FINAL REPORT

Wastewater Rates and Fees Study

Prepared for
City of Rochester, Minnesota
November 1, 2021

MUNICIPAL FINANCIAL SERVICES
2960 Valley Basin Avenue, Henderson, Nevada 89052-3814

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List of Abbreviations

BOD	Biochemical Oxygen Demand
CAFR	Comprehensive Annual Financial Report
Ccf	Hundred Cubic Feet (equal to ~ 748.1 gallons)
CCI	Construction Cost Index
CIP	Capital Improvement Program
City	City of Rochester
COW	Committee of the Whole
DSC	debt service coverage
FY	Fiscal year (July 1 to June 30)
ENR	Engineering News Record
ERU	Equivalent Residential Unit
gpd	gallons per day
I/I	Inflow/Infiltration
mgd	million gallons per day
MHI	Mean Household Income
NH3-N	Ammonia Nitrogen
O&M	Operation and maintenance
PIF	Plant Investment Fee
RCA	Request for Council Action
RCO	Rochester Code of Ordinances
RPU	Rochester Public Utilities
TP	Total Phosphorous
TSS	Total Suspended Solids
UA	Unaccounted
UPC	Uniform Plumbing Code
WRP	Water Reclamation Plant

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Executive Summary

The City of Rochester, in conjunction with Municipal Financial Services, has analyzed the adequacy of revenues from rates to meet projected expenditures of the wastewater enterprise fund to determine whether revenues will be adequate to cover operating and maintenance costs as well as needed capital costs while meeting target reserve levels. Wastewater charges and Plant Investment Fees were developed for the six-year period 2022 through 2027.

Recommended Fixed Charges, Quantity Charges and High Strength Surcharges

Fixed charges and quantity charges are summarized in Table ES-1. High strength surcharges are summarized in Table ES-2. The charges shown in these tables are those to be adopted by resolution for implementation. Fixed charges and quantity charges apply to residential and the main commercial customer class.

Table ES-1. Recommended Fixed and Quantity Charges, 2022 - 2027

		Current	Recommended					
Charge		2021	2022	2023	2024	2025	2026	2027
Fixed Charges	$/month	$19.00	$19.00	$19.10	$19.20	$19.30	$19.40	$19.50
Quantity Charges	$/Ccf	$4.160	$4.19	$4.22	$4.26	$4.29	$4.32	$4.35

High strength surcharges are unit costs for flow, BOD, TSS, TP and NH3-N that are applied to customers whose wastewater discharge cannot be characterized as residential or grouped with the main commercial customer class. These surcharges are applied to 16 accounts. Some customers have multiple accounts.

Table ES-2. Recommended High Strength Surcharges, 2022 - 2027

		Current	Recommended					
Charge		2021	2022	2023	2024	2025	2026	2027
High Strength Surcharges								
Flow	$/Ccf	$1.99	$1.91	$1.93	$1.94	$1.96	$1.97	$1.98
BOD	$/pound	$0.47	$0.54	$0.55	$0.55	$0.56	$0.56	$0.57
TSS	$/pound	$0.44	$0.43	$0.44	$0.44	$0.44	$0.45	$0.45
TP	$/pound	$6.00	$5.98	$6.03	$6.09	$6.14	$6.19	$6.24
NH3-N	$/pound	$2.21	$2.23	$2.25	$2.27	$2.28	$2.30	$2.31

Recommended Plant Investment Fees

The City established Plant Investment Fees (PIF) upon those developments and redevelopments that create the need for or increase the demands on the Water Reclamation Plant. The PIFs shown in these tables are those to be adopted by resolution for implementation.

Residential Units. The PIF is established as an Equivalent Residential Unit (ERU). Recommended PIFs for Residential and ERUs for 2022 – 2027 are summarized in Table ES-3.

Table ES-3. Recommended Residential Plant Investment Fees, 2022- 2027

		Current	Recommended					
Customer Class	Unit of Service	2021	2022	2023	2024	2025	2026	2027
Residential	Per connection	$3,600	$3,750	$3,900	$4,050	$4,200	$4,350	$4,500

Multiple Dwelling Units. Buildings containing more than three dwelling units will be charged 70% (down from the current 80%) of the cost of one Equivalent Residential Unit PIF for each unit. Recommended PIFs for Multiple Dwelling Units for 2022 – 2027 are summarized in Table ES-4.

Table ES-4. Recommended Residential Plant Investment Fees, 2022- 2027

		Current	Recommended					
Customer Class	Unit of Service	2021	2022	2023	2024	2025	2026	2027
Multiple Dwelling Unit	Per connection	$2,880	$2,650	$2,750	$2,850	$2,950	$3,050	$3,150

Non-residential Developments. New and redeveloped non-residential developments that do not have a discharge permit from the Water Reclamation Plant will have a Plant Investment Fee based on the size of each installed water meter, excluding those designated by Rochester Public Utilities as being installed as irrigation meters. The minimum meter size is 5/8" x 3/4" and the current (2021) PIF for that meter size is based on 25 fixture units as defined by the Uniform Plumbing Code, State of Minnesota, Chapter 4715.2300, subpart 3, using the drainage fixture unit values shown. Based on changes to the Uniform Plumbing Code (UPC) the recommended number of fixture units is increased to 32. The PIF for the 5/8" x 3/4" meter will be prorated based on the per fixture unit fee shown and the number of installed fixture units. PIFs based on meter size for 2022 – 2027 are summarized in Table ES-5.

Table ES-5. Recommended Non-residential Plant Investment Fees, 2022 - 2027

		Current	Recommended					
Customer Class	Unit of Service	2021	2022	2023	2024	2025	2026	2027
Non-Residential Developments								
Fixture Units per Connection		25	32	32	32	32	32	32
⅝ x ¾ per Fixture Unit	Per fixture unit	*$216*	*$177*	*$184*	*$192*	*$198*	*$206*	*$213*
Water Meter Size								
⅝ x ¾	Per connection	$5,400	$5,650	$5,900	$6,150	$6,350	$6,600	$6,800
¾	Per connection	$15,100	$7,400	$7,650	$7,950	$8,250	$8,550	$8,850
1	Per connection	$21,200	$13,000	$13,600	$14,100	$14,600	$15,100	$15,700
1½	Per connection	$48,200	$22,700	$23,600	$24,500	$25,400	$26,300	$27,200
2	Per connection	$105,800	$36,900	$38,300	$39,800	$41,300	$42,800	$44,200
3+	Per connection	$105,800	$128,800	$133,900	$139,100	$144,200	$149,400	$154,500

Permitted Non-residential Developments. Permitted Non-residential developments are commercial and industrial developments that have industrial discharge permits with the Water Reclamation Plant that specify the allowable flows and loads that may be discharged. The commercial or industrial developments that have industrial discharge permits with the Water Reclamation Plant that do not specify allowable flows and loads that may be discharged are subject to the PIF based on water meter size as described for Non-residential developments. When there is a requirement that the discharge limits be increased, a Plant Investment Fee will be determined based on the Equivalent Residential Unit fee. These developments pay a high strength waste surcharge on their monthly bill based on their usage; therefore the PIF calculated as a percent of the rates determined for an ERU. The percent of ERU for calculation of Recommended PIFs is increased to 60% from the current (2021) 5%.

The unit rates that will be used for determining the PIF for Permitted Non-residential developments for 2022 – 2027 are summarized in Table ES-6.

Table ES-6. Recommended Permitted Non-residential Plant Investment Fees, 2022 - 2027

			Current	Recommended					
Customer Class		Unit of Service	2021	2022	2023	2024	2025	2026	2027
Permitted Non-Residential Developments									
Flow	$/Ccf/day	Per Permit	$499	$6,240	$6,480	$6,730	$6,980	$7,230	$7,480
BOD	$/lb/day	Per Permit	$161	$2,010	$2,090	$2,170	$2,250	$2,330	$2,410
TSS	$/lb/day	Per Permit	$76	$950	$980	$1,020	$1,060	$1,100	$1,140
TP	$/lb/day	Per Permit	$1,816	$26,480	$27,540	$28,600	$29,660	$30,710	$31,770
NH3-N	$/lb/day	Per Permit	$929	$10,490	$10,910	$11,330	$11,750	$12,170	$12,590

Recommended Trucked Liquid Waste Charges

Charges for trucked liquid waste – Septage, Portable Toilet and FOG (Fats, Oils and Grease) wastes – are shown in Table ES-7.

Table ES-7. Recommended Trucked Liquid Waste Charges, 2022 - 2027

		Current	Recommended					
Hauled Waste Charges		2021	2022	2023	2024	2025	2026	2027
Portable Toilet Waste	$/1000 gallons	$153.00	$123.00	$124.00	$125.00	$126.00	$127.00	$128.00
Fats, Oils and Greases	$/1000 gallons	$35.00	$36.00	$37.00	$38.00	$39.00	$40.00	$41.00
Septage	$/1000 gallons	$120.00	$123.00	$124.00	$125.00	$126.00	$127.00	$128.00

Recommended Monitoring and Sampling Charges

Monitoring, sampling and analysis charges are shown in Table ES-8. Charges are based on direct lab fees, personnel hours and equipment costs for gathering samples, and shipping fees.

Table ES-8. Monitoring, Sampling and Analysis Charges, 2022 - 2027

	Current	Recommended					
Monitoring and Sampling Charges	2021	2022	2023	2024	2025	2026	2027
Monthly Monitoring Charge	$1,850	$980	$1,010	$1,040	$1,070	$1,100	$1,130
Sampling Charge	na	$170	$180	$180	$190	$200	$200
Metals Analysis Charge	$380	$280	$290	$300	$300	$310	$320
Conventional Pollutants Analysis Charge	$380	$140	$150	$150	$150	$160	$160

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Section 1
Introduction

This report documents the development of wastewater rates (monthly charges and quantity charges) and plant investment (connection) fees to recover annual costs for the capital improvement program (CIP) and the operation and maintenance (O&M) of the City of Rochester (City) wastewater utility. Rates and fees are developed on a sound enterprise basis while maintaining a prudent fund balance and debt service coverage ratios.

1.1 Project Authorization and Objectives

During April 2021, Municipal Financial Services entered into an agreement with the City to prepare a study that documents the development of a financing plan and wastewater rate analysis. The project objectives were to develop projected rates and fees using development processes established in previous studies. The rate development process in this study and in the previous studies were all in accordance with standard industry practices.

1.2 Organization of the Report

The report is organized into seven chapters and multiple appendices. Following the introduction in Section 1, Section 2 describes the customer characteristics (number, type and level of use) of wastewater system users. Section 3 describes the projected operating and capital improvement program expenditures and allocation of costs. Section 4 describes the development of unit costs and charges. Section 5 summarizes monthly bills and revenues for each customer class. The development of plant investment fees is described in Section 6. The rate adoption process and a description of documents related to the process are provided in Section 7.

1.3 Rate-Making Objectives

There are numerous rate-making objectives that must be considered when developing rates and rate structures.

Revenue sufficiency. Generate sufficient revenue to fund operating costs, capital costs and bonded debt, and maintain adequate reserves.

Revenue stability. Recover revenue from fixed and quantity charges that will cover all costs.

Conservation signal. Reward customer for efficient indoor water use and discourage its waste.

Administrative efficiency. Enable efficient implementation and ongoing administration, including monitoring and updating.

Affordability. Be as affordable as possible while maintaining the utility's sound financial position and credit rating.

Customer acceptance. Be as simple as possible to facilitate customer understanding and acceptance.

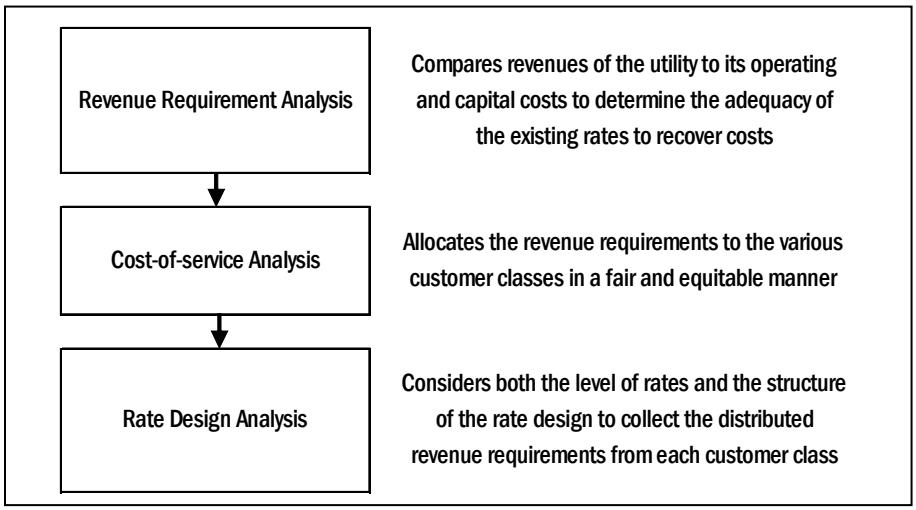
Fairness. Provide for each customer class to pay its proportionate share of the required revenue in compliance with legal rate-making requirements.

Economic development. Operation of the enterprise must be competitive with local jurisdictions to retain and attract economic development.

1.4 Overview of Utility Rate Setting Process

Rate studies classically have three categories of technical analysis – the development of revenue required from rates, the allocation of costs among functional cost categories (cost-of-service analysis) and the design of a rate structure. An overview of the rate-setting analytical steps is shown in Figure 1-1.

The revenue required from rates is net of non-rate revenues (for example interest earned on fund balances, loan disbursements and revenue from new connections to the system) and other revenues not required from rates (such as revenue from service turn on/off).



The allocation of costs are structured so that the revenue required from charges is distributed proportionally for every level of service in a manner that allows the development of unit costs. The rate structure uses the unit costs as a basis for aggregating costs into rates that are applicable to the various customer classes.

Figure 1-1. Overview of Rate Setting Analytical Steps

Information and data for the development of water rates and preparation of this report comes from a number of documents provided by the City. The list of documents, and the key information and data from each used in this study, are summarized below.

City of Rochester Calendar Year 2021 Expenditure Adopted Budget. The City provided its adopted budgets for two Business Units in the Sewer Utility Enterprise Fund –Water Reclamation Plant (Account 49631) and Sewer Collections (Account 49611). Starting in 2022, both budgets are combined into a single operating budget for management efficiency, however, total operating budget projects remain the same for this analysis.

Capital Expenditures Plan, Current Debt and New Debt Obligations. The City provided annual projections of capital expenditures for the time period 2022 - 2045. The City provided annual projections of debt service for current debt and projected interest rates and debt duration for new debt service.

Rochester Code of Ordinances. Section 12-6-2 of the Rochester Code of Ordinances authorizes the Common Council to establish by resolution a fixed and quantity charge, a high strength surcharge, a capital equalization charge, a residential charge, a monitoring charge, hauled liquid waste charges and a plant investment fee for connection to and use of the City of Rochester wastewater facility.

Rochester Public Utilities Billing System data. The City provided sewer flow data for each customer class and permitted customers for 2019, 2020 and 2021. Sewer flow was based on water use data provided by Rochester Public Utilities (RPU).[1]

Water Reclamation Plant data. The City provided sewer pollutant load data for each customer class, permitted customers, and hauled waste for 2019, 2020 and 2021.

[1] Rochester Public Utilities owns and operates power generating, distribution, and water distribution facilities to serve the city of Rochester, MN. More than 50,000 electric customers and more than 40,000 water accounts are currently served by RPU.

1.5 Rochester Wastewater Utility

The City provides wastewater collection and treatment services to about 40,200 connections located both inside and outside the city limits.[2] The majority of these customers, approximately 37,100 (92 percent), are residential.

1.6 Projected Revenue from 2021 Charges for Services

Projected revenue from 2021 charges for services of approximately $28,960,000 is shown in Table 1-1. The amount of revenue from charges for services shown in the 2015 Rate Study for 2021 was $33,810,000.

Table 1-1. Projected Revenue from 2021 Charges for Services

		Fixed Charge		Quantity	Quantity Charge		Total	
Customer Classification	Accounts	$/month/Acct	Revenue	Ccf	$/Ccf	Revenue	Revenue	
Residential Users	36,845	$19.00	$8,400,660	2,139,379	$4.1600	$8,899,817	$17,300,477	*60%*
Commercial Users								
User 1	1	$19.00	$228	17,566		$138,412	$138,640	
User 2	1	$19.00	$228	31,228		$140,809	$141,037	
User 3	1	$19.00	$228	152,236		$640,831	$641,059	
User 4	1	$19.00	$228	29,764		$228,756	$228,984	
User 5	1	$19.00	$228	51,233		$359,705	$359,933	
User 6	1	$19.00	$228	15,126		$63,672	$63,900	
User 7	1	$19.00	$228	19,029		$80,104	$80,332	
User 8	1	$19.00	$228	68,311		$287,552	$287,780	
User 9	1	$19.00	$228	20,005		$99,334	$99,562	
User 10	1	$19.00	$228	2,440		$10,270	$10,498	
Other Commercial	3,143	$19.00	$716,604	1,720,460	$4.1600	$7,157,113	$7,873,717	
Subtotal, Commercial	3,153		$718,884	2,127,398		$9,206,557	$9,925,441	*34%*
Industrial/Trucked Waste								
User 1	1	$19.00	$228	44,922		$782,184	$782,412	
User 2	1	$19.00	$228	129,043		$701,552	$701,780	
User 3	1	$19.00	$228	21,092		$108,145	$108,373	
User 4	1	$19.00	$228	4,879		$20,270	$20,498	
User 5	1	$19.00	$228	2,928		$12,162	$12,390	
User 6	1	$19.00	$228	6,343		$26,351	$26,579	
Leachate			$0	7,434		$25,123	$25,123	
Portable Toilets			$0	537		$35,382	$35,382	
FOG			$0	324		$8,491	$8,491	
Septage			$0	357		$31,938	$31,938	
Subtotal, Ind/Trucked	6		$1,368	217,859		$1,751,597	$1,752,965	*6%*
Totals	40,004		$9,120,912	4,484,636		$19,857,972	$28,978,884	*100%*
Total (rounded to $10,000)							$28,980,000	

[2] The City provides service to 103 accounts in the Chester Heights Sanitary Sewer District.

1.7 Wastewater System Replacement Value

Annual costs for the City's CIP exceed O&M expenditures and reflect the need for continued investments for maintenance, repair and replacements in wastewater system facilities. As shown in Table 1-2, the City's acquisition (accounting book) value of its wastewater system is approximately $529,000,000 and its current replacement value is approximately $1,104,000,000.

Table 1-2. Wastewater System Replacement Value

Wastewater System Component	Accounting Book Value [1, 2]	Replacement : Accounting Value [3]	Estimated Replacement Value
Water Reclamation Plant	$333,000,000	1.9	$632,700,000
Collection System	$196,200,000	2.4	$470,900,000
Total Wastewater System	**$529,200,000**		**$1,103,600,000**

Notes:

1 The book value is based on the acquisition cost plus accumulated depreciation as shown in the Comprehensive Annual Financial Report for the Year Ending December 31, 2020, page 29.

2 The split between Water Reclamation Plant and Collection System is based on findings from the 2009 Study.

3 The ratio of replacement value to acquisition value is based on findings from studies of these values performed by the consultant for other municipalities.

Figure 1-2 shows the approximate current replacement value for each component of the system and the percentage contribution of each component to the total system value.

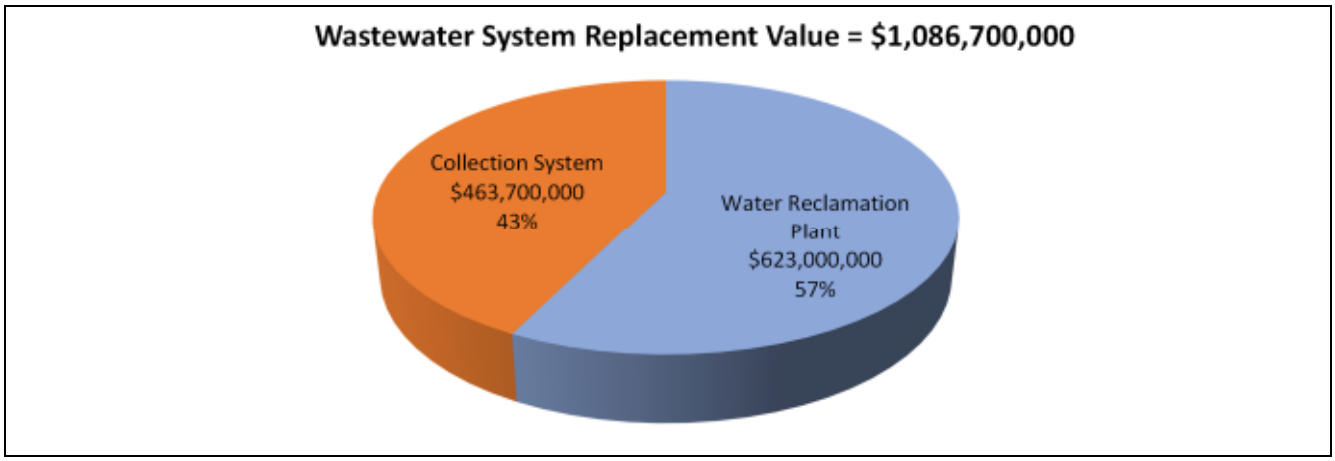


Figure 1-2. Wastewater System Replacement Value

1.8 Affordability Evaluation

Affordability was evaluated based on principles found in the U.S. Environmental Protection Agency's (EPA's) *Affordability Assessment Tool for Federal Water Mandates* (Affordability Manual).[3] This document describes the EPA's current policies for analyzing the affordability of water, wastewater, and storm water mandates on American communities. Residential monthly wastewater bills based on 2021 wastewater charges were evaluated using methods described in the EPA's Affordability Manual. The evaluation is summarized in the table below and in the following list of findings.

Table 1-3. Current (2021) Residential Monthly Wastewater Bill Affordability Evaluation

	Household income in the past 12 months (Inflation-Adjusted Dollars) [1]							
	Minnesota				City of Rochester			
	2019		2018		2019		2018	
Total Households	2,222,568		2,194,452		50,479		49,361	
Less than $10,000	4.1%	4%	4.4%	4%	2.7%	3%	4.7%	5%
$10,000 to $14,999	3.4%	8%	3.8%	8%	2.8%	6%	4.6%	9%
$15,000 to $24,999	6.5%	14%	7.3%	16%	5.8%	11%	8.0%	17%
$25,000 to $34,999	7.2%	21%	7.9%	23%	8.3%	20%	6.8%	24%
$35,000 to $49,999	11.3%	33%	12.1%	36%	12.3%	32%	12.9%	37%
$50,000 to $74,999	17.6%	50%	17.4%	53%	18.5%	50%	16.0%	53%
$75,000 to $99,999	14.5%	65%	13.8%	67%	12.9%	63%	14.6%	68%
$100,000 to $149,999	18.5%	83%	17.8%	85%	18.2%	82%	15.9%	84%
$150,000 to $199,999	8.3%	91%	7.7%	92%	8.7%	90%	8.1%	92%
$200,000 or more	8.5%	100%	7.6%	100%	9.8%	100%	8.5%	100%
Median income (dollars)	74,593		70,315		74,527		70,094	
Mean income (dollars)	96,995		93,047		96,813		96,055	

1. American Community Survey, Datasets ACSST1Y2019 and ACSST1Y2018, ACS 1-Year Estimates Subject Tables

Affordability Assessment			
Median Household Income (MHI) *less than 80% is disadvantaged*	2019	2018	2017
Statewide Minnesota Median Household Income	$74,593	$70,315	$68,388
Rochester Median Household Income	$74,527	$70,094	$75,464
Rochester MHI as a percentage of the State MHI	**99.9%**	**99.7%**	**110.3%**
2021 Single Family Annual Average Wastewater Bill based on $39.13/mo. Bill	$469.56	$469.56	$469.56
Annual Average Wastewater Bill as a % of Rochester MHI	**0.63%**	**0.67%**	**0.62%**

Finding 1 – Mean Household Income. Mean household income (MHI) for the State of Minnesota and for the City of Rochester were obtained from the United States Census Bureau American Community Survey (ACS) 1-Year Estimates Subject Tables found on the United States Census Bureau website. MHI for the City of Rochester in 2019 and 2018 was nearly identical to that for the State of Minnesota (in 2017 it was about 10 percent greater than that for the State). Communities with MHI less than 80% of the State MHI may be considered disadvantaged. The City of Rochester is not considered disadvantaged based on Affordability Manual guidance.

Finding 2 – Average Monthly Wastewater Bill as Percentage of MHI. Monthly wastewater bills less than or equal to 2% of MHI are considered affordable for a community. The average monthly wastewater bill for the City of Rochester – approximately $39 – as percentage of 2019 MHI is 0.65% of MHI. The City of Rochester wastewater bills are considered affordable based on this analysis.

Finding 3 – Average Monthly Wastewater Bill at 2% of MHI. Monthly wastewater bills at 2% of 2019 MHI would be equal approximately $124 per month ($74,527 x 2 percent ⁄ 12).

[3] Copyright 2013, U.S. Conference of Mayors, American Water Works Association, and Water Environment Federation.

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Section 2

Customer Wastewater Discharge Characteristics

In order to recover the costs of providing wastewater collection, treatment and disposal services from these customers according to their demands on the system, these customers must be identified and the characteristics of their wastewater specified.

Annual discharges of volume, biochemical oxygen demand (BOD), total suspended solids (TSS), total phosphorus (TP) and ammonia nitrogen (NH3-N) must be documented for the residential and commercial customer classes and individual large commercial and industrial customers in order to develop an equitable rate structure in which user charges are based on both the quantity and strength of wastewater discharged. The purpose of this chapter is to identify and document current customer wastewater characteristics and to project customer wastewater characteristics for the defined six-year rate development study period, calendar years 2022 - 2027.

2.1 Residential Accounts and Wastewater Discharge Characteristics

Residential wastewater discharge volume was evaluated in detail. Wastewater discharge volume for residential accounts is estimated by using metered water use during winter months. The direct measurement of wastewater volume for individual residential accounts is not technically feasible or administratively economical. Winter months used for this estimate are January, February and March. The City adopted the use of winter water use as a basis for calculating the volume component of the residential sewer charge in the 1980s. The method of using winter water use as a basis for calculating the volume component of the residential sewer charge is standard industry practice.

The quantity of wastewater volume billed for residential customers is either the winter average or the actual usage, whichever is less. When actual metered water use is less than the winter average use for an individual account, the actual metered use for that period becomes the wastewater flow billed. In this manner, the annual wastewater volume billed will be less than the annualized winter average use. For the entire residential customer class, the wastewater volume billed will always be slightly less than average winter water use.

Evaluation began with a review of residential wastewater volume for the 23-year period 1998 - 2020. The review focused on projected residential wastewater volume data from the past four rate studies (the 1998 Study, the 2004 Study, the 2009 Study and the 2015 Study) and actual wastewater volume data from the City's billing department (RPU data) for the time periods 2001 – 2003, 2006 – 2014, and 2016 – 2020.

The RPU data indicates a significant decline in average wastewater volume between 1998 and 2020. The level of average winter water use (the proxy for wastewater volume) declined from 193 gallons per day (gpd) in 1998 to 161 gpd in 2003 – a decline of approximately 17 percent. Average winter water use continued to decline from 161 gpd in 2003 to 137 gpd in 2008 – a decline of approximately 15 percent. Over the following twelve years, average winter water use declined further from 137 gpd in 2008 to 117 gpd in 2020 – a decline of approximately 15 percent.

Based on review of residential average wastewater volume for the 23-year period 1998 - 2020, it is projected that average wastewater volume will be 119 gpd in 2021 and remain at that level for the next six years. Data from the 1998 Study, the 2004 Study, the 2009 Study, the 2015 Study, RPU data, and projections used in this study are shown in Figure 2-1.

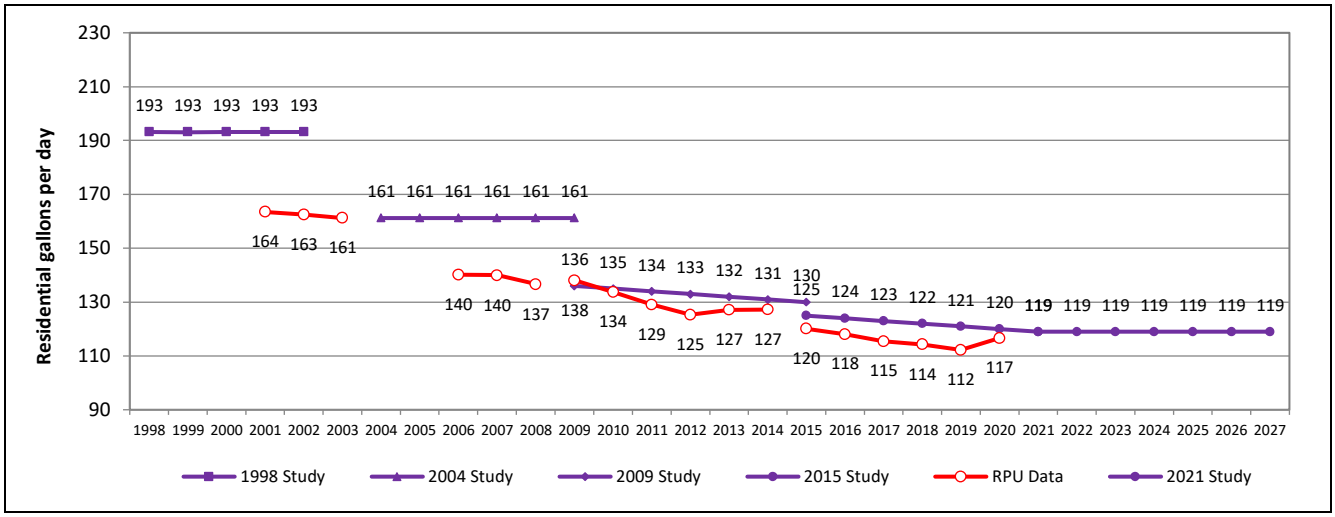

Figure 2-1. Residential Average Wastewater Discharge Volume (gpd), 1998 - 2027

The number of residential accounts was evaluated in a manner similar to that used for residential average wastewater discharge volumes for the 23-year period 1998 - 2020. The average annual increase in residential accounts during the eight-year period 2008 – 2014 was approximately 325 per year. The average annual increase in residential accounts during 2016 - 2020 was 265 per year. The average annual increase in accounts projected for 2021 – 2027 is projected to be 360. Data from the 1998 Study, the 2004 Study, the 2009 Study, the 2015 Study, RPU data, and projections used in this study are shown in Figure 2-2.

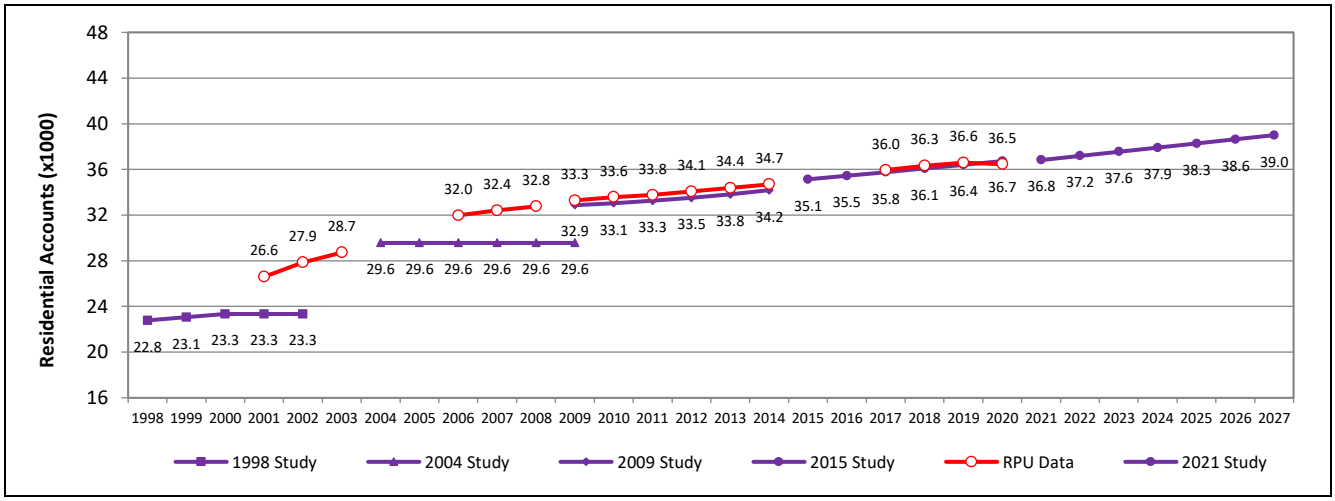

Figure 2-2. Residential Accounts, 1998 - 2027

Annual discharge (in pounds) of biochemical oxygen demand (BOD), total suspended solids (TSS), total phosphorus (TP) and ammonia nitrogen (NH3-N) for residential customers were developed based on residential wastewater discharge volume, the number of accounts and the estimated average concentrations of pollutants based on sewer system sampled data (in milligrams per liter, mg/l). Residential wastewater discharge characteristics for 2006 – 2027 are summarized in Table 2-1. Detailed data for 2019 – 2027 are included in Tables A-1 through A-10 in Appendix A.

Table 2-1. Residential Wastewater Discharge Characteristics

				Pollutant Concentrations					Pollutant Loads				BOD/TSS Loads
	No. of	Flow		BOD	TSS	TP	NH3-N	Flow	BOD	TSS	TP	NH3-N	per Connection
Year	Conn.	gpd	mgd	mg/l	mg/l	mg/l	mg/l	mg/yr	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
2006	31,992	140	4.484	200	200	7	20	1,637	7,479	7,479	262	748	0.234
2007	32,432	140	4.540	200	200	7	20	1,657	7,572	7,572	265	757	0.233
2008	32,793	137	4.482	200	200	7	20	1,640	7,476	7,476	262	748	0.228
2009	33,309	138	4.599	240	240	7	20	1,679	8,957	8,957	269	767	0.269
2010	33,597	134	4.495	240	240	7	20	1,641	8,934	8,934	262	750	0.266
2011	33,776	129	4.360	240	240	7	20	1,591	8,924	8,924	255	727	0.264
2012	34,089	125	4.271	240	240	7	20	1,559	8,927	8,927	249	712	0.262
2013	34,401	127	4.373	240	240	7	20	1,596	8,942	8,942	255	729	0.260
2014	34,722	127	4.418	240	240	7	20	1,613	8,968	8,968	258	737	0.258
2015	35,162	120	4.223	240	240	7	20	1,542	9,004	9,004	247	704	0.256
2016	35,550	118	4.197	250	250	7	28	1,532	8,750	8,750	245	980	0.246
2017	35,959	115	4.150	253	253	7	28	1,515	8,757	8,757	242	969	0.244
2018	36,347	114	4.155	256	256	7	28	1,517	8,871	8,871	243	970	0.244
2019	36,606	112	4.108	259	259	7	28	1,500	8,874	8,874	240	959	0.242
2020	36,485	117	4.254	262	262	7	28	1,553	9,296	9,296	248	993	0.255
2021	36,845	119	4.385	265	265	7	28	1,600	9,690	9,690	256	1,024	0.263
2022	37,205	119	4.427	265	265	7	28	1,616	9,785	9,785	258	1,034	0.263
2023	37,565	119	4.470	265	265	7	28	1,632	9,880	9,880	261	1,044	0.263
2024	37,925	119	4.513	265	265	7	28	1,647	9,974	9,974	263	1,054	0.263
2025	38,285	119	4.556	265	265	7	28	1,663	10,069	10,069	266	1,064	0.263
2026	38,645	119	4.599	265	265	7	28	1,679	10,164	10,164	268	1,074	0.263
2027	39,005	119	4.642	265	265	7	28	1,694	10,258	10,258	271	1,084	0.263

2.2 Commercial Accounts and Wastewater Discharge Characteristics

The number of commercial accounts was evaluated in a manner similar to that used for residential accounts for the 23-year period 1998 - 2020. The average annual increase in commercial accounts during the eight-year period 2008 – 2014 was approximately 14 per year. The average annual increase in commercial accounts during the eight-year period 2016 – 2020 was approximately 25 per year. The average annual increase in accounts projected for 2021 - 2027 is 25 per year. Data from the 1998 Study, the 2004 Study, the 2009 Study, the 2015 Study, RPU data, and projections used in this study are shown in Figure 2-3.

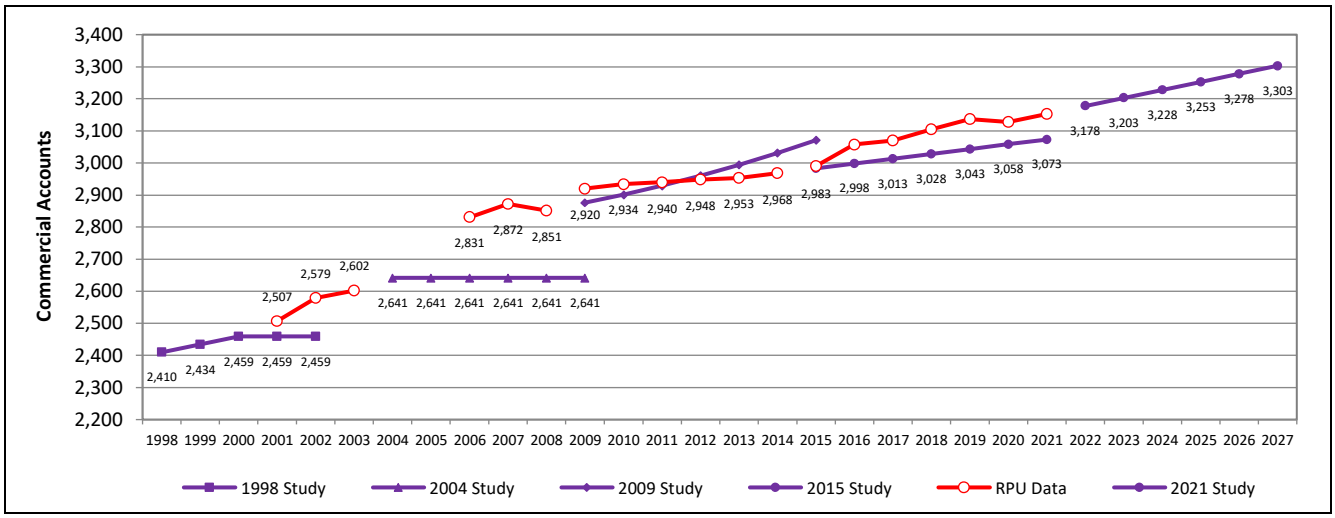

Figure 2-3. Commercial Accounts, 1998 - 2027

The number of commercial accounts and average discharge per account were used to calculate wastewater discharge for the time period 1998 – 2027. Projections of wastewater discharge volume from the 1998 Study, the 2004 Study, the 2009 Study, the 2015 Study, RPU data, and projections used in this study are shown in Figure 2-4.

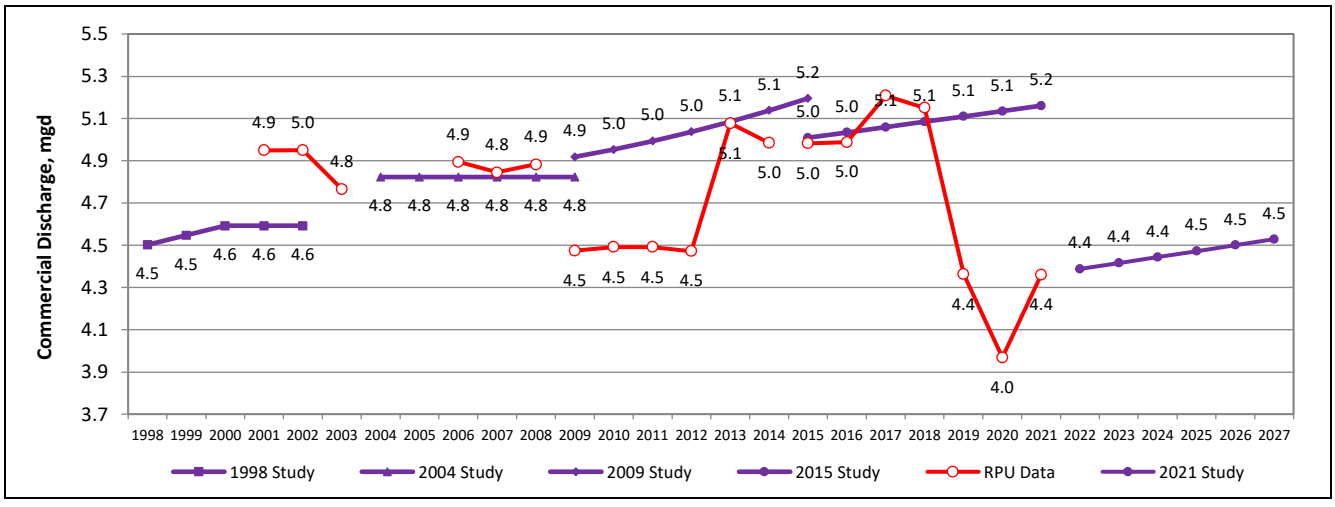

Figure 2-4. Commercial Wastewater Discharge, 1998 - 2027

Historical flow data used in previous rate studies was found to double count flow from large commercial customers who are also wastewater permitted users. This error in data had artificially inflated flow from the commercial customers until 2019 when the correction was made. The loss of large industrial and commercial users combined with COVID and the error in prior data is the reason for the significant drop in recent commercial flow and future projected wastewater flow to be lower.

Annual discharge (in pounds) of biochemical oxygen demand (BOD), total suspended solids (TSS), total phosphorus (TP) and ammonia nitrogen (NH3-N) for commercial customers were developed based on commercial wastewater discharge volume, the number of accounts and the estimated concentrations of pollutants (in milligrams per liter, mg/l). Commercial user wastewater discharge characteristics for 2022 and onward, are summarized in Table 2-2. Detailed data for 2019 – 2027 are included in Tables A-1 through A-10 in Appendix A.

Table 2-2. Commercial Wastewater Discharge Characteristics

User	Flow (mgd)	BOD (mg/L)	TSS (mg/L)	TP (mg/L)	NH3-N (mg/L)
Commercial Users					
User 1	0.036	263	267	104	35
User 2	0.064	263	267	14	35
User 3	0.312	263	267	6	35
User 4	0.061	490	1,000	27	35
User 5	0.105	500	680	32	35
User 6	0.031	263	267	6	35
User 7	0.039	263	267	6	35
User 8	0.140	263	267	6	35
User 9	0.041	393	402	6	35
User 10	0.005	263	267	6	35
All Others	3.554	265	265	6	31
Total Commercial	4.388				

2.3 Industrial and Trucked Waste Accounts and Wastewater Discharge

Annual discharge (in pounds) of biochemical oxygen demand (BOD), total suspended solids (TSS), total phosphorus (TP) and ammonia nitrogen (NH3-N) for industrial and trucked waste customers were developed based on industrial and trucked waste wastewater discharge volume, the number of accounts and the estimated concentrations of pollutants (in milligrams per liter, mg/l).[4] Industrial and trucked waste wastewater discharge characteristics for 2022 and onward, are summarized in Table 2-3. Detailed data for 2019 – 2027 are included in Tables A-1 through A-10 in Appendix A.

Table 2-3. Industrial and Trucked Waste Wastewater Discharge Characteristics

User	Flow (mgd)	BOD (mg/L)	TSS (mg/L)	TP (mg/L)	NH3-N (mg/L)
Industrial/Trucked					
User 1	0.092	3,812	1,179	13	31
User 2	0.264	666	246	10	31
User 3	0.043	485	355	8	31
User 4	0.010	263	267	6	31
User 5	0.006	263	267	6	31
User 6	0.013	263	267	6	31
Leachate	0.015	25	41	0	86
Portable Toilets	0.001	7,180	9,940	440	1,600
FOG	0.001	8,000	10,000	100	50
Septage	0.001	8,000	22,000	50	100
Total All	0.446				

2.4 Infiltration/Inflow and Unaccounted Flow and Loadings

Besides wastewater flow and loadings from residential, commercial and industrial accounts, other wastewater flow and loadings are the result of Infiltration/Inflow (I/I) and unaccounted for discharges (UA). I/I and UA cannot be directly measured.[5] I/I and UA flow and loadings are estimated as the difference between known flow and loadings from customers and flow and loadings measured at the headworks of the wastewater treatment.

[4] Hauled waste is received from contracted haulers that supply a service for the local and surrounding businesses and communities. Concentrations of hauled waste characteristics vary greatly from domestic wastewater.

[5] Infiltration is water entering a sewer system, including building drains and sewers, from the ground, through such means as, but not limited to, defective pipes, pipe joints, connections, or manhole walls. Inflow is water discharge into a sewer system from such sources as, but not limited to, roof leaders, cellar, yard and area drains, foundation drains, unpolluted cooling water discharges, drains from springs and swampy areas, manhole covers, cross connections from storm sewers and combined sewers, catch basins, storm waters, surface runoff, street wash waters or drainage.

2.5 Accounts and Wastewater Discharge Summary

Annual wastewater discharge from residential, commercial, industrial and trucked waste accounts, excluding unaccounted discharge (UA) and inflow/infiltration (I/I), for the time period 1998 – 2027 are shown in Figure 2-5.

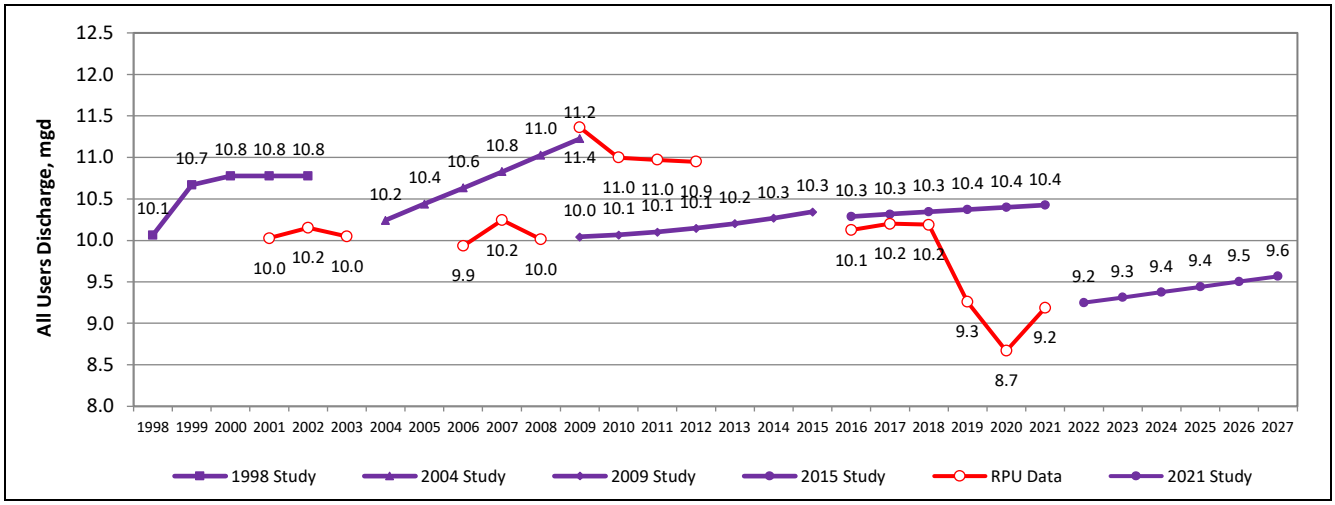

Figure 2-5. All Accounts Wastewater Discharge, 1998 - 2027

A summary of the number of accounts and wastewater discharge characteristics discussed in the preceding paragraphs for residential, commercial and industrial/septage are shown in Figure 2-6 for 2022 (the first year for which new rates are recommended).

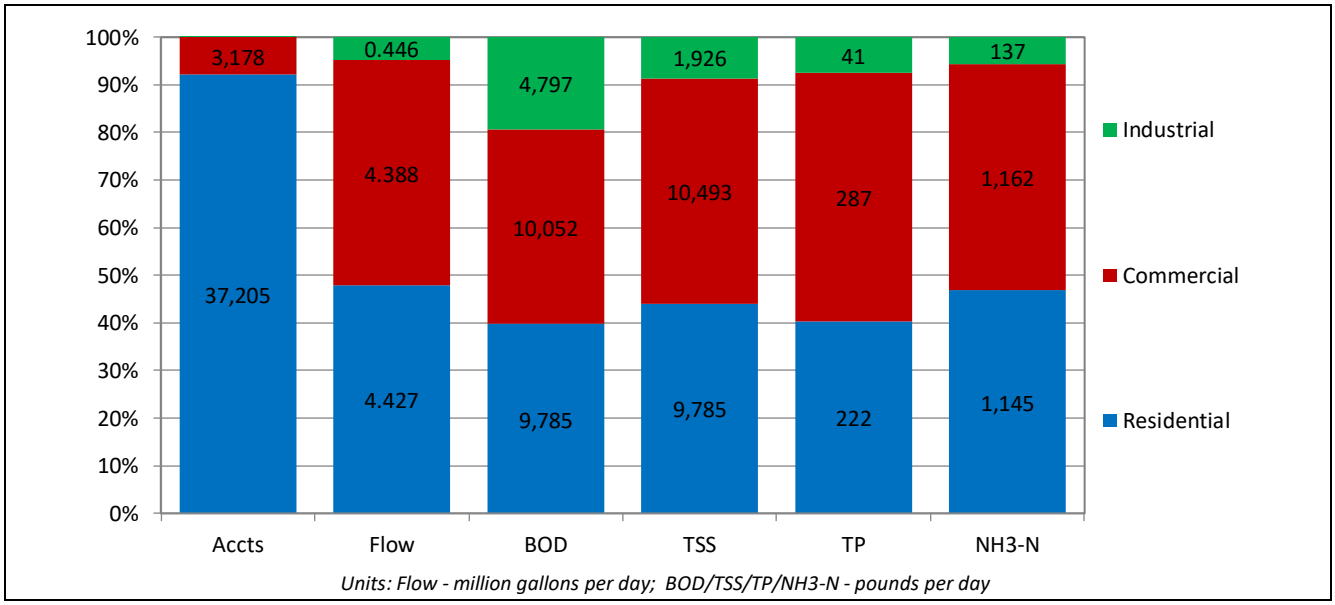

Figure 2-6. Projected Customer Wastewater Discharge, 2022

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Section 3

Expenditures and Revenues

The amount of revenue required from wastewater rates is developed in this chapter for each year in the study period. Revenue requirements include pay-as-you-go capital costs, existing and new debt service, accrual to reserves, and expenses for operations and maintenance. The amount of revenue required is net of interest and use of reserves.

3.1 Operations and Maintenance Expenses

Operations and maintenance (O&M) items include expenses in the following categories for both the Water Reclamation Plant and Sewer Collection:

- Employee services
- Contractual services (including utilities)
- Materials and supplies
- Other charges (taxes, licenses, billing and collection)
- Capital outlay (furniture, equipment)

Actual (2020), estimated (2021) and projected (2022 – 2027) O&M expenses for each item are shown in detail in Table B-1 of Appendix B and are summarized in Table 3-1. Projections were based on escalation of the previous years' expenditures. Annual escalation percentages were 2 percent except for Taxes and Licenses (1 percent) and Employee Services (3.5 percent).

Table 3-1. Operations and Maintenance Expenses

	Actual	Estimated	Projected						2022-2027
Expenditure Category	2020	2021	2022	2023	2024	2025	2026	2027	Total
Water Reclamation Plant and Sewer Collection									
Employee Services	4,863,000	5,077,000	5,255,000	5,439,000	5,629,000	5,826,000	6,030,000	6,241,000	34,420,000
Contractual Services	2,799,000	3,289,000	3,336,000	3,403,000	3,471,000	3,540,000	3,611,000	3,683,000	21,044,000
Materials and Supplies	1,190,000	1,311,000	1,336,000	1,363,000	1,391,000	1,418,000	1,447,000	1,475,000	8,430,000
Other Charges	3,090,000	3,425,000	3,473,000	3,521,000	3,572,000	3,622,000	3,673,000	3,726,000	21,587,000
Capital Outlay	9,000	40,000	41,000	42,000	42,000	43,000	44,000	45,000	257,000
Alloc to Other Activities *	(264,389)	(205,000)	(209,000)	(213,000)	(217,000)	(221,000)	(226,000)	(230,000)	(1,316,000)
Total	11,686,611	12,937,000	13,232,000	13,555,000	13,888,000	14,228,000	14,579,000	14,940,000	84,422,000

** "Alloc to Other Activities" are reimbursement to the Wastewater fund for activities performed by Wastewater staff for other funds.*

3.2 Capital Expenditures and Debt Obligations

Capital expenditures over the next 23 years are projected to total approximately $467 million. The wastewater system has three existing debt obligations. One new debt obligation is projected to supplement expenditures for capital improvements in 2024.

3.2.1 Existing Debt Obligations

The wastewater system has three existing debt obligations listed below with debt service remaining for 2022 onward.

- Taxable GO Waste Water Revenue Refunding Bonds, Series 2012A Crossover Refunding 2004A Bonds; final payment of approximately $6,953,000 in 2022
- General Obligation Waste Water Revenue Refunding Bonds, Series 2015B Crossover Refunding 2007A; remaining payments of approximately $12,756,500 in 2022 - 2027
- Taxable GO Waste Water Revenue Refunding Bonds, Series 2020B Crossover Refunding 2012A Bonds; remaining payments of approximately $25,669,800 in 2022 - 2027

Annual principal and interest payments for each series and the amounts of those payments paid by rate payers (as opposed to paid by revenues from developer fees or other sources) are shown in Table B-2 in Appendix B.

3.2.2 Capital Expenditures and Financial Plan

New loans and additional debt service will be required to fund a portion of expenditures for capital projects. Projects costs, the amount funded by new loans and funded by rates and fees, and the total amount of new debt service payments are summarized in Table 3-2 by project category. Detailed capital expenditures for each category of projects and the proposed funding mechanism for each project are shown in Table B-3 in Appendix B.

Table 3-2. Financial Plan for Capital Project Expenditures

Project Category	Project Costs	Funded by Rates and Fees	Percent by New Debt	Debt Service Principal	Debt Service Interest	Total Debt Payments
Water Reclamation Plant Projects	$196,500,000	$149,500,000	24%	$47,000,000	$16,182,765	$63,182,765
Collection System	$270,839,000	$270,839,000	0%	$0	$0	$0
Total	$467,339,000	$420,339,000	10%	$47,000,000	$16,182,765	$63,182,765

Annual expenditures for capital projects are shown in Table B-3. Annual and cumulative annual capital project expenditures for 2022 – 2045 are summarized in Figure 3-1.

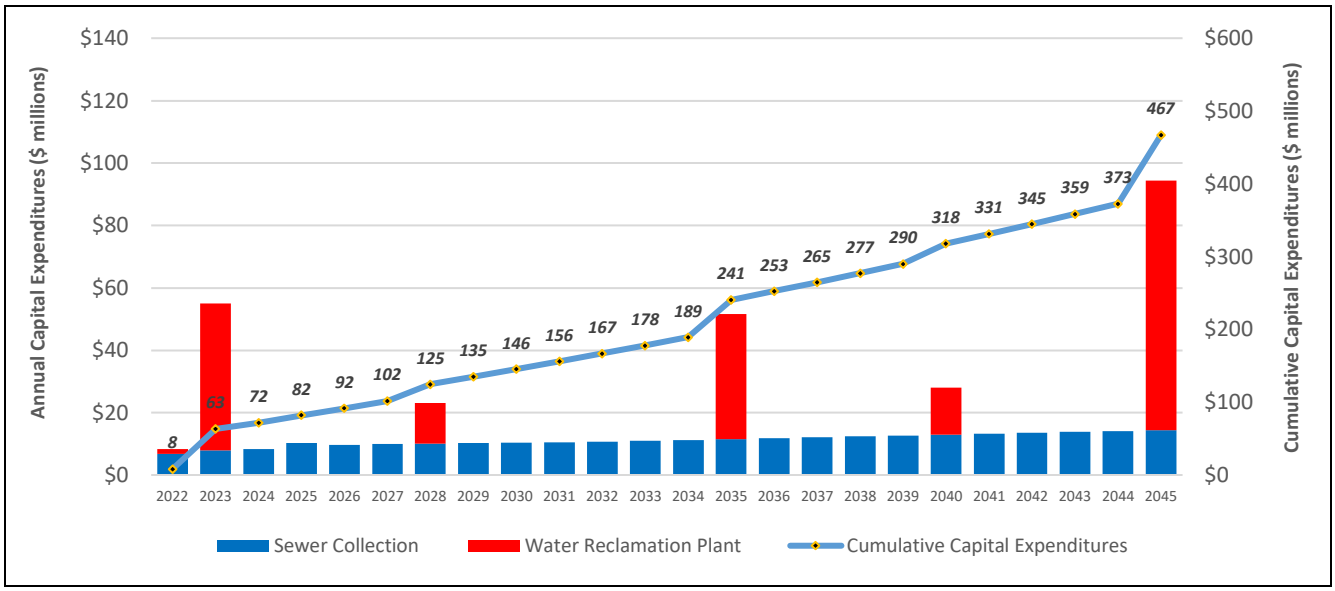

Figure 3-1. Projected Annual and Cumulative Capital Expenditures, 2022 - 2045

3.2.3 New Debt Obligations

New loans and additional debt service will be required to fund expenditures for some capital projects. Annual capital expenditures for each category of projects to be funded by cash are shown in Table B-4 in Appendix B. Capital expenditures for Collection R&R are completely funded by cash not debt.

Annual and cumulative annual debt obligations for 2022 – 2045 are summarized in Figure 3-2. The debt obligation amounts include both existing debt obligations and new debt obligations.

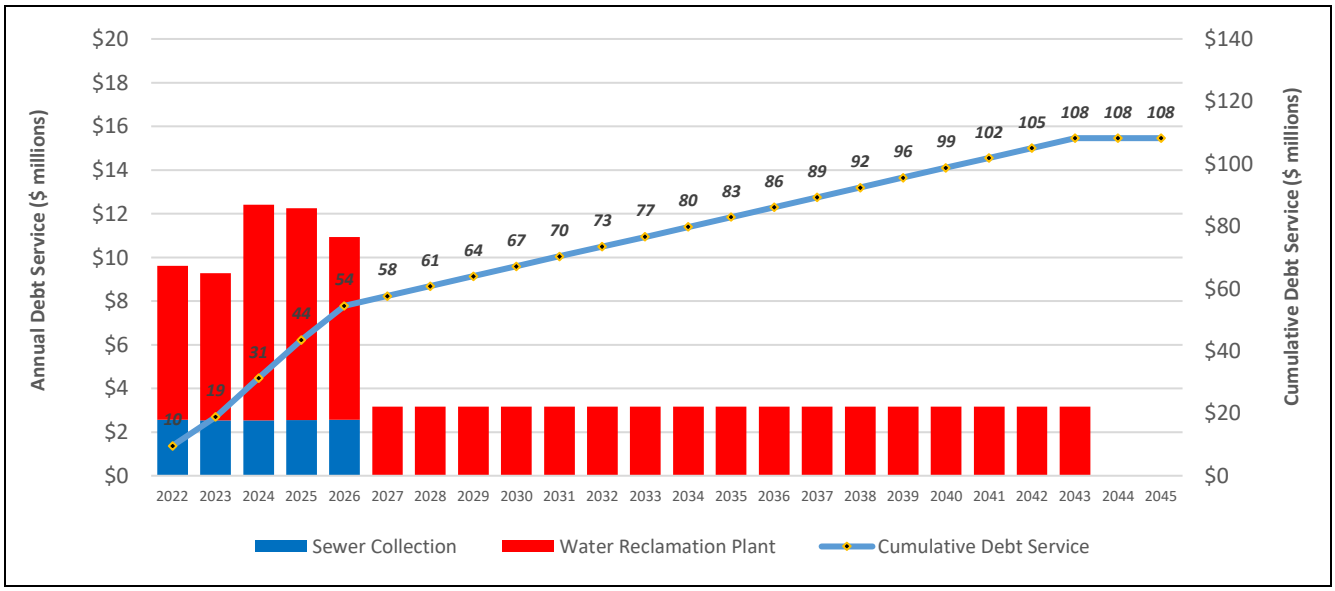

Figure 3-2. Projected Annual and Cumulative Debt Obligations, 2022 - 2045

3.2.4 Debt Service Coverage

The issuance of bonds and the assumption of debt service impose two significant requirements upon the City – 1) the payment of the annual debt; and 2) the maintenance of net revenues sufficient to meet coverage of the debt service.

Bonds issued by municipalities are typically secured by a lien upon and from, the revenues of the municipalities' enterprise for which the bonds are issued. Commonly, an operating history of the enterprise or feasibility study is used to determine that such revenues are sufficient to pay projected operation and maintenance expenses of the enterprise, debt service associated with the bonds and an additional amount known as coverage. Issuers of public municipal bonds generally covenant in the bond resolution or indenture to establish rates and charges for the products or services provided by the enterprise in a manner sufficient to provide revenues to pay such amounts and to provide coverage.

A coverage ratio of net revenues equal to 1.10 times debt service was used for the evaluation. The projected coverage ratio requirement and calculated coverage for 2022 – 2045 are shown in Table B-5 of Appendix B.

3.3 Trunk Sewer Rate Revenue

Trunk Sewer Rates were developed in the City of Rochester's sanitary sewer Master Plan and are intended recover costs for upsizing and extending the trunk sewer system within each sewer super district. The Trunk Sewer Rate costs are adjusted annually based on the Engineering News Record (ENR) index which has historically averaged three percent increases. This rate study assumes a three percent annual increase for revenue projections from Trunk Sewer Rates. Because the sewer super districts each have a defined cost per developable acre and it is uncertain which super district will see growth, an average has been assumed for this rate study at $13,535 per developable acre. This assumes an average minus South Zumbro super sewer district because of the high cost and other infrastructure limitations in this area. Based on concepts outlined in the sewer Master Plan, developable acreage is approximately 48% of annual total acreage growth. City historical average growth over the last 16 years has been 227 total acres/year. Therefore, in this rate study, 110 acres/year average developable acreage growth is assumed.

3.4 Target Fund Balance

Another objective in the development of rates and fees was to produce sufficient revenue to maintain a prudent fund balance. A target fund balance was developed based on three components – working capital, rate stabilization and debt service reserves. The assumptions for each component for 2022 – 2045 are shown in Table B-6 of Appendix B.

3.5 Revenue Required from Wastewater Rates

The amount of revenue required from wastewater rates was developed based on projected annual expenditures, projected annual revenue from sources other than rates (for example, SAC principal repayments and Plant Investment Fees), projected fund balances, projected coverage ratios and the goal of maintaining gradual increases in the rates. Development of the amount of revenue required from wastewater rates is shown in Table 3-3 for 2021 – 2027.

Table 3-3. Revenue Required from Wastewater Rates

Expenditure/ Revenue Category	Estimated 2021	Projected 2022	2023	2024	2025	2026	2027	2022 - 2027 Total
Reclamation Plant		9,625,000	9,851,560	10,085,671	10,030,325	10,268,511	10,511,221	60,372,288
Billing and Collection		1,122,000	1,144,440	1,167,329	1,190,675	1,214,489	1,238,779	7,077,712
Collection/Conveyance		2,485,000	2,559,000	2,635,000	3,007,000	3,096,000	3,190,000	16,972,000
Capital		8,368,000	55,000,000	8,435,000	10,370,000	9,700,000	10,000,000	101,873,000
Current Debt Service		9,623,000	9,283,000	9,253,000	9,091,000	7,769,000	0	45,019,000
New Debt Service				3,159,000	3,159,000	3,159,000	3,159,000	12,636,000
New Debt Disbursements			(47,000,000)					(47,000,000)
Add/(Use) Fund Balance		(1,720,000)	(900,000)	(4,300,000)	(6,000,000)	(3,900,000)	3,650,000	(13,170,000)
Non-rate Revenue		(100,000)	(100,000)	(100,000)	(100,000)	(100,000)	(100,000)	(600,000)
Totals	28,980,000	29,403,000	29,838,000	30,335,000	30,748,000	31,207,000	31,649,000	183,180,000
Annual Change								
Dollars		423,000	435,000	497,000	413,000	459,000	442,000	
Percent		1.5%	1.5%	1.7%	1.4%	1.5%	1.4%	

3.6 Cash Flow

The cash flow resulting from the projections of expenditures and revenues is summarized in Table 3-4 for 2022 – 2027. Detailed expenditures and revenues for 2022 – 2045 are shown in Table B-7 of Appendix B.

Table 3-4. Cash Flow, 2022 - 2027

	6 Years FY22 - FY27	
Balance* January 1, 2022	**$33,550,000**	
Expenditures		
Operations & Maintenance	$84,420,000	*35%*
Debt Service	$57,660,000	*24%*
Capital - Cash	$54,870,000	*22%*
Capital - Financed	$47,000,000	*19%*
Total Expenditures	**$243,950,000**	*100%*
Revenues		
Charges for Service	$183,400,000	*72%*
Plant Investment Fees	$10,240,000	*4%*
Trunk Sewer Rates	$9,920,000	*4%*
Miscellaneous	$2,750,000	*1%*
Loan Disbursements	$47,000,000	*19%*
Total Revenues	**$253,310,000**	*100%*
Net Revenues	$9,360,000	
Balance* December 31, 2027	**$42,910,000**	
Target Balance December 31, 2027	**$12,120,000**	

** Cash and cash equivalent investments.*

Section 4

Unit Costs, Charges and High Strength Surcharges

The projected customer characteristics developed in Chapter 2 and the projected revenue requirements and cost allocations developed in Chapter 3 are used to develop unit costs for the billable parameters (number of connections, flow, BOD, TSS, TP, NH3-N and UA – I/I). The unit costs are then used to develop revenue requirements and charges for each customer class. High strength surcharges are used to develop charges for individual customers.

4.1 Rate Development Methodology

Rates were developed using the processes established in previous studies. The rate development process in this study and in the previous studies were all in accordance with standard industry practices. The rate development process used in this study is shown schematically in Figure 4-1.

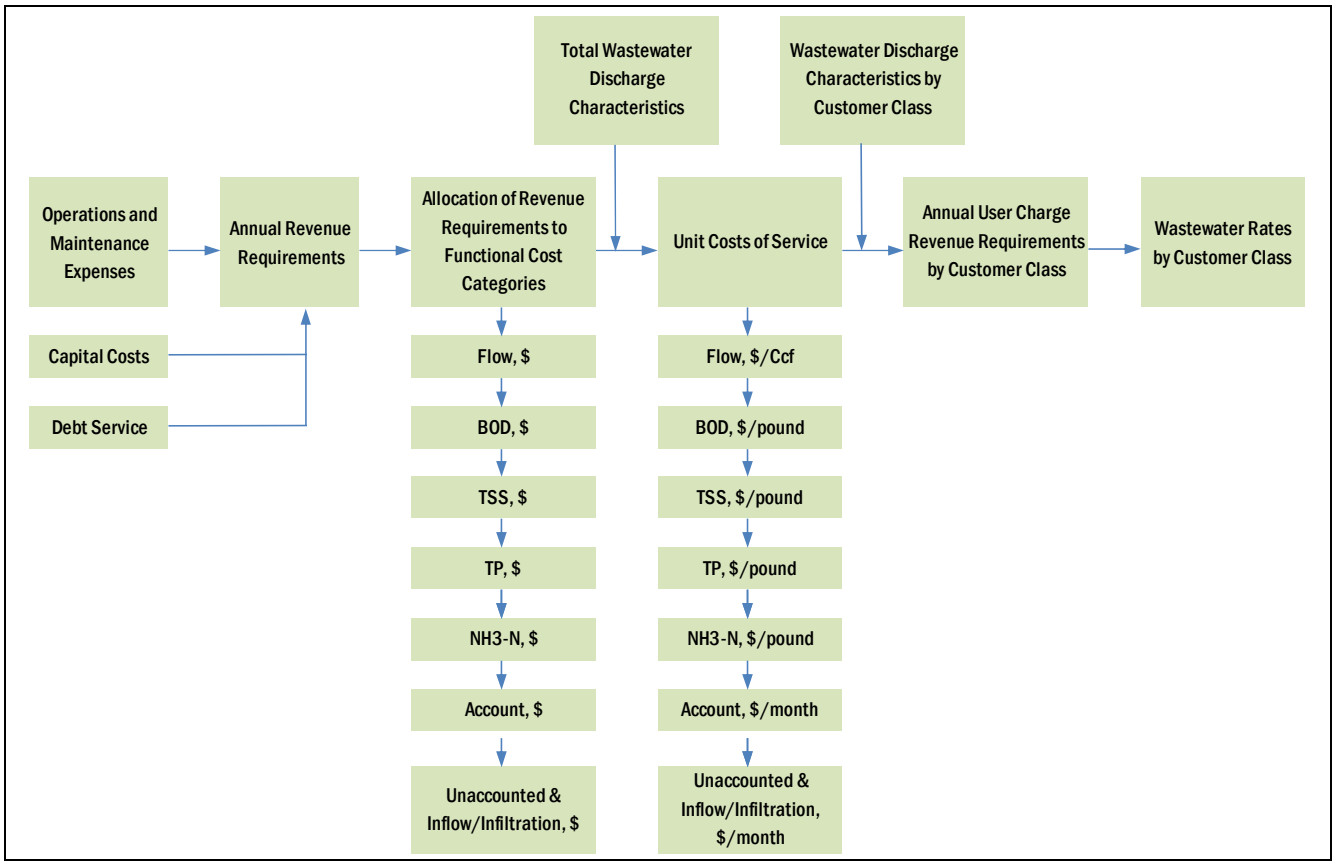

Figure 4-1. Wastewater Rate Development Methodology

4.2 Allocation of Revenue Required from Rates

The first step in the development of rates is the equitable allocation of revenue requirements among the functional cost categories used to develop unit costs that are applicable to all customers. The allocation of revenue requirements, using the same expenditure and revenue categories as shown in Table 3-4, are shown in Table 4-1.

Table 4-1. Allocation of Revenue Requirements to Functional Cost Categories

	Quantity Charge Components					Fixed Charge Components		
	Flow	BOD	TSS	TP	NH3-N	Connections	UA-I/I	Total
Expenditure Category								
Reclamation Plant	14%	26%	20%	10%	7%	19%	5%	100%
Billing/Accounting	0%	0%	0%	0%	0%	100%	0%	100%
Collection/Conveyance	100%	0%	0%	0%	0%	0%	0%	100%
Capital	30%	15%	10%	2%	8%	20%	15%	100%
Debt Service	30%	15%	10%	2%	8%	20%	15%	100%
Add/(Use) Fund Balance	*dollar-weighted composite of other categories*							
Non-rate Revenue	*dollar-weighted composite of other categories*							
Annual Dollar-weighted Composite								
2022 Dollar-weighted Composite	29%	17%	12%	4%	7%	21%	10%	100%

4.3 Unit Costs

Unit costs for each functional cost category were developed by dividing the annual revenue requirements for each functional cost category by the number of units for each category. The development of unit costs for each functional cost category for 2022 through 2027 are shown in Tables C-1a through C-1f in Appendix C and summarized in Table 4-2.

Table 4-2. Unit Costs of Service, 2022 - 2027

Category	Unit of Measure	2022	2023	2024	2025	2026	2027
Unit Costs							
Flow, mgd	$/mg per day	$933,549	$940,165	$948,620	$954,341	$961,394	$967,824
BOD, lb/day	$/pound per day	$199	$201	$203	$204	$206	$207
TSS, lb/day	$/pound per day	$158	$159	$161	$162	$163	$164
TP, lb/day	$/pound per day	$2,183	$2,201	$2,224	$2,240	$2,259	$2,277
NH3-N, lb/day	$/pound per day	$814	$820	$827	$833	$839	$845
Connections	$/connection	$153	$153	$155	$155	$156	$157
UA-I/I (connections)	$/connection	$74	$75	$75	$75	$76	$76

4.4 Revenue Required from Customer Classes

The revenue required from each customer class was developed using unit costs for each functional cost category and the number of units of use for each functional category. For example, the calculation of revenue required from residential users for 2022 using the unit costs shown in the previous table and units of use (wastewater discharge characteristics) projected for that year are shown in Table 4-3. The development of revenue required from each customer class for 2022 through 2027 are shown in Tables C-2a through C-2f in Appendix C.

Table 4-3. Revenue Required from Residential Customers, 2022

	Wastewater Discharge Characteristics [1,2,3]						Flow	BOD	TSS	TP	NH3-N	No. of	UA - I/I	
ıstomer	No. of	Flow	BOD	TSS	TP	NH3-N	$933,549	$198.84	$157.94	$2,183	$814.08	$152.70	$74.14	Total
assification	Conn.	mgd	lbs/day	lbs/day	lbs/day	lbs/day	mgd	lbs/day	lbs/day	lbs/day	lbs/day	Conn.	Conn.	Revenue
Residential Users	37,205	4.427	9,785	9,785	222	1,145	4,133,191	1,945,612	1,545,485	483,701	931,841	5,681,028	2,758,473	17,479,331

4.5 Fixed Charges and Quantity Charges

The development of fixed monthly charges and quantity charges for 2022 through 2027 are shown in Tables C-3a through C-3f in Appendix C and summarized in Table 4-4. The charges shown in this table are those adopted by resolution for implementation and apply to residential and the main commercial customer class.

Residential quantity charges are established as follows: For the months of January, February and March of a year, the residential charge will be based on actual water usage. For the balance of the calendar year, the residential charge will be based on the average monthly water usage for the period of January through March or on the actual usage, whichever is less. In the case of a dwelling that is not connected to the sanitary sewer system in the period of January through March of a calendar year, the monthly charge will be based upon a minimum of five billing units (Ccf).

Table 4-4. Recommended Fixed and Quantity Charges, 2022 - 2027

		Current	Recommended					
Charge		2021	2022	2023	2024	2025	2026	2027
Fixed Charges	$/month	$19.00	$19.00	$19.10	$19.20	$19.30	$19.40	$19.50
Quantity Charges	$/Ccf	$4.160	$4.19	$4.22	$4.26	$4.29	$4.32	$4.35

4.6 High Strength Surcharges

High strength surcharges are unit costs for flow, BOD, TSS, TP and NH3-N that are applied to customers whose wastewater discharge cannot be characterized as residential or grouped with the main commercial customer class. These surcharges, shown in the table below, are applied to approximately 15 customers and used as a basis for calculation of hauled wastes.

Table 4-5. Recommended High Strength Surcharges, 2022 - 2027

Charge		Current 2021	Recommended 2022	2023	2024	2025	2026	2027
High Strength Surcharges								
Flow	$/Ccf	$1.99	$1.91	$1.93	$1.94	$1.96	$1.97	$1.98
BOD	$/pound	$0.47	$0.54	$0.55	$0.55	$0.56	$0.56	$0.57
TSS	$/pound	$0.44	$0.43	$0.44	$0.44	$0.44	$0.45	$0.45
TP	$/pound	$6.00	$5.98	$6.03	$6.09	$6.14	$6.19	$6.24
NH3-N	$/pound	$2.21	$2.23	$2.25	$2.27	$2.28	$2.30	$2.31

4.7 Trucked Liquid Waste Charges

Charges for trucked liquid waste – Portable Toilet and FOG (Fats, Oils and Grease) and Septage wastes – are shown in Table 4-6.

Table 4-6. Recommended Septage, Portable Toilet Waste and FOG Charges, 2022 - 2027

Hauled Waste Charges		Current 2021	Recommended 2022	2023	2024	2025	2026	2027
Portable Toilet Waste	$/1000 gallons	$153.00	$123.00	$124.00	$125.00	$126.00	$127.00	$128.00
Fats, Oils and Greases	$/1000 gallons	$35.00	$36.00	$37.00	$38.00	$39.00	$40.00	$41.00
Septage	$/1000 gallons	$120.00	$123.00	$124.00	$125.00	$126.00	$127.00	$128.00

Section 5

Revenue from Charges and Customer Bills

The recommended charges presented in the previous chapter are evaluated in terms of changes since the previous study. The impact of the recommended charges on residential and commercial customers is evaluated in detail.

5.1 Revenue from Rates

The fixed charges and quantity charges, when multiplied by projected units of use for each charge (number of connections and flow), yield the projected amount of revenue for each customer class. The projected amount of revenue from each customer class is summarized in Table 5-1. Revenues shown in this table are slightly different (about 0.12 percent higher on average) than revenue requirements shown in Table 4-2 due to rounding of fixed charges and quantity charges.

Table 5-1. Revenue from Charges Summary, 2022 - 2027

	Estimated	Projected						2022 - 2027	
Customer Category	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**Total**	**%**
Residential Users									
Fixed Charge, $/mo	$19.00	$19.00	$19.10	$19.20	$19.30	$19.40	$19.50		
Quantity Charge, $/Ccf	$4.16	$4.19	$4.22	$4.26	$4.29	$4.32	$4.35		
Avg SFR Discharge/mo	4.84	4.84	4.84	4.84	4.84	4.84	4.84		
Quantity Charge, $/mo	$20.13	$20.27	$20.42	$20.61	$20.76	$20.90	$21.05		
Average Monthly Bill	**$39.13**	**$39.27**	**$39.52**	**$39.81**	**$40.06**	**$40.30**	**$40.55**		
Accounts	36,845	37,205	37,565	37,925	38,285	38,645	39,005		
Total Residential	$17,300,477	$17,534,323	$17,814,501	$18,118,817	$18,403,441	$18,690,182	$18,979,041	$109,540,305	60%
Commercial Users									
User 1	$138,640	$138,925	$140,020	$141,389	$142,351	$143,512	$144,580		
User 2	$141,037	$141,919	$142,996	$144,353	$145,293	$146,437	$147,486		
User 3	$641,059	$645,527	$650,395	$656,537	$660,787	$665,960	$670,701		
User 4	$228,984	$231,578	$233,369	$235,617	$237,186	$239,087	$240,832		
User 5	$359,933	$365,494	$368,330	$371,887	$374,373	$377,382	$380,146		
User 6	$63,900	$64,343	$64,828	$65,440	$65,863	$66,378	$66,850		
User 7	$80,332	$80,889	$81,499	$82,268	$82,800	$83,448	$84,042		
User 8	$287,780	$289,785	$291,970	$294,727	$296,634	$298,956	$301,084		
User 9	$99,562	$101,156	$101,927	$102,897	$103,571	$104,390	$105,141		
User 10	$10,498	$10,568	$10,647	$10,747	$10,816	$10,901	$10,978		
Other Commercial	$7,873,717	$7,975,254	$8,097,169	$8,235,984	$8,352,065	$8,480,706	$8,604,795		
Subtotal, Commercial	$9,925,441	$10,045,438	$10,183,149	$10,341,846	$10,471,741	$10,617,156	$10,756,634	$62,415,963	34%
Industrial/Trucked Waste									
User 1	$782,412	$852,317	$859,224	$867,815	$873,908	$881,221	$887,963		
User 2	$701,780	$728,722	$734,381	$741,479	$746,441	$752,445	$757,962		
User 3	$108,373	$110,957	$111,809	$112,879	$113,625	$114,530	$115,360		
User 4	$20,498	$20,638	$20,793	$20,989	$21,125	$21,289	$21,441		
User 5	$12,390	$12,474	$12,567	$12,685	$12,767	$12,866	$12,958		
User 6	$26,579	$26,761	$26,963	$27,217	$27,393	$27,607	$27,803		
Leachate	$25,123	$24,691	$24,869	$25,095	$25,249	$25,439	$25,612		
Portable Toilets	$35,382	$49,295	$49,682	$50,167	$50,507	$50,918	$51,295		
FOG	$8,491	$8,733	$8,976	$9,218	$9,461	$9,703	$9,946		
Septage	$31,938	$32,750	$33,008	$33,331	$33,558	$33,832	$34,083		
Subtotal, Ind/Trucked	$1,752,965	$1,867,337	$1,882,272	$1,900,877	$1,914,033	$1,929,850	$1,944,422	$11,438,790	6%
Totals	$28,978,884	$29,447,097	$29,879,922	$30,361,540	$30,789,215	$31,237,187	$31,680,097	$183,395,058	100%

5.2 Historical and Projected Charges

Between 1998 and 2027 (29 years), allocation of costs to fixed charges (customer and UA-I/I) has increased relative to allocation of costs to quantity charges (flow, BOD, TSS, TP and NH3-N). As a result, on a percentage basis, fixed charges have increased more than quantity charges.

During the same time period, the average monthly wastewater discharge from residential customers has decreased from approximately 6.6 Ccf to 4.8 Ccf – a decrease of 26 percent.

Fixed charges, quantity charges, average residential monthly wastewater discharge and average residential monthly bills in 1998, 2015, 2021 and projected for 2027 are summarized in Table 5-2.

Table 5-2. Fixed Charges, Quantity Charges and Single Family Bills, 1998 - 2027

Item	1998	*% of Bill*	2015	*% of Bill*	2021	*% of Bill*	2027	*% of Bill*
Fixed Charge, $/month	$4.41	*33%*	$13.37	*46%*	$19.00	*49%*	$19.50	*48%*
Quantity Charge, $/Ccf	$1.13		$3.10		$4.16		$4.35	
SFR Discharge, Ccf/month	*7.86*		*5.08*		*4.84*		*4.84*	
Quantity Charges, $/month	$8.84	*67%*	$15.77	*54%*	$20.13	*51%*	$21.05	*52%*
Monthly Bill	$13.25	*100%*	$29.14	*100%*	$39.13	*100%*	$40.55	*100%*

5.3 Residential Monthly Bills

Historic, recommended and projected residential monthly bills based on average residential monthly wastewater discharge are shown in Figure 5-1. The average yearly increase in monthly bills from 1998 to 2045 is approximately one percent.

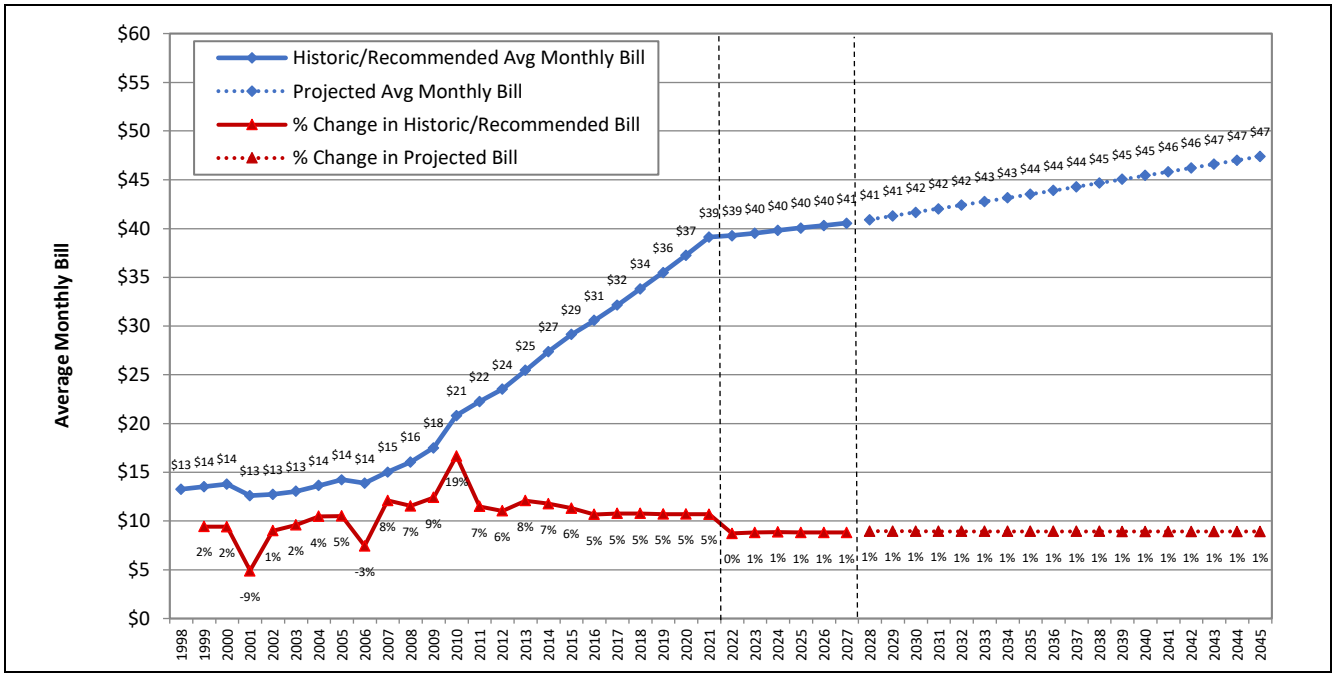

Figure 5-1. Average Residential Monthly Bills and Percent Increases, 1998 - 2045

5.4 Projected Cash Flow and Residential Monthly Bills, 2021 -2045

Cash flow and residential monthly bills based on average residential monthly wastewater discharge and historic and recommended charges are shown in Figure 5-2 for 2021 – 2045.

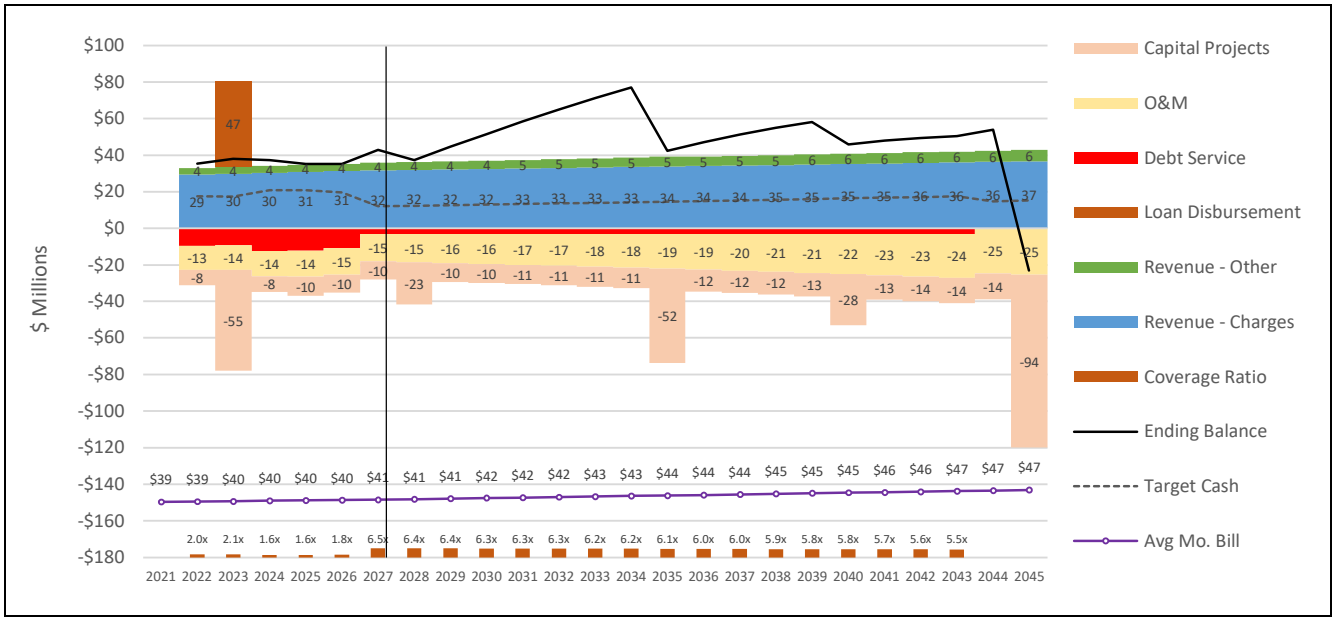

Figure 5-2. Projected Cash Flow and Residential Monthly Bills, 2021 - 2045

5.5 Total Revenues, 2022 -2045

Annual projected revenue from Charges for Services, PIFs, Trunk Sewer Fees and Interest/Other, and cumulative revenue, are shown in the figure below.

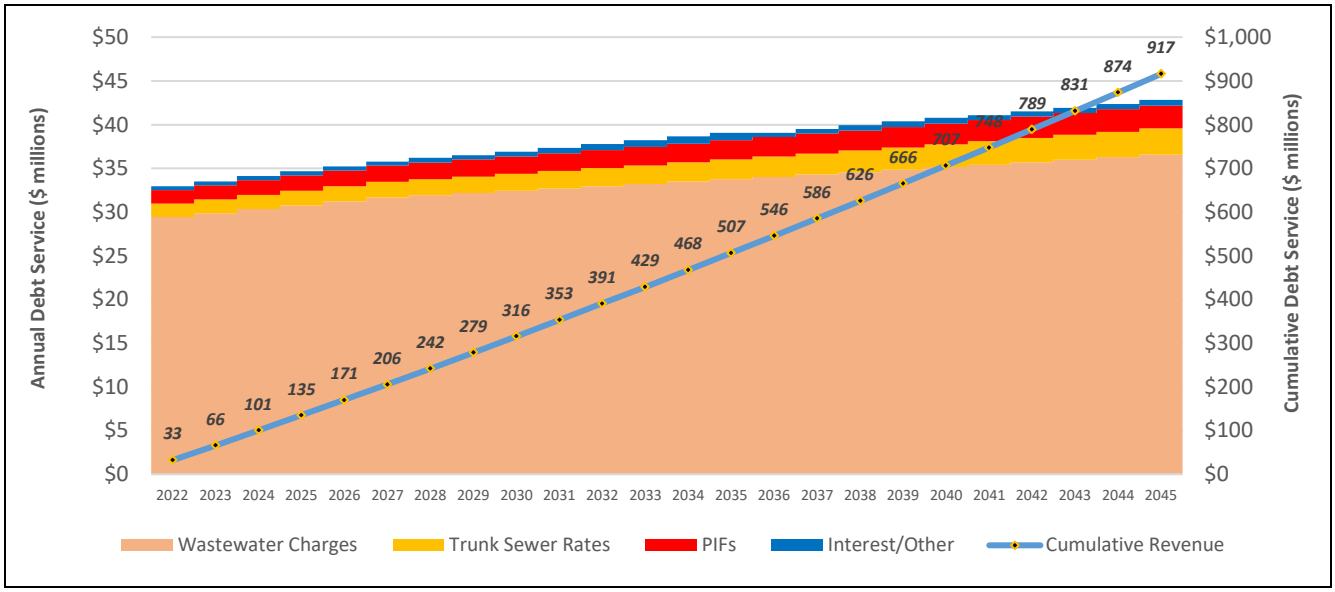

Figure 5-3. Total Revenues, 2022 - 2045

Section 6

Plant Investment Fees

Plant Investment Fees (PIFs) are fees charged for connection to the wastewater system. The fees are for wastewater system facilities in existence at the time the fees are imposed, or for new wastewater system facilities to be acquired or constructed in the future, that are of proportional benefit to the person or property being charged.

Plant Investment Fees were instituted by in 2005. The initial fee level for residential connections was set at $500 and raised annually to its current (2021) level of $3,600. PIFs for commercial connections were based on the ratio of average water use for a given water meter size connection (which is representative of wastewater discharge) to the average wastewater discharge for residential customers times the residential PIF. PIFs for industrial connections were based on residential PIF components for flow, BOD, TSS, TP and NH3-N times the industrial connection's wastewater discharge levels for each of those components times a multiplier.

6.1 Plant Valuation and Equivalent Residential Units

PIFs are developed based on the value of Water Treatment Plant assets and the capacity available in those assets. Development of the Water Treatment Plant Valuation and the amount of Equivalent Residential Unit Capacity are summarized in the table below.

Table 6-1. Water Treatment Plant Valuation and Equivalent Residential Unit Capacity

Item (all values $millions except ERUs)			2020	2021	2022	2023	2024	2025	2026	2027
WATER TREATMENT PLANT VALUATION										
Water Treatment Plant										
Adjusted Book Value			$633							
Escalated Book Value	*Escalation Rate >*	*2.0%*		$645	$658	$672	$685	$699	$713	$727
Capital projects										
Annual				$13	$2	$47	$0	$0	$0	$0
Seven-year Average				$9	$9	$9	$9	$9	$9	$9
Total Valuation				$667	$669	$727	$694	$707	$721	$736
VALUATION ADJUSTMENTS										
Developer contributions (PIF)										
Prior		$89								
Annual			$3	$3	$3	$3	$3	$3	$3	$3
Cumulative		$89	$92	$95	$98	$101	$104	$107	$110	$113
Principal portion remaining exist debt										
Series 2012A Crossover Refunding 2004A Bonds			$17	$12	$6	$0	$0	$0	$0	$0
Series 2020B Crossover Refunding 2012A Bonds			$23	$23	$23	$23	$17	$11	$5	$0
Total Principal Portion Remaining, Existing Debt			$40	$35	$29	$23	$17	$11	$5	$0
Principal portion remaining new debt							$45	$43	$42	$40
Total Valuation Adjustments			$176	$168	$160	$151	$142	$133	$123	$116
NET VALUATION, $millions				$499	$509	$576	$552	$575	$598	$620
Equivalent Runoff Units (ERUs)				137,903	137,903	137,903	137,903	137,903	137,903	137,903

6.2 Residential and Multiple Dwelling Unit PIFs

PIFs for residential connections are calculated by dividing the Water Treatment Plant Net Valuation by the number of Equivalent Residential Units. The calculation is shown in the table below. PIFs for residential connections are recommended to increase by $100 - $150 per year from the current $3,600 fee. PIFs for Multiple Dwelling Unit connections are calculated as 70% of the PIF/ERU (down from the current 80% of the PIF/ERU). PIFs for Multiple Dwelling Unit connections are recommended to decrease by $230 from the current $2,880 fee and then increase by $100 per year for the next five years.

Table 6-2. Residential and Multiple Dwelling Unit PIFs

	Current	Recommended					
Item	2021	2022	2023	2024	2025	2026	2027
NET VALUATION, $millions	$499	$509	$576	$552	$575	$598	$620
Equivalent Runoff Units (ERUs)	137,903	137,903	137,903	137,903	137,903	137,903	137,903
Residential PIF							
NET VALUATION $/ERU	$3,617	$3,691	$4,180	$4,001	$4,167	$4,337	$4,493
NET VALUATION $/ERU, smoothed 2021 - 2027	$3,617	*$3,763*	*$3,909*	*$4,055*	*$4,201*	*$4,347*	$4,493
NET VALUATION $/ERU, smoothed/rounded 2021 - 2027	**$3,600**	**$3,750**	**$3,900**	**$4,050**	**$4,200**	**$4,350**	**$4,500**
Multiple Dwelling Unit PIF							
Percent of Residential PIF per ERU	80%	70%	70%	70%	70%	70%	70%
Multiple Dwelling Unit PIF $/Unit	**$2,880**	**$2,650**	**$2,750**	**$2,850**	**$2,950**	**$3,050**	**$3,150**

6.3 Non-residential Development PIFs

PIFs for non-residential developments were based on the ratio of average winter water use for the ⅝ x ¾ and ⅝ x ½ water meter size non-residential connections (which is representative of wastewater discharge) to the average wastewater discharge for residential customers and the maximum flow rate for water meters, times the residential PIF. The ratios used are called the "equivalency factors." The calculation of the three sets of equivalency factors is summarized in the table below.

Table 6-3. Non-residential Equivalency Factors

Non-residential Meter Size	Estimated Wastewater Discharge Winter Water Use, gpd			Wastewater Equivalency Factor		
	2013	2014	Assigned			
		Residential gpd >	119		*Line 1*	
⅝ x ½	180	197	180		*Line 2*	
⅝ x ¾	166	178			*Line 3*	
				1.5	*Line 4*	*Line 3/4 gpd / Line 1 gpd*

Non-residential Meter Size	Meter Max. Flow, gpm	Water Meter Equivalency Factor	Non-residential Meter Equivalency Factor Calculations	
⅝ x ½	21	1.0	*Line 5*	
⅝ x ¾	21	1.0	*Line 6*	
¾	27	1.3	*Line 7*	*Line 7 gpm / Line 5 gpm*
1	48	2.3	*Line 8*	*Line 8 gpm / Line 5 gpm*
1½	85	4.0	*Line 9*	*Line 9 gpm / Line 5 gpm*
2	136	6.5	*Line 10*	*Line 10 gpm / Line 5 gpm*
3+	476	22.7	*Line 11*	*Line 11 gpm / Line 5 gpm*

Non-residential Meter Size	Equivalency Factors Wastewater	Water Meter	PIF	Non-residential Equivalency Factor Calculations	
⅝ x ¾	1.5	1.0	1.5	*Line 12*	*Line 4 equivalency factor*
¾	1.5	1.3	2.0	*Line 13*	*Line 12 x Line 7 equivalency factor*
1	1.5	2.3	3.5	*Line 14*	*Line 12 x Line 8 equivalency factor*
1½	1.5	4.0	6.1	*Line 15*	*Line 12 x Line 9 equivalency factor*
2	1.5	6.5	9.8	*Line 16*	*Line 12 x Line 10 equivalency factor*
3+	1.5	22.7	34.3	*Line 17*	*Line 12 x Line 11 equivalency factor*

Calculation of PIFs for non-residential developments is shown in the table below. The number of Fixture Units per Connection for ⅝ x ¾ Nonresidential meters is increased from 25 to 32. The per fixture unit charge is calculated by dividing the Residential PIF by the number of Fixture Units per Connection. For example, the value for 2022, is calculated to be $177 which is $3,750 divided by 32 (rounded to the nearest $1). Non-residential development PIFs for all meter connection sizes for 2022 - 2027 are shown in Table 6-4.

Table 6-4. Non-Residential Development PIFs

Customer Class	*PIF Equivalency Factor*	Current 2021	Recommended 2022	2023	2024	2025	2026	2027
Residential PIF	1.0	$3,600	$3,750	$3,900	$4,050	$4,200	$4,350	$4,500
Non-Residential (meter size)								
Fixture Units per Connection		25	32	32	32	32	32	32
⅝ x ¾ per Fixture Unit	1.5	*$216*	*$177*	*$184*	*$192*	*$198*	*$206*	*$213*
Water Meter Size								
⅝ x ¾	1.5	$5,400	$5,650	$5,900	$6,150	$6,350	$6,600	$6,800
¾	2.0	$15,100	$7,400	$7,650	$7,950	$8,250	$8,550	$8,850
1	3.5	$21,200	$13,000	$13,600	$14,100	$14,600	$15,100	$15,700
1½	6.1	$48,200	$22,700	$23,600	$24,500	$25,400	$26,300	$27,200
2	9.8	$105,800	$36,900	$38,300	$39,800	$41,300	$42,800	$44,200
3+	34.3	$105,800	$128,800	$133,900	$139,100	$144,200	$149,400	$154,500

Residential and Non-residential Development PIFs for 2005 - 2027 are shown in Figure 6-1.

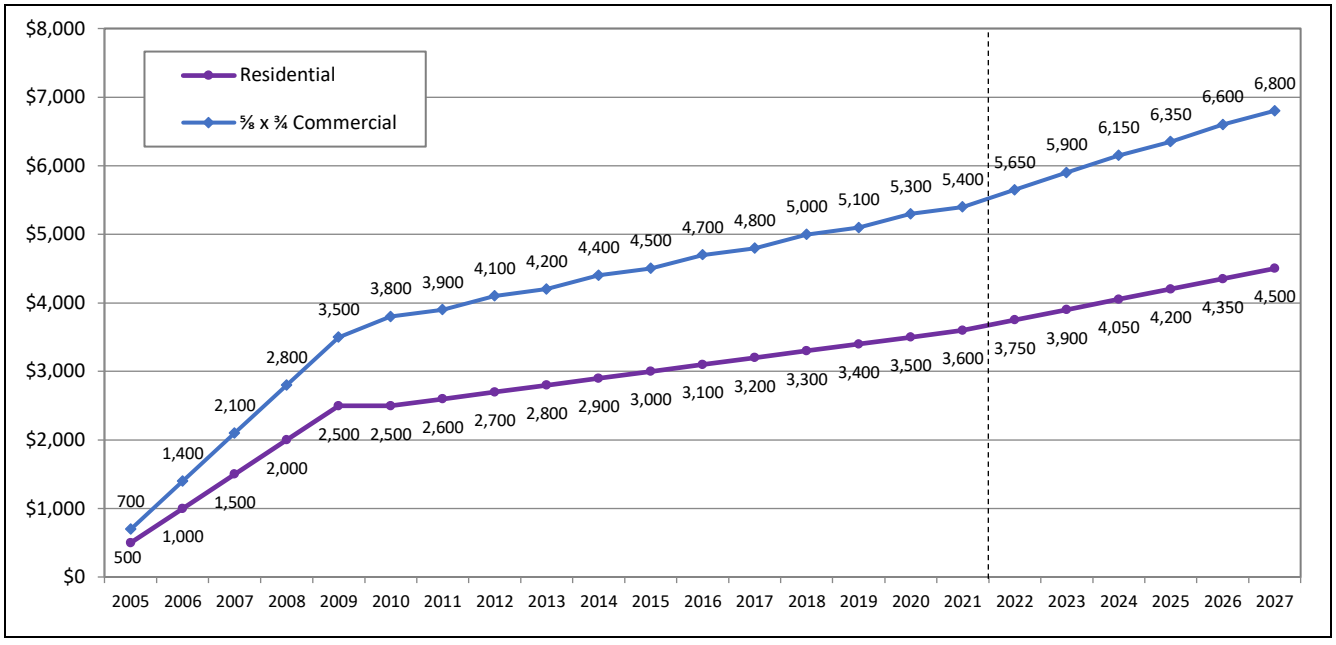

Figure 6-1. Residential and ⅝ x ¾-inch meter Commercial PIFS, 2005 - 2027

6.4 Permitted Non-residential Development PIFs

The PIFs developed in this section apply only to the commercial and industrial developments that have industrial discharge permits with the Water Reclamation Plant that specify the allowable flows and loads that may be discharged. The commercial or industrial developments that have industrial discharge permits with the Water Reclamation Plant that do not specify allowable flows and loads that may be discharged are subject to the PIF based on water meter size as shown in the rates resolution.

When there is a requirement that the discharge limits be increased, a Plant Investment Fee will be determined based on the Equivalent Residential Unit fee. These developments pay a high strength waste surcharge on their monthly bill based on their usage and is typically 60% of their permitted discharge peak allowable limits, Therefore, the PIF will be based on 60% of the rates determined for an ERU.

Industrial discharge permit PIF is established for specific wastewater characteristics listed in the rates resolution and values include the 40% deduction.

PIFs for Permitted Non-residential Developments are based on adjusted residential PIF components for flow, BOD, TSS, TP and NH3-N times the industrial connection's wastewater discharge levels for each of those components.

The calculation of PIFs for Permitted Non-residential Developments for 2022 – 2027 was changed in the following ways:

- Average residential wastewater discharge flow is lowered from 130 gpd to 119 gpd
- Average residential wastewater discharge TP is decreased from 7 mg/l to 6 mg/l
- Average residential wastewater discharge NH3-N is increased from 28 mg/l to 31 mg/l
- Fee components as a percent of the Residential PIFs was changed from 5 percent to 60 percent

Residential and Permitted Non-residential Developments PIF components are calculated as shown in Table 6-5.

Table 6-5. Permitted Non-residential Plant Investment Fee Development

% Allocation of PIF to Parameters [1]						
Treatment Process	CIP Cost	Flow	BOD	TSS	TP	NH3-N
Headworks	$22,086,597	$22,086,597	$0	$0	$0	$0
Primary Clarifier	$6,582,421	$3,291,210	$1,316,484	$1,316,484	$658,242	$0
Aeration	$19,687,563	$0	$7,875,025	$1,968,756	$1,968,756	$7,875,025
Final Clarifier	$5,804,116	$1,741,235	$2,321,647	$580,412	$580,412	$580,412
Sludge Handling	$7,356,303	$0	$2,942,521	$2,942,521	$1,103,445	$367,815
Total	$61,517,000	$27,119,043	$14,455,677	$6,808,173	$4,310,855	$8,823,252
	Percent of Total >	44%	23%	11%	7%	14%
$ Allocation of PIF to Parameters						
Year	Residential	Flow	BOD	TSS	TP	NH3-N
	allocation from above >	*44%*	*23%*	*11%*	*7%*	*14%*
2022	$3,750	$1,653	$881	$415	$263	$538
2023	$3,900	$1,719	$916	$432	$273	$559
2024	$4,050	$1,785	$952	$448	$284	$581
2025	$4,200	$1,852	$987	$465	$294	$602
2026	$4,350	$1,918	$1,022	$481	$305	$624
2027	$4,500	$1,984	$1,057	$498	$315	$645
Residential Discharge Characteristics [2]		Flow	BOD	TSS	TP	NH3-N
mgd or mg/l	*amount >*	0.000119	265	265	6	31
	unit of measure >	*mgd*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
Ccf or pounds (per day)	*amount >*	0.159	0.263	0.263	0.006	0.031
	unit of measure >	*Ccf/day*	*lbs/day*	*lbs/day*	*lbs/day*	*lbs/day*
Ccf or pounds (per month)	*amount >*	4.84	8.00	8.00	0.18	0.94
	unit of measure >	*Ccf/month*	*lbs/month*	*lbs/month*	*lbs/month*	*lbs/month*
Plant Investment Fee Componenet Unit Costs		Flow	BOD	TSS	TP	NH3-N
Per 1 Ccf/day or 1 lb/day		1 Ccf/day	1 lb/day	1 lb/day	1 lb/day	1 lb/day
2022		$10,393	$3,351	$1,578	$44,130	$17,482
2023		$10,808	$3,485	$1,641	$45,895	$18,181
2024		$11,224	$3,619	$1,704	$47,661	$18,881
2025		$11,640	$3,753	$1,767	$49,426	$19,580
2026		$12,055	$3,887	$1,830	$51,191	$20,279
2027		$12,471	$4,021	$1,894	$52,956	$20,978
Non-Residential Development With Discharge Permit PIFs		$/1 Ccf/day	$/1 lb/day	$/1 lb/day	$/1 lb/day	$/1 lb/day
Fee components are based on a percent of the fees determined for Residential connections		*60%*	*60%*	*60%*	*60%*	*60%*
Current (2021), 5% of Residential		$499	$161	$76	$1,816	$929
2022		$6,240	$2,010	$950	$26,480	$10,490
2023		$6,480	$2,090	$980	$27,540	$10,910
2024		$6,730	$2,170	$1,020	$28,600	$11,330
2025		$6,980	$2,250	$1,060	$29,660	$11,750
2026		$7,230	$2,330	$1,100	$30,710	$12,170
2027		$7,480	$2,410	$1,140	$31,770	$12,590

Notes:

1 The percent allocation of PIFs to parameters is based on percentages developed in the 2004 Rate Study and the 2006 Update, Table 5.1, WRP Project Upgrade and Capacity Expansion Expenditures Allocated to Pollutants.

2 Residential discharge characteristics are from Table A-9, Wastewater Discharge Characteristics - 2021.

6.5 Recommended Plant Investment Fees

Recommended PIFs for 2022 – 2027 are summarized in Table 6-6.

Table 6-6. Recommended Plant Investment Fees

Customer Class		Unit of Service	Current 2021	Recommended 2022	2023	2024	2025	2026	2027
Residential		Per connection	$3,600	$3,750	$3,900	$4,050	$4,200	$4,350	$4,500
Multiple Dwelling Unit		Per connection	$2,880	$2,650	$2,750	$2,850	$2,950	$3,050	$3,150
Non-Residential Developments									
Fixture Units per Connection			25	32	32	32	32	32	32
⅝ x ¾ per Fixture Unit		Per fixture unit	*$216*	*$177*	*$184*	*$192*	*$198*	*$206*	*$213*
Water Meter Size									
⅝ x ¾		Per connection	$5,400	$5,650	$5,900	$6,150	$6,350	$6,600	$6,800
¾		Per connection	$15,100	$7,400	$7,650	$7,950	$8,250	$8,550	$8,850
1		Per connection	$21,200	$13,000	$13,600	$14,100	$14,600	$15,100	$15,700
1½		Per connection	$48,200	$22,700	$23,600	$24,500	$25,400	$26,300	$27,200
2		Per connection	$105,800	$36,900	$38,300	$39,800	$41,300	$42,800	$44,200
3+		Per connection	$105,800	$128,800	$133,900	$139,100	$144,200	$149,400	$154,500
Permitted Non-Residential Developments									
Flow	$/Ccf/day	Per Permit	$499	$6,240	$6,480	$6,730	$6,980	$7,230	$7,480
BOD	$/lb/day	Per Permit	$161	$2,010	$2,090	$2,170	$2,250	$2,330	$2,410
TSS	$/lb/day	Per Permit	$76	$950	$980	$1,020	$1,060	$1,100	$1,140
TP	$/lb/day	Per Permit	$1,816	$26,480	$27,540	$28,600	$29,660	$30,710	$31,770
NH3-N	$/lb/day	Per Permit	$929	$10,490	$10,910	$11,330	$11,750	$12,170	$12,590

6.6 Plant Investment Fees Revenue

PIFs and revenues from fees are shown in Table D-1 of Appendix D. Revenues from the fees over the time period 2022 – 2045 are estimated to be $50.8 million. Revenues from the fees are based on projections of new connections described in Chapter 2.

The projected numbers of new connections per year are listed below along with calculation of the number of ERUs for each customer class during the estimated time period of implementation of fees.

Residential: 360 connections/year x 24 years x 1 ERU/connection = 8,640 ERUs

Non-Residential: 25 connections/year x 24 years x ERU/connection (varies by meter size) = 1,285 ERUs

Total: 9,925 ERUs

PIF revenues from industrial connections are not included because revenues from industrial connections can vary greatly and historical information has no reliable trending information.

Section 7

Adoption of Charges and Fees

The process of adopting wastewater charges and fees included a meeting with the City Council and hearings with the City Council. Key events in the adoption process of wastewater charges and fees are described in this chapter.

7.1 City Council Study Session

The Executive Summary from the September 2021 *Wastewater Rates and Fees Study* (Draft Report) was provided to the City Council at a City Council Study Session meeting on September 20, 2021. Slides used in the presentation of findings and recommendations from the Draft Report to the City Council are included in Appendix E.

During the City Council meeting, Council requested more information pertaining to the evaluation of affordability. City staff prepared an information sheet regarding that item for the Council. The information sheet is included in Appendix F.

7.2 City Council Hearings

At its November 1, 2021 Council meeting, City staff presented to Council Agenda Item F16, a "Request for Council Action" (RCA) that recommended adopting a Resolution approving the 2022 - 2027 Wastewater Rates and Fees Schedule. The RCA and Resolution No. 231-21 are included in Appendix G.

City staff also presented to Council Agenda Item F15, another RCA that recommended updating the sanitary sewer related ordinances at the same time as when the wastewater rates and fees are set for the six year cycle. Sanitary Sewer Ordinances: Chapter 12-2. Sanitary Sewage Disposal, Chapter 12-3. Pretreatment of Sewage Discharges, Chapter 12-5. Discharges of Fats, Oil and Grease, and Chapter 12-6. Sewer Charges were recommended to be updated to incorporate minor grammar changes to ensure consistency, reflect the changes in rates and fees from the recent sewer rate study and rates for council approval, and incorporate more language that has historically only been listed in resolutions or the rate study and not in the Ordinances.

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Section 8

Limitations

This document was prepared solely for the City of Rochester in accordance with professional standards at the time the services were performed and in accordance with the Professional Services Agreement between the City of Rochester and Municipal Financial Services. This document is governed by the specific scope of work in the Agreement passed and adopted by the Common Council of the City of Rochester on April 12, 2021; it is not intended to be relied upon by any other party. We have relied on information or instructions provided by the City of Rochester and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

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Appendix A: Customer Wastewater Discharge Characteristics

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Table A-1
Wastewater Discharge Characteristics - 2019

Customer Classification	No. of Conn.	Flow gpd	Flow mgd	BOD mg/l	TSS mg/l	TP mg/l	NH3-N mg/l	Flow mg/yr	BOD lbs/day	TSS lbs/day	TP lbs/day	NH3-N lbs/day
Residential Users	**36,606**	**112**	**4.108**	**259**	**259**	**6**	**31**	**1,500**	**8,874**	**8,874**	**206**	**1,062**
Commercial Users												
User 1	1		0.036	263	267	104	35	13	79	80	31	11
User 2	1		0.064	263	267	14	35	23	140	143	7	19
User 3	1		0.312	263	267	6	35	114	684	695	16	91
User 4	1		0.061	490	1,000	27	35	22	249	509	14	18
User 5	1		0.105	500	680	32	35	38	438	595	28	31
User 6	1		0.031	263	267	6	35	11	68	69	2	9
User 7	1		0.039	263	267	6	35	14	86	87	2	11
User 8	1		0.140	263	267	6	35	51	307	312	7	41
User 9	1		0.041	393	402	6	35	15	134	137	2	12
User 10	1		0.005	263	267	6	35	2	11	11	0	1
Other Commercial	3,127	1,391	3.530	259	259	6	31	1,288	7,624	7,624	177	913
Subtotal, Commercial	**3,137**		**4.364**					**1,593**	**9,821**	**10,262**	**286**	**1,156**
Industrial/Large Users												
User 1	1		0.093	3,530	1,135	13	31	34	2,738	880	10	24
User 2	1		0.216	1,147	259	14	31	79	2,066	467	26	56
User 3	1		0.038	688	372	9	31	14	218	118	3	10
User 4	1		0.225	1,696	612	33	31	82	3,182	1,149	62	58
User 5	1		0.144	2,550	960	15	31	53	3,062	1,153	18	37
User 6	1		0.010	263	267	6	31	4	22	22	1	3
User 7	1		0.006	263	267	6	31	2	13	13	0	2
User 8	1		0.013	263	267	6	31	5	29	29	1	3
User 9	1		0.010	263	267	6	31	4	22	22	1	3
User 10	1		0.010	263	267	6	31	4	22	22	1	3
Leachate			0.0192	25	41	0	86	7	4	7	0	14
Portable Toilets			0.0013	6,000	7,000	350	1,000	0	63	73	4	10
FOG			0.001	8,000	10,000	100	50	0	44	55	1	0
Septage			0.0019	10,000	30,000	250	150	1	158	475	4	2
Subtotal, Ind/Lg Users	**10**		**0.788**					**288**	**11,643**	**4,487**	**130**	**225**
Subtotal, Users	**39,753**		**9.260**					**3,381**	**30,339**	**23,624**	**621**	**2,443**
Unaccounted and I/I [1]			5.372	130	150	0	7	1,961	5,824	6,720	0	314
Totals	**39,753**		**14.6319**	**296**	**249**	**5**	**23**	**5,341**	**36,163**	**30,344**	**621**	**2,757**
Actual WTP Loads			**14.6300**	**294**	**261**	**5.2**	**22**	**5,340**	**35,921**	**31,791**	**634**	**2,733**

All customer usage data was provided by the City.

Notes:

1 Unaccounted Loads and I/I (Inflow/Infiltration) values are based on the difference between Actual WTP loads and loads from Residential, Commercial, Industrial and Septage.

Table A-2
Wastewater Discharge Characteristics - 2020

Customer Classification	No. of Conn.	Flow gpd	Flow mgd	BOD mg/l	TSS mg/l	TP mg/l	NH3-N mg/l	Flow mg/yr	BOD lbs/day	TSS lbs/day	TP lbs/day	NH3-N lbs/day
Residential Users	**36,485**	**117**	**4.254**	**262**	**262**	**6**	**31**	**1,553**	**9,296**	**9,296**	**213**	**1,100**
Commercial Users												
User 1	1		0.036	263	267	104	35	13	79	80	31	11
User 2	1		0.064	263	267	14	35	23	140	143	7	19
User 3	1		0.312	263	267	6	35	114	684	695	16	91
User 4	1		0.061	490	1,000	27	35	22	249	509	14	18
User 5	1		0.105	500	680	32	35	38	438	595	28	31
User 6	1		0.031	263	267	6	35	11	68	69	2	9
User 7	1		0.039	263	267	6	35	14	86	87	2	11
User 8	1		0.140	263	267	6	35	51	307	312	7	41
User 9	1		0.041	393	402	6	35	15	134	137	2	12
User 10	1		0.005	263	267	6	35	2	11	11	0	1
Other Commercial	3,118	1,269	4.481	262	262	6	31	1,635	9,791	9,791	224	1,158
Subtotal, Commercial	**3,128**		**5.315**					**1,940**	**11,987**	**12,429**	**333**	**1,402**
Industrial/Large Users												
User 1	1		0.092	3,812	1,179	13	31	34	2,927	905	10	24
User 2	1		0.264	666	246	10	31	97	1,469	543	22	68
User 3	1		0.043	485	355	8	31	16	175	128	3	11
User 4	1		0.010	263	267	6	31	4	22	22	1	3
User 5	1		0.006	263	267	6	31	2	13	13	0	2
User 6	1		0.013	263	267	6	31	5	29	29	1	3
Leachate			0.015	25	41	0	86	6	3	5	0	11
Portable Toilets			0.001	6,000	7,000	350	1,000	0	55	64	3	9
FOG			0.001	8,000	10,000	100	50	0	44	55	1	0
Septage			0.000	8,000	22,000	50	100	0	30	83	0	0
Subtotal, Ind/Lg Users	**6**		**0.446**					**163**	**4,767**	**1,848**	**40**	**132**
Subtotal, Users	**39,619**		**10.015**					**3,656**	**26,051**	**23,573**	**586**	**2,633**
Unaccounted and I/I [1]			3.531	60	140	0	0	1,289	1,767	4,123	0	0
Totals	**39,619**		**13.5465**	**246**	**245**	**5**	**23**	**4,944**	**27,818**	**27,696**	**586**	**2,633**
Actual WTP Loads			**12.2000**	**274**	**273**	**5**	**25**	**4,453**	**27,896**	**27,742**	**544**	**2,574**

All customer usage data was provided by the City.

Notes:

1 Unaccounted Loads and I/I (Inflow/Infiltration) values are based on the difference between Actual WTP loads and loads from Residential, Commercial, Industrial and Septage.

Table A-3
Wastewater Discharge Characteristics - 2021

Customer Classification	No. of Conn.	Flow gpd	Flow mgd	BOD mg/l	TSS mg/l	TP mg/l	NH3-N mg/l	Flow mg/yr	BOD lbs/day	TSS lbs/day	TP lbs/day	NH3-N lbs/day
Residential Users	**36,845**	**119**	**4.385**	**265**	**265**	**6**	**31**	**1,600**	**9,690**	**9,690**	**219**	**1,134**
Commercial Users												
User 1	1		0.036	263	267	104	35	13	79	80	31	11
User 2	1		0.064	263	267	14	35	23	140	143	7	19
User 3	1		0.312	263	267	6	35	114	684	695	16	91
User 4	1		0.061	490	1,000	27	35	22	249	509	14	18
User 5	1		0.105	500	680	32	35	38	438	595	28	31
User 6	1		0.031	263	267	6	35	11	68	69	2	9
User 7	1		0.039	263	267	6	35	14	86	87	2	11
User 8	1		0.140	263	267	6	35	51	307	312	7	41
User 9	1		0.041	393	402	6	35	15	134	137	2	12
User 10	1		0.005	263	267	6	35	2	11	11	0	1
Other Commercial	3,143		3.526	265	265	6	31	1,287	7,793	7,793	176	912
Subtotal, Commercial	**3,153**		**4.360**					**1,591**	**9,990**	**10,431**	**285**	**1,155**
Industrial/Large Users												
User 1	1		0.092	3,812	1,179	13	31	34	2,927	905	10	24
User 2	1		0.264	666	246	10	31	97	1,469	543	22	68
User 3	1		0.043	485	355	8	31	16	175	128	3	11
User 4	1		0.010	263	267	6	31	4	22	22	1	3
User 5	1		0.006	263	267	6	31	2	13	13	0	2
User 6	1		0.013	263	267	6	31	5	29	29	1	3
Leachate			0.015	25	41	0	86	6	3	5	0	11
Portable Toilets			0.001	6,000	7,000	350	1,000	0	55	64	3	9
FOG			0.001	8,000	10,000	100	50	0	44	55	1	0
Septage			0.001	8,000	22,000	50	100	0	49	134	0	1
Subtotal, Ind/Lg Users	**6**		**0.446**					**163**	**4,786**	**1,900**	**40**	**132**
Subtotal, Users	**40,004**		**9.191**					**3,355**	**24,466**	**22,020**	**545**	**2,420**
Unaccounted and I/I [1]			3.531	60	140	0	0	1,289	1,767	4,123	0	0
Totals	**40,004**		**12.7222**	**247**	**246**	**5**	**23**	**4,644**	**26,233**	**26,143**	**545**	**2,420**

All customer usage data was provided by the City.

Notes:

1 Unaccounted Loads and I/I (Inflow/Infiltration) values are based on historical data.

Table A-4
Wastewater Discharge Characteristics - 2022

Customer Classification	No. of Conn.	Flow gpd	Flow mgd	BOD mg/l	TSS mg/l	TP mg/l	NH3-N mg/l	Flow mg/yr	BOD lbs/day	TSS lbs/day	TP lbs/day	NH3-N lbs/day
Residential Users	**37,205**	**119**	**4.427**	**265**	**265**	**6**	**31**	**1,620**	**9,785**	**9,785**	**222**	**1,145**
Commercial Users												
User 1	1		0.036	263	267	104	35	13	79	80	31	11
User 2	1		0.064	263	267	14	35	23	140	143	7	19
User 3	1		0.312	263	267	6	35	114	684	695	16	91
User 4	1		0.061	490	1,000	27	35	22	249	509	14	18
User 5	1		0.105	500	680	32	35	38	438	595	28	31
User 6	1		0.031	263	267	6	35	11	68	69	2	9
User 7	1		0.039	263	267	6	35	14	86	87	2	11
User 8	1		0.140	263	267	6	35	51	307	312	7	41
User 9	1		0.041	393	402	6	35	15	134	137	2	12
User 10	1		0.005	263	267	6	35	2	11	11	0	1
Other Commercial	3,168	**1,122**	3.554	265	265	6	31	1,301	7,855	7,855	178	919
Subtotal, Commercial	**3,178**		**4.388**					**1,606**	**10,052**	**10,493**	**287**	**1,162**
Industrial/Trucked Waste												
User 1	1		0.092	3,812	1,179	13	31	34	2,927	905	10	24
User 2	1		0.264	666	246	10	31	97	1,469	543	22	68
User 3	1		0.043	485	355	8	31	16	175	128	3	11
User 4	1		0.010	263	267	6	31	4	22	22	1	3
User 5	1		0.006	263	267	6	31	2	13	13	0	2
User 6	1		0.013	263	267	6	31	5	29	29	1	3
Leachate			0.015	25	41	0	86	6	3	5	0	11
Portable Toilets			0.001	7,180	9,940	440	1,600	0	66	91	4	15
FOG			0.001	8,000	10,000	100	50	0	44	55	1	0
Septage			0.001	8,000	22,000	50	100	0	49	134	0	1
Subtotal, Ind/Trucked	**6**		**0.446**					**163**	**4,797**	**1,926**	**41**	**137**
Subtotal, Users	**40,389**		**9.262**					**3,390**	**24,633**	**22,204**	**550**	**2,444**
Unaccounted and I/I [1]			3.531	60	140	0	0	1,292	1,767	4,123	0	0
Totals	**40,389**		**12.7931**	**247**	**247**	**5**	**23**	**4,682**	**26,400**	**26,327**	**550**	**2,444**

All customer usage data was provided by the City.

Notes:

1 Unaccounted Loads and I/I (Inflow/Infiltration) values are based on historical data.

Table A-5
Wastewater Discharge Characteristics - 2023

Customer Classification	No. of Conn.	Flow gpd	Flow mgd	BOD mg/l	TSS mg/l	TP mg/l	NH3-N mg/l	Flow mg/yr	BOD lbs/day	TSS lbs/day	TP lbs/day	NH3-N lbs/day
Residential Users	**37,565**	**119**	**4.470**	**265**	**265**	**6**	**31**	**1,632**	**9,880**	**9,880**	**224**	**1,156**
Commercial Users												
User 1	1		0.036	263	267	104	35	13	79	80	31	11
User 2	1		0.064	263	267	14	35	23	140	143	7	19
User 3	1		0.312	263	267	6	35	114	684	695	16	91
User 4	1		0.061	490	1,000	27	35	22	249	509	14	18
User 5	1		0.105	500	680	32	35	38	438	595	28	31
User 6	1		0.031	263	267	6	35	11	68	69	2	9
User 7	1		0.039	263	267	6	35	14	86	87	2	11
User 8	1		0.140	263	267	6	35	51	307	312	7	41
User 9	1		0.041	393	402	6	35	15	134	137	2	12
User 10	1		0.005	263	267	6	35	2	11	11	0	1
Other Commercial	3,193	1,122	3.582	265	265	6	31	1,307	7,917	7,917	179	926
Subtotal, Commercial	**3,203**		**4.416**					**1,612**	**10,114**	**10,555**	**288**	**1,170**
Industrial/Trucked Waste												
User 1	1		0.092	3,812	1,179	13	31	34	2,927	905	10	24
User 2	1		0.264	666	246	**10**	31	97	1,469	543	22	68
User 3	1		0.043	485	355	8	31	16	175	128	3	11
User 4	1		0.010	263	267	6	31	4	22	22	1	3
User 5	1		0.006	263	267	6	31	2	13	13	0	2
User 6	1		0.013	263	267	6	31	5	29	29	1	3
Leachate			0.015	25	41	0	86	6	3	5	0	11
Portable Toilets			0.001	7,180	9,940	440	1,600	0	66	91	4	15
FOG			0.001	8,000	10,000	100	50	0	44	55	1	0
Septage			0.001	8,000	22,000	50	100	0	49	134	0	1
Subtotal, Ind/Trucked	**6**		**0.446**					**163**	**4,797**	**1,926**	**41**	**137**
Subtotal, Users	**40,774**		**9.333**					**3,406**	**24,790**	**22,361**	**553**	**2,463**
Unaccounted and I/I [1]			3.531	60	140	0	0	1,289	1,767	4,123	0	0
Totals	**40,774**		**12.8640**	**248**	**247**	**5**	**23**	**4,695**	**26,557**	**26,484**	**553**	**2,463**

All customer usage data was provided by the City.

Notes:

1 Unaccounted Loads and I/I (Inflow/Infiltration) values are based on historical data.

Table A-6
Wastewater Discharge Characteristics - 2024

Customer Classification	No. of Conn.	Flow gpd	Flow mgd	BOD mg/l	TSS mg/l	TP mg/l	NH3-N mg/l	Flow mg/yr	BOD lbs/day	TSS lbs/day	TP lbs/day	NH3-N lbs/day
Residential Users	**37,925**	**119**	**4.513**	**265**	**265**	**6**	**31**	**1,647**	**9,974**	**9,974**	**226**	**1,167**
Commercial Users												
User 1	1		0.036	263	267	104	35	13	79	80	31	11
User 2	1		0.064	263	267	14	35	23	140	143	7	19
User 3	1		0.312	263	267	6	35	114	684	695	16	91
User 4	1		0.061	490	1,000	27	35	22	249	509	14	18
User 5	1		0.105	500	680	32	35	38	438	595	28	31
User 6	1		0.031	263	267	6	35	11	68	69	2	9
User 7	1		0.039	263	267	6	35	14	86	87	2	11
User 8	1		0.140	263	267	6	35	51	307	312	7	41
User 9	1		0.041	393	402	6	35	15	134	137	2	12
User 10	1		0.005	263	267	6	35	2	11	11	0	1
Other Commercial	3,218	1,122	3.610	265	265	6	31	1,318	7,979	7,979	181	933
Subtotal, Commercial	**3,228**		**4.444**					**1,622**	**10,176**	**10,617**	**290**	**1,177**
Industrial/Trucked Waste												
User 1	1		0.092	3,812	1,179	13	31	34	2,927	905	10	24
User 2	1		0.264	666	246	**10**	31	97	1,469	543	22	68
User 3	1		0.043	485	355	8	31	16	175	128	3	11
User 4	1		0.010	263	267	6	31	4	22	22	1	3
User 5	1		0.006	263	267	6	31	2	13	13	0	2
User 6	1		0.013	263	267	6	31	5	29	29	1	3
Leachate			0.015	25	41	0	86	6	3	5	0	11
Portable Toilets			0.001	7,180	9,940	440	1,600	0	66	91	4	15
FOG			0.001	8,000	10,000	100	50	0	44	55	1	0
Septage			0.001	8,000	22,000	50	100	0	49	134	0	1
Subtotal, Ind/Trucked	**6**		**0.446**					**163**	**4,797**	**1,926**	**41**	**137**
Subtotal, Users	**41,159**		**9.404**					**3,432**	**24,947**	**22,517**	**557**	**2,481**
Unaccounted and I/I [1]			3.531	60	140	0	0	1,289	1,767	4,123	0	0
Totals	**41,159**		**12.9349**	**248**	**247**	**5**	**23**	**4,721**	**26,713**	**26,640**	**557**	**2,481**

All customer usage data was provided by the City.

Notes:

1 Unaccounted Loads and I/I (Inflow/Infiltration) values are based on historical data.

Table A-7
Wastewater Discharge Characteristics - 2025

Customer Classification	No. of Conn.	Flow gpd	Flow mgd	BOD mg/l	TSS mg/l	TP mg/l	NH3-N mg/l	Flow mg/yr	BOD lbs/day	TSS lbs/day	TP lbs/day	NH3-N lbs/day
Residential Users	**38,285**	**119**	**4.556**	**265**	**265**	**6**	**31**	**1,663**	**10,069**	**10,069**	**228**	**1,178**
Commercial Users												
User 1	1		0.036	263	267	104	35	13	79	80	31	11
User 2	1		0.064	263	267	14	35	23	140	143	7	19
User 3	1		0.312	263	267	6	35	114	684	695	16	91
User 4	1		0.061	490	1,000	27	35	22	249	509	14	18
User 5	1		0.105	500	680	32	35	38	438	595	28	31
User 6	1		0.031	263	267	6	35	11	68	69	2	9
User 7	1		0.039	263	267	6	35	14	86	87	2	11
User 8	1		0.140	263	267	6	35	51	307	312	7	41
User 9	1		0.041	393	402	6	35	15	134	137	2	12
User 10	1		0.005	263	267	6	35	2	11	11	0	1
Other Commercial	3,243	1,122	3.638	265	265	6	31	1,328	8,041	8,041	182	941
Subtotal, Commercial	**3,253**		**4.472**					**1,632**	**10,238**	**10,679**	**291**	**1,184**
Industrial/Trucked Waste												
User 1	1		0.092	3,812	1,179	13	31	34	2,927	905	10	24
User 2	1		0.264	666	246	**10**	31	97	1,469	543	22	68
User 3	1		0.043	485	355	8	31	16	175	128	3	11
User 4	1		0.010	263	267	6	31	4	22	22	1	3
User 5	1		0.006	263	267	6	31	2	13	13	0	2
User 6	1		0.013	263	267	6	31	5	29	29	1	3
Leachate			0.015	25	41	0	86	6	3	5	0	11
Portable Toilets			0.001	7,180	9,940	440	1,600	0	66	91	4	15
FOG			0.001	8,000	10,000	100	50	0	44	55	1	0
Septage			0.001	8,000	22,000	50	100	0	49	134	0	1
Subtotal, Ind/Trucked	**6**		**0.446**					**163**	**4,797**	**1,926**	**41**	**137**
Subtotal, Users	**41,544**		**9.475**					**3,458**	**25,103**	**22,674**	**560**	**2,499**
Unaccounted and I/I [1]			3.531	60	140	0	0	1,289	1,767	4,123	0	0
Totals	**41,544**		**13.0057**	**248**	**247**	**5**	**23**	**4,747**	**26,870**	**26,797**	**560**	**2,499**

All customer usage data was provided by the City.

Notes:

1 Unaccounted Loads and I/I (Inflow/Infiltration) values are based on historical data.

Table A-8
Wastewater Discharge Characteristics - 2026

Customer Classification	No. of Conn.	Flow gpd	Flow mgd	BOD mg/l	TSS mg/l	TP mg/l	NH3-N mg/l	Flow mg/yr	BOD lbs/day	TSS lbs/day	TP lbs/day	NH3-N lbs/day
Residential Users	**38,645**	**119**	**4.599**	**265**	**265**	**6**	**31**	**1,683**	**10,164**	**10,164**	**230**	**1,189**
Commercial Users												
User 1	1		0.036	263	267	104	35	13	79	80	31	11
User 2	1		0.064	263	267	14	35	23	140	143	7	19
User 3	1		0.312	263	267	6	35	114	684	695	16	91
User 4	1		0.061	490	1,000	27	35	22	249	509	14	18
User 5	1		0.105	500	680	32	35	38	438	595	28	31
User 6	1		0.031	263	267	6	35	11	68	69	2	9
User 7	1		0.039	263	267	6	35	14	86	87	2	11
User 8	1		0.140	263	267	6	35	51	307	312	7	41
User 9	1		0.041	393	402	6	35	15	134	137	2	12
User 10	1		0.005	263	267	6	35	2	11	11	0	1
Other Commercial	3,268	1,122	3.666	265	265	6	31	1,342	8,103	8,103	183	948
Subtotal, Commercial	**3,278**		**4.500**					**1,647**	**10,300**	**10,741**	**292**	**1,191**
Industrial/Trucked Waste												
User 1	1		0.092	3,812	1,179	13	31	34	2,927	905	10	24
User 2	1		0.264	666	246	**10**	31	97	1,469	543	22	68
User 3	1		0.043	485	355	8	31	16	175	128	3	11
User 4	1		0.010	263	267	6	31	4	22	22	1	3
User 5	1		0.006	263	267	6	31	2	13	13	0	2
User 6	1		0.013	263	267	6	31	5	29	29	1	3
Leachate			0.015	25	41	0	86	6	3	5	0	11
Portable Toilets			0.001	7,180	9,940	440	1,600	0	66	91	4	15
FOG			0.001	8,000	10,000	100	50	0	44	55	1	0
Septage			0.001	8,000	22,000	50	100	0	49	134	0	1
Subtotal, Ind/Trucked	**6**		**0.446**					**163**	**4,797**	**1,926**	**41**	**137**
Subtotal, Users	**41,929**		**9.545**					**3,494**	**25,260**	**22,831**	**564**	**2,518**
Unaccounted and I/I [1]			3.531	60	140	0	0	1,292	1,767	4,123	0	0
Totals	**41,929**		**13.0766**	**248**	**247**	**5**	**23**	**4,786**	**27,027**	**26,954**	**564**	**2,518**

All customer usage data was provided by the City.

Notes:

1 Unaccounted Loads and I/I (Inflow/Infiltration) values are based on historical data.

Table A-9
Wastewater Discharge Characteristics - 2027

Customer Classification	No. of Conn.	Flow gpd	Flow mgd	BOD mg/l	TSS mg/l	TP mg/l	NH3-N mg/l	Flow mg/yr	BOD lbs/day	TSS lbs/day	TP lbs/day	NH3-N lbs/day
Residential Users	**39,005**	**119**	**4.642**	**265**	**265**	**6**	**31**	**1,694**	**10,258**	**10,258**	**232**	**1,200**
Commercial Users												
User 1	1		0.036	263	267	104	35	13	79	80	31	11
User 2	1		0.064	263	267	14	35	23	140	143	7	19
User 3	1		0.312	263	267	6	35	114	684	695	16	91
User 4	1		0.061	490	1,000	27	35	22	249	509	14	18
User 5	1		0.105	500	680	32	35	38	438	595	28	31
User 6	1		0.031	263	267	6	35	11	68	69	2	9
User 7	1		0.039	263	267	6	35	14	86	87	2	11
User 8	1		0.140	263	267	6	35	51	307	312	7	41
User 9	1		0.041	393	402	6	35	15	134	137	2	12
User 10	1		0.005	263	267	6	35	2	11	11	0	1
Other Commercial	3,293	1,122	3.694	265	265	6	31	1,348	8,165	8,165	185	955
Subtotal, Commercial	**3,303**		**4.528**					**1,653**	**10,362**	**10,803**	**294**	**1,199**
Industrial/Trucked Waste												
User 1	1		0.092	3,812	1,179	13	31	34	2,927	905	10	24
User 2	1		0.264	666	246	**10**	31	97	1,469	543	22	68
User 3	1		0.043	485	355	8	31	16	175	128	3	11
User 4	1		0.010	263	267	6	31	4	22	22	1	3
User 5	1		0.006	263	267	6	31	2	13	13	0	2
User 6	1		0.013	263	267	6	31	5	29	29	1	3
Leachate			0.015	25	41	0	86	6	3	5	0	11
Portable Toilets			0.001	7,180	9,940	440	1,600	0	66	91	4	15
FOG			0.001	8,000	10,000	100	50	0	44	55	1	0
Septage			0.001	8,000	22,000	50	100	0	49	134	0	1
Subtotal, Ind/Trucked	**6**		**0.446**					**163**	**4,797**	**1,926**	**41**	**137**
Subtotal, Users	**42,314**		**9.616**					**3,510**	**25,417**	**22,987**	**567**	**2,536**
Unaccounted and I/I [1]			3.531	60	140	0	0	1,289	1,767	4,123	0	0
Totals	**42,314**		**13.1475**	**248**	**247**	**5**	**23**	**4,799**	**27,183**	**27,110**	**567**	**2,536**

All customer usage data was provided by the City.

Notes:

1 Unaccounted Loads and I/I (Inflow/Infiltration) values are based on historical data.

Table A-10

Historical and Projected Residential and Commercial Accounts and Average Wastewater Discharge

		Wastewater Discharge, mgd					Residential				Commercial		
		Wastewater Discharge and UA-I/I, mgd [1]					Accounts			Monthly	Accounts		
								New [2,3]		Avg/Acct		New [2,3]	
Year		Res	Com	Ind/Truck	UA-I/I	WTP-Infl	Total	Annual	% Chg	gpd	Total	Annual	%
2016	a	4.197	4.988	**0.939**	1.999	12.123	35,550	388	1.1%	118	3,057	67	2.2%
2017	a	4.150	5.208	**0.841**	3.364	13.564	35,959	409	1.2%	115	3,070	13	0.4%
2018	a	4.155	5.151	**0.882**	3.253	13.440	36,347	388	1.1%	114	3,105	35	1.1%
2019	a	4.108	4.364	**0.786**	5.372	14.630	36,606	259	0.7%	112	3,137	32	1.0%
2020	a	4.254	3.969	**0.446**	3.531	12.200	36,485	-121	-0.3%	117	3,128	-9	-0.3%
2021	p	4.385	4.360	0.446	3.531	12.722	36,845	360	1.0%	119	3,153	25	0.8%
2022	p	4.427	4.388	0.446	3.531	12.793	37,205	360	1.0%	119	3,178	25	0.8%
2023	p	4.470	4.416	0.446	3.531	12.864	37,565	360	1.0%	119	3,203	25	0.8%
2024	p	4.513	4.444	0.446	3.531	12.935	37,925	360	1.0%	119	3,228	25	0.8%
2025	p	4.556	4.472	0.446	3.531	13.006	38,285	360	0.9%	119	3,253	25	0.8%
2026	p	4.599	4.500	0.446	3.531	13.077	38,645	360	0.9%	119	3,278	25	0.8%
2027	p	4.642	4.528	0.446	3.531	13.148	39,005	360	0.9%	119	3,303	25	0.8%
2028	p	4.684	4.556	0.446	3.531	13.218	39,365	360	0.9%	119	3,328	25	0.8%
2029	p	4.727	4.584	0.446	3.531	13.289	39,725	360	0.9%	119	3,353	25	0.8%
2030	p	4.770	4.612	0.446	3.531	13.360	40,085	360	0.9%	119	3,378	25	0.7%
2031	p	4.813	4.640	0.446	3.531	13.431	40,445	360	0.9%	119	3,403	25	0.7%
2032	p	4.856	4.669	0.446	3.531	13.502	40,805	360	0.9%	119	3,428	25	0.7%
2033	p	4.899	4.697	0.446	3.531	13.573	41,165	360	0.9%	119	3,453	25	0.7%
2034	p	4.941	4.725	0.446	3.531	13.644	41,525	360	0.9%	119	3,478	25	0.7%
2035	p	4.984	4.753	0.446	3.531	13.715	41,885	360	0.9%	119	3,503	25	0.7%
2036	p	5.027	4.781	0.446	3.531	13.785	42,245	360	0.9%	119	3,528	25	0.7%
2037	p	5.070	4.809	0.446	3.531	13.856	42,605	360	0.9%	119	3,553	25	0.7%
2038	p	5.113	4.837	0.446	3.531	13.927	42,965	360	0.8%	119	3,578	25	0.7%
2039	p	5.156	4.865	0.446	3.531	13.998	43,325	360	0.8%	119	3,603	25	0.7%
2040	p	5.199	4.893	0.446	3.531	14.069	43,685	360	0.8%	119	3,628	25	0.7%
2041	p	5.241	4.921	0.446	3.531	14.140	44,045	360	0.8%	119	3,653	25	0.7%
2042	p	5.284	4.949	0.446	3.531	14.211	44,405	360	0.8%	119	3,678	25	0.7%
2043	p	5.327	4.977	0.446	3.531	14.282	44,765	360	0.8%	119	3,703	25	0.7%
2044	p	5.370	5.005	0.446	3.531	14.353	45,125	360	0.8%	119	3,728	25	0.7%
2045	p	5.413	5.033	0.446	3.531	14.423	45,485	360	0.8%	119	3,753	25	0.7%

Notes:

1 Wastewater discharge and account data for 1995 - 2020 was provided by the City ("a") or estimated in prior rate studies ("e"). Data for 2021 and onward is projected ("p").

2 The annual number of new Residential and Commercial accounts was provided by the City

3 The number of Residential accounts excludes 103 accounts in the Chester Heights Sanitary Sewer District

Appendix B: Cash Flow, Reserves and Debt Coverage

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Table B-1
O&M Expenses 2018 - 2027, $

Item	Actual 2018	Actual 2019	Actual 2020	Estimated 2021	% Increase 2022-2027	Projected 2022	2023	2024	2025	2026	2027
Water Reclamation Plant-49631											
Employee Services *											
Regular Salaries	2,144,060	2,224,585	2,375,185	2,511,367	3.5%	2,599,265	2,690,239	2,784,397	2,674,851	2,768,471	2,865,368
Temporary Salaries	28,084	25,492	0	21,000	3.5%	21,735	22,496	23,283	22,367	23,150	23,960
Regular Overtime	21,347	21,776	23,473	18,750	3.5%	19,406	20,085	20,788	19,971	20,670	21,393
Other Pay	7,476	4,679	7,634	7,000	3.5%	7,245	7,499	7,761	7,456	7,717	7,987
Employee Benefits - Pensions	497,680	184,699	506,288	384,921	3.5%	398,393	412,337	426,769	409,978	424,328	439,179
Employee Benefits - Insurance	585,880	619,263	582,086	625,972	3.5%	647,881	670,557	694,026	666,721	690,057	714,209
Total Employee Services	3,285,000	3,080,000	3,495,000	3,569,000		3,694,000	3,823,000	3,957,000	3,801,000	3,934,000	4,072,000
Contractual Services											
Rents and Leases	5,044	14,526	8,643	5,000	2.0%	5,100	5,202	5,306	5,412	5,520	5,631
Adv, Publishing, & Printing	2,410	2,776	1,335	3,800	2.0%	3,876	3,954	4,033	4,113	4,196	4,279
Contractual Mtce & Repair	462,219	803,692	488,294	558,000	2.0%	569,160	580,543	592,154	603,997	616,077	628,399
Expert & Professional Service	236,310	276,622	205,142	239,000	2.0%	243,780	248,656	253,629	258,701	263,875	269,153
Communications	7,632	7,508	6,421	8,400	2.0%	8,568	8,739	8,914	9,092	9,274	9,460
Travel/Training/Business Mea	24,269	27,645	4,291	17,350	2.0%	17,697	18,051	18,412	18,780	19,156	19,539
Subscriptions/Bks/Membership	81,642	83,566	26,618	35,500	2.0%	36,210	36,934	37,673	38,426	39,195	39,979
Utilities	1,326,210	1,311,139	1,247,910	1,309,000	2.0%	1,335,180	1,361,884	1,389,121	1,416,904	1,445,242	1,474,147
Insurance and Bonds	194,948	207,652	258,790	208,259	2.0%	212,424	216,673	221,006	225,426	229,935	234,533
Contractual Services	295,384	309,245	265,067	260,000	2.0%	265,200	270,504	275,914	281,432	287,061	292,802
Total Contractual Services	2,636,000	3,044,000	2,513,000	2,644,000		2,697,000	2,751,000	2,806,000	2,862,000	2,920,000	2,978,000
Materials and Supplies											
Office Supplies	30,674	6,779	2,865	4,200	2.0%	4,284	4,370	4,457	4,546	4,637	4,730
Veh & Mach Operating Supplied	74,847	63,565	59,728	80,800	2.0%	82,416	84,064	85,746	87,461	89,210	90,994
Clothing & Protective Equipm	5,850	6,607	3,625	5,500	2.0%	5,610	5,722	5,837	5,953	6,072	6,194
Commodities	475,483	516,592	357,609	400,000	2.0%	408,000	416,160	424,483	432,973	441,632	450,465
Equipment, Tools, & Misc Par	459,509	412,917	374,931	416,000	2.0%	424,320	432,806	441,463	450,292	459,298	468,484
Construction Materials	13,870	2,486	17,862	1,200	2.0%	1,224	1,248	1,273	1,299	1,325	1,351
Supplies	69,658	83,097	48,008	72,820	2.0%	74,276	75,762	77,277	78,823	80,399	82,007
Total Materials and Supplies	1,130,000	1,092,000	865,000	981,000		1,000,000	1,020,000	1,041,000	1,061,000	1,083,000	1,104,000
Other Charges											
Judgments/Penalties/Settlements	1,000	0	0	0	2.0%	0	0	0	0	0	0
Taxes and Licenses	1,896,681	1,935,796	1,915,956	2,030,000	1.0%	2,050,300	2,070,803	2,091,511	2,112,426	2,133,550	2,154,886
Other Charges	111,339	109,479	127,697	139,588	2.0%	142,380	145,227	148,132	151,095	154,116	157,199
Billing and Collection	917,235	545,184	892,665	1,100,000	2.0%	1,122,000	1,144,440	1,167,329	1,190,675	1,214,489	1,238,779
Total Other Charges	2,926,000	2,590,000	2,936,000	3,270,000		3,315,000	3,360,000	3,407,000	3,454,000	3,502,000	3,551,000
Capital Outlay											
Furniture and Equipment	0	0	9,434	40,000	2.0%	40,800	41,616	42,448	43,297	44,163	45,046
Total Capital Outlay	0	0	9,000	40,000		41,000	42,000	42,000	43,000	44,000	45,000
Alloc to Other Activities											
Alloc to Other Activities	-4,640	-1,192	-8,389	0	2.0%	0	0	0	0	0	0
Total Alloc to Other Activities	-4,640	-1,192	-8,389	0		0	0	0	0	0	0
Total Water Reclamation Plant	9,972,360	9,804,808	9,809,611	10,504,000		10,747,000	10,996,000	11,253,000	11,221,000	11,483,000	11,750,000

* Employee Services cost decreases in Water Reclamation Plant-49631 for reduced staff beginning in 2025 are calculated as shown below.

Step 1 - Calculate 2024 Full Time Equivalent employees before and after reduction in staff:

Before	*Reduction*	*After*	*% Reduction*
27.8	2.0	25.8	*-7.2%*

Step 2 - Apply % Reduction to each expenditure item in Employee Salaries.

	Projected 2024	*Reduction %*	*Reduction $*	*Adjusted 2024*	*Annual Inc %*	*Projected 2025*
Regular Salaries	2,784,397	*-7.2%*	-200,000	2,584,397	*3.5%*	2,674,851
Temporary Salaries	23,283	*-7.2%*	-1,672	21,611	*3.5%*	22,367
Regular Overtime	20,788	*-7.2%*	-1,493	19,295	*3.5%*	19,971
Other Pay	7,761	*-7.2%*	-557	7,204	*3.5%*	7,456
Employee Benefits - Pensions	426,769	*-7.2%*	-30,654	396,114	*3.5%*	409,978
Employee Benefits - Insurance	694,026	*-7.2%*	-49,851	644,175	*3.5%*	666,721
Total Employee Services	3,959,049		-284,228	3,674,821		3,803,370

Table B-1
O&M Expenses 2018 - 2027, $

Item	Actual 2018	Actual 2019	Actual 2020	Estimated 2021	% Increase 2022-2027	Projected 2022	2023	2024	2025	2026	2027
Sewer Collection-49611											
Employee Services **											
Regular Salaries	741,240	761,613	927,625	1,007,707	3.5%	1,042,977	1,079,481	1,117,263	1,363,367	1,411,085	1,460,473
Temporary Salaries	19,176	20,554	0	16,500	3.5%	17,078	17,675	18,294	20,665	21,388	22,137
Regular Overtime	10,754	42,105	15,625	2,250	3.5%	2,329	2,410	2,495	4,127	4,272	4,421
Other Pay	6,665	1,974	1,790	31,911	3.5%	33,028	34,184	35,380	37,196	38,497	39,845
Employee Benefits - Pensions	165,127	61,744	198,246	154,272	3.5%	159,672	165,260	171,044	208,758	216,064	223,627
Employee Benefits - Insurance	181,049	210,181	224,626	295,538	3.5%	305,882	316,588	327,668	390,733	404,408	418,562
Total Employee Services	1,124,000	1,098,000	1,368,000	1,508,000		1,561,000	1,616,000	1,672,000	2,025,000	2,096,000	2,169,000
Contractual Services											
Rents and Leases	29,137	29,842	28,201	34,812	2.0%	35,508	36,218	36,943	37,682	38,435	39,204
Adv, Publishing, & Printing	140	38	186	300	2.0%	306	312	318	325	331	338
Contractual Mtce & Repair	34,676	28,982	31,098	39,200	2.0%	39,984	40,784	41,599	42,431	43,280	44,146
Expert & Professional Service	10,402	15,276	26,109	9,750	2.0%	9,945	10,144	10,347	10,554	10,765	10,980
Communications	16,791	18,015	15,736	17,400	2.0%	17,748	18,103	18,465	18,834	19,211	19,595
Travel/Training/Business Mea	2,760	6,043	2,528	6,420	2.0%	6,548	6,679	6,813	6,949	7,088	7,230
Subscriptions/Bks/Membership	579	648	453	500	2.0%	510	520	531	541	552	563
Utilities	91,904	85,661	75,373	94,393	2.0%	76,881	78,418	79,987	81,587	83,218	84,883
Insurance and Bonds	28,499	31,405	33,440	32,463	2.0%	33,112	33,775	34,450	35,139	35,842	36,559
Contractual Services	243,227	308,644	72,489	409,992	2.0%	418,192	426,556	435,087	443,789	452,664	461,718
Total Contractual Services	458,000	525,000	286,000	645,000		639,000	652,000	665,000	678,000	691,000	705,000
Materials and Supplies											
Office Supplies	1,982	2,010	1,443	1,000	2.0%	1,020	1,040	1,061	1,082	1,104	1,126
Veh & Mach Operating Supplied	65,849	79,065	55,444	75,650	2.0%	77,163	78,706	80,280	81,886	83,524	85,194
Clothing & Protective Equipm	8,105	2,274	373	5,000	2.0%	5,100	5,202	5,306	5,412	5,520	5,631
Commodities	0	123	0	350	2.0%	357	364	371	379	386	394
Equipment, Tools, & Misc Par	4,840	23,649	10,171	13,100	2.0%	13,362	13,629	13,902	14,180	14,463	14,753
Construction Materials	12,151	171,169	257,415	227,500	2.0%	232,050	236,691	241,425	246,253	251,178	256,202
Supplies	9,461	542	0	7,200	2.0%	7,344	7,491	7,641	7,794	7,949	8,108
Total Materials and Supplies	102,000	279,000	325,000	330,000		336,000	343,000	350,000	357,000	364,000	371,000
Other Charges											
Judgments/Penalties/Settlements	1,000	0	0	1,000	2.0%	1,020	1,040	1,061	1,082	1,104	1,126
Taxes and Licenses	303	500	450	250	1.0%	253	255	258	260	263	265
Other Charges	169,133	160,788	153,120	153,925	2.0%	157,004	160,144	163,346	166,613	169,946	173,345
Total Other Charges	170,000	161,000	154,000	155,000		158,000	161,000	165,000	168,000	171,000	175,000
Capital Outlay											
Furniture and Equipment	72,855	257,867	0	0	2.0%	0	0	0	0	0	0
Total Capital Outlay	73,000	258,000	0	0		0	0	0	0	0	0
Alloc to Other Activities											
Alloc to Other Activities	-162,122	-196,713	-255,968	-204,600	2.0%	-208,692	-212,866	-217,123	-221,466	-225,895	-230,413
Total Alloc to Other Activities	-162,000	-197,000	-256,000	-205,000		-209,000	-213,000	-217,000	-221,000	-226,000	-230,000
Total Sewer Collection	1,765,000	2,124,000	1,877,000	2,433,000		2,485,000	2,559,000	2,635,000	3,007,000	3,096,000	3,190,000
Total O&M Expenses											
Water Reclamation Plant	9,972,360	9,804,808	9,809,611	10,504,000		10,747,000	10,996,000	11,253,000	11,221,000	11,483,000	11,750,000
Sewer Collection	1,765,000	2,124,000	1,877,000	2,433,000		2,485,000	2,559,000	2,635,000	3,007,000	3,096,000	3,190,000
Total O&M Expenses	11,737,360	11,928,808	11,686,611	12,937,000		13,232,000	13,555,000	13,888,000	14,228,000	14,579,000	14,940,000
$ Change		191,448	-242,197	1,250,389		295,000	323,000	333,000	340,000	351,000	361,000
% Change		2%	-2%	11%		2%	2%	2%	2%	2%	2%

** Employee Services cost increases in Sewer Collection-49611 for additional staff beginning in 2025 are based on the reduction in staff recognized in Water Reclamation Plant-49631.

Source: City of Rochester. Depreciation and interest are not included in O&M expenses. Costs are escalated by growth rate and inflation.

Table B-2
Existing Debt Service

Item	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Total
Collection and Treatment Plant																
Taxable GO Waste Water																
Revenue Refunding Bonds, Series																
2012A Crossover Refunding																
2004A Bonds																
Principal				4,500,000	4,675,000	4,940,000	5,135,000	5,415,000	5,650,000	5,890,000						36,205,000
Interest	2,077,440	2,921,400	2,921,400	2,921,400	2,696,400	2,462,650	2,215,650	1,958,900	1,688,150	702,825						22,566,215
Total	2,077,440	2,921,400	2,921,400	7,421,400	7,371,400	7,402,650	7,350,650	7,373,900	7,338,150	6,592,825	0	0	0	0	0	58,771,215
General Obligation Waste Water																
Revenue Refunding Bonds, Series																
2015B Crossover Refunding																
2007A																
Principal					1,590,000	1,665,000	1,750,000	1,835,000	1,920,000	2,010,000	2,085,000	2,195,000	2,310,000	2,445,000		19,805,000
Interest			453,865	990,250	990,250	910,750	827,500	740,000	648,250	552,250	451,750	347,500	237,750	122,250		7,272,365
Total	0	0	453,865	990,250	2,580,250	2,575,750	2,577,500	2,575,000	2,568,250	2,562,250	2,536,750	2,542,500	2,547,750	2,567,250	0	27,077,365
Taxable GO Waste Water																
Revenue Refunding Bonds, Series																
2020B Crossover Refunding																
2012A Bonds																
Principal											5,930,000	6,135,000	6,215,000	5,100,000		23,380,000
Interest										467,600	816,600	575,300	328,300	102,000		2,289,800
Total	0	0	0	0	0	0	0	0	0	467,600	6,746,600	6,710,300	6,543,300	5,202,000	0	25,669,800
Total Existing Collection and																
Treatment Plant																
Principal	0	0	0	4,500,000	6,265,000	6,605,000	6,885,000	7,250,000	7,570,000	7,900,000	8,015,000	8,330,000	8,525,000	7,545,000		79,390,000
Interest	2,077,440	2,921,400	3,375,265	3,911,650	3,686,650	3,373,400	3,043,150	2,698,900	2,336,400	1,722,675	1,268,350	922,800	566,050	224,250		32,128,380
Total	2,077,440	2,921,400	3,375,265	8,411,650	9,951,650	9,978,400	9,928,150	9,948,900	9,906,400	9,622,675	9,283,350	9,252,800	9,091,050	7,769,250	0	111,518,380

Table B-3
Capital Expenditures, $millions

Project	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Water Reclamation Plant																									
WRP Remodel	12.50																								
WRP Effluent		1.50																							
WRP Liquid Treatment			47.00																						
WRP Gas Engine								13.00																	
WRP Nitrogen Mods															40.00										
WRP Blower Rehab																				15.00					
WRP Expansion																									80.00
Total WRP	12.50	1.50	47.00	0.00	0.00	0.00	0.00	13.00	0.00	0.00	0.00	0.00	0.00	0.00	40.00	0.00	0.00	0.00	0.00	15.00	0.00	0.00	0.00	0.00	80.00
Total 2022+ Projects, cumulative		1.50	48.50	48.50	48.50	48.50	48.50	61.50	61.50	61.50	61.50	61.50	61.50	61.50	101.50	101.50	101.50	101.50	101.50	116.50	116.50	116.50	116.50	116.50	196.50
Sewer Collection System																									
Silver Lake Siphon		3.00																							
7th and 7th NW	0.10	0.32																							
E River Rd NE	0.23	1.28																							
2nd st & 16th ave SE		0.15	0.43																						
6th ave & 16th st sw			0.30	0.94																					
4th st se					1.17	3.90																			
12/13th Ave 2nd sw-nw	1.00																								
Broadway	1.60																								
3rd ave sw from 2nd to 4th			0.05	1.50																					
Rapid Transit 2nd recon			0.23																						
Discovery walk		0.30																							
Hiawatha Ct		0.40																							
Block 6 Ramp		0.22																							
Bus Bldg		0.20																							
10StSW & 9AvSW				1.00																					
West Zumbro Extension			4.00																						
West Zumbro CM				2.00																					
West Zumbro Wh					3.20																				
West Zumbro Redi						2.80																			
Sewer Projects *	1.00	1.00	3.00	3.00	6.00	3.00	10.00	10.14	10.29	10.43	10.57	10.72	11.00	11.29	11.57	11.86	12.15	12.43	12.72	13.00	13.29	13.58	13.86	14.15	14.43
Total Sewer Collection System	3.93	6.87	8.00	8.44	10.37	9.70	10.00	10.14	10.29	10.43	10.57	10.72	11.00	11.29	11.57	11.86	12.15	12.43	12.72	13.00	13.29	13.58	13.86	14.15	14.43
Total 2022+ Projects, cumulative		6.87	14.87	23.30	33.67	43.37	53.37	63.52	73.80	84.23	94.80	105.52	116.52	127.81	139.38	151.24	163.38	175.81	188.53	201.53	214.82	228.40	242.26	256.41	270.84
Total All Projects, annual	16.43	8.37	55.00	8.44	10.37	9.70	10.00	23.14	10.29	10.43	10.57	10.72	11.00	11.29	51.57	11.86	12.15	12.43	12.72	28.00	13.29	13.58	13.86	14.15	94.43
Total 2022+ Projects, cumulative		8.37	63.37	71.80	82.17	91.87	101.87	125.02	135.30	145.73	156.30	167.02	178.02	189.31	240.88	252.74	264.88	277.31	290.03	318.03	331.32	344.90	358.76	372.91	467.34
** Sewer Projects for 2027 onward are increased by the following percents >*								1.4%	1.4%	1.4%	1.4%	1.4%	2.7%	2.6%	2.5%	2.5%	2.4%	2.4%	2.3%	2.2%	2.2%	2.2%	2.1%	2.1%	2.0%

Table B-4
New Debt Service, $millions

Project		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Total All Projects, annual		16.43	8.37	55.00	8.44	10.37	9.70	10.00	23.14	10.29	10.43	10.57	10.72	11.00	11.29	51.57	11.86	12.15	12.43	12.72	28.00	13.29	13.58	13.86	14.15	94.43
Total All Projects, cumulative			8.37	63.37	71.80	82.17	91.87	101.87	125.02	135.30	145.73	156.30	167.02	178.02	189.31	240.88	252.74	264.88	277.31	290.03	318.03	331.32	344.90	358.76	372.91	467.34
New Debt Service																										
Series 2023	*prcpl, $M >*	$47.00		*year >*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*	*Total*	
Interest	*rate >*	3.0%		*int, $M >*	$1.41	$1.36	$1.30	$1.25	$1.19	$1.13	$1.07	$1.01	$0.94	$0.88	$0.81	$0.74	$0.67	$0.59	$0.51	$0.43	$0.35	$0.27	$0.18	$0.09	$16.18	
Principal	*years >*	20		*prin, $M >*	$1.75	$1.80	$1.86	$1.91	$1.97	$2.03	$2.09	$2.15	$2.22	$2.28	$2.35	$2.42	$2.49	$2.57	$2.65	$2.73	$2.81	$2.89	$2.98	$3.07	$47.00	
Total					$3.16	$3.16	$3.16	$3.16	$3.16	$3.16	$3.16	$3.16	$3.16	$3.16	$3.16	$3.16	$3.16	$3.16	$3.16	$3.16	$3.16	$3.16	$3.16	$3.16	$63.18	

Table B-5

Debt Service Coverage

Description	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Net Revenue Required *																								
Debt Service	9.62	9.28	12.41	12.25	10.93	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	0.00	0.00
Coverage Ratio Covenant	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Net Revenue Required	10.58	10.21	13.65	13.48	12.02	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	0.00	0.00
Gross Revenue **																								
User Charges	29.45	29.88	30.36	30.79	31.24	31.68	31.93	32.19	32.45	32.71	32.97	33.23	33.50	33.77	34.04	34.31	34.58	34.86	35.14	35.42	35.70	35.99	36.28	36.57
PIF	1.55	1.61	1.68	1.74	1.80	1.86	1.90	1.94	1.98	2.03	2.07	2.11	2.15	2.19	2.23	2.27	2.32	2.36	2.40	2.44	2.48	2.52	2.56	2.61
SAC Repay	1.53	1.58	1.63	1.68	1.73	1.78	1.83	1.89	1.94	2.00	2.06	2.12	2.19	2.25	2.32	2.39	2.46	2.53	2.61	2.69	2.77	2.85	2.94	3.03
Total Gross Revenue	32.53	33.07	33.66	34.20	34.76	35.32	35.67	36.02	36.37	36.73	37.10	37.46	37.83	38.21	38.59	38.97	39.36	39.75	40.15	40.55	40.95	41.36	41.78	42.20
Net Revenue from Rates ***																								
Gross Revenue	32.53	33.07	33.66	34.20	34.76	35.32	35.67	36.02	36.37	36.73	37.10	37.46	37.83	38.21	38.59	38.97	39.36	39.75	40.15	40.55	40.95	41.36	41.78	42.20
Less: O&M Expenditures	13.23	13.56	13.89	14.23	14.58	14.94	15.39	15.85	16.33	16.82	17.32	17.84	18.37	18.93	19.49	20.08	20.68	21.30	21.94	22.60	23.28	23.97	24.69	25.43
Net Revenue from Rates	19.30	19.52	19.78	19.97	20.18	20.38	20.28	20.17	20.05	19.92	19.78	19.62	19.46	19.28	19.09	18.89	18.68	18.45	18.21	17.95	17.68	17.39	17.08	16.76
Evaluation of Covenant Performance																								
Net Revenue from Rates	19.30	19.52	19.78	19.97	20.18	20.38	20.28	20.17	20.05	19.92	19.78	19.62	19.46	19.28	19.09	18.89	18.68	18.45	18.21	17.95	17.68	17.39	17.08	16.76
Net Revenue Required	10.58	10.21	13.65	13.48	12.02	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	0.00	0.00
Excess/(Deficit)	8.71	9.31	6.12	6.50	8.16	16.90	16.80	16.69	16.57	16.44	16.30	16.15	15.98	15.81	15.62	15.42	15.20	14.97	14.73	14.47	14.20	13.91	17.08	16.76
Calculated Coverage Ratio	2.01	2.10	1.59	1.63	1.85	6.45	6.42	6.38	6.35	6.30	6.26	6.21	6.16	6.10	6.04	5.98	5.91	5.84	5.76	5.68	5.60	5.50	no debt	no debt

* Net revenue required equals 1.10 times the principle and interest due and payable each fiscal year.

** Gross revenue equals revenue from 1) fixed charges; 2) quantity charges; 3) SAC principal repayments; and 4) PIFs.

*** Net revenue from rates equals gross revenue less O&M expenditures.

Table B-6

Reserves and Target Fund Balances

Description	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Debt Service Reserve																								
% of Debt Service	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Debt Service	9.62	9.28	12.41	12.25	10.93	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	0.00	0.00
Total Debt Service Reserve	9.62	9.28	12.41	12.25	10.93	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	0.00	0.00
Working Capital																								
% of O&M	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
O&M	13.23	13.56	13.89	14.23	14.58	14.94	15.39	15.85	16.33	16.82	17.32	17.84	18.37	18.93	19.49	20.08	20.68	21.30	21.94	22.60	23.28	23.97	24.69	25.43
Total Working Capital	6.62	6.78	6.94	7.11	7.29	7.47	7.69	7.92	8.16	8.41	8.66	8.92	9.19	9.46	9.75	10.04	10.34	10.65	10.97	11.30	11.64	11.99	12.35	12.72
Rate Stabilization																								
% of O&M	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
O&M	13.23	13.56	13.89	14.23	14.58	14.94	15.39	15.85	16.33	16.82	17.32	17.84	18.37	18.93	19.49	20.08	20.68	21.30	21.94	22.60	23.28	23.97	24.69	25.43
Total Rate Stabilization	1.32	1.36	1.39	1.42	1.46	1.49	1.54	1.58	1.63	1.68	1.73	1.78	1.84	1.89	1.95	2.01	2.07	2.13	2.19	2.26	2.33	2.40	2.47	2.54
Target Fund Balance																								
Debt Service Reserve	9.62	9.28	12.41	12.25	10.93	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	0.00	0.00
Working Capital	6.62	6.78	6.94	7.11	7.29	7.47	7.69	7.92	8.16	8.41	8.66	8.92	9.19	9.46	9.75	10.04	10.34	10.65	10.97	11.30	11.64	11.99	12.35	12.72
Rate Stabilization	1.32	1.36	1.39	1.42	1.46	1.49	1.54	1.58	1.63	1.68	1.73	1.78	1.84	1.89	1.95	2.01	2.07	2.13	2.19	2.26	2.33	2.40	2.47	2.54
Target Fund Balance	17.56	17.42	20.74	20.79	19.68	12.12	12.39	12.67	12.95	13.25	13.55	13.86	14.18	14.51	14.86	15.21	15.57	15.94	16.32	16.72	17.12	17.54	14.82	15.26

Table B-7
Cash Flow, $millions

Description	Notes	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Beginning Balance	1	40.3	33.6	35.3	38.0	37.4	35.2	35.2	42.9	37.4	44.6	51.6	58.4	65.0	71.2	77.0	42.5	47.1	51.2	54.9	58.1	45.9	47.9	49.4	50.4	54.0
Expenditures																										
O&M	2	12.9	13.2	13.6	13.9	14.2	14.6	14.9	15.4	15.8	16.3	16.8	17.3	17.8	18.4	18.9	19.5	20.1	20.7	21.3	21.9	22.6	23.3	24.0	24.7	25.4
Pre-2021 Debt Svc	3	9.9	9.6	9.3	9.3	9.1	7.8																			
Post-2021 Debt Svc	4				3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	
Capital Expenditures	5	16.4	8.4	55.0	8.4	10.4	9.7	10.0	23.1	10.3	10.4	10.6	10.7	11.0	11.3	51.6	11.9	12.1	12.4	12.7	28.0	13.3	13.6	13.9	14.1	94.4
Total Expenditures		39.3	31.2	77.8	34.7	36.8	35.2	28.1	41.7	29.3	29.9	30.5	31.2	32.0	32.8	73.7	34.5	35.4	36.3	37.2	53.1	39.0	40.0	41.0	38.8	119.9
Revenues																										
Charges	7	29.0	29.4	29.9	30.4	30.8	31.2	31.7	31.9	32.2	32.4	32.7	33.0	33.2	33.5	33.8	34.0	34.3	34.6	34.9	35.1	35.4	35.7	36.0	36.3	36.6
PIF	8	1.6	1.6	1.6	1.7	1.7	1.8	1.9	1.9	1.9	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.4	2.4	2.4	2.5	2.5	2.6	2.6
Interest	9	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.6	0.7	0.8	0.4	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5
Trunk Sewer Rates	10	1.5	1.5	1.6	1.6	1.7	1.7	1.8	1.8	1.9	1.9	2.0	2.1	2.1	2.2	2.3	2.3	2.4	2.5	2.5	2.6	2.7	2.8	2.9	2.9	3.0
Other	11	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Loan Disbursement	**6**			47.0																						
Total Revenues		32.5	33.0	80.5	34.1	34.7	35.2	35.8	36.2	36.5	36.9	37.3	37.8	38.2	38.6	39.1	39.1	39.5	40.0	40.4	40.8	41.1	41.5	42.0	42.4	42.8
Revenues - Expenditures		(6.7)	1.7	2.7	(0.6)	(2.2)	0.0	7.7	(5.5)	7.2	7.0	6.8	6.6	6.2	5.8	(34.6)	4.6	4.2	3.7	3.2	(12.3)	2.1	1.5	1.0	3.5	(77.0)
Ending Balance		33.6	35.3	38.0	37.4	35.2	35.2	42.9	37.4	44.6	51.6	58.4	65.0	71.2	77.0	42.5	47.1	51.2	54.9	58.1	45.9	47.9	49.4	50.4	54.0	-23.1
Target Balance		0.0	17.6	17.4	20.7	20.8	19.7	12.1	12.4	12.7	13.0	13.2	13.6	13.9	14.2	14.5	14.9	15.2	15.6	15.9	16.3	16.7	17.1	17.5	14.8	15.3
Over/(Under) target >		33.6	17.7	20.6	16.6	14.4	15.6	30.8	25.0	31.9	38.7	45.2	51.4	57.3	62.9	27.9	32.2	36.0	39.4	42.2	29.5	31.2	32.3	32.9	39.1	(38.3)

Notes:

1 The beginning balance for 2021 was provided by the City. Expenditures and revenues for 2021 are projected to balance and yield a similar fund balance for 2022. Subsequent values are calculatec

2 O&M expenditures for 2022- 2027 and % increases are from Table B-1. Values for subsequent years are escalated by the percentages shown below:

2022	*2023*	*2024*	*2025*	*2026*	*2027*	*2028*	*2029*	*2030*	*2031*	*2032*	*2033*	*2034*	*2035*	*2036*	*2037*	*2038*	*2039*	*2040*	*2041*	*2042*	*2043*	*2044*	*2045*
2.3%	2.4%	2.5%	2.4%	2.5%	2.5%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%

3 Pre-2021 annual debt service payments are from Table B-2. The principal portion of SAC debt service is excluded from revenue required from rates.

4 Post-2021 annual debt service payments are from Table B-6. The principal portion of SAC debt service is excluded from revenue required from rates.

5 Annual expenditures for Capital projects funded by cash are from Table B-4.

6 Annual disbursements for Capital projects funded by debt are from Table B-5.

7 Revenue from charges for 2022 - 2027 is from Table 5-1. Revenue for 2016 onward is from Table D-2a and Table D-2b and based on the % increases shown below:

2022	*2023*	*2024*	*2025*	*2026*	*2027*	*2028*	*2029*	*2030*	*2031*	*2032*	*2033*	*2034*	*2035*	*2036*	*2037*	*2038*	*2039*	*2040*	*2041*	*2042*	*2043*	*2044*	*2045*
						0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%

8 Revenue from PIF fees is from Table E-2.

9 Interest on the fund balance for 2022 is the beginning balance times the interest rate shown below. Interest earnings for subsequent years is based on the average balance for the prior year.

2021	*2022*	*2023*	*2024*	*2025*	*2026*	*2027*	*2028*	*2029*	*2030*	*2031*	*2032*	*2033*	*2034*	*2035*	*2036*	*2037*	*2038*	*2039*	*2040*	*2041*	*2042*	*2043*	*2044*	*2045*
1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%

10 Trunk Sewer Rates (previously called "SAC, Sewer Availability Charge") revenues are based on escalation of current Trunk Sewer Rates and acreage developed per year.

	2021	*2022*	*2023*	*2024*	*2025*	*2026*	*2027*	*2028*	*2029*	*2030*	*2031*	*2032*	*2033*	*2034*	*2035*	*2036*	*2037*	*2038*	*2039*	*2040*	*2041*	*2042*	*2043*	*2044*	*2045*
$/acre	$13,535	$13,941	$14,359	$14,790	$15,233	$15,690	$16,161	$16,646	$17,145	$17,660	$18,189	$18,735	$19,297	$19,876	$20,472	$21,087	$21,719	$22,371	$23,042	$23,733	$24,445	$25,178	$25,934	$26,712	$27,513
annual escalation >		3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
acres/year >	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110
revenue/year x$1million >	1.5	1.5	1.6	1.6	1.7	1.7	1.8	1.8	1.9	1.9	2.0	2.1	2.1	2.2	2.3	2.3	2.4	2.5	2.5	2.6	2.7	2.8	2.9	2.9	3.0

11 Includes revenue from 103 accounts in the Chester Heights Sanitary Sewer District and rental property revenue.

Appendix C: Unit Costs, Charges and High Strength Surcharges

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Table C-1a
Unit Costs of Service - 2022

Category	Revenue Reqt [1]	Units [2] Total	UA - I/I	Net	Unit Costs Unit Cost	Cost Unit of Measure	High Strength Surcharges Unit Cost	Cost Unit of Measure
Flow, mgd	$8,646,472	12.793	3.531	9.262	$933,549	$/mg per day	$1.91	$/Ccf
BOD, lb/day	$4,897,973	26,400	1,767	24,633	$199	$/pound per day	$0.54	$/pound
TSS, lb/day	$3,507,021	26,327	4,123	22,204	$158	$/pound per day	$0.43	$/pound
TP, lb/day	$1,199,922	550	0	550	$2,183	$/pound per day	$5.98	$/pound
NH3-N, lb/day	$1,989,861	2,444	0	2,444	$814	$/pound per day	$2.23	$/pound
Connections	$6,167,209	40,389		40,389	$153	$/connection	$153.00	$/connection
UA-I/I (connections)	$2,994,542	40,389		40,389	$74	$/connection	$74.00	$/connection
Total Revenue	$29,403,000							

Notes:
1 Revenue requirements are from .
2 Units are from Table A-4.

Table C-1b
Unit Costs of Service - 2023

Category	Revenue Reqt [1]	Units [2] Total	UA - I/I	Net	Unit Costs Unit Cost	Cost Unit of Measure	High Strength Surcharges Unit Cost	Cost Unit of Measure
Flow, mgd	$8,774,391	12.864	3.531	9.333	$940,165	$/mg per day	$1.93	$/Ccf
BOD, lb/day	$4,970,436	26,557	1,767	24,790	$201	$/pound per day	$0.55	$/pound
TSS, lb/day	$3,558,905	26,484	4,123	22,361	$159	$/pound per day	$0.44	$/pound
TP, lb/day	$1,217,674	553	0	553	$2,201	$/pound per day	$6.03	$/pound
NH3-N, lb/day	$2,019,300	2,463	0	2,463	$820	$/pound per day	$2.25	$/pound
Connections	$6,258,450	40,774		40,774	$153	$/connection	$153.00	$/connection
UA-I/I (connections)	$3,038,845	40,774		40,774	$75	$/connection	$75.00	$/connection
Total Revenue	$29,838,000							

Notes:
1 Revenue requirements are from .
2 Units are from Table A-5.

Table C-1c
Unit Costs of Service - 2024

Category	Revenue Reqt [1]	Units [2] Total	UA - I/I	Net	Unit Costs Unit Cost	Cost Unit of Measure	High Strength Surcharges Unit Cost	Cost Unit of Measure
Flow, mgd	$8,920,543	12.935	3.531	9.404	$948,620	$/mg per day	$1.94	$/Ccf
BOD, lb/day	$5,053,226	26,713	1,767	24,947	$203	$/pound per day	$0.55	$/pound
TSS, lb/day	$3,618,184	26,640	4,123	22,517	$161	$/pound per day	$0.44	$/pound
TP, lb/day	$1,237,956	557	0	557	$2,224	$/pound per day	$6.09	$/pound
NH3-N, lb/day	$2,052,934	2,481	0	2,481	$827	$/pound per day	$2.27	$/pound
Connections	$6,362,694	41,159		41,159	$155	$/connection	$155.00	$/connection
UA-I/I (connections)	$3,089,462	41,159		41,159	$75	$/connection	$75.00	$/connection
Total Revenue	$30,335,000							

Notes:
1 Revenue requirements are from .
2 Units are from Table A-6.

Table C-1d
Unit Costs of Service - 2025

Category	Revenue Reqt [1]	Units [2] Total	UA - I/I	Net	Unit Costs Unit Cost	Cost Unit of Measure	High Strength Surcharges Unit Cost	Cost Unit of Measure
Flow, mgd	$9,041,993	13.006	3.531	9.475	$954,341	$/mg per day	$1.96	$/Ccf
BOD, lb/day	$5,122,024	26,870	1,767	25,103	$204	$/pound per day	$0.56	$/pound
TSS, lb/day	$3,667,445	26,797	4,123	22,674	$162	$/pound per day	$0.44	$/pound
TP, lb/day	$1,254,810	560	0	560	$2,240	$/pound per day	$6.14	$/pound
NH3-N, lb/day	$2,080,884	2,499	0	2,499	$833	$/pound per day	$2.28	$/pound
Connections	$6,449,320	41,544		41,544	$155	$/connection	$155.00	$/connection
UA-I/I (connections)	$3,131,524	41,544		41,544	$75	$/connection	$75.00	$/connection
Total Revenue	$30,748,000							

Notes:
1 Revenue requirements are from .
2 Units are from Table A-7.

Table C-1e
Unit Costs of Service - 2026

Category	Revenue Reqt [1]	Units [2] Total	UA - I/I	Net	Unit Costs Unit Cost	Cost Unit of Measure	High Strength Surcharges Unit Cost	Cost Unit of Measure
Flow, mgd	$9,176,970	13.077	3.531	9.545	$961,394	$/mg per day	$1.97	$/Ccf
BOD, lb/day	$5,198,485	27,027	1,767	25,260	$206	$/pound per day	$0.56	$/pound
TSS, lb/day	$3,722,192	26,954	4,123	22,831	$163	$/pound per day	$0.45	$/pound
TP, lb/day	$1,273,542	564	0	564	$2,259	$/pound per day	$6.19	$/pound
NH3-N, lb/day	$2,111,947	2,518	0	2,518	$839	$/pound per day	$2.30	$/pound
Connections	$6,545,594	41,929		41,929	$156	$/connection	$156.00	$/connection
UA-I/I (connections)	$3,178,270	41,929		41,929	$76	$/connection	$76.00	$/connection
Total Revenue	$31,207,000							

Notes:
1 Revenue requirements are from .
2 Units are from Table A-8.

Table C-1f
Unit Costs of Service - 2027

Category	Revenue Reqt [1]	Units [2] Total	UA - I/I	Net	Unit Costs Unit Cost	Cost Unit of Measure	High Strength Surcharges Unit Cost	Cost Unit of Measure
Flow, mgd	$9,306,948	13.148	3.531	9.616	$967,824	$/mg per day	$1.98	$/Ccf
BOD, lb/day	$5,272,113	27,183	1,767	25,417	$207	$/pound per day	$0.57	$/pound
TSS, lb/day	$3,774,911	27,110	4,123	22,987	$164	$/pound per day	$0.45	$/pound
TP, lb/day	$1,291,580	567	0	567	$2,277	$/pound per day	$6.24	$/pound
NH3-N, lb/day	$2,141,860	2,536	0	2,536	$845	$/pound per day	$2.31	$/pound
Connections	$6,638,302	42,314		42,314	$157	$/connection	$157.00	$/connection
UA-I/I (connections)	$3,223,286	42,314		42,314	$76	$/connection	$76.00	$/connection
Total Revenue	$31,649,000							

Notes:
1 Revenue requirements are from .
2 Units are from Table A-9.

Table C-2a

Revenue Required from Customer Classes - 2022

	Wastewater Discharge Characteristics [1,2,3]						Flow	BOD	TSS	TP	NH3-N	No. of	UA - I/I	
Customer	**No. of**	**Flow**	**BOD**	**TSS**	**TP**	**NH3-N**	**$933,549**	**$198.84**	**$157.94**	**$2,183**	**$814.08**	**$152.70**	**$74.14**	**Total**
Classification	**Conn.**	**mgd**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**mgd**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**Conn.**	**Conn.**	**Revenue**
Residential Users	37,205	4.427	9,785	9,785	222	1,145	4,133,191	1,945,612	1,545,485	483,701	931,841	5,681,028	2,758,473	17,479,331
Commercial Users														
User 1	1	0.036	79	80	31	11	33,608	15,701	12,661	68,173	8,555	153	74	138,925
User 2	1	0.064	140	143	7	19	59,747	27,912	22,509	16,315	15,208	153	74	141,919
User 3	1	0.312	684	695	16	91	291,267	136,073	109,733	34,087	74,140	153	74	645,527
User 4	1	0.061	249	509	14	18	56,947	49,566	80,353	29,990	14,495	153	74	231,578
User 5	1	0.105	438	595	28	31	98,023	87,061	94,052	61,181	24,951	153	74	365,494
User 6	1	0.031	68	69	2	9	28,940	13,520	10,903	3,387	7,367	153	74	64,343
User 7	1	0.039	86	87	2	11	36,408	17,009	13,717	4,261	9,268	153	74	80,889
User 8	1	0.140	307	312	7	41	130,697	61,058	49,239	15,295	33,268	153	74	289,785
User 9	1	0.041	134	137	2	12	38,276	26,720	21,711	4,479	9,743	153	74	101,156
User 10	1	0.005	11	11	0	1	4,668	2,181	1,759	546	1,188	153	74	10,568
User 11														
Other Commercial	3,168	3.554	7,855	7,855	178	919	3,317,878	1,561,820	1,240,622	388,286	748,026	483,739	234,884	7,975,254
Subtotal, Commercial	3,178	4.388	10,052	10,493	287	1,162	4,096,458	1,998,622	1,657,259	626,000	946,209	485,266	235,625	10,045,438
Industrial/Trucked Waste														
User 1	1	0.092	2,927	905	10	24	85,948	581,988	142,983	21,793	19,377	153	74	852,317
User 2	1	0.264	1,469	543	22	68	246,893	292,084	85,699	48,156	55,663	153	74	728,722
User 3	1	0.043	175	128	3	11	40,355	34,766	20,214	6,297	9,098	153	74	110,957
User 4	1	0.010	22	22	1	3	9,335	4,361	3,517	1,093	2,105	153	74	20,638
User 5	1	0.006	13	13	0	2	5,601	2,617	2,110	656	1,263	153	74	12,474
User 6	1	0.013	29	29	1	3	12,136	5,670	4,572	1,420	2,736	153	74	26,761
Leachate	0	0.015	3	5	0	11	14,224	632	823	117	8,896	0	0	24,691
Portable Toilets	0	0.001	66	91	4	15	1,027	13,099	14,404	8,814	11,951	0	0	49,295
FOG	0	0.001	44	55	1	0	620	8,817	8,755	1,210	226	0	0	19,628
Septage	0	0.001	49	134	0	1	683	9,705	21,200	666	497	0	0	32,750
Subtotal, Ind/Trucked	6	0.446	4,797	1,926	41	137	416,823	953,739	304,277	90,221	111,811	916	445	1,878,232
Totals	40,389	9.262	24,633	22,204	550	2,444	8,646,472	4,897,973	3,507,021	1,199,922	1,989,861	6,167,209	2,994,542	29,403,000

Notes:

1 Units are from Table A-4.

2 Units costs for flow, BOD, TSS, TP and NH3-N are from Table C-1a.

3 Revenues are the product of corresponding units and unit costs.

Table C-2b

Revenue Required from Customer Classes - 2023

	Wastewater Discharge Characteristics [1,2,3]						Flow	BOD	TSS	TP	NH3-N	No. of	UA - I/I	
Customer	**No. of**	**Flow**	**BOD**	**TSS**	**TP**	**NH3-N**	**$940,165**	**$200.50**	**$159.16**	**$2,201**	**$819.97**	**$153.49**	**$74.53**	**Total**
Classification	**Conn.**	**mgd**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**mgd**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**Conn.**	**Conn.**	**Revenue**
Residential Users	37,565	4.470	9,880	9,880	224	1,156	4,202,759	1,980,902	1,572,430	492,428	947,672	5,765,896	2,799,681	17,761,769
Commercial Users														
User 1	1	0.036	79	80	31	11	33,846	15,832	12,759	68,738	8,617	153	75	140,020
User 2	1	0.064	140	143	7	19	60,171	28,146	22,682	16,450	15,318	153	75	142,996
User 3	1	0.312	684	695	16	91	293,331	137,214	110,576	34,369	74,677	153	75	650,395
User 4	1	0.061	249	509	14	18	57,350	49,982	80,970	30,238	14,600	153	75	233,369
User 5	1	0.105	438	595	28	31	98,717	87,790	94,775	61,688	25,132	153	75	368,330
User 6	1	0.031	68	69	2	9	29,145	13,633	10,987	3,415	7,420	153	75	64,828
User 7	1	0.039	86	87	2	11	36,666	17,152	13,822	4,296	9,335	153	75	81,499
User 8	1	0.140	307	312	7	41	131,623	61,570	49,617	15,422	33,509	153	75	291,970
User 9	1	0.041	134	137	2	12	38,547	26,944	21,878	4,516	9,813	153	75	101,927
User 10	1	0.005	11	11	0	1	4,701	2,199	1,772	551	1,197	153	75	10,647
Other Commercial	3,193	3.582	7,917	7,917	179	926	3,367,758	1,587,338	1,260,021	394,593	759,389	490,097	237,971	8,097,169
Subtotal, Commercial	3,203	4.416	10,114	10,555	288	1,170	4,151,856	2,027,801	1,679,859	634,277	959,007	491,632	238,716	10,183,149
Industrial/Trucked Waste														
User 1	1	0.092	2,927	905	10	24	86,557	586,866	144,081	21,974	19,518	153	75	859,224
User 2	1	0.264	1,469	543	22	68	248,643	294,532	86,358	48,555	56,066	153	75	734,381
User 3	1	0.043	175	128	3	11	40,641	35,058	20,369	6,349	9,164	153	75	111,809
User 4	1	0.010	22	22	1	3	9,402	4,398	3,544	1,102	2,120	153	75	20,793
User 5	1	0.006	13	13	0	2	5,641	2,639	2,126	661	1,272	153	75	12,567
User 6	1	0.013	29	29	1	3	12,222	5,717	4,607	1,432	2,756	153	75	26,963
Leachate	0	0.015	3	5	0	11	14,325	637	829	117	8,961	0	0	24,869
Portable Toilets	0	0.001	66	91	4	15	1,034	13,208	14,515	8,887	12,037	0	0	49,682
FOG	0	0.001	44	55	1	0	625	8,891	8,822	1,220	227	0	0	19,785
Septage	0	0.001	49	134	0	1	688	9,786	21,363	672	500	0	0	33,008
Subtotal, Ind/Trucked	6	0.446	4,797	1,926	41	137	419,777	961,732	306,616	90,968	112,621	921	447	1,893,082
Totals	40,774	9.333	24,790	22,361	553	2,463	8,774,391	4,970,436	3,558,905	1,217,674	2,019,300	6,258,450	3,038,845	29,838,000

Notes:

1 Units are from Table A-5.

2 Units costs for flow, BOD, TSS, TP and NH3-N are from Table C-1b.

3 Revenues are the product of corresponding units and unit costs.

Table C-2c

Revenue Required from Customer Classes - 2024

	Wastewater Discharge Characteristics [1,2,3]						Flow	BOD	TSS	TP	NH3-N	No. of	UA - I/I	
Customer	**No. of**	**Flow**	**BOD**	**TSS**	**TP**	**NH3-N**	**$948,620**	**$202.56**	**$160.68**	**$2,224**	**$827.47**	**$154.59**	**$75.06**	**Total**
Classification	**Conn.**	**mgd**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**mgd**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**Conn.**	**Conn.**	**Revenue**
Residential Users	37,925	4.513	9,974	9,974	226	1,167	4,281,193	2,020,429	1,602,713	502,208	965,504	5,862,756	2,846,712	18,081,515
Commercial Users														
User 1	1	0.036	79	80	31	11	34,150	15,995	12,881	69,438	8,695	155	75	141,389
User 2	1	0.064	140	143	7	19	60,712	28,435	22,900	16,618	15,459	155	75	144,353
User 3	1	0.312	684	695	16	91	295,969	138,623	111,636	34,719	75,360	155	75	656,537
User 4	1	0.061	249	509	14	18	57,866	50,495	81,746	30,546	14,734	155	75	235,617
User 5	1	0.105	438	595	28	31	99,605	88,692	95,683	62,316	25,362	155	75	371,887
User 6	1	0.031	68	69	2	9	29,407	13,773	11,092	3,450	7,488	155	75	65,440
User 7	1	0.039	86	87	2	11	36,996	17,328	13,954	4,340	9,420	155	75	82,268
User 8	1	0.140	307	312	7	41	132,807	62,203	50,093	15,579	33,816	155	75	294,727
User 9	1	0.041	134	137	2	12	38,893	27,221	22,088	4,562	9,903	155	75	102,897
User 10	1	0.005	11	11	0	1	4,743	2,222	1,789	556	1,208	155	75	10,747
Other Commercial	3,218	3.610	7,979	7,979	181	933	3,424,650	1,616,199	1,282,056	401,731	772,335	497,465	241,548	8,235,984
Subtotal, Commercial	3,228	4.444	10,176	10,617	290	1,177	4,215,799	2,061,187	1,705,918	643,854	973,779	499,011	242,299	10,341,846
Industrial/Trucked Waste														
User 1	1	0.092	2,927	905	10	24	87,336	592,894	145,462	22,197	19,696	155	75	867,815
User 2	1	0.264	1,469	543	22	68	250,879	297,557	87,185	49,049	56,579	155	75	741,479
User 3	1	0.043	175	128	3	11	41,006	35,418	20,565	6,414	9,248	155	75	112,879
User 4	1	0.010	22	22	1	3	9,486	4,443	3,578	1,113	2,139	155	75	20,989
User 5	1	0.006	13	13	0	2	5,692	2,666	2,147	668	1,284	155	75	12,685
User 6	1	0.013	29	29	1	3	12,332	5,776	4,651	1,447	2,781	155	75	27,217
Leachate	0	0.015	3	5	0	11	14,453	643	837	119	9,043	0	0	25,095
Portable Toilets	0	0.001	66	91	4	15	1,044	13,344	14,654	8,977	12,147	0	0	50,167
FOG	0	0.001	44	55	1	0	630	8,982	8,907	1,233	229	0	0	19,981
Septage	0	0.001	49	134	0	1	694	9,887	21,567	678	505	0	0	33,331
Subtotal, Ind/Trucked	6	0.446	4,797	1,926	41	137	423,552	971,611	309,554	91,894	113,651	928	450	1,911,640
Totals	41,159	9.404	24,947	22,517	557	2,481	8,920,543	5,053,226	3,618,184	1,237,956	2,052,934	6,362,694	3,089,462	30,335,000

Notes:

1 Units are from Table A-6.

2 Units costs for flow, BOD, TSS, TP and NH3-N are from Table C-1c.

3 Revenues are the product of corresponding units and unit costs.

Table C-2d

Revenue Required from Customer Classes - 2025

	Wastewater Discharge Characteristics [1,2,3]						Flow	BOD	TSS	TP	NH3-N	No. of	UA - I/I	
Customer	**No. of**	**Flow**	**BOD**	**TSS**	**TP**	**NH3-N**	**$954,341**	**$204.04**	**$161.75**	**$2,240**	**$832.59**	**$155.24**	**$75.38**	**Total**
Classification	**Conn.**	**mgd**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**mgd**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**Conn.**	**Conn.**	**Revenue**
Residential Users	38,285	4.556	10,069	10,069	228	1,178	4,347,897	2,054,474	1,628,623	510,624	980,695	5,943,390	2,885,865	18,351,567
Commercial Users														
User 1	1	0.036	79	80	31	11	34,356	16,112	12,966	69,937	8,749	155	75	142,351
User 2	1	0.064	140	143	7	19	61,078	28,643	23,051	16,737	15,554	155	75	145,293
User 3	1	0.312	684	695	16	91	297,754	139,633	112,374	34,969	75,826	155	75	660,787
User 4	1	0.061	249	509	14	18	58,215	50,863	82,287	30,766	14,825	155	75	237,186
User 5	1	0.105	438	595	28	31	100,206	89,338	96,316	62,764	25,518	155	75	374,373
User 6	1	0.031	68	69	2	9	29,585	13,874	11,165	3,474	7,534	155	75	65,863
User 7	1	0.039	86	87	2	11	37,219	17,454	14,047	4,371	9,478	155	75	82,800
User 8	1	0.140	307	312	7	41	133,608	62,656	50,424	15,691	34,025	155	75	296,634
User 9	1	0.041	134	137	2	12	39,128	27,419	22,234	4,595	9,964	155	75	103,571
User 10	1	0.005	11	11	0	1	4,772	2,238	1,801	560	1,215	155	75	10,816
Other Commercial	3,243	3.638	8,041	8,041	182	941	3,472,070	1,640,627	1,300,558	407,765	783,147	503,446	244,452	8,352,065
Subtotal, Commercial	3,253	4.472	10,238	10,679	291	1,184	4,267,990	2,088,858	1,727,222	651,631	985,836	504,998	245,206	10,471,741
Industrial/Trucked Waste														
User 1	1	0.092	2,927	905	10	24	87,862	597,216	146,424	22,357	19,818	155	75	873,908
User 2	1	0.264	1,469	543	22	68	252,392	299,726	87,762	49,402	56,929	155	75	746,441
User 3	1	0.043	175	128	3	11	41,253	35,676	20,701	6,460	9,305	155	75	113,625
User 4	1	0.010	22	22	1	3	9,543	4,475	3,602	1,121	2,153	155	75	21,125
User 5	1	0.006	13	13	0	2	5,726	2,685	2,161	672	1,292	155	75	12,767
User 6	1	0.013	29	29	1	3	12,406	5,818	4,682	1,457	2,798	155	75	27,393
Leachate	0	0.015	3	5	0	11	14,540	648	843	120	9,099	0	0	25,249
Portable Toilets	0	0.001	66	91	4	15	1,050	13,441	14,751	9,042	12,222	0	0	50,507
FOG	0	0.001	44	55	1	0	634	9,048	8,965	1,242	231	0	0	20,120
Septage	0	0.001	49	134	0	1	698	9,959	21,710	683	508	0	0	33,558
Subtotal, Ind/Trucked	6	0.446	4,797	1,926	41	137	426,106	978,693	311,600	92,556	114,353	931	452	1,924,692
Totals	41,544	9.475	25,103	22,674	560	2,499	9,041,993	5,122,024	3,667,445	1,254,810	2,080,884	6,449,320	3,131,524	30,748,000

Notes:

1 Units are from Table A-7.

2 Units costs for flow, BOD, TSS, TP and NH3-N are from Table C-1d.

3 Revenues are the product of corresponding units and unit costs.

Table C-2e

Revenue Required from Customer Classes - 2026

	Wastewater Discharge Characteristics [1,2,3]						Flow	BOD	TSS	TP	NH3-N	No. of	UA - I/I	
Customer	**No. of**	**Flow**	**BOD**	**TSS**	**TP**	**NH3-N**	**$961,394**	**$205.80**	**$163.03**	**$2,259**	**$838.87**	**$156.11**	**$75.80**	**Total**
Classification	**Conn.**	**mgd**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**mgd**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**Conn.**	**Conn.**	**Revenue**
Residential Users	38,645	4.599	10,164	10,164	230	1,189	4,421,217	2,091,695	1,657,028	519,828	997,380	6,032,924	2,929,339	18,649,412
Commercial Users														
User 1	1	0.036	79	80	31	11	34,610	16,251	13,069	70,535	8,815	156	76	143,512
User 2	1	0.064	140	143	7	19	61,529	28,890	23,235	16,880	15,671	156	76	146,437
User 3	1	0.312	684	695	16	91	299,955	140,839	113,269	35,267	76,398	156	76	665,960
User 4	1	0.061	249	509	14	18	58,645	51,302	82,942	31,029	14,937	156	76	239,087
User 5	1	0.105	438	595	28	31	100,946	90,110	97,083	63,301	25,711	156	76	377,382
User 6	1	0.031	68	69	2	9	29,803	13,994	11,254	3,504	7,591	156	76	66,378
User 7	1	0.039	86	87	2	11	37,494	17,605	14,159	4,408	9,550	156	76	83,448
User 8	1	0.140	307	312	7	41	134,595	63,197	50,826	15,825	34,281	156	76	298,956
User 9	1	0.041	134	137	2	12	39,417	27,656	22,411	4,635	10,039	156	76	104,390
User 10	1	0.005	11	11	0	1	4,807	2,257	1,815	565	1,224	156	76	10,901
Other Commercial	3,268	3.666	8,103	8,103	183	948	3,524,695	1,667,547	1,321,020	414,419	795,134	510,172	247,718	8,480,706
Subtotal, Commercial	3,278	4.500	10,300	10,741	292	1,191	4,326,498	2,119,647	1,751,082	660,368	999,352	511,733	248,476	10,617,156
Industrial/Trucked Waste														
User 1	1	0.092	2,927	905	10	24	88,512	602,372	147,590	22,548	19,967	156	76	881,221
User 2	1	0.264	1,469	543	22	68	254,257	302,314	88,461	49,824	57,358	156	76	752,445
User 3	1	0.043	175	128	3	11	41,558	35,984	20,865	6,515	9,375	156	76	114,530
User 4	1	0.010	22	22	1	3	9,614	4,514	3,630	1,130	2,169	156	76	21,289
User 5	1	0.006	13	13	0	2	5,768	2,708	2,178	678	1,301	156	76	12,866
User 6	1	0.013	29	29	1	3	12,498	5,868	4,720	1,469	2,819	156	76	27,607
Leachate	0	0.015	3	5	0	11	14,648	654	849	121	9,167	0	0	25,439
Portable Toilets	0	0.001	66	91	4	15	1,058	13,557	14,869	9,119	12,315	0	0	50,918
FOG	0	0.001	44	55	1	0	639	9,126	9,037	1,252	232	0	0	20,286
Septage	0	0.001	49	134	0	1	703	10,045	21,883	689	512	0	0	33,832
Subtotal, Ind/Trucked	6	0.446	4,797	1,926	41	137	429,255	987,142	314,082	93,346	115,216	937	455	1,940,433
Totals	41,929	9.545	25,260	22,831	564	2,518	9,176,970	5,198,485	3,722,192	1,273,542	2,111,947	6,545,594	3,178,270	31,207,000

Notes:

1 Units are from Table A-8.

2 Units costs for flow, BOD, TSS, TP and NH3-N are from Table C-1e.

3 Revenues are the product of corresponding units and unit costs.

Table C-2f

Revenue Required from Customer Classes - 2027

	Wastewater Discharge Characteristics [1,2,3]						Flow	BOD	TSS	TP	NH3-N	No. of	UA - I/I	
Customer	**No. of**	**Flow**	**BOD**	**TSS**	**TP**	**NH3-N**	**$967,824**	**$207.43**	**$164.22**	**$2,277**	**$844.60**	**$156.88**	**$76.18**	**Total**
Classification	**Conn.**	**mgd**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**mgd**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**Conn.**	**Conn.**	**Revenue**
Residential Users	39,005	4.642	10,258	10,258	232	1,200	4,492,246	2,127,885	1,684,592	528,775	1,013,551	6,119,180	2,971,221	18,937,451
Commercial Users														
User 1	1	0.036	79	80	31	11	34,842	16,379	13,164	71,087	8,875	157	76	144,580
User 2	1	0.064	140	143	7	19	61,941	29,119	23,403	17,012	15,778	157	76	147,486
User 3	1	0.312	684	695	16	91	301,961	141,953	114,090	35,543	76,920	157	76	670,701
User 4	1	0.061	249	509	14	18	59,037	51,708	83,543	31,271	15,039	157	76	240,832
User 5	1	0.105	438	595	28	31	101,621	90,823	97,787	63,796	25,887	157	76	380,146
User 6	1	0.031	68	69	2	9	30,003	14,104	11,336	3,532	7,643	157	76	66,850
User 7	1	0.039	86	87	2	11	37,745	17,744	14,261	4,443	9,615	157	76	84,042
User 8	1	0.140	307	312	7	41	135,495	63,697	51,194	15,949	34,515	157	76	301,084
User 9	1	0.041	134	137	2	12	39,681	27,875	22,573	4,671	10,108	157	76	105,141
User 10	1	0.005	11	11	0	1	4,839	2,275	1,828	570	1,233	157	76	10,978
Other Commercial	3,293	3.694	8,165	8,165	185	955	3,575,411	1,693,599	1,340,779	420,856	806,693	516,612	250,846	8,604,795
Subtotal, Commercial	3,303	4.528	10,362	10,803	294	1,199	4,382,576	2,149,276	1,773,959	668,729	1,012,306	518,181	251,607	10,756,634
Industrial/Trucked Waste														
User 1	1	0.092	2,927	905	10	24	89,104	607,138	148,660	22,725	20,104	157	76	887,963
User 2	1	0.264	1,469	543	22	68	255,957	304,706	89,102	50,214	57,750	157	76	757,962
User 3	1	0.043	175	128	3	11	41,836	36,269	21,017	6,566	9,439	157	76	115,360
User 4	1	0.010	22	22	1	3	9,678	4,550	3,657	1,139	2,184	157	76	21,441
User 5	1	0.006	13	13	0	2	5,807	2,730	2,194	684	1,310	157	76	12,958
User 6	1	0.013	29	29	1	3	12,582	5,915	4,754	1,481	2,839	157	76	27,803
Leachate	0	0.015	3	5	0	11	14,746	659	856	122	9,230	0	0	25,612
Portable Toilets	0	0.001	66	91	4	15	1,065	13,665	14,976	9,191	12,399	0	0	51,295
FOG	0	0.001	44	55	1	0	643	9,198	9,102	1,262	234	0	0	20,440
Septage	0	0.001	49	134	0	1	708	10,124	22,041	694	515	0	0	34,083
Subtotal, Ind/Trucked	6	0.446	4,797	1,926	41	137	432,126	994,952	316,359	94,077	116,003	941	457	1,954,916
Totals	42,314	9.616	25,417	22,987	567	2,536	9,306,948	5,272,113	3,774,911	1,291,580	2,141,860	6,638,302	3,223,286	31,649,000

Notes:

1 Units are from Table A-9.

2 Units costs for flow, BOD, TSS, TP and NH3-N are from Table C-1f.

3 Revenues are the product of corresponding units and unit costs.

Table C-3a
Derivation of Charges - 2022

Customer Classification	Monthly Flat Charge [1,2,3] Conn+UA&I/I Revenue	No. of Connections	Monthly Flat Charge	Quantity Charges [4] Flow+BOD+ TSS+TP+NH3-N Revenue	Flow mgd	Quantity Charges $/ccf	Total Revenue
Residential Users	$8,439,500	37,205	$19.00	$9,039,830	4.427	$4.19	$17,479,331
Commercial Users							
User 1	$227	1	$19.00	$138,698	0.036	$7.90	$138,925
User 2	$227	1	$19.00	$141,692	0.064	$4.54	$141,919
User 3	$227	1	$19.00	$645,300	0.312	$4.24	$645,527
User 4	$227	1	$19.00	$231,351	0.061	$7.78	$231,578
User 5	$227	1	$19.00	$365,267	0.105	$7.13	$365,494
User 6	$227	1	$19.00	$64,116	0.031	$4.24	$64,343
User 7	$227	1	$19.00	$80,663	0.039	$4.24	$80,889
User 8	$227	1	$19.00	$289,558	0.140	$4.24	$289,785
User 9	$227	1	$19.00	$100,929	0.041	$5.05	$101,156
User 10	$227	1	$19.00	$10,341	0.005	$4.24	$10,568
Other Commercial	$718,622	3,168	$19.00	$7,256,632	3.554	$4.19	$7,975,254
Subtotal, Commercial	$720,891	3,178		$9,324,547	4.388		$10,045,438
Industrial/Trucked Waste							
User 1	$227	1	$19.00	$852,090	0.092	$18.97	$852,317
User 2	$227	1	$19.00	$728,495	0.264	$5.65	$728,722
User 3	$227	1	$19.00	$110,730	0.043	$5.25	$110,957
User 4	$227	1	$19.00	$20,411	0.010	$4.19	$20,638
User 5	$227	1	$19.00	$12,247	0.006	$4.19	$12,474
User 6	$227	1	$19.00	$26,534	0.013	$4.19	$26,761
Leachate	$0	0		$24,691	0.015	$3.33	$24,691
Portable Toilets	$0	0		$49,295	0.001	$91.84	$49,295
FOG	$0	0		$19,628	0.001	$60.53	$19,628
Septage	$0	0		$32,750	0.001	$91.76	$32,750
Subtotal, Ind/Trucked	$1,361	6		$1,876,871	0.446		$1,878,232
Totals	$9,161,752	40,389		$20,241,248	9.262		$29,403,000

Notes:

1 Number of connections and flow values are from Table A-4.

2 Revenue values are from Table C-2a.

3 Monthly flat charges are the sum of connection and UA - I/I revenue requirements divided by the corresponding number of connections

4 Quantity charges are the sum of flow, BOD, TSS, TP and NH3-N revenue requirements divided by the corresponding flow

Table C-3b
Derivation of Charges - 2023

Customer Classification	Monthly Flat Charge [1,2,3] Conn+UA&I/I Revenue	No. of Connections	Monthly Flat Charge	Quantity Charges [4] Flow+BOD+ TSS+TP+NH3-N Revenue	Flow mgd	Quantity Charges $/ccf	Total Revenue
Residential Users	$8,565,578	37,565	$19.10	$9,196,191	4.470	$4.22	$17,761,769
Commercial Users							
User 1	$228	1	$19.10	$139,792	0.036	$7.96	$140,020
User 2	$228	1	$19.10	$142,768	0.064	$4.58	$142,996
User 3	$228	1	$19.10	$650,167	0.312	$4.28	$650,395
User 4	$228	1	$19.10	$233,141	0.061	$7.84	$233,369
User 5	$228	1	$19.10	$368,102	0.105	$7.19	$368,330
User 6	$228	1	$19.10	$64,600	0.031	$4.28	$64,828
User 7	$228	1	$19.10	$81,271	0.039	$4.28	$81,499
User 8	$228	1	$19.10	$291,742	0.140	$4.28	$291,970
User 9	$228	1	$19.10	$101,699	0.041	$5.09	$101,927
User 10	$228	1	$19.10	$10,419	0.005	$4.28	$10,647
Other Commercial	$728,068	3,193	$19.10	$7,369,100	3.582	$4.22	$8,097,169
Subtotal, Commercial	$730,349	3,203		$9,452,801	4.416		$10,183,149
Industrial/Trucked Waste							
User 1	$228	1	$19.10	$858,996	0.092	$19.13	$859,224
User 2	$228	1	$19.10	$734,153	0.264	$5.69	$734,381
User 3	$228	1	$19.10	$111,581	0.043	$5.30	$111,809
User 4	$228	1	$19.10	$20,565	0.010	$4.22	$20,793
User 5	$228	1	$19.10	$12,339	0.006	$4.22	$12,567
User 6	$228	1	$19.10	$26,735	0.013	$4.22	$26,963
Leachate	$0	0		$24,869	0.015	$3.35	$24,869
Portable Toilets	$0	0		$49,682	0.001	$92.56	$49,682
FOG	$0	0		$19,785	0.001	$61.02	$19,785
Septage	$0	0		$33,008	0.001	$92.48	$33,008
Subtotal, Ind/Trucked	$1,368	6		$1,891,714	0.446		$1,893,082
Totals	$9,297,295	40,774		$20,540,705	9.333		$29,838,000

Notes:

1 Number of connections and flow values are from Table A-5.

2 Revenue values are from Table C-2b.

3 Monthly flat charges are the sum of connection and UA - I/I revenue requirements divided by the corresponding number of connections

4 Quantity charges are the sum of flow, BOD, TSS, TP and NH3-N revenue requirements divided by the corresponding flow

Table C-3c
Derivation of Charges - 2024

Customer Classification	Monthly Flat Charge [1,2,3] Conn+UA&I/I Revenue	No. of Connections	Monthly Flat Charge	Quantity Charges [4] Flow+BOD+ TSS+TP+NH3-N Revenue	Flow mgd	Quantity Charges $/ccf	Total Revenue
Residential Users	$8,709,468	37,925	$19.20	$9,372,046	4.513	$4.26	$18,081,515
Commercial Users							
User 1	$230	1	$19.20	$141,159	0.036	$8.04	$141,389
User 2	$230	1	$19.20	$144,123	0.064	$4.62	$144,353
User 3	$230	1	$19.20	$656,307	0.312	$4.32	$656,537
User 4	$230	1	$19.20	$235,387	0.061	$7.91	$235,617
User 5	$230	1	$19.20	$371,658	0.105	$7.26	$371,887
User 6	$230	1	$19.20	$65,210	0.031	$4.32	$65,440
User 7	$230	1	$19.20	$82,038	0.039	$4.32	$82,268
User 8	$230	1	$19.20	$294,497	0.140	$4.32	$294,727
User 9	$230	1	$19.20	$102,667	0.041	$5.14	$102,897
User 10	$230	1	$19.20	$10,518	0.005	$4.32	$10,747
Other Commercial	$739,013	3,218	$19.20	$7,496,971	3.610	$4.26	$8,235,984
Subtotal, Commercial	$741,310	3,228		$9,600,536	4.444		$10,341,846
Industrial/Trucked Waste							
User 1	$230	1	$19.20	$867,586	0.092	$19.32	$867,815
User 2	$230	1	$19.20	$741,249	0.264	$5.75	$741,479
User 3	$230	1	$19.20	$112,650	0.043	$5.35	$112,879
User 4	$230	1	$19.20	$20,759	0.010	$4.26	$20,989
User 5	$230	1	$19.20	$12,456	0.006	$4.26	$12,685
User 6	$230	1	$19.20	$26,987	0.013	$4.26	$27,217
Leachate	$0	0		$25,095	0.015	$3.38	$25,095
Portable Toilets	$0	0		$50,167	0.001	$93.46	$50,167
FOG	$0	0		$19,981	0.001	$61.62	$19,981
Septage	$0	0		$33,331	0.001	$93.38	$33,331
Subtotal, Ind/Trucked	$1,378	6		$1,910,262	0.446		$1,911,640
Totals	$9,452,156	41,159		$20,882,844	9.404		$30,335,000

Notes:

1 Number of connections and flow values are from Table A-6.

2 Revenue values are from Table C-2c.

3 Monthly flat charges are the sum of connection and UA - I/I revenue requirements divided by the corresponding number of connections

4 Quantity charges are the sum of flow, BOD, TSS, TP and NH3-N revenue requirements divided by the corresponding flow

Table C-3d
Derivation of Charges - 2025

Customer Classification	Monthly Flat Charge [1,2,3] Conn+UA&I/I Revenue	No. of Connections	Monthly Flat Charge	Quantity Charges [4] Flow+BOD+ TSS+TP+NH3-N Revenue	Flow mgd	Quantity Charges $/ccf	Total Revenue
Residential Users	$8,829,256	38,285	$19.30	$9,522,311	4.556	$4.29	$18,351,567
Commercial Users							
User 1	$231	1	$19.30	$142,121	0.036	$8.10	$142,351
User 2	$231	1	$19.30	$145,063	0.064	$4.65	$145,293
User 3	$231	1	$19.30	$660,556	0.312	$4.34	$660,787
User 4	$231	1	$19.30	$236,955	0.061	$7.97	$237,186
User 5	$231	1	$19.30	$374,143	0.105	$7.31	$374,373
User 6	$231	1	$19.30	$65,632	0.031	$4.34	$65,863
User 7	$231	1	$19.30	$82,570	0.039	$4.34	$82,800
User 8	$231	1	$19.30	$296,404	0.140	$4.34	$296,634
User 9	$231	1	$19.30	$103,340	0.041	$5.17	$103,571
User 10	$231	1	$19.30	$10,586	0.005	$4.34	$10,816
Other Commercial	$747,898	3,243	$19.30	$7,604,167	3.638	$4.29	$8,352,065
Subtotal, Commercial	$750,204	3,253		$9,721,537	4.472		$10,471,741
Industrial/Trucked Waste							
User 1	$231	1	$19.30	$873,677	0.092	$19.45	$873,908
User 2	$231	1	$19.30	$746,210	0.264	$5.79	$746,441
User 3	$231	1	$19.30	$113,395	0.043	$5.38	$113,625
User 4	$231	1	$19.30	$20,894	0.010	$4.29	$21,125
User 5	$231	1	$19.30	$12,536	0.006	$4.29	$12,767
User 6	$231	1	$19.30	$27,162	0.013	$4.29	$27,393
Leachate	$0	0		$25,249	0.015	$3.40	$25,249
Portable Toilets	$0	0		$50,507	0.001	$94.10	$50,507
FOG	$0	0		$20,120	0.001	$62.05	$20,120
Septage	$0	0		$33,558	0.001	$94.02	$33,558
Subtotal, Ind/Trucked	$1,384	6		$1,923,309	0.446		$1,924,692
Totals	$9,580,844	41,544		$21,167,156	9.475		$30,748,000

Notes:

1 Number of connections and flow values are from Table A-7.

2 Revenue values are from Table C-2d.

3 Monthly flat charges are the sum of connection and UA - I/I revenue requirements divided by the corresponding number of connections

4 Quantity charges are the sum of flow, BOD, TSS, TP and NH3-N revenue requirements divided by the corresponding flow

Table C-3e
Derivation of Charges - 2026

Customer Classification	Monthly Flat Charge [1,2,3] Conn+UA&I/I Revenue	No. of Connections	Monthly Flat Charge	Quantity Charges [4] Flow+BOD+ TSS+TP+NH3-N Revenue	Flow mgd	Quantity Charges $/ccf	Total Revenue
Residential Users	$8,962,263	38,645	$19.40	$9,687,148	4.599	$4.32	$18,649,412
Commercial Users							
User 1	$232	1	$19.40	$143,280	0.036	$8.16	$143,512
User 2	$232	1	$19.40	$146,205	0.064	$4.69	$146,437
User 3	$232	1	$19.40	$665,728	0.312	$4.38	$665,960
User 4	$232	1	$19.40	$238,855	0.061	$8.03	$239,087
User 5	$232	1	$19.40	$377,150	0.105	$7.37	$377,382
User 6	$232	1	$19.40	$66,146	0.031	$4.38	$66,378
User 7	$232	1	$19.40	$83,216	0.039	$4.38	$83,448
User 8	$232	1	$19.40	$298,724	0.140	$4.38	$298,956
User 9	$232	1	$19.40	$104,158	0.041	$5.21	$104,390
User 10	$232	1	$19.40	$10,669	0.005	$4.38	$10,901
Other Commercial	$757,890	3,268	$19.40	$7,722,815	3.666	$4.32	$8,480,706
Subtotal, Commercial	$760,210	3,278		$9,856,946	4.500		$10,617,156
Industrial/Trucked Waste							
User 1	$232	1	$19.40	$880,989	0.092	$19.62	$881,221
User 2	$232	1	$19.40	$752,213	0.264	$5.83	$752,445
User 3	$232	1	$19.40	$114,298	0.043	$5.42	$114,530
User 4	$232	1	$19.40	$21,058	0.010	$4.32	$21,289
User 5	$232	1	$19.40	$12,635	0.006	$4.32	$12,866
User 6	$232	1	$19.40	$27,375	0.013	$4.32	$27,607
Leachate	$0	0		$25,439	0.015	$3.43	$25,439
Portable Toilets	$0	0		$50,918	0.001	$94.86	$50,918
FOG	$0	0		$20,286	0.001	$62.56	$20,286
Septage	$0	0		$33,832	0.001	$94.79	$33,832
Subtotal, Ind/Trucked	$1,391	6		$1,939,041	0.446		$1,940,433
Totals	$9,723,865	41,929		$21,483,135	9.545		$31,207,000

Notes:

1 Number of connections and flow values are from Table A-8.

2 Revenue values are from Table C-2e.

3 Monthly flat charges are the sum of connection and UA - I/I revenue requirements divided by the corresponding number of connections

4 Quantity charges are the sum of flow, BOD, TSS, TP and NH3-N revenue requirements divided by the corresponding flow

Table C-3f
Derivation of Charges - 2027

Customer Classification	Monthly Flat Charge [1,2,3] Conn+UA&I/I Revenue	No. of Connections	Monthly Flat Charge	Quantity Charges [4] Flow+BOD+ TSS+TP+NH3-N Revenue	Flow mgd	Quantity Charges $/ccf	Total Revenue
Residential Users	$9,090,402	39,005	$19.50	$9,847,049	4.642	$4.35	$18,937,451
Commercial Users							
User 1	$233	1	$19.50	$144,347	0.036	$8.22	$144,580
User 2	$233	1	$19.50	$147,253	0.064	$4.72	$147,486
User 3	$233	1	$19.50	$670,468	0.312	$4.41	$670,701
User 4	$233	1	$19.50	$240,599	0.061	$8.09	$240,832
User 5	$233	1	$19.50	$379,913	0.105	$7.42	$380,146
User 6	$233	1	$19.50	$66,617	0.031	$4.41	$66,850
User 7	$233	1	$19.50	$83,808	0.039	$4.41	$84,042
User 8	$233	1	$19.50	$300,851	0.140	$4.41	$301,084
User 9	$233	1	$19.50	$104,908	0.041	$5.25	$105,141
User 10	$233	1	$19.50	$10,745	0.005	$4.41	$10,978
Other Commercial	$767,458	3,293	$19.50	$7,837,337	3.694	$4.35	$8,604,795
Subtotal, Commercial	$769,788	3,303		$9,986,845	4.528		$10,756,634
Industrial/Trucked Waste							
User 1	$233	1	$19.50	$887,730	0.092	$19.77	$887,963
User 2	$233	1	$19.50	$757,729	0.264	$5.88	$757,962
User 3	$233	1	$19.50	$115,127	0.043	$5.46	$115,360
User 4	$233	1	$19.50	$21,208	0.010	$4.35	$21,441
User 5	$233	1	$19.50	$12,725	0.006	$4.35	$12,958
User 6	$233	1	$19.50	$27,570	0.013	$4.35	$27,803
Leachate	$0	0		$25,612	0.015	$3.45	$25,612
Portable Toilets	$0	0		$51,295	0.001	$95.56	$51,295
FOG	$0	0		$20,440	0.001	$63.03	$20,440
Septage	$0	0		$34,083	0.001	$95.49	$34,083
Subtotal, Ind/Trucked	$1,398	6		$1,953,517	0.446		$1,954,916
Totals	$9,861,588	42,314		$21,787,412	9.616		$31,649,000

Notes:

1 Number of connections and flow values are from Table A-9.

2 Revenue values are from Table C-2f.

3 Monthly flat charges are the sum of connection and UA - I/I revenue requirements divided by the corresponding number of connections

4 Quantity charges are the sum of flow, BOD, TSS, TP and NH3-N revenue requirements divided by the corresponding flow

Appendix D: Plant Investment Fees

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Table D-1
Plant Investment Fees
and Fee Revenue

Item		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
PIF	[1]												
Residential		$3,750	$3,900	$4,050	$4,200	$4,350	$4,500	$4,600	$4,700	$4,800	$4,900	$5,000	$5,100
Multiple Dwelling		$2,650	$2,750	$2,850	$2,950	$3,050	$3,150	$3,680	$3,760	$3,840	$3,920	$4,000	$4,080
Commercial													
⅝ x ¾ and ⅝ x ½		$5,650	$5,900	$6,150	$6,350	$6,600	$6,800	$6,950	$7,100	$7,250	$7,400	$7,550	$7,700
¾		$7,400	$7,650	$7,950	$8,250	$8,550	$8,850	$9,050	$9,250	$9,450	$9,650	$9,850	$10,050
1		$13,000	$13,600	$14,100	$14,600	$15,100	$15,700	$16,000	$16,400	$16,700	$17,000	$17,400	$17,700
1½		$22,700	$23,600	$24,500	$25,400	$26,300	$27,200	$27,800	$28,400	$29,000	$29,600	$30,300	$30,900
2		$36,900	$38,300	$39,800	$41,300	$42,800	$44,200	$45,200	$46,200	$47,200	$48,200	$49,200	$50,100
3+		$128,800	$133,900	$139,100	$144,200	$149,400	$154,500	$157,900	$161,400	$164,800	$168,200	$171,700	$175,100
Ind/Permited	[2]	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies
New Connections													
Residential		360	360	360	360	360	360	360	360	360	360	360	360
Multiple Dwelling		0	0	0	0	0	0	0	0	0	0	0	0
Commercial													
⅝ x ¾ and ⅝ x ½		20	20	20	20	20	20	20	20	20	20	20	20
¾		2	2	2	2	2	2	2	2	2	2	2	2
1		1	1	1	1	1	1	1	1	1	1	1	1
1½		1	1	1	1	1	1	1	1	1	1	1	1
2		1	1	1	1	1	1	1	1	1	1	1	1
3+		0	0	0	0	0	0	0	0	0	0	0	0
Ind/Permited	[2]	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies
Revenue, $millions													
Residential		$1.35	$1.40	$1.46	$1.51	$1.57	$1.62	$1.66	$1.69	$1.73	$1.76	$1.80	$1.84
Multiple Dwelling		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Commercial													
⅝ x ¾ and ⅝ x ½		$0.11	$0.12	$0.12	$0.13	$0.13	$0.14	$0.14	$0.14	$0.15	$0.15	$0.15	$0.15
¾		$0.01	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02
1		$0.01	$0.01	$0.01	$0.01	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02
1½		$0.02	$0.02	$0.02	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03
2		$0.04	$0.04	$0.04	$0.04	$0.04	$0.04	$0.05	$0.05	$0.05	$0.05	$0.05	$0.05
3+		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Ind/Permited	[2]	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies
Total		$1.55	$1.61	$1.68	$1.74	$1.80	$1.86	$1.90	$1.94	$1.98	$2.03	$2.07	$2.11
Cumulative		$1.55	$3.16	$4.84	$6.58	$8.37	$10.24	$12.14	$14.08	$16.07	$18.09	$20.16	$22.27

Notes:

[1] PIFs for 2022 - 2027 are from Table 6-6. Residential values for 2028 and onward are escalated as shown below.

	2028	*2029*	*2030*	*2031*	*2032*	*2033*
$ inc >	$100	$100	$100	$100	$100	$100

[2] Industrial connections and PIF revenue can vary greatly and historical information has no reliable trending information.

Table D-1
Plant Investment Fees
and Fee Revenue

Item		2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
PIF	[1]												
Residential		$5,200	$5,300	$5,400	$5,500	$5,600	$5,700	$5,800	$5,900	$6,000	$6,100	$6,200	$6,300
Multiple Dwelling		$4,160	$4,240	$4,320	$4,400	$4,480	$4,560	$4,640	$4,720	$4,800	$4,880	$4,960	$5,040
Commercial													
⅝ x ¾ and ⅝ x ½		$7,850	$8,000	$8,150	$8,300	$8,450	$8,600	$8,750	$8,900	$9,100	$9,250	$9,400	$9,550
¾		$10,250	$10,400	$10,600	$10,800	$11,000	$11,200	$11,400	$11,600	$11,800	$12,000	$12,200	$12,400
1		$18,100	$18,400	$18,800	$19,100	$19,500	$19,800	$20,200	$20,500	$20,900	$21,200	$21,600	$21,900
1½		$31,500	$32,100	$32,700	$33,300	$33,900	$34,500	$35,100	$35,700	$36,300	$36,900	$37,500	$38,100
2		$51,100	$52,100	$53,100	$54,100	$55,100	$56,000	$57,000	$58,000	$59,000	$60,000	$61,000	$61,900
3+		$178,500	$182,000	$185,400	$188,800	$192,300	$195,700	$199,100	$202,600	$206,000	$209,500	$212,900	$216,300
Ind/Permited	[2]	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies
New Connections													
Residential		360	360	360	360	360	360	360	360	360	360	360	360
Multiple Dwelling		0	0	0	0	0	0	0	0	0	0	0	0
Commercial													
⅝ x ¾ and ⅝ x ½		20	20	20	20	20	20	20	20	20	20	20	20
¾		2	2	2	2	2	2	2	2	2	2	2	2
1		1	1	1	1	1	1	1	1	1	1	1	1
1½		1	1	1	1	1	1	1	1	1	1	1	1
2		1	1	1	1	1	1	1	1	1	1	1	1
3+		0	0	0	0	0	0	0	0	0	0	0	0
Ind/Permited	[2]	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies
Revenue, $millions													
Residential		$1.87	$1.91	$1.94	$1.98	$2.02	$2.05	$2.09	$2.12	$2.16	$2.20	$2.23	$2.27
Multiple Dwelling		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Commercial													
⅝ x ¾ and ⅝ x ½		$0.16	$0.16	$0.16	$0.17	$0.17	$0.17	$0.18	$0.18	$0.18	$0.19	$0.19	$0.19
¾		$0.02	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02
1		$0.02	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02
1½		$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.04	$0.04	$0.04	$0.04	$0.04	$0.04
2		$0.05	$0.05	$0.05	$0.05	$0.06	$0.06	$0.06	$0.06	$0.06	$0.06	$0.06	$0.06
3+		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Ind/Permited	[2]	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies
Total		$2.15	$2.19	$2.23	$2.27	$2.32	$2.36	$2.40	$2.44	$2.48	$2.52	$2.56	$2.61
Cumulative		$24.42	$26.61	$28.84	$31.12	$33.43	$35.79	$38.19	$40.63	$43.11	$45.63	$48.20	$50.80

Notes:

[1] PIFs for 2022 - 2027 are from Table 6-6. Residential values for 2028 and onward are escalated as shown below.

	2034	*2035*	*2036*	*2037*	*2038*	*2039*	*2040*	*2041*	*2042*	*2043*	*2044*	*2045*
$ inc >	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100

[2] Industrial connections and PIF revenue can vary greatly and historical information has no reliable trending information.

Appendix E: Presentation for City Council Study Session

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ROCHESTER
PUBLIC WORKS

Wastewater Charges and Fees Evaluation
Findings and Recommendations

September 20, 2021

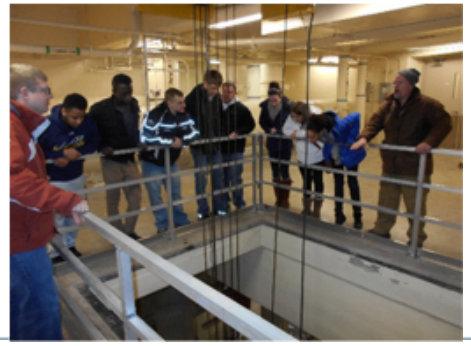
Presenter: Tom Pavletic

Overview

- Why are we meeting today?
  - Share the preliminary results of the Wastewater Charges and Fees Evaluation
- Study Background
  - Completed every 6 years (short term planning)
  - Projects out 24 years (long term planning)
  - Aligns with wastewater permit reissuance
  - Completed by independent reviewer

Overview cont.

- What are the key findings?
  - < 1% annual rate increase on charges
  - Average homeowner bill would go up each year $0.25/month
  - Projected fund stability
- What are we asking for?
  - Approval of recommendations at future Council Meeting
    - Wastewater Charges
    - Hauled Waste and Monitoring/Sampling Charges
    - Plant Investment Fees
    - Authorize public hearings for associated ordinance changes

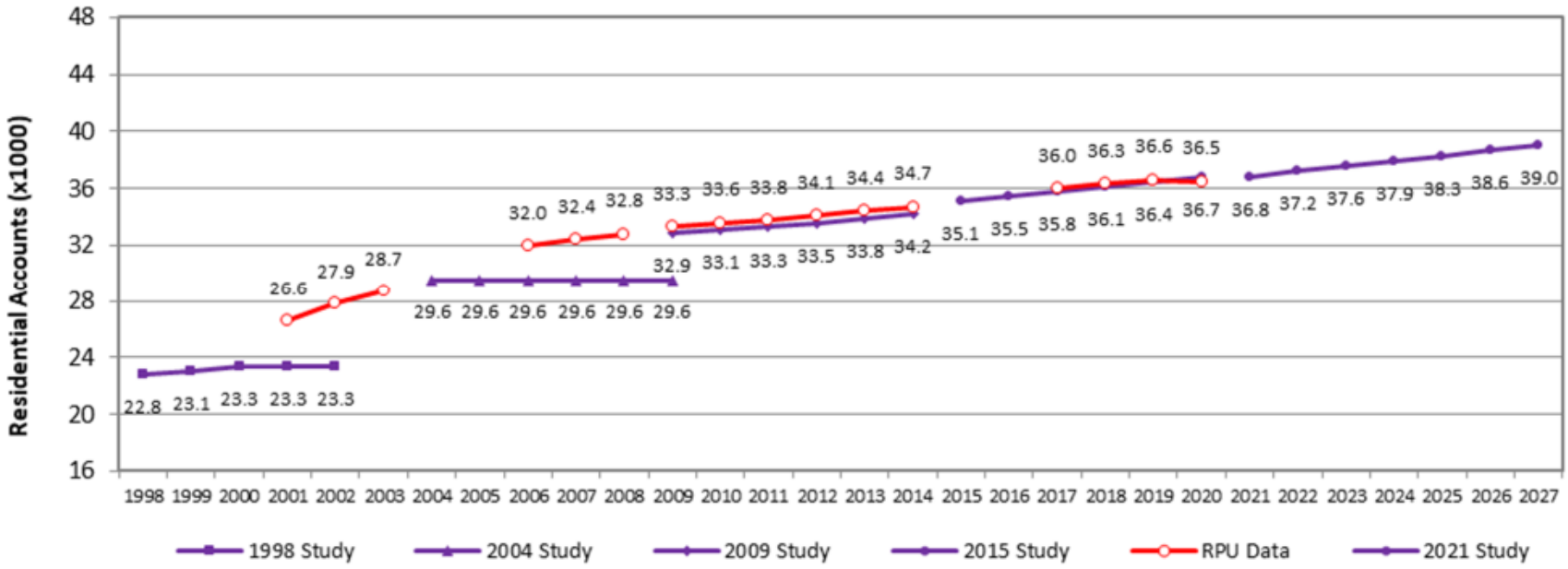


Wastewater Charges

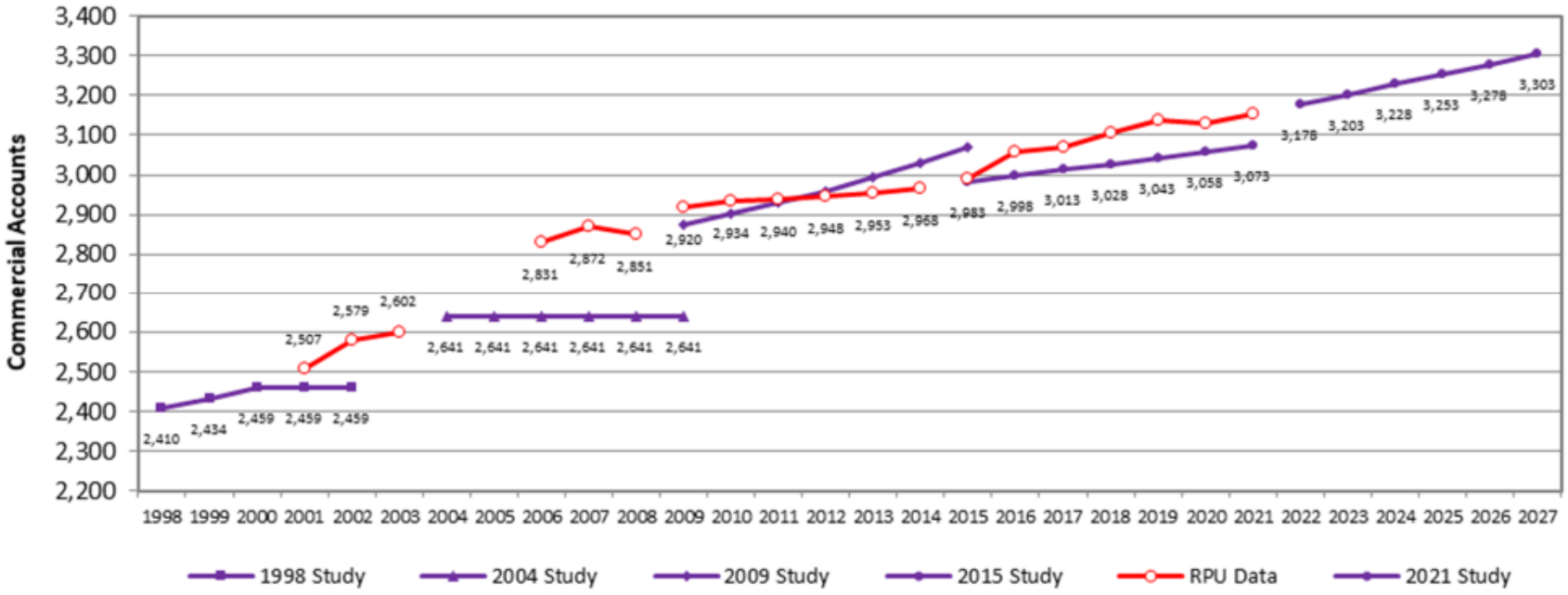
Charges Development Methodology

- Based on Government Accounting Standards Board (GASB)
  - Enterprise Funds are a self-supporting activity which provide services on a user charge basis to residences and businesses
- Revenue sufficient to support operations and maintenance, capital replacement, capital expansion and debt service obligations while maintaining reserves at a prudent level
- Charges are proportional to the cost of the service attributable to each customer (permitted commercial or industrial) or customer class (residential and commercial)

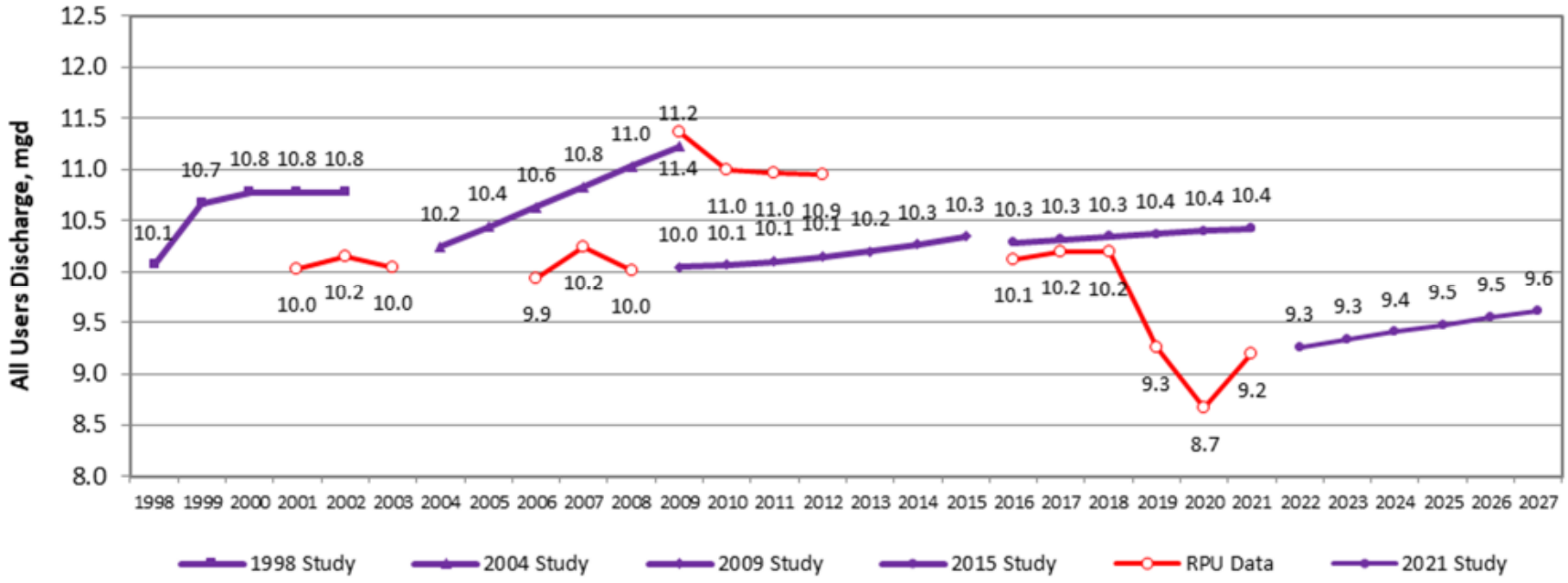
Residential Accounts 1998 - 2027



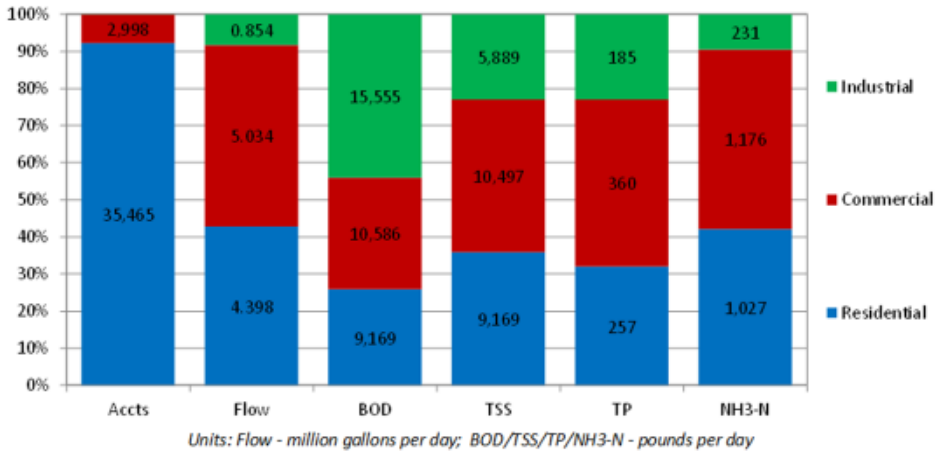
Commercial Accounts 1998 - 2027

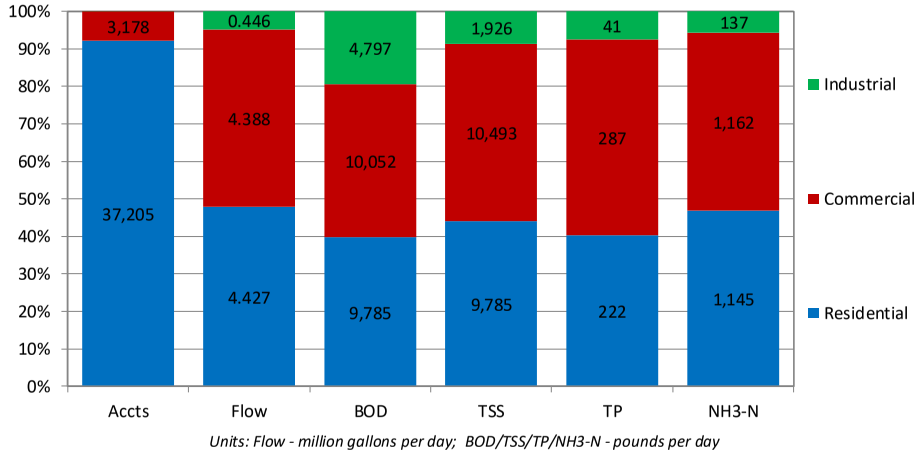


Customer Wastewater Discharge million gallons per day (mgd) 1998 - 2027



Projected Water Reclamation Plant Influent Loads 2016 (L.) v 2022 (R.)





Projected Cash Flow
2022-2027 (L.) v 2022-2045 (R.)

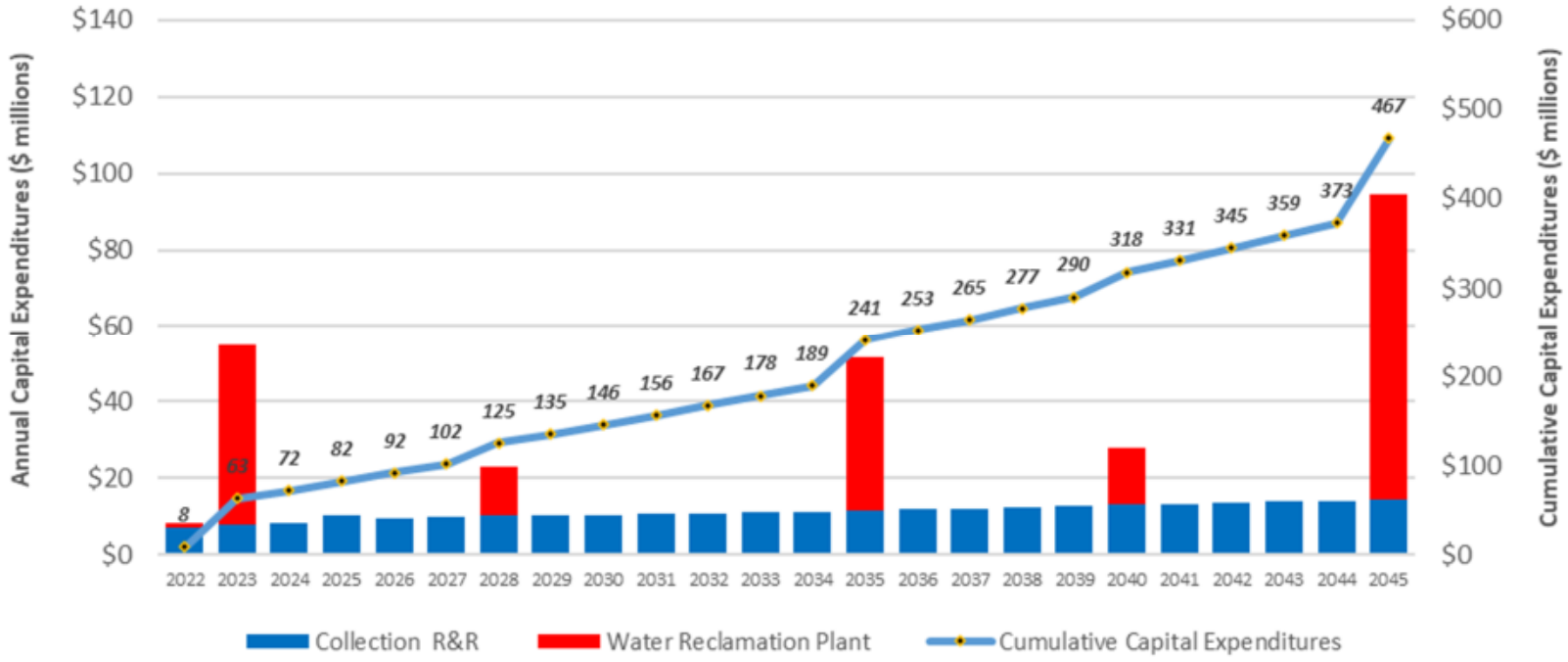
	6 Years FY22 - FY27	
Balance* January 1, 2022	**$33,550,000**	
Expenditures		
Operations & Maintenance	$84,420,000	*35%*
Debt Service	$57,660,000	*24%*
Capital - Cash	$54,870,000	*22%*
Capital - Financed	$47,000,000	*19%*
Total Expenditures	**$243,950,000**	*100%*
Revenues		
Charges for Service	$183,400,000	*72%*
Plant Investment Fees	$10,240,000	*4%*
Trunk Sewer Rates	$9,920,000	*4%*
Miscellaneous	$2,750,000	*1%*
Loan Disbursements	$47,000,000	*19%*
Total Revenues	**$253,310,000**	*100%*
Net Revenues	$9,360,000	
Balance* December 31, 2027	**$42,910,000**	
Target Balance December 31, 2027	**$12,120,000**	

** Cash and cash equivalent investments.*

	24 Years FY22 - FY45	
Balance* January 1, 2022	**$33,550,000**	
Expenditures		
Operations & Maintenance	$444,730,000	*44%*
Debt Service	$108,200,000	*11%*
Capital - Cash	$420,340,000	*41%*
Capital - Financed	$47,000,000	*5%*
Total Expenditures	**$1,020,270,000**	*100%*
Revenues		
Charges for Service	$799,000,000	*83%*
Plant Investment Fees	$50,800,000	*5%*
Trunk Sewer Rates	$52,790,000	*5%*
Miscellaneous	$14,040,000	*1%*
Loan Disbursements	$47,000,000	*5%*
Total Revenues	**$963,630,000**	*100%*
Net Revenues	($56,640,000)	
Balance* December 31, 2045	**($23,090,000)**	
Target Balance December 31, 2045	**$13,550,000**	

** Cash and cash equivalent investments.*

Annual and Cumulative Capital Expenditures, 2022 - 2045



Cash Flow – Reserve Target

- Cash Reserves are cash and investments (as listed in the Comprehensive Annual Financial Reports - CAFRs)
- Cash Reserve Components
  - Debt reserve equal to annual interest and principal payments; provides coverage and high rating agency/debt ratings for general and enterprise funds (rating agencies look at “days of cash”)
  - Working capital – cash for receivables and timing of expenditures versus revenues
  - Rate stabilization – fluctuation in revenues from quantity charges due to changes in customer wastewater discharge volumes
- Actual cash balance may exceed reserve target if the capital expenditure funding policy is to reserve cash for future capital expenditures and not issue new debt

Allocation of Revenue Required

- Revenue required from charges is allocated to seven cost components
- Cost components are recovered from monthly flat charges and quantity charges
  - Monthly Fixed Charges (~31% of revenue requirements)
    - Connections (21%)
    - Unaccounted-Inflow/Infiltration (10%)
  - Quantity Charges (~69% of revenue requirements)
    - Flow (29%)
    - BOD (17%)
    - TSS (12%)
    - TP (4%)
    - NH3-N (7%)

Allocation of Revenue Required by Customer Category and Year

	Estimated	Projected						2022 - 2027	
Customer Category	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**Total**	**%**
Residential	$17,300,000	$17,534,000	$17,815,000	$18,119,000	$18,403,000	$18,690,000	$18,979,000	$109,540,000	60%
Commercial	$9,925,000	$10,045,000	$10,183,000	$10,342,000	$10,472,000	$10,617,000	$10,757,000	$62,416,000	34%
Industrial	$1,753,000	$1,867,000	$1,882,000	$1,901,000	$1,914,000	$1,930,000	$1,944,000	$11,438,000	6%
Total Revenue from Charges	$28,979,000	$29,447,000	$29,880,000	$30,362,000	$30,789,000	$31,237,000	$31,680,000	$183,395,000	100%

Wastewater Charges Recommended for Adoption

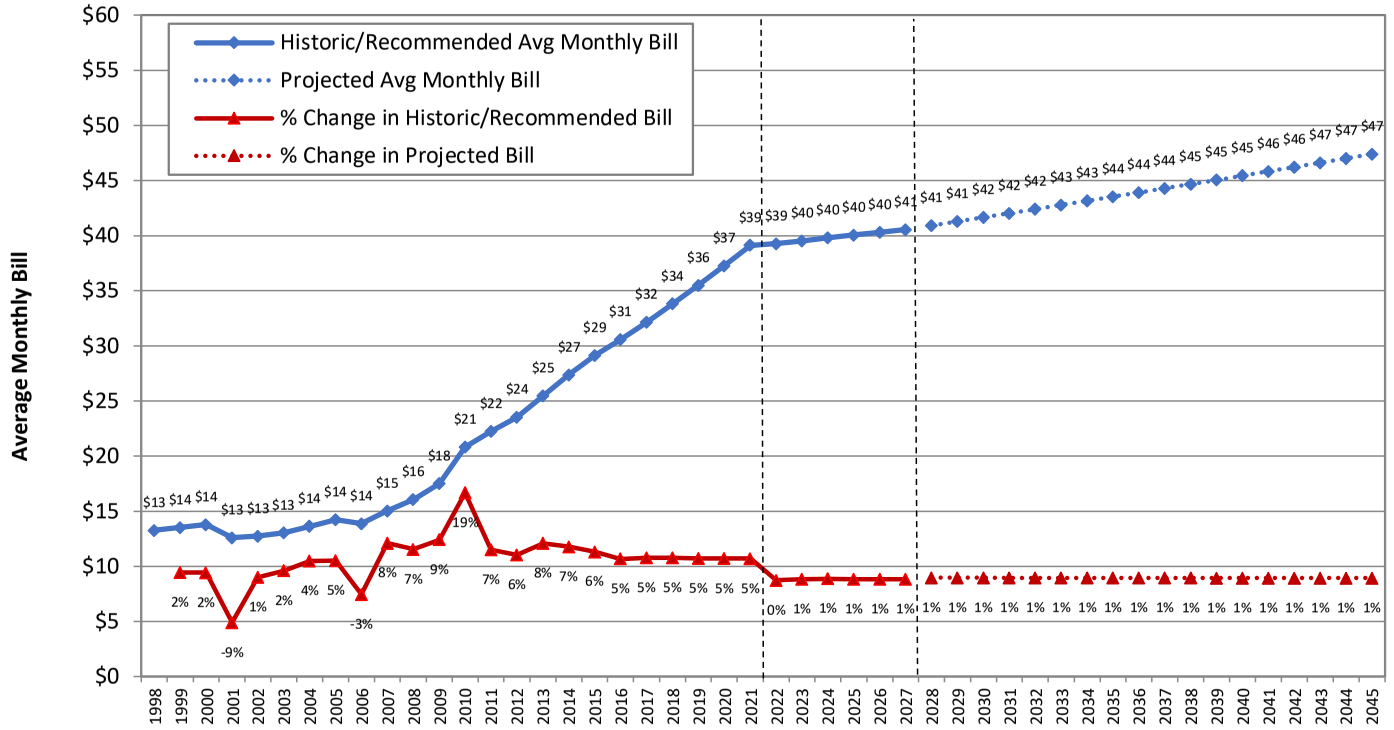
Charge		Current 2021	Recommended 2022	2023	2024	2025	2026	2027
Fixed Charges	$/month	$19.00	$19.00	$19.10	$19.20	$19.30	$19.40	$19.50
Quantity Charges	$/Ccf	$4.160	$4.19	$4.22	$4.26	$4.29	$4.32	$4.35
High Strength Surcharges								
Flow	$/Ccf	$1.99	$1.91	$1.93	$1.94	$1.96	$1.97	$1.98
BOD	$/pound	$0.47	$0.54	$0.55	$0.55	$0.56	$0.56	$0.57
TSS	$/pound	$0.44	$0.43	$0.44	$0.44	$0.44	$0.45	$0.45
TP	$/pound	$6.00	$5.98	$6.03	$6.09	$6.14	$6.19	$6.24
NH3-N	$/pound	$2.21	$2.23	$2.25	$2.27	$2.28	$2.30	$2.31

Affordability Assessment

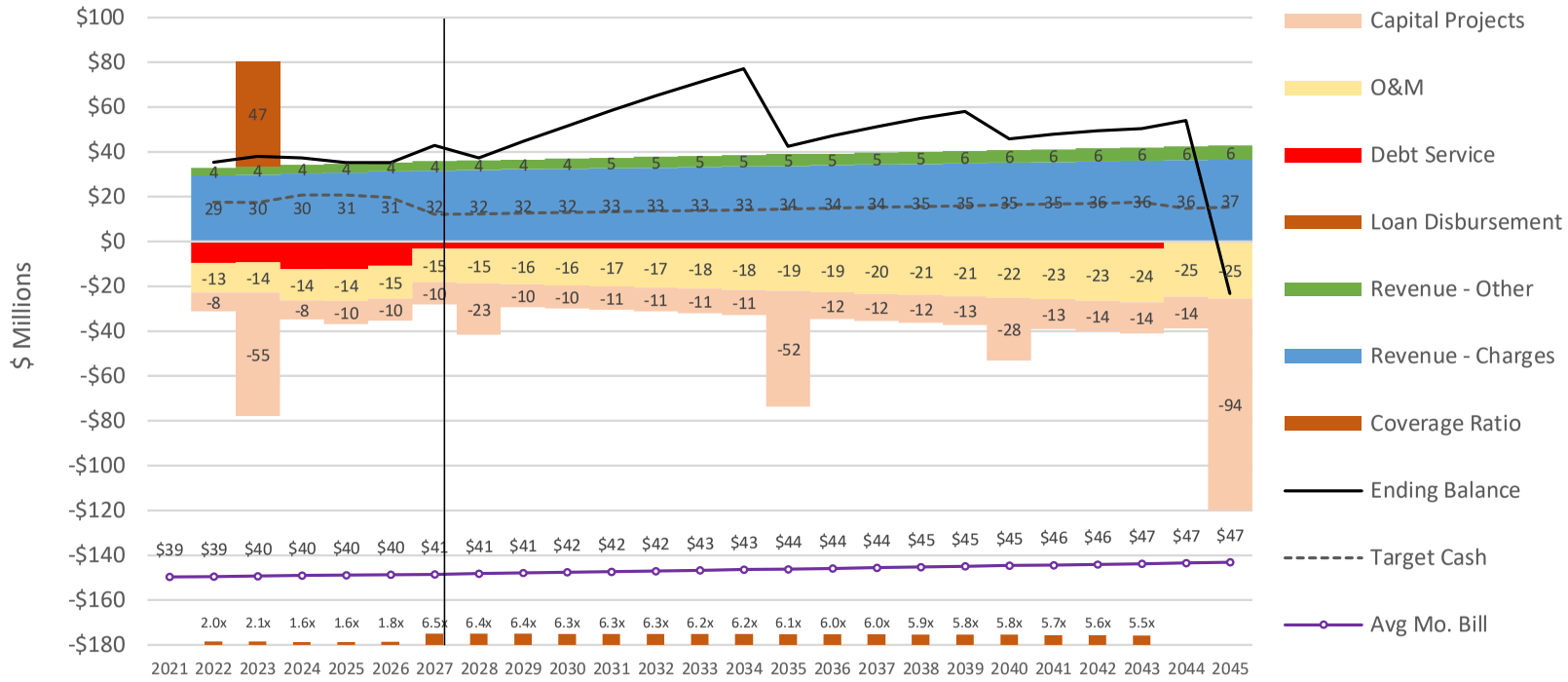
Median Household Income (MHI)	2019	2018	2017
Statewide Minnesota Median Household Income	$74,593	$70,315	$68,388
Rochester Median Household Income	$74,527	$70,094	$75,464
Rochester MHI as a percentage of the State MHI	**99.9%**	**99.7%**	**110.3%**
	less than 80% is disadvantaged		

Affordability Assessment	2019	2018	2017
2021 Single Family Annual Average Wastewater Bill based on $39.13/mo.	$469.56	$469.56	$469.56
Annual Average Wastewater Bill as a % of Rochester MHI	**0.63%**	**0.67%**	**0.62%**
	LT or = 2% of MHI is considered affordable		

Residential Average Monthly Bills and Percent Change in Bills 1998 - 2045



Annual Expenditures, Revenues, Debt Coverage and Residential Monthly Bills



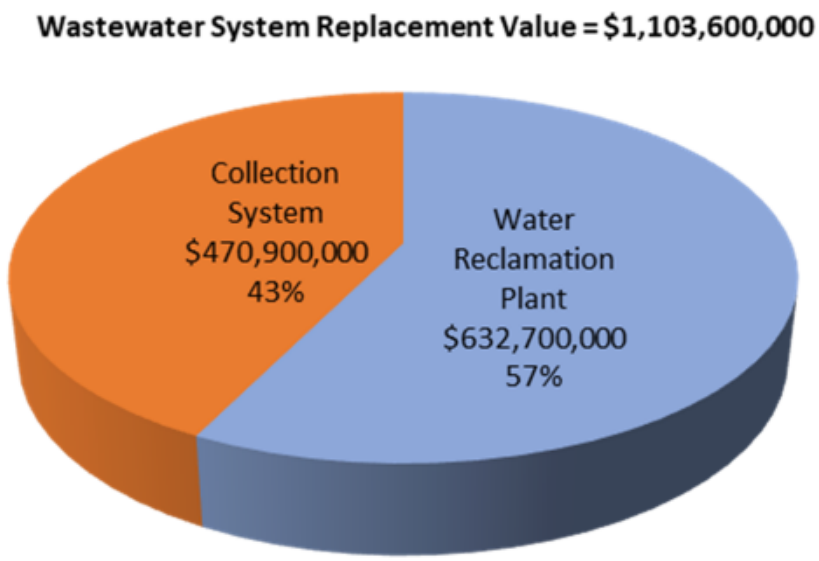
Hauled Waste and Monitoring/Sampling Charges Recommended for Adoption

Hauled Waste Charges		Current 2021	Recommended 2022	2023	2024	2025	2026	2027
Portable Toilet Waste	$/1000 gallons	$153.00	$123.00	$124.00	$125.00	$126.00	$127.00	$128.00
Fats, Oils and Greases	$/1000 gallons	$35.00	$36.00	$37.00	$38.00	$39.00	$40.00	$41.00
Septage	$/1000 gallons	$120.00	$123.00	$124.00	$125.00	$126.00	$127.00	$128.00

Monitoring and Sampling Charges	Current 2021	Recommended 2022	2023	2024	2025	2026	2027
Monthly Monitoring Charge	$1,850	$980	$1,010	$1,040	$1,070	$1,100	$1,130
Sampling Charge	na	$170	$180	$180	$190	$200	$200
Metals Analysis Charge	$380	$280	$290	$300	$300	$310	$320
Conventional Pollutants Analysis Charge	$380	$140	$150	$150	$150	$160	$160

Plant Investment Fees and Trunk Sewer Rates

Wastewater System Replacement Value



- Wastewater System Replacement Value is approximately $1.1 billion
- Equivalent Residential Units (ERUs) capacity of the Water Reclamation Plant is approximately 137,000 ERUs
- Approximately 110 acres/year developable acreage growth is assumed

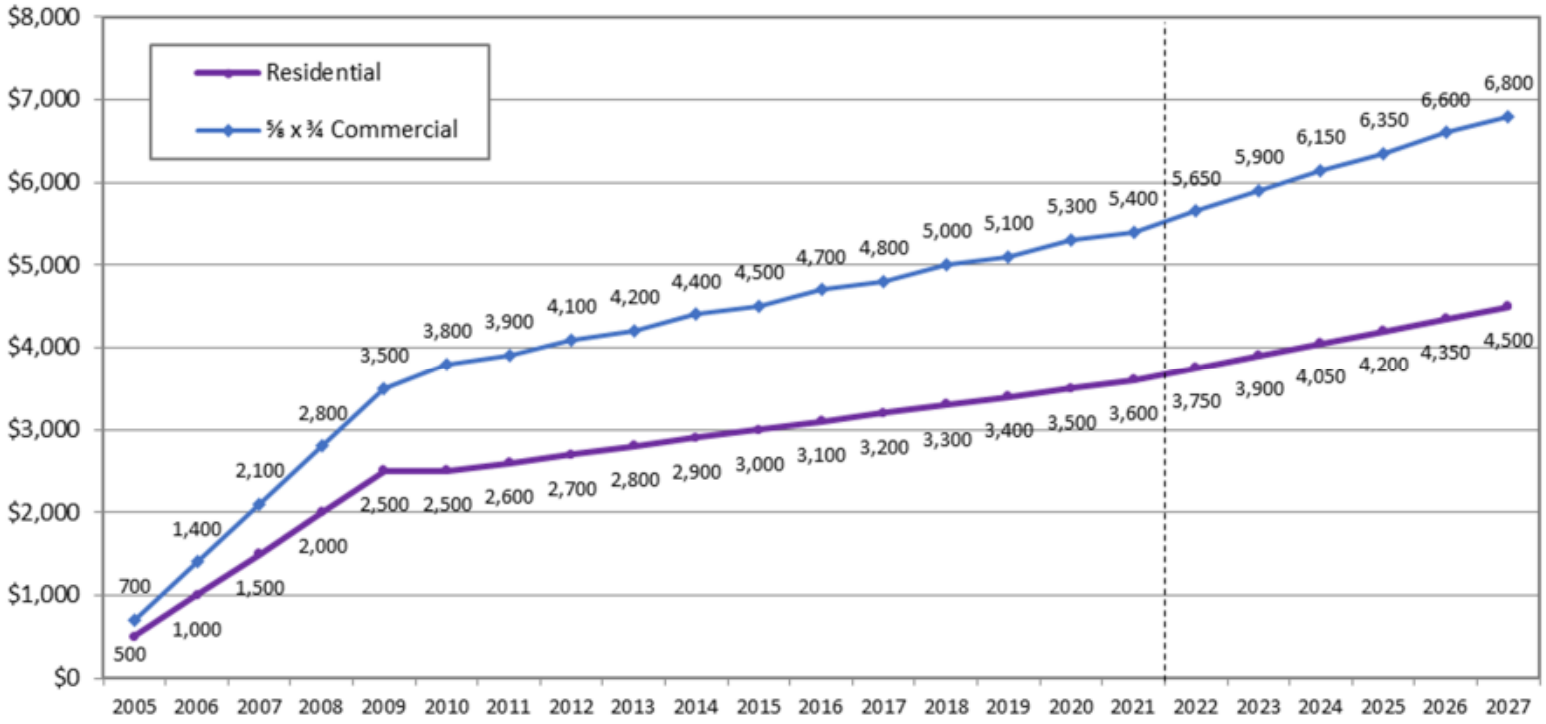
Plant Investment Fees (PIF) Development Categories

- Residential Units – single family homes and structures with three or fewer dwelling units are charged one Equivalent Residential Unit (ERU) per dwelling unit.
- Multiple Dwelling Units – buildings containing more than three dwelling units are charged 70% of the cost of one Equivalent Residential Unit per dwelling unit.
- Non-residential Developments – new and redeveloped non-residential developments that do not have a discharge permit have a PIF based on the size of each installed water meter in relation to the average wastewater discharge for residential customers (irrigation meters designated by Rochester Public Utilities are exempt)
- Permitted Non-residential Developments – commercial and industrial developments that have industrial discharge permits that specify the allowable flows and loads that may be discharged. These developments pay a high strength waste surcharge on their monthly bill based on their usage and is typically 60% of their permitted discharge peak allowable limits; therefore, the PIF will be based on 60% of the rates determined for an ERU.

Plant Investment Fees Recommended for Adoption

Customer Class		Unit of Service	Current 2021	Recommended 2022	2023	2024	2025	2026	2027
Residential		Per connection	$3,600	$3,750	$3,900	$4,050	$4,200	$4,350	$4,500
Multiple Dwelling Unit		Per connection	$2,880	$2,650	$2,750	$2,850	$2,950	$3,050	$3,150
Non-Residential Developments									
Fixture Units per Connection			25	32	32	32	32	32	32
⅝ x ¾ per Fixture Unit		Per fixture unit	*$216*	*$177*	*$184*	*$192*	*$198*	*$206*	*$213*
Water Meter Size									
⅝ x ¾		Per connection	$5,400	$5,650	$5,900	$6,150	$6,350	$6,600	$6,800
¾		Per connection	$15,100	$7,400	$7,650	$7,950	$8,250	$8,550	$8,850
1		Per connection	$21,200	$13,000	$13,600	$14,100	$14,600	$15,100	$15,700
1½		Per connection	$48,200	$22,700	$23,600	$24,500	$25,400	$26,300	$27,200
2		Per connection	$105,800	$36,900	$38,300	$39,800	$41,300	$42,800	$44,200
3+		Per connection	$105,800	$128,800	$133,900	$139,100	$144,200	$149,400	$154,500
Permitted Non-Residential Developments									
Flow	$/Ccf/day	Per Permit	$499	$6,240	$6,480	$6,730	$6,980	$7,230	$7,480
BOD	$/lb/day	Per Permit	$161	$2,010	$2,090	$2,170	$2,250	$2,330	$2,410
TSS	$/lb/day	Per Permit	$76	$950	$980	$1,020	$1,060	$1,100	$1,140
TP	$/lb/day	Per Permit	$1,816	$26,480	$27,540	$28,600	$29,660	$30,710	$31,770
NH3-N	$/lb/day	Per Permit	$929	$10,490	$10,910	$11,330	$11,750	$12,170	$12,590

Plant Investment Fees 2005 - 2027
Residential and Commercial (⅝ x ¾ meter)



Trunk Sewer Rates

(calculated as part of a separate effort in the Sewer Master Plan)

Sewer Shed	Cost per Developable Acre
Trunk Sanitary Sewer East Zumbro Phase 1: Silver Creek	$9,791.01
Trunk Sanitary Sewer East Zumbro Phase 1: Bear Creek	$8,759.90
Trunk Sanitary Sewer East Zumbro Phase 1: Willow Creek	$17,370.20
Trunk Sanitary Sewer Hadley Valley	$7,057.12
Trunk Sanitary Sewer Kings Run	$11,605.24
Trunk Sanitary Sewer West Zumbro	$15,391.32
Trunk Sanitary Sewer Northwest Territory	$24,767.68
Trunk Sanitary Sewer South Zumbro	$38,282.52

Projected Timeline and Next Steps

- June - September 2021 (**completed**) – Conduct evaluations; develop findings and preliminary recommendations
- September 20, 2021 (**TODAY**) – Council workshop
- November 1, 2021 – Council resolution to adopt and approve rates and fees
  - Wastewater Charges
  - Hauled Waste and Monitoring/Sampling Charges
  - Plant Investment Fees
  - Authorize public hearings for associated ordinance changes
- January 1, 2022 – Implement new wastewater charges and fees

Appendix F: Information Sheet for City Council Study Session

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Request

Council stated that they desire further evaluation of the affordability of monthly wastewater bills for residential customers.

Background

Affordability was evaluated based on principles found in the U.S. Environmental Protection Agency's (EPA's) *Affordability Assessment Tool for Federal Water Mandates* (Affordability Manual).[1] This document describes the EPA's current policies for analyzing the affordability of water, wastewater and stormwater mandates on American communities.

Affordability Source Data

Mean household income (MHI) for the State of Minnesota and for the City of Rochester were obtained from the *United States Census Bureau American Community Survey (ACS) 1-Year Estimates Subject Tables* found on the United States Census Bureau website.[2] Income data for the City of Rochester from the ACS website is found in Table ID S1901, *Income in The Past 12 Months (In 2019 Inflation-Adjusted Dollars)*, and is reproduced in the table below. The Census Bureau has not released its standard 2020 ACS 1-year estimates because of the impacts of the COVID-19 pandemic on data collection. Therefore the 2019 data is the most up-to-date data available.

Table 1-1. City of Rochester 2019 Income in The Past 12 Months (In 2019 Inflation-Adjusted Dollars)

	Rochester city, Minnesota							
	Households		Families		Married-couple families		Nonfamily households	
Label	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
Total	50,479	±1,360	30,060	±1,740	N	N	20,419	±1,814
Less than $10,000	2.7%	±0.9	0.3%	±0.6	N	N	6.3%	±2.0
$10,000 to $14,999	2.8%	±1.2	0.9%	±0.8	N	N	5.8%	±2.8
$15,000 to $24,999	5.8%	±1.8	3.3%	±2.1	N	N	9.5%	±3.2
$25,000 to $34,999	8.3%	±2.0	6.4%	±2.9	N	N	12.2%	±3.5
$35,000 to $49,999	12.3%	±2.1	7.2%	±2.5	N	N	20.0%	±4.4
$50,000 to $74,999	18.5%	±2.5	18.4%	±3.2	N	N	19.6%	±4.7
$75,000 to $99,999	12.9%	±2.4	15.0%	±3.2	N	N	10.2%	±4.3
$100,000 to $149,999	18.2%	±2.0	22.4%	±3.1	N	N	9.7%	±3.5
$150,000 to $199,999	8.7%	±1.8	11.5%	±2.5	N	N	4.0%	±2.1
$200,000 or more	9.8%	±1.9	14.6%	±3.0	N	N	2.7%	±1.6
Median income (dollars)	74,527	±3,906	97,298	±7,732	110,387	±5,632	44,178	±5,539
Mean income (dollars)	96,813	±5,185	119,560	±7,852	N	N	60,562	±5,650

Income data for the State of Minnesota is in a separate, similar table on the ACS website.

[1] Copyright 2013, U.S. Conference of Mayors, American Water Works Association, and Water Environment Federation.

[2] https://data.census.gov/cedsci/table?q=S19&t=Income%20and%20Poverty&g=1600000US2754880&d=ACS%201-Year%20Estimates%20Subject%20Tables&tid=ACSST1Y2019.S1901&hidePreview=true

Note that households estimated in the ACS data are not linked to an address or parcel in the ACS database. Therefore, the City is not able to link individual income data with the individual water usage for each address.

RPU Metered Water Use Source Data

Rochester Public Utilities (RPU) handles the wastewater billing on behalf of Rochester's Public Works department.[3]

For the first three months of the year, the City's monthly wastewater charges are determined by the actual units of water used (winter water use is attributed to indoor water use with no outdoor water use). Monthly wastewater charges for April – December are determined by the average water usage during the months of January, February, and March.

Single Family metered water use for February 2020 was evaluated in detail to show the number of water meters, water use and monthly wastewater bills for various categories of water use. In February 2020, there were 36,230 active water meter accounts that used a total of 186,380 hundred cubic feet (Ccf) of water. Single Family metered water use (the proxy for wastewater discharge) was 4.84 CCF (129 gallons per day). The table below summarizes the number of water meters and wastewater discharge over 14 discharge levels ranging from zero to "12-13+" Ccf. A typical monthly wastewater bill is calculated for each discharge level using 2021 rates.

Table 1-2. City of Rochester February 2020 Single Family Wastewater Discharge and Monthly Bills

Wastewater Use (Ccf) Categories	gallons per day gpd	Meters				Wastewater Discharge, Ccf				Fixed Charge $19.00	Quantity Charge $4.16	Category Monthly Bill
		Category Count	Category Cumulative	Category Percent	Cumulative Percent	Category Count	Category Cumulative	Category Percent	Cumulative Percent			
0	0	664				0				$19.00	$0.00	$19.00
0-1	26	1,855	1,855	5%	5%	808	808	0.4%	0.4%	$19.00	$4.16	$23.16
1-2	52	3,461	5,316	10%	15%	5,359	6,167	3%	3%	$19.00	$8.32	$27.32
2-3	77	5,041	10,357	14%	29%	12,651	18,818	7%	10%	$19.00	$12.48	$31.48
3-4	103	5,637	15,994	16%	44%	19,645	38,463	11%	21%	$19.00	$16.64	$35.64
4-5	129	5,363	21,357	15%	59%	24,063	62,526	13%	34%	$19.00	$20.80	$39.80
5-6	155	4,269	25,626	12%	71%	23,374	85,900	13%	46%	$19.00	$24.96	$43.96
6-7	181	3,108	28,734	9%	79%	20,110	106,010	11%	57%	$19.00	$29.12	$48.12
7-8	206	2,207	30,941	6%	85%	16,485	122,495	9%	66%	$19.00	$33.28	$52.28
8-9	232	1,549	32,490	4%	90%	13,114	135,609	7%	73%	$19.00	$37.44	$56.44
9-10	258	1,034	33,524	3%	93%	9,786	145,396	5%	78%	$19.00	$41.60	$60.60
10-11	284	682	34,206	2%	94%	7,143	152,539	4%	82%	$19.00	$45.76	$64.76
11-12	310	493	34,699	1%	96%	5,662	158,201	3%	85%	$19.00	$49.92	$68.92
12-13 +	335+	1,531	36,230	4%	100%	28,179	186,380	15%	100%	$19.00	varies	varies

Proposed wastewater charges were developed based on estimated average Single Family wastewater discharge of 4.84 Ccf per month.

[3] Rochester Public Utilities (RPU) is a municipally-owned electric and water utility located in Rochester, MN. RPU serves over 57,000 electric customers and 41,000 water customers in a 60 square mile service area, and has revenues nearing $161 million annually. RPU operates under the direction of a five member, mayor-appointed Utility Board and under the Rochester City Council. As a cost of saving measure for the City or Rochester, RPU bills waste and storm water charges on behalf of Rochester's Public Works department.

Evaluation

Evaluation of Residential Monthly Wastewater Bills Based on 2021 Wastewater Charges

Residential monthly wastewater bills based on 2021 wastewater charges were evaluated using methods described in the EPA's Affordability Manual. The evaluation is summarized in the table below and in the following list of findings.

Table 1-3. Current (2021) Residential Monthly Wastewater Bill Affordability Evaluation

	Household income in the past 12 months (Inflation-Adjusted Dollars) *							
	Minnesota				City of Rochester			
	2019		2018		2019		2018	
Total Households	2,222,568		2,194,452		50,479		49,361	
Less than $10,000	4.1%	4%	4.4%	4%	2.7%	3%	4.7%	5%
$10,000 to $14,999	3.4%	8%	3.8%	8%	2.8%	6%	4.6%	9%
$15,000 to $24,999	6.5%	14%	7.3%	16%	5.8%	11%	8.0%	17%
$25,000 to $34,999	7.2%	21%	7.9%	23%	8.3%	20%	6.8%	24%
$35,000 to $49,999	11.3%	33%	12.1%	36%	12.3%	32%	12.9%	37%
$50,000 to $74,999	17.6%	50%	17.4%	53%	18.5%	50%	16.0%	53%
$75,000 to $99,999	14.5%	65%	13.8%	67%	12.9%	63%	14.6%	68%
$100,000 to $149,999	18.5%	83%	17.8%	85%	18.2%	82%	15.9%	84%
$150,000 to $199,999	8.3%	91%	7.7%	92%	8.7%	90%	8.1%	92%
$200,000 or more	8.5%	100%	7.6%	100%	9.8%	100%	8.5%	100%
Median income (dollars)	74,593		70,315		74,527		70,094	
Mean income (dollars)	96,995		93,047		96,813		96,055	

**Source: American Community Survey, Datasets ACSST1Y2019 and ACSST1Y2018, ACS 1-Year Estimates Subject Tables*

Disadvantaged Community Assessment			
Median Household Income (MHI)	2019	2018	2017
Statewide Minnesota Median Household Income	$74,593	$70,315	$68,388
Rochester Median Household Income	$74,527	$70,094	$75,464
Rochester MHI as a percentage of the State MHI	**99.9%**	**99.7%**	**110.3%**
	less than 80% is disadvantaged		

Affordability Assessment	2019	2018	2017
2021 Single Family Annual Average Wastewater Bill based on $39.13/mo.	$469.56	$469.56	$469.56
Annual Average Wastewater Bill as a % of Rochester MHI	**0.63%**	**0.67%**	**0.62%**
	LT or = 2% of MHI is considered affordable		

Estimated Mean Household Income and Hourly Wage at an Affordable Level of Wastewater Bills

The estimated Mean Household Income (MHI) and an Hourly Wage at the affordable level of wastewater bills (2 percent) was calculated using 2019 City of Rochester MHI and the current Annual Average Wastewater Bill. The 2019 City of Rochester MHI was $74,527 and the current Annual Average Wastewater Bill is $469.56 ($39.13/month X 12 months). The current Annual Average Wastewater Bill is 0.63 percent of the 2019 City of Rochester MHI.

The MHI that equates with the affordable level (2 percent) for the City's annual wastewater bill ($469.56) is approximately $23,478 ($469.56 / 2 percent). Using 2,080 work hours per year (52 weeks times 40 hours per week), the hourly wage would be approximately $11.29 per hour ($23,478 / 2,080 hours). This means that the proposed rates would be considered affordable for a residential customer with a MHI of $23,478 per year or more and producing the average amount of sewage.

Financial Support Programs

The Minnesota Department of Commerce's Energy Assistance Program is available to City of Rochester residents with low incomes that might have a difficult time paying all of their utility bills; including sewer bills. The program is implemented through Three Rivers Community Action. Interested residents can apply for water, sewer, and energy utility assistance within the same application. This process has been used for several years for energy and was recently expanded to include water and sewer.

Findings

Finding 1 – Mean Household Income. The MHI for the State of Minnesota and City of Rochester were obtained from the *United States Census Bureau American Community Survey (ACS) 1-Year Estimates Subject Tables* found on the United States Census Bureau website. MHI for the City of Rochester in 2019 and 2018 was nearly identical to that for the State of Minnesota (in 2017 it was about 10 percent greater than that for the State). Communities with MHI less than 80 percent of the State MHI may be considered disadvantaged. The City of Rochester is not considered disadvantaged based on Affordability Manual guidance.

Finding 2 – Average Monthly Wastewater Bill as Percentage of MHI. Monthly wastewater bills less than or equal to 2 percent of MHI are considered affordable for a community. The average Single Family home discharges 4.84 Ccf of wastewater per month. This equates to an average monthly bill of $39.13 and average annual bill of $469.56. That is 0.63 percent of the 2019 MHI ($74,527). The City of Rochester wastewater bills are considered affordable based on this analysis.

Finding 3 – Average Monthly Wastewater Bill at 2 percent of MHI. Monthly wastewater bills at 2 percent of 2019 MHI would equal approximately $124 per month ($74,527 x 2 percent ⁄ 12).

Finding 4 – Estimated Mean Household Income and Hourly Wage at an Affordable Level of Wastewater Bills. The MHI that equates with the affordable level (2 percent) for the City's annual wastewater bill ($469.56) is approximately $23,478 ($469.56 / 2 percent). Using 2,080 work hours per year (52 weeks times 40 hours per week), the hourly wage would be approximately $11.29 per hour ($23,478 / 2,080 hours). The proposed rates would be considered affordable for a residential customer with a MHI of $23,478 per year or more and producing the average amount of sewage.

Finding 5 – Financial Support Programs. The Energy Assistance Program, implemented through Three Rivers Community Action, has been expanded to include water and sewer utility bill assistance. Interested residents can apply for utility bill assistance through an existing program; therefore there is no need to create an additional standalone program.

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Appendix G: Request for Council Action (RCA) and Resolution 231-21 Approving the Wastewater Rates and Fees 2022-2027

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CITY OF ROCHESTER MINNESOTA

REQUEST FOR COUNCIL ACTION

2022-2027 WASTEWATER RATES AND FEES SCHEDULE

MEETING DATE:
November 1, 2021

ORIGINATING DEPT:
Public Works

AGENDA SECTION:
CONSENT AGENDA

PREPARED BY:
Aaron Luckstein

COUNCIL ACTION REQUEST
Adopting a Resolution approving the 2022 - 2027 Wastewater Rates and Fees Schedule.

COUNCIL PRIORITIES:
Economic Vibrancy and Growth Management
Quality Services for Quality Living
Affordable Living

POLICY CONSIDERATIONS:
The proposed rates and process is consistent with City policies and previous council actions related to the Wastewater Rates and Fees Study.

REPORT NARRATIVE:
In 2016, wastewater rates and fees were adopted to finance the sanitary sewer fund for a period of 2016 - 2021. This study is completed every six years. Between June and Sep. 2021, the City of Rochester, in conjunction with Municipal Financial Services analyzed the adequacy of revenue from rates to meet projected expenditures of the wastewater enterprise fund and developed a financial plan for 2022 - 2027. The analysis and financial plan is documented in the 2022 - 2027 Wastewater Rates and Fees Study, which is attached. The study evaluated changes in user wastewater characteristics, city growth patterns, capital improvement strategies, and other changes that affect the financing requirements of the sewer utility. The recommended residential fixed and quality charges for 2022 - 2027 are:

Charge	Unit of Service	2022	2023	2024	2025	2026	2027
Fixed Charge	$/month	$19.00	$19.10	$19.20	$19.30	$19.40	$19.50
Quantity Charge	$/Ccf	$4.19	$4.22	$4.26	$4.29	$4.32	$4.35

Ccf = One Hundred Cubic Feet

The recommended 2022 - 2027 Wastewater rates and fees and supporting information were introduced to City Council at the Sep. 20, 2021, study session. During the session, residential rate payer affordability and trunk sewer rates were discussed. An evaluation report was completed on sewer affordability and has been added as an addendum to the study. Adjustments were not made as a result of the evaluation. Further analysis of the trunk sewer rates were not conducted because those were established outside of the rate study process. The attached Resolution includes the rates and fees as originally presented at the Sep. 20, 2021, study session. The Resolution establishes the rates and fees schedule necessary for the financing requirements of the sewer utility from 2022 through 2027. The common council reviews and confirms the rates annually through the larger fee schedule adoption.

COMMUNITY ENGAGEMENT:

Community engagement was limited because the charges are calculated based on standards established by the Government Accounting Standards Board to ensure they are unbiased and proportional to the cost of the service attributable to each customer or customer class. The preliminary findings have been shared with the City Council, development community, and large wastewater permitted commercial and industrial businesses.

ALTERNATIVE ACTION(S):

An alternative action is to not approve this RCA. Public Works would then need to make adjustments based on feedback from the council to determine alternative rates and fees. Ideally, new rates should be approved in 2021.

PRIOR CITY COUNCIL AND COMMISSION ACTIONS:

Input provided at the Sep. 20, 2021, study session.

FISCAL AND RESOURCE IMPACT:

The proposed wastewater rates and fees were calculated to recover annual costs for the capital improvement program and the operation and maintenance of the City's wastewater utility.

ATTACHMENTS:

Resolution - 2022-2027 Wastewater Rate and Fees Schedule

Wastewater Rate Study Draft Report 20211015

RESOLUTION

Approving the Wastewater Rates and Fees 2022-2027.

WHEREAS, Section 12-6-2 of the Rochester Code of Ordinances authorizes the Common Council to establish by resolution a fixed and quantity charge, a high strength surcharge, a capital equalization charge, a residential charge, a monitoring and sampling charge, a hauled liquid waste charge and a plant investment fee for connection to and use of the City of Rochester wastewater infrastructure.

NOW, THEREFORE, BE IT RESOLVED by the Common Council of the City of Rochester that the City establish a fixed and quantity charge as follows:

TABLE 1 – FIXED AND QUANTITY SEWER CHARGE

Charge	Unit of Service	2022	2023	2024	2025	2026	2027
Fixed Charge	$/month	$19.00	$19.10	$19.20	$19.30	$19.40	$19.50
Quantity Charge	$/Ccf	$4.19	$4.22	$4.26	$4.29	$4.32	$4.35

Ccf = One Hundred Cubic Feet

BE IT FURTHER RESOLVED that the City establish a high strength surcharge as follows:

TABLE 2 – HIGH STRENGTH SURCHARGE

Charge	Unit of Service	2022	2023	2024	2025	2026	2027
Flow	$/Ccf	$1.91	$1.93	$1.94	$1.96	$1.97	$1.98
BOD	$/pound	$0.54	$0.55	$0.55	$0.56	$0.56	$0.57
TSS	$/pound	$0.43	$0.44	$0.44	$0.44	$0.45	$0.45
TP	$/pound	$5.98	$6.03	$6.09	$6.14	$6.19	$6.24
NH3-N	$/pound	$2.23	$2.25	$2.27	$2.28	$2.30	$2.31

BOD = 5 day Biochemical Oxygen DemandTSS = Total Suspended Solids
TP = Total Phosphorous NH3-N = Ammonia Nitrogen

BE IT FURTHER RESOLVED that the City establish a capital equalization charge by taking the fixed and quantity charge, and multiplying it by 1.50.

BE IT FURTHER RESOLVED that the City establish a residential charge as follows: For the months of January, February and March of a year, the residential charge will be based on actual water usage. For the balance of the calendar year, the residential charge will be based on the average monthly water usage for the period of January through March or on the actual usage, whichever is less. In the case of a dwelling that is not connected to the sanitary sewer system in the period of January through March of a calendar year, the monthly charge will be based upon a minimum of five billing units, 1 billing unit equals 1 Ccf. If during the months of January, February or March of a year usage is less than one billing

unit for a given month, the billing unit for that month will be increased to five billing units when calculating the average for the balance of the calendar year to account for buildings not in use during winter months but in use during the remainder of the year.

BE IT FURTHER RESOLVED that the City establish a monitoring, sampling, and analysis charge as follows:

TABLE 3 – MONITORING AND SAMPLING CHARGE

Charge	Unit of Service	2022	2023	2024	2025	2026	2027
Monthly Monitoring Charge	$/month	$980	$1,010	$1,040	$1,070	$1,100	$1,130
Sampling Charge	$/sample	$170	$180	$180	$190	$200	$200
Metals Analysis Charge	$/sample	$280	$290	$300	$300	$310	$320
Conventional Pollutants Analysis Charge	$/sample	$140	$150	$150	$150	$160	$160

BE IT FURTHER RESOLVED that the City establish hauled liquid waste charges as follows:

TABLE 4 – SEPTAGE, PORTABLE TOILET, AND FOG WASTE

Charge	Unit of Service	2022	2023	2024	2025	2026	2027
Portable Toilet Waste	$/1000 gallons	$123	$124	$125	$126	$127	$128
Fats, Oils and Greases	$/1000 gallons	$36	$37	$38	$39	$40	$41
Septage	$/1000 gallons	$123	$124	$125	$126	$127	$128

Hauled liquid waste is charged based on tank size regardless of hauled waste volume residing in tank. For wastes accepted by the manager as outlined in sewer ordinances that do not fall into the above categories and can be directly conveyed to solids treatment processes, an equation may be used to calculate disposal costs based on cost of treatment.

BE IT FURTHER RESOLVED that the City establish a plant investment fee (PIF) upon those developments and redevelopments that create the need for or increase the demands on the Water Reclamation Plant. The PIF shall be established as an Equivalent Residential Unit (ERU) as follows:

<u>Residential Units:</u>
Single family homes and structures with three or fewer dwelling units will be charged one Equivalent Residential Unit (ERU) PIF for each dwelling unit as follows:

TABLE 5 - ERU PIF FEES

Customer Class	Unit of Service	2022	2023	2024	2025	2026	2027
Residential PIF	Per connection	$3,750	$3,900	$4,050	$4,200	$4,350	$4,500

Multiple Dwelling Units (more than three):
Buildings containing more than three dwelling units will be charged 70% of the cost of one Equivalent Residential Unit PIF for each unit as defined in Table 6.

TABLE 6 - MULTIPLE DWELLING UNIT PIF FEES

Customer Class	Unit of Service	2022	2023	2024	2025	2026	2027
Multiple Dwelling Unit PIF	Per Unit	$2,650	$2,750	$2,850	$2,950	$3,050	$3,150

Non-residential Developments:
New and redeveloped non-residential developments that do not have a discharge permit from the Water Reclamation Plant will have a Plant Investment Fee based on the size of each installed water meter, excluding those designated by Rochester Public Utilities as being installed as irrigation meters. The PIF based on meter size will be as follows:

TABLE 7 - METER SIZE PIF FEES

Meter Size	Unit of Service	2022	2023	2024	2025	2026	2027
5/8“ X 3/4”	Per fixture unit	$177	$184	$192	$198	$206	$213
5/8” X 3/4”	Per connection	$5,650	$5,900	$6,150	$6,350	$6,600	$6,800
3/4 “	Per connection	$7,400	$7,650	$7,950	$8,250	$8,550	$8,850
1”	Per connection	$13,000	$13,600	$14,100	$14,600	$15,100	$15,700
1-1/2 “	Per connection	$22,700	$23,600	$24,500	$25,400	$26,300	$27,200
2”	Per connection	$36,900	$38,300	$39,800	$41,300	$42,800	$44,200
3” Plus	Per connection	$128,800	$133,900	$139,100	$144,200	$149,400	$154,500

Refer to Section 12-6-2 of the Rochester Code of Ordinances for additional information regarding residential and non-residential redevelopments, mixed use buildings, seasonal buildings, and structures established prior to January 1, 2005.

Permitted Non-residential Developments
This section applies only to the commercial and industrial developments that have industrial discharge permits with the Water Reclamation Plant that specify the allowable flows and loads that may be discharged. Table 8 shows the unit rates that will be used for determining the PIF:

TABLE 8 - INDUSTRIAL DISCHARGE PERMIT PIF FEES

Parameter	Unit of Service	2022	2023	2024	2025	2026	2027
Flow	$/Ccf/day	$6,240	$6,480	$6,730	$6,980	$7,230	$7,480
BOD	$/pound/day	$2,010	$2,090	$2,170	$2,250	$2,330	$2,410
TSS	$/pound/day	$950	$980	$1,020	$1,060	$1,100	$1,140
TP	$/pound/day	$26,480	$27,540	$28,600	$29,660	$30,710	$31,770
NH3-N	$/pound/day	$10,490	$10,910	$11,330	$11,750	$12,170	$12,590

BE IT FURTHER RESOLVED that the rates and fees outlined in this resolution are in effect starting the first day of January for each calendar year.

BE IT FURTHER RESOLVED that Resolution No. 521-15 is hereby rescinded and no longer in effect.

PASSED AND ADOPTED BY THE COMMON COUNCIL OF THE CITY OF ROCHESTER, MINNESOTA, THIS 1st DAY OF November, 2021.

PRESIDENT OF SAID COMMON COUNCIL

ATTEST: _____
CITY CLERK

APPROVED THIS 3rd DAY OF November, 2021.

MAYOR OF SAID CITY