/4"	$ 11.95	$ 18.18	$ 18.73	$ 19.30	$ 19.88	$ 20.48
1"	27.10	24.71	25.46	26.23	27.02	27.84
1 1/2"	33.94	41.05	42.29	43.56	44.87	46.22
2"	62.90	60.65	62.47	64.35	66.29	68.28
3"	141.61	122.74	126.43	130.23	134.14	138.17
4"	251.25	214.23	220.66	227.28	234.10	241.13
6"	469.74	433.16	446.16	459.55	473.34	487.55
8"	823.49	923.29	950.99	979.52	1,008.91	1,039.18
10"	1,288.35	1,380.75	1,422.18	1,464.85	1,508.80	1,554.07

5.4 Proposed Private Fire Charges

Table 5-5 shows the derivation of the monthly private fire charge in column E. The total peaking costs for the private fire service class, shown in Table 4-12, line 8, columns F and G, is divided by the number of equivalent private fire meters from Table 4-8 and converted to a monthly basis. In Table 5-6, the cost for a 6" equivalent meter is scaled using the ratios in column B and added to the customer cost derived in Table 5-2. The proposed private fire charges are based on the potential flow through each private fire connection and are calculated in accordance with principles set forth in the American Water Works Association M1 Manual, *Principles of Water Rates, Fees and Charges*. [10]

[10] Section VII of the fifth edition

Table 5-5: Private Fire Charge Calculation

Cost Component	Total Cost	Units	Annual Unit Cost	Monthly Unit Cost
(A)	(B)	(C)	(D)	(E)
Private Fire Cost	$ 610,321	607.36	$1,004.88	$ 83.74

Table 5-6: Private Fire Charge Derivation by Meter Size

Line Size	Ratio	No. of Accounts	Customer	Capacity	Total Proposed
(A)	(B)	(C)	(D)	(E)	(G)
5/8" and 3/4"	0.00	-	8.37	0.35	8.72
1"	0.01	-	8.37	0.75	9.12
1 1/2"	0.03	-	8.37	2.19	10.55
2"	0.06	11	8.37	4.66	13.03
3"	0.16	12	8.37	13.53	21.90
4"	0.34	96	8.37	28.83	37.20
6"	1.00	115	8.37	83.74	92.11
8"	2.13	146	8.37	178.45	186.82
10"	3.83	38	8.37	320.92	329.29

Rates will increase in subsequent years by the adjustments shown in Table 3-7 in the same manner as the meter charges and are rounded up to the next cent.

Table 5-7: FY 2020 – 2025 Fireline Monthly Charges

Line Size	Current 2020	April 1 2021	Jan 1 2022	Jan 1 2023	Jan 1 2024	Jan 1 2025
5/8" and 3/4"	-	$ 8.73	$ 9.00	$ 9.27	$ 9.55	$ 9.84
1"	-	9.13	9.41	9.70	10.00	10.30
1 1/2"	-	10.56	10.88	11.21	11.55	11.90
2"	58.80	13.03	13.43	13.84	14.26	14.69
3"	89.75	21.90	22.56	23.24	23.94	24.66
4"	120.71	37.20	38.32	39.47	40.66	41.88
6"	182.61	92.11	94.88	97.73	100.67	103.70
8"	232.89	186.83	192.44	198.22	204.17	210.30
10"	306.44	329.29	339.17	349.35	359.84	370.64

5.5 Volumetric Rates

5.5.1 CUSTOMER CLASSES

Raftelis recommends creating an additional customer class for Chevron in addition to the existing residential and non-residential classes.

5.5.2 TIER DEFINITIONS

The City proposes to change the tier definitions from those shown in Column B to those shown in column C of Table 5-8. The new tier definitions are based on a detailed analysis of the City's billing data. The first tier provides for the residential winter average usage, the second tier includes the residential summer average, and the third tier is for all use in excess of Tier 2. Residential customers in the City use an average of 9 Ccf in the winter months, which is strongly correlated with indoor usage. Average summer use is 13 Ccf. These averages are used as the breakpoints for the first two tiers.

Raftelis proposes a uniform rate for all other customers classes. Commercial customers tend to be much less homogenous and their individual water needs vary much more than single family residential.

Table 5-8: Proposed Single Family Residential Tiers

	SFR Tier	Current	Proposed
	(A)	(B)	(C)
1	Tier 1	0-10	1-9
2	Tier 2	11-20	10-13
3	Tier 3	21-50	14+
4	Tier 4	51+	N/A

5.5.3 VOLUMETRIC RATE DERIVATION

The total volumetric rate is the summation of unit rates for each cost component: Supply, Delivery, Peaking (Max day and hour), and revenue offsets. Each unit rate will be derived and added together to get the total volumetric rate for each tier and customer class. Each cost component is defined below.

5.5.4 COST COMPONENT DEFINITIONS

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

1. Water Supply
2. Delivery
3. Peaking
4. Revenue Offsets

Water Supply costs are costs associated with purchasing treated water from West Basin Municipal Water District.

Delivery costs are the operating and capital costs associated with delivering water to all customers through the distribution system (pipelines and storage reservoirs) at a constant average rate of use – also known as serving customers under average daily demand conditions. Therefore, delivery costs are spread over all units of water which results in a uniform delivery unit cost for all classes and tiers.

Peaking costs, or extra-capacity costs, represent costs incurred to meet customer peak demands in excess of average daily demand. Peaking costs are the sum of columns F and G in Table 4-12 – that is maximum day and maximum hour costs. Peaking costs are distributed to each tier and class using peaking factors derived from customer use data – discussed later in this section.

Revenue Offsets are revenues from non-rate sources that reduce the amount of revenue required from customers. They are reflected as negative values added to the other components of the rates.

5.5.5 DERIVATION OF THE UNIT COST BY COST COMPONENT

Supply Unit Costs

Table 5-9 shows the supply cost derivation for all customers. First, the volumetric portion of West Basin's charges to the city is calculated. In the 2020 test year, West Basin charges $1,385 per acre foot of treated water, or $3.18 per Ccf. This cost is multiplied by the forecasted demand with a 5% water loss factor to provide an estimate of the total amount of water the City will buy in column C. The total cost (E) is divided by the demand in column C to provide a unit cost per Ccf of water sold in column F.

The cost in column E and the fixed portion of supply costs in Table 5-2, row 1 equal the total potable water supply cost in Table 4-11 column B.

Table 5-9: Supply Cost Derivation

	West Basin Supply Cost	WB Rate	Annual Billed Ccf	Water Loss Gross Up	Annual Total WB Cost	Unit Cost
	(A)	(B)	(C)	(D)	(E)	(F)
	Volume Rate					
1	Per Acre Foot	$ 1,385		5%		
2	Per Ccf	$ 3.18	3,105,572	3,269,023	$ 10,408,269	$ 3.35

5.5.6 DELIVERY COST

The delivery rate in Table 5-10 is derived by dividing the total base costs from Table 4-12, column F by the total forecasted demand. The base rate is the unit cost to supply and deliver water under ***average daily demand (ADD)*** conditions. Table 5-10 identifies the rate to deliver water during average daily demands. This delivery cost is the same for all classes and for all tiers.

Table 5-10: Derivation of the Delivery Unit Cost

Customer Class	Total Cost	Annual Ccf	Unit Cost
	(A)	(B)	(C)
Total:	$5,146,541	3,105,572	1.66

5.5.7 PEAKING RATE

Table 5-11 shows the peaking rate derivation for each class. The peaking unit cost (peaking rate) per Ccf (column D) is calculated by dividing the peaking costs (column B) by water use (column C) for each class and tier. The peaking unit cost is correlated with the peaking factor – a higher peaking factor correlates

to a higher peaking rate. The total peaking costs in column B of Table 5-11 for each class matches the sum of maximum day and maximum hour peaking costs in Table 4-12**Error! Reference source not found.**.

Table 5-11: Derivation of Peaking Rate

	Customer Class	Peaking Cost	Annual Ccf	Unit Cost
	(A)	(B)	(C)	(D)
	Single Family Residential			
1	Tier 1	$ 78,763	240,677	$ 0.33
2	Tier 2	57,068	54,186	1.05
3	Tier 3	122,333	66,387	1.84
4	**Non-Residential**	1,049,379	1,184,820	0.89
5	**Chevron**	1,499,729	1,559,501	0.96
	Total:	$ 2,807,272	3,105,572	

5.5.8 NON-RATE REVENUE OFFSET

Table 5-12 shows the derivation of the non-rate revenue offset for all customers. First, the revenue amount in column D, row 7 is allocated between all classes on the basis of water demand. This result is shown in rows 1, 5, and 6 of column C. The SFR allocation, based on all usage, is reallocated to only offset rates for Tier 1. While only Tier 1 receives the benefit of the revenue offset, all SFR customers pass-through Tier 1 and therefore all customers benefit from the allocation. The unit rate offset in column E is the result of dividing the allocation for each class in column D by the demand in column B.

The total offset amount can be found in Table 4-11, column M, row 3.

Table 5-12: Derivation Non-Rate Revenue Offset Unit Rates

	Revenue Offset Allocation Customer Class	Annual Ccf	Allocation	Revenue Requirement	Unit Rate
	(A)	(B)	(C)	(D)	(E)
1	**Single Family Residential**	**361,251**	11.6%	$ (19,933)	(0.06)
2	*Tier 1*	*240,677*	*100.00%*	*(19,933)*	*(0.08)*
3	*Tier 2*	*54,186*	*0.00%*	-	-
4	*Tier 3*	*66,387*	*0.00%*	-	-
5	**Non-Residential**	**1,184,820**	38.15%	(65,376)	(0.06)
6	**Chevron**	**1,559,501**	50.22%	(86,051)	(0.06)
7	**Total**	3,105,572		$ (171,360)	

5.5.1 RECYCLED WATER SURCHARGE REVENUE OFFSET

The calculation of the recycled water surcharge revenue offset unit rate is like the non-rate revenue offset calculation in Table 5-12. Rather than proportion the total amount of the offset among all customers evenly, the City has elected to allocate 62% of the offset to customers other than Chevron. The first tier of SFR usage also receives a larger portion of the benefit than the second and third tiers.

Table 5-13: Derivation of Recycled Surcharge Revenue Offset Unit Rates

	Surcharge Offset Allocation Customer Class	Annual Ccf	Allocation	Revenue Requirement	Unit Rate
	(A)	(B)	(C)	(D)	(E)
1	**Single Family Residential**	**361,251**	23.4%	$ (603,836)	(1.67)
2	*Tier 1*	*240,677*	*94.67%*	*(571,660)*	*(2.38)*
3	*Tier 2*	*54,186*	*5.33%*	*(32,176)*	*(0.59)*
4	*Tier 3*	*66,387*	*0.00%*	-	-
5	**Non-Residential**	**1,184,820**	76.63%	(1,980,444)	(1.67)
6	**Subtotal**	1,546,071	62.0%	$ (2,584,280)	
7	**Chevron**	1,559,501		$ (1,583,914)	(1.02)
8	**Total**	3,105,572		(4,168,194)	

5.5.2 FINAL RATE DERIVATION

Tables 5-9 to 5-13 derive the rates for each cost component - supply, delivery, peaking, revenue offset, and recycled surcharge offsets.

Table 5-14 shows the total volumetric rate derivation for all customers in FY 2020, which is the summation of all rate components.

Table 5-14: Derivation of Rates by Tier and Class

	Customer Class	Supply	Base Delivery	Peaking	Revenue Offset	Surcharge Offset	Total
	(A)	(B)	(C)	(D)	(E)	(F)	(G)
	Single Family Residential						
1	Tier 1	$ 3.35	$ 1.66	$ 0.33	$ (0.08)	$ (2.38)	$ 2.88
2	Tier 2	3.35	1.66	1.05	-	(0.59)	5.47
3	Tier 3	3.35	1.66	1.84	-	-	6.85
4	**Non-Residential**	3.35	1.66	0.89	(0.06)	(1.67)	4.17
5	**Chevron**	3.35	1.66	0.96	(0.06)	(1.02)	4.90

5.5.3 5-YEAR RATES

Table 5-15 shows the proposed five-year volumetric rates by escalating the volumetric rates derived in Table 5-14, which have been rounded to the nearest whole penny, by the proposed revenue adjustments shown in Table 3-7. Customer bill impacts are discussed in Section 6.

Table 5-15: Five-Year Volumetric Rates

Class	Current 2020	April 1 2021	Jan 1 2022	Jan 1 2023	Jan 1 2024	Jan 1 2025
Residential						
Tier 1	$ 2.82	$ 2.88	$ 2.97	$ 3.06	$ 3.16	$ 3.26
Tier 2	5.19	5.47	5.64	5.81	5.99	6.17
Tier 3	5.90	6.86	7.07	7.29	7.51	7.74
Non-Residential	$ 3.43	$ 4.17	$ 4.30	$ 4.43	$ 4.57	$ 4.71
Chevron	$ 3.43	$ 4.90	$ 5.05	$ 5.21	$ 5.37	$ 5.54

6. Water Bill Impacts

6.1 Monthly Single Family Bill Impacts

Table 6-1 shows the Single Family customer bill impacts for various levels of use and meter sizes. Column C shows the percent of bills that fall below a certain level of use during a typical month. For example, 49.2% of total customer monthly bills are 9 Ccf or less.

Table 6-1: Single Family Monthly Bill Impacts

	Meter Size	Ccf	Cumulative Bills	CY 2020	CY2021	Dollar Change
	(A)	(B)	(C)	(D)	(E)	(F)
1	5/8" and 3/4"	-	0.8%	11.95	18.18	6.23
2	5/8" and 3/4"	5	22.6%	26.05	32.58	6.53
3	5/8" and 3/4"	9	49.2%	37.33	44.10	6.77
4	5/8" and 3/4"	10	55.6%	40.15	49.57	9.42
5	5/8" and 3/4"	13	71.5%	55.72	65.98	10.26
6	5/8" and 3/4"	30	97.9%	151.05	182.60	31.55
7	1"	40	99.4%	225.20	257.73	32.53

7. Wastewater Financial Plan

The City of El Segundo is responsible for the operation and maintenance (O&M) of an extensive wastewater collection system but does not provide wastewater treatment. Wastewater on the east side of the City is sent to Los Angeles County Sanitation Districts (LACSD). The county bills those customers directly on their annual property tax bills. Wastewater from the west side is treated by the City of Los Angeles, which bills the City of El Segundo.

Raftelis analyzed existing operating revenues, O&M, capital expenditures, and reserve requirements for the wastewater enterprise. This section discusses projected revenues, O&M expenses, reserve funding and revenue adjustments needed to ensure the financial sustainability of the utility.

7.1 Financial Plan Assumptions

7.1.1 CURRENT WASTEWATER RATES

The City currently has three sets of rates. Customers on the west side pay a monthly treatment fee based on meter size and which varies by customer class. All customers pay a monthly service fee which also varies by meter size and class. Table 7-1 presents the current rates in effect in FY 2020.

Table 7-1: Current Wastewater Service Charges

Meter Size	SFR	MFR	Commercial West	Commercial East	Industrial West	Industrial East	Institutional West	Institutional East
Treatment Fee								
3/4"	$ 16.63	$ 27.48	$ 19.62	$ 19.62	$ 16.27	$ 16.27	$ 15.38	$ 15.38
1"	21.15	38.50	48.97	48.97	21.99	21.99	24.35	24.35
1 1/2"	22.87	58.74	90.18	90.18	63.55	63.55	37.06	37.06
2"	24.29	131.73	237.73	237.73	193.99	193.99	56.19	56.19
3"		447.75	440.61	440.61	486.29	486.29	139.34	139.34
4"		616.10	1,882.76	1,882.76	690.89	690.89	165.00	165.00
6"			1,882.76	1,882.76	690.89	690.89	165.00	165.00
Service Fee								
3/4"	$ 6.60	$ 10.56	$ 7.26		$ 6.60	$ 7.26	$ 6.60	$ 6.60
1"	7.92	14.85	18.81	7.26	7.92	18.15	9.24	9.24
1 1/2"	8.58	22.44	33.00	46.21	24.42	33.00	13.86	13.86
2"	9.24	49.50	85.81	132.00	72.60	72.60	19.81	19.81
3"		171.62	184.81	184.81	184.81	297.02	52.81	52.81
4"		231.02	693.05	297.02	264.02	462.03	66.00	66.00
6"			693.05	759.05	264.02	1,254.10	66.00	66.00
Volume Charge	$ 0.73	$ 0.91	$ 1.04	$ 1.04	$ 1.04	$ 1.04	$ 0.91	$ 0.91

7.1.2 NUMBER OF ACCOUNTS AND WATER USE

Table 7-2 shows the number of wastewater accounts and the wastewater flow (based on water use for wastewater customers) in Ccf for each customer class in FY 2019. As with the water utility demand projection, the Financial Plan assumes no growth in customer accounts or increased wastewater generation, on a per capita basis, in future years.

Table 7-2: Wastewater Accounts and Wastewater Use in Hundred Cubic Feet

Meter Size	SFR	MFR	Commercial West	Commercial East	Industrial West	Industrial East	Institutional West	Institutional East	Total
3/4"	2,605	247	161	-	115	1	16	-	3,145
1"	381	276	92	10	50	21	12	-	842
1 1/2"	6	219	31	48	21	16	5	-	346
2"	2	101	24	87	19	69	16	4	322
3"		3	3	28	2	7	7	1	51
4"		5	4	13	3	13	3	1	42
6"			1	10	1	15	-	-	27
	2,994	851	316	196	211	142	59	6	4,775
Use (Ccf)	361,205	267,389	118,555	309,014	51,309	344,064	20,052	14,492	1,486,080

7.1.3 WASTEWATER O&M EXPENSES

Raftelis projects wastewater O&M expenses by applying the inflation factors in Table 3-3 to the FY 2020 O&M budget. Table 7-3 summarizes the budgeted and projected O&M expenses during the Study period. The forecast of treatment fees for the study period is based on the projections provided by the City of Los Angeles; treatment costs will increase significantly in 2021.

Table 7-3: Projected Wastewater O&M Expenses

Sewer Operating Expenses	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Salaries	$ 581,630	$ 599,079	$ 617,051	$ 635,563	$ 654,630	$ 674,269
Benefits	355,099	383,507	414,187	447,322	483,108	521,757
Supplies	97,800	100,734	103,756	106,869	110,075	113,377
Utilities	65,000	68,172	71,500	74,993	78,657	82,502
Treatment Fees	1,999,993	2,737,200	2,882,500	2,829,200	2,562,800	2,834,900
Service Charges	1,100,412	1,133,424	1,167,427	1,202,450	1,238,523	1,275,679
Total: Sewer Operating Expenses	$ 4,199,934	$ 5,022,116	$ 5,256,422	$ 5,296,396	$ 5,127,793	$ 5,502,484

7.1.4 PROJECTED CAPITAL IMPROVEMENT PROGRAM

Table 7-4 summarizes the City's five-year CIP. The proposed capital improvement program will be funded entirely through rate revenue and reserve funds, also known as PAY-GO funding, rather than issuing debt.

Table 7-4: Wastewater Capital Improvement Projects

Sewer Projects	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Lifeguard Pump Station	$ 650,000	$ -	$ -	$ -	$ -	$ -
Wastewater Infrastructure Replacement	-	150,000	500,000	500,000	500,000	500,000

7.1.5 RESERVE REQUIREMENTS

Raftelis recommends adopting an updated formal financial reserve policy. The City should maintain the following in reserves:

1. Operating reserve equal to four months of O&M expenses
2. Capital reserve equal to the average annual forecasted capital spending of the next ten years

The wastewater utility is currently achieving approximately 60% of this target and is forecasted to sustain significant deficits in the future without revenue adjustments.

Table 7-5: Wastewater Fund Balance Forecast

Wastewater EoY Fund Balances	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Operating Reserve	$ 1,088,392	$ 420,552	$ 149,949	$ 839,873	$ 1,803,442
Target	*1,651,107*	*1,728,139*	*1,741,281*	*1,685,850*	*1,809,036*
Capital Reserve	$ 45,365	$ 413,988	$ 816,191	$ 951,467	$ 1,019,293
Target	*716,883*	*806,240*	*861,161*	*917,779*	*976,146*
Total Reserves	**$ 1,133,757**	**$ 834,539**	**$ 966,140**	**$ 1,791,340**	**$ 2,822,735**
Target	*2,367,990*	*2,534,379*	*2,602,442*	*2,603,628*	*2,785,182*

7.2 Proposed Financial Plan

To ensure that the Wastewater Enterprise has adequate revenues to fund operating and capital expenditures as well as funds sufficient reserves, Raftelis and City Staff recommend the revenue adjustments in Table 7-6. The City has not implemented a wastewater rate increase since 2016, requiring significant adjustments. The proposed rate adjustments will allow the City to achieve its reserve targets by 2025.

Table 7-6: Proposed Wastewater Revenue Adjustments

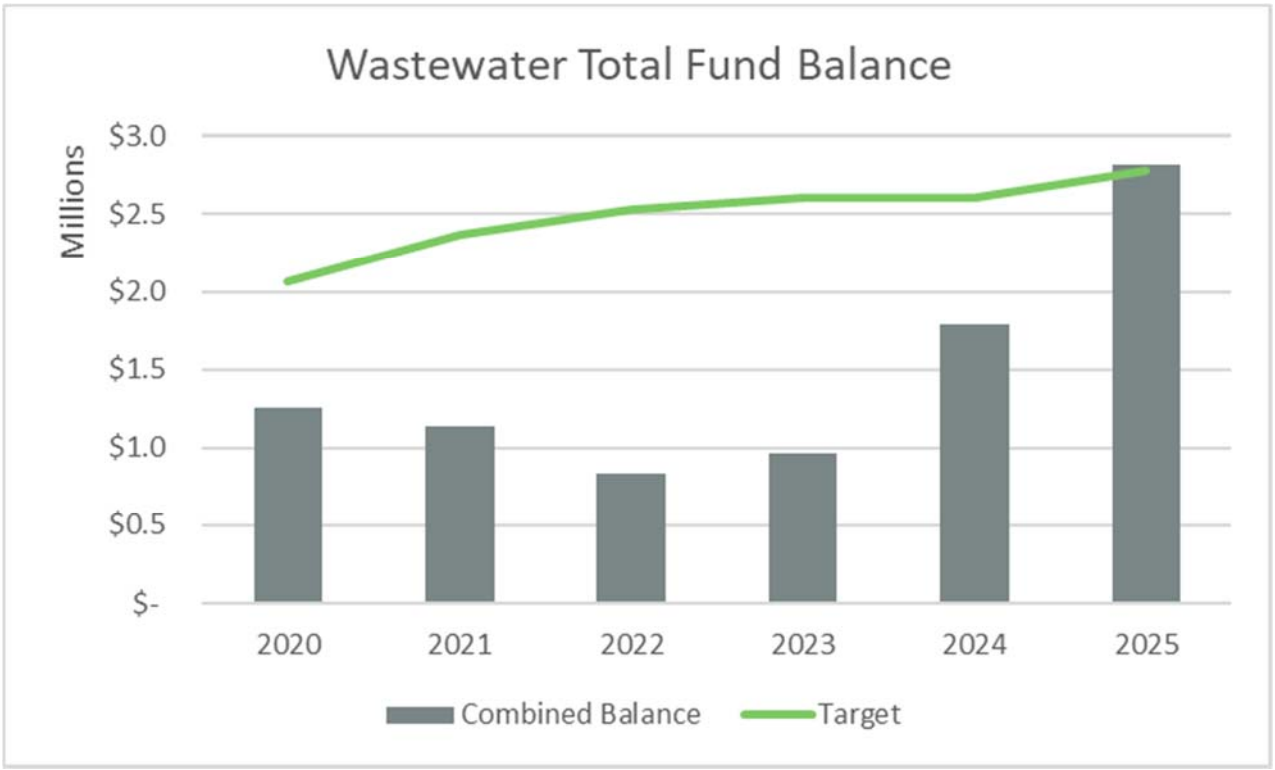
Effective Month	FY 2021 April 1	FY 2022 January 1	FY 2023 January 1	FY 2024 January 1	FY 2025 January 1
Wastewater Rate Adjustment	9.0%	9.0%	9.5%	9.5%	9.5%

Table 7-7 shows the cash flow projection with the proposed revenue adjustments from Table 7-6. The proposed financial plan meets the City's financial needs by meeting long term reserve goals. As indicated by the negative net cash flow, the City plans to use fund balances to minimize customer impacts as much as possible. Figure 2 presents the financial plan graphically.

Table 7-7: Wastewater Enterprise Proposed Financial Plan Pro-Forma

Operating Cash Flow	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Revenues						
Rate Revenue	$ 4,493,170	$ 4,493,170	$ 4,493,170	$ 4,493,170	$ 4,493,170	$ 4,493,170
Additional Revenue	-	303,289	734,970	1,225,522	1,768,797	2,363,684
Non-Rate Revenue	316,200	261,015	260,442	257,103	255,750	259,199
Total: Revenue	$ 4,809,370	$ 5,057,474	$ 5,488,582	$ 5,975,794	$ 6,517,717	$ 7,116,053
Rate Increase		**9.00%**	**9.00%**	**9.50%**	**9.50%**	**9.50%**
Expenses						
O&M	$ 4,199,934	$ 5,022,116	$ 5,256,422	$ 5,296,396	$ 5,127,793	$ 5,502,484
Transfer to Capital	700,000	150,000	900,000	950,000	700,000	650,000
Total: Expenses	$ 4,899,934	$ 5,172,116	$ 6,156,422	$ 6,246,396	$ 5,827,793	$ 6,152,484
Op. Surplus/(Deficit)	$ (90,564)	$ (114,642)	$ (667,840)	$ (270,602)	$ 689,924	$ 963,569
Op. Reserve	1,203,035	1,088,392	420,552	149,949	839,873	1,803,442
Cap. Reserve	50,000	45,365	413,988	816,191	951,467	1,019,293
Total Reserve	**$ 1,253,035**	**$ 1,133,757**	**$ 834,539**	**$ 966,140**	**$ 1,791,340**	**$ 2,822,735**
Target Balance	*2,061,006*	*2,367,990*	*2,534,379*	*2,602,442*	*2,603,628*	*2,785,182*
CIP (Uninflated)	650,000	150,000	500,000	500,000	500,000	500,000

Figure 1: Wastewater Financial Plan



8. Wastewater Enterprise Cost of Service and Rate Derivation

8.1 Wastewater Cost of Service Analysis

This section discusses the allocation of O&M expenses and capital costs to the wastewater cost components, which is simplified for the City since it operates as a wastewater collection agency and does not operate a wastewater treatment plant. The City collects sewage which is sent to either the City of Los Angeles or LACSD. The County bills customers directly on the property tax bill. The City of Los Angeles bills the City of El Segundo, which must collect this cost from its customers. Therefore, the City's cost components consist of Flow, Customer, General, and Treatment (West Side Only) components. The study uses a FY 2021 test year to more accurately allocate the increased treatment costs.

Raftelis recommends adopting a fixed monthly charge for single family residential users based on 9 Ccf of usage, the average indoor usage determined in Section 4.4. All other users will pay an equivalent minimum charge each month, in addition to a volumetric charge that varies based upon whether the customer's service is on the east or west side of the City.

8.1.1 WASTEWATER REVENUE REQUIREMENT

Table 8-1 presents the summarized test year revenue requirements shown in column D, line 8. The values displayed here align with the FY 2021 costs presented in Table 7-6.

Table 8-1: Allocating FY 2018 O&M Costs to Cost Causation Components

	Revenue Requirements	Operating	Capital	Total
	(A)	(B)	(C)	(D)
1	Operations and Maintenance	$5,022,116		$ 5,022,116
2	PAYGO		150,000	150,000
3	Contribution to Operating Reserve		(114,642)	(114,642)
4	**Subtotal: Revenue Requirements**	$5,022,116	$ 35,358	$ 5,057,474
	Adjustments			
5	Misc. Revenue	$ 261,015		$ 261,015
6	Mid Year Increase		(101,096)	(101,096)
7	**Subtotal: Adjustments**	$ 261,015	$ (101,096)	$ 159,919
8	**Total: Net Revenue Required**	$4,761,101	$ 136,454	$ 4,897,555

8.1.2 COST ALLOCATION TO FUNCTIONS

Table 8-2 shows the allocation of the City's FY 2021 O&M budget to the functions they serve: treatment, collection, billing, and general overhead. The total allocation to each cost component is shown on the final line of

the table. Table 8-3 presents the allocation of wastewater assets to functions, which is used to allocate cash basis capital costs to the same components.

Table 8-2: Allocating FY 2021 O&M Costs to Functions

	O&M Line Item		Test Year Amount	Treatment	Collection	Billing	General
	(A)		(B)	(C)	(D)	(E)	(F)
1	4301-4101	Salaries Full Time	$ 545,025		80.00%	10.00%	10.00%
2	4301-4102	Salaries Part Time	12,854		80.00%	10.00%	10.00%
3	4301-4103	Overtime	20,600		80.00%	10.00%	10.00%
4	4301-4116	Standby Pay	20,600		80.00%	10.00%	10.00%
5	4301-4117	Opt - Out Payments	-		80.00%	10.00%	10.00%
6	4301-4201	Retirement CalPERS	145,800		80.00%	10.00%	10.00%
7	4301-4202	FICA	43,763		80.00%	10.00%	10.00%
8	4301-4203	Workers' Compensation	54,017		80.00%	10.00%	10.00%
9	4301-4204	Group Insurance	120,538		80.00%	10.00%	10.00%
10	4301-4209	PARS Expense	8,532		80.00%	10.00%	10.00%
11	4301-4210	OPEB Expense	10,857		80.00%	10.00%	10.00%
12	4301-5203	Repair & Maintenance Supplies	51,500		100.00%		
13	4301-5204	Operating Supplies	38,934		100.00%		
14	4301-5207	Small Tools & Equipment	1,030		100.00%		
15	4301-5215	Vechile Gasoline Charge	9,270		100.00%		
16	4301-6101	Gas Utility	1,030				100.00%
17	4301-6102	Electric Utility	64,155		95.00%		5.00%
18	4301-6103	Water Utility	2,987				100.00%
22	4301-6206	Contractual Services	2,737,200	100.00%			
23	4301-6207	Equipment Replacement Charge	82,644		100.00%		
24	4301-6208	Dues & Subscriptions	1,030				100.00%
25	4301-6211	Insurance & Bonds	317,343				100.00%
26	4301-6212	Laundry & Cleaning	6,180				100.00%
28	4301-6214	Professional & Technical	20,600				100.00%
29	4301-6215	Repairs & Maintenance	236,900		100.00%		
30	4301-6217	Software Maintenance	3,090				100.00%
31	4301-6219	Network Operating Charge	3,502				100.00%
32	4301-6223	Training & Education	2,884				100.00%
33	4301-6224	Vehicle Operating Charge	16,480				100.00%
35	4301-6253	Postage	20,600			100.00%	
36	4301-6254	Telephone	12,360				100.00%
37	4301-6286	General Admin Charges	409,811				100.00%
38	Misc. Revenue		(261,015)				100.00%
39	**Total: O&M**		$4,761,101	$ 2,737,200	$ 1,267,294	$ 118,859	$ 637,748

Table 8-3: Allocating FY 2021 Capital Costs to Functions

	Assets	Test Year Amount	Treatment	Collection	Billing	General
	(A)	(B)	(C)	(D)	(E)	(F)
1	Wastewater Pipes	$ 120,000,000		100.00%		
2	Wastewater Pump Stations	$ 30,000,000		100.00%		
3	**Total: Assets**	$ 150,000,000	$ -	$ 150,000,000	$ -	$ -
4	% Allocation		0.00%	100.00%	0.00%	0.00%
	Capital Costs					
5	Transfer to Capital Fund	150,000	0.00%	100.00%	0.00%	0.00%
6	Contribution to Reserves	(114,642)	0.00%	100.00%	0.00%	0.00%
7	Mid Year Adjustment	101,096	0.00%	100.00%	0.00%	0.00%
8	**Total: Capital Costs**	$ 136,454	$ -	$ 136,454	$ -	$ -

8.1.3 ALLOCATION TO COST COMPONENTS

Tables 8-4 and 8-5 show the allocation of functionalized O&M and capital costs to the appropriate cost components. Billing costs are recovered on an equal basis from each customer, while collection costs are allocated based on volume. General costs are allocated proportionally between volume and bills.

Treatment costs are only allocated to customers on the west side whose wastewater is treated by the City of Los Angeles. Costs are allocated between volume, Biochemical Oxygen Demand (BOD), and Total Suspended Solids (TSS) based on a detailed analysis of the City's 2020 revenue requirement from Los Angeles, presented in Table 8-6. These charges are based on the strength, distance, and total volume of wastewater sent by El Segundo for treatment. Row 1 of Table 8-6 presents the rates charged by the City of Los Angeles. The charges on row 4 are derived by applying the rates to the units on row 6 are used in Table 8-4 to allocate treatment costs to the cost components.

Table 8-4: Allocation of Functionalized O&M to Cost Components

	Function	Total	All		West Only		
			Volume	Bills	Volume	BOD	TSS
	(A)	(B)	(C)	(D)	(E)	(F)	(G)
1	Treatment	$ 2,737,200			35.19%	36.53%	28.29%
2	Collection	1,267,294	100.00%				
3	Billing	118,859		100.00%			
4	General	637,748	583,063	54,685			
5	**Total: O&M**	$ 4,761,101	$ 1,850,357	$ 173,544	$ 963,168	$ 999,774	$ 774,258

Table 8-5: Allocation of Functionalized Capital Costs to Cost Components

	Function	Total	All		West Only		
			Volume	Bills	Volume	BOD	TSS
	(A)	(B)	(C)	(D)	(E)	(F)	(G)
1	Treatment	$ -					
2	Collection	136,454	100.00%				
3	Billing	-					
4	General	-	-	-	-	-	-
5	**Total: Capital**	$ 136,454	$ 136,454	$ -	$ -	$ -	$ -

Table 8-6: City of Los Angeles Charges

	City of LA WW Bill	Flow Distance	Flow	BOD	SS	Total
	(A)	(B)	(C)	(D)	(E)	(F)
1	Rates	$21,954.00	$ 1,347.66	$ 377.15	$ 272.49	
2	Daily Units		1.399	5.189	5.562	
3	Annual Units	0.406	511	1,894	2,030	
4	Charge	$ 8,913	$ 688,162	$ 714,316	$ 553,190	$1,964,582
5	% Allocation	0.45%	35.03%	36.36%	28.16%	
6	Reallocation		35.19%	36.53%	28.29%	

8.1.4 UNITS OF SERVICE

Table 8-7 summarizes the wastewater units of service. Volume in column B is derived by assuming each customer contributes at least 9 Ccf per month to the wastewater system and accounting for all usage above 9 Ccf by larger customers. The total also includes assumed ADU usage at 4 Ccf per month for 90 units. Bills in column C equal the number of accounts for each class, multiplied by the number of bills received each year. Pounds of BOD and TSS are derived in Table 8-8.

Table 8-7: Wastewater Units of Service

	Customer Class	All		West Only		
		Volume	Bills	Volume	BOD	TSS
	(A)	(B)	(C)	(D)	(E)	(F)
1	SFR	327,672	35,928	327,672	489,286	564,561
2	MFR	275,241	10,212	275,241	410,995	474,225
3	Commercial (West)	145,076	3,792	145,076	549,907	549,907
4	Commercial (East)	314,521	2,352			
5	Industrial (West)	62,907	2,532	62,907	289,027	289,027
6	Industrial (East)	346,898	1,704			
7	Institutional (West)	23,922	708	23,922	35,721	41,216
8	Institutional (East)	14,625	72			
9	**Total:**	1,510,862	57,300	834,818	1,774,936	1,918,937

Raftelis conducted a mass balance to estimate the wastewater strengths and loadings of each customer class. Plant totals on line 8 are known based on the bill provided by the City of Los Angeles. If 10% of this total is due to inflow and infiltration (I&I) it suggests that retail customers contribute 614,000 Ccf of wastewater. This implies that approximately 26% of billed wastewater in column D of Table 8-7 did not return to the plant. This amount is

subtracted from the volumes in Table 8-7 to provide the volumes in Table 8-8, column B. Raftelis used industry standard wastewater strengths (mg/l) for each class in columns D and F. The loadings in pounds in columns E and G are the results of applying the strength concentrations to the volumes of wastewater treated.

Table 8-8: Wastewater Strength

	Customer Class		Volume Ccf	Volume MG	BOD Strength	BOD Loading	TSS Strength	TSS Loading
	(A)		(B)	(C)	(D)	(E)	(F)	(G)
1	SFR	327,672	241,157	180.4	325	489,286	375	564,561
2	MFR	275,241	202,569	151.5	325	410,995	375	474,225
3	Commercial (West)	145,076	106,771	79.9	825	549,907	825	549,907
4	Industrial (West)	62,907	46,298	34.6	1,000	289,027	1,000	289,027
5	Institutional (West)	23,922	17,606	13.2	325	35,721	375	41,216
6	**Subtotal:**	834,818	614,400	459.6	2,800	1,774,936	2,950	1,918,937
7	**I&I**		68,267	51.1	280	119,049	261	111,193
8	**Plant Total**		682,667	510.6	445	1,893,985	477	2,030,130
9	**Return Factor**		-26.40%					

8.1.5 COST DISTRIBUTIONS

Table 8-9 shows a summary of the costs calculated in Tables 8-4 and 8-5 as well as the total units in Table 8-7. The unit costs on row 5 are calculated by dividing the cost on row 3 by the units of service on row 4. These unit costs are used in Table 8-10 to distribute costs to each class by multiplying them by each class's units of service from Table 8-7. For example, the SFR allocation of volume costs of $403,895 is the result of multiplying 1.32 by 327,672.

Table 8-9: Unit Cost Calculation

	Cost Center	All Volume	All Bills	West Only Volume	West Only BOD	West Only TSS
	(A)	(B)	(C)	(D)	(E)	(F)
1	O&M	$ 1,850,357	$ 173,544	$ 963,168	$ 999,774	$ 774,258
2	Capital	136,454	-	-	-	-
3	**Total: Cost**	$ 1,986,811	$ 173,544	$ 963,168	$ 999,774	$ 774,258
4	**Units of Service**	1,510,862	57,300	834,818	1,774,936	1,918,937
5	**Unit Cost**	$ 1.32	$ 3.03	$ 1.15	$ 0.56	$ 0.40

Table 8-10: Customer Class Allocations

	Customer Class	Total	All		West Only		
			Volume	Bills	Volume	BOD	TSS
	(A)		(B)	(C)	(D)	(E)	(F)
1	SFR	$ 1,421,152	$ 430,895	$ 108,815	$ 378,050	$ 275,602	$ 227,790
2	MFR	1,133,278	361,947	30,929	317,558	231,502	191,342
3	Commercial (West)	901,269	190,778	11,485	167,381	309,748	221,878
4	Commercial (East)	420,724	413,601	7,123			
5	Industrial (West)	442,390	82,724	7,669	72,579	162,801	116,618
6	Industrial (East)	461,338	456,177	5,161			
7	Institutional (West)	97,953	31,458	2,144	27,600	20,121	16,630
8	Institutional (East)	19,450	19,232	218			
9	**Total:**	$ 4,897,555	$ 1,986,811	$ 173,544	$ 963,168	$ 999,774	$ 774,258

8.1.6 WASTEWATER RATE CALCULATION

Table 8-11 presents the derivation of the proposed wastewater rates. The treatment cost in column C is the sum of columns D to F in Table 8-10, which is divided by the volume in column B to provide a unit rate in column E. The collection rate in column F is calculated by dividing the collection cost for each class in column D by the volumes. All customers pay the same rate for collection. These rates are added in column G to provide a total volumetric rate. The rate is multiplied by 9 Ccf, as discussed in Section 7.1, and added to the monthly billing cost that was calculated in row 5, column C of Table 8-9.

The result in column J, line 1, is the monthly bill that all single-family residential customers will receive. Column J also presents non-residential customers' monthly minimums. These customers will also pay the volumetric rate in column G for each Ccf over 9.

Monthly rates for ADUs, shown in Table 8-12, are derived by multiplying the single family residential volume rate in column G by 4 Ccf.

Table 8-11: Wastewater Rate Calculation

	Customer Class	Volume	Treatment Cost	Collection Cost	Treatment Unit Rate	Collection Unit Rate	Total Volume Rate	9 Ccf Minimum	Monthly Bill Cost	Monthly Minimum
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
1	SFR	327,672	$ 881,442	$ 430,895	2.69	1.32	$ 4.01	$ 36.05	$ 3.03	$ 39.07
2	MFR	275,241	740,402	361,947	2.69	1.32	4.01	36.05	3.03	39.07
3	Commercial (West)	145,076	699,007	190,778	4.82	1.32	6.13	55.20	3.03	58.23
4	Commercial (East)	314,521		413,601		1.32	1.32	11.84	3.03	14.86
5	Industrial (West)	62,907	351,998	82,724	5.60	1.32	6.91	62.19	3.03	65.22
6	Industrial (East)	346,898		456,177		1.32	1.32	11.84	3.03	14.86
7	Institutional (West)	23,922	64,351	31,458	2.69	1.32	4.01	36.05	3.03	39.07
8	Institutional (East)	14,625		19,232		1.32	1.32	11.84	3.03	14.86
		1,510,862	$ 2,737,200	$ 1,986,811						

8.1.7 FIVE YEAR PROPOSED WASTEWATER SERVICE RATES

Table 8-12 shows the proposed 5-year rates for all customer classes. The out-year rates are derived by escalating the rates from Table 8-11 by the revenue adjustments from Table 7-6. All rates are rounded up to the nearest whole penny.

Table 8-12: Proposed Five-Year Wastewater Service and Usage Charges

Minimum Charge Includes 9 Ccf*	Current 2020	April 1 2021	Jan 1 2022	Jan 1 2023	Jan 1 2024	Jan 1 2025
SFR	$ 23.23	$ 39.07	$ 42.60	$ 46.65	$ 51.09	$ 55.95
MFR	38.04	39.07	42.60	46.65	51.09	55.95
Institutional West	21.98	39.07	42.60	46.65	51.09	55.95
Commercial West	26.88	58.23	63.47	69.50	76.11	83.35
Industrial West	22.87	65.22	71.10	77.86	85.26	93.36
Non-Res East	7.26	14.86	16.21	17.75	19.44	21.29
ADU		16.02	17.47	19.13	20.95	22.95

Volumetric (per Ccf) Usage above 9	Current 2020	April 1 2021	Jan 1 2022	Jan 1 2023	Jan 1 2024	Jan 1 2025
SFR	$ 0.73	N/A				
MFR	0.91	4.01	4.37	4.79	5.25	5.75
Institutional West	0.91	4.01	4.37	4.79	5.25	5.75
Commercial West	1.04	6.13	6.69	7.33	8.03	8.80
Industrial West	1.04	6.91	7.54	8.26	9.05	9.91
Non-Res East	1.04	1.32	1.44	1.58	1.74	1.91

8.1.8 SINGLE FAMILY RESIDENTIAL WASTEWATER BILL IMPACTS

Table 8-13 shows a residential wastewater bill at various levels of usage under the proposed rates.

Table 8-13: Proposed Residential Wastewater Bills

Residential Monthly Sewer Bill Impacts				Dollar
Meter Size	Ccf	2020	2021	Change
5/8" and 3/4"	9	29.80	39.07	9.27
5/8" and 3/4"	10	30.53	39.07	8.54
5/8" and 3/4"	16	34.91	39.07	4.16
5/8" and 3/4"	30	50.97	39.07	(11.90)
1"	40	60.65	39.07	(21.58)

9. Rate Comparison

The following tables present a comparison of a 10 Ccf bill in El Segundo in 2020 and 2021 to equivalent bills in several comparable communities in 2020. The City's current rates are lower than many others and continue to compare favorably in the future.

Table 9-1: Water Bill Comparison

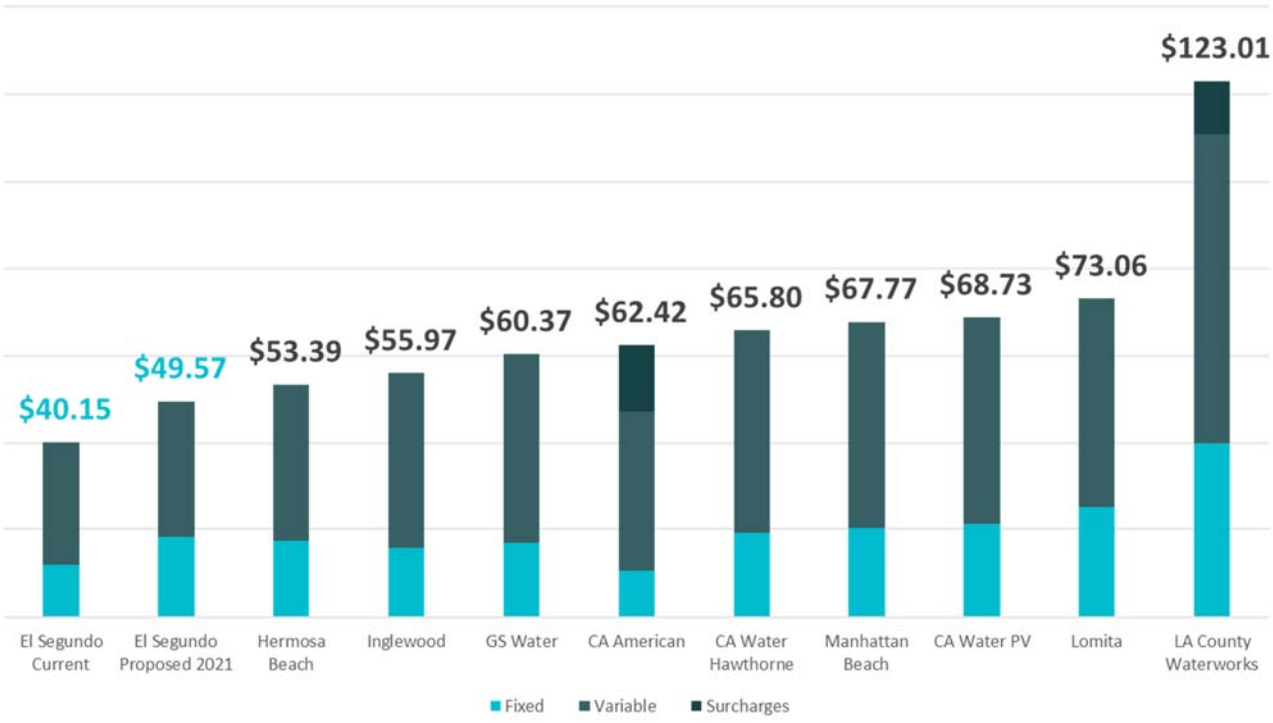


Table 9-2: Wastewater Bill Comparison

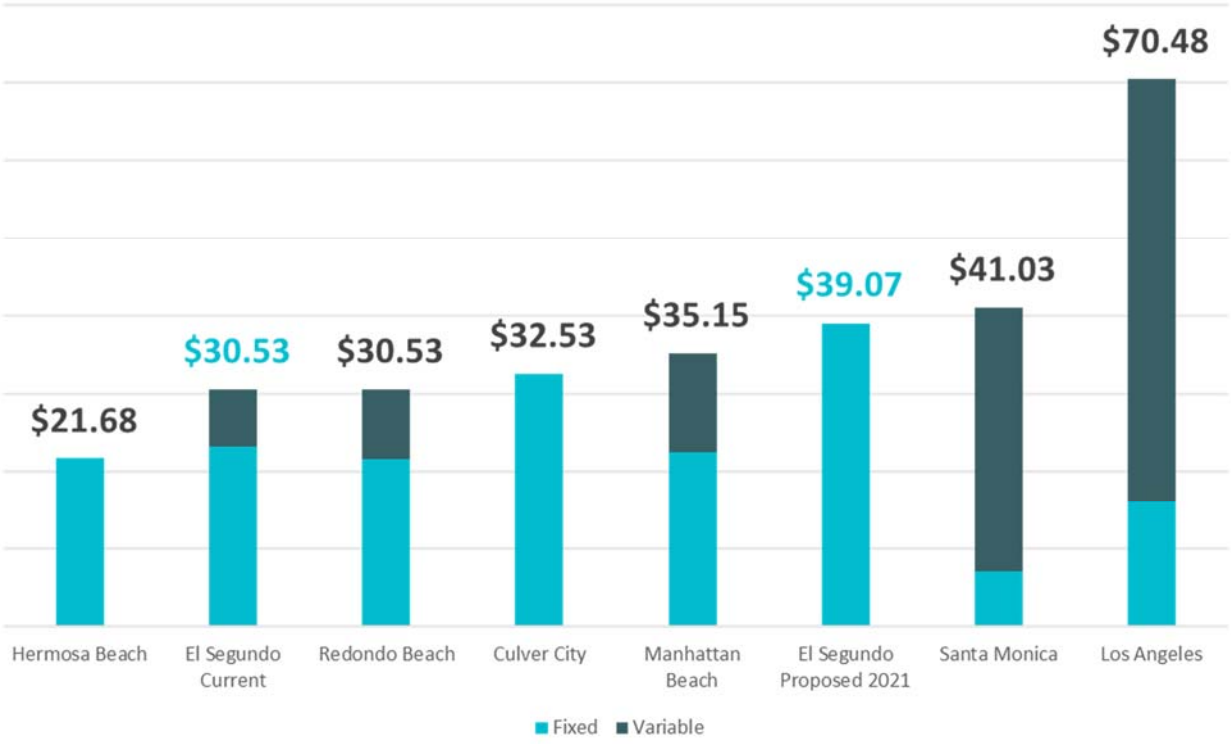


Table 9-3: Combined Bill Comparison