DRAFT

UPDATED 2022 WATER AND SEWER RATE STUDY

B&V PROJECT NO. 410918.0100

PREPARED FOR

City of Santa Clara

JUNE 21, 2022

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Table of Contents

Table of Contents i
List of Tables iv
Table of Figures v
Acronyms vii
Disclaimer i
1 Executive Summary 1
1.1 Water System 1
1.2 Recycled Water System 1
1.3 Sewer System 1
1.4 Financial Plan 2
1.4.1 Water Utility 2
1.4.2 Recycled Water Utility 3
1.4.3 Sewer Utility 4
1.5 Adequacy of Existing Rates to Meet Costs of Service 5
1.6 Cost-of-Service Analysis 6
1.7 Rate Design 6
1.7.1 Water and Recycled Water Utilities 6
1.7.2 Sewer Utility 9
Water and Recycled Water Rate Study 11
2 Revenue and Revenue Requirements 11
2.1 Customer and Water Consumption Projections 11
2.1.1 Customer Classes 11
2.1.2 Minimum Bills 11
2.1.3 Water Consumption 12
2.2 Revenue Under Existing Rates 13
2.3 Other Revenue 15
2.4 Operating and Maintenance Expenses 15
2.5 Capital Improvement Program 16
2.5.1 Capital Improvement Financing Plan 17
2.6 Transfers 18
2.7 Reserves 18
2.8 Projected Operating Results 19
3 Cost of Service Analysis 25
3.1 Functional Cost Components 26

3.2 Allocation to Cost Components 27
3.2.1 System Base, Max Day, and Max Hour Allocations 27
3.2.2 Allocation of Operating and Maintenance Expenses 28
3.2.3 Allocation of Capital Investments 29
3.3 Units of Service 30
3.4 Cost of Service Allocations 30
3.4.1 Units Costs of Service 31
3.4.2 Distribution of Costs of Service to Customer Classes 31
4 Rate Design 34
4.1 Existing Rates 34
4.2 Proposed Rates 34
4.2.1 Monthly Service Charge 34
4.2.2 Fire Service 36
4.2.3 Cross Connection 37
4.2.4 Consumption Charge 38
4.3 Drought Conditions 38
4.3.1 Water Shortage Contingency Plan 38
4.3.2 Drought Surcharges 39
4.4 Typical Monthly Costs Under Proposed Charges 39
4.5 Neighboring Water Utilities 40
Sewer Rate Study 42
5 Revenue and Revenue Requirements 42
5.1 Customer and Water Consumption Projections 42
5.1.1 Customer Classes 42
5.1.2 Equivalent Dwelling Units 42
5.1.3 Minimum Bills 43
5.1.4 Contributed Sewage Flow 44
5.1.5 Major Users 44
5.2 Revenue Under Existing Rates 45
5.3 Other Revenue 47
5.4 Operating and Maintenance Expenses 47
5.5 Debt Service Requirements 48
5.6 Capital Improvement Program 48
5.6.1 Capital Improvement Financing Plan 49
5.7 Transfers 50
5.8 Reserves 50

5.9 Projected Operating Results 51
6 Cost of Service Analysis 55
6.1 Functional Cost Components 55
6.2 Allocation to Cost Components 56
6.2.1 Volume and Strength Allocations 56
6.2.2 Allocation of Operating and Maintenance Expenses 56
6.2.3 Allocation of Capital Investments 57
6.3 Units of Service 58
6.4 Cost of Service Allocations 58
6.4.1 Units Costs of Service 58
6.4.2 Distribution of Costs of Service to Customer Classes 58
7 Rate Design 63
7.1 Existing Rates 63
7.2 Proposed Rates 63
7.2.1 Monthly Service Charge 63
7.2.2 Consumption Charge 64
7.2.3 Major Users 64
7.3 Typical Monthly Costs Under Proposed Charges 65
7.4 Neighboring Sewer Utilities 65
Appendix A – Ten-Year Financial Plan 67
Water Utility 68
Recycled Water Utility 69
Sewer Utility 70

List of Tables

Table 1-1 Proposed Revenue Adjustment 6
Table 1-2 Proposed Three-Year Water Rate Schedule 8
Table 1-3 Proposed Three-Year Recycled Water Rate Schedule 9
Table 1-4 Proposed Three-Year Sewer Rate Schedules 10
Table 2-1 Minimum Bills 12
Table 2-2 Billed Water Consumption 13
Table 2-3 Existing Water and Recycled Water Rates 14
Table 2-4 Projected Revenue under Existing Rates 15
Table 2-5 O&M Expenses 16
Table 2-6 Capital Improvement Projects 17
Table 2-7 Construction Fund Financing Plan (Water) 17
Table 2-8 Construction Fund Financing Plan (Recycled Water) 18
Table 2-9 Operating Fund (Water) 22
Table 2-10 Operating Fund (Recycled Water) 23
Table 3-1 Cost of Service Revenue from Rates (Water) 25
Table 3-2 Cost of Service Revenue from Rates (Recycled Water) 26
Table 3-3 Allocation of O&M Expenditures (Water) 28
Table 3-4 Allocation of O&M Expenditures (Recycled Water) 29
Table 3-5 Allocation of Capital Costs (Water) 29
Table 3-6 Allocation of Capital Costs (Recycled Water) 30
Table 3-7 Units of Service (Water and Recycled Water) 32
Table 3-8 Units Cost of Service (Water) 33
Table 3-9 Distribution of Costs to Customer Classes (Water) 33
Table 3-10 Units Cost of Service (Recycled Water) 33
Table 3-11 Distribution of Costs to Customer Classes (Recycled Water) 33
Table 4-1 Costs within the Minimum Monthly Service Charge for FY 2023 (Water) 35
Table 4-2 Proposed Minimum Monthly Service Charge (Water) 35
Table 4-3 Costs within the Minimum Monthly Service Charge for FY 2023 (Recycled Water) 35
Table 4-4 Proposed Minimum Monthly Service Charge (Recycled Water) 36
Table 4-5 Costs within the Fire Service Charge for FY 2023 36
Table 4-6 Proposed Fire Service Charge 37
Table 4-7 Costs within the Cross-Connection Charge for FY 2023 37
Table 4-8 Proposed Cross Connection Charge 37
Table 4-9 Proposed Consumption Charges 38
Table 4-10 Stages of Water Shortages Contingency Plan 38

Table 4-11 Proposed First Year Drought Charges, FY 2023 39
Table 4-12 Proposed Three-Year Drought Charges 39
Table 4-13 Typical Monthly Bill (Water) 40
Table 4-14 Typical Monthly Bill (Recycled Water) 40
Table 5-1 EDUs 43
Table 5-2 Minimum Monthly Service Bills 43
Table 5-3 Contributed Sewage Flow 44
Table 5-4 Major Users 45
Table 5-5 Existing Sewer Rates 46
Table 5-6 Projected Revenue under Existing Rates 47
Table 5-7 O&M Expenses 48
Table 5-8 Long-Term Debt Service 48
Table 5-9 Capital Improvement Projects 49
Table 5-10 Construction Fund Financing Plan 50
Table 5-11 Operating Fund 53
Table 6-1 Cost of Service Revenue from Rates 55
Table 6-2 Allocation of O&M Expenditures 57
Table 6-3 Allocation of Capital Costs 57
Table 6-4 Units of Service 60
Table 6-5 Units Cost of Service 61
Table 6-6 Distribution of Costs to Customer Classes 61
Table 7-1 Proposed Monthly Service Charge 64
Table 7-2 Proposed Consumption Charges 64
Table 7-3 Proposed Major User Charges 65
Table 7-4 Typical Monthly Bill 65

Table of Figures

Figure 1-1 Water Operating Cash Flow 3
Figure 1-2 Recycled Water Operating Cash Flow 4
Figure 1-3 Sewer Operating Cash Flow 5
Figure 2-1 Water Sales 13
Figure 2-2 Status Quo Operating Cash Flow (Water) 19
Figure 2-3 Status Quo Operating Cash Flow (Recycled Water) 20
Figure 2-4 Water Operating Cash Flow 24
Figure 2-5 Recycled Water Operating Cash Flow 24
Figure 4-1 Comparison to Neighboring Water Utilities 41

Figure 5-1 Status Quo Operating Cash Flow 51
Figure 5-2 Operating Cash Flow 54
Figure 7-1 Comparison to Neighboring Sewer Utilities 66

Acronyms

ADD	Average Daily Demand
AWWA	American Water Works Association
Black & Veatch	Black & Veatch Management Consulting LLC
BOD	Biochemical Oxygen Demand
CIP	Capital Improvement Program
City	City of Santa Clara
CIS	Customer Information System
EDU	Equivalent Dwelling Unit
FY	Fiscal Year (July 1 to June 30)
gpcd	gallons per capita per day
HCF	Hundred Cubic Feet
M	Million
M1	Principles of Water Rates, Fees, and Charges
Max Day	Maximum Day
Max Hour	Maximum Hour
NH3	Ammonia
O&M	Operation and Maintenance
RWF	San Jose-Santa Clara Regional Wastewater Facility
SBx7-7	Senate Bill X7-7 (State of California in the Water Conservation Act of 2009)
SFPUC	San Francisco Public Utilities Commission
Study	Water and Sewer Rate Study
TSS	Total Suspended Solids
TY	Test Year
Valley Water	Santa Clara Valley Water District
WEF	Water Environment Federation

Disclaimer

Black & Veatch has prepared this report for the City, and it is based on information not within the control of Black & Veatch. The City has not requested Black & Veatch to make an independent analysis, verify the information provided to us, or render an independent judgment of the validity of the information provided by others. Because of this, Black & Veatch cannot, and does not, guarantee the accuracy thereof to the extent that such information, data, or opinions were based on information provided by others.

In conducting these analyses and in forming an opinion of the projection of future financial operations summarized in this report, Black & Veatch made certain assumptions on the conditions, events, and circumstances that may occur in the future. The methodology utilized in performing the analyses follows generally accepted practices for such projections. Such assumptions and methodologies are reasonable and appropriate for the purpose for which they are used. While we believe the assumptions are reasonable and the projection methodology valid, actual results may differ materially from those projected, as influenced by the conditions, events, and circumstances that occur. Such factors may include the utilities' ability to execute the capital improvement program as scheduled and within budget, regional climate and weather conditions affecting the demand for water, discharge of sewage flow, and adverse legislative, regulatory, or legal decisions (including environmental laws and regulations) affecting the utilities' ability to manage the system and meet water quality requirements.

1 Executive Summary

The City of Santa Clara (City) commissioned Black & Veatch Management Consulting, LLC (Black & Veatch) to perform an update of the Water and Sewer Rate Study (Study) for its Water, Recycled Water, and Sewer Utilities. The Study included the development of a three-year financial plan, a cost-of-service analysis, and the design of rates. In addition, a ten-year financial plan was developed to provide the City with a high-level view of each utility's operations. The specific objectives of the Study were to:

- Evaluate the adequacy of projected revenues under existing rates to meet projected revenue requirements.
- Develop sound financial plans for the utilities covering a three and ten-year period for both ongoing operations and planned capital improvements.
- Allocate the utilities' projected revenue requirements to the various customer classes in accordance with their respective service requirements.
- Develop a suitable rate schedule that produces revenues adequate to meet financial needs while recognizing customer costs of service and regulatory considerations such as Proposition 218 and applicable judicial decisions.

1.1 WATER SYSTEM

The Water Utility provides water services to approximately 26,000 residential, commercial, irrigation, and educational customers. The City obtains potable water from three primary sources: local groundwater, surface water from the Santa Clara Valley Water District (Valley Water), and imported water from the Hetch Hetchy watershed through the San Francisco Public Utilities Commission (SFPUC). The water system infrastructure consists of 335 miles of transmission and distribution mains, 7 storage tanks totaling 28.8 million gallons of storage capacity, 21 wells, and 3 booster pump stations. The City has a target of obtaining 68% of the 5.8 billion gallons of water that flows to its customers each year from the City's wells.

1.2 RECYCLED WATER SYSTEM

The Recycled Water Utility, operating since 1989, provides recycled water services to over 280 commercial, irrigation, and industrial customers. The City obtains recycled water from South Bay Water Recycling. The recycled water comes from the San Jose-Santa Clara Regional Wastewater Facility (RWF), an advanced tertiary treatment facility located in San Jose, of which the City is a co-owner. The recycled water infrastructure within the City limit boundary mainly consists of 34 miles of recycled water pipelines. A portion of the recycled water from the RWF supplies the Valley Water's Silicon Valley Advanced Water Purification Center for advanced treatment (microfiltration, reverse osmosis, and advanced oxidation) to create a mix of high-quality recycled water that is blended back into the recycled water system.

1.3 SEWER SYSTEM

The Sewer Utility provides sewer services to approximately 26,000 residential, commercial, industrial, and municipal customers. Services include the construction and maintenance of the sewer

system and installing sewer lateral clean-outs at the property line. Sanitary sewer flows in the City are collected and transported through more than 288 miles of sewer main by way of six pumping stations to the San Jose-Santa Clara Regional Wastewater Facility. The RWF is a regional treatment facility that receives wastewater from seven agencies in Santa Clara County and can treat 167 million gallons a day (MGD) wastewater.

1.4 FINANCIAL PLAN

The City operates the utilities as individual self-supporting enterprises. Therefore, the utilities must develop financial plans that provide sufficient revenues to meet all operation and maintenance expenses, water purchases, wastewater treatment, debt service requirements, capital improvements funded from current revenues, and other expenditures.

The Study develops financial plans that project operating revenue, expenses, and capital financing costs for the utilities over a ten-year planning period beginning July 1, 2022, and ending June 30, 2032. This report will focus on a three-year planning period for discussion, beginning July 1, 2022 and ending June 30, 2025. The full ten-year financial plans can be found in Appendix A.

The financial plans project future rate revenues under existing rates, operations and maintenance (O&M) expenses, principal and interest expense on debt, transfers, and capital improvement program (CIP) requirements. In the projection of rate revenues, annual projections of customers and water consumption rely upon the City's historical data and estimates of growth. In addition, the Water Utility's forecast incorporates efforts to continue to meet the conservation goals as established by the State Senate Bill 7x-7 (SB7x-7) and the City's Water Shortage Contingency Plan.

On July 12, 2021, the City moved into Stage 2 of the Water Shortage Contingency Plan. It amended the City's Water Use Rules and Regulations, calling for an ongoing voluntary 20% reduction based on 2013 water usage. The City took this action as of result of Valley Water's action on June 9, 2021, which called for a mandatory 15% reduction in water usage countywide.[1] With water conservation restrictions in place and despite the growth projections, the Water Utility will continue to be under the conservation levels set forth by SB7x-7.

1.4.1 Water Utility

The Water Utility's revenue requirements are summarized below:

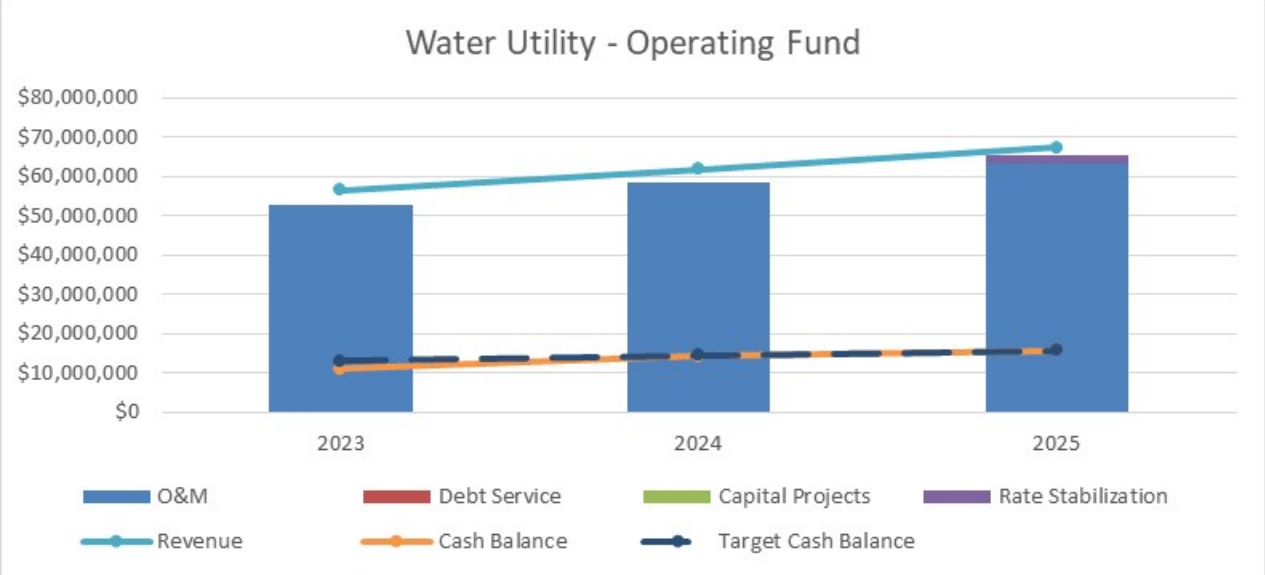
- **Operation and Maintenance Expenses:** The Water Utility anticipates O&M expenses to increase from $52.7M in FY 2023 to $63.6M in FY 2025. Water production and water purchases account for most of this increase, representing approximately 65% of O&M expenses.
- **Debt Service:** The Water Utility has no existing debt service, and no future debt is planned.

[1] On March 28, 2022, Governor Newsom called on local water suppliers to move to level 2 of their Water Shortage Contingency Plans. Valley Water had implemented level 2 in June of 2021; therefore, the water projections already incorporate a level of conservation. Any further restrictions are not part of the baseline analysis.

- **Capital Improvements**: The Water Utility plans to execute an average of $5.2M per year in capital projects from FY 2023 to FY 2025.
- **Reserves**: The Water Utility plans to continue funding the operating fund reserve, construction fund reserve, rate stabilization fund reserve, and pension stabilization reserve.
  - The operating fund reserve is to help cover fluctuations in day-to-day expenses. The scheduled target is 90 days of O&M expenses.
  - The construction fund reserve is to help maintain enough funds on hand to help mitigate unexpected capital costs. The scheduled target is 12-months of the following year's CIP.
  - The rate stabilization fund reserve is to help mitigate future increases in drought-stricken years. The scheduled target is 10% of the prior year's rate revenues.
  - The pension fund reserve is to pay for the unfunded pension liabilities and the increase in the City's share of pension costs due to factors such as higher CalPERS rates and negotiated pay increases.

The Water Utility is proposing revenue adjustments to allow it to operate the enterprise on a revenue-neutral basis and meet reserve targets, as shown in Figure 1-1.

Figure 1-1 Water Operating Cash Flow



1.4.2 Recycled Water Utility

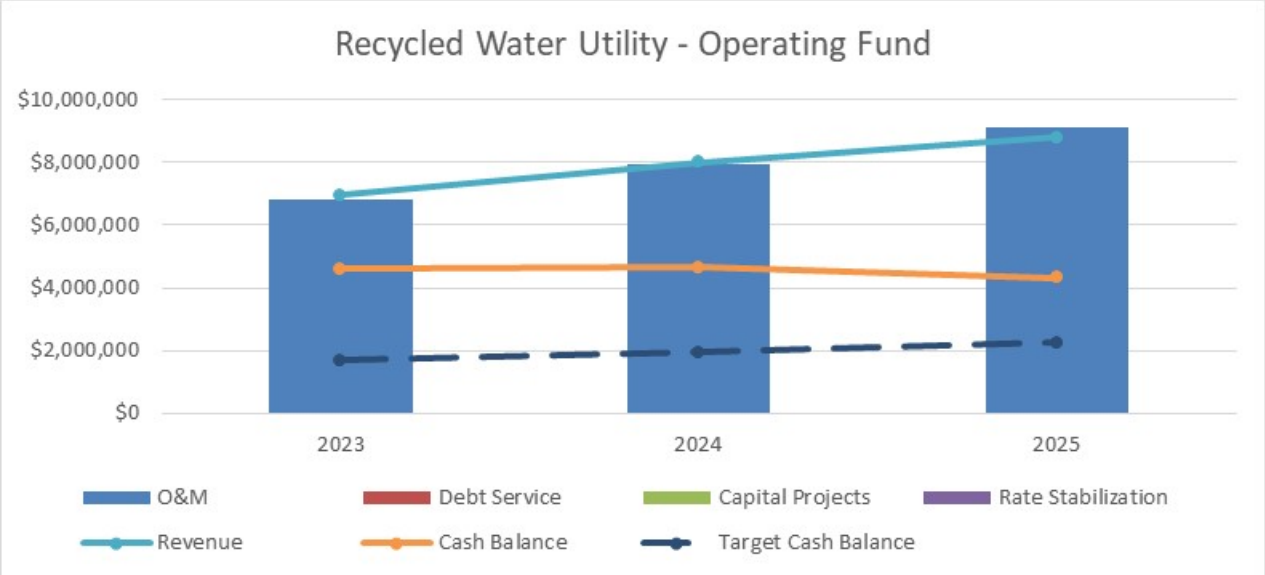
The Recycled Water Utility's revenue requirements are summarized below:

- **Operation and Maintenance Expenses:** The Recycled Water Utility anticipates O&M expenses to increase from $6.8M in FY 2023 to $9.1M in FY 2025. Recycled water purchase costs constitute most of the increase, averaging 86% of O&M expenses.
- **Debt Service:** The Recycled Water Utility has no existing debt service, and no future debt is planned.

- **Capital Improvements**: The Recycled Water Utility plans to execute an average of $50k per year in capital projects from FY 2023 to FY 2025.
- **Reserves**: The City plans to continue funding the operating fund reserve, construction fund reserve, rate stabilization fund reserve, and pension stabilization reserve.
  - The operating fund reserve is to help cover fluctuations in day-to-day expenses. The scheduled target is 90 days of O&M expenses.
  - The construction fund reserve is to help maintain enough funds on hand to help mitigate unexpected capital costs. The scheduled target is 12-months of the following year's CIP.
  - The rate stabilization fund reserve is to help mitigate future increases in drought-stricken years. The scheduled target is 10% of the prior year's rate revenues.
  - The pension fund reserve is to pay for the unfunded pension liabilities and the increase in the City's share of pension costs due to factors such as higher CalPERS rates and negotiated pay increases

The Recycled Water Utility is proposing revenue adjustments and drawing down on reserves to allow it to operate the enterprise on a revenue-neutral basis and meet reserve targets, as shown in Figure 1-2.

Figure 1-2 Recycled Water Operating Cash Flow



1.4.3 Sewer Utility

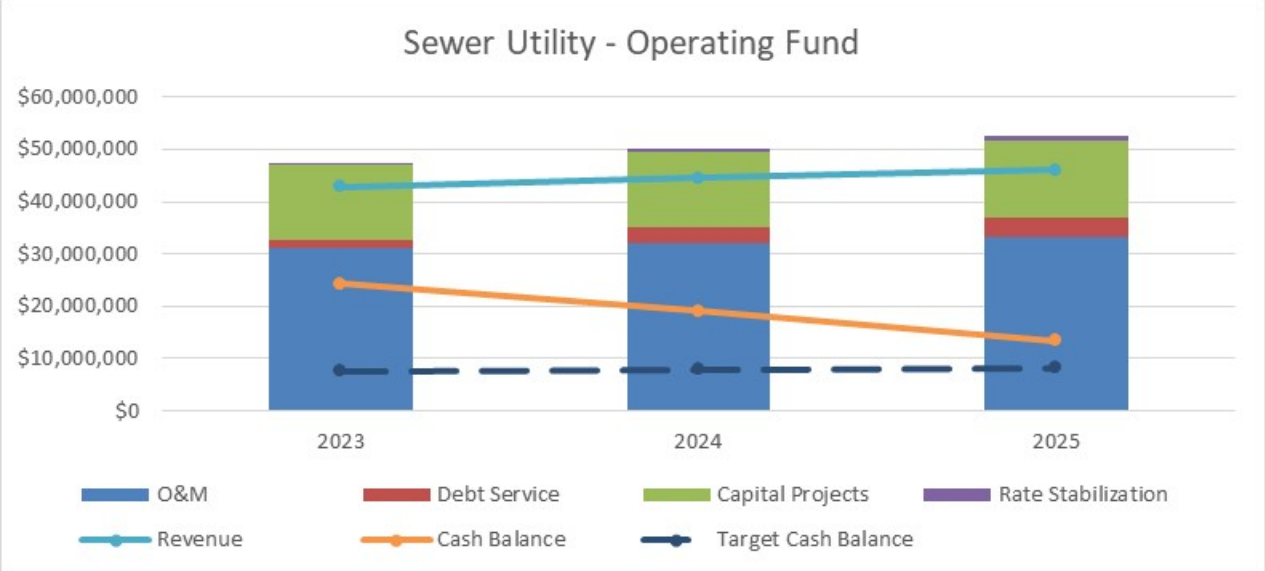
The Sewer Utility's revenue requirements are summarized below:

- **Operation and Maintenance Expenses:** The Sewer Utility anticipates O&M expenses to increase from $31.1M in FY 2023 to $33.1M in FY 2025. RWF-related costs represent 66% of O&M expenses.

- **Debt Service:** The Sewer Utility anticipates an average debt service payment of $2.8M per year from FY 2023 to FY 2025 associated with existing and proposed debt issuances. The City anticipates a net debt issuance of $0.4M in FY 2023 and $15.0M in FY 2024.
- **Capital Improvements**: The Sewer Utility plans to execute an average of $20.5M per year in capital projects from FY 2023 to FY 2025.
- **Reserves**: The Sewer Utility plans to continue funding the operating fund reserve, construction fund reserve, rate stabilization fund reserve, and pension stabilization reserve.
  - The operating fund reserve is to help cover fluctuations in day-to-day expenses. The scheduled target is 90 days of O&M expenses.
  - The construction fund reserve is to help maintain enough funds on hand to help mitigate unexpected capital costs. The scheduled target is 12-months of the following year's City CIP and 6-months of the following year's RWF CIP.
  - The rate stabilization fund reserve is to help mitigate future increases in drought-stricken years. The scheduled target is 10% of the prior year's rate revenues.
  - The pension fund reserve is to pay for the unfunded pension liabilities and the increase in the City's share of pension costs due to factors such as higher CalPERS rates and negotiated pay increases

The Sewer Utility is proposing revenue adjustments and drawing down on reserves to allow it to operate the enterprise on a revenue-neutral basis and meet reserve targets, as shown in Figure 1-3.

Figure 1-3 Sewer Operating Cash Flow



1.5 ADEQUACY OF EXISTING RATES TO MEET COSTS OF SERVICE

Based on the financial plans, Black & Veatch recommends the revenue adjustments shown in Table 1-1 to meet the projected revenue requirements for FY 2023 to FY 2025. These do not represent

proposed rate increases to customers. Rather, these represent the overall revenue increases the utilities need to meet their overall obligations and maintain current service levels.

Table 1-1 Proposed Revenue Adjustments

Fiscal Year	Effective Month	Water Utility	Recycled Water	Sewer Utility
FY 2023	July	8.80%	10.00%	3.00%
FY 2024	July	8.80%	10.00%	3.50%
FY 2025	July	8.80%	10.00%	3.50%

1.6 COST-OF-SERVICE ANALYSIS

The cost-of-service analysis allocates the costs to the various customer classes of service in a fair and equitable manner. The methodologies used in the Study are specific to the respective utility operations. The following is a brief description of the methodologies.

The water and recycled water cost-of-service allocation performed in this Study uses the Base-Extra Capacity Method endorsed by the American Water Works Association (AWWA) *Principles of Water Rates, Fees, and Charges*, M1 (M1) manual. Under cost-of-service principles, costs are allocated to the different customer classes in proportion to their water system use. As recommended by AWWA, Black & Veatch distributed functional costs to the base (average load conditions), extra capacity (peaking), and customer-related parameters. This allocation methodology produces unit costs for allocation to individual customer classes based on the projected customer service requirements.

The sewer cost-of-service allocation performed in this Study follows the Functional Cost Allocation Method endorsed by the Water Environment Federation (WEF) *Financing and Charges for Wastewater Systems, Manual of Practice* 27 (MoP27) manual. Like the methodology used for water systems, the sewer cost of service analysis allocates costs to the different customer classes in proportion to their use of the sewer system. As recommended by WEF, Black & Veatch distributed functional costs to volume, strength, and customer-related parameters. This allocation methodology produces unit costs for allocation to individual customer classes based on the projected customer service requirements.

1.7 RATE DESIGN

The Right to Vote on Taxes Act, also known as Proposition 218, was passed by California voters in 1996 and added Article XIIIC and Article XIIID to the California Constitution. These articles provide the regulatory framework that guides and informs the rate-setting process. The cost-of-service analyses provide the cost nexus for the proposed rate structures. The regulatory framework helps ensure cost recovery is proportionate to the cost of providing the service.

1.7.1 Water and Recycled Water Utilities

To minimize impacts, retain simplicity, and ensure the reasonable stability of revenue, Black & Veatch recommends the following rate structure.

- **Monthly Service Charge**: The Water and Recycled Water Utilities should retain the minimum monthly service charge based on meter sizes for all customer classes. The minimum monthly service charge includes a minimum consumption allowance and recovers portions of fixed cost elements such as operating and capital components, meter maintenance and services, meter reading, issuing

bills, and maintenance and capacity costs associated with public fire protection. The minimum consumption allowance accommodates water considered essential for health and safety.

- **Consumption Charge**: The Water and Recycled Water Utilities should maintain the uniform consumption charge for all customer classes. The consumption charge recovers costs associated with the base and extra capacity demands.
- **Fire Service Charge**: The Water Utility should continue to utilize the fire service charge based on meter size for private fire service connections. The fire service charge will recover maintenance and capacity costs associated with private fire protection costs.
- **Cross Connection Charge**: The Water Utility should continue to utilize the cross-connection charge based on meter size for backflow connections. The cross-connection charge will recover the costs of maintenance associated with backflow devices.

Table 1-2 summarizes the recommended three-year rate schedules for all Water Utility components.

Table 1-2 Proposed Three-Year Water Rate Schedule

Customer Class	Proposed		
	FY 2023	**FY 2024**	**FY 2025**
Minimum Monthly Meter Rates ($/Month)	$/month	$/month	$/month
5/8" x 3/4"	20.54	22.25	24.09
1"	32.00	34.84	37.86
1-1/2"	60.65	66.31	72.28
2"	95.03	104.08	113.58
3"	186.71	204.79	223.73
4"	289.85	318.09	347.65
6"	576.36	632.81	691.86
8"	920.17	1,010.48	1,104.92
10"	1,378.58	1,514.04	1,655.66
12"	1,937.26	2,127.75	2,326.88
Fire Service ($/Month)	$/month	$/month	$/month
2"	2.87	2.95	3.07
4"	16.25	16.72	17.41
6"	47.80	49.19	51.20
8"	101.82	104.77	109.06
10"	183.09	188.39	196.11
12"	295.91	304.48	316.95
Cross Connection ($/Month)	$/month	$/month	$/month
1"	7.33	7.47	7.70
2"	11.73	11.95	12.32
3"	23.47	23.91	24.64
4"	36.67	37.35	38.50
6"	73.33	74.71	76.99
8"	117.33	119.53	123.19
10"	175.99	179.30	184.79
Consumption Charges ($/HCF)			
General Customer	7.33	7.99	8.71

Table 1-3 summarizes the recommended three-year rate schedules for all Recycled Water Utility components.

Table 1-3 Proposed Three-Year Recycled Water Rate Schedule

Customer Class	Proposed		
	FY 2023	FY 2024	FY 2025
Minimum Monthly Meter Rates ($/Month)	$/month	$/month	$/month
5/8" x 3/4"	15.50	16.94	18.63
1"	25.09	27.55	30.35
1-1/2"	49.06	54.07	59.65
2"	77.83	85.90	94.80
3"	154.55	170.77	188.56
4"	240.85	266.24	294.04
6"	480.60	531.46	587.02
8"	768.29	849.72	938.61
10"	1,151.87	1,274.06	1,407.39
12"	1,619.37	1,791.24	1,978.72
Consumption Charges ($/HCF)			
General Customers	4.12	4.53	4.99

1.7.2 Sewer Utility

To minimize impacts, retain simplicity, and ensure the reasonable stability of revenue, Black & Veatch recommends the following rate structure.

- **Monthly Service Charge**: The Sewer Utility should retain the monthly service charge based on equivalent dwelling units (EDUs) for all residential customer classes. In addition, the monthly service charge serves as the base amount, or minimum, for all non-residential customer classes.

Beginning in FY 2023, multi-family residential and single family residential will become separate customer classes. As part of the process to better align rates and charges to its customers, the City verified EDU information for the multi-family customers, which enabled the analysis of the different demands placed on the system by the different residential customers. The analysis showed that while multi-family customers use less water, they discharge more wastewater to the system as a class. It also revealed that the demands exerted on the system by multi-family customers was spread across a larger customer base. Therefore, the rate, determined by the cost-of-service analysis, would be less.

- **Consumption Charge**: The Sewer Utility should retain its uniform consumption charges for each non-residential customer class. The recommended rate structure should be based on customer class.
- **Major Commercial and Industrial Users**: The Sewer Utility should retain the major commercial and industrial user charge for customers with high discharge quantities and/or high strength loadings.

Table 1-4 summarizes the recommended three-year rate schedules for all Sewer Utility components.

Table 1-4 Proposed Three-Year Sewer Rate Schedules

Line No.	Customer Class	Proposed FY 2023	Proposed FY 2024	Proposed FY 2025
	Monthly Service Charge ($/EDU)	$/month	$/month	$/month
1	Single Family	46.82	48.50	50.28
2	Multi-Family	44.69	46.32	48.05
	Minimum Commercial Bill Charge ($/Month)	$/month	$/month	$/month
3	All Customers	46.82	48.50	50.28
	Commodity Charge ($/HCF)	$/HCF	$/HCF	$/HCF
1	Amusement Parks	5.67	5.82	5.99
2	Auto Dealers & Service Station	6.17	6.37	6.57
3	Churches	5.15	5.28	5.42
4	Com/Ind/Misc	5.41	5.56	5.71
5	Electric & Electronic Equip.	5.11	5.22	5.33
6	Food and Kindred Products	12.60	13.28	13.93
7	Hospitals & Convalescent Homes	6.21	6.41	6.60
8	Industrial Chemical	9.29	9.69	10.08
9	Laundries	5.57	5.74	5.89
10	Machinery Manufacturers	7.57	7.87	8.17
11	Metal Plating	4.14	4.20	4.29
12	Motels & Hotels	6.59	6.82	7.05
13	Paper	12.94	13.65	14.31
14	Repair Shops & Car Washes	4.77	4.95	5.10
15	Restaurants	12.83	13.54	14.20
16	Schools & Colleges	6.00	6.15	6.32
	Major Commercial and Industrial Users			
	Operating and Maintenance Cost Recovery			
1	Volume ($/MG)	2,993.84	3,000.08	3,068.71
2	BOD ($/1,000 lbs)	497.33	497.47	508.29
3	SS ($/1,000 lbs)	628.54	628.75	642.43
4	NH3 ($/1,000 lbs)	5,159.79	5,161.10	5,274.31
	Annual Capital Cost Recovery			
5	Volume ($/MGD)	1,087,371	1,124,455	1,140,228
6	BOD ($/1,000 lbs/day)	75,537	97,560	113,092
7	SS ($/1,000 lbs/day)	52,105	67,304	78,018
8	NH3 ($/1,000 lbs/day)	178,596	230,700	267,439

Water and Recycled Water Rate Study

2 Revenue and Revenue Requirements

To meet the costs associated with providing water services to its customers, the Water and Recycled Water Utilities derive revenue from a variety of sources, including water user charges (rates), developer contributions, solar water heating, interest earned from the investment of available funds, engineering fees, and other miscellaneous revenues. Both utilities are constantly looking for other sources of revenue, such as grants, to fund infrastructure investments. Black & Veatch has projected the level of future revenue generated in the Study through an analysis of historical and future system growth in terms of the number of bills and water consumption. This section also projects the expenses, or revenue requirements, necessary to operate and maintain the system, invest in capital improvements, make debt service payments, and cover other water and recycled water systems expenses.

2.1 CUSTOMER AND WATER CONSUMPTION PROJECTIONS

2.1.1 Customer Classes

The Water Utility's customer base includes both residential and non-residential accounts. The City has three distinct customer classes: General Customer, Fire Service, and Cross Connection.

The Recycled Water Utility's customers are mainly non-residential. The City has two distinct customer classes: General Customer and Industrial Process. The City is working on transitioning Industrial Process to General Customer.

2.1.2 Minimum Bills

The City provides potable water services to approximately 26,000 customers and recycled water services to over 280 customers. All customers connected to the water and recycled water systems do so through metered connections. The City bills customers based on water consumption, but several bills do not meet the consumption allowance identified by meter size. Therefore, the City refers to these bills as minimum monthly service bills. Since the City bills customers based on minimum bills generated, the analysis included a review of historical bill patterns for customers and anticipated growth within the City. The projected total number of bills is expected to increase by 0.3% per year for the Water Utility and 1.4% for the Recycled Water Utility over the Study period.

Table 2-1 summarizes the projected number of minimum bills for the Water and Recycled Water Utilities.

Table 2-1 Minimum Bills

Line No.	Description	Fiscal Year Ending June 30,		
		FY 2023	FY 2024	FY 2025
		(Bills)	(Bills)	(Bills)
	Water Utility			
1	General Customers	39,364	39,463	39,562
2	Total	39,364	39,463	39,562
	Recycled Water Utility			
3	General Customers	535	545	550
4	Total	535	545	550

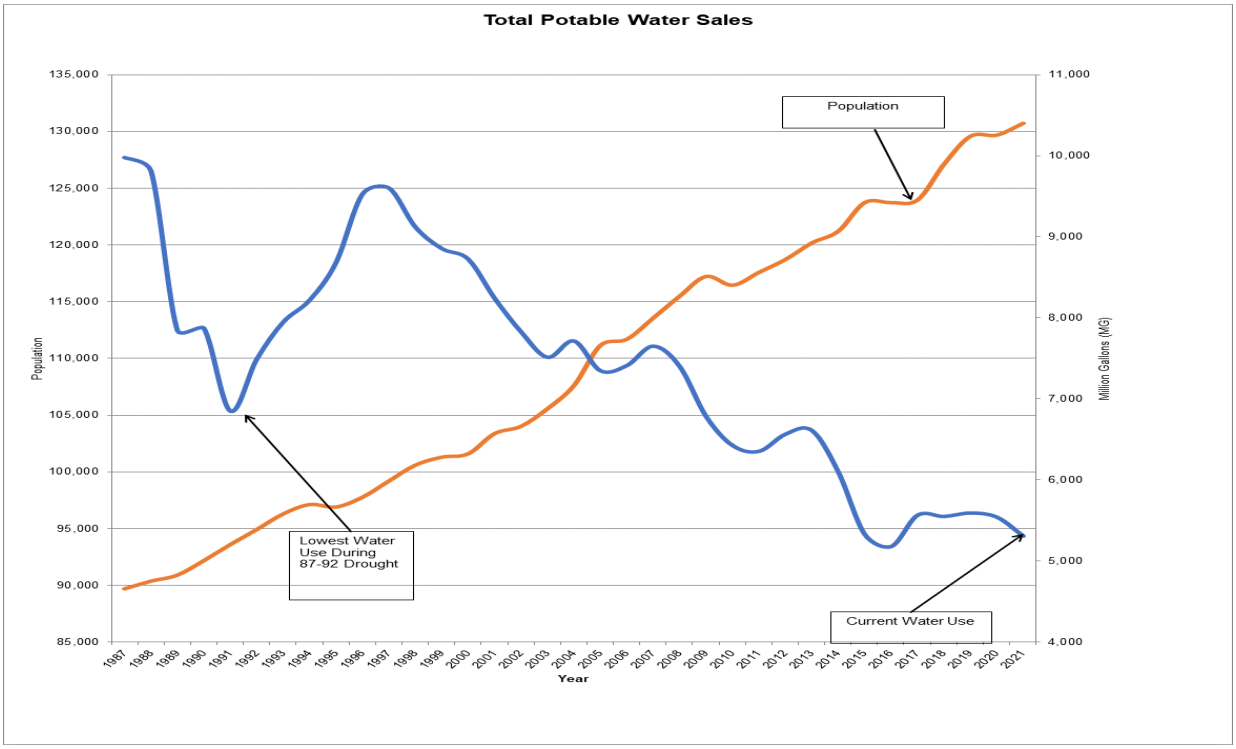
2.1.3 Water Consumption

Table 2-2 shows the projected water and recycled water consumption for the Study period. In determining the projected water and recycled water consumption, Black & Veatch analyzed historical water consumption patterns in conjunction with future water conservation requirements set by the City's Water Shortage Contingency Plan and the continual requirement of SB 7x-7. In 2017, the State of California formally lifted the water restrictions as it declared the drought over. Unfortunately, in 2022 after another three years of dry weather, Governor Newsom called for local water suppliers to move to Level 2 of their Water Shortage Contingency Plans to drive water conservation. The City has been operating in Level 2 since June 2021 when Valley Water moved to Level 2. The State of California and Governor continue to monitor drought conditions which can lead to further water cutbacks and conservation measures for water consumption.

Many factors have contributed to the City's steady decline in consumption. The City's primary conservation goals can be found in the Water Shortage Contingency Plan, and Santa Clara's Council codified the continuing goal to conserve in July of 2017. The City offers a rain barrel rebate program and works with the Valley Water on other outreach and rebate programs for water conservation. Expanding the use of recycled water to existing and new customers is important for the City in supplementing the use of potable water. Overall, customers have done well to increase efficiency in the use of water resources.

Figure 2-1 below represents the population growth and a decline in water consumption.

Figure 2-1 Water Sales



Recognizing that the City has met SB 7x-7 requirements and water consumption was at historic lows, the City anticipates an average rebound of 0.4% per year for the Water Utility and 1.5% per year for the Recycled Water Utility over the Study period. The City currently bills water consumption in hundred cubic feet (HCF) and only charges for consumption more than the allowance.

Table 2-2 Billed Water Consumption

Line No.	Description	Fiscal Year Ending June 30,		
		FY 2023	FY 2024	FY 2025
		(HCF)	(HCF)	(HCF)
	Water Utility			
1	General Customers	7,021,637	7,056,745	7,074,387
2	Total Usage (HCF)	7,021,637	7,056,745	7,074,387
3	Total Usage (AF)	16,119	16,200	16,241
	Recycled Water Utility			
4	General Customers	1,550,341	1,581,348	1,597,161
5	Total	1,550,341	1,581,348	1,597,161
6	Total Usage (AF)	3,559	3,630	3,667

2.2 REVENUE UNDER EXISTING RATES

Water and recycled water user rates serve as the primary source of revenue for the Water and Recycled Water Utilities. Therefore, the level of future rate revenue is important in developing a long-range financial plan. To determine rate revenue, the projected system growth in terms of the number of

minimum bills and billed water consumption is multiplied by the applicable rates to determine water and recycled water rate revenue.

Table 2-3 shows the current Water and Recycled Water Utilities rate schedules. It is important to note that the minimum monthly service charge applies to customers that do not exceed the consumption allowance within the meter sizes. Therefore, the minimum monthly service charge serves as a baseline cost that the City needs to recover.

Table 2-3 Existing Water and Recycled Water Rates

Description	All City FY 2022
Water Utility	
Minimum Monthly Meter Rates	($/mo)
5/8" x 3/4"	19.81
1"	30.67
1-1/2"	57.84
2"	90.45
3"	177.40
4"	275.21
6"	546.93
8"	872.98
10"	1,307.72
12"	1,837.56
Recycled Water Utility	
Minimum Monthly Meter Rates	($/mo)
5/8" x 3/4"	18.90
1"	29.36
1-1/2"	55.51
2"	86.89
3"	170.57
4"	264.71
6"	526.21
8"	840.01
10"	1,258.41
12"	1,768.34

Description	All City FY 2022
Water Utility	
Fire Service Charges	($/mo)
2"	2.87
4"	16.26
6"	47.83
8"	101.88
10"	183.20
12"	296.09
Cross Connection Charges	($/mo)
1"	8.06
2"	12.90
3"	25.80
4"	40.31
6"	80.62
8"	129.00
10"	193.49
Consumption Charges	
Water Utility	($/HCF)
General Customers	6.69
Recycled Water Utility	($/HCF)
General Customers	3.74
Industrial Process	3.74

Table 2-4 summarizes projected water and recycled water rate revenue under existing rates. As shown, the revenue generated is projected to increase over the Study period in conjunction with the increase in the number of minimum bills and water consumption. The projected Water Utility revenues increase from $50.7M in FY 2023 to $51.1M in FY 2025, representing an overall increase of 0.7% over the three-year study period. The projected Recycled Water Utility revenue increases from $5.9M in FY 2023 to $6.0M in FY 2025, reflecting an overall increase of 3.0% over the three-year Study period.

Table 2-4 Projected Revenue under Existing Rates

Line No.	Description	Fiscal Year Ending June 30, FY 2023	FY 2024	FY 2025
		($)	($)	($)
	Water Utility			
1	General Customers	48,531,700	48,770,500	48,892,400
2	Fire Service	978,600	979,600	980,600
3	Cross Connection	1,190,800	1,192,200	1,193,500
4	Total	$ 50,701,100	$ 50,942,300	$ 51,066,500
	Recycled Water Utility			
5	General Customers	5,862,000	5,979,000	6,038,500
6	Total	$ 5,862,000	$ 5,979,000	$ 6,038,500

2.3 OTHER REVENUE

Other sources of operating revenue include charges for hydrant flow tests, meter tests, engineering plan review, water installation and relocation, interest on investments, and other miscellaneous revenues. In total, other operating revenues represent less than 1.8% of the Water Utility's total revenue and 6.5% of the Recycled Water Utility's total revenue. The City anticipates that these revenues will remain relatively constant for the duration of the Study period.

2.4 OPERATING AND MAINTENANCE EXPENSES

Table 2-5 summarizes the Water and Recycled Water Utilities' projected O&M expense for the Study period. These expenses include costs related to salaries and benefits, materials and supplies, contract and professional services, water supply costs, indirect and direct costs, and routine capital outlay. The City anticipates that all O&M expenditures, excluding water supply costs, will increase on average by 3.6% annually for the Water Utility and 4.5% annually for the Recycled Water Utility from the FY 2021.

Water supply costs include water production and purchased water costs. In the case of the Water Utility, the City has three main sources of water: 1) groundwater pumped from City-owned wells; 2) surface water from the Valley Water and; 3) imported water from the Hetch Hetchy watershed from SFPUC. The City operates 26 groundwater wells that tap the underground aquifers, which make up a targeted amount of approximately 59% of the City's water supply. The City imports the remainder of its water supplies from the two wholesale water agencies. Based on estimates of groundwater and wholesale rates provided by Valley Water and SFPUC, the City expects water production and purchased water costs to increase by at least 28.3% over the Study period.

Recycled water is a reliable drought-proof source of water that helps offset the use of potable sources, especially in drought-prone years in California. In the case of the Recycled Water Utility, the City has one main source of recycled water: The San Jose-Santa Clara Regional Wastewater Facility. This facility produces highly treated water delivered through separate pipelines. Based on estimates from the facility, the City expects purchased recycled water costs to increase by at least 38.4% over the Study period.

Table 2-5 O&M Expenses

Line No.	Description	Fiscal Year Ending June 30,		
		FY 2023	FY 2024	FY 2025
		($)	($)	($)
	Water Utility			
1	Salaries	6,031,000	6,326,500	6,567,000
2	Benefits	3,418,400	3,592,500	3,775,000
3	Materials/Services/Supplies	2,532,200	2,582,700	2,634,200
4	Interfund Services	7,584,700	7,784,300	8,022,000
5	Resource & Production	33,178,000	38,057,900	42,557,200
6	Capital Outlay	0	0	0
7	Total	$ 52,744,300	$ 58,343,900	$ 63,555,400
	Recycled Water Utility			
8	Salaries	403,400	425,200	442,700
9	Benefits	232,500	244,400	256,900
10	Materials/Services/Supplies	46,000	46,900	47,800
11	Interfund Services	373,100	388,100	404,200
12	Resource & Production	5,761,600	6,815,600	7,974,000
13	Capital Outlay	0	0	0
14	Total	$ 6,816,600	$ 7,920,200	$ 9,125,600

As shown in Table 2-5, the Water Utility's O&M expenses increase from $52.7M in FY 2023 to $63.6M in FY 2025, while the Recycled Water Utility's O&M expenses increase from $6.8M in FY 2023 to $9.1M in FY 2025.

2.5 CAPITAL IMPROVEMENT PROGRAM

The Water and Recycled Water Utilities develop five-year Capital Improvement Plans annually to identify water and recycled water system needs, including assessments, inspections, maintenance, and rehabilitation and replacement requirements.

Table 2-6 summarizes the Water and Recycled Water Utilities CIP for FY 2023 through FY 2025. The Water Utility is projecting $15.7M in CIP, and the Recycled Water Utility is projecting $150k in CIP over the Study period, which includes both capital and replacement projects. The City has posted the CIP Budget on its website for complete details associated with each CIP project.[2]

[2] The City of Santa Clara. Finance Department. < http://santaclaraca.gov/government/departments/finance>

Table 2-6 Capital Improvement Projects

Line No.	Description	Fiscal Year Ending June 30, FY 2023	FY 2024	FY 2025
		($)	($)	($)
	Water Utility			
1	7005 Buildings and Grounds	865,000	1,515,000	735,000
2	7054 Distribution System Replacement/Restoration	2,000,000	2,000,000	2,000,000
3	7057 Asset Management Program	200,000	150,000	150,000
4	7058 SCADA Improvements	500,000	500,000	500,000
5	7059 New and Replacement Wells	3,100,000	1,000,000	500,000
6	Total	$ 6,665,000	$ 5,165,000	$ 3,885,000
	Recycled Water Utility			
7	7505 Recycled Water System Mains and Services	50,000	50,000	50,000
8	Total	$ 50,000	$ 50,000	$ 50,000

2.5.1 Capital Improvement Financing Plan

The City funds annual expenditures for the CIP from a combination of available funds on hand, connection charges, developer contributions, and revenues derived from user rates. As shown in Table 2-7 and Table 2-8, the average annual CIP expenditure is $5.2M for the Water Utility and $50k for the Recycled Water Utility. There is no planned annual CIP contribution from the Water Utility Operating Fund and Recycled Water Utility over the Study period. The CIP will be funded through funds on hand.

Table 2-7 Construction Fund Financing Plan (Water)

Line No.	Description	Fiscal Year Ending June 30, FY 2023	FY 2024	FY 2025
		($)	($)	($)
	Source of Funds			
1	Intra Transfer In - Debt Financing	0	0	0
2	Intra Transfer In - Customer Service Charge	0	0	0
3	Connection Charges	0	0	0
4	Developer Contributions	0	0	0
5	Total Sources	$ 0	$ 0	$ 0
	Use of Funds			
6	Improvements Projects	6,665,000	5,165,000	3,885,000
7	Total Uses	$ 6,665,000	$ 5,165,000	$ 3,885,000
8	Net Annual Cash Balance	(6,665,000)	(5,165,000)	(3,885,000)
9	Beginning Unrestricted Fund Balance	22,750,200	16,585,200	11,420,200
10	Net Cumulative Fund Balance	$ 16,085,200	$ 11,420,200	$ 7,535,200
11	Minimum Construction Reserves	$ 5,165,000	$ 3,885,000	$ 3,435,000

Table 2-8 Construction Fund Financing Plan (Recycled Water)

Line No.	Description	Fiscal Year Ending June 30, FY 2023	FY 2024	FY 2025
		($)	($)	($)
	Source of Funds			
1	Intra Transfer In - Debt Financing	0	0	0
2	Intra Transfer In - Customer Service Charge	0	0	0
3	Connection Charges	0	0	0
4	Developer Contributions	0	0	0
5	Total Sources	$ 0	$ 0	$ 0
	Use of Funds			
6	Improvements Projects	50,000	50,000	50,000
7	Total Uses	$ 50,000	$ 50,000	$ 50,000
8	Net Annual Cash Balance	(50,000)	(50,000)	(50,000)
9	Beginning Unrestricted Fund Balance	1,926,400	1,626,400	1,326,400
10	Net Cumulative Fund Balance	$ 1,876,400	$ 1,576,400	$ 1,276,400
11	Minimum Construction Reserves	$ 50,000	$ 50,000	$ 50,000

2.6 TRANSFERS

The Water and Recycled Water Utilities will each conduct transfers from their respective Operating Funds and other funds over the Study period. Table 2-9, Lines 18 to 20 for the Water Utility and Table 2-10, Lines 15 to 17 for Recycled Water Utility summarize these associated amounts, respectively. The other funds consist of the Rate Stabilization Fund, Pension Stabilization Fund, and Construction Fund. See Section 2.7 for further explanation on Rate Stabilization and Pension Stabilization Funds. The Construction Fund transfers represent money to cover planned CIP project expenditures. These transfers do not represent direct operating expenses for either enterprise; therefore, Black & Veatch includes these costs as “below-the-line” cash flow items and does not include them as O&M expenses.

2.7 RESERVES

A utility typically establishes reserves for several reasons, such as covering shortfalls in operating revenues, maintaining strong bond ratings, covering day-to-day operating costs, and easing the burden on ratepayers associated with large rate increases. Per the reserve level recommendations, the Water and Recycled Water Utilities will maintain the following four reserves:

- Operating Reserve represents working capital maintained by the Operating Fund to cover day-to-day expenses and maintain enough funds to cover accounts receivables if there are supplier issues, periods of lower-than-expected water sales, or unforeseen cost increases. The reserve will maintain a minimum balance of 90 days of operating expenses once fully funded
- Construction Reserve represents funds used for unforeseen and unbudgeted capital costs. Once fully funded, this reserve will maintain a minimum balance of 12-months of the following year’s planned CIP.

- Rate Stabilization Reserve represents funds used to absorb revenue shortfall due to short-term decreases in water sales. This reserve stabilizes water and recycled water rate revenue and is an effort to avoid wide swings in rates charged to customers over time. The reserve will maintain a minimum balance of 10% of water and recycled water sales revenue when fully funded.
- Pension Stabilization Reserve represents funds used to pay for the unfunded pension liabilities and the increase in the City's share of pension costs due to factors such as higher CalPERS rates and negotiated pay increases. The reserve target is $3.0M for the Water Utility and $150,000 for the Recycled Water Utility by FY 2030.

Appropriate reserve levels help the Water and Recycled Water Utilities with liquidity, provide operational flexibility, and demonstrate fiscal responsibility to the rating agencies, which allows the City to access lower-cost funds.

2.8 PROJECTED OPERATING RESULTS

The revenue requirements of the Water and Recycled Water Utilities consist of O&M expenses, debt service, capital expenditures, and reserve requirements.

To fully understand the current condition of the Water and Recycled Water Utilities, it is important to examine the cash flow projections under the status quo scenario. As shown in Figure 2-2 and Figure 2-3, the status quo conditions would project that both utilities would operate from an annual deficit position, thus requiring the use of reserves to keep operating. In this scenario, the Water and Recycled Water Utilities would not impose any revenue increases over the Study Period and continue to incur O&M expenses, pay for the execution of the planned CIP, and transfer to reserves.

Figure 2-2 Status Quo Operating Cash Flow (Water)

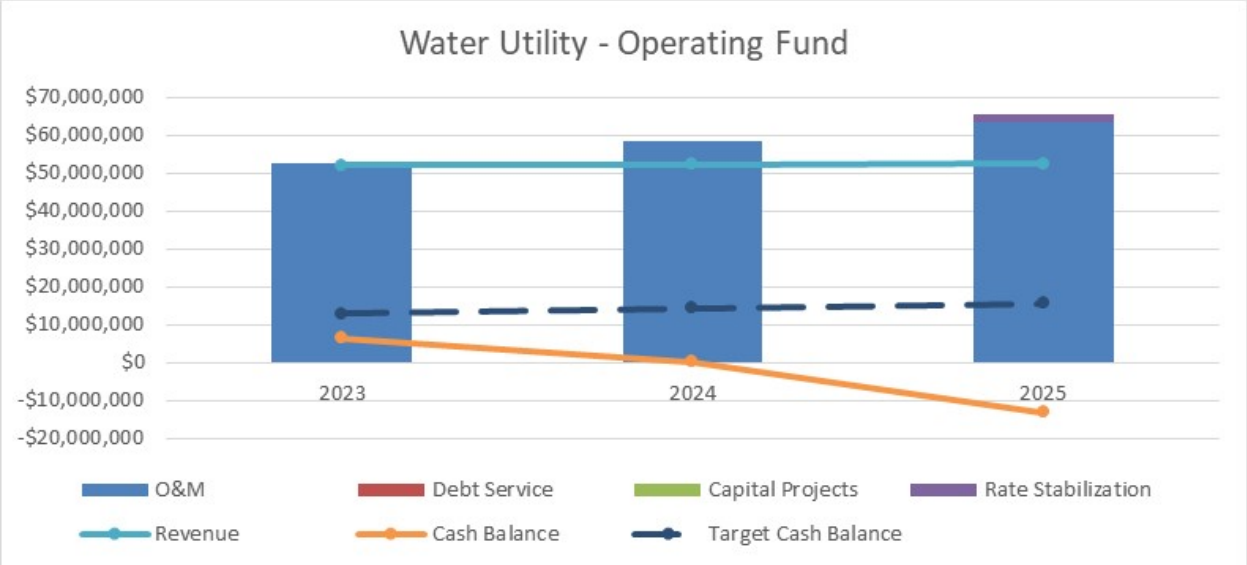
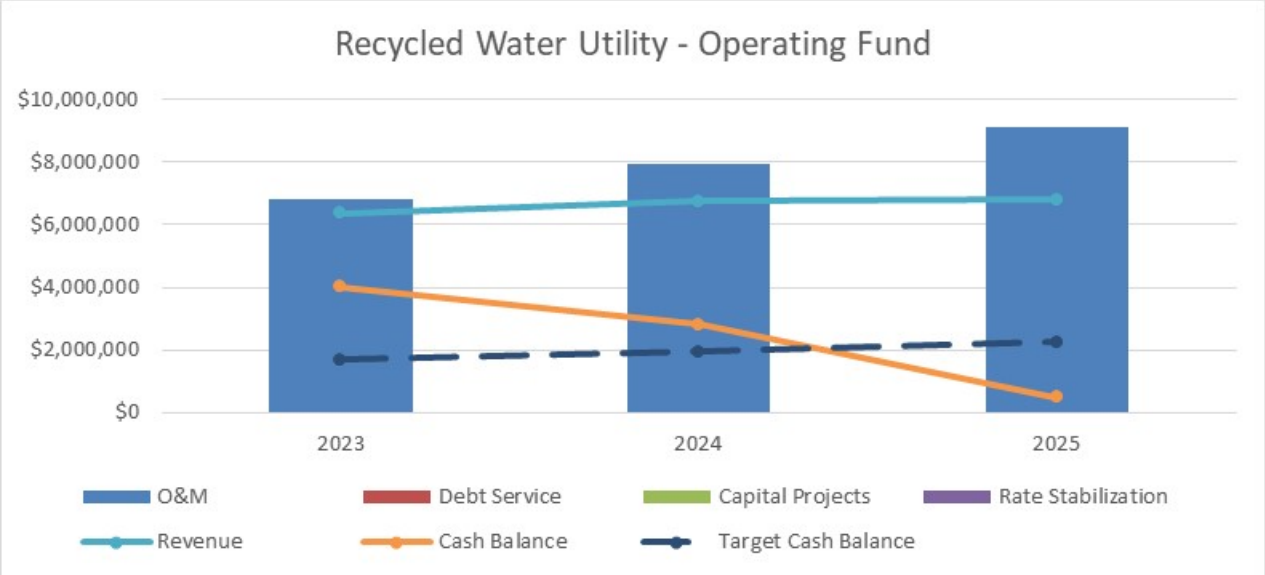


Figure 2-3 Status Quo Operating Cash Flow (Recycled Water)



The analyses performed for the Study indicate that the City should implement the proposed revenue increases shown in Table 2-9 and Table 2-10 if it wishes to keep the Water and Recycled Water Utilities in a balance financial condition. The revenue increases represent the overall total revenue adjustment needed to meet revenue requirements. The revenue adjustment does not represent adjustments to the individual rates but reflects the overall level of revenue needed to meet the Water and Recycled Water Utilities' obligations.

The suggested revenue increases help the Water and Recycled Water Utilities meet the following goals:

- Meet budgeted operating obligations in the three FYs.
- Meet planned capital investments in the three FYs.
- Maintain an operating reserve of 90 days of operating expenses.
- Maintain construction reserve of 12-months of next year's CIP.
- Continue transfers for the rate stabilization reserve to meet the goal of 10% of rate revenues.
- Continue transfers for the pension stabilization reserve to meet the FY 2030 goal.

Table 2-9 and Table 2-10 summarize proposed Operating Funds for the Study Period. The Operating Funds consist of 1) Revenue and 2) Revenue Requirements.

Revenue

- Line 1 is the revenue under existing rates.
- Lines 2 through 4 are the additional revenues generated from the required annual revenue increases. The additional revenue generated is a direct reflection of the number of months the increase is effective for, and therefore amount might calculate at less than that stated amount.
- Line 6 is the total revenue generated from user charges.

- Line 14 for the Water Utility and Line 9 for the Recycled Water Utility represent other operating revenues.
- Line 11 for the Recycled Water Utility represents transfers into operating.
- Line 15 for the Water Utility and Line 12 for the Recycled Water Utility represent total revenues for the enterprises.

Revenue Requirements

- Line 17 for the Water Utility and Line 14 for the Recycled Water Utility represent O&M expenses. The O&M expenses include water production and water purchase.
- Line 21 for the Water Utility and Line 18 for the Recycled Water Utility represent transfers. The transfers include money to the Rate Stabilization Fund, Pension Fund, and Construction Fund.
- Line 22 for the Water Utility and Line 19 for the Recycled Water Utility represent total revenue requirements for the enterprises.

Line 25 for the Water Utility and Line 22 for the Recycled Water Utility represent the net cumulative cash balance within the Operating Funds. The net cumulative cash balance intends to match, to the extent possible, Line 26 for the Water Utility and Line 23 for the Recycled Water Utility. The cash balance reserve is required to ensure the Operation Fund can continue in the event of a supplier interruption, market price fluctuations of critical equipment or supplies, or an abrupt drop in account receivables. The reserve target minimum is 90 days of O&M expenses.

Table 2-9 Operating Fund (Water)

Line No.	Description			Fiscal Year Ending June 30, FY 2023	FY 2024	FY 2025
				($)	($)	($)
	Revenue					
	Rate Revenue					
1	Revenue from Existing Rates			51,024,600	51,267,300	51,392,300
	Year	Months Effective	Rate Adj			
2	FY 2023	12	8.80%	4,490,200	4,511,500	4,522,500
3	FY 2024	12	8.80%		4,908,500	4,920,500
4	FY 2025	12	8.80%			5,353,500
5	Increased Revenue Due to Adjustments			4,490,200	9,420,000	14,796,500
6	Subtotal Rate Revenue			$ 55,514,800	$ 60,687,300	$ 66,188,800
	Other Operating Revenue					
7	Solar System Maintenance			77,800	77,800	77,800
8	Water System Maintenance			43,600	43,600	43,600
9	Water Construction			0	0	0
10	Water System Operations			0	0	0
11	Administration Design			882,200	888,900	895,800
12	Water Quality			0	0	0
13	Water Resources			74,700	74,700	74,700
14	Subtotal Other Operating Revenue			$ 1,078,300	$ 1,085,000	$ 1,091,900
15	**Total Revenue**			**$ 56,593,100**	**$ 61,772,300**	**$ 67,280,700**
	Revenue Requirements					
	Operating & Maintenance					
16	O&M Expenses			52,744,300	58,343,900	63,555,400
17	Subtotal O&M			$ 52,744,300	$ 58,343,900	$ 63,555,400
	Transfers					
18	Transfer to Rate Stabilization Fund			0	0	2,000,000
19	Transfer to Pensiotn Stabilization Fund			199,400	199,400	199,400
20	Transfer to Water Construction Fund			0	0	0
21	Total Transfers			$ 199,400	$ 199,400	$ 2,199,400
22	**Total Revenue Requirements**			**$ 52,943,700**	**$ 58,543,300**	**$ 65,754,800**
23	Net Annual Cash Balance			3,649,400	3,229,000	1,525,900
24	Beginning Fund Balance			7,336,200	10,985,600	14,214,600
25	Net Cumulative Fund Balance			$ 10,985,600	$ 14,214,600	$ 15,740,500
26	Minimum Operating Reserves (90 Days)			$ 13,005,400	$ 14,386,200	$ 15,671,200

Table 2-10 Operating Fund (Recycled Water)

Line No.	Description			Fiscal Year Ending June 30, FY 2023	FY 2024	FY 2025
				($)	($)	($)
	Revenue					
	Rate Revenue					
1	Revenue from Existing Rates			5,862,000	5,979,000	6,038,500
	Year	Months Effective	Rate Adj			
2	FY 2023	12	10.00%	586,200	597,900	603,900
3	FY 2024	12	10.00%		657,700	664,200
4	FY 2025	12	10.00%			730,700
5	Increased Revenue Due to Adjustments			586,200	1,255,600	1,998,800
6	Subtotal Rate Revenue			$ 6,448,200	$ 7,234,600	$ 8,037,300
	Other Operating Revenue					
7	System Maintenance			92,000	93,800	95,700
8	South Bay Water Recycling System Maintenan			413,700	413,700	413,700
9	Subtotal Other Operating Revenue			$ 505,700	$ 507,500	$ 509,400
	Transfers From					
10	RW Capital Fund			0	250,000	250,000
11	Subtotal Transfers From			$ -	$ 250,000	$ 250,000
12	**Total Revenue**			**$ 6,953,900**	**$ 7,992,100**	**$ 8,796,700**
	Revenue Requirements					
	Operating & Maintenance					
13	O&M Expenses			6,816,600	7,920,200	9,125,600
14	Subtotal O&M			6,816,600	7,920,200	9,125,600
	Transfers					
15	Transfer to Rate Stabilization Fund			0	0	0
16	Transfer to Pensiotn Stabilization Fund			9,800	9,800	9,800
17	Transfer to Recycled Water Const Fund			0	0	0
18	Total Transfers			9,800	9,800	9,800
19	**Total Revenue Requirements**			**$ 6,826,400**	**$ 7,930,000**	**$ 9,135,400**
20	Net Annual Cash Balance			127,500	62,100	(338,700)
21	Beginning Fund Balance			4,469,600	4,597,100	4,659,200
22	Net Cumulative Fund Balance			$ 4,597,100	$ 4,659,200	$ 4,320,500
23	Minimum Operating Reserves (90 Days)			$ 1,680,800	$ 1,952,900	$ 2,250,100

Figure 2-4 presents the proposed Water Utility Operating Fund, and Figure 2-5 presents the Recycled Water Utility Operating Fund.

Figure 2-4 Water Operating Cash Flow

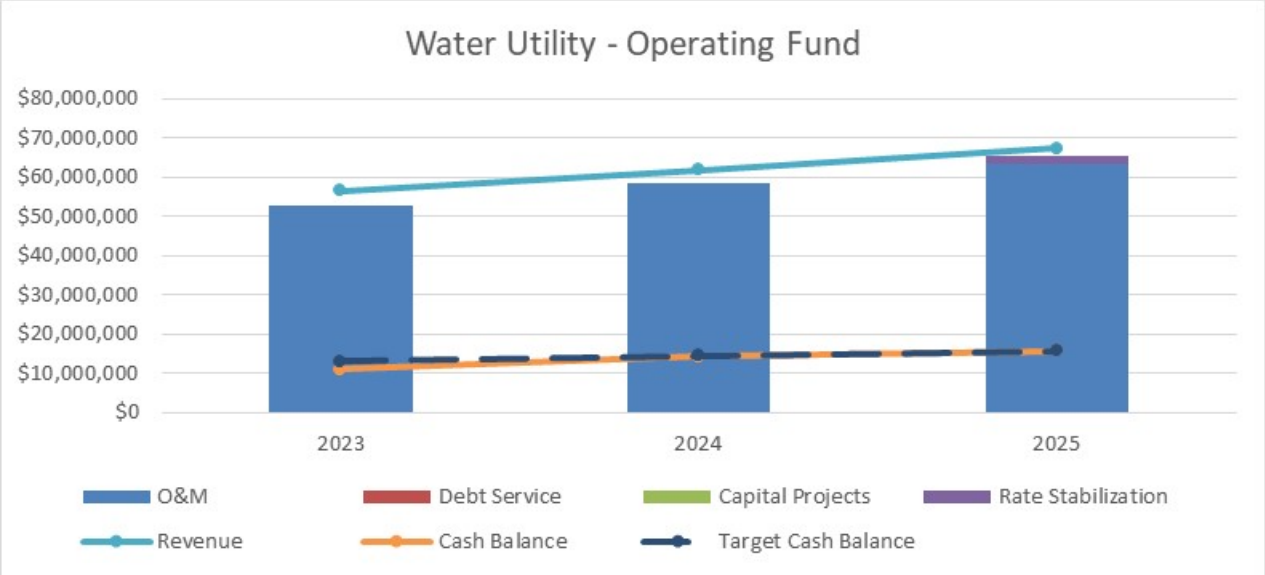
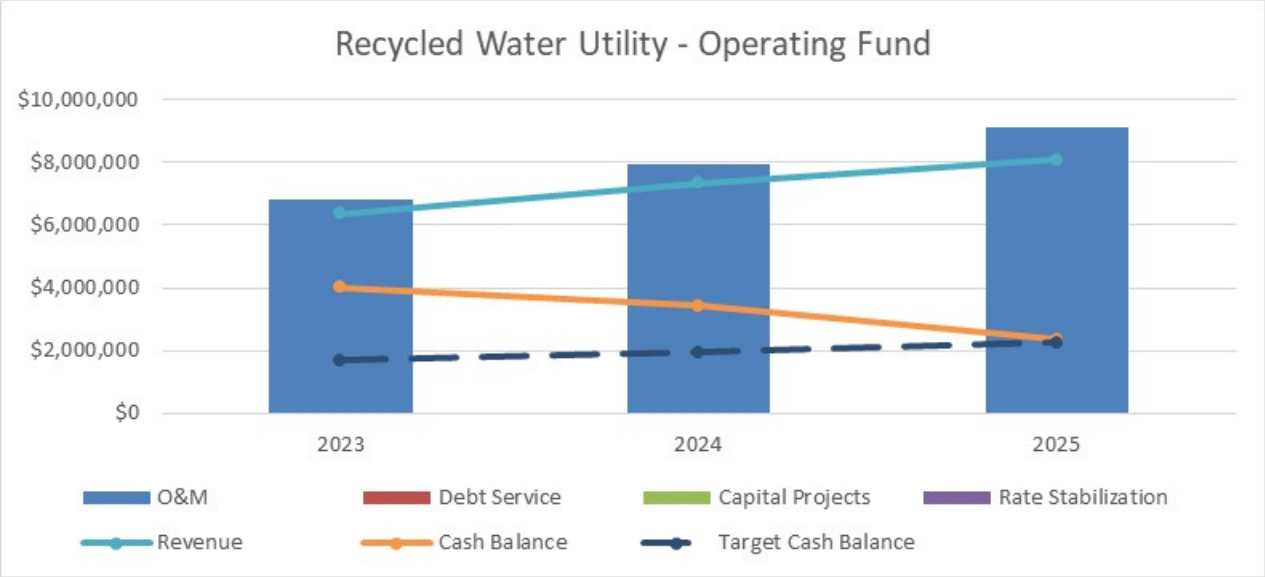


Figure 2-5 Recycled Water Operating Cash Flow



3 Cost of Service Analysis

The cost-of-service analysis requires recovery of the City's needed revenues from water and recycled water service rates, allocated to customer classes according to the service rendered. An equitable rate structure allocates the capture of revenue requirements to customer classes based on the quantity of water consumed, peak flows, the number of customer connections, and other relevant factors.

In analyzing the Water and Recycled Water Utilities' cost of service for allocation to its customer classes, Black & Veatch selected the annual revenue requirements for FY 2023 as the Test Year (TY) requirements to demonstrate the development of cost-of-service water and recycled water rates. Table 3-1 summarizes the total costs of service that need to be recovered from water user rates. Table 3-2 summarizes the total costs of service that need to be recovered from recycled water user rates. Both tables represent TY 2023.

Table 3-1 Cost of Service Revenue from Rates (Water)

Line No.	Description	Operating Expense	Capital Cost	Total Cost
		($)	($)	($)
	Revenue Requirements			
1	O&M Expenses	52,744,300	0	52,744,300
2	Debt Service	0	0	0
3	Transfers	199,400	0	199,400
4	Subtotal	52,943,700	0	52,943,700
	Less Revenue Requirements Met from Other Sources			
5	Solar System Maintenance	77,800	0	77,800
6	Water System Maintenance	43,600	0	43,600
7	Water Construction	0	0	0
8	Water System Operations	0	0	0
9	Administration Design	882,200	0	882,200
10	Water Quality	0	0	0
11	Water Resources	74,700	0	74,700
12	Subtotal	1,078,300	0	1,078,300
	Adjustments			
13	Adjustment for Annual Cash Balance	(3,649,400)	0	(3,649,400)
14	Subtotal	(3,649,400)	0	(3,649,400)
15	Cost of Service to be Recovered from Rates	$ 55,514,800	$ 0	$ 55,514,800

Table 3-2 Cost of Service Revenue from Rates (Recycled Water)

Line No.	Description	Operating Expense	Capital Cost	Total Cost
		($)	($)	($)
	Revenue Requirements			
1	O&M Expenses	6,816,600	0	6,816,600
2	Debt Service	0	0	0
3	Transfers	9,800	0	9,800
4	Subtotal	6,826,400	0	6,826,400
	Less Revenue Requirements Met from Other Sources			
5	System Maintenance	92,000	0	92,000
6	South Bay Water Recycling System Mainte	413,700	0	413,700
7	Subtotal	505,700	0	505,700
	Adjustments			
8	Adjustment for Annual Cash Balance	(127,500)	0	(127,500)
9	Subtotal	(127,500)	0	(127,500)
10	Cost of Service to be Recovered from Rates	$ 6,448,200	$ 0	$ 6,448,200

The total revenue requirement is shown in Table 3-1, Line 4, which corresponds with Table 2-9, Line 22, and Table 2-10, Line 19. As shown in Line 12 for the Water Utility and Line 7 for the Recycled Water Utility, we deduct revenues from other sources to derive the net revenue requirement recovered through rates, which correspond with Table 2-9, Line 14 and Table 2-10, Lines 9 and 10, respectively.

Line 13 for the Water Utility and Line 8 for the Recycled Water Utility represent the net annual cash balance during the TY. If the enterprise is drawing down funds already in the Operating Fund, this number is positive. The number will be negative if the enterprise is replacing funds. In the case of the Water Utility, the $3.7M figure indicates that the forecast is projecting a positive cash balance for the year. In the case of the Recycled Water Utility, the $127k figure indicates that the forecast is projecting a positive cash balance for the year.

3.1 FUNCTIONAL COST COMPONENTS

The first step in conducting a cost-of-service analysis involves analyzing the cost of providing water and recycled water service by system function to properly allocate the costs to the various customer classes and, subsequently, design rates. As a basis for allocating costs of service among customer classes, the study separates costs into the following four basic functional cost components: (1) Base; (2) Extra Capacity; (3) Customer; and (4) Direct Assignment, described as follows:

- Base costs represent operating and capital costs of the system associated with service to customers to the extent required under constant or average annual load conditions without the elements necessary to meet water consumption variations or peak demands.
- Extra Capacity costs represent those operating and capital costs incurred in meeting peaking demands. Peaking demands represent water consumption in excess of the average rate of use.

- Customer costs are those expenditures that tend to vary in proportion to the number of customers connected to the system. These include meter reading, billing, collecting, accounting, maintenance, and capital costs associated with meters and services.
- Directly assigned costs are specifically identified as those incurred to serve specific customers. These costs include fire protection and cross-connections for the Water Utility. The Recycled Water Utility has no direct assigned categories.

3.2 ALLOCATION TO COST COMPONENTS

The next step of the cost-of-service process involves allocating each cost element to functional cost components based on the parameter or parameters having the most significant influence on the magnitude of that cost element. O&M expenses are allocated directly to appropriate cost components. A detailed allocation of related capital investment is used as a proxy for allocating capital and replacement costs. The separation of costs into functional components provides a means for distributing such costs to the various classes of customers based on their respective responsibilities for each type of service.

3.2.1 System Base, Max Day, and Max Hour Allocations

The water and recycled water systems consist of various facilities designed and operated to fulfill a given function. For the systems to provide adequate service to its customers, it must be capable of meeting the annual volume requirements and the maximum demand rates placed on the system. Because not all customers and types of customers exert maximum demand at the same time, the capacities of the various facilities must meet the maximum coincidental demand of all classes of customers. Each water and recycled water service facility within the systems has an underlying average demand exerted by the customers for whom the base cost component applies. For those facilities designed solely to meet average day demand, 100% of the costs go to the base cost component. Extra capacity requirements associated with coincidental demands in excess of average use consist of maximum daily and maximum hourly demand subcomponents.

The first step in determining the allocation percentages for volume-related cost allocations is to assign system peaking factors. The base element is equal to the average daily demand (ADD) and assigned a value of 1.0. Based on the City's 2002 Water Master Plan, the Water Utility's maximum day (max day) demand is 1.5 times the ADD. The maximum hourly (max hour) demand is 1.8 times the ADD. Based on the City's 2014 Strategic and Master Planning Report, 2002 Water Master Plan, the Recycled Water Utility's max day demand is 1.7 times the ADD. The max hour demand is 2.38 times the ADD.

The costs associated with facilities required to meet maximum day demand are allocable to base and maximum day extra capacity as shown below for the Water Utility. Recycled Water Utility would use a similar allocation based on its respective max day and max hour ratios.

- Base = (1.0/1.5) x 100 = 66.7%
- Max Day = (1.5 – 1.0)/1.5 x 100 = 33.3%

These calculations indicate that the average or base use requires 66.7% of the capacity of facilities designed and generated to meet maximum day demand, and the remaining 33.3% meets maximum day extra capacity requirements.

The costs associated with facilities required to meet maximum hour demand are allocable to base, maximum day extra capacity and maximum hour extra capacity as follows:

- Base = (1.0/1.8) x 100 = 55.6%
- Max Day = (1.5 – 1.0)/1.8 x 100 = 27.7%
- Max Hour = (1.8 – 1.5)/1.8 x 100 = 16.7%

3.2.2 Allocation of Operating and Maintenance Expenses

In allocating O&M expenses for TY 2023, costs are directly allocated to the cost components to the extent possible. The Water and Recycled Water Utilities book operating costs by functional categories. Therefore, Black & Veatch used the factors noted in Section 3.1 to allocate the operating expenses to the cost components. The study based the allocation of Administration and Transfer cost elements on the average of all other costs. The direct assignment represents fire protection and cross-connections for the Water Utility. Table 3-3 and Table 3-4 represent the allocation of O&M to the cost components. Next, revenues are subtracted from other sources as shown in Table 3-1, Lines 12 and 15 and Table 3-2, Lines 7 and 10. The analysis deducts any drawdown of available cash balances and normalizes the rate adjustments for a full year to determine the net O&M costs for each utility.

Table 3-3 Allocation of O&M Expenditures (Water)

Line No.	Description	Total Costs	Common to All Customers					Fire Protection	Cross Connection
			Base	Extra Capacity		Customer			
			Base	Max. Day	Max. Hour	Meters	Cust/Bill.		
		($)	($)	($)	($)	($)	($)	($)	($)
	Water Utility								
	Operating Expenses								
	1532 Solar System Maintenance	270,000	0	0	0	270,000	0	0	0
1	1422 Water System Maintenance								
2	Customer Service	326,700	0	0	0	0	326,700	0	0
3	Backflow Prevention	848,200	0	0	0	0	0	0	848,200
4	All Other	692,000	378,000	191,800	115,300	0	0	6,900	0
	1423 Water Construction	3,668,300	2,003,600	1,016,600	611,400	0	0	36,700	0
5	1424 Water System Operations								
6	Generation & Pumping	1,048,700	689,400	348,800	0	0	0	10,500	0
7	Customer Billing & Meter Reading	730,800	0	0	0	0	730,800	0	0
8	Meters	350,800	0	0	0	350,800	0	0	0
	Hydrants	1,233,700	0	0	0	0	0	1,233,700	0
9	All Other	6,128,000	3,347,100	1,698,300	1,021,300	0	0	61,300	0
10	1411 Administration Design	4,440,600	3,047,700	299,300	160,700	603,300	97,200	154,400	78,000
11	1412 Water Quality	280,200	227,000	0	0	50,400	0	2,800	0
12	1413 Water Resources								
	Water Purchase	32,129,300	26,024,700	0	0	5,783,300	0	321,300	0
13	All Other	597,000	483,500	0	0	107,500	0	6,000	0
14	Transfers	199,400	136,900	13,400	7,200	27,100	4,400	6,900	3,500
15	Total O&M Expenses	$ 52,943,700	$ 36,337,900	$ 3,568,200	$ 1,915,900	$ 7,192,400	$ 1,159,100	$ 1,840,500	$ 929,700
	Less Other Revenue								
16	Miscellaneous Revenues	1,078,300	740,100	72,700	39,000	146,500	23,600	37,500	18,900
17	Other Adjustments	(3,649,400)	(2,504,600)	(246,000)	(132,100)	(495,800)	(79,900)	(126,900)	(64,100)
18	Net Operating Expenses	$ 55,514,800	$ 38,102,400	$ 3,741,500	$ 2,009,000	$ 7,541,700	$ 1,215,400	$ 1,929,900	$ 974,900

Table 3-4 Allocation of O&M Expenditures (Recycled Water)

Line No.	Description	Total Costs	Common to All Customers				
			Base	Extra Capacity		Customer	
			Base	Max. Day	Max. Hour	Meters	Cust/Bill.
		($)	($)	($)	($)	($)	($)
	Recycled Water Utility						
	Operating Expenses						
1	1522 System Maintenance						
2	Water Purchase	5,761,600	5,761,600	0	0	0	0
3	Customer Billing & Meter Reading	3,700	0	0	0	0	3,700
4	Meters	407,400	0	0	0	407,400	0
5	All Other	294,700	123,800	86,700	84,200	0	0
6	1525 South Bay Water Recycling System	349,200	205,400	143,800	0	0	0
7	Transfers	9,800	8,800	300	100	600	0
8	Total O&M Expenses	$ 6,826,400	$ 6,099,600	$ 230,800	$ 84,300	$ 408,000	$ 3,700
	Less Other Revenue						
9	Miscellaneous Revenues	505,700	451,900	17,100	6,200	30,200	300
10	Other Adjustments	(127,500)	(113,900)	(4,300)	(1,600)	(7,600)	(100)
11	Net Operating Expenses	$ 6,448,200	$ 5,761,600	$ 218,000	$ 79,700	$ 385,400	$ 3,500

3.2.3 Allocation of Capital Investments

In allocating the capital investment for TY 2023, the existing fixed assets (which serve as a proxy for the current capital investments) are allocated directly to cost components to the extent possible. The allocation of costs in this manner provides a basis for annual investment in water and recycled water system facilities. Plan capital costs can be allocated using the distribution of total net system investment across the functional cost components. Table 3-5 and Table 3-6 show the total allocation of existing system investment serving water and recycled water customers. The total net system investment of $51.2M shown on Line 11 for the Water Utility and $1.1M on Line 9 for the Recycled Water Utility represents the Test Year original cost less accumulated depreciation of the system in service. The total net system investment reflects the Water and Recycled Water Utilities fixed asset listing ending June 30, 2021. This value represents the original cost (book value) of the assets.

Table 3-5 Allocation of Capital Costs (Water)

Line No.	Description	Total Costs	Common to All Customers					Fire Protection	Cross Connection
			Base	Extra Capacity		Customer			
			Base	Max. Day	Max. Hour	Meters	Cust/Bill.		
		($)	($)	($)	($)	($)	($)	($)	($)
	Water Utility								
	Plant Assets								
1	Water Production	12,273,700	9,941,700	0	0	2,209,300	0	122,700	0
2	Pumping	3,354,800	2,205,600	1,115,700	0	0	0	33,500	0
3	Treatment	992,000	652,200	329,900	0	0	0	9,900	0
4	Transmission & Distribution	25,288,400	13,812,600	7,008,200	4,214,700	0	0	252,900	0
5	Meters & Services	7,077,100	0	0	0	7,077,100	0	0	0
6	Fire Hydrants	648,400	0	0	0	0	0	648,400	0
7	General Plant	1,525,900	818,100	259,900	129,600	285,500	0	32,800	0
8	Total Plant Assets	$ 51,160,300	$ 27,430,200	$ 8,713,700	$ 4,344,300	$ 9,571,900	$ 0	$ 1,100,200	$ 0
	Less Other Revenue								
9	Miscellaneous Revenues	0	0	0	0	0	0	0	0
10	Other Adjustments	0	0	0	0	0	0	0	0
11	Net Capital Expenses	$ 51,160,300	$ 27,430,200	$ 8,713,700	$ 4,344,300	$ 9,571,900	$ 0	$ 1,100,200	$ 0

Table 3-6 Allocation of Capital Costs (Recycled Water)

Line No.	Description	Total Costs	Common to All Customers				
			Base	Extra Capacity		Customer	
			Base	Max. Day	Max. Hour	Meters	Cust/Bill.
		($)	($)	($)	($)	($)	($)
	Recycled Water Utility						
	Plant Assets						
1	Water Production	0	0	0	0	0	0
2	Pumping	0	0	0	0	0	0
3	Treatment	0	0	0	0	0	0
4	Transmission & Distribution	1,131,400	475,300	332,800	323,300	0	0
5	Meters	0	0	0	0	0	0
6	Total Plant Assets	$ 1,131,400	$ 475,300	$ 332,800	$ 323,300	$ 0	$ 0
	Less Other Revenue						
7	Miscellaneous Revenues	0	0	0	0	0	0
8	Other Adjustments	0	0	0	0	0	0
9	Net Capital Expenses	$ 1,131,400	$ 475,300	$ 332,800	$ 323,300	$ 0	$ 0

3.3 UNITS OF SERVICE

To properly recognize the cost of service, each customer class receives its share of base, maximum day, peak hour, and customer costs. Following the allocation of costs, the total cost responsibility for each customer class is developed using unit costs of service for each cost function and subsequently assigning those costs to the customer classes based on the respective service requirements of each. The number of units of service required by each customer class provides a means for the proportionate distribution of costs previously allocated to respective cost categories.

Table 3-7 summarizes the estimated TY 2023 units of service for the various customers. Base costs vary with the volume of water consumed and distributed to the customers on that basis. Extra Capacity costs are those associated with meeting peak demand rates of water use and distributed to the customers based on the respective class capacity requirements in excess of average rates of use. Black & Veatch followed the capacity factor methodology outlined in Appendix A of the AWWA M1 Manual to derive peak consumption information from the monthly consumption records in the City's Customer Information System which helps provide the basis for estimating maximum day and peak hour ratios. The number of bills for each customer serves as the basis for distributing customer billing requirements. Customer meter requirements are allocated on an equivalent meter's basis for each customer. The estimated number of equivalent meters for each customer relies on the total number of meters serving respective classes and the hydraulic capacity ratio of the meters to the 5/8 x 3/4-inch meter. The equivalent meter ratios adopted in this analysis are consistent with the AWWA M1 Manual. Private fire-protection costs allocations use equivalent fire hydrants.

3.4 COST OF SERVICE ALLOCATIONS

The Study applies the unit costs of service to each customer class' respective service requirements to determine the cost of service for each customer class. The total unit costs of service applied to the respective requirements for each customer class results in the total cost of service for each customer class.

3.4.1 Units Costs of Service

The TY 2023 unit cost of service for each functional cost component is simply the total cost divided by the applicable units of service, as shown in Table 3-8 and Table 3-10. On Line 4, the total costs represent the cost that rates need to recover, as demonstrated in Table 3-1, Line 16 for the Water Utility, and Table 3-2, Line 11 for the Recycled Water Utility. The net O&M cost includes O&M (including water purchase) less revenue from other sources and adjustments. The total capital cost includes debt service payments and transfers to the Construction Fund. Line 6 represents the unit costs for the entire water and recycled water systems regardless of customer classes. After that, the unit costs are used to allocate the costs to the specific customer classes.

3.4.2 Distribution of Costs of Service to Customer Classes

Applying the unit costs to the units for each customer class produces the customer class costs. This process is illustrated in Table 3-9 and Table 3-11, in which unit costs are applied to the customer class units of service for TY 2023. The costs attributable to each customer class reflect the functional cost components described in Section 3.1. Each customer class places a burden on the system in different ways, and thus the allocation of the units is representative of this burden.

An example of the application of unit costs is shown below for illustrative purposes.

	Base Component	
Unit Cost (Table 3-5, Line 6)	$ 5.39	per HCF
General Customer Consumption (Table 3-6, Line 2)	7,066,384	HCF
Total Allocated Cost	$ 38,102,400	

Please note that the numbers within the tables are rounded, yet the calculations are done based on non-rounded values; therefore, results might vary.

Table 3-7 Units of Service (Water and Recycled Water)

Line No.	Description	Consumption		Maximum Day			Maximum Day			Meters	Cust/Bills	Fire Protection	Cross Connection
		Annual	Avg. Day	Factor	Total	Extra	Factor	Total	Extra				
	Column Reference	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Units of Measure	(HCF)	(HCF/day)		(HCF/day)	(HCF/day)		(HCF/day)	(HCF/day)	(EMs)	(bills)	(EHs)	(EMs)
	Water Utility												
1	General Customer	7,066,384	19,360	165%	31,944	12,584	250%	48,400	16,456	45,125	315,558	0	0
2	Subtotal	7,066,384	19,360		31,944	12,584		48,400	16,456	45,125	315,558		
	Fire Service												
3	Public Fire	0	0		552	552		4,418	3,866	0	0	3,248	0
4	Private Fire	0	0		290	290		2,319	2,030	0	15,079	1,705	0
5	Subtotal	0	0		842	842		6,738	5,896	0	15,079	4,953	0
	Cross Connection												
6	Cross Connection										32,306	0	7,693
7	Subtotal	0	0		0	0		0	0	0	32,306	0	7,693
8	Total Water System	7,066,384	19,360		32,786	13,426		55,138	22,352	45,125	362,943	4,953	7,693
	Recycled Water Utility												
9	General Customer	1,550,341	4,248	130%	5,522	1,274	190%	8,070	2,549	2,233	3,150	0	0
10	Subtotal	1,550,341	4,248		5,522	1,274		8,070	2,549	2,233	3,150	0	0

Table 3-8 Units Cost of Service (Water)

Line No.	Description	Total Costs	Common to All Customers					Fire Protection	Cross Connection
			Base	Extra Capacity		Customer			
			Base	Max. Day	Max. Hour	Meters	Cust/Bill.		
		($)	($)	($)	($)	($)	($)	($)	
	Water Utility								
1	Net Operating Expense	55,514,800	38,102,400	3,741,500	2,009,000	7,541,700	1,215,400	1,929,900	974,900
2	Debt Service	0	0	0	0	0	0	0	0
3	Capital Costs	0	0	0	0	0	0	0	0
4	Total Cost of Service	$ 55,514,800	$ 38,102,400	$ 3,741,500	$ 2,009,000	$ 7,541,700	$ 1,215,400	$ 1,929,900	$ 974,900
5	Units of Service (Total)		7,066,384 HCF	13,426 HCF/Day	22,352 HCF/Day	45,125 Eq. Meters	362,943 Bills	4,953 Eq. Hydrants	7,693 Eq. Meters
6	Cost per Unit		$ 5.39 per HCF	$ 278.67 per HCF/Day	$ 89.88 per HCF/Day	$ 167.13 per Eq. Meter	$ 3.35 per Bill	$ 389.64 per Eq. Hydrant	$ 126.73 per Eq. Meter

Table 3-9 Distribution of Costs to Customer Classes (Water)

Line No.	Description	Total Costs	Common to All Customers					Fire Protection	Cross Connection
			Base	Extra Capacity		Customer			
			Base	Max. Day	Max. Hour	Meters	Cust/Bill.		
		($)	($)	($)	($)	($)	($)	($)	
	Water Utility								
	General Customer								
1	Units		7,066,384	12,584	16,456	45,125	315,558	0	0
2	Allocation of costs of service	51,686,700	38,102,400	3,506,800	1,479,100	7,541,700	1,056,700	0	0
	Public Fire								
3	Units		0	552	3,866	0	0	3,248	0
4	Allocation of costs of service	1,766,900	0	153,900	347,500	0	0	1,265,500	0
	Private Fire								
5	Units		0	290	2,030	0	15,079	1,705	0
6	Allocation of costs of service	978,100	0	80,800	182,400	0	50,500	664,400	0
	Cross Connection								
7	Units		0	0	0	0	32,306	0	7,693
8	Allocation of costs of service	1,083,100	0	0	0	0	108,200	0	974,900
7	TOTAL COSTS OF SERVICE	$ 55,514,800	$ 38,102,400	$ 3,741,500	$ 2,009,000	$ 7,541,700	$ 1,215,400	$ 1,929,900	$ 974,900

Table 3-10 Units Cost of Service (Recycled Water)

Line No.	Description	Total Costs	Common to All Customers				
			Base	Extra Capacity		Customer	
			Base	Max. Day	Max. Hour	Meters	Cust/Bill.
		($)	($)	($)	($)	($)	($)
	Recycled Water Utility						
1	Net Operating Expense	5,862,000	5,237,800	198,200	72,400	350,400	3,200
2	Debt Service	0	0	0	0	0	0
3	Capital Costs	0	0	0	0	0	0
4	Total Cost of Service	$ 5,862,000	$ 5,237,800	$ 198,200	$ 72,400	$ 350,400	$ 3,200
5	Units of Service (Total)		1,550,341 HCF	1,274 HCF/Day	2,549 HCF/Day	2,233 Eq. Meters	3,150 Bills
6	Cost per Unit		$ 3.38 per HCF	$ 155.54 per HCF/Day	$ 28.41 per HCF/Day	$ 156.94 per Eq. Meter	$ 1.02 per Bill

Table 3-11 Distribution of Costs to Customer Classes (Recycled Water)

Line No.	Description	Total Costs	Common to All Customers				
			Base	Extra Capacity		Customer	
			Base	Max. Day	Max. Hour	Meters	Cust/Bill.
		($)	($)	($)	($)	($)	($)
	Recycled Water Utility						
	General Customer						
1	Units		1,550,341	1,274	2,549	2,233	3,150
2	Allocation of costs of service	5,862,000	5,237,800	198,200	72,400	350,400	3,200
3	TOTAL COSTS OF SERVICE	$ 5,862,000	$ 5,237,800	$ 198,200	$ 72,400	$ 350,400	$ 3,200

4 Rate Design

The initial consideration in the derivation of rate schedules for water and recycled water service is establishing equitable charges to the customers commensurate with the cost of providing that service. While the cost-of-service allocations to customer classes should not be construed as literal or exact determinations, they offer a guide to the necessity for, and the extent of, rate adjustments. Practical considerations sometimes modify rate adjustments by considering additional factors such as the extent of bill impacts, existing contracts, and historical local policies and practices.

4.1 EXISTING RATES

The existing rates of the Water and Recycled Water Utilities consist of a fixed component in the form of a minimum monthly service charge and a variable component in the form of a consumption charge. The minimum monthly service charge is based on meter size and applied when consumption does not exceed the consumption allowance. The consumption charge is based on units of consumption (1 unit = 1 HCF = 748 gallons). The City has separate fixed charges for fire services and cross-connections. Table 2-3, presented earlier in this report, summarizes the existing water and recycled water rates.

4.2 PROPOSED RATES

The cost-of-service analysis described in the preceding sections of this report provides a basis for the design of water and recycled water rates.

4.2.1 Monthly Service Charge

Black & Veatch used meter ratios based on maximum operating capacities by meter size as shown in AWWA M1, Table B-1, which recognizes that as meter size increases, so does the capacity. For example, customers with a 4" meter expects to be able to use more water (at a higher flow capacity) than customers with a ¾" meter. Consequently, the City's water system must maintain assets sized accordingly and capable of providing customers the level of service expected from their meter connection when the tap turns on. The minimum monthly service charge recovers a portion of the costs associated with wholesale water purchase, meter maintenance and services, meter reading, bill issuance, and maintenance and capacity costs associated with public fire protection regardless of the level of water consumed.

Table 4-1 demonstrates the water cost elements incorporated into the minimum monthly service charge for FY 2023. Table 4-2 shows the Water Utility three-year fixed service charge rate schedule.

Table 4-1 Costs within the Minimum Monthly Service Charge for FY 2023 (Water)

Meter Size	Meter & Public Fire Protection				Billing			Total Service Charge
	Mtr Unit Cost	FP Unit Cost	Meter Ratio	Adjusted Unit Cost	Unit Cost	Bill Ratio	Adjusted Unit Cost	
	per EM	per EM		$	per Bill		$	$/Month
5/8" x 3/4"	13.93	3.26	1.00	17.19	3.35	1.00	3.35	20.54
1"	13.93	3.26	1.67	28.65	3.35	1.00	3.35	32.00
1-1/2"	13.93	3.26	3.33	57.30	3.35	1.00	3.35	60.65
2"	13.93	3.26	5.33	91.68	3.35	1.00	3.35	95.03
3"	13.93	3.26	10.67	183.36	3.35	1.00	3.35	186.71
4"	13.93	3.26	16.67	286.51	3.35	1.00	3.35	289.85
6"	13.93	3.26	33.33	573.01	3.35	1.00	3.35	576.36
8"	13.93	3.26	53.33	916.82	3.35	1.00	3.35	920.17
10"	13.93	3.26	80.00	1,375.23	3.35	1.00	3.35	1,378.58
12"	13.93	3.26	112.50	1,933.91	3.35	1.00	3.35	1,937.26

Table 4-2 Proposed Minimum Monthly Service Charge (Water)

Customer Class	Proposed		
	FY 2023	FY 2024	FY 2025
Minimum Monthly Meter Rates ($/Month)	$/month	$/month	$/month
5/8" x 3/4"	20.54	22.25	24.09
1"	32.00	34.84	37.86
1-1/2"	60.65	66.31	72.28
2"	95.03	104.08	113.58
3"	186.71	204.79	223.73
4"	289.85	318.09	347.65
6"	576.36	632.81	691.86
8"	920.17	1,010.48	1,104.92
10"	1,378.58	1,514.04	1,655.66
12"	1,937.26	2,127.75	2,326.88

Table 4-3 demonstrates the recycled water cost elements incorporated into the minimum monthly service charge for FY 2023. Table 4-4 shows the Recycled Water Utility three-year fixed service charge rate schedule.

Table 4-3 Costs within the Minimum Monthly Service Charge for FY 2023 (Recycled Water)

Meter Size	Meter Services			Billing			Total Service Charge
	Mtr Unit Cost	Meter Ratio	Adjusted Unit Cost	Unit Cost	Bill Ratio	Adjusted Unit Cost	
	per EM		$	per Bill		$	$/Month
5/8" x 3/4"	14.38	1.00	14.38	1.11	1.00	1.11	15.50
1"	14.38	1.67	23.97	1.11	1.00	1.11	25.09
1-1/2"	14.38	3.33	47.95	1.11	1.00	1.11	49.06
2"	14.38	5.33	76.72	1.11	1.00	1.11	77.83
3"	14.38	10.67	153.44	1.11	1.00	1.11	154.55
4"	14.38	16.67	239.74	1.11	1.00	1.11	240.85
6"	14.38	33.33	479.48	1.11	1.00	1.11	480.60
8"	14.38	53.33	767.18	1.11	1.00	1.11	768.29
10"	14.38	80.00	1,150.76	1.11	1.00	1.11	1,151.87
12"	14.38	112.50	1,618.26	1.11	1.00	1.11	1,619.37

Table 4-4 Proposed Minimum Monthly Service Charge (Recycled Water)

Customer Class	Proposed		
	FY 2023	FY 2024	FY 2025
Minimum Monthly Meter Rates ($/Month)	$/month	$/month	$/month
5/8" x 3/4"	15.50	16.94	18.63
1"	25.09	27.55	30.35
1-1/2"	49.06	54.07	59.65
2"	77.83	85.90	94.80
3"	154.55	170.77	188.56
4"	240.85	266.24	294.04
6"	480.60	531.46	587.02
8"	768.29	849.72	938.61
10"	1,151.87	1,274.06	1,407.39
12"	1,619.37	1,791.24	1,978.72

4.2.2 Fire Service

The fire service charge includes costs of issuing bills and maintenance and capacity costs associated with private fire protection. The fire service charge increases as pipeline diameter size increases. The Water Utility provides fire service to approximately 1,255 private fire service accounts. These customers have a water line connection to the water system specifically for fire protection. The Water Utility must design, operate, and maintain a water system that can meet peak fire demand requirements to meet fire protection demands. The Water Utility charges these accounts a fire service charge based on the diameter of the line that connects their fire protection system to the water system. Table 4-5 demonstrates the costs incorporated into the fire service charge, and Table 4-6 shows the three-year rate schedule based on unit costs in future years.

Table 4-5 Costs within the Fire Service Charge for FY 2023

Meter Size	Private Fire Protection			Total Service Charge
	Unit Cost	Meter Ratio	Adjusted Unit Cost	
	per EH			$/Month
2"	47.80	0.06	2.87	2.87
4"	47.80	0.34	16.25	16.25
6"	47.80	1.00	47.80	47.80
8"	47.80	2.13	101.82	101.82
10"	47.80	3.83	183.09	183.09
12"	47.80	6.19	295.91	295.91

Table 4-6 Proposed Fire Service Charge

Customer Class	Proposed		
	FY 2023	FY 2024	FY 2025
Fire Service ($/Month)	$/month	$/month	$/month
2"	2.87	2.95	3.07
4"	16.25	16.72	17.41
6"	47.80	49.19	51.20
8"	101.82	104.77	109.06
10"	183.09	188.39	196.11
12"	295.91	304.48	316.95

4.2.3 Cross Connection

The cross-connection charge includes costs of issuing bills and maintenance and replacement costs associated with backflow devices. The cross-connection charge increases as pipeline diameter size increases. The Water Utility provides backflow services to approximately 2,689 accounts. These customers have a backflow device that prevents possible contaminated water from entering the water system. The Water Utility maintains and replaces the devices accordingly to ensure that the devices are working properly. The Water Utility charges the accounts a cross-connection charge based on the diameter of the line that connects their service to the water system. Table 4-7 demonstrates the costs incorporated into the cross-connection charge, and Table 4-8 shows the three-year rate schedule.

Table 4-7 Costs within the Cross-Connection Charge for FY 2023

Meter Size	Cross Connection			Total Service Charge
	Unit Cost	Meter Ratio	Adjusted Unit Cost	
	per EM			$/Month
1"	11.73	0.63	7.33	7.33
2"	11.73	1.00	11.73	11.73
3"	11.73	2.00	23.47	23.47
4"	11.73	3.13	36.67	36.67
6"	11.73	6.25	73.33	73.33
8"	11.73	10.00	117.33	117.33
10"	11.73	15.00	175.99	175.99

Table 4-8 Proposed Cross Connection Charge

Customer Class	Proposed		
	FY 2023	FY 2024	FY 2025
Cross Connection ($/Month)	$/month	$/month	$/month
1"	7.33	7.47	7.70
2"	11.73	11.95	12.32
3"	23.47	23.91	24.64
4"	36.67	37.35	38.50
6"	73.33	74.71	76.99
8"	117.33	119.53	123.19
10"	175.99	179.30	184.79

4.2.4 Consumption Charge

This consumption charge is designed to recover costs associated with the base and extra capacity demands. These costs include fixed and variable costs incurred by the water and recycled water system while providing the average annual usage and peaking demands. While most of the costs are fixed, such as personnel and direct and indirect charges, variable costs represent most of the costs through water production and water purchase. Table 4-9 shows the three-year rate schedule for both the Water and Recycled Water Utilities. For the Recycled Water Utility, the industrial process is part of general customers.

Table 4-9 Proposed Consumption Charges

Customer Class	Proposed		
	FY 2023	FY 2024	FY 2025
	$/HCF	$/HCF	$/HCF
Consumption Charges ($/HCF)			
Water Utility			
General Customer	7.33	7.99	8.71
Recycled Water Utility			
General Customers	4.12	4.53	4.99

4.3 DROUGHT CONDITIONS

4.3.1 Water Shortage Contingency Plan

The City developed a six-stage Water Shortage Contingency Plan in the 2020 Urban Water Management Plan that complies with the SWRCB's regulations. Table 4-10 shows that the plan includes the percent supply reduction and water supply condition for the different stages within the plan.

Table 4-10 Stages of Water Shortages Contingency Plan

STAGES	PERCENT SUPPLY REDUCTION	WATER SHORTAGE CONDITION	SHORTAGE RESPONSE ACTION
1	≤10%	Advisory/Voluntary	Voluntary conservation Increase public information campaigning Increase educational programs
2	11-20%	Mandatory	Water use restrictions Allocations and mandatory conservation Required reductions Drought surcharges and increased rates Increase production monitoring Increase use of non-potable water Reduce system flushing
3	21-30%		
4	31-40%		
5	41-50%		
6	>50%	Emergency Curtailment	Water use for decorative water features prohibited Prohibit landscape irrigation Increase use of non-potable water

Source: 2020 Urban Water Management Plan, Table 8-11: WSCP Levels

4.3.2 Drought Surcharges

Table 4-11 shows the drought surcharges that have been developed for each 10 percent supply reduction associated with transitioning through the stages in the Water Shortage Contingency Plan. These charges are not proposed to be included in the rates at this time, but should drought conditions continue to worsen, City staff may return to Council at a later date for consideration of these surcharges. For this Study's purposes, current conditions represent the projected baseline consumption for each fiscal year. The projected baseline provides an expected revenue for the fiscal year. Under drought conditions, consumption decreases, and thus additional revenue is required for recovery from a drought surcharge. The drought surcharge is calculated by dividing the revenue loss by the reduced usage after accounting for the reduction in water supply costs associated with Valley Water and SFPUC water purchases.

Table 4-11 Proposed First Year Drought Charges, FY 2023

Description	Baseline	Additional Conservation compared to Baseline					
		10%	20%	30%	40%	50%	Greater than 50%
Projected Consumption (HCF)	7,390,708	7,390,708	7,390,708	7,390,708	7,390,708	7,390,708	7,390,708
Reduction in Consumption (HCF)		(739,071)	(1,478,142)	(2,217,212)	(2,956,283)	(3,695,354)	(4,434,425)
Net Consumption (CCF)	7,390,708	6,651,637	5,912,566	5,173,496	4,434,425	3,695,354	2,956,283
Projected Consumption Rates ($/HCF)	$7.33	$7.33	$7.33	$7.33	$7.33	$7.33	$7.33
Projected Consumption Revenue	$54,177,866	$48,760,078	$43,342,290	$37,924,509	$32,506,720	$27,088,932	$21,671,144
Total Revenue	$54,177,866	$48,760,078	$43,342,290	$37,924,509	$32,506,720	$27,088,932	$21,671,144
Revenue Lost		$5,417,788	$10,835,577	$16,253,358	$21,671,146	$27,088,934	$32,506,723
Reduced Water Sold + Water Loss		776,025	1,552,049	2,328,073	3,104,097	3,880,122	4,656,146
Blended Wholesale Water Costs		$3.76	$3.76	$3.76	$3.76	$3.76	$3.76
Reduced Cost of Wholesale Water		($2,921,600)	($5,843,300)	($8,764,900)	($11,686,500)	($14,608,200)	($17,529,800)
Revenue Lost due to Reduction		$5,417,788	$10,835,577	$16,253,358	$21,671,146	$27,088,934	$32,506,723
Less Reduction of Water Wholesale Costs		($2,921,600)	($5,843,300)	($8,764,900)	($11,686,500)	($14,608,200)	($17,529,800)
Revenue to be recovered by drought surcharges		$2,496,188	$4,992,277	$7,488,458	$9,984,646	$12,480,734	$14,976,923
Drought Surcharge on Consumption ($/HCF)		$0.38	$0.84	$1.45	$2.25	$3.38	$5.07

Using the same methodology per fiscal year, Table 4-12 shows the proposed three-year drought surcharges for each additional percentage of savings.

Table 4-12 Proposed Three-Year Drought Charges

Description	Additional Conservation compared to Baseline					
	10%	20%	30%	40%	50%	Greater than 50%[1]
FY 2023	$0.38	$0.84	$1.45	$2.25	$3.38	$5.07
FY 2024	$0.38	$0.86	$1.48	$2.30	$3.45	$5.17
FY 2025	$0.39	$0.88	$1.50	$2.33	$3.50	$5.25

1. Greater than 50% represents surcharge up to 60%. Anything larger will need to be calculated.

4.4 TYPICAL MONTHLY COSTS UNDER PROPOSED CHARGES

Table 4-13 and Table 4-14 compare typical monthly costs under existing rates and the proposed schedule of water and recycled water user rates derived in this study.

Table 4-13 Typical Monthly Bill (Water)

Customer Class	Typical Monthly Usage	FY 2022 Existing Rates	FY 2023 Proposed Rates
	(HCF)	($)	($)
Water Utility			
General Customer	0	$19.81	$20.54
	3	$19.81	$20.54
	5	$33.45	$36.65
	10	$66.90	$73.31
	12	$80.28	$87.97
	20	$133.80	$146.61
	30	$200.70	$219.92
	40	$267.60	$293.22
	50	$334.50	$366.53

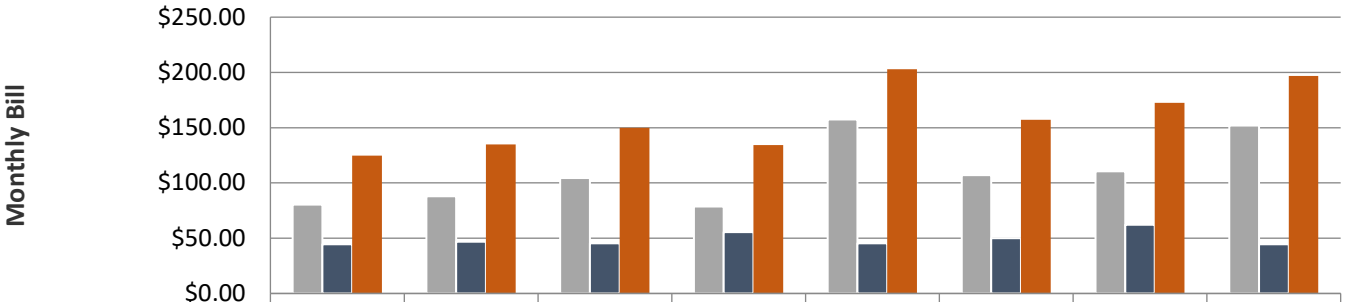
Table 4-14 Typical Monthly Bill (Recycled Water)

Customer Class	Typical Monthly Usage	FY 2022 Existing Rates	FY 2023 Proposed Rates
	(HCF)	($)	($)
Recycled Water Utility			
General Customer	0	$18.90	$15.50
	3	$18.90	$15.50
	5	$18.70	$20.61
	10	$37.40	$41.22
	12	$44.88	$49.47
	20	$74.80	$82.44
	30	$112.20	$123.66
	40	$149.60	$164.89
	50	$187.00	$206.11

4.5 NEIGHBORING WATER UTILITIES

Presented in Figure 4-1 are the proposed rates compared to rates of neighboring cities for a single-family residential customer with a 5/8" x ¾" meter consuming 12 units of water. Based on the comparison, the City is currently one of the lowest water providers in the area. With the proposed rate increases, the City remains the lowest water provider of the surveyed communities. All surveyed community rates are current as of May 2022.

Figure 4-1 Comparison to Neighboring Water Utilities



	Santa Clara Current	Santa Clara Proposed	San Jose Proposed	Sunnyvale Proposed	SJWC	Mountain View Proposed	Milpitas	Palo Alto Proposed
WATER RATE 12 HCF	$80.28	$87.96	$104.43	$78.71	$157.52	$106.99	$110.41	$152.04
SEWER RATE	$44.53	$46.82	$45.49	$55.52	$45.49	$50.10	$62.07	$44.62
COMBINED	$124.81	$134.78	$149.92	$134.23	$203.01	$157.09	$172.48	$196.66

Sewer Rate Study

5 Revenue and Revenue Requirements

To meet the costs associated with providing sewer services to its customers, the Sewer Utility derives revenue from a variety of sources, including sewer user charges (rates), outlet charges, conveyance fees, connection charges, interest earned from the investment of available funds, engineering fees, and other miscellaneous revenues. The Sewer Utility is constantly looking for other sources of revenue, such as loans, bonds, and grants. Black & Veatch has projected the level of future revenue generated in the Study through an analysis of historical and future system growth in terms of the number of EDUs, bills, and contributed sewage flow. This section also projects the expenses, or revenue requirements, necessary to operate and maintain the system, invest in capital improvements, make debt service payments, and cover other sewer system expenses.

5.1 CUSTOMER AND WATER CONSUMPTION PROJECTIONS

5.1.1 Customer Classes

The Sewer Utility's customers include both residential and non-residential customers. The City has the following customer classes:

- Residential: Single-family and multi-family residential are separate classes
- Non-Residential: Amusement Parks; Auto Dealers & Service Stations; Churches; Electric & Electronic Equipment; Food & Kindred Products; Hospitals & Convalescent Homes; Industrial Chemical; Industrial Water Treatment; Laundries; Machinery Manufacturers; Metal Plating; Motels & Hotels; Paper; Repair Shops & Car Washes; Restaurants; Schools & Colleges; and Commercial/Industrial/Miscellaneous (catch-all for remainder of non-residential customers).
- Major Users: Major Users customer class is composed of major commercial and industrial users who are identified based on the following[3]:
  - Have a sewage discharge of at least 25,000 gallons per day; or
  - Have a daily discharge that is intermittent or irregular in strength, amount, or nature.

5.1.2 Equivalent Dwelling Units

The City provides sewer services to over 26,000 customers. All customers generating sewage flow connect to the sewer system. Since the City bills residential customers based on EDUs, a review of historical EDUs patterns for customers, and anticipated growth within the City, the projected total number of EDUs is expected to grow at 0.1% annually over the Study period. An EDU represents a single-

[3] City Website, Schedule S-16 Monthly Sewer Service Charges, <http://www.santaclaraca.gov/government/departments/water-sewer-utilities/water-sewer-and-recycled-water-rates/sewer-rates>

family residential customer equivalent with a flow of 245 gallons per day and strengths of 250 mg/L of Biological Oxygen Demand (BOD), 250 mg/L of Total Suspended Solids (TSS), and 35 mg/L of Ammonia (NH3).

Table 5-1 summarizes the projected number of EDUs for the Sewer Utility.

Table 5-1 EDUs

Line No.	Description	Fiscal Year Ending June 30,		
		FY 2023	FY 2024	FY 2025
		(EDUs)	(EDUs)	(EDUs)
1	Single Family	256,722	256,979	257,236
2	Multi Family	303,033	303,336	303,639
3	Total	559,755	560,315	560,875

5.1.3 Minimum Bills

The City bills non-residential customers primarily on contributed sewage flow and imposes a minimum bill on those whose flow charges do not exceed the included volume allowance within the monthly service charge. The City refers to these bills as minimum monthly service bills. Therefore, a review of historical minimum bills patterns for non-residential customers and anticipated growth within the City, the projected total number of minimum bills are expected to grow 0.5% annually over the Study period.

Table 5-2 summarizes the projected number of minimum monthly service bills for the Sewer Utility.

Table 5-2 Minimum Monthly Service Bills

Line No.	Description	Fiscal Year Ending June 30,		
		FY 2023	FY 2024	FY 2025
		(Bills)	(Bills)	(Bills)
1	Amusement Parks	122	123	124
2	Auto Dealers & Service Station	376	378	380
3	Churches	243	244	245
4	Commercial/Industrial/Miscellaneous	9,929	9,979	10,029
5	Electric & Electronic Equip.	392	394	396
6	Food and Kindred Products	23	23	23
7	Hospitals & Convalescent Homes	309	311	313
8	Industrial Chemical	52	52	52
9	Laundries	117	118	119
10	Machinery Manufacturers	681	684	687
11	Metal Plating	94	94	94
12	Motels & Hotels	42	42	42
13	Paper	13	13	13
14	Repair Shops & Car Washes	478	480	482
15	Restaurants	245	246	247
16	Schools & Colleges	512	515	518
17	Total	13,628	13,696	13,764

5.1.4 Contributed Sewage Flow

The City charges all its non-residential customers based on contributed sewage flow, which is determined by multiplying water consumption by a return factor. In determining the projected sewage flow, Black & Veatch analyzed historical sewage flow patterns in conjunction with a projected estimate of future water consumption. Since 2016, water consumption has slowly increased from historic lows experienced during mandated drought restrictions. Despite the increase, the City's Water Shortage Contingency Plan remains in effect, and customers have made conservation a way of life. The Water Utility, therefore, expects consumption to continue to rebound slowly. Past experience would indicate that after strict water conservation measures are lifted, the rebound in consumption is usually associated with discretionary water such as irrigation. Much of this water does not make it to the sewer system; therefore, the City projects that sewage flow will grow by 0.5% annually over the Study period.

Table 5-3 shows the projected sewage flow generated for the Study period. The City contributed sewage flow in units of HCF for non-residential customers.

Table 5-3 Contributed Sewage Flow

Line No.	Description	Fiscal Year Ending June 30,		
		FY 2023	FY 2024	FY 2025
		(HCF)	(HCF)	(HCF)
1	Amusement Parks	67,228	67,564	67,902
2	Auto Dealers & Service Station	22,013	22,123	22,234
3	Churches	17,778	17,867	17,956
4	Commercial/Industrial/Miscellaneous	1,293,400	1,299,867	1,306,366
5	Electric & Electronic Equip.	496,422	498,904	501,399
6	Food and Kindred Products	19,040	19,135	19,230
7	Hospitals & Convalescent Homes	94,511	94,984	95,459
8	Industrial Chemical	13,903	13,973	14,043
9	Laundries	25,892	26,021	26,151
10	Machinery Manufacturers	39,414	39,611	39,809
11	Metal Plating	7,009	7,044	7,079
12	Motels & Hotels	116,133	116,714	117,298
13	Paper	149,741	150,490	151,242
14	Repair Shops & Car Washes	12,231	12,292	12,353
15	Restaurants	80,611	81,014	81,419
16	Schools & Colleges	43,584	43,802	44,021
17	Total (HCF)	2,498,910	2,511,405	2,523,961
18	Total (AF)	5,737	5,765	5,794

5.1.5 Major Users

The City charges major commercial and industrial sewer customers based on contributed sewage flow and strength loadings. Major users are identified individually, as each customer places different burdens on the sewer system. The City had one identified Major User customer.

Table 5-4 shows the flow and loadings associated with this customer over the Study period.

Table 5-4 Major Users

Line No.	Description	Fiscal Year Ending June 30, FY 2023	FY 2024	FY 2025
	Major Users			
	Operating and Maintenance Cost Recovery			
1	Volume (MG)	99	99	99
2	BOD (1,000 lbs)	1,027	1,027	1,027
3	SS (1,000 lbs)	460	460	460
4	NH3 (1,000 lbs)	8	8	8
	Annual Capital Cost Recovery			
5	Volume (MGD)	0.27	0.27	0.27
6	BOD (1,000 lbs/day)	2.81	2.81	2.81
7	SS (1,000 lbs/day)	1.26	1.26	1.26
8	NH3 (1,000 lbs/day)	0.02	0.02	0.02

5.2 REVENUE UNDER EXISTING RATES

Sewer user rates serve as the primary source of revenue for the Sewer Utility. Therefore, the level of future rate revenue is important in developing a long-range financial plan. Rate revenue is determined by multiplying the projected system growth in terms of the number of EDUs, minimum monthly service bills, contributed sewage flow, and major user flow and loadings by the applicable rates to determine sewer rate revenue.

Table 5-5 shows the Sewer Utility's current schedule of charges. It is important to note that the minimum monthly service charge applies to non-residential customers that do not exceed the base amount. Therefore, the minimum monthly service charge serves as a baseline cost that the City needs to recover. The City maintains a separate schedule of rates based on the customer classes identified in Section 5.1.

Table 5-5 Existing Sewer Rates

Description	Existing FY 2022
Residential	($/EDU)
Single Family	44.53
Multi-Family	44.53
Non-Residential [1]	($/HCF)
Amusement Parks	5.79
Auto Dealers & Service Station	6.10
Churches	5.00
Com/Ind/Misc	5.29
Electric & Electronic Equip.	5.02
Food and Kindred Products	14.45
Hospitals & Convalescent Homes	6.55
Industrial Chemical	9.60
Laundries	5.76
Machinery Manufacturers	7.52
Metal Plating	3.31
Motels & Hotels	7.04
Paper	11.05
Repair Shops & Car Washes	4.64
Restaurants	15.09
Schools & Colleges	5.62

Description	Existing FY 2022
Major Commercial and Industrial Users	
Annual Capital Cost Recovery	
Volume (per MGD)	1,087,067
BOD [2] (per 1,000 lbs/day)	121,093
SS [3] (per 1,000 lbs/day)	54,616
NH3 [4] (per 1,000 lbs/day)	411,021
Operating and Maintenance Cost Recovery	
Volume (per MG)	2,667.35
BOD [2] (per 1,000 lbs)	425.59
SS [3] (per 1,000 lbs)	578.32
NH3 [4] (per 1,000 lbs)	4,902.37

1. In no case shall the minimum charge be less than $44.53 per month.

Table 5-6 summarizes projected sewer rate revenue under existing rates. As shown, the revenue generated stays relatively flat over the Study period in conjunction with the number of EDUs, minimum bills, billed sewage flow, and major user volume and loadings. The projected Sewer Utility revenues increase from $40.4M in FY 2023 to $40.7M in FY 2025.

Table 5-6 Projected Revenue under Existing Rates

Line No.	Description	Fiscal Year Ending June 30,		
		FY 2023	FY 2024	FY 2025
		($)	($)	($)
1	Single Family	11,431,800	11,443,300	11,454,700
2	Multi-Family	13,494,100	13,507,600	13,521,000
3	Amusement Parks	394,700	396,700	398,700
4	Auto Dealers & Service Station	151,000	151,800	152,500
5	Churches	99,700	100,200	100,700
6	Com/Ind/Misc	7,284,200	7,320,700	7,357,300
7	Electric & Electronic Equip.	2,509,500	2,522,000	2,534,600
8	Food and Kindred Products	204,700	205,700	206,800
9	Hospitals & Convalescent Homes	632,800	635,900	639,200
10	Industrial Chemical	67,800	68,200	68,600
11	Laundries	154,300	155,200	155,900
12	Machinery Manufacturers	326,700	328,400	330,000
13	Metal Plating	27,400	27,500	27,600
14	Motels & Hotels	819,500	823,600	827,700
15	Paper	1,271,000	1,277,400	1,283,800
16	Repair Shops & Car Washes	78,100	78,400	78,800
17	Restaurants	1,227,300	1,233,500	1,239,600
18	Schools & Colleges	267,700	269,100	270,500
19	Major Users - Customer 1	0	0	0
20	Major Users - Customer 2	0	0	0
21	Total	$ 40,442,300	$ 40,545,200	$ 40,648,000

5.3 OTHER REVENUE

Other operating sources include charges for revenue from other agencies served by Santa Clara, sewer lateral video inspections, sewer clean-out installations, interest on investments, and other miscellaneous revenues. In total, other operating revenues represent 2.5% of the Sewer Utility's total revenue. The City anticipates that these revenues will remain relatively constant for the duration of the Study period.

5.4 OPERATING AND MAINTENANCE EXPENSES

Table 5-7 summarizes the Sewer Utility's projected O&M expenses for the Study Period. These expenses include costs related to salaries and benefits, materials and supplies, contract and professional services, RWF costs, indirect and direct costs, and routine capital outlay. The City anticipates that all O&M expenditures, excluding Water Pollution Control Plant costs, will increase on average by 3.5% annually from the FY 2023.

The Sewer Utility receives treatment services from the RWF operated and maintained by the City of San Jose. While the City has an ownership stake in the RWF, the City must still pay for O&M associated with operating the facility. Based on the City of San Jose estimates, the City expects RWF O&M costs to increase by approximately 3.0% annually over the Study period.

Table 5-7 O&M Expenses

Line No.	Description	Fiscal Year Ending June 30,		
		FY 2023	FY 2024	FY 2025
		($)	($)	($)
1	Salaries	3,022,300	3,161,300	3,275,100
2	Benefits	1,661,700	1,743,000	1,830,000
3	Materials/Services/Supplies	1,593,800	1,625,600	1,658,100
4	Interfund Services	4,429,400	4,558,400	4,712,800
5	Resource & Production	20,416,600	21,029,100	21,660,000
6	Capital Outlay	0	0	0
7	Total	$ 31,123,800	$ 32,117,400	$ 33,136,000

As shown in Table 5-7, the Sewer Utility's O&M expenses increase from $31.1M in FY 2023 to $33.1M in FY 2025.

5.5 DEBT SERVICE REQUIREMENTS

Table 5-8 represents the Sewer Utility's existing and proposed debt service obligations. This table shows the combined principal and interest requirements on the existing debt over the Study period. It is common practice for utilities to debt finance large capital improvement projects, such as in the case of Trimble Road sewer trunk line replacement in Santa Clara. By financing the cost of the projects, the City can fund large projects immediately and spread the payment over a specified time frame, thereby helping to offset the impact on ratepayers.

Table 5-8 Long-Term Debt Service

Line No.	Description	Fiscal Year Ending June 30,		
		FY 2023	FY 2024	FY 2025
		($)	($)	($)
1	Existing Short and Long-Term Loan	1,287,400	1,287,400	937,400
2	Proposed Short-Term and Rev Bonds	220,800	1,642,400	2,910,100
3	Total	$ 1,508,200	$ 2,929,800	$ 3,847,500

5.6 CAPITAL IMPROVEMENT PROGRAM

The Sewer Utility annually develops a five-year Capital Improvement Plan to identify sewer system needs, including ongoing assessments, maintenance, and renewal and replacement requirements.

Table 5-9 summarizes the Sewer Utility's CIP for FY 2023 through FY 2025. The Sewer Utility is projecting $61.5M in CIP over the Study period, including capital and replacement projects. The City has posted the CIP Budget on its website for complete details associated with each CIP project.[4]

[4] The City of Santa Clara. Finance Department. < http://santaclaraca.gov/government/departments/finance>

Table 5-9 Capital Improvement Projects

Line No.	Description	Fiscal Year Ending June 30,		
		FY 2023	FY 2024	FY 2025
		($)	($)	($)
	1907 Development Extensions	0	0	0
1	1908 SJ-SC Regional Wastewater Facility	13,815,500	14,968,200	24,184,200
2	1911 Sanitary Sewer System Condition Assessment	1,500,000	500,000	500,000
3	1912 Sanitary Sewer System Improvements	2,000,000	2,000,000	2,000,000
4	1919 Sanitary Sewer Hydraulic Modeling As Needed Support	1,140,000	0	0
5	1920 Sanitary Sewer Master Plan Update	500,000	0	0
6	1979 Engineering Management Services Sewer	828,900	1,018,900	1,050,700
7	Total	$ 19,784,400	$ 18,487,100	$ 27,734,900

5.6.1 Capital Improvement Financing Plan

The City funds annual expenditures for the CIP from a combination of available funds on hand, outlet charges, conveyance fees, debt financing, connection charges, developer contributions, and revenues derived from user rates. As shown in Table 5-10, the average annual CIP expenditure is $20.5M for the Sewer Utility. The planned average annual CIP contribution from the Sewer Utility Operating Fund is $14.0M per year over the Study period. Due to the large costs associated with the RWF, the City plans to issue short-term loans of $0.4M in FY 2023 and $15.0M in FY 2024. The City expects to refinance the short-term loans with long-term revenues bonds in FY 2024 and FY 2025 based on updated financials and their financial advisor's advice.

Table 5-10 Construction Fund Financing Plan

Line No.	Description	Fiscal Year Ending June 30,		
		FY 2023	FY 2024	FY 2025
	Source of Funds			
1	Sanitary Outlet Charge	0	0	0
2	Sewer Conveyance Fee	3,500,000	3,500,000	3,500,000
3	Intra Transfer In - Debt Financing	411,784	15,000,000	0
4	Intra Transfer In - Customer Service Charge	14,000,000	14,000,000	14,000,000
5	Refund from San Jose/Cupertino	0	0	0
6	Total Sources	$ 17,911,784	$ 32,500,000	$ 17,500,000
	Use of Funds			
7	Improvements Projects	5,968,900	3,518,900	3,550,700
8	Total Uses	$ 5,968,900	$ 3,518,900	$ 3,550,700
9	Net Annual Cash Balance	11,942,884	28,981,100	13,949,300
10	Beginning Unrestricted Fund Balance	10,549,116	8,676,500	22,689,400
11	Net Cumulative Fund Balance	$ 22,492,000	$ 37,657,600	$ 36,638,700
12	Minimum Construction Reserves	$ 11,003,000	$ 15,642,800	$ 11,814,500

5.7 TRANSFERS

The Sewer Utility will perform transfers over the Study period from the Operating Fund and other funds. The other funds consist of the Rate Stabilization Fund, Pension Stabilization Fund, and Construction Fund. See Section 5.8 for further explanation on Rate Stabilization and Pension Stabilization Funds. The Construction Fund transfers represent money to cover planned CIP project expenditures. All these transfers do not represent direct operating expenses for the enterprise. Therefore Black & Veatch includes these costs as “below-the-line” cash flow items and not included as O&M expenses. Table 5-11, Lines 19 to 21 for the Sewer Utility reflect these associated amounts.

5.8 RESERVES

A utility typically establishes reserves for several reasons, such as covering shortfalls in operating revenues, maintaining strong bond ratings, covering day-to-day operating costs, and easing the burden on ratepayers associated with large rate increases. Per the reserve policy, the Sewer Utility will maintain the following four reserves:

- Operating Reserve represents working capital maintained by the Operating Fund to cover day-to-day expenses and maintain enough funds to cover accounts receivables if there are supplier issues, periods of lower-than-expected sewer revenues, or unforeseen cost increases. The reserve will maintain a minimum balance of 90 days of operating expenses once fully funded
- Construction Reserve represents funds used for unforeseen and unbudgeted capital costs. Once fully funded, this reserve will maintain a minimum balance of 12-months of the following year’s planned City CIP and 6-months of the following year’s planned RWF CIP.
- Rate Stabilization Reserve represents funds used to absorb revenue shortfalls due to short-term decreases in sewer sales. This reserve is designed to stabilize sewer rate revenue and avoid wide

swings in rates charged to customers over time. The reserve will maintain a minimum balance of 10% of sewer rate revenue when fully funded.

- Pension Stabilization Reserve represents funds used to pay for the unfunded pension liabilities and the increase in the City's share of pension costs due to factors such as higher CalPERS rates and negotiated pay increases. The reserve target is $1.2M for the Sewer Utility by FY 2030.

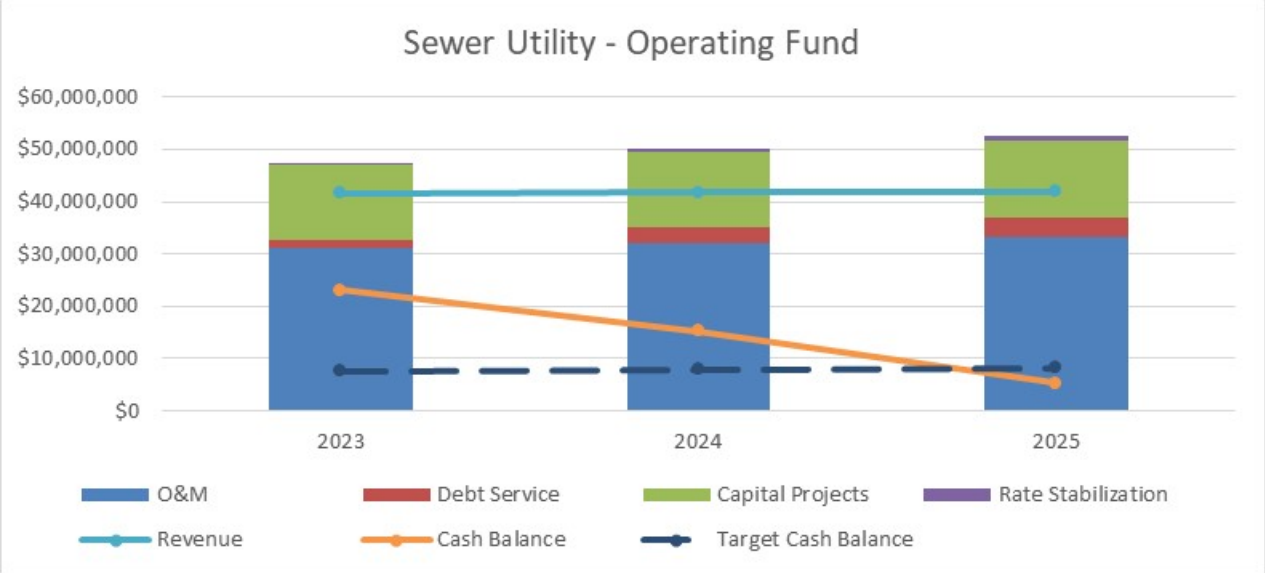
Appropriate reserve levels help the Sewer Utility maintain liquidity and demonstrate to the rating agencies that the City's financial policies and practices are focused on maintaining a balanced financial position.

5.9 PROJECTED OPERATING RESULTS

The revenue requirements of the Sewer Utility consist of O&M expenses, debt service, capital expenditures, and reserve requirements.

It is important to examine the cash flow projections under the status quo scenario to fully understand the current condition of the Sewer Utility and the need for revenue adjustments. As shown in Figure 5-1, the status quo conditions would project that the Sewer Utility would operate from an annual deficit position, thus tapping into its reserves. In this scenario, the Sewer Utility would not impose any revenue increases over the Study Period and continue to incur O&M expenses, pay for the execution of the planned CIP, and transfer to reserves.

Figure 5-1 Status Quo Operating Cash Flow



The Sewer Utility will fall into a deficit position if the City does not implement the revenue increases, as shown in Table 5-10. The revenue increases represent the overall total revenue adjustment needed to meet revenue requirements. The revenue adjustment does not represent adjustments to the individual rates but reflects the overall level of revenue needed to meet the Sewer Utility's obligations.

The suggested revenue increases help the Sewer Utility meet the following goals:

- Meet budgeted operating obligations in the three FYs.
- Meet planned capital investments in the three FYs.

- Maintain an operating reserve of 90 days of operating expenses.
- Maintain construction reserve of 12-months of next year's CIP for City projects and 6-months of next year's CIP for the RWF.
- Continue to fund the rate stabilization reserve to reach its goal of 10% of rate revenues.
- Continue transfers for the pension stabilization reserve to meet the FY 2030 goal.

Shown in Table 5-11 is a summary of the proposed Operating Fund for the Study Period. The Operating Fund consists of 1) Revenue and 2) Revenue Requirements.

Revenue

- Line 1 is the revenue under existing rates.
- Lines 2 through 4 are the additional revenue generated from the required annual revenue increases. The additional revenue generated is a direct reflection of the number of months the increase is effective for, and therefore amount might calculate at less than that stated amount.
- Line 6 is the total revenue generated from user charges.
- Line 12 represents other operating revenues.
- Line 13 represents total revenues for the enterprises.

Revenue Requirements

- Line 15 represents O&M expenses. The O&M expenses include RWF costs.
- Line 18 represents debt service payments.
- Line 22 represents transfers. The transfers include money to the Rate Stabilization Fund, Other Fund, Pension Fund, and Construction Fund.
- Line 23 represents total revenue requirements.

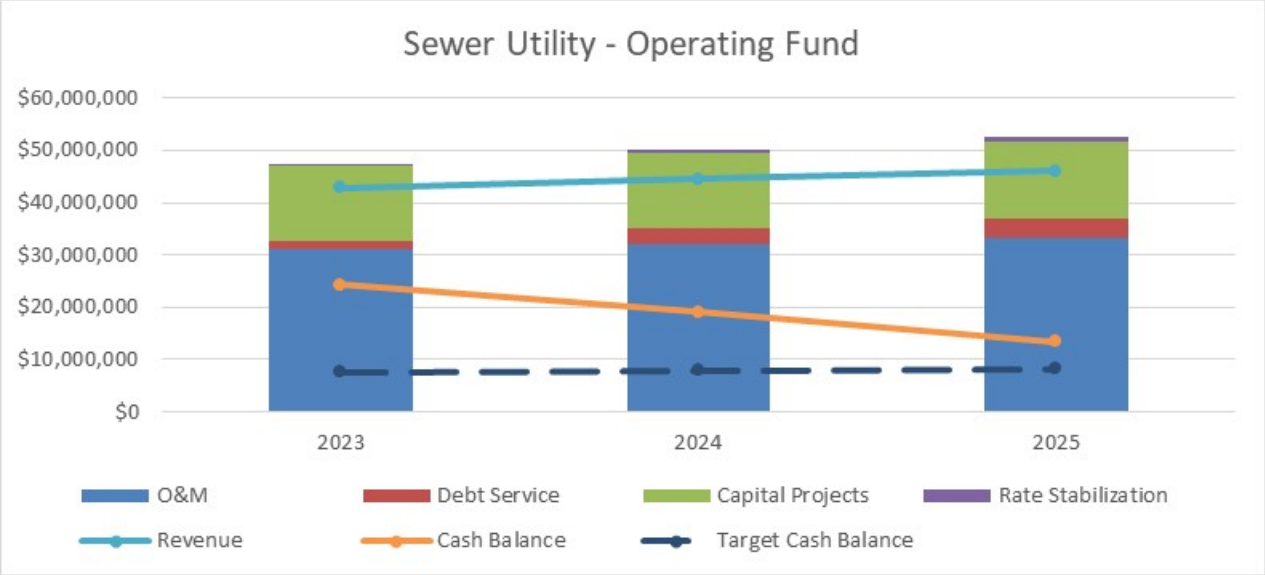
Line 26 represents the net cumulative cash balance within the Operating Funds. The net cumulative cash balance intends to match, to the extent possible, Line 27. The cash balance reserve is required to ensure the Operation Fund can continue in the event of a supplier interruption, market price fluctuations of critical equipment or supplies or an abrupt drop in account receivables. The reserve target minimum is 90 days of O&M expenses. Line 28 represents the debt service coverage. Currently, the City does not have debt coverage requirements for the short-term loans, but the operating cash flow is set up to achieve a debt service coverage of 1.25x requirement is met in all years. The requirement will come into effect when long-term debt is used to refinance the short-term loans. The lending financial institution sets the debt service coverage ratio via a rate covenant that will also obligate the City to increase revenues as needed to meet the minimum debt service coverage requirement

Table 5-11 Operating Fund

Line No.	Description			Fiscal Year Ending June 30, FY 2023	FY 2024	FY 2025
	Revenue					
	Rate Revenue					
1	Revenue from Existing Rates			40,607,500	40,710,600	40,813,600
	Year	Months Effective	Rate Adj			
2	2023	12	3.00%	1,218,200	1,221,300	1,224,400
3	2024	12	3.50%		1,467,600	1,471,300
4	2025	12	3.50%			1,522,800
5	Increased Revenue Due to Adjustments			1,218,200	2,688,900	4,218,500
6	Subtotal Rate Revenue			$ 41,825,700	$ 43,399,500	$ 45,032,100
	Other Operating Revenue					
7	System Administration (Interest Income)			622,300	633,800	645,600
8	System Maintenance			95,500	95,500	95,500
9	Operations			350,000	350,000	350,000
10	SJ SC Water Pollution Control Plant			0	0	0
11	Storm Pump Maintenance			0	0	0
12	Subtotal Other Operating Revenue			$ 1,067,800	$ 1,079,300	$ 1,091,100
13	**Total Revenue**			**$ 42,893,500**	**$ 44,478,800**	**$ 46,123,200**
	Revenue Requirements					
	Operating & Maintenance					
14	O&M Expenses			31,123,800	32,117,400	33,136,000
15	Subtotal O&M			$ 31,123,800	$ 32,117,400	$ 33,136,000
	Debt Service					
16	Existing Loans/Bonds			1,287,400	1,287,400	937,400
17	Proposed Loans/Bonds			220,800	1,642,400	2,910,100
18	Total Debt Service			$ 1,508,200	$ 2,929,800	$ 3,847,500
	Transfers					
19	Transfer to Rate Stabilization Fund			250,000	500,000	750,000
20	Transfer to Pension Stabilization Fund			78,200	78,200	78,200
21	Transfer to Sewer Construction Fund			14,000,000	14,000,000	14,000,000
22	Total Transfers			$ 14,328,200	$ 14,578,200	$ 14,828,200
23	**Total Revenue Requirements**			**$ 46,960,200**	**$ 49,625,400**	**$ 51,811,700**
24	Net Annual Cash Balance			(4,066,700)	(5,146,600)	(5,688,500)
25	Beginning Fund Balance			28,382,500	24,315,800	19,169,200
26	Net Cumulative Fund Balance			$ 24,315,800	$ 19,169,200	$ 13,480,700
27	Minimum Operating Reserves (90 Days)			$ 7,674,400	$ 7,919,400	$ 8,170,500
28	Debt Service Coverage (Min 1.25)			7.80	4.22	3.38

Figure 5-2 presents the proposed Operating Fund.

Figure 5-2 Operating Cash Flow



6 Cost of Service Analysis

The cost-of-service analysis requires that the utility recover needed revenues from rates for sewer service, which are allocated to customer classes according to the service rendered. An equitable rate structure allocates the capture of revenue requirements to customer classes based on contributed sewage volume, strengths, number of customer connections, and other relevant factors.

In analyzing the Sewer Utility's cost of service for allocation to its customer classes, Black & Veatch selected the annual revenue requirements for FY 2023 as the Test Year requirements to demonstrate the development of cost-of-service sewer rates. Table 6-1 summarizes the total costs of service that need to be recovered from sewer user rates. The table represents TY 2023.

Table 6-1 Cost of Service Revenue from Rates

Line No.	Description	Operating Expense	Capital Cost	Total Cost
		($)	($)	($)
	Revenue Requirements			
1	O&M Expense	31,123,800	0	31,123,800
2	Debt Service Requirements	0	1,508,200	1,508,200
3	Transfers	328,200	14,000,000	14,328,200
4	Subtotal	$ 31,452,000	$ 15,508,200	$ 46,960,200
	Less Revenue Requirements Met from Other Sources			
5	System Administration	622,300	0	622,300
6	System Maintenance	95,500	0	95,500
7	Operations	350,000	0	350,000
8	SJ SC Water Pollution Control Plant	0	0	0
9	Storm Pump Maintenance	0	0	0
10	Subtotal	$ 1,067,800	$ 0	$ 1,067,800
	Adjustments			
11	Adjustment for Annual Cash Balance	4,066,700	0	4,066,700
12	Subtotal	$ 4,066,700	$ 0	$ 4,066,700
13	Cost of Service to be Recovered from Rates	$ 26,317,500	$ 15,508,200	$ 41,825,700

To derive the net revenue requirement recovered through rates, it is necessary to deduct revenues from other sources as shown in Line 10 which corresponds with Table 5-11, Line 12. Shown in Line 4 is the total revenue requirement that corresponds with Table 5-11, Line 23. Line 11 represents the net annual cash balance during the TY. If the enterprise is drawing down funds already in the Operating Fund, this number is positive. The number will be negative if the enterprise is replacing funds. In the case of the Sewer Utility, the $4.1M figure indicates that the forecast is projecting a negative cash balance for the year.

6.1 FUNCTIONAL COST COMPONENTS

The first step in conducting a cost-of-service analysis involves analyzing the cost of providing sewer service by system function to properly allocate the costs to the various customer classes and,

subsequently, design rates. As a basis for allocating costs of service among customer classes, costs are separated into the following four basic functional cost components: (1) Base; (2) Strength; (3) Customer; and (4) Direct Assignment, described as follows:

- Base costs represent operating and capital costs of the system associated with collection. The collection costs vary directly with the quantity of sewage flow.
- Strength costs represent those operating and capital costs associated with treatment. The treatment costs are specifically related to strength parameters such as Biological Oxygen Demand, Total Suspended Solids, and Ammonia.
- Customer costs are those expenditures that tend to vary in proportion to the number of customers connected to the system. These include meter reading, billing, collecting, accounting, maintenance, and capital costs associated with meters and services.
- Directly assigned costs are specifically identified as those incurred to serve specific customers. The Sewer Utility has no directly assigned categories.

6.2 ALLOCATION TO COST COMPONENTS

The next step of the cost-of-service process involves allocating each cost element to functional cost components based on the parameter or parameters having the most significant influence on the magnitude of that element of cost. O&M expense items are allocated directly to appropriate cost components. A detailed allocation of related capital investment is used as a proxy for allocating capital and replacement costs. The separation of costs into functional components provides a means for distributing such costs to the various classes of customers based on their respective responsibilities for each type of service.

6.2.1 Volume and Strength Allocations

The sewer system consists of various facilities designed and operated to fulfill a given function. For the system to provide adequate service to its customers, it must be capable of meeting not only the annual volume requirements but also the strength loading demands placed on the system. Because not all customers and types of customers exert volume and strength loading demands similarly, the capacities of the various facilities must be designed to accommodate the demands of all classes of customers. Each sewer service facility within the system has an underlying volume demand exerted by all customers for whom the base cost component applies. For those facilities designed solely to meet volume demand, 100% of the costs go to the base cost component. For facilities designed to meet strength loading demands, the percentage of the costs is allocated to the different strength cost components based on their specific function.

6.2.2 Allocation of Operating and Maintenance Expenses

The Sewer Utility books operating costs by functional categories. Therefore, Black & Veatch used the factors noted in Section 5.1 to allocate the operating expenses to the cost components. In allocating O&M expenses for TY 2023, the costs are directly allocated to the cost components to the extent possible. The allocation of Administration and Transfer cost elements is based on the average of all other costs. Table 6-2 represents the allocation of O&M to the cost components. Revenues are subtracted from other sources as shown in Table 6-1, Lines 10, and any drawdown of the cash balance is

deducted and normalized for partial rate adjustments as shown in Line 13 to determine the net O&M costs.

Table 6-2 Allocation of O&M Expenditures

Line No.	Description	Total Cost	Common to All Customers				
			Volume	BOD	TSS	NH3	Customer
		($)	($)	($)	($)	($)	($)
	Operation & Maintenance						
1	1511 System Administration	5,162,400	2,372,000	825,400	841,300	856,400	66,300
2	1512 System Maintenance	2,563,900	2,563,900	0	0	0	0
3	1514 Operations	1,462,700	1,462,700	0	0	0	0
4	1515 SJ SC Water Pollution Control Plant						
5	Treatment	19,300,000	6,611,900	4,150,700	4,230,800	4,306,600	0
6	Customer Billing & Meter Reading	333,400	0	0	0	0	333,400
7	All Other	1,111,200	1,111,200	0	0	0	0
8	1516 Storm Pump Maintenance	179,200	179,200	0	0	0	0
9	Transfers	328,200	150,800	52,500	53,500	54,400	4,200
10	Total O&M Expenses	$ 30,441,000	$ 14,451,700	$ 5,028,600	$ 5,125,600	$ 5,217,400	$ 403,900
	Less Other Revenue						
11	Miscellaneous Revenues	1,067,800	490,700	170,700	174,000	177,100	13,700
12	Other Adjustments	4,066,700	1,868,600	650,200	662,700	674,600	52,200
13	Net Operating Expenses	$ 25,306,500	$ 12,092,400	$ 4,207,700	$ 4,288,900	$ 4,365,700	$ 338,000

6.2.3 Allocation of Capital Investments

In allocating the capital investment for TY 2023, the existing fixed assets (which serve as a proxy for the current capital investments) are allocated directly to cost components to the extent possible. Plan capital costs can be allocated using the distribution of total net system investment across the functional cost components. The allocation of costs in this manner provides a basis for annual investment in sewer system facilities. Table 6-3 shows the total allocation of existing system investment serving sewer customers for the TY 2023. The total net system investment of $39.4M shown on Line 7 represents the Test Year original cost less accumulated depreciation of the system in service. The total net system investment reflects the Sewer Utility's fixed asset listing ending June 30, 2021. This value represents the original cost (book value) of the assets.

Table 6-3 Allocation of Capital Costs

Line No.	Description	Total Cost	Common to All Customers				
			Volume	BOD	TSS	NH3	Customer
		($)	($)	($)	($)	($)	($)
	Plant Assets						
1	Collection	34,069,400	34,069,400	0	0	0	0
2	Lift Station	5,294,900	5,294,900	0	0	0	0
3	General Plant	14,900	14,900	0	0	0	0
4	Total Plant Assets	$ 39,379,200	$ 39,379,200	$ 0	$ 0	$ 0	$ 0
	Less Other Revenue						
5	Miscellaneous Revenues	0	0	0	0	0	0
6	Other Adjustments	0	0	0	0	0	0
7	Net Operating Expenses	$ 39,379,200	$ 39,379,200	$ 0	$ 0	$ 0	$ 0

6.3 UNITS OF SERVICE

To properly recognize the cost of service, each customer class receives its share of base, strength, and customer costs. Following the allocation of costs, the total cost responsibility for each customer class is developed using unit costs of service for each cost function and subsequently assigning those costs to the customer classes based on the respective service requirements of each. The number of units of service required by each customer class provides a means for the proportionate distribution of costs previously allocated to respective cost categories.

Table 6-4 summarizes the estimated Test Year units of service for the various customer classes. Base costs vary with the volume of sewage flow produced and distributed to customer classes on that basis. Black & Veatch derived sewage flow information from the monthly water consumption records in the City's CIS multiplied by a return factor. Strength costs are those associated with pollutant characteristics, and the Study allocated these costs to customer classes based on loadings. The pollutant loadings for each customer class come from recommendations of the State Water Resources Control Board, Revenue Program Guidelines, Appendix G, and the City of San Jose. The City's commercial and industrial class consists of 17 distinct types of businesses such as retail, offices, restaurants, and hospitals. Since sampling is not an immediate possibility, the City has relied on industry standards used by the State of California. The number of bills for each customer class serves as the basis for distributing customer billing requirements.

6.4 COST OF SERVICE ALLOCATIONS

Unit costs of service are applied to each customer class' respective service requirements to determine the cost of service for each customer class. The total unit costs of service applied to the respective requirements for each customer class results in the total cost of service for each customer class.

6.4.1 Units Costs of Service

The TY 2023 unit cost of service for each functional cost component is simply the total cost divided by the applicable units of service, as shown in Table 6-5. The capital costs on Line 3 and 4 are associated with City projects and RWF projects. These costs have been separated to determine the collection and treatment costs independently. On Line 5, the total costs represent the cost that rates need to recover, as demonstrated in Table 6-1, Line 14. The net O&M cost includes O&M (including the RWF) less revenue from other sources and adjustments. The total capital cost includes debt service payments and transfers to the Construction Fund. Line 6 represents the unit costs for the entire sewer system regardless of customer classes. After that, these unit costs are applied in allocating the costs to the specific customer classes.

6.4.2 Distribution of Costs of Service to Customer Classes

Applying the unit costs to the units for each customer class produces the customer class costs. This process is illustrated in Table 6-6, in which the study applies the unit costs to the customer class units of service. The costs attributable to each customer class are based on the functional cost components described in Section 6.1. Each customer class places a burden on the system in different ways, and thus the allocation of the units is representative of this burden.

An example of the application of unit costs is shown below for illustrative purposes.

	Vol Component	
Unit Cost (Table 6-5, Line 7)	$ 4.38	per HCF
General Customer Consumption (Table 6-6, Line 5)	67,228	HCF
Total Allocated Cost	$ 294,400	

Please note that the numbers within the tables are rounded, yet the calculations are done based on non-rounded values; therefore, results might vary.

Table 6-4 Units of Service

Line No.	Description	Contributed Units	Contributed Volume	BOD Loadings Factor	BOD Loadings Loading	TSS Loadings Factor	TSS Loadings Loading	NH3 Loadings Factor	NH3 Loadings Loading	Bills
	Units of Measure	(EDUs/M Bills)	(HCF)	(mg/L)	(lbs)	(mg/L)	(lbs)	(mg/L)	(lbs)	(bills)
1	Single Family	260,421	1,419,298	250	2,213,700	250	2,213,700	35	309,900	248,197
2	Multi-Family	303,045	1,632,217	250	2,545,700	250	2,545,700	35	356,400	27,674
3	Amusement Parks	122	67,228	130	54,500	80	33,600	11	4,600	295
4	Auto Dealers & Service Station	376	22,013	180	24,700	280	38,500	11	1,500	730
5	Churches	243	17,778	130	14,400	80	8,900	11	1,200	605
6	Com/Ind/Misc	9,929	1,293,400	130	1,049,000	80	645,500	11	88,800	21,302
7	Electric & Electronic Equip.	392	496,422	30	92,900	15	46,500	15	46,500	1,596
8	Food and Kindred Products	23	19,040	1,120	133,000	690	82,000	0	0	166
9	Hospitals & Convalescent Homes	309	94,511	230	135,600	85	50,100	15	8,800	799
10	Industrial Chemical	52	13,903	360	31,200	720	62,500	0	0	113
11	Laundries	117	25,892	150	24,200	110	17,800	5	800	352
12	Machinery Manufacturers	681	39,414	290	71,300	550	135,200	0	0	1,703
13	Metal Plating	94	7,009	10	400	60	2,600	1	0	201
14	Motels & Hotels	42	116,133	310	224,600	121	87,700	7	5,100	528
15	Paper	13	149,741	1,250	1,167,700	560	523,100	10	9,300	51
16	Repair Shops & Car Washes	478	12,231	180	13,700	280	21,400	0	0	695
17	Restaurants	245	80,611	1,250	628,600	560	281,600	10	5,000	2,121
18	Schools & Colleges	512	43,584	130	35,300	100	27,200	30	8,200	1,072
19	Major Users - Customer 1		0		0		0		0	0
20	Total		5,550,425		8,460,500		6,823,600		846,100	308,200

Table 6-5 Units Cost of Service

Line No.	Description	Total Cost	Common to All Customers				
			Volume	BOD	TSS	NH3	Customer
1	Net Operating Expense	26,317,500	12,092,400	4,207,700	4,288,900	4,365,700	338,000
2	Debt Service	1,287,400	1,287,400	0	0	0	0
3	Capital Costs (City)	4,223,800	4,223,800	0	0	0	0
4	Capital Costs (SJSC)	9,776,200	6,706,500	1,712,200	952,600	404,900	0
5	Total Cost of Service	$ 41,604,900	$ 24,310,100	$ 5,919,900	$ 5,241,500	$ 4,770,600	$ 338,000
6	Units of Service		5,550,425 HCF	8,460,500 lbs	6,823,600 lbs	846,100 lbs	308,200 bills
7	Cost per Unit		$ 4.38 per HCF	$ 0.70 per lbs	$ 0.77 per lbs	$ 5.64 per lbs	$ 1.10 per bill

Table 6-6 Distribution of Costs to Customer Classes

Line No.	Description	Total Cost	Common to All Customers				
			Volume	BOD	TSS	NH3	Customer
1	Cost per Unit		$ 4.38 per HCF	$ 0.70 per lbs	$ 0.77 per lbs	$ 5.64 per lbs	$ 1.10 per bill
	Single Family						
2	Units		1,419,298	2,213,700	2,213,700	309,900	248,197
3	Allocation of costs of service	12,021,000	6,255,100	1,559,100	1,707,400	1,750,800	272,000
	Multi-Family						
4	Units		1,632,217	2,545,700	2,545,700	356,400	27,674
5	Allocation of costs of service	13,541,600	7,193,400	1,792,900	1,963,500	2,013,300	30,300
	Amusement Parks						
6	Units		67,228	54,500	33,600	4,600	295
7	Allocation of costs of service	386,900	296,300	38,400	25,900	26,000	300
	Auto Dealers & Service Station						
8	Units		22,013	24,700	38,500	1,500	730
9	Allocation of costs of service	153,400	97,000	17,400	29,700	8,500	800
	Churches						
10	Units		17,778	14,400	8,900	1,200	605
11	Allocation of costs of service	102,900	78,400	10,100	6,900	6,800	700
	Com/Ind/Misc						
12	Units		1,293,400	1,049,000	645,500	88,800	21,302
13	Allocation of costs of service	7,461,900	5,700,200	738,800	497,900	501,600	23,400
	Electric & Electronic Equip.						
14	Units		496,422	92,900	46,500	46,500	1,596
15	Allocation of costs of service	2,553,600	2,187,800	65,400	35,900	262,700	1,800
	Food and Kindred Products						
16	Units		19,040	133,000	82,000	0	166
17	Allocation of costs of service	241,000	83,900	93,700	63,200	0	200
	Hospitals & Convalescent Homes						
18	Units		94,511	135,600	50,100	8,800	799
19	Allocation of costs of service	601,200	416,500	95,500	38,600	49,700	900
	Industrial Chemical						
20	Units		13,903	31,200	62,500	0	113
21	Allocation of costs of service	131,600	61,300	22,000	48,200	0	100

Line No.	Description	Total Cost	Common to All Customers				
			Volume	BOD	TSS	NH3	Customer
1	Cost per Unit		$ 4.38 per HCF	$ 0.70 per lbs	$ 0.77 per lbs	$ 5.64 per lbs	$ 1.10 per bill
	Laundries						
22	Units		25,892	24,200	17,800	800	352
23	Allocation of costs of service	149,700	114,100	17,000	13,700	4,500	400
	Machinery Manufacturers						
24	Units		39,414	71,300	135,200	0	1,703
25	Allocation of costs of service	330,100	173,700	50,200	104,300	0	1,900
	Metal Plating						
26	Units		7,009	400	2,600	0	201
27	Allocation of costs of service	33,400	30,900	300	2,000	0	200
	Motels & Hotels						
28	Units		116,133	224,600	87,700	5,100	528
29	Allocation of costs of service	767,000	511,800	158,200	67,600	28,800	600
	Repair Shops & Car Washes						
30	Units		12,231	13,700	21,400	0	695
31	Allocation of costs of service	80,800	53,900	9,600	16,500	0	800
	Restaurants						
32	Units		80,611	628,600	281,600	5,000	2,121
33	Allocation of costs of service	1,045,700	355,300	442,700	217,200	28,200	2,300
	Schools & Colleges						
34	Units		43,584	35,300	27,200	8,200	1,072
35	Allocation of costs of service	285,500	192,100	24,900	21,000	46,300	1,200
36	TOTAL COSTS OF SERVICE	$ 41,825,700	$ 24,461,600	$ 5,958,600	$ 5,263,000	$ 4,779,700	$ 338,000

7 Rate Design

The initial consideration in the derivation of rate schedules for sewer service is establishing equitable charges to the customers commensurate with the cost of providing that service. While the cost-of-service allocations to customer classes should not be construed as literal or exact determinations, they offer a guide to the necessity for, and the extent of, rate adjustments. Practical considerations sometimes modify rate adjustments by considering additional factors such as the extent of bill impacts, existing contracts, and historical local policies and practices.

7.1 EXISTING RATES

The Sewer Utility's existing rates consist of a fixed component in the form of a monthly service charge and a variable component in the form of a consumption charge. The monthly service charge is a flat fee based on EDUs and is applied to residential customers. The monthly service charge also is a minimum for non-residential customers and applies when the consumption charge is less than the monthly service charge. Non-residential customers also have a consumption charge based on units of water consumption (1 unit = 1 HCF = 748 gallons) multiplied by a return factor. The City has separate charges for major users consisting of O&M and capital components. Table 5-5, presented earlier in this report, summarizes the current sewer rates.

7.2 PROPOSED RATES

The costs of service analysis described in the preceding sections of this report provide a basis for designing sewer rates.

7.2.1 Monthly Service Charge

The monthly service charge is designed to recover residential costs associated with contributed sewage flow, strength loadings, billing, collecting, accounting, and maintenance and capital costs. The charge is a flat monthly fee based on EDUs. An EDU is defined in Section 5.1. In FY 2023, the multi-family rate was separated from single-family and became a stand-alone customer class. In FY 2022, the City obtained and verified EDU information for the multi-family customers, enabling a separation of the customer classes.

The monthly service charge also serves as the minimum monthly service charge for non-residential customers. The minimum service charge will recover non-residential costs associated with volume, strength, meter reading, billing, collecting, accounting, and maintenance and capital costs. The minimum monthly service charge incorporates an allowance for sewage flow. Once a customer exceeds the allowance, the minimum monthly service charge goes away.

Table 7-1 shows the forecasted proposed three-year monthly service charge rate schedule.

Table 7-1 Proposed Monthly Service Charge

Line No.	Customer Class	Proposed FY 2023	Proposed FY 2024	Proposed FY 2025
	Monthly Service Charge ($/EDU)	$/month	$/month	$/month
1	Single Family	46.82	48.50	50.28
2	Multi-Family	44.69	46.32	48.05
	Minimum Commercial Bill Charge ($/Month)	$/month	$/month	$/month
3	All Customers	46.82	48.50	50.28

7.2.2 Consumption Charge

The consumption charges are designed to recover the remainder of the cost component costs not recovered through the monthly service charge for non-residential customers. Table 7-2 shows the forecasted proposed three-year rate schedule for the Sewer Utility.

Table 7-2 Proposed Consumption Charges

Line No.	Customer Class	Proposed FY 2023	Proposed FY 2024	Proposed FY 2025
	Commodity Charge ($/HCF)	$/HCF	$/HCF	$/HCF
1	Amusement Parks	5.67	5.82	5.99
2	Auto Dealers & Service Station	6.17	6.37	6.57
3	Churches	5.15	5.28	5.42
4	Com/Ind/Misc	5.41	5.56	5.71
5	Electric & Electronic Equip.	5.11	5.22	5.33
6	Food and Kindred Products	12.60	13.28	13.93
7	Hospitals & Convalescent Homes	6.21	6.41	6.60
8	Industrial Chemical	9.29	9.69	10.08
9	Laundries	5.57	5.74	5.89
10	Machinery Manufacturers	7.57	7.87	8.17
11	Metal Plating	4.14	4.20	4.29
12	Motels & Hotels	6.59	6.82	7.05
13	Paper	12.94	13.65	14.31
14	Repair Shops & Car Washes	4.77	4.95	5.10
15	Restaurants	12.83	13.54	14.20
16	Schools & Colleges	6.00	6.15	6.32

7.2.3 Major Users

The major commercial and industrial user charge is designed to recover the costs associated with O&M and capital for major users. Major users are classified based on requirements in Section 5.1. These customers are monitored monthly for volume and strength loadings. Major users are charged the unit charges identified in Table 6-5, Line 7. Note that the major user charges are specifically identified O&M and capital components. Charges for all other customers incorporate these charges, but the City has combined them into a single rate for simplicity. Table 7-3 shows the three-year rate schedule based on unit costs in future years.

Table 7-3 Proposed Major User Charges

Line No.	Customer Class	Proposed FY 2023	Proposed FY 2024	Proposed FY 2025
	Major Commercial and Industrial Users			
	Operating and Maintenance Cost Recovery			
1	Volume (per MG)	2,993.84	3,000.08	3,068.71
2	BOD [2] (per 1,000 lbs)	497.33	497.47	508.29
3	SS [3] (per 1,000 lbs)	628.54	628.75	642.43
4	NH3 [4] (per 1,000 lbs)	5,159.79	5,161.10	5,274.31
	Annual Capital Cost Recovery			
5	Volume (per MGD)	1,087,371	1,124,455	1,140,228
6	BOD [2] (per 1,000 lbs/day)	75,537	97,560	113,092
7	SS [3] (per 1,000 lbs/day)	52,105	67,304	78,018
8	NH3 [4] (per 1,000 lbs/day)	178,596	230,700	267,439

7.3 TYPICAL MONTHLY COSTS UNDER PROPOSED CHARGES

Table 7-4 compares typical monthly costs under existing rates and the proposed schedule of sewer user rates derived in this study for residential and non-residential customers.

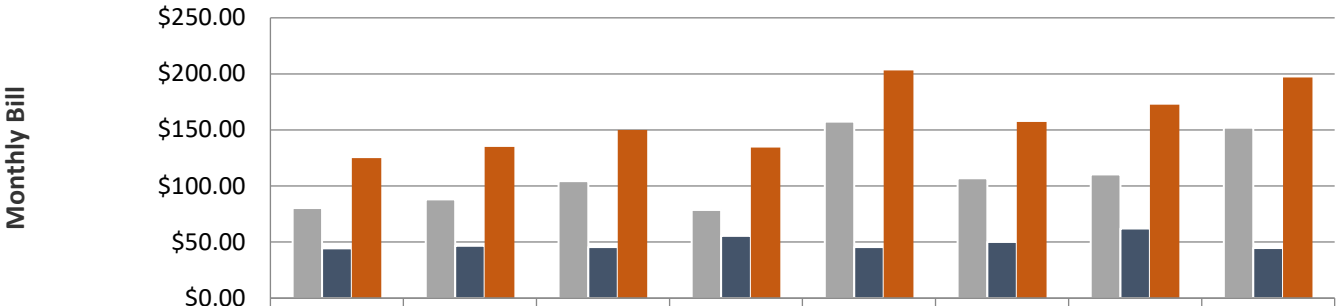
Table 7-4 Typical Monthly Bill

Customer Class	Typical Monthly Usage (HCF)	FY 2022 Existing Rates ($)	FY 2023 Proposed Rates ($)
Single Family Residential		$44.53	$46.82
Multi-Family Residential		$44.53	$44.69
Non-Residential	0	$44.53	$46.82
	10	$62.09	$65.08
	20	$124.19	$130.16
	30	$186.28	$195.24
	40	$248.37	$260.32
	50	$310.46	$325.40
	100	$620.93	$650.81
	250	$1,552.32	$1,627.02

7.4 NEIGHBORING SEWER UTILITIES

All surveyed community rates are best estimates as of May 2022. Presented in Figure 7-1 is the proposed rates compared to rates of neighboring jurisdictions, for a single-family residential customer. Based on the comparison, the City is currently a higher cost sewer provider in the area. With the proposed rate increases, the City remains one of the higher sewer providers of the surveyed communities.

Figure 7-1 Comparison to Neighboring Sewer Utilities



	Santa Clara Current	Santa Clara Proposed	San Jose Proposed	Sunnyvale Proposed	SJWC	Mountain View Proposed	Milpitas	Palo Alto Proposed
WATER RATE 12 HCF	$80.28	$87.96	$104.43	$78.71	$157.52	$106.99	$110.41	$152.04
SEWER RATE	$44.53	$46.82	$45.49	$55.52	$45.49	$50.10	$62.07	$44.62
COMBINED	$124.81	$134.78	$149.92	$134.23	$203.01	$157.09	$172.48	$196.66

Appendix A – Ten-Year Financial Plan

WATER UTILITY

Line No.	Description	Fiscal Year Ending June 30,									
		FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
		($)	($)	($)	($)	($)	($)	($)	($)	($)	($)
	Revenue										
	Rate Revenue										
1	Revenue from Existing Rates	51,024,600	51,267,300	51,392,300	51,517,700	51,643,200	51,769,200	51,895,300	52,021,900	52,148,700	52,275,800
2	Increased Revenue Due to Adjustments	4,490,200	9,420,000	14,796,500	20,306,600	26,115,800	28,518,200	31,002,200	32,739,800	34,518,800	36,340,700
3	Subtotal Rate Revenue	$ 55,514,800	$ 60,687,300	$ 66,188,800	$ 71,824,300	$ 77,759,000	$ 80,287,400	$ 82,897,500	$ 84,761,700	$ 86,667,500	$ 88,616,500
	Other Operating Revenue										
4	Solar System Maintenance	77,800	77,800	77,800	77,800	77,800	77,800	77,800	77,800	77,800	77,800
5	Water System Maintenance	43,600	43,600	43,600	43,600	43,600	43,600	43,600	43,600	43,600	43,600
6	Water Construction	0	0	0	0	0	0	0	0	0	0
7	Water System Operations	0	0	0	0	0	0	0	0	0	0
8	Administration Design	882,200	888,900	895,800	902,800	909,900	917,200	924,600	932,200	939,900	947,800
9	Water Quality	0	0	0	0	0	0	0	0	0	0
10	Water Resources	74,700	74,700	74,700	74,700	74,700	74,700	74,700	74,700	74,700	74,700
11	Subtotal Other Operating Revenue	$ 1,078,300	$ 1,085,000	$ 1,091,900	$ 1,098,900	$ 1,106,000	$ 1,113,300	$ 1,120,700	$ 1,128,300	$ 1,136,000	$ 1,143,900
12	**Total Revenue**	**$ 56,593,100**	**$ 61,772,300**	**$ 67,280,700**	**$ 72,923,200**	**$ 78,865,000**	**$ 81,400,700**	**$ 84,018,200**	**$ 85,890,000**	**$ 87,803,500**	**$ 89,760,400**
	Revenue Requirements										
	Operating & Maintenance										
13	O&M Expenses	52,744,300	58,343,900	63,555,400	67,653,400	72,074,700	74,353,500	76,707,800	79,139,900	81,652,600	84,248,300
14	Subtotal O&M	$ 52,744,300	$ 58,343,900	$ 63,555,400	$ 67,653,400	$ 72,074,700	$ 74,353,500	$ 76,707,800	$ 79,139,900	$ 81,652,600	$ 84,248,300
	Debt Service										
15	Existing Loans/Bonds	0	0	0	0	0	0	0	0	0	0
16	Proposed Loans/Bonds	0	0	0	0	0	0	0	0	0	0
17	Total Debt Service	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Transfers										
18	Transfer to Rate Stabilization Fund	0	0	2,000,000	2,000,000	2,250,000	500,000	500,000	500,000	0	0
19	Transfer to Pensiotn Stabilization Fund	199,400	199,400	199,400	199,400	199,400	199,400	199,400	199,400	199,400	199,400
20	Transfer to Water Construction Fund	0	0	0	2,000,000	2,500,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
21	Total Transfers	$ 199,400	$ 199,400	$ 2,199,400	$ 4,199,400	$ 4,949,400	$ 5,699,400	$ 5,699,400	$ 5,699,400	$ 5,199,400	$ 5,199,400
22	**Total Revenue Requirements**	**$ 52,943,700**	**$ 58,543,300**	**$ 65,754,800**	**$ 71,852,800**	**$ 77,024,100**	**$ 80,052,900**	**$ 82,407,200**	**$ 84,839,300**	**$ 86,852,000**	**$ 89,447,700**
23	Net Annual Cash Balance	3,649,400	3,229,000	1,525,900	1,070,400	1,840,900	1,347,800	1,611,000	1,050,700	951,500	312,700
24	Beginning Fund Balance	7,336,200	10,985,600	14,214,600	15,740,500	16,810,900	18,651,800	19,999,600	21,610,600	22,661,300	23,612,800
25	Net Cumulative Fund Balance	$ 10,985,600	$ 14,214,600	$ 15,740,500	$ 16,810,900	$ 18,651,800	$ 19,999,600	$ 21,610,600	$ 22,661,300	$ 23,612,800	$ 23,925,500
26	Minimum Operating Reserves (90 Days)	$ 13,005,400	$ 14,386,200	$ 15,671,200	$ 16,681,700	$ 17,771,800	$ 18,333,700	$ 18,914,300	$ 19,513,900	$ 20,133,500	$ 20,773,600

RECYCLED WATER UTILITY

Line No.	Description	Fiscal Year Ending June 30, FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
		($)	($)	($)	($)	($)	($)	($)	($)	($)	($)
	Revenue										
	Rate Revenue										
1	Revenue from Existing Rates	5,862,000	5,979,000	6,038,500	6,098,700	6,159,500	6,220,700	6,282,600	6,345,200	6,408,400	6,472,200
2	Increased Revenue Due to Adjustments	586,200	1,255,600	1,998,800	2,830,600	3,760,500	4,799,800	5,403,900	6,048,100	6,483,600	6,938,600
3	Subtotal Rate Revenue	$ 6,448,200	$ 7,234,600	$ 8,037,300	$ 8,929,300	$ 9,920,000	$ 11,020,500	$ 11,686,500	$ 12,393,300	$ 12,892,000	$ 13,410,800
	Other Operating Revenue										
4	System Maintenance	92,000	93,800	95,700	97,600	99,600	101,600	103,600	105,700	107,800	110,000
5	South Bay Water Recycling System Maintena	413,700	413,700	413,700	413,700	413,700	413,700	413,700	413,700	413,700	413,700
6	Subtotal Other Operating Revenue	$ 505,700	$ 507,500	$ 509,400	$ 511,300	$ 513,300	$ 515,300	$ 517,300	$ 519,400	$ 521,500	$ 523,700
	Transfers From										
7	RW Capital Fund	0	250,000	250,000	0	0	0	0	0	0	0
8	Subtotal Transfers From	$ -	$ 250,000	$ 250,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
9	**Total Revenue**	**$ 6,953,900**	**$ 7,992,100**	**$ 8,796,700**	**$ 9,440,600**	**$ 10,433,300**	**$ 11,535,800**	**$ 12,203,800**	**$ 12,912,700**	**$ 13,413,500**	**$ 13,934,500**
	Revenue Requirements										
	Operating & Maintenance										
10	O&M Expenses	6,816,600	7,920,200	9,125,600	10,058,000	11,086,900	11,540,000	12,011,500	12,502,000	13,012,200	13,543,200
11	Subtotal O&M	6,816,600	7,920,200	9,125,600	10,058,000	11,086,900	11,540,000	12,011,500	12,502,000	13,012,200	13,543,200
	Debt Service										
12	Existing Loans/Bonds	0	0	0	0	0	0	0	0	0	0
13	Proposed Loans/Bonds	0	0	0	0	0	0	0	0	0	0
14	Total Debt Service	0	0	0	0	0	0	0	0	0	0
	Transfers										
15	Transfer to Rate Stabilization Fund	0	0	0	0	0	50,000	50,000	50,000	75,000	75,000
16	Transfer to Pensiotn Stabilization Fund	9,800	9,800	9,800	9,800	9,800	9,800	9,800	9,800	9,800	9,800
17	Transfer to Recycled Water Const Fund	0	0	0	50,000	50,000	50,000	100,000	100,000	100,000	200,000
18	Total Transfers	9,800	9,800	9,800	59,800	59,800	109,800	159,800	159,800	184,800	284,800
19	**Total Revenue Requirements**	**$ 6,826,400**	**$ 7,930,000**	**$ 9,135,400**	**$ 10,117,800**	**$ 11,146,700**	**$ 11,649,800**	**$ 12,171,300**	**$ 12,661,800**	**$ 13,197,000**	**$ 13,828,000**
20	Net Annual Cash Balance	127,500	62,100	(338,700)	(677,200)	(713,400)	(114,000)	32,500	250,900	216,500	106,500
21	Beginning Fund Balance	4,469,600	4,597,100	4,659,200	4,320,500	3,643,300	2,929,900	2,815,900	2,848,400	3,099,300	3,315,800
22	Net Cumulative Fund Balance	$ 4,597,100	$ 4,659,200	$ 4,320,500	$ 3,643,300	$ 2,929,900	$ 2,815,900	$ 2,848,400	$ 3,099,300	$ 3,315,800	$ 3,422,300
23	Minimum Operating Reserves (90 Days)	$ 1,680,800	$ 1,952,900	$ 2,250,100	$ 2,480,100	$ 2,733,800	$ 2,845,500	$ 2,961,700	$ 3,082,700	$ 3,208,500	$ 3,339,400

SEWER UTILITY

Line No.	Description	Fiscal Year Ending June 30, FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
	Revenue										
	Rate Revenue										
1	Revenue from Existing Rates	40,607,500	40,710,600	40,813,600	40,917,000	41,020,800	41,125,200	41,230,100	41,335,000	41,440,600	41,546,700
2	Increased Revenue Due to Adjustments	1,218,200	2,688,900	4,218,500	5,809,400	7,346,600	8,941,300	10,595,300	10,622,400	10,649,200	10,676,700
3	Subtotal Rate Revenue	$ 41,825,700	$ 43,399,500	$ 45,032,100	$ 46,726,400	$ 48,367,400	$ 50,066,500	$ 51,825,400	$ 51,957,400	$ 52,089,800	$ 52,223,400
	Other Operating Revenue										
4	System Administration (Interest Income)	622,300	633,800	645,600	657,600	669,800	682,300	695,000	708,000	721,200	734,700
5	System Maintenance	95,500	95,500	95,500	95,500	95,500	95,500	95,500	95,500	95,500	95,500
6	Operations	350,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000
7	SJ SC Water Pollution Control Plant	0	0	0	0	0	0	0	0	0	0
8	Storm Pump Maintenance	0	0	0	0	0	0	0	0	0	0
9	Subtotal Other Operating Revenue	$ 1,067,800	$ 1,079,300	$ 1,091,100	$ 1,103,100	$ 1,115,300	$ 1,127,800	$ 1,140,500	$ 1,153,500	$ 1,166,700	$ 1,180,200
10	**Total Revenue**	**$ 42,893,500**	**$ 44,478,800**	**$ 46,123,200**	**$ 47,829,500**	**$ 49,482,700**	**$ 51,194,300**	**$ 52,965,900**	**$ 53,110,900**	**$ 53,256,500**	**$ 53,403,600**
	Revenue Requirements										
	Operating & Maintenance										
11	O&M Expenses	31,123,800	32,117,400	33,136,000	34,163,000	35,219,400	36,422,000	37,667,000	38,956,000	40,290,100	41,671,800
12	Subtotal O&M	$ 31,123,800	$ 32,117,400	$ 33,136,000	$ 34,163,000	$ 35,219,400	$ 36,422,000	$ 37,667,000	$ 38,956,000	$ 40,290,100	$ 41,671,800
	Debt Service										
13	Existing Loans/Bonds	1,287,400	1,287,400	937,400	937,400	937,400	937,400	937,400	937,400	937,400	0
14	Proposed Loans/Bonds	220,800	1,642,400	2,910,100	3,379,500	3,379,500	3,379,500	3,379,500	3,379,500	3,379,500	3,379,500
15	Total Debt Service	$ 1,508,200	$ 2,929,800	$ 3,847,500	$ 4,316,900	$ 4,316,900	$ 4,316,900	$ 4,316,900	$ 4,316,900	$ 4,316,900	$ 3,379,500
	Transfers										
16	Transfer to Rate Stabilization Fund	250,000	500,000	750,000	1,250,000	1,250,000	200,000	100,000	0	0	0
17	Transfer to Pension Stabilization Fund	78,200	78,200	78,200	78,200	78,200	78,200	78,200	78,200	78,200	78,200
18	Transfer to Sewer Construction Fund	14,000,000	14,000,000	14,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	8,000,000	8,000,000
19	Total Transfers	$ 14,328,200	$ 14,578,200	$ 14,828,200	$ 11,328,200	$ 11,328,200	$ 10,278,200	$ 10,178,200	$ 10,078,200	$ 8,078,200	$ 8,078,200
20	**Total Revenue Requirements**	**$ 46,960,200**	**$ 49,625,400**	**$ 51,811,700**	**$ 49,808,100**	**$ 50,864,500**	**$ 51,017,100**	**$ 52,162,100**	**$ 53,351,100**	**$ 52,685,200**	**$ 53,129,500**
21	Net Annual Cash Balance	(4,066,700)	(5,146,600)	(5,688,500)	(1,978,600)	(1,381,800)	177,200	803,800	(240,200)	571,300	274,100
22	Beginning Fund Balance	28,382,500	24,315,800	19,169,200	13,480,700	11,502,100	10,120,300	10,297,500	11,101,300	10,861,100	11,432,400
23	Net Cumulative Fund Balance	$ 24,315,800	$ 19,169,200	$ 13,480,700	$ 11,502,100	$ 10,120,300	$ 10,297,500	$ 11,101,300	$ 10,861,100	$ 11,432,400	$ 11,706,500
24	Minimum Operating Reserves (90 Days)	7,674,400	7,919,400	8,170,500	8,423,800	8,684,200	8,980,800	9,287,800	9,605,600	9,934,500	10,275,200
25	Debt Service Coverage (Min 1.25)	7.80	4.22	3.38	3.17	3.30	3.42	3.54	3.28	3.00	3.47