

# Sanitary Sewer Rate Study



## 2025 Columbus Sanitary Sewer Rate Study

### Final Selected Alternative

*February 2025*

#### **PREPARED FOR:**

**City of Columbus**

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Columbus, WI 53925

#### **PREPARED BY:**

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## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY</b> .....	1
BACKGROUND AND PURPOSE.....	1
KEY FINDINGS.....	1
RATE STUDY METHODOLOGY SELECTED ALTERNATIVE (ALTERNATIVE 2).....	2
Revenue Requirements .....	3
Fixed & Volume Cost for 2024.....	3
Fixed Meter Charges for 2025.....	4
Volume Charges for 2025 .....	6
4.1 Fall River Volume Charge:.....	6
4.2 Elba Volume Charge.....	6
4.3 Waste Haulers Volume Charge .....	7
4.4 Columbus Volume Charge .....	8
Customer Analysis .....	10
Five-Year Forecast.....	11
NEIGHBORING MUNICIPALITIES RATES.....	13
SUMMARY AND RECOMMENDATIONS.....	13

## 2025 SANITARY SEWER RATE STUDY

### EXECUTIVE SUMMARY

#### BACKGROUND AND PURPOSE

**Background** – The City of Columbus Sewer Utility (Utility) furnishes sanitary sewer service to over 2,300 customers, along with service to the Village of Fall River, Elba Sanitary District 1, and waste haulers. The Utility is responsible for the capital cost and the operation and maintenance cost and activities involving the sanitary sewer collection system, lift stations and wastewater treatment plant.

**Purpose** – The purpose of this study is to review and either confirm or recommend changes to the Utility’s sewer rates. The City of Columbus sewer utility has seen increased operation and maintenance expenses since its last sewer update in 2018. Beyond the operation and maintenance cost increases, the utility also has numerous capital projects planned over the upcoming years. To provide funding for the necessary expenditures, a rate increase is needed to achieve a sustainable financial position. This report and the accompanying schedules describe the Utility’s 2025 revenue requirement and proposed sewer rates. Overall revenue for 2025 from sewer rates needs to increase by \$900,000 or 56 percent of revenue at present rates.

#### KEY FINDINGS

**Revenue Requirements and Projected Rates:** This study proposes fixed and volume rate changes for 2025 based on revenue and cash-flow needs projected in the 2024 City budget process. The sewer cost of service study is newly designed to provide a simple model that can easily be updated. It maintains historical rate practices.

**Revenues vs Debt Service:** Current sewer revenues are insufficient to meet the rising debt service obligations. Due to recent projects, debt service costs have increased to \$628,129 for 2024, with a projected additional increase of over \$150,000 in 2025 resulting from upcoming capital improvement projects. Similar increases in debt service are anticipated annually as more capital improvement projects are taken on. Additionally, combined residential and commercial revenue for 2024 is nearly 13% lower than in 2023, further underscoring the need for a review of the revenue structure.

**Alternative Solutions:** Six alternative solutions have been developed for the City to address the rate case, each presenting a unique approach to achieving the necessary revenue increases. While all alternatives require rate adjustments, they differ in how the increases are distributed among customer groups and the extent to which the capital improvement plan influences the adjustments. Alternative 2 was recommended since it provides the most balanced and equitable impact across all customers.

### RATE STUDY METHODOLOGY SELECTED ALTERNATIVE (ALTERNATIVE 2)

Alternative 2 was created for the City to evaluate the impact if the Village of Fall River and the Town of Elba were assigned a comparable volume charge rate to Columbus. To develop this alternative, we calculated the additional revenue Fall River and Elba would need to generate if Columbus maintained its current rate of \$6.34 per 100 cubic feet. This analysis resulted in proposed volume charge rates of \$5.90 per 100 cubic feet for both Fall River and Elba. Additional details on these proposed rates are provided in the schedules below.



Revenue Requirements

The starting point of our model is a balance sheet summarizing the City’s 2024 budgeted financials. Table 1 offers context and data for other parts of the model, including projected revenue and expenditures for the current year. It is a foundation for determining the necessity of a rate study, which is to provide for cash flows that enable your utility to pay for current operational and maintenance expenses along with principal and interest payments for capital projects. Table 1 below shows the budgeted income and cash flow for 2024. The utility is forecast to lose almost \$615,129 in cash this year in 2024. With no increase the city cash reserve would be depleted by 2026 without including planned debt service from future capital improvement projects.

**Table 1**

**Revenue Requirement**

Income		Cash	
<b>Revenue</b>		Cash Balance as of Jan 1, 2024	\$ 1,891,525
2024 Budgeted Revenue	\$ 1,628,106	Operating Income (Loss)	(487,011)
<hr/>		Depreciation	406,843
Subtotal	1,628,106	Interest Income	93,000
<b>Operations &amp; Maintenance Expenses</b>		Debt Service	(628,129)
Operation	1,708,274	<hr/>	
Depreciation	406,843	<b>Cash Flow</b>	<b>(615,297)</b>
<hr/>		Cash Balance as of Jan 1, 2025	\$ 1,276,228
Subtotal	2,115,117	Projected Income (Loss)	\$ 2,174,000
<b>Operating Income (Loss)</b>	<b>(487,011)</b>	Projected Cash Flow	\$ (615,297)
<b>Other Revenue (Expenses)</b>		Projected Cash Balance as of Jan 1, 2025	\$ 1,276,228
Interest Income	93,000		
Other Revenues	3,196,940	Cash Flow as % of Annual O&M	-29%
Debt Principal	(430,727)	Cash Balance as % of Annual O&M	60%
Debt Interest	(197,402)		
ISSUANCE/PREMIUM/PAYING AGENT	(800)		
<hr/>			
Subtotal	2,661,011		
<b>Income (Loss)</b>	<b>\$ 2,174,000</b>		

Fixed & Volume Cost for 2024

Table 2 presents the City’s estimated fixed charges for 2024. The fixed charges were set at the current debt service and the remainder of costs were variable (volume) charges.

**Table 2**

**Fixed and Variable Costs**

Adjustment (Fixed Portion Moved to Variable) = 0%

Fixed	Unadjusted	Adjustment	Adjusted
Debt Service	628,129	-	628,129
<b>Subtotal Fixed</b>	<b>628,129</b>	<b>-</b>	<b>628,129</b>
Variable	999,977	-	999,977
<b>Total Cost</b>	<b>\$ 1,628,106</b>		<b>\$ 1,628,106</b>

Fixed Meter Charges for 2025

Table 3 adjusts the monthly fixed meter charges until the total annual fixed revenue for 2023 aligns with the 2025 projected debt service. The projected debt service considers existing and projected debt from capital improvement projects. Our calculations indicate an increase of 56% in proposed rates per meter size to meet the City’s anticipated fixed costs. The total annual revenue from proposed meter charges of \$767,168 aligns closely with the 2025 projected debt service of \$782,611.

**Table 3**

**Fixed Charges**

**Monthly Fixed Charges**

Meter Size	Proposed	Current	Percent Change
5/8" \$	<b>26.68</b> \$	17.10	56.0%
3/4" \$	<b>26.68</b> \$	17.10	56.0%
1" \$	<b>35.88</b> \$	23.00	56.0%
1 1/2" \$	<b>51.48</b> \$	33.00	56.0%
2" \$	<b>68.64</b> \$	44.00	56.0%
3" \$	<b>110.76</b> \$	71.00	56.0%
4" \$	<b>171.60</b> \$	110.00	56.0%

**Revenue from Proposed Meter Charges**

Meter Size	Meter Count	Monthly	Annual
5/8"	10 \$	267 \$	3,201
3/4"	2,162 \$	57,674 \$	692,082
1"	59 \$	2,117 \$	25,403
1 1/2"	25 \$	1,287 \$	15,444
2"	18 \$	1,236 \$	14,826
3"	6 \$	665 \$	7,975
4"	4 \$	686 \$	8,237
<b>Total</b>	<b>2,284</b> \$	<b>63,931</b> \$	<b>767,168</b>

Volume Charges for 2025

4.1 Fall River Volume Charge:

For Table 4.1, the budgeted revenue for Fall River is disregarded. Instead, the projected revenue is calculated based on Fall River's provided volume and our determined rate of \$5.90 per 100 cubic feet. This calculation results in a total projected revenue of \$528,686 for Fall River, reflecting a 296% increase compared to the current rate being charged.

**Table 4.1**

<b>Fall River Volume Charges</b>		
Fall River Budgeted Valume Revenue 2024	\$	140,000.00
Fall River Budgeted Valume Revenue 2025	\$	196,000.00
Estimated Volume (cubic feet)		8960771.11
<b>Rate per 100 Cubic Feet</b>		
<b>Proposed</b>	\$	<b>5.90</b>
Current	\$	1.49
Change	\$	4.41
Change		296.0%
Projected Revenue with Proposed Rates		\$528,685.50

4.2 Elba Volume Charge

Similarly, to Fall River in Table 4.2, the budgeted revenue for Elba is disregarded. Instead, the projected revenue is calculated based on Elba's provided volume and our determined rate of \$5.90 per 100 cubic feet. This calculation results in a total projected revenue of \$39,039 for Elba, reflecting a 247% increase compared to the assumed current rate being charged. Based off data provided, it is unclear what volume rate is currently being charged to Elba, \$2.42 per 100 cubic feet is the rate proposed in the 2022 rate study.

Table 4.2

Elba Volume Charges		
Fall River Budgeted Volume Revenue 2024	\$	13,330.00
Fall River Budgeted Volume Revenue 2025	\$	18,662.00
Estimated Volume (cubic feet)		661680.85
Rate per 100 Cubic Feet		
<b>Proposed</b>	<b>\$</b>	<b>5.90</b>
Current	\$	1.70
Change	\$	4.20
Change		247.1%
Projected Revenue with Proposed Rates		\$39,039.17

4.3 Waste Haulers Volume Charge

This table remains the same as Alternative 1.

Table 4.3 calculates the total projected revenue for waste haulers. Assumptions that were made beyond what was discussed with the City are outlined below for clarity.

- Assumption of 4,500 gallons per truck.
- Assumption that the TSS test will not be done for low strength holding tank waste.
- Assumption that 5% of septage waste trucks will receive the TSS test.
- Assumption that 10% of trucks will receive Ortho P, TKN, or TSS multiplier.

At proposed rates, a total revenue from waste haulers of roughly 200,000 is projected for 2025. This is about a 100 percent increase from the 2024 budget of 100,000 for waste haulers. There is no real data from the City to back up the assumptions made above. With that being said, until real data can be recorded, the below revenues are mere estimates and are subjected to volatility.

Table 4.3

Waste Haulers Volume Charges

Holding Tank Waste		2025
Assumption on Total Volume (Gallons)		3005192
Assumption on Number of Trucks		667
<b>Testing Charges</b>		
Fixed Charge Per Truck (Gate Fee)		\$25.00
COD Test Per Truck		\$30.00
Ortho P Test Per Truck		\$15.00
TKN (Unfiltered) Test Per Truck		\$30.00
TSS Test Per Truck If Abnormal		\$15.00
Rate (\$/1000 Gal)		\$25.00
Proposed Revenue from Holding Tank		\$141,829.80
Septage Waste		2025
Assumption on Total Volume (Gallons)		600000
Assumption on Number of Trucks		133
<b>Testing Charges</b>		
Fixed Charge Per Truck (Gate Fee)		\$25.00
COD Test Per Truck		\$30.00
Ortho P Test Per Truck		\$15.00
TKN (Unfiltered) Test Per Truck		\$30.00
TSS Test Per Truck If Abnormal		\$15.00
High Strength Rate (\$/1000 Gal)		\$50.00
Industrial Strength Rate (\$/1000 Gal)		\$100.00
Assumption on Total Extra Charges For Industrial (Ortho P, TKN, and TSS Multipliers)		\$900.00
Assumption on Percentage of Septage High Strength		50.00%
Assumption on Percentage of Septage Industrial		50.00%
Proposed Revenue from Holding Tank		\$59,299.75
<b>Total Revenue from Waste Haulers</b>		<b>\$201,129.55</b>

4.4 Columbus Volume Charge

With fixed charges, Fall River, Elba, and waste hauler volume charges addressed, Table 4.4 focuses on determining volume-based charges related to variable costs for Columbus in 2025. Using the total 2025 revenue requirement from the five-year forecast, we subtract the projected revenue from fixed charges, Fall River volume charge, Elba volume charge, waste haulers volume charge, and the 2024 budgeted yearly sewer fees and connection fees. The estimated volume is based on 2022 data from sewer users and flows provided to us, 2022 was chosen as a conservative estimate for 2025 as it was the lowest annual flow from last three years. This results



in a proposed rate are per 100 cubic feet as shown. As shown on the next page, by raising Fall River and Elba rates to \$5.90 per 100 cubic feet, Columbus proposed rate for this alternate solution remains close to their current rate. Meaning no volume-based rate increase for Columbus residents would be necessary.

<b>Remaining Vairable Cost</b>	
Total 2025 Rev Requirement	\$2,539,845
<b>Deductions</b>	
Fixed Revenue From Meter Charges	\$767,168
Fall River Volume Charge	\$528,685
Elba Volume Charge	\$39,039
Waste Haulers Total Volume Charge	\$201,130
Sewer Fees From Budget	\$66,000
Sewer Connection Fees From Budget	\$5,000
<b>Total Remaining</b>	<b>\$932,822</b>

**Table 4.4**

<b>Columbus Volume Charges</b>	
Remaining Variable Cost	\$ 932,822
Estimated Volume (cubic feet)*	14,700,303
<b>Rate per 100 Cubic Feet</b>	
<b>Proposed</b>	<b>\$ 6.35</b>
Current	\$ 6.34
Change	\$ 0.01
Change	0.2%

Customer Analysis

The analysis in Table 5 presents sample bills to illustrate typical charges for customers with Alternative 2 rate structure. Currently, the demand increments are based on estimated average values, not specific to Columbus. To produce customer-specific examples, additional data would be necessary to evaluate on a per customer basis.

**Table 5**  
**Customer Bill Analysis**

<u>Customer Type</u>	<u>Meter Size</u>	<u>Demand (Per 100 Cubic Feet)</u>	<u>Bill with Current Rates</u>	<u>Bill with Proposed Rates</u>	<u>Increase</u>	
<b>Residential Rates</b>						
No Consumption	3/4"	-	\$ 17.10	\$ 26.68	\$ 9.58	56%
Small Residential	3/4"	2	\$ 29.81	\$ 39.41	\$ 9.60	32%
Average Residential	3/4"	4	\$ 42.53	\$ 52.14	\$ 9.62	23%
Large Residential	3/4"	7	\$ 59.48	\$ 69.12	\$ 9.64	16%
Large Residential	3/4"	11	\$ 84.90	\$ 94.59	\$ 9.68	11%
Large Residential	3/4"	13	\$ 101.85	\$ 111.56	\$ 9.71	10%
No Consumption	1"	-	\$ 23.00	\$ 35.88	\$ 12.88	56%
Small Residential	1"	2	\$ 35.71	\$ 48.61	\$ 12.90	36%
Average Residential	1"	4	\$ 48.43	\$ 61.35	\$ 12.92	27%
Large Residential	1"	7	\$ 65.38	\$ 78.32	\$ 12.95	20%
Large Residential	1"	11	\$ 90.80	\$ 103.79	\$ 12.99	14%
Large Residential	1"	13	\$ 107.75	\$ 120.77	\$ 13.01	12%

Table 5 (continued)

Customer Bill Analysis

Customer Type	Meter Size	Demand (Per 100 Cubic Feet)	Bill with Current Rates	Bill with Proposed Rates	Increase	
<b>Non-Residential Rates</b>						
Multi-family	2"	53	\$ 383.02	\$ 408.19	\$ 25.17	7%
Multi-family	2"	60	\$ 425.39	\$ 450.63	\$ 25.24	6%
Multi-family	2"	60	\$ 425.39	\$ 450.63	\$ 25.24	6%
Commercial	1 1/2"	17	\$ 138.94	\$ 157.59	\$ 18.65	13%
Commercial	1 1/2"	23	\$ 181.32	\$ 200.03	\$ 18.71	10%
Commercial	2"	33	\$ 255.88	\$ 280.86	\$ 24.97	10%
Commercial	3"	40	\$ 325.26	\$ 365.42	\$ 40.16	12%
Public Authority	2"	67	\$ 467.77	\$ 493.08	\$ 25.31	5%
Public Authority	3"	67	\$ 494.77	\$ 535.20	\$ 40.43	8%

Expenses and/or revenues may differ significantly from the forecast. The Village should revisit this forecast each year and adjust its planning as needed.

Five-Year Forecast

The five-year forecast in Table 6 projects the rate adjustments required annually to maintain a near-zero to slightly positive cash flow. The rest of the model is built around these increases. Part of this increases stems from capital improvement projects, which elevate fixed costs due to associated debt, thus increasing the required fixed income. The rest of the required income will be made up of the variable volume charges. We also assumed a year-after-year increase of 7% for operation expenses and 3% for depreciation. The overall revenue increase is shown in red, and the capital improvement plan is in yellow.

Table 6 -- Increases Every Second Year

	5 Year Forecast				
	2024	2025	2026	2027	2028
<b>Required Revenue Increase*</b>	<b>0%</b>	<b>56%</b>	<b>12%</b>	<b>23%</b>	<b>8%</b>
Revenue	\$ 1,628,106	\$ 2,539,845	\$ 2,844,626	\$ 3,498,890	\$ 3,778,801
Operation	-	-	-	-	-
Depreciation	1,708,274	1,827,853	1,955,803	2,092,709	2,239,198
Other O&M	406,843	419,048	431,620	444,568	457,905
Subtotal Expenses	2,115,117	2,246,901	2,387,422	2,537,277	2,697,104
<b>Operating Income (Loss)</b>	<b>(487,011)</b>	<b>292,943</b>	<b>457,204</b>	<b>961,613</b>	<b>1,081,697</b>
<b>Cash Adjustments</b>					
Depreciation	406,843	419,048	431,620	444,568	457,905
Interest Income	93,000	77,891	78,065	78,190	78,126
Debt Service	(628,129)	(782,611)	(961,688)	(1,487,024)	(1,599,757)
Transfer to Equipment Reserve	-	-	-	-	-
<b>Cash Flow</b>	<b>\$ (615,297)</b>	<b>\$ 7,272</b>	<b>\$ 5,201</b>	<b>\$ (2,653)</b>	<b>\$ 17,972</b>
<b>End-of-year Cash Balance</b>	<b>\$ 1,276,228</b>	<b>\$ 1,283,500</b>	<b>\$ 1,288,701</b>	<b>\$ 1,286,048</b>	<b>\$ 1,304,020</b>
<b>Cash Reserve as % O&amp;M</b>	<b>60%</b>	<b>57%</b>	<b>54%</b>	<b>51%</b>	<b>48%</b>

\* Required Revenue Increase from Fall River, Elba, Waste Haulers, Columbus Volume Charges and Colun

Debt Service	2024	2025	2026	2027	2028
Existing	\$ (628,129)	(622,644)	(626,778)	(546,528)	(511,500)
Forecast	\$ -	\$ (159,967)	\$ (334,910)	\$ (940,496)	\$ (1,088,257)
Total	\$ (628,129)	\$ (782,611)	\$ (961,688)	\$ (1,487,024)	\$ (1,599,757)
<b>Capital Improvement Plan</b>	<b>2,174,000</b>	<b>2,377,536</b>	<b>8,230,116</b>	<b>2,008,116</b>	<b>4,468,116</b>

The American Water Works Association (AWWA) provides guidance for utilities for cash balances. Although the AWWA does not offer a one-size-fits-all cash-reserve number for all utilities, it does list a full year's worth of operating expenses as a suitable general target.

Ruekert & Mielke (R/M) recommends a target cash balance for the City of 50 percent or more of its annual operation and maintenance (O&M) expenses. Because the City does maintain its own wastewater treatment facility, it does need a large cash balance compared to other utilities. The cash balance can be used as the sanitary sewer utility fund for other needs, such as emergency main replacements, unexpected shortfalls in revenue, and any other unforeseen issues. The proposed increases would enable the Utility to achieve this recommended target cash balance.

Expenses and/or revenues may differ significantly from the forecast. The Utility should revisit this forecast each year and adjust its planning as needed.

**NEIGHBORING MUNICIPALITIES RATES**

This is a table comparing City of Columbus’s proposed 2025 rates to its neighboring municipalities. All fixed and volume rates are taken directly from the respective municipalities website.

Meter Size	Beaver Dam	Marshall	Waterloo	Portage	Proposed Columbus	Average *
5/8"	\$ 28.35	\$ 12.48	\$ 15.00	\$ 14.44	\$ 26.68	\$ 17.57
3/4"	\$ 38.35	\$ 12.48	\$ 15.00	-	\$ 26.68	\$ 21.94
1"	\$ 43.05	\$ 21.84	\$ 35.05	\$ 33.75	\$ 35.88	\$ 33.42
1 1/2"	\$ 96.60	\$ 37.60	\$ 68.46	\$ 62.50	\$ 51.48	\$ 66.29
2"	\$ 165.90	\$ 56.30	\$ 108.57	\$ 81.25	\$ 68.64	\$ 103.01
3"	\$ 263.55	\$ 100.90	\$ 202.13	\$ 145.00	\$ 110.76	\$ 177.90
4"	\$ 508.20	-	\$ 335.79	\$ 237.50	\$ 171.60	\$ 360.50

\* Average is taken of Beaver Dam, Marshall, Waterloo, and Portage.

Volume Charge (\$ per 100 cubic feet)	Beaver Dam	Marshall	Waterloo	Portage	Proposed Columbus Alternative 1	Proposed Columbus Alternative 2
	\$ 2.71	\$ 10.49	\$ 12.75	\$ 5.63	\$ 8.75	\$ 6.34

**SUMMARY AND RECOMMENDATIONS**

R/M evaluated six alternatives based on feedback received from the Utility.

The selected alternative (Alternative 2) provides a volume-based rate structure for Fall River, Elba that is closer to volume charges being made by Columbus Rate Payers. The Utility in this alternative is still receiving an increase in fixed meter charges, whereas Columbus volume rates stayed the same. The proposed rate structure for both Fall River and Elba should be lower than the Utility as Columbus is paying for operation and maintenance expenses for their collection system. This rate structure appears the most just and reasonable.

Additional information would be needed for R/M to look further into this model:

The City's requirements for maintaining cash reserves as a percentage of O&M.

The maximum viable reduction to the CIP budget for the next few years.

This data will be essential for determining whether Alternative 2 is a realistic and sustainable option.

The Utility provided R/M with a proposed rate structure and septage volumes that are anticipated to be charged to waste haulers in 2025. R/M incorporated that into both models with the assumptions made (described above). This new rate structure will help reduce the impact of the rate increase for the Utility, Village of Fall River, and Elba Sanitary District. The estimates in the data provided for waste haulers presented a challenge in this study by not being able to calculate an accurate revenue estimate. The

estimates we used in this model reflect R/M's best efforts based on the information that is available. To enhance the accuracy of future rate studies, data related to waste haulers should begin to be recorded as soon as possible.