CITY OF

San Diego

Water Financial Plan, Cost of Service, and Rate Study

Report / July 8, 2025

RAFTELIS

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July 8, 2025

Ms. Lisa Celaya
Executive Assistant Director
City of San Diego
9192 Topaz Way
San Diego, CA 92123

Subject: Water Financial Plan, Cost of Service, and Rate Study Report

Dear Ms. Celaya,

Raftelis is pleased to provide this Water Financial Plan, Cost of Service, and Rate Study Report (Report) for the City of San Diego (City).

The major objectives of the study include the following:

- Develop a financial plan forecast which maintains the financial health of the water utility. This forecast was developed to ensure that revenue from rates and other sources meet annual operating expenses, payments on existing and proposed debt service, provide funding for the capital improvement program, and satisfies debt service coverage and reserve targets.
- Develop a comprehensive cost of service analysis which determines the cost to provide water service to each of the City's customer classes.
- Develop cost of service based rates which meet the City's policy objectives and comply with legal and statutory requirements.
- Update the rate model developed previously and in use by the City.

The Report summarizes the key findings and recommendations related to the development of the financial plan for the water utility, the cost-of-service analysis and the development of the water rates.

It has been a pleasure working with you, and we thank you and City staff for the support provided during the course of this study.

Sincerely,

Todd Cristiano

Todd Cristiano
Vice President

383 Corona Street
Denver, CO 80218
www.raftelis.com

Table of Contents

List of Tables

GLOSSARY

AF, or Acre-Feet, is a volumetric unit of measure commonly used in the water industry. One AF is approximately 435.6 HCF or 325,851 gallons.

AWWA is the American Water Works Association, the largest professional association for water utility industry professionals.

Cost drivers are measurable design criteria, operational purposes, service purposes, or customer requirements that predominantly influence the size and annual operating and capital costs of the cost center.

Cost-of-service rates refer to rates developed using industry-accepted cost-allocation approaches to price water utility service in a manner that is reflective of the demands placed on the system by varying types of customers.

Customer demands are the annual water flow, maximum day water demand, and maximum hour water demand. They also include customer service-related demands such as meter reading and billing and collection. These factors measure how customers affect the utility's cost drivers.

Functions refer to various activities the utility must carry out in order to provide water service. Functions include obtaining untreated water, treating water, delivering water, maintaining customer connections, providing billing services, and other administrative overhead necessary to operate the utility.

HCF, or one hundred cubic feet, is the volumetric unit of measure the utility uses to bill water use. One HCF is approximately 748 gallons.

M1 Manual is the industry guidebook developed by the AWWA that describes various rate setting principles, including the Base-Extra Capacity Methodology.

Executive Summary

Introduction

The City of San Diego (City) retained Raftelis to conduct a comprehensive financial planning, cost of service, and rate design study for its water utility. The City's overall objectives for this study included:

- Develop a multi-year financial plan for FY 2026 through FY 2029 (Study Period)[1], for the Water Fund to ensure that revenues from rates, fees, and charges are sufficient to cover annual operating expenses, the capital improvement program net of bond and loan proceeds and meet the City's reserve and debt service coverage requirements.
- Undertake a comprehensive cost of service analysis for the water utility to determine the costs of serving the various customer classes for the Study Period.
- Design rates for the Study Period which reflect the cost of serving each customer class.
- Update the previously developed comprehensive rate model used for the City's future financial planning and rate analysis.
- Comply with the provisions of Proposition 218, Proposition 26, California Government Code Section 66013, and other regulatory requirements.
- Provide appropriate education and public outreach to the City Council, the general public, and other stakeholders to ensure successful implementation of current and future rate cases.

Where appropriate, Raftelis applied industry best practices of cost causation methodologies supported by the American Water Works Association (AWWA) *Manual M1: Principles of Water, Rates, Fees, and Charges (7th Edition)* in the development and design of the proposed water rates.

Study Findings and Conclusions

FINANCIAL PLAN

Projected water sales revenues at existing rates will be inadequate to meet the water utility's revenue requirements throughout the Study Period. Table 1 presents the recommended rate revenue adjustments necessary to meet the forecasted revenue requirements. These adjustments are required to pay for future water utility operating expenses, fund the capital improvement program, provide adequate reserves, and satisfy debt service coverage requirements throughout the Study Period. In addition, rate revenue should be sufficient to fund the cost of water purchased from the San Diego County Water Authority (SDCWA), the City's wholesale water provider. The increases necessary to cover SDCWA costs are shown below as "Pass-Through" increases.

[1] The City's financial operations are reported on a fiscal year basis for the 12 month period July 1 through June 30 and noted in this report as FY.

Table 1: Projected Rate Revenue and CWA Water Pass-Through Adjustments

Description	FY 2026	FY 2027	FY 2028	FY 2029
City Required Increase	1.1%	3.1%	8.0%	5.4%
Projected Water Purchases Pass-Through Increase	13.6%	11.4%	3.5%	5.6%
Total Annual Increase	**14.7%**	**14.5%**	**11.5%**	**11.0%**
Compounded Increase	**14.7%**	**31.3%**	**46.4%**	**62.5%**

COST-OF-SERVICE ANALYSIS

The total revenue requirements to be derived from charges for water service are synonymous with the definition of the costs of service. The development of proportional charges for utility service requires the allocation of the costs of service to each of the City's various customer classes in a manner reflecting the respective service requirements of each class. Water utility service requirements recognized in the allocation of the costs of service include volume of water used, maximum demands of water usage expressed in terms of maximum day and maximum hour demands, the number and size of water meters, and the number of customer bills.

The cost-of-service analysis presented in this study distributes the Test Year[2] revenue requirement to each of the customer classes based on the principle of proportionality of costs. This fundamental concept asserts that costs should be assigned to each customer class according to their demands placed on the system and the utility infrastructure and associated cost required to meet those demands. This principle ensures that rates are proportional and aligned with the utility's operational and financial circumstances.

The cost of service by customer class is shown in Table 2 for the Test Year FY 2026. This table compares revenue under cost of service-based rates to the projected revenues by customer class under the City's recently enacted pass-through rate increase effective May 1, 2025. As indicated, the cost-of-service analysis reflects a shifting of costs among the customer classes resulting from the changes in cost components and customer class usage characteristics from the prior cost of service study. Overall, the total revenue required to provide services has increased by 14.7% (as indicated in Table 1), although the unique class impacts are higher or lower than the average depending on the service requirements of the class.

Table 2: Cost of Service Summary

Customer Class	FY 2026 Revenue at May 2025 Rates		FY 2026 Cost of Service		Percent Change in Revenue
	Revenue	Percent	Revenue	Percent	
Single Family	$269,438,170	37.7%	$316,272,926	38.6%	17.4%
Multi-Family	$179,559,323	25.1%	$208,986,025	25.5%	16.4%
Commercial	$171,516,501	24.0%	$193,072,078	23.6%	12.6%
Irrigation	$84,505,024	11.8%	$91,582,158	11.2%	8.4%
Temp Construction	$3,908,057	0.5%	$4,543,969	0.6%	16.3%
Private Fire Protection	$5,445,042	0.8%	$4,927,664	0.6%	-9.5%
Total	**$714,372,118**	**100.0%**	**$819,384,820**	**100.0%**	**14.7%**

[2] Test Year refers to the year selected in the financial plan to develop cost of service and design rates. The Test Year for this report is FY 2026, as it is the first year of the study period and the first year for which the City has not yet adopted rates.

RATE DESIGN

The City has categorized its water customers into the following customer classes which have been used in this study:

- Single family residential
- Multi-family residential
- Commercial/industrial/outside City
- Irrigation
- Temporary construction meters
- Private fire protection.

The development of proportional charges for utility service requires the allocation of the costs of service to each of the City's various customer classes in a manner reflecting the respective service requirements of each class. This grouping into customer classes supports the allocation of costs in a more accurate manner and determination of proportional water rates. In addition, the class groupings reduces potential variability in annual changes to individual rate structures and more accurately ties the rate structures to the water service provided to parcels without unnecessary complexity which would lead to diminishing returns of accuracy. [3]

Most of the City's customers are billed bimonthly with a small number billed monthly. The City's current rate structure consists of a meter base fee which varies by water meter size and a volume rate which varies by class. The single-family residential volume rate is a 3-tiered structure. The other classes have a uniform volume rate which varies by class. Tables 3 through 5 present a comparison of the City's current rates to the proposed cost-of-service rates for the study period. The meter base fees shown are monthly. The bimonthly meter base fee is twice the monthly amount. The tier breakpoints for bimonthly single-family volume rates are double the monthly tier break points. For example, tier 1 for a customer billed monthly is 0 to 5 hundred cubic feet (HCF). The tier 1 breakpoint for a bimonthly single-family customer is 0 to 10 HCF or two times the monthly threshold.

Table 3: Comparison of Current and Proposed Meter Base Fees
FY 2025 – FY 2029
$ per month

Meter Size	FY 2025 [1]	FY 2026	FY 2027	FY 2028	FY 2029
Effective:	May 2025	Jan. 2026	Jan. 2027	Jan. 2028	Jan. 2029
5/8", 3/4"	$28.84	$35.53	$40.69	$45.37	$50.37
1"	$46.63	$56.83	$65.08	$72.57	$80.56
1.5"	$91.07	$110.10	$126.07	$140.57	$156.04
2"	$144.42	$174.02	$199.26	$222.18	$246.62
3"	$331.14	$397.73	$455.41	$507.79	$563.65
4"	$553.42	$664.05	$760.34	$847.78	$941.04
6"	$1,282.49	$1,537.58	$1,760.53	$1,963.00	$2,178.93
8"	$1,967.13	$2,357.85	$2,699.74	$3,010.22	$3,341.35
10"	$3,736.49	$4,477.77	$5,127.05	$5,716.67	$6,345.51
12"	$4,714.53	$5,649.59	$6,468.79	$7,212.71	$8,006.11
16"	$6,937.35	$8,312.81	$9,518.17	$10,612.76	$11,780.17

[1] Rates adopted March 4, 2025 and effective May 1, 2025.

[3] Customer class service parameters include average, maximum day and maximum hour demands, number of customers, and number of equivalent ¾" meters.

Table 4: Comparison of Current and Proposed Volume Rates
FY 2025 – FY 2029
$ per HCF

Customer Class	FY 2025 [1]	FY 2026	FY 2027	FY 2028	FY 2029
Effective:	May 2025	Jan. 2026	Jan. 2027	Jan. 2028	Jan. 2029
Single Family					
0 to 10 hcf	$7.34	$8.51	$9.75	$10.88	$12.08
11 to 22 hcf	$8.31	$9.50	$10.88	$12.14	$13.48
Above 22 hcf	$10.46	$11.89	$13.62	$15.19	$16.87
Multi-Family	$8.62	$9.96	$11.41	$12.73	$14.14
Commercial	$8.41	$9.36	$10.72	$11.96	$13.28
Irrigation	$9.89	$10.55	$12.08	$13.47	$14.96
Temp Construction	$9.48	$10.88	$12.46	$13.90	$15.43

[1] Rates adopted March 4, 2025 and effective May 1, 2025.

Table 5: Comparison of Current and Proposed Private Fire Service Fees
FY 2025 – FY 2029
$ per month

Fireline Size	FY 2025 [1]	FY 2026	FY 2027	FY 2028	FY 2029
Effective:	May 2025	Jan. 2026	Jan. 2027	Jan. 2028	Jan. 2029
1"	$2.66	$4.01	$4.60	$5.13	$5.70
1.5"	$3.61	$4.85	$5.56	$6.20	$6.89
2"	$5.27	$6.30	$7.22	$8.06	$8.95
3"	$11.19	$11.50	$13.17	$14.69	$16.31
4"	$21.38	$20.47	$23.44	$26.14	$29.02
6"	$57.97	$52.66	$60.30	$67.24	$74.64
8"	$121.11	$108.19	$123.88	$138.13	$153.33
10"	$216.06	$191.72	$219.52	$244.77	$271.70
12"	$347.67	$307.48	$352.07	$392.56	$435.75
16"	$738.45	$651.20	$745.63	$831.38	$922.84
20"	$1,326.26	$1,168.24	$1,337.64	$1,491.47	$1,655.54

[1] Rates adopted March 4, 2025 and effective May 1, 2025.

Introduction

Water Utility Overview

The City's water system serves the City and the cities of Del Mar, Coronado, and Imperial Beach, providing water to both retail and wholesale customers. The water system's service area covers 404 square miles, including 325 square miles of the City, and serves a population of approximately 1.4 million people.

In order to provide service to these customers, the City operates 9 raw water storage reservoirs, 3 water treatment plants, 29 treated water storage facilities, and approximately 3,300 miles of transmission and distribution lines. The distribution system includes 384 pressure regulation stations and 49 pumping stations in order to maintain proper water pressure in 130 different pressure zones.

Water enters the City's system when it is purchased from the San Diego County Water Authority (SDCWA). At this stage, the water has not yet been treated. Much of this raw water is pumped directly to the City's water treatment plants. Some water is also stored in reservoirs, which generally store sufficient water to meet the City's needs for 6 months and provide flexibility in determining the amount of water to purchase from SDCWA any given year. Raw water is treated to potable drinking water standards at one of the City's water treatment plants. Treated water is then transferred to the distribution system and treated water storage facilities. Storage facilities are placed around the City in order to provide a sufficient quantity of water on demand locally without requiring the treatment plants to rapidly scale production up and down throughout the day. Water is transported through the transmission and distribution system via gravity and pump stations before finally being delivered to a retail service connection.

The design, construction, and continuing operation of all of these facilities are considered in the cost of service study and resulting rates. The water system must be designed such that each component is able to supply all of the water required at any given time, including on the highest demand day of the year. This means that most facilities are designed with a higher capacity than is directly utilized on most days. Larger, higher capacity components are more expensive to build and operate but are necessary to maintain reliable year-round service. If the City only had to design the water system to meet lower, average demands, the system would be much less costly to build and operate. The Base-Extra Capacity cost of service methodology focuses on this incremental difference between a smaller water system that could meet demand on most days and a larger water system needed to meet demand on every day and is well suited to reflecting the City's system and the cost to operate it.

The City, through its Public Utilities Department (PUD), operates the water system as a self-supporting enterprise, with revenues and expenditures accounted for separate and apart from the City's General Fund and other enterprises. The City and PUD are tasked to protect the long-term interests of water customers with respect to rate pricing, service quality and reliability of essential services, including system reliability during instances of highest possible demand. To achieve this objective, the PUD must consider the need for the water system to remain financially viable while providing safe, and secure water services to its consumers in a reliable and sustainable manner. Promoting economic efficiency and long-term investment in the water system infrastructure and facilities are factors that the PUD must consider in system planning, operations and ratemaking.

Report Organization

This report contains the following sections:

- ***Executive Summary***. Summarizes the study results for the water financial plan, cost of service analysis and rate design.
- ***Introduction and Background***. Provides an overview and purpose of the study as well as key components of the study process.
- ***Financial Plan***. Details the development of the financial plan, discussion of operating expenses, capital expenditures, debt service, reserve requirements, debt service coverage, and additional bonds test requirements.
- ***Cost of Service Analysis***. Details the process for functionalizing, allocating, and distributing the revenue requirement to customer classes.
- ***Rate Design***. Details the process for allocating the revenue requirement allocated to each class to the meter base fee and volumetric rate to calculate the rates for each customer class, including the calculation of the tiered volumetric rates for the single-family residential customer class.

The City's financial operations are reported on a fiscal year basis. The fiscal years are the twelve-month periods ending June 30 of each year. In this report the fiscal years are shown as FY XXXX.

Rate Setting Process

The rate setting process involves three steps: first, a revenue requirement is established that represents the total level of revenue required to provide water service, that is, to recover the utility's necessary operating and capital expenditures; second, this revenue requirement is attributed to customer classes based on the design and operation of the water system and the service demands placed on that system by customer classes; finally, rates are designed which recover cost of service by allocating the proportional cost of the services attributable to the parcels in that customer class.

Proposition 218 requires that water service charges be proportional to the cost of service attributable to each parcel. While it is not technically or economically feasible to determine and allocate costs at the individual parcel level in a networked utility system, the City meets this requirement by grouping parcels into customer classes with similar service characteristics. These classes reflect key cost drivers—such as usage volume, peak demand, and meter size—which are then used to allocate costs proportionally among classes. Rates are designed so that each parcel within a class pays in proportion to its actual usage and meter size, providing a reasonable and practical means of recovering system costs in a manner consistent with the parcel's impact on the system.

REVENUE REQUIREMENTS

The revenue requirements analysis determines the overall level of revenue required to provide water service, including ensuring that sufficient revenues will be available to support the utility's required operating and capital costs. The methodology used in the study to establish the revenue requirement is consistent with industry practice as established by the American Water Works Association (AWWA) in the Seventh Edition of the *Manual of Water Supply Practices M1, Principles of Water Rates, Fees, and Charges.* This methodology involves developing a multi-year financial plan, which identifies the revenue requirement in each year of the study period. The revenue requirements of the water utility are derived from the financial plan discussed in the following section. The revenue requirement from a single year, or Test Year, is then used as the basis for the cost-of-service analysis and rate design.

COST OF SERVICE ANALYSIS

The second step of the rate setting process, the cost-of-service analysis, attributes the total revenue requirement to customer classes based on each class's use of the water system. Each customer class places a different level of demand on the system – demands that the City's water system is designed and operated to meet. Customer class demands are cost drivers; the cost-of-service analysis establishes the nexus between how the system is designed and operated and how different types of customers are using the system. The cost of service analysis involves three primary steps: *cost functionalization*, which relates the revenue requirement to the major operating functions of the water system; *cost allocation*, which relates these functional costs to demand components which represent the types of demand that drive these functional costs; and *cost distribution*, which attributes the allocated costs by demand component to each customer class in proportion to that class's share of demand.

The cost-of-service analysis involved analyzing the water usage characteristics of each customer class including a review of such matters as system operations and water usage data—e.g., capacity (maximum day and maximum hour demands)[4], commodity (average day demand), number of customers, water meter size, and public fire protection services[5]. Historical data on maximum day and maximum hour water usage is used to inform the allocation of costs associated with system capacity and reliability. However, accurately predicting future peak demands is inherently uncertain due to the influence of variable and evolving weather patterns, customer behavior, and other external factors. As a result, future peak usage is estimated based on historical trends, adjusted for expected growth and climate considerations. This approach supports a prudent and defensible rate structure while recognizing the limitations of forecasting extreme demand events. The analysis includes examination of actual data, recognizing that each day is unique and future days will differ each and every day and therefore approximations of future trends are made from historical data. For example, the actual maximum hour demand on the water system will vary year to year and the system needs to be designed and sized to meet the expected demand, even if that demand doesn't occur in each of the years that are used to determine the parameters within this Cost of Service study. The impact that these matters have on system operations determined how the costs were allocated among the various customer classes. For example, the single family residential class uses a greater percentage of the City's customer support services than the percentage of water consumed by the single family residential class. By calculating the cost of service for each customer class in this step, we ensure that the rates calculated in the next step proportionately allocate the system's costs to the customer classes.

RATE DESIGN

As noted above, the financial plan determines the test year revenue requirement, and the cost-of-service analysis allocates the revenue requirement to customer classes. In the rate design step, we allocate cost of service to the monthly meter base fee and volumetric charge for each customer class. For each customer class, the amount collected through the meter base fee and the volumetric rate(s) must equal the revenue requirement for the customer class.

Reliance on City Provided Data

During this project, the City (and/or its representatives) provided Raftelis with a variety of technical information, including cost and revenue data. Raftelis reviewed the data provided for reasonableness but did not independently assess or test for the accuracy of such data – historic or projected. Raftelis has relied on this data in the formulation

[4] The term "capacity " refers to the system's ability to supply water to all delivery points at the time when demanded. A system's facilities are built and operated at the size necessary to meet water demand at the time of the highest demand on the system -- a peak demand event. The costs to size the system to meet peak demand include operating and capital costs for facilities to meet peak demand, including treatment, storage, distribution and transmission costs. Both the operating costs and the capital assets-related costs for the system facilities sized to meet peak demand are allocated to each customer class based upon the class's projected peak demand.
[5] This refers to the need to increase the size of transmission and distribution lines to provide public fire protection requirements.

of our findings and subsequent recommendations, as well as in the preparation of this report. Raftelis also relied on cost allocation data provided by the City needed to complete the cost of service analysis.

There are often differences between actual and projected data. Some of the assumptions used for projections in this report will not be realized, and unanticipated events and circumstances may occur. Therefore, there are likely to be differences between the data or results projected in this report and actual results achieved, and those differences may be material. As a result, Raftelis takes no responsibility for the accuracy of data or projections provided by or prepared on behalf of the City, nor do we have any responsibility for updating this report for events occurring after the date of this report.

In conducting the cost-of-service analysis, Raftelis reviewed the books, records, agreements, capital improvement programs, customer sales, and financial projections for the City's water system. The documents, information and data were provided to the consultant by the City. Raftelis also conferred with City staff, including finance, planning, and engineering staff.

In the study, Raftelis made rate calculations using the best estimates of the City's expected costs, planned capital improvements, and future customer demands. Making such calculations in advance is normal for public water providers because providers need to recover revenue matched to public budgets adopted in advance of their fiscal periods. For this reason, and others, achieving mathematical exactitude in rate calculations is impossible. Instead, there are methods and techniques available to water providers that yield reasonable proportionality between the costs incurred to provide water service and the demand for that service. These methods and techniques are broadly referred to as "cost-of-service principles".

Financial Plan

Introduction

The City accounts for the operation of its water utility system through an enterprise fund known as the Water Utility Fund (Water Fund) that is managed by the Public Utilities Department. The Water Fund is a self-supporting enterprise fund. This means that the cost of annual water operations and maintenance (O&M) expenses, capital projects, debt service, and reserve requirements is met through cash inflows from water rates, capacity fees, miscellaneous revenues, and the proceeds from external debt financing. Some of the expenses incurred by the City of San Diego to provide recycled water service are also included in water utility expenses.

The water system operates in an area subject to strict regulatory oversight by Federal and State agencies such as the U.S. Environmental Protection Agency (USEPA), California Division of Drinking Water (DDW), California Department of Public Health (DPH), and the San Diego County Air Pollution Control District. The water system must comply with a multitude of laws including, but not limited to, the Safe Drinking Water Act. Complying with these regulations and resulting mandates contributes to a large share of the cost burden on the system.

May 2025 Pass-through Increase

Near the end of FY 2024, the City became aware that the SDCWA intended to significantly increase rates for wholesale purchased water in FY 2025. Although the City had accounted for a rate increase from SDCWA when developing FY 2025 retail water rates in 2023, the increase imposed by SDCWA was larger than expected. The City's cost to purchase water from January 1 through June 30 of 2025 will now be approximately $7.9 million higher than under the previously expected wholesale rates; therefore, the City implemented an additional pass through rate increase of 5.5% effective in May 2025. Table 6 provides a summary of the rates implemented July 1 2024, the rates implemented January 1, 2025, and the current rates as of May 1, 2025.

Table 6: FY 2025 Rates

Description	Historical July 2024	Historical Jan. 2025	Current May. 2025
Fixed Charge (per month)			
5/8", 3/4"	$25.15	$27.33	$28.84
1"	$40.66	$44.19	$46.63
1.5"	$79.43	$86.32	$91.07
2"	$125.97	$136.89	$144.42
3"	$288.83	$313.87	$331.14
4"	$482.71	$524.56	$553.42
6"	$1,118.64	$1,215.63	$1,282.49
8"	$1,715.80	$1,864.57	$1,967.13
10"	$3,259.10	$3,541.69	$3,736.49
12"	$4,112.18	$4,468.74	$4,714.53
16"	$6,051.01	$6,575.68	$6,937.35
Fire Service Fees (per Month)			
1"	$2.32	$2.52	$2.66
1.5"	$3.15	$3.42	$3.61
2"	$4.59	$4.99	$5.27
3"	$9.75	$10.60	$11.19
4"	$18.64	$20.26	$21.38
6"	$50.56	$54.94	$57.97
8"	$105.63	$114.79	$121.11
10"	$188.45	$204.79	$216.06
12"	$303.25	$329.54	$347.67
16"	$644.10	$699.95	$738.45
20"	$1,156.81	$1,257.11	$1,326.26
Volume Rates (per hcf)			
Single Family			
0 to 10 hcf	$6.40	$6.95	$7.34
11 to 22 hcf	$7.24	$7.87	$8.31
Above 22 hcf	$9.12	$9.91	$10.46
Multi-Family	$7.52	$8.17	$8.62
Commercial	$7.33	$7.97	$8.41
Irrigation	$8.62	$9.37	$9.89
Temp Construction	$8.26	$8.98	$9.48

Financial Plan and Revenue Requirement

For the first step in the study, we analyzed the water system's past revenues and projected expenses to determine the total revenue requirement for the water system in the test year. The total revenue requirement is the total receipts that the City must recover from its rates to pay for the costs of providing water service to its customers, including all operating, capital, debt and reserve expenditures during the test year. In preparing the financial plan and calculating the total revenue requirement, Raftelis reviewed the books, records, agreements, capital improvement programs, debt and reserve policies, customer sales, and financial projections for the City's water system.

For the purposes of this study, water utility financial information has been subdivided into two primary sub-funds; operating and capital. Separate financial forecasts have been made for the operating and capital sub-funds for the study period to determine the adequacy of revenues under existing rates to meet revenue requirements.

Operating Fund

The operating fund tracks financial activities associated with annual operating revenues and revenue requirements.

BEGINNING FUND BALANCE

The total beginning fund balance for FY 2026 is projected to be $227.8 million which consists of $121.6 million of operating reserves and $106.2 million of unrestricted reserves discussed later in this report.

REVENUES

Revenue of the water utility is derived primarily from water sales, which represent approximately 89% of total revenue. Annual revenue adjustments are set to meet both the City's needs and the pass-through of water purchase cost increases from the SDCWA over which the City has no control. The proposed rates are intended to recover these pass through expenses and expenses associated with the City's operational needs; however, if water purchase costs are greater than expected, the City may need to implement additional rate increases to recover pass-through costs which exceed these projections in order to ensure that City operations are not interrupted.

Other water sales include potable water sales to California American Water (CalAmerican) which Cal American resells to its customers and the sale of wholesale recycled water to three different wholesale accounts. Other operating revenue includes miscellaneous service charges, new water charges, property leases and rentals, and averages $16.6 million annually. Table 7 summarizes the annual sources of revenue for the Study Period.

Table 7: Revenue Summary ($ millions)

Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Rate Revenue					
Revenue from Existing Rates	$689.9	$714.4	$716.1	$717.9	$719.6
Revenue from Proposed Rate Adjustments	$0.0	$52.5	$164.8	$279.1	$392.1
Subtotal	**$689.9**	**$766.9**	**$881.0**	**$997.0**	**$1,111.8**
Non-Rate Operating Revenues					
Recycled Water/Pure Water Credits	$0.0	$0.0	$5.7	$11.4	$11.4
Other Water Sales	$42.3	$46.7	$49.1	$53.2	$57.5
Other Operating Revenues	$16.3	$16.7	$16.7	$16.7	$16.7
Subtotal	**$58.6**	**$63.4**	**$71.6**	**$81.4**	**$85.7**
Subtotal Non-Operating Revenues	$5.1	$21.4	$22.0	$12.6	$13.1
Interest Earning on Operating Fund	$6.0	$5.2	$4.5	$5.0	$8.2
Total Revenues	**$759.6**	**$856.9**	**$979.1**	**$1,096.0**	**$1,218.8**

REVENUE REQUIREMENTS

Revenue requirements of the water utility include operation and maintenance expenses (O&M), debt service on outstanding and projected revenue bonds and other borrowings, transfers to the capital improvement fund, and transfers to reserve funds.

Operation and Maintenance Expenses

O&M consists of the cost of personnel and materials to treat and distribute clean potable water that meets all state and federal requirements 100% of the time. Since these costs are an annual obligation of the water utility, they must be met from annual water sales revenue. Personnel costs consist of salaries and wages and fringe benefits and are projected to total $136.6 million in FY 2026. The study does not project for the potential impacts of any future Memorandum of Understandings (MOU) with Recognized Employee Organizations (REOs), except for the 3.05% assumed by the San Diego City Employees' Retirement System actuaries. Personnel costs average 36.5% of total non-water purchase O&M expenses over the Study Period.

Remaining O&M expenses include supplies, contracts, IT, energy and utilities, transfers out to other funds (which includes transfers to the Water Enterprise Asset Management Water Inventory and to record the cash impacts of asset transfers from other funds), capital expenses for equipment outlay, miscellaneous debt expenses such as bond-arbitrage rebate expenses and capital lease payments, and purchased water costs. Debt service obligations, including bond, commercial paper, State Revolving Fund loans (SRF Loans) and Water Infrastructure Finance Innovation Act (WIFIA) loan payments are not considered an O&M expense and are discussed in the following Debt Service section. Approximately half of the City's O&M expenses are to purchase water from SDCWA. These purchases are discussed in more detail below. Table 8 summarizes the O&M expenses for the Study Period.

Table 8: Operation and Maintenance Expense Summary ($ millions)

Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	% of Total	% of Total Non-Water Purchases
Purchased Water Supply Costs							
Fixed Costs	$98.6	$117.9	$131.4	$141.2	$151.1	16.9%	
Variable Costs	$199.3	$228.6	$261.9	$268.7	$288.4	32.8%	
Subtotal	**$297.9**	**$346.5**	**$393.3**	**$409.9**	**$439.4**	**49.7%**	
Personnel Costs							
Salaries	$81.6	$87.1	$91.1	$95.0	$97.9	11.9%	23.7%
Fringe	$48.6	$49.5	$50.5	$51.5	$52.6	6.7%	13.2%
Subtotal	$130.2	$136.6	$141.6	$146.5	$150.5	18.1%	37.0%
All Other O&M							
Supplies	$30.2	$36.5	$44.3	$48.6	$49.2	5.5%	10.9%
Contracts	$110.5	$131.1	$136.7	$135.8	$123.1	16.8%	33.4%
Information Technology	$17.8	$18.3	$19.2	$19.5	$19.8	2.5%	4.9%
Energy and Utilities	$18.9	$29.8	$60.9	$61.7	$62.6	6.2%	12.3%
Other Expenses	$0.6	$0.6	$0.6	$0.6	$0.6	0.1%	0.1%
Capital Expenses	$4.6	$6.7	$5.8	$4.8	$4.7	0.7%	1.4%
Subtotal	$182.5	$223.0	$267.4	$270.9	$259.9	31.7%	63.0%
Subtotal - Excluding Purchased Water	**$312.7**	**$359.6**	**$409.0**	**$417.4**	**$410.4**	**50.3%**	**100.0%**
Total Operating Expenses	**$610.6**	**$706.1**	**$802.3**	**$827.3**	**$849.9**	**100.0%**	

Water Sales and Sources

Table 9 presents historical and forecasted water sales and sources. As seen in the City's sales, it is common for water use to fluctuate from year to year. Weather has a significant effect on sales; in rainy years, for example, FY 2023 and FY 2024, sales were lower. Although the City has experienced higher than expected water sales in FY 2025, City staff believes that this level of water sales is unlikely in the future. Forecasted water sales assume a return to approximately the average water use since FY 2019. The annual change in the number of accounts over the last ten years has averaged 0.15% and ranged from -0.33% to +1.06%. Based on these historical trends and anticipated development, small account growth of 0.25% annually is assumed for the single family, multi-family, commercial, and irrigation classes over the study period; however, there are no expected changes in the water use per account. In addition to the water sold to customers, the City must also account for water lost in the distribution system due to leaks and breaks in order to determine the total amount of treated water it must provide to the water system.

The City purchases most of the water it sells from SDCWA. Purchased water supply costs are the largest component of O&M expenses, averaging 49.7% of total operating expenses over the Study Period. In FY 2022, the City purchased approximately 167,000 acre-feet of untreated water from SDCWA and used approximately 10,000 acre-feet of local water. Since then, the City has decreased purchases in favor of local sources due to rapidly increasing costs to purchase untreated water from SDCWA. In FY 2025, following rainy years that increased water levels in reservoirs, the City projects to use approximately 55,000 acre-feet of local supplies to mitigate costs for customers. Additionally, the Pure Water project is expected to begin supplying water to the City in mid CY 2026, further reducing demand for untreated water from the SDCWA to approximately 133,000 acre-feet in FY 2028 and 2029. Although the City is taking steps to reduce the purchase of SDCWA water, total costs are expected to continue to rise due to significant increases in the fixed charges levied by SDCWA, which the City must pay regardless of the amount of water purchased. The City experienced a 14% SDCWA rate increase in FY 2025 and expects increases of 16.2% in FY 2026, 8% in FY 2027, and 7% in FY 2028 and FY 2029.

Table 9: Water Sales and Sources

Description	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Water Sales (hcf)											
Single Family	22,999,683	23,220,504	25,482,192	23,787,706	21,229,780	21,208,603	24,085,861	22,460,066	22,516,216	22,572,507	22,628,938
Multi-Family	15,273,748	15,472,165	17,019,438	16,236,868	16,026,512	16,626,268	18,881,865	17,607,339	17,651,358	17,695,486	17,739,725
Commercial	17,666,956	17,135,546	16,367,057	16,923,277	16,798,809	16,565,679	18,813,056	17,543,175	17,587,033	17,631,001	17,675,079
Irrigation	7,912,350	7,781,880	9,326,098	8,466,687	6,694,339	7,049,597	8,002,209	7,462,060	7,480,715	7,499,417	7,518,166
Temp. Construction	317,883	332,775	279,015	332,448	529,638	133,464	320,812	299,157	299,157	299,157	299,157
Cal. American	4,273,265	4,124,415	4,372,729	4,640,574	4,203,483	3,553,082	4,640,574	4,640,574	4,355,373	4,355,373	4,355,373
Subtotal	**68,443,885**	**68,067,285**	**72,846,529**	**70,387,560**	**65,482,561**	**65,136,693**	**74,744,378**	**70,012,372**	**69,889,852**	**70,052,941**	**70,216,438**
Water Loss Estimate	6,440,015	6,404,580	6,854,269	6,622,900	6,161,379	6,128,835	7,032,841	6,587,597	6,576,069	6,591,415	6,606,798
Total Water Requirement (hcf)	**74,883,900**	**74,471,865**	**79,700,798**	**77,010,460**	**71,643,940**	**71,265,528**	**81,777,219**	**76,599,969**	**76,465,922**	**76,644,356**	**76,823,237**
Total Water Requirement (AF)	**171,910**	**170,964**	**182,968**	**176,792**	**164,472**	**163,603**	**187,735**	**175,849**	**175,542**	**175,951**	**176,362**
Water Sources (AF)											
Purchased from SDCWA	153,086	153,071	146,968	166,792	136,686	128,603	132,735	135,849	138,742	132,351	132,762
Other Local Sources	18,824	17,893	36,000	10,000	27,786	35,000	55,000	40,000	36,800	43,600	43,600
Total	**171,910**	**170,964**	**182,968**	**176,792**	**164,472**	**163,603**	**187,735**	**175,849**	**175,542**	**175,951**	**176,362**

Debt Service

The water utility currently makes debt service payments for revenue bonds, commercial paper, SRF loans and the WIFIA loan. Existing and proposed debt service in FY 2026 totals $145.1 million. Payments on proposed debt in FY 2026 are estimated at $33.7 million. Table 10 summarizes the existing and proposed debt service for the Study Period.

Table 10: Existing and Pending Debt Service Summary ($ millions)

Debt Service Summary	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Summary of Debt Service by Type					
Existing Debt					
Revenue Bonds	$96.3	$97.8	$97.2	$97.2	$97.2
SRF Loans	$6.2	$8.0	$11.8	$15.7	$18.3
WIFIA	$7.0	$12.0	$12.6	$12.6	$12.5
CP Refinancing	$0.0	$0.0	$0.0	$0.0	$0.0
Subtotal	**$109.5**	**$117.8**	**$121.6**	**$125.5**	**$128.1**
Proposed Debt					
Commercial Paper	$7.2	$1.0	$7.2	$6.6	$7.2
Refinance CP - Revenue Bond	$0.0	$23.0	$25.1	$41.7	$41.7
New Revenue Bonds	$0.0	$9.7	$9.7	$23.0	$23.0
Subtotal	**$7.2**	**$33.7**	**$42.0**	**$71.3**	**$71.9**
Total	**$116.7**	**$151.5**	**$163.6**	**$196.7**	**$200.0**
Summary of Debt Service by Lien					
Existing Debt					
Senior	$42.7	$44.4	$46.7	$49.8	$51.8
Subordinate	$66.8	$73.3	$74.9	$75.7	$76.3
Subtotal	**$109.5**	**$117.8**	**$121.6**	**$125.5**	**$128.1**
Proposed Debt					
Senior	$0.0	$23.0	$25.1	$41.7	$41.7
Subordinate	$7.2	$10.7	$16.9	$29.6	$30.2
Subtotal	**$7.2**	**$33.7**	**$42.0**	**$71.3**	**$71.9**
Total	**$116.7**	**$151.5**	**$163.6**	**$196.7**	**$200.0**

PAYGO Capital Transfers

Transfers of cash to the capital sub-fund are used to partially fund the City's water capital improvement program. The use of cash to fund capital improvements is referred to as pay-as-you-go or "PAYGO" funding. These transfers vary each year based on the number of projects funded and the type of funding used for each project. Net transfers to assist in funding the CIP total $518.2 million over the Study Period. The City aims for an 80% / 20% debt to PAYGO capital ratio in order to maximize the use of long-term financing for the CIP.

TARGET RESERVES

The City maintains four different types of reserves for the Water Fund: Emergency Operating, Emergency Capital, Rate Stabilization, and Secondary Purchase reserves.

- ***Emergency operating***: 70 days of O&M excluding contingencies, water purchases, and debt service
  The Emergency Operating Reserve is intended to be used in the event of a catastrophe that prevents the utility from operating in its normal course of business.
- ***Emergency capital:*** $5,000,000
  The Emergency Capital Reserve is intended to fund unforeseen emergency conditions resulting in the need to immediately repair or replace existing assets.
- ***Rate stabilization***: 5% of prior year operating revenue
  The Rate Stabilization Reserve is a revolving mechanism to mitigate significant fluctuations in the water rates for the system operations and maintain stable debt service coverage ratios for the outstanding water revenue bonds.
- ***Secondary purchase***: 6% of annual water purchases budget
  The Secondary Purchase Reserve is established to purchase additional water supply in case of a major drought or unforeseen emergency that diminishes the City's normal supply.

The total reserves balance at the beginning of FY 2026 is projected to be $173.7 million.

Adherence to these policies ensures the utility has sufficient resources to operate in times of disaster or turmoil and are considered positive factors when evaluating the city's credit, which can lead to lower cost of capital.

FINANCIAL PLAN SUMMARY

Projected water sales revenue under existing rates is inadequate to meet revenue requirements and sustain minimum reserves throughout the Study Period. Table 11 shows the cash flow forecast, summarizing data previously presented in Tables 7 to 10. Total Sources of Funds must be sufficient to fund the expenses required to operate the utility, shown as Uses of Funds. The difference between Sources and Uses of Funds is reflected as a Change in Fund Balance, either using a portion of the City's reserves to fund expenses or contributing to reserves for use in future years.

Table 11: Operating Sub-Fund Financial Plan ($millions)

Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Operating Reserve					
Beginning Balance	$227.8	$173.7	$173.1	$129.7	$201.6
Less: Restricted Reserves	$121.6	$124.3	$110.2	$112.5	$122.1
Unrestricted Balance	**$106.2**	**$49.5**	**$62.9**	**$17.2**	**$79.6**
Sources of Funds					
Rate Revenues	$689.9	$766.9	$881.0	$997.0	$1,111.8
Recycled Water/Pure Water Credits	$0.0	$0.0	$5.7	$11.4	$11.4
Water Sales	$42.3	$46.7	$49.1	$53.2	$57.5
Operating Income	$16.3	$16.7	$16.7	$16.7	$16.7
Non-Operating Income	$5.1	$21.4	$22.0	$12.6	$13.1
All Other Income	$6.0	$5.2	$4.5	$5.0	$8.2
Total	**$759.6**	**$856.9**	**$979.1**	**$1,096.0**	**$1,218.8**
Uses of Funds					
Operation and Maintenance Expense	$610.6	$706.1	$802.3	$827.3	$849.9
Existing Debt Service	$109.5	$117.8	$121.6	$125.5	$128.1
Proposed Debt Service	$7.2	$33.7	$42.0	$71.3	$71.9
Interest Earnings on Debt Reserve	($0.0)	($0.0)	($0.0)	($0.0)	($0.0)
Net PAYGO Transfers	$86.4	$0.0	$56.6	$0.0	$22.8
Total	**$813.7**	**$857.6**	**$1,022.6**	**$1,024.0**	**$1,072.7**
Change in Fund Balance	*($54.1)*	*($0.6)*	*($43.4)*	*$72.0*	*$146.2*
Ending Balance	$173.7	$173.1	$129.7	$201.6	$347.8
Restricted Reserves	$124.3	$110.2	$112.5	$122.1	$207.6
Unrestricted Ending Balance	***$49.5***	***$62.9***	***$17.2***	***$79.6***	***$140.2***
City Rate Revenue Adjustment		1.1%	3.1%	8.0%	5.4%
Water Purchase Pass-Thru Increases		13.6%	11.4%	3.5%	5.6%
Total Adjustment		**14.7%**	**14.5%**	**11.5%**	**11.0%**
Debt Service Coverage					
Senior Debt Service Coverage	3.9	2.8	2.8	3.0	3.6
Aggregrate Debt Service Coverage	1.4	1.2	1.2	1.4	1.7

Capital Fund

The capital fund tracks financial activities associated with funding the capital improvement program.

USES OF FUNDS

Capital improvement expenditures, summarized in Table 12, include both expansion and repair and replacement projects.

Pure Water projects total $491.2 million and represent 24% of anticipated spending in these years. The Pure Water Program represents a significant capital improvement program of the City's Water System and Wastewater System. The City expects that upon full implementation projected in 2035, the facilities will produce 83 mgd of locally controlled water.

The Pure Water Program is being funded by both the water and wastewater funds. The costs included in this study represent the proportion of costs incurred to benefit the water system only and do not include any wastewater related costs. Per the agreement with the Metro Wastewater Joint Powers Authority and its participating agencies, metropolitan wastewater system pays for costs associated up to secondary treatment of wastewater, which is the level of treatment required for ocean discharge. Costs will be trued up at the end of the project based on the final project costs.

Table 12: Capital Improvement Program Summary ($ millions)

Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Total
Pure Water	$221.5	$203.2	$50.7	$13.0	$2.9	$491.2
Transmission Pipelines	$43.1	$61.4	$136.9	$133.2	$135.2	$509.8
Pipelines	$126.5	$151.1	$170.7	$130.2	$106.6	$685.1
Storage Facilities	$15.5	$26.4	$32.5	$24.4	$20.1	$118.9
Water Treatment Plant	$9.1	$16.6	$19.8	$20.2	$23.1	$88.8
Pump Stations	$5.7	$11.0	$7.1	$10.7	$8.6	$43.1
SDG&E Relocation Advance	($22.5)	$0.0	$0.0	$0.0	$0.0	($22.5)
Groundwater Projects	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Recycled Water	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Miscellaneous Projects	$6.3	$4.9	$37.7	$46.6	$35.7	$131.2
Total	**$405.1**	**$474.5**	**$455.5**	**$378.3**	**$332.3**	**$2,045.6**

SOURCES OF FUNDS

Sources include cash transfers from the operating fund, revenue bond and commercial paper proceeds, grants, State Revolving Fund (SRF) loans, and the Water Infrastructure Finance Innovation Act (WIFIA) loan. Rate and capacity fee funded projects total $240.8 million for the Study Period. Various borrowing programs will provide $1,804.8 million. Total funding for the Study Period is projected at $2,045.6 million, corresponding to the capital needs shown in Table 12. Table 13 shows the funding sources for the capital improvement program over the Study Period.

Table 13: Capital Sources of Funds ($ millions)

Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Total
Commercial Paper / Revenue Bonds	$100.0	$315.0	$240.0	$430.0	$20.0	$1,105.0
SRF Loans	$27.2	$45.7	$68.5	$105.9	$100.0	$347.2
WIFIA Loan	$176.5	$150.1	$24.1	$1.5	$0.4	$352.6
Capacity Fee	$15.0	$15.0	$15.0	$15.0	$15.0	$75.0
PAYGO Cash	$86.4	$0.0	$56.6	$0.0	$22.8	$165.8
Total	**$405.1**	**$525.8**	**$404.2**	**$552.4**	**$158.2**	**$2,045.6**

Cost of Service Analysis

Introduction

The cost-of-service analysis utilizes what is known as the Base-Extra Capacity methodology. Recognizing that this methodology reflects the actual design and operating principles of its water system, the City has used this methodology in its water cost of service analyses for more than 25 years. The City's water system was designed and built to serve both average (base) demand and peak (extra capacity) demand. The base demand represents typical daily usage across all customers and customer classes. The extra-capacity component accounts for the additional infrastructure investment and operational requirements needed to meet higher peak demands (e.g. hot summer days, fire fighting). The primary purpose of the analysis is to ensure that the rates charged to customers are proportional and sufficient to cover the utility's costs for providing reliable and sustainable water service to its customers. Raftelis reviewed the City's historical financial, operational and customer data and City projections of future customer consumption. Raftelis also conferred with City staff, including finance, planning and engineering staff to gather data and information used in the cost-of-service analysis.

A cost-of-service analysis involves the following steps:

1. **Cost Functionalization:** O&M and capital expenses are categorized by their function in the system, which include supply, treatment, distribution, transmission, customer service, etc.

2. **Cost Component Allocation:** Functionalized costs are then allocated to cost causation components based on their burden on the system. The cost causation components include commodity, demand, meter and services, customer service, amongst others. The functionalized revenue requirement (from Step 1) is allocated to the cost causation components and results in the total revenue requirement for each cost causation component.

3. **Development of Units of Service:** The units of service provide a consistent and quantifiable framework for measuring how customers interact with the water utility. The units of service reflect the level of service demands for each of the customer classes. The demand characteristics provide the basis to determine each customer class's share of costs in later steps. These units include annual water use, maximum day and maximum hour water use, number of accounts, and number of water meters[6].

4. **Unit Cost Determination:** The revenue requirement for each cost causation component is divided by the appropriate units of service to determine the unit cost for each cost causation component. The unit cost for a given cost component is the same for all customer classes, ensuring that each customer class is allocated their proportionate share of costs.

5. **Revenue Requirement Distribution:** The unit cost is utilized to distribute the revenue requirement for each cost causation component to customer classes based on each customer class's individual service units.

[6] The water meters used to serve individual customers range in size from 5/8" to 16". The larger the meter the greater the potential demand that can be placed on the water system. In this Study the number of equivalent ¾" meters is used to equate the number of meters based on the relative capacity of the larger meters compared to a ¾" meter.

FY 2026 Test Year Revenue Requirement

The FY 2026 test year revenue requirement is presented in Table 14 and totals $819.4 million. It consists of water purchases, operation and maintenance expense, existing and proposed debt service, interest earnings, rate funded capital, changes in cash reserves and includes offsets for wholesale water sales, recycled water credits, and other non-commodity revenues

The revenue requirement also includes a mid-year adjustment, to account for a mid-fiscal year implementation of the new rates anticipated to be made effective in January of 2026, partially through the City's fiscal year (July 1 to June 30). The expenses and forecasted customer accounts and water use described in this report correspond to the full fiscal year. Therefore, the test year revenue requirement must include an adjustment that represents the revenue that is foregone by implementing the rate increase on some day other than the first day of the fiscal year. The amount of the mid-year adjustment is determined by calculating the additional amount of revenue that the proposed FY 2026 revenue increase (14.7%) would recover in the months of July through December. This amount is added to the cash revenue requirements to determine the test year revenue requirement.

Table 14: FY 2026 Test Year Revenue Requirement

Description	Operating	Capital	Total
Expenses			
Purchased Water	$346,508,000		$346,508,000
O&M	$359,634,363		$359,634,363
Existing Debt Service		$117,753,712	$117,753,712
Proposed Debt Service		$33,707,142	$33,707,142
Rate Funded Capital		$0	$0
Change in Cash Reserves	($520,238)	($111,563)	($631,801)
Subtotal	$705,622,125	$151,349,291	$856,971,416
Mid-Year Rate Adjustment		$52,506,351	$52,506,351
Subtotal Before Revenue Offsets	$705,622,125	$203,855,641	$909,477,767
Revenue Offsets			
Other Water Sales	$46,692,533		$46,692,533
Other Operating Revenues	$16,745,388		$16,745,388
Non-Operating Revenues	$19,625,264	$1,796,401	$21,421,665
Interest Earnings	$5,202,487	$30,874	$5,233,361
Subtotal	$88,265,672	$1,827,275	$90,092,947
Total Revenue Requirement	$617,356,453	$202,028,367	$819,384,820

The next step in the analysis is to convert the test year revenue requirement into costs that best reflect the cost associated with demands placed on the system. Those costs are proportionately allocated to customer classes based on their respective customer demand and customer service characteristics to determine class cost of service—the portion of the total revenue requirement to be recovered from each customer class through the meter base fee and volumetric rates. Customer demand characteristics include average day demand, maximum day demand, and

maximum hour demand. Customer service characteristics include the number of accounts and the number of equivalent meters. The first step in allocating costs to cost components is to functionalize the revenue requirement by dividing the total revenue requirement into various operating and capital cost categories. Costs assigned to these functional cost categories will then be allocated to the cost components.

Functional Cost Categories

Water systems are comprised of several facilities (unit processes or functions) that are designed and operated to collect, treat, store, and distribute water to customers. The basic premise of the functionalization process is to assign each cost to the utility function it accomplishes in order to provide a means of distributing these costs to customer classes based on their respective demands on the system.

The O&M revenue requirement can be functionalized into cost categories based on information recorded in the City's enterprise resource planning system (ERP). The ERP allows the City to track revenues and expenses in a detailed manner that support the functionalization process. The Water System records its operating expenses in the Water Utility Operating Fund. All expenses within this fund are incurred to support the delivery of water service to City customers. This Fund is divided into 13 Divisions, which are then divided into 118 Fund Centers for which budgets and expenses are tracked. Each Fund Center is responsible for a specific activity that aligns with the utility functions commonly identified in the Base-Extra capacity cost of service methodology. For example, the Meter Reading Fund Center is easily functionalized as a Customer Service expense, or the Miramar Water Treatment Plant Fund Center is functionalized as a Water Treatment Plant expense.

The functional allocations of the budget using ERP data were primarily derived during discussions between City staff and Raftelis. Raftelis provided guidance on this approach but ultimately relied on the City's best judgement in evaluating the function performed within each Fund Center. Table 15 presents the results of the O&M functionalization.

Table 15: Functionalization of O&M Expenses

O&M Function	Total
Raw Water Operations	$60,416,923
CWA Supply - Volume	$240,469,093
CWA Supply - Fixed	$124,089,201
Water Treatment Plants	$65,919,615
Pumping	$118,184
Transmission	$32,018,463
Distribution	$46,391,845
Pure Water	$41,253,578
Customer Service and Billing	$13,372,838
Meters and Services	$30,174,276
Infrastructure Indirect	$48,093,038
Fire Hydrants	$3,305,072
Total	**$705,622,125**

Table 16 shows the FY 2026 capital cost revenue requirements allocated to the functional cost categories based on the proportionate value of assets. The value of water system assets provides a reasonable basis for allocating the

expenses in the capital cost categories to the cost components since annual capital improvement project types and costs vary significantly from year to year. Allocating the test year capital costs on a project-by-project basis alone may result in a distribution of cost allocations which fluctuates significantly from year to year. Therefore, Raftelis allocated the capital cost categories based on the value of existing assets, plus project additions from the City's capital improvement program.

The value of system assets is based on the new replacement cost of existing assets, escalated from original cost using the Construction Cost Index published by the Engineering News Record. The inflated value of the projects in the capital plan from FY 2025 to FY 2029 (Table 12) is added to the existing assets to determine the total system value by function, as summarized in Table 16 .

Table 16: Functionalization of Capital Costs

Asset Type	Replacement Cost of Assets as of June 30, 2024	Projected Inflation Adjusted CIP					Replacement Cost New + Total Additions FY 2025 to FY 2029
		FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	
Groundwater Projects	$10,234,356	$0	$0	$0	$0	$0	$10,234,356
Pipelines	$5,619,800,360	$126,518,923	$151,079,912	$170,720,881	$130,191,074	$106,625,520	$6,304,936,671
SDG&E Relocation Advance	$0	($22,481,452)	$0	$0	$0	$0	($22,481,452)
Pump Stations	$432,973,219	$5,697,202	$10,951,619	$7,143,117	$10,708,196	$8,593,171	$476,066,525
Pure Water	$137,019,571	$221,451,600	$203,233,665	$50,663,940	$12,955,249	$2,893,608	$628,217,633
Recycled Water	$89,454,689	$0	$0	$0	$0	$0	$89,454,689
Storage Facilities	$1,524,569,460	$15,477,987	$26,398,916	$32,549,243	$24,378,400	$20,117,821	$1,643,491,827
Transmission Pipelines	$206,931,956	$43,073,324	$61,385,532	$136,872,116	$133,244,130	$135,223,428	$716,730,485
Water Treatment Plant	$1,330,110,862	$9,087,374	$16,566,148	$19,820,452	$20,197,969	$23,099,346	$1,418,882,151
Fire Hydrants	$120,582,289						$120,582,289
Meters	$41,547,426						$41,547,426
Miscellaneous Projects	$317,202,493	$6,254,271	$4,931,283	$37,696,002	$46,589,625	$35,734,750	$448,408,425
Smart Metering	$2,447,532	$0	$0	$0	$0	$0	$2,447,532
Total	**$9,832,874,214**	**$405,079,230**	**$474,547,076**	**$455,465,751**	**$378,264,643**	**$332,287,643**	**$11,878,518,557**

Table 17 utilizes the system value developed in the final column of Table 16 to functionalize the test year capital revenue requirement by applying the percentage distribution of system value by asset type to the capital revenue requirement of $203.9 million.

Table 17: Functionalization of Test Year Capital Revenue Requirement

Asset Type	Replacement Cost New + Total Additions FY 2025 to FY 2029	Value of Assets by Function	Capital Revenue Requirement
Groundwater Projects	$10,234,356	0.1%	$175,639
Pipelines	$6,304,936,671	53.1%	$108,203,468
SDG&E Relocation Advance	($22,481,452)	-0.2%	($385,820)
Pump Stations	$476,066,525	4.0%	$8,170,114
Pure Water	$628,217,633	5.3%	$10,781,286
Recycled Water	$89,454,689	0.8%	$1,535,195
Storage Facilities	$1,643,491,827	13.8%	$28,205,123
Transmission Pipelines	$716,730,485	6.0%	$12,300,318
Water Treatment Plant	$1,418,882,151	11.9%	$24,350,438
Fire Hydrants	$120,582,289	1.0%	$2,069,398
Meters	$41,547,426	0.3%	$713,025
Miscellaneous Projects	$448,408,425	3.8%	$7,695,453
Smart Metering	$2,447,532	0.0%	$42,004
Total Capital Cost Revenue Requirement	**$11,878,518,557**	**100.0%**	**$203,855,641**

Cost Components

Once costs have been separated into cost categories by function, they can be further allocated to cost components. Allocating costs to cost components provides a means of assigning the functionalized expenses based on the design and functional parameters that characterize each water system expense. Cost components correspond to the unique demand characteristics of the customer classes to recover costs from the customers who cause the utility to incur them.

Functional O&M cost categories are generally allocated to the cost components that best reflect the design or functional parameter associated with each category of expense. For example, the variable portion of water supply expenses are allocated to the Supply cost component because source of supply facilities are designed to meet average day demands. Pumping is used to meet Base and extra capacity (Max Day and Max Hour) demand. Therefore, the Pumping cost category is allocated to the average day, maximum day extra capacity, and maximum hour extra capacity cost components.

As described earlier, the allocation methodology used in this study is the Base-Extra Capacity Methodology, which is the most common allocation methodology employed for water utilities throughout California and the United States. This methodology incorporates the following standard cost components: Base, Max Day, Max Hour, Meters and Services, Billing, and Fire Protection. The premise of this methodology is that since the water system is designed and operated to not only provide water on average days (noted as Base) but also is used to meet maximum day and maximum hour demand and as such costs should be segmented to these components. This methodology aligns well with the basis for the planning and design of the City's water system. This study also incorporates additional components to specifically allocate the various charges from the SDCWA to the meter base fee and volume rates; these components are SDCWA Supply-Volume and SDCWA Supply-Fixed. As discussed in more detail in the Rate Design section below, the expenses in the SDCWA Supply-Volume, Base, Max Day, and

Max Hour cost components (Volume Cost Components) are recovered through the volumetric rate charged to each customer class. In contrast, the Meters, Billing, Fire Protection, and SDCWA Supply-Fixed components (Customer Cost Components) are recovered through the meter base fee paid by each customer.

VOLUME COST COMPONENTS AND SYSTEM DEMAND FACTORS

The City's Water System is designed and operated to meet not only the average water demands of customers but also their maximum daily and hourly demands. The Base-Extra Capacity method for allocating the functional cost categories to the cost components of Base, Max Day Extra Capacity, and Max Hour Extra Capacity recognizes that the water system is sized and operated in a manner to meet maximum day and maximum hour demands of its customers. Allocation of the revenue requirements to the cost components enables the costs to be distributed to the customer classes in proportion to the levels of service demands of each class. This methodology focuses on average and above-average demands and their impact on the size of the system's infrastructure and operations needed to meet different usage patterns. Average (Base) demand is the annual water usage of customers expressed on a daily basis. Base costs vary directly with the quantity of water consumed under average day load conditions. Above-average (Max Day and Max Hour) water demands are demands on the system when customers use water at levels above their average usage. Max Day and Max Hour costs, as identified through the Base-Extra Capacity cost of service methodology, are costs incurred to meet water demands that exceed average levels of water usage by customers. These Max Day and Max Hour expenses are incurred to enable the water system to meet water usage variations and the highest peak demand that could be imposed on the water system. Max Day and Max Hour expenses are incurred over time and are necessary to allow the water system to meet the customers' demands above average demand.[7]

A customer's water use may be below-average, average or above-average when measured each billing cycle. A customer with above-average demand uses water at an above-average rate during the billing cycle which places above-average demand on the system. Further, each customer class demonstrates recognized patterns of average and peak demand.

This methodology defines the proportion of incremental extra costs (maximum day and hour extra capacity costs) to upsize the system from the size that would be necessary to meet average use by allocating these incremental extra costs to the Max Day and Max Hour cost components. Where appropriate, this separation allows the system to recover the proportionate share of the incremental costs to meet above-average demand from customers who place above-average demand on the system.

The cost components Base, Max Day Extra Capacity, and Max Hour Extra Capacity are cost components defined in the M1 manual that refer to how large a water system must be designed, built and operated to meet the water demands of its customers. Max Day and Max Hour do not refer to a specific day or hour in a billing cycle when usage is above average. For example, Max Hour demand is the highest possible hourly demand placed on the system. Max Hour demand on the system usually occurs once per year. However, to meet the Max Hour demands certain components of the water system must be built at a size sufficient to meet expected Max Hour demands.

[7] The water system does not incur a substantial portion of the incremental costs to build and operate the system at Max Hour size at the precise (and relatively rare) moment that the system is called on to meet highest possible (Max Hour) demand. The incremental costs to upsize the system to meet Max Day and Max Hour demand are not incurred at the precise hour that any one customer uses water at an above-average rate. Instead, the water system's costs to build the system at Max Hour size were incurred over the years that the system was built and expanded—long before any actual instance of highest possible demand or the precise hour of a single customer's above-average demand. Similarly, the costs for the City to operate and maintain the system built to meet peak demand are relatively stable in times of regular and peak demand.

Even though the M1 manual provides the framework, the cost of service conducted in this study reflect the unique aspects of the City's system design and historical operating data.

The City's incremental costs (above Base costs) to design, build, and operate upsized facilities to meet above-average demand are a significant portion of the cost of service. To allocate the cost categories to the customer classes, we first allocated portions of each cost category to the Base, Max Day Extra Capacity and Max Hour Capacity cost components depending on the function associated with the cost category. The Base cost component includes costs that would be incurred if the system only needed to be built and operated at Base Size to meet average demand. The Base cost component includes, among other costs, the O&M and Capital costs of the system that are associated with building and operating the portion of the system's facilities used to meet average demand.

The Max Day and Max Hour Extra Capacity components provide a means for allocating functionalized costs incurred to support maximum day and hour demand. For example, the City's water distribution system is designed to maintain adequate pressure across a wide range of elevations and service areas, which requires dividing the system into multiple pressure zones. Each zone must be supported by appropriately sized storage, pumps, and distribution mains to deliver reliable service during periods of high demand. Areas with high water usage place greater pressure demands on the system and therefore require more robust infrastructure. The same principle applies to the allocation of operating expenses at the City's treatment plants. These plants must be sized to provide water on the peak day rather than just the average day, greatly increasing the cost not just to build the facility, but also to operate, staff, and maintain it on an ongoing basis.

These pressure and capacity-related design and operational costs are included in the Max Day and Max Hour Extra Capacity cost components. By allocating these costs based on each customer class's expected future water peaking patterns, the City ensures that customers who place the greatest demands on the system are assigned a proportionate share of the costs to maintain reliable pressure. These components are calculated using demand factors for the entire system. Table 18 shows the calculation of these factors from daily water production and purchase data provided by the City. The Max Day demand factors shown in Column C of the second table are calculated by dividing the maximum day flow for each year by the corresponding average day amount. As shown in Table 18, water production data varies by year due, principally to changes in weather. In order to normalize the data, a four year average was used in this analysis. These four annual factors are averaged to derive the 1.39 factor used to allocate costs. The maximum day demand factor is derived directly from the City's data.

Raftelis estimated max hour production by multiplying the maximum day use for each year by a factor of 1.5, a calculation described in the City's Water Facility Design Guidelines. City engineers developed this estimate of maximum hour demand to determine system sizing when planning to meet the maximum possible demand. Maximum hour demands are also supported by data from the City's wastewater system. Dry weather wastewater flows are correlated with water usage. The City's wastewater system utilizes ADS flow meters to continuously monitor the sewer capacity of its sewer basins. These meters indicate distinct wastewater peaks throughout the day at expected times in the early morning and evening.

The figures 1.39 and 2.08 are ratios of maximum day and maximum hour demands compared to average day demand which provide a means for allocating functionalized costs to the cost components. The Max Day Extra Capacity cost component includes costs - *above Base costs* - that the City incurs to build and operate the system sized at Max Day Size – 1.39 times larger than the system would be to meet average demand. The Max Hour Extra Capacity cost component includes costs - *above Base and Max Day costs* - that the City incurs to build and operate the system at Max Hour size - 2.08 times larger than the system would be to meet average demand.

Table 18: System Demand Factors

Annual Production		
	A	B
Year	Total Demand (MG)	Annual Avg. Day (MG)
FY 2024	53,570	146.77
FY 2023	54,019	148.00
FY 2022	58,767	161.01
FY 2021	58,201	159.45
Average	**56,139**	**153.81**

Max Day Production			
	A	B	C
Year	Max Day Occurance	Max Day Flow (MGD)	Ratio of Max Day to Annual Average Day
FY 2024	7/20/2023	201.56	1.37
FY 2023	7/5/2022	208.98	1.41
FY 2022	7/20/2021	210.51	1.31
FY 2021	9/11/2020	232.17	1.46
Average		**213.31**	**1.39**

Max Hour Production Estimate			
	A	B	C
Year	Ratio of Max Hour to Annual Max Day	Max Hour Flow (MGD)	Ratio of Max Hour to Annual Average Day
FY 2024	1.50	302.35	2.06
FY 2023	1.50	313.47	2.12
FY 2022	1.50	315.76	1.96
FY 2021	1.50	348.26	2.18
Average	**1.50**	**319.96**	**2.08**

The ratio of Max Day and Base demand is used to allocate costs between the Base and Max Day Extra Capacity cost components for cost categories that meet maximum day demands, including capital and operating costs associated with facilities like treatment plants and transmission mains[8]. The 1.39 ratio indicates that approximately 72.1% of the capacity of facilities designed and operated for Max Day demand is used to meet Base demand. Accordingly, 27.9% is used to meet Max Day demand.

Average Day Percentage: 1.0 ÷ 1.39 = 72.1%
Maximum Day Percentage: 0.39 ÷ 1.39 = 27.9%

The Max Hour ratio is used to allocate costs for facilities that operate or are designed to meet Max Hour demand. These facilities include treated storage, pumping, and a portion of distribution mains. This ratio indicates 48.1% of the capacity of facilities designed and operated for Max Hour demand is needed for Base demand, 18.6% is required to meet Max Day demand, and the remaining 33.3% is for Max Hour demand.

Average Day Percentage: 1.0 ÷ 2.08 = 48.1%
Maximum Day Percentage: (1.39 – 1.0) ÷ 2.08 =18.6%
Maximum Hour Percentage: (2.08– 1.39) ÷ 2.08 = 33.3%

CUSTOMER COST COMPONENTS

The Meters cost component is used for costs which vary based on the capacity of the customers' water meter, which represents the potential demand that the customer can place on the water system.

All fixed charges associated with water purchases[9] are allocated to the CWA Supply-Fixed cost component to be recovered from customers based on their meter size. SDCWA assesses these fixed charges to all of its participating wholesale customers which include the City of San Diego. The charges are fixed regardless of the amount of water purchased; therefore, it is reasonable for the City to allocate this charge to its customers in the same way.

The Billing cost component includes costs for billing, customer service, collections, and customer accounting.

The Fire Protection cost component captures direct fire protection costs associated with maintenance, repair and replacement of fire hydrants.

Table 19 and Table 20 show the functional allocation of the O&M and capital cost categories to the cost components.

[8] Treatment and transmission facilities are designed to meet maximum day demands, since meeting maximum hour demands would require significant additional upsizing and pressure requirements that would be nearly impossible to achieve at the treatment plants. Storage facilities are intended to meet peak hour demands.
[9] SDCWA and MWD charge the City several fixed charges that do not vary with the amount of water the City uses, including the Readiness to Serve Charge, Capacity Reservation Charge, Supply Reliability Charge, Customer Service Charge, Emergency Storage Charge, Infrastructure Access Charge, Transportation Charge, and Payment In Lieu of Taxes Charge.

Table 19: Functionalized O&M Cost Categories Allocated to Cost Components

O&M Expense Functional Cost Allocations									
		Volume-Related				Customer-Related			
Functional Component	Total	CWA Supply - Volume	Base	Max Day Extra Capacity	Max Hour Extra Capacity	CWA Supply - Fixed	Meters and Services	Billing	Direct Public Fire
Raw Water Operations	100.0%		100.0%						
CWA Supply - Volume	100.0%	100.0%							
CWA Supply - Fixed	100.0%					100.0%			
Water Treatment Plants	100.0%		72.1%	27.9%					
Pumping	100.0%		48.1%	18.6%	33.3%				
Transmission	100.0%		72.1%	27.9%					
Distribution	100.0%		48.1%	18.6%	33.3%				
Pure Water	100.0%		100.0%						
Billing	100.0%							100.0%	
Meters and Services	100.0%						100.0%		
Infrastructure Indirect (1)	100.0%		79.1%	14.6%	6.3%				
Fire Hydrants	100.0%								100.0%

O&M Expenses Alllocated to Cost Components									
		Volume-Related				Customer-Related			
Functional Component	Total	CWA Supply - Volume	Base	Max Day Extra Capacity	Max Hour Extra Capacity	CWA Supply - Fixed	Meters and Services	Billing	Direct Public Fire
Raw Water Operations	$60,416,923	-	60,416,923	-	-	-	-	-	-
CWA Supply - Volume	$240,469,093	240,469,093	-	-	-	-	-	-	-
CWA Supply - Fixed	$124,089,201	-	-	-	-	124,089,201	-	-	-
Water Treatment Plants	$65,919,615	-	47,518,942	18,400,673	-	-	-	-	-
Pumping	$118,184	-	56,796	21,993	39,395	-	-	-	-
Transmission	$32,018,463	-	23,080,891	8,937,571	-	-	-	-	-
Distribution	$46,391,845	-	22,294,744	8,633,153	15,463,948	-	-	-	-
Pure Water	$41,253,578	-	41,253,578	-	-	-	-	-	-
Billing	$13,372,838	-	-	-	-	-	-	13,372,838	-
Meters and Services	$30,174,276	-	-	-	-	-	30,174,276	-	-
Infrastructure Indirect	$48,093,038	-	38,030,271	7,033,322	3,029,445	-	-	-	-
Fire Hydrants	$3,305,072	-	-	-	-	-	-	-	3,305,072
Total O&M Revenue Requirement	**$705,622,125**	**$240,469,093**	**$232,652,144**	**$43,026,713**	**$18,532,788**	**$124,089,201**	**$30,174,276**	**$13,372,838**	**$3,305,072**
Percent of Total	*100.0%*	*34.1%*	*33.0%*	*6.1%*	*2.6%*	*17.6%*	*4.3%*	*1.9%*	*0.5%*

(1) Related to multiple functions, allocation based on all other base, max day, max hour costs

Table 20: Functionalized Capital Costs Categories Allocated to Cost Components

Capital Cost Percentage Allocations									
		Volume-Related				Customer-Related			
Functional Component	Total	CWA Supply - Volume	Base	Max Day Extra Capacity	Max Hour Extra Capacity	CWA Supply - Fixed	Meters and Services	Billing	Direct Public Fire
Groundwater Projects	100%		100.0%						
Pipelines	100%		48.1%	18.6%	33.3%				
SDG&E Relocation Advance	100%		48.1%	18.6%	33.3%				
Pump Stations	100%		48.1%	18.6%	33.3%				
Pure Water	100%		100.0%						
Recycled Water	100%		100.0%						
Storage Facilities	100%		48.1%	18.6%	33.3%				
Transmission Pipelines	100%		72.1%	27.9%					
Water Treatment Plant	100%		72.1%	27.9%					
Fire Hydrants	100%								100.0%
Meters	100%						100.0%		
Miscellaneous Projects	100%	0.0%	55.2%	18.9%	24.5%	0.0%	0.4%	0.0%	1.1%
Smart Metering	100%							100.0%	

Capital Costs Allocated to Cost Components									
		Volume-Related				Customer-Related			
Functional Component	Total	CWA Supply - Volume	Base	Max Day Extra Capacity	Max Hour Extra Capacity	CWA Supply - Fixed	Meters and Services	Billing	Direct Public Fire
Groundwater Projects	$175,639	-	$175,639	$0	$0	$0	$0	$0	$0
Pipelines	$108,203,468	-	$51,999,842	$20,135,804	$36,067,823	$0	$0	$0	$0
SDG&E Relocation Advance (1)	($385,820)	-	($185,415)	($71,798)	($128,607)	$0	$0	$0	$0
Pump Stations	$8,170,114	-	$3,926,349	$1,520,393	$2,723,371	$0	$0	$0	$0
Pure Water	$10,781,286	-	$10,781,286	$0	$0	$0	$0	$0	$0
Recycled Water	$1,535,195	-	$1,535,195	$0	$0	$0	$0	$0	$0
Storage Facilities	$28,205,123	-	$13,554,667	$5,248,749	$9,401,708	$0	$0	$0	$0
Transmission Pipelines	$12,300,318	-	$8,866,831	$3,433,487	$0	$0	$0	$0	$0
Water Treatment Plant	$24,350,438	-	$17,553,304	$6,797,134	$0	$0	$0	$0	$0
Fire Hydrants	$2,069,398	-	$0	$0	$0	$0	$0	$0	$2,069,398
Meters	$713,025	-	$0	$0	$0	$0	$713,025	$0	$0
Miscellaneous Projects	$7,695,453	-	$4,245,037	$1,454,029	$1,885,584	$0	$27,972	$1,648	$81,183
Smart Metering	$42,004	-	$0	$0	$0	$0	$0	$42,004	$0
Total Gross Capital Revenue Req.	**$203,855,641**	**-**	**$112,452,735**	**$38,517,797**	**$49,949,879**	**$0**	**$740,997**	**$43,652**	**$2,150,581**
Percent of Total	*100.0%*	*0.0%*	*55.2%*	*18.9%*	*24.5%*	*0.0%*	*0.4%*	*0.0%*	*1.1%*

Table 21 summarizes the allocated non-rate revenues. Operating revenues associated with other water sales are allocated fully to the Base component, while all others are based on the percentages in the final row of Table 19. Most capital-related revenues are allocated proportionally to capital expenses using the percentages shown in the final row of Table 20; the exception is Grant Assistance, which is fully allocated to the base component.

Table 21: Summary of Non-Rate Revenue Allocated to Cost Components

		Volume-Related				Customer-Related			
Non-Rate Revenue Item	Total	CWA Supply - Volume	Base	Max Day Extra Capacity	Max Hour Extra Capacity	CWA Supply - Fixed	Meters and Services	Billing	Direct Public Fire
Operations Related Items									
MWD Credit	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other Water Sales	$46,692,533	$0	$46,692,533	$0	$0	$0	$0	$0	$0
Other Operating Revenue	$16,745,388	$5,570,347	$5,389,272	$996,692	$429,303	$2,874,465	$898,973	$509,776	$76,560
Non-Operating Revenues	$19,625,264	$6,688,097	$6,470,687	$1,196,689	$515,447	$3,451,257	$839,228	$371,935	$91,923
Interest Earnings	$5,202,487	$1,772,957	$1,715,323	$317,232	$136,641	$914,898	$222,472	$98,597	$24,368
Subtotal	**$88,265,672**	**$14,031,401**	**$60,267,815**	**$2,510,614**	**$1,081,390**	**$7,240,620**	**$1,960,673**	**$980,307**	**$192,851**
Capital Related Items									
Non-Operating Revenues	$1,796,401	$0	$1,521,818	$115,711	$150,054	$0	$2,226	$131	$6,461
Interest Earnings	$30,874	$0	$17,031	$5,833	$7,565	$0	$112	$7	$326
Subtotal	**$1,827,275**	**$0**	**$1,538,849**	**$121,544**	**$157,619**	**$0**	**$2,338**	**$138**	**$6,786**

Table 22 summarizes the allocated revenue requirement from the analysis of operating costs, capital costs, and non-rate revenues discussed in the sections above. The total revenue requirement will be distributed to customer classes based on their proportionate share of total customer service characteristics.

Table 22: Allocated Revenue Requirement

Cost of Service by Component	CWA Supply - Volume	Base	Max Day Extra	Max Hour Extra Capacity	CWA Supply - Fixed	Meters and Services	Billing	Direct Public Fire	Total
Operating Cost	$240,469,093	$232,652,144	$43,026,713	$18,532,788	$124,089,201	$30,174,276	$13,372,838	$3,305,072	$705,622,125
Capital Cost	$0	$112,452,735	$38,517,797	$49,949,879	$0	$740,997	$43,652	$2,150,581	$203,855,641
Subtotal	**$240,469,093**	**$345,104,880**	**$81,544,509**	**$68,482,667**	**$124,089,201**	**$30,915,273**	**$13,416,490**	**$5,455,653**	**$909,477,767**
Operating Revenue Offsets	$14,031,401	$60,267,815	$2,510,614	$1,081,390	$7,240,620	$1,960,673	$980,307	$192,851	$88,265,672
Capital Revenue Offsets	$0	$1,538,849	$121,544	$157,619	$0	$2,338	$138	$6,786	$1,827,275
Subtotal	**$14,031,401**	**$61,806,664**	**$2,632,158**	**$1,239,009**	**$7,240,620**	**$1,963,011**	**$980,445**	**$199,638**	**$90,092,947**
Total	**$226,437,692**	**$283,298,216**	**$78,912,351**	**$67,243,658**	**$116,848,581**	**$28,952,261**	**$12,436,045**	**$5,256,015**	**$819,384,820**

Units of Service

The next step of the cost-of-service analysis is to determine the units of service that will be used to assign costs to each customer class. Each customer class has unique system use characteristics that are quantified and used to assign costs, ensuring that each class pays their share of costs in proportion to the impacts their water use characteristics place on the water system.

CUSTOMER CLASSES

As discussed above, the purpose of cost-of-service analysis is to relate the costs incurred by the water utility to provide service to customers in proportion to the demands they place on the water system. That said, this does not require determining the cost to serve each individual customer by isolating the individual components of the water system that are used only to serve that customer. Doing so would ignore the diversity and economies of scale which come from having many customers with varying demand profiles. Water utilities have networked systems, built to serve the varying demands of many customers, rather than each customer individually. Accordingly, it is appropriate to group customers into classes based on similar demand characteristics and develop rates around the average embedded cost to serve the class, which is comprised of customers with comparable demands.

In addition, it is also common to establish cost of service within a class. The most common approach to doing so involves the use of tiered rates which vary based on the amount of water consumed. Tiered rates effectively create sub-classes within a class which recognize the difference in demand characteristics of customers within a class based on the volumes they use. In this case, cost of service is established for the class first based on the class demand characteristics, then allocated within the class to each tier. In this way, the class as a whole pays its proportionate share of costs, with the sub-classes picking up their proportionate share of total class cost of service. The City has historically employed both approaches within its water rate structure. Multi-family residential (MFR), commercial, irrigation, and temporary construction all have rates designed around their class cost of service. Single family residential (SFR) customers have tiered rates, which reflect cost of service by tier, within the SFR class.

The City's current rate structure consists of a meter base fee which varies by meter size and a volume commodity rate for each unit of water usage (measured in number of hundred cubic feet (HCF) of water consumed during the billing cycle). The multi-family residential[10], commercial, irrigation, and temporary construction customer classes have a uniform commodity rate. The SFR class has a 3-tier increasing block structure which applies a higher unit rate to volumes which enter each successive tier. SFR customers are generally billed bi-monthly, with a small number billed monthly. All other classes are generally billed monthly, with a small number billed bi-monthly. The tiers' widths and the meter base fee are reflective of each respective billing period (e.g., a bi-monthly bill has twice the meter base fee of a monthly bill).

CUSTOMER UNITS OF SERVICE

Customer units include the number of accounts and number of ¾" equivalent meters for each customer class and are used to develop the City's monthly or bi-monthly base charges. Table 23 shows a forecast of the number of accounts by customer class for FY 2026.

[10] Individual residences in a multi-family residential complex do not have separate water accounts with the City that are billed at the Multi-Family commodity rate. Rather, the complex as a whole is a single account billed at the multi-family residential rate whether it has 400 units or 10 units.

Table 23: FY 2026 Accounts

Meter Size	Single Family	Multi-Family	Commercial	Irrigation	Construction
5/8", 3/4"	205,763	16,025	5,873	973	-
1"	20,698	4,720	2,482	1,391	-
1.5"	804	5,425	3,485	1,755	-
2"	105	4,356	4,624	3,788	520
3"	-	301	256	63	43
4"	-	302	272	42	-
6"	-	89	137	15	-
8"	-	40	69	5	-
10"	-	5	39	1	-
12"	-	-	1	-	-
16"	-	-	-	-	-
Total	**227,370**	**31,263**	**17,238**	**8,033**	**563**

Table 24 shows the equivalent meter ratio calculation. The capacity of a customer's water meter is representative of the potential demand that a customer can have on the City's water system. As indicated, larger meters have access to more capacity than smaller meters, whether they use it or not. Equivalent meter ratios allow for the allocation of the fixed cost of providing this capacity to customers based on their potential demand. Equivalent meter units in this study are based on AWWA-rated hydraulic capacities[11] and are calculated to represent the potential demand on the water system relative to a base meter size. Equivalent meter ratios are calculated by dividing the capacity of each meter size by the capacity of a ¾" meter, the base meter size in this study. For example, the capacity of a 1" meter is divided by the capacity of a ¾" meter (50/30) to derive the 1" equivalent meter ratio of 1.67.

Table 24: Equivalent Meter Ratio

Meter Size	Max Capacity (gpm)	Meter Ratio
5/8", 3/4"	30	1.00
1"	50	1.67
1.5"	100	3.33
2"	160	5.33
3"	370	12.33
4"	620	20.67
6"	1,440	48.00
8"	2,210	73.67
10"	4,200	140.00
12"	5,300	176.67
16"	7,800	260.00

[11] To confirm that AWWA capacities are appropriate for the City, Raftelis reviewed a sample of meters in service for the type (turbine, compound, disk, etc.) that could be readily identified. For some meter sizes, the City uses several different types of meters that have different safe operating capacities. In these cases, the Max Capacity in Table 24 is the average capacity of each type weighted by the number of meters in the sample.

The capacity equivalent ratio developed in Table 24 is multiplied by the number of accounts to determine the number of equivalent meter units. For example, 20,698 1" SFR accounts are multiplied by the capacity equivalent factor of approximately 1.67 to derive 34,497 ¾" capacity equivalent meters.

Table 25: FY 2026 Equivalent Meters

Meter Size	Single Family	Multi-Family	Commercial	Irrigation	Construction
5/8", 3/4"	205,763	16,025	5,873	973	-
1"	34,497	7,867	4,137	2,318	-
1.5"	2,680	18,083	11,617	5,850	-
2"	560	23,232	24,661	20,203	2,773
3"	-	3,712	3,157	777	530
4"	-	6,241	5,621	868	-
6"	-	4,272	6,576	720	-
8"	-	2,947	5,083	368	-
10"	-	700	5,460	140	-
12"	-	-	177	-	-
16"	-	-	-	-	-
Total	**243,500**	**83,079**	**72,362**	**32,217**	**3,304**

FIRE PROTECTION

Water systems provide two types of fire protection: public fire protection for firefighting through the fire hydrants and private fire protection (i.e. fire lines for private structures with sprinkler systems for fire suppression). The benefits of private fire protection accrue to those customers with private fire connections. These costs are recovered by the City's private fire line charge. Public fire protection is designed to protect human life and property and accrues to property owners within the City's service area. Put differently, public fire protection is a property related service, similar to domestic water service. Accordingly, as described below, the City recovers the cost of providing public fire protection in its meter base fees.

Raftelis performed a fire demand analysis to determine fire protection maximum day and hour units, which are used to determine the total cost to provide fire protection service (public and private) and analyzed the number of public fire hydrants and private fire connections in order to allocate the total fire cost between the two. The City provided Raftelis with a count of fire hydrants and private fire line connections.

Based on a review of data provided by the San Diego Fire-Rescue Department, this study assumes that the water system could need to support fighting ten simultaneous fires at a sample of development types. The Max Day and Max Hour capacity requirements represent a peak demand, similar to the Max Day demand costs for other classes determined above.

Table 26 shows the units of service associated with fire protection based on assumptions regarding the duration and water use rate associated with the typical fire events based on the City's fire occurrence data. As shown in Table 26, the calculation is based on the firefighting flow rates by type of property, the estimated potential number of concurrent fires and the estimated average duration of each type of firefighting event.

Table 26: Fire Protection Requirement

Development Type	Fire Demand (gpm)	Incidents	GPM for All Events	Duration per Event (minutes)	Max Day (gpd)	Max Hour (gpd)
Single Family	1,500	5	7,500	60	450,000	10,800,000
Condos/Apartments	3,000	2	6,000	90	540,000	8,640,000
Commercial	4,000	2	8,000	90	720,000	11,520,000
Industrial	6,000	1	6,000	300	1,800,000	8,640,000
Total		**10**	**27,500**		**3,510,000**	**39,600,000**
				HCF requirement:	*4,692*	*52,937*

PUBLIC AND PRIVATE FIRE CONNECTIONS

Table 27 shows the calculation of equivalent fire demand associated with public fire hydrants and private fire lines. Each connection size has a fire flow demand factor similar to the hydraulic capacity factor of a water meter. The diameter of the connection (in inches) is divided by 6" and raised to the 2.63 power to determine the fire meter ratio.[12] The ratio is multiplied by the number of connections at each size to calculate equivalent fire demand. Private fire connections are calculated as equivalent to a 6" connection, the standard for public fire hydrants.

Table 27: Private Fire Equivalent Connections

Connection Size	Count	Fire Meter Ratio	Equivalent 6"
3/4"		0.00	0.00
1"		0.01	0.00
1.5"	3	0.03	0.08
2"	87	0.06	4.84
3"	20	0.16	3.23
4"	1,681	0.34	578.69
6"	2,394	1.00	2,394.00
8"	1,802	2.13	3,840.11
10"	195	3.83	747.30
12"	33	6.19	204.28
16"	7	13.19	92.34
20"	2	23.72	47.45
Total	**6,224**		**7,912**

Table 28 develops a percentage to allocate total fire demand between public and private fire connections. The private fire equivalents developed above are compared to the City's 26,413 public fire hydrants to estimate that 23.1% of fire protection capacity should be allocated to private fire customers.

[12] Hazen-Williams equation and AWWA Manual M1

Table 28: Allocation Between Public and Private Fire

Fire Connections	Equivalent Connections	% of Equivalent Connections	Max Day Fire Flow	Max Hour Fire Flow
Private Fire Equivalent Connections	7,912	23.1%	1,082	12,203
Public Fire Equivalent Connections	26,413	76.9%	3,611	40,735
Total Fire Connections	**34,325**	**100.0%**	**4,692**	**52,937**

WATER USAGE AND DEMAND

The volume related cost components are allocated based on volumetric units expressed in the number of HCF (about 748 gallons), as well as Max Day Extra Capacity and Max Hour Extra Capacity customer characteristics:

- Base: a unit represents a single HCF of water billed.
- Max Day Extra Capacity: a unit represents the additional capacity (HCF per day) needed above the average amount to meet the demand on the hypothetical maximum use day. This is represented in HCF per day.
- Max Hour Extra Capacity: a unit represents the additional capacity above the maximum day amount needed to meet the hypothetical highest hourly demand experienced by the system. This is represented in HCF per day.

The City provided Raftelis with a complete data set of every bill issued to its retail customers from FY 2021 through FY 2024. This data provided the basis for determining maximum day and maximum hour extra capacity units of service using demand factors.

CUSTOMER CLASS DEMAND FACTORS

The units of service for the Max Day and Max Hour extra capacity functional cost categories are calculated using unique customer class demand factors. Through the class units of service process and using these demand factors, we distribute the incremental costs to build and operate the system to handle peak demand (the Max Day and Max Hour Extra Capacity functional cost components) to the customer classes based on each class's historic average peaking patterns, which we expect to predict future patterns.

Class demand factors are developed to reflect the estimated demand placed on the system by each class and are expressed as a ratio of the average daily demand for each class. If the estimated daily demand for a class on the hypothetical maximum day of demand is estimated at 60,000 HCF per day, and the average annual daily demand for the class is 40,000 HCF per day, the demand factor (or Max Day demand factor) is 1.5. If the estimated daily demand from the class is 100,000 HCF per day on a day of a Max Hour event, then the Max Hour demand factor is 2.5.

Table 29 provides an example of the demand factor calculation for the SFR class in FY 2021. Because the City bills SFR customers primarily on a bi-monthly basis, the data must first be normalized to remove the effects of cycle billing. If a larger number of customers is billed in a particular cycle, the monthly demand factor analysis can be skewed to apply additional weight to those months. To do this, Raftelis sorted the individual billing data according to the City's billing cycles: even, odd, and monthly. The total amount of water billed (Line 4) and number of bills issued in each month (Line 8) was determined from this data, as shown below. This information is used to calculate the average water use per read for each month (Line 9). To derive the normalized monthly use, these averages were applied to the number of average monthly reads (Line 10). The normalized monthly use is shown on Line 11.

Table 29: Demand Factor Calculation Example

Line	Calculation Note	Description	July	August	September	October	November	December	January	February	March	April	May	June	Total
		Sum of Use													
1	*From Data*	Even	645,019	1,930,500	645,775	2,023,508	467,826	1,771,362	507,931	1,445,002	495,307	1,370,546	497,743	1,744,581	13,545,100
2	*From Data*	Odd	1,541,019	683,063	1,601,660	742,688	1,343,392	709,326	1,066,805	463,251	1,096,229	596,890	1,127,095	674,293	11,645,711
3	*From Data*	Month	5,173	5,327	5,295	5,140	4,905	4,485	4,252	3,434	4,274	4,815	5,019	5,782	57,901
4		**Total**	2,191,211	2,618,890	2,252,730	2,771,336	1,816,123	2,485,173	1,578,988	1,911,687	1,595,810	1,972,251	1,629,857	2,424,656	25,248,712
		Count of Reads													
5	*From Data*	Even	38,576	85,685	36,646	87,090	29,263	94,286	34,889	88,522	37,909	85,230	31,413	89,374	738,883
6	*From Data*	Odd	75,540	27,312	74,357	31,318	70,024	37,731	63,493	26,818	74,295	32,694	67,244	31,324	612,150
7	*From Data*	Month	489	489	489	489	491	488	489	486	489	489	488	486	5,862
8		**Total**	114,605	113,486	111,492	118,897	99,778	132,505	98,871	115,826	112,693	118,413	99,145	121,184	1,356,895
9	*= 4/8*	**Average Use per Read**	19.12	23.08	20.21	23.31	18.20	18.76	15.97	16.50	14.16	16.66	16.44	20.01	
10	*= avg of 9*	**Average Monthly Reads**	113,075												
11	*= 9 * 10*	**Normalized Monthly Use**	2,161,950	2,609,396	2,284,707	2,635,623	2,058,143	2,120,749	1,805,822	1,866,275	1,601,213	1,883,336	1,858,847	2,262,402	25,148,463
		Demand Factor Calculation													
12	*Max of 11*	Maximum Monthly Normalized Use			2,635,623										
13	*Avg of 11*	Average Monthly Normalized Use			2,095,705										
14	*= 12 / 13*	Ratio of Max to Average			1.26										
15	*From Data*	System Factor			1.22										
16	*= 14 * 15*	**SFR FY 2021 Demand Factor**			**1.54**										

The demand factor is calculated by dividing the water use in the maximum month by the water use in the average month. This ratio is then scaled up by a factor that relates the average daily use in the maximum month for the entire system to the system's maximum daily use. This process was repeated for each customer class and for FY 2022, FY 2023, and FY 2024. The yearly demand factors for each class were averaged to determine the test year max day demand factor used in this study, as shown in Table 30. The use of a multi-year average normalizes the demand factors, which can fluctuate from year to year based on weather conditions and other factors. This normalization ensures that peak usage is not artificially inflated by billing cycles and reflects true customer water use patterns. The outcome informs how much peak demand costs are fairly assigned to each tier or class.

Table 30: Class Max Day Demand Factors

Customer	FY 2021	FY 2022	FY 2023	FY 2024	Average
SFR	1.54	1.40	1.48	1.59	1.50
MFR	1.64	1.72	1.73	1.73	1.71
Commercial	1.58	1.32	1.39	1.54	1.46
Irrigation	2.01	1.88	2.14	1.77	1.95
Construction	1.97	1.61	3.00	1.76	2.09

The final class maximum day demand factor is multiplied by 1.5 to estimate the maximum hour demand factor in accordance with the City's Water Facility Design Guidelines discussed above. The City's ADS sewer basin meters also support distinct class maximum hour demand factors. Data shows two distinct diurnal curves; one belonging to residential areas and the other to commercial/industrial service areas. The residential diurnal curves showcase two distinct peaks in a day, one peak during the early morning and the other during the evening. The commercial/industrial diurnal curve is accompanied by a single daily peak, usually occurring at noon. Residential diurnal curves also experience a higher peak flow during the weekends when compared to weekdays. Commercial/industrial diurnal curves show a lower peak flow during weekends compared to weekdays.

Using customer class demand factors, the units of service for each of the functional cost components were calculated as shown in Table 31. The Max Day Factor and Max Hour Factor are multiplied by the number of HCF for average day to obtain the Max Hour and Max Day Total Capacity units of service. Max Day extra capacity units are the result of subtracting average day use from Max Day total use; Max Hour extra capacity units are the result of subtracting Max Day total capacity units from Max Hour total capacity units.

Table 31: Extra Capacity Unit Calculation

Customer Class	Volume							
	Annual Use (HCF)	Average Day Use (HCF)	Demand Factor	Total Capacity (HCF/Day)	Max Day Extra Capacity (HCF/Day)	Demand Factor	Total Capacity (HCF/Day)	Max Hour Extra Capacity (HCF/Day)
Single Family	22,516,216	61,688	1.50	92,642	30,953	2.25	138,963	46,321
Multi-Family	17,651,358	48,360	1.71	82,500	34,140	2.56	123,750	41,250
Commercial	17,587,033	48,184	1.46	70,183	22,000	2.18	105,275	35,092
Irrigation	7,480,715	20,495	1.95	39,950	19,455	2.92	59,925	19,975
Temp Construction	299,157	820	2.09	1,709	890	3.13	2,564	855
Public Fire Protection				3,611	3,611		40,735	37,124
Private Fire Protection				1,082	1,082		12,203	11,121
Total Units of Service	**65,534,479**			**291,677**	**112,130**		**483,414**	**191,738**

UNITS OF SERVICE SUMMARY

Table 32 summarizes the customer class units of service shown in the tables above. At this stage, both equivalent meters and customer accounts are multiplied by 12 in order to annualize the customer units of service.

Table 32: Units of Service Summary

Customer Class	Volume			Customer		
	Annual Use (HCF)	Max Day Extra Capacity (HCF/Day)	Max Hour Extra Capacity (HCF/Day)	Equivalent Meters	Annual Bills	Equivalent Hydrants
Single Family	22,516,216	30,953	46,321	2,921,996	2,728,440	
Multi-Family	17,651,358	34,140	41,250	996,952	375,156	
Commercial	17,587,033	22,000	35,092	868,344	206,856	
Irrigation	7,480,715	19,455	19,975	386,608	96,396	
Temp Construction	299,157	890	855	39,644	6,756	
Public Fire Protection		3,611	37,124			26,413
Private Fire Protection		1,082	11,121		74,688	7,912
Total Units of Service	**65,534,479**	**112,130**	**191,738**	**5,213,544**	**3,488,292**	**34,325**

Unit Costs

The next step is to calculate the unit cost for each functional cost component[13]. The unit cost is the quotient of the allocated revenue requirement by cost component from Table 22 divided by the units of service for each from Table 32. It is important to note that these unit costs apply to all classes, ensuring that each class is allocated its proportional share of costs. All customers will be allocated, for example, $703.76 per maximum day unit of service.

Table 33: Unit Costs

Cost Component	Cost	Units of Service		Unit Cost
CWA Supply - Volume	$226,437,692	65,534,479	HCF	$3.46
Base	$283,298,216	65,534,479	HCF	$4.32
Max Day Extra Capacity	$78,912,351	112,130	HCF/day	$703.76
Max Hour Extra Capacity	$67,243,658	191,738	HCF/hr	$350.71
CWA Supply - Fixed	$116,848,581	5,213,544	Eq. Meters	$22.41
Meters and Services	$28,952,261	5,213,544	Eq. Meters	$5.55
Billing	$12,436,045	3,488,292	No. of Bills	$3.57
Direct Public Fire	$5,256,015	N/A		
Total	**$819,384,820**			

[13] For presentation purposes in this report, unit costs in Table 33 are rounded to the nearest penny. Manually performing the calculations displayed in Table 34 using the data shown in Tables 32 and 33 will not result in precisely the result shown.

Distribution of Costs to Customer Classes

The customer class units of service in Table 32 are multiplied by the unit costs in Table 33 to determine the distribution of the cost of service to the customer classes.

Table 34: Distribution of Total Revenue Requirement to Customer Classes

Customer Class	CWA Supply - Volume	Base	Max Day Extra Capacity	Max Hour Extra Capacity	CWA Supply - Fixed	Meters and Services	Billing	Direct Public Fire	Preliminary Total
Single Family	$77,799,047	$97,335,081	$21,783,731	$16,245,046	$65,489,250	$16,226,657	$9,727,111		$304,605,922
Multi-Family	$60,989,769	$76,304,845	$24,026,149	$14,466,607	$22,344,192	$5,536,352	$1,337,462		$205,005,375
Commercial	$60,767,511	$76,026,775	$15,482,395	$12,306,878	$19,461,764	$4,822,156	$737,458		$189,604,937
Irrigation	$25,847,704	$32,338,293	$13,691,648	$7,005,401	$8,664,854	$2,146,942	$343,660		$90,038,502
Temp Construction	$1,033,661	$1,293,222	$626,267	$299,767	$888,521	$220,154	$24,086		$4,385,678
									$0
Public Fire Protection	$0	$0	$2,540,981	$13,019,745				$5,256,015	$20,816,741
Private Fire Protection	$0	$0	$761,180	$3,900,215			$266,269		$4,927,664
Total Allocated Rev. Req.	**$226,437,692**	**$283,298,216**	**$78,912,351**	**$67,243,658**	**$116,848,581**	**$28,952,261**	**$12,436,045**	**$5,256,015**	**$819,384,820**

Reallocation of Public Fire Protection Costs

The customer class revenue requirement also includes reallocated public fire protection costs. Public Fire is reallocated among the customer classes to reflect the shared benefit of this service. Table 35 shows this distributed cost, which is allocated to the customer classes in proportion to their equivalent meters and recovered in the meter base fee. This charge is appropriate to recover from the City's customers on this basis because fire protection services are provided to each property. Public fire hydrants and their associated capacity in the water system are used to provide a direct benefit to individual properties in the event of a fire requiring their use. It is a reasonable assumption that locations with a large water meter are larger than others and would require more firefighting effort to control a fire event.

Table 35: Public Fire Reallocation

Customer Class	Preliminary Total	Equivalent Meters	Equivalent Meter Distribution	Reallocation of Public Fire	Total
Single Family	$304,605,922	2,921,996	56.0%	$11,667,003	$316,272,926
Multi-Family	$205,005,375	996,952	19.1%	$3,980,650	$208,986,025
Commercial	$189,604,937	868,344	16.7%	$3,467,141	$193,072,078
Irrigation	$90,038,502	386,608	7.4%	$1,543,656	$91,582,158
Temp Construction	$4,385,678	39,644	0.8%	$158,291	$4,543,969
Public Fire Protection	$20,816,741			($20,816,741)	$0
Private Fire Protection	$4,927,664				$4,927,664
Total Allocated Rev. Req.	**$819,384,820**	**5,213,544**	**100%**	**$0**	**$819,384,820**

Comparison of FY 2026 Cost of Service to Revenue Status Quo

Table 36 compares the final allocated revenue requirement by class to the amount of revenue that would be recovered from each class under the status quo scenario. If all rates were simply increased by an equal percentage amount in an across-the-board (ATB) fashion (14.7%, from Table 1), the Commercial, Irrigation, and Private Fire Protection customer classes would pay more than their allocated share of costs. The cost of service by customer class compared to the projected revenues under the status quo scenario is shown in Table 36. As indicated, the results of the cost-of-service analysis results in a reallocation of costs among the customer classes reflecting the changes in cost components and customer class usage characteristics from the prior cost of service study supporting the City's existing rates.

Table 36: Customer Class Cost of Service vs. Revenue under Current Rates

	FY 2026 Revenue at May 2025 Rates		FY 2026 Cost of Service		Percent Change in Revenue
Customer Class	Revenue	Percent	Revenue	Percent	
Single Family	$269,438,170	37.7%	$316,272,926	38.6%	17.4%
Multi-Family	$179,559,323	25.1%	$208,986,025	25.5%	16.4%
Commercial	$171,516,501	24.0%	$193,072,078	23.6%	12.6%
Irrigation	$84,505,024	11.8%	$91,582,158	11.2%	8.4%
Temp Construction	$3,908,057	0.5%	$4,543,969	0.6%	16.3%
Private Fire Protection	$5,445,042	0.8%	$4,927,664	0.6%	-9.5%
Total	**$714,372,118**	**100%**	**$819,384,820**	**100%**	**14.7%**

Rate Design

Introduction

The revenue requirements and cost of service analysis described in the preceding sections of this report provide a basis for the design of a water rate structure. Setting rates involves the development of rate schedules for each customer class. The rate schedules must establish rates that are sufficient to recover the annual revenue requirement determined for each customer class. The proposed rates are calculated directly from the results of the cost-of-service analysis.

In this section of the study, we first allocated the portions of each customer class's revenue requirement to be recovered through the fixed meter base fee and the commodity charge calculated using variable rates. Next, for each customer class and for each tier of the single-family residential customer class, we calculated the commodity rate to be used to calculate the commodity charge for the billing cycle. Finally, we analyzed the impact of the proposed changes in the meter base fee and commodity rates on the customer classes.

Meter Base Fee

The meter base fee is the same for all customer classes and is based on meter size. Meter size represents a reasonable measure of a customer's potential impact on system capacity, particularly in terms of instantaneous and peak demand. The meter base fee recovers portions of fixed cost elements such as meter maintenance and services, meter reading, customer billing and collections, customer service, and maintenance. Additionally, a portion of the fixed charges levied by SDCWA are recovered in the City meter base fee. This structure is one way the City charges customers who require more capacity. For example, customers with a 4" meter expect to be able to use more water (at a higher flow capacity) than customers with a ¾" meter. Consequently, the City's water system must maintain assets sized accordingly and capable of providing customers the level of service expected from their meter connection when the tap turns on. Table 37 shows the calculation of each component of the meter base fee, derived by dividing the cost components from Distribution of Costs to Customer Classes.

The customer class units of service in Table 32 are multiplied by the unit costs in Table 33 to determine the distribution of the cost of service to the customer classes.
Table 34 and the units of service from Table 32.

Table 37: Meter Base Fee Components

Rate Component	Total Cost	Billable Units	Rate
CWA Supply - Fixed	$116,848,581	5,213,544 Eq. Meters	$22.41
Meters and Services	$28,952,261	5,213,544 Eq. Meters	$5.55
Billing	$12,436,045	3,488,292 Monthly Bills	$3.57
Fire Protection	$20,816,741	5,213,544 Eq. Meters	$3.99
Private Fire Capacity	$4,661,395	94,948 Fire Eq. Meters	$49.09

Table 38 shows the buildup of the meter base fee for each meter size. The Billing rate component is the same for all customers. The SDCWA Supply-Fixed, Meters and Services, and Public Fire Protection rate components scale with the size of the meter according to the meter capacity ratios developed in Table 24. Each component for each meter size is then added to develop the final monthly fee.

Table 38: Meter Base Fee - $ per month

Meter Size	Meter Ratio	Rate Components				Total
		CWA Supply - Fixed	Meters and Services	Billing	Public Fire Protection	
5/8", 3/4"	1.00	$22.41	$5.55	$3.57	$3.99	$35.53
1"	1.67	$37.35	$9.26	$3.57	$6.65	$56.83
1.5"	3.33	$74.71	$18.51	$3.57	$13.31	$110.10
2"	5.33	$119.53	$29.62	$3.57	$21.30	$174.02
3"	12.33	$276.42	$68.49	$3.57	$49.24	$397.73
4"	20.67	$463.19	$114.77	$3.57	$82.52	$664.05
6"	48.00	$1,075.80	$266.56	$3.57	$191.66	$1,537.58
8"	73.67	$1,651.05	$409.09	$3.57	$294.14	$2,357.85
10"	140.00	$3,137.75	$777.46	$3.57	$558.99	$4,477.77
12"	176.67	$3,959.54	$981.08	$3.57	$705.40	$5,649.59
16"	260.00	$5,827.25	$1,443.85	$3.57	$1,038.13	$8,312.81

Commodity Rate

The City's commodity charge for all customers is based on rate charged per hundred cubic feet. It is calculated to recover costs associated with the SDCWA Supply-Volume, Base, Max Day, and Max Hour cost components. These costs include fixed and variable costs that are incurred by the City's water systems while meeting customer average rate of use and peak demand use. The commodity rate is developed by customer class. The following sections explain the development of the rate associated with each of the four volume related cost components. Each of these components are added together to develop the proposed uniform commodity rate per HCF by customer class.

SDCWA SUPPLY - VOLUME RATE COMPONENT

Table 39 shows the calculation of the rate to recover costs from the SDCWA Supply-Volume cost component. The costs for each customer class were previously shown in Distribution of Costs to Customer Classes

The customer class units of service in Table 32 are multiplied by the unit costs in Table 33 to determine the distribution of the cost of service to the customer classes.

Table 34. The Units are the total amount of water, measured in HCF, forecasted to be sold in FY 2026. The rate is calculated by dividing the cost for each class by the units. This rate recovers a portion of the costs of the City to purchase water from SDCWA and is charged equally to all classes, since SDCWA's charge for water is consistent regardless of the amount purchased by the City.

Table 39: Supply Rate Component Calculation

Customer Class	Allocated Cost	Annual Billed HCF	Rate
Single Family	$77,799,047	22,516,216	$3.46
Multi-Family	$60,989,769	17,651,358	$3.46
Commercial	$60,767,511	17,587,033	$3.46
Irrigation	$25,847,704	7,480,715	$3.46
Temp Construction	$1,033,661	299,157	$3.46

BASE RATE COMPONENT

Table 40 shows the calculation of the rate to recover costs from the Base cost component. The Billable Units are the total amount of water, measured in HCF, forecasted to be sold in FY 2026. The rate is calculated by dividing the cost for each class by the billable units. This represents the portion of the rate charged to recover the cost to deliver water at an average rate of demand and is applied equally to the rate being developed for all classes.

Table 40: Base Rate Component Calculation

Customer Class	Allocated Cost	Annual Billed HCF	Rate
Single Family	$97,335,081	22,516,216	$4.32
Multi-Family	$76,304,845	17,651,358	$4.32
Commercial	$76,026,775	17,587,033	$4.32
Irrigation	$32,338,293	7,480,715	$4.32
Temp Construction	$1,293,222	299,157	$4.32

DEMAND RATE COMPONENT

Table 41 shows the calculation of the rate to recover costs from the Max Day Extra Capacity and Max Hour Extra Capacity cost components, which are added together in this table. The Units are the total amount of water, measured in HCF, forecasted to be sold in FY 2026. The rate is calculated by dividing the cost for each class by the units.

This rate includes the City's incremental costs (above Base costs) to build the system larger than the system would need to be built to meet average demand (the Max Day Extra Capacity and Max Hour Extra Capacity cost components). Since these costs were allocated to the customer classes in proportion to their demand in Distribution of Costs to Customer Classes

The customer class units of service in Table 32 are multiplied by the unit costs in Table 33 to determine the distribution of the cost of service to the customer classes.

Table 34, the rates are different for each class. Customer classes with a higher demand factor pay a higher rate for demand costs.

Table 41: Demand Rate Component Calculation

Customer Class	Allocated Cost	Annual Billed HCF	Rate
Single Family	$38,028,777	22,516,216	$1.69
Multi-Family	$38,492,756	17,651,358	$2.18
Commercial	$27,789,273	17,587,033	$1.58
Irrigation	$20,697,049	7,480,715	$2.77
Temp Construction	$926,034	299,157	$3.10

Rate Structures

The City's current rate structure consists of a monthly meter base fee which varies by meter size and a volume rate which varies by customer class.

Meter size represents a reasonable measure of a customer's potential impact on system capacity, particularly in terms of instantaneous and peak demand. The City scales fixed charges by meter size using capacity ratios derived from both American Water Works Association (AWWA) standards and calibrated to reflect actual flow characteristics observed in the City's water system. These ratios represent the hydraulic capacity associated with each meter size and help ensure that fixed costs—such as those for storage, transmission, and system readiness—are distributed in proportion to a customer's demand on the system. This approach supports a cost-based and proportional allocation of fixed charges, grounded in local data.

The methodology is especially relevant given the City's customer profile: Of approximately 225,000 single-family residential accounts, more than 90% (over 203,000) are served by 5/8" or 3/4" meters, which correspond to lower usage and lower demand on the system. In contrast, the commercial and industrial class includes around 6,000 accounts but represents over 17,000 service connections—many with 1" or larger meters that have significantly higher peak flow potential. Though these customers make up less than 3% of accounts, their infrastructure impact is far greater due to meter size and usage patterns.

While a 3/4" meter has the physical capacity to deliver high volumes of water, actual usage among single-family residential (SFR) customers is far below that potential. For example, if a 3/4" meter was left fully open at 20 gallons per minute (GPM), it could theoretically deliver over 1,155 HCF of water in a 30-day period. Even at a modest 2 GPM, continuous flow would result in roughly 115 HCF over the same period. By contrast, the average SFR customer with a 3/4" meter uses just 9 HCF per month. This comparison highlights that most residential customers operate well below the meter's capacity, using only a small fraction of what their meter could theoretically deliver.

The City's current SFR volume rate structure consists of three tiers each with a different volume rate. Our examination of the City's detailed customer billing records confirms that the current rate structure is appropriate for the City. Development of tiered rates involves first establishing cost of service for the SFR class, then allocating that cost between the tiers, such that the rates will recover cost of service both by class and within the class. A detailed explanation of this process is provided in the next section of this report.

The multi-family residential, commercial, irrigation, and temporary construction customer classes have a uniform commodity rate. A tiered rate structure is appropriate for SFR customers because it recognizes the diversity of demands within the class especially with regard to differences in indoor and outdoor water usage. A tiered

structure recognizes these differences, charging higher rates for usage which contribute to the need for a larger, more expensive water system to support max day and max hour demand.

Although commercial and industrial customers typically use water in consistent volumes reflective of their operational needs, the customer class as a whole demonstrates significant variability in usage patterns. This broad range in demand makes it impractical to implement uniform tiered thresholds that would apply proportionally across all businesses. Consequently, tiered rate structures are not applied to commercial and industrial classes. Instead, these customers are often subject to uniform rates that better align with their usage characteristics and the principles of cost-of-service rate design. Relative to the SFR class, the non-SFR classes are far more heterogeneous. For example, the average usage for a 400-unit apartment complex will be higher than the average usage for a 10 unit complex; the average HCF usage for a university will be many times higher than average usage amount for a daycare; and the average usage for a dry cleaner will be higher than the average HCF usage for the convenient store next door. In other words, customers in these classes other than the single family residential class vary considerably in size. A fixed-tiered structure applied to a customer class with a greater diversity of demand between the customers reduces the efficacy of recovering the incremental max day and max hour costs proportionately as compared to a more homogeneous customer class such as single family residential.

To apply a tier structure to the non-SFR classes could result in certain customers being charged for maximum day and hour extra capacity costs, even if their demand is relatively consistent. For example, a department store may average 10,000 HCF of usage per billing cycle. In a tiered rate structure like the one used for the single family residential class, the department store will be required to pay for 9,982 HCF, or over 99% of its water, at the tier 3 rate. However, forcing a department store to pay the highest tiered rate for 99% of its water does not achieve the City's purpose of passing the incremental cost of above-average usage to customers with above-average usage in a billing cycle because the City would be charging higher tiered rates for usage that, for the department store, is not above-average and therefore did not contribute to the City's incremental costs to create capacity in the system to meet above-average demand.

A tiered rate structure for the Multi-family, Commercial, Temporary Construction, and Irrigation customer classes, would not proportionately recover the cost to provide service for each customer due to the diversity of demand within the classes. As discussed above, the purpose of allocating the expenses associated with extra capacity to separate cost components (Max Day and Max Hour as opposed to Base) is to allow the system to recover a proportional share of the City's incremental costs to meet above-average demand from customers only when they place above-average demand on the system. Tiered rates accomplish this by recovering average day and varying portions of maximum day and maximum hour costs within each tier based on class usage data.

Although the non-single family residential customer classes have uniform rates, these rates are not averaged across the system. Instead, the City uses class-specific peaking demand factors to allocate costs for Max Day and Max Hour capacity. This ensures that customer classes that impose greater peak demands—such as irrigation and temporary construction—are assigned a larger share of the costs associated with building and operating a system that can meet those peak demands.

As a result, the uniform rate for each class reflects the cost of service to that class, including its contribution to peak demand. For example, irrigation customers pay a higher per-unit rate than commercial customers, not because of rate design preferences, but because their usage patterns place more strain on the system during peak demand periods. This approach ensures each class pays a proportionate share of the City's total system costs.

TIERED RATE STRUCTURE FOR THE SINGLE FAMILY RESIDENTIAL CUSTOMER CLASS

After it was determined that a tiered rate structure for the single-family residential customer class would proportionally distribute costs to customer usage, the rate calculation requires the selection of the consumption levels for the tiers followed by the calculation of costs allocated to those tiers. The City previously adopted a three-tier structure following Raftelis' recommendation in the 2022 Rate Study. A detailed analysis of customer usage patterns from 2021 through 2024 indicates that the same tier structure accurately captured customer's current usage.

The tier breakpoints for the SFR class are grounded in both state indoor use guidelines and San Diego-specific usage data. The breakpoint between Tier 1 and Tier 2 is set at 10 HCF per bimonthly period, which accounts for about 50% of all water billed to the SFR class. This amount was determined using a recommendation from the California Department of Water Resources (DWR)[14] that "water suppliers achieve an indoor water use efficiency standard of … 47 gallons [per person] per day by 2025." According to the latest available Census data, the average household size in the City of San Diego is 2.59 persons[15]. This suggests that a reasonable estimate for indoor water use is 5 HCF per month, or 10 HCF per bi-monthly period.[16]
The Tier 2/Tier 3 break point is 22 HCF, which is average use for bills issued during the summer months, representing an average amount of outdoor usage. The tier breakpoints for SFR customers billed monthly are half of these values.

By structuring the rates this way, the City ensures that higher tiers recover a proportionally higher share of costs specifically related to upsized infrastructure and peaking-related O&M, consistent with the base-extra capacity methodology.

CALCULATION OF THREE TIER SFR COMMODITY RATES

As described above, the purpose of a tiered rate structure is to recover max day and max hour costs from customers who place these demands on the water system. The calculations required to allocate costs to the determined tiers within the single-family class are similar to those described in the cost-of-service section and uniform rate calculation for other customer classes above. First, units of service (billed water use and demand factors) must be determined for each tier of water use. Second, maximum day and hour costs must be allocated to each tier. Finally, a rate must be developed based on the allocated cost and the billable units.

The demand factors presented here were derived using the same methodology described in the Units of Service section above, and the extra capacity units for Max Day and Max Hour using the same process as shown in Table 31. The Max Day Allocation and Max Hour Allocation are the resulting percentage distribution of the Max Day Extra Capacity Units and the Max Hour Extra Capacity Units[17]. Each tier is assigned demand costs relative to its own unique demand factor, recognizing the variation of use even within the defined tiers.

[14] https://water.ca.gov/News/News-Releases/2021/Nov-21/State-Agencies-Recommend-Indoor-Residential-Water-Use-Standard
[15] 2022 ACS Data Table S1101 for the San Diego census defined place.
[16] 47 gallons per person per day * 2.59 persons per household * 30 days per month = 3,652 gallons per month or 4.88 HCF
[17] For example, 1,293 HCF/Day out of 17,386 HCF/Day is 7.4%.

Table 42: SFR Tier Cost Allocations

Description	Base		Maximum Day			Maximum Hour			Allocations	
	Annual Use (HCF)	Average Day Use (HCF)	Demand Factor	Total Capacity (HCF/Day)	Extra Capacity (HCF/Day)	Demand Factor	Total Capacity (HCF/Day)	Extra Capacity (HCF/Day)	Maximum Day	Maximum Hour
Tier 1	11,459,518	31,396	1.04	32,689	1,293	1.56	49,034	16,345	7.4%	41.3%
Tier 2	6,595,627	18,070	1.29	23,311	5,241	1.94	34,967	11,656	30.1%	29.5%
Tier 3	4,461,071	12,222	1.89	23,074	10,852	2.83	34,612	11,537	62.4%	29.2%
Total	**22,516,216**				**17,386**			**39,537**		

Table 43 shows the calculation of the demand rate component of each tier. The total SFR max day extra capacity component cost, $21.8 million, is reallocated to each tier using the Max Day Allocation calculated in Table 42; the same step is repeated for Max Hour costs. It is important to note that the total demand costs allocated to the three proposed tiers within the SFR class are the same as the total SFR peaking costs previously calculated in Distribution of Costs to Customer Classes

The customer class units of service in Table 32 are multiplied by the unit costs in Table 33 to determine the distribution of the cost of service to the customer classes.
Table 34. Regardless of the tier breakpoint definitions or unique tier demand factors, the tiered rates are calculated to recover exactly 100% of the entire class cost.

Table 43: Demand Rate Calculation

Description	Max Day Share	Max Day Cost	Max Hour Share	Max Hour Cost	Total Cost	Units	Rate
Tier 1	7.4%	$1,620,256	41.3%	$6,715,644	$8,335,901	11,459,518	$0.73
Tier 2	30.1%	$6,566,360	29.5%	$4,789,009	$11,355,369	6,595,627	$1.72
Tier 3	62.4%	$13,597,115	29.2%	$4,740,392	$18,337,507	4,461,071	$4.11
Total	**100.0%**	**$21,783,731**	**100.0%**	**$16,245,046**	**$38,028,777**	**22,516,216**	**$1.69**

Table 44 summarizes the SFR tiered rates and uniform rates for other classes. The total commodity rate for each tier is the sum of each of the rate components.

Table 44: Tiered Commodity Rates - $ per HCF

Customer Classes	Bimonthly Tier Widths (HCF) [1]	Rate Components			COS Total
		Supply	Base	Max Day & Max Hour	
Single Family					
Tier 1	0 to 10	$3.46	$4.32	$0.73	$8.51
Tier 2	11 to 22	$3.46	$4.32	$1.72	$9.50
Tier 3	Above 22	$3.46	$4.32	$4.11	$11.89
Multi-Family		$3.46	$4.32	$2.18	$9.96
Commercial		$3.46	$4.32	$1.58	$9.36
Irrigation		$3.46	$4.32	$2.77	$10.55
Temp Construction		$3.46	$4.32	$3.10	$10.88
[1] Monthly bills' tier thresholds are 50% of bimonthly thresholds.					

Alternative Uniform Rate Option

Raftelis believes a tiered rate structure is best suited to meet the City's needs and will proportionally recover the City's total costs of water service to the single-family residential customers. However, Raftelis also developed a uniform rate option as a possible alternative to the tiered structure.

If the City elected to eliminate the tiered rate structure for single family customers, the process described in Table 42 and Table 43 would be removed. Instead, the demand component of the single-family rate would be that shown in Table 41 and the full rate would be $9.47 per HCF, derived in the same manner as the rates for other classes.

Private Fire Protection Rates

Private fire protection rates recover the cost of the system capacity available to deliver water during a fire event from those customers with private fire suppression systems installed at their property. This enables recognition of the portion of water system infrastructure available to provide stand-by, ready to serve service. The rate components were derived in Table 37. The customer cost component is the same for each meter size and is the same charge applied to all other retail meters. The fire capacity component is scaled according to the equivalent fire demand ratios shown in Table 27.

Table 45: Monthly Private Fire Service Fees - $ per monthly bill

Connection Size	Meter Ratio	Rate Components		Total
		Private Fire Capacity	Billing	
1"	0.01	$0.44	$3.57	$4.01
1.5"	0.03	$1.28	$3.57	$4.85
2"	0.06	$2.73	$3.57	$6.30
3"	0.16	$7.93	$3.57	$11.50
4"	0.34	$16.90	$3.57	$20.47
6"	1.00	$49.09	$3.57	$52.66
8"	2.13	$104.62	$3.57	$108.19
10"	3.83	$188.15	$3.57	$191.72
12"	6.19	$303.91	$3.57	$307.48
16"	13.19	$647.63	$3.57	$651.20
20"	23.72	$1,164.67	$3.57	$1,168.24

Rate Forecast

Table 46, Table 47, and Table 48 provide a forecast of rates throughout the study period. The rates shown in the first column are those which are proposed to take effect in May 2025. The FY 2026 rates are those developed above. In FY 2027, each rate is increased by 14.5%, which is the required percentage revenue increases identified in Table 1. The same across the board rate increase methodology is applied in FY 2028 and FY 2029.

Table 46: Comparison of Current and Proposed Meter Base Fees - $ per month

Meter Size	FY 2025 [1]	FY 2026	FY 2027	FY 2028	FY 2029
Effective:	May 2025	Jan. 2026	Jan. 2027	Jan. 2028	Jan. 2029
5/8", 3/4"	$28.84	$35.53	$40.69	$45.37	$50.37
1"	$46.63	$56.83	$65.08	$72.57	$80.56
1.5"	$91.07	$110.10	$126.07	$140.57	$156.04
2"	$144.42	$174.02	$199.26	$222.18	$246.62
3"	$331.14	$397.73	$455.41	$507.79	$563.65
4"	$553.42	$664.05	$760.34	$847.78	$941.04
6"	$1,282.49	$1,537.58	$1,760.53	$1,963.00	$2,178.93
8"	$1,967.13	$2,357.85	$2,699.74	$3,010.22	$3,341.35
10"	$3,736.49	$4,477.77	$5,127.05	$5,716.67	$6,345.51
12"	$4,714.53	$5,649.59	$6,468.79	$7,212.71	$8,006.11
16"	$6,937.35	$8,312.81	$9,518.17	$10,612.76	$11,780.17

[1] Rates adopted March 4, 2025 and effective May 1, 2025.

Table 47: Comparison of Current and Proposed Commodity Rates - $ per HCF

Customer Class	FY 2025 [1]	FY 2026	FY 2027	FY 2028	FY 2029
Effective:	May 2025	Jan. 2026	Jan. 2027	Jan. 2028	Jan. 2029
Single Family					
0 to 10 hcf	$7.34	$8.51	$9.75	$10.88	$12.08
11 to 22 hcf	$8.31	$9.50	$10.88	$12.14	$13.48
Above 22 hcf	$10.46	$11.89	$13.62	$15.19	$16.87
Multi-Family	$8.62	$9.96	$11.41	$12.73	$14.14
Commercial	$8.41	$9.36	$10.72	$11.96	$13.28
Irrigation	$9.89	$10.55	$12.08	$13.47	$14.96
Temp Construction	$9.48	$10.88	$12.46	$13.90	$15.43

[1] Rates adopted March 4, 2025 and effective May 1, 2025.

Table 48: Comparison of Current and Proposed Private Fire Service Fees - $ per month

Fireline Size	FY 2025 [1]	FY 2026	FY 2027	FY 2028	FY 2029
Effective:	May 2025	Jan. 2026	Jan. 2027	Jan. 2028	Jan. 2029
1"	$2.66	$4.01	$4.60	$5.13	$5.70
1.5"	$3.61	$4.85	$5.56	$6.20	$6.89
2"	$5.27	$6.30	$7.22	$8.06	$8.95
3"	$11.19	$11.50	$13.17	$14.69	$16.31
4"	$21.38	$20.47	$23.44	$26.14	$29.02
6"	$57.97	$52.66	$60.30	$67.24	$74.64
8"	$121.11	$108.19	$123.88	$138.13	$153.33
10"	$216.06	$191.72	$219.52	$244.77	$271.70
12"	$347.67	$307.48	$352.07	$392.56	$435.75
16"	$738.45	$651.20	$745.63	$831.38	$922.84
20"	$1,326.26	$1,168.24	$1,337.64	$1,491.47	$1,655.54

[1] Rates adopted March 4, 2025 and effective May 1, 2025.