FINAL

WASTEWATER RATE STUDY

BLACK & VEATCH PROJECT NO. 414043

PREPARED FOR

City of Manhattan Beach, CA

28 APRIL 2023

BLACK & VEATCH

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1.0 Executive Summary

The City of Manhattan Beach (City) commissioned Black & Veatch Management Consulting, LLC (Black & Veatch) to perform a Wastewater Rate Study (Study) for its Wastewater Utility. The Study included the development of a five-year financial plan, a cost-of-service analysis, and the design of rates. 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 utility covering five years for ongoing operations and planned capital improvements.
- Allocate the utility's projected revenue requirements to the 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 Financial Plan

The City owns and manages the wastewater utility as an individual self-supporting enterprise. Therefore, the utility must develop a financial plan providing sufficient revenues to meet all operation and maintenance expenses, debt service requirements, capital improvements from current revenues, and other expenditures.

The Study develops a financial plan that projects operating revenue, expenses, and capital financing costs for the utility over a five-year planning period beginning July 1, 2023, and ending June 30, 2028. The financial plan projects future rate revenues under existing rates, operation and maintenance (O&M) expenses, principal and interest expense on debt, and capital improvement program (CIP) requirements. In formulating these projections, certain assumptions are made with respect to customers, conditions, events, and circumstances that may occur in the future. While the assumptions are reasonable, actual results may differ materially from those projected, as influenced by conditions such as changes in operations and/or new regulations that may occur.

In the projection of rate revenues, annual projections of customers and wastewater flow rely upon the City's historical data and estimates of growth.

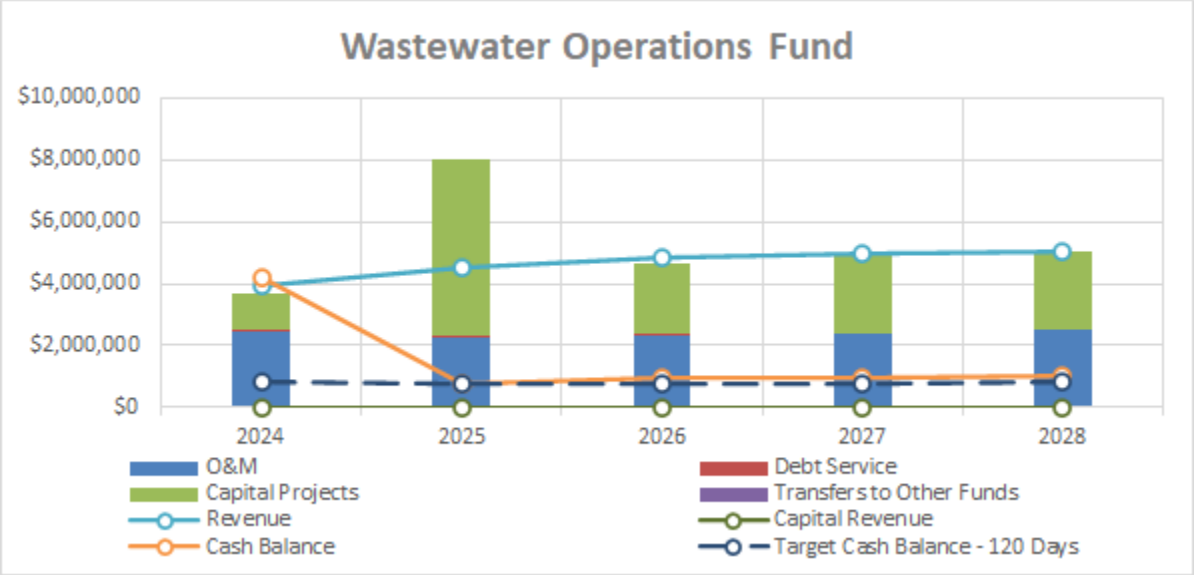
The Wastewater Utility's revenue requirements are summarized below:

- Operation and Maintenance Expenses: The forecasted Wastewater O&M expenses increase from $2.47M in FY 2024 to $2.50M in FY 2028. Salaries and benefits are forecasted to represent an average of 28% of O&M expenses.
- Debt Service: There is an existing 2021 Refunding Certificate of Participation (COP) with an annual payment of $82,000-$83,000 from 2023 through 2026. The utility also contributes an annual $25,000 associated with a 2021 Pension Obligation Bond to the City.
- Capital Improvements: The CIP identified an average of $2.80M per year in capital projects from FY 2024 to FY 2028.

- Reserves: Continue to maintain the operating fund reserve level. The operating fund reserve is to help cover fluctuations in day-to-day expenses. The target is 120 days of O&M expenses, as indicated by the City's fund balance policy for enterprise funds.

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

Figure 1-1 Wastewater Operating Cash Flow



1.2 Adequacy of Existing Rates to Meet Costs of Service

Based on the financial plan, Black & Veatch recommends the revenue adjustments in Table 1-1 to meet the projected revenue requirements for FY 2024 to FY 2028. These do not represent proposed rate increases to customers. Rather, these represent the overall revenue increases the utility need to meet its obligations and maintain current service levels.

Table 1-1 Proposed Revenue Adjustments

Fiscal Year	Effective Month	Wastewater Utility
FY 2024	November	17.00%
FY 2025	November	17.00%
FY 2026	November	4.00%
FY 2027	November	4.00%
FY 2028	November	3.00%

1.3 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 utility operations. The following is a brief description of the methodology.

The wastewater 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 (MoP 27) manual. The wastewater cost of service analysis allocates

costs to the different customer classes in proportion to their use of the wastewater system. As recommended by WEF, Black & Veatch distributed functional costs to volume and customer-related parameters. This allocation methodology produces unit costs for allocation to individual customer classes based on the projected customer service requirements.

1.4 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.

1.4.1 Proposed Rate Schedule

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

- Fixed Charge: Retain the bi-monthly fixed charge based on meter size for all customers.
- Variable Usage Charge: Retain the variable charge based on consumption for all customers. The variable charge is applied to all wastewater flow on a $/hundred cubic foot (HCF) basis.

Table 1-2 summarizes the recommended five-year rate schedules for the Wastewater Utility. Rates become effective every November 1st.

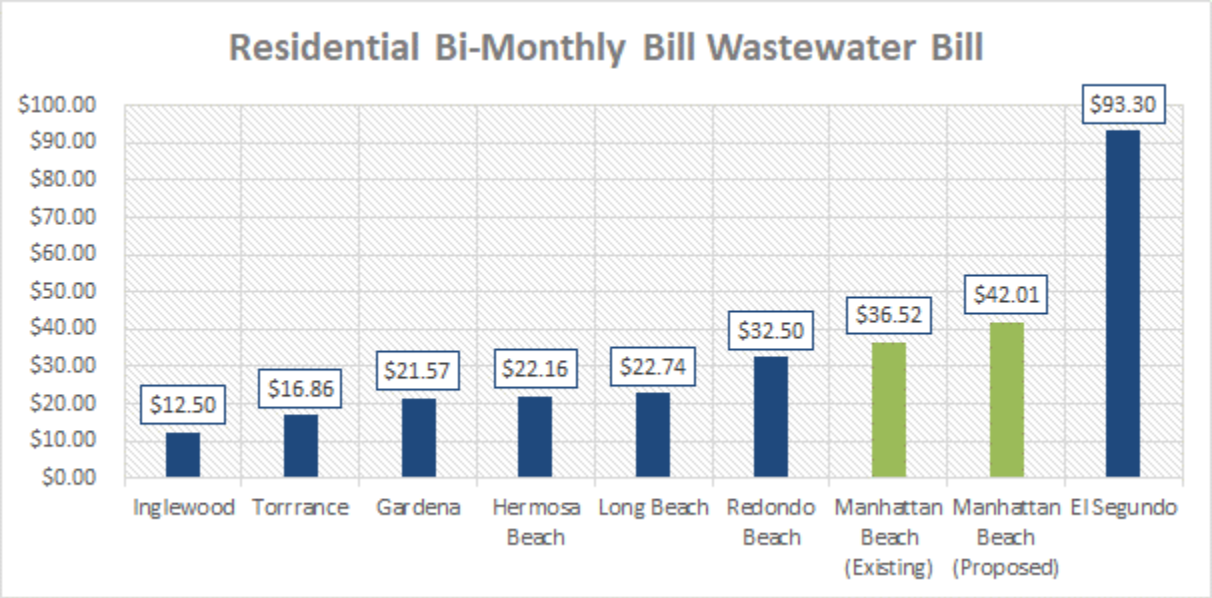
Table 1-2 Proposed Five-Year Wastewater Rate Schedules

Customer Class	Existing	Fiscal Year Ending June 30,				
	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Bi-Monthly Fixed Charge ($/bi-mo)						
5/8" or 3/4"	11.12	12.80	14.98	15.58	16.20	16.69
1"	15.56	17.90	20.95	21.79	22.66	23.34
1-1/2"	22.98	30.65	35.87	37.30	38.79	39.96
2"	31.86	45.95	53.77	55.92	58.15	59.90
3"	55.56	86.76	101.50	105.56	109.79	113.08
4"	82.20	132.66	155.21	161.42	167.87	172.91
6"	156.24	260.16	304.38	316.56	329.22	339.10
8"	245.10	413.16	483.40	502.73	522.84	538.53
10"	348.76	617.16	722.08	750.96	781.00	804.43
Variable Usage Charge ($/HCF)						
All Usage	1.27	1.46	1.71	1.78	1.85	1.90

1.4.2 Proposed Rate Schedule

Figure 1-2 illustrates a typical bill for a single-family residential account to understand how the proposed revenue adjustments may impact the average customer. For this comparison, a "typical" single-family residential bill represents a customer with a 5/8" or 3/4" meter connection and returning 20 HCF of wastewater flow every two months. The comparison below reflects existing rates as of January 2023.

Figure 1-2 Single Family Residential Typical Bill Comparison



2.0 Introduction

2.1 Purpose

The purpose of this report is (1) to project the future revenues of the Wastewater Utility under existing rates and charges, project operating expenses and capital financing revenue requirements, and to examine the adequacy of projected revenues to meet these revenue requirements through FY 2028; (2) to allocate these revenue requirements, or costs of service, for a representative test year to the various customer classes in accordance with the respective service requirements that each class places on the systems; and (3) to develop a suitable schedule of wastewater rates that will produce revenues adequate to meet the financial needs of the utility on the basis that recognizes customer costs of service and practical bill impact considerations.

2.2 Wastewater System

The Wastewater Utility provides wastewater collection services to about 13,200 residential and commercial customers. Services include collecting wastewater flow and directing it to the Los Angeles County Sanitation District (LACSD) interceptor system for treatment. Services provided by LACSD are billed directly to customers through the property tax bill. Wastewater flows collected throughout the City are estimated at 3.0 million gallons per day (MGD). They are transported through more than 81.6 miles of wastewater mains and eight lift stations to the LACSD-owned Joint Water Pollution Control Plant in the City of Carson.

2.3 Methodology

The rate-setting methodology employed by Black & Veatch is consistent with industry guidelines established by WEF's *Financing and Charges for Wastewater Systems, Manual of Practice* 27 (MoP 27) manual. The manual is a national industry manual that recommends generally accepted practices in the wastewater industry. The intent of the manual is to provide wastewater utilities rate-setting practices that can be used to address the unique circumstances of the communities they serve. An overview of the methodology is outlined below.

The key components of our methodology consist of the following:

2.3.1 Financial Plan

Financial planning compares the projected revenues of the utility under existing conditions to its projected operating expenses and capital expenditures. This step tests the adequacy of the current rates to recover the utility's forecasted costs. If shortfalls occur, revenue increases are recommended until the utility is financially stable.

Financial Planning
Establish operating and capital financing plans that fully fund activities

Cost of Service Analysis
Perform a cost-of-service analysis to determine if cost allocations are fair and equitable among customer classes

2.3.2 Cost-of-Service Analysis

The cost-of-service analysis builds a link between the utility's cost of service and the proposed rates for each customer type. This process takes individual budget cost items and allocates

them based on their function. Organizing the budget in terms of end function allows the creation of a nexus between the budget cost item and the rate.

2.3.3 Rate Design

Rate design involves developing a rate structure that equitably and proportionately recovers costs from the customers. The rate structure should reflect a customer group's demand profile and be resilient and flexible enough to handle changing costs (i.e., operating and/or capital) and demand scenarios (i.e., customers change their demand on the system by contributing less or more flow). Rate equity is inherently built upon each customer's relative use of the system. By designing different rate components, the utility can balance affordability and equity.

Rate Design
Review the existing rate structure and design proposed rates that provide adequate revenues

Rate Adoption
Establish the basis for the proposed rates to be adopted in compliance with Proposition 218

2.3.4 Rate Adoption

In California, public utilities must meet procedural requirements for adopting new or increased rates for property-related fees under Proposition 218. Proposition 218 states that the utility must hold a public hearing to consider the proposed rates and provide written notice to all customers at least 45 days before the hearing. Any property owner or tenant directly liable to the public agency for payment of the property-related fees may submit a written protest to the new or increased rates until the close of the public hearing. The City Council may not adopt the proposed new or increased rates if property owners or tenants directly liable for payment submit written protests on behalf of more than 50 percent of the properties upon which the proposed rates may be imposed.

3.0 Revenue and Revenue Requirements

To meet the costs associated with providing wastewater services to its customers, the Wastewater Utility derives revenue from various sources, including wastewater user charges (rates), connection fees, penalties, interest earned from the investment of available funds, and other miscellaneous revenues. The utility examines other sources of revenue, such as loans, bonds, and grants, when appropriate and available. Black & Veatch has projected the future revenue generated in the Study by analyzing historical and future system growth in terms of the number of connections. 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 wastewater system expenses.

3.1 Customer and Consumption Projections

3.1.1 Customer Connections and Bills

The Wastewater Utility provides wastewater service to about 13,200 residential and non-residential customer connections, grouped as one class, All Customers. All Customers are connected to the wastewater system through an unmetered connection. All connections are billed bi-monthly; therefore, there is an average of six bills per year per customer.

The number of bills is used in this analysis to determine the fixed charge. The projected total number of bills is expected to have minimal growth over the five-year Study period at 0.01% per year. The City is considered built-out with minimal infill probable. Any growth will be from mixed-used residential/commercial or multi-family residential construction. In discussions with the City, the planned large potential developments are not expected to be online within the Study timeframe.

Table 3-1 summarizes the projected number of bills for the utility.

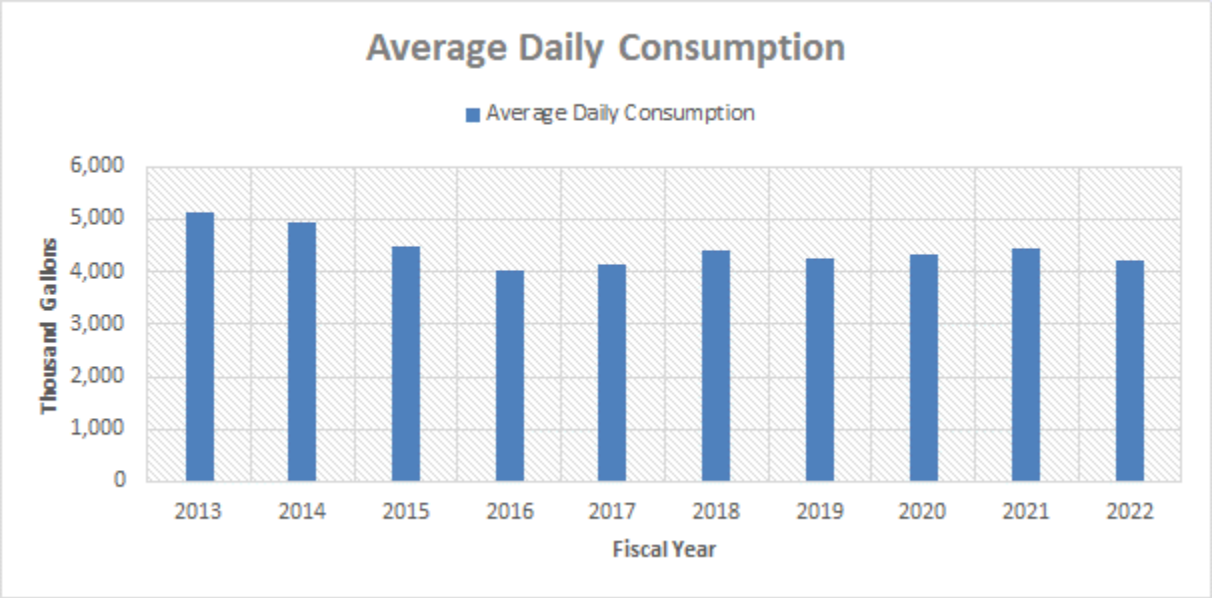
Table 3-1 Customer Connections and Bills

Line No.	Description	Fiscal Year Ending June 30,				
		FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
		(Bills)	(Bills)	(Bills)	(Bills)	(Bills)
	No. of Bills					
1	All Customers	79,271	79,273	79,275	79,277	79,279
2	Total Bills	79,271	79,273	79,275	79,277	79,279
3	Total Est. Accounts	13,212	13,212	13,213	13,213	13,213

3.1.2 Contributed Wastewater Flow

Table 3-2 shows the projected wastewater flow for the Study period. Black & Veatch analyzed historical wastewater flow patterns in conjunction with future water consumption growth in determining the projected wastewater flow. The Wastewater Utility relies on water consumption to determine wastewater flow; therefore, it is important to understand water consumption patterns. In 2022, Governor Newsom issued Executive Order N-7-22, which called for local water suppliers to move to Level 2 of their Water Shortage Contingency Plans (WSCPs) to drive water conservation due to drought conditions. The City currently resides at Level 2, meaning an additional 10% water conservation must be targeted on top of the 10% expected in Level 1.

Figure 3-1 Average Water Consumption



The utility currently bills wastewater flow in hundred cubic feet (HCF). In examining the average daily consumption shown in Figure 3-1, water consumption has flattened, indicating that wastewater flow will have minimal growth. Therefore, the analysis herein incorporates a relatively flat wastewater flow of 0.01% per year growth, as shown in Table 3-2.

Table 3-2 Contributed Sewage Flow

Line No.	Description	Fiscal Year Ending June 30,				
		FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
		(HCF)	(HCF)	(HCF)	(HCF)	(HCF)
	Contributed Sewage Flow					
1	All Customers	1,786,923	1,787,049	1,787,176	1,787,302	1,787,428
2	Total	1,786,923	1,787,049	1,787,176	1,787,302	1,787,428

3.2 Revenue under Existing Rates

Wastewater user rates serve as the primary source of revenue for the Wastewater 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 bills and wastewater flow by the applicable rates to determine wastewater rate revenue.

Table 3-3 shows the current schedule of charges.

Table 3-3 Existing Wastewater Rates

Description	Fiscal Year 2024
Bi-Monthly Fixed Charge ($/bi-mo)	
5/8" or 3/4"	11.12
1"	15.56
1-1/2"	22.98
2"	31.86
3"	55.56
4"	82.20
6"	156.24
8"	245.10
10"	348.76
Variable Usage Charge ($/HCF)	
All Usage	1.27

Table 3-5 summarizes projected wastewater rate revenue under existing rates. The revenue generated stays relatively stable over the Study period in conjunction with the number of bills and wastewater flow. The projected utility revenues increase from $3.330M in FY 2024 to $3.331M in FY 2028.

Table 3-4 Projected Revenue under Existing Rates

Line No.	Description	Fiscal Year Ending June 30, FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
		($)	($)	($)	($)	($)
	Revenue					
1	Fixed Charge	1,078,800	1,078,900	1,078,900	1,078,900	1,078,900
2	Variable Charge	2,251,100	2,251,300	2,251,400	2,251,600	2,251,700
3	Total	$ 3,329,900	$ 3,330,200	$ 3,330,300	$ 3,330,500	$ 3,330,600

3.3 Other Revenue

The Wastewater Utility generates other operating sources, including charges for revenue from connection fees, penalties, interest on investments, and other miscellaneous revenues. In total, other operating revenues represent 3.8% of the total revenue. These revenues are expected to remain relatively constant for the duration of the Study period.

3.4 Operating and Maintenance Expenses

Table 3-5 summarizes the Wastewater Utility's projected O&M expense for the Study period. These expenses include costs related to salaries and benefits, materials and services, internal services, and debt service. The following provides a brief overview of the O&M expenses:

- Salaries and Benefits - These costs are associated with salaries and fringe benefits paid to employees. The utility has 6.5 full-time employees (FTEs) dedicated to operating and maintaining the wastewater system, and it shares resources within the Utilities Division and Public Works Department.
- Materials and Services - These costs are associated with materials and supplies, contract services, and utilities. Material and supplies include minor items such as office supplies, printing,

tools & equipment, memberships, etc., used during normal operations. Contract services are for specialized services such as engineering analysis and special studies that require specialized knowledge. Utilities are mainly for electricity and water used to operate the wastewater system.

- Internal Services - These costs are associated with inter-fund services provided to the utility by other departments in the City, such as legal, finance, human resources, engineering, fleet, building facilities, etc. The Wastewater Utility does not have engineering within the utility; therefore, it relies on services provided by City.
- Debt Service - These costs are associated with the Wastewater Utility's share of the 2021 Pension Obligation Bond issued by the City to fund the unfunded portion of their pension liabilities.

Table 3-5 O&M Expenses

Line No.	Description	Fiscal Year Ending June 30,				
		FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
		($)	($)	($)	($)	($)
	Operation and Maintenance					
1	Salaries & Benefits	624,200	643,000	662,300	682,200	702,700
2	Materials & Services	677,100	394,300	410,300	427,100	444,500
3	Internal Services	1,138,700	1,184,200	1,231,500	1,280,800	1,332,000
4	Debt Service	25,613	25,628	25,613	25,618	25,589
5	Total	$ 2,465,613	$ 2,247,128	$ 2,329,713	$ 2,415,718	$ 2,504,789

As shown in Table 3-5, the forecasted O&M expenses increased from $2.47M in FY 2024 to $2.50M in FY 2028.

3.5 Debt Service Requirements

Table 3-6 represents the Wastewater Utility's existing and proposed debt service obligations. The utility has one debt service payment associated with their share of a Certificate of Participation issued to help fund wastewater infrastructure needs. There is no plan for issuing future debt in the Study period.

It is common practice for utilities to utilize debt to finance large multi-year capital improvement projects, but financing options depend on the utility's financial conditions. By financing the cost of the capital improvements, the utility can fund major projects immediately and spread the payment over a specified time frame.

Table 3-6 Long-Term Debt Service

Line No.	Description	Fiscal Year Ending June 30,				
		FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
		($)	($)	($)	($)	($)
	Long-Term Debt					
1	Existing Loan/Bonds	80,501	81,779	82,809	0	0
2	Proposed Loan/Bonds	0	0	0	0	0
3	Total	$ 80,501	$ 81,779	$ 82,809	$ 0	$ 0

3.6 Capital Improvement Program

The Wastewater Utility annually develops a five-year Capital Improvement Plan (CIP) to identify sewer system needs, including ongoing assessments, maintenance, and renewal and replacement requirements. The five-year CIP was based on the 2010 Wastewater Master Plan that identified $42M in the wastewater infrastructure's short-term and long-term capital needs.

Table 3-7 summarizes the projected CIP for FY 2024 through FY 2028. The total CIP is projected at $14.0M in CIP over the Study period. The detailed CIP by project is shown in Appendix A, Figure 6-1. The following provides a brief overview of key CIP projects:

- Collection - These projects are associated with the annual replacement of mains, sewer main lining, and the addition of new mains to serve future customers.
- Lift Station - These projects are associated with rehabilitating and upgrading the utility's eight lift stations that help transport wastewater flow to the LACSD for treatment.
- General Wastewater (WW) System Assets - These projects are associated with general projects that contribute to the operation of the wastewater system but are not directly related to collection or lift stations. These include projects such as upgrades to equipment & buildings, studies, etc.

Table 3-7 Capital Improvement Projects

Line No.	Description	Fiscal Year Ending June 30,				
		FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
		($)	($)	($)	($)	($)
	Capital Improvement Program					
1	Collection	1,129,700	738,300	758,200	778,700	799,800
2	Lift Station	0	4,588,100	1,462,300	1,668,700	1,713,800
3	General WW System Assets	0	348,100	0	111,200	0
4	Total	$ 1,129,700	$ 5,674,500	$ 2,220,500	$ 2,558,600	$ 2,513,600

The Wastewater Utility funds annual expenditures for the CIP from revenue derived from user rates, connection fees, interest earnings, and available funds on hand. All capital financing is done through the Operating Fund, as discussed under Section 3.8.

3.7 Reserves

A wastewater utility typically establishes reserves for several reasons: 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 City's reserve policy for Enterprise Funds, the Wastewater Utility will maintain the following reserve:

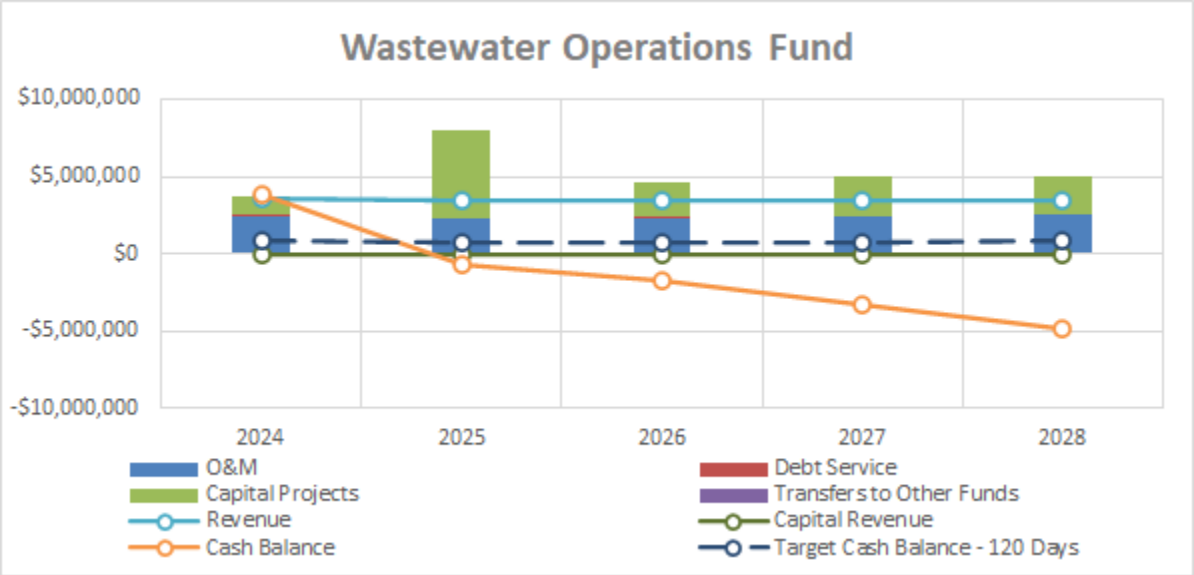
- The Operating Reserve represents the utility's working capital to cover day-to-day expenses and maintain enough funds to cover delayed accounts receivables, periods of lower-than-expected wastewater revenues, or unforeseen cost increases. The reserve is set at a minimum balance of 120 days of operating expenses.

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

3.8 Projected Operating Results

It is important to examine the cash flow projections of the Wastewater Utility under the status quo scenario to fully understand the current condition of the utility and the need for revenue adjustments. As shown in Figure 3-2, the status quo conditions would project that the utility would operate from an annual deficit position, thus requiring the use of reserves to keep operating until FY 2025, when the utility will no longer have sufficient revenues to meet expenses and financial obligations associated with debt service. In this scenario, the 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 meet reserve targets.

Figure 3-2 Status Quo Operating Cash Flow



Understanding that the status quo scenario is unsustainable for the utility to meet its goals and objectives, the analyses performed in the Study indicate that the utility should implement the proposed revenue increases shown in Table 3-8 if it wishes to keep the utility in a balanced financial position. The revenue increases represent the 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 utility's obligations.

The suggested revenue increases are designed to help the utility meet the following goals:

- Meet budgeted operating obligations and capital investment in the five FYs.
- Maintain an operating reserve of 120 days of operating expenses.

Shown in Table 3-8 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 7 are the additional revenue generated from the required annual revenue increases. The additional revenue generated directly reflects the number of months the increase is effective for, and therefore amount might calculate at less than that stated amount.
- Line 8 is the total revenue generated from user charges.
- Line 11 is the other operating revenues.
- Line 12 represents the total revenues for the enterprise.

Revenue Requirements

- Line 13 is the O&M expenses.
- Line 17 is the combination of existing and proposed debt service payments.

- Line 19 is the Capital Improvement Program.
- Line 20 represents total revenue requirements.

Line 23 represents the net cumulative cash balance within the Operating Fund. To the extent possible, the net cumulative cash balance intends to match Line 24. 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 120 days of O&M expenses.

Line 25 represents the debt service coverage. The City holds the debt and is responsible for the debt coverage requirement. The lending financial institution sets the debt service coverage ratio through rate covenants that obligate the City to increase revenues to meet the minimum debt service coverage requirement. Despite this, the analysis incorporates an operating cash flow designed to achieve a minimum debt service coverage of 1.25x in all years.

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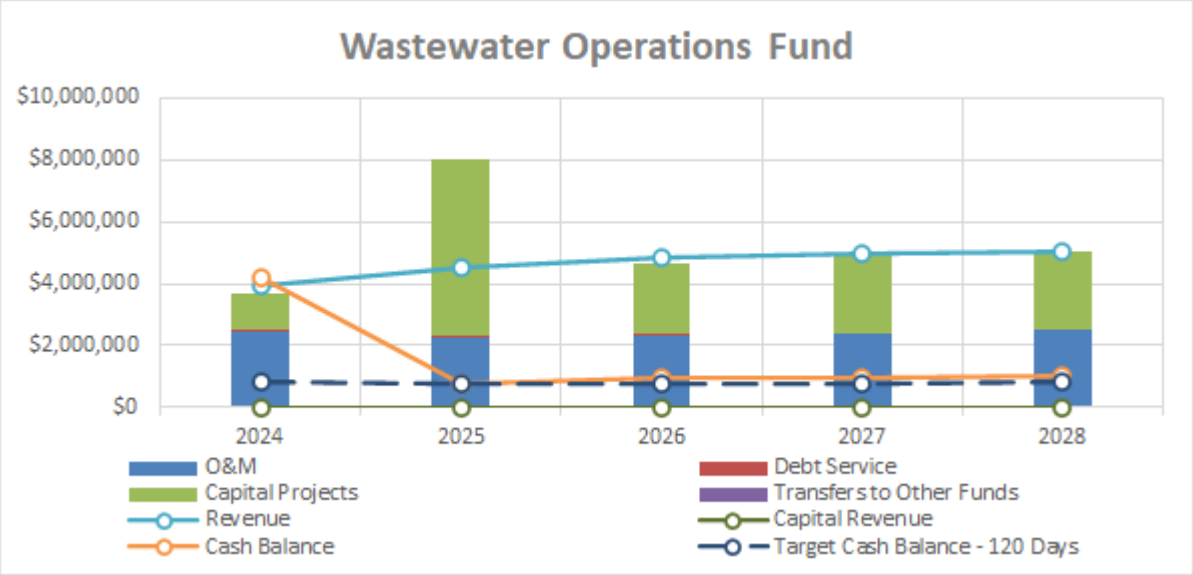
Table 3-8 Operating Fund

Line No.	Description	Year	Months Effective	Rate Adj	Fiscal Year Ending June 30, FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
	Revenue								
	Rate Revenue								
1	Revenue from Existing Rates				3,329,900	3,330,200	3,330,300	3,330,500	3,330,600
		Year	Months Effective	Rate Adj					
2		2024	8	17.00%	377,400	566,100	566,200	566,200	566,200
3		2025	8	17.00%		441,600	662,400	662,400	662,500
4		2026	8	4.00%			121,600	121,600	121,600
5		2027	8	4.00%				124,800	124,800
6		2028	8	3.00%					96,100
7	Increased Revenue Due to Adj				377,400	1,007,700	1,350,200	1,475,000	1,571,200
8	Subtotal Rate Revenue				$ 3,707,300	$ 4,337,900	$ 4,680,500	$ 4,805,500	$ 4,901,800
	Other Operating Revenue								
9	Other Income				160,000	160,000	160,000	160,000	160,000
10	Interest Income				41,100	24,900	8,600	9,700	9,900
11	Subtotal Other Operating Rev				$ 201,100	$ 184,900	$ 168,600	$ 169,700	$ 169,900
12	**Total Revenue**				**$ 3,908,400**	**$ 4,522,800**	**$ 4,849,100**	**$ 4,975,200**	**$ 5,071,700**
	Revenue Requirements								
	Operating & Maintenance								
13	O&M Expenses				2,465,600	2,247,100	2,329,700	2,415,700	2,504,800
14	Subtotal O&M				$ 2,465,600	$ 2,247,100	$ 2,329,700	$ 2,415,700	$ 2,504,800
	Debt Service								
15	Existing Rev Bonds/SRF Loans				80,500	81,800	82,800	0	0
16	Proposed Rev Bonds/SRF Loans				0	0	0	0	0
17	Total Debt Service				$ 80,500	$ 81,800	$ 82,800	$ 0	$ 0
	Capital Projects								
18	Capital Improvement Projects				1,129,700	5,674,500	2,220,600	2,558,700	2,513,500
19	Total Capital Projects				$ 1,129,700	$ 5,674,500	$ 2,220,600	$ 2,558,700	$ 2,513,500
20	**Total Revenue Requirements**				**$ 3,675,800**	**$ 8,003,400**	**$ 4,633,100**	**$ 4,974,400**	**$ 5,018,300**
21	Net Annual Cash Balance				232,600	(3,480,600)	216,000	800	53,400
22	Beginning Fund Balance				3,998,400	4,231,000	750,400	966,400	967,200
23	Net Cumulative Fund Balance				$ 4,231,000	$ 750,400	$ 966,400	$ 967,200	$ 1,020,600
24	Min Operating Reserves (120 Days)				$ 810,600	$ 738,800	$ 765,900	$ 794,200	$ 823,500
25	Debt Service Coverage (1.25x)				17.92	27.82	30.43	0	0

Figure 3-3 presents the proposed Operating Fund.

Figure 3-3 Operating Cash Flow



4.0 Cost of Service Analysis

The cost-of-service analysis requires that the utility recover needed revenues from rates for wastewater 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 wastewater flow and the number of customer connections.

In analyzing the utility's cost of service for allocation to its customer classes, Black & Veatch selected the annual revenue requirements for FY 2024 as the Test Year (TY) requirements to demonstrate the development of cost-of-service wastewater rates. Table 4-1 summarizes the total costs of service that need to be recovered from wastewater user rates. The table represents TY 2024.

Table 4-1 Cost of Service Revenue from Rates

Line No.	Description	Operating Expense	Capital Cost	Total Cost
		($)	($)	($)
	Revenue Requirements			
1	O&M Expense	2,465,600	0	2,465,600
2	Debt Service Requirements	0	80,500	80,500
3	Capital Projects	0	1,129,700	1,129,700
4	Subtotal	$ 2,465,600	$ 1,210,200	$ 3,675,800
	Less Revenue Requirements Met from Other Sources			
5	Other Income	0	0	0
6	Use of Money and Property	0	0	0
7	Utility Connection Fees	0	150,000	150,000
8	Penalties	10,000	0	10,000
9	Miscellaneous Income	0	0	0
10	Interest Income	41,100	0	41,100
11	Subtotal	$ 51,100	$ 150,000	$ 201,100
	Adjustments			
12	Adj for Annual Cash Balance	(161,629)	(70,971)	(232,600)
13	Adj to Annualize Rate Increase	(131,124)	(57,576)	(188,700)
14	Subtotal	$ (292,753)	$ (128,547)	$ (421,300)
15	COS to be Recovered from Rates	$ 2,707,253	$ 1,188,747	$ 3,896,000

It is necessary to deduct revenues from other sources, as shown in Line 11, which corresponds with Table 3-8, Line 11, to derive the net revenue requirements recovered from rate revenue properly. Shown in Line 4 is the total revenue requirement that corresponds with Table 3-8, Line 20. Line 12 represents the net annual cash balance during the TY. This number is positive if the enterprise is drawing down funds already in the Operating Fund. The number will be negative if the enterprise is replacing funds. In the case of the Wastewater Utility, the $232k figure indicates that the forecast is projecting a positive cash balance for the test year. Line 13 represents the additional revenues generated if the revenue increase was effective for a full year versus only 8 months.

4.1 Functional Cost Components

The first step in conducting a cost-of-service analysis involves analyzing the cost of providing wastewater 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 two basic functional cost components: (1) Volume and (2) Customer, described as follows:

- Volume costs represent the operating and capital costs of the system associated with collection. The collection costs vary directly with the quantity of wastewater flow.
- Customer costs are those expenditures that tend to vary in proportion to the number of customers connected to the system. These include administrative services and a portion of the collection costs.

Once costs are allocated to volume and customer cost categories, rates are designed to recover these costs through the fixed and variable charges described in Section 5.0.

4.2 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 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 customer classes based on their responsibilities for each type of service.

4.2.1 Volume Allocations

The wastewater system consists of facilities designed and operated to fulfill a given function. For a collection-only system like the City's wastewater system, the facilities in place must provide adequate capacity to meet the customers' annual demand (i.e., volume) requirements placed on the system. The annual demand is contributed wastewater flow. Therefore, these facilities (i.e., pipelines and lift stations) assign 100% of the costs to the volume cost component as that is their sole purpose in the system.

4.2.2 Allocation of Operating and Maintenance Expenses

In allocating O&M expenses for TY 2024, costs are directly allocated to the cost components to the extent possible. The Wastewater Utility book does not record operating costs by functional categories such as collection, lift stations, and general system assets. Therefore, Black & Veatch allocated O&M expenses to the cost factors noted in Section 4.1 based on engineering experience observed with other wastewater systems. Table 4-2 identifies the allocation basis used and the associated percentage in each cost component for the utility.

Table 4-2 Allocation Basis for O&M Expenditures

Line No.	Description	Common to All Customers		Allocation Basis
		Volume	Customer	
		(%)	(%)	
	Operation & Maintenance			
1	Salary & Wages-Fringe Benefits	100%	0%	Collection
2	Contractual Services	100%	0%	Collection
3	Utilities			
4	Telephone	100%	0%	Collection
5	Electricity	100%	0%	Lift Station
6	Water	100%	0%	Lift Station
7	Departmental Supplies	100%	0%	Collection
8	Interfund Service Payments	100%	0%	Avg O&M (less CS)
9	Administrative Service Charge	47%	53%	Customer
10	Engineering Service Charges	100%	0%	Avg O&M (less CS)
11	Debt Service	100%	0%	Avg O&M (less CS)

Table 4-3 represents the dollar allocation of O&M expenses to the cost components. Next, revenues are subtracted from other sources, as shown in Table 4-1, Lines 11 and 14. 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 the utility.

Table 4-3 Allocation of O&M Expenditures

Line No.	Description	Total Cost	Common to All Customers	
			Volume	Customer
		($)	($)	($)
	Operation & Maintenance			
1	Salary & Wages-Fringe Benefits	624,200	624,200	0
2	Contractual Services	234,500	234,500	0
3	Utilities			
4	Telephone	47,300	47,300	0
5	Electricity	26,600	26,600	0
6	Water	5,800	5,800	0
7	Departmental Supplies	362,900	362,900	0
8	Interfund Service Payments	189,300	189,300	0
9	Administrative Service Charge	699,200	327,100	372,100
10	Engineering Service Charges	250,200	250,200	0
11	Debt Service	25,600	25,600	0
12	Total O&M Expenses	$ 2,465,600	$ 2,093,500	$ 372,100
	Less Other Revenue			
13	Miscellaneous Revenues	51,100	43,400	7,700
14	Other Adjustments	(292,753)	(248,553)	(44,200)
15	Net Operating Expenses	$ 2,707,253	$ 2,298,653	$ 408,600

4.2.3 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 wastewater system facilities.

Plan capital costs can be allocated using the total net system investment distribution across the functional cost components. Table 4-4 identifies the allocation basis used and the associated percentage in each cost component for the utility.

Table 4-4 Allocation Basis for Capital Costs

Line No.	Description	Common to All Customers		Allocation Basis
		Volume	Customer	
		(%)	(%)	
	Wastewater Fixed Assets			
1	Collection	100%	0%	Collection
2	Lift Station	100%	0%	Lift Station
3	Lift Station/Equipment	100%	0%	Lift Station
4	General WW System Assets	100%	0%	Average Net Plant

Table 4-5 shows the allocation of existing system investment serving wastewater customers. The total net system investment of $8.41M shown on Line 5 represents the Test Year original cost less accumulated depreciation of the system in service. The total net system investment reflects the Wastewater Utility fixed asset listing ending June 30, 2022. This value represents the original cost (book value) of the assets.

Using the total net system investment distribution in Table 4-5, Line 5, the capital project contribution shown in Table 4-1 and Line 4 is allocated in Table 4-5, Line 6. Miscellaneous revenues and other adjustments are subtracted from these capital projects as shown in Table 4-5, Lines 7 and 8 to arrive at the net capital projects.

Table 4-5 Allocation of Capital Costs

Line No.	Description	Total Cost	Common to All Customers	
			Volume	Customer
		($)	($)	($)
	Wastewater Fixed Assets			
1	Collection	7,340,600	7,340,600	0
2	Lift Station	777,500	777,500	0
3	Lift Station/Equipment	186,300	186,300	0
4	General WW System Assets	106,500	106,500	0
5	Total Wastewater Fixed Assets	$ 8,410,900	$ 8,410,900	$ 0
6	Capital Projects	$ 1,210,200	$ 1,210,200	$ 0
	Less Other Revenue			
7	Miscellaneous Revenues	150,000	150,000	0
8	Other Adjustments	(128,547)	(128,547)	0
9	Net Capital Projects	$ 1,188,747	$ 1,188,747	$ 0

4.3 Units of Service

To properly recognize the cost of service, each customer class receives its share of volume 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. 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.

- Volume costs vary with the volume of wastewater flow contributed to the wastewater system and distributed to customer classes on that basis.
- Customer costs include administrative services and a portion of collection system costs and are allocated based on the number of bills.

Table 4-6 summarizes the estimated TY units of service for the customer classes.

Table 4-6 Units of Service

Line No.	Description	Contributed Units	Contributed Volume	Bills
	Units of Measure	(EDUs)	(HCF)	(bills)
1	All Customers	13,212	1,786,923	79,271
2	Total	13,212	1,786,923	79,271

4.4 Cost of Service Allocations

Unit costs of service are applied to each customer class's 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.

4.4.1 Units Costs of Service

The TY 2024-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 4-7. On Line 3, the total costs represent the cost that rates need to recover, as demonstrated in Table 4-1, Line 15. The net O&M cost includes O&M less revenue from other sources and adjustments. The total capital cost includes debt service payments and capital projects. Line 5 represents the unit costs for the entire wastewater system regardless of customer class. After that, these unit costs are applied in allocating the costs to the specific customer classes.

Table 4-7 Unit Costs of Service

Line No.	Description	Total Cost	Common to All Customers	
			Volume	Customer
1	Net Operating Expense	2,707,253	2,298,653	408,600
2	Capital Costs	1,188,747	1,188,747	0
3	Total Cost of Service	$ 3,896,000	$ 3,487,400	$ 408,600
4	Units of Service		1,786,923 HCF	79,271 bills
5	Cost per Unit		$ 1.95 per HCF	$ 5.15 per bill

4.4.2 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 4-8, in which the analysis 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 4.1. Each customer class places a burden on the system in different ways; thus, the allocation of the units is representative of this burden.

Table 4-8 Distribution of Costs to Customer Classes

Line No.	Description	Total Cost	Common to All Customers	
			Volume	Customer
1	Cost per Unit		$ 1.95 per HCF	$ 5.15 per bill
	All Customers			
2	Units		1,786,923	79,271
3	Allocation of costs of service	3,896,000	3,487,400	408,600
4	Total Cost of Service	$ 3,896,000	$ 3,487,400	$ 408,600

An example of applying unit costs to the customer class is shown below for illustrative purposes.

	Vol Component	
Unit Cost (Table 4-7, Line 5)	$ 1.95	per HCF
Wastewater Flow (Table 4-8, Line 2)	1,786,923	HCF
Total Allocated Cost	$ 3,487,400	

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

5.0 Rate Design

The initial consideration in deriving rate schedules for wastewater 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 and 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.

5.1 Existing Rates

The Wastewater Utility's existing rates consist of a fixed component in the form of a bi-monthly fixed charge and a variable charge based on wastewater flow. The fixed charge is a fee based on meter size, and the variable charge is based on flow on a dollar per HCF. These fees are applied to all residential and non-residential customers. Table 3-3, presented earlier in this report, summarizes the current wastewater rates.

5.2 Proposed Rates

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

5.2.1 Fixed Charge

The bi-monthly fixed charge recovers costs associated with administrative services and some of the collection capacity costs related to the wastewater collection system. These costs are incurred by the wastewater utility regardless of the wastewater flow returned to the wastewater system. In deriving the service charges, 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 expect to be able to consume more water (at a higher flow capacity) than customers with a ¾" meter. In general, customers needing higher water capacity will have a higher level of wastewater returning to the collection system. Consequently, the bi-monthly service charges have been realigned to reflect higher rates among the larger meter sizes that are consistent with industry standards.

Table 5-1 demonstrates the wastewater cost elements incorporated into the bi-monthly fixed charge for FY 2024. Table 5-2 shows the five-year fixed service charge rate schedule.

Table 5-1 Costs within the Fixed Charge for FY 2023

Meter Size	Collection System			Customer			Total Service Charge
	Unit Cost	Meter Ratio	Adjusted Unit Cost	Unit Cost	Bill Ratio	Adjusted Unit Cost	
	per EM		$	per Bill		$	$/Month
5/8" or 3/4"	7.65	1.00	7.65	5.15	1.00	5.15	12.80
1"	7.65	1.67	12.75	5.15	1.00	5.15	17.90
1-1/2"	7.65	3.33	25.50	5.15	1.00	5.15	30.65
2"	7.65	5.33	40.80	5.15	1.00	5.15	45.95
3"	7.65	10.67	81.60	5.15	1.00	5.15	86.76
4"	7.65	16.67	127.50	5.15	1.00	5.15	132.66
6"	7.65	33.33	255.00	5.15	1.00	5.15	260.16
8"	7.65	53.33	408.00	5.15	1.00	5.15	413.16
10"	7.65	80.00	612.01	5.15	1.00	5.15	617.16

Table 5-2 Proposed Fixed Charge

Customer Class	Existing	Fiscal Year Ending June 30,				
	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Bi-Monthly Fixed Charge ($/bi-mo)						
5/8" or 3/4"	11.12	12.80	14.98	15.58	16.20	16.69
1"	15.56	17.90	20.95	21.79	22.66	23.34
1-1/2"	22.98	30.65	35.87	37.30	38.79	39.96
2"	31.86	45.95	53.77	55.92	58.15	59.90
3"	55.56	86.76	101.50	105.56	109.79	113.08
4"	82.20	132.66	155.21	161.42	167.87	172.91
6"	156.24	260.16	304.38	316.56	329.22	339.10
8"	245.10	413.16	483.40	502.73	522.84	538.53
10"	348.76	617.16	722.08	750.96	781.00	804.43

5.2.2 Variable Charge

The variable charge is designed to recover costs associated with volume demands. These include operating and capital costs incurred by the wastewater system while collecting wastewater flow. These costs include salaries & benefits, materials and supplies, contractual services, and inter-fund payments. The variable charge is applied to all customers on a dollar-per-HCF basis. Table 5-3 shows the five-year variable service charge rate schedule.

Table 5-3 Proposed Variable Charges

Customer Class	Existing	Fiscal Year Ending June 30,				
	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Variable Usage Charge ($/HCF)						
All Usage	1.27	1.46	1.71	1.78	1.85	1.90

5.3 Typical Monthly Costs under Proposed Charges

Table 5-4 compares typical monthly costs under existing rates and the proposed schedule of wastewater rates derived in this Study for residential customers. The City's current single-family residential average usage is 20 HCF every two months.

Table 5-4 Typical Bill

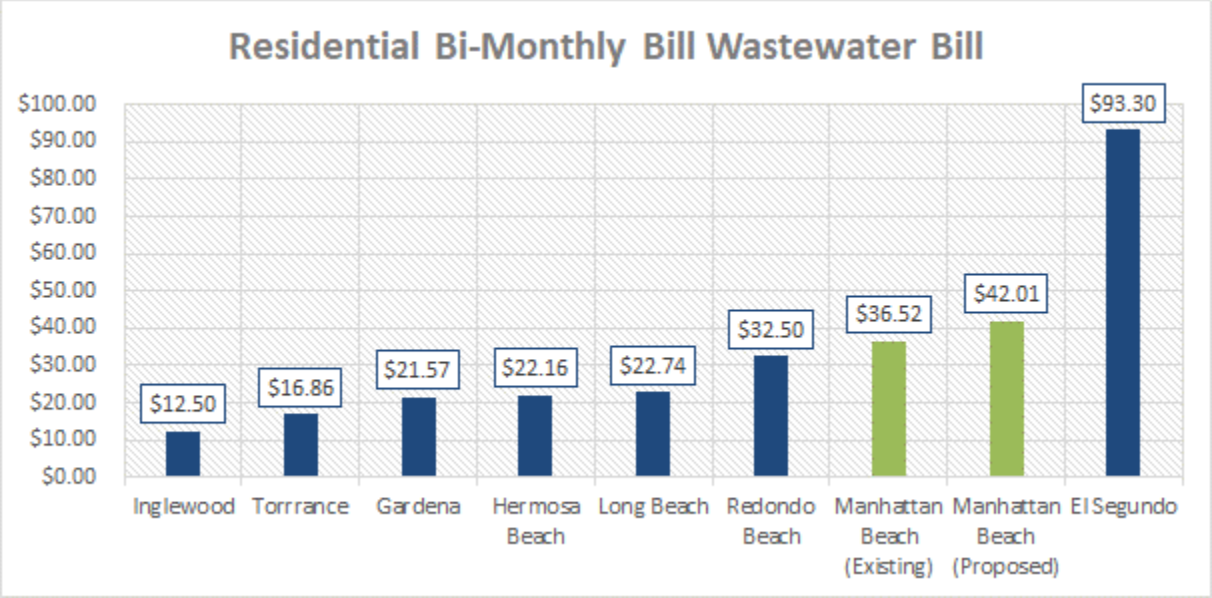
Single Family Residential					
Meter Size	Usage (HCF)	FY 2023 Currently Bi-Monthly Bill	FY 2024 Proposed Bi-Monthly Bill	Difference ($)	Difference (%)
5/8" or 3/4"	0	$11.12	$12.80	$1.68	15.1%
	5	$17.47	$20.11	$2.64	15.1%
	10	$23.82	$27.41	$3.59	15.1%
	15	$30.17	$34.71	$4.54	15.0%
	20	$36.52	$42.01	$5.49	15.0%
	40	$61.92	$71.22	$9.30	15.0%
	80	$112.72	$129.63	$16.91	15.0%

5.4 Neighboring Wastewater Utilities

Presented in Figure 5-1 are the proposed rates compared to rates of neighboring wastewater utilities for a single-family residential customer representing a 5/8" or 3/4" meter connection with a wastewater flow of

20 HCF on a bi-monthly basis. Based on the comparison, the City's typical bill is currently on the higher end of the wastewater providers in the area. It is important to note that the comparison does not indicate how well a utility operates; therefore, their lower charges may reflect a service level that does not match the City. Black & Veatch fully expects that neighboring utilities will increase rates over the next five years as every utility has been impacted by inflation. All surveyed neighboring utility rates are current as of January 2023.

Figure 5-1 Comparison to Neighboring Wastewater Utilities



6.0 Appendix A – Detailed Capital Improvement Program

Figure 6-1 Wastewater Capital Improvement Projects

Line No.	Description	Fiscal Year Ending June 30, FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
		($)	($)	($)	($)	($)
	Capital Improvement Program					
1	Annual Rehabilitation of Gravity Sewer Mains	1,129,700	738,300	758,200	778,700	799,800
2	Pacific Lift Station Upgrade	0	3,797,000	0	0	0
3	Meadows Lift Station Upgrade	0	369,200	1,354,000	0	0
4	Wastewater Master Plan Update	0	348,200	0	111,200	0
5	Palm Lift Station Upgrade	0	210,900	0	111,200	1,713,800
6	Bell Avenue Lift Station	0	210,900	108,300	1,557,500	0
7	Total	$ 1,129,700	$ 5,674,500	$ 2,220,500	$ 2,558,600	$ 2,513,600