



Report

Water Rate Study Report

City of Garden Grove
Public Works
Water Services Division



The City of Garden Grove

November 2023

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Water Rate Study

Prepared for
City of Garden Grove
Public Works Department
Water Services Division
13802 Newhope St., Garden Grove, CA 92843
November 13, 2023

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List of Abbreviations

AF	Acre-Foot or Acre-Feet
AFY	Acre-Feet per Year
AWWA	American Water Works Association
AWWA M1 Manual	AWWA Ratemaking Manual
CIMIS	California Irrigation Management Information System
COSA	Cost-of-Service Analysis
DSCR	Debt Service Coverage Ratio
GPM	Gallons per Minute
cf	cubic feet
hcf	hundred cubic feet
CIP	Capital Improvement Program
CPI	Consumer Price Index
FG Solutions	FG Solutions, LLC
FTE	full-time equivalent
FY	fiscal year (July 1–June 30)
hcf	hundred cubic feet
kgal	thousand gallon(s)
mgd	million gallons per day
O&M	operations and maintenance
HP	Horsepower
MG	Million Gallons
MGD	Million Gallons per Day
MWD	Metropolitan Water District
MWDOC	Municipal Water District of Orange County
OCWD	Orange County Water District
PFAS	Per- and polyfluoroalkyl substances
PUC	Public Utilities Commission
RA	Replenishment Assessment
SWRCB	State Water Resources Control Board
T&D	Transmission and distribution

Executive Summary

The Garden Grove Public Works Department Water Services Division (“Division”) owns and operates the water system that provides water services throughout the city. The Division operates 17 total water production facilities, 13 wells, 5 pump stations, 8 reservoirs that hold approximately 53 million gallons of water, and 433 miles of pipe. As part of its ongoing management of the water system, the Division has recognized the need to evaluate expenditures, revenues, and water rates to ensure that the Division can continue to provide safe and reliable service.

The Division is conducting a Water Rate Study that is intended to:

- Summarize the projected water revenue requirements for the five-year study period for fiscal years (FY) 23/24 thru FY 27/28.
- Show a proposed schedule of water rates effective for FY 23/24 through FY 27/28 for the Division’s consideration. These proposed rates include Bi-Monthly Minimum Charges, Commodity Delivery Charges, Capital Improvement Charges, and Private Fire Service rates. All rates shown, unless otherwise indicated, are charged on a bi-monthly basis.
- Outline potentially changing conditions with financial implications, such as water demand, water conservation, new PFAS facilities, and inflation and interest rates.

Historical and budgeted financial and operational data were provided by the Division and used by FG Solutions to develop the projected revenue requirement for the five-year study period. The revenue requirement analysis was an iterative process and draft versions were revised based on comments and input provided by Division staff and the Finance department. Next, the revenue requirement was compared with the revenues generated by the existing rates to generate additional revenues needed from rate increases. Key assumptions used in the Revenue Requirement analysis are summarized in Section 2. Additional assumptions are provided in the printout of the Revenue Requirement calculations that comprise Appendix A.

There are three appendices to this report. Appendix A contains the Revenue Requirement. Appendix B is the water system Cost-of-Service Analysis. Appendix C contains calculations associated with the Rate Design.

The Water Rate Study was initiated in March 2023. The Rate Study was discussed during one Council Briefing session and three Council Study Sessions held throughout 2023. A Public Workshop was held in September 2023. A key part of this Rate Study was establishing the funding required to address three focuses of the Division’s current work: PFAS treatment, new water conservation regulations adopted by the State of California, and ongoing capital improvement needs.

The current water rate structure has the following components, all charged on a bi-monthly basis; a) a Bi-Monthly Minimum Charge; b) a Capital Improvement Charge; and c) a Commodity Delivery Charge, per hundred cubic feet (hcf) consumed during the billing period, in a two-tier rate structure. Table ES-1 below shows the current Bi-Monthly Minimum Charge and the Capital Improvement Charge for each water meter size. All rates are current as of October 1, 2023.

Table ES-1: Existing Bi-Monthly Minimum Charge and Capital Improvement Charge

Meter Size (inches)	Bi-Monthly Minimum Charge	Bi-Monthly Capital Improvement Charge
5/8 x 3/4"	\$33.85	\$7.00
1"	\$50.48	\$17.50
1-1/2"	\$78.20	\$35.00
2"	\$111.45	\$56.00
3"	\$200.15	\$112.00
4"	\$299.92	\$175.00
6"	\$577.08	\$350.00
8"	\$909.67	\$560.00
10"	\$1,353.12	\$840.00

The City purchases imported water from wholesale providers, Metropolitan Water District of Southern California (MWD) and Municipal Water District of Orange County (MWDOC). The City also pays a replenishment assessment fee to Orange County Water District (OCWD) for each acre-foot of local groundwater production. These wholesale providers and OCWD adopt new rates and fee adjustments on an annual basis. The City passes through changes in imported water rates and assessment fees. The Commodity Delivery Charge pays for the cost of purchasing water from MWD, in addition to the replenishment assessment fee to OCWD. Table ES-2 shows the existing Commodity Delivery Charges, per tier.

Table ES-2: Existing Commodity Delivery Charge, \$/hcf

Tier	Commodity Delivery Charge, \$/hcf
Tier 1	\$3.26
Tier 2	\$4.80

Tier 1 is based on the cost of locally produced groundwater. Tier 2 is based on the cost of locally produced groundwater and imported water. Table ES-3 defines the amount of water in the first tier, for each meter connection size. The amount of water included in Tier 1 is unchanged from current City Ordinance.

Table ES-3: Tier 1 Water Use Allowance

Meter Size (inches)	Bi-Monthly Water Use Included in Tier 1, hcf
5/8 x 3/4"	33
1"	83
1-1/2"	165
2"	264
3"	528
4"	825
6"	1,650
8"	2,640
10"	3,960

To provide for the continued operation of a utility on a sound financial basis, revenues must be sufficient to meet the cash requirements for operation and maintenance (O&M) expense, debt service requirements, debt service

coverage requirements, reserves, and cash-funded capital expenditures not financed with debt. The sum of these cost components for a given year is referred to as a utility's Revenue Requirement.

Historical and budgeted financial and operational data were provided by the Division and used by FG Solutions to develop the projected revenue requirement for the five-year study period. Table ES-4 shows historical and projected revenues under existing rates.

Table ES-4: Historical and Projected Revenues Under Existing Rates

Revenue	FY 23/24	FY 24/25	Projected		
			FY 25/26	FY 26/27	FY 27/28
Water Sales Revenues (Excludes Future Rate Increases and Future Pass Through Charge Adjustments)					
Bi-Monthly Minimum Charge (1)	\$8,344,136	\$8,344,136	\$8,344,136	\$8,344,136	\$8,344,136
Commodity Delivery Charge (1)	29,379,678	29,379,678	29,379,678	29,379,678	29,379,678
Private Fire Service (1)	494,910	494,910	494,910	494,910	494,910
Senior CARE Discount (2)	(16,342)	(16,342)	(16,342)	(16,342)	(16,342)
Write-offs (3)	(55,214)	(58,748)	(62,508)	(66,509)	(68,171)
Other Income					
Transfer from General Fund for City Water Use (4)	636,691	691,891	736,172	783,287	822,810
Other Revenues (2)	97,032	97,032	97,032	97,032	97,032
Investment Income	151,683	161,121	131,892	127,726	107,807
Bi-Monthly Capital Improvement Charge (1)	2,320,206	2,320,206	2,320,206	2,320,206	2,320,206
Total	\$41,352,781	\$41,413,885	\$41,425,177	\$41,464,126	\$41,482,067

Next, the revenue requirement was compared with the revenues generated by the existing rates to generate additional revenues needed from rate increases. The revenue requirement is met in the later years of the five-year study period as the proposed rates were developed to generate these reserve levels over time. The three aspects of revenue projections described in the sections below are non-rate revenues, rate revenues under the current rate schedule, and rate revenues from proposed rate increases.

Table ES-5: Projected O&M Expenses

O&M Cost Component	FY 23/24	FY 24/25	Projected (1)		
			FY 25/26	FY 26/27	FY 27/28
Salaries & Fringe Costs (2)	\$7,803,861	\$8,176,893	\$8,503,969	\$8,716,568	\$8,934,483
Contractual Services	570,531	475,484	494,503	506,866	519,538
Commodities Other than Water Costs	567,215	555,215	577,424	591,859	606,656
Water Use Objectives Compliance Cost (3)	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Administrative Services Charge	1,402,200	1,444,200	1,501,968	1,539,517	1,578,005
Street Repair Costs	814,455	814,455	847,033	868,209	889,914
Miscellaneous O&M	25,283	25,283	26,294	26,952	27,625
Electricity	1,111,256	1,155,706	1,184,599	1,214,214	1,244,569
Natural Gas	289,311	300,884	308,406	316,116	324,019
OCWD Pumping (4)	47,208	47,208	49,096	50,324	51,582
Costs Paid to OCWD and MWD For Water Supply (5)	15,343,794	15,343,794	15,343,794	15,343,794	15,343,794
PFAS O&M Costs (6)	2,872,745	4,677,169	5,554,594	11,165,129	11,444,257
OCWD Reimbursement of PFAS O&M Costs (6)	(166,293)	(986,920)	(1,072,147)	(1,389,694)	(1,519,503)
Total	32,681,566	34,029,371	35,319,533	40,949,853	41,444,938

FY 23/24 O&M expenses are primarily based on the Division's FY 23/24 budget. In subsequent years, expenses are escalated for inflation. For the purposes of this rate study, FY 24/24 inflation is 4%. In subsequent years, General Inflation was assumed to be 2.5%, Salaries and Wages Escalation is assumed to be 2.5% (except 4% in FY 25/26), and the rate of escalation for any Capital Improvements is assumed to be 2.5%. All percentages are assumed to remain constant through the end of the planning period, FY 27/28.

Water production expenses are the single largest component of the Division's expenditures. A key assumption is that 85% of future water supply is locally produced groundwater, with the remaining 15% future water supply coming from imported water.

Since the first PFAS facilities came online in FY 21/22, the PFAS O&M expenses are a new expense to the Division. The largest component of PFAS O&M is the Ion Exchange Resin changeout. The projected costs in Table 2-4 are based on annual resin changeouts at each PFAS facility. As the Division gains experience operating and maintaining PFAS facilities, they will be able to adjust resin change out schedules based on need. Table ES-6 also shows the partial reimbursement of PFAS O&M costs from OCWD. Please refer to Appendix A for more detailed calculations.

Table ES-6: Projected PFAS O&M Expenses

PFAS O&M Cost Component	Projected				
	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
Prefilters (Cartridges)	\$156,868	\$163,143	\$187,536	\$396,582	\$406,497
Ion Exchange Resin Changeout	2,276,780	3,846,731	4,393,444	9,526,203	9,764,359
Labor: Future Hires	0	177,600	171,995	176,295	180,702
Power	178,914	194,365	251,931	275,464	282,351
Analytical	4,800	5,616	9,594	13,112	13,440
Maintenance Cost	47,250	52,650	104,335	154,883	158,755
O&M Contingency	208,133	237,064	435,758	622,589	638,154
Total	\$2,872,745	\$4,677,169	\$5,554,594	\$11,165,129	\$11,444,257
Less Partial Reimbursement	(\$166,293)	(\$986,920)	(\$1,072,147)	(\$1,389,694)	(\$1,519,503)
Total Through Rates	\$2,706,452	\$3,690,249	\$4,482,447	\$9,775,435	\$9,924,754

A key aspect of any rate study is defining the anticipated level of capital improvements over the planning period. The Division provided its five-year Capital Improvement Plan from FY 23/24 through FY 27/28. Table ES-7 summarizes capital costs grouped in six categories. The Division projects spending \$23.6 million dollars in water main upsizing and replacement. Another \$17.8 M is projected for recurring replacements of service lines, fire hydrants, valves, meters, and water mains. The Division continues its ongoing reservoir rehabilitation projects and will complete its SCADA upgrades within the five-year rate study planning period. Section 2 of the report contains the detailed list of scheduled capital improvements.

Table ES-7. FY 23/24 - FY 27/28 Capital Improvement Plan Summary

Category	Project Description	Cost (2023) Dollars
Recurring Replacements	Service Lines, Fire Hydrants, Meters, Valves, Mains, and Appurtenances	\$17,807,227
Wells	Well Condition Assessment & Rehabilitation	2,257,142
Reservoirs	Reservoir Rehabilitation	7,630,000
Water Mains	Water Main Upsizing and Replacement	23,638,487
SCADA	SCADA Upgrades	7,411,136
Property Purchase	Well 26 Property Purchase	1,643,000
	Total	\$60,386,992

Table ES-8 shows Existing Revenue Bond Debt Service for the rate study planning period. The 2015 Revenue and Refunding Bonds will be paid off in FY 23/24. Debt service payments on the 2020A Water Revenue Bonds will continue through the rate study planning period. The Division also has an outstanding Intercity Loan with the City's General Fund. The outstanding balance, as of FY 23/24 is \$9,851,256.

Table ES-8: Existing Revenue Bond Debt Service

Revenue Bond Debt Issuance	Projected Principal and Interest Payment (1)				
	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
Revenue and Refunding Bonds 2015	\$939,300	\$0	\$0	\$0	\$0
Water Revenue Bonds Series 2020A	1,720,175	1,714,575	1,717,775	1,719,375	1,719,375
Total	\$2,659,475	\$1,714,575	\$1,717,775	\$1,719,375	\$1,719,375

The proposed rate structure was developed collaboratively by the Consultant and the Division, with input from City Council that was obtained during the four study sessions that occurred in 2023. The proposed rate structure is based on the following goals:

1. Balance revenue stability of higher fixed charges with financial impacts to rate payers that occur when fixed charges are raised.
2. Collect 28% of revenues from fixed charges.
3. Maintain the two-tiered increasing block Commodity Delivery Charge structure. The first tier includes locally produced groundwater. The second tier includes both locally produced ground water and imported water.
4. Discontinue the Low-Water User discount.
5. Maintain the Senior CARE discount of \$10 per billing period.

The rate structure is developed using a Cost-of-Service Analysis (COSA), completed in a consistent manner with industry standards. The Cost-of-Service analysis uses methodology from the American Water Works Association’s M1 Manual, Principles of Water Rates, Fees, and Charges (7th Edition).

The first step in a COSA is functionalization, where water system expenses are grouped according to the functions of a water system. Water functions include pumping, storage, transmission and distribution (T&D), customer, meter, and administration.

The next step is the Functionalization of the Capital Improvement Plan. Forty one percent of the CIP costs are related to transmission and distribution, 26% of these costs are related to storage.

The next step is the Functionalization of the Rate Revenue Requirement, for FY 23/24. Included in the rate revenue requirement are O&M expenditures, debt service payments, capital improvements and replacement expenditures. In FY 23/24, these expenditures are partially offset by non-rate revenues and use of reserves.

The next step in a Cost-of-Service Analysis is allocation, where functionalized expenses are allocated to water system characteristics of average day demand, peak day demand, peak hour demand, and customer and water meter size. In addition, source of supply costs are carried through the allocation step to be used in the rate tier calculations described in detail in Section 3 and Appendix C.

Table ES-9 shows the proposed Bi-Monthly Minimum Charges for each meter size. The table shows the current Bi-Monthly Minimum Charge, and the proposed rates through the end of the rate study planning period.

Table ES-9: Proposed Bi-Monthly Minimum Charges

Meter Size	Current	Proposed Bi-Monthly Minimum Charges				
		1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
5/8 x 3/4"	\$33.85	\$35.10	\$38.23	\$40.47	\$42.84	\$43.68
1"	\$50.48	\$54.54	\$61.54	\$65.77	\$70.29	\$72.39
1-1/2"	\$78.20	\$87.28	\$100.39	\$107.95	\$116.05	\$120.24
2"	\$111.45	\$126.55	\$147.01	\$158.57	\$170.96	\$177.65
3"	\$200.15	\$231.29	\$271.34	\$293.55	\$317.38	\$330.77
4"	\$299.92	\$349.13	\$411.20	\$445.40	\$482.10	\$503.03
6"	\$577.08	\$676.44	\$799.72	\$867.20	\$939.66	\$981.52
8"	\$909.67	\$1,069.22	\$1,265.94	\$1,373.37	\$1,488.73	\$1,555.71
10"	\$1,353.12	\$1,592.92	\$1,887.56	\$2,048.26	\$2,220.83	\$2,321.29

The Bi-Monthly Capital Improvement Charge collects funds that are used to pay for planned capital improvements. Table ES-10 shows the current and proposed Bi-Monthly Capital Improvement Charge for each meter connection size through the end of the rate study planning period.

Table ES-10: Proposed Bi-Monthly Capital Improvement Charge

Meter Size	Current	Proposed Bi-Monthly Capital Improvement Charge				
		1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
5/8 x 3/4"	\$7.00	\$7.45	\$7.92	\$8.43	\$8.97	\$9.20
1"	\$17.50	\$18.62	\$19.81	\$21.08	\$22.43	\$22.99
1-1/2"	\$35.00	\$37.24	\$39.62	\$42.16	\$44.85	\$45.98
2"	\$56.00	\$59.58	\$63.39	\$67.45	\$71.77	\$73.56
3"	\$112.00	\$119.16	\$126.79	\$134.90	\$143.53	\$147.12
4"	\$175.00	\$186.19	\$198.10	\$210.78	\$224.27	\$229.88
6"	\$350.00	\$372.37	\$396.21	\$421.56	\$448.54	\$459.76
8"	\$560.00	\$595.80	\$633.93	\$674.50	\$717.67	\$735.61
10"	\$840.00	\$893.70	\$950.89	\$1,011.75	\$1,076.50	\$1,103.41

Table ES-11 below shows the current and proposed Bi-Monthly Commodity Delivery Charge. The proposed charges retain the existing two-tiered rate structure. The proposed Bi-Monthly Commodity Delivery Charges do not include future increases in water supply costs from MWD and OCWD. These future increases will be recovered through annual Commodity Delivery Charge pass-through adjustments.

Table ES-11: Proposed Bi-Monthly Commodity Delivery Charges

	Current	Proposed Commodity Delivery Charges				
		1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
Tier 1	\$3.26	\$3.40	\$3.53	\$3.83	\$4.14	\$4.27
Tier 2	\$4.80	\$5.29	\$5.67	\$5.84	\$6.02	\$6.10

Table ES-12 below shows the proposed Private Fire Service rates. These rates recover costs associated with transmission, distribution and storage that are related to providing fire protection services to private fire service connections.

Table ES-12: Proposed Private Fire Service Rates

Meter Size	Current	Proposed Private Fire Service Rates				
		1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
1-1/2"	\$2.99	\$3.42	\$3.84	\$4.09	\$4.35	\$4.46
2"	\$6.38	\$7.28	\$8.18	\$8.70	\$9.26	\$9.49
3"	\$18.55	\$21.16	\$23.77	\$25.29	\$26.91	\$27.58
4"	\$39.51	\$45.09	\$50.67	\$53.91	\$57.36	\$58.79
6"	\$114.76	\$130.97	\$147.17	\$156.59	\$166.61	\$170.78
8"	\$244.55	\$279.09	\$313.62	\$333.69	\$355.05	\$363.93
10"	\$439.79	\$501.90	\$564.01	\$600.11	\$638.52	\$654.48

Section 1

Background and Report Organization

1.1 Introduction

The Garden Grove Public Works Department Water Services Division (“Division”) provides water services to approximately 34,800¹ connections throughout the City of Garden Grove. The Division is governed by the 7-member Garden Grove City Council. The Division is part of the Public Works Department and is responsible for providing safe and reliable water to the City of Garden Grove. In addition, it is responsible for maintaining wells, reservoirs, and imported water connections. It also provides ongoing maintenance and repair to the water delivery system.

The Division operates 17 total water production facilities, 13 wells, 5 pump stations, 8 reservoirs that hold approximately 53 million gallons of water, and 433 miles of pipe. Within this water system, the Division has an ongoing operation and maintenance program to ensure the continued provision of water conveyance and delivery services.

As part of its ongoing management of the water system, the Division has recognized the need to evaluate expenditures, revenues, and water rates to ensure that the Division can continue to provide safe and reliable service.

The Division is conducting a Water Rate Study that is intended to:

- Summarize the projected water revenue requirements for the five-year study period for fiscal years (FY) 23/24 thru FY 27/28¹.
- Show a proposed schedule of water rates effective for FY 23/24 through FY 27/28 for the Division’s consideration. These proposed rates include Bi-Monthly Minimum Charges, Commodity Delivery Charges, Capital Improvement Charges, and Private Fire Service rates. All rates shown, unless otherwise indicated, are charged on a bi-monthly basis.
- Outline potentially changing conditions with financial implications, such as water conservation regulations, water demand trends, PFAS, inflation rates, interest rates, and recommendations for ongoing monitoring of these items.

Historical and budgeted financial and operational data were provided by the Division and used by FG Solutions to develop the projected revenue requirement for the five-year study period. The revenue requirement analysis was an iterative process and draft versions were revised based on comments and input provided by Division staff and the Finance department. Next, the revenue requirement was compared with the revenues generated by the existing rates to generate additional revenues needed from rate increases.

Key assumptions used in the Revenue Requirement analysis are summarized in Section 2. Additional assumptions are provided in the printout of the Revenue Requirement calculations that comprise Appendix A.

There are three appendices to this report. Appendix A contains the Revenue Requirement. Appendix B is the water system Cost-of-Service Analysis. Appendix C contains calculations associated with the Rate Design.

¹Including residential connections, non-residential connections, and private fire service connections.

² The Division’s fiscal year begins on July 1. FY 23/24 refers to the period between July 1, 2023 and June 30, 2024.

1.2 Existing Rates and Rate Structure

The current water rate structure has the following components, all charged on a bi-monthly basis; a) a Bi-Monthly Minimum Charge; b) a Capital Improvement Charge; and c) a Commodity Delivery Charge, per hundred cubic feet (hcf) consumed during the billing period, in a two-tier rate structure. Table 1-1 shows the Bi-Monthly Minimum Charge and the Capital Improvement Charge for each water meter size. All rates are current as of October 1, 2023.

Table 1-1. Existing Bi-Monthly Minimum Charge and Capital Improvement Charge

Meter Size (inches)	Bi-Monthly Minimum Charge	Bi-Monthly Capital Improvement Charge
5/8 x 3/4"	\$33.85	\$7.00
1"	\$50.48	\$17.50
1-1/2"	\$78.20	\$35.00
2"	\$111.45	\$56.00
3"	\$200.15	\$112.00
4"	\$299.92	\$175.00
6"	\$577.08	\$350.00
8"	\$909.67	\$560.00
10"	\$1,353.12	\$840.00

The Division currently has two rate tiers. Table 1-2 shows the existing Commodity Delivery Charges, per tier.

Table 1-2. Existing Commodity Delivery Charges

Tier	Commodity Delivery Charge, \$/hcf
Tier 1	\$3.26
Tier 2	\$4.80

Table 1-3 shows the Bi-Monthly Water Use that is included in Tier 1. For example, a residential customer with a 5/8' x 3/4" meter can use up to 33 hcf and be charged Tier 1 rates. Above 33 hcf, the customer would have to pay the Tier 2 rate.

Table 1-3. Bi-Monthly Water Use Included in Tier 1

Meter Size (inches)	Bi-Monthly Water Use Included in Tier 1, hcf
5/8 x 3/4"	33
1"	83
1-1/2"	165
2"	264
3"	528
4"	825
6"	1,650
8"	2,640
10"	3,960

The Division charges Private Fire Service customers a Bi-Monthly Private Fire Service Rate, based on the fire service connection meter size. Private Fire Services are customers with Fire Service connections that have a separate meter that is connected only to the customer’s fire sprinkler system. Table 1-4 shows these fees in detail.

Table 1-4. Existing Private Fire Service Rates

Meter Size (inches)	Bi-Monthly Private Fire Service Rate
1-1/2"	\$2.99
2"	\$6.38
3"	\$18.55
4"	\$39.51
6"	\$114.76
8"	\$244.55
10"	\$439.79

1.3 Water Rate Study Process

The Water Rate Study kicked off in March 2023. In order to communicate with City Council and the public, the Division and the consultant team attended one Council Briefing, three Study Sessions, plus one Public Workshop. The first Council Briefing was held in May 2023, where an introduction to the water system was presented, as was an overview of the 2023 financial status of the utility.

A Study Session was held in June 2023 that focused on the accomplishments since the 2018 Water Rate Study, Capital Improvement Plan, and the preliminary revenue requirement analysis.

A Study Session was held in July 2023 where preliminary rate structures were presented to Council.

A Study Session was held in August 2023, where the proposed rate structures were presented to Council. The proposed rate structures incorporated Council feedback on the preliminary rate structures.

A Public Workshop was held in September 2023. The intent of this workshop was to have an open and transparent discussion with the public about the upcoming rate increase, and to assist customers in developing an understanding of what their water bill will be.

Figure 1-1 shows the overall approach and methodology used to complete the scope of services for this water rate study.

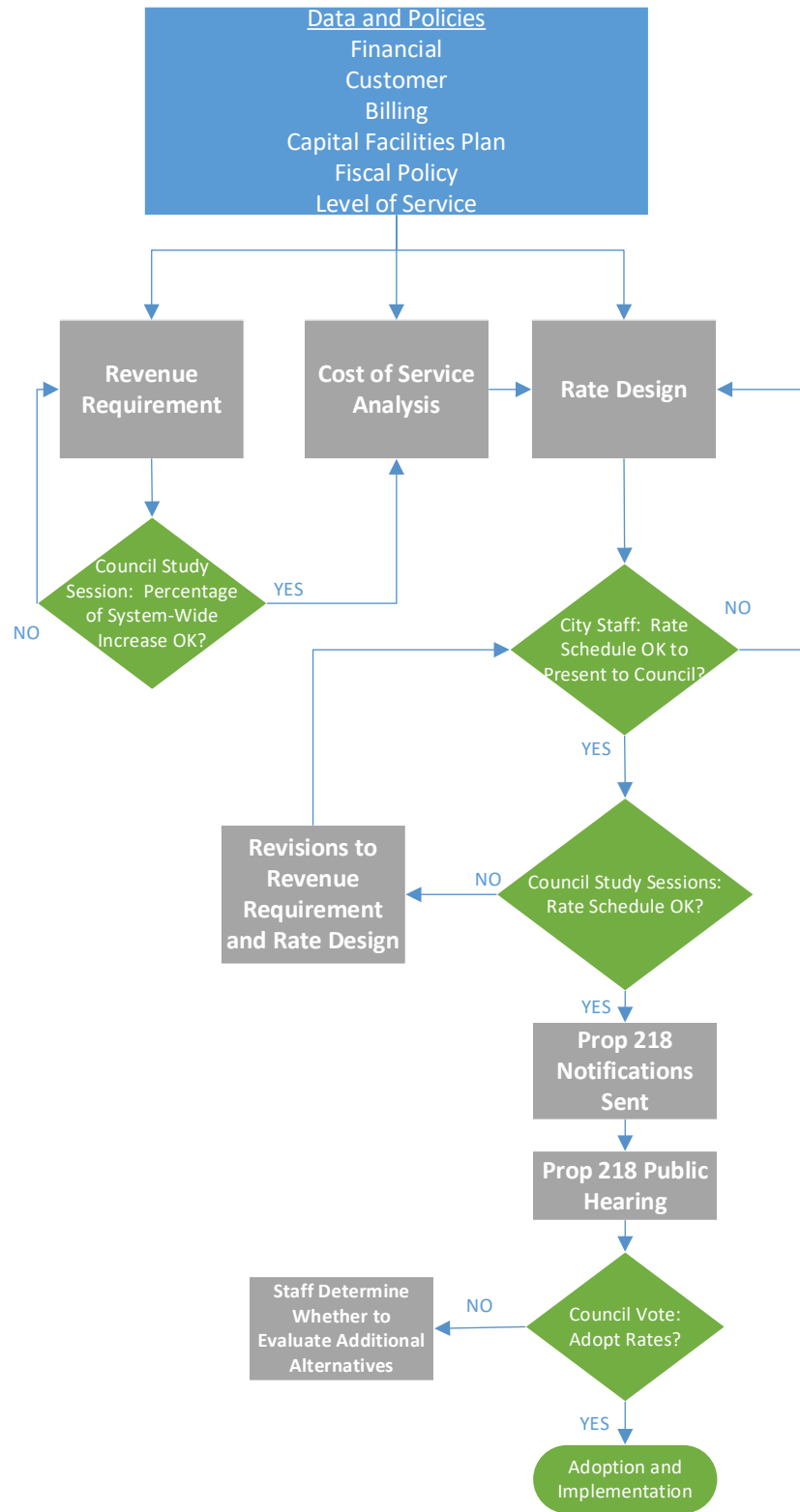


Figure 1-1 Overview of Methodology

Section 2

Revenue Requirement Analysis

2.1 Introduction

To provide for the continued operation of a utility on a sound financial basis, revenues must be sufficient to meet the cash requirements for operation and maintenance (O&M) expense, debt service requirements, debt service coverage requirements, reserves, and cash-funded capital expenditures not financed with debt. The sum of these cost components for a given year is referred to as a utility's Revenue Requirement.

Historical and budgeted financial and operational data were provided by the Division and used by FG Solutions to develop the projected revenue requirement for the five-year study period. The revenue requirement analysis was an iterative process and draft versions were revised based on comments and input provided by Division staff. Next, the revenue requirement was compared with the revenues generated by the existing rates to generate additional revenues needed from rate increases. The reserve requirement, described below, is met throughout the five-year projection period. Revenue projections are a critical part of the revenue requirement analysis. The three aspects of revenue projections described in the sections below are non-rate revenues, rate revenues under the current rate schedule, and rate revenues from proposed rate increases.

Key assumptions used in the Revenue Requirement analysis are listed below. Additional assumptions are provided in the printout of the Revenue Requirement calculations that comprise Appendix A.

2.2 Revenues

2.2.1 Key Assumptions

Revenue projections are a critical part of the revenue requirement analysis. The three aspects of revenue projections described in the sections below are non-rate revenues, rate revenues under the current rate schedule, and rate revenues from proposed rate increases.

FY 23/24 revenues are calculated based on FY 22/23 actual water use, number of customers in FY 22/23, and the existing rate structure.

Another key assumption is that no customer growth is projected through FY 27/28. For the purposes of these rate calculations, customer growth in the water service area is projected to be negligible.

2.2.2 Non-Rate Revenues

The key sources of water revenues other than rate revenues are predominantly late fees, with some non-rate revenues from interest income.

2.2.3 Rate Revenues under Current Rates

Rates that are currently effective are shown in Tables 1-1, 1-2, and 1-3. These rates were used to project the revenues shown in Table 2-1. Revenue estimates under current rates shown in Table 2-1 for FY 24/25 through FY 27/28 are projected to remain at FY 23/24 values. A portion of Late Fee revenues are used to fund the Senior CARE discount.

Table 2-1: Historical and Projected Revenues Under Existing Rates

Revenue	Projected				
	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
Water Sales Revenues (Excludes Future Rate Increases and Future Pass Through Charge Adjustments)					
Bi-Monthly Minimum Charge (1)	\$8,344,136	\$8,344,136	\$8,344,136	\$8,344,136	\$8,344,136
Commodity Delivery Charge (1)	29,379,678	29,379,678	29,379,678	29,379,678	29,379,678
Private Fire Service (1)	494,910	494,910	494,910	494,910	494,910
Senior CARE Discount (2)	(16,342)	(16,342)	(16,342)	(16,342)	(16,342)
Write-offs (3)	(55,214)	(58,748)	(62,508)	(66,509)	(68,171)
Other Income					
Transfer from General Fund for City Water Use (4)	636,691	691,891	736,172	783,287	822,810
Other Revenues (2)	97,032	97,032	97,032	97,032	97,032
Investment Income	151,683	161,121	131,892	127,726	107,807
Bi-Monthly Capital Improvement Charge (1)	2,320,206	2,320,206	2,320,206	2,320,206	2,320,206
Total	\$41,352,781	\$41,413,885	\$41,425,177	\$41,464,126	\$41,482,067

Notes:

- (1) Calculated based on the number of water system customers and projected water use, at the rates contained in Ordinance 2890. Does not include revenues from proposed rate increases.
- (2) Source: City's FY 23/24 budget. In subsequent years, the Senior Care Discount is held constant at current amounts.
- (3) Source: City's FY 23/24 budget. In subsequent years, projected to increase at the overall rate of water sales revenue increases.
- (4) Calculated based on the City's current water use. In subsequent years, projected to increase at the overall rate of water sales revenue increases.
- (5) FY 23/24 per the City's FY 23/24 budget. In subsequent years, based on 0.65% interest income on the City's Fund Balances at the end of the preceding Fiscal Year.

Projected water sales revenues under existing rates are projected to be flat through FY 27/28. The projected Commodity Delivery Charge revenue shown in Table 2-1 does not include future Pass-Through Adjustments. Pass-Through Adjustments are considered by the City Council on an annual basis and will be calculated based on future changes in imported water costs that are not known at this time. For more detail, refer to Appendix A.

2.2.4 Rate Revenues from Proposed Rate Increases

Rate revenues resulting from proposed rate increases are shown later in this report.

2.3 Expenses

2.3.1 Key Assumptions

FY 23/24 O&M expenses are primarily based on the Division's FY 23/24 budget. In subsequent years, expenses are escalated for inflation. For the purposes of this rate study, the FY 24/25 inflation rate is 4%. In subsequent years, General Inflation was assumed to be 2.5%, Salaries and Wages Escalation is assumed to be 4% in FY 25/26 and 2.5% thereafter, and the rate of escalation for any Capital Improvements is assumed to be 2.5%.

Water production expenses are the single largest component of the Division's expenditures. A key assumption is that 85% of future water supply is locally produced groundwater, with the remaining 15% future water supply coming from imported water.

Projected annual water production, a combination of both locally produced groundwater and imported water, is assumed to be 19,773 acre-feet (AF) per year, for the entire planning period. This number is based on FY 22/23 actual water demands. FY 22/23 weather was unusually wet, explaining the decrease in consumption.

Table 2-2 shows projected O&M expenses for the Study period. Additional detail is included in Appendix A, Table A-5.

Table 2-2: Projected O&M Expenses

O&M Cost Component	Projected (1)				
	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
Salaries & Fringe Costs (2)	\$7,803,861	\$8,176,893	\$8,503,969	\$8,716,568	\$8,934,483
Contractual Services	570,531	475,484	494,503	506,866	519,538
Commodities Other than Water Costs	567,215	555,215	577,424	591,859	606,656
Water Use Objectives Compliance Cost (3)	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Administrative Services Charge	1,402,200	1,444,200	1,501,968	1,539,517	1,578,005
Street Repair Costs	814,455	814,455	847,033	868,209	889,914
Miscellaneous O&M	25,283	25,283	26,294	26,952	27,625
Electricity	1,111,256	1,155,706	1,184,599	1,214,214	1,244,569
Natural Gas	289,311	300,884	308,406	316,116	324,019
OCWD Pumping (4)	47,208	47,208	49,096	50,324	51,582
Costs Paid to OCWD and MWD For Water Supply (5)	15,343,794	15,343,794	15,343,794	15,343,794	15,343,794
PFAS O&M Costs (6)	2,872,745	4,677,169	5,554,594	11,165,129	11,444,257
OCWD Reimbursement of PFAS O&M Costs (6)	(166,293)	(986,920)	(1,072,147)	(1,389,694)	(1,519,503)
Total	32,681,566	34,029,371	35,319,533	40,949,853	41,444,938

Notes:

- (1) FY 23/24 and FY 24/25 expenses are from the City's FY 23/24 Budget unless otherwise noted. Expenses in later years are projected to increase with inflation unless otherwise noted.
- (2) Salaries & Fringe costs increase at 4% in FY 24/25 and FY 25/26 per the terms of existing labor agreements.
- (3) Compliance cost provided by City staff. Costs will be spent on items that will reduce water use, including an increased emphasis on meter replacement and reducing water losses.
- (4) Expenses
- (5) See Table 2-3 for more detail.
- (6) See Table 2-4 for more detail.

For the 15% of water production that is imported water, the primary cost is the imported water charge from Metropolitan Water District (MWD). For the 85% of water that is locally produced, the primary expenses are energy costs for pumping water, and the Replenishment Assessment from the Orange County Water District (OCWD). More detail can be found in Appendix A.

Table 2-3: Projected Costs Paid to OCWD and MWD For Water Supply

MWD and OCWD Cost Component	Projected (1) (2) (3)				
	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
OCWD Replenishment Assessment	10,487,623	10,487,623	10,487,623	10,487,623	10,487,623
MWD Tier 1 Treated Water	3,585,842	3,585,842	3,585,842	3,585,842	3,585,842
MWD Readiness to Serve Charge	541,486	541,486	541,486	541,486	541,486
MWD Capacity Charge	207,834	207,834	207,834	207,834	207,834
MWD Connection Charge	492,275	492,275	492,275	492,275	492,275
MWD Choice Programs	28,734	28,734	28,734	28,734	28,734
Total	15,343,794	15,343,794	15,343,794	15,343,794	15,343,794

Notes:

- (1) Calculated based on FY 22/23 water demands and current FY 23/24 MWD and OCWD costs. Based on 85% of the City's water supply obtained from local groundwater production and 15% of the City's water supply purchased from MWD.
- (2) Projected costs are not escalated for inflation. Instead, cost increases will be incorporated into the City's annual Commodity Delivery Charge Pass-Through Adjustment.
- (3) See Appendix A for more detailed calculations.

The key points about PFAS are that O&M costs are increasing as new facilities come online. Since the first PFAS facilities came online in FY 21/22, the PFAS O&M expenses are new to the Division. The largest component of PFAS O&M is the Ion Exchange Resin changeout. The projected costs in Table 2-4 are based on annual resin changeouts at each PFAS facility. As the Division gains experience operating and maintaining PFAS facilities, they will be able to

adjust resin change out schedules based on need. Table 2-4 also shows the partial reimbursement of PFAS O&M costs from OCWD. Please refer to Appendix A for more detailed calculations.

Table 2-4: Projected PFAS O&M Costs

PFAS O&M Cost Component	Projected (1)				
	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
Prefilters (Cartridges)	\$156,868	\$163,143	\$187,536	\$396,582	\$406,497
Ion Exchange Resin Changeout	2,276,780	3,846,731	4,393,444	9,526,203	9,764,359
Labor: Future Hires	0	177,600	171,995	176,295	180,702
Power	178,914	194,365	251,931	275,464	282,351
Analytical	4,800	5,616	9,594	13,112	13,440
Maintenance Cost	47,250	52,650	104,335	154,883	158,755
O&M Contingency	208,133	237,064	435,758	622,589	638,154
Total	\$2,872,745	\$4,677,169	\$5,554,594	\$11,165,129	\$11,444,257
Less Partial Reimbursement	(\$166,293)	(\$986,920)	(\$1,072,147)	(\$1,389,694)	(\$1,519,503)
Total Through Rates	\$2,706,452	\$3,690,249	\$4,482,447	\$9,775,435	\$9,924,754

Notes:

(1) See Appendix A for detailed calculations.

2.3.2 Capital Improvement Plan

A key aspect of any rate study is defining the anticipated level of capital improvements over the planning period. The Division provided its five-year Capital Improvement Plan from FY 23/24 through FY 27/28. Table 2-5 summarizes capital costs um grouped in six categories. The Division projects spending \$23.6 million dollars in water main upsizing and replacement. Another \$17.8 M is projected for recurring replacements of service lines, fire hydrants, valves, meters, and water mains. The Division continues its ongoing reservoir rehabilitation projects and will complete its SCADA upgrades within the five-year rate study planning period. Table 2-6 shows the detailed list of scheduled capital improvements.

Table 2-5 FY 23/24 - FY 27/28 Capital Improvement Plan Summary

Category	Project Description	Cost (2023) Dollars
Recurring Replacements	Service Lines, Fire Hydrants, Meters, Valves, Mains, and Appurtances	\$17,807,227
Wells	Well Condition Assessment & Rehabilitation	2,257,142
Reservoirs	Reservoir Rehabilitation	7,630,000
Water Mains	Water Main Upsizing and Replacement	23,638,487
SCADA	SCADA Upgrades	7,411,136
Property Purchase	Well 26 Property Purchase	1,643,000
	Total	\$60,386,992

Table 2-6 shows the Division's detailed Capital Improvement Plan through the end of the rate study planning period. This can also be found in the Appendix.

Table 2-6 Capital Improvement Plan

Capital Improvement Plan		Estimated Funding, FY 23/24 Dollars						Total
		Carry Forward	Budget FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28	
Project List								
Fund 602 Water Capital Fund Projects								
1) Magnolia Reservoirs and Booster Pump Station Project		\$0	\$800,000	\$0	\$0	\$0	\$800,000	
2) SCADA Implementation Project		436,956	400,000	1,505,000	800,000	1,500,000	4,641,956	
3) SCADA -FP2 Pressure Monitoring Improvements		0	419,180	0	0	0	419,180	
4) SCADA - HP4-5 SCADA - Trask & Westhaven		0	1,450,000	0	0	0	650,000	
5) SCADA - HP1-3 SCADA - Mag, Lampson, & WGG		0	0	900,000	0	0	900,000	
6) Water Improvement Project Woodbury Rd and Taft St		0	0	1,200,000	0	0	1,200,000	
7) Water Improvement Project - Orangewood and Yorkshire Ave (~		3,956,942	0	0	0	0	3,956,942	
8) Water Improvement Project - Chapman Ave and Dale St (~10,000 l		0	5,000,000	0	0	0	5,000,000	
9) Well assessment (Well 16, 19, 25)		57,142	0	0	0	0	57,142	
10) Well 19 Construction		0	2,200,000	0	0	0	2,200,000	
11) Water Improvement Project - Woodbury Ave & Anabel Ave (~3,		0	2,097,545	0	0	0	1,680,000	
12) Water Main Replacement (2 miles each year)		0	0	0	2,084,000	4,000,000	10,084,000	
13) Design and Construction of Lampson and Trask Reservoirs Rehab		0	830,000	3,000,000	3,000,000	0	6,830,000	
14) Various Residential Streets Projects N of GG Blvd & E of Dale		0	1,200,000	0	0	0	1,200,000	
15) Water Transmission Line Study		0	0	100,000	0	0	100,000	
16) Well 26 Property Purchase		0	0	1,643,000	0	0	1,643,000	
Subtotal		\$4,451,040	\$14,396,725	\$8,348,000	\$5,884,000	\$5,500,000	\$41,362,220	
Fund 603 Water Replacement Fund Projects								
Water Main Replacement (services, hydrants, meters, valves, etc.)		\$0	\$3,807,227	\$3,500,000	\$3,500,000	\$3,500,000	\$17,807,227	
Total		\$4,451,040	\$18,203,952	\$11,848,000	\$9,384,000	\$9,000,000	\$59,169,447	

Table 2-7 shows Existing Revenue Bond Debt Service for the rate study planning period. The 2015 Revenue and Refunding Bonds will be paid off in FY 23/24. Debt service payments on the 2020A Water Revenue Bonds will continue through the rate study planning period.

Table 2-7: Existing Revenue Bond Debt Service

Revenue Bond Debt Issuance	Projected Principal and Interest Payment (1)				
	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
Revenue and Refunding Bonds 2015	\$939,300	\$0	\$0	\$0	\$0
Water Revenue Bonds Series 2020A	1,720,175	1,714,575	1,717,775	1,719,375	1,719,375
Total	\$2,659,475	\$1,714,575	\$1,717,775	\$1,719,375	\$1,719,375

The Division also has an outstanding Intercity Loan with the City's General Fund. This debt has been in existence since the mid-1990s. The outstanding balance, as of FY 23/24 is \$9,851,256. The Intercity Loan recognizes the cost of street damages related to the provision of water services until the mid-1990s. Since the mid-1990s, the Division has paid an annual street damage charge to the General Fund. This annual street damage charge is included in the O&M expenses shown in Table 2-2. Since the last rate study, the Division has been making annual principal and interest payments. Table 2-8 shows the principal and interest payments for the planning period.

Table 2-8: Proposed Intercity Loan Debt Service

Intercity Loan	Projected Principal and Interest Payment (1)				
	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
Outstanding Principal Beginning Year	\$10,632,394	\$9,851,256	\$9,037,481	\$8,189,708	\$7,306,516
Principal Payment	\$781,139	\$813,774	\$847,773	\$883,192	\$920,091
Interest Payment	\$421,358	\$388,722	\$354,723	\$319,304	\$282,405
Outstanding Principal, End of Year	\$9,851,256	\$9,037,481	\$8,189,708	\$7,306,516	\$6,386,425

2.4 Operating Statement

Water utility revenues and expenses are tracked in three funds: 1) Fund 601 (Water Operations); 2) Fund 602 (Water Capital); and 3) Fund 603 (Water Replacement). This section shows the revenues and expenses in each fund.

2.4.1 Fund 601 (Water Operations)

Table 2-9 and Table 2-10 are the Operating Statement for the Water Fund 601. Table 2-9 shows the sources of funds in Water Fund 601, which includes rate revenues and other income, including non-rate revenues. The total sources of funds is the sum of the beginning year fund balance, plus rate revenues and other income. Lines 8 thru 12 show the projected percentage rate increases in overall water rate revenues in each fiscal year. Water rate revenue increases were determined to pay the Division's expenses through FY 27/28, and meet the minimum reserve and debt service coverage ratio targets. Proposed rate increases would be effective on January 1 of each year.

Table 2-9: Sources of Funds, Fund 601

Line No	SOURCES OF FUNDS FUND 601 (WATER OPERATIONS)	Projected				
		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
1	Beginning of Year Balance, Fund 601	\$30,046,648	\$23,183,148	\$18,846,897	\$17,795,639	\$14,886,313
2						
3	Water Sales Revenues					
4	Water Sales Revenues under Existing Rates	\$38,147,168	\$38,143,634	\$38,139,874	\$38,135,874	\$38,134,211
5	Additional Revenues From Rate Increases					
6						
7						
8	Fiscal Year	Percent Increase	Months of Revenue			
8	FY 23/24	6.40%	4	\$815,333	\$2,445,998	\$2,445,998
9	FY 24/25	6.40%	4		867,514	2,602,542
10	FY 25/26	6.40%	4			923,035
11	FY 26/27	6.40%	4			2,769,105
12	FY 27/28	2.50%	4			982,109
13	Total Additional Revenues From Rate Increases			\$815,333	\$3,313,512	\$5,971,575
14						\$8,799,754
15	Total Water Sales Revenues	\$38,962,501	\$41,457,146	\$44,111,449	\$46,935,628	\$49,306,373
16						
17	Other Income	\$885,407	\$950,045	\$965,097	\$1,008,046	\$1,027,649
18	Total Revenues	\$39,847,908	\$42,407,191	\$45,076,546	\$47,943,674	\$50,334,023
19	Total Sources of Funds	\$69,894,556	\$65,590,340	\$63,923,444	\$65,739,313	\$65,220,336

Table 2-10 shows Water Fund 601 Uses of Funds. This table shows the payment of O&M Expenditures from Fund 601, along with Debt Service and transfers to Fund 603, which will be discussed later in the report.

Table 2-10: Uses of Funds, Fund 601

Line No	USES OF FUNDS FUND 601 (WATER OPERATION)	Projected				
		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
1	O&M Expenditures	\$32,681,566	\$34,029,371	\$35,319,533	\$40,949,853	\$41,444,938
2	Revenue Bond Debt Service	1,202,496	1,202,496	1,202,496	1,202,496	1,202,496
3	Intercity Loan Debt Service	2,659,475	1,714,575	1,717,775	1,719,375	1,719,375
4	Capital Equipment	314,000	157,000	157,000	157,000	157,000
5	Transfer to Fund 602	6,000,000	6,000,000	4,000,000	3,000,000	2,000,000
6	Transfer to Fund 603	3,853,870	3,640,000	3,731,000	3,824,275	3,919,882
7	Total Uses of Funds	\$46,711,408	\$46,743,442	\$46,127,805	\$50,853,000	\$50,443,691
8						
9	End of Year Balance, Fund 601	\$23,183,148	\$18,846,897	\$17,795,639	\$14,886,313	\$14,776,645

2.4.2 Fund 602 (Water Capital)

Revenues in Fund 602, (Water Capital), are funded from the Capital Improvement Charge, and by unspent revenue bond proceeds from the Series 2020A Revenue Bonds. . Table 2-11 shows revenues for the Division's Water Capital fund. CIP expenses are both funded and paid for within Fund 602.

Table 2-11: Sources of Funds, Fund 602

Line No	SOURCES OF FUNDS			Projected				
	FUND 602 (WATER CAPITAL)			FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
1	Beginning of Year Balance, Fund 602			\$4,341,667	\$663,606	\$503,051	\$913,439	\$758,292
2								
2	Capital Improvement Charge Revenues							
3	Revenues Under Existing Rates			\$2,320,206	\$2,320,206	\$2,320,206	\$2,320,206	\$2,320,206
4	Additional Capital Improvement Charge Revenues							
5								
6								
7	Fiscal Year	% Increase	Months of Revenue					
8	FY 23/24	6.40%	4	\$49,498	\$148,493	\$148,493	\$148,493	\$148,493
9	FY 24/25	6.40%	4	0	52,666	157,997	157,997	157,997
10	FY 25/26	6.40%	4	0	0	56,036	168,109	168,109
11	FY 26/27	6.40%	4	0	0	0	59,623	178,868
12	FY 27/28	2.50%	4	0	0	0	0	24,781
13	Total Additional Revenues			\$49,498	\$201,159	\$306,490	\$534,222	\$678,248
14								
15	Total Capital Improvement Charge Revenues			\$2,369,704	\$2,521,365	\$2,626,696	\$2,854,428	\$2,998,454
16	Remaining 2020A Revenue Bond Proceeds			6,800,000				
17	Transfer From Fund 601			6,000,000	6,000,000	4,000,000	3,000,000	2,000,000
18	Total Sources of Funds, 602			\$19,511,371	\$9,184,971	\$7,185,783	\$6,767,867	\$5,756,746

Table 2-11, lines 8-12, Revenues from Rate Increases are shown as percentage increases over current Capital Improvement Charge revenues. Table 2-12 shows the expenditures from Fund 602. The expenditures are capital improvements.

Table 2-12: Uses of Funds, Fund 602

Line No	USES OF FUNDS			Projected				
	FUND 602 (WATER CAPITAL)			FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
1	Capital Improvements			\$18,847,765	\$8,681,920	\$6,272,344	\$6,009,575	\$4,479,865
2	Total Use of Funds			\$18,847,765	\$8,681,920	\$6,272,344	\$6,009,575	\$4,479,865
3								
4	Ending Year Fund Balance, Fund 602			\$663,606	\$503,051	\$913,439	\$758,292	\$1,276,881

Table 2-12, Line 1, Capital Improvements, is shown as a five-year capital cost estimate of \$44,291,469 over the five-year planning period.

2.4.3 Fund 603 (Water Replacement)

Table 2-13, Sources of Funds, Fund 603, (Water Replacement), pays for replacements, such as pipes, meters, valves, and hydrants. Fund 603 is funded by transfers from Fund 601, (Water Operations).

Table 2-13: Sources of Funds, Fund 603

Line No	SOURCES OF FUNDS			Projected				
	FUND 603 (WATER REPLACEMENT)			FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
1	Beginning of Year Balance, Fund 603			\$894,498	\$941,141	\$941,141	\$941,141	\$941,141
2								
3	Transfer From Fund 601			3,853,870	3,640,000	3,731,000	3,824,275	3,919,882
4	Total Sources of Funds, Fund 603			\$4,748,368	\$4,581,141	\$4,672,141	\$4,765,416	\$4,861,023

Table 2-14, Uses of Funds, Fund 603 (Water Replacement), shows that Replacement Expenditures are projected to begin at \$3,807,227 in FY 23/24, and increase gradually to \$3,919,882 in FY 27/28.

Table 2-14: Uses of Funds, Fund 603

Line No	USES OF FUNDS FUND 603 (WATER REPLACEMENT)	Projected				
		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
1	Replacement Expenditures	\$3,807,227	\$3,640,000	\$3,731,000	\$3,824,275	\$3,919,882
2	Total Use of Funds	\$3,807,227	\$3,640,000	\$3,731,000	\$3,824,275	\$3,919,882
3						
4	Ending Year Fund Balance, Fund 603	\$941,141	\$941,141	\$941,141	\$941,141	\$941,141

2.4.4 Financial Performance Indicators

The Financial Performance Indicators used to evaluate water utility revenues are: 1) End of Year Reserve Balance; 2) Debt Service Coverage Ratio. Table 2-15 shows these Financial Performance Indicators for each year in the five-year planning period.

The Division's reserve policy is that reserves must exceed the sum of:

1. Two months of O&M expenses
2. \$500,000 for contingencies
3. 5% of the net plant value

Table 2-15 shows that this policy is met in each of the five years in the planning period. Table 2-15 also shows the Debt Service Coverage Ratio (DSCR) calculation. A DSCR of at least 1.75 is maintained throughout the five-year planning period. This DSCR exceeds the requirement of the City's Revenue Bond Ordinances and was used to improve the financial position of the utility. The DSCR criteria of 1.75 was used to position the City with the financial markets in anticipation of future debt issuances.

Table 2-15: Financial Performance Indicators

Line No	FINANCIAL PERFORMANCE INDICATORS	Projected				
		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
1	End of Year (EOY) Reserve Balance					
2	Criteria: Total combined fund 601,602,603 Reserves Exceeds Minimum Reserve Balance					
3	Combined EOY 601,602,603 Fund Balance	\$24,787,896	\$20,291,090	\$19,650,220	\$16,585,747	\$16,994,667
4						
5	Minimum Reserve Balance					
6	2 months O&M Expenses	\$5,647,344	\$5,871,978	\$6,087,005	\$7,025,392	\$7,107,906
7	Plus \$500,000 for Contingencies	500,000	500,000	500,000	500,000	500,000
8	Plus 5% of Net Plant	8,596,201	8,820,908	8,922,414	9,004,721	9,012,027
9	Subtotal	\$14,743,545	\$15,192,885	\$15,509,419	\$16,530,112	\$16,619,933
10	Exceeds Target?	Yes	Yes	Yes	Yes	Yes
11						
12	Debt Service Coverage Ratio					
13	Criteria: Debt Service Coverage Ratio > 1.75					
14	Gross Revenue	\$42,217,612	\$44,928,556	\$47,759,278	\$50,798,102	\$53,332,477
15	Less O&M Expenses	(\$32,681,566)	(\$34,029,371)	(\$35,319,533)	(\$40,949,853)	(\$41,444,938)
16	Revenue Available for Debt Service	\$9,536,045	\$10,899,185	\$12,439,745	\$9,848,249	\$11,887,539
17						
18	Revenue Bond Debt Service	\$2,659,475	\$1,714,575	\$1,717,775	\$1,719,375	\$1,719,375
19	Debt Service Coverage Ratio	3.59	6.36	7.24	5.73	6.91
20	Exceeds Target?	No	No	No	No	No

Line 15 shows O&M expenses subtracted from gross revenues. For purposes of debt service coverage calculation, our calculations do not include intercity loan interest and intercity loan principal.

Section 3

Rate Structure Development

This section outlines the proposed water rate structure. The rate structure is developed using a Cost-of-Service Analysis, completed consistently with industry standards. This Cost-of-Service Analysis uses methodology from the American Water Works Association’s M1 Manual, Principles of Water Rates, Fees, and Charges (7th Edition).

3.1 Cost-of-Service Analysis

The first step in a Cost-of-Service analysis is functionalization, where water system expenses are grouped according to the functions of a water system. Water functions include pumping, storage, transmission and distribution (T&D), customer, meter, and administration. Table 3-1 shows the functionalization of the Division’s O&M expenses for FY 23/24. Additional detail is available in Appendix B.

Some of the key aspects of the functionalization calculations are:

1. Labor costs were functionalized based on a review, with division staff, of the job responsibilities of Water Division employees.
2. All source of supply expenses are included in Table 3-1 in the Rate Tier Calculations.
3. All PFAS expenses are included in the rate tier calculations.

Table 3-1: Water System Cost-of-Service Analysis, FY 23/24 - Functionalization of O & M Expenditures

	FY 23/24 Total	Pumping	Storage	T&D	Customer	Meter	Admin	Rate Tier Calculations	Fire Protection
Salaries, Wages, and Benefits (1)	\$7,803,861	\$1,005,546	\$752,867	\$3,735,573	\$819,514	\$43,743	\$251,673	\$1,172,243	\$22,708
Water Use Objectives Compliance	2,000,000	0	0	0	0	0	0	2,000,000	0
Administrative Services Charge (1)	1,402,200	0	0	0	0	0	1,402,200	0	0
Street Repair Costs (1)	814,455	0	0	407,228	407,228	0	0	0	0
Water Costs (1)	19,498,021	0	0	0	0	0	0	19,498,021	0
Other O&M (1) (2)	1,163,029	136,173	99,532	511,004	97,767	14,434	207,608	89,017	7,494
Total (1) (3)	\$32,681,566	\$1,141,719	\$852,399	\$4,653,805	\$1,324,509	\$58,177	\$1,861,481	\$22,759,281	\$30,202

Notes:

- (1) See Appendix B for more detail.
- (2) Includes contractual services, commodities, registration fees, tuition and training, membership fees, and books/publications.
- (3) Small discrepancies in total functionalized costs are due to rounding in the cost-of-service analysis.

Table 3-2 shows the Functionalization of the Capital Improvement Plan. Forty one percent of the CIP costs are related to transmission and distribution, 26% of these costs are related to storage.

Table 3-2: Water System Cost-of-Service Analysis - Functionalization of the Capital Improvement Plan

Project	Projected Cost	Pumping	Storage	T&D	Customer	Meter	Admin	Rate Tier Calculations	Fire Protection
Magnolia Reservoirs and Booster Pump Station Project (2)	\$800,000	40%	60%						
SCADA Implementation Project (3)	4,641,956	50%	50%						
SCADA - FP2 Pressure Monitoring Improvements	419,180	50%	50%						
SCADA - HP4-5 SCADA - Trask & Westhaven	1,450,000	50%	50%						
SCADA - HP1-3 SCADA - Mag, Lampson, & WGG	900,000								
Water Improvement Project Woodbury Rd and Taft St (4)	1,200,000			80%	6%	6%			8%
Water Improvement Project - Orangewood and Yorkshire Ave (~7,400 ft) (4)	3,956,942			76%	9%	9%			6%
Water Improvement Project - Chapman Ave and Dale St (~10,000 ft) (4)	5,000,000			76%	9%	9%	0%	0%	6%
Well assessment (Well 16, 19, Well 19 Construction)	57,142 2,200,000	100%						100%	
Water Improvement Project - Woodbury Ave & Anabel Ave (~3,500 ft)	2,097,545			100%					
Water Main Replacement (2 miles each year) (4)	10,084,000			76%	9%	9%			6%
Design and Construction of Lampson and Trask Reservoirs Rehabilitation	6,830,000		100%						
Various Residential Streets Projects N of GG Blvd & E of Dale (5)	1,200,000				50%	50%			
Water Transmission Line Study	100,000			100%					
Well 26 Property Purchase	1,643,000							100%	
Total	\$42,579,765	\$4,082,710	\$11,015,568	\$17,628,661	\$2,385,685	\$2,385,685	\$0	\$3,843,000	\$1,238,457
As Percent	100%	10%	26%	41%	6%	6%	0%	9%	3%

Notes:

- (1) Functionalization percentages developed by FG Solutions based on project descriptions provided the City and conversations with City staff. See Appendix B for more detail.
- (2) Source: City staff, 7/6/23 email.
- (3) SCADA facilitates communication between pumps and reservoirs, and are functionalized accordingly.
- (4) per City staff, 7/5/23 email. Percentage allocation to customers, meters, and hydrants is based on the estimated costs of these items. Service lines and meters portion of this project is divided between customer and meters.
- (5) This project is entirely the replacement of service lines and meters, per City staff 7/5/23.

Table 3-3 shows the Functionalization of the Rate Revenue Requirement, for FY 23/24. Included in the rate revenue requirement are O&M expenditures, debt service payments, capital improvements and replacement expenditures. In FY 23/24, these expenditures are partially offset by non-rate revenues and use of reserves.

Table 3-3: Functionalization of Rate Revenue Requirement

	FY 23/24 Total	Pumping	Storage	T&D	Customer	Meter	Admin	Rate Tier Calculations	Fire Protection
O&M Expenses (2)	\$32,681,566	\$1,141,719	\$852,399	\$4,653,805	\$1,324,509	\$58,177	\$1,861,481	\$22,759,281	\$30,202
Debt Service (3)	3,861,971	297,153	687,676	1,626,047	735,569	134,321	1,680	260,505	119,019
Capital Equipment (4)	314,000	0	0	314,000	0	0	0	0	0
Capital Improvements (5)	18,847,765	1,807,195	4,875,998	7,803,257	1,056,014	1,056,014	0	1,701,089	548,198
Water Main Replacement (6)	3,807,227	0	0	2,893,493	342,650	342,650	0	0	228,434
Plus Revenue Adjustments (Wri)	55,214	0	0	0	0	0	55,214	0	0
Less Other Revenues	0	0	0	0	0	0	0	0	0
Other Revenues	(97,032)	0	0	0	0	0	(97,032)	0	0
Investment Income	(151,683)	0	0	0	0	0	(151,683)	0	0
Remaining 2020A Bond Proceeds	(6,800,000)	(652,010)	(1,759,189)	(2,815,302)	(380,995)	(380,995)	0	(613,728)	(197,782)
Capital Improvement Charge	(2,369,704)	(227,216)	(613,053)	(981,093)	(132,771)	(132,771)	0	(213,876)	(68,924)
Less Change in Fund Balance (7)	(10,494,918)	(1,006,293)	(2,715,080)	(4,345,053)	(588,016)	(588,016)	0	(947,210)	(305,251)
Total Rate Revenue Requirement	\$39,654,407	\$1,360,548	\$1,328,751	\$9,149,154	\$2,356,960	\$489,380	\$1,669,660	\$22,946,061	\$353,896

Notes:

- (1) See Appendix B for more detail. All discrepancies in total functionalized costs are due to rounding in the cost-of-service analysis.
- (2) See Table 3-1.
- (3) Debt service consists of Revenue Bond Debt and an Intercity Loan. Revenue Bond debt is functionalized per the City's net plant assets. Intercity loan debt is for past street repairs, and is functionalized 50% to transmission and distribution and 50% to customers.
- (4) Capital equipment expenses are associated with the Division's Water Distribution Section.
- (5) See Table 3-2.
- (6) Water Main Replacement Projects are functionalized based on the functionalization of similar projects in the Capital Improvement Program.
- (7) Functionalized according to the Capital Improvement Plan (Table 3-2) because remaining revenue bond proceeds, Capital Improvement Charge revenues, and use of Fund Balance is all used to pay for capital improvements.

The next step in a Cost-of-Service Analysis is allocation, where functionalized expenses are allocated to water system characteristics of average day demand, peak day demand, peak hour demand, and customer and water meter size. In addition, source of supply costs are carried through the allocation step to be used in the rate tier calculations described later in this section. Table 3-4 shows the Allocation of FY 23/24 Rate Revenue Requirement.

Table 3-4: Allocation of FY 23/24 Rate Revenue Requirement

	FY 23/24 Projection	Extra Capacity			Customer		Rate Tier	Private Fire	Public and Private Fire
		Base	Max Day	Max Hour	Customer	Meter	Calculations	Protection	Protection
Water System Function									
Pumping	\$1,360,548	\$1,046,575	\$313,973	\$0	\$0	\$0	\$0	\$0	\$0
Storage	1,328,751	1,109,632	170,983	0	0	0	0	0	48,136
T&D	9,149,154	3,151,375	945,413	1,575,688	0	0	0	0	3,476,679
Customer	2,356,960	0	0	0	2,356,960	0	0	0	0
Meter	489,380	0	0	0	0	489,380	0	0	0
Administration	1,669,660	589,271	158,806	174,940	261,680	54,333	0	39,291	391,340
Rate Tier Calculations	22,946,061	0	0	0	0	0	22,946,061	0	0
Fire Protection	353,896	0	0	0	0	0	0	353,896	0
Reallocate Public FP	0	0	0	0	1,856,414	1,856,414	0	(393,187)	(3,319,641)
Total	\$39,654,410	\$5,896,853	\$1,589,175	\$1,750,628	\$4,475,054	\$2,400,127	\$22,946,061	\$0	\$596,514
Percent of Total	100%	15%	4%	4%	11%	6%	58%	0%	2%

Some of the key aspects of the allocation calculations are:

- 1. Pumping and storage costs are allocated to base (also referred to as average day) demand and maximum day demand. This is because pumping and reservoirs are sized to meet peak day demands, and they also are in use every day on a 24/7 basis.
- 2. A portion of storage costs are attributed to providing fire protection, based on an assessment of the amount of reservoir storage that is needed for fire protection, as described in the City's 2008 Water Master Plan.

3. Transmission and distribution system expenses are allocated to base, maximum day, and maximum hour demands because sizing of pipes also considers maximum hour demands. A portion of transmission and distribution expenses is also allocated to fire protection, recognizing that pipes are sized to provide fire flows.
4. Water supply costs are carried through to the rate tier calculations. In the Commodity Delivery Charge calculations described below, the charges for each rate tier are based on water supply costs.
5. Administrative expenses are allocated based on a weighted average of all other expenses.
6. Fire protection expenses, and the reallocation of public fire protection expenses, are discussed in further detail in Appendix C of this report.

Table 3-5 defines terms and clarifies the relationship between Water Service Characteristics and how costs are recovered in the proposed rate structure. The terms base, max-day, and max-hour demand are used in the industry standard publication, AWWA M1 Manual, Principals of Water Rates, Fees, and Charges, 7th Edition. Fixed charges refer to the Bi-Monthly Minimum Charge and the Capital Improvement Charge.

Table 3-5: Relationship Between Water Service Characteristics and Rate Structure

Water Service Characteristics	How Costs are Recovered in Rate Structure
Base Demand	Mostly Through Commodity Charges, Partially Through Fixed Charges
Max Day and Max Hour	Commodity Delivery Charges
Customer and Meter	Fixed Charges
Rate Tier Calculations	Commodity Delivery Charges
Private Fire Protection	Fire Service Costs

3.2 Proposed Rate Schedule

The proposed rate structure was developed collaboratively by the Consultant and the Division, with input from City Council that was obtained during the four study sessions that occurred in 2023. Table 3-6 shows the proposed Bi-Monthly Minimum charge for each meter size.

The proposed rate structure is based on the following goals:

1. Balance revenue stability of higher fixed charges with financial impacts to rate payers that occur when fixed charges are raised.
2. Collect 28% of revenues from fixed charges.
3. Maintain the two-tiered increasing block Commodity Delivery Charge structure. The first tier includes locally produced groundwater. The second tier includes both locally produced ground water and imported water.
4. Discontinue the Low-Water User discount.
5. Maintain the Senior CARE discount of \$10 per billing period.

Table 3-6: Proposed Bi-Monthly Minimum Charges

Meter Size	Current	Proposed Bi-Monthly Minimum Charges				
		1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
5/8 x 3/4"	\$33.85	\$35.10	\$38.23	\$40.47	\$42.84	\$43.68
1"	\$50.48	\$54.54	\$61.54	\$65.77	\$70.29	\$72.39
1-1/2"	\$78.20	\$87.28	\$100.39	\$107.95	\$116.05	\$120.24
2"	\$111.45	\$126.55	\$147.01	\$158.57	\$170.96	\$177.65
3"	\$200.15	\$231.29	\$271.34	\$293.55	\$317.38	\$330.77
4"	\$299.92	\$349.13	\$411.20	\$445.40	\$482.10	\$503.03
6"	\$577.08	\$676.44	\$799.72	\$867.20	\$939.66	\$981.52
8"	\$909.67	\$1,069.22	\$1,265.94	\$1,373.37	\$1,488.73	\$1,555.71
10"	\$1,353.12	\$1,592.92	\$1,887.56	\$2,048.26	\$2,220.83	\$2,321.29

Table 3-7 shows the current and proposed Bi-Monthly Capital Improvement Charge for each meter connection size. The Capital Improvement Charge is increased to provide additional funds to complete the CIP. However, even at the proposed FY 27/28 charges, the Capital Improvement Charge does not fully fund the CIP; a portion of the other water rate revenues will also provide the needed revenue. This is evidenced by the continued transfers from Fund 601 (Water Operations) to Fund 603 (Water Replacement), and by the use of revenue bond proceeds in Fund 602 (Water Capital) (see Tables 2-10 and 2-11).

Table 3-7: Proposed Bi-Monthly Capital Improvement Charge

Meter Size	Current	Proposed Bi-Monthly Capital Improvement Charge				
		1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
5/8 x 3/4"	\$7.00	\$7.45	\$7.92	\$8.43	\$8.97	\$9.20
1"	\$17.50	\$18.62	\$19.81	\$21.08	\$22.43	\$22.99
1-1/2"	\$35.00	\$37.24	\$39.62	\$42.16	\$44.85	\$45.98
2"	\$56.00	\$59.58	\$63.39	\$67.45	\$71.77	\$73.56
3"	\$112.00	\$119.16	\$126.79	\$134.90	\$143.53	\$147.12
4"	\$175.00	\$186.19	\$198.10	\$210.78	\$224.27	\$229.88
6"	\$350.00	\$372.37	\$396.21	\$421.56	\$448.54	\$459.76
8"	\$560.00	\$595.80	\$633.93	\$674.50	\$717.67	\$735.61
10"	\$840.00	\$893.70	\$950.89	\$1,011.75	\$1,076.50	\$1,103.41

Table 3-8 shows the proposed Commodity Delivery Charges. The proposed charges retain the existing two-tiered rate structure. The proposed Commodity Delivery Charges do not include future increases in water supply costs from MWD and OCWD. These future increases will be recovered through annual Commodity Delivery Charge pass-through adjustments.

Table 3-8: Proposed Commodity Delivery Charges

	Current	Proposed Commodity Delivery Charges				
		1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
Tier 1	\$3.26	\$3.40	\$3.53	\$3.83	\$4.14	\$4.27
Tier 2	\$4.80	\$5.29	\$5.67	\$5.84	\$6.02	\$6.10

Tier 1 is based on the cost of locally produced groundwater. Tier 2 is based on the cost of locally produced ground water and imported water. Additional detail on rate tier calculations is included in Appendix C. Table 3-9 defines the amount of water in the first tier, for each meter connection size. The amount of water included in Tier 1 is unchanged from current City Ordinance. The proposed rate structure is intended to be consistent with the requirements of Proposition 218.

Table 3-9: Tier 1 Water Use Allowance

Meter Size (inches)	Bi-Monthly Water Use Included in Tier 1, hcf
5/8 x 3/4"	33
1"	83
1-1/2"	165
2"	264
3"	528
4"	825
6"	1,650
8"	2,640
10"	3,960

Table 3-10 shows the proposed Private Fire Service rates. These rates recover costs associated with transmission, distribution and storage that are related to providing fire protection services to private fire service connections.

Table 3-10: Proposed Private Fire Service Rates

Meter Size	Current	Proposed Private Fire Service Rates				
		1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
1-1/2"	\$2.99	\$3.42	\$3.84	\$4.09	\$4.35	\$4.46
2"	\$6.38	\$7.28	\$8.18	\$8.70	\$9.26	\$9.49
3"	\$18.55	\$21.16	\$23.77	\$25.29	\$26.91	\$27.58
4"	\$39.51	\$45.09	\$50.67	\$53.91	\$57.36	\$58.79
6"	\$114.76	\$130.97	\$147.17	\$156.59	\$166.61	\$170.78
8"	\$244.55	\$279.09	\$313.62	\$333.69	\$355.05	\$363.93
10"	\$439.79	\$501.90	\$564.01	\$600.11	\$638.52	\$654.48

3.3 Senior CARE Discount

The Division currently has a Low-Water User Discount in place. Currently, customers that use 3 hcf or less per month, or 6 hcf or less per billing period, only pay the minimum charge. They do not pay the Commodity Charge or the Capital Improvement Fee. The Low-Water User Discount program will be discontinued upon the effective date of the revised rate ordinance, if adopted by Council.

The Division has a Low-Income/Senior Discount, now called the Senior CARE Discount, intended to partially mitigate the financial impacts of the higher fixed charges. This proposed discount program has the following eligibility criteria:

1. Resident must live at the billing address.
2. The water bill must be in the resident's name.
3. The resident must be 65 years of age or older.
4. The resident must be enrolled in Southern California Edison's CARE program.

The Senior CARE Discount is \$10 per billing period. This program is funded using non-rate revenues, such as late fees. The FY 22/23 budget has \$170,000 in the budget for the Senior CARE Discount.

Section 4

Example Bi-Monthly Water Bill Comparison

4.1 Introduction

In this Section, example Bi-Monthly Water Bills are shown for the typical single-family household consuming 11 hcf per month, or 22 hcf per billing period. Bi-monthly water bills are also shown for an example 50-unit multi-family property using 18 hcf per unit per billing period, and an example commercial connection with a 2" meter, consuming 500 hcf per bi-monthly billing period.

A Bi-Monthly water bill includes a Bi-Monthly minimum charge, a Capital Improvement Charge, plus a Commodity Delivery Charge. All example bills are shown using the proposed rate schedules in Section 3. Table 3-6, Proposed Bi-Monthly Minimum Charges, Table 3-7 Proposed Bi-Monthly Capital Improvement Charge, and Table 3-8, Proposed Commodity Delivery Charges. Table 3-9 Define Amount of Water in First Tier is also used to show the number of hcf to be included in the first tier, per bi-monthly billing period.

4.2 Example Bi-Monthly Bills

Table 4-1 shows the proposed Bi-Monthly bill that includes the Bi-Monthly Minimum Charge, Capital improvement Charge, and Commodity Delivery Charges, for a typical 5/8" x 3/4" meter connection. These example bills do not include future Commodity Delivery Charge pass-through adjustments.

Table 4-1. Proposed Rate Structure for a Typical 5/8" x 3/4" Meter

	Current	Single-Family Residence, 22 hcf Bi-Monthly Water Use Proposed Bi-Monthly Water Bill				
		1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
Bi-Monthly Minimum Charge	\$33.85	\$35.10	\$38.23	\$40.47	\$42.84	\$43.68
Commodity Delivery Charge	\$71.72	\$74.80	\$77.66	\$84.26	\$91.08	\$93.94
Capital Improvement Charge	\$7.00	\$7.45	\$7.92	\$8.43	\$8.97	\$9.20
Total	\$112.57	\$117.34	\$123.81	\$133.16	\$142.89	\$146.81
% Increase		4.2%	5.5%	7.5%	7.3%	2.7%

Table 4-2 shows an example water bill for a 50-unit multi-family building with a 3" meter, using 18 hcf per unit per bi-monthly billing period.

Table 4-2. Example Water Bill for a 3" Meter, 18 hcf Bi-Monthly use per unit, 50 Unit Multi-Family

	Current	Multi-Family 50 Units, 3" Meter, 18 hcf Bi-Monthly Water Use Proposed Bi-Monthly Water Bill				
		1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
Bi-Monthly Minimum Charge	\$200	\$231	\$271	\$294	\$317	\$331
Commodity Delivery Charge	\$3,507	\$3,763	\$3,973	\$4,195	\$4,425	\$4,524
Capital Improvement Charge	\$112	\$119	\$127	\$135	\$144	\$147
Total	\$3,819	\$4,114	\$4,371	\$4,623	\$4,886	\$5,002
% Increase		7.7%	6.3%	5.8%	5.7%	2.4%

Table 4-3 shows an example water bill for a commercial customer with a 2" meter, consuming 500 hcf per bi-monthly billing period.

Table 4-3: Water Bill Comparisons: Commercial Customer, 2" Meter, 500 hcf Bi-Monthly Water Use

	Current	Example Commercial, 2" Meter, 500 hcf Bi-Monthly Water Use Proposed Bi-Monthly Water Bill				
		1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
Bi-Monthly Minimum Charge	\$111	\$127	\$147	\$159	\$171	\$178
Commodity Delivery Charge	\$1,630	\$1,700	\$1,765	\$1,915	\$2,070	\$2,135
Capital Improvement Charge	\$56	\$60	\$63	\$67	\$72	\$74
Total	\$1,797	\$1,886	\$1,975	\$2,141	\$2,313	\$2,386
% Increase		4.9%	4.7%	8.4%	8.0%	3.2%

4.3 Comparison with Other Utilities

To be included in the next draft

Figure 4-1 shows a comparison of bi-monthly water bills for Garden Grove and six other local utilities. The utilities used in the comparison are Golden State Water Company in west Orange County, City of Westminster, Fountain Valley, City of Orange, Anaheim, and Santa Ana.

This graph shows the bi-monthly water bill for a single-family residence with a 5/8" x 3/4" water meter, at monthly consumption ranging from 0 to 60 hcf/billing period. This graph shows that Garden Grove's water rates are in the middle of the pack, compared with these six other utilities.

Figure 4-1 shows proposed water bills effective in January 2024, including the proposed 1/1/24 Garden Grove rate structure. Proposed water bills beyond 2024 are not shown in Figure 4-1. This is because it can be misleading to compare future rates with other utilities' current rates. Additional information regarding the other utilities' rates is found in the paragraphs below Figure 4-1.

The six neighboring utilities all periodically review and update their water rate schedules. Specifics regarding each of the utilities are:

- Anaheim. Water service is provided by the Anaheim Public Utilities. Anaheim's published rate schedules contain rates that were adopted in 2019 with rate increases approved for each year through 2023. The City's website does not contain adopted rate increases beyond 2023.
- Fountain Valley. Water service is provided by the City of Fountain Valley. In 2018, the City adopted a five-year schedule of rates with rate increases effective through 2022. The current water rates have been effective since July 1, 2022.
- Orange. Water service is provided by the City of Orange. In 2023, the City completed a Water Rate Study and adopted a five-year schedule of rates through 2027. The rates effective 1/1/24 are shown in Figure 4-1. Additional 4 percent annual revenue increases through 2027 are incorporated into the adopted rate schedule.
- Santa Ana. Water service is provided by the City of Santa Ana. In 2019, the City of Santa Ana adopted a five-year schedule of rates with rate increases through 7/1/23.
- Stanton. Water service is provided by Golden State Water, and water rates are regulated by the California Public Utilities Commission (PUC). In 2023, the PUC approved the current rates. In 2023, Golden State Water submitted a General Rate Case for proposed rates effective in 2025, 2026, and 2027.
- Westminster. Water service is provided by the City of Westminster. In 2021, the City adopted a five-year schedule of rates that contains rate increases through 2025. The rates effective 1/1/24 are shown in Figure 4-1. On 1/1/25, water rates will increase approximately 6 percent.

Based on the dates of the rate structure adoption from the surrounding utilities, many of the neighboring utilities likely have not yet fully incorporated the costs of PFAS treatment into their rates. The Cities of Anaheim, Orange,

Santa Ana, and Westminster have a pass-through adjustment procedure similar to Garden Grove’s Commodity Delivery Charge Pass-Through Adjustment.

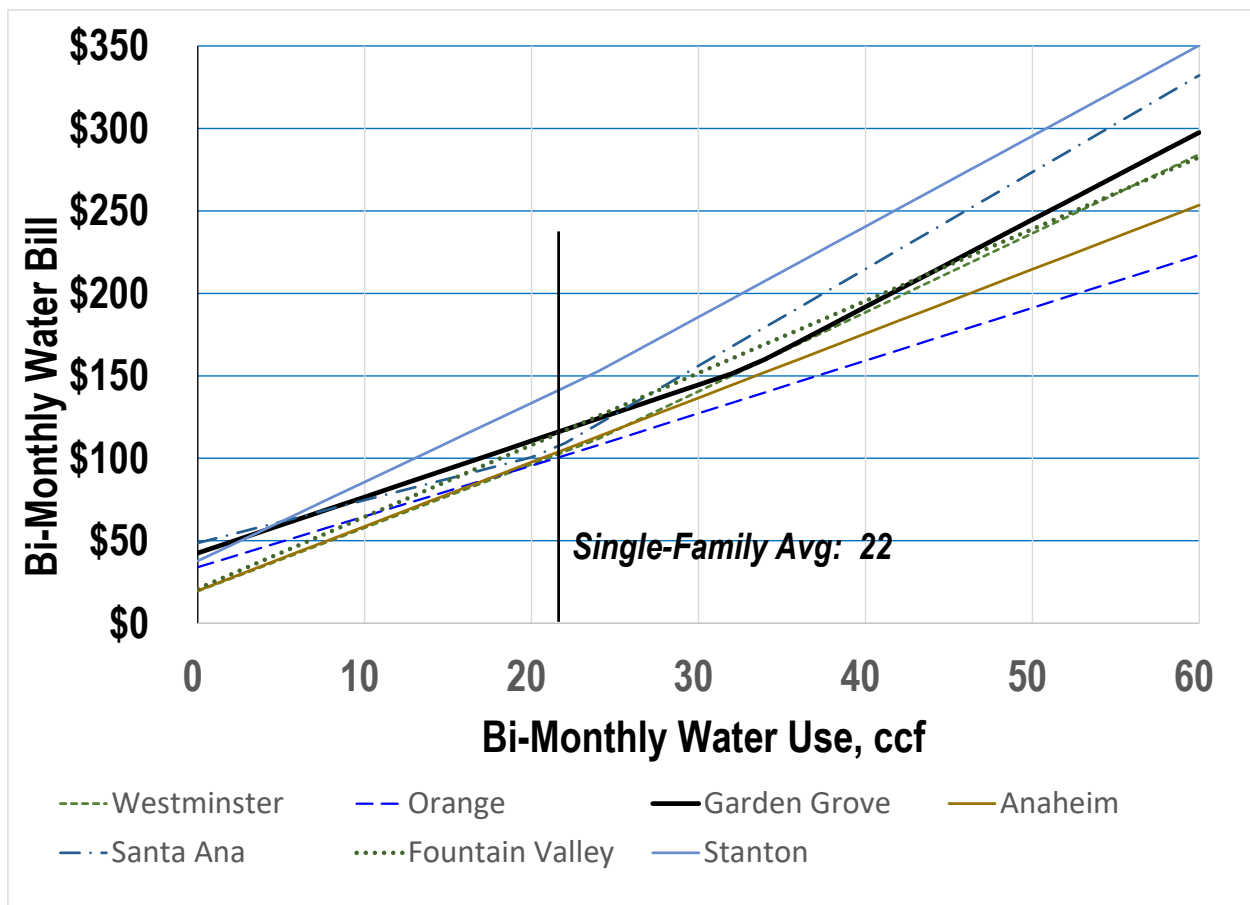


Figure 4-1: Water Bill Comparison of Local Utilities

Section 5

Ongoing Considerations

This Rate Study and the projected rate schedule shown in Section 3 cover a Rate Study planning period through FY 27/28. There are a number of factors that will change over the next few years that have financial implications. The extent to which these factors change will influence the financial condition of the water system and the Division's next review of water rates.

The Department should continue to monitor its financial status on an ongoing basis, and should continue to monitor the following:

- Water consumption patterns. Financial projections are based on an overall water demand of 19,773 acre-feet per year. Changes in water demand patterns will affect revenues and the overall financial condition of the utility. If water demands differ from 19,773 acre-feet per year, the Division will need to make appropriate adjustments to capital project scheduling, debt issuance, and/or rates.
- Customer growth. This Rate Study assumes no customer growth through FY 27/28. Customer growth increases the size of the customer base and customer growth would result in higher rate revenues.
- Changes in regional water supply availability and pricing. The proposed Commodity Delivery Charges do not incorporate future increases in the cost of purchased water and increases in OCWD's Replenishment Assessment associated with locally produced groundwater. The Division will need to monitor these costs and continue to adjust the Commodity Delivery Charge Pass Through Adjustment on an annual basis.
- Capital project cost certainty. The Capital Improvement Plan contains estimates of future project costs. The actual costs will not be known until the projects are designed, bid, and built.
- PFAS O&M. As the Division gains experience with operating the PFAS treatment facilities, it will be better able to project ion exchange resin changeout schedules. The actual ion exchange resin changeout schedules may result in PFAS O&M costs that differ from what is projected in this rate study.
- Inflation rates. The projected rates are based on a 2.5 percent annual inflation rate for most items, and a 4.0 percent annual inflation rate for salaries and wages. Deviations in inflation rates from these values will have financial implications.
- Senior CARE Program participation. The Division will need to monitor the participation rate and make appropriate adjustments (if needed) to the amount of the discount and/or the funding source.

Section 6

Appendix A: Revenue Requirement

FINAL
City of Garden Grove Water Services Department
2023 Water Rate Study
OCTOBER 2023

Appendix A - Revenue Requirement

Table A-1	General Assumptions and Parameters
Table A-2	Metered Water Production, Water Consumption and Connection Data
Table A-3	Adopted Water Rates per Ordinance 2890
Table A-4	Projected Water Costs Using FY 23/24 OCWD and MWD Costs
Table A-5	Projected Increases in Water Costs to be Recovered from Future Pass-Through Adjustments
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Table A-7	Existing and Future Debt Service
Table A-8	Water Utility Operating Statement
Table A-9	Revenue Calculations
Table A-10	Capital Improvement Plan

Appendix B - Cost of Service

Table B-1	Water System Cost-of-Service Analysis, FY 23/24 - Functionalization Factors
Table B-2	Not Used
Table B-3	Water System Cost-of-Service Analysis - Functionalization of Phase 1 CIP
Table B-4	Water System Cost-of-Service Analysis, FY 17/18 - Functionalization of Debt Service Payments
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Table B-6	Water System Cost-of-Service Analysis, FY 23/24 - Functionalization of Rate Revenue Requirement
Table B-7	Water Cost-of-Service Analysis - Allocation Factors
Table B-8	Water Cost-of-Service Analysis - Allocation of Rate Revenue Requirement
Table B-9	Water Cost-of-Service Analysis - Re-Allocate Public Fire Protection Costs
Table B-10	Identification of Costs to be Included in Rate Tier Calculations
Table B-11	Supporting Calculations for Cost-of-Service Analysis

Appendix C - Rate Design

Table C-1	Rate Design Calculations
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Table A-1
City of Garden Grove Water Services Department
2023 Water Rate Study

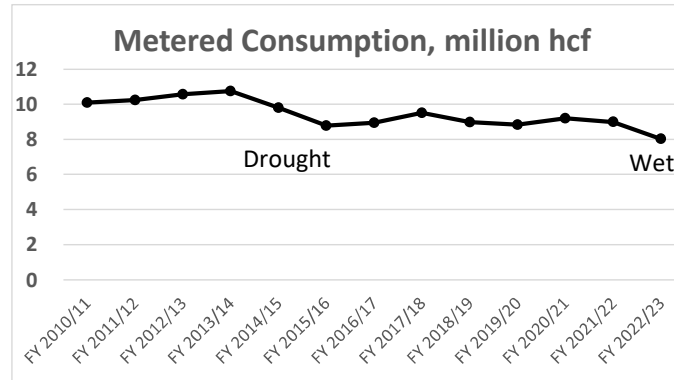
General Assumptions and Parameters

Line No	General Assumptions and Parameters									
1	Round		-1							
2										
3										
4										
				FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28	Notes
5	General Inflation			4.0%	0.0%	4.0%	2.5%	2.5%	2.5%	1
6	Salaries and Wages Escalation			4.0%	0.0%	4.0%	4.0%	2.5%	2.5%	1, 2
7	CIP Escalation			5.0%	0.0%	4.0%	2.5%	2.5%	2.5%	1
8	Interest Income Percentage				0.65%	0.65%	0.65%	0.65%	0.5%	3
9										
10	Notes:									
11	(1) Federal OMB inflation projections developed March 2023 project approximately 4% inflation in 2024, and									
12	subsequent reductions to approximately 2.5%.									
13	(2) The City has MOUs in place with all labor groups through FY 25/26 that have an approximate average annual 4% increase in salary									
14	and benefits costs. Source: City staff, 10/25/22.									
15	(3) Based on the interest income in the City's FY 22/23 budget (\$151,683) divided by the projected 6/30/23 combined									
16	601, 602, and 603 Fund Balance of approximately \$40M, plus 0.25% to acknowledge increased interest rates since the FY 22/23 budget was prepared.									
17										
18										
19	Water Supply in Acre-feet, per Fiscal Year									
20	FY 23/24	19,773		Projected supply. Based on actual Calendar Year 2022 data.						
21	FY 24/25 and subsequent years	19,773		Projected supply. Based on actual Calendar Year 2022 data.						
22										
23										
24	Intercity Loan Repayment									
25	Repayment Period (Years)	15								
26										
27										
28	Debt Issuance Terms									
29	Revenue Bond									
30	Annual Interest Rate (%)			5.0%						
31	Repayment Period (Years)			30						
32	Capitalized Bond Reserve (% of Proceeds)			8.75%						
33	Cost of Issuance (%)			2.0%						

Table A-2
City of Garden Grove Water Services Department
2023 Water Rate Study

1 **Historical Metered Consumption by Fiscal Year**

	Metered Consumption,	
	FY	million hcf
5	FY 2010/11	10.1
6	FY 2011/12	10.2
7	FY 2012/13	10.6
8	FY 2013/14	10.8
9	FY 2014/15	9.8
10	FY 2015/16	8.8
11	FY 2016/17	8.9
12	FY 2017/18	9.5
13	FY 2018/19	9.0
14	FY 2019/20	8.8
15	FY 2020/21	9.2
16	FY 2021/22	9.0
17	FY 2022/23	8.0



19 **Calendar Year 2022 and 2023 (YTD) Metered Consumption**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
20												
21	2022	638,134	630,867	733,436	741,714	792,211	789,374	833,033	826,200	763,598	819,056	
22	2023	578,764	509,035	578,541	609,587	668,150	615,863				633,123	595,543

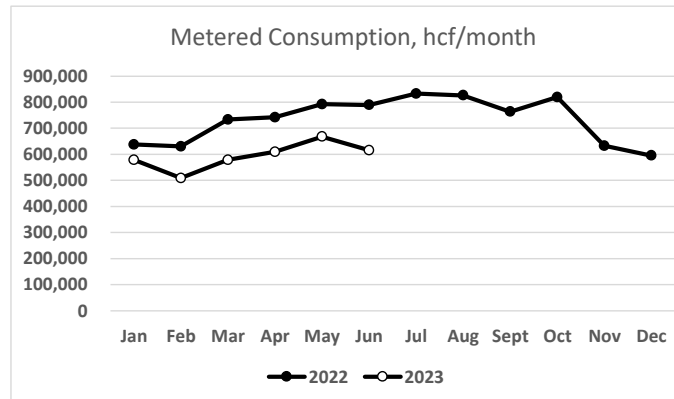


Table A-2
City of Garden Grove Water Services Department
2023 Water Rate Study

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44 **Water Consumption Data by Customer Class, Calendar Year 2022**

45

46	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	Total
47	January	February	March	April	May	June	July	August	September	October	November	December		
48	Agriculture	37	61	78	100	103	117	127	134	124	72	70	37	1,060
49	Car wash	1,184	1,193	1,363	1,456	1,616	1,981	2,409	2,244	1,884	1,394	1,126	967	18,817
50	Church	1,721	1,615	2,093	2,288	2,603	2,803	2,696	2,496	2,385	2,207	1,682	1,491	26,080
51	Commercial	83,164	80,772	91,197	89,180	93,322	90,048	94,488	94,222	91,926	191,447	84,302	83,523	1,167,591
52	Duplex	4,236	3,849	4,239	4,163	4,323	4,418	4,662	4,724	4,384	4,358	3,947	3,953	51,256
53	Hospital	4,037	3,994	4,621	4,613	4,934	4,841	5,142	4,978	4,760	4,671	4,291	4,030	54,912
54	Hotel/Motel	19,996	19,748	22,555	22,544	24,651	24,712	25,746	24,603	24,372	24,068	22,449	20,972	276,416
55	Industrial	17,966	16,350	18,425	18,205	18,858	18,785	20,772	20,940	19,922	18,332	17,016	14,817	220,388
56	Landscape	16,219	19,750	24,902	26,350	29,630	30,418	31,385	30,655	27,285	23,793	18,524	14,268	293,179
57	Laundromat	2,857	2,541	2,766	2,668	2,739	2,491	2,436	2,417	2,377	2,481	2,619	2,765	31,157
58	Multi-unit	149,788	142,280	159,010	152,772	160,433	155,907	163,619	162,625	155,785	153,772	143,690	142,363	1,842,044
59	Private school	968	1,141	1,350	1,452	1,788	2,021	2,202	2,281	1,958	1,564	1,076	757	18,558
60	Public school	17,742	34,878	47,602	59,273	65,832	68,485	76,297	76,028	60,683	44,484	29,427	13,692	594,423
61	Public school other	785	1,024	1,536	2,150	2,432	2,613	2,684	2,533	2,043	1,521	1,027	511	20,859
62	Sewer/Septic	336	309	385	400	421	420	439	466	447	407	340	319	4,689
63	Single family home	316,617	300,919	350,816	353,649	378,208	379,433	397,933	394,754	363,403	344,923	301,814	291,114	4,173,583
64	Townhome	481	443	498	464	456	465	484	474	471	473	434	463	5,606
65	Total	638,134	630,867	733,436	741,727	792,349	789,958	833,521	826,574	764,209	796,870	633,834	596,042	8,777,521

66
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68 **Water Consumption Data by Customer Class, Calendar Year 2023**

69

70	2023	2023	2023	2023	2023	2023
71	January	February	March	April	May	June
72	Agriculture	27	27	32	59	79
73	Car wash	874	798	968	1,140	1,298
74	Church	1,333	1,056	1,208	1,397	1,601
75	Commercial	82,656	75,223	85,637	85,662	90,848
76	Duplex	3,823	3,401	3,731	3,688	4,020
77	Hospital	4,099	3,937	4,425	4,024	4,332
78	Hotel/Motel	21,442	18,346	21,136	21,583	23,278
79	Industrial	15,066	13,685	15,414	15,607	16,125
80	Landscape	11,901	9,650	11,349	14,956	18,475
81	Laundromat	2,861	2,551	2,824	2,663	2,761
82	Multi-unit	141,704	124,452	141,454	141,146	148,608
83	Private school	675	622	714	893	1,119
84	Public school	13,454	10,414	12,449	26,186	28,934
85	Public school other	529	454	558	1,075	1,140
86	Sewer/Septic	291	261	295	302	345
87	Single family home	277,557	243,741	275,868	288,734	324,701
88	Townhome	472	417	479	472	486
89	Total	578,764	509,035	578,541	609,587	668,150

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Table A-2
City of Garden Grove Water Services Department
2023 Water Rate Study

91

92 **Tier 1 and Tier 2 Consumption, FY 22/23**

93

	Amount	% of Total
94 Tier 1 Revenue	\$18,879,901	
95 Tier 1 Unit Cost	\$3.26	
96 Tier 1 Consumption	5,791,381	73.54%
97		
98 Tier 2 Revenue	9,999,982	
99 Tier 2 Unit Cost	5	
100 Tier 2 Consumption	2,083,330	26.46%
101		
102 Total Consumption	7,874,710	100.00%

103

104

105 Total consumption is calculated based on revenues divided by the rate.

106 The revenue shown is for the entire FY 22/23.

107 The rate shown is effective 1/1/23, reflecting a pass through adjustment effective 1/1/23.

108 The rate applicable for the first half of FY 22/23 is not used in this calculation.

109 The calculation methodology will result in a lower consumption than actually occurred, but the

110 ratio of Tier 1` to Tier 2 consumption should be reasonable.

111

112

113 **July-Feb consumption as % of 12-Month Total (FY 22/23)**

114 Use of this data in the model: data is used for revenue projections when rate increases occur in the middle of a fiscal year.

115

	Unadjusted for Conservation, ccf
116 Jul-Feb total	5,538,849
117 Fiscal Year total	8,010,990
118 Jul-Feb as % of FY	69.14%

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Table A-2
City of Garden Grove Water Services Department
2023 Water Rate Study

123 **Projected Metered Water Consumption: FY 23/24 - FY 27/28 = FY 22/23**

	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
126 Unadjusted for Conservation	8,010,990	8,010,990	8,010,990	8,010,990	8,010,990	8,010,990
127 Conservation Adjustment		0.00%	0.00%	0.00%	0.00%	0.00%
128 Adjusted for Conservation	8,010,990	8,010,990	8,010,990	8,010,990	8,010,990	8,010,990
130 % July-Feb	69.14%	69.14%	69.14%	69.14%	69.14%	69.14%
131 % Mar-June	30.86%	30.86%	30.86%	30.86%	30.86%	30.86%
133 % Tier 1	73.54%	73.54%	73.54%	73.54%	73.54%	73.54%
134 % Tier 2	26.46%	26.46%	26.46%	26.46%	26.46%	26.46%
136 July-Feb ccf						
137 Tier 1	4,073,457	4,073,457	4,073,457	4,073,457	4,073,457	4,073,457
138 Tier 2	1,465,342	1,465,342	1,465,342	1,465,342	1,465,342	1,465,342
139 Mar-June ccf						
140 Tier 1	1,818,150	1,818,150	1,818,150	1,818,150	1,818,150	1,818,150
141 Tier 2	654,042	654,042	654,042	654,042	654,042	654,042
142 Total	8,010,990	8,010,990	8,010,990	8,010,990	8,010,990	8,010,990

145 **FY 22/23 Number of Water System Connections**

FY 22/23 Connections Billed by Meter Size (1)				Number of Water Connections (FY 22/23) (Excludes Fire Service Connections)			
All Accounts		Fire Service		Meter		No. of Connections	
Meter size	Count	Connection Size (in)	No. of Connections	Size (in)	Excluding City	City	Total
None	4	None	0	None		4	
5/8"x3/4"	28,529	5/8"x3/4"	0	5/8"x3/4"		28,529	
1"	3,826	1"	0	1"		3,826	
1 1/2"	867	1 1/2"	3	1 1/2"		864	
2"	755	2"	26	2"		729	
3"	60	3"	3	3"		57	
4"	239	4"	114	4"		125	
6"	318	6"	262	6"		56	
8"	179	8"	177	8"		2	
10"	10	10"	10	10"		0	
Total	34,787	Total	595	Total		34,192	

Table A-2
City of Garden Grove Water Services Department
2023 Water Rate Study

Customer Class	FY 22/23 Connections Billed By Meter Size									
	None	5/8"x3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	10"
Agriculture					1					
Car Wash				2	7					
Church		8	12	15	12	1	1			
Commercial		519	493	290	280	13	12	4		
Duplex		173	74	3						
Fire service				3	26	3	114	262	177	10
Hospital		1	1		4	2	3			
Hotel/Motel			2	1	8	1	6	10		
Industrial		65	83	86	50	3	6	2		
Landscape		23	96	94	146	6				
Laundromat			1	350	11					
Multi-unit		62	813	4	149	25	39	26		
Private school		1	4		5		2			
Public school				1	9	6	46	5		
Public school-FS					42		1	9	2	
Public school other							4			
Sewer/Septic		35	3	1	1					
Single family home	4	27,622	2,185	17	4		1			
Townhome		20	59				4			
Totals	4	28,529	3,826	867	755	60	239	318	179	10

(1) Source: City staff 3/27/2023

Table A-2
City of Garden Grove Water Services Department
2023 Water Rate Study

213 **Historical Water Production, Acre Feet per Year**

214		
215	FY 19/20	21,979
216	FY 20/21	23,164
217	FY 21/22	22,105
218	Nov 21 - Oct 22	21,385
219	CY 22	21,385
220	FY 22/23	19,773

223 **Actual Water Production, Calendar Year 2022**

224		2022												
225		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
226	Local Groundwater													
227	Non-PFAS wells (16, 20, 22, 25, 26, 2	971	752	723	446	283	981	643	673	943	381	555	805	8,158
228	Well 21	324	326	363	350	346	276	339	328	341	316	314	344	3,969
229	Lampson (Wells 23, 28, 31)	194	152	174	142	121	207	162	71	0	0	0	0	1,223
230	Well 30	0	0	0	1	0	8	68	304	30	51	295	284	1,040
231	Well 19	0	0	0	0	0	0	0	0	0	0	0	0	0
232	Well 29	0	0	1	11	0	0	0	0	0	0	0	0	12
233	Subtotal, Local Groundwater	1,490	1,230	1,261	951	750	1,472	1,212	1,377	1,314	749	1,164	1,434	14,403
234														
235	Imported Water	19	295	530	761	1,233	515	859	713	637	1,028	368	24	6,982
236														
237	Total Water Production	1,509	1,525	1,791	1,712	1,983	1,987	2,070	2,090	1,951	1,778	1,531	1,458	21,385
238														
239	% of Water Production													
240	Local Groundwater	99%	81%	70%	56%	38%	74%	59%	66%	67%	42%	76%	98%	67%
241	Purchased	1%	19%	30%	44%	62%	26%	41%	34%	33%	58%	24%	2%	33%
242	Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

243 Source: City, 4Q 2022

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Table A-2
City of Garden Grove Water Services Department
2023 Water Rate Study

246 **"Baseline" Water Production, FY 22/23, Prior to Conservation Adjustment**

247 Use of this data in the model: this data is used to project water purchase, water production, and PFAs treatment expense projections.

248 Key assumptions:

- 249 1. July 2022 - June 2023 = Actual Production Data. (Source: City staff, 8/10/23)
- 250 2. Adjusted FY 22/23 Production = Actual FY 22/23 Prouction
- 251 3. Local Groundwater production adjusted to that annual total % Local Groundwater = 85%. (Source: City staff, 5/4/23)
- 252 4. Jan-Jun imported water = 0, to approximately match FY 22/23 actual.

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	Actual 2022						Actual	Actual (1)	Adjusted FY 22/23 Production so BPP = 85% Prior to Conservation Adjustment		
	Jul	Aug	Sep	Oct	Nov	Dec	Jan-Jun23	FY 22/23	Jul-Dec	Jan-Jun	Total
Local Groundwater											
Non-PFAS (16, 20, 22, 25, 26, 27)	643	673	943	381	555	805	5,210	9,211	4,367	5,214	9,594
Well 21	339	328	341	316	314	344	1,772	3,755	2,164	1,774	3,911
Lampson (Wells 23, 28, 31)	162	71	0	0	0	0	23	257	255	23	268
Well 30	68	304	30	51	295	284	1,237	2,269	1,126	1,238	2,363
Well 19	0	0	0	0	0	0	0	0	0	0	0
Well 29	0	0	0	0	0	0	645	645	0	646	672
Subtotal, Local Groundwater	1,212	1,377	1,314	749	1,164	1,434	8,887	16,136	7,912	8,895	16,807
Imported Water	859	713	637	1,028	368	24	8	3,637	2,966	0	2,966
Total Water Production	2,070	2,090	1,951	1,778	1,531	1,458	8,895	19,773	10,878	8,895	19,773
% of Water Production											
Local Groundwater	59%	66%	67%	42%	76%	98%	99.9%	81.6%	73%	100%	85%
Purchased	41%	34%	33%	58%	24%	2%	0.1%	18.4%	27%	0%	15%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table A-2
City of Garden Grove Water Services Department
2023 Water Rate Study

276 **Projected Water Production by Source**

277	FY 23/24			FY 24/25		
	2023	2024	Total	2024	2025	Total
279	Jul - Dec	Jan - Jun	FY 23/24	Jul - Dec	Jan - Jun	FY 24/25
280	Conservation Adjustment	0%	0%	0%	0%	0%
281						
282	Local Groundwater (1) (2) (3)					
283	Non-PFAS wells	1,948	2,931	1,948	2,400	4,348
284	Well 21	1,637	1,637	1,637	1,637	3,273
285	Lampson (Wells 23, 28, 31)	1,831	1,831	1,831	1,831	3,662
286	Well 30	1,110	1,110	1,110	1,110	2,219
287	Well 19	0	0	0	532	532
288	Well 29	1,387	1,387	1,387	1,387	2,774
289	Subtotal, Local Groundwater	7,912	8,895	7,912	8,895	16,807
290						
291	Imported Water	2,966	0	2,966	0	2,966
292						
293	Total Water Production	10,878	8,895	10,878	8,895	19,773
294						
295	% of Water Production					
296	Local Groundwater	73%	100%	73%	100%	85%
297	Purchased	27%	0%	27%	0%	15%
298	Total	100%	100%	100%	100%	100%
299						

Table A-2
City of Garden Grove Water Services Department
2023 Water Rate Study

	FY 25/26			FY 26/27 (2)			FY 27/28 (2)			
	2025 Jul - Dec	2026 Jan - Jun	Total FY 25/26	2026 Jul - Dec	2027 Jan - Jun	Total FY 26/27	2027 Jul - Dec	2028 Jan - Jun	Total FY 27/28	
300										
301										
302										
303	Conservation Adjustment	0%	0%	0%	0%	0%	0%	0%	0%	
304										
305	Local Groundwater (1) (2) (3)									
306	Non-PFAS wells (16)	1,052	0	1,052	0	0	0	0	0	
307	Well 21	1,637	1,637	3,273	1,470	1,467	2,938	1,470	1,467	2,938
308	Lampson (Wells 23, 28, 31)	1,831	1,831	3,662	1,553	1,553	3,107	1,553	1,553	3,107
309	Well 30	1,110	1,110	2,219	943	943	1,886	943	943	1,886
310	Well 19	555	555	1,110	444	444	888	444	444	888
311	Well 29	1,387	1,387	2,774	1,276	1,276	2,552	1,276	1,276	2,552
312	Well 22	0	610	610	610	610	1,221	610	610	1,221
313	Well 26	0	555	555	555	555	1,110	555	555	1,110
314	Well 27	0	610	610	610	610	1,221	610	610	1,221
315	Well 16 (no PFAs treatment)	0	0	0	0	0	0	0	0	0
316	Well 20	0	666	666	666	666	1,331	666	666	1,331
317	Well 25	0	277	277	277	277	555	277	277	555
318	Subtotal, Local Groundwater	7,570	9,237	16,807	8,405	8,402	16,807	8,405	8,402	16,807
319										
320	Imported Water	2,966	0	2,966	2,966	0	2,966	2,966	0	2,966
321										
322	Total Water Production	10,878	8,895	19,773	10,878	8,895	19,773	10,878	8,895	19,773
323										
324	% of Water Production									
325	Local Groundwater	70%	104%	85%	77%	94%	85%	77%	94%	85%
326	Purchased	27%	0%	15%	27%	0%	15%	27%	0%	15%
327	Total	97%	104%	100%	105%	94%	100%	105%	94%	100%

Notes:

(1) Source: City staff, 5/30/23. City data projects 18,177 AFY, based on a BPP of 85% and CY 2022 production of 21,385 AFY.

In August 2023, City staff provided direction that the Rate Study should be based on FY 22/23 production of 19,773 AF. The projected production from each source was reduced proportionally from the City's 5/30/23 data to match the lower production observed in FY 22/23.

In some years, non-PFAS well production adjusted to make half-year totals match FY 22/23 production data from groundwater and imported water.

(2) FY 26/27 and FY 27/28: 3 AF subtracted from Well 21 production to make resulting groundwater production = projected production with 85% BPP.

Table A-3
City of Garden Grove Water Services Department
2023 Water Rate Study

Adopted Water Rates per Ordinance 2890

Table A-3A
Adopted Bi-Monthly Minimum Charge

Line	Meter Size (inches)	Per Ordinance 2890 Without Any Subsequent Increases					
		1/1/23	1/1/24	1/1/25	1/1/26	1/1/27	1/1/28
1	5/8 x 3/4"	\$33.85	\$33.85	\$33.85	\$33.85	\$33.85	\$33.85
2	1"	\$50.48	\$50.48	\$50.48	\$50.48	\$50.48	\$50.48
3	1-1/2"	\$78.20	\$78.20	\$78.20	\$78.20	\$78.20	\$78.20
4	2"	\$111.45	\$111.45	\$111.45	\$111.45	\$111.45	\$111.45
5	3"	\$200.15	\$200.15	\$200.15	\$200.15	\$200.15	\$200.15
6	4"	\$299.92	\$299.92	\$299.92	\$299.92	\$299.92	\$299.92
7	6"	\$577.08	\$577.08	\$577.08	\$577.08	\$577.08	\$577.08
8	8"	\$909.67	\$909.67	\$909.67	\$909.67	\$909.67	\$909.67
9	10"	\$1,353.12	\$1,353.12	\$1,353.12	\$1,353.12	\$1,353.12	\$1,353.12

Table A-3B
Adopted Bi-Monthly Capital Improvement Charge

	Meter Size (inches)	Per Ordinance 2890 Without Any Subsequent Increases					
		1/1/23	1/1/24	1/1/25	1/1/26	1/1/27	1/1/28
10	5/8 x 3/4"	\$7.00	\$7.00	\$7.00	\$7.00	\$7.00	\$7.00
11	1"	\$17.50	\$17.50	\$17.50	\$17.50	\$17.50	\$17.50
12	1-1/2"	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00
13	2"	\$56.00	\$56.00	\$56.00	\$56.00	\$56.00	\$56.00
14	3"	\$112.00	\$112.00	\$112.00	\$112.00	\$112.00	\$112.00
15	4"	\$175.00	\$175.00	\$175.00	\$175.00	\$175.00	\$175.00
16	6"	\$350.00	\$350.00	\$350.00	\$350.00	\$350.00	\$350.00
17	8"	\$560.00	\$560.00	\$560.00	\$560.00	\$560.00	\$560.00
18	10"	\$840.00	\$840.00	\$840.00	\$840.00	\$840.00	\$840.00

Table A-3C
Adopted Commodity Delivery Charge, \$/hcf (5)

		Per Ordinance 2890 Without Any Subsequent Increases					
		1/1/23	1/1/24	1/1/25	1/1/26	1/1/27	1/1/28
19	Tier 1	\$2.86	\$2.86	\$2.86	\$2.86	\$2.86	\$2.86
20	Tier 2	\$4.40	\$4.40	\$4.40	\$4.40	\$4.40	\$4.40

Table A-3
City of Garden Grove Water Services Department
2023 Water Rate Study

Adopted Water Rates per Ordinance 2890

Table A-3D
Adopted and Pass-Through Charges

		Per Ordinance 2890 Without Any Subsequent Increases					
		1/1/23	1/1/24	1/1/25	1/1/26	1/1/27	1/1/28
21	All Tiers	\$0.40	\$0.40	\$0.40	\$0.40	\$0.40	\$0.40

Table A-3E
Units of Water Included in Tier 1 per Bi-Monthly Billing Period

	Meter Size (inches)	Max hcf Tier 1
22	5/8 x 3/4"	33
23	1"	83
24	1-1/2"	165
25	2"	264
26	3"	528
27	4"	825
28	6"	1,650
29	8"	2,640
30	10"	3,960

Table A-3F
Adopted 1/1/2019 Fire Service Rates

		Per Ordinance 2890 Without Any Subsequent Increases					
		1/1/23	1/1/24	1/1/25	1/1/26	1/1/27	1/1/28
31	1 1/2"	\$2.99	\$2.99	\$2.99	\$2.99	\$2.99	\$2.99
32	2"	\$6.38	\$6.38	\$6.38	\$6.38	\$6.38	\$6.38
33	3"	\$18.55	\$18.55	\$18.55	\$18.55	\$18.55	\$18.55
34	4"	\$39.51	\$39.51	\$39.51	\$39.51	\$39.51	\$39.51
35	6"	\$114.76	\$114.76	\$114.76	\$114.76	\$114.76	\$114.76
36	8"	\$244.55	\$244.55	\$244.55	\$244.55	\$244.55	\$244.55
37	10"	\$439.79	\$439.79	\$439.79	\$439.79	\$439.79	\$439.79

Table A-4
City of Garden Grove Water Services Department
2023 Water Rate Study

Projected Water Costs Using FY 23/24 OCWD and MWD Costs

Summary of Projected Annual Costs

Component of Water Costs	Estimated FY 23/24	Estimated FY 24/25	Estimated FY 25/26	Estimated FY 26/27	Estimated FY 27/28	Note
1 PFAS O&M Cost	\$2,872,745	\$4,677,169	\$5,554,594	\$11,165,129	\$11,444,257	
2 Garden Grove Pumping Costs	\$1,111,256	\$1,155,706	\$1,184,599	\$1,214,214	\$1,244,569	
3 Natural Gas	\$289,311	\$300,884	\$308,406	\$316,116	\$324,019	
4 WOCWB Shared Water Transmission Lines	\$47,208	\$47,208	\$49,096	\$50,324	\$51,582	
5 OCWD Replenishment Assessment	\$10,487,623	\$10,487,623	\$10,487,623	\$10,487,623	\$10,487,623	1
6 MWD Tier 1 Treated Water Rate	\$3,585,842	\$3,585,842	\$3,585,842	\$3,585,842	\$3,585,842	1
7 MWD Readiness to Serve Charge	\$541,486	\$541,486	\$541,486	\$541,486	\$541,486	1
8 MWD Capacity Charge	\$207,834	\$207,834	\$207,834	\$207,834	\$207,834	1
9 MWD Connection Charge	\$492,275	\$492,275	\$492,275	\$492,275	\$492,275	1
10 MWDOC Choice Programs	\$28,734	\$28,734	\$28,734	\$28,734	\$28,734	1
11 OCWD Reimbursement	(166,293)	(\$986,920)	(\$1,072,147)	(\$1,389,694)	(\$1,519,503)	2
12 Total	\$19,498,021	\$20,537,840	\$21,368,342	\$26,699,882	\$26,888,717	
13						
14 Projected Supply, Acre-Feet	19,773	19,773	19,773	19,773	19,773	

15
16 Note:
17 (1) FY 23/24 OCWD, MWD, and MWDOC costs used in this table. Increases in subsequent years will be recovered from future pass-through adjustments.
18 (2) FY 23/24 from City staff, 6/13/23.
19
20

21 Key Assumptions

Projected Water Supply	Groundwater	Imported	Total	
23 Projected FY 23/24, unadjusted	16,807	2,966	19,773	Note 1
24 Conservation adjustment	0.00%	0.00%	0.00%	N/A
25 Projected FY 23/24, adjusted	16,807	2,966	19,773	acre-feet
26 Compare with Calendar Year 2022			21,385	acre-feet
27 Compare with Actual FY 21/22			22,105	acre-feet
28 Compare with actual FY 20/21			23,164	acre-feet
29 Compare with actual FY 19/20			21,979	acre-feet
30 Compare with Projected in 2018 Rate Study			23,000	(3,227) -0.14030242

31 Notes:
32 (1) Projected total FY 23/24 total production = actual FY 22/23 production, adjusted for 85% BPP. See Table A2.
33

34 PFAS Treatment Facilities Startup Dates

35 Well 21 start up date: December 1, 2021
36 Well 30 start up date: July 26, 2022
37 Well 29 start up date: 4/15/23. No IX change out in first year of operation.
38 Lampson (Wells 23, 28, 31) start up date: 7/1/23. No IX change out in first year of operation.
39 Well 19 projected start up date: 2025 (1/1/25 for this analysis, per City well production projections received 5/30/23). No IX change out in first year of operation.
40 Start up dates for treatment facilities for proposed MCL: 2026 (1/1/26 for this analysis). No IX change out in first year of operation.
41 Source of start up dates: City staff 5/30/23, embedded in well production projections.
42

Table A-4
City of Garden Grove Water Services Department
2023 Water Rate Study

Projected Water Costs Using FY 23/24 OCWD and MWD Costs

43 **City's Pumping Costs and Other PFAS O&M Costs**

44 Pumping costs, excluding PFAS: Unit cost, \$/AF from FY 22/23 year to date through March 2023
 45 Increased power cost for each well site when PFAS treatment is operational \$15.00 Source: derived from efficiency test on Well 19 (source: City staff 5/12/22)
 46 Ion Exchange Pre-Filters \$225,000 per year, covers four initial PFAS facilities. FY 23/24 Dollars.
 47 Ion Exchange resin changeouts and carbon change out costs, per City, 5/30/23. Based on annual resin and carbon changeouts.
 48 Limited operating experience shows that ion exchange resin changeout may be less frequent than annually, and costs in this analysis are overstated.
 49

50 **OCWD Replenishment Assessment (RA) Costs Note not Updated 2023**

51 OLD Source of FY 22/23 RA: April 20, 2022 Orange County Water District Budget Overview (page 2), received 9/28/22 from City staff.
 52

53 **MWD Costs Note not updated 2023**

54 Imported Water Charges per MWD's adopted rates and MWD's 10-Year Financial Forecast.
 55 Source of FY 22/23 Readiness to Serve Charge: MWDOC Resolution 2126, Exhibit A.
 56 Capacity Charge Source: FY 21/22 from City 5/24 (via MWDOC draft 4/6/21).
 57 Connection Charge Source: MWDOC Invoice, dated 7/7/22, received from City staff on 10/17/22. The Connection Charge equals the number of connections times
 58
 59

60 **Detailed Cost Calculations FY 21/22 and FY 22/23**

61	FY 21/22 Actual			FY 22/23 Projected, Based on Actual AF Data			Notes
	62 Jul-Dec 21	Jan-Jun 22	Entire FY	Jul-Dec 22	Jan-Jun 23	Entire FY	
62	Actual Costs, FY 21/22						
63	OCWD Replenishment Assessment						
64			\$507.00			\$558.00	1
65			16,809			16,807	
66			\$8,522,023			\$9,378,355	
67							
68	MWD Tier 1 Treated Water Rate, \$/AF						
69	\$1,104.00	\$1,143.00		\$1,143.00	\$1,209.00		2
70	1,943	3,354		3,629	8		3
71	\$2,145,080	\$3,833,288	\$5,978,368	\$4,147,503	\$9,703	\$4,157,206	
72							
73	Other MWD Charges						
74			\$433,229			\$499,167	4
75			\$236,147			\$202,765	5
76			\$443,118			\$468,834	6, 7
77			34,086			34,097	6, 7
78			\$13			\$13.75	6, 7
79							
80			\$16,041			\$28,734	8
81							
82	Pumping Costs, \$/year						
83			\$1,123,399			\$1,168,261	9
84			\$66.83			\$69.51	9
85			\$174,368			\$181,343	10
86	PFAS O&M Costs						
87			\$111,166				11

Table A-4
City of Garden Grove Water Services Department
2023 Water Rate Study

Projected Water Costs Using FY 23/24 OCWD and MWD Costs

88 Notes:

- 89 (1) FY 22/23 Source: April 20, 2022 Orange County Water District Budget Overview (page 2), received 9/28/22 from City staff.
- 90 (2) Imported Water Charges per MWD's adopted rates and MWD's 10-Year Financial Forecast. The MWD Ten-Year Financial Forecast is contained in the MWD 2022/23 and 2023/24 Biennial Budget, page 221.
- 91 (3) Placeholders. Groundwater production volumes from Jul-Dec and Jan-Jun to be reviewed and modified during Rate Study.
- 92 (4) FY 22/23 Source: MWDOC Resolution 2126, Exhibit A.
- 93 (5) FY 22/23 Source: CY 2023 cost per 4/20/22 MWDOC Ordinance 2126, Exhibit B.
- 94 (6) The Connection Charge equals the number of connections times the MWDOC Retail Meter Charge. FY 22/23 Source of Retail Meter Charge: MWDOC Invoice, dated 7/7/22, received from City staff on 10/17/22.
- 95 (7) Number of connections for FY 22/23 is from City staff, 10/17/22.
- 96 (8) MWD Choice Programs include Water Use Efficiency and School Education programs. FY 22/23 cost per MWDOC Resolution 2126, Exhibit C.
- 97 (9) FY 21/22 \$/year per City's financial records. FY 21/22 \$/AF calculated by dividing pumping costs by groundwater production. FY 22/23 \$/AF calculated by increasing FY 21/22 \$/AF cost by inflation rate. FY 22/23 \$/year calculated by multiplying FY 22/23 \$/AF cost by projected groundwater production
- 98 (10) FY 21/22 \$/year per City's financial records. FY 22/23 \$/year = FY 21/22 \$/year escalated for inflation
- 99 (11) FY 21/22 Source: City staff via email, 9/28/22. FY 22/23 calculation is shown below.

100

101

102 **FY 22/23 YTD Electricity and Natural Gas Unit Costs**

	FY 22/23 YTD
104 YTD (Jul - Mar) Electricity Costs	\$738,972
105 YTD (Jul - Mar) Groundwater Production in AF	11,177
106 Electricity Unit Costs in Dollars/AF	\$66.12
107	
108 YTD (Jul - Mar) Natural Gas Costs	\$192,389
109 YTD (Jul - Mar) Groundwater Production in AF	11,177
110 Natural Gas Unit Costs in Dollars/AF	\$17.21

111

112

113 **FY 23/24 PFAS O&M Cost and Reimbursement Calculation**

114

	Well 21	Well 29	Well 30	Lampson	Total	Notes
115						
116 Startup Date	12/1/2021	4/12/2023	7/26/2022	7/1/2023		
117 Months Operating FY 23/24	12	12	12	12		
118						
119 Prefilters (Cartridges)	\$28,957	\$33,311	\$22,207	\$72,393	\$156,868	1
120 IX Change Out	\$742,600	\$1,004,880	\$529,300		\$2,276,780	1
121 Labor						2
122 Power	\$49,097	\$41,608	\$33,286	\$54,923	\$178,914	3
123 Analytical (monthly sample)	\$1,200	\$1,200	\$1,200	\$1,200	\$4,800	1
124 Maintenance Cost						
(x% of equipment Cost)	\$6,750	\$13,500	\$20,250	\$6,750	\$47,250	1
125 O&M Contingency (%of sub total)	\$39,628	\$56,300	\$67,245	\$44,960	\$208,133	1
126 Total	\$868,232	\$1,150,799	\$673,489	\$180,226	\$2,872,745	
127						
128 Production Volume, AF	3,273	2,774	2,219	3,662	11,928	4
129 O&M Cost, \$/AF					\$240.85	
130 50% of O&M Cost, \$/AF					\$120.42	
131 Maximum Unit Cost Eligible for Reimbursement, \$/AF					\$82.74	5
132 Reimbursable Amount, \$, Payable in FY 24/25					\$986,920	

Table A-4
City of Garden Grove Water Services Department
2023 Water Rate Study

Projected Water Costs Using FY 23/24 OCWD and MWD Costs

133 **FY 24/25 PFAS O&M Cost and Reimbursement Calculation**

134	Well 21	Well 29	Well 30	Lampson	Well 19	Total	Notes
135							
136	12/1/2021	4/12/2023	7/26/2022	7/1/2023	1/1/2025		
137	12	12	12	12	6		
138							
139	\$30,115	\$34,643	\$23,095	\$75,289		\$163,143	1
140	\$772,304	\$1,045,075	\$550,472	\$1,478,880		\$3,846,731	1
141						\$177,600	2
142	\$51,061	\$43,272	\$34,618	\$57,119	\$8,294	\$194,365	3
143	\$1,248	\$1,248	\$1,248	\$1,248	\$624	\$5,616	1
144							
145	\$7,020	\$14,040	\$21,060	\$7,020	\$3,510	\$52,650	1
146	\$41,213	\$58,552	\$69,935	\$46,758	\$20,606	\$237,064	1
147							
148	3,273	2,774	2,219	3,662	532	12,459	4
149						\$375	
150						\$188	
151						\$86.05	5
152						\$1,072,147	

155 **FY 25/26 PFAS O&M Cost and Reimbursement Calculation**

156	Well 21	Well 29	Well 30	Lampson	Well 19	Well 22	Well 26	Well 27	Well 20	Well 25	Total	Notes
157												
158	12/1/2021	4/12/2023	7/26/2022	7/1/2023	1/1/2025	1/1/2026	1/1/2026	1/1/2026	1/1/2026	1/1/2026		
159	12	12	12	12	12	6	6	6	6	6		
160												
161	\$30,868	\$35,509	\$23,673	\$77,171	\$20,315						\$187,536	1
162	\$791,612	\$1,071,202	\$564,234	\$1,515,852	\$450,545						\$4,393,444	1
163											\$171,995	2
164	\$52,338	\$44,354	\$35,483	\$58,547	\$17,742	\$9,758	\$8,871	\$9,758	\$10,645	\$4,435	\$251,931	3
165	\$1,279	\$1,279	\$1,279	\$1,279	\$1,279	\$640	\$640	\$640	\$640	\$640	\$9,594	1
166												
167	\$7,196	\$14,391	\$21,587	\$7,196	\$7,196	\$10,793	\$10,793	\$7,196	\$14,391	\$3,598	\$104,335	1
168	\$42,243	\$60,016	\$71,683	\$47,927	\$42,243	\$35,842	\$35,842	\$30,008	\$48,833	\$21,121	\$435,758	1
169												
170	3,273	2,774	2,219	3,662	1,110	610	555	610	666	277	15,756	4
171											\$353	
172											\$176	
173											\$88.20	5
174											\$1,389,694	

Table A-4
City of Garden Grove Water Services Department
2023 Water Rate Study

Projected Water Costs Using FY 23/24 OCWD and MWD Costs

176 **FY 26/27 PFAS O&M Cost and Reimbursement Calculation**

177	Well 21	Well 29	Well 30	Lampson	Well 19	Well 22	Well 26	Well 27	Well 20	Well 25	Total	Notes
178												
179	12/1/2021	4/12/2023	7/26/2022	7/1/2023	1/1/2025	1/1/2026	1/1/2026	1/1/2026	1/1/2026	1/1/2026		
180	12	12	12	12	12	12	12	12	12	12		
181												
182	\$31,640	\$36,397	\$24,265	\$79,100	\$20,823	\$36,397	\$36,397	\$31,640	\$79,100	\$20,823	\$396,582	1
183	\$811,402	\$1,097,982	\$578,340	\$1,553,748	\$461,809	\$1,097,982	\$1,097,982	\$811,402	\$1,553,748	\$461,809	\$9,526,203	1
184	\$0	\$0	\$0	\$0							\$176,295	2
185	\$48,146	\$41,827	\$30,915	\$50,919	\$14,548	\$20,004	\$18,185	\$20,004	\$21,823	\$9,093	\$275,464	3
186	\$1,311	\$1,311	\$1,311	\$1,311	\$1,311	\$1,311	\$1,311	\$1,311	\$1,311	\$1,311	\$13,112	1
187												
188	\$7,375	\$14,751	\$22,126	\$7,375	\$7,375	\$22,126	\$22,126	\$14,751	\$29,502	\$7,375	\$154,883	1
189	\$43,299	\$61,516	\$73,475	\$49,126	\$43,299	\$73,475	\$73,475	\$61,516	\$100,109	\$43,299	\$622,589	1
190	\$943,173	\$1,253,784	\$730,432	\$1,741,580	\$549,165	\$1,251,296	\$1,249,477	\$940,624	\$1,785,592	\$543,710	\$11,165,129	
191	2,938	2,552	1,886	3,107	888	1,221	1,110	1,221	1,331	555	16,807	4
192											\$664	
193											\$332	
194											\$90.41	5
195											\$1,519,503	

198 **FY 27/28 PFAS O&M Cost and Reimbursement Calculation**

199	Well 21	Well 29	Well 30	Lampson	Well 19	Well 22	Well 26	Well 27	Well 20	Well 25	Total	Notes
200												
201	12/1/2021	4/12/2023	7/26/2022	7/1/2023	1/1/2025	1/1/2026	1/1/2026	1/1/2026	1/1/2026	1/1/2026		
202	12	12	12	12	12	12	12	12	12	12		
203												
204	\$32,431	\$37,307	\$24,871	\$81,078	\$21,343	\$37,307	\$37,307	\$32,431	\$81,078	\$21,343	\$406,497	1
205	\$831,687	\$1,125,432	\$592,798	\$1,592,592	\$473,354	\$1,125,432	\$1,125,432	\$831,687	\$1,592,592	\$473,354	\$9,764,359	1
206											\$180,702	2
207	\$49,350	\$42,872	\$31,688	\$52,192	\$14,912	\$20,504	\$18,640	\$20,504	\$22,368	\$9,320	\$282,351	3
208	\$1,344	\$1,344	\$1,344	\$1,344	\$1,344	\$1,344	\$1,344	\$1,344	\$1,344	\$1,344	\$13,440	1
209												
210	\$7,560	\$15,120	\$22,679	\$7,560	\$7,560	\$22,679	\$22,679	\$15,120	\$30,239	\$7,560	\$158,755	1
211	\$44,381	\$63,054	\$75,312	\$50,354	\$44,381	\$75,312	\$75,312	\$63,054	\$102,611	\$44,381	\$638,154	1
212	\$966,753	\$1,285,128	\$748,693	\$1,785,119	\$562,894	\$1,282,578	\$1,280,714	\$964,140	\$1,830,232	\$557,302	\$11,444,257	
213	2,938	2,552	1,886	3,107	888	1,221	1,110	1,221	1,331	555	16,807	4
214											\$681	
215											\$340	
216											\$92.67	5
217											\$1,557,491	

Table A-4
City of Garden Grove Water Services Department
2023 Water Rate Study

Projected Water Costs Using FY 23/24 OCWD and MWD Costs

- 219 Notes:
 220 (1) Source: FY 22/23 per City staff, 5/30/2023, with follow-up clarification of carbon changeout, ion exchange resin changeout, and pre-filter replacement scheduling provided on 6/13/23.
 221 Subsequent years: costs increased for inflation.
 222 (2) Labor costs for FTEs existing as of 6/1/23 are embedded in City's budget. Value shown in this row is:
 223 Sr. Production Operator hired 1/1/25, with ongoing costs starting FY 24/25 and one-time costs in FY 24/25 (source: City staff, 6/13/23 and 6/15/23)
 224 (3) Based on unit cost of \$15/acre-foot (in FY 23/24 dollars) of water from PFAS treatment facilities.
 225 (4) See Table A-2 for more detail.
 226 (5) Based on maximum reimbursable cost of \$79.52 per acre-foot in FY 22/23 dollars.

227
228
229 **Detailed Cost Calculations FY 23/24 through FY 27/28**

230	231	FY 23/24			FY 24/25			Notes
		232 Projected Water Production, acre-feet	Jul-Dec 23	Jan-Jun 24	Total	Jul-Dec 24	Jan-Jun 25	
233	% of Water Production							
234	Local Groundwater							
235	Non-PFAS Wells	24.62%	32.96%		24.62%	26.98%		1
236	PFAS Wells	75.38%	67.04%		75.38%	73.02%		1
237	Subtotal, Local Groundwater	73%	100%		70%	104%		1
238								
239	Purchased	27%	0%		27%	0%		1
240	Total	100%	100%		97%	104%		
241								
242	Water Production, acre-feet							
243	Local Groundwater							
244	Non-PFAS wells	1,948	2,931	4,879	1,948	2,400	4,348	1
245	PFAS Wells	5,964	5,964	11,928	5,964	6,495	12,459	1
246	Subtotal, Local Groundwater	7,912	8,895	16,807	7,912	8,895	16,807	
247								
248	Imported Water	2,966	0	2,966	2,966	0	2,966	1
249								
250	Total Water Production	10,878	8,895	19,773	10,878	8,895	19,773	1
251								

Table A-4
City of Garden Grove Water Services Department
2023 Water Rate Study

Projected Water Costs Using FY 23/24 OCWD and MWD Costs

252	253	Unit Costs	FY 23/24			FY 24/25						
			Jul-Dec 23	Jan-Jun 24	Entire FY	Jul-Dec 24	Jan-Jun 25	Entire FY				
	254	Pumping Costs, (electricity) \$/AF	\$/acre-foot	\$66.12	\$66.12		\$68.76	\$68.76	2			
	255	Natural Gas Costs, \$/AF	\$/acre-foot	\$17.21	\$17.21		\$17.90	\$17.90	2			
	256	OCWD Replenishment Assessment, \$/AF	\$/acre-foot			\$624.00			3			
	257	MWD Tier 1 Treated Water Rate, \$/AF	\$/acre-foot	\$1,209	\$1,256		\$1,209	\$1,256	4			
	258	MWD Readiness to Serve Charge	\$/year	\$264,139	\$277,346		\$264,139	\$277,346	4			
	259	MWD Capacity Charge	\$/year	\$101,383	\$106,452		\$101,383	\$106,452	4			
	260	MWD Connection Charge	\$/connection		\$14.44			\$14.44	4			
	261											
	262											
	263	Projected Water Costs										
			Jul-Dec 23	Jan-Jun 24	Total	Jul-Dec 24	Jan-Jun 25	Total				
	264	PFAS O&M, Current MCL			\$2,872,745			\$4,677,169				
	265	Pumping Costs	\$523,113	\$588,143	\$1,111,256	\$544,038	\$611,669	\$1,155,706				
	266	Natural Gas	\$136,190	\$153,121	\$289,311	\$141,638	\$159,246	\$300,884				
	267	WOCWB Shared Water Transmission Lines			\$47,208			\$47,208				
	268	OCWD Replenishment Assessment			\$10,487,623			\$10,487,623				
	269	MWD Tier 1 Treated Water Rate	\$3,585,842	\$0	\$3,585,842	\$3,585,842	\$0	\$3,585,842				
	270	MWD Readiness to Serve Charge	\$264,139	\$277,346	\$541,486	\$264,139	\$277,346	\$541,486				
	271	MWD Capacity Charge	\$101,383	\$106,452	\$207,834	\$101,383	\$106,452	\$207,834				
	272	MWD Connection Charge			\$492,275			\$492,275	5			
	273	MWDOC Choice Programs			\$28,734			\$28,734	4			
	274	OCWD Reimbursed PFAS Cost Share (Costs Incurred Previous Year)			(\$166,293)			(\$986,920)	2			
	275	Total Projected Water Costs			\$19,498,021			\$20,537,840				
	276											
	277											
	278											
	279	Projected Water Production, acre-feet	Jul-Dec 25	Jan-Jun 26	Total	Jul-Dec 26	Jan-Jun 27	Total	Jul-Dec 27	Jan-Jun 28	Total	Notes
	280	% of Water Production										
	281	Local Groundwater										
	282	Non-PFAS Wells	13.89%	0.00%		0.00%	0.00%		0.00%	0.00%		1
	283	PFAS Wells	86.11%	100.00%		100.00%	100.00%		100.00%	100.00%		1
	284	Subtotal, Local Groundwater	70%	104%		77%	94%		77%	94%		1
	285											
	286	Purchased	27%	0%		27%	0%		27%	0%		1
	287	Total	97%	104%		105%	94%		105%	94%		
	288											
	289	Water Production, acre-feet										
	290	Local Groundwater										
	291	Non-PFAS wells	1,052	0	1,052	0	0	0	0	0	0	1
	292	PFAS Wells	6,519	9,237	15,756	8,405	8,402	16,807	8,405	8,402	16,807	1
	293	Subtotal, Local Groundwater	7,570	9,237	16,807	8,405	8,402	16,807	8,405	8,402	16,807	
	294											
	295	Imported Water	2,966	0	2,966	2,966	0	2,966	2,966	0	2,966	1
	296											
	297	Total Water Production	10,878	8,895	19,773	10,878	8,895	19,773	10,878	8,895	19,773	1
	298											

Table A-4
City of Garden Grove Water Services Department
2023 Water Rate Study

Projected Water Costs Using FY 23/24 OCWD and MWD Costs

299		FY 25/26			FY 26/27			FY 27/28				
300	Unit Costs	Jul-Dec 25	Jan-Jun 26	Entire FY	Jul-Dec 26	Jan-Jun 27	Entire FY	Jul-Dec 27	Jan-Jun 28	Total		
301	Pumping Costs, (electricity) \$/AF	\$/acre-foot	\$70.48	\$70.48	\$72.24	\$72.24		\$74.05	\$74.05		2	
302	Natural Gas Costs, \$/AF	\$/acre-foot	\$18.35	\$18.35	\$18.81	\$18.81		\$19.28	\$19.28		2	
303	OCWD Replenishment Assessment, \$/AF	\$/acre-foot					\$624.00			\$624.00	3	
304	MWD Tier 1 Treated Water Rate, \$/AF	\$/acre-foot	\$1,209	\$1,256	\$1,209	\$1,256		\$1,209	\$1,256		4	
305	MWD Readiness to Serve Charge	\$/year	\$264,139	\$277,346	\$264,139	\$277,346		\$264,139	\$277,346		4	
306	MWD Capacity Charge	\$/year	\$101,383	\$106,452	\$101,383	\$106,452		\$101,383	\$106,452		4	
307	MWD Connection Charge	\$/connection		\$14.44			\$14.44			\$14.44	4	
308												
309			FY 25/26			FY 26/27			FY 27/28			
310	Projected Water Costs	Jul-Dec 25	Jan-Jun 26	Total	Jul-Dec 26	Jan-Jun 27	Total	Jul-Dec 27	Jan-Jun 28	Total		
311	PFAS O&M, Current MCL			\$5,554,594			\$11,165,129			\$11,444,257		
312	Pumping Costs	\$533,558	\$651,042	\$1,184,599	\$607,207	\$607,007	\$1,214,214	\$622,387	\$622,182	\$1,244,569		
313	Natural Gas	\$138,910	\$169,496	\$308,406	\$158,084	\$158,032	\$316,116	\$162,036	\$161,983	\$324,019		
314	WOCWB Shared Water Transmission Lines			\$49,096			\$50,324			\$51,582		
315	OCWD Replenishment Assessment			\$10,487,623			\$10,487,623			\$10,487,623		
316	MWD Tier 1 Treated Water Rate	\$3,585,842	\$0	\$3,585,842	\$3,585,842	\$0	\$3,585,842	\$3,585,842	\$0	\$3,585,842		
317	MWD Readiness to Serve Charge	\$264,139	\$277,346	\$541,486	\$264,139	\$277,346	\$541,486	\$264,139	\$277,346	\$541,486		
318	MWD Capacity Charge	\$101,383	\$106,452	\$207,834	\$101,383	\$106,452	\$207,834	\$101,383	\$106,452	\$207,834		
319	MWD Connection Charge			\$492,275			\$492,275			\$492,275	5	
320	MWDOC Choice Programs			\$28,734			\$28,734			\$28,734	4	
321	OCWD Reimbursed PFAS Cost Share (Costs Incurred Previous Year)			(\$1,072,147)			(\$1,389,694)			(\$1,519,503)	2	
322	Total Projected Water Costs			\$21,368,342			\$26,699,882			\$26,888,717		

Notes:

- (1) See Table A-2 for more detail.
- (2) See above for electricity and natural gas unit cost calculation based on actual energy costs from July 2022 through March 2023.
- (3) Per OCWD staff via email from City staff, 3/31/23.
- (4) Source: MWD Ten-Year Financial Forecast, contained in the MWD 2022/23 and 2023/24 Biennial Budget, page 221; also MWD presentation from April 22, slide 4. 7% increase in 2025, 6% increase in 2026, 6% increase in 2027 and 2028.
- (5) City's most recent data reported to MWD for MWD Connection Charge calculations uses 34,097 connections. This value is assumed constant through FY 27/28

Table A-5
City of Garden Grove Water Services Department
2023 Water Rate Study

Projected Increases in Water Costs to be Recovered from Future Pass-Through Adjustments

Summary of Projected Annual Costs

Component of Water Costs	Estimated FY 23/24	Estimated FY 24/25	Estimated FY 25/26	Estimated FY 26/27	Estimated FY 27/28
1 Using FY 23/24 Costs					
2 OCWD Replenishment Assessment	\$10,487,623	\$10,487,623	\$10,487,623	\$10,487,623	\$10,487,623
3 MWD Tier 1 Treated Water Rate	\$3,585,842	\$3,585,842	\$3,585,842	\$3,585,842	\$3,585,842
4 MWD Readiness to Serve Charge	\$541,486	\$541,486	\$541,486	\$541,486	\$541,486
5 MWD Capacity Charge	\$207,834	\$207,834	\$207,834	\$207,834	\$207,834
6 MWD Connection Charge	\$492,275	\$492,275	\$492,275	\$492,275	\$492,275
7 MWDOC Choice Programs	\$28,734	\$28,734	\$28,734	\$28,734	\$28,734
8 Total	\$15,343,794	\$15,343,794	\$15,343,794	\$15,343,794	\$15,343,794
9					
10 Using Projected Future Costs					
11 OCWD Replenishment Assessment	\$10,487,623	\$11,176,713	\$11,748,154	\$12,319,595	\$12,924,650
12 MWD Tier 1 Treated Water Rate	\$3,585,842	\$3,725,242	\$4,009,973	\$4,282,841	\$4,549,778
13 MWD Readiness to Serve Charge	\$541,486	\$574,107	\$611,327	\$648,007	\$686,887
14 MWD Capacity Charge	\$207,834	\$220,355	\$234,641	\$248,719	\$263,642
15 MWD Connection Charge	\$492,275	\$526,735	\$558,339	\$591,839	\$627,349
16 MWDOC Choice Programs	\$28,734	\$29,883	\$30,630	\$31,396	\$32,181
17 Total	\$15,343,794	\$16,253,035	\$17,193,065	\$18,122,398	\$19,084,488
18					
19 Costs Recovered from Future Pass-Through Adjustments					
20 OCWD Replenishment Assessment	\$0	\$689,091	\$1,260,532	\$1,831,973	\$2,437,028
21 MWD Tier 1 Treated Water Rate	\$0	\$139,400	\$424,132	\$697,000	\$963,936
22 MWD Readiness to Serve Charge	\$0	\$32,621	\$69,841	\$106,521	\$145,401
23 MWD Capacity Charge	\$0	\$12,521	\$26,807	\$40,885	\$55,808
24 MWD Connection Charge	\$0	\$34,459	\$66,063	\$99,564	\$135,074
25 MWDOC Choice Programs	\$0	\$1,149	\$1,896	\$2,662	\$3,447
26 Total	\$0	\$909,241	\$1,849,271	\$2,778,604	\$3,740,694
27					
28 Projected Pass-Thru Adjustment, \$/ccf					
29 Projected Metered Sales, ccf/year	8,010,990	8,010,990	8,010,990	8,010,990	8,010,990
30					
31 Projected Pass-Thru Adjustment	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
32 Increase in Each FY, \$/ccf		\$0.11	\$0.12	\$0.12	\$0.12
33 Cumulative Pass-Thru, \$/ccf	\$0.00	\$0.11	\$0.23	\$0.35	\$0.47
34					
35					

Table A-5
City of Garden Grove Water Services Department
2023 Water Rate Study

Projected Increases in Water Costs to be Recovered from Future Pass-Through Adjustments

36 Detailed Cost Calculations FY 23/24 through FY 27/28

37		FY 23/24			FY 24/25			
38	Projected Water Production, acre-feet	Jul-Dec 23	Jan-Jun 24	Total	Jul-Dec 24	Jan-Jun 25	Total	Notes
39	% of Water Production							
40	Local Groundwater							
41	Non-PFAS Wells	24.62%	32.96%		24.62%	26.98%		1
42	PFAS Wells	75.38%	67.04%		75.38%	73.02%		1
43	Subtotal, Local Groundwater	73%	100%		70%	104%		1
44								
45	Purchased	27%	0%		27%	0%		1
46	Total	100%	100%		97%	104%		
47								
48	Water Production, acre-feet							
49	Local Groundwater							
50	Non-PFAS wells	1,948	2,931	4,879	1,948	2,400	4,348	1
51	PFAS Wells	5,964	5,964	11,928	5,964	6,495	12,459	1
52	Subtotal, Local Groundwater	7,912	8,895	16,807	7,912	8,895	16,807	
53								
54	Imported Water	2,966	0	2,966	2,966	0	2,966	1
55								
56	Total Water Production	10,878	8,895	19,773	10,878	8,895	19,773	1
57								
58								
59	Unit Costs			Entire FY			Entire FY	
60	OCWD Replenishment Assessment, \$/AF			\$624.00			\$665.00	2
61	MWD Tier 1 Treated Water Rate, \$/AF	\$1,209	\$1,256		\$1,256	\$1,352		3
62	MWD Readiness to Serve Charge	\$264,139	\$277,346		\$277,346	\$296,761		3
63	MWD Capacity Charge	\$101,383	\$106,452		\$106,452	\$113,903		3
64	MWD Connection Charge			\$14.44			\$15.45	3
65								
66								
67	Projected Water Costs			Total			Total	
68	OCWD Replenishment Assessment			\$10,487,623			\$11,176,713	
69	MWD Tier 1 Treated Water Rate	\$3,585,842	\$0	\$3,585,842	\$3,725,242	\$0	\$3,725,242	
70	MWD Readiness to Serve Charge	\$264,139	\$277,346	\$541,486	\$277,346	\$296,761	\$574,107	
71	MWD Capacity Charge	\$101,383	\$106,452	\$207,834	\$106,452	\$113,903	\$220,355	
72	MWD Connection Charge			\$492,275			\$526,735	4
73	MWDOC Choice Programs			\$28,734			\$29,883	3
74	Total Projected Water Costs			\$15,343,794			\$16,253,035	
75								

Table A-5
City of Garden Grove Water Services Department
2023 Water Rate Study

Projected Increases in Water Costs to be Recovered from Future Pass-Through Adjustments

	FY 25/26			FY 26/27			FY 27/28			
	Jul-Dec 25	Jan-Jun 26	Total	Jul-Dec 26	Jan-Jun 27	Total	Jul-Dec 27	Jan-Jun 28	Total	Notes
76										
77	Projected Water Production, acre-feet									
78	% of Water Production									
79	Local Groundwater									
80	13.89%	0.00%		0.00%	0.00%		0.00%	0.00%		1
81	86.11%	100.00%		100.00%	100.00%		100.00%	100.00%		1
82	70%	104%		77%	94%		77%	94%		1
83										
84	27%	0%		27%	0%		27%	0%		1
85	97%	104%		105%	94%		105%	94%		
86										
87	Water Production, acre-feet									
88	Local Groundwater									
89	1,052	0	1,052	0	0	0	0	0	0	1
90	6,519	9,237	15,756	8,405	8,402	16,807	8,405	8,402	16,807	1
91	7,570	9,237	16,807	8,405	8,402	16,807	8,405	8,402	16,807	
92										
93	2,966	0	2,966	2,966	0	2,966	2,966	0	2,966	1
94										
95	10,878	8,895	19,773	10,878	8,895	19,773	10,878	8,895	19,773	1
96										

Table A-5
City of Garden Grove Water Services Department
2023 Water Rate Study

Projected Increases in Water Costs to be Recovered from Future Pass-Through Adjustments

		FY 25/26			FY 26/27			FY 27/28			
97		Jul-Dec 25	Jan-Jun 26	Entire FY	Jul-Dec 26	Jan-Jun 27	Entire FY	Jul-Dec 27	Jan-Jun 28	Total	
98	Unit Costs										
99	OCWD Replenishment Assessment, \$/AF	\$/acre-foot		\$699.00			\$733.00			\$769.00	2
100	MWD Tier 1 Treated Water Rate, \$/AF	\$/acre-foot	\$1,352	\$1,444	\$1,444	\$1,534		\$1,534	\$1,626		3
101	MWD Readiness to Serve Charge	\$/year	\$296,761	\$314,566	\$314,566	\$333,440		\$333,440	\$353,447		3
102	MWD Capacity Charge	\$/year	\$113,903	\$120,737	\$120,737	\$127,982		\$127,982	\$135,661		3
103	MWD Connection Charge	\$/connection		\$16.38			\$17.36			\$18.40	3
104											
105											
106	Projected Water Costs			Total	Total	Total	Total	Total	Total	Total	
107	OCWD Replenishment Assessment			\$11,748,154			\$12,319,595			\$12,924,650	
108	MWD Tier 1 Treated Water Rate	\$4,009,973	\$0	\$4,009,973	\$4,282,841	\$0	\$4,282,841	\$4,549,778	\$0	\$4,549,778	
109	MWD Readiness to Serve Charge	\$296,761	\$314,566	\$611,327	\$314,566	\$333,440	\$648,007	\$333,440	\$353,447	\$686,887	
110	MWD Capacity Charge	\$113,903	\$120,737	\$234,641	\$120,737	\$127,982	\$248,719	\$127,982	\$135,661	\$263,642	
111	MWD Connection Charge			\$558,339			\$591,839			\$627,349	4
112	MWDOC Choice Programs			\$30,630			\$31,396			\$32,181	3
113	Total Projected Water Costs			\$17,193,065			\$18,122,398			\$19,084,488	

Notes:

- (1) See Table A-2 for more detail.
- (2) Per OCWD staff via email from City staff, 3/31/23.
- (3) Source: MWD Ten-Year Financial Forecast, contained in the MWD 2022/23 and 2023/24 Biennial Budget, page 221; also MWD presentation from April 22, slide 4.
7% increase in 2025, 6% increase in 2026, 6% increase in 2027 and 2028.
- (4) City's most recent data reported to MWD for MWD Connection Charge calculations uses 34,097 connections. This value is assumed constant through FY 27/28

Table A-6
City of Garden Grove Water Services Department
2023 Water Rate Study

Projected O&M Expenditures, Excluding Water Production Costs and Water Use Objectives Compliance Costs

Line No.	Fund	GL Key Description	GL KEY	Account-Description	Budget (1)		Projected (2)		
					FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
1	601	WATER OPS-WATER ADMIN	6016101000	50001 - Salaries	157,815	165,705	172,333	176,642	181,058
2	601	WATER OPS-ENG	6016101565	50001 - Salaries	429,558	451,036	469,077	480,804	492,824
3	601	WATER OPS-WATER PROD	6016101570	50001 - Salaries	1,123,223	1,179,384	1,226,559	1,257,223	1,288,654
4	601	WATER OPS-WATER DIST	6016101575	50001 - Salaries	832,005	873,605	908,549	931,263	954,545
5	601	WATER OPS-WATER QUAL	6016101580	50001 - Salaries	416,421	437,242	454,732	466,100	477,752
6	601	WATER OPS-WATER DIST	601101100	50001 - Salaries	11,555	12,132	12,617	12,933	13,256
7	601	WATER OPS-WATER DIST	601102100	50001 - Salaries	58,040	60,942	63,380	64,964	66,588
8	601	WATER OPS-WATER DIST	601135112	50001 - Salaries	181,056	190,109	197,713	202,656	207,723
9	601	WATER OPS-WATER DIST	601212119	50001 - Salaries	18,152	19,059	19,821	20,317	20,825
10	601	WATER OPS-WATER DIST	601212120	50001 - Salaries	4,302	4,517	4,698	4,815	4,936
11	601	WATER OPS-WATER DIST	601215100	50001 - Salaries	21,849	22,941	23,859	24,455	25,067
12	601	WATER OPS-WATER DIST	601131100	50001 - Salaries	32,798	34,438	35,816	36,711	37,629
13	601	WATER OPS-WATER DIST	601510100	50001 - Salaries	168,971	177,419	184,516	189,129	193,857
14	601	WATER OPS-WATER DIST	601132100	50001 - Salaries	123,082	129,236	134,405	137,766	141,210
15	601	WATER OPS-WATER DIST	601135100	50001 - Salaries	26,548	27,876	28,991	29,716	30,459
16	601	WATER OPS-WATER DIST	601102103	50001 - Salaries	56,179	58,988	61,348	62,881	64,453
17	601	WATER OPS-WATER DIST	601133100	50001 - Salaries	44,453	46,676	48,543	49,757	51,001
18	601	WATER OPS-WATER DIST	601522144	50001 - Salaries	66,271	69,585	72,368	74,178	76,032
19	601	WATER OPS-WATER DIST	601532149	50001 - Salaries	95,686	100,470	104,489	107,101	109,779
20	601	WATER OPS-WATER DIST	601544153	50001 - Salaries	145,395	152,665	158,772	162,741	166,809
21	601	WATER OPS-WATER DIST	601546100	50001 - Salaries	38,605	40,535	42,156	43,210	44,291
22	601	WATER OPS-WATER DIST	601546156	50001 - Salaries	20,365	21,384	22,239	22,795	23,365
23	601	WATER OPS-WATER ADMIN	6016101000	50007 - Fringe Costs	93,858	98,551	102,493	105,055	107,682
24	601	WATER OPS-ENG	6016101565	50007 - Fringe Costs	351,164	368,722	383,471	393,058	402,884
25	601	WATER OPS-WATER PROD	6016101570	50007 - Fringe Costs	1,080,339	1,134,355	1,179,729	1,209,222	1,239,453
26	601	WATER OPS-WATER DIST	6016101575	50007 - Fringe Costs	908,603	954,033	992,194	1,016,999	1,042,424
27	601	WATER OPS-WATER QUAL	6016101580	50007 - Fringe Costs	343,172	343,172	356,899	365,821	374,967
28	601	WATER OPS-WATER DIST	601101100	50007 - Fringe Costs	7,336	7,703	8,011	8,211	8,417
29	601	WATER OPS-WATER DIST	601102100	50007 - Fringe Costs	47,938	50,334	52,347	53,656	54,997
30	601	WATER OPS-WATER DIST	601135112	50007 - Fringe Costs	151,223	158,784	165,135	169,264	173,495
31	601	WATER OPS-WATER DIST	601212119	50007 - Fringe Costs	13,574	14,252	14,822	15,193	15,572
32	601	WATER OPS-WATER DIST	601212120	50007 - Fringe Costs	3,278	3,442	3,580	3,669	3,761
33	601	WATER OPS-WATER DIST	601215100	50007 - Fringe Costs	19,838	20,829	21,663	22,204	22,759
34	601	WATER OPS-WATER DIST	601131100	50007 - Fringe Costs	19,652	20,634	21,459	21,996	22,546
35	601	WATER OPS-WATER DIST	601510100	50007 - Fringe Costs	153,623	161,305	167,757	171,951	176,250
36	601	WATER OPS-WATER DIST	601132100	50007 - Fringe Costs	95,805	100,595	104,619	107,234	109,915

Table A-6
City of Garden Grove Water Services Department
2023 Water Rate Study

Projected O&M Expenditures, Excluding Water Production Costs and Water Use Objectives Compliance Costs

Line No.	Fund	GL Key Description	GL KEY	Account-Description	Budget (1)		Projected (2)		
					FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
37	601	WATER OPS-WATER DIST	601135100	50007 - Fringe Costs	22,463	23,586	24,529	25,143	25,771
38	601	WATER OPS-WATER DIST	601102103	50007 - Fringe Costs	51,636	54,218	56,387	57,796	59,241
39	601	WATER OPS-WATER DIST	601133100	50007 - Fringe Costs	37,038	38,890	40,446	41,457	42,493
40	601	WATER OPS-WATER DIST	601522144	50007 - Fringe Costs	51,129	53,685	55,832	57,228	58,659
41	601	WATER OPS-WATER DIST	601532149	50007 - Fringe Costs	94,754	99,492	103,472	106,058	108,710
42	601	WATER OPS-WATER DIST	601544153	50007 - Fringe Costs	136,189	142,999	148,719	152,437	156,248
43	601	WATER OPS-WATER DIST	601546100	50007 - Fringe Costs	32,340	33,957	35,315	36,198	37,103
44	601	WATER OPS-WATER DIST	601546156	50007 - Fringe Costs	16,582	17,411	18,107	18,560	19,024
45	601	WATER OPS-WATER ADMIN	6016101000	51001 - CONTRACTUAL SERV	66,789	66,789	69,461	71,197	72,977
46	601	WATER OPS-CAPITAL	6016101280	51001 - CONTRACTUAL SERV	136,425	43,378	45,113	46,241	47,397
47	601	WATER OPS-ENG	6016101565	51001 - CONTRACTUAL SERV	43,379	43,379	45,114	46,242	47,398
48	601	WATER OPS-WATER PROD	6016101570	51001 - CONTRACTUAL SERV	129,530	129,530	134,711	138,079	141,531
49	601	WATER OPS-WATER DIST	6016101575	51001 - CONTRACTUAL SERV	129,529	129,529	134,710	138,078	141,530
50	601	WATER OPS-WATER QUAL	6016101580	51001 - CONTRACTUAL SERV	64,879	62,879	65,394	67,029	68,705
51	601	WATER OPS-WATER ADMIN	6016101000	51401 - REGISTRATION FEES	500	500	520	533	546
52	601	WATER OPS-WATER ADMIN	6016101000	51402 - TUITION/TRAINING	10,998	10,998	11,438	11,724	12,017
53	601	WATER OPS-WATER ADMIN	6016101000	51404 - CITY MEMBERSHIPS	12,835	12,835	13,348	13,682	14,024
54	601	WATER OPS-WATER ADMIN	6016101000	52001 - COMMODITIES	50,894	50,894	52,930	54,253	55,609
55	601	WATER OPS-ENG	6016101565	52001 - COMMODITIES	77,588	77,588	80,692	82,709	84,777
56	601	WATER OPS-WATER PROD	6016101570	52001 - COMMODITIES	2,000	0	0	0	0
57	601	WATER OPS-WATER DIST	6016101575	52001 - COMMODITIES	279,557	271,557	282,419	289,480	296,717
58	601	WATER OPS-WATER QUAL	6016101580	52001 - COMMODITIES	157,176	155,176	161,383	165,418	169,553
59	601	WATER OPS-WATER ADMIN	6016101000	52106 - BOOKS/SUBSCRIPTIONS	713	713	742	760	779
60	601	WATER OPS-ENG	6016101565	52106 - BOOKS/SUBSCRIPTIONS	237	237	246	253	259
61	601	WATER OPS-WATER ADMIN	6016101000	53355 - OVERHEAD FEE	1,402,200	1,444,200	1,501,968	1,539,517	1,578,005
62	601	WATER OPS-WATER ADMIN	6016101000	53358 - CITY STREET DAMAGES	814,455	814,455	847,033	868,209	889,914
Total (3)					11,183,545	11,491,530	11,951,192	12,249,971	12,556,221

Notes:

- (1) Received from City staff, 4/19/23
- (2) Adjusted for inflation at 2.5% per year.
- (3) Matches Operating Statement (Table A10) lines 38, 39, 40, 43, 44, and 45.

Table A-7
City of Garden Grove Water Services Department
2023 Water Rate Study

Existing and Future Debt Service

Line No	Existing Revenue Bond Debt Service (1) (2)			FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28	
1	Revenue and Refunding Bonds 2015			1,013,450	939,300	0	0	0	0	
2	Water Revenue Bonds Series 2020A			1,266,975	1,720,175	1,714,575	1,717,775	1,719,375	1,719,375	
3	Total			\$2,280,425	\$2,659,475	\$1,714,575	\$1,717,775	\$1,719,375	1,719,375	
4										
5										
6	Proposed Debt Service	Issue Date	Issuance Amount	Interest Rate	Estimated Principal and Interest Payment					
					FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
7	Revenue Bond/Private Placement	23/24	\$0	5.0%		0	0	0	0	0
8	Revenue Bond/Private Placement	24/25	\$0	5.0%			0	0	0	0
9	Revenue Bond/Private Placement	25/26	\$0	5.0%				0	0	0
10	Revenue Bond/Private Placement	26/27	\$0	5.0%					0	0
11	Revenue Bond/Private Placement	27/28	\$0	5.0%						0
12	Total				\$0	\$0	\$0	\$0	\$0	\$0
13										
14	Intercity Loan Debt Service (2)				FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
15	Outstanding Principal Beginning Year				\$10,632,394	\$9,851,256	\$9,037,481	\$8,189,708	\$7,306,516	\$6,386,425
16	Principal Payment				\$781,139	\$813,774	\$847,773	\$883,192	\$920,091	\$958,532
17	Interest Payment				\$421,358	\$388,722	\$354,723	\$319,304	\$282,405	\$243,964
18	Outstanding Principal, End of Year				\$9,851,256	\$9,037,481	\$8,189,708	\$7,306,516	\$6,386,425	\$5,427,892

Notes:

- (1) Source: City Finance Department Staff, April 2023.
- (2) Source: City Finance Department email, 5/16/21
- (3) Source: Data from staff email 3/28/23.

Table A-8
City of Garden Grove Water Services Department
2023 Water Rate Study

Water Utility Operating Statement

Line No		FY 23/24	FY 24/25	Projected FY 25/26	FY 26/27	FY 27/28	Notes	
1	FUND 601 (WATER OPERATIONS) SOURCES OF FUNDS							
2	Beginning of Year Balance, Fund 601	\$30,046,648	\$23,183,148	\$18,846,897	\$17,795,639	\$14,886,313	1	
3								
4	Rate Revenues Under Adopted Rates (Ordinance 2890)							
5	Water Sales Revenues (Excludes Future Rate Increases and Future Pass Through Charge Adjustments)							
6	Bi-Monthly Minimum Charge	\$8,344,136	\$8,344,136	\$8,344,136	\$8,344,136	\$8,344,136	2	
7	Commodity Delivery Charge	26,175,282	26,175,282	26,175,282	26,175,282	26,175,282	2	
8	Pass Through Charge (Existing Rates)	3,204,396	3,204,396	3,204,396	3,204,396	3,204,396	2	
9	Private Fire Service	494,910	494,910	494,910	494,910	494,910	2	
10	Senior Care Discount	(16,342)	(16,342)	(16,342)	(16,342)	(16,342)	3	
11	Water Low Use Credit	0	0	0	0	0	3	
12	Write-offs	(55,214)	(58,748)	(62,508)	(66,509)	(68,171)	3	
13								
14	Additional Revenues From Rate Increases Not Yet Adopted						2	
15								
16	Fiscal Year	Percent Increase	Months of Revenue					
17	FY 23/24	6.40%	4	815,333	2,445,998	2,445,998	2,445,998	
18	FY 24/25	6.40%	4		867,514	2,602,542	2,602,542	
19	FY 25/26	6.40%	4			923,035	2,769,105	
20	FY 26/27	6.40%	4			982,109	2,946,328	
21	FY 27/28	2.50%	4				408,189	
22	Total Additional Revenues			\$815,333	\$3,313,512	\$5,971,575	\$8,799,754	\$11,172,162
23								
24	Total Rate Revenues	\$38,962,501	\$41,457,146	\$44,111,449	\$46,935,628	\$49,306,373		
25								
26	Other Income							
27	Transfer from General Fund for City Water Use	636,691	691,891	736,172	783,287	822,810	4	
28	Other Revenues	97,032	97,032	97,032	97,032	97,032	5	
29	Investment Income	151,683	161,121	131,892	127,726	107,807	6	
30	Total Other Income	\$885,407	\$950,045	\$965,097	\$1,008,046	\$1,027,649		
31								
32	Total Revenues	\$39,847,908	\$42,407,191	\$45,076,546	\$47,943,674	\$50,334,023		
33								
34	Total Sources of Funds	\$69,894,556	\$65,590,340	\$63,923,444	\$65,739,313	\$65,220,336		
35								

Table A-8
City of Garden Grove Water Services Department
2023 Water Rate Study

Water Utility Operating Statement

Line No		FY 23/24	FY 24/25	Projected FY 25/26	FY 26/27	FY 27/28	Notes
36	FUND 601 USES OF FUNDS						
37	O&M Expenditures						7
38	Salaries & Fringe Costs	\$7,803,861	\$8,176,893	\$8,503,969	\$8,716,568	\$8,934,483	
39	Contractual Services	570,531	475,484	494,503	506,866	519,538	
40	Commodities Other than Water Costs	567,215	555,215	577,424	591,859	606,656	
41	Water Use Objectives Compliance Cost	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	
42	Other O&M						
43	Administrative Services Charge	1,402,200	1,444,200	1,501,968	1,539,517	1,578,005	
44	Street Repair Costs	814,455	814,455	847,033	868,209	889,914	
45	Remainder of Other O&M Expenditures	25,283	25,283	26,294	26,952	27,625	
46	Projected Water Costs						8
47	PFAS O&M Costs	2,872,745	4,677,169	5,554,594	11,165,129	11,444,257	
48	Electricity	1,111,256	1,155,706	1,184,599	1,214,214	1,244,569	
49	Natural Gas	289,311	300,884	308,406	316,116	324,019	
50	WOCWB Shared Water Transmission Lines	47,208	47,208	49,096	50,324	51,582	
51	OCWD Replenishment Assessment	10,487,623	10,487,623	10,487,623	10,487,623	10,487,623	9
52	MWD Tier 1 Treated Water	3,585,842	3,585,842	3,585,842	3,585,842	3,585,842	9
53	MWD Readiness to Serve Charge	541,486	541,486	541,486	541,486	541,486	9
54	MWD Capacity Charge	207,834	207,834	207,834	207,834	207,834	9
55	MWD Connection Charge	492,275	492,275	492,275	492,275	492,275	9
56	MWD Choice Programs	28,734	28,734	28,734	28,734	28,734	9
57	OCWD Reimbursement	(166,293)	(986,920)	(1,072,147)	(1,389,694)	(1,519,503)	10
58	Subtotal O&M Expenditures	\$32,681,566	\$34,029,371	\$35,319,533	\$40,949,853	\$41,444,938	
59							
60	Debt Service						11
61	Intercity Loan Principal and Interest	\$1,202,496	\$1,202,496	\$1,202,496	\$1,202,496	\$1,202,496	
62	2015 Revenue Bonds	939,300	0	0	0	0	
63	2020A Revenue Bonds	1,720,175	1,714,575	1,717,775	1,719,375	1,719,375	
64	Future Revenue Bond Debt Service	0	0	0	0	0	
65	Subtotal Debt Service	\$3,861,971	\$2,917,071	\$2,920,271	\$2,921,871	\$2,921,871	
66							
67	Capital Equipment	\$314,000	\$157,000	\$157,000	\$157,000	\$157,000	12
68							
69	Transfer to Fund 602	\$6,000,000	\$6,000,000	\$4,000,000	\$3,000,000	\$2,000,000	
70	Transfer to Fund 603	\$3,853,870	\$3,640,000	\$3,731,000	\$3,824,275	\$3,919,882	
71							
72	Total Uses of Funds	\$46,711,408	\$46,743,442	\$46,127,805	\$50,853,000	\$50,443,691	
73							
74	End of Year Balance, Fund 601	\$23,183,148	\$18,846,897	\$17,795,639	\$14,886,313	\$14,776,645	

Table A-8
City of Garden Grove Water Services Department
2023 Water Rate Study

Water Utility Operating Statement

Line No		FY 23/24	FY 24/25	Projected FY 25/26	FY 26/27	FY 27/28	Notes
75	FINANCIAL PERFORMANCE INDICATORS						
83							
84	<u>End of Year (EOY) Reserve Balance Criteria</u>						
85	Criteria: Total combined fund 601,602,603 Reserves						
86	Combined EOY 601,602,603 Balance	\$24,787,896	\$20,291,090	\$19,650,220	\$16,585,747	\$16,994,667	
87	Target Reserve Balance						
88	2 Months Cash Outflow	5,647,344	5,871,978	6,087,005	7,025,392	7,107,906	13
89	Plus \$500,000 for Contingencies	500,000	500,000	500,000	500,000	500,000	
90	Plus 5% of Net Plant	8,596,201	8,820,908	8,922,414	9,004,721	9,012,027	14
91	Subtotal	\$14,743,545	\$15,192,885	\$15,509,419	\$16,530,112	\$16,619,933	
92	Exceeds Target?	Yes	Yes	Yes	Yes	Yes	
93							
94	<u>Debt Service Coverage Ratio</u>						
95	Criteria: Debt Service Coverage Ratio > 1.75						
96	Gross Revenue	\$42,217,612	\$44,928,556	\$47,759,278	\$50,798,102	\$53,332,477	
97	Less O&M Expenses	(\$32,681,566)	(\$34,029,371)	(\$35,319,533)	(\$40,949,853)	(\$41,444,938)	
98	Revenue Available for Debt Service	\$9,536,045	\$10,899,185	\$12,439,745	\$9,848,249	\$11,887,539	
99							
100	Revenue Bond Debt Service	\$2,659,475	\$1,714,575	\$1,717,775	\$1,719,375	\$1,719,375	
101	Debt Service Coverage Ratio	3.59	6.36	7.24	5.73	6.91	
102	Exceeds Target?	Yes	Yes	Yes	Yes	Yes	
103							

Table A-8
City of Garden Grove Water Services Department
2023 Water Rate Study

Water Utility Operating Statement

Line No		FY 23/24	FY 24/25	Projected FY 25/26	FY 26/27	FY 27/28	Notes
104	FUND 602 (WATER CAPITAL) SOURCES OF FUNDS						
105	Beginning of Year Balance, Fund 602	\$4,341,667	\$663,606	\$503,051	\$913,439	\$758,292	1
106							
107	Capital Improvement Charge						
108	Revenues Under Adopted Rates	\$2,320,206	\$2,320,206	\$2,320,206	\$2,320,206	\$2,320,206	2
109							
110	Additional Capital Improvement Charge Revenues						2
111	Months						
112	of Revenue						
	Fiscal Year	% Increase					
113	FY 23/24	6.40%	4	49,498	148,493	148,493	
114	FY 24/25	6.40%	4		52,666	157,997	
115	FY 25/26	6.40%	4			56,036	
116	FY 26/27	6.40%	4			168,109	
117	FY 27/28	2.50%	4			59,623	
						178,868	
						24,781	
118	Total Additional Revenues	\$49,498	\$201,159	\$362,526	\$534,222	\$678,248	
119							
120	Other Revenues (Interest)	\$0	\$0	\$0	\$0	\$0	
121	CIEDB Debt Proceeds	0	0	0	0	0	
122	Remaining 2020A Revenue Bond Proceeds	6,800,000					15
123	Transfer From Fund 601	6,000,000	6,000,000	4,000,000	3,000,000	2,000,000	
124	Total Sources of Funds, 602	\$19,511,371	\$9,184,971	\$7,185,783	\$6,767,867	\$5,756,746	
125							
126	FUND 602 (WATER CAPITAL) USES OF FUNDS						
127	Capital Improvements	\$18,847,765	\$8,681,920	\$6,272,344	\$6,009,575	\$4,479,865	16
128	Water Ops Labor Charged to Fund 602	0	0	0	0	0	17
129	Transfer to Fund 603	0	0	0	0	0	
130	Total Use of Funds	\$18,847,765	\$8,681,920	\$6,272,344	\$6,009,575	\$4,479,865	
131							
132	Ending Year Fund Balance, Fund 602	\$663,606	\$503,051	\$913,439	\$758,292	\$1,276,881	
133							

Table A-8
City of Garden Grove Water Services Department
2023 Water Rate Study

Water Utility Operating Statement

Line No		FY 23/24	FY 24/25	Projected FY 25/26	FY 26/27	FY 27/28	Notes
134	FUND 603 (WATER REPLACEMENT) SOURCES OF FUNDS						
135	Beginning of Year Balance, Fund 603	\$894,498	\$941,141	\$941,141	\$941,141	\$941,141	
136							
137	Other Revenues (Interest)	\$0	\$0	\$0	\$0	\$0	
138	Transfer From Fund 601	3,853,870	3,640,000	3,731,000	3,824,275	3,919,882	
139	Transfer From Fund 602	0	0	0	0	0	
140	Total Sources of Funds, 603	\$4,748,368	\$4,581,141	\$4,672,141	\$4,765,416	\$4,861,023	
141							
142	FUND 603 (WATER REPLACEMENT) USES OF FUNDS						
143	Replacement Expenditures						
144	Water Main Replacement	\$3,807,227	\$3,640,000	\$3,731,000	\$3,824,275	\$3,919,882	18
145	Total Use of Funds	\$3,807,227	\$3,640,000	\$3,731,000	\$3,824,275	\$3,919,882	
146							
147	Ending Year Fund Balance, Fund 603	\$941,141	\$941,141	\$941,141	\$941,141	\$941,141	

Table A-8
City of Garden Grove Water Services Department
2023 Water Rate Study

Water Utility Operating Statement

Line No	FY 23/24	FY 24/25	Projected FY 25/26	FY 26/27	FY 27/28	Notes
	Table A-10 Notes:					
	(1) FY 23/24 projected beginning of year balance is the Cash in Bank balance as of 3/27/23. Source: City staff, 3/28/23.					
	(2) See Table A-11 for more detail. Projections are based on across-the-board percentage rate increases for this draft.					
	(3) Equals FY 21/22 actuals. Low water use credit proposed for elimination.					
	(4) Source: email from City staff, 4/27/2023. Revenue increases proportionally with increases in rates in subsequent years and decreases with conservation adjustment.					
	(5) Source: email from city staff 4/27/23. Includes late fees, after-hours fees, other revenues, and signs/barricades fee. FY 24/25 and subsequent years: 0.4% of Beginning of Year combined Fund 601, 602, and 603 Fund Balance.					
	(6) FY 22/23 source: email from city staff 4/27/23 (FY 22/23 budget). 24/25 and subsequent years: 0.4% of Beginning of Year combined Fund 601, 602, and 603 Fund Balance.					
	(7) Source for all items except Projected Water Costs: FY 22/23 Budget, provided by City staff, 5/13/22. Water Use Objectives cost from City staff, June 2023.					
	(8) See Table A-4 for more detail.					
	(9) OCWD Replenishment Assessment and MWD costs are at FY 23/24 rates. Subsequent increases in these costs will be recovered through future pass-through adjustments.					
	(10) FY 23/24 per City staff, 6/8/23. Subsequent years see Table A-4 for more detail.					
	(11) See Table A-9 for more detail.					
	(12) FY 23/24 from City's capital equipment sheet per City staff 4/3/23. Subsequent years: 50% of FY 23/24 value per City staff, April 2023.					
	(13) Source: 2 months of O&M expenses plus projected water supply costs to be recovered through future pass-through adjustments.					
	(14) Equals 5% of projected FY 27/28 gross plant, buildings/structures, and land. FY 22/23 value from City asset records, provided by City on 4/17/23. Value adjusted in each year by subtracting depreciation expense and adding projected capital improvement expense. FY 21/22 actual depreciation expense used in this calculation.					
	(15) Source: City staff, April 2023.					
	(16) Source: City staff, 5/2/23 via email, except for Well 26 Property Purchase from City staff 5/30/23. FY 22/23 includes carryover. Costs are adjusted for inflation and do not include any capitalized labor. All labor that would be capitalized is included, for the purposes of this analysis, in the water ops labor charged to Funds 602 and 603, or in other labor included in the 601 Fund.					
	(17) At the end of each year, engineering labor related to capital projects is charged to Fund 602. The cost of this labor is already included in the 601 Fund budget, so it is not included in this analysis as a Fund 602 expense.					
	(18) Includes costs to replace services, hydrants, meters, valves, etc. Source: City staff, 5/2/23 via email					

Table A-9
City of Garden Grove Water Services Department
2023 Water Rate Study

Revenue Calculations

Table A-11-A
Number of Connections per Meter Size

Line	Meter Size	Projected (1)					
		FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
1	5/8" X 3/4" meter	28,529	28,529	28,529	28,529	28,529	28,529
2	1" meter	3,826	3,826	3,826	3,826	3,826	3,826
3	1 1/2" meter	864	864	864	864	864	864
4	2" meter	729	729	729	729	729	729
5	3" meter	57	57	57	57	57	57
6	4" meter	125	125	125	125	125	125
7	6" meter	56	56	56	56	56	56
8	8" meter	2	2	2	2	2	2
9	10" meter	0	0	0	0	0	0
10	Total	34,188	34,188	34,188	34,188	34,188	34,188

Notes:

(1) Number of Customers shown does not include Fire Service connections or abandoned connections. See Table A-2 for additional detail.

Table A-11-B
Number of Meter Equivalents

Meter Size	Projected						Capacity, gpm (1)	Meter Equivalent Ratio (3)	
	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28			
11	5/8" X 3/4" meter	28,529	28,529	28,529	28,529	28,529	28,529	20	1.00
12	1" meter	9,565	9,565	9,565	9,565	9,565	9,565	50	2.50
13	1 1/2" meter	4,320	4,320	4,320	4,320	4,320	4,320	100	5.00
14	2" meter	5,832	5,832	5,832	5,832	5,832	5,832	160	8.00
15	3" meter	912	912	912	912	912	912	320	16.00
16	4" meter	3,125	3,125	3,125	3,125	3,125	3,125	500	25.00
17	6" meter	2,800	2,800	2,800	2,800	2,800	2,800	1,000	50.00
18	8" meter	0	0	0	0	0	0	1,600	80.00
19	10" Meter	0	0	0	0	0	0	2,400	120.00
20	Total	55,083	55,083	55,083	55,083	55,083	55,083		

Table A-9
City of Garden Grove Water Services Department
2023 Water Rate Study

Revenue Calculations
Table A-11-C

Projected Revenues from Bi-Monthly Capital Improvement Charge (Adopted Rates), First 8 Months of FY

		Projected Revenues, First 8 Months of FY					
Meter Size		FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
21	5/8 x 3/4" meter	\$798,812	\$798,812	\$798,812	\$798,812	\$798,812	\$798,812
22	1" meter	267,820	267,820	267,820	267,820	267,820	267,820
23	1 1/2" meter	120,960	120,960	120,960	120,960	120,960	120,960
24	2" meter	163,296	163,296	163,296	163,296	163,296	163,296
25	3" meter	25,536	25,536	25,536	25,536	25,536	25,536
26	4" meter	87,500	87,500	87,500	87,500	87,500	87,500
27	6" meter	78,400	78,400	78,400	78,400	78,400	78,400
28	8" meter	4,480	4,480	4,480	4,480	4,480	4,480
29	10" meter	0	0	0	0	0	0
30	Subtotal	\$1,546,804	\$1,546,804	\$1,546,804	\$1,546,804	\$1,546,804	\$1,546,804

Table A-11-D

Projected Revenues from Bi-Monthly Capital Improvement Charge (Adopted Rates), Last 4 Months of FY

		Projected Revenues, Last 4 Months of FY					
Meter Size		FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
31	5/8 x 3/4" meter	\$399,406	\$399,406	\$399,406	\$399,406	\$399,406	\$399,406
32	1" meter	133,910	133,910	133,910	133,910	133,910	133,910
33	1 1/2" meter	60,480	60,480	60,480	60,480	60,480	60,480
34	2" meter	81,648	81,648	81,648	81,648	81,648	81,648
35	3" meter	12,768	12,768	12,768	12,768	12,768	12,768
36	4" meter	43,750	43,750	43,750	43,750	43,750	43,750
37	6" meter	39,200	39,200	39,200	39,200	39,200	39,200
38	8" meter	2,240	2,240	2,240	2,240	2,240	2,240
39	10" meter	0	0	0	0	0	0
40	Subtotal	\$773,402	\$773,402	\$773,402	\$773,402	\$773,402	\$773,402

Total Projected Bi-Monthly Capital Improvement Charge Revenues (Adopted Rates)

		FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
41	Total Projected Revenues	\$2,320,206	\$2,320,206	\$2,320,206	\$2,320,206	\$2,320,206	\$2,320,206

Table A-9
City of Garden Grove Water Services Department
2023 Water Rate Study

Revenue Calculations
Table A-11-E

Projected Revenues from Bi-Monthly Minimum Charge (Adopted Rates)

		Projected Revenues, First 8 Months of FY					
Meter Size		FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
42	5/8 x 3/4" meter	\$3,862,827	\$3,862,827	\$3,862,827	\$3,862,827	\$3,862,827	\$3,862,827
43	1" meter	772,546	772,546	772,546	772,546	772,546	772,546
44	1 1/2" meter	270,259	270,259	270,259	270,259	270,259	270,259
45	2" meter	324,988	324,988	324,988	324,988	324,988	324,988
46	3" meter	45,634	45,634	45,634	45,634	45,634	45,634
47	4" meter	149,960	149,960	149,960	149,960	149,960	149,960
48	6" meter	129,266	129,266	129,266	129,266	129,266	129,266
49	8" meter	7,277	7,277	7,277	7,277	7,277	7,277
50	10" meter	0	0	0	0	0	0
51	Subtotal	\$5,562,757	\$5,562,757	\$5,562,757	\$5,562,757	\$5,562,757	\$5,562,757

		Projected Revenues, First 8 Months of FY					
Meter Size		FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
52	5/8 x 3/4" meter	\$1,931,413	\$1,931,413	\$1,931,413	\$1,931,413	\$1,931,413	\$1,931,413
53	1" meter	386,273	386,273	386,273	386,273	386,273	386,273
54	1 1/2" meter	135,130	135,130	135,130	135,130	135,130	135,130
55	2" meter	162,494	162,494	162,494	162,494	162,494	162,494
56	3" meter	22,817	22,817	22,817	22,817	22,817	22,817
57	4" meter	74,980	74,980	74,980	74,980	74,980	74,980
58	6" meter	64,633	64,633	64,633	64,633	64,633	64,633
59	8" meter	3,639	3,639	3,639	3,639	3,639	3,639
60	10" meter	0	0	0	0	0	0
61	Subtotal	\$2,781,379	\$2,781,379	\$2,781,379	\$2,781,379	\$2,781,379	\$2,781,379

		Total Projected Bi-Monthly Minimum Charge Revenues (Adopted Rates)					
		FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
66	Total Projected Revenues	\$8,344,136	\$8,344,136	\$8,344,136	\$8,344,136	\$8,344,136	\$8,344,136

Table A-9
City of Garden Grove Water Services Department
2023 Water Rate Study

Revenue Calculations
Table A-11-E

Projected Commodity Delivery Charge Revenues (Without Future Pass-Through), Adopted Rates per Ordinance 2890

	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
<u>Tier 1 ccf</u>						
67 July-Feb	4,073,457	4,073,457	4,073,457	4,073,457	4,073,457	4,073,457
68 Mar-June (rate change effective Jan, with 2 month lag)	1,818,150	1,818,150	1,818,150	1,818,150	1,818,150	1,818,150
69						
70 <u>Tier 1 \$/ccf</u>						
71 July-Feb	\$2.86	\$2.86	\$2.86	\$2.86	\$2.86	\$2.86
72 Mar-June (rate change effective Jan, with 2 month lag)	\$2.86	\$2.86	\$2.86	\$2.86	\$2.86	\$2.86
73						
74 Tier 1 Commodity Delivery Charge \$, Excl. Pass Through	\$16,849,994	\$16,849,994	\$16,849,994	\$16,849,994	\$16,849,994	\$16,849,994
75	8,010,990	8,010,990	8,010,990	8,010,990	8,010,990	8,010,990
76 <u>Tier 2 ccf</u>						
77 July-Feb	1,465,342	1,465,342	1,465,342	1,465,342	1,465,342	1,465,342
78 Mar-June	654,042	654,042	654,042	654,042	654,042	654,042
79						
80 <u>Tier 2 \$/ccf</u>						
81 July-Feb	\$4.40	\$4.40	\$4.40	\$4.40	\$4.40	\$4.40
82 Mar-June	\$4.40	\$4.40	\$4.40	\$4.40	\$4.40	\$4.40
83						
84 Tier 2 Commodity Delivery Charge \$, Excl. Pass Through	\$9,325,288	\$9,325,288	\$9,325,288	\$9,325,288	\$9,325,288	\$9,325,288

Table A-9
City of Garden Grove Water Services Department
2023 Water Rate Study

Revenue Calculations
Table A-11-f

Projected Revenues from Bi-Monthly Fire Service Charges Under Existing Rates

		Projected Revenues, First 8 Months of FY				
Meter Size		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
85	1 1/2" meter	\$36	\$36	\$36	\$36	\$36
86	2" meter	664	664	664	664	664
87	3" meter	223	223	223	223	223
88	4" meter	18,017	18,017	18,017	18,017	18,017
89	6" meter	120,268	120,268	120,268	120,268	120,268
90	8" meter	173,141	173,141	173,141	173,141	173,141
91	10" meter	17,592	17,592	17,592	17,592	17,592
92	Subtotal	\$329,940	\$329,940	\$329,940	\$329,940	\$329,940
93						
94						
		Projected Revenues, Last 4 Months of FY				
Meter Size		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
96	1 1/2" meter	\$18	\$18	\$18	\$18	\$18
97	2" meter	332	332	332	332	332
98	3" meter	111	111	111	111	111
99	4" meter	9,008	9,008	9,008	9,008	9,008
100	6" meter	60,134	60,134	60,134	60,134	60,134
101	8" meter	86,571	86,571	86,571	86,571	86,571
102	10" meter	8,796	8,796	8,796	8,796	8,796
103	Subtotal	\$164,970	\$164,970	\$164,970	\$164,970	\$164,970
104						
105						
		Projected Revenues, Entire FY				
		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
107	Total Projected Revenues	\$494,910	\$494,910	\$494,910	\$494,910	\$494,910
108						
109						

Table A-9
City of Garden Grove Water Services Department
2023 Water Rate Study

Revenue Calculations
Table A-11-F
Projected Pass Through Charge Revenues

	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
110 Projected Water Sales, ccf						
111 July-Feb	5,538,798	5,538,798	5,538,798	5,538,798	5,538,798	5,538,798
112 Mar-Jun	2,472,192	2,472,192	2,472,192	2,472,192	2,472,192	2,472,192
113						
114 Pass Through Charge, \$/ccf						
115 Adopted, July-Feb	\$0.30	\$0.40	\$0.40	\$0.40	\$0.40	\$0.40
116 Draft Calculation, Mar-Jun	\$0.40	\$0.40	\$0.40	\$0.40	\$0.40	\$0.40
117						
118 Pass Through Charge Revenues						
119 July-Feb	\$1,661,640	\$2,215,519	\$2,215,519	\$2,215,519	\$2,215,519	\$2,215,519
120 Mar-June	\$988,877	\$988,877	\$988,877	\$988,877	\$988,877	\$988,877
121 Total	\$2,650,516	\$3,204,396	\$3,204,396	\$3,204,396	\$3,204,396	\$3,204,396

Table A-12
City of Garden Grove Water Services Department
2023 Water Rate Study

Capital Improvement Plan

Line	Fund 602 Water Capital Fund Projects	Carryforward	Estimated Funding, Fund 602 (FY 23/24 Dollars)					Total
			Budget FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28	
1	1) Magnolia Reservoirs and Booster Pump Station Project	\$0	\$800,000	\$0	\$0	\$0	\$0	\$800,000
2	2) SCADA Implementation Project	\$436,956	\$400,000	\$1,505,000	\$800,000	\$1,500,000	\$0	\$4,641,956
3	3) SCADA -FP2 Pressure Monitoring Improvements	\$0	\$419,180	\$0	\$0	\$0	\$0	\$419,180
4	4) SCADA - HP4-5 SCADA - Trask & Westhaven	\$0	\$1,450,000	\$0	\$0	\$0	\$0	\$1,450,000
5	5) SCADA - HP1-3 SCADA - Mag, Lampson, & WGG	\$0	\$0	\$900,000	\$0	\$0	\$0	\$900,000
6	6) Water Improvement Project Woodbury Rd and Taft St	\$0	\$0	\$1,200,000	\$0	\$0	\$0	\$1,200,000
7	7) Water Improvement Project - Orangewood and Yorkshire Ave (~7,400 ft)	\$3,956,942	\$0	\$0	\$0	\$0	\$0	\$3,956,942
8	8) Water Improvement Project - Chapman Ave and Dale St (~10,000 ft)	\$0	\$5,000,000	\$0	\$0	\$0	\$0	\$5,000,000
9	9) Well assessment (Well 16, 19, 25)	\$57,142	\$0	\$0	\$0	\$0	\$0	\$57,142
10	10) Well 19 Construction	\$0	\$2,200,000	\$0	\$0	\$0	\$0	\$2,200,000
11	11) Water Improvement Project - Woodbury Ave & Anabel Ave (~3,500 ft)	\$0	\$2,097,545	\$0	\$0	\$0	\$0	\$2,097,545
12	12) Water Main Replacement (2 miles each year)	\$0	\$0	\$0	\$2,084,000	\$4,000,000	\$4,000,000	\$10,084,000
13	13) Design and Construction of Lampson and Trask Reservoirs Rehabilitator	\$0	\$830,000	\$3,000,000	\$3,000,000	\$0	\$0	\$6,830,000
14	14) Various Residential Streets Projects N of GG Blvd & E of Dale	\$0	\$1,200,000	\$0	\$0	\$0	\$0	\$1,200,000
15	15) Water Transmission Line Study	\$0	\$0	\$100,000	\$0	\$0	\$0	\$100,000
16	16) Well 26 Property Purchase			\$1,643,000				\$1,643,000
17	Total	\$4,451,040	\$14,396,725	\$8,348,000	\$5,884,000	\$5,500,000	\$4,000,000	\$42,579,765

Source: City staff, 5/2/23 via email, except for (a) Well 26 Property Purchase from City staff 5/30/23 and Trask & Westhaven SCADA from City staff 6/15/23, and (b) Woodbury & Anabel Ave 7/27/23 from City staff based on construction bids received

Line	Calculation of Inflation Adjusted Fund 602	Carryforward	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28	Total
1	FY 23/24 Dollars, Fund 602 Water Capital Fund							
2	Total expenses without labor	\$4,451,040	\$14,396,725	\$8,348,000	\$5,884,000	\$5,500,000	\$4,000,000	\$42,579,765
3	Labor expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4	Total expenses with labor	\$4,451,040	\$14,396,725	\$8,348,000	\$5,884,000	\$5,500,000	\$4,000,000	\$42,579,765
5								
6	Inflation Adjusted Dollars, Fund 602 Water Capital Fund							
7	Total expenses without labor	\$4,451,040	\$14,396,725	\$8,681,920	\$6,272,344	\$6,009,575	\$4,479,865	\$44,291,469
8	Labor expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0
9	Total expenses with labor	\$4,451,040	\$14,396,725	\$8,681,920	\$6,272,344	\$6,009,575	\$4,479,865	\$44,291,469

Line	Fund 603 Water Replacement Fund Projects	Carryforward	FY23/24	Estimated Funding, Fund 603			Total	
				FY 24/25	FY 25/26	FY 26/27		FY 27/28
1	Replacement Expenditures							
2	Water Main Replacement (services, hydrants, meters, valves, etc.)	\$0	\$3,807,227	\$3,500,000	\$3,500,000	\$3,500,000	\$3,500,000	\$17,807,227
3	Total	\$0	\$3,807,227	\$3,500,000	\$3,500,000	\$3,500,000	\$3,500,000	\$17,807,227
4								
5	Calculation of Inflation Adjusted Fund 603							
6	Inflation Adjusted Dollars, Fund 603 Water Replacement Fund							
7	16) Water Main Replacement (services, hydrants, meters, valves, etc.)	\$0	\$3,807,227	\$3,640,000	\$3,731,000	\$3,824,275	\$3,919,882	\$18,922,384

Appendix B: Cost-of-Service Analysis

Table B-1
City of Garden Grove Water Services Department
2023 Water Rate Study

Water System Cost-of-Service Analysis, FY 23/24 - Functionalization Factors

Line No.	Functionalization Factors	Total	Pumping	Storage	T&D	Customer	Meter	Admin	Rate Tier Calculation	Public Fire Protection	Notes
1	Direct: Pumping	100.0%	100.0%								Direct: Pumping
2	Direct: Storage	100.0%		100.0%							Direct: Storage
3	Direct: T&D	100.0%			100.0%						Direct: T&D
4	Direct: Customer	100.0%				100.0%					Direct: Customer
5	Direct: Meter	100.0%					100.0%				Direct: Meter
6	Direct: Admin	100.0%						100.0%			Direct: Admin
7	Direct: Rate Tier Calculation	100.0%							100.0%		Direct: Rate Tier Calculation
8	Direct: Fire Protection	100.0%								100.0%	Direct: Fire Protection
9	Direct: Water Quality	100.0%	50.0%		50.0%						Direct: Water Quality
10	Direct: Water Master Plan	100.0%	25.0%	25.0%	25.0%					25.0%	Direct: Water Master Plan
11	Direct: T&D and Customer	100.0%			50.0%	50.0%					Direct: T&D and Customer
12	Water Production Section Expenses	100.0%	25.0%	25.0%					50.0%		Water Production Section Expense:
13	Distribution Section Expenses	100.0%			79.6%	20.4%					Distribution Section Expenses
14	Debt Service: % (2)	100.0%	11.2%	25.9%	38.5%	5.1%	5.1%	0.1%	9.8%	4.5%	Debt Service
15	603 Fund Replacements	100.0%			76.0%	9.0%	9.0%			6.0%	603 Fund Replacements
16	O&M with Exclusions, Amount	\$8,966,896	\$1,141,719	\$852,399	\$4,246,577	\$917,281	\$58,177	\$459,281	\$1,261,260	\$30,202	O&M with Exclusions
17	O&M with Exclusions, Percentage	100.0%	12.7%	9.5%	47.4%	10.2%	0.6%	5.1%	14.1%	0.3%	O&M with Exclusions
18	Water Use Objectives Compliance	100.0%							100.0%		Water Use Objectives Compliance
19	Package 3114 - Drainage/Misc Maintenance (5)	100.0%			50.0%	50.0%					Package 3114
20	Package 3700 Contractual Expense										Package 3700 Contractual Expense
21	2015 Revenue Bond Debt, Amount (7)	\$39,102,337	\$10,037,785	\$10,064,997	\$4,811,631			\$250,608	\$6,583,958	\$7,353,358	2015 Revenue Bond Debt
22	2015 Revenue Bond Debt, Percentage		25.7%	25.7%	12.3%	0.0%	0.0%	0.6%	16.8%	18.8%	2015 Revenue Bond Debt
23	Rate Revenue Requirement										Rate Revenue Requirement
24	CIP, Amount	\$42,579,765	\$4,082,710	\$11,015,568	\$17,628,661	\$2,385,685	\$2,385,685	\$0	\$3,843,000	\$1,238,457	
25	CIP, Percentage	100.0%	9.6%	25.9%	41.4%	5.6%	5.6%	0.0%	9.0%	2.9%	CIP

Notes for Tables B-1 through B-5

- (1) Not used.
- (2) Refer to Table B-3
- (3) Refer to Table B-3
- (4) Refer to Table B-10
- (5) Per City staff (7/11/17), this is miscellaneous maintenance performed by the Street Department repairing trenches and sidewalks following maintenance of water system facilities.
- (6) Per City staff (7/11/17), natural gas expenses are approximately 70% booster pumping and 30% source production, and electricity expenses are 70% source production and 30% pumping.

Table B-3
City of Garden Grove Water Services Department
2023 Water Rate Study

Water System Cost-of-Service Analysis - Functionalization of Phase 1 CIP

Line	Project	Projected Cost	Pumping	Storage	T&D	Customer	Meter	Admin	Rate Tier Calculation	Public Fire Protection	Total
1	1) Magnolia Reservoirs and Booster Pump Station Project	\$800,000	40%	60%							100.000%
2	2) SCADA Implementation Project	\$4,641,956	50%	50%							100.000%
3	3) SCADA -FP2 Pressure Monitoring Improvements	\$419,180	50%	50%							100.000%
4	4) SCADA - HP4-5 SCADA - Trask & Westhaven	\$1,450,000	50%	50%							100.000%
5	5) SCADA - HP1-3 SCADA - Mag, Lampson, & WGG	\$900,000	50%	50%							100.000%
6	6) Water Improvement Project Woodbury Rd and Taft St	\$1,200,000			80%	6%	6%			8%	100.000%
7	7) Water Improvement Project - Orangewood and Yorkshire Ave (~7,400 ft)	\$3,956,942			76%	9%	9%			6%	100.000%
8	8) Water Improvement Project - Chapman Ave and Dale St (~10,000 ft)	\$5,000,000			76%	9%	9%			6%	100.000%
9	9) Well assessment (Well 16, 19, 25)	\$57,142	100%								100.000%
10	10) Well 19 Construction	\$2,200,000							100%		100.000%
11	11) Water Improvement Project - Woodbury Ave & Anabel Ave (~3,500 ft)	\$2,097,545			100%						100.000%
12	12) Water Main Replacement (2 miles each year)	\$10,084,000			76%	9%	9%			6%	100.000%
13	13) Design and Construction of Lampson and Trask Reservoirs Rehabilitation	\$6,830,000		100%							100.000%
14	14) Various Residential Streets Projects N of GG Blvd & E of Dale	\$1,200,000				50%	50%				100.000%
15	15) Water Transmission Line Study	\$100,000			100%						100.000%
	16) Well 26 Property Purchase	\$1,643,000							100%		100.000%
	Total	\$42,579,765	\$4,082,710	\$11,015,568	\$17,628,661	\$2,385,685	\$2,385,685	\$0	\$3,843,000	\$1,238,457	\$42,579,765
	As Percent	100%	10%	26%	41%	6%	6%	0%	9%	3%	100%

Notes:

- (1) Functionalization percentages developed by FG Solutions based on the communication with the City.
- (2) Source: City staff, 7/6/23 email.
- (3) SCADA facilitates communication between pumps and reservoirs, and are functionalized accordingly.
- (4) per City staff, 7/5/23 email. Percentage allocation to customers, meters, and hydrants is based on the estimated costs of these items. Service lines and meters portion of this project is divided between customer and hydrants.
- (5) This project is entirely the replacement of service lines and meters, per City staff 7/5/23.

Table B-4
City of Garden Grove Water Services Department
2023 Water Rate Study

Water System Cost-of-Service Analysis, FY 17/18 - Functionalization of Debt Service Payments

Line	Debt Issuance (1)	Five Year Total, \$	Pumping	Storage	T&D	Customer	Meter	Admin	Rate Tier Calculation	Fire Protection	Total
1	Existing Debt (1)										
2	Revenue and Refunding Bonds 2015	\$939,300	25.7%	25.7%	12.3%	0.0%	0.0%	0.6%	16.8%	18.8%	100.000%
3	Water Revenue Bonds Series 2020A	\$8,591,275	9.6%	25.9%	41.4%	5.6%	5.6%	0.0%	9.0%	2.9%	100.000%
4											
5	Future Debt										
6	Revenue Bond	\$0									
7	Total	\$9,530,575	\$1,064,888	\$2,464,377	\$3,672,500	\$481,357	\$481,357	\$6,020	\$933,555	\$426,521	
8	As Percent	100%	11.2%	25.9%	38.5%	5.1%	5.1%	0.1%	9.8%	4.5%	

Notes:

Table B-5
City of Garden Grove Water Services Department
2023 Water Rate Study

Water System Cost-of-Service Analysis, FY 23/24 - Functionalization of O & M Expenses Net of PFAS O&M, City Admin, and Street Damages

Line No.	FY 23/24 Total	Table B-1							Rate Tier Calculations	Fire Protection	Line No. Reference	Functionalization Factor
		Pumping	Storage	T&D	Customer	Meter	Admin					
1	WATER OPS-WATER ADMIN, 50001 - Salaries	\$157,815	\$0	\$0	\$0	\$0	\$0	\$157,815	\$0	\$0	6	Direct: Admin
2	WATER OPS-ENG, 50001 - Salaries	\$429,558	\$41,188	\$111,128	\$177,843	\$24,068	\$24,068	\$0	\$38,769	\$12,494	25	CIP
3	WATER OPS-WATER PROD, 50001 - Salaries	\$1,123,223	\$280,806	\$280,806	\$0	\$0	\$0	\$0	\$561,611	\$0	12	Water Production Section Expense:
4	WATER OPS-WATER DIST, 50001 - Salaries	\$832,005	\$0	\$0	\$662,523	\$169,483	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
5	WATER OPS-WATER QUAL, 50001 - Salaries	\$416,421	\$208,210	\$0	\$208,210	\$0	\$0	\$0	\$0	\$0	9	Direct: Water Quality
6	WATER OPS-WATER DIST, 50001 - Salaries	\$11,555	\$0	\$0	\$9,201	\$2,354	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
7	WATER OPS-WATER DIST, 50001 - Salaries	\$58,040	\$0	\$0	\$46,217	\$11,823	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
8	WATER OPS-WATER DIST, 50001 - Salaries	\$181,056	\$0	\$0	\$144,174	\$36,882	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
9	WATER OPS-WATER DIST, 50001 - Salaries	\$18,152	\$0	\$0	\$14,454	\$3,698	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
10	WATER OPS-WATER DIST, 50001 - Salaries	\$4,302	\$0	\$0	\$3,425	\$876	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
11	WATER OPS-WATER DIST, 50001 - Salaries	\$21,849	\$0	\$0	\$17,398	\$4,451	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
12	WATER OPS-WATER DIST, 50001 - Salaries	\$32,798	\$0	\$0	\$26,117	\$6,681	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
13	WATER OPS-WATER DIST, 50001 - Salaries	\$168,971	\$0	\$0	\$134,551	\$34,420	\$0	\$0	\$0	\$34,420	13	Distribution Section Expenses
14	WATER OPS-WATER DIST, 50001 - Salaries	\$123,082	\$0	\$0	\$98,009	\$25,072	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
15	WATER OPS-WATER DIST, 50001 - Salaries	\$26,548	\$0	\$0	\$21,140	\$5,408	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
16	WATER OPS-WATER DIST, 50001 - Salaries	\$56,179	\$0	\$0	\$44,735	\$11,444	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
17	WATER OPS-WATER DIST, 50001 - Salaries	\$44,453	\$0	\$0	\$35,398	\$9,055	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
18	WATER OPS-WATER DIST, 50001 - Salaries	\$66,271	\$0	\$0	\$52,772	\$13,500	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
19	WATER OPS-WATER DIST, 50001 - Salaries	\$95,686	\$0	\$0	\$76,195	\$19,492	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
20	WATER OPS-WATER DIST, 50001 - Salaries	\$145,395	\$0	\$0	\$115,778	\$29,618	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
21	WATER OPS-WATER DIST, 50001 - Salaries	\$38,605	\$0	\$0	\$30,741	\$7,864	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
22	WATER OPS-WATER DIST, 50001 - Salaries	\$20,365	\$0	\$0	\$16,217	\$4,149	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
23	WATER OPS-WATER ADMIN, 50007 - Fringe Costs	\$93,858	\$0	\$0	\$0	\$0	\$0	\$93,858	\$0	\$0	6	Direct: Admin
24	WATER OPS-ENG, 50007 - Fringe Costs	\$351,164	\$33,671	\$90,848	\$145,387	\$19,675	\$19,675	\$0	\$31,694	\$10,214	25	CIP
25	WATER OPS-WATER PROD, 50007 - Fringe Costs	\$1,080,339	\$270,085	\$270,085	\$0	\$0	\$0	\$0	\$540,169	\$0	12	Water Production Section Expense:
26	WATER OPS-WATER DIST, 50007 - Fringe Costs	\$908,603	\$0	\$0	\$723,517	\$185,086	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
27	WATER OPS-WATER QUAL, 50007 - Fringe Costs	\$343,172	\$171,586	\$0	\$171,586	\$0	\$0	\$0	\$0	\$0	9	Direct: Water Quality
28	WATER OPS-WATER DIST, 50007 - Fringe Costs	\$7,336	\$0	\$0	\$5,842	\$1,494	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
29	WATER OPS-WATER DIST, 50007 - Fringe Costs	\$47,938	\$0	\$0	\$38,173	\$9,765	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
30	WATER OPS-WATER DIST, 50007 - Fringe Costs	\$151,223	\$0	\$0	\$120,419	\$30,805	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
31	WATER OPS-WATER DIST, 50007 - Fringe Costs	\$13,574	\$0	\$0	\$10,809	\$2,765	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
32	WATER OPS-WATER DIST, 50007 - Fringe Costs	\$3,278	\$0	\$0	\$2,610	\$668	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
33	WATER OPS-WATER DIST, 50007 - Fringe Costs	\$19,838	\$0	\$0	\$15,797	\$4,041	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
34	WATER OPS-WATER DIST, 50007 - Fringe Costs	\$19,652	\$0	\$0	\$15,649	\$4,003	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
35	WATER OPS-WATER DIST, 50007 - Fringe Costs	\$153,623	\$0	\$0	\$122,330	\$31,294	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
36	WATER OPS-WATER DIST, 50007 - Fringe Costs	\$95,805	\$0	\$0	\$76,289	\$19,516	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
37	WATER OPS-WATER DIST, 50007 - Fringe Costs	\$22,463	\$0	\$0	\$17,887	\$4,576	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
38	WATER OPS-WATER DIST, 50007 - Fringe Costs	\$51,636	\$0	\$0	\$41,117	\$10,518	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
39	WATER OPS-WATER DIST, 50007 - Fringe Costs	\$37,038	\$0	\$0	\$29,493	\$7,545	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
40	WATER OPS-WATER DIST, 50007 - Fringe Costs	\$51,129	\$0	\$0	\$40,714	\$10,415	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
41	WATER OPS-WATER DIST, 50007 - Fringe Costs	\$94,754	\$0	\$0	\$75,452	\$19,302	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
42	WATER OPS-WATER DIST, 50007 - Fringe Costs	\$136,189	\$0	\$0	\$108,447	\$27,742	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
43	WATER OPS-WATER DIST, 50007 - Fringe Costs	\$32,340	\$0	\$0	\$25,753	\$6,588	\$0	\$0	\$0	\$0	13	Distribution Section Expenses

44	WATER OPS-WATER DIST, 50007 - Fringe Costs	\$16,582	\$0	\$0	\$13,204	\$3,378	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
45	WATER OPS-WATER ADMIN, 51001 - CONTRACTUAL SERV	\$66,789	\$0	\$0	\$0	\$0	\$0	\$66,789	\$0	\$0	6	Direct: Admin
46	WATER OPS-CAPITAL, 51001 - CONTRACTUAL SERV	\$136,425	\$13,081	\$35,294	\$56,482	\$7,644	\$7,644	\$0	\$12,313	\$3,968	25	CIP
47	WATER OPS-ENG, 51001 - CONTRACTUAL SERV	\$43,379	\$4,159	\$11,222	\$17,960	\$2,430	\$2,430	\$0	\$3,915	\$1,262	25	CIP
48	WATER OPS-WATER PROD, 51001 - CONTRACTUAL SERV	\$129,530	\$32,383	\$32,383	\$0	\$0	\$0	\$0	\$64,765	\$0	12	Water Production Section Expenses
49	WATER OPS-WATER DIST, 51001 - CONTRACTUAL SERV	\$129,529	\$0	\$0	\$103,143	\$26,386	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
50	WATER OPS-WATER QUAL, 51001 - CONTRACTUAL SERV	\$64,879	\$0	\$0	\$0	\$0	\$0	\$64,879	\$0	\$0	6	Direct: Admin
51	WATER OPS-WATER ADMIN, 51401 - REGISTRATION FEES	\$500	\$0	\$0	\$0	\$0	\$0	\$500	\$0	\$0	6	Direct: Admin
52	WATER OPS-WATER ADMIN, 51402 - TUITION/TRAINING	\$10,998	\$0	\$0	\$0	\$0	\$0	\$10,998	\$0	\$0	6	Direct: Admin
53	WATER OPS-WATER ADMIN, 51404 - CITY MEMBERSHIPS	\$12,835	\$0	\$0	\$0	\$0	\$0	\$12,835	\$0	\$0	6	Direct: Admin
54	WATER OPS-WATER ADMIN, 52001 - COMMODITIES	\$50,894	\$0	\$0	\$0	\$0	\$0	\$50,894	\$0	\$0	6	Direct: Admin
55	WATER OPS-ENG, 52001 - COMMODITIES	\$77,588	\$7,439	\$20,072	\$32,123	\$4,347	\$4,347	\$0	\$7,003	\$2,257	25	CIP
56	WATER OPS-WATER PROD, 52001 - COMMODITIES	\$2,000	\$500	\$500	\$0	\$0	\$0	\$0	\$1,000	\$0	12	Water Production Section Expenses
57	WATER OPS-WATER DIST, 52001 - COMMODITIES	\$279,557	\$0	\$0	\$222,610	\$56,947	\$0	\$0	\$0	\$0	13	Distribution Section Expenses
58	WATER OPS-WATER QUAL, 52001 - COMMODITIES	\$157,176	\$78,588	\$0	\$78,588	\$0	\$0	\$0	\$0	\$0	9	Direct: Water Quality
59	WATER OPS-WATER ADMIN, 52106 - BOOKS/SUBSCRIPTIONS	\$713	\$0	\$0	\$0	\$0	\$0	\$713	\$0	\$0	6	Direct: Admin
60	WATER OPS-ENG, 52106 - BOOKS/SUBSCRIPTIONS	\$237	\$23	\$61	\$98	\$13	\$13	\$0	\$21	\$7	25	CIP
61	Total O&M	\$8,966,890	\$1,141,719	\$852,399	\$4,246,577	\$917,281	\$58,177	\$459,281	\$1,261,260	\$30,202		
	Math Check, Table A-6	\$8,966,890										

Table B-6
City of Garden Grove Water Services Department
2023 Water Rate Study
Water System Cost-of-Service Analysis, FY 23/24 - Functionalization of Rate Revenue Requirement

Line No.	FY 23/24 Total	Table B-1								Line No. Reference	Functionalization Factor	
		Pumping	Storage	T&D	Customer	Meter	Admin	Rate Tier Calculations	Fire Protection			
1	O&M Expenses											
2	O&M Other than PFAS O&M, City Admin, and Street Damage	\$8,966,890	\$1,141,719	\$852,399	\$4,246,577	\$917,281	\$58,177	\$459,281	\$1,261,260	\$30,202		See Table B-5
3	Water Use Objectives Compliance Cost	\$2,000,000	\$0	\$0	\$0	\$0	\$0	\$0	\$2,000,000	\$0	18	Water Use Objectives Compliance
4	Other O&M											
5	Administrative Services Charge	\$1,402,200	\$0	\$0	\$0	\$0	\$0	\$1,402,200	\$0	\$0	6	Direct: Admin
6	Street Repair Costs	\$814,455	\$0	\$0	\$407,228	\$407,228	\$0	\$0	\$0	\$0	11	Direct: T&D and Customer
7	Projected Water Costs											
8	PFAS O&M Costs	\$2,872,745	\$0	\$0	\$0	\$0	\$0	\$0	\$2,872,745	\$0	7	Direct: Rate Tier Calculation
9	Electricity	\$1,111,256	\$0	\$0	\$0	\$0	\$0	\$0	\$1,111,256	\$0	7	Direct: Rate Tier Calculation
10	Natural Gas	\$289,311	\$0	\$0	\$0	\$0	\$0	\$0	\$289,311	\$0	7	Direct: Rate Tier Calculation
11	WOCWB Shared Water Transmission Lines	\$47,208	\$0	\$0	\$0	\$0	\$0	\$0	\$47,208	\$0	7	Direct: Rate Tier Calculation
12	OCWD Replenishment Assessment	\$10,487,623	\$0	\$0	\$0	\$0	\$0	\$0	\$10,487,623	\$0	7	Direct: Rate Tier Calculation
13	MWD Tier 1 Treated Water	\$3,585,842	\$0	\$0	\$0	\$0	\$0	\$0	\$3,585,842	\$0	7	Direct: Rate Tier Calculation
14	MWD Readiness to Serve Charge	\$541,486	\$0	\$0	\$0	\$0	\$0	\$0	\$541,486	\$0	7	Direct: Rate Tier Calculation
15	MWD Capacity Charge	\$207,834	\$0	\$0	\$0	\$0	\$0	\$0	\$207,834	\$0	7	Direct: Rate Tier Calculation
16	MWD Connection Charge	\$492,275	\$0	\$0	\$0	\$0	\$0	\$0	\$492,275	\$0	7	Direct: Rate Tier Calculation
17	MWD Choice Programs	\$28,734	\$0	\$0	\$0	\$0	\$0	\$0	\$28,734	\$0	7	Direct: Rate Tier Calculation
18	OCWD Reimbursement	(\$166,293)	\$0	\$0	\$0	\$0	\$0	\$0	(\$166,293)	\$0	7	Direct: Rate Tier Calculation
19	Debt Service											
20	Existing Revenue Bonds	\$2,659,475	\$297,153	\$687,676	\$1,024,799	\$134,321	\$134,321	\$1,680	\$260,505	\$119,019	14	Debt Service
21	Intercity Loan	\$1,202,496	\$0	\$0	\$601,248	\$601,248	\$0	\$0	\$0	\$0	11	Direct: T&D and Customer
22	Capital Equipment	\$314,000	\$0	\$0	\$314,000	\$0	\$0	\$0	\$0	\$0	3	Direct: T&D
23	Capital Improvements	\$18,847,765	\$1,807,195	\$4,875,998	\$7,803,257	\$1,056,014	\$1,056,014	\$0	\$1,701,089	\$548,198	25	CIP
24	Water Main Replacement	\$3,807,227	\$0	\$0	\$2,893,493	\$342,650	\$342,650	\$0	\$0	\$228,434	15	603 Fund Replacements
25	Plus Revenue Adjustments (Write-offs)	\$55,214	\$0	\$0	\$0	\$0	\$0	\$55,214	\$0	\$0	6	Direct: Admin
26	Less Other Revenues											
27	Other Revenues	(\$97,032)	\$0	\$0	\$0	\$0	\$0	(\$97,032)	\$0	\$0	6	Direct: Admin
28	Investment Income	(\$151,683)	\$0	\$0	\$0	\$0	\$0	(\$151,683)	\$0	\$0	6	Direct: Admin
29	Remaining 2020A Bond Proceeds	(\$6,800,000)	(\$652,010)	(\$1,759,189)	(\$2,815,302)	(\$380,995)	(\$380,995)	\$0	(\$613,728)	(\$197,782)	25	CIP
30	Capital Improvement Charge Revenues	(\$2,369,704)	(\$227,216)	(\$613,053)	(\$981,093)	(\$132,771)	(\$132,771)	\$0	(\$213,876)	(\$68,924)	25	CIP
31	Less Change in Fund Balance	(\$10,494,918)	(\$1,006,293)	(\$2,715,080)	(\$4,345,053)	(\$588,016)	(\$588,016)	\$0	(\$947,210)	(\$305,251)	25	CIP
32	Total Rate Revenue Requirement	\$39,654,407	\$1,360,548	\$1,328,751	\$9,149,154	\$2,356,960	\$489,380	\$1,669,660	\$22,946,061	\$353,896		
33	Math Check Table A-10	\$39,654,407										
		\$0										

Table B-7
City of Garden Grove Water Services Department
2023 Water Rate Study

Water Cost-of-Service Analysis - Allocation Factors

Line No.	Allocation Method	Base	Extra Capacity		Customer		Rate Tier Calculation	Public Fire Protection	Public & Private Fire Protection	Allocation Factors
			Max Day	Max Hour	Customer	Meter				
1	Direct: Base	100%								Direct: Base
2	Direct: Max Day		100%							Direct: Max Day
3	Direct: Max Hour			100%						Direct: Max Hour
4	Direct: Customer				100%					Direct: Customer
5	Direct: Meters & Services					100%				Direct: Meters & Services
6	Direct: Rate Tier Calculation						100%			Direct: Rate Tier Calculation
7	Direct: Fire Protection							100%		Direct: Fire Protection
8	Direct: Purchased Source (1)	50%								Direct: Purchased Source
9	Base and Max Day (gpm) (1)	14,583	4,375							
10	Base and Max Day: %	76.92%	23.08%							Base and Max Day
11	Weighted Average: %	35.29%	9.51%	10.48%	15.67%	3.25%	0.00%	2.35%	23.44%	Weighted Average ex Rate Tier Calc
12	Base, Max Day, Max Hour (gpm) (1)	14,583	4,375	7,292						
13	Base, Max Day, Max Hour: %	55.56%	16.67%	27.78%						Base, Max Day, Max Hour
14	Storage (1)	83.51%	12.87%						3.62%	Storage
15	Administration (3)	35.29%	9.51%	10.48%	15.67%	3.25%	0.00%	2.35%	23.44%	
16	Transmission and Distribution (4)	34.44%	10.33%	17.22%					38.00%	Transmission and Distribution

Notes:

- (1) Refer to Table B-11 for further details.
- (2) Not used.
- (3) Based on a Weighted Average of other items in Table B-8 below excluding Rate Tier Calculations
- (4) 36% allocated to fire protection, remainder is allocated based on the Base, Max Day, and Max Hour classification factor. See Table B-11 for calculation

Table B-8
City of Garden Grove Water Services Department
2023 Water Rate Study

Water Cost-of-Service Analysis - Allocation of Rate Revenue Requirement

Line No.	FY 23/24 Projection	Extra Capacity			Customer		Rate Tier Calculations	Public Fire Protection	Public and Private Fire Protection	Table B-7 Line No. Reference	
		Base	Max Day (2)	Max Hour(2)	Customer	Meter					
1	Water System Expenses										
2	Pumping	\$1,360,548	\$1,046,575	\$313,973	\$0	\$0	\$0	\$0	\$0	10	
3	Storage	\$1,328,751	\$1,109,632	\$170,983	\$0	\$0	\$0	\$0	\$48,136	14	
4	T&D	\$9,149,154	\$3,151,375	\$945,413	\$1,575,688	\$0	\$0	\$0	\$3,476,679	16	
5	Customer	\$2,356,960	\$0	\$0	\$0	\$2,356,960	\$0	\$0	\$0	4	
6	Meter	\$489,380	\$0	\$0	\$0	\$0	\$489,380	\$0	\$0	5	
7	Administration (3)	\$1,669,660	\$589,271	\$158,806	\$174,940	\$261,680	\$54,333	\$0	\$39,291	\$391,340	
8	Rate Tier Calculations	\$22,946,061	\$0	\$0	\$0	\$0	\$22,946,061	\$0	\$0	6	
9	Public Fire Protection	\$353,896	\$0	\$0	\$0	\$0	\$0	\$353,896	\$0	7	
10	Reallocate Public FP (4)	\$0	\$0	\$0	\$0	\$1,856,414	\$1,856,414	\$0	(\$393,187)	(\$3,319,641)	Not Applicable
11	Total	\$39,654,410	\$5,896,853	\$1,589,175	\$1,750,628	\$4,475,054	\$2,400,127	\$22,946,061	\$0	\$596,514	
12	Percent of Total	100%	15%	4%	4%	11%	6%	58%	0%	2%	
13	Check, OS	\$39,654,407									

Notes:

- (1) Refer to Table B-5 for Functionalization totals
- (2) Peaking costs associated with Max-Day and Max-Hour extra capacity are also included in the Rate Tier Calculation in Appendix C
- (3) Administrative costs are based on a weighted average of other items in this table except those allocated to the Rate Tier Calculations. They are not allocated to the Rate Tier Calculation to improve the transparency of the Rate Tier Calculation
- (4) See Table B-9

Table B-9
City of Garden Grove Water Services Department
2023 Water Rate Study

Water Cost-of-Service Analysis - Re-Allocate Public Fire Protection Costs

Line			
1	Public and Private Fire Protection Revenue Requirement:	\$3,916,155	See Table B- 7, rows 1 through 9
2	Number of Fire Protection Equivalent Connection:	525,251	See Table B-11, Section 3
3	Annual Cost per Fire Protection Equivalent Connector	\$7.46	
4			
5	Number of Private Fire Protection Equivalent Connection:	80,007	See Table B-11, Section 3
6	Annual Revenue Requirement from Private Fire Protection Equivalent Connection	\$596,514	
7			
8	Number of Public Fire Protection Equivalent Connection:	445,244	See Table B-11, Section 3
9	Annual Revenue Requirement from Public Fire Protection Equivalent Connection		
10	Public and Private Fire Protection Allocation:	\$3,319,641	
11	Public Only Fire Protection Allocation	\$393,187	
12	Total	\$3,712,828	
13			
14	50% of this Revenue Will Be Recovered from Customers on a per-Meter Equivalent Basis:	\$1,856,414	
15	50% of this Revenue Will Be Recovered from Customers on a per-Account Basis:	\$1,856,414	
16			
17	Cost recovery by meter equivalent is proposed in this Rate Study because customers with larger meters typically have		
18	larger fire flow requirements. Cost recovery by account is proposed in this Rate Study because the majority of hydrants are in residential area		
19	Cost recovery by meter equivalent and by customer are methods that are listed as alternatives in the		
20	AWWA M1 Manual, 7th Edition, pages 165 and 166 (Table IV.8-5).		

Table B-10
City of Garden Grove Water Services Department
2023 Water Rate Study

Identification of Costs to be Included in Rate Tier Calculations

Costs Classified as Rate Tier Costs	FY 22/23	Applies to	Local	Imported	Conservation	Which Tier Recovered From
	Rate Tier Costs	Water Use in Both Tiers	Groundwater	Water		
1 O&M Other than PFAS O&M, City Admin, and Street Damages	\$1,261,260		\$1,261,260			Propotional to Groundwater Use in Each Tier
2 Water Use Objectives Compliance Cost	\$2,000,000				\$2,000,000	Tier 2 Only
3 Projected Water Costs						Propotional to Groundwater Use in Each Tier
4 PFAS O&M Costs	\$2,872,745		\$2,872,745			Propotional to Groundwater Use in Each Tier
5 Electricity	\$1,111,256		\$1,111,256			Propotional to Groundwater Use in Each Tier
6 Natural Gas	\$289,311		\$289,311			Propotional to Groundwater Use in Each Tier
7 WOCWB Shared Water Transmission Lines	\$47,208		\$47,208			Propotional to Groundwater Use in Each Tier
8 OCWD Replenishment Assessment	\$10,487,623		\$10,487,623			Propotional to Groundwater Use in Each Tier
9 MWD Tier 1 Treated Water	\$3,585,842			\$3,585,842		Tier 2 Only
10 MWD Readiness to Serve Charge	\$541,486			\$541,486		Tier 2 Only
11 MWD Capacity Charge	\$207,834			\$207,834		Tier 2 Only
12 MWD Connection Charge	\$492,275			\$492,275		Tier 2 Only
13 MWD Choice Programs	\$28,734			\$28,734		
14 OCWD Reimbursement	(\$166,293)		(\$166,293)			Propotional to Groundwater Use in Each Tier
15 Debt Service						
16 Existing Revenue Bonds	\$260,505	\$260,505				Propotional to Groundwater Use in Each Tier
17 Capital Improvements	\$1,701,089	\$1,701,089				Only CIP costs functionalized as Rate Tier (see Table B-1)
18 Remaining 2020A Bond Proceeds	(\$613,728)	(\$613,728)				Propotional to Groundwater Use in Each Tier
19 Capital Improvement Charge Revenues	(\$213,876)	(\$213,876)				Propotional to Groundwater Use in Each Tier
20 Less Change in Fund Balance	(\$947,210)	(\$947,210)				Propotional to Groundwater Use in Each Tier
21 Portion of COSA-Classified as Base, MDD, PHD	\$8,307,139	\$8,307,139				
22 Total	\$31,253,200	\$8,493,919	\$15,903,110	\$4,856,171	\$2,000,000	
Reapportionment of Costs Applicable to Water Use in All Tiers to Groundwater and Imported Water (85% Groundwater, 15% Imported Water)		(\$8,493,919)	\$7,219,832	\$1,274,088		
Total	\$31,253,200	\$0	\$23,122,942	\$6,130,259	\$2,000,000	

**Table B-11
City of Garden Grove - Water Division
2022 Revenue Requirement Update**

Supporting Calculations for Cost-of-Service Analysis

1. Package 3700 - Labor Functionalization

Line	Position	Pumping	Storage	T&D	Customer	Meter	Admin	Rate Tier Calculation	Public Fire Protection	FTE Weighting	Note
1	Water Production Group	25%	25%					50%		12.00	1
2	Water Engineering Group, Capital	9.6%	25.9%	41.4%	5.6%	5.6%	0.0%	9.0%	2.9%	3.50	2
3	Water Engineering Group, Operations	7.17%	8.40%	55.37%	12.25%	0.42%	0.00%	16.16%	0.22%	3.50	2
4	Customer Service Workers				100%					3.00	
5	Meter Readers				100%					2.50	
6	Remainder of Water Distribution Group			100%						21.50	3
7	Water Quality Group			70%				30%		4.00	4
8	Management	7.17%	8.40%	55.37%	12.25%	0.42%	0.00%	16.16%	0.22%	4.00	5
9	Total	7.17%	8.40%	55.37%	12.25%	0.42%	0.00%	16.16%	0.22%	54.00	

10
11
12
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18

- Notes:
- (1) Functionalized to 25% pumping, 25% storage, and 50% water production incorporated into the rate tier calculation.
 - (2) There are 7 engineering FTEs. Split 50/50 between water capital and water operations. Capital group functionalized per the CIP. Operations group functionalized by a weighted average of all other operation FTEs.
 - (3) Verified with City staff in 2023 that there are 21.5 FTEs associated with the water distribution system.
 - (4) Responsible for water quality sampling and testing, and the City's backflow prevention program. Water quality sampling occurs at the source of supply and in the distribution system.
 - (5) Functionalized based on a weighted average of all other operation FTEs.

Table B-11
City of Garden Grove - Water Division
2022 Revenue Requirement Update

Supporting Calculations for Cost-of-Service Analysis

19

20 **3. CY 2022 Average and Maximum Day Water Demand**

21

22 Average Day Demand 21 MGD (used in the Water Master Plan to define the Capital Improvement Plan)
23 14,583 gpm

24

25 Maximum Day Demand/Average Day Ratio

26 MDD/ADD Peaking Factor (2) 1.30

27

28 Max Hour/Average Day Ratio

29 PHD/ADD Peaking Factor (2) 1.80

30

31 Notes:

32 (1) Source: Garden Grove 2020 Water Master Plan Update, Table ES-1. The average day demand differs from CY 2022 actual demands, but is the
33 demand used to analyze the water system and develop capital improvements.

34 (2) Source: Garden Grove 2020 Water Master Plan Update, Table ES-1.

35

36 **4. Fire Protection Equivalents**

37

38

39

Connection Size (in)	Demand Factor (1)	FY 22/23 Public	FY 22/23 Private	Total Connections	Number of Equivalent Fire Protection Connections		
		Connections (2)	Connections (2)		Public	Private	Total
0.75	1.00	0	0	0	0	0	0
1	1.00	0	0	0	0	0	0
1.5	2.90	0	3	3	0	9	9
2	6.19	0	26	26	0	161	161
3	17.98	0	3	3	0	54	54
4	38.32	0	114	114	0	4,368	4,368
6	111.31	4,000	262	4,262	445,244	29,163	474,407
8	237.21	0	177	177	0	41,986	41,986
10	426.58	0	10	10	0	4,266	4,266
12	689.04	0	0	0	0	0	0
Total		4,000	595	4,595	445,244	80,007	525,251

54 Notes:

55 (1) AWWA M1, page 152 (7th edition page 162); demand factor = diameter ^ 2.63; exponent based on Hazen-Williams equation for flow through
56 pressure conduits.

57 (2) Source: City staff via email, 7/03/23.

58

59

**Table B-11
City of Garden Grove - Water Division
2022 Revenue Requirement Update**

Supporting Calculations for Cost-of-Service Analysis

5. Calculation: Fire Protection Demand (1), and Fire Protection Allocation for Supply, Storage, and T&D

60
61 Fire Demand (gpm) = $1020 \cdot \sqrt{\text{population}} / (1 - 0.01 \cdot \sqrt{\text{population}})$
62 where population is in thousands
63 Fire Protection Allocation = $\text{Fire Demand} / (\text{Fire Demand} + \text{Maximum Daily Demand})$
64
65 Population for Garden Grove's Water Service Area = 171,183 (2)
66 Fire demand (gpm) = 11,599
67 Average Daily Demand ADD (mgd) = 21.00 (3)
68 Ratio of Max Day to Average Daily Demand = 1.30 (3) (4)
69 Maximum Daily Demand (mgd) = 27.30
70 Maximum Daily Demand (gpm) = 18,958
71 Therefore, Fire Protection Allocation = 38%
72
73 Fire Protection Allocation for COS 38%

74 Calculation notes:

- 75 (1) Calculation based on AWWA M1 7th edition, page 159. Calculation published by the American Insurance Association,
76 formerly National Fire Underwriters Association.
77 (2) Source: Department of Finance, State of California, population estimate 1/1/2023. <https://dof.ca.gov/forecasting/demographics/estimates/e-5-population-and-housing-estimates-for-cities-counties-a>
78 (3) See calculation above in this worksheet
79 (4) 2020 Water Master Plan Update, Page 7-3, indicates that the distribution system was analyzed at a condition of max day demand plus fireflow demand.
80

6. Allocation of Storage to Average Day, Peak Day, and Fire Flow Components

82

83 Methodology: Page 8-18, September 2008 Water Master Plan. Average Day Demand from FY 15/16 is used in this analysis.

84

85 Operational Storage, 30% of Maximum Day Demand	6.82	2023 Water Master Plan Update, Table 7-5 (Existing System Analysis)
86 Fire Flow, 4 hours at 4,000 gpm	1.92	
87 Emergency Storage, 100% of Average Day Demand	20.98	
88 Additional Surplus Storage	23.28	
89 Available Storage	<u>53.00</u>	

90

Storage Cost Classification

92 Function of Reservoir Volume	MG	Avg Day Demand	Peak Day Demand	Fireflow	Total
93 Operational Storage	6.82		100%		100%
94 Fire Fighting Storage	1.92			100%	100%
95 Emergency Storage	20.98	100%			100%
96 Remainder	23.28	100%			100%
97 Total	53.00	83.51%	12.87%	3.62%	100%

Appendix C: Rate Design

Table C-1
City of Garden Grove Water Services Department
2023 Water Rate Study
Rate Design Calculations

Step 1. Projected Number of Customers by Meter Size

Meter Size	Current # of Customers, FY 22/23 (1)	Projected Number of Customers					Notes
		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28	
1 5/8" X 3/4" meter	28,533	28,533	28,533	28,533	28,533	28,533	2
2 1" meter	3,826	3,826	3,826	3,826	3,826	3,826	
3 1 1/2" meter	864	864	864	864	864	864	
4 2" meter	729	729	729	729	729	729	
5 3" meter	57	57	57	57	57	57	
6 4" meter	125	125	125	125	125	125	
7 6" meter	56	56	56	56	56	56	
8 8" meter	2	2	2	2	2	2	
9 10" Meter	0	0	0	0	0	0	
10 Total	34,192	34,192	34,192	34,192	34,192	34,192	

11 Notes:

12 (1) Source: City staff 3/27/2023. Excludes fire service connections. See Table A-2 for additional details.

13 (2) Four connections with no reported meter size in City data are included in this analysis as having 5/8"x3/4" meters.

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Step 2. Projected Number of Meter Equivalents by Meter Size

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(1) AWWA M1 Manual, Table B-2 (Seventh Edition).

Table C-1
City of Garden Grove Water Services Department
2023 Water Rate Study
Rate Design Calculations

36 (2) 5/8" X 3/4" meters are assigned a meter equivalent ratio of 1.0 by definition. Rounded to nearest 0.01.

37
38

39 **Step 3. Calculate Proposed Bi-Monthly Capital Improvement Charges (Cost-of-Service Based Rates)**

40

41 **Step 3a. Define Capital Improvement Charge Revenue Requirement if Rate Increases Were In Effect for Full Fiscal Year**

42

	As Proposed (Effective for Last 4 Months in FY)				
	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
45 Capital Imp. Charge Revenues Under Existing Rates	\$2,320,206	\$2,320,206	\$2,320,206	\$2,320,206	\$2,320,206
46 Capital Imp. Charge Revenues from Rate Increases	49,498	201,159	362,526	534,222	678,248
47 Capital Imp. Charge Revenue Requirement	\$2,369,704	\$2,521,365	\$2,682,732	\$2,854,428	\$2,998,454

48

	Full Year (Effective for Entire FY)				
	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
51 Capital Imp. Charge Revenues Under Existing Rates	\$2,320,206	\$2,320,206	\$2,320,206	\$2,320,206	\$2,320,206
52 Capital Imp. Charge Revenues from Rate Increases	148,494	306,491	474,598	653,468	727,810
53 Capital Imp. Charge Revenue Requirement	\$2,468,700	\$2,626,697	\$2,794,804	\$2,973,674	\$3,048,016
54 % Increase from Previous Year		6.40%	6.40%	6.40%	2.50%

55

56

57 **Step 3b. Calculate Cost-of-Service Bi-Monthly Capital Improvement Charges**

58

60 Meter Size	Current	Proposed Capital Improvement Charge				
	Charge	1/1/24	1/1/25	1/1/26	1/1/27	1/1/28
61 5/8" X 3/4" meter	\$7.00	\$7.45	\$7.92	\$8.43	\$8.97	\$9.20
62 1" meter	\$17.50	\$18.62	\$19.81	\$21.08	\$22.43	\$22.99
63 1 1/2" meter	\$35.00	\$37.24	\$39.62	\$42.16	\$44.85	\$45.98
64 2" meter	\$56.00	\$59.58	\$63.39	\$67.45	\$71.77	\$73.56
65 3" meter	\$112.00	\$119.16	\$126.79	\$134.90	\$143.53	\$147.12
66 4" meter	\$175.00	\$186.19	\$198.10	\$210.78	\$224.27	\$229.88
67 6" meter	\$350.00	\$372.37	\$396.21	\$421.56	\$448.54	\$459.76
68 8" meter	\$560.00	\$595.80	\$633.93	\$674.50	\$717.67	\$735.61
69 10" Meter	\$840.00	\$893.70	\$950.89	\$1,011.75	\$1,076.50	\$1,103.41
70 Total		\$1.064	\$1.064	\$1.064	\$1.064	\$1.025

72

Table C-1
City of Garden Grove Water Services Department
2023 Water Rate Study
Rate Design Calculations

73 **Step 3c. Calculate Projected Bi-Monthly Capital Improvement Charge Revenues (Cost-of-Service Rates)**

		Projected Revenues, First 8 Months of FY				
76 Meter Size		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
77	5/8 x 3/4" meter	\$798,924	\$849,994	\$904,394	\$962,274	\$1,023,861
78	1" meter	267,820	284,940	303,176	322,579	343,225
79	1 1/2" meter	120,960	128,692	136,928	145,692	155,016
80	2" meter	163,296	173,734	184,853	196,684	209,272
81	3" meter	25,536	27,168	28,907	30,757	32,726
82	4" meter	87,500	93,093	99,051	105,390	112,136
83	6" meter	78,400	83,412	88,750	94,430	100,473
84	8" meter	4,480	4,766	5,071	5,396	5,741
85	10" meter	0	0	0	0	0
86	Subtotal	\$1,546,916	\$1,645,800	\$1,751,131	\$1,863,203	\$1,982,449

		Projected Revenues, Last 4 Months of FY					
90 Meter Size		FY 21/22	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
91	5/8 x 3/4" meter		\$424,997	\$452,197	\$481,137	\$511,930	\$524,729
92	1" meter		142,470	151,588	161,290	171,612	175,903
93	1 1/2" meter		64,346	68,464	72,846	77,508	79,446
94	2" meter		86,867	92,427	98,342	104,636	107,252
95	3" meter		13,584	14,454	15,379	16,363	16,772
96	4" meter		46,547	49,526	52,695	56,068	57,469
97	6" meter		41,706	44,375	47,215	50,237	51,493
98	8" meter		2,383	2,536	2,698	2,871	2,942
99	10" meter		0	0	0	0	0
100	Subtotal		\$822,900	\$875,566	\$931,601	\$991,225	\$1,016,005

		Projected Revenues, Entire FY				
		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
104	Total Projected Revenues	\$2,369,816	\$2,521,366	\$2,682,733	\$2,854,427	\$2,998,455
105	Compare with Revenue Requirement	\$2,369,704	\$2,521,365	\$2,682,732	\$2,854,428	\$2,998,454

107 **Step 4. Define Rate Revenue Requirement if Rate Increases Were In Effect for Full Fiscal Year**

		As Proposed (Effective for Last 4 Months in FY)					
		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28	
111	Rate Revenues Under Existing Rates	\$38,218,724	\$38,218,724	\$38,218,724	\$38,218,724	\$38,218,724	Excludes Capital Improvement Charges, Low Water User Disc
112	Rate Revenues from Rate Increases	815,333	3,313,512	5,971,575	8,799,754	11,172,162	

Table C-1
City of Garden Grove Water Services Department
2023 Water Rate Study
Rate Design Calculations

113	Rate Revenue Requirement	\$39,034,057	\$41,532,236	\$44,190,299	\$47,018,478	\$49,390,886
114						
115						
116		Full Year (Effective for Entire FY)				
		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
117	Rate Revenues Under Existing Rates	\$38,218,724	\$38,218,724	\$38,218,724	\$38,218,724	\$38,218,724
118	Rate Revenues from Rate Increases	2,445,999	5,048,540	7,817,645	10,763,972	11,988,540
119	Rate Revenue Requirement	\$40,664,723	\$43,267,264	\$46,036,369	\$48,982,696	\$50,207,264
120	% Increase from Previous Year		6.40%	6.40%	6.40%	2.50%

122 Note:

123 Rate Revenue Requirement in this Rate Design Section means the revenue requirement from the Bi-Monthly Service Charge,
124 Commodity Delivery Charges, and Fire Service Charges.

127 **Step 5. Calculate Proposed Fire Service Rates (Cost-of-Service Based Rates)**

129 **Step 5a. Calculate FY 23/24 Unit Cost, \$/Equivalent Fire Connection**

131	Private Fire Protection Revenue Requirement FY 23/24	\$596,514	See Table B-9
132	Number of Equivalent Private Fire Protection Connections	80,007	See Table B-9
133	FY 23/24 Unit Cost, \$/Equivalent Connection per bi-monthly billing period	\$1.24	Annual \$/Equivalent Connection Divided by 6; See Table B-9

135 **Step 5b. Calculate Cost-of-Service Bi-Monthly Fire Service Rate**

138	Connection Size (in)	Demand Factor	Current Rate	Proposed Bi-Monthly Fire Service Rate (1)				
				1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
140	0.75	1.00		\$1.24	\$1.32	\$1.40	\$1.49	\$1.53
141	1	1.00		\$1.24	\$1.32	\$1.40	\$1.49	\$1.53
142	1.5	2.90	\$2.99	\$3.61	\$3.84	\$4.09	\$4.35	\$4.46
143	2	6.19	\$6.38	\$7.69	\$8.18	\$8.70	\$9.26	\$9.49
144	3	17.98	\$18.55	\$22.34	\$23.77	\$25.29	\$26.91	\$27.58
145	4	38.32	\$39.51	\$47.62	\$50.67	\$53.91	\$57.36	\$58.79
146	6	111.31	\$114.76	\$138.32	\$147.17	\$156.59	\$166.61	\$170.78
147	8	237.21	\$244.55	\$294.76	\$313.62	\$333.69	\$355.05	\$363.93
148	10	426.58	\$439.79	\$530.08	\$564.01	\$600.11	\$638.52	\$654.48

150 Note

151 (1) FY 23/24 rates are intended to collect the FY 23/24 Fire Protection Revenue Requirement if the rate were in effect for the entire Fiscal Year.
152 Rate increases in subsequent years are at the same percentage as the overall revenue requirement increase.

Table C-1
City of Garden Grove Water Services Department
2023 Water Rate Study
Rate Design Calculations

153
154 **Step 5c. Calculate Projected Bi-Monthly Fire Service Rate Revenues (Cost-of-Service Rates)**
155

156	157	158	159	160	161	162	163	164	165
	Connection	No. of							
	Meter Size	Fire Service							
		Connections							
	1 1/2" meter	3							
	2" meter	26							
	3" meter	3							
	4" meter	114							
	6" meter	262							
	8" meter	177							
	10" meter	10							

166	167	168 Projected Revenues, First 8 Months of FY				
	Meter Size	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
	1 1/2" meter	\$36	\$43	\$46	\$49	\$52
	2" meter	664	800	851	905	963
	3" meter	223	268	285	303	323
	4" meter	18,017	21,715	23,106	24,583	26,156
	6" meter	120,268	144,959	154,234	164,106	174,607
	8" meter	173,141	208,690	222,043	236,253	251,375
	10" meter	17,592	21,203	22,560	24,004	25,541
	Subtotal	\$329,940	\$397,679	\$423,125	\$450,204	\$479,018

177	178	179 Projected Revenues, Last 4 Months of FY				
	Meter Size	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
	1 1/2" meter	\$22	\$23	\$25	\$26	\$27
	2" meter	400	425	452	482	493
	3" meter	134	143	152	161	165
	4" meter	10,857	11,553	12,291	13,078	13,404
	6" meter	72,480	77,117	82,053	87,304	89,489
	8" meter	104,345	111,021	118,126	125,688	128,831
	10" meter	10,602	11,280	12,002	12,770	13,090
	Subtotal	\$198,839	\$211,563	\$225,102	\$239,509	\$245,499

188	189	190 Projected Revenues, Entire FY				
		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
	191 Total Projected Revenues	\$528,779	\$609,241	\$648,227	\$689,712	\$724,517

192

Table C-1
City of Garden Grove Water Services Department
2023 Water Rate Study
Rate Design Calculations

193

194 **Step 6. Calculate Revenue Requirement from Bi-Monthly Service Charge and Commodity Delivery Charge**

195

	<u>FY 23/24</u>	<u>FY 24/25</u>	<u>FY 25/26</u>	<u>FY 26/27</u>	<u>FY 27/28</u>
197 Rate Revenue Requirement (Full Year	\$40,664,723	\$43,267,264	\$46,036,369	\$48,982,696	\$50,207,264
198 Implementation, See Step 4 Above)					
199 Less Projected Fire Service Revenues (FullYrImpl)	(\$596,518)	(\$634,688)	(\$675,305)	(\$718,527)	(\$736,498)
200 Revenue Requirement from Bi-Monthly Minimum	\$40,068,206	\$42,632,577	\$45,361,064	\$48,264,170	\$49,470,766
201 Charge and Commodity Delivery Charge					
202 (Full Year Implementation)					

203

204

205 **Step 7. Define Policy: % of Revenues from Bi-Monthly Minimum Charge**

206 Methodology: this parameter is a user input, developed to even out increases in Bi-Monthly Minimum Charge and Commodity Delivery Charges

207

	<u>FY 23/24</u>	<u>FY 24/25</u>	<u>FY 25/26</u>	<u>FY 26/27</u>	<u>FY 27/28</u>
209 % of Revenues from Bi-Monthly Minimum Charge	22.0%	23.0%	23.0%	23.0%	23.0%

210

211

212 **Step 8. Calculate Bi-Monthly Minimum Charges (Cost-of-Service Based Rates)**

213

214 **Step 8a. Calculate Revenue Requirement from Bi-Monthly Minimum Charges**

215

	<u>FY 23/24</u>	<u>FY 24/25</u>	<u>FY 25/26</u>	<u>FY 26/27</u>	<u>FY 27/28</u>
217 Revenue Requirement from Bi-Monthly Minimum	\$40,068,206	\$42,632,577	\$45,361,064	\$48,264,170	\$49,470,766
218 Charge and Commodity Delivery Charge					
219 (Full Year Implementation)					
220 Times % of Revenues from Bi-Monthly Min. Chg.	22%	23%	23%	23%	23%
221 Revenue Requirement from Bi-Monthly Min. Chg.	\$8,815,005	\$9,805,493	\$10,433,045	\$11,100,759	\$11,378,276
222 (Full Year Implementation)					

223

224 **Step 8b. Define Costs Recovered on a Per Customer Basis and Identify per-Customer Component of Bi-Monthly Minimum Charge**

225

	<u>FY 23/24</u>	<u>FY 24/25</u>	<u>FY 25/26</u>	<u>FY 26/27</u>	<u>FY 27/28</u>	<u>Notes</u>
227 COSA Classification as Customer	\$4,475,054	\$4,654,056	\$4,840,219	\$5,033,827	\$5,033,827	1, 2
228 Number of Customers	34,192	34,192	34,192	34,192	34,192	
229 Per-Customer Component of Bi-Monthly Min. Chg.	\$21.81	\$22.69	\$23.59	\$24.54	\$24.54	

230

231 Notes:

232 (1) FY 23/24 from the Cost-of-Service Analysis. See Table B-8. Cost-of-Service Analysis is abbreviated as COSA in this worksheet.

Table C-1
City of Garden Grove Water Services Department
2023 Water Rate Study
Rate Design Calculations

233 (2) Subsequent years: costs recovered on a per-customer basis increased by the rate of inflation as most of the customer costs increase with inflation.

234

235 **Step 8c. Define Costs Recovered on a Per Meter Equivalent Basis and Identify per-Meter Equivalent Component of Bi-Monthly Minimum Charge**

236

237

238 Costs Recovered on a Per-Meter Equivalent Basis

	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28	Notes
239 COSA Classification as Meter Equivalent	\$2,400,127	\$2,496,132	\$2,595,978	\$2,699,817	\$2,699,817	1, 2
240 COSA Classified as MDD/PHD	\$3,339,802	\$3,473,394	\$3,612,330	\$3,756,823	\$3,756,823	1, 2
241 Portion of COSA Classified as Base	(\$1,399,979)	(\$818,090)	(\$615,482)	(\$389,708)	(\$112,191)	1, 2, 3
242 Total	\$4,339,951	\$5,151,436	\$5,592,826	\$6,066,932	\$6,344,449	4

Table C-1
City of Garden Grove Water Services Department
2023 Water Rate Study
Rate Design Calculations

272	Proposed Bi-Monthly Minimum Charge (Cost-of-Service Rates)						
273	5/8 x 3/4" meter	\$33.85	\$34.91	\$38.23	\$40.47	\$42.84	\$43.68
274	1" meter	\$50.48	\$54.54	\$61.54	\$65.77	\$70.29	\$72.39
275	1 1/2" meter	\$78.20	\$87.28	\$100.39	\$107.95	\$116.05	\$120.24
276	2" meter	\$111.45	\$126.55	\$147.01	\$158.57	\$170.96	\$177.65
277	3" meter	\$200.15	\$231.29	\$271.34	\$293.55	\$317.38	\$330.77
278	4" meter	\$299.92	\$349.13	\$411.20	\$445.40	\$482.10	\$503.03
279	6" meter	\$577.08	\$676.44	\$799.72	\$867.20	\$939.66	\$981.52
280	8" meter	\$909.67	\$1,069.22	\$1,265.94	\$1,373.37	\$1,488.73	\$1,555.71
281	10" meter	\$1,353.12	\$1,592.92	\$1,887.56	\$2,048.26	\$2,220.83	\$2,321.29
282							
283							
284	Calculation of Proposed Bi-Monthly Minimum Charge Revenues, First Eight Months of FY						
285	5/8 x 3/4" meter	\$3,863,368	\$3,983,883	\$4,362,869	\$4,618,410	\$4,889,359	
286	1" meter	\$772,546	\$834,753	\$941,769	\$1,006,602	\$1,075,767	
287	1 1/2" meter	\$270,259	\$301,627	\$346,944	\$373,090	\$401,066	
288	2" meter	\$324,988	\$369,031	\$428,684	\$462,393	\$498,510	
289	3" meter	\$45,634	\$52,735	\$61,865	\$66,929	\$72,362	
290	4" meter	\$149,960	\$174,564	\$205,601	\$222,699	\$241,049	
291	6" meter	\$129,266	\$151,523	\$179,137	\$194,253	\$210,484	
292	8" meter	\$7,277	\$8,554	\$10,127	\$10,987	\$11,910	
293	10" meter	\$0	\$0	\$0	\$0	\$0	
294	Total	\$5,563,299	\$5,876,670	\$6,536,995	\$6,955,363	\$7,400,506	
295							
296	Calculation of Proposed Bi-Monthly Minimum Charge Revenues, Last Four Months of FY						
297	5/8 x 3/4" meter	\$1,991,942	\$2,181,434	\$2,309,205	\$2,444,679	\$2,492,455	
298	1" meter	\$417,377	\$470,885	\$503,301	\$537,883	\$553,899	
299	1 1/2" meter	\$150,813	\$173,472	\$186,545	\$200,533	\$207,767	
300	2" meter	\$184,516	\$214,342	\$231,196	\$249,255	\$259,020	
301	3" meter	\$26,368	\$30,932	\$33,465	\$36,181	\$37,708	
302	4" meter	\$87,282	\$102,800	\$111,349	\$120,525	\$125,757	
303	6" meter	\$75,761	\$89,568	\$97,127	\$105,242	\$109,930	
304	8" meter	\$4,277	\$5,064	\$5,493	\$5,955	\$6,223	
305	10" meter	\$0	\$0	\$0	\$0	\$0	
306	Total	\$2,938,335	\$3,268,498	\$3,477,682	\$3,700,253	\$3,792,759	
307							
308	Total Proposed Bi-Monthly Minimum Charge Revenues	\$8,501,634	\$9,145,168	\$10,014,677	\$10,655,616	\$11,193,265	
309	(Cost-of-Service Rates)						
310							
311	Bi-Monthly Minimum Charge Rev Req	\$8,471,161	\$9,412,289	\$10,014,677	\$10,655,616	\$11,193,265	

Table C-1
City of Garden Grove Water Services Department
2023 Water Rate Study
Rate Design Calculations

312
313 Difference: Rev Req Minus Projected Revenues (\$30,473) \$267,121 \$0 \$0 \$0
314

315 **Step 9. Define Costs to be Recovered from Commodity Delivery Charges**

316	317					
318	Revenue Req. from Commodity Delivery Charges	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
319	Rate Revenue Requirement (Full Year	\$40,664,723	\$43,267,264	\$46,036,369	\$48,982,696	\$50,207,264
320	Implementation, See Step 4 Above)					
321	Less Projected Fire Service Revenues (FullYrImpl)	(596,518)	(634,688)	(675,305)	(718,527)	(736,498)
322	Less Bi-Monthly Min. Chg. Rev (FullYrImpl)	(8,815,005)	(9,805,493)	(10,433,045)	(11,100,759)	(11,378,276)
323	Revenue Requirement from Commodity Delivery	\$31,253,200	\$32,827,084	\$34,928,019	\$37,163,411	\$38,092,490
324	Charges (Full Year Implementation)					

325
326
327 **Step 10. Calculate Commodity Delivery Charges (Cost-of-Service Based Rates)**

328
329 **Step 10a. Define Water Supply Sources for Water Sold in Tiers 1 and 2**

330						
331		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
332	Projected Tier 1 Consumption, ccf/year					
333	July - Feb	4,073,457	4,073,457	4,073,457	4,073,457	4,073,457
334	Mar - June	1,818,150	1,818,150	1,818,150	1,818,150	1,818,150
335	Total	5,891,606	5,891,606	5,891,606	5,891,606	5,891,606
336						73.54%
337	Projected Tier 2 Consumption, ccf/year					
338	July - Feb	1,465,342	1,465,342	1,465,342	1,465,342	1,465,342
339	Mar - June	654,042	654,042	654,042	654,042	654,042
340	Total	2,119,384	2,119,384	2,119,384	2,119,384	2,119,384
341						26.46%
342	Projected Sources of Tier 2 Water, ccf/year					
343	Imported Water	1,201,649	1,201,649	1,201,649	1,201,649	1,201,649
344	Local Groundwater	917,735	917,735	917,735	917,735	917,735
345						56.7%
346	Amount of Local Groundwater Production Sold in Each Tier					43.3%
347	Tier 1	4,973,871	4,973,871	4,973,871	4,973,871	4,973,871
348	Tier 2	917,735	917,735	917,735	917,735	917,735
349	Total	5,891,606	5,891,606	5,891,606	5,891,606	5,891,606

Table C-1
City of Garden Grove Water Services Department
2023 Water Rate Study
Rate Design Calculations

351	Percent of Local Groundwater Production Sold in Each Tier						
352	Tier 1	84.4%	84.4%	84.4%	84.4%	84.4%	
353	Tier 2	15.6%	15.6%	15.6%	15.6%	15.6%	
354	Total	100.0%	100.0%	100.0%	100.0%	100.0%	
355							
356	Costs to Be Recovered in Tier 1 (Full Yr Implementation)	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28	
357	Total Revenue Req. from Commodity Delivery Chgs.	\$31,253,200	\$32,827,084	\$34,928,019	\$37,163,411	\$38,092,490	
358	Less Costs Recovered from Tier 2	(11,732,118)	(12,020,307)	(12,375,536)	(12,752,408)	(12,926,513)	
359	Costs Recovered from Tier 1	\$19,521,082	\$20,806,777	\$22,552,484	\$24,411,003	\$25,165,978	
360							
361							
362							
363	Costs to Be Recovered in Tier 2 (Full Yr Implementation)	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28	Notes
364	MWD Tier 1 Treated Water	\$3,585,842	\$3,585,842	\$3,585,842	\$3,585,842	\$3,585,842	1, 2
365	MWD Readiness to Serve Charge	541,486	541,486	541,486	541,486	541,486	1, 2
366	MWD Capacity Charge	207,834	207,834	207,834	207,834	207,834	1, 2
367	MWD Connection Charge	492,275	492,275	492,275	492,275	492,275	1, 2
368	MWD Choice Programs	28,734	28,734	28,734	28,734	28,734	1, 2
369	Water Use Objectives Compliance Cost	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	1, 2
370	Plus Portion of Costs Applicable to All Water Use	1,274,088	1,325,051	1,358,178	1,392,132	1,426,935	1, 3
371	Portion of Costs Applicable to Groundwater	3,601,859	3,839,085	4,161,187	4,504,105	4,643,406	1, 4
372	Costs Recovered from Tier 2	\$11,732,118	\$12,020,307	\$12,375,536	\$12,752,408	\$12,926,513	
373							
374							
375	Total Costs Recovered from Tiers 1 and 2	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28	
376	Costs Recovered from Tiers 1 and 2	\$31,253,200	\$32,827,084	\$34,928,019	\$37,163,411	\$38,092,490	Full Year Implementation
377	Math Check	\$31,253,200	\$32,827,084	\$34,928,019	\$37,163,411	\$38,092,490	
378	Math Check: Costs Applicable to Groundwater	\$3,601,859					
379							
380	Notes:						
381	(1) See Table B-10 and the Operating Statement in Table A-10.						
382	(2) MWD costs remain at FY 23/24 values. Future increases recovered through future pass-through adjustments						
383	(3) As shown in Table B-10, some costs are applicable to all water use. 15% of these costs are allocated to Tier 2, corresponding to the percentage of imported water.						
384	(4) Costs associated with groundwater, times the percent of local groundwater that is sold in Tier 2. Also accounts for full-year implementation effect in calculating Tier 2 rates.						
385							
386	Step 10.b. Calculation of Proposed Tier 1 Commodity Delivery Charge (Cost-of-Service Rates)						
387							
388		Current	1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
389	Total Tier 1 Costs	\$19,521,082	\$20,806,777	\$22,552,484	\$24,411,003	\$25,165,978	
390	Tier 1 ccf/year	5,891,606	5,891,606	5,891,606	5,891,606	5,891,606	

Table C-1
City of Garden Grove Water Services Department
2023 Water Rate Study
Rate Design Calculations

391 Tier 1 Commodity Delivery Charge, \$/ccf \$3.26 \$3.31 \$3.53 \$3.83 \$4.14 \$4.27

392

393 **Step 10.c. Calculation of Proposed Tier 2 Commodity Delivery Charge (Cost-of-Service Rates)**

394

395

	Current	1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
396 Total Tier 2 Costs		\$11,732,118	\$12,020,307	\$12,375,536	\$12,752,408	\$12,926,513
397 Tier 2 ccf/year		2,119,384	2,119,384	2,119,384	2,119,384	2,119,384
398 Tier 2 Commodity Delivery Charge, \$/ccf	\$4.80	\$5.54	\$5.67	\$5.84	\$6.02	\$6.10

399

400

401 **Step 10.d. Calculation of Projected Commodity Delivery Charge Revenues (Cost-of-Service Rates)**

402

403

Tier	Projected Revenues, First 8 Months of FY				
	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
405 Tier 1	\$13,279,469	\$13,483,141	\$14,379,302	\$15,601,339	\$16,864,110
406 Tier 2	7,033,641	8,117,994	8,308,488	8,557,597	8,821,358
407 Subtotal	\$20,313,110	\$21,601,135	\$22,687,790	\$24,158,935	\$25,685,468

408

409

Tier	Projected Revenues, Last 4 Months of FY				
	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
411 Tier 1	\$6,018,076	\$6,418,068	\$6,963,513	\$7,527,140	\$7,763,499
412 Tier 2	3,623,392	3,708,417	3,819,604	3,937,332	3,989,655
413 Subtotal	\$9,641,467	\$10,126,486	\$10,783,118	\$11,464,471	\$11,753,154

414

415

	Projected Revenues, Entire FY				
	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
417 Total Projected Revenues	\$29,954,577	\$31,727,621	\$33,470,908	\$35,623,407	\$37,438,623

418

419 Compare with Revenue Requirement \$30,034,117 \$31,510,706 \$33,527,396 \$35,673,150 \$37,473,104

420 Difference: Rev Req Minus Projected Revenues (\$79,540) \$216,914 (\$56,488) (\$49,743) (\$34,482)

421

422 **Step 11. Calculate Commodity Delivery Charges (Proposed Rates with Rate Transitioning)**

423

424 **Goal: Smoother Transition for Tier 2 Commodity Delivery Charge effective 1/1/24.**

425 **Methodology:**

426 1. Adjust the Tier 1 Charge Effective 1/1/24 is approximately the average of the current and 1/1/25 cost-of-service rate.

427 2. Calculate Additional Revenues Received in FY 23/24 and FY 24/25 from Adjusted Tier 1 Charge

428 3. Reduce Tier 2 Revenues Based on the Additional Revenues Received from Adjusted 1/1/24 Tier 1 Charge

429 4. Calculate Adjusted Tier 2 Commodity Delivery Charges for FY 23/24

430

Table C-1
City of Garden Grove Water Services Department
2023 Water Rate Study
Rate Design Calculations

431 **Step 11.1. Summary of Current and Proposed Commodity Delivery Charge**

	Current	1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
432						
433						
434 Cost-of-Service Based Rates						
435 Tier 1	\$3.26	\$3.31	\$3.53	\$3.83	\$4.14	\$4.27
436 Tier 2	\$4.80	\$5.54	\$5.67	\$5.84	\$6.02	\$6.10
437						
438 Proposed Rates						
439 Tier 1	\$3.26	\$3.40	\$3.53	\$3.83	\$4.14	\$4.27
440 Tier 2	\$4.80	\$5.29	\$5.67	\$5.84	\$6.02	\$6.10

441

442

443 **Step 11.2. Calculate Additional Revenue from 1/1/24 Tier 1 Commodity Delivery Charge**

444						
445 Increase in 1/1/24 Tier 1 Commodity Delivery Charge, \$/kgal			\$0.09			
446 Annual Tier 2 ccf during time when 1/1/24 Tier 1 charge is in effect			5,891,606			
447 Increase in revenue from 1/1/24 Tier 1 Charge			\$530,245			

448

449 **Step 11.3. Calculate Adjusted 1/1/24 Tier 2 Commodity Delivery Charge**

450						
451 Annual Tier 2 ccf during time when 1/1/24 Tier 1 charge is in effect			2,119,384			
452 Decrease in 1/1/24 Tier 2 Commodity Delivery Charge, \$/ccf						
453 Not rounded			\$0.2502			
454 Rounded			\$0.25			

455

456

Table C-1
City of Garden Grove Water Services Department
2023 Water Rate Study
Rate Design Calculations

457 **Step 12. Calculate Fire Service Charges (Proposed Charges with Rate Transitioning)**

458

459 **Goal: Smoother Transition for Fire Service Charges effective 1/1/24.**

460 Methodology:

461 1. Adjust Fire Service Charges Effective 1/1/24. The rate effective 1/1/24 is the average of the current rate and the 1/1/25 cost-of-service rate.

462 2. Calculate Reduced Revenues from Adjusted Fire Service Charges

463 3. In Step 12, Recover This Reduced Revenue from Revised Bi-Monthly Minimum Charges.

464

465 **Step 12.1. Adjusted Fire Service Charges Effective 1/1/24**

466

Connection Size (in)	Current Rate	Proposed Bi-Monthly Fire Service Charge				
		1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
0.75		\$1.24	\$1.32	\$1.40	\$1.49	\$1.53
1.00		\$1.24	\$1.32	\$1.40	\$1.49	\$1.53
1.50	\$2.99	\$3.42	\$3.84	\$4.09	\$4.35	\$4.46
2.00	\$6.38	\$7.28	\$8.18	\$8.70	\$9.26	\$9.49
3.00	\$18.55	\$21.16	\$23.77	\$25.29	\$26.91	\$27.58
4.00	\$39.51	\$45.09	\$50.67	\$53.91	\$57.36	\$58.79
6.00	\$114.76	\$130.97	\$147.17	\$156.59	\$166.61	\$170.78
8.00	\$244.55	\$279.09	\$313.62	\$333.69	\$355.05	\$363.93
10.00	\$439.79	\$501.90	\$564.01	\$600.11	\$638.52	\$654.48

478

479

480 **Step 12.2. Calculate Reduced Revenues from Adjusted Fire Service Charges Effective 1/1/24**

481

Connection Size (in)	Number of Connections	1/1/2024	1/1/2024	Annual Revenue Decrease
		Cost-of-Service Charge	Adjusted Charge	
0.75		\$1.24	\$1.24	\$0.00
1.00		\$1.24	\$1.24	\$0.00
1.50	3	\$3.61	\$3.42	\$0.19
2.00	26	\$7.69	\$7.28	\$0.41
3.00	3	\$22.34	\$21.16	\$1.18
4.00	114	\$47.62	\$45.09	\$2.53
6.00	262	\$138.32	\$130.97	\$7.35
8.00	177	\$294.76	\$279.09	\$15.67
10.00	10	\$530.08	\$501.90	\$28.18
Total				\$31,705.68

495

496

Table C-1
City of Garden Grove Water Services Department
2023 Water Rate Study
Rate Design Calculations

497 **Step 13. Calculate Bi-Monthly Minimum Charges (Proposed Rates with Rate Transitioning)**

498

499 **Goal: Smoother Transition for Bi-Monthly Minimum Charges Effective 1/1/24.**

500 Methodology:

501 1. Adjust Bi-Monthly Minimum Charges Effective 1/1/24. The rate effective 1/1/24 is the average of the current rate and the 1/1/25 cost-of-service rate.

502 For all meters except 5/8 x 3/4" meter, the 1/1/24 charge will be the average of the current charge and the 1/1/25 charge.

503 The 1/1/25 charge for 5/8 x 3/4" meter will be calculated to be revenue neutral, collecting additional revenue equal to the
504 decreased revenues from the adjusted Bi-Monthly Minimum Charges and Fire Service Rates.

505 2. Calculate Reduced Revenues from Adjusted Bi-Monthly Minimum Charges

506 3. Recover This Reduced Revenue from Revised Bi-Monthly Minimum Charges from 5/8 x 3/4" meters.

507

508 **Step 13.1. Adjusted Bi-Monthly Minimum Charges Effective 1/1/24**

509

Connection Size (in)	Current Rate	Proposed Bi-Monthly Minimum Charge				
		1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
5/8 x 3/4" meter	\$33.85	\$35.10	\$38.23	\$40.47	\$42.84	\$43.68
1" meter	\$50.48	\$54.54	\$61.54	\$65.77	\$70.29	\$72.39
1 1/2" meter	\$78.20	\$87.28	\$100.39	\$107.95	\$116.05	\$120.24
2" meter	\$111.45	\$126.55	\$147.01	\$158.57	\$170.96	\$177.65
3" meter	\$200.15	\$231.29	\$271.34	\$293.55	\$317.38	\$330.77
4" meter	\$299.92	\$349.13	\$411.20	\$445.40	\$482.10	\$503.03
6" meter	\$577.08	\$676.44	\$799.72	\$867.20	\$939.66	\$981.52
8" meter	\$909.67	\$1,069.22	\$1,265.94	\$1,373.37	\$1,488.73	\$1,555.71
10" meter	\$1,353.12	\$1,592.92	\$1,887.56	\$2,048.26	\$2,220.83	\$2,321.29

521

522

523 **Step 13.2. Calculate Reduced Revenues from Bi-Monthly Minimum Charges Effective 1/1/24 for All Meter Sizes Except 5/8x3/4"**

524

Connection Size (in)	Number of Connections	1/1/2024	1/1/2024	Change	Annual Revenue Decrease
		Cost-of-Service Charge	Adjusted Charge		
5/8 x 3/4" meter	28,533				
1" meter	3,826	\$54.54	\$54.54	\$0.00	\$0.00
1 1/2" meter	864	\$87.28	\$87.28	\$0.00	\$0.00
2" meter	729	\$126.55	\$126.55	\$0.00	\$0.00
3" meter	57	\$231.29	\$231.29	\$0.00	\$0.00
4" meter	125	\$349.13	\$349.13	\$0.00	\$0.00
6" meter	56	\$676.44	\$676.44	\$0.00	\$0.00
8" meter	2	\$1,069.22	\$1,069.22	\$0.00	\$0.00
10" meter	0	\$1,592.92	\$1,592.92	\$0.00	\$0.00

Table C-1
City of Garden Grove Water Services Department
2023 Water Rate Study
Rate Design Calculations

537 Total \$0.00
538
539 **Step 13.3. Calculate Additional Revenue to be Recovered from Adjusted 5/8x3/4" Bi-Monthly Minimum Charge**
540

541 Adjustment	Amount
542 Fire Service Charge Adjustment	\$31,705.68
543 Bi-Monthly Minimum Charge (1" and Larger Meters) Adjustment	\$0.00
544 Total	\$31,705.68

545
546 **Step 13.4. Calculated Adjusted 5/8x3/4" Bi-Monthly Minimum Charge for 1/1/24**
547

548 Additional Revenue Required	\$31,705.68
549 Number of Connections	28,533
550 Change in Bi-Monthly Minimum Charge	\$0.19
551	
552 Cost-of Service 5/8x3/4" Bi-Monthly Minimum Charge Effective 1/1/24	\$34.91
553 Adjustment	\$0.19
554 Proposed 5/8x3/4" Bi-Monthly Minimum Charge Effective 1/1/24	\$35.10

555
556
557 **Step 14. Calculation of Revenues Under Cost-of-Service Rates and Under Proposed Rates**
558

559 **Step 14.1 Projected Bi-Monthly Service Charge Revenue, Proposed Rates**

560	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
561 5/8 x 3/4" meter	\$5,866,152	\$6,187,003	\$6,672,074	\$7,063,090	\$7,381,814
562 1" meter	\$1,189,923	\$1,305,638	\$1,445,070	\$1,544,486	\$1,629,666
563 1 1/2" meter	\$421,072	\$475,099	\$533,489	\$573,623	\$608,833
564 2" meter	\$509,504	\$583,373	\$659,880	\$711,647	\$757,529
565 3" meter	\$72,002	\$83,667	\$95,329	\$103,110	\$110,070
566 4" meter	\$237,242	\$277,364	\$316,950	\$343,224	\$366,806
567 6" meter	\$205,027	\$241,091	\$276,263	\$299,495	\$320,414
568 8" meter	\$11,554	\$13,617	\$15,621	\$16,942	\$18,133
569 10" meter	\$0	\$0	\$0	\$0	\$0
570 Total	\$8,512,477	\$9,166,853	\$10,014,677	\$10,655,616	\$11,193,265

571

Table C-1
City of Garden Grove Water Services Department
2023 Water Rate Study
Rate Design Calculations

572 **Step 14.2. Projected Commodity Delivery Charge Revenues, Proposed Rates**

Projected Revenues, First 8 Months of FY					
575 Tier	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
576 Tier 1	\$13,279,469	\$13,849,752	\$14,379,302	\$15,601,339	\$16,864,110
577 Tier 2	7,033,641	7,751,659	8,308,488	8,557,597	8,821,358
578 Subtotal	\$20,313,110	\$21,601,411	\$22,687,790	\$24,158,935	\$25,685,468
579					
580					
Projected Revenues, Last 4 Months of FY					
581 Tier	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
582 Tier 1	\$6,181,709	\$6,418,068	\$6,963,513	\$7,527,140	\$7,763,499
583 Tier 2	3,459,881	3,708,417	3,819,604	3,937,332	3,989,655
584 Subtotal	\$9,641,590	\$10,126,486	\$10,783,118	\$11,464,471	\$11,753,154
585					
586					
Projected Revenues, Entire FY					
587	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
588 Total Projected Revenues	\$29,954,700	\$31,727,897	\$33,470,908	\$35,623,407	\$37,438,623

590 **Step 14.3. Projected Fire Service Charge Revenues, Proposed Rates**

Projected Revenues, First 8 Months of FY					
593 Meter Size	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
594 1 1/2" meter	\$36	\$41	\$46	\$49	\$52
595 2" meter	\$664	\$757	\$851	\$905	\$963
596 3" meter	\$223	\$254	\$285	\$303	\$323
597 4" meter	\$18,017	\$20,561	\$23,106	\$24,583	\$26,156
598 6" meter	\$120,268	\$137,257	\$154,234	\$164,106	\$174,607
599 8" meter	\$173,141	\$197,596	\$222,043	\$236,253	\$251,375
600 10" meter	\$17,592	\$20,076	\$22,560	\$24,004	\$25,541
601 Subtotal	\$329,940	\$376,541	\$423,125	\$450,204	\$479,018
602					
603					
Projected Revenues, Last 4 Months of FY					
604 Meter Size	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
605 1 1/2" meter	\$21	\$23	\$25	\$26	\$27
606 2" meter	\$379	\$425	\$452	\$482	\$493
607 3" meter	\$127	\$143	\$152	\$161	\$165
608 4" meter	\$10,281	\$11,553	\$12,291	\$13,078	\$13,404
609 6" meter	\$68,628	\$77,117	\$82,053	\$87,304	\$89,489
610 8" meter	\$98,798	\$111,021	\$118,126	\$125,688	\$128,831
611 10" meter	\$10,038	\$11,280	\$12,002	\$12,770	\$13,090

**Table C-1
City of Garden Grove Water Services Department
2023 Water Rate Study
Rate Design Calculations**

612 Subtotal	\$188,271	\$211,563	\$225,102	\$239,509	\$245,499
613					
614					
615	Projected Revenues, Entire FY				
	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
616 Total Projected Revenues	\$518,211	\$588,104	\$648,227	\$689,712	\$724,517

620 Step 15. Calculate Monthly Bill, 11 ccf/month, 5/8x3/4" Meter

621							
622		Current	1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
623 Bi-Monthly Minimum Charge		\$33.85	\$35.10	\$38.23	\$40.47	\$42.84	\$43.68
624 Commodity Delivery Charge		\$71.72	\$74.80	\$77.66	\$84.26	\$91.08	\$93.94
625 Capital Improvement Charge		\$7.00	\$7.45	\$7.92	\$8.43	\$8.97	\$9.20
626 Total Bi-Monthly Bill		\$112.57	\$117.34	\$123.81	\$133.16	\$142.89	\$146.81
627							
628 Monthly Bill		\$56.29	\$58.67	\$61.91	\$66.58	\$71.45	\$73.41
629 % Increase			4.2%	5.5%	7.5%	7.3%	2.7%

632 Step 16. Calculate Monthly Bill, 50 Units Apartment Building, 9 ccf/month per unit, 3" Meter

633							
634		Current	1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
635 Bi-Monthly Minimum Charge		\$200.15	\$231.29	\$271.34	\$293.55	\$317.38	\$330.77
636 Commodity Delivery Charge		\$3,506.88	\$3,763.08	\$3,973.08	\$4,194.72	\$4,425.36	\$4,523.76
637 Capital Improvement Charge		\$112.00	\$119.16	\$126.79	\$134.90	\$143.53	\$147.12
638 Total Bi-Monthly Bill		\$3,819.03	\$4,113.53	\$4,371.20	\$4,623.17	\$4,886.27	\$5,001.65
639							
640 Monthly Bill		\$1,909.52	\$2,056.77	\$2,185.60	\$2,311.58	\$2,443.13	\$2,500.83
641 % Increase			7.7%	6.3%	5.8%	5.7%	2.4%

644 Step 17. Calculate Monthly Bill, Example Commercial, 2" Meter, 500 hcf Bi-Monthly Water Use

645							
646		Current	1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
647 Bi-Monthly Minimum Charge		\$111.45	\$126.55	\$147.01	\$158.57	\$170.96	\$177.65
648 Commodity Delivery Charge		\$1,630.00	\$1,700.00	\$1,765.00	\$1,915.00	\$2,070.00	\$2,135.00
649 Capital Improvement Charge		\$56.00	\$59.58	\$63.39	\$67.45	\$71.77	\$73.56
650 Total Bi-Monthly Bill		\$1,797.45	\$1,886.13	\$1,975.40	\$2,141.02	\$2,312.72	\$2,386.22
651							

Table C-1
City of Garden Grove Water Services Department
2023 Water Rate Study
Rate Design Calculations

652 Monthly Bill	\$898.73	\$943.07	\$987.70	\$1,070.51	\$1,156.36	\$1,193.11
653 % Increase		4.9%	4.7%	8.4%	8.0%	3.2%

