

FINAL

WASTEWATER RATE STUDY

B&V PROJECT NO. 408416

PREPARED FOR



San Diego County Sanitation District

22 NOVEMBER 2022

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1.0 Executive Summary

This report was prepared for the San Diego County Department of Public Works (County) to document the development of a multi-year wastewater financial plan, cost of service analysis, and rate design, for the San Diego County Sanitation District (District). The specific goals of the study were to:

- Review and evaluate existing policies and procedures affecting sewer service charges and fees.
- Evaluate the adequacy of projected revenues under existing sewer service charges to meet projected revenue requirements.
- Develop a wastewater cost of service and rate model for the District covering a ten-year study period for both ongoing operations and planned capital improvements.
- Allocate projected Fiscal Year (FY) 23-24 revenue requirements to the various customer categories in accordance with the respective service requirements.
- Develop suitable five-year sewer service charge schedules that produce revenues adequate to meet the District’s financial needs while recognizing customer costs of service and local and state legal and policy considerations such as California Constitution Articles XIII C and D (Proposition 218).

The methodologies employed in this Study reflect the industry best practices for the cost of service supported by the Water Environment Federation (WEF), as outlined in its *Manual of Practice No. 27, Financing and Charges for Wastewater Systems, 4th Edition, 2018* (MOP 27).

Sanitation System

The District provides wastewater service to approximately 37,000 customers within the unincorporated area of San Diego County. It owns and operates approximately 432 miles of pipeline, 8,200 maintenance holes, 8 lift stations/pressurized mains, and 3 wastewater treatment plants. The collection, treatment, and disposal of wastewater in an environmentally safe and efficient manner promotes healthy communities and increases residents’ quality of life.

The District is composed of eight (8) Sewer Service Areas (SSAs) that operate as one. It is responsible for collecting and conveying wastewater flows originating within the SSAs of Alpine, East Otay Mesa, Lakeside, Spring Valley, and Winter Gardens to the City of San Diego’s Point Loma Treatment Plant for treatment and disposal. These service areas depend on the City of San Diego’s Metropolitan Wastewater System (Metro) to treat their wastewater effluent. Local, District-owned wastewater facilities handle the treatment and disposal of wastewater flows originating within the service areas of Campo, Julian, and Pine Valley.

Financial Plan

The District operates as a self-supporting enterprise fund. As such, it must develop a financial plan, also known as revenue requirements, which provides enough revenue to meet all operation and maintenance (O&M) expenses, debt service requirements, capital improvements, required fund transfers, and other revenue requirements independent of the County’s other funds.

The Study develops a financial plan that projects operating revenue, expenses, and capital financing costs for the District over a five-year planning period beginning July 1, 2023 and ending June 30, 2028. A fiscal year is between July 1 of the prior year and June 30 of the subsequent year.

Summarized below are the new District’s revenue requirements:

- **Operation and Maintenance Expenses:** The District anticipates O&M and treatment expenses to increase from \$28.2M in FY 23/24 to \$31.9M in FY 27/28.
- **Debt Service:** The District does not currently have debt and does not anticipate issuing future debt.
- **Capital Improvements:** The District plans to invest between \$20M and \$45M (in 2022\$) into its infrastructure from FY 23/24 through FY 27/28 at the discretion of the District’s Board of Directors. The infrastructure upgrades will be funded through pay-as-you-go financing, which is sewer service charges. To support various levels of funding, this study developed three financial plan options based on funding investments of \$20.3M (Option 1), \$25.0M (Option 2), and \$44.8M (Option 3) over the 5-year period.

In addition, the District anticipates spending over \$22.9M (in 2022\$) for system improvements related to County watershed protection goals. The County General Fund will fund these projects at the discretion of the District’s Board of Directors.

- **Reserves:** The District will continue to meet the guidelines in Board Policy Number I-99 with respect to the operating fund reserve and emergency reserve.
 - The operating fund reserve is designed to help cover fluctuations in day-to-day expenses and has a target equal to 180 days of O&M expenses.
 - The emergency fund reserve is designed to help mitigate unexpected capital costs associated with an emergency repair or replacement on the wastewater system. The target is \$3.0M.

Figure 1-1 through Figure 1-3 illustrate the District’s plan to meet projected revenue requirements for each option by proposing revenue adjustments that place the District in a revenue-neutral position annually.

Figure 1-1 Operating Cash Flow – Option 1

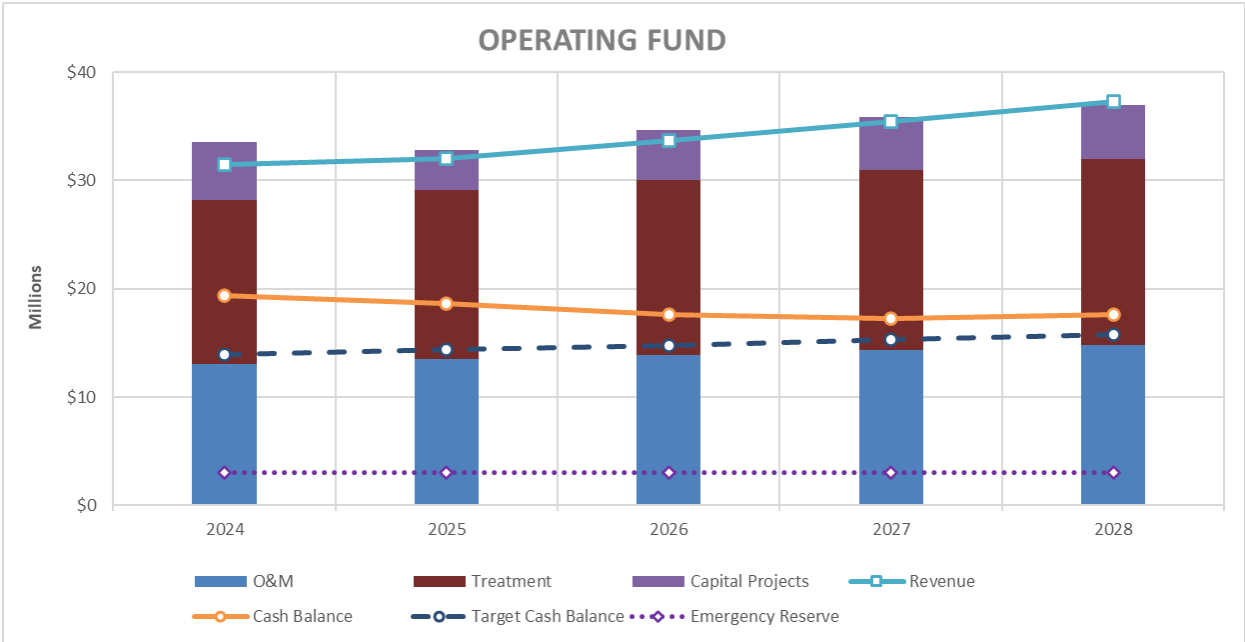


Figure 1-2 Operating Cash Flow – Option 2

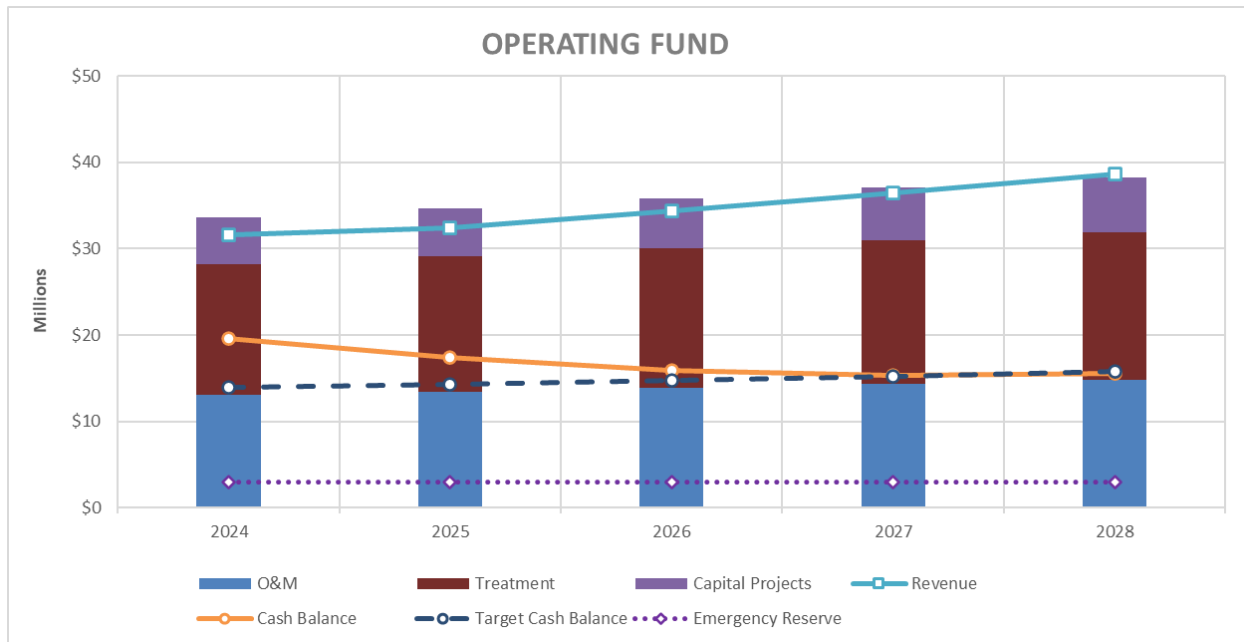
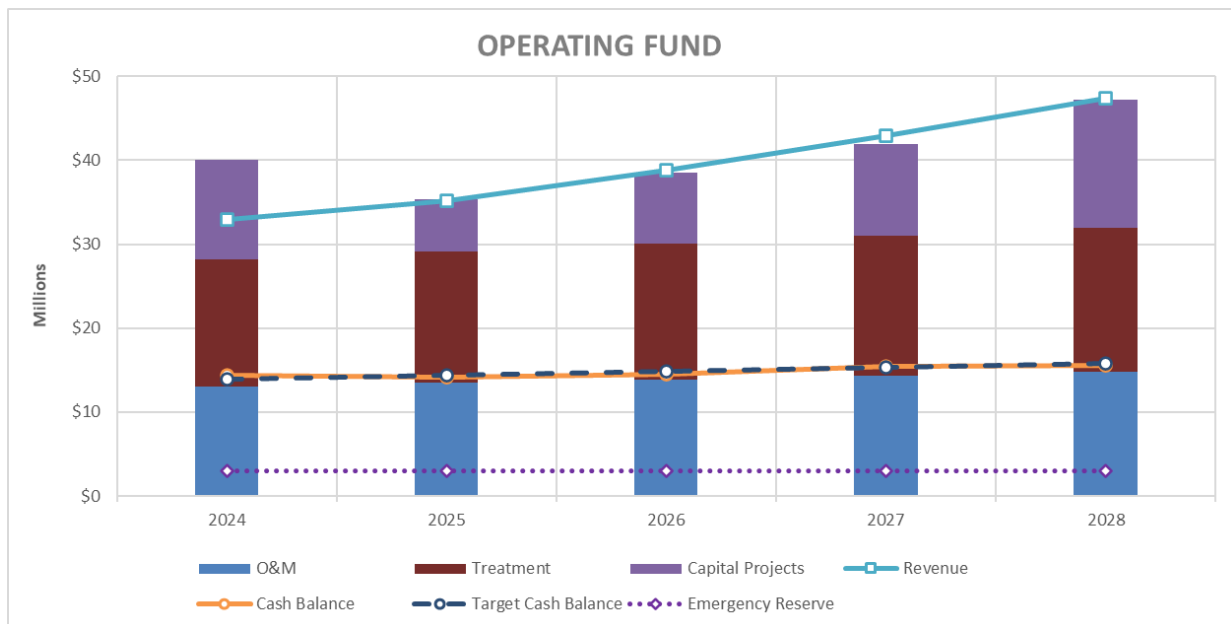


Figure 1-3 Operating Cash Flow – Option 3



Adequacy of Existing Rates to Meet Costs

Based on the financial plan options, Black & Veatch recommends the revenue adjustments shown in Table 1-1 to meet the projected revenue requirements for FY 23/24 to FY 27/28. These adjustments do not represent the proposed rate increases to customers, but rather, these represent the overall revenue increases needed by the utility to meet their overall obligations and maintain current service levels.

Table 1-1 Proposed Revenue Adjustments (Effective July of Each Fiscal Year)

	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
Revenue Adjustment – Option 1	5.00%	5.00%	5.00%	5.00%	5.00%
Revenue Adjustment – Option 2	5.75%	5.75%	5.75%	5.75%	5.75%
Revenue Adjustment – Option 3	10.25%	10.25%	10.25%	10.25%	10.25%

Cost-of-Service Analysis

The wastewater cost-of-service allocation performed in this study follows the Functional Cost Allocation Method endorsed in WEF MOP 27. Like the methodology used for water systems, the wastewater cost of service analysis allocates costs to the different customer categories in proportion to their use of the wastewater system. As recommended by WEF, Black & Veatch distributed the functional costs to volume, strength, and customer-related parameters. This allocation methodology produces unit costs for allocation to individual customer categories based on the projected customer service requirements.

Rate Design

Through the cost-of-service analysis, the allocation of costs to customer categories must meet Proposition 218 requirements. The Right to Vote on Taxes Act, also known as Proposition 218, was passed by California voters in 1996 and added Articles XIII C and XIII D to the California Constitution. These articles provide the regulatory framework that guides and informs the rate-setting process. The regulatory framework helps ensure cost recovery proportionate to the cost of providing the service.

To minimize impacts, retain simplicity, and ensure the reasonable stability of revenue, Black & Veatch recommends the District continue with its current rate structure.

- **Annual Sewer Service Charge:** The District should retain the annual sewer service charge based on equivalent dwelling units (EDUs) for all residential and non-residential customer categories. The sewer service charge is comprised of two components based on the cost to collect and convey, and to treat and dispose of the wastewater.
- **Collection Mechanism:** The District should continue to be assessed by customer category on the County property tax roll.

Table 1-2 through Table 1-4 summarize the recommended five-year rate schedule for the District for each option.

Table 1-2 Proposed Five-Year Rate Schedule – Option 1

Customer Category	Sewer Charge				
	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
	(\$/EDU/yr)	(\$/EDU/yr)	(\$/EDU/yr)	(\$/EDU/yr)	(\$/EDU/yr)
Customer Category					
Single-family Residential	\$542.84	\$569.98	\$598.48	\$628.41	\$659.83
Multi-family Residential	\$542.84	\$569.98	\$598.48	\$628.41	\$659.83
Car Wash	\$454.43	\$477.15	\$501.01	\$526.06	\$552.37
Barber & Beauty Salons	\$531.61	\$558.19	\$586.10	\$615.41	\$646.18
Department Stores, Retail Stores, General Commercial	\$495.65	\$520.43	\$546.46	\$573.78	\$602.47
Warehouse	\$495.65	\$520.43	\$546.46	\$573.78	\$602.47
Hospitals & Convalescent Homes	\$509.59	\$535.07	\$561.82	\$589.91	\$619.41
Laundromats	\$481.22	\$505.28	\$530.54	\$557.07	\$584.92
Nurseries	\$602.32	\$632.44	\$664.06	\$697.27	\$732.13
Hotels/Motels w/o Dining	\$535.43	\$562.20	\$590.31	\$619.82	\$650.81
Auto Repair/Sales Shops & Service Stations	\$551.28	\$578.85	\$607.79	\$638.18	\$670.09
Shopping Centers	\$584.36	\$613.58	\$644.26	\$676.47	\$710.29
Bar w/o Dining	\$588.97	\$618.42	\$649.34	\$681.81	\$715.90
Commercial Laundry	\$624.00	\$655.20	\$687.96	\$722.36	\$758.48
Movie Theater	\$582.00	\$611.10	\$641.65	\$673.73	\$707.42
Lumber Yards	\$737.84	\$774.73	\$813.46	\$854.14	\$896.84
Convenience & Liquor Stores w/Deli	\$660.56	\$693.58	\$728.26	\$764.68	\$802.91
Industrial Laundry	\$874.16	\$917.87	\$963.77	\$1,011.95	\$1,062.55
Hotel w/ Restaurant	\$787.95	\$827.34	\$868.71	\$912.14	\$957.75
Auto Steam Cleaning	\$838.26	\$880.18	\$924.19	\$970.40	\$1,018.92
Bakery or Bakery/Deli	\$926.39	\$972.70	\$1,021.34	\$1,072.41	\$1,126.03
Restaurant & Bar w/Food	\$926.39	\$972.70	\$1,021.34	\$1,072.41	\$1,126.03
Food Stores	\$933.90	\$980.59	\$1,029.62	\$1,081.10	\$1,135.16
Mortuary	\$933.90	\$980.59	\$1,029.62	\$1,081.10	\$1,135.16
Places of Worship	\$471.53	\$495.11	\$519.86	\$545.85	\$573.15
Schools	\$471.53	\$495.11	\$519.86	\$545.85	\$573.15
Membership Organizations	\$471.53	\$495.11	\$519.86	\$545.85	\$573.15
Restaurants w/ Waste Separation	\$662.33	\$695.44	\$730.21	\$766.73	\$805.06
Mobile Homes	\$542.84	\$569.98	\$598.48	\$628.41	\$659.83

Table 1-3 Proposed Five-Year Rate Schedule – Option 2

Customer Category	Sewer Charge				
	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
	(\$/EDU/yr)	(\$/EDU/yr)	(\$/EDU/yr)	(\$/EDU/yr)	(\$/EDU/yr)
Customer Category					
Single-family Residential	\$546.72	\$578.15	\$611.40	\$646.55	\$683.73
Multi-family Residential	\$546.72	\$578.15	\$611.40	\$646.55	\$683.73
Car Wash	\$457.68	\$483.99	\$511.82	\$541.25	\$572.38
Barber & Beauty Salons	\$534.95	\$565.71	\$598.24	\$632.64	\$669.02
Department Stores, Retail Stores, General Commercial	\$499.14	\$527.84	\$558.19	\$590.28	\$624.23
Warehouse	\$499.14	\$527.84	\$558.19	\$590.28	\$624.23
Hospitals & Convalescent Homes	\$513.21	\$542.72	\$573.93	\$606.93	\$641.83
Laundromats	\$484.78	\$512.66	\$542.14	\$573.31	\$606.28
Nurseries	\$606.57	\$641.45	\$678.33	\$717.34	\$758.58
Hotels/Motels w/o Dining	\$539.34	\$570.35	\$603.15	\$637.83	\$674.50
Auto Repair/Sales Shops & Service Stations	\$555.58	\$587.52	\$621.31	\$657.03	\$694.81
Shopping Centers	\$586.12	\$619.82	\$655.46	\$693.15	\$733.00
Bar w/o Dining	\$590.73	\$624.70	\$660.62	\$698.60	\$738.77
Commercial Laundry	\$625.76	\$661.74	\$699.79	\$740.03	\$782.58
Movie Theater	\$583.75	\$617.32	\$652.82	\$690.35	\$730.05
Lumber Yards	\$739.59	\$782.12	\$827.09	\$874.65	\$924.94
Convenience & Liquor Stores w/Deli	\$665.03	\$703.27	\$743.71	\$786.47	\$831.69
Industrial Laundry	\$880.35	\$930.97	\$984.50	\$1,041.11	\$1,100.98
Hotel w/ Restaurant	\$789.70	\$835.11	\$883.13	\$933.91	\$987.61
Auto Steam Cleaning	\$844.20	\$892.74	\$944.08	\$998.36	\$1,055.77
Bakery or Bakery/Deli	\$933.16	\$986.82	\$1,043.56	\$1,103.56	\$1,167.02
Restaurant & Bar w/Food	\$933.16	\$986.82	\$1,043.56	\$1,103.56	\$1,167.02
Food Stores	\$941.05	\$995.16	\$1,052.38	\$1,112.89	\$1,176.89
Mortuary	\$941.05	\$995.16	\$1,052.38	\$1,112.89	\$1,176.89
Places of Worship	\$474.77	\$502.07	\$530.94	\$561.47	\$593.76
Schools	\$474.77	\$502.07	\$530.94	\$561.47	\$593.76
Membership Organizations	\$474.77	\$502.07	\$530.94	\$561.47	\$593.76
Restaurants w/ Waste Separation	\$664.08	\$702.27	\$742.65	\$785.35	\$830.51
Mobile Homes	\$546.72	\$578.15	\$611.40	\$646.55	\$683.73

Table 1-4 Proposed Five-Year Rate Schedule – Option 3

Customer Category	Sewer Charge				
	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
	(\$/EDU/yr)	(\$/EDU/yr)	(\$/EDU/yr)	(\$/EDU/yr)	(\$/EDU/yr)
Customer Category					
Single-family Residential	\$569.27	\$627.62	\$691.95	\$762.87	\$841.07
Multi-family Residential	\$569.27	\$627.62	\$691.95	\$762.87	\$841.07
Car Wash	\$491.91	\$542.33	\$597.92	\$659.20	\$726.77
Barber & Beauty Salons	\$558.63	\$615.89	\$679.02	\$748.62	\$825.35
Department Stores, Retail Stores, General Commercial	\$528.17	\$582.31	\$641.99	\$707.80	\$780.35
Warehouse	\$528.17	\$582.31	\$641.99	\$707.80	\$780.35
Hospitals & Convalescent Homes	\$540.34	\$595.73	\$656.79	\$724.11	\$798.33
Laundromats	\$515.75	\$568.62	\$626.90	\$691.16	\$762.00
Nurseries	\$683.25	\$753.29	\$830.50	\$915.63	\$1,009.48
Hotels/Motels w/o Dining	\$563.35	\$621.09	\$684.76	\$754.94	\$832.32
Auto Repair/Sales Shops & Service Stations	\$576.72	\$635.83	\$701.00	\$772.86	\$852.07
Shopping Centers	\$603.82	\$665.71	\$733.94	\$809.17	\$892.11
Bar w/o Dining	\$606.42	\$668.58	\$737.11	\$812.66	\$895.96
Commercial Laundry	\$642.38	\$708.23	\$780.82	\$860.86	\$949.09
Movie Theater	\$595.80	\$656.87	\$724.20	\$798.44	\$880.27
Lumber Yards	\$720.70	\$794.57	\$876.02	\$965.81	\$1,064.80
Convenience & Liquor Stores w/Deli	\$671.55	\$740.38	\$816.27	\$899.93	\$992.18
Industrial Laundry	\$968.68	\$1,067.97	\$1,177.44	\$1,298.13	\$1,431.19
Hotel w/ Restaurant	\$778.64	\$858.45	\$946.44	\$1,043.45	\$1,150.41
Auto Steam Cleaning	\$930.99	\$1,026.42	\$1,131.63	\$1,247.62	\$1,375.50
Bakery or Bakery/Deli	\$903.71	\$996.34	\$1,098.47	\$1,211.06	\$1,335.19
Restaurant & Bar w/Food	\$903.71	\$996.34	\$1,098.47	\$1,211.06	\$1,335.19
Food Stores	\$911.07	\$1,004.45	\$1,107.41	\$1,220.92	\$1,346.06
Mortuary	\$911.07	\$1,004.45	\$1,107.41	\$1,220.92	\$1,346.06
Places of Worship	\$507.11	\$559.09	\$616.40	\$679.58	\$749.24
Schools	\$507.11	\$559.09	\$616.40	\$679.58	\$749.24
Membership Organizations	\$507.11	\$559.09	\$616.40	\$679.58	\$749.24
Restaurants w/ Waste Separation	\$672.36	\$741.28	\$817.26	\$901.03	\$993.38
Mobile Homes	\$569.27	\$627.62	\$691.95	\$762.87	\$841.07

2.0 Introduction

This study takes a long-range planning approach to establish sewer service charges and fees. To that end, the study examines the revenues generated by the District and makes recommendations for revenue adjustments, as needed. The analysis contained herein include operation and maintenance costs, City of San Diego Metropolitan Wastewater System treatment costs, local treatment costs, and identified and prioritized capital improvement projects. A detailed discussion of the long-range plan and recommended sewer charge and fee adjustments is included in the following sections.

2.1 Background

The District provides wastewater service to approximately 37,000 customers within the unincorporated area of San Diego County. It owns and operates approximately 432 miles of pipeline, 8,200 maintenance holes, 8 lift stations/pressurized mains, and 3 wastewater treatment plants. The collection, treatment, and disposal of wastewater in an environmentally safe and efficient manner promotes healthy communities and increases residents' quality of life.

The District is composed of eight (8) Sewer Service Areas (SSA) that operate as one. It is responsible for collecting and conveying wastewater flows originating within the SSAs of Alpine, East Otay Mesa, Lakeside, Spring Valley, and Winter Gardens to the City of San Diego's Point Loma Treatment Plant for treatment and disposal. These service areas depend on the City of San Diego's Metropolitan Wastewater System to treat their wastewater effluent. Local, District-owned wastewater facilities handle the treatment and disposal of wastewater flows originating within the service areas of Campo, Julian, and Pine Valley.

The District's primary goals are operating the wastewater system safely and efficiently while meeting the needs of its customers. The District undertakes routine cleaning, inspections, and repairs and rehabilitates and replaces its facilities as needed to meet these goals. The wastewater system operates in an area subject to strict regulatory oversight by Federal and State agencies such as the U.S. Environmental Protection Agency (USEPA) and the California State Water Resources Control Board (SWRCB). The District must comply with many laws, including, but not limited to, State Wastewater Discharge Requirements (WDR). Complying with these regulations and resulting mandates contributes to a large share of the cost burden on the District system.

2.2 Scope of Work

The District retained Black & Veatch to complete a sanitation cost of service study. Presented herein are the results of a study of the District's projected revenues, revenue requirements, cost of service, and rates for service.

For purposes of this report, the study period is the fiscal years beginning July 1, 2023, and ending June 30, 2028. Unless otherwise noted, references in this report to a specific year are for the District's year beginning July 1 and ending June 30.

The long-term financial plan for the District uses study period revenue and expense projections based on a review of historical factors and the District's operating and capital budgets and financial policies. The study of revenue requirements recognizes projected operation and maintenance expenses, establishment and maintenance of proposed reserve funds, and capital financing requirements. Capital

financing requirements include capital improvement expenditures met from annual revenues and available reserve funds.

The District's costs of service were allocated to customer categories utilizing a cost-causative approach endorsed by WEF rate-setting manual *Financing and Charges for Wastewater Systems, Manual of Practice 27*. The allocation methodology produced cost of service allocations recognizing the projected customer service requirements for the District. The design of proposed rates is in accordance with the allocated cost of service and local policy considerations, such as reserve funding levels. Additionally, this study evaluates the extent to which the existing rate structure recovers revenues from customer categories in accordance with the cost-of-service allocations.

2.3 Disclaimer

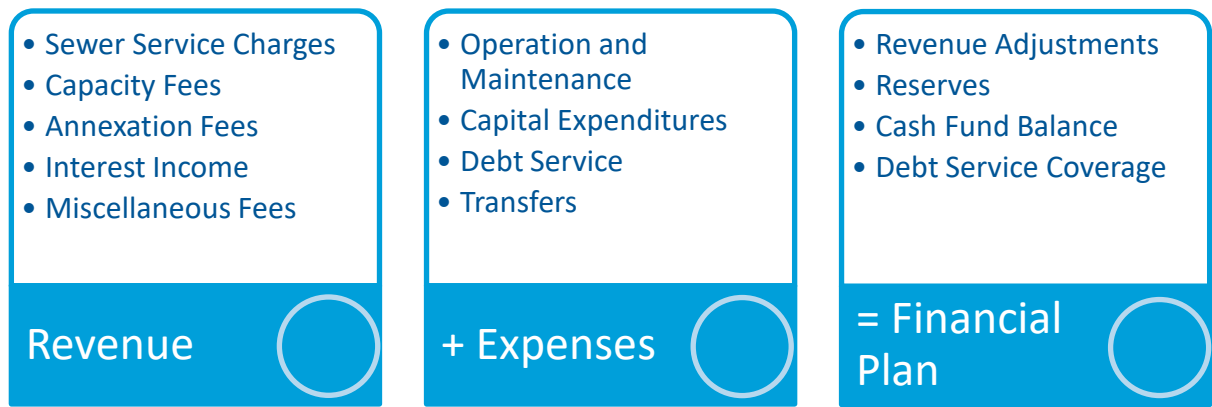
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3.0 Revenue and Revenue Requirements

The District provides wastewater collection and treatment services to its residential and non-residential customer categories. As noted in Figure 3-1, to meet the costs associated with providing wastewater services to its customers, the District derives revenue from a variety of sources, including sewer service charges, capacity and annexation fees (one-time fees collected at the time of system connection to use capacity in the existing treatment and collection facilities), interest earned from the investment of available funds, and other miscellaneous revenues. The level of future revenue generated in the study is projected by analyzing future system growth in terms of the number of equivalent dwelling units (EDUs) and sewage volume. An EDU is defined as a unit of measure based on the flow of an average single-family residence in terms of wastewater quantity and constituent quality.

Figure 3-1 Financial Plan



With revenue derived from the various sources, the District funds the cash requirements of O&M; reserve levels set forth in the County’s Reserve Policy, Number I-99; and recurring annual capital expenditures for replacements, system betterments, and extensions. O&M expenses are those expenditures necessary to maintain the system in good working order. Capital expenditures consist of recurring routine annual rehabilitation and replacements as well as major capital projects for larger infrastructure. Currently, the District cash finances all capital expenditures, meaning that no expenses are financed with debt or grant monies. As noted in the Executive Summary, current and projected system revenues at the current rate and fee levels are not enough to meet District expenses over the study period.

3.1 Customer Projections

To bill its customers, the District uses residential and non-residential EDUs. An EDU represents a typical single-family residential household that discharges roughly 240 gallons per day (gpd) of sewage volume with a Biochemical Oxygen Demand (BOD) strength of 220 milligrams per liter (mg/L) and Total Suspended Solids (TSS) of 220 mg/L. All single-family residential accounts are assigned one EDU, while all multi-family residential accounts are 80% of an EDU or 0.8 EDU. Residential accounts are assigned baseline EDUs because

Equivalent Dwelling Unit

THE AVERAGE SINGLE-FAMILY RESIDENCE FLOW IS ESTIMATED AT 240 GPD WITH BIOCHEMICAL OXYGEN DEMAND STRENGTH OF 220 MG/L AND TOTAL SUSPENDED SOLID STRENGTH OF 220 MG/L.

residential categories' effluent flow and concentration qualities are homogenous from one dwelling unit to another. For non-residential customers, EDUs are calculated based on either measured water consumption provided to the District by the respective water purveyor or standard factors specified in the District Use Ordinance. Non-residential customers have a wider variety of effluent flow and concentration qualities than residential and therefore comprise a wider range of EDU assignments.

The District uses EDUs based on assigned capacity in the sewer system (termed “Ordinance EDU”) and on estimated volume discharged to the sewer system (termed “Volume EDU”). An Ordinance EDU is an assigned EDU based on the total capacity that a customer can contribute to the wastewater system based on characteristics of the customer category. For example, a new single-family residential customer is assigned one Ordinance EDU based on the premise that it will discharge sewage volume on average about 240 gpd. Non-residential customers are initially assigned Ordinance EDUs based on calculated wastewater capacity using the type of business, square footage, and the number of plumbing fixtures. A Volume EDU uses measured contributed sewage volume generated from water consumption data. Volume EDUs are assigned to non-residential customers as water purveyors provide the District with water usage data for these customers yearly. Refer to the District’s Sewer Use Ordinance Articles 5.3 and 5.4.

Ordinance EDU
TOTAL CAPACITY CONTRIBUTED BASED ON CUSTOMER CATEGORY CHARATCTERISTICS
Volume EDU
MEASURED CONTRIBUTED SEWAGE FLOW USING WATER CONSUMPTION DATA

To forecast revenue, the number of Ordinance and Volume EDUs and billed sewage volume need to be forecasted for the District’s service areas. Table 3-1 shows the projected Ordinance EDUs, and Table 3-2 shows the projected Volume EDUs. Based on historical growth trends in the SSAs, District planning staff estimate that customer connection growth will increase at a total rate of 1.2% to 1.3% over the study period. Growth in the SSA’s has been low and steady over the past years.

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Table 3-1 Projection of Ordinance EDUs

Line No.	Description	Fiscal Year Ending June 30,				
		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
		(EDUs)	(EDUs)	(EDUs)	(EDUs)	(EDUs)
	Ordinance EDUs					
1	Single-family Residential	35,183	35,211	35,239	35,267	35,296
2	Multi-family Residential	9,073	9,118	9,164	9,209	9,255
3	Car Wash	279	283	287	292	296
4	Barber & Beauty Salons	92	93	94	96	97
5	Department Stores, Retail Stores, General Commercial	2,806	2,848	2,891	2,934	2,978
6	Warehouse	113	115	116	118	120
7	Hospitals & Convalescent Homes	920	920	920	920	920
8	Laundromats	116	118	119	121	123
9	Nurseries	0	0	0	0	0
10	Hotels/Motels w/o Dining	93	94	96	97	98
11	Auto Repair/Sales Shops & Service Stations	357	362	368	373	379
12	Shopping Centers	5	5	5	5	5
13	Bar w/o Dining	34	34	35	35	36
14	Commercial Laundry	17	17	17	18	18
15	Movie Theater	10	10	11	11	11
16	Lumber Yards	1	1	1	1	1
17	Convenience & Liquor Stores w/Deli	133	137	142	147	152
18	Industrial Laundry	0	0	0	0	0
19	Hotel w/ Restaurant	5	5	5	5	5
20	Auto Steam Cleaning	0	0	0	0	0
21	Bakery or Bakery/Deli	21	21	22	23	24
22	Restaurant & Bar w/Food	982	1,017	1,052	1,089	1,127
23	Food Stores	156	158	160	163	165
24	Mortuary	4	4	4	4	4
25	Places of Worship	327	327	327	327	327
26	Schools	628	628	628	628	628
27	Membership Organizations	19	19	19	19	19
28	Restaurants w/ Waste Separation	24	25	26	27	28
29	Mobile Homes	3,400	3,400	3,400	3,400	3,400
30	Total	54,794	54,970	55,148	55,328	55,512

Table 3-2 Projection of Volume EDUs

Line No.	Description	Fiscal Year Ending June 30,				
		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
		(EDUs)	(EDUs)	(EDUs)	(EDUs)	(EDUs)
Flow EDUs						
1	Single-family Residential	34,901	34,928	34,956	34,984	35,012
2	Multi-family Residential	8,888	8,933	8,977	9,022	9,067
3	Car Wash	269	273	277	281	285
4	Barber & Beauty Salons	63	64	65	66	67
5	Department Stores, Retail Stores, General Commercial	2,492	2,529	2,567	2,606	2,645
6	Warehouse	112	113	115	117	119
7	Hospitals & Convalescent Homes	858	858	858	858	858
8	Laundromats	110	112	114	115	117
9	Nurseries	0	0	0	0	0
10	Hotels/Motels w/o Dining	93	94	96	97	98
11	Auto Repair/Sales Shops & Service Stations	315	320	325	330	334
12	Shopping Centers	5	5	5	5	5
13	Bar w/o Dining	24	24	25	25	25
14	Commercial Laundry	11	11	11	12	12
15	Movie Theater	10	10	10	11	11
16	Lumber Yards	1	1	1	1	1
17	Convenience & Liquor Stores w/Deli	110	114	118	122	127
18	Industrial Laundry	0	0	0	0	0
19	Hotel w/ Restaurant	4	4	4	4	4
20	Auto Steam Cleaning	0	0	0	0	0
21	Bakery or Bakery/Deli	15	15	16	16	17
22	Restaurant & Bar w/Food	783	810	838	868	898
23	Food Stores	144	147	149	151	153
24	Mortuary	4	4	4	4	4
25	Places of Worship	310	310	310	310	310
26	Schools	615	615	615	615	615
27	Membership Organizations	17	17	17	17	17
28	Restaurants w/ Waste Separation	21	21	22	23	24
29	Mobile Homes	3,400	3,400	3,400	3,400	3,400
30	Total	53,574	53,733	53,895	54,059	54,226

In comparing the results of Table 3-1 to Table 3-2, the number of Volume EDUs is less than Ordinance EDUs because the Ordinance EDU count is based on the wastewater system's designed ability to handle a certain amount of contributed volume. In contrast, the Volume EDU count is based on actual measured volume plus typical flow amounts for residential customers. The application of Volume and Ordinance EDUs is more fully explained in the Cost-of-Service Allocation section of this report.

3.1.1 Customer Flows

The amount of sewage flow is estimated based on 240 gpd usage per EDU for each customer category. For residential and non-residential customers Volume EDUs are utilized. In addition, sewage flow incorporates contributed infiltration and inflow (I/I) of water into the wastewater system of roughly 5% based on typical I/I experienced in the area. I/I, while not generated by customers, is a real cost to the District as this additional flow is collected and transported through the District's collection system and treated at the wastewater treatment plant. I/I is distributed to the customer categories based on sewage contribution to help ensure each category pays its proportionate share of I/I treatment costs. Projection of contributed flow is represented in Table 3-3.

Table 3-3 Projection of Contributed Flow in Million Gallons

Line No.	Description	Fiscal Year Ending June 30,				
		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
		(MG)	(MG)	(MG)	(MG)	(MG)
Billed Volume (MG)						
1	Single-family Residential	3,057.3	3,059.7	3,062.2	3,064.6	3,067.1
2	Multi-family Residential	778.6	782.5	786.4	790.4	794.3
3	Car Wash	23.6	23.9	24.3	24.6	25.0
4	Barber & Beauty Salons	5.5	5.6	5.7	5.8	5.9
5	Department Stores, Retail Stores, General Commercial	218.3	221.6	224.9	228.3	231.7
6	Warehouse	9.8	9.9	10.1	10.2	10.4
7	Hospitals & Convalescent Homes	75.2	75.2	75.2	75.2	75.2
8	Laundromats	9.7	9.8	10.0	10.1	10.3
9	Nurseries	0	0	0	0	0
10	Hotels/Motels w/o Dining	8.1	8.2	8.4	8.5	8.6
11	Auto Repair/Sales Shops & Service Stations	27.6	28.0	28.4	28.9	29.3
12	Shopping Centers	0.4	0.4	0.4	0.4	0.4
13	Bar w/o Dining	2.1	2.1	2.2	2.2	2.2
14	Commercial Laundry	1.0	1.0	1.0	1.0	1.0
15	Movie Theater	0.9	0.9	0.9	0.9	0.9
16	Lumber Yards	0.1	0.1	0.1	0.1	0.1
17	Convenience & Liquor Stores w/Deli	9.7	10.0	10.4	10.7	11.1
18	Industrial Laundry	0	0	0	0	0
19	Hotel w/ Restaurant	0.4	0.4	0.4	0.4	0.4
20	Auto Steam Cleaning	0	0	0	0	0
21	Bakery or Bakery/Deli	1.3	1.3	1.4	1.4	1.5
22	Restaurant & Bar w/Food	68.6	71.0	73.4	76.0	78.7
23	Food Stores	12.6	12.8	13.0	13.2	13.4
24	Mortuary	0.3	0.3	0.4	0.4	0.4
25	Places of Worship	27.2	27.2	27.2	27.2	27.2
26	Schools	53.9	53.9	53.9	53.9	53.9
27	Membership Organizations	1.5	1.5	1.5	1.5	1.5
28	Restaurants w/ Waste Separation	1.8	1.9	1.9	2.0	2.1
29	Mobile Homes	297.8	297.8	297.8	297.8	297.8
30	Total	4,693.1	4,707.0	4,721.2	4,735.6	4,750.2

3.1.2 Customer Strengths

The level of pollutant loading in the influent stream is an important consideration in operating a wastewater treatment facility. Table 3-4 summarizes the level of BOD and TSS loadings in pounds (lbs) for each customer category. The strength loadings use a combination of measured readings (data from the City of San Diego Metro Wastewater System) and standard reference materials.

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Table 3-4 Projection of Pollutant Loadings in Pounds

Line No.	Description	Fiscal Year Ending June 30,				
		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
		(Lbs)	(Lbs)	(Lbs)	(Lbs)	(Lbs)
Billed BOD Loadings (lbs)						
1	Single-family Residential	5,609,500	5,614,000	5,618,500	5,623,000	5,627,500
2	Multi-family Residential	1,428,600	1,435,800	1,442,900	1,450,100	1,457,400
3	Car Wash	3,900	4,000	4,000	4,100	4,200
4	Barber & Beauty Salons	6,900	7,000	7,100	7,200	7,300
5	Department Stores, Retail Stores, General Commercial	273,100	277,200	281,300	285,600	289,800
6	Warehouse	12,300	12,400	12,600	12,800	13,000
7	Hospitals & Convalescent Homes	156,700	156,700	156,700	156,700	156,700
8	Laundromats	12,100	12,300	12,500	12,700	12,800
9	Nurseries	0	0	0	0	0
10	Hotels/Motels w/o Dining	21,000	21,300	21,600	22,000	22,300
11	Auto Repair/Sales Shops & Service Stations	41,400	42,100	42,700	43,300	44,000
12	Shopping Centers	1,000	1,000	1,100	1,100	1,100
13	Bar w/o Dining	5,200	5,300	5,400	5,500	5,600
14	Commercial Laundry	3,600	3,700	3,800	3,800	3,900
15	Movie Theater	2,200	2,200	2,300	2,300	2,300
16	Lumber Yards	400	400	400	400	400
17	Convenience & Liquor Stores w/Deli	40,300	41,700	43,200	44,700	46,300
18	Industrial Laundry	0	0	0	0	0
19	Hotel w/ Restaurant	1,500	1,500	1,500	1,600	1,600
20	Auto Steam Cleaning	0	0	0	0	0
21	Bakery or Bakery/Deli	10,600	11,000	11,300	11,700	12,100
22	Restaurant & Bar w/Food	571,800	591,800	612,500	633,900	656,100
23	Food Stores	84,400	85,600	86,900	88,200	89,500
24	Mortuary	2,300	2,300	2,400	2,400	2,400
25	Places of Worship	29,500	29,500	29,500	29,500	29,500
26	Schools	58,400	58,400	58,400	58,400	58,400
27	Membership Organizations	1,600	1,600	1,600	1,600	1,600
28	Restaurants w/ Waste Separation	7,500	7,800	8,100	8,300	8,600
29	Mobile Homes	546,500	546,500	546,500	546,500	546,500
30	Total	8,932,300	8,973,100	9,014,800	9,057,400	9,100,900

Table 3-4 Projection of Pollutant Loadings in Pounds (cont'd.)

Line No.	Description	Fiscal Year Ending June 30,				
		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
		(Lbs)	(Lbs)	(Lbs)	(Lbs)	(Lbs)
Billed TSS Loadings (lbs)						
1	Single-family Residential	5,609,500	5,614,000	5,618,500	5,623,000	5,627,500
2	Multi-family Residential	1,428,600	1,435,800	1,442,900	1,450,100	1,457,400
3	Car Wash	29,500	29,900	30,400	30,800	31,300
4	Barber & Beauty Salons	11,500	11,700	11,900	12,000	12,200
5	Department Stores, Retail Stores, General Commercial	273,100	277,200	281,300	285,600	289,800
6	Warehouse	12,300	12,400	12,600	12,800	13,000
7	Hospitals & Convalescent Homes	62,700	62,700	62,700	62,700	62,700
8	Laundromats	8,900	9,000	9,100	9,300	9,400
9	Nurseries	0	0	0	0	0
10	Hotels/Motels w/o Dining	8,100	8,300	8,400	8,500	8,600
11	Auto Repair/Sales Shops & Service Stations	64,500	65,400	66,400	67,400	68,400
12	Shopping Centers	800	800	800	800	800
13	Bar w/o Dining	4,700	4,800	4,900	4,900	5,000
14	Commercial Laundry	1,900	2,000	2,000	2,000	2,100
15	Movie Theater	1,800	1,800	1,800	1,800	1,900
16	Lumber Yards	400	400	400	400	400
17	Convenience & Liquor Stores w/Deli	24,200	25,000	25,900	26,800	27,800
18	Industrial Laundry	0	0	0	0	0
19	Hotel w/ Restaurant	1,800	1,800	1,900	1,900	1,900
20	Auto Steam Cleaning	0	0	0	0	0
21	Bakery or Bakery/Deli	6,400	6,600	6,800	7,000	7,300
22	Restaurant & Bar w/Food	343,100	355,100	367,500	380,400	393,700
23	Food Stores	84,400	85,600	86,900	88,200	89,500
24	Mortuary	2,300	2,300	2,400	2,400	2,400
25	Places of Worship	22,700	22,700	22,700	22,700	22,700
26	Schools	44,900	44,900	44,900	44,900	44,900
27	Membership Organizations	1,200	1,200	1,200	1,200	1,200
28	Restaurants w/ Waste Separation	4,500	4,700	4,800	5,000	5,200
29	Mobile Homes	546,500	546,500	546,500	546,500	546,500
30	Total	8,600,300	8,632,600	8,665,600	8,699,100	8,733,600

3.2 Revenue Under Existing Rates

The primary source of revenue for the District is derived from sewer service user charges. The sewer service charge is comprised of two components, a capacity charge and a treatment charge. The capacity charge is based on the number of Ordinance EDUs and the treatment charge uses the number of Volume EDUs for calculation purposes. The formula below captures how the District determines the total revenue from each element of the service charge for all customer categories.

$$\text{Revenue under Existing Rates} = \sum (\text{Number of Ordinance or Volume EDUs}) \times \$/\text{EDU}$$

The capacity charge is the charge for District costs associated with wastewater collection. In contrast, the treatment charge is associated with costs for treatment and disposal of the wastewater. The capacity charge is uniform for all customer categories as it does not distinguish between customer categories. The treatment charge varies between each customer category based on each category's volume and strength factors. The logic in using strength data is that each customer contributes different factors to the treatment system. Thus, the system is designed and operated to handle these volumes and loadings. Customer categories that contribute higher strength volumes generate more operating and maintenance costs.

The current sewer rates for each customer category are shown in Table 3-5.

Table 3-5 Existing Wastewater Rates for FY 2023

Description	Capacity Charge	Treatment Charge	Total Charge
	(\$/EDU/year)	(\$/EDU/year)	(\$/EDU/year)
Customer Category			
Single-family Residential	\$250.72	\$266.23	\$516.95
Multi-family Residential	\$250.72	\$266.23	\$516.95
Car Wash	\$250.72	\$187.29	\$438.01
Barber & Beauty Salons	\$250.72	\$256.18	\$506.90
Department Stores, Retail Stores, General Commercial	\$250.72	\$223.93	\$474.65
Warehouse	\$250.72	\$223.93	\$474.65
Hospitals & Convalescent Homes	\$250.72	\$235.99	\$486.71
Laundromats	\$250.72	\$211.04	\$461.76
Nurseries	\$250.72	\$331.77	\$582.49
Hotels/Motels w/o Dining	\$250.72	\$259.34	\$510.06
Auto Repair/Sales Shops & Service Stations	\$250.72	\$274.30	\$525.02
Shopping Centers	\$250.72	\$295.12	\$545.84
Bar w/o Dining	\$250.72	\$304.91	\$555.63
Commercial Laundry	\$250.72	\$337.46	\$588.18
Movie Theater	\$250.72	\$295.32	\$546.04
Lumber Yards	\$250.72	\$384.75	\$635.47
Convenience & Liquor Stores w/Deli	\$250.72	\$370.92	\$621.64
Industrial Laundry	\$250.72	\$590.67	\$841.39
Hotel w/ Restaurant	\$250.72	\$467.56	\$718.28
Auto Steam Cleaning	\$250.72	\$556.48	\$807.20
Bakery or Bakery/Deli	\$250.72	\$608.57	\$859.29
Restaurant & Bar w/Food	\$250.72	\$608.57	\$859.29
Food Stores	\$250.72	\$616.66	\$867.38
Mortuary	\$250.72	\$616.66	\$867.38
Places of Worship	\$250.72	\$202.17	\$452.89
Schools	\$250.72	\$202.17	\$452.89
Membership Organizations	\$250.72	\$202.17	\$452.89
Restaurants w/ Waste Separation	\$250.72	\$402.49	\$653.21
Mobile Homes	\$250.72	\$266.23	\$516.95

Table 3-6 summarizes sewer service charge revenue, which is the sum of multiplying the existing capacity charge rates with the Ordinance EDUs and multiplying the existing treatment charge rates with the Volume EDUs for each customer category. The projected wastewater revenue, at existing rates, increases from \$28.1M in FY 23/24 to \$28.5M in FY 27/28 due to projected growth in customer accounts.

Table 3-6 Summary of Service Charge Revenues

Line No.	Description	Fiscal Year Ending June 30,				
		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
		(\$)	(\$)	(\$)	(\$)	(\$)
Customer Category						
1	Single-family Residential	18,112,600	18,127,100	18,141,600	18,156,100	18,170,700
2	Multi-family Residential	4,641,000	4,664,200	4,687,500	4,711,000	4,734,500
3	Car Wash	120,300	122,100	123,900	125,800	127,700
4	Barber & Beauty Salons	39,100	39,700	40,300	40,900	41,500
5	Department Stores, Retail Stores, General Commercial	1,261,500	1,280,400	1,299,600	1,319,100	1,338,900
6	Warehouse	53,300	54,100	54,900	55,800	56,600
7	Hospitals & Convalescent Homes	433,000	433,000	433,000	433,000	433,000
8	Laundromats	52,300	53,100	53,900	54,700	55,500
9	Nurseries	0	0	0	0	0
10	Hotels/Motels w/o Dining	47,300	48,000	48,700	49,500	50,200
11	Auto Repair/Sales Shops & Service Stations	175,900	178,600	181,200	184,000	186,700
12	Shopping Centers	2,500	2,500	2,600	2,600	2,600
13	Bar w/o Dining	15,800	16,000	16,200	16,500	16,700
14	Commercial Laundry	8,000	8,100	8,200	8,300	8,500
15	Movie Theater	5,600	5,600	5,700	5,800	5,900
16	Lumber Yards	800	800	800	800	800
17	Convenience & Liquor Stores w/Deli	74,300	76,900	79,600	82,300	85,200
18	Industrial Laundry	0	0	0	0	0
19	Hotel w/ Restaurant	3,200	3,200	3,300	3,300	3,400
20	Auto Steam Cleaning	0	0	0	0	0
21	Bakery or Bakery/Deli	14,000	14,500	15,000	15,500	16,100
22	Restaurant & Bar w/Food	722,600	747,800	774,000	801,100	829,100
23	Food Stores	128,000	130,000	131,900	133,900	135,900
24	Mortuary	3,400	3,500	3,500	3,600	3,600
25	Places of Worship	144,600	144,600	144,600	144,600	144,600
26	Schools	281,700	281,700	281,700	281,700	281,700
27	Membership Organizations	8,200	8,200	8,200	8,200	8,200
28	Restaurants w/ Waste Separation	14,300	14,900	15,400	15,900	16,500
29	Mobile Homes	1,757,600	1,757,600	1,757,600	1,757,600	1,757,600
30	Total	\$28,120,900	\$28,216,200	\$28,312,900	\$28,411,600	\$28,511,700

3.3 Other Miscellaneous Revenue

In addition to revenue from sewer service charges, the District obtains revenue from other operating sources. Other revenue sources include rents and concessions, services to property owners, contributions from other government agencies, interest earned from the investment of available funds, and other miscellaneous revenues. In total, these revenues represent on average about 3.3% of total wastewater revenues. It is anticipated that these revenues will remain relatively constant for the duration of the study period.

3.4 Operation and Maintenance Projections

Shown in Table 3-7 are the District's projected O&M expenditures. These expenditures include personnel, contract services, operating supplies, utilities, and general administrative costs. The forecasted expenditures reflect the projected operational needs of the utility and anticipated expenses. The following provides a brief description of the three largest cost categories:

- **Personnel:** The District staff provides collection and treatment services to its customers. The District operates and maintains 432 miles of pipelines, 8 pump stations, 8,200 maintenance holes, and 3 local wastewater treatment plants.
- **Treatment:** The District provides treatment services to its customers through the City of San Diego's Metropolitan Wastewater System and local treatment facilities. The Metro system provides

treatment and disposal of wastewater volumes originating within the service areas of Alpine, Lakeside, Spring Valley, Wintergardens, and East Otay Mesa. District-owned wastewater facilities handle the treatment and disposal of wastewater volumes originating within the service areas of Rancho del Campo, Julian, and Pine Valley.

- **Contract Services:** To provide the collection and treatment services, the District uses a range of service providers from third-party contractors and consultants for specialty services.

Expenses are forecast for the 5-year planning period based on the escalation factors shown in Table 3-7, which are consistent with recent increases seen throughout the San Diego area.

Table 3-7 Summary of O&M Expenses

Line No.	Description	Fiscal Year Ending June 30,				
		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
		(\$)	(\$)	(\$)	(\$)	(\$)
Operation and Maintenance						
1	Personnel	11,201,600	11,548,800	11,906,800	12,275,900	12,656,400
2	Maintenance	521,000	542,900	565,700	589,500	614,300
3	Metro Treatment	14,503,800	14,953,400	15,417,000	15,894,900	16,387,600
4	County Treatment	636,300	659,900	684,600	710,300	736,900
5	Contract Services	1,000,000	1,033,000	1,067,000	1,102,200	1,138,600
6	Utilities	209,600	220,300	231,600	243,500	256,000
7	Administrative	136,900	141,200	145,600	150,100	154,800
8	Total	\$28,209,200	\$29,099,500	\$30,018,300	\$30,966,400	\$31,944,600

Escalation Factors

Personnel	4.75%/3.1%	Source: County Labor MOA (FY 24 and FY 25), thereafter Consumer Price Index
Materials & Supplies	3.1%	Source: San Diego-Carlsbad-San Marcos, CA Consumer Price Index - All Urban Consumers (2017-2021)
Treatment (Metro)	3.1%	Source: San Diego-Carlsbad-San Marcos, CPI - All Urban Consumers (2017-2021)
Treatment (County)	1.8%	Source: District historical trend analysis (2017-2021).
Maintenance	4.2%	Source: Engineering News Record, Construction Cost Index National Average (2017-2021)
Contract Services	3.3%	Source: San Diego-Carlsbad-San Marcos, CPI - Services less medical care svcs (2017-2021)
Utilities	6.1%	Source: San Diego-Carlsbad-San Marcos, CPI - Fuels and utilities (2017-2021) Adjusted
Utilities (Power)	7.5%/5.0%	Source: San Diego-Carlsbad-San Marcos, CPI - Fuels and utilities (2017-2021) Adjusted

3.5 Capital Improvement Program

O&M expenses cover day-to-day operations, but the District wastewater system incurs additional capital expenditures to rehabilitate or replace existing and/or build new wastewater facilities. As a result, District staff has developed a long-term Capital Improvement Plan that identifies future wastewater facility needs.

3.5.1 CIP Projects

The CIP shown in Table 3-8 summarizes the planned capital projects during the study period. As part of the analysis, Black & Veatch applied an annual inflation allowance of 4.2% to each year beginning in FY 23/24 based on the 5-year Engineering News Record's historical average for Construction Cost Index (ENR-CCI). This index source is commonly used in the utility industry to project the cost of capital projects in the future. The first five projects in the table are projects that are in the planning and/or design phases and include replacement of existing infrastructure at an increased risk of failure due to degraded structural conditions. The Sewer Rehabilitation and Replacement (R & R) Program consists of

multiple projects to rehabilitate or replace aging infrastructure identified through system-wide inspections conducted between 2019 and 2021. The R & R Program, which will span over 10 years to complete, includes over 60 improvement projects prioritized based on a comprehensive risk assessment that considered both the likelihood and consequence of infrastructure failure. Three CIP options were developed for the study period based on varying levels of funding for the R & R Program with total CIP budgets of \$20.3M, \$25.0M, and \$44.8M over the 5-year period.

The CIP is a constantly evolving program, and District staff review all projects on an annual basis. Consequently, projects may extend out in time or drop off the CIP if they become unnecessary or can be deferred to a later year. Conversely, District staff may add projects as the need arises. Black & Veatch suggests that the reader not construe the projects listed in Table 3-8 as “set in stone” but rather indicative of the nature of projects planned for execution over the study period.

In addition to the District-funded projects shown in Table 3-8, the District anticipates spending over \$22.9M in watershed protection projects. The County General Fund will fund these projects at the discretion of the District’s Board of Directors.

Table 3-8 Summary of Capital Improvement Projects

Line No.	Description	Fiscal Year Ending June 30,				
		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
		(\$)	(\$)	(\$)	(\$)	(\$)
Capital Improvement Program						
1	La Presa Sewer Improvements Phase 2 and 3	2,500,000	3,000,000	3,000,000	3,000,000	0
2	Spring Valley Outfall Sewer Improvements	1,000,000	0	0	0	0
3	La Presa 15-VCP Sewer Line Improvements	1,000,000	0	0	0	0
4	Pine Valley WWTP Aerobic Lagoon Rehabilitation	500,000	0	0	0	0
5	Julian WWTP - Emergency Storage Basin	0	300,000	1,000,000	1,000,000	0
6	Sewer Rehabilitation and Replacement Program - Option 1	0	0	0	0	4,000,000
7	Total - Option 1	\$5,000,000	\$3,300,000	\$4,000,000	\$4,000,000	\$4,000,000
8	Sewer Rehabilitation and Replacement Program - Option 2	0	1,700,000	1,000,000	1,000,000	5,000,000
9	Total - Option 2	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000
10	Sewer Rehabilitation and Replacement Program - Option 3	6,000,000	2,250,000	3,250,000	5,000,000	12,000,000
11	Total - Option 3	\$11,000,000	\$5,550,000	\$7,250,000	\$9,000,000	\$12,000,000

3.5.2 Capital Financing

To finance the CIP, the District proposes to utilize a combination of funds on hand (reserves), capacity fees, annexation fees, and customer sewer service charges. Summarized in Table 3-9 through Table 3-11 are the capital fund financing plan for each option.

The District maintains one fund to finance operating and capital needs. Therefore, while the capital financing plans in Table 3-9 through Table 3-11 appear to have their own sources and uses, the plans are a subset of the operating fund. Based on the proposed CIP, the District proposes financing all capital improvements using customer sewer charge revenues, capacity fees, annexation fees, and cash on hand (reserves). There is no debt financing anticipated.

Table 3-9 Capital Financing – Option 1

Line No.	Description	Fiscal Year Ending June 30,				
		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
Source of Funds						
1	State Revolving Fund Loans	0	0	0	0	0
2	Revenue Bond Proceeds	0	0	0	0	0
3	Transfer In - Operating Fund	5,369,920	3,674,308	4,656,334	4,854,386	5,060,757
	Transfer In - Emergency					
4	Repair Reserve Fund	0	0	0	0	0
5	Grant Funding	0	0	0	0	0
6	Interest Earnings	59,200	59,200	59,200	59,200	59,200
7	Total Sources	\$5,429,120	\$3,733,508	\$4,715,534	\$4,913,586	\$5,119,957
Use of Funds						
8	Capital Improvements Projects	5,428,820	3,733,508	4,715,534	4,913,586	5,119,957
9	Transfers Out	0	0	0	0	0
10	Debt Issuance Expense	0	0	0	0	0
11	Total Uses	\$5,428,820	\$3,733,508	\$4,715,534	\$4,913,586	\$5,119,957
12	Net Annual Cash Balance	300	0	0	0	0
13	Beginning Capital Fund Balance	5,918,500	5,918,800	5,918,800	5,918,800	5,918,800
14	Net Cumulative Capital Fund Balance	5,918,800	5,918,800	5,918,800	5,918,800	5,918,800

Table 3-10 Capital Financing – Option 2

Line No.	Description	Fiscal Year Ending June 30,				
		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
Source of Funds						
1	State Revolving Fund Loans	0	0	0	0	0
2	Revenue Bond Proceeds	0	0	0	0	0
3	Transfer In - Operating Fund	5,369,920	5,597,630	5,835,217	6,082,783	6,340,746
	Transfer In - Emergency					
4	Repair Reserve Fund	0	0	0	0	0
5	Grant Funding	0	0	0	0	0
6	Interest Earnings	59,200	59,200	59,200	59,200	59,200
7	Total Sources	\$5,429,120	\$5,656,830	\$5,894,417	\$6,141,983	\$6,399,946
Use of Funds						
8	Capital Improvements Projects	5,428,820	5,656,830	5,894,417	6,141,983	6,399,946
9	Transfers Out	0	0	0	0	0
10	Debt Issuance Expense	0	0	0	0	0
11	Total Uses	\$5,428,820	\$5,656,830	\$5,894,417	\$6,141,983	\$6,399,946
12	Net Annual Cash Balance	300	0	0	0	0
13	Beginning Capital Fund Balance	5,918,500	5,918,800	5,918,800	5,918,800	5,918,800
14	Net Cumulative Capital Fund Balance	5,918,800	5,918,800	5,918,800	5,918,800	5,918,800

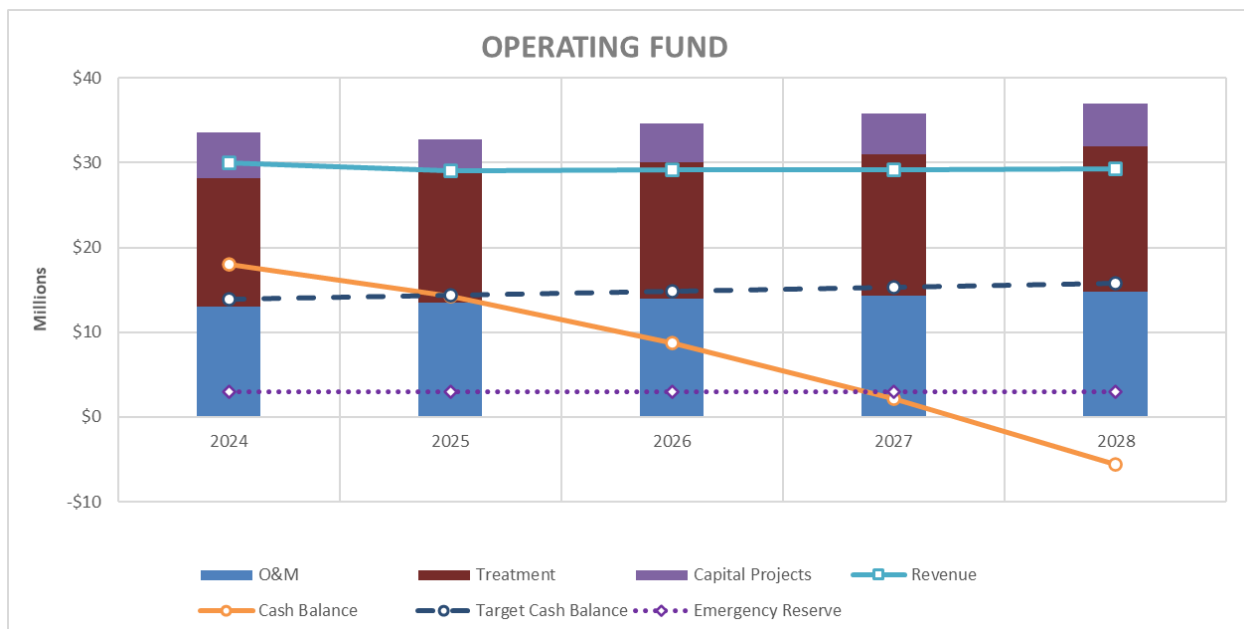
Table 3-11 Capital Financing – Option 3

Line No.	Description	Fiscal Year Ending June 30,				
		FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
Source of Funds						
1	State Revolving Fund Loans	0	0	0	0	0
2	Revenue Bond Proceeds	0	0	0	0	0
3	Transfer In - Operating Fund	11,884,504	6,219,882	8,487,705	10,996,369	15,300,671
	Transfer In - Emergency					
4	Repair Reserve Fund	0	0	0	0	0
5	Grant Funding	0	0	0	0	0
6	Interest Earnings	59,200	59,200	59,200	59,200	59,200
7	Total Sources	\$11,943,704	\$6,279,082	\$8,546,905	\$11,055,569	\$15,359,871
Use of Funds						
8	Capital Improvements Projects	11,943,404	6,279,082	8,546,905	11,055,569	15,359,871
9	Transfers Out	0	0	0	0	0
10	Debt Issuance Expense	0	0	0	0	0
11	Total Uses	\$11,943,404	\$6,279,082	\$8,546,905	\$11,055,569	\$15,359,871
12	Net Annual Cash Balance	300	0	0	0	0
13	Beginning Capital Fund Balance	5,918,500	5,918,800	5,918,800	5,918,800	5,918,800
14	Net Cumulative Capital Fund Balance	5,918,800	5,918,800	5,918,800	5,918,800	5,918,800

3.6 Operating Results

The operating fund is designed to cover day-to-day expenses, debt service requirements, and transfers (capital contribution). In the analysis, it was important to identify the state of the District under the status quo scenario where the District does not impose any rate revenue increases over the study period. As shown in Figure 3-2, the status quo condition means that the District will continue to operate at an annual deficit position, thus tapping into its operating fund reserves. Operating in this fashion means that the operating fund will exhaust all operating reserves by FY 27/28 and, therefore, will not have enough funds to cover operating and capital expenses.

Figure 3-2 Projected Operating Cash Flow (Status Quo)



To avoid the deficit position and drawdown of cash reserves below minimum targets starting in FY 24/25, the District determined that the appropriate scenario for rate revenue increases that would meet the revenue requirements and operating reserve requirements would be to implement one of the rate revenue increases shown in Table 3-12. The revenue increases represent the total revenue adjustment needed to meet revenue requirements with varying levels of CIP funding. The revenue adjustments do not necessarily represent the specific adjustment to individual rates.

Table 3-12 Recommended Rate Revenue Adjustments

	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
Revenue Adjustment – Option 1	5.00%	5.00%	5.00%	5.00%	5.00%
Revenue Adjustment – Option 2	5.75%	5.75%	5.75%	5.75%	5.75%
Revenue Adjustment – Option 3	10.25%	10.25%	10.25%	10.25%	10.25%

Table 3-13 through Table 3-15 reflect the proposed operating cash flow under the three plan options. The recommended adjustments incorporate the required revenue increases to meet revenue requirements, capital contributions for capital projects, and bring the District to a positive annual cash flow over the study period.

The operating fund is subdivided into revenue and revenue requirements. On line 1 is the revenue under existing rates, while lines 2 to 7 are the additional revenue generated from the required annual revenue increases indicated in Table 3-12. Lines 9 to 12 represent other revenues, including sewer charges for other services, miscellaneous fees, and interest earned from the investment of available funds. In line 14, the total revenues generated from existing sewer service charges, revenue from increases, and other operating revenue are summarized.

The revenue requirements for O&M and treatment costs are shown on lines 15 and 16. These expenses have been previously discussed. Line 18 represents transfers to the capital fund. Line 20 represents the total revenue requirement that will need to be met through revenue. The net cumulative balance is indicated in line 23.

By County policy, the District strives to maintain a minimum of 50 percent of operating costs (or 180 days of O&M expenses) as an operating reserve balance. While the industry standard is typically 90 days of O&M expenses, the District maintains a larger minimum because the District receives revenues from payment of property taxes. Because the County does not begin to remit collected tax, assessment, and fee revenues until December of the fiscal year, the District must maintain reserves equivalent to six months to cover day-to-day expenses.

Table 3-13 through Table 3-15 present the operating cash flow projections with the proposed sewer service charge adjustments.

Table 3-13 Operating Cash Flow in \$000s – Option 1

Line No.	Description			Fiscal Year Ending June 30, [*]				
				FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
				(000s)	(000s)	(000s)	(000s)	(000s)
Revenue								
Rate Revenue								
1	Revenue from Existing Rates			28,121	28,216	28,313	28,412	28,512
							</	

*Totals may not foot due to rounding

Table 3-14 Operating Cash Flow in \$000s – Option 2

Line No.	Description			Fiscal Year Ending June 30, [*]				
				FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
				(000s)	(000s)	(000s)	(000s)	(000s)
Revenue								
Rate Revenue								
1	Revenue from Existing Rates			28,121	28,216	28,313	28,412	28,512
		Months						
	Year	Effective	Rate Adj					
2	2024	12	5.75%	1,617	1,622	1,628	1,634	1,639
3	2025	12	5.75%		1,716	1,722	1,728	1,734
4	2026	12	5.75%			1,821	1,827	1,833
5	2027	12	5.75%				1,932	1,939
6	2028	12	5.75%					2,050
7	Increased Revenue Due to Adjustments			1,617	3,338	5,170	7,120	9,196
8	Subtotal Rate Revenue			\$29,738	\$31,554	\$33,483	\$35,532	\$37,707
Other Operating Revenue								
9	Other Revenue			82	86	91	96	102
10	Other Miscellaneous Revenue			1,407	410	413	416	419
11	Sanitation Service			200	200	200	200	200
12	Interest Earnings			236	215	197	186	185
13	Subtotal Other Operating Revenue			\$1,924	\$911	\$900	\$898	\$905
14	Total Revenue			\$31,662	\$32,465	\$34,383	\$36,430	\$38,613
Revenue Requirements								
Operating & Maintenance								
15	O&M Expenses (Collection)			13,069	13,486	13,917	14,361	14,820
16	Treatment Costs			15,140	15,613	16,102	16,605	17,125
17	Subtotal O&M			\$28,209	\$29,100	\$30,018	\$30,966	\$31,945
Transfers								
18	Transfer to Capital Fund			5,370	5,598	5,835	6,083	6,341
19	Subtotal Transfers			\$5,370	\$5,598	\$5,835	\$6,083	\$6,341
20	Total Revenue Requirements			\$33,579	\$34,697	\$35,854	\$37,049	\$38,285
21	Net Annual Cash Balance			(1,917)	(2,232)	(1,470)	(619)	327
22	Beginning Fund Balance			21,527	19,610	17,378	15,907	15,288
23	Net Cumulative Fund Balance			\$19,610	\$17,378	\$15,907	\$15,288	\$15,615

*Totals may not foot due to rounding

Table 3-15 Operating Cash Flow in \$000s – Option 3

Line No.	Description			Fiscal Year Ending June 30, [*]				
				FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
				(000s)	(000s)	(000s)	(000s)	(000s)
Revenue								
Rate Revenue								
1	Revenue from Existing Rates			28,121	28,216	28,313	28,412	28,512
	Months							
	Year	Effective	Rate Adj					
2	2024	12	10.25%	2,882	2,892	2,902	2,912	2,922
3	2025	12	10.25%		3,189	3,200	3,211	3,222
4	2026	12	10.25%			3,528	3,540	3,552
5	2027	12	10.25%				3,903	3,916
6	2028	12	10.25%					4,318
7	Increased Revenue Due to Adjustments			2,882	6,081	9,629	13,565	17,931
8	Subtotal Rate Revenue			\$31,003	\$34,297	\$37,942	\$41,977	\$46,443
Other Operating Revenue								
9	Other Revenue			85	94	103	114	126
10	Other Miscellaneous Revenue			1,407	410	413	416	419
11	Sanitation Service			200	200	200	200	200
12	Interest Earnings			209	173	174	180	185
13	Subtotal Other Operating Revenue			\$1,901	\$876	\$890	\$910	\$930
14	Total Revenue			\$32,905	\$35,173	\$38,832	\$42,886	\$47,372
Revenue Requirements								
Operating & Maintenance								
15	O&M Expenses (Collection)			13,069	13,486	13,917	14,361	14,820
16	Treatment Costs			15,140	15,613	16,102	16,605	17,125
17	Subtotal O&M			\$28,209	\$29,100	\$30,018	\$30,966	\$31,945
Transfers								
18	Transfer to Capital Fund			11,885	6,220	8,488	10,996	15,301
19	Subtotal Transfers			\$11,885	\$6,220	\$8,488	\$10,996	\$15,301
20	Total Revenue Requirements			\$40,094	\$35,319	\$38,506	\$41,963	\$47,245
21	Net Annual Cash Balance			(7,189)	(146)	326	924	127
22	Beginning Fund Balance			21,527	14,337	14,191	14,517	15,440
23	Net Cumulative Fund Balance			\$14,337	\$14,191	\$14,517	\$15,440	\$15,567

*Totals may not foot due to rounding

Figure 3-3 Projected Operating Cash Flow with Recommended Sewer Charge Adjustments – Option 1

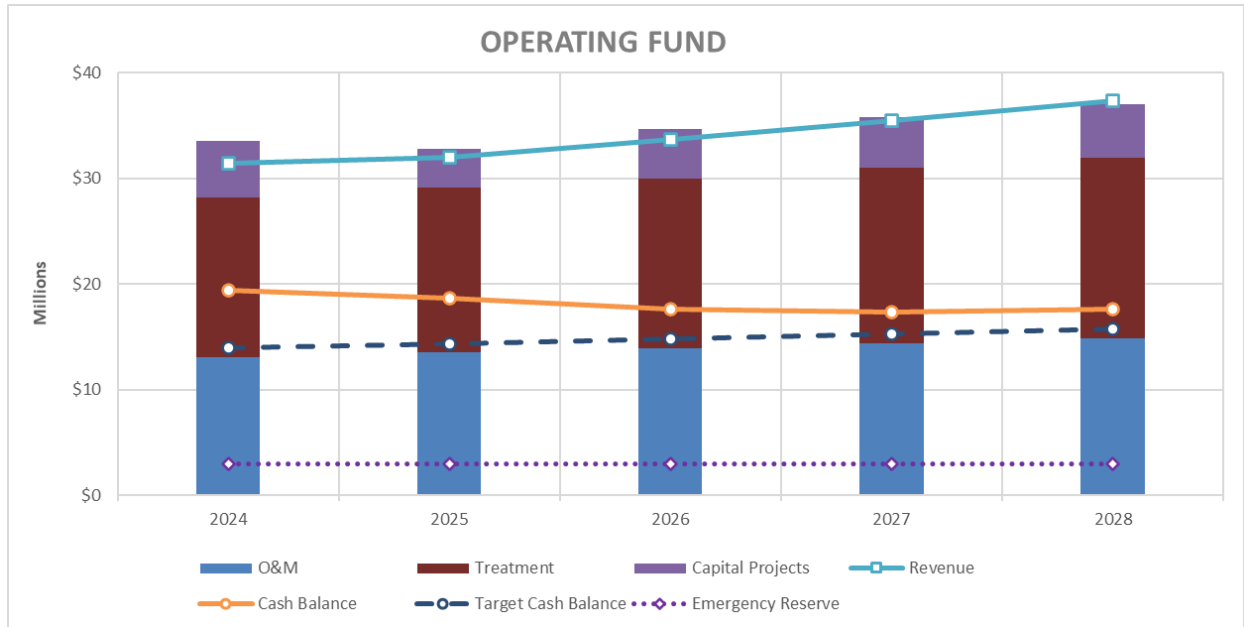


Figure 3-4 Projected Operating Cash Flow with Recommended Sewer Charge Adjustments – Option 2

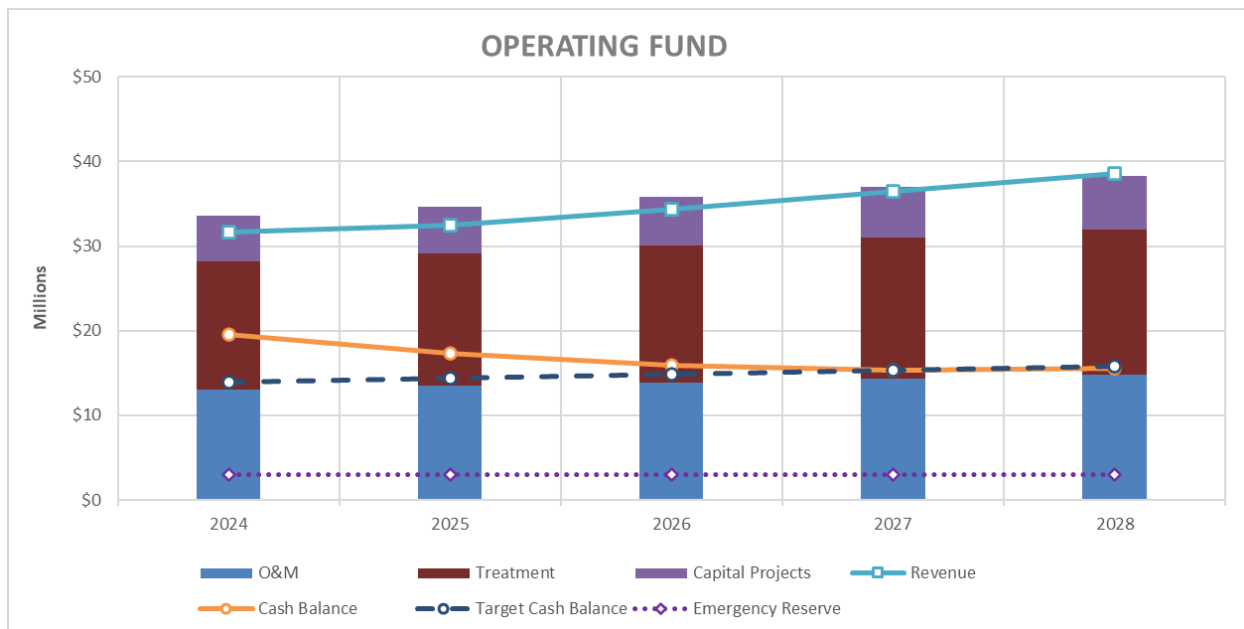
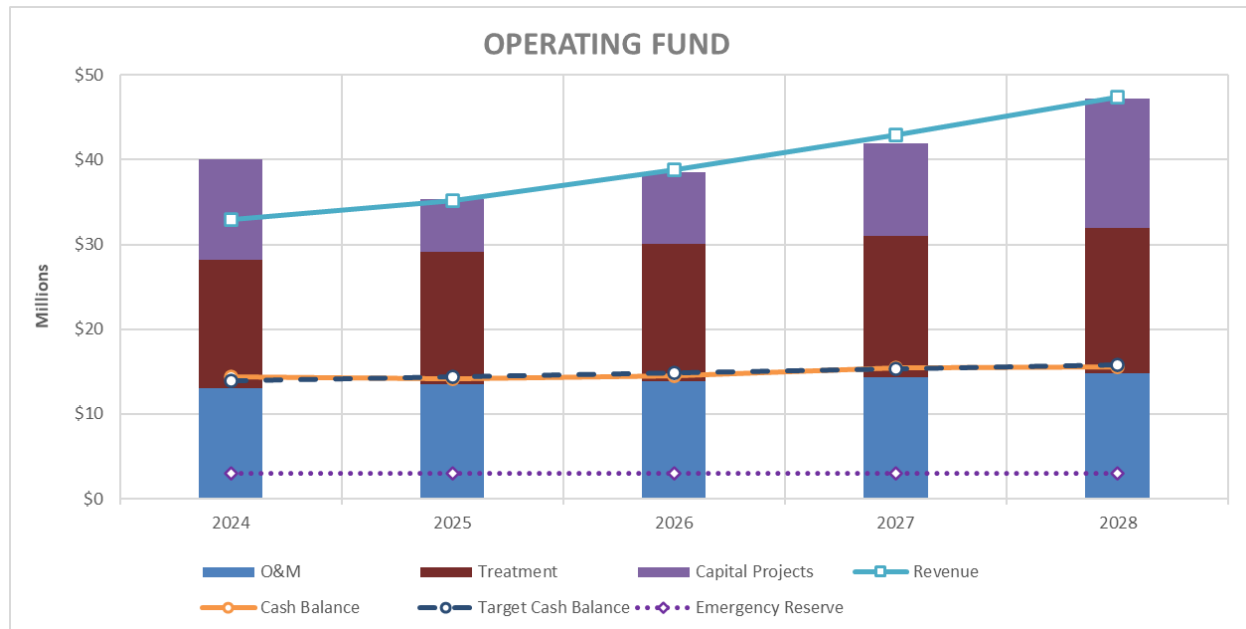


Figure 3-5 Projected Operating Cash Flow with Recommended Sewer Charge Adjustments – Option 3



The District has maintained a healthy reserve with an estimated \$19.4 million starting in FY 23/24, but with increasing O&M costs and planned capital expenditures, the District needs to adjust sewer charges to avoid depleting reserve levels. Therefore, Black & Veatch recommends that the District implement one of the proposed sewer service charge revenue increases. The District should be able to meet its revenue requirements under the assumption that no significant changes occur outside the assumptions maintained in this study.

4.0 Cost of Service

The principle behind a cost-of-service (COS) analysis is to **match** the cost of providing service to customer categories and design rates that equitably recover these costs. The first step in the COS process is to allocate the costs of operating the utility to its customers. In accordance with WEF MOP 27, we use a five-step process to allocate the costs of operating the utility to customers:

1. Select a Test Year
2. Allocate costs to utility functions according to cost-causative parameters
3. Estimate total customer category service requirements for each cost function
4. Divide costs by requirements for each function to get unit costs of service
5. Distribute costs to each customer category based on its share of total requirements for each cost function

The COS to be allocated to the various customer categories consists of the total revenue requirements for FY 23/24, known as the test year, as summarized in Table 4-1. In determining costs of service to be met from sewer service charges only, other operating revenues (such as interest income and rents and concessions) are deducted from total revenue requirements. Not deducting them would result in a larger total revenue amount than would truly be the case, as the revenue adjustment percentages would incorrectly increase these revenue sources.

Table 4-1 Cost of Service to be Recovered from Rates - Test Year 2024 (Option 2 Financial Plan)

Line No.	Description	Operating Expense	Capital Cost	Total Cost
		(\$)	(\$)	(\$)
Revenue Requirements				
1	O&M Expense	13,069,100	0	13,069,100
2	Treatment Costs- Metro	14,503,800	0	14,503,800
3	Treatment Costs- County	636,300	0	636,300
4	Debt Service Requirements		0	0
5	Transfers	0	5,369,900	5,369,900
6	Subtotal	\$28,209,200	\$5,369,900	\$33,579,100
Less Revenue Requirements Met from Other Sources				
7	Other Operating Revenue	1,724,100	200,000	1,924,100
8	Subtotal	\$1,724,100	\$200,000	\$1,924,100
Adjustments				
9	Adjustment for Annual Cash Balance	1,604,000	313,100	1,917,100
10	Adjustment to Annualize Rate Increase	0	0	0
11	Subtotal	\$1,604,000	\$313,100	\$1,917,100
Cost of Service to be Recovered from				
12	Rates	\$24,881,100	\$4,856,800	\$29,737,900

The elements comprising the COS are assigned to the two cost categories of operating expense and capital costs. Operating expenses consist of O&M expenses and other non-capital related costs such as Treatment and reduced by other operating revenue. Capital costs consist of capital improvements financed from annual rate revenues. Capacity and annexation fee transfers reduce capital costs to be recovered by user charges. The level of COS to be met by sewer service charges is also affected by the need to design charges assuming a full year of the indicated revenue increase and potential changes in the use of the operating fund balance.

As shown in Table 4-1, the total test year cost of service to be recovered from rates represents \$29.7M, with net operating expense totaling \$24.9M and capital costs totaling \$4.9M.

4.1 Functional Cost Components

The principles outlined in WEF's MOP 27 recognize that different parts of the wastewater system are designed to address different needs. For example, if the influent flows contain low levels of pollutants, then the level of treatment needed at the plant may be minimal. Conversely, if the wastewater utility is in a heavily industrialized area, the level of treatment may be extensive. As a basis for allocating costs of service among customer categories, costs may be separated into the following three basic functional cost components: (1) "Capacity"; (2) "Volume"; and (3) "Strength".

- Capacity costs represent operating and capital costs associated with collection. The collection costs vary directly with the number of EDUs connected to the system.
- Volume, costs represent operating and capital costs associated with treatment. The treatment costs vary directly with the quantity of sewage volume produced.
- Strength costs represent those operating costs associated with treatment. Strength of sewage volume, measure by biochemical oxygen demand (BOD) and total suspended solids (TSS) concentration, directly affects the energy and cost of wastewater treatment.

4.2 Allocation to Cost Components

Each element of costs, e.g., treatment, collection, pumping, billing, customer services, is allocated to functional cost components based on the parameter(s) having the most significant influence on the magnitude of that cost element. In other words, the capacity affects the costs to operate the collection facilities while the volume and strength affect the costs to operate the treatment facilities.

O&M expense items are allocated directly to appropriate cost components, while capital and replacement costs are based upon a detailed allocation of related capital investment. The separation of costs into functional components provides a means for distributing such costs to the various customers based on their respective demand for each service. The principal guidelines used in the functional cost allocations were:

- Costs related to collection were allocated 100% to capacity based on industry standards.
- Costs related to treatment were allocated to volume, BOD, and TSS based on industry standards.
 - City of San Diego Metro system treatment costs were allocated 47.8% to volume, 24.9% to BOD, and 27.3% to TSS in accordance with charges received from the City of San Diego.

- District costs specifically related to treatment were allocated 50% to volume, 25% to BOD, and 25% to TSS based on industry standards.
- Indirect costs and reserve funding were allocated as “administrative” expenses. Because these administrative expenses are difficult to link to a functional cost component, the percentage allocations are derived based on the allocation percentages of other O&M expenses.

4.2.1 Allocation of Operating and Maintenance Expense

The allocation of O&M expenses is performed by allocating them directly to the appropriate cost components to the extent possible. Where such an allocation is not possible, discussions with staff and a review of allocations used by other similarly sized utilities helped formulate the allocation percentages shown in Table 4-2. Table 4-2 represents the allocation of O&M expenses to the functional cost components. Since the District cannot identify costs by functional cost centers, the major cost components such as personnel, supplies and services, maintenance, contract services, utilities, and administrative were used.

Table 4-2 Allocation of Operation and Maintenance Expense to Functional Cost Components

Line No.	Description	Total Cost	Collection	Treatment		
			Capacity	Flow	BOD	TSS
		(\$)	(\$)	(\$)	(\$)	(\$)
O&M Expenses						
1	Personnel	11,201,600	8,522,700	1,339,500	669,700	669,700
2	Maintenance	521,000	521,000	0	0	0
3	Treatment	15,140,100	0	7,251,000	3,770,500	4,118,600
4	Services and Supplies	1,000,000	1,000,000	0	0	0
5	Utilities	209,600	209,600	0	0	0
6	Admin	136,900	136,900	0	0	0
7	Total O&M Expenses	\$ 28,209,200	\$ 10,390,200	\$ 8,590,500	\$ 4,440,200	\$ 4,788,300
8	Less Other Revenue					
9	Miscellaneous Revenues	1,724,100	606,100	539,000	278,600	300,400
10	Other Adjustments	1,604,000	563,800	501,500	259,200	279,500
11	Net Operating Expenses	\$ 24,881,100	\$ 9,220,300	\$ 7,550,000	\$ 3,902,400	\$ 4,208,400
12	Percent Allocation		37.06%	30.34%	15.68%	16.91%

4.2.2 Allocation of Capital Investments

The allocation of capital investments is performed by allocating them to the appropriate cost components using total existing fixed asset allocations as the basis. As noted by WEF, the underlying assumption is that utilities will reinvest funds into their system in the same areas for which they have fixed assets. In other words, if a utility’s assets reflect 90% collection system and 10% general plant, then the distribution of CIP projects will generally be by 90% collection/10% general plant. This general approach is modified as needed when large, one-time CIP projects are planned.

In this report, the District’s existing fixed assets were reviewed and classified into one of several categories: Collection, treatment (County), Lift Station, and General Plant. The categories are then further split to determine the percentage of asset costs to allocate between the wastewater capacity, volume, BOD, and TSS produced by the system and customer category. Since most of the sewage volume is treated by the City of San Diego, the District maintains minimal treatment fixed assets. Future capital investments are allocated in a similar manner using the existing fixed allocations as a guideline. Table 4-3 represents the allocation of capital to the functional cost components.

Table 4-3 Allocation of Plant Investment to Functional Cost Components

Line No.	Description	Total Cost	Collection	Treatment		
			Capacity	Flow	BOD	TSS
		(\$)	(\$)	(\$)	(\$)	(\$)
District Fixed Assets						
1	Collection	55,251,600	55,251,600	0	0	0
2	Lift Station	16,440,700	16,440,700	0	0	0
3	Treatment	975,800	0	487,800	244,000	244,000
4	General Plant	3,921,300	3,868,600	26,300	13,200	13,200
5	Net Capital Investment	\$76,589,400	\$75,560,900	\$514,100	\$257,200	\$257,200
6	Fixed Asset Distribution		98.7%	0.7%	0.3%	0.3%
Allocation of Test Year CIP						
7	Collection	3,873,900	3,873,900	0	0	0
8	Lift Station	1,152,700	1,152,700	0	0	0
9	Treatment	68,400	0	34,200	17,100	17,100
10	General Plant	274,900	271,300	1,800	900	900
11	Total CIP	\$5,369,900	\$5,297,900	\$36,000	\$18,000	\$18,000
Less Other Revenues						
12	Miscellaneous Revenues	200,000	197,300	1,300	700	700
13	Other Adjustments	313,100	308,800	2,100	1,100	1,100
14	Net Plant Investment	\$4,856,800	\$4,791,800	\$32,600	\$16,200	\$16,200
15	Percent Allocation		98.7%	0.7%	0.3%	0.3%

4.3 Units of Service

The work completed in the previous sections essentially takes the net O&M and capital costs for FY 23/24 and breaks these costs into their respective cost components. This section illustrates how to derive the unit costs for each of the cost components.

The test year unit cost of service for each functional cost component is based on the total cost divided by the applicable units of service, as shown in Table 4-4.

Table 4-4 Estimated Units of Service

Line No.	Description	Total Cost	Collection	Treatment		
			Capacity	Flow	BOD	TSS
		(\$)	(\$)	(\$)	(\$)	(\$)
Unit Cost of Service						
1	Net Operating Expense	24,881,100	9,220,300	7,550,000	3,902,400	4,208,400
2	Capital Costs	4,856,800	4,791,800	32,600	16,200	16,200
3	Total Cost of Service	\$ 29,737,900	\$ 14,012,100	\$ 7,582,600	\$ 3,918,600	\$ 4,224,600
4	Units of Service		54,794	4,928	9,379,000	9,029,900
5	Cost per Unit		\$255.72	\$1,538.77	\$0.42	\$0.47
			per EDU	per MG	per lbs	per lbs

4.4 Cost of Service Allocations

The total cost of service for each customer category is determined by summing each cost component cost. The number of units of each cost component that a category has, multiplied by the unit cost for the component, equals the total cost for the category.

$$\text{Customer Cost for a Cost Component} = \text{Unit Cost} \times \text{Number of Units}$$

4.4.1 Customer Category Strength Factors

The District has sewer service charges that are developed based on strength characteristics. The strengths are measurements of wastewater quality and are measured in milligrams per liter (mg/L). The District uses BOD and TSS as strength parameters. BOD identifies the quantity of organic compounds found in the wastewater, while TSS identifies the quantity of suspended particles. The logic in using strengths is that each customer contributes different factors to the treatment system, and thus the systems need to be designed to handle these volumes and loadings. Customer categories that contribute higher strength volumes should pay their proportionate share for operating and maintaining the system infrastructure.

The strengths used for the District's customer categories, as shown in Table 4-5, are based on existing strength factors and California State Water Resources Control Board (SWRCB) standards published in 1998. The SWRCB standards specify 20 commercial user strength characteristics. These characteristics were obtained by the State of California's four largest wastewater utilities: East Bay Municipal Utility District, City of San Jose, Los Angeles County Sanitation District, and the Sacramento Regional County Sanitation District. Since the 1998 publication, these strength factors have served as the standard for utilities in the Southwest that use strength as an allocation component within their wastewater rate structures.

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Table 4-5 Customer Category Strength Factors

Line No.	Description	Strength Factors	
		BOD (mg/L)	TSS (mg/L)
	Customer Category		
1	Single-family Residential	220	220
2	Multi-family Residential	220	220
3	Car Wash	20	150
4	Barber & Beauty Salons	150	250
5	Department Stores, Retail Stores, General Commercial	150	150
6	Warehouse	150	150
7	Hospitals & Convalescent Homes	250	100
8	Laundromats	150	110
9	Nurseries	300	280
10	Hotels/Motels w/o Dining	310	120
11	Auto Repair/Sales Shops & Service Stations	180	280
12	Shopping Centers	310	230
13	Bar w/o Dining	300	270
14	Commercial Laundry	450	240
15	Movie Theater	300	240
16	Lumber Yards	400	430
17	Convenience & Liquor Stores w/Deli	500	300
18	Industrial Laundry	670	680
19	Hotel w/ Restaurant	500	600
20	Auto Steam Cleaning	1,150	150
21	Bakery or Bakery/Deli	1,000	600
22	Restaurant & Bar w/Food	1,000	600
23	Food Stores	800	800
24	Mortuary	800	800
25	Places of Worship	130	100
26	Schools	130	100
27	Membership Organizations	130	100
28	Restaurants w/ Waste Separation	500	300
29	Mobile Homes	220	220

4.4.2 Distribution of Costs of Service to Customer Categories

The customer category responsibility for service is obtained by applying the unit costs of service derived in Table 4-4 to the number of units for which the customer category is responsible. The following methodology was used to determine the individual units for each customer category.

$$\text{Capacity} = \text{Total Ordinance EDU}$$

$$\text{Volume} = \text{Flow EDU} \times 240(10^{-6}) \text{ MG/day} \times 365 \text{ days} \times I/I \%$$

$$\text{Strength BOD} = \text{Strength in mg/L} \times 8.34 \text{ Lbs/MG}$$

$$\text{Strength TSS} = \text{Strength in mg/L} \times 8.34 \text{ Lbs/MG}$$

The wastewater volume for each customer category is derived earlier in Table 3-3. The following section demonstrates a sample calculation for the residential customer category using the formulas noted above.

$$\text{Capacity} = 35,127 \text{ Res Ordinance EDUs}$$

$$\text{Volume} = 34,845 \text{ Res Flow EDUs} \times 240(10^{-6}) \text{ MG/day} \times 365 \text{ days} \times 1.05\% = 3,205 \text{ MG}$$

$$\text{Strength BOD} = 220 \text{ mg/L} \times 8.34 \text{ Lbs/MG} = 5,880,600 \text{ Res Lbs}$$

$$\text{Strength TSS} = 220 \text{ mg/L} \times 8.34 \text{ Lbs/MG} = 5,880,600 \text{ Res Lbs}$$

The results of determining the units and then applying the unit costs of Table 4-4 are illustrated in Table 4-6.

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Table 4-6 Distribution of Costs of Service to Customer Categories

Line No.	Description	Total Cost	Collection	Treatment		
			Capacity	Flow	BOD	TSS
			per EDU	per MG	per lbs	per lbs
1	Cost per Unit		\$ 255.72	\$ 1,538.77	\$ 0.42	\$ 0.47
	Single-family Residential					
2	Units		35,183	3,210	5,890,000	5,890,000
3	Allocation of COS	19,153,000	8,996,900	4,939,700	2,460,900	2,755,500
	Multi-family Residential					
4	Units		9,073	818	1,500,000	1,500,000
5	Allocation of COS	4,906,600	2,320,100	1,258,000	626,700	701,800
	Car Wash					
6	Units		279	25	4,100	30,900
7	Allocation of COS	125,600	71,300	38,100	1,700	14,500
	Barber & Beauty Salons					
8	Units		92	6	7,300	12,100
9	Allocation of COS	41,000	23,400	8,900	3,000	5,700
	Department Stores, Retail Stores, General Commercial					
10	Units		2,806	229	286,700	286,700
11	Allocation of COS	1,324,100	717,500	352,700	119,800	134,100
	Warehouse					
12	Units		113	10	12,900	12,900
13	Allocation of COS	56,000	28,800	15,800	5,400	6,000
	Hospitals & Convalescent Homes					
14	Units		920	79	164,500	65,800
15	Allocation of COS	456,100	235,200	121,400	68,700	30,800
	Laundromats					
16	Units		116	10	12,700	9,300
17	Allocation of COS	54,900	29,600	15,600	5,300	4,400
	Nurseries					
18	Units		0	0	0	0
19	Allocation of COS	0	0	0	0	0
	Hotels/Motels w/o Dining					
20	Units		93	9	22,100	8,500
21	Allocation of COS	50,000	23,700	13,100	9,200	4,000
	Auto Repair/Sales Shops & Service Stations					
22	Units		357	29	43,500	67,700
23	Allocation of COS	185,800	91,300	44,600	18,200	31,700
	Shopping Centers					
24	Units		5	0	1,100	800
25	Allocation of COS	2,700	1,200	600	500	400
	Bar w/o Dining					
26	Units		34	2	5,500	4,900
27	Allocation of COS	16,700	8,700	3,400	2,300	2,300

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Line No.	Description	Total Cost	Collection	Treatment		
			Capacity	Flow	BOD	TSS
			per EDU	per MG	per lbs	per lbs
1	Cost per Unit		\$ 255.72	\$ 1,538.77	\$ 0.42	\$ 0.47
Commercial Laundry						
28	Units		17	1	3,800	2,000
29	Allocation of COS	8,400	4,300	1,600	1,600	900
Movie Theater						
30	Units		10	1	2,300	1,900
31	Allocation of COS	5,900	2,600	1,400	1,000	900
Lumber Yards						
32	Units		1	0	400	400
33	Allocation of COS	900	300	200	200	200
Convenience & Liquor Stores w/Deli						
34	Units		133	10	42,400	25,400
35	Allocation of COS	79,200	34,000	15,600	17,700	11,900
Industrial Laundry						
36	Units		0	0	0	0
37	Allocation of COS	0	0	0	0	0
Hotel w/ Restaurant						
38	Units		5	0	1,600	1,900
39	Allocation of COS	3,500	1,300	600	700	900
Auto Steam Cleaning						
40	Units		0	0	0	0
41	Allocation of COS	0	0	0	0	0
Bakery or Bakery/Deli						
42	Units		21	1	11,100	6,700
43	Allocation of COS	15,100	5,300	2,100	4,600	3,100
Restaurant & Bar w/Food						
44	Units		982	72	600,400	360,200
45	Allocation of COS	781,400	251,200	110,800	250,900	168,500
Food Stores						
46	Units		156	13	88,600	88,600
47	Allocation of COS	138,700	39,800	20,400	37,000	41,500
Mortuary						
48	Units		4	0	2,400	2,400
49	Allocation of COS	3,700	1,000	600	1,000	1,100
Places of Worship						
50	Units		327	29	30,900	23,800
51	Allocation of COS	151,400	83,500	43,900	12,900	11,100
Schools						
52	Units		628	57	61,300	47,200
53	Allocation of COS	295,300	160,600	87,000	25,600	22,100
Membership Organizations						
54	Units		19	2	1,700	1,300
55	Allocation of COS	8,600	4,900	2,400	700	600
Restaurants w/ Waste Separation						
56	Units		24	2	7,900	4,700
57	Allocation of COS	14,600	6,200	2,900	3,300	2,200
Mobile Homes						
58	Units		3,400	313	573,800	573,800
59	Allocation of COS	1,858,700	869,400	481,200	239,700	268,400
60	TOTAL COSTS OF SERVICE	\$ 29,737,900	\$ 14,012,100	\$ 7,582,600	\$ 3,918,600	\$ 4,224,600

4.5 Adequacy of Existing Rates to Meet Costs of Service

Table 4-7 compares the FY 23/24 allocated COS and revenues under existing rates by customer category and for the system in total. The indicated revenue increase required over existing rates for each customer category indicates where the emphasis should be directed. The 5.75% overall increase is considered necessary to meet the projected revenue requirements for the FY 23/24 test year under the Option 2 financial plan. This overall level of revenue needs to be produced by the proposed sewer service charges developed and presented in this report.

Table 4-7 Comparison of Allocated Cost of Service with Revenues under Existing Rates

Line No.	Description	Allocated COS	Rev under Exist Rate	Indicated Revenue Increase	
		(\$)	(\$)	(%)	(\$)
	Customer Category				
1	Single-family Residential	19,153,000	18,112,600	5.7%	1,040,400
2	Multi-family Residential	4,906,600	4,641,000	5.7%	265,600
3	Car Wash	125,600	120,300	4.4%	5,300
4	Barber & Beauty Salons	41,000	39,100	4.9%	1,900
5	Department Stores, Retail Stores, General C	1,324,100	1,261,500	5.0%	62,600
6	Warehouse	56,000	53,300	5.1%	2,700
7	Hospitals & Convalescent Homes	456,100	433,000	5.3%	23,100
8	Laundromats	54,900	52,300	5.0%	2,600
9	Nurseries	0	0	0.0%	0
10	Hotels/Motels w/o Dining	50,000	47,300	5.7%	2,700
11	Auto Repair/Sales Shops & Service Station:	185,800	175,900	5.6%	9,900
12	Shopping Centers	2,700	2,500	8.0%	200
13	Bar w/o Dining	16,700	15,800	5.7%	900
14	Commercial Laundry	8,400	8,000	5.0%	400
15	Movie Theater	5,900	5,600	5.4%	300
16	Lumber Yards	900	800	12.5%	100
17	Convenience & Liquor Stores w/Deli	79,200	74,300	6.6%	4,900
18	Industrial Laundry	0	0	0.0%	0
19	Hotel w/ Restaurant	3,500	3,200	9.4%	300
20	Auto Steam Cleaning	0	0	0.0%	0
21	Bakery or Bakery/Deli	15,100	14,000	7.9%	1,100
22	Restaurant & Bar w/Food	781,400	722,600	8.1%	58,800
23	Food Stores	138,700	128,000	8.4%	10,700
24	Mortuary	3,700	3,400	8.8%	300
25	Places of Worship	151,400	144,600	4.7%	6,800
26	Schools	295,300	281,700	4.8%	13,600
27	Membership Organizations	8,600	8,200	4.9%	400
28	Restaurants w/ Waste Separation	14,600	14,300	2.1%	300
29	Mobile Homes	1,858,700	1,757,600	5.8%	101,100
30	Total	\$ 29,737,900	\$ 28,120,900	5.75%	\$ 1,617,000

5.0 Rate Design

The initial consideration in the design of sewer service charge schedules is establishing equitable charges to the customers commensurate with the cost of providing that service to each customer category. While the cost-of-service allocations to customer categories 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 these adjustments by considering additional factors like typical bill impacts and local policies and practices.

5.1 Existing Rates

The existing sewer charges shown in Table 5-1 consist of capacity and treatment charges. The capacity and treatment charges are applied to each customer based on the number of assigned EDUs. Refer to Section 2.2 regarding EDU assignments to customer categories.

Table 5-1 Existing Sewer Service Charges - FY 22/23

Description	Capacity Charge	Treatment Charge	Total Charge
	(\$/EDU/year)	(\$/EDU/year)	(\$/EDU/year)
Customer Category			
Single-family Residential	\$250.72	\$266.23	\$516.95
Multi-family Residential	\$250.72	\$266.23	\$516.95
Car Wash	\$250.72	\$187.29	\$438.01
Barber & Beauty Salons	\$250.72	\$256.18	\$506.90
Department Stores, Retail Stores, General Commercial	\$250.72	\$223.93	\$474.65
Warehouse	\$250.72	\$223.93	\$474.65
Hospitals & Convalescent Homes	\$250.72	\$235.99	\$486.71
Laundromats	\$250.72	\$211.04	\$461.76
Nurseries	\$250.72	\$331.77	\$582.49
Hotels/Motels w/o Dining	\$250.72	\$259.34	\$510.06
Auto Repair/Sales Shops & Service Stations	\$250.72	\$274.30	\$525.02
Shopping Centers	\$250.72	\$295.12	\$545.84
Bar w/o Dining	\$250.72	\$304.91	\$555.63
Commercial Laundry	\$250.72	\$337.46	\$588.18
Movie Theater	\$250.72	\$295.32	\$546.04
Lumber Yards	\$250.72	\$384.75	\$635.47
Convenience & Liquor Stores w/Deli	\$250.72	\$370.92	\$621.64
Industrial Laundry	\$250.72	\$590.67	\$841.39
Hotel w/ Restaurant	\$250.72	\$467.56	\$718.28
Auto Steam Cleaning	\$250.72	\$556.48	\$807.20
Bakery or Bakery/Deli	\$250.72	\$608.57	\$859.29
Restaurant & Bar w/Food	\$250.72	\$608.57	\$859.29
Food Stores	\$250.72	\$616.66	\$867.38
Mortuary	\$250.72	\$616.66	\$867.38
Places of Worship	\$250.72	\$202.17	\$452.89
Schools	\$250.72	\$202.17	\$452.89
Membership Organizations	\$250.72	\$202.17	\$452.89
Restaurants w/ Waste Separation	\$250.72	\$402.49	\$653.21
Mobile Homes	\$250.72	\$266.23	\$516.95

5.2 Methodology used in the Determination of Existing Charges

The District currently determines the sewer charges based on a formula in Ordinance No. 9103 established in Article 5 of the County's Uniform Sewer Ordinance. The formula states that two primary variables are associated with the sewer service charges: Collection (and related transport) and Treatment (and related disposal). The capacity charge is the charge for District costs related to wastewater collection. The treatment charge is designed for the costs associated with the treatment and disposal of wastewater.

The formula stated in the USO is as follows:

$$SSC = \frac{n}{N}xD + \frac{f}{F}xM_F + \frac{b}{B}xM_B + \frac{s}{S}xM_S$$

Where:

SSC = Sewer Service Charge.

n = Number of EDUs for a specific customer category.

f = Volume in million gallons per year for a specific customer category.

b = BOD in pounds per year for a specific customer category.

s = TSS in pounds per year for a specific customer category.

N = Total number of EDUs for the entire District.

F = Total volume in million gallons per year for the entire District.

B = Total BOD in pounds per year for the entire District.

S = Total TSS in pounds per year for the entire District.

D = The District's budgeted costs for collecting, treating, and disposal of wastewater.

M = The District's budgeted costs associated with Metro for treating and disposal of wastewater.

Metro costs are separated into three components: M_F = Volume, M_B = BOD, and M_S = TSS.

The COS and resulting sewer service charge structure recommendation utilizes the same principles as the current sewer service charge formula documented in Article 5 of the USO. The formula has been revised for simplicity.

$$SSC = \frac{a}{A} + \frac{b}{B}$$

Where:

SSC = Sewer Service Charge per EDU.

A = Number of ordinance EDUs for a specific customer category.

B = Number of volume EDUs for a specific customer category.

a = The allocated costs for collection for a specific customer category, including capacity components associated with District.

b = The allocated costs for treatment for a specific customer category, including volume and strength components associated with Metro.

The following is a sample calculation for the residential customer category using the formula noted above for Option 2.

$$\text{Residential} = \frac{\$8,996,900 \text{ Total Capacity Costs}}{35,183 \text{ Ordinance EDUs}} + \frac{\$10,156,100 \text{ Total Treatment Costs}}{34,901 \text{ Volume EDUs}}$$

$$\text{Residential} = \$255.72/\text{EDU} + \$291.00/\text{EDU}$$

The simplified formula uses the principles in Article 5 and, therefore, should remain unchanged.

5.3 Proposed Rates

The proposed capacity and treatment sewer service charges for FY 23/24 are shown in Table 5-2 through Table 5-4. In addition, Table 5-5 through Table 5-7 shows the total proposed charges for the five-year period between FY 23/24 through FY 27/28.

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Table 5-2 Proposed Sewer Service Charges for FY 23/24 – Option 1

Customer Category	Capacity Charge (\$/EDU/year)	Treatment Charge (\$/EDU/year)	Proposed FY 23/24 (\$/EDU/year)	Current Charge (\$/EDU/year)
Customer Category				
Single-family Residential	\$253.96	\$288.88	\$542.84	\$516.95
Multi-family Residential	\$253.96	\$288.88	\$542.84	\$516.95
Car Wash	\$253.96	\$200.47	\$454.43	\$438.01
Barber & Beauty Salons	\$253.96	\$277.65	\$531.61	\$506.90
Department Stores, Retail Stores, General Commercial	\$253.96	\$241.69	\$495.65	\$474.65
Warehouse	\$253.96	\$241.69	\$495.65	\$474.65
Hospitals & Convalescent Homes	\$253.96	\$255.62	\$509.59	\$486.71
Laundromats	\$253.96	\$227.25	\$481.22	\$461.76
Nurseries	\$253.96	\$348.36	\$602.32	\$582.49
Hotels/Motels w/o Dining	\$253.96	\$281.46	\$535.43	\$510.06
Auto Repair/Sales Shops & Service Stations	\$253.96	\$297.32	\$551.28	\$525.02
Shopping Centers	\$253.96	\$330.40	\$584.36	\$545.84
Bar w/o Dining	\$253.96	\$335.01	\$588.97	\$555.63
Commercial Laundry	\$253.96	\$370.04	\$624.00	\$588.18
Movie Theater	\$253.96	\$328.03	\$582.00	\$546.04
Lumber Yards	\$253.96	\$483.87	\$737.84	\$635.47
Convenience & Liquor Stores w/Deli	\$253.96	\$406.59	\$660.56	\$621.64
Industrial Laundry	\$253.96	\$620.20	\$874.16	\$841.39
Hotel w/ Restaurant	\$253.96	\$533.98	\$787.95	\$718.28
Auto Steam Cleaning	\$253.96	\$584.30	\$838.26	\$807.20
Bakery or Bakery/Deli	\$253.96	\$672.42	\$926.39	\$859.29
Restaurant & Bar w/Food	\$253.96	\$672.42	\$926.39	\$859.29
Food Stores	\$253.96	\$679.93	\$933.90	\$867.38
Mortuary	\$253.96	\$679.93	\$933.90	\$867.38
Places of Worship	\$253.96	\$217.56	\$471.53	\$452.89
Schools	\$253.96	\$217.56	\$471.53	\$452.89
Membership Organizations	\$253.96	\$217.56	\$471.53	\$452.89
Restaurants w/ Waste Separation	\$253.96	\$408.36	\$662.33	\$653.21
Mobile Homes	\$253.96	\$288.88	\$542.84	\$516.95

Table 5-3 Proposed Sewer Service Charges for FY 23/24 – Option 2

Customer Category	Capacity Charge (\$/EDU/year)	Treatment Charge (\$/EDU/year)	Proposed FY 23/24 (\$/EDU/year)	Current Charge (\$/EDU/year)
Customer Category				
Single-family Residential	\$255.72	\$291.00	\$546.72	\$516.95
Multi-family Residential	\$255.72	\$291.00	\$546.72	\$516.95
Car Wash	\$255.72	\$201.96	\$457.68	\$438.01
Barber & Beauty Salons	\$255.72	\$279.23	\$534.95	\$506.90
Department Stores, Retail Stores, General Commercial	\$255.72	\$243.42	\$499.14	\$474.65
Warehouse	\$255.72	\$243.42	\$499.14	\$474.65
Hospitals & Convalescent Homes	\$255.72	\$257.49	\$513.21	\$486.71
Laundromats	\$255.72	\$229.06	\$484.78	\$461.76
Nurseries	\$255.72	\$350.85	\$606.57	\$582.49
Hotels/Motels w/o Dining	\$255.72	\$283.62	\$539.34	\$510.06
Auto Repair/Sales Shops & Service Stations	\$255.72	\$299.86	\$555.58	\$525.02
Shopping Centers	\$255.72	\$330.40	\$586.12	\$545.84
Bar w/o Dining	\$255.72	\$335.01	\$590.73	\$555.63
Commercial Laundry	\$255.72	\$370.04	\$625.76	\$588.18
Movie Theater	\$255.72	\$328.03	\$583.75	\$546.04
Lumber Yards	\$255.72	\$483.87	\$739.59	\$635.47
Convenience & Liquor Stores w/Deli	\$255.72	\$409.31	\$665.03	\$621.64
Industrial Laundry	\$255.72	\$624.63	\$880.35	\$841.39
Hotel w/ Restaurant	\$255.72	\$533.98	\$789.70	\$718.28
Auto Steam Cleaning	\$255.72	\$588.48	\$844.20	\$807.20
Bakery or Bakery/Deli	\$255.72	\$677.44	\$933.16	\$859.29
Restaurant & Bar w/Food	\$255.72	\$677.44	\$933.16	\$859.29
Food Stores	\$255.72	\$685.33	\$941.05	\$867.38
Mortuary	\$255.72	\$685.33	\$941.05	\$867.38
Places of Worship	\$255.72	\$219.05	\$474.77	\$452.89
Schools	\$255.72	\$219.05	\$474.77	\$452.89
Membership Organizations	\$255.72	\$219.05	\$474.77	\$452.89
Restaurants w/ Waste Separation	\$255.72	\$408.36	\$664.08	\$653.21
Mobile Homes	\$255.72	\$291.00	\$546.72	\$516.95

Table 5-4 Proposed Sewer Service Charges for FY 23/24 – Option 3

Customer Category	Capacity Charge (\$/EDU/year)	Treatment Charge (\$/EDU/year)	Proposed FY 23/24 (\$/EDU/year)	Current Charge (\$/EDU/year)
Customer Category				
Single-family Residential	\$317.47	\$251.79	\$569.27	\$516.95
Multi-family Residential	\$317.47	\$251.79	\$569.27	\$516.95
Car Wash	\$317.47	\$174.43	\$491.91	\$438.01
Barber & Beauty Salons	\$317.47	\$241.16	\$558.63	\$506.90
Department Stores, Retail Stores, General Commercial	\$317.47	\$210.69	\$528.17	\$474.65
Warehouse	\$317.47	\$210.69	\$528.17	\$474.65
Hospitals & Convalescent Homes	\$317.47	\$222.87	\$540.34	\$486.71
Laundromats	\$317.47	\$198.28	\$515.75	\$461.76
Nurseries	\$317.47	\$365.78	\$683.25	\$582.49
Hotels/Motels w/o Dining	\$317.47	\$245.88	\$563.35	\$510.06
Auto Repair/Sales Shops & Service Stations	\$317.47	\$259.24	\$576.72	\$525.02
Shopping Centers	\$317.47	\$286.34	\$603.82	\$545.84
Bar w/o Dining	\$317.47	\$288.94	\$606.42	\$555.63
Commercial Laundry	\$317.47	\$324.91	\$642.38	\$588.18
Movie Theater	\$317.47	\$278.33	\$595.80	\$546.04
Lumber Yards	\$317.47	\$403.23	\$720.70	\$635.47
Convenience & Liquor Stores w/Deli	\$317.47	\$354.07	\$671.55	\$621.64
Industrial Laundry	\$317.47	\$651.21	\$968.68	\$841.39
Hotel w/ Restaurant	\$317.47	\$461.17	\$778.64	\$718.28
Auto Steam Cleaning	\$317.47	\$613.52	\$930.99	\$807.20
Bakery or Bakery/Deli	\$317.47	\$586.24	\$903.71	\$859.29
Restaurant & Bar w/Food	\$317.47	\$586.24	\$903.71	\$859.29
Food Stores	\$317.47	\$593.59	\$911.07	\$867.38
Mortuary	\$317.47	\$593.59	\$911.07	\$867.38
Places of Worship	\$317.47	\$189.64	\$507.11	\$452.89
Schools	\$317.47	\$189.64	\$507.11	\$452.89
Membership Organizations	\$317.47	\$189.64	\$507.11	\$452.89
Restaurants w/ Waste Separation	\$317.47	\$354.89	\$672.36	\$653.21
Mobile Homes	\$317.47	\$251.79	\$569.27	\$516.95

Table 5-5 Proposed Sewer Service Charges for FY 23/24 through FY 27/28 – Option 1

Customer Category	Sewer Charge				
	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
	(\$/EDU/yr)	(\$/EDU/yr)	(\$/EDU/yr)	(\$/EDU/yr)	(\$/EDU/yr)
Customer Category					
Single-family Residential	\$542.84	\$569.98	\$598.48	\$628.41	\$659.83
Multi-family Residential	\$542.84	\$569.98	\$598.48	\$628.41	\$659.83
Car Wash	\$454.43	\$477.15	\$501.01	\$526.06	\$552.37
Barber & Beauty Salons	\$531.61	\$558.19	\$586.10	\$615.41	\$646.18
Department Stores, Retail Stores, General Commercial	\$495.65	\$520.43	\$546.46	\$573.78	\$602.47
Warehouse	\$495.65	\$520.43	\$546.46	\$573.78	\$602.47
Hospitals & Convalescent Homes	\$509.59	\$535.07	\$561.82	\$589.91	\$619.41
Laundromats	\$481.22	\$505.28	\$530.54	\$557.07	\$584.92
Nurseries	\$602.32	\$632.44	\$664.06	\$697.27	\$732.13
Hotels/Motels w/o Dining	\$535.43	\$562.20	\$590.31	\$619.82	\$650.81
Auto Repair/Sales Shops & Service Stations	\$551.28	\$578.85	\$607.79	\$638.18	\$670.09
Shopping Centers	\$584.36	\$613.58	\$644.26	\$676.47	\$710.29
Bar w/o Dining	\$588.97	\$618.42	\$649.34	\$681.81	\$715.90
Commercial Laundry	\$624.00	\$655.20	\$687.96	\$722.36	\$758.48
Movie Theater	\$582.00	\$611.10	\$641.65	\$673.73	\$707.42
Lumber Yards	\$737.84	\$774.73	\$813.46	\$854.14	\$896.84
Convenience & Liquor Stores w/Deli	\$660.56	\$693.58	\$728.26	\$764.68	\$802.91
Industrial Laundry	\$874.16	\$917.87	\$963.77	\$1,011.95	\$1,062.55
Hotel w/ Restaurant	\$787.95	\$827.34	\$868.71	\$912.14	\$957.75
Auto Steam Cleaning	\$838.26	\$880.18	\$924.19	\$970.40	\$1,018.92
Bakery or Bakery/Deli	\$926.39	\$972.70	\$1,021.34	\$1,072.41	\$1,126.03
Restaurant & Bar w/Food	\$926.39	\$972.70	\$1,021.34	\$1,072.41	\$1,126.03
Food Stores	\$933.90	\$980.59	\$1,029.62	\$1,081.10	\$1,135.16
Mortuary	\$933.90	\$980.59	\$1,029.62	\$1,081.10	\$1,135.16
Places of Worship	\$471.53	\$495.11	\$519.86	\$545.85	\$573.15
Schools	\$471.53	\$495.11	\$519.86	\$545.85	\$573.15
Membership Organizations	\$471.53	\$495.11	\$519.86	\$545.85	\$573.15
Restaurants w/ Waste Separation	\$662.33	\$695.44	\$730.21	\$766.73	\$805.06
Mobile Homes	\$542.84	\$569.98	\$598.48	\$628.41	\$659.83

Table 5-6 Proposed Sewer Service Charges for FY 23/24 through FY 27/28 – Option 2

Customer Category	Sewer Charge				
	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
	(\$/EDU/yr)	(\$/EDU/yr)	(\$/EDU/yr)	(\$/EDU/yr)	(\$/EDU/yr)
Customer Category					
Single-family Residential	\$546.72	\$578.15	\$611.40	\$646.55	\$683.73
Multi-family Residential	\$546.72	\$578.15	\$611.40	\$646.55	\$683.73
Car Wash	\$457.68	\$483.99	\$511.82	\$541.25	\$572.38
Barber & Beauty Salons	\$534.95	\$565.71	\$598.24	\$632.64	\$669.02
Department Stores, Retail Stores, General Commercial	\$499.14	\$527.84	\$558.19	\$590.28	\$624.23
Warehouse	\$499.14	\$527.84	\$558.19	\$590.28	\$624.23
Hospitals & Convalescent Homes	\$513.21	\$542.72	\$573.93	\$606.93	\$641.83
Laundromats	\$484.78	\$512.66	\$542.14	\$573.31	\$606.28
Nurseries	\$606.57	\$641.45	\$678.33	\$717.34	\$758.58
Hotels/Motels w/o Dining	\$539.34	\$570.35	\$603.15	\$637.83	\$674.50
Auto Repair/Sales Shops & Service Stations	\$555.58	\$587.52	\$621.31	\$657.03	\$694.81
Shopping Centers	\$586.12	\$619.82	\$655.46	\$693.15	\$733.00
Bar w/o Dining	\$590.73	\$624.70	\$660.62	\$698.60	\$738.77
Commercial Laundry	\$625.76	\$661.74	\$699.79	\$740.03	\$782.58
Movie Theater	\$583.75	\$617.32	\$652.82	\$690.35	\$730.05
Lumber Yards	\$739.59	\$782.12	\$827.09	\$874.65	\$924.94
Convenience & Liquor Stores w/Deli	\$665.03	\$703.27	\$743.71	\$786.47	\$831.69
Industrial Laundry	\$880.35	\$930.97	\$984.50	\$1,041.11	\$1,100.98
Hotel w/ Restaurant	\$789.70	\$835.11	\$883.13	\$933.91	\$987.61
Auto Steam Cleaning	\$844.20	\$892.74	\$944.08	\$998.36	\$1,055.77
Bakery or Bakery/Deli	\$933.16	\$986.82	\$1,043.56	\$1,103.56	\$1,167.02
Restaurant & Bar w/Food	\$933.16	\$986.82	\$1,043.56	\$1,103.56	\$1,167.02
Food Stores	\$941.05	\$995.16	\$1,052.38	\$1,112.89	\$1,176.89
Mortuary	\$941.05	\$995.16	\$1,052.38	\$1,112.89	\$1,176.89
Places of Worship	\$474.77	\$502.07	\$530.94	\$561.47	\$593.76
Schools	\$474.77	\$502.07	\$530.94	\$561.47	\$593.76
Membership Organizations	\$474.77	\$502.07	\$530.94	\$561.47	\$593.76
Restaurants w/ Waste Separation	\$664.08	\$702.27	\$742.65	\$785.35	\$830.51
Mobile Homes	\$546.72	\$578.15	\$611.40	\$646.55	\$683.73

Table 5-7 Proposed Sewer Service Charges for FY 23/24 through FY 27/28 – Option 3

Customer Category	Sewer Charge				
	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
	(\$/EDU/yr)	(\$/EDU/yr)	(\$/EDU/yr)	(\$/EDU/yr)	(\$/EDU/yr)
Customer Category					
Single-family Residential	\$569.27	\$627.62	\$691.95	\$762.87	\$841.07
Multi-family Residential	\$569.27	\$627.62	\$691.95	\$762.87	\$841.07
Car Wash	\$491.91	\$542.33	\$597.92	\$659.20	\$726.77
Barber & Beauty Salons	\$558.63	\$615.89	\$679.02	\$748.62	\$825.35
Department Stores, Retail Stores, General Commercial	\$528.17	\$582.31	\$641.99	\$707.80	\$780.35
Warehouse	\$528.17	\$582.31	\$641.99	\$707.80	\$780.35
Hospitals & Convalescent Homes	\$540.34	\$595.73	\$656.79	\$724.11	\$798.33
Laundromats	\$515.75	\$568.62	\$626.90	\$691.16	\$762.00
Nurseries	\$683.25	\$753.29	\$830.50	\$915.63	\$1,009.48
Hotels/Motels w/o Dining	\$563.35	\$621.09	\$684.76	\$754.94	\$832.32
Auto Repair/Sales Shops & Service Stations	\$576.72	\$635.83	\$701.00	\$772.86	\$852.07
Shopping Centers	\$603.82	\$665.71	\$733.94	\$809.17	\$892.11
Bar w/o Dining	\$606.42	\$668.58	\$737.11	\$812.66	\$895.96
Commercial Laundry	\$642.38	\$708.23	\$780.82	\$860.86	\$949.09
Movie Theater	\$595.80	\$656.87	\$724.20	\$798.44	\$880.27
Lumber Yards	\$720.70	\$794.57	\$876.02	\$965.81	\$1,064.80
Convenience & Liquor Stores w/Deli	\$671.55	\$740.38	\$816.27	\$899.93	\$992.18
Industrial Laundry	\$968.68	\$1,067.97	\$1,177.44	\$1,298.13	\$1,431.19
Hotel w/ Restaurant	\$778.64	\$858.45	\$946.44	\$1,043.45	\$1,150.41
Auto Steam Cleaning	\$930.99	\$1,026.42	\$1,131.63	\$1,247.62	\$1,375.50
Bakery or Bakery/Deli	\$903.71	\$996.34	\$1,098.47	\$1,211.06	\$1,335.19
Restaurant & Bar w/Food	\$903.71	\$996.34	\$1,098.47	\$1,211.06	\$1,335.19
Food Stores	\$911.07	\$1,004.45	\$1,107.41	\$1,220.92	\$1,346.06
Mortuary	\$911.07	\$1,004.45	\$1,107.41	\$1,220.92	\$1,346.06
Places of Worship	\$507.11	\$559.09	\$616.40	\$679.58	\$749.24
Schools	\$507.11	\$559.09	\$616.40	\$679.58	\$749.24
Membership Organizations	\$507.11	\$559.09	\$616.40	\$679.58	\$749.24
Restaurants w/ Waste Separation	\$672.36	\$741.28	\$817.26	\$901.03	\$993.38
Mobile Homes	\$569.27	\$627.62	\$691.95	\$762.87	\$841.07

5.4 Revenue Recovery Under Proposed Rates

The proposed service charge schedule shown in Table 5-8 through Table 5-10 demonstrates that COS charges discussed above will achieve essentially full cost recovery for each customer category.

Table 5-8 Comparison of Allocated Cost of Service with Revenue under Proposed COS Sewer Charges – Option 1

Line No.	Description	Adjusted COS	Rev under Proposed Rates	Percent Recovery
		(\$)	(\$)	(%)
	Customer Category			
1	Single-family Residential	19,017,100	19,017,100	100.0%
2	Multi-family Residential	4,871,700	4,871,700	100.0%
3	Car Wash	124,700	124,700	100.0%
4	Barber & Beauty Salons	40,700	40,700	100.0%
5	Department Stores, Retail Stores, General Commercial	1,314,800	1,314,900	100.0%
6	Warehouse	55,700	55,600	99.8%
7	Hospitals & Convalescent Homes	452,800	452,800	100.0%
8	Laundromats	54,500	54,500	100.0%
9	Nurseries	0	0	0.0%
10	Hotels/Motels w/o Dining	49,700	49,700	100.0%
11	Auto Repair/Sales Shops & Service Station	184,300	184,300	100.0%
12	Shopping Centers	2,700	2,700	100.0%
13	Bar w/o Dining	16,600	16,600	100.0%
14	Commercial Laundry	8,400	8,400	100.0%
15	Movie Theater	5,900	5,900	100.0%
16	Lumber Yards	900	900	100.0%
17	Convenience & Liquor Stores w/Deli	78,600	78,600	100.0%
18	Industrial Laundry	0	0	0.0%
19	Hotel w/ Restaurant	3,500	3,500	100.0%
20	Auto Steam Cleaning	0	0	0.0%
21	Bakery or Bakery/Deli	15,000	15,100	100.7%
22	Restaurant & Bar w/Food	775,800	775,700	100.0%
23	Food Stores	137,600	137,600	100.0%
24	Mortuary	3,700	3,700	100.0%
25	Places of Worship	150,400	150,400	100.0%
26	Schools	293,200	293,200	100.0%
27	Membership Organizations	8,500	8,500	100.0%
28	Restaurants w/ Waste Separation	14,500	14,500	100.0%
29	Mobile Homes	1,845,600	1,845,500	100.0%
30	Total	\$ 29,526,900	\$ 29,526,800	100.0%

Table 5-9 Comparison of Allocated Cost of Service with Revenue under Proposed COS Sewer Charges – Option 2

Line No.	Description	Adjusted COS	Rev under Proposed Rates	Percent Recovery
		(\$)	(\$)	(%)
	Customer Category			
1	Single-family Residential	19,153,000	19,153,000	100.0%
2	Multi-family Residential	4,906,600	4,906,600	100.0%
3	Car Wash	125,600	125,600	100.0%
4	Barber & Beauty Salons	41,000	41,000	100.0%
5	Department Stores, Retail Stores, General Commercial	1,324,100	1,324,100	100.0%
6	Warehouse	56,000	56,000	100.0%
7	Hospitals & Convalescent Homes	456,100	456,100	100.0%
8	Laundromats	54,900	54,900	100.0%
9	Nurseries	0	0	0.0%
10	Hotels/Motels w/o Dining	50,000	50,000	100.0%
11	Auto Repair/Sales Shops & Service Stations	185,800	185,800	100.0%
12	Shopping Centers	2,700	2,700	100.0%
13	Bar w/o Dining	16,700	16,700	100.0%
14	Commercial Laundry	8,400	8,400	100.0%
15	Movie Theater	5,900	5,900	100.0%
16	Lumber Yards	900	900	100.0%
17	Convenience & Liquor Stores w/Deli	79,200	79,200	100.0%
18	Industrial Laundry	0	0	0.0%
19	Hotel w/ Restaurant	3,500	3,500	100.0%
20	Auto Steam Cleaning	0	0	0.0%
21	Bakery or Bakery/Deli	15,100	15,100	100.0%
22	Restaurant & Bar w/Food	781,400	781,400	100.0%
23	Food Stores	138,700	138,700	100.0%
24	Mortuary	3,700	3,700	100.0%
25	Places of Worship	151,400	151,400	100.0%
26	Schools	295,300	295,300	100.0%
27	Membership Organizations	8,600	8,600	100.0%
28	Restaurants w/ Waste Separation	14,600	14,600	100.0%
29	Mobile Homes	1,858,700	1,858,700	100.0%
30	Total	\$ 29,737,900	\$ 29,737,900	100.0%

Table 5-10 Comparison of Allocated Cost of Service with Revenue under Proposed COS Sewer Charges – Option 3

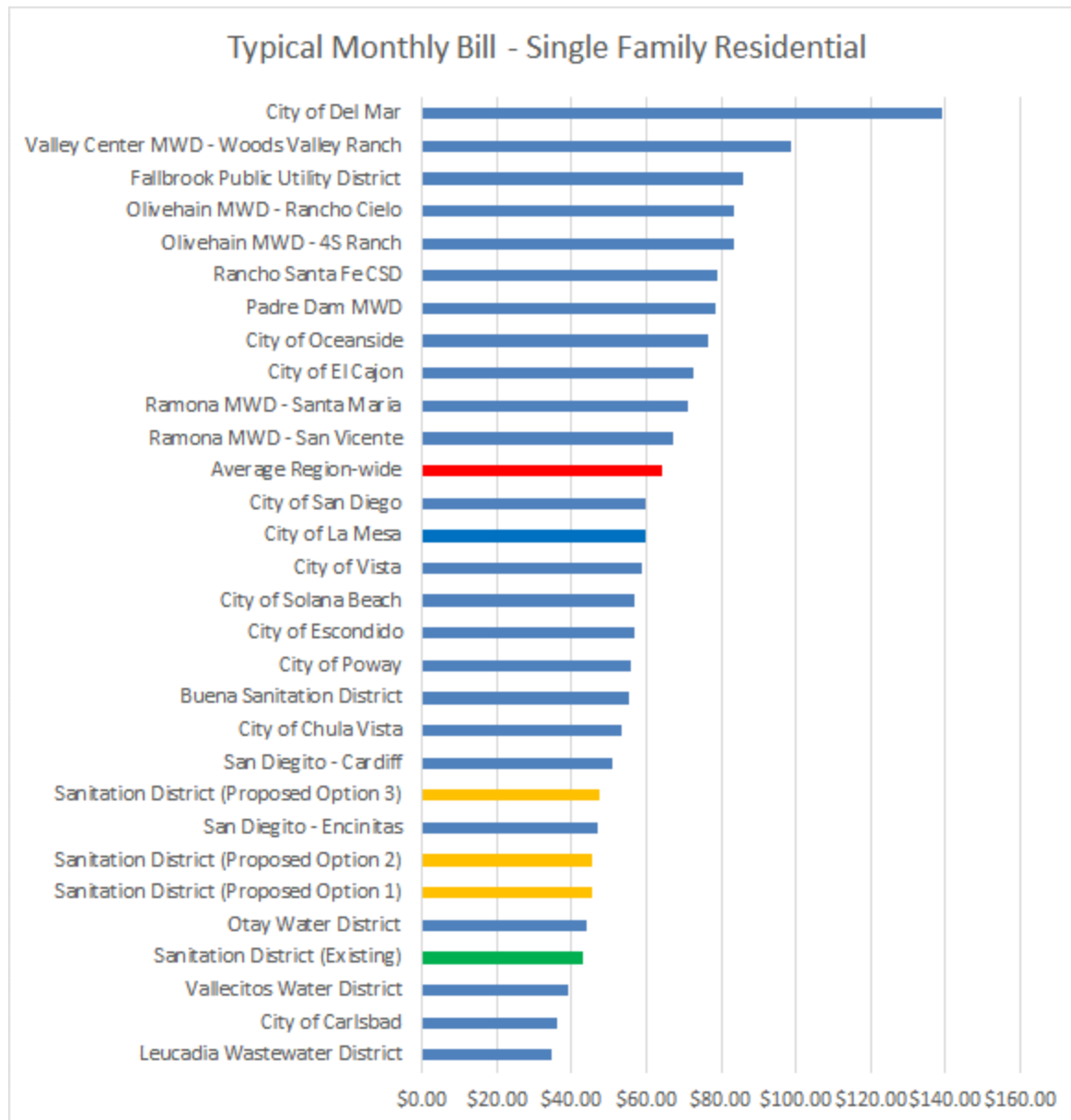
Line No.	Description	Adjusted COS	Rev under Proposed Rates	Percent Recovery
		(\$)	(\$)	(%)
	Customer Category			
1	Single-family Residential	19,957,300	19,957,400	100.0%
2	Multi-family Residential	5,118,400	5,118,300	100.0%
3	Car Wash	135,500	135,500	100.0%
4	Barber & Beauty Salons	44,300	44,300	100.0%
5	Department Stores, Retail Stores, General Commercial	1,415,800	1,415,800	100.0%
6	Warehouse	59,400	59,400	100.0%
7	Hospitals & Convalescent Homes	483,100	483,100	100.0%
8	Laundromats	58,700	58,700	100.0%
9	Nurseries	0	0	0.0%
10	Hotels/Motels w/o Dining	52,200	52,200	100.0%
11	Auto Repair/Sales Shops & Service Station	195,000	195,000	100.0%
12	Shopping Centers	2,700	2,700	100.0%
13	Bar w/o Dining	17,700	17,700	100.0%
14	Commercial Laundry	9,000	9,000	100.0%
15	Movie Theater	6,100	6,100	100.0%
16	Lumber Yards	900	900	100.0%
17	Convenience & Liquor Stores w/Deli	81,300	81,300	100.0%
18	Industrial Laundry	0	0	0.0%
19	Hotel w/ Restaurant	3,500	3,500	100.0%
20	Auto Steam Cleaning	0	0	0.0%
21	Bakery or Bakery/Deli	15,100	15,100	100.0%
22	Restaurant & Bar w/Food	770,600	770,600	100.0%
23	Food Stores	135,000	135,100	100.1%
24	Mortuary	3,600	3,500	97.2%
25	Places of Worship	162,500	162,500	100.0%
26	Schools	315,900	315,900	100.0%
27	Membership Organizations	9,200	9,200	100.0%
28	Restaurants w/ Waste Separation	15,000	15,000	100.0%
29	Mobile Homes	1,935,500	1,935,500	100.0%
30	Total	\$ 31,003,300	\$ 31,003,300	100.0%

6.0 Wastewater Service Charge Survey

Figure 6-1 shows a comparison of monthly single-family residential wastewater service charges across San Diego County. Sewer rates vary by agency, therefore in the survey, any wastewater agency that utilized consumption as a basis for billing was assigned 8 hundred cubic feet per month. Agencies that charge on a bi-monthly basis were split into monthly by dividing the total charge by two. The District's current FY 22/23 and proposed FY 23/24 charges are included in this illustration.

As the figure shows, the current and proposed District sewer service charges are well below most of the wastewater agencies within the County. Given that the proposed FY 23/24 increase will not become effective until mid-2023, many other agency charges will likely increase beyond what is shown.

Figure 6-1 Wastewater Rate Survey



FINAL

SANITATION CAPACITY AND ANNEXATION FEE

B&V PROJECT NO. 408416

PREPARED FOR



San Diego County Sanitation District

9 NOVEMBER 2022

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1.0 Introduction

1.1 Purpose

This report was prepared for the San Diego County Department of Public Works (“County”) to document a capacity and annexation fee analysis for the San Diego County Sanitation District (“District”). The specific goals of the study were to:

- Review and evaluate existing policies and procedures affecting sanitation capacity and annexation fees.
- Develop a sanitation capacity fee and annexation fee study proposing updated fees for new connections to the system.
- Develop suitable capacity and annexation fees while recognizing local and state legal and policy considerations such as California Government Codes 54999 and 66000 (AB 1600).

1.2 Sanitation System

The District provides wastewater service to approximately 37,000 customers within the unincorporated area of San Diego County. It owns and operates approximately 432 miles of pipeline, 8,200 manholes, 8 lift stations/pressurized mains, and 3 wastewater treatment plants. The collection, treatment, and disposal of wastewater in an environmentally safe and efficient manner promotes healthy communities and increases residents’ quality of life.

The District is composed of eight (8) Sewer Service Areas (“SSAs”) that operate as one. It is responsible for collecting and conveying wastewater flows originating within the SSAs of Alpine, East Otay Mesa, Lakeside, Spring Valley, and Winter Gardens to the City of San Diego’s Point Loma Treatment Plant for treatment and disposal. These service areas depend on the City of San Diego’s Metropolitan Wastewater System (Metro) to treat their wastewater effluent. Local, District-owned wastewater facilities handle the treatment and disposal of wastewater flows originating within the service areas of Campo, Julian, and Pine Valley.

1.3 Disclaimer

This report was prepared for the County of San Diego (“County”) by Black & Veatch Management Consulting, LLC (“Black & Veatch”) and is based on information provided by the County not within the control of Black & Veatch. While it is believed that the information, data and opinions contained herein will be reliable under the conditions and subject to the limitations set forth in this report, Black & Veatch does not guarantee the accuracy thereof. Black & Veatch has assumed that the information provided by others, both verbal and written, is complete and correct. The projections set forth in this report are intended as "forward-looking statements." In formulating these projections, Black & Veatch has made certain assumptions with respect to conditions, events, and circumstances that may occur in the future. While Black & Veatch believes the assumptions are reasonable, actual results may differ materially from those projected, as influenced by the conditions, events, and circumstances that occur. As such, Black & Veatch does not take responsibility for the accuracy of data or projections provided by or prepared on behalf of the County, nor does Black & Veatch have any responsibility for updating this report for events occurring after the date of this report.

Use of this report or any information contained therein by any party other than the Client, shall constitute a waiver and release by such third party of Black & Veatch from and against all claims and liability, including but not limited to liability for special, incidental, indirect or consequential damages in connection with such use. Such use of this report by a third party shall constitute agreement by the third-party user that its rights, if any, arising from this report shall be subject to the terms of this Report Limitations, and in no event shall the third party's rights, if any, exceed those of the Client under its contract with B&V. The benefit of such releases, waivers, or limitations of liability shall extend to the related companies and subcontractors of any tier of B&V, and the shareholders, directors, officers, partners, employees, and agents of all released or indemnified parties.

2.0 Capacity and Annexation Fees

Many utilities assess capacity and annexation fees to help offset costs for tapping into existing system capacity or expanded system capacity. Generally levied at the time building permits or certificates of occupancy are required, District capacity and annexation fees are assessed for increased wastewater flows which result from either (1) changes in the use of a structure served by an existing connection to the system, or (2) a new connection to the system. For this report, both sources of additional wastewater flow are included in the term “new” customer.

Capacity fees and annexation fees are based on the premise that new or increased connections should pay for required wastewater system capacity to the extent that wastewater service charges do not support the investment for the required capacity. Other utilities often term similar charges as capital recovery fees, system development charges, impact fees, system equity charges, or other names. These fees represent the current demand requirement of each property and are not transferable to any other property located within the service area.

The cost of providing such capacity in wastewater system facilities for new customers can contribute significantly to the need for capital financing and service rates and/or taxes to support the financing. Collection of capacity and annexation fees to partially or wholly finance new customer capacity requirements can, over time, significantly reduce the amount of financing and the magnitude of rate increases that otherwise might be needed. Ideally, capacity and annexation fees should generate sufficient revenues to either 1) meet future expansion requirements so that existing users are not burdened by the costs of expansion caused by growth in system use by new users or 2) to reimburse existing customers for the system investment they have paid since the time of their connection to the system.

2.1 Legal Requirements in California

Many states have established specific laws regarding establishing, calculating, and implementing capacity fees and annexation fees. For most states, the primary objective of these laws is to assure that the charges are established in such a manner that they are fair, equitable, and cost-based.¹

2.1.1 Assembly Bill 1600

To guide the widespread imposition of such charges, the State Legislature adopted the Mitigation Fee Act (Act) with Assembly Bill 1600 in 1987 and subsequent amendments. The Act, contained in California Government Code (beginning with Section 66000), establishes requirements on local agencies for the imposition and administration of fee and charge programs. The Act requires local agencies to document five findings when adopting a fee. In 1997, the legislature provided for specific statutory authority for agencies such as the County to impose and collect certain charges (designated as “capacity charges”) to allow for financing and capital cost recovery for facilities (new or existing) to meet the demands imposed on such system from new users (see California Government Code Section 66013).

The five findings in the Act required for adoption of the maximum justified fees documented in this report are: 1) Purpose of Fee, 2) Use of Fee Revenues, 3) Benefit Relationship, 4) Burden

¹ Black & Veatch is not a legal firm and does not provide legal advice. Final determination of compliance with any legal requirements should be made by the County’s legal department.

Relationship, and 5) Proportionality. They are each discussed below and are supported throughout the remainder of this report.

2.1.1.1 Purpose of Fee

- Identify the purpose of the fee (§66001(a)(1) of the Act).

Many agencies follow a policy that new users or new development will not burden existing ratepayers with the cost of public facilities required to accommodate growth. The purpose of the capacity fee and annexation fee documented by this report is to implement this policy by providing a funding source from new users for infrastructure that is available to meet their demands on the system. The exaction of the capacity and annexation fees advances a legitimate interest by enabling the District to meet new users' wastewater collection and treatment needs.

2.1.1.2 Use of Fee Revenues

- Identify the use to which the fees will be put. If the use is financing facilities, the facilities shall be identified. That identification may, but need not, be made by reference to a capital improvement plan as specified in §65403 or §66002, may be made in general or specific plan requirements, or may be made in other public documents that identify the facilities for which the fees are charged (§66001(a)(2) of the Act).

The capacity fee and annexation fee documented by this report will be used to “buy-in” to the current wastewater system so long as enough capacity is available. Should new development create a need for additional capacity, the charge may be used to fund the costs associated with adding additional system capacity. Collected revenues will reimburse the District for capital investments that resulted in capacity for future demand, new facilities, upgraded existing facilities, or other capital infrastructure costs to keep the system operating at acceptable levels. The cost of the existing wastewater facilities was determined by the District's fixed asset records for the wastewater system.

2.1.1.3 Benefit Relationship

- Determine the reasonable relationship (rational nexus) between the use of capacity fees and annexation fees and the type of development project on which the fees are imposed (§66001(a)(3) of the Act).

The District's existing facilities and system provide a network of services accessible to the buildings and facilities resulting from new users or new development. Capacity fee and annexation fee revenues will be used to upgrade, restore, rehabilitate, maintain, and modernize the existing system, which will benefit all new users. Thus, there is a reasonable relationship between the use of fee revenues and the types of new users or new development that will pay the charge.

2.1.1.4 Burden Relationship

- Determine the reasonable relationship between the need for the public facilities and the types of development on which the fees are imposed (§66001(a)(4) of the Act).

The need for the facilities is based on the cumulative demands for service imposed on the system based on the number of new accounts using processes within the proposed development. The District uses Equivalent Dwelling Unit (“EDU”) designations to represent these demands for each customer type to be served by the system. EDU figures are based on each customer type's estimated

flow and strength loadings. Thus, there is a reasonable relationship based on sound engineering principles for the charges imposed.

2.1.1.5 Proportionality

- Determine how there is a reasonable relationship between the fees amount and the cost of the facilities or portion of the facilities attributable to the development on which the fee is imposed (§66001(b) of the Act).

The rational nexus between the capacity fee and annexation fee for a specific development project and the cost of the facilities attributable to the wastewater demand resulting from that development project will reflect that project's estimated wastewater system capacity demand. The total charge for a specific project is based on the project's projected use of existing wastewater system capacity. The schedule of charges converts the estimated capacity that a development project will use in the wastewater system into a charge based on the number of EDUs required by that project. Projects projected to demand more wastewater service and capacity will be assigned higher EDUs and will, correspondingly, pay a higher charge, as they can use more of the system's capacity. Thus, the schedule of charges provides a nexus between the capacity fee and annexation fee for a specific development project and the cost of the facilities associated with wastewater discharge demand resulting from that development project.

2.2 Basic Methodology

There is no single established method for determining capacity and annexation fees that is both appropriate for all situations and perfectly equitable to all new customers. There are, however, various approaches that are currently recognized and utilized within the fee setting industry, some to a greater extent than others, by wastewater utilities. These methods can be categorized as follows:

1. **System Buy-In Method.** Fees are designed to derive from the new customer an amount per connection equal to the "equity" in the system attributable to similar existing customers. (Note: The word "equity" refers to that portion of system value for which there is no offsetting debt. It does not imply ownership of or title to utility facilities.)
2. **Incremental Cost-Pricing Method.** This method is based on the premise that new connections to the wastewater system should be responsible for those costs which they cause to be incurred for the most recent or next increment of required system capacity, except as such costs are recovered from user fees or other utility charges. Fees are designed to derive from the new customer the marginal or incremental cost of system expansion associated with new customer growth.
3. **Combined Cost Approach.** Fees are based on system buy-in and incremental cost-pricing methods to establish a composite value of both existing and required expansion facilities required to serve new customers.

Revenues derived from capacity fees and annexation fees are commonly used to offset part or all capital costs to accomplish any of the following objectives:

- To pay the capital costs of future capacity provided for growth.

- To provide rate relief to existing system users by recovering that portion of the annual existing and future capacity capital costs associated with growth, including debt service requirements and direct asset purchases from current revenues.
- To accumulate reserves to finance system improvements and expansions required to meet growth needs.

The system buy-in method for developing capacity fees and annexation fees requires selecting a basis for determining plant value. A discussion of asset valuation methods follows.

2.3 Asset Valuation Methods

Various methods are employed to estimate the value of utility facilities required to furnish service to new users. The two principal methods commonly used to value a utility's properties are original cost and replacement cost, with or without considerations for depreciation of existing assets.

2.3.1 Original Cost

The principal advantages of the original cost method lie in its relative simplicity and stability since the recorded costs of tangible property are held constant. The major criticism levied against original cost valuation pertains to the disregard of changes in the value of money over time, which are attributable to inflation and other factors. As evidenced by history, prices have increased over time rather than remained constant. Because the value of money varies inversely with price changes, monetary values in most recent years have exhibited a definite decline, not recognized by the original cost approach. This situation causes further problems when it is realized that most utility systems are developed over time on a piecemeal basis as demanded by service area growth. Consequently, each property addition was paid for with dollars of different purchasing power. When these outlays are added together to obtain a plant value, the result can be seriously misleading.

2.3.2 Replacement Cost

The reproduction cost represents the cost of duplicating the existing utility facilities at current prices. Unlike the original cost approach, the replacement cost method recognizes price level changes that may have occurred since plant construction. Changes in the dollar's value over time, at least as considered by the impact of inflation, can be recognized by replacement cost property valuation.

The most accurate reproduction cost valuation would involve a physical inventory and appraisal of plant components in terms of their reproduction costs at the time of valuation. However, with original cost records available, a reasonable approximation of replacement cost plant value can easily be ascertained by trending historical original costs. An obvious advantage of the reproduction cost approach is that it considers changes in the value of money over time. This approach employs applicable cost indices to express actual capital costs experienced by the utility in terms of current dollars.

2.3.3 Depreciation

Depreciation considers the anticipated losses in plant value caused by wear and tear, decay, inadequacy, and obsolescence. Considerations of the current value of utility facilities may also be materially affected by the effects of age and depreciation. To appropriately recognize the effects of depreciation on existing utility facilities, both the original cost and reproduction cost valuation measures

can also be expressed on an original cost less depreciation (OCLD) or a replacement cost less depreciation (RCLD) basis. These measures are identical to the valuation methods, except that accumulated depreciation is computed for each asset account based upon its age or condition and deducted from the respective total original cost or replacement cost to determine the OCLD or RCLD measures of plant value.

Recognition of depreciation in establishing value for purposes of system development charge under the system buy-in approach is appropriate in consideration of the fact that, once the new connector has "bought into" the system, he assumes the same status as similar existing customers. This includes assuming the same responsibilities for future replacement of worn-out or obsolete facilities.

2.4 Recommended Approach

This section presents an analysis of the cost of the current wastewater facilities available to meet the wastewater system demands resulting from new users within the District, from which the maximum justified wastewater capacity and annexation fees can be determined. Because District and Metro assets have available capacity to meet the projected demand over the study period, Black & Veatch recommends the District use the system buy-in approach for calculating future District capacity and annexation fees.

As mentioned earlier in this section, the basis for the buy-in approach is that new connections will pay for their fair share of the remaining capacity in existing system facilities. The charge is calculated such that new users will be required to contribute at the same rate as existing users on a per EDU of capacity basis. A schedule of fees is presented based on the cost of these facilities to ensure that new users provide adequate funding to meet their needs.

The unique aspect of the District's capacity fee and annexation fee structure is that it includes asset elements of the District (collection and local treatment) and Metro system assets (treatment). For the proposed fee structure, we recommend the structure contain the following elements: 1) Metro treatment component for those connections in Metro service areas, 2) Local treatment component for those connections in non-Metro service areas that have local treatment facilities, and 3) Collection and other facilities component which would be the basis for the annexation fee. Depending on the parcel location of the new connection, the capacity fee and annexation fee charged would be different. In some cases, an annexation fee would not be charged if the parcel is currently within the District service area.

2.4.1 Metro Treatment System

The District's service areas of Alpine, Lakeside, Spring Valley, Winter Gardens, and East Otay Mesa have capacity rights to the Metro system through the District. As such, the District must pay for its share of the costs for planning, design, and construction of Metro system facilities. The estimated current Metro system fixed assets valuation is based on the Wastewater Rate Study dated March 23, 2021 on behalf of the City of San Diego². The report provides the 2019 value of the Metro system and

² City of San Diego, Wastewater Financial Plan, Cost of Service, and Rate Study, Final Report, March 23, 2021 by Raftelis Financial Consultants.

serves as the basis for determining the cost per gallon. The asset value approach used in the City of San Diego's analysis is the Replacement Cost less Depreciation.

Black & Veatch updated the cost per gallon figures by applying national Engineering News Record ("ENR") Construction Cost Index ("CCI") factors for the past year to bring the Metro system asset value to 2022 terms. The ENR-CCI index is commonly used in the utility industry to project future values of capital assets and bring past asset values to today's terms. Table 2-1 presents this analysis with the resulting cost per gallon figure of \$6.59 used for the District's capacity fee structure.

Table 2-1 Metro System Fixed Asset Value

Line No.	Description	Original Cost	Original Cost less Depreciation	Replacement Cost New	Replacement Cost New Less Depreciation
		(\$)	(\$)	(\$)	(\$)
	Metro System				
1	Backbone Net System Investment (1)	1,566,051,473	1,017,527,199	3,199,202,466	1,719,380,056
2	less: Developer Contributions	0	0	0	0
3	Growth-Related Capital Improvement Projects	374,879,708	374,879,708	374,879,708	374,879,708
4	less: Credit of Outstanding Principal (2)	(632,154,378)	(632,154,378)	(632,154,378)	(632,154,378)
5	Total System Value	\$1,308,776,803	\$760,252,529	\$2,941,927,796	\$1,462,105,386
6	Total Capacity Served (gpd)	255,000,000	255,000,000	255,000,000	255,000,000
7	Unit Cost of Capacity (2019 - \$/gpd)	\$5.13	\$2.98	\$11.54	\$5.73
8	Unit Cost of Capacity (2022 - \$/gpd) (3)	\$5.90	\$3.43	\$13.27	\$6.59

Notes:

1. Provided by City of San Diego. Excludes equipment, equipment - computers, and vehicles.
2. Outstanding principal includes SRF and Bonds.
3. Updated by Engineering News Record Construction Cost Index (National) to reflect current value. ENR CCI-LA percentage change from 2019 to 2022.

2.4.2 Local Treatment System, Collection and Other Facilities

According to the District's Fixed Asset Listing, the RCLD of the County wastewater system assets as of June 2022 was \$128,248,949. This amount includes construction work-in-progress. For purpose of this study, Black & Veatch recommends that the District use the RCLD of the system to calculate the capacity and annexation fees. Many of the District assets are advanced in their useful life estimate, which means that existing District customers have borne the risk and responsibility of the initial asset investments and ongoing depreciation. The assets were constructed with enough capacity to accommodate existing customers and potential new connections to the system. Existing customers have carried the investment and depreciation expenses for many years. Therefore, new connections have a responsibility to reimburse existing customers for their fair share of the carrying cost.

2.4.2.1 Local Treatment Facilities

The District's service areas of Julian, Campo, and Pine Valley have capacity in the local treatment system. Table 2-2, Line 6 presents the current value of the District's local treatment system assets to which new development in those SSAs can connect to. In calculating the capacity fee element for local treatment service areas, asset valuations for local treatment assets are considered. As of June 2022, the total local treatment asset value was \$1,691,011.

2.4.2.2 Collection and Other Facilities

The annexation fee element is related to the District's collection system and other facilities excluding treatment. Within the service areas of the District, the initial collection facilities were largely financed through assessment districts and associated bonds. Parcel owners within the District boundary were subject to assessment liens to help pay for the debt service on those bonds. The assessment bonds have since been retired. Therefore, any new connections to the District system from parcels outside of the District boundary (i.e. parcels requesting to annex into the District) would not have been subject to the assessment liens. To help reimburse the existing customers who were subject to the liens, the District proposes that new connections from parcels outside of the District boundary continue to pay a one-time annexation fee that would help pay for the collection system and other facility assets, excluding treatment facilities. The Total Local Fixed Asset Value (line 9) presented in Table 2-2 less the Treatment Value (line 6) represents the current value of the District's collection system.

Table 2-2 Local Fixed Asset Value

Line No.	System Component	Original Cost	Original Cost less Depreciation	Replacement Cost New	Replacement Cost New less Depreciation
		\$	\$	\$	\$
County Fixed Assets					
1	Collection	40,636,837	12,008,814	156,148,578	28,903,862
2	Interceptor	43,560,143	25,662,545	92,373,695	43,054,711
3	Manhole	6,495,964	5,255,784	8,988,671	7,230,246
4	Outfall	16,730,297	10,429,177	53,511,252	16,265,428
5	Pump Station	20,382,753	15,635,141	33,390,168	21,511,918
6	Treatment	1,927,663	901,937	4,821,221	1,691,011
7	General Plant	5,053,518	3,272,217	8,135,823	4,597,005
8	Construction in Progress	4,994,768	4,994,768	4,994,768	4,994,768
9	Total Plant Investment	\$139,781,943	\$78,160,381	\$362,364,176	\$128,248,949

2.4.3 Capacity and Annexation Fee

Estimated current demand on the systems is measured in terms of EDUs. An EDU is typically associated with a single-family household generating 240 gallons per day ("gpd") of wastewater. Table 2-3 presents the EDUs associated with the District. The EDUs associated with the Metro treatment system is 72,929 while the EDUs associated with local treatment is 867.

Table 2-3 Equivalent Dwelling Units

Description	Capacity (mgd)	Capacity (EDU)
Capacity Rights (Metro)	17.503	72,929
Capacity (Campo)	0.088	367
Capacity (Julian)	0.080	333
Capacity (East Otay Mesa)	0.040	167
Total Sanitation Supply Capacity	17.711	73,796
2022 System Average Day Flow	8.902	37,090
2022 Available Sanitation Capacity	8.809	36,706

mgd - million gallons per day

Since Julian, Campo, and Pine Valley service areas utilize individual treatment plants, the analysis separates fees for new connections to these three areas from fees for the other service areas of the District that send effluent to the Metro facility. All service areas utilize the other assets of the District system (collection, lift stations, general plant, and construction work-in-progress); thus, these cost components were treated separately and included in the annexation fee component for Metro and non-Metro service areas.

Table 2-4 presents the calculation of the proposed capacity fees (Metro and Local) as well as the proposed annexation fee.³

Table 2-4 Capacity and Annexation Fee Calculations

Line No.	Description	Original Cost	Original Cost less Depreciation	Replacement Cost New	Replacement Cost New Less Depreciation
Metro Treatment Component (Metro Service Areas)					
1	Metro Value (\$/gpd)	5.90	3.43	13.27	6.59
2	District Flow to Metro (EDU)	72,929	72,929	72,929	72,929
3	District Flow to Metro in MGD (EDU x 240 gpd)	17,503,000	17,503,000	17,503,000	17,503,000
4	Value of Flow Demand (\$)	103,307,231	60,009,914	232,218,674	115,410,098
5	Total Metro Capacity Fee (\$/EDU)	\$1,417	\$823	\$3,184	\$1,582
Local Treatment Component (Julian, Pine Valley, Campo)					
6	Local Treatment Asset Value (\$)	1,927,663	901,937	4,821,221	1,691,011
7	Julian, Pine Valley, Campo Flow (EDU)	867	867	867	867
8	Local Treatment Capacity Fee (\$/EDU)	\$2,224	\$1,041	\$5,563	\$1,951
Other Wastewater Facilities Component (All Service Areas)¹					
9	Other Facilities Asset Value (\$)	137,854,280	77,258,445	357,542,955	126,557,938
10	Total District Flow (EDU)	73,796	73,796	73,796	73,796
11	Total Annexation Fee (\$/EDU)	\$1,868	\$1,047	\$4,845	\$1,715

1. Includes Collection, Interceptors, Pump Station, General Plant, and Construction Work-in-Progress facilities.

³ The fees presented in this report represent the maximum calculated value based on available information. The District may choose to adopt fees that are less than those determined in this report.

Table 2-5 summarizes the maximum calculated fee for new connections to the District's system based on the RCLD methodology.

Table 2-5 Proposed Capacity and Annexation Fees

Line No.	Description	Proposed Fees
		(\$/EDU)
1	Metro Capacity Fee (Inside District)	\$1,582
2	Metro Capacity Fee and Annexation Fee (Outside District)	\$3,297
3	Local Capacity Fee (Inside District)	\$1,951
4	Local Capacity Fee and Annexation Fee (Outside District)	\$3,666