



CITY OF BEVERLY HILLS

Water Rate Study

January 23, 2024
Revised March 1, 2024



HF&H Consultants, LLC

CITY OF BEVERLY HILLS

345 Foothill Road
Beverly Hills, CA 90210



WATER RATE STUDY

March 1, 2024

HF&H CONSULTANTS, LLC

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March 1, 2024

Ms. Shana Epstein
Director of Public Works
City of Beverly Hills
345 Foothill Road
Beverly Hills, CA 90210

Subject: Water Rate Study – Final Report

Dear Ms. Epstein:

We are pleased to submit this wastewater rate study. This report is organized into six sections:

- **Executive Summary** – a summary of the proposed water rates.
- **Introduction** – a brief description of the study purpose and project background.
- **Revenue Requirements** – the estimated costs that must be covered by rates and other sources of revenue.
- **Revenue Analysis** – an analysis of revenue at current rates to determine if revenues need to increase to cover the projected revenue requirement and to maintain adequate reserves.
- **Cost of Service Analysis** – the allocation of the revenue requirement among the customer classes based on updated water demands of from each class.
- **Rate and Bill Analysis** – the updated rates and residential tier breakpoints, with the cost of service adjustments and the required rate increases and a comparison of typical customer bills with comparable agencies.

This revised version includes the addition of **Section 7 – Top 10 Water Users**. No other sections were revised.

Sincerely,
HF&H CONSULTANTS, LLC

Rick Simonson, Senior Vice President

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Appendix A – Water Reliability Charge 30-year Cash Flow Analysis

ACRONYMS

AMI	Automated Meter Infrastructure
AWWA	American Water Works Association
EMU	Equivalent Meter Unit
FY	Fiscal Year
CCF or HCF	Hundred cubic feet of metered water sold; 748 gallons; a cube of water 4.6 feet on edge
CIP	Capital Improvement Project
GPD	Gallons Per Day
ISF	Internal Services Fund – reimbursement by the Water Fund for services provided by the General Fund
O&M	Operations and Maintenance
MWD	Metropolitan Water District of Southern California, the City’s wholesale water supplier
PAYGo	Pay-As-You-Go, in reference to funding capital improvements from cash rather than from borrowed sources of revenue

ACKNOWLEDGEMENTS

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Councilmember Sharona R Nazarian, PsyD
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LIMITATIONS

This document was prepared solely for the City of Beverly Hills in accordance with the contract between the City and HF&H and is not intended for use by any other party for any other purpose.

In preparing this study, we relied on information and instructions from the City, which we consider accurate and reliable and did not independently verify.

Rounding differences caused by stored values in electronic models may exist.

This document represents our understanding of relevant laws, regulations, and court decisions but should not be relied upon as legal advice. Questions concerning the interpretation of legal authorities referenced in this document should be referred to a qualified attorney.

SECTION 1. EXECUTIVE SUMMARY

1.1 BACKGROUND

The City of Beverly Hills (City) provides water service to residents and businesses in Beverly Hills (Inside City customers) and a portion of West Hollywood (Outside City customers). The City is heavily reliant on the Metropolitan Water District of Southern California for its potable water supply but has plans underway to continue developing local groundwater.

Since 2016, HF&H Consultants, LLC (HF&H) has supported the City in the analysis of its Water enterprise rates. On February 5, 2019, the Beverly Hills City Council approved a five-year water rate adjustment schedule based on a cost-of-service study conducted by HF&H. The restructured rate adjustments accounted for changes to the existing consumption and fixed service charges, implemented a water reliability charge, and adopted a revenue stabilization rates schedule for use during water shortages. The City's water rates were last adjusted on January 1, 2022.

Since February 2022, HF&H has worked with City staff to develop a five-year water enterprise financial model to analyze the necessary revenue increases to fund the water system's Operations and Maintenance (O&M) expenses, capital improvement plan, and adequately fund reserves for on-going cash flow and unexpected expenses.

1.2 CURRENT RATES

Tables 1-1 and 1-2 summarize the current quantity charge rates, service charge rates, and water reliability charge, respectively.

**Table 1-1. Current Bi-monthly Service Charge Rates
(Inside and Outside City Customers)**

Service Size	Current Charge
Water Meter Service Charges	
1"	\$53.51
1-1/2"	\$93.84
2"	\$142.24
3"	\$271.30
4"	\$416.50
6"	\$819.82
8"	\$1,311.71
10"	\$1,967.57

Table 1-2. Current Bi-monthly Quantity Charge Rates

Tier Size		Inside City \$/HCF	Outside City \$/HCF
Inside City			
Single-Family/Duplex			
Tier 1	0-26 HCF	\$3.65	\$4.54
Tier 2	27-48 HCF	\$7.12	\$8.01
Tier 3	49-86 HCF	\$10.48	\$11.36
Tier 4	87+ HCF	\$14.87	\$15.77
Multi-Family			
Tier 1	0-8 HCF	\$4.66	\$5.55
Tier 2	9+ HCF	\$13.31	\$14.19
Commercial		\$7.24	\$8.14
Water Reliability (all customers)		\$0.26	\$0.41

1.3 FINDINGS AND RECOMMENDATIONS

HF&H makes the following findings and recommendations.

- 1. Annual revenue increases.** To maintain a reasonable water fund reserve (e.g., 50% of Operating Expenses, the water rate revenues need to increase \$6,043,000 over the next five-year period.
- 2. Cost of service analysis of rate components.** As discussed in item #1, water system revenues need to increase. As such, a cost-of-service analysis was performed to allocate the revenue requirements to the components associated with the service (meter size) and quantity charges (volume of water used). The analysis indicated that the revenue from existing service charge rates need to generate approximately \$3,323,000 to cover the cost of service related to capacity (i.e., meters) and the revenue from existing quantity charge rates need to generate approximately \$2,720,000 to cover the cost of service of water supply (i.e., volume of water used). Adjusting the respective rates accordingly will provide the additional revenue needed to cover the increased costs.
- 3. Cost of service analysis of the fixed meter service charge revenue.** The fixed water service charges are charged for water and fire service. The proposed rate adjustments will generate the additional \$3,323,000 over the next five-year period. No change is recommended to the fixed service charge rate structure, for both Inside and Outside City customers, which is based on the size of meter servicing each property.
- 4. Cost of service analysis of quantity charge revenue.** In order to generate the \$2,720,000 in additional revenue from quantity charges, effective January 1, 2025,

the cost-of-service analysis first re-aligns the tier sizes with the cost of providing service to each customer class and then establishes adjusted rates aligning with these tiers. This will result in an overall decrease for single-family residential customers; an increase for multi-family residential customers; and, an increase for commercial customers. In years when rates are not being restructured to align with the cost of service (i.e., 2026-2028), all current rates would be increased by a uniform percentage. The derivation of these rate increases is explained in the next two sections of this report.

4a. Single-family residential quantity charge rate structure. Analysis of the single-family tier structure indicates that the current number of four tiers should be retained but that the sizes of the tiers need to be adjusted to correspond with the service levels customers require ranging from non-seasonal base demand to average day, maximum day, and maximum hour peaking based on actual customer demand patterns. (See **Tables 5-1 and 5-2.**)

4b. Multi-family residential quantity charge rate structure. Analysis of multi-family customer water use data indicates that the current number of two tiers and the sizes of the tiers should be retained based on actual customer demand patterns. (See **Tables 5-3 and 5-4.**)

4c. Commercial quantity charge rate structure. Analysis of customer billing data indicates that the current uniform quantity charge rate structure (no tiers) is still applicable. (See **Table 5-5.**)

- 5. Outside City rates.** Outside City quantity charge rates are currently \$0.88-\$0.90 per HCF higher than Inside City rates, which was an approximation of the additional cost to serve Outside City customers. We studied the current costs to provide service to Outside City customers and recommend adjusting the rate differential to \$0.68 per HCF (analysis shown in **Table 5-7**). The additional costs identified is applied to the quantity charges only. The service charges to both Inside City and Outside City customers will be the same.
- 6. Water shortage revenue stabilization factors.** Revenue stabilization factors are designed to offset the amount of revenue shortfall caused by conservation during specific Council-adopted water shortage stages. (**See Section 5.18.**) The factors have been revised based on recent customer demand patterns.
- 7. Water reliability charge.** The City Council is undertaking the expansion of the City's water system in order to diversify and expand its sources of supply. By doing so, reliability will be improved during shortages. In addition, the need to rely on purchased water from Metropolitan Water District (MWD) will be reduced. In return for these benefits, a new, separate water reliability charge was

developed during the previous rate study, that provides a steady source of funding over the lifecycle of the Water Enterprise Plan (WEP). As proposed during the previous study, the water reliability charge increase \$0.01 per year per HCF. The water reliability charge is an additional uniform quantity charge rate that applies to both Inside and Outside City customers. The Inside City water reliability charge is less than the Outside City water reliability charge due to a subsidy provided from the Beverly Hills General Fund. **(See Section 5.9.)**

- 8. Pass-through Adjustments.** Pass-through adjustments allow the City to adjust quantity charge rates to track any differences between the Metropolitan Water District (MWD) rates that were included in the model and the actual rates adopted each year by MWD. For example, based on projections by MWD, the cost of purchased water included in this rate study is \$1,256 per acre foot (\$2.88 per HCF), effective January 1, 2024. If the actual cost differs, the City may increase or decrease the quantity charge rates (as shown in **Tables 1-3** and **1-4**) by the difference. The City must provide a 30-day notice to ratepayers of such a change is made.

Tables 1-3 and **1-4** summarize the current and recommended quantity charge rates, fixed service charge rates, and water reliability charge, respectively.

Table 1-3. Current and Recommended Quantity Charge Rates

Current Quantity Charge Rates			Recommended Quantity Charge Rates							
			Current		Proposed	New	Proposed			
Tier Size	\$/HCF		Tier Size		7/1/2024	Tier Size	1/1/2025	1/1/2026	1/1/2027	1/1/2028
Inside City										
					\$/HCF		\$/HCF	\$/HCF	\$/HCF	\$/HCF
Single-Family/Duplex			Single-Family/Duplex							
Tier 1	0-26 HCF	\$3.65	Tier 1	0-26 HCF	\$3.65	0-32 HCF	\$3.75	\$3.83	\$3.91	\$3.99
Tier 2	27-48 HCF	\$7.12	Tier 2	27-48 HCF	\$7.12	33-48 HCF	\$6.36	\$6.49	\$6.62	\$6.75
Tier 3	49-86 HCF	\$10.48	Tier 3	49-86 HCF	\$10.48	49-83 HCF	\$10.52	\$10.73	\$10.94	\$11.16
Tier 4	87+ HCF	\$14.87	Tier 4	87+ HCF	\$14.87	84+ HCF	\$14.94	\$15.24	\$15.54	\$15.85
Multi-Family			Multi-Family							
Tier 1	0-8 HCF	\$4.66	Tier 1	0-8 HCF	\$4.66	0-8 HCF	\$5.06	\$5.16	\$5.26	\$5.37
Tier 2	9+ HCF	\$13.31	Tier 2	9+ HCF	\$13.31	9+ HCF	\$14.73	\$15.02	\$15.32	\$15.63
Commercial		\$7.24	Commercial		\$7.24		\$7.43	\$7.58	\$7.73	\$7.88
Water Reliability (all customers)		\$0.26	All Use		\$0.27		\$0.28	\$0.29	\$0.30	\$0.31
Fire Protection (all customers)		\$3.65	All Use		\$3.65					
Outside City	Tier Size	\$/HCF	Tier Size		\$/HCF	Tier Size	\$/HCF	\$/HCF	\$/HCF	\$/HCF
Single-Family/Duplex			Single-Family/Duplex							
Tier 1	0-26 HCF	\$4.54	Tier 1	0-26 HCF	\$4.54	0-32 HCF	\$4.43	\$4.52	\$4.61	\$4.70
Tier 2	27-48 HCF	\$8.01	Tier 2	27-48 HCF	\$8.01	33-48 HCF	\$7.04	\$7.18	\$7.32	\$7.47
Tier 3	49-86 HCF	\$11.36	Tier 3	49-86 HCF	\$11.36	49-83 HCF	\$11.20	\$11.42	\$11.65	\$11.88
Tier 4	87+ HCF	\$15.77	Tier 4	87+ HCF	\$15.77	84+ HCF	\$15.62	\$15.93	\$16.25	\$16.58
Multi-Family			Multi-Family							
Tier 1	0-8 HCF	\$5.55	Tier 1	0-8 HCF	\$5.55	0-8 HCF	\$5.74	\$5.85	\$5.97	\$6.09
Tier 2	9+ HCF	\$14.19	Tier 2	9+ HCF	\$14.19	9+ HCF	\$15.41	\$15.72	\$16.03	\$16.35
Commercial		\$8.14	Commercial		\$8.14		\$8.11	\$8.27	\$8.44	\$8.61
Water Reliability (all customers)		\$0.41	All Use		\$0.42		\$0.43	\$0.44	\$0.45	\$0.46
Fire Protection (all customers)		\$4.54	All Use		\$4.54		\$4.43	\$4.52	\$4.61	\$4.70

Table 1-4. Current and Recommended Fixed Service Charge Rates

Service Size	Current Charge	Proposed (All Customer Classes; Inside and Outside City)				
		7/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
Water Meter Service Charges						
1"	\$53.51	\$53.51	\$58.64	\$59.81	\$61.01	\$62.23
1-1/2"	\$93.84	\$93.84	\$100.69	\$102.70	\$104.75	\$106.85
2"	\$142.24	\$142.24	\$151.15	\$154.17	\$157.25	\$160.40
3"	\$271.30	\$271.30	\$285.72	\$291.43	\$297.26	\$303.21
4"	\$416.50	\$416.50	\$437.11	\$445.85	\$454.77	\$463.87
6"	\$819.82	\$819.82	\$857.63	\$874.78	\$892.28	\$910.13
8"	\$1,311.71	\$1,311.71	\$1,362.26	\$1,389.51	\$1,417.30	\$1,445.65
10"	\$1,967.57	\$1,967.57	\$3,548.99	\$3,619.97	\$3,692.37	\$3,766.22
Fire Meter Service Charges						
<= 2"	\$29.73	\$29.73	\$30.32	\$30.93	\$31.55	\$32.18
2 1/2"	\$44.32	\$44.32	\$45.21	\$46.11	\$47.03	\$47.97
3"	\$64.56	\$64.56	\$65.85	\$67.17	\$68.51	\$69.88
4"	\$124.69	\$124.69	\$127.18	\$129.72	\$132.31	\$134.96
6"	\$340.52	\$340.52	\$347.33	\$354.28	\$361.37	\$368.60
8"	\$712.74	\$712.74	\$726.99	\$741.53	\$756.36	\$771.49
10"	\$1,272.63	\$1,272.63	\$1,298.08	\$1,324.04	\$1,350.52	\$1,377.53
12"	\$1,654.42	\$1,654.42	\$1,687.51	\$1,721.26	\$1,755.69	\$1,790.80

This report documents the rates proposed for adoption by the City. The first rate adjustment is proposed to become effective in January 1, 2025 with subsequent adjustments every January 1 thereafter, through January 2028. The water reliability charge and revenue stabilization factors shall become effective July 1, 2024.

SECTION 2. INTRODUCTION

2.1 STUDY PURPOSE

The City is responsible for setting rates in compliance with California law. Voters passed Proposition 218 in November 1996, which enacted Article XIID of the California Constitution. Article XIID, Section 6, requires that fees and charges for water service shall not exceed the proportional cost of service.

One key purpose of this report is to document that the proposed rates comply with the relevant laws in California for setting tiered water rates. Another key purpose is to ensure that the rates generate sufficient revenue from conserving levels of demand to fund the water enterprises operating and capital costs as well as to maintain adequate reserves.

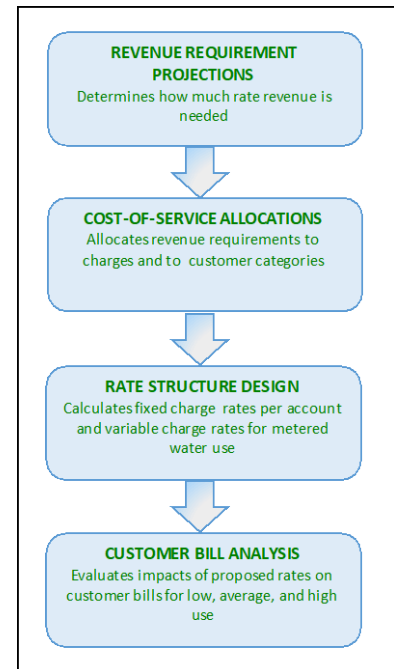
2.2 STUDY PROCESS

The rate study was conducted following industry standards and practices promulgated by the American Water Works Association¹. A comprehensive rate study involves the four steps shown in the adjacent diagram.

This study has been conducted in close collaboration with a working group of City staff, the City's Public Works Commission, the Public Works Commission's Rates Ad Hoc Committee, and the City's Public Works Liaison Committee. Over 20 meetings were held to develop alternative funding strategies, to review and refine the alternatives, and to select the preferred alternative.

Revenue requirements were projected for a ten-year planning period based on operations, maintenance, capital expenses, and contributions to reserves. The cost-of-service analysis allocates the projected expenses among the customer classes in proportion to their use of the systems. Rates are then designed so that rate payers are charged equitably. The impact on customers is then determined by comparing bills under the proposed rates with bills under the current rates.

During the course of the study, interim work products were presented at several public meetings and workshops.



¹ *Principles of Water Rates, Fees, and Charges*. American Water Works Association Manual M1. 2012.

2.3 CURRENT RATES

The City charges the sum of a variable quantity charge and a fixed service charge, which are shown in **Tables 2-1** and **2-2**. This rate structure has been in effect for a number of years.

For single-family residential and multi-family residential customers, the quantity charge varies depending on the amount of metered water use in each two-month billing period. This form of rate structure is referred to as a tiered or increasing block rate quantity charge.

For Commercial customers, the quantity charge is currently a constant amount that is not tiered. This form of rate structure is referred to as a uniform quantity charge. Commercial customers are billed bi-monthly per account. The Commercial quantity charge was tiered at one time but is currently a uniform charge regardless of the level of demand.

The service charge is fixed based on the size of the service connection. Inside City and Outside City customers pay the same fixed service charge each billing period based on the size of their service connection. There is a single set of fixed service charge rates that does not differentiate between a customer's location within the City's service area, as the cost of providing capacity in the City's water system does not differ depending on the customers location inside or outside the City limits. In this way, the increased cost of serving Outside City customers are recovered from only the variable quantity charge rates. The City currently charges Outside City water customers the variable quantity charge rates that are higher than Inside City rates. The difference in rates is designed to recover the additional costs of serving customers located outside Beverly Hills. Specifically, the differential takes into consideration that Outside City customers do not contribute property taxes to the City. Currently, a portion of the City's property taxes help fund Water Enterprise operating expenses; therefore, an adjustment is made to the Outside City quantity charges rates so the General Fund can recoup the cost of these services to maintain parity with Inside City customers.

In addition, the City charges Outside City water customers a higher Water Reliability rate higher than Inside City water customers. The differential reflects the fact that the City's General Fund subsidized a portion of the water reliability capital projects funded through the Water Reliability Charge for Inside City customers through a \$10 million cash contribution during the construction phase of the project. The subsidy reduced the Inside City rate only, as the Outside City customers have not contributed to the City's general fund through property tax payments as Inside City customers have.

**Table 2-1. Current Bi-monthly Fixed Service Charge Rates
(Inside and Outside City Customers)**

Service Size	Water Meter	Fire Meter
1"	\$53.51	\$29.73
1-1/2"	\$93.84	\$29.73
2"	\$142.24	\$29.73
3"	\$271.30	\$64.56
4"	\$416.50	\$124.69
6"	\$819.82	\$340.52
8"	\$1,311.71	\$712.74
10"	\$1,967.57	\$1,272.63

Table 2-2. Current Bi-monthly Variable Quantity Charge Rates

Tier Size		Inside City \$/HCF	Outside City \$/HCF
Single-Family/Duplex			
Tier 1	0-26 HCF	\$3.65	\$4.54
Tier 2	27-48 HCF	\$7.12	\$8.01
Tier 3	49-86 HCF	\$10.48	\$11.36
Tier 4	87+ HCF	\$14.87	\$15.77
Multi-Family			
Tier 1	0-8 HCF	\$4.66	\$5.55
Tier 2	9+ HCF	\$13.31	\$14.19
Commercial		\$7.24	\$8.14
Water Reliability (all customers)		\$0.26	\$0.41

SECTION 3. REVENUE REQUIREMENTS

To determine whether additional rate revenue is required, projected operating and capital expenses are compared with projected revenue from current rates. Annual surpluses and deficits are then applied to the reserve funds. Rates are then increased so that the expenses are covered and operating and capital reserves are maintained. The following sections summarize the methodology for determining the annual revenue requirements, the necessary annual revenue increases, and the projected impact these results will have on the Water Enterprise fund balance.

3.1 EXPENSE PROJECTIONS

A spreadsheet model was developed to derive revenue requirements for FY 2022-23 through FY 2027-28. The revenue requirements represent the costs that must be covered by revenue from rates and other sources, such as reserves. The City's Council-approved operating and capital budget for FY 2022-23 served as the starting point for projecting the City's expenses and revenues over the five-year financial planning period. The escalation factors summarized in **Table 3-1** were incorporated in the model for projecting expenses and revenues.

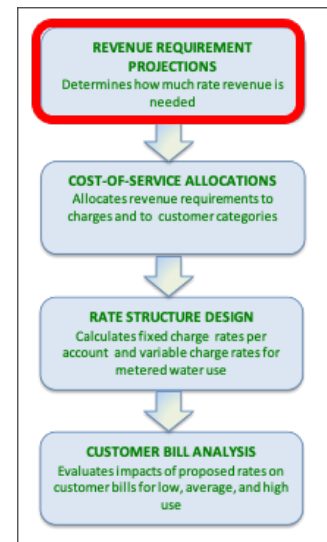


Table 3-1. Key Modeling Assumptions

	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28
O&M Expenses						
Salaries and Benefits	City Budget	2.8%	2.8%	2.8%	2.8%	2.8%
Materials and Supplies	City Budget	5.0%	5.0%	5.0%	5.0%	5.0%
Contractual Services	City Budget	City Budget	2.0%	2.0%	2.0%	2.0%
Internal Service Charges	City Budget	-7.9%	3.1%	1.3%	2.1%	3.5%
Purchased Water	City Budget	MWD Budget	3.2%	3.2%	3.2%	3.2%
Miscellaneous Expenses	City Budget	1.0%	1.0%	1.0%	1.0%	1.0%
Project Admin. and CIP Mgmt. Charges	City Budget	2.8%	2.8%	2.8%	2.8%	2.8%
Capital Outlay	City Budget	1.0%	1.0%	1.0%	1.0%	1.0%
Non-Operating Revenues	City Budget	1.0%	1.0%	1.0%	1.0%	1.0%
Debt Service Payments	City Schedule	City Schedule	City Schedule	City Schedule	City Schedule	City Schedule
CIP Expenditures	\$11,692,605	\$12,620,105	\$11,223,355	\$10,035,000	\$8,695,500	\$13,690,500
Construction Cost Index	2.48%	5.02%	7.62%	10.29%	13.02%	0.00%
Subtotal Escalated CIP	\$11,982,431	\$13,253,491	\$12,078,797	\$11,067,564	\$9,827,949	\$13,690,500
80% of CIP assumed to be completed	\$9,585,945	\$10,602,793	\$9,663,038	\$8,854,051	\$7,862,359	\$10,952,400
(Less) Other Revenues	(\$2,533,214)	(\$2,601,213)	(\$2,684,052)	(\$4,334,343)	(\$2,853,624)	(\$2,940,435)
Net CIP Subtotal	\$7,052,731	\$8,001,580	\$6,978,986	\$4,519,708	\$5,008,736	\$8,011,965
5-year Average Net CIP Expenditures	\$6,312,348	\$6,312,348	\$6,312,348	\$6,312,348	\$6,312,348	\$6,312,348

The application of these assumptions to the O&M and capital expenses is summarized in **Table 3-2**.

Table 3-2. Total Annual Projected Net Revenue Requirements

	Budgeted	Projected				
	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28
O&M Expenses						
Salaries and Benefits	\$6,558,019	\$6,738,364	\$6,923,669	\$7,114,070	\$7,309,707	\$7,510,724
Materials and Supplies	\$1,585,747	\$1,665,034	\$1,748,286	\$1,835,700	\$1,927,485	\$2,023,859
Contractual Services	\$1,823,530	\$1,752,421	\$1,787,470	\$1,823,219	\$1,859,683	\$1,896,877
Internal Service Charges	\$6,012,629	\$5,540,197	\$5,713,178	\$5,789,723	\$5,909,215	\$6,116,038
Purchased Water	\$11,027,264	\$10,386,662	\$10,716,357	\$11,057,976	\$11,412,105	\$11,779,373
Miscellaneous Expenses	\$371,121	\$374,832	\$378,581	\$382,366	\$386,190	\$390,052
Project Admin. and CIP Mgmt. Charges	\$814,942	\$837,353	\$860,380	\$884,041	\$908,352	\$933,331
Subtotal, O&M Expenses	\$28,193,251	\$27,294,864	\$28,127,921	\$28,887,095	\$29,712,738	\$30,650,254
Capital Expenses						
Transfer to Capital Reserves for PAYGo Projs	\$6,312,348	\$6,312,348	\$6,312,348	\$6,312,348	\$6,312,348	\$8,011,456
Debt Service on Existing Bond	\$4,560,638	\$4,014,845	\$4,018,203	\$4,017,225	\$4,015,826	\$4,015,132
Subtotal, O&M Expenses	\$10,872,986	\$10,327,193	\$10,330,551	\$10,329,573	\$10,328,174	\$12,026,588
Total Expenses	\$39,066,237	\$37,622,056	\$38,458,471	\$39,216,668	\$40,040,911	\$42,676,842
Less: Non-Operating Revenue ¹	(\$4,914,299)	(\$4,914,552)	(\$4,914,808)	(\$4,915,066)	(\$4,915,326)	(\$4,915,590)
Plus: Bad Debt	\$662,049	\$444,734	\$449,182	\$458,165	\$467,328	\$476,675
Transfer (from)/to Operating Reserves	\$764,748	\$2,426,497	\$2,293,017	\$2,251,812	\$2,158,898	\$268,919
Net Revenue Requirement	\$35,578,735	\$35,578,735	\$36,285,862	\$37,011,580	\$37,751,811	\$38,506,847
<i>\$ Change</i>		<i>\$0</i>	<i>\$707,127</i>	<i>\$725,717</i>	<i>\$740,232</i>	<i>\$755,036</i>

¹ Non-operating revenues include lease revenue, late fees, ordinance violation penalties, interest earnings, etc.

The net revenue requirement for FY 2022-23 of \$35,578,735 will be used in the cost of service analysis and rate design (see **Sections 4 and 5**).

3.2 RESERVE FUNDS

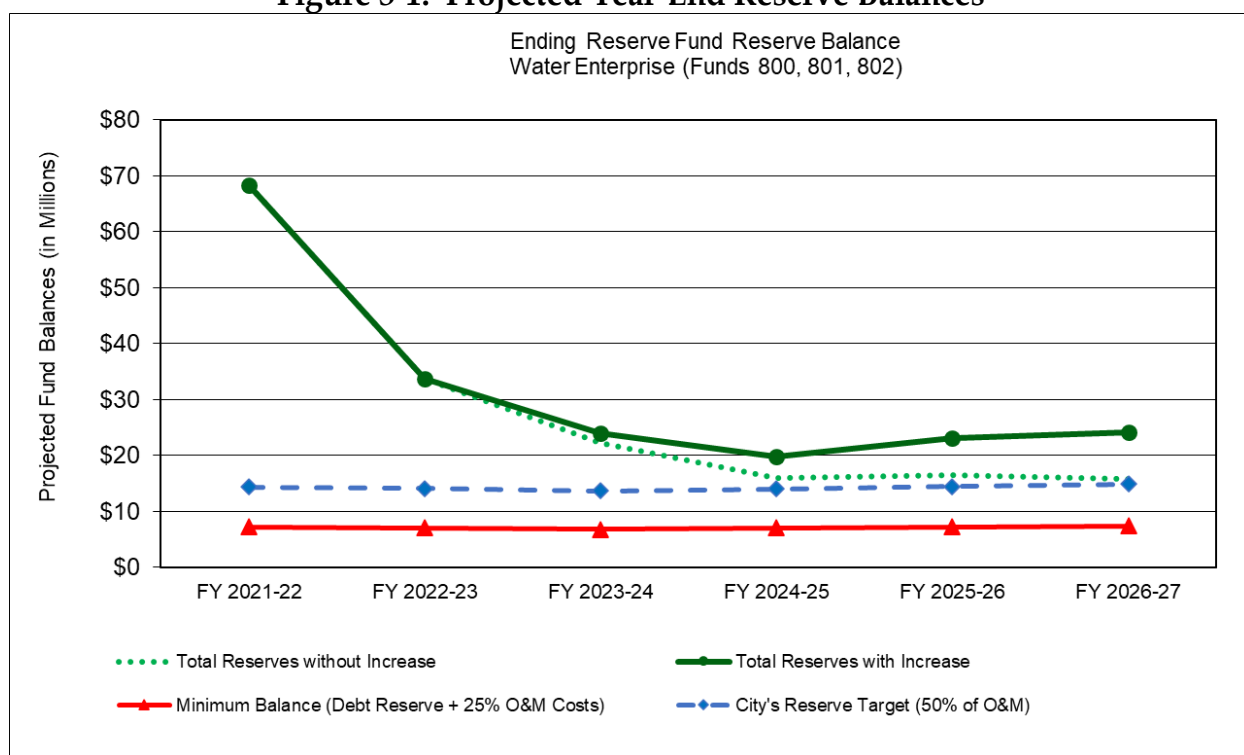
The annual revenue increases are required to cover the net O&M and capital expenses summarized in **Table 3-2**. In addition to covering annual expenses, water rates need to generate revenue to maintain adequate operations and capital reserves. To determine what constitutes adequate reserve amounts, the reserve balance was subdivided into operations and capital reserves. In this way, it is possible to set recommended target balances for each purpose.

Figure 3-1 shows the minimum fund balance (red line; triangle symbols) that is recommended. The minimum fund balance represents the working capital that is needed to meet month-to-month cash flow for O&M expenses and the required debt service reserve for the City's outstanding debt. **Figure 3-1** also shows the recommended target balance. The target balance (blue line; diamond symbols) is derived by adding a contingency for capital improvements to the minimum fund balance and is based on the City's current Council-approved policy, which states the target reserve is to equal the debt service reserve amount plus 50% of gross annual user revenue. With this contingency, the City should have sufficient cash on hand to fund its cash-funded capital

improvements without cash flow constraints. This contingency is also available to help fund short-term deficits such as emergency expenditures and revenue shortfalls resulting from lower than projected water sales, if applicable.

Figure 3-1 shows the combined balance for the operating and capital reserves that is projected based on the revenue increases shown in **Table 3-2**. With the proposed rate adjustments, the City's reserve fund balance (solid green line) will be above the minimum balance (red line with triangle symbols), which covers the City's operating reserve requirements and above the target reserve balance (blue line with diamond symbols), which covers both the operating and capital reserve requirements. Without rate increases, the projected fund balance (dotted green line) would be just above the target and continuing to decrease in outer years, below the target.

Figure 3-1. Projected Year-End Reserve Balances



Revenue increases are generally achieved by increasing rates; however, with the cost-of-service study conducted, effective 1/1/2025, a re-alignment of the cost of providing service to each customer class is first necessary to establish tiering sizes. Next, rates are adjusted to align with the new tiers. Subsequent to a re-alignment beginning 1/1/2025, a rate increase of 2% each January thereafter is necessary to ensure sufficient revenue is generated to cover the cost of providing water enterprise services. The derivation of these rate increases is explained in the next two sections of this report.

SECTION 4. COST OF SERVICE ANALYSIS

4.1 GENERAL APPROACH

The revenue requirement analysis establishes how much revenue is required from rates. The next step in the analysis is determining the cost of service by customer class. The cost of service analysis performed in this study follows a procedure that has been long established by the American Water Works Association (AWWA), which is referred to as the “base/extra capacity method.” This method allocates the revenue requirements to the components of the rate structure.

The base/extra capacity method in the AWWA M1 Manual contains three categories: base, maximum day, and maximum hour. Base capacity is determined by the average daily flow during the year. The average daily flow determines how much base capacity is needed to provide that flow. Maximum day capacity is determined by the flow on the maximum day of the year. In other words, the maximum day capacity is greater than the base capacity, including the base capacity plus the additional capacity needed to provide for the maximum day flow of the year. Maximum hour capacity is determined by the flow during the maximum hour on the maximum day. In other words, the maximum hour capacity is greater than the maximum day capacity by the amount of peak hour that occurs during the maximum day flow.

We have refined AWWA’s version of the base/extra capacity method. What AWWA considers “base” capacity is not purely base capacity because AWWA defines “base” as average day capacity. Average day capacity includes average peaking, which is greater than how “base” is defined in this report. In this report, “base” demand does not include peaking. We have introduced a fourth category that corresponds to base demand with no peaking, which we call Base Day. This Base Day demand is derived from average winter demand, when there is the least amount of peaking. Hence, in addition to Average Day, Maximum Day, and Maximum Hour categories, we have added Base Day.

4.2 COST OF SERVICE ALLOCATIONS

As the name implies, cost of service analysis (COS) is a process of determining how much water service costs to provide capacity to meet customer demands. To provide water service, infrastructure must be constructed, operated, and maintained, which must be paid for from cash or debt. The type and size of infrastructure depends on how much service customers require. Water systems are designed to provide sufficient capacity to meet customer demands for service wherever, whenever, and for as long as demanded.

Although each customer places unique demands on the system, water system design is based on the maximum or peak demand for service placed on the system by all customers

during the peak demand period. The size of the infrastructure that is needed will depend on the maximum demand. Higher demands will obviously require larger, more costly infrastructure as well as increased operating and O&M costs. Here, the goal of a cost of service analysis is to allocate the cost of the capacity to meet the peak demand in proportion to how much of the capacity is required by each customer. The proportions correspond to the maximum amount of capacity provided by the infrastructure. This means that customers that place greater demands on the infrastructure – customers with greater service needs (i.e., higher peak demands) – will be apportioned a greater share of the operating and capital costs of the infrastructure required to meet that demand.

It is important to realize that once the peak demand is used to design the infrastructure, the capacity is available at all times, not just during peak demands. The capacity is available for the potential peak when it occurs. During off-peak demands, the same facilities are being used, but the capital cost of the facilities is determined by the peak demand only, and it is the peak demand that is used to allocate costs. Note that the costs are not allocated only to those who peak. Those who do not peak as much are also using the same facilities. Consequently, they are allocated a share of the costs of the facilities in proportion to their contribution to the peak demand, even though their contribution to peaking may be significantly less.

A cost of service analysis determines the unit cost of the services provided to the City's water customers. Inside City and Outside City customers, and each customer class therein, is charged the same unit cost for its share of the services that it requires. In this way, the total revenue requirement is proportioned between the fixed service charges and the quantity charges; the quantity charges are further proportioned among the customer classes and between Inside City and Outside City Customers. This methodology is consistent with industry standards promulgated by the American Water Works Association² and referred to as the "base/extra capacity method."

The analysis involves a sequence of steps that is summarized in **Figure 4-1**. The sequence leads to determining how much revenue should be recovered from fixed service charges and from variable quantity charges for each customer class. The derivation of the rates for the service and quantity charges is described in **Section 5**.

The analytical procedure contains the following steps:

1. **Cost classification** - Costs in the FY 2022-23 revenue requirement are classified into the service categories related to providing for customer demands and for customer service.
2. **Cost allocation** - The classified costs are allocated to the functions associated with each service. For demand services, the functions are levels of service that comprise

² American Water Works Association, *Principles of Water Rates, Fees, and Charges* (Seventh Edition, 2017).

base day, average day, maximum day, and maximum hour demands. For customer services, the functions are customer accounts and customer capacity.

The classifications of major costs are summarized as follows:

Demand services

- Base, non-seasonal demand, when there is minimal peaking.
- Average day demand, which includes non-seasonal demand plus average daily peaking.
- Maximum day demand, which includes average day demand plus peaking on the maximum day of the year.
- Maximum hour demand, which includes maximum day demand plus peaking at the maximum hour on the maximum day.

Customer services

- Accounts: meter reading, billing, accounting, customer service.
- Capacity: a portion of distribution storage, distribution mains to customers, hydrants, MWD readiness-to-serve charges, MWD capacity charges.

Composite services

- Indirect allocations for costs that are not directly related to either the demand or customer service functions: personnel, overhead, non-operating revenue.

Table 4-1 shows the derivation of the allocation factors associated with each level of demand. The factors are based on meter reading data from the City's automated meter infrastructure (AMI), which is capable of reading customer meters at hourly intervals. The AMI has a software interface known as Water Tracker, which allows customers to monitor their water use and allows aggregation of the data by customer class. This data can be aggregated to determine the flow that corresponds to the functions provided to meet customer demands:

Table 4-1. Demand Allocation Factors - Systemwide

	Demand Service Levels				
	Base Day	Average Day	Maximum Day	Maximum Hour	
Demand (HCF per day) ¹	8,329	10,811	16,742		
÷ 24 hours	24	24	24		
Demand (HCF per hour)	347	450	698	1,193	
Incremental Change		103	247	495	
Allocation Percentage Calculations					Total HCF
Base Day	347				347
% of Total	100%				100%
Average Day	347	103			450
% of Total	77%	23%			100%
Maximum Day	347	103	247		698
% of Total	50%	15%	35%		100%
Maximum Hour	347	103	247	495	1,193
% of Total	29%	9%	21%	42%	100%

¹ Source: 2017-2018 AMI data

The flows shown in **Table 4-1** are the aggregate flows for the entire water system. The resulting factors are used to allocate the functionalized costs into the four demand service categories. In turn, the costs for each of the demand service categories are allocated among the customer classes using the AMI data aggregated at the customer class level (see discussion in **Section 5**).

For purposes of allocating costs associated with meeting Average Day demands, 77% is allocated to the Average Day service and 23% is allocated to the Base Day service, as shown in **Table 4-1**. Maximum Day demand includes Base Day, Average Day, and Maximum Day components. Maximum Hour demand has all four service levels of demand. While system capacity is essentially designed to meet peak demands, it is important to understand that the cost of facilities that are sized for peak demands is not borne by only customers that peak.

Using distribution pipelines as an example, they are sized to meet Maximum Hour demands. Even though they are sized for the highest level of service, lower peak demands are also accommodated by these pipelines. Hence, the cost of the pipelines is not allocated 100% to the Maximum Hour service level. Thus, the costs of peaking are shared by all customers and not exclusively allocated to those who peak the most.

Table 4-2 shows the allocation of the functionalized costs to the demand and customer service categories. Costs associated with the demand services are allocated using the factors in **Table 4-1**, which are based on systemwide AMI data. Costs associated with customer service are used for calculating water and fire fixed service charges.

Table 4-2. Functional Cost Allocations (FY 2022-23)

Costs to be Allocated			Allocation Factor	Demand Services				Subtotal - Demand Services	Subtotal - Customer Service	Total
				Base Date	Average Day	Maximum Day	Maximum Hour			
O&M Expenses										
Water Supply										
Groundwater	\$2,681,365	Average Day	\$2,072,428	\$608,937	\$0	\$0	\$2,681,365	\$0	\$2,681,365	
Water Treatment	\$755,992	Average Day	\$584,306	\$171,685	\$0	\$0	\$755,992	\$0	\$755,992	
MWD Purchased Water	\$9,637,244	Average Day	\$7,448,630	\$2,188,613	\$0	\$0	\$9,637,244	\$0	\$9,637,244	
MWD - RTS and Capcity Charges	\$1,390,020	Customer Service	\$0	\$0	\$0	\$0	\$0	\$1,390,020	\$1,390,020	
Water Quality - Distribution	\$755,992	Max Hour	\$219,963	\$63,554	\$156,659	\$315,816	\$755,992	\$0	\$755,992	
Maintenance & Repair	\$3,998,155	Max Day	\$2,022,197	\$602,624	\$1,373,333	\$0	\$3,998,155	\$0	\$3,998,155	
Water Services & Installations	\$1,666,436	Customer Service	\$0	\$0	\$0	\$0	\$0	\$1,666,436	\$1,666,436	
Conservation	\$364,645	Peaking Only	\$0	\$0	\$213,277	\$151,368	\$364,645	\$0	\$364,645	
Fire (e.g., hydrants, meters, etc.)	\$59,642	Customer Service	\$0	\$0	\$0	\$0	\$0	\$59,642	\$59,642	
Subtotal O&M Expenses	\$21,309,490		\$12,347,524	\$3,635,414	\$1,743,270	\$467,184	\$18,193,392	\$3,116,098	\$21,309,490	
		O&M Composite	57.9%	17.1%	8.2%	2.2%	85.4%	14.6%	100%	
Miscellaneous O&M Expenses	\$56,190	O&M Composite	\$32,559	\$9,586	\$4,597	\$1,232	\$47,974	\$8,217	\$56,190	
Capital Expenses										
PAYGo Projects	\$6,312,348	CIP Composite	\$1,621,915	\$399,830	\$2,027,708	\$1,008,801	\$5,058,253	\$1,254,095	\$6,312,348	
Capital Project Admin	\$814,942	CIP Composite	\$209,394	\$51,619	\$261,783	\$130,239	\$653,035	\$161,907	\$814,942	
Debt Service	\$4,560,638	D/S Composite	\$3,188,323	\$38,340	\$94,507	\$190,521	\$3,511,691	\$1,048,947	\$4,560,638	
Subtotal Capital Expenses	\$11,687,928		\$5,019,632	\$489,789	\$2,383,998	\$1,329,560	\$9,222,979	\$2,464,949	\$11,687,928	
		Exp Composite	52.6%	12.5%	12.5%	5.4%	83.1%	16.9%	100%	
Total O&M and Capital	\$33,053,609		\$17,399,715	\$4,134,789	\$4,131,865	\$1,797,976	\$27,464,345	\$5,589,264	\$33,053,609	
Internal Service Funds (Overhead)	\$6,012,629	Exp Composite	\$3,165,101	\$752,140	\$751,608	\$327,062	\$4,995,912	\$1,016,717	\$6,012,629	
Contribution To/(From) Reserves	\$1,426,796	Exp Composite	\$751,078	\$178,483	\$178,357	\$77,612	\$1,185,529	\$241,267	\$1,426,796	
Non-Operating Revenue	(\$660,299)	Customer Service	\$0	\$0	\$0	\$0	\$0	(\$660,299)	(\$660,299)	
Lease & Rents	(\$4,254,000)	Base Day	(\$4,254,000)	\$0	\$0	\$0	(\$4,254,000)	\$0	(\$4,254,000)	
Outside City GF reimbursement	(\$323,399)	Base Day	(\$323,399)	\$0	\$0	\$0	(\$323,399)	\$0	(\$323,399)	
Net Revenue Requirement	\$35,255,335		\$16,738,495	\$5,065,412	\$5,061,830	\$2,202,649	\$29,068,387	\$6,186,949	\$35,255,335	

Note: Numbers may not sum exactly due to rounding
Allocation factors from Table 4-1.

Table 4-3 shows the derivation of the customer class allocation factors that are applied to the demand service allocations at the bottom of **Table 4-2**. The allocation factors apportion the cost of the demand service among the customer classes. It can be seen that the allocation to single-family customers increases with each level of demand because of the peak irrigation demands that single-family customers place on the facilities relative to the multi-family and commercial classes. The resulting allocations establish the cost

of providing service to each customer class for each level of demand.³ The allocated demand service costs are used to determine the quantity charge rates for each class and for each tier for those classes with tiered rates.

Table 4-3. Demand Allocation Factors – Customer Classes

	Demand Services				Total
	Base Date	Average Day	Maximum Day	Maximum Hour	
Net Demand Services Revenue Requirement¹	\$16,738,495	\$5,065,412	\$5,061,830	\$2,202,649	\$29,068,387
Units of Service (HCF) by Customer Class²					
Single-Family	4,023	6,054	10,543	1,012	
Multi Family	1,983	2,080	2,236	88	
Commercial	2,323	2,677	3,963	93	
Total Units of Service	8,329	10,811	16,742	1,193	
Proportional Allocation to Customer Classes (% of Total Units of Service)					
Single-Family	48.30%	56.00%	62.97%	84.84%	
Multi Family	23.81%	19.24%	13.36%	7.39%	
Commercial	27.89%	24.77%	23.67%	7.77%	
Total	100.00%	100.00%	100.00%	100.00%	
Net Revenue Requirement by Customer Class					
Single-Family	\$8,084,311	\$2,836,516	\$3,187,559	\$1,868,820	FY 2022-23 \$15,977,206
Multi Family	\$3,986,186	\$974,441	\$676,052	\$162,724	\$5,799,403
Commercial	\$4,667,999	\$1,254,455	\$1,198,219	\$171,105	\$7,291,777
Total	\$16,738,495	\$5,065,412	\$5,061,830	\$2,202,649	\$29,068,387
					+2% Revenue increase 1/1/2025 \$16,296,750 \$5,915,391 \$7,437,613 \$29,649,754

Note: Numbers may not sum exactly due to rounding

¹ Net demand services revenue requirement from Table 4-3.

² Source: 2018-2019 AMI data (pre-COVID).

The customer service costs are the basis for the water and fire fixed service charge rates. The fixed service charge rates are based on the size of the service connection and are independent of whether the customer is single-family, multi-family, commercial, or irrigation. The derivation of the variable quantity and fixed service charge rates is described in **Section 5**. Important conclusions about the cost of base and extra capacity demand are indicated in **Table 4-3**. \$16.7 million (58%) of the total \$29.1 million is related to non-seasonal base day demand. In effect, if there were no peak demands, the facilities could be sized much smaller, reducing the cost to 58% of the current cost. However, peaking occurs and the cost to provide extra capacity for this service increases incrementally.

Rates need to be designed to generate each class's share of the revenue requirement related to quantity charges and fixed service charges. **Table 4-4** compares the revenue projected from current rates to the cost of service by customer class for the quantity charges and the revenue projected from current rates to the cost of service for the fixed

³ Note that the flows for Base Day, Average Day, and Maximum Day are for 24-hour periods and that the flow for Maximum Hour is for a one-hour period.

fixed service charge. **Table 4-4** indicates that the revenue from existing quantity charge rates differs from each classes' share of the cost of service.

Table 4-4. Current Rate Revenue Compared With the Cost of Service

Components of Rate Structure	Current Revenue ¹		FY 2024-25		Difference	
	at Current Rates		Cost-of-Service		COS Minus Current	
Quantity Charges						
Single-Family/Duplex	\$17,070,869		\$16,296,750		(\$774,118)	-4.5%
Multi-Family	\$5,413,607		\$5,915,391		\$501,784	9.3%
Commercial & Municipal	\$7,189,296		\$7,437,613		\$248,316	3.5%
	\$29,673,772	83%	\$29,649,754	82%	(\$24,018)	-0.1%
Service Charges						
Fixed Service Charges	\$4,898,554		\$5,284,151		\$385,597	7.9%
Fire Service Charges	\$1,006,409		\$1,026,537		\$20,128	2.0%
	\$5,904,963	17%	\$6,310,688	17%	\$405,725	6.9%
Outside City GF Reimbursement	included in Qty Charges above		\$325,420	1%		
Grand Total	\$35,578,735	100.0%	\$36,285,862	100.0%	\$707,127	2.0%

¹Based on Projected Water Use at Current Rates.

Section 5 provides the recommended modifications to the quantity charges (including water reliability charges and potential pass-through adjustments) and fixed service charges in order to meet the current cost of service requirements shown in **Table 4-4**.

SECTION 5. RATE DESIGN

5.1 DESIGN OBJECTIVES

The rate design analysis links the revenue requirements identified in Section 2 with the water rates necessary to achieve full cost recovery. The focus of this process is to set rates and substantiate that each rate reflects its fair and proportionate share of system costs.

Setting rates in California is subject to key laws and court decisions of which Article XIID of the California Constitution is most important. Article XIID has three substantive provisions that must be met: (1) the revenue from rates must not exceed the cost of providing service, (2) the revenue from rates must be used for providing service, and (3) the fees and charges must be proportional to the cost of providing the service. In meeting these provisions, the water supplier is responsible for meeting the burden of proof. The first two provisions are more closely related to developing revenue requirements and revenue projections. The last provision is the primary objective in rate structure design.

The *San Juan Capistrano* decision is a 2015 appellate court decision that found that tiered rates must be proportionate to the cost of service across the range of consumption. While acknowledging that such an analysis may be complex, no formulas, rules, or specific procedures are prescribed in the decision for how to set tiered rates, only that each tier must be cost-based.

The City has historically charged water customers the combination of a fixed service charge and a variable quantity charge based on metered water use. As previously discussed, this is a very common set of charges that is prevalent throughout the water industry. This section explains the derivation of the variable quantity and fixed service charge rates that reflect the projected cost of service.

5.2 SUMMARY OF RATE DESIGN MODIFICATIONS

Based on discussion with City staff, the Public Works Commission, and the City Council/Public Works Liaison Committee, and careful review of the cost of service analysis, the following rate design elements were discussed, and in some cases modified from current, as noted. The calculation of rates and the rationale for any recommended modifications follow this section.

- Maintain three separate customer classes for quantity charge rates: single-family, multi family, and commercial.
- Maintain four tiers for single-family quantity charge rates and adjust the breakpoints of the four tiers based on current water demand patterns, if necessary.

- Maintain two tiers for multi-family quantity charge rates and adjust the break-points of the tiers based on current water demand patterns, if necessary.
- Maintain a uniform (no tiers) quantity charge rate for commercial customers.
- Update rate stabilization factors to be applied to quantity charge rates during declared water shortages to maintain revenue stability.
- Maintain 17% of rate revenue from fixed service charges rates to maintain revenue stability.

5.3 QUANTITY CHARGE RATE DESIGN AND CALCULATIONS

The City has separate quantity charges for single-family residential, multi-family residential, and commercial customers, which is appropriate as different levels of service are being provided to the average customer within each class. However, within the single-family and multi-family customer classes, we have identified some recommended changes in the number and/or size of the tiers. Our analysis of historical customer water use data, by customer class, has led to our recommended changes. Each classes' rate design is described below.

The quantity charges calculated in Section 5.3.A (Single-family Residential), Section 5.3.B (Multi Family Residential), and Section 5.3.C (Commercial), which are the same for Inside City and Outside City customers, reflect the cost to provide service before adjustments for contributions and services provided by the City's General Fund. Adjustments to these calculated rates due to the General Fund contributions and service impact the Inside City customer rates differently than Outside City customer rates. The rationale and calculations for adjusting the rates can be found in **Section 5.3.D** and the resulting adjusted quantity charge rates for Inside City and Outside City customers can be found in **Section 5.3.E**.

A. Single-family Residential Quantity Charges

Tiered rate structures are well suited to single-family residential quantity charges because of the wide variation in peak demand patterns. The use of four tiers has been in place for the City's single-family residential customers and continues to be appropriate. With four tiers, it is possible to size tiers corresponding to non-seasonal base demand, average day demand, maximum day demand, and maximum hour peak demand. The size of the tiers is based on the demand pattern for single-family customers using AMI data. The proposed breakpoints align the cost associated with each level of demand with the demand in each tier.

The rate for each tier is calculated by dividing the cost of service associated with each tier (see **Table 4-3**) by the quantity of water subject to the rate in each tier. The size of the tiers is based on the demand pattern for single-family customers using AMI data, which is summarized in **Table 5-1**. The division between each tier – the “breakpoint” – corresponds to the four base/extra capacity levels of demand.

Table 5-1. Single-family Tier Structure - Breakpoints

Single Family	Base Day	Average Day	Maximum Day	Maximum Hour
HCF per Day	4,023	6,054	10,543	
x days per billing period	60	60	60	
HCF per billing period	241,350	363,218	632,577	
÷ Single-Family dwelling units	7,617	7,617	7,617	
Average flow per dwelling unit (HCF)	32	48	83	>83

The rate for each tier is the quotient of the cost of service divided by the demand within the tier. **Table 5-2** shows the step-wise calculation. For example, the Tier 1 rate applies to all billed water usage. Any bi-monthly water use that exceeds the Tier 1 breakpoint will be subject to the Tier 2 rate. The quantity charge will be the sum of the amounts for the successive tiers. Whereas low water use will only pay the Tier 1 quantity charge rate, high water use will pay the sum of the quantity charges for each tier. **Table 5-2** tabulates the cost increment for each of the four levels of demand. The quantity charge rate for each tier sums the increments that are added with each successive tier.

Table 5-2 shows the calculation of the per-unit costs for single-family customers, before adjusting for the general fund funded service reimbursement which is added to the rates for Outside Customers described in **Section 5.D.** below. The total revenue requirement for the class was distributed across the tiers as shown in **Table 4-3**.

Table 5-2. Single-family Tier Structure - Rates

Single-Family/Duplex Cost-of-Service per Unit	<u>Tier 1</u> Base Day	<u>Tier 2</u> Average Day	<u>Tier 3</u> Maximum Day	<u>Tier 4</u> Maximum Hour	FY 22-23 Total
Demand services revenue requirement ¹	\$8,084,311	\$2,836,516	\$3,187,559	\$1,868,820	\$15,977,206
Demand per Tier					
Tier 1: 0-32 HCF	1,085,446				
Tier 2: 33-48 HCF	329,896	329,896			
Tier 3: 49-83 HCF	349,050	349,050	349,050		
Tier 4: 84+ HCF	431,822	431,822	431,822	431,822	
÷ Total HCF per Tier	2,196,213	1,110,768	780,871	431,822	
FY 2022-23 Cost-of-Service per Unit (HCF)	\$3.68	\$2.55	\$4.08	\$4.33	
FY 2024-25 Revenue Increase	1.02	1.02	1.02	1.02	
	\$3.75	\$2.60	\$4.16	\$4.41	

¹ Net revenue requirement from Table 4-3.

B. Multi-Family Residential Quantity Charges

The multi-family quantity charge rate structure is also tiered. The derivation of the multi-family quantity charge rate structure follows the same steps as the single-family quantity charge rate structure. The size of the multi-family tiers is based on the demand pattern

for multi-family customers using AMI data. For single-family customers, the demand pattern is broader than it is for multi-family customers because of the variation in dwelling unit size, which is larger for single-family customers, and in lot size, which for multi-family customers consists of common landscape area, if any. In both cases, smaller dwelling and lot sizes result in a much narrower range of demand for multi-family customers, as shown in **Table 5-3**.

Table 5-3. Multi Family Tier Structure - Breakpoints

Multi-Family	Base Day	Average Day	Maximum Day	Maximum Hour
HCF per Day	1,983	2,080	2,236	
x days per billing period	60	60	60	
HCF per billing period	119,004	124,778	134,164	
÷ Multi-Family dwelling units	14,073	14,073	14,073	
Average flow per dwelling unit (HCF)	8	9	10	>10

It is recommended that the Tier 1 breakpoint for the proposed rate structure be set at 8 HCF, which is the base day demand as shown in **Table 5-3**. With this design, the proposed Tier 1 rate remains affordable for base day demand, which includes minimal peaking. The proposed Tier 2 rate covers the costs associated with higher rates of peaking, which are attenuated compared to single-family peaking but that nonetheless exist.

Table 5-4 shows the calculation of the per-unit costs for multi-family customers, before adjusting for the general fund funded service reimbursement which is added to the rates for Outside Customers described in **Section 5.D**. The total revenue requirement for the class was distributed across the tiers as shown in **Table 4-3**.

Table 5-4. Multi Family Tier Structure - Rates

Multi-Family Cost-of-Service per Unit	Tier 1 Base Day	Tier 2 Average Day	Tier 3 Maximum Day	Tier 4 Maximum Hour	FY 22-23 Total
Demand services revenue requirement¹	\$3,986,186	\$974,441	\$676,052	\$162,724	\$5,799,403
Demand per Tier					
Tier 1: 0-8 HCF	611,910				
Tier 2: 9+ HCF	191,291	191,291	191,291	191,291	
÷ Total HCF per Tier	803,201	191,291	191,291	191,291	
FY 2022-23 Cost-of-Service per Unit (HCF)	\$4.96	\$5.09	\$3.53	\$0.85	
FY 2024-25 Revenue Increase	1.02	1.02	1.02	1.02	
	\$5.06	\$5.20	\$3.60	\$0.87	

Note: Numbers may not sum exactly due to rounding

¹ revenue requirement from Table 4-3.

Multi-Family Unit Cost Calculation	Tier 1	Tier 2
Maximum Hour Component		\$0.87
Maximum Day Component		\$3.60
Average Day Component		\$5.20
Base Day Component	\$5.06	\$5.06
Unit Cost per HCF (by Tier)	\$5.06	\$14.73

C. Commercial Quantity Charges

The commercial quantity charges are a uniform, untiered rate that does not vary depending on the level of consumption. This structure has been in place for over ten years. We recommend maintaining the current structure because the commercial class is not homogeneous the way the residential classes are. The types of customers, the amounts of their water use, and the seasonality of their water use are so diverse as to make it problematic to determine the location of breakpoints. For that reason, tiered rates are not well suited for the commercial customer class.

Table 5-5 shows the calculation of the per-unit costs for both Inside and Outside City commercial customers, before adjustments for general fund contributions for non-operating lease revenue and general fund service reimbursements. The total revenue requirement for the commercial class was distributed across the tiers as shown in **Table 4-3**.

Table 5-5. Calculation of Commercial Quantity Charge Rate
(before General Fund contribution adjustments)

Commercial/Municipal Cost-of-Service per Unit	Uniform Rate - No Tiers				FY 22-23 Total
	Base Day	Average Day	Maximum Day	Maximum Hour	
Demand services revenue requirement ¹	\$4,667,999	\$1,254,455	\$1,198,219	\$171,105	FY 22-23 Total \$7,291,777
÷ Total HCF per Tier	1,000,461	1,000,461	1,000,461	1,000,461	
FY 2022-23 Cost-of-Service per Unit (HCF)	\$4.67	\$1.25	\$1.20	\$0.17	
+2% FY 2024-25 Revenue Increase	1.02	1.02	1.02	1.02	
	\$4.76	\$1.28	\$1.22	\$0.17	

Note: Numbers may not sum exactly due to rounding

¹Net Revenue requirement from Figure 4-3

Commercial/Municipal Unit Cost Calculation Uniform Rate	
Maximum Hour Component	\$0.17
Maximum Day Component	\$1.22
Average Day Component	\$1.28
Base Day Component	\$4.76
Unit Cost per HCF	\$7.43

D. Quantity Charge Rate Adjustments

The quantity charge rates summarized in **Table 5-6** reflect the cost to provide service before adjustments for contributions and services provided by the City's General Fund. At this point, both Inside City and Outside City customers would pay the same quantity charge rates because the services provided to Inside and Outside City customers are approximately the same.

Table 5-6. Summary of Cost-of-Service Quantity Charge Rates
(before General Fund contribution adjustments)

Tier Size		\$/HCF
Single-Family/Duplex ¹		
Tier 1	0-32 HCF	\$3.75
Tier 2	33-48 HCF	\$6.36
Tier 3	49-83 HCF	\$10.52
Tier 4	84+ HCF	\$14.94
Multi-Family ²		
Tier 1	0-8 HCF	\$5.06
Tier 2	9+ HCF	\$14.73
Commercial ³		\$7.43

¹ From Table 5-2² From Table 5-4³ From Table 5-5

During our analysis, we found the City's General Fund has contributed to the Water Enterprise through the City's General Fund incurring costs to serve water customers for public safety services, governmental facilities, and right-of-way maintenance. These contributions have not been accounted for in the revenue requirement used to derive the quantity charge rates shown in **Table 5-6**.

The following subsection discusses the rationale and calculations for adjusting the quantity charge rates for Inside City and Outside City customers. The adjusted quantity charge rates are summarized in **Section 5.3.E**.

General Fund Services Provided to the Water Enterprise

Generally speaking, City enterprise funds receive administrative services from the General Fund for which reimbursement is appropriately due. One category of these services is considered governmental overhead of which the City Manager, City Attorney, Finance, IT, and Human Resources are examples. The reimbursements from the enterprises are typically based on overhead cost allocation plans that derive the reimbursements using commonly accepted cost allocation formulae. The Water Enterprise currently reimburses the General Fund for overhead through the annual budgeting process.

A second category of services is related to specific activities that are directly charged to the enterprise. Public Works engineering associated with enterprise capital improvements is an example. The Water Enterprise also reimburses the General Fund for these services.

A third category of services is typically not considered to be overhead (therefore not included in the annual overhead cost allocation payment from the Water Enterprise to the General Fund) and is not charged directly as is the case with the second category. These services can include public safety, the use of governmental facilities such as city halls and corporation yards, and right-of-way maintenance.

As part of the cost of service analysis, we conducted a cost-based analysis which indicated the City's General Fund is projected to incur approximately \$2,649,015 in costs to provide public safety, governmental facilities, and right-of-way maintenance to the Water Enterprise. Of the total \$2,649,015, the General Fund incurs \$2,325,615 per year to serve Inside City customers and \$323,399 per year to serve Outside City customers.

For Inside City customers, these costs are covered by property taxes paid to the City; therefore, no adjustment to the quantity charge rates will be made to the Inside City customers for this item.⁴

⁴ The City plans to continue to cover Beverly Hills' share of these three enterprise reimbursements with property tax revenue and not to include them in the Inside City quantity charge water rates.

Outside City customers do not contribute property taxes to the City; therefore, an adjustment needs to be made to the Outside City quantity charges rates so the General Fund can recoup the cost of these services. The reimbursement by Outside City customers (through the quantity charge rate adjustment) for public safety services, governmental facilities, and right-of-way maintenance is required to maintain parity with Inside City customers, which has previously been paying the entire cost through property tax revenue.

The entire \$323,399 cost can be recovered by adding \$0.66 per HCF, increased by the Water Enterprise revenue requirement increase for FY 2024-25 (see **Table 5-7**), to the Outside City quantity charges for its single-family, multi family, and commercial customers.

Table 5-7. Quantity Charge Rate Adjustment for General Fund Services

Allocation	Water Enterprise	Beverly Hills			Net (to)/from Rates	Outside City Allocation			Net (to)/from Rates
		Allocation ¹	LESS: GF Contribution			Allocation ¹	LESS: GF Contribution		
Public Safety	\$372,566	87.8%	\$327,082	(\$327,082)	\$0	12.2%	\$45,484	\$0	\$45,484
Government Facility	\$467,172	87.8%	\$410,139	(\$410,139)	\$0	12.2%	\$57,034	\$0	\$57,034
Right-of-Way Maintenance	\$1,809,276	87.8%	\$1,588,394	(\$1,588,394)	\$0	12.2%	\$220,882	\$0	\$220,882
	\$2,649,015			(\$2,325,615)	\$0			\$0	\$323,399
÷ Total Projected Outside City Flow (HCF)									488,316
FY 2022-23 COS Qty Charge rate adj (\$/HCF)									\$0.66
FY 23-24 revenue requirement increase									1.02
1/1/2025 Quantity Charge rate adj (\$/HCF)									\$0.68

1 Based on proportional share of total water connections

E. Adjusted Quantity Charge Rates

Table 5-8 summarizes the recommended FY 2024-25 quantity charge rates, to be effective January 1, 2025. The recommended rates reflect the cost of service calculations that resulted in the common FY 2024-25 quantity charge rates paid by both Inside City and Outside City customers (see **Table 5-6**), with the recommended adjustments to reflect the contributions made by the City's General Fund (discussed in **Section 5.3.D**).

Table 5-8. Recommended FY 2024-25 Quantity Charge Rates (effective 1/1/2025)

Cost-of-Service Analysis			General Fund Cost Allocation	Total
	Tier Size	\$/HCF ¹	Adjustment ²	(\$/HCF)
Inside City				
Single-Family/Duplex				
Tier 1	0-32 HCF	\$3.75	\$0.00	\$3.75
Tier 2	33-48 HCF	\$6.36	\$0.00	\$6.36
Tier 3	49-83 HCF	\$10.52	\$0.00	\$10.52
Tier 4	84+ HCF	\$14.94	\$0.00	\$14.94
Multi-Family				
Tier 1	0-8 HCF	\$5.06	\$0.00	\$5.06
Tier 2	9+ HCF	\$14.73	\$0.00	\$14.73
Commercial	All water use	\$7.43	\$0.00	\$7.43
Outside City				
Single-Family/Duplex				
Tier 1	0-32 HCF	\$3.75	\$0.68	\$4.43
Tier 2	33-48 HCF	\$6.36	\$0.68	\$7.04
Tier 3	49-83 HCF	\$10.52	\$0.68	\$11.20
Tier 4	84+ HCF	\$14.94	\$0.68	\$15.62
Multi-Family				
Tier 1	0-8 HCF	\$5.06	\$0.68	\$5.74
Tier 2	9+ HCF	\$14.73	\$0.68	\$15.41
Commercial	All water use	\$7.43	\$0.68	\$8.11

¹ From Table 5-6² From Table 5-7

F. Water Reliability Rates

In 2018, the City Council approved funding for the development of local water supplies in order to diversify and expand its sources of supply. By doing so, reliability will be improved during shortages. In addition, the need to rely on purchased water from Metropolitan Water District will be reduced. In return for these benefits, a new, separate water reliability charge was established to provide a steady source of funding over the lifecycle of the WEP project.

The new charge was uniformly applied to all water use, on a per-HCF basis. The effect of applying an equal, uniform rate to all water use is that the same cost of additional reliability is paid for all water used by all customers. The principle is that all customers get the same benefit of improved reliability regardless of their customer class or their level of water use.

The local water supply project includes the following components:

1. Three (3) groundwater production wells in the La Brea Subarea

2. Raw water transmission main from the production wells to the Foothill Water Treatment Plant (approximately 4 miles)

The water reliability charge was based on a 30-year cash flow model to calculate the uniform quantity charge rates to be charged equally to Inside City and Outside City customers (see **Appendix A-1**), on all water use, and the same rate for all customer classes (i.e., single-family, multi family, and commercial). Based on the funding strategy, the average unit cost equals \$0.38 per HCF starting in 2019, with annual \$0.01 increases through 2049.

To reduce the rate impacts on City residents and businesses, the City Council approved a one-time \$10 million to partially subsidize the cost to Inside City customer. This is funded by the City's General Fund for use during the construction phase of the project. With the \$10 million subsidy, the water reliability charge for Inside City customers was reduced from \$0.38 per HCF to \$0.23 per HCF starting in 2019. The Outside City customer rate remained at \$0.38 per HCF. We modeled the impacts of the \$10 million cash contribution (see **Appendix A-2**). The \$10 million contribution would reduce the amount of the revenue bond to be issued from \$41.85 million to \$31.85 million, saving approximately \$7.1 million in interest expense over the 30-year period. The combination of the \$10 million cash contribution and the \$7.1 million in interest cost savings results in a subsidy to the Inside City water reliability charge of \$0.15 per HCF. The Outside City customer water reliability charge remains unchanged. As such, based on the rate schedule previously approved by City Council, the Water Reliability Charge for Inside and Outside City customers shall increase by \$0.01 per HCF each year during the five-year planning period (FY 2023-24 through FY 2027-28), as shown in **Figure 5-9**.

Table 5-9. Summary of Water Reliability Charge Analyses and Recommended Rates

Assumptions:	No GF Subsidy	With GF Subsidy	
<i>Bond (30yrs, 4.0%)</i>	\$41.85M	\$31.85M	
<i>Total Interest Incurred</i>	\$30.5M	\$23.4M	
<i>Contribution from Reserves</i>	\$12.5M	\$12.5M	
<i>General Fund Subsidy Amount</i>	--	\$10M	
<i>Interest Savings from GF Subsidy</i>	--	\$7.1M	
<i>Inside City Subsidy for 30 years (\$/hcf)</i>	\$0.00	\$0.15	
Rates per HCF			
Annual Rate Increase	1 cent per HCF	1 cent per HCF	
	Inside & Outside	Inside	Outside
<u>Fiscal Year</u>	<u>\$/HCF</u>		
FY 2018-19 (Year 1)	\$0.38	\$0.23	\$0.38
FY 2019-20	\$0.39	\$0.24	\$0.39
FY 2020-21	\$0.40	\$0.25	\$0.40
FY 2021-22	\$0.41	\$0.26	\$0.41
FY 2022-23	\$0.42	\$0.27	\$0.42
FY 2023-24	\$0.43	\$0.28	\$0.43
FY 2024-25	\$0.44	\$0.29	\$0.44
FY 2025-26	\$0.45	\$0.30	\$0.45
FY 2026-27	\$0.46	\$0.31	\$0.46
FY 2027-28	\$0.47	\$0.32	\$0.47
FY 2028-29	\$0.48	\$0.33	\$0.48
FY 2029-30	\$0.49	\$0.34	\$0.49
FY 2030-31	\$0.50	\$0.35	\$0.50
FY 2031-32	\$0.51	\$0.36	\$0.51
FY 2032-33	\$0.52	\$0.37	\$0.52
FY 2033-34	\$0.53	\$0.38	\$0.53
FY 2034-35	\$0.54	\$0.39	\$0.54
FY 2035-36	\$0.55	\$0.40	\$0.55
FY 2036-37	\$0.56	\$0.41	\$0.56
FY 2037-38	\$0.57	\$0.42	\$0.57
FY 2038-39	\$0.58	\$0.43	\$0.58
FY 2039-40	\$0.59	\$0.44	\$0.59
FY 2040-41	\$0.60	\$0.45	\$0.60
FY 2041-42	\$0.61	\$0.46	\$0.61
FY 2042-43	\$0.62	\$0.47	\$0.62
FY 2043-44	\$0.63	\$0.48	\$0.63
FY 2044-45	\$0.64	\$0.49	\$0.64
FY 2045-46	\$0.65	\$0.50	\$0.65
FY 2046-47	\$0.66	\$0.51	\$0.66
FY 2047-48	\$0.67	\$0.52	\$0.67
FY 2048-49 (Year 30)	\$0.68	\$0.53	\$0.68
Total Revenue from Charges (Year 1 through Year 30)			
Inside City Customers	\$60.4M	\$43.3M	
Outside City Customers	\$8.0M	\$8.0M	
Total	\$68.8M	\$51.4M	

Table 5-10 compares the current and recommended quantity charge rates and water reliability charges through 2028.

Table 5-10. Current and Recommended Quantity Charge Rates

Current Quantity Charge Rates			Recommended Quantity Charge Rates							
			Current		Proposed	New	Proposed			
Tier Size	\$/HCF		Tier Size		7/1/2024	Tier Size	1/1/2025	1/1/2026	1/1/2027	1/1/2028
Inside City					\$/HCF		\$/HCF	\$/HCF	\$/HCF	\$/HCF
Single-Family/Duplex			Single-Family/Duplex							
Tier 1	0-26 HCF	\$3.65	Tier 1	0-26 HCF	\$3.65	0-32 HCF	\$3.75	\$3.83	\$3.91	\$3.99
Tier 2	27-48 HCF	\$7.12	Tier 2	27-48 HCF	\$7.12	33-48 HCF	\$6.36	\$6.49	\$6.62	\$6.75
Tier 3	49-86 HCF	\$10.48	Tier 3	49-86 HCF	\$10.48	49-83 HCF	\$10.52	\$10.73	\$10.94	\$11.16
Tier 4	87+ HCF	\$14.87	Tier 4	87+ HCF	\$14.87	84+ HCF	\$14.94	\$15.24	\$15.54	\$15.85
Multi-Family			Multi-Family							
Tier 1	0-8 HCF	\$4.66	Tier 1	0-8 HCF	\$4.66	0-8 HCF	\$5.06	\$5.16	\$5.26	\$5.37
Tier 2	9+ HCF	\$13.31	Tier 2	9+ HCF	\$13.31	9+ HCF	\$14.73	\$15.02	\$15.32	\$15.63
Commercial		\$7.24	Commercial		\$7.24		\$7.43	\$7.58	\$7.73	\$7.88
Water Reliability (all customers)		\$0.26	All Use		\$0.27		\$0.28	\$0.29	\$0.30	\$0.31
Fire Protection (all customers)		\$3.65	All Use		\$3.65					
Outside City	Tier Size	\$/HCF	Tier Size		\$/HCF	Tier Size	\$/HCF	\$/HCF	\$/HCF	\$/HCF
Single-Family/Duplex			Single-Family/Duplex							
Tier 1	0-26 HCF	\$4.54	Tier 1	0-26 HCF	\$4.54	0-32 HCF	\$4.43	\$4.52	\$4.61	\$4.70
Tier 2	27-48 HCF	\$8.01	Tier 2	27-48 HCF	\$8.01	33-48 HCF	\$7.04	\$7.18	\$7.32	\$7.47
Tier 3	49-86 HCF	\$11.36	Tier 3	49-86 HCF	\$11.36	49-83 HCF	\$11.20	\$11.42	\$11.65	\$11.88
Tier 4	87+ HCF	\$15.77	Tier 4	87+ HCF	\$15.77	84+ HCF	\$15.62	\$15.93	\$16.25	\$16.58
Multi-Family			Multi-Family							
Tier 1	0-8 HCF	\$5.55	Tier 1	0-8 HCF	\$5.55	0-8 HCF	\$5.74	\$5.85	\$5.97	\$6.09
Tier 2	9+ HCF	\$14.19	Tier 2	9+ HCF	\$14.19	9+ HCF	\$15.41	\$15.72	\$16.03	\$16.35
Commercial		\$8.14	Commercial		\$8.14		\$8.11	\$8.27	\$8.44	\$8.61
Water Reliability (all customers)		\$0.41	All Use		\$0.42		\$0.43	\$0.44	\$0.45	\$0.46
Fire Protection (all customers)		\$4.54	All Use		\$4.54		\$4.43	\$4.52	\$4.61	\$4.70

5.4 FIXED SERVICE CHARGE RATES

The fixed service charge rates are fixed rates charged per account that are billed each billing period. The fixed service charge rates are graduated in proportion to the capacity of the service serving a property. Fixed service charge rates are charged for water service and for those customers with separate services for fire service.

A. Fixed Service Charge Rates

The cost of service analysis determined how much of the revenue requirement is attributable to the customer service function. The function has two components – customer accounts and customer capacity – each of which is itemized in the cost of service analysis in **Table 5-12**. Costs attributable to customer accounts are allocated to customers in proportion to the number of accounts. Costs attributable to customer capacity are allocated to customers in proportion to the capacity of their services. The sum of the two components equals the fixed service charge rate per connection.

Table 5-11 lists the units of service corresponding to each of the cost components. The 10,350 meters/services are used for apportioning the customer accounts cost component.

Capacity costs associated with the distribution system are apportioned among the connections in proportion to the capacity associated with each connection. Accounts are converted to Equivalent Meter Units (EMUs) to apportion the customer capacity cost component. An EMU represents the number of 1-inch meters to which a larger meter is equivalent. For example, a 2-inch meter provides 3.2 times as much capacity as a 1-inch meter. The capacity multipliers are based on the safe maximum operating capacity by meter size per the current AWWA standards included in Table B-2 of AWWA's M-1 manual, seventh edition. For example, the 1,140 2-inch meters equal 3,648 EMUs. There are 16,861 total EMUs. In effect, the 10,350 services of various sizes have the equivalent capacity as 16,861 1-inch meters.

Table 5-11. Fixed Service Charge Units of Service

Service Size	# of BH Meters	# of WH Meters	Total # of Meters	Meter Ratings (gpm)	Capacity Multiplier*	EMUs
	a	b	a	b	c = b ÷ 50	d = a * c
1"	5,583	1,468	7,051	50	1.00	7,051
1-1/2"	1,725	152	1,877	100	2.00	3,754
2"	999	141	1,140	160	3.20	3,648
3"	145	25	170	320	6.40	1,088
4"	75	17	92	500	10.00	920
6"	14	6	20	1,000	20.00	400
8"	0	0	0	1,600	32.00	0
10"	0	0	0	4,200	84.00	0
Total Meters	8,541	1,809	10,350		Total EMUs	16,861

* Capacity multiplier assumes 1" meter = 1 EMU = 50 gals/min

Table 5-12 derives the unit costs for the customer accounts and customer capacity cost components. Each account is allocated \$16.26 for the customer account cost component. That amount represents the costs incurred to maintain an account regardless of the capacity of the service. Each account is also allocated \$41.23 per EMU. That amount represents a portion of the cost of providing distribution system capacity for each account, and increases based on the capacity of the meter.

Table 5-12. Fixed Service Charge Unit Costs

FY 2022-23 Customer	Customer Account	Customer Capacity	
Service Expenses	Component	Component	Total
O&M Expenses	1,135,729	1,988,586	\$3,124,315
Capital Expenses	\$1,048,947	\$1,416,002	\$2,464,949
Administrative Overhead	\$397,404	\$619,313	\$1,016,717
Non-Operating Revenue	(\$565,995)	\$146,963	(\$419,032)
Subtotal FY 2022-23	\$2,016,085	\$4,170,863	\$6,186,949
Less: Fire Service Revenue	(\$1,006,409)	\$0	(\$1,006,409)
Total FY 2022-23	\$1,009,677	\$4,170,863	\$5,180,540
Units of Service	10,350	16,861	
	Meters	EMUs	
Unit Cost (bi-monthly)	\$16.26	\$41.23	
	per Account	per EMU	

Source: Customer Service Expenses from Table 4-3

Source: Units of service from Figure 5-11

Table 5-13 combines the customer service and capacity components into a single fixed service charge for each size service increased by the revenue requirement increase in 2025.

Table 5-13. Recommended Bi-Monthly Fixed Service Charge Rates

Service Size	Current Charge	Proposed (All Customer Classes; Inside and Outside City)				
		7/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
Water Meter Service Charges						
1"	\$53.51	\$53.51	\$58.64	\$59.81	\$61.01	\$62.23
1-1/2"	\$93.84	\$93.84	\$100.69	\$102.70	\$104.75	\$106.85
2"	\$142.24	\$142.24	\$151.15	\$154.17	\$157.25	\$160.40
3"	\$271.30	\$271.30	\$285.72	\$291.43	\$297.26	\$303.21
4"	\$416.50	\$416.50	\$437.11	\$445.85	\$454.77	\$463.87
6"	\$819.82	\$819.82	\$857.63	\$874.78	\$892.28	\$910.13
8"	\$1,311.71	\$1,311.71	\$1,362.26	\$1,389.51	\$1,417.30	\$1,445.65
10"	\$1,967.57	\$1,967.57	\$3,548.99	\$3,619.97	\$3,692.37	\$3,766.22

Source: Figures 5-11 and 5-12.

Tables 5-14 compares the current and recommended fixed service charge rates.

The fixed service charge rates proposed for 1/1/2025 are based on the cost of service analysis and the subsequent three years are based on the 1/1/2025 cost of service rates with annual increases thereafter, which corresponds with the respective annual increases in the Water Enterprises revenue requirement as shown in **Figure 3-2**.

Table 5-14. Current and Recommended Fixed Service Charge Rates

Service Size	Account Component	Capacity Component			Fixed Service Charge (\$/bi-month)	
	(\$/bi-month)	\$/EMU	Multiplier	Total	Cost-of-Service (FY 2022-23)	Cost-of-Service (eff. 1/1/2025)
	a	b	c	d = b * c	e = a + d	f = e * 1.02
1"	\$16.26	\$41.23	1.00	\$41.23	\$57.49	\$58.64
1-1/2"	\$16.26	\$41.23	2.00	\$82.46	\$98.71	\$100.69
2"	\$16.26	\$41.23	3.20	\$131.93	\$148.19	\$151.15
3"	\$16.26	\$41.23	6.40	\$263.86	\$280.12	\$285.72
4"	\$16.26	\$41.23	10.00	\$412.28	\$428.54	\$437.11
6"	\$16.26	\$41.23	20.00	\$824.56	\$840.82	\$857.63
8"	\$16.26	\$41.23	32.00	\$1,319.29	\$1,335.55	\$1,362.26
10"	\$16.26	\$41.23	84.00	\$3,463.14	\$3,479.40	\$3,548.99

B. Fire Service Charge Rates

All customers pay fixed service charges based on the size of their connection for fire service. Some customers have additional fire service connections. Fire service connections are for sprinkler systems that provide water on a stand-by basis for fire suppression. Revenue from fixed fire service charges covers about 3% of the total revenue requirement. The cost of service analysis is currently limited in deriving the full cost of fire service because costs directly related to fire service are not directly identified among water operations costs. As a result, the allocation is limited by the level of detail in the operations cost breakdown. For that reason, it would be appropriate to maintain the current fire service rates on 7/1/2024 until such time as operational detail is sufficient to allow for a thorough cost of service analysis. Subsequently, each January 1 thereafter (as shown in **Figure 5-15**), we recommend annual adjustments which correspond with the respective annual increases in the projected revenue requirement as shown in **Figure 3-2**.

Table 5-15. Current and Recommended Bi-monthly Fixed Fire Service Rates

Service Size	Current Charge	Proposed (All Customer Classes; Inside and Outside City)				
		7/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
Fire Meter Service Charges						
<= 2"	\$29.73	\$29.73	\$30.32	\$30.93	\$31.55	\$32.18
2 1/2"	\$44.32	\$44.32	\$45.21	\$46.11	\$47.03	\$47.97
3"	\$64.56	\$64.56	\$65.85	\$67.17	\$68.51	\$69.88
4"	\$124.69	\$124.69	\$127.18	\$129.72	\$132.31	\$134.96
6"	\$340.52	\$340.52	\$347.33	\$354.28	\$361.37	\$368.60
8"	\$712.74	\$712.74	\$726.99	\$741.53	\$756.36	\$771.49
10"	\$1,272.63	\$1,272.63	\$1,298.08	\$1,324.04	\$1,350.52	\$1,377.53
12"	\$1,654.42	\$1,654.42	\$1,687.51	\$1,721.26	\$1,755.69	\$1,790.80

5.5 WATER SHORTAGE REVENUE STABILIZATION FACTORS

During prolonged shortages, customers are required to conserve or even ration their water use. These shortages can include locally declared water shortages caused by facility operations, State mandated reductions, or natural disasters including droughts. The magnitude of the water savings can significantly reduce water sales revenue from quantity charges.

During shortages, costs do not decrease in direct proportion to decreases in water use because typically over 70% of the costs are fixed regardless of how much water is supplied. Hence, a 10% reduction in water use may only reduce costs about 3% (i.e., 10% of the 30% of costs that vary in proportion to water use). Because the City only receives 15% of its revenue from fixed charges, a 10% reduction in water sales results in an 8.5% reduction in revenue (i.e., 10% of 85% of the revenue from quantity charges). This means that, in a year-long 10% shortage, 97% of the costs are incurred while only 91.5% of the revenue is received, which is a 5.5% revenue shortfall.

Ten percent shortages are not uncommon or as severe as the 2016 shortage, when the State mandated a 32% reduction for the City. Reserves may be able to cover the revenue shortfall during brief rationing periods. For longer or more severe rationing periods, rate increases are needed to offset this revenue shortfall in order to maintain service levels. On average, the rate increases are designed to be revenue neutral. In other words, customers that reduce their demand by the required amount will pay quantity charge rates, which when multiplied by their reduced demand, will generate only enough quantity charge revenue to cover costs.

The City proposes to use Water Shortage Revenue Stabilization Factors to make the rate adjustments that are needed during shortages declared by the City Council to offset the revenue shortfalls caused by conservation. Although the rate increases are designed to be revenue neutral, they must be implemented in compliance with the Proposition 218 protest process. Revenue stabilization adjustments can be implemented that would eliminate the need for a Proposition 218 process every time revenue-neutral adjustments are needed during shortages.

A. Methodology

Since the passage of Proposition 218, water shortages have occurred that have led an increasing number of water suppliers to adopt revenue stabilization adjustments that do not trigger the Proposition 218 protest process each time an adjustment is made. This is accomplished by including the Water Shortage Revenue Stabilization Adjustment procedure in the Proposition 218 notice at the time rates are adopted in compliance with Proposition 218. The notice describes the process, which rate payers have the right to protest. Barring a majority protest, the adjustment process is adopted as part of the rate increase and can be implemented as needed during the term of the adopted rate increases.

The adjustment process includes factors by which quantity charge rates are adjusted in conjunction with the reduction stages in the Water Shortage Contingency Plan. The factors are only applied to the variable quantity charge rates and not to the fixed service charge rates to give effect only to customer's changes in water demand. The City's current *Water Shortage Contingency Plan* is based on the same reduction in water use for all classes in each of the five stages. As part of the recommended Water Shortage Revenue Stabilization Adjustments, it is proposed that the shortage reductions will vary by customer class. Each classes' reduction will be determined by reducing "outdoor" water use (seasonal water use) six times more than "indoor" (average winter water use) water use.⁵ It is assumed that seasonal "outdoor" water demand is primarily for irrigation, which is a lower beneficial use than non-seasonal "indoor" demand, which is primarily related to health and safety needs.

B. Analysis

Based on customer water use data gathered through customer water meters, the resulting reductions are summarized in **Table 5-16**. The reductions shown represent the customer class reductions required to achieve the reduction associated with each shortage stage. The customer class reductions are greater or less than the overall average for each stage depending on how much of each classes' water demand is seasonal.

Table 5-16. Shortage Reductions by Class

	Stage A	Stage B	Stage C	Stage D	Stage E
Class	Up to (5% Reduction)	Up to (10% Reduction)	Up to (20% Reduction)	Up to (30% Reduction)	Up to (50% Reduction)
Single Family	6%	12%	24%	36%	56%
Multi-Family	3%	6%	11%	17%	36%
Commercial	4%	7%	14%	22%	41%
All Irrigation Meters	13%	26%	51%	77%	100%

Table 5-17 shows the calculation of each customer classes' respective shortage reduction required during each shortage stage. The annual demand for each class is separated into indoor and outdoor water use where indoor water use is defined as the period from January through March multiplied times four to get the annualized indoor water use over 12 months. Subtracting indoor water use from the total annual water use determines the seasonal outdoor water use. In the case of the irrigation customer class, all of the demand is considered to be outdoor water use.

⁵ This 6-to-1 reduction formula was implemented by the San Francisco Public Utilities Commission during the 1987-1992 drought.

The percentage reductions for each customer class required to achieve the overall reduction for a particular stage are derived so that outdoor consumption is reduced six times indoor consumption. In a Stage A shortage, a 2.1% reduction in indoor water use and an 12.8% reduction in outdoor water use are required to achieve an overall 5% reduction. Applying the same reduction factors to each class results in different overall reductions for the class based on the relative proportions of their indoor and outdoor water use.

As shown in **Table 5-16**, to achieve the 5% Stage A reduction, single-family and irrigation customers are required to conserve more than 5% because they have higher seasonal use compared to multi-family and commercial customers. This pattern is consistently repeated for Stages A, B, C, and D. Note that the 50% reduction required in Stage E is so great that all outdoor water use is eliminated and indoor water use has to be cut back 31.8%, which is a 3.15-to-1.0 relationship, not 6.0-to-1.0. In Stage E, a 100% reduction in water use by irrigation customers is required.

Table 5-17. Calculation of Shortage Reductions by Stage and Customer Class/Type

5% Stage A Reduction (up to 5% reduction)									
Class	Baseline Annual Demand (HCF)			Reductions					
	Total	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Total	Total
Single Family	2,098,170	1,350,705	747,465	2.1%	12.8%	28,925	96,042	124,968	6%
Multi-Family	741,305	698,190	43,115	2.1%	12.8%	14,952	5,540	20,492	3%
Commercial	902,480	778,557	123,923	2.1%	12.8%	16,673	15,923	32,596	4%
All Irrigation Meters	115,206	-	115,206	0.0%	12.8%	-	14,803	14,803	13%
Total	3,857,160	2,827,452	1,029,708			60,550	132,308	192,858	5.0%
10% Stage B Reduction (up to 10% reduction)									
Class	Baseline Annual Demand (HCF)			Reductions					
	Total	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Total	Total
Single Family	2,098,170	1,350,705	747,465	4.3%	25.7%	57,851	192,084	249,935	12%
Multi-Family	741,305	698,190	43,115	4.3%	25.7%	29,904	11,080	40,983	6%
Commercial	902,480	778,557	123,923	4.3%	25.7%	33,346	31,846	65,192	7%
All Irrigation Meters	115,206	-	115,206	0.0%	25.7%	-	29,606	29,606	26%
Total	3,857,160	2,827,452	1,029,708			121,100	264,616	385,716	10.0%
20% Stage C Reduction (up to 20% reduction)									
Class	Baseline Annual Demand (HCF)			Reductions					
	Total	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Total	Total
Single Family	2,098,170	1,350,705	747,465	8.6%	51.4%	115,702	384,169	499,871	24%
Multi-Family	741,305	698,190	43,115	8.6%	51.4%	59,807	22,159	81,967	11%
Commercial	902,480	778,557	123,923	8.6%	51.4%	66,692	63,692	130,383	14%
All Irrigation Meters	115,206	-	115,206	0.0%	51.4%	-	59,211	59,211	51%
Total	3,857,160	2,827,452	1,029,708			242,201	529,231	771,432	20.0%
30% Stage D Reduction (up to 30% reduction)									
Class	Baseline Annual Demand (HCF)			Reductions					
	Total	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Total	Total
Single Family	2,098,170	1,350,705	747,465	12.8%	77.1%	173,553	576,253	749,806	36%
Multi-Family	741,305	698,190	43,115	12.8%	77.1%	89,711	33,239	122,950	17%
Commercial	902,480	778,557	123,923	12.8%	77.1%	100,037	95,538	195,575	22%
All Irrigation Meters	115,206	-	115,206	0.0%	77.1%	-	88,817	88,817	77%
Total	3,857,160	2,827,452	1,029,708			363,301	793,847	1,157,148	30.0%
50% Stage E Reduction (up to 50% reduction)									
Class	Baseline Annual Demand (HCF)			Reductions					
	Total	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Total	Total
Single Family	2,098,170	1,350,705	747,465	31.8%	100.0%	429,401	747,465	1,176,866	56%
Multi-Family	741,305	698,190	43,115	31.8%	100.0%	221,961	43,115	265,076	36%
Commercial	902,480	778,557	123,923	31.8%	100.0%	247,510	123,923	371,433	41%
All Irrigation Meters	115,206	-	115,206	0.0%	100.0%	-	115,206	115,206	100%
Total	3,857,160	2,827,452	1,029,708			898,872	1,029,708	1,928,580	50.0%

The fixed service charge rates are fixed and generate about 17% of the total rate revenue regardless of shortages. The remaining 83% of revenue is generated by the quantity charge rates. In deriving the revenue stabilization factors, the factors will only apply to

the quantity charge rates because fluctuations in water use correlate with fluctuations in variable costs. Each customer class, including irrigation meters as a separate class, has its own set of revenue stabilization factors corresponding to its reduction in each stage of shortage.

The formula for the revenue stabilization factors comprises conservation and variable cost components. The conservation component adjusts to account for the required reduction in water demand. The variable cost component adjusts to account for the portion of variable costs that is covered by the quantity charges. The revenue stabilization factors are the product of the conservation component multiplied by the variable cost component. Each component is defined as follows:

Revenue Stabilization Factor = Conservation Component multiplied times Variable Cost Component, where

Conservation Component = $1/(1 - a)$, where

a = required percentage reduction, which varies by customer class.

Variable Cost Component = $(b - (c * a))/b$, where

a = required percentage reduction, which varies by customer class;

b = percentage of revenue from total service and quantity charges for all customer classes that is attributable to quantity charges, an amount that is currently 83%; and

c = percentage of total revenue requirement covered by service and quantity charges that varies based on fluctuations in demand, an amount that is currently 29%.⁶

The following example illustrates how the formula determined the 1.041 revenue stabilization factor in **Table 5-18** for the single-family customer class in a Stage A shortage in which an overall conservation goal of 5% if required.

Conservation Component: $1/(1 - a) = 1/(1 - 0.0596) = 1.06337$, where

a = required percentage reduction is 5.96% for the single-family customer class (see **Table 5-17**, where a rounded 6% is shown).

Variable Cost Component: $(b - (c * a))/b = (0.83 - (0.29 * 0.0596))/0.83 = 0.979$, where

⁶ The cost of MWD water is the largest example of a variable cost, which varies with water demand.

$a = 5.96\%$ reduction for single-family customers in a Stage A shortage.

$b = 83\%$ of total rate revenue is generated by quantity charges; and

$c = 29\%$ of revenue requirement is related to variable costs.

$$\text{Revenue Stabilization Factor} = 1.06337 * 0.979 = 1.041$$

The single-family residential quantity charge rates in effect under non-shortage conditions would be multiplied by 1.041 to derive the quantity charge rates to be in effect during a Stage A water shortage. **Table 5-18** shows the adjustment factors that would be applied to the rates that would normally be in effect absent declared shortages.⁷

Table 5-18. Water Shortage Revenue Stabilization Factors by Class/Type

	Stage A	Stage B	Stage C	Stage D	Stage E
Class	Up to (5% Reduction)	Up to (10% Reduction)	Up to (20% Reduction)	Up to (30% Reduction)	Up to (50% Reduction)
Single Family	1.041	1.088	1.203	1.360	1.827
Multi-Family	1.018	1.038	1.081	1.129	1.361
Commercial	1.024	1.050	1.109	1.179	1.453
Irrigation	1.095	1.224	1.685	3.180	n/a

To be applied to the non-shortage rates in effect at the time of the shortage declaration

C. Implementation

The recommended water shortage revenue stabilization factors in **Table 5-18** are implemented only during periods of declared shortages. The adjustments can go in either direction from stage to stage depending on whether the level of reduction is increasing or decreasing during the shortage. At least 30 days prior to making the adjustment, notice must be provided to rate payers, which can be included in the customer's bills. No protest process is required.

5.6 MWD PASS-THROUGH ADJUSTMENT

A pass-through adjustment allows the City to adjust quantity charge rates to track any difference between the MWD rates that were included in the model and the actual rates adopted each year by MWD. For example, based on projections by MWD, the cost of

⁷ In Stage E, there is no adjustment factor in **Table 5-18** for irrigation because irrigation is 100% curtailed. Irrigation water use in Stage E is prohibited and would be subject to sanctions.

purchased water included in this rate study is \$1,256 per acre foot (\$2.88 per HCF), effective January 1, 2024. If the actual cost differs, the City may increase or decrease the quantity charge rates by the difference. **Table 5-19** summarizes the MWD rates and charges included in the rate study.

Table 5-19. Metropolitan Water District Purchased Water Cost Projections

	1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
Purchased Water Costs					
Cost per Acre Foot	\$1,256	\$1,296	\$1,338	\$1,380	\$1,425
Cost per HCF	\$2.88	\$2.98	\$3.07	\$3.17	\$3.27
Readiness-to-Serve Charge	\$1,189,900	\$1,208,150	\$1,226,400	\$1,244,650	\$1,262,900
Capacity Charge	\$303,020	\$333,496	\$367,037	\$403,952	\$444,579

The pass-through adjustment for MWD costs can be made by providing 30-day notice in the customer bills without triggering the need for a Proposition 218 protest process.

SECTION 6. CUSTOMER BILL IMPACTS

Based on the recommended variable quantity charge rates summarized in **Table 5-9**, the recommended fixed service charge rates summarized in **Table 5-13**, and the recommended water reliability charge rates summarized in **Table 5-18** (with general fund subsidy), the bi-monthly customer bill impacts were evaluated.

Tables 6-1 through **6-3** provides sample bills impacts for Inside City customers. **Tables 6-4** through **6-6** provide sample bills impacts for Outside City customers. Each table includes the bill impacts for low (half of average), average, and high (three time average) water use for each customer class. The multi-family sample bill impacts are based on a 10-unit complex which is the most-common size within the City's service area.

Table 6-1. Bi-Monthly Bill Impacts – Inside City Customers – Low Water Use

Current			Proposed				
			<u>7/1/2024</u>	<u>1/1/2025</u>	<u>1/1/2026</u>	<u>1/1/2027</u>	<u>1/1/2028</u>
Assumptions							
Meter Size	1" meter	1" meter					
Average Water Consumption	28	28					
Fixed Service Charge	\$53.51	\$53.51	\$58.64	\$59.81	\$61.01	\$62.23	
Quantity Charge	\$109.14	\$109.14	\$105.00	\$107.24	\$109.48	\$111.72	
Water Reliability Charge	\$7.28	\$7.56	\$7.84	\$8.12	\$8.40	\$8.68	
Total	\$169.93	\$170.21	\$171.48	\$175.17	\$178.89	\$182.63	
Increase/(Decrease)		\$0.28	\$1.27	\$3.69	\$3.72	\$3.74	
Multi Family - Inside City - Low Water Use							
Current			Proposed				
			<u>7/1/2024</u>	<u>1/1/2025</u>	<u>1/1/2026</u>	<u>1/1/2027</u>	<u>1/1/2028</u>
Assumptions							
Meter Size	1.5" meter	1.5" meter					
Total Water Consumption	47	47					
Dwelling Units	10	10					
Average Water Consumption (per unit)	4.7	4.7					
Fixed Service Charge	\$93.84	\$93.84	\$100.69	\$102.70	\$104.75	\$106.85	
Quantity Charge	\$219.02	\$219.02	\$237.82	\$242.52	\$247.22	\$252.39	
Water Reliability Charge	\$12.22	\$12.69	\$13.16	\$13.63	\$14.10	\$14.57	
Total	\$325.08	\$325.55	\$351.67	\$358.85	\$366.07	\$373.81	
Increase/(Decrease)		\$0.47	\$26.12	\$7.18	\$7.22	\$7.74	
Commercial - Inside City - Low Water Use							
Current			Proposed				
			<u>7/1/2024</u>	<u>1/1/2025</u>	<u>1/1/2026</u>	<u>1/1/2027</u>	<u>1/1/2028</u>
Assumptions							
Meter Size	1" meter	1" meter					
Average Water Consumption	57	57					
Fixed Service Charge	\$53.51	\$53.51	\$58.64	\$59.81	\$61.01	\$62.23	
Quantity Charge	\$412.68	\$412.68	\$423.51	\$432.06	\$440.61	\$449.16	
Water Reliability Charge	\$14.82	\$15.39	\$15.96	\$16.53	\$17.10	\$17.67	
Total	\$481.01	\$481.58	\$498.11	\$508.40	\$518.72	\$529.06	
Increase/(Decrease)		\$0.57	\$16.53	\$10.29	\$10.32	\$10.34	

Table 6-2. Bi-Monthly Bill Impacts – Inside City Customers – Average Water Use

Single Family/Duplex - Inside City - Average Water Use						
	Current		Proposed			
			<u>7/1/2024</u>	<u>1/1/2025</u>	<u>1/1/2026</u>	<u>1/1/2027</u> <u>1/1/2028</u>
Assumptions						
Meter Size	1" meter	1" meter				
Average Water Consumption	56	56				
Fixed Service Charge	\$53.51	\$53.51	\$58.64	\$59.81	\$61.01	\$62.23
Quantity Charge	\$335.38	\$335.38	\$305.92	\$312.24	\$318.56	\$324.96
Water Reliability Charge	\$14.56	\$15.12	\$15.68	\$16.24	\$16.80	\$17.36
Total	\$403.45	\$404.01	\$380.24	\$388.29	\$396.37	\$404.55
Increase/(Decrease)		\$0.56	(\$23.77)	\$8.05	\$8.08	\$8.18
Multi Family - Inside City - Average Water Use						
	Current		Proposed			
			<u>7/1/2024</u>	<u>1/1/2025</u>	<u>1/1/2026</u>	<u>1/1/2027</u> <u>1/1/2028</u>
Assumptions						
Meter Size	1.5" meter	1.5" meter				
Total Water Consumption	93	93				
Dwelling Units	10	10				
Average Water Consumption (per unit)	9.3	9.3				
Fixed Service Charge	\$93.84	\$93.84	\$100.69	\$102.70	\$104.75	\$106.85
Quantity Charge	\$545.83	\$545.83	\$596.29	\$608.06	\$619.96	\$632.79
Water Reliability Charge	\$24.18	\$25.11	\$26.04	\$26.97	\$27.90	\$28.83
Total	\$663.85	\$664.78	\$723.02	\$737.73	\$752.61	\$768.47
Increase/(Decrease)		\$0.93	\$58.24	\$14.71	\$14.88	\$15.86
Commercial - Inside City - Average Water Use						
	Current		Proposed			
			<u>7/1/2024</u>	<u>1/1/2025</u>	<u>1/1/2026</u>	<u>1/1/2027</u> <u>1/1/2028</u>
Assumptions						
Meter Size	1" meter	1" meter				
Average Water Consumption	113	113				
Fixed Service Charge	\$53.51	\$53.51	\$58.64	\$59.81	\$61.01	\$62.23
Quantity Charge	\$818.12	\$818.12	\$839.59	\$856.54	\$873.49	\$890.44
Water Reliability Charge	\$29.38	\$30.51	\$31.64	\$32.77	\$33.90	\$35.03
Total	\$901.01	\$902.14	\$929.87	\$949.12	\$968.40	\$987.70
Increase/(Decrease)		\$1.13	\$27.73	\$19.25	\$19.28	\$19.30

Table 6-3. Bi-Monthly Bill Impacts – Inside City Customers – High Water Use

Single Family/Duplex - Inside City - High Water Use						
	Current		Proposed			
			<u>7/1/2024</u>	<u>1/1/2025</u>	<u>1/1/2026</u>	<u>1/1/2027</u> <u>1/1/2028</u>
Assumptions						
Meter Size	1" meter	1" meter				
Average Water Consumption	112	112				
Fixed Service Charge	\$53.51	\$53.51	\$58.64	\$59.81	\$61.01	\$62.23
Quantity Charge	\$1,036.40	\$1,036.40	\$1,023.22	\$1,043.91	\$1,064.60	\$1,085.93
Water Reliability Charge	\$29.12	\$30.24	\$31.36	\$32.48	\$33.60	\$34.72
Total	\$1,119.03	\$1,120.15	\$1,113.22	\$1,136.20	\$1,159.21	\$1,182.88
Increase/(Decrease)		\$1.12	(\$6.93)	\$22.98	\$23.01	\$23.67
Multi Family - Inside City - High Water Use						
	Current		Proposed			
			<u>7/1/2024</u>	<u>1/1/2025</u>	<u>1/1/2026</u>	<u>1/1/2027</u> <u>1/1/2028</u>
Assumptions						
Meter Size	1.5" meter	1.5" meter				
Total Water Consumption	186	186				
Dwelling Units	10	10				
Average Water Consumption (per unit)	18.6	18.6				
Fixed Service Charge	\$93.84	\$93.84	\$100.69	\$102.70	\$104.75	\$106.85
Quantity Charge	\$1,783.66	\$1,783.66	\$1,966.18	\$2,004.92	\$2,044.72	\$2,086.38
Water Reliability Charge	\$48.36	\$50.22	\$52.08	\$53.94	\$55.80	\$57.66
Total	\$1,925.86	\$1,927.72	\$2,118.95	\$2,161.56	\$2,205.27	\$2,250.89
Increase/(Decrease)		\$1.86	\$191.23	\$42.61	\$43.71	\$45.62
Commercial - Inside City - High Water Use						
	Current		Proposed			
			<u>7/1/2024</u>	<u>1/1/2025</u>	<u>1/1/2026</u>	<u>1/1/2027</u> <u>1/1/2028</u>
Assumptions						
Meter Size	1" meter	1" meter				
Average Water Consumption	226	226				
Fixed Service Charge	\$53.51	\$53.51	\$58.64	\$59.81	\$61.01	\$62.23
Quantity Charge	\$1,636.24	\$1,636.24	\$1,679.18	\$1,713.08	\$1,746.98	\$1,780.88
Water Reliability Charge	\$58.76	\$61.02	\$63.28	\$65.54	\$67.80	\$70.06
Total	\$1,748.51	\$1,750.77	\$1,801.10	\$1,838.43	\$1,875.79	\$1,913.17
Increase/(Decrease)		\$2.26	\$50.33	\$37.33	\$37.36	\$37.38

Table 6-4. Bi-Monthly Bill Impacts – Outside City Customers – Low Water Use

Single Family/Duplex - Outside City - Low Water Use						
Current		Proposed				
		<u>7/1/2024</u>	<u>1/1/2025</u>	<u>1/1/2026</u>	<u>1/1/2027</u>	<u>1/1/2028</u>
Assumptions						
Meter Size	1" meter	1" meter				
Average Water Consumption	28	28				
Fixed Service Charge	\$53.51	\$53.51	\$58.64	\$59.81	\$61.01	\$62.23
Quantity Charge	\$134.06	\$134.06	\$124.04	\$126.56	\$129.08	\$131.60
Water Reliability Charge	\$11.48	\$11.76	\$12.04	\$12.32	\$12.60	\$12.88
Total	\$199.05	\$199.33	\$194.72	\$198.69	\$202.69	\$206.71
Increase/(Decrease)		\$0.28	(\$4.61)	\$3.97	\$4.00	\$4.02
Multi Family - Outside City - Low Water Use						
Current		Proposed				
		<u>7/1/2024</u>	<u>1/1/2025</u>	<u>1/1/2026</u>	<u>1/1/2027</u>	<u>1/1/2028</u>
Assumptions						
Meter Size	1.5" meter	1.5" meter				
Total Water Consumption	47	47				
Dwelling Units	10	10				
Average Water Consumption (per unit)	4.7	4.7				
Fixed Service Charge	\$93.84	\$93.84	\$100.69	\$102.70	\$104.75	\$106.85
Quantity Charge	\$260.85	\$260.85	\$269.78	\$274.95	\$280.59	\$286.23
Water Reliability Charge	\$19.27	\$19.74	\$20.21	\$20.68	\$21.15	\$21.62
Total	\$373.96	\$374.43	\$390.68	\$398.33	\$406.49	\$414.70
Increase/(Decrease)		\$0.47	\$16.25	\$7.65	\$8.16	\$8.21
Commercial - Outside City - Low Water use						
Current		Proposed				
		<u>7/1/2024</u>	<u>1/1/2025</u>	<u>1/1/2026</u>	<u>1/1/2027</u>	<u>1/1/2028</u>
Assumptions						
Meter Size	1" meter	1" meter				
Average Water Consumption	57	57				
Fixed Service Charge	\$53.51	\$53.51	\$58.64	\$59.81	\$61.01	\$62.23
Quantity Charge	\$463.98	\$463.98	\$462.27	\$471.39	\$481.08	\$490.77
Water Reliability Charge	\$23.37	\$23.94	\$24.51	\$25.08	\$25.65	\$26.22
Total	\$540.86	\$541.43	\$545.42	\$556.28	\$567.74	\$579.22
Increase/(Decrease)		\$0.57	\$3.99	\$10.86	\$11.46	\$11.48

Table 6-5. Bi-Monthly Bill Impacts – Outside City Customers – Average Water Use

Single Family/Duplex - Outside City - Average Water Use						
Current		Proposed				
		<u>7/1/2024</u>	<u>1/1/2025</u>	<u>1/1/2026</u>	<u>1/1/2027</u>	<u>1/1/2028</u>
Assumptions						
Meter Size	1" meter	1" meter				
Average Water Consumption	56	56				
Fixed Service Charge	\$53.51	\$53.51	\$58.64	\$59.81	\$61.01	\$62.23
Quantity Charge	\$385.14	\$385.14	\$344.00	\$350.88	\$357.84	\$364.96
Water Reliability Charge	\$22.96	\$23.52	\$24.08	\$24.64	\$25.20	\$25.76
Total	\$461.61	\$462.17	\$426.72	\$435.33	\$444.05	\$452.95
Increase/(Decrease)		\$0.56	(\$35.45)	\$8.61	\$8.72	\$8.90
Multi Family - Outside City - Average Water Use						
Current		Proposed				
		<u>7/1/2024</u>	<u>1/1/2025</u>	<u>1/1/2026</u>	<u>1/1/2027</u>	<u>1/1/2028</u>
Assumptions						
Meter Size	1.5" meter	1.5" meter				
Total Water Consumption	93	93				
Dwelling Units	10	10				
Average Water Consumption (per unit)	9.3	9.3				
Fixed Service Charge	\$93.84	\$93.84	\$100.69	\$102.70	\$104.75	\$106.85
Quantity Charge	\$628.47	\$628.47	\$659.53	\$672.36	\$685.99	\$699.75
Water Reliability Charge	\$38.13	\$39.06	\$39.99	\$40.92	\$41.85	\$42.78
Total	\$760.44	\$761.37	\$800.21	\$815.98	\$832.59	\$849.38
Increase/(Decrease)		\$0.93	\$38.84	\$15.77	\$16.61	\$16.79
Commercial - Outside City - Average Water use						
Current		Proposed				
		<u>7/1/2024</u>	<u>1/1/2025</u>	<u>1/1/2026</u>	<u>1/1/2027</u>	<u>1/1/2028</u>
Assumptions						
Meter Size	1" meter	1" meter				
Average Water Consumption	113	113				
Fixed Service Charge	\$53.51	\$53.51	\$58.64	\$59.81	\$61.01	\$62.23
Quantity Charge	\$919.82	\$919.82	\$916.43	\$934.51	\$953.72	\$972.93
Water Reliability Charge	\$46.33	\$47.46	\$48.59	\$49.72	\$50.85	\$51.98
Total	\$1,019.66	\$1,020.79	\$1,023.66	\$1,044.04	\$1,065.58	\$1,087.14
Increase/(Decrease)		\$1.13	\$2.87	\$20.38	\$21.54	\$21.56

Table 6-6. Bi-Monthly Bill Impacts – Outside City Customers – High Water Use

Single Family/Duplex - Outside City - High Water Use						
Current			Proposed			
		<u>7/1/2024</u>	<u>1/1/2025</u>	<u>1/1/2026</u>	<u>1/1/2027</u>	<u>1/1/2028</u>
Assumptions						
Meter Size	1" meter	1" meter				
Average Water Consumption	112	112				
Fixed Service Charge	\$53.51	\$53.51	\$58.64	\$59.81	\$61.01	\$62.23
Quantity Charge	\$1,135.96	\$1,135.96	\$1,099.38	\$1,121.19	\$1,143.64	\$1,166.54
Water Reliability Charge	\$45.92	\$47.04	\$48.16	\$49.28	\$50.40	\$51.52
Total	\$1,235.39	\$1,236.51	\$1,206.18	\$1,230.28	\$1,255.05	\$1,280.29
Increase/(Decrease)		\$1.12	(\$30.33)	\$24.10	\$24.77	\$25.24
Multi Family - Outside City - High Water Use						
Current			Proposed			
		<u>7/1/2024</u>	<u>1/1/2025</u>	<u>1/1/2026</u>	<u>1/1/2027</u>	<u>1/1/2028</u>
Assumptions						
Meter Size	1.5" meter	1.5" meter				
Total Water Consumption	186	186				
Dwelling Units	10	10				
Average Water Consumption (per unit)	18.6	18.6				
Fixed Service Charge	\$93.84	\$93.84	\$100.69	\$102.70	\$104.75	\$106.85
Quantity Charge	\$1,948.14	\$1,948.14	\$2,092.66	\$2,134.32	\$2,176.78	\$2,220.30
Water Reliability Charge	\$76.26	\$78.12	\$79.98	\$81.84	\$83.70	\$85.56
Total	\$2,118.24	\$2,120.10	\$2,273.33	\$2,318.86	\$2,365.23	\$2,412.71
Increase/(Decrease)		\$1.86	\$153.23	\$45.53	\$46.37	\$47.48
Commercial - Outside City - High Water use						
Current			Proposed			
		<u>7/1/2024</u>	<u>1/1/2025</u>	<u>1/1/2026</u>	<u>1/1/2027</u>	<u>1/1/2028</u>
Assumptions						
Meter Size	1" meter	1" meter				
Average Water Consumption	226	226				
Fixed Service Charge	\$53.51	\$53.51	\$58.64	\$59.81	\$61.01	\$62.23
Quantity Charge	\$1,839.64	\$1,839.64	\$1,832.86	\$1,869.02	\$1,907.44	\$1,945.86
Water Reliability Charge	\$92.66	\$94.92	\$97.18	\$99.44	\$101.70	\$103.96
Total	\$1,985.81	\$1,988.07	\$1,988.68	\$2,028.27	\$2,070.15	\$2,112.05
Increase/(Decrease)		\$2.26	\$0.61	\$39.59	\$41.88	\$41.90

6.1 NEIGHBORING AGENCY BILL COMPARISON

Typical bills based on the proposed rates (effective January 1, 2025, the first rate adjustment for the fixed service charge and quantity meter charges) for the City are compared with other neighboring water agencies in **Figures 6-1** through **6-3**. The comparison is made for sample Single Family, Multi Family, and Commercial, based on average water use by customer class. Bills shown for neighboring agencies reflect their current rates (as of July 1, 2023). NOTE: It is anticipated that the neighboring agencies' rates may conduct

their own rate studies and adjust rates on July 1, 2024, which is not reflected here, as those adjustments are unknown at this time.

The agencies selected for this comparison have unique conditions that account for the differences in bills. Some agencies may have recently or are currently undergoing major capital improvement programs while others may not. Some agencies may receive significant support from non-operating revenue such as property taxes, which is not the case with the City.

Figure 6-1. Single Family Bi-Monthly Charge Comparison with Neighboring Agencies

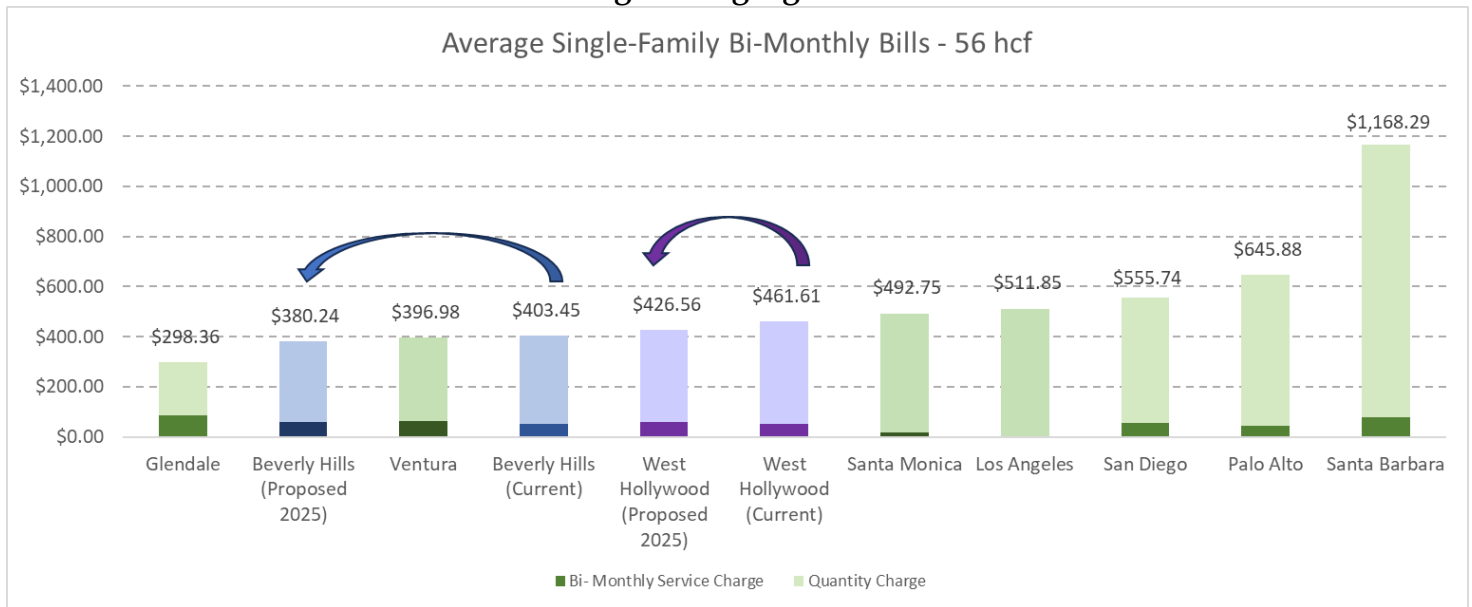


Figure 6-2. Multi Family Bi-Monthly Charge per Dwelling Unit (for a 10-Unit Complex) Comparison with Neighboring Agencies

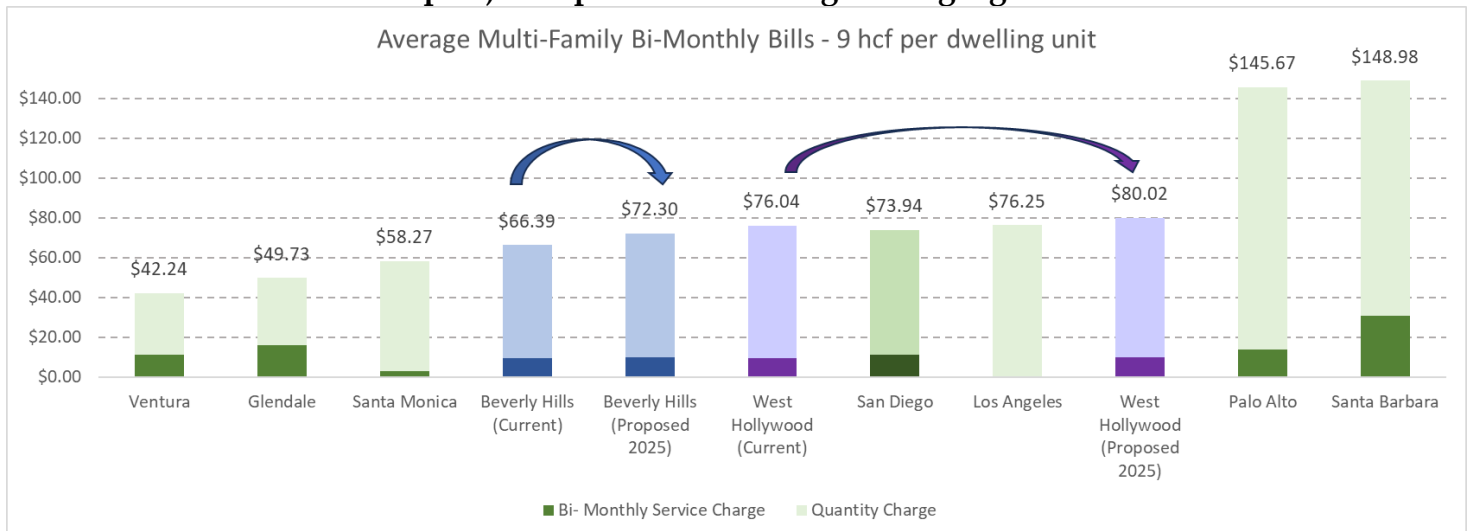
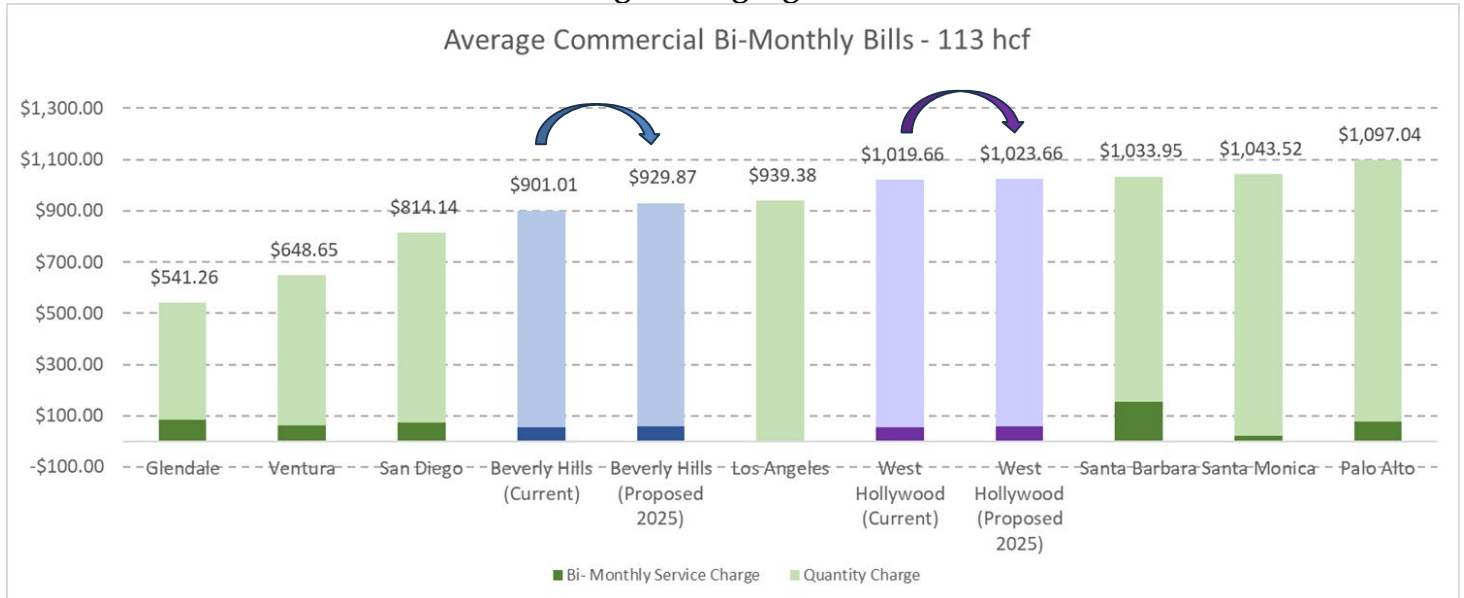


Figure 6-3. Commercial) Bi-Monthly Charge Comparison with Neighboring Agencies



SECTION 7. TOP 10% OF WATER USE ANALYSIS

In accordance with AB 755, we analyzed the Top 10% of water use, by customer class, to determine: 1) the costs of water service for the highest users and 2) the average annual volume of water delivered to the high water users (i.e., the Top 10% of water use in each customer class). **Table 7-1** summarizes the water use and costs of the Top 10% of water use by single family customers, multi family customers, and commercial⁸ customers, respectively.

Table 7-1. Top 10% of Water Use and Costs – By Customer Class

Customer Class	Number of Accounts (Dwelling Units for MFR)	Annual Use (HCF)	Average Annual Use (HCF)	Total Cost of Water Service
Single Family Residential	108	246,798.4	2,285.2	\$ 3,315,815.76
Multi Family Residential	1,233	79,842.8	64.8	\$ 726,243.28
Commercial	3	92,908.4	30,969.5	\$ 759,235.58

⁸ The commercial customer class includes industrial and municipal customers.

APPENDIX A.
WATER RELIABILITY CHARGE CASH FLOW

Water Reliability Charge 30-year Cash Flow Analysis (with \$10 million General Fund contribution)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Assumptions												
Annual Inflation - Expenses	3.0%											
Annual Interest Rate - Bonds	4.0%											
Annual Interest Rate - GF Loan	3.0%											
WR Charge Year 1 (2019) - unsubsidized	\$0.38											
Annual change in WR Charge	\$0.01											
Inside City Subsidy (\$/HCF)	\$0.15											
Results												
Inside City WRC Revenue	\$43,320,000											
Outside City WRC Revenue	\$7,950,000											
2049 Ending Cash Balance	(\$120,462)											
Annual Ending Cash Balance	\$0	\$10,121,512	\$29,465,562	\$18,452,636	\$5,456,108	\$494,460	\$310,809	\$156,980	\$57,124	\$11,570	\$20,658	\$84,736
Interest on Bond(s)	\$23,402,985											
Interest on GF Loan	\$0											
Reserves Remaining to be Paid	\$0											
Fiscal Year Ending:	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Revenues												
Water Reliability Charge Revenue												
Inside City Customers												
Inside City Flow (HCF)		1,900,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000
\$/HCF WR Charge		\$0.23	\$0.24	\$0.25	\$0.26	\$0.27	\$0.28	\$0.29	\$0.30	\$0.31	\$0.32	\$0.33
Subtotal - Inside City	\$0	\$437,000	\$912,000	\$950,000	\$988,000	\$1,026,000	\$1,064,000	\$1,102,000	\$1,140,000	\$1,178,000	\$1,216,000	\$1,254,000
Outside City Customers												
Inside City Flow (HCF)		250,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
\$/HCF WR Charge		\$0.38	\$0.39	\$0.40	\$0.41	\$0.42	\$0.43	\$0.44	\$0.45	\$0.46	\$0.47	\$0.48
Subtotal - Outside City	\$0	\$95,000	\$195,000	\$200,000	\$205,000	\$210,000	\$215,000	\$220,000	\$225,000	\$230,000	\$235,000	\$240,000
Total Water Reliability Charge Revenue	\$0	\$532,000	\$1,107,000	\$1,150,000	\$1,193,000	\$1,236,000	\$1,279,000	\$1,322,000	\$1,365,000	\$1,408,000	\$1,451,000	\$1,494,000
General Fund Contributions	\$9,000,000	\$10,000,000										
General Fund Loans												
Bond Proceeds			\$31,845,000									
Transfer in from Reserves	\$0	\$8,500,000	\$0	\$0	\$0	\$1,900,000	\$2,100,000	\$0	\$0			
Total Revenue	\$9,000,000	\$19,032,000	\$32,952,000	\$1,150,000	\$1,193,000	\$3,136,000	\$3,379,000	\$1,322,000	\$1,365,000	\$1,408,000	\$1,451,000	\$1,494,000
Expenditures to Start Up												
Capital Expenses												
Preliminary Design Report	\$0	\$874,182	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Land Acquisition (3rd Well Site)	\$9,000,000	\$2,787,250	\$2,787,250	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
CEQA	\$0	\$327,818	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Final Design	\$0	\$1,678,092	\$1,296,326	\$1,335,216	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Engineerings Svcs During Const (ESDC)	\$0	\$542,766	\$559,049	\$575,821	\$593,095	\$610,888	\$0	\$0	\$0	\$0	\$0	\$0
Construction Mgmt and Inspection	\$0	\$687,503	\$708,128	\$729,372	\$751,254	\$773,791	\$0	\$0	\$0	\$0	\$0	\$0
Well Drilling (3 sites)	\$0	\$1,122,941	\$2,313,258	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Transmission Main	\$0	\$0	\$3,664,342	\$3,774,272	\$3,887,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Well Equipping (3 sites)	\$0	\$464,553	\$0	\$3,107,874	\$3,201,110	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Treatment Plant	\$0	\$0	\$0	\$0	\$3,092,381	\$3,200,302	\$0	\$0	\$0	\$0	\$0	\$0
System Permitting & Testing	\$0	\$0	\$0	\$0	\$0	\$660,375	\$680,186	\$0	\$0	\$0	\$0	\$0
Total Capital Expenses	\$9,000,000	\$8,485,106	\$11,328,354	\$9,522,555	\$11,525,340	\$5,245,356	\$680,186	\$0	\$0	\$0	\$0	\$0
Operational Expenses												
O&M per PDR	\$0	\$0	\$0	\$347,782	\$358,216	\$368,962	\$380,031	\$1,467,870	\$1,511,906	\$1,557,263	\$1,603,981	\$1,652,100
Additional Staffing												
Project Manager 3	\$0	\$206,837	\$212,895	\$219,135	\$225,562	\$232,182	\$239,000	\$246,170	\$253,556	\$261,162	\$268,997	\$277,067
Water Treatment Operator 1	\$0	\$0	\$0	\$0	\$0	\$163,573	\$168,480	\$173,535	\$178,741	\$184,103	\$189,626	\$195,315
Pump/Well Mechanic	\$0	\$109,273	\$112,551	\$115,927	\$119,405	\$122,987	\$126,677	\$130,477	\$134,392	\$138,423	\$142,576	\$146,853
Pump/Well Electrician	\$0	\$109,273	\$112,551	\$115,927	\$119,405	\$122,987	\$126,677	\$130,477	\$134,392	\$138,423	\$142,576	\$146,853
Total Operational Expenses	\$0	\$425,382	\$437,997	\$798,772	\$822,588	\$1,010,692	\$1,040,866	\$2,148,530	\$2,212,986	\$2,279,375	\$2,347,756	\$2,418,189
Debt Service			\$1,841,600	\$1,841,600	\$1,841,600	\$1,841,600	\$1,841,600	\$1,841,600	\$1,841,600	\$1,841,600	\$1,841,600	\$1,841,600
Reserves Repayment												
Less: MWD Water Purchase Savings								(\$2,514,300)	(\$2,589,729)	(\$2,667,421)	(\$2,747,443)	(\$2,829,867)
Net Expenditures/(Cost Savings)	\$9,000,000	\$8,910,488	\$13,607,950	\$12,162,926	\$14,189,527	\$8,097,648	\$3,562,651	\$1,475,829	\$1,464,856	\$1,453,554	\$1,441,912	\$1,429,922
Net Operating Suprlus/(Shortfall)	\$0	\$10,121,512	\$19,344,050	(\$11,012,926)	(\$12,996,527)	(\$4,961,648)	(\$183,651)	(\$153,829)	(\$99,856)	(\$45,554)	\$9,088	\$64,078
Cash Balance for WR Expenditures	\$0	\$10,121,512	\$29,465,562	\$18,452,636	\$5,456,108	\$494,460	\$310,809	\$156,980	\$57,124	\$11,570	\$20,658	\$84,736

Water Reliability Charge 30-year Cash Flow Analysis (with \$10 million General Fund contribution)

	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Assumptions												
Annual Inflation - Expenses												
Annual Interest Rate - Bonds												
Annual Interest Rate - GF Loan												
WR Charge Year 1 (2019) - unsubsidized												
Annual change in WR Charge												
Inside City Subsidy (\$/HCF)												
Results												
Inside City WRC Revenue												
Outside City WRC Revenue												
2049 Ending Cash Balance												
Annual Ending Cash Balance	\$4,164	\$4,314	\$5,566	\$4,313	\$4,961	\$4,926	\$5,638	\$5,540	\$6,086	\$6,747	\$7,006	\$7,360
Interest on Bond(s)												
Interest on GF Loan												
Reserves Remaining to be Paid												
Fiscal Year Ending:	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Revenues												
Water Reliability Charge Revenue												
<u>Inside City Customers</u>												
Inside City Flow (HCF)	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000
\$/HCF WR Charge	\$0.34	\$0.35	\$0.36	\$0.37	\$0.38	\$0.39	\$0.40	\$0.41	\$0.42	\$0.43	\$0.44	\$0.45
Subtotal - Inside City	\$1,292,000	\$1,330,000	\$1,368,000	\$1,406,000	\$1,444,000	\$1,482,000	\$1,520,000	\$1,558,000	\$1,596,000	\$1,634,000	\$1,672,000	\$1,710,000
<u>Outside City Customers</u>												
Inside City Flow (HCF)	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
\$/HCF WR Charge	\$0.49	\$0.50	\$0.51	\$0.52	\$0.53	\$0.54	\$0.55	\$0.56	\$0.57	\$0.58	\$0.59	\$0.60
Subtotal - Outside City	\$245,000	\$250,000	\$255,000	\$260,000	\$265,000	\$270,000	\$275,000	\$280,000	\$285,000	\$290,000	\$295,000	\$300,000
Total Water Reliability Charge Revenue	\$1,537,000	\$1,580,000	\$1,623,000	\$1,666,000	\$1,709,000	\$1,752,000	\$1,795,000	\$1,838,000	\$1,881,000	\$1,924,000	\$1,967,000	\$2,010,000
General Fund Contributions												
General Fund Loans												
Bond Proceeds												
Transfer in from Reserves												
Total Revenue	\$1,537,000	\$1,580,000	\$1,623,000	\$1,666,000	\$1,709,000	\$1,752,000	\$1,795,000	\$1,838,000	\$1,881,000	\$1,924,000	\$1,967,000	\$2,010,000
Expenditures to Start Up												
Capital Expenses												
Preliminary Design Report	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Land Acquisition (3rd Well Site)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
CEQA	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Final Design	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Engineerings Svcs During Const (ESDC)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Construction Mgmt and Inspection	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Well Drilling (3 sites)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Transmission Main	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Well Equipping (3 sites)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Treatment Plant	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
System Permitting & Testing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Capital Expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Operational Expenses												
O&M per PDR	\$1,701,663	\$1,752,713	\$1,805,295	\$1,859,454	\$1,915,237	\$1,972,694	\$2,031,875	\$2,092,831	\$2,155,616	\$2,220,285	\$2,286,893	\$2,355,500
<u>Additional Staffing</u>												
Project Manager 3	\$285,379	\$293,940	\$302,759	\$311,841	\$321,197	\$330,832	\$340,757	\$350,980	\$361,510	\$372,355	\$383,525	\$395,031
Water Treatment Operator 1	\$201,174	\$207,210	\$213,426	\$219,829	\$226,424	\$233,216	\$240,213	\$247,419	\$254,842	\$262,487	\$270,362	\$278,472
Pump/Well Mechanic	\$151,259	\$155,797	\$160,471	\$165,285	\$170,243	\$175,351	\$180,611	\$186,029	\$191,610	\$197,359	\$203,279	\$209,378
Pump/Well Electrician	\$151,259	\$155,797	\$160,471	\$165,285	\$170,243	\$175,351	\$180,611	\$186,029	\$191,610	\$197,359	\$203,279	\$209,378
Total Operational Expenses	\$2,490,735	\$2,565,457	\$2,642,421	\$2,721,693	\$2,803,344	\$2,887,444	\$2,974,068	\$3,063,290	\$3,155,188	\$3,249,844	\$3,347,339	\$3,447,759
Debt Service	\$1,841,600	\$1,841,600	\$1,841,600	\$1,841,600	\$1,841,600	\$1,841,600	\$1,841,600	\$1,841,600	\$1,841,600	\$1,841,600	\$1,841,600	\$1,841,600
Reserves Repayment	\$200,000	\$175,000	\$230,000	\$289,000	\$344,000	\$402,000	\$459,000	\$518,000	\$576,000	\$635,000	\$695,000	\$755,000
Less: MWD Water Purchase Savings	(\$2,914,763)	(\$3,002,206)	(\$3,092,272)	(\$3,185,040)	(\$3,280,591)	(\$3,379,009)	(\$3,480,379)	(\$3,584,791)	(\$3,692,334)	(\$3,803,104)	(\$3,917,197)	(\$4,034,713)
Net Expenditures/(Cost Savings)	\$1,617,571	\$1,579,851	\$1,621,748	\$1,667,253	\$1,708,352	\$1,752,035	\$1,794,288	\$1,838,099	\$1,880,453	\$1,923,339	\$1,966,741	\$2,009,646
Net Operating Suprlus/(Shortfall)	(\$80,571)	\$149	\$1,252	(\$1,253)	\$648	(\$35)	\$712	(\$99)	\$547	\$661	\$259	\$354
Cash Balance for WR Expenditures	\$4,164	\$4,314	\$5,566	\$4,313	\$4,961	\$4,926	\$5,638	\$5,540	\$6,086	\$6,747	\$7,006	\$7,360

Water Reliability Charge 30-year Cash Flow Analysis (with \$10 million General Fund contribution)

	2042	2043	2044	2045	2046	2047	2048	2049
Assumptions								
Annual Inflation - Expenses								
Annual Interest Rate - Bonds								
Annual Interest Rate - GF Loan								
WR Charge Year 1 (2019) - unsubsidized								
Annual change in WR Charge								
Inside City Subsidy (\$/HCF)								
Results								
Inside City WRC Revenue								
Outside City WRC Revenue								
2049 Ending Cash Balance								
Annual Ending Cash Balance	\$8,323	\$8,423	\$9,204	\$10,227	\$14,068	\$14,322	\$15,602	(\$120,462)
Interest on Bond(s)								
Interest on GF Loan								
Reserves Remaining to be Paid								
Fiscal Year Ending:	2042	2043	2044	2045	2046	2047	2048	2049
Revenues								
Water Reliability Charge Revenue								
<u>Inside City Customers</u>								
Inside City Flow (HCF)	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	1,900,000
\$/HCF WR Charge	\$0.46	\$0.47	\$0.48	\$0.49	\$0.50	\$0.51	\$0.52	\$0.53
Subtotal - Inside City	\$1,748,000	\$1,786,000	\$1,824,000	\$1,862,000	\$1,900,000	\$1,938,000	\$1,976,000	\$1,007,000
<u>Outside City Customers</u>								
Inside City Flow (HCF)	500,000	500,000	500,000	500,000	500,000	500,000	500,000	250,000
\$/HCF WR Charge	\$0.61	\$0.62	\$0.63	\$0.64	\$0.65	\$0.66	\$0.67	\$0.68
Subtotal - Outside City	\$305,000	\$310,000	\$315,000	\$320,000	\$325,000	\$330,000	\$335,000	\$170,000
Total Water Reliability Charge Revenue	\$2,053,000	\$2,096,000	\$2,139,000	\$2,182,000	\$2,225,000	\$2,268,000	\$2,311,000	\$1,177,000
General Fund Contributions								
General Fund Loans								
Bond Proceeds								
Transfer in from Reserves								
Total Revenue	\$2,053,000	\$2,096,000	\$2,139,000	\$2,182,000	\$2,225,000	\$2,268,000	\$2,311,000	\$1,177,000
Expenditures to Start Up								
Capital Expenses								
Preliminary Design Report	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Land Acquisition (3rd Well Site)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
CEQA	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Final Design	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Engineerings Svcs During Const (ESDC)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Construction Mgmt and Inspection	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Well Drilling (3 sites)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Transmission Main	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Well Equipping (3 sites)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Treatment Plant	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
System Permitting & Testing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Capital Expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Operational Expenses								
O&M per PDR	\$2,426,165	\$2,498,950	\$2,573,919	\$2,651,136	\$2,730,670	\$2,812,590	\$2,896,968	\$2,983,877
<u>Additional Staffing</u>								
Project Manager 3	\$406,882	\$419,089	\$431,661	\$444,611	\$457,949	\$471,688	\$485,839	\$500,414
Water Treatment Operator 1	\$286,827	\$295,431	\$304,294	\$313,423	\$322,826	\$332,511	\$342,486	\$352,761
Pump/Well Mechanic	\$215,659	\$222,129	\$228,793	\$235,657	\$242,726	\$250,008	\$257,508	\$265,234
Pump/Well Electrician	\$215,659	\$222,129	\$228,793	\$235,657	\$242,726	\$250,008	\$257,508	\$265,234
Total Operational Expenses	\$3,551,192	\$3,657,728	\$3,767,460	\$3,880,484	\$3,996,898	\$4,116,805	\$4,240,309	\$4,367,518
Debt Service	\$1,841,600	\$1,841,600	\$1,841,600	\$1,841,600	\$1,841,600	\$1,841,600	\$1,841,600	\$1,841,600
Reserves Repayment	\$815,000	\$877,000	\$938,000	\$1,000,000	\$1,060,000	\$1,127,000	\$1,190,000	\$215,000
Less: MWD Water Purchase Savings	(\$4,155,755)	(\$4,280,427)	(\$4,408,840)	(\$4,541,105)	(\$4,677,339)	(\$4,817,659)	(\$4,962,189)	(\$5,111,054)
Net Expenditures/(Cost Savings)	\$2,052,037	\$2,095,900	\$2,138,219	\$2,180,978	\$2,221,159	\$2,267,746	\$2,309,720	\$1,313,064
Net Operating Suprlus/(Shortfall)	\$963	\$100	\$781	\$1,022	\$3,841	\$254	\$1,280	(\$136,064)
Cash Balance for WR Expenditures	\$8,323	\$8,423	\$9,204	\$10,227	\$14,068	\$14,322	\$15,602	(\$120,462)