

Executive Report

Charter Township of Union, MI

Wastewater Cost of Service and Rate Design Report

July 21, 2020



**Specializing in Cost of Service,
Rate Design, and Financial Analysis**

Rate Design and Financial Analysis

Executive Summary	Page
Introduction	2
Wastewater Operation	
Utility Revenue Requirements	3
Revenue Forecast	7
Summary of Financial Position	8
Projected Rate Track	9
Cost of Service Results	10
Findings	12
Proposed Rate Design	13



July 21, 2020

Kim Smith
Charter Township of Union
Department of Public Services
5228 South Isabella Road
Mt Pleasant, MI 48858

Dear Ms. Smith,

We are pleased to present this executive summary report for a cost of service, financial projection and rate design study completed for the Charter Township of Union wastewater utility. This report was prepared to provide the utility with a comprehensive examination of its existing financials by an outside party.

The specific purposes of this long-term financial projection and rate study are:

- 1) Determine the wastewater utility's revenue requirements for 2021
- 2) Project rate adjustments needed to meet targeted revenue requirements
- 3) Determine the cost to serve retail customers
- 4) Develop one-year of retail rates

This report includes results of the cost of service, financial projection, and identifies future rate adjustments for the wastewater operation. Specific findings included in this report are:

- 1) Rate adjustments that are based on the utility's ability to work toward three factors listed below:
 - Debt Coverage Ratio
 - Minimum Cash Reserves
 - Optimal Operating Income
- 2) Rate adjustments are designed to work toward cost of service results.

This report is intended for information and use by management and the Board of Directors for purposes stated above and is not intended to be used by anyone except the specified parties.

Sincerely,

Dawn Lund

Utility Financial Solutions, LLC
Dawn Lund, Vice-President

UTILITY REVENUE REQUIREMENTS FOR 2021-2025

To determine revenue requirements, the revenues and expenses for Fiscal Year 2019 and Budget 2020 were analyzed, with adjustments made to reflect projected operating characteristics. **The projected financial statements are for cost of service purposes only.**

Table 1 is the projected financial statement for the wastewater utility from 2021-2025 without any rate changes. Operating income for 2021 is projected at \$110,632 and decreases throughout the projection period to a loss of (\$170,585) by 2025. The cash generated from operations is projected to decline from \$1.5 million to \$24,450. The debt coverage ratio improves starting in 2022 due to a portion of the debt being paid off.

Table 1 – Financial Projection Summary (without Rate Adjustments)

Fiscal Year	Projected Rate Adjustments	Projected Revenues	Projected Expenses	Adjusted Operating Income	Projected Cash Balances	Capital Improvements	Bond Issues	Debt Coverage Ratio
2021	0.00%	2,448,937	2,338,306	110,632	1,552,795	1,311,250	-	1.37
2022	0.00%	2,448,937	2,412,516	36,421	1,165,189	996,250	-	3.47
2023	0.00%	2,448,937	2,481,476	(32,539)	829,655	900,000	-	3.29
2024	0.00%	2,448,937	2,549,984	(101,047)	450,546	900,000	-	3.12
2025	0.00%	2,448,937	2,619,523	(170,585)	24,450	900,000	-	2.92
Target in 2021				\$ 872,878				
Target in 2025				\$ 969,603				
Minimum Target 2021					\$ 1,151,667	1.45		
Minimum Target 2025					\$ 1,229,176	1.45		

DEVELOPMENT OF FINANCIAL TARGETS

When evaluating rates to charge customers, three factors must be considered:

1. Debt Coverage Ratio
2. Minimum Cash Reserves
3. Optimal Net Income

Each of these factors is discussed below:

Debt Coverage Ratio - Table 2 is the projected debt coverage ratios with capital additions as provided by the utility. The minimum debt coverage ratio was established at 1.45. The current bonds are revenue bonds with a 1.25 requirement ratio. However, a 1.45 coverage ratio will help achieve the following:

- Helps to ensure the ratio will be met in years when sales are low due to cold/wet summers or loss of a major customer(s).
- Obtain higher bond rating and lower interest costs if revenue bonds are sold in the future.

Table 2 - Projected Debt Coverage Ratio (without Rate Adjustments)

Debt Coverage Ratio	Projected 2021	Projected 2022	Projected 2023	Projected 2024	Projected 2025
Add Net Income	\$ (17,755)	\$ (91,700)	\$ (161,608)	\$ (230,456)	\$ (300,716)
Add Depreciation Expense	768,381	803,343	832,074	859,347	886,620
Add Interest Expense	154,561	143,649	140,721	137,706	134,636
Cash Available for Debt Service	<u>\$ 905,187</u>	<u>\$ 855,293</u>	<u>\$ 811,187</u>	<u>\$ 766,597</u>	<u>\$ 720,540</u>
Debt Principal and Interest	\$ 658,561	\$ 246,649	\$ 246,721	\$ 245,706	\$ 246,636
Projected Debt Coverage Ratio (Covenants)	1.37	3.47	3.29	3.12	2.92
Minimum Debt Coverage Ratio	1.45	1.45	1.45	1.45	1.45

Debt Coverage Ratio improves in 2022 due to debt being paid off.

Minimum Cash Reserve Target – Table 3 is the minimum level of cash reserves required to help ensure timely replacement of assets and to provide financial stability of the wastewater utility. The methodology used to establish this minimum is based on certain assumptions related to a percentage of Operation & Maintenance expense, historical rate base, current debt service and capital improvements to be kept in cash reserves. Minimum cash reserve attempts to quantify the minimum amount of cash the utility should keep in reserve and is considered at critical levels if cash approaches this minimum.

Actual cash reserves may vary substantially above the minimum and is dependent on the life cycle of assets that are currently in service. If a minimum cash reserve policy is established, and the utility’s cash balance falls below the established amount, it should require the Board to take action to rebuild cash. The typical action includes a rate increase or the consideration of a bond issuance. Based on these assumptions, the Charter Township of Union should maintain a minimum of \$1.2 million in cash reserves.

Table 3 – Minimum Cash Reserves

<u>Minimum Cash Reserve Levels</u>	Projected 2021	Projected 2022	Projected 2023	Projected 2024	Projected 2025
Operation & Maintenance Less Depreciation Expense	\$ 1,569,924	\$ 1,609,173	\$ 1,649,402	\$ 1,690,637	\$ 1,732,903
Historical Rate Base	31,223,691	32,219,941	33,119,941	34,019,941	34,919,941
Current Portion of Debt Service Reserve	246,649	246,721	245,706	246,636	246,451
Five Year Capital Improvements - Net of bond proceeds	1,001,500	1,001,500	1,001,500	1,001,500	1,001,500
Minimum Cash Reserve Levels					
Operation & Maintenance Less Depreciation Expense	25.0%	25.0%	25.0%	25.0%	25.0%
Historical Rate Base	1%	1%	1%	1%	1%
Current Portion of Debt Service Reserve	100%	100%	100%	100%	100%
Five Year Capital Improvements - Net of bond proceeds	20%	20%	20%	20%	20%

	Percent Allocated	Projected 2021	Projected 2022	Projected 2023	Projected 2024	Projected 2025
Operation & Maintenance Less Depreciation Expense	25%	\$ 392,481	\$ 402,293	\$ 412,350	\$ 422,659	\$ 433,226
Historical Rate Base	1%	312,237	322,199	331,199	340,199	349,199
Current Portion of Debt Service Reserve	100%	246,649	246,649	245,706	246,636	246,451
Five Year Capital Improvements - Net of bond proceeds	20%	200,300	200,300	200,300	200,300	200,300
Recommended Minimum Cash Reserve Levels		\$ 1,151,667	\$ 1,171,442	\$ 1,189,556	\$ 1,209,795	\$ 1,229,176
Projected Cash Reserves		\$ 1,552,795	\$ 1,165,189	\$ 829,655	\$ 450,546	\$ 24,450

Cash reserves are below minimum targets starting in 2022.

Optimal operating income targets - The optimal target for setting rates is the establishment of a target operating income to help ensure the following:

- 1) Funding of Interest Expense on the outstanding principal on debt. Interest expense is below the operating income line and needs to be recouped through the operating income balance.
- 2) Funding of the inflationary increase on the assets invested in the system. The inflation on the replacement of assets invested in the utility should be recouped through the Operating Income
- 3) Adequate rate of return on investment to help ensure current customers are paying their fair share of the use of the infrastructure and not deferring the charge to future generations.

As improvements are made to the system, the optimal operating income target will increase unless annual depreciation expense is greater than yearly capital improvements. The target established for 2021 is \$872,878 and increases to \$969,603 in 2025. This equates to approximately a 5.0% rate of return. The system is projected to operate at a loss by 2023.

Table 4 - Optimal Operating Income Targets Compared to Projected

	Percent Allocated	Projected 2021	Projected 2022	Projected 2023	Projected 2024	Projected 2025
Outstanding Principal on Debt	3.1%	154,561	143,649	140,721	137,706	134,636
System Equity	5.6%	718,317	750,158	778,348	806,575	834,967
Target Operating Income		\$ 872,878	\$ 893,807	\$ 919,069	\$ 944,281	\$ 969,603
Projected Adjusted Operating Income		\$ 110,632	\$ 36,421	\$ (32,539)	\$ (101,047)	\$ (170,585)
Rate of Return in %		4.9%	4.9%	5.0%	5.2%	5.3%

Operating Income is not being met throughout the projection period.

REVENUE FORECAST

Sales were projected and adjusted for known or anticipated changes in customer usage and a growth for the projection period. Below are projections of billed units, REUs and number of customers for 2021.

TABLE 5 – PROJECTED BILLED UNITS

Meter Size	Projected 2021 Yearly Million Gallons
ALL	417,110
Total Gallons	417,110

TABLE 6 – REUS

	Projected 2021
Projected Number of REUS	6297

TABLE 6B – PROJECTED NUMBER OF CUSTOMERS

Meter Size	Projected 2021 Number of Customers
5/8"	1,390
3/4"	-
1"	185
1.5"	10
2"	139
3"	6
4"	5
6"	2
8"	10

SUMMARY OF FINANCIAL POSITION

Revenue Requirement and COS Rate Adjustment

To maintain the financial health and work toward operating income targets, a series of rate adjustments from 2021-2025 should be considered.

Operating income of \$110,632 is projected for 2021 and below the targeted operating income of \$872,878 without rate adjustments. Cash reserves are projected at \$1.5 million in 2021 and declines to \$24,450 in 2025. Table 7 is a financial projection summary without rate adjustments.

Table 7 – Financial Projection Summary (without Rate Adjustments)

Fiscal Year	Projected Rate Adjustments	Projected Revenues	Projected Expenses	Adjusted Operating Income	Projected Cash Balances	Capital Improvements	Bond Issues	Debt Coverage Ratio
2021	0.00%	2,448,937	2,338,306	110,632	1,552,795	1,311,250	-	1.37
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2024	0.00%	2,448,937	2,549,984	(101,047)	450,546	900,000	-	3.12
2025	0.00%	2,448,937	2,619,523	(170,585)	24,450	900,000	-	2.92
Target in 2021				\$ 872,878				
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Minimum Target 2021					\$ 1,151,667	1.45		
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PROJECTED RATE TRACK

Increasing rates requires balancing the financial health of the utility with the financial impact on customers and cost of service results. Table 8 below is the financial projection summary with projected rate increases of 5.1% in 2021 through 2025. The rate track was developed to stabilize operating income and the cash balance as well as meet the SAW grant requirements as established by EGLE. The Township received a SAW grant and the requirements are that the utility close any gap within the current budget within a 5-year period. The rate track closes the gap in the fifth year as shown in Table 8B. Should the utility not approve a rate plan following requirements, it could trigger the need to pay back the grant. The rate track should be reviewed annually as changes in revenues, expenses and capital can impact the rate track and bonding requirements.

Table 8 – Financial Projection Summary (with Proposed Rates)

Fiscal Year	Projected Rate Adjustments	Projected Revenues	Projected Expenses	Adjusted Operating Income	Projected Cash Balances	Capital Improvements	Bond Issues	Debt Coverage Ratio
2021	5.10%	2,572,127	2,338,306	233,821	1,675,985	1,311,250	-	1.56
2022	5.10%	2,701,599	2,412,516	289,083	1,542,272	996,250	-	4.50
2023	5.10%	2,837,675	2,481,476	356,198	1,599,247	900,000	-	4.88
2024	5.10%	2,980,690	2,549,984	430,706	1,759,587	900,000	-	5.32
2025	5.10%	3,130,999	2,619,523	511,476	2,028,643	900,000	-	5.74
Target in 2021				\$ 872,878				
Target in 2025				\$ 969,603				
Minimum Target 2021					\$ 1,151,667			
Minimum Target 2025					\$ 1,229,176			

Table 8B – Financial Projection Summary (with Proposed Rates) Meeting SAW Grant Requirements

Charter Township of Union						
Wastewater Department						
Revenue Gap Rate Plan						
	Current 2020	Fiscal Year 2021	Fiscal Year 2022	Fiscal Year 2023	Fiscal Year 2024	Fiscal Year 2025
Revenue Gap From 2020	\$ (672,433)					
Revenue From Increase		\$ 123,190	\$ 129,472	\$ 136,075	\$ 143,015	\$ 150,309
Cummulative Revenue Gap	\$ (672,433)	\$ (549,243)	\$ (419,771)	\$ (283,696)	\$ (140,680)	\$ 9,629
Rate Increase		5.1%	5.1%	5.1%	5.1%	5.1%
Proposed Rates:						
Monthly Billed QRTLY						
REU	\$ 95.90	\$ 100.79	\$ 105.93	\$ 111.33	\$ 117.01	\$ 122.98
First Year Recovery		18.3%				

COST OF SERVICE RESULTS

The purpose of a cost of service study is to allocate costs between flow (Commodity Costs) and customer service costs (Customer Costs). The cost of service study was based on recognized procedures from the American Public Works Association.

Commodity Costs are costs that tend to vary with the quantity of wastewater treated, as well as costs associated with the collection system.

Customer Costs are costs associated with serving customers regardless of their usage or demand characteristics. Customer costs include the operation and maintenance expenses related to meters and services, meter reading costs, billing and collection costs. The customer costs were allocated based on the relative size of water meters and services and the number of customers.

Table 9 compares the Charter Township of Union’s current customer and commodity charges with the results of the cost of service analysis.

Table 9 – Comparison of Current Customer Rates with Actual Cost of Service

Meter Size	Current Quarterly Meter Charges (per REU)	Cost of Service Quarterly Charges (per Meter Size)
5/8"	\$ 95.90	\$ 74.20
1"		185.49
1.5"		370.98
2"		593.57
3"		1,112.94
4"		1,854.89
6"		3,709.79
8"		5,935.66
Meter size	Current Quarterly Cost	Cost of Service Average Cost (1000 Gallons)
All	\$ -	\$ 4.690

SIGNIFICANT ASSUMPTIONS

This section outlines the procedures used to develop the cost of service and rate design for the Wastewater Utility and the related significant assumptions.

Forecasted Operating Expenses

Forecasted expenses were based on 2019 actual and Budget 2020 and adjusted for inflation.

Inflation

Inflation was assumed at 2.5% annually.

Depreciation Expense

Depreciation expense was projected based on historical capital additions and discussions with management on future capital additions.

Interest Income

Interest income was forecasted based on projected cash balances and an interest rate of 1.0%.

Capital Improvements

The capital improvement projections were provided by the Charter Township of Union. Projections for 2021-2025 are listed below:

Year	Projected Capital Improvements
2021	1,311,250
2022	996,250
2023	900,000
2024	900,000
2025	900,000

WASTEWATER OPERATION FINDINGS

- For the Charter Township of Union to maintain long-term financial targets of the wastewater utility, rate increases should be considered. Below is a summary of the financial projection with proposed rate increases of 5.1% in 2021-2025. The rate track should improve targeted operating income and maintain cash balances as well as meet EGLE requirements under the SAW grant. The rate track should be reviewed annually to ensure it is sufficient as changes in revenues, expenses and capital can affect the rate track and bonding requirements.

Fiscal Year	Projected Rate Adjustments	Projected Revenues	Projected Expenses	Adjusted Operating Income	Projected Cash Balances	Capital Improvements	Bond Issues	Debt Coverage Ratio
2021	5.10%	2,572,127	2,338,306	233,821	1,675,985	1,311,250	-	1.56
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2025	5.10%	3,130,999	2,619,523	511,476	2,028,643	900,000	-	5.74
Target in 2021				\$ 872,878				
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Minimum Target 2021					\$ 1,151,667			1.45
Minimum Target 2025					\$ 1,229,176			1.45

Proposed Rate Design and Impacts

Projected Rate Design vs Current Rates – 5.1% Rate Increase

Current Rate Design

Description	Number of REU	O&M Charge	Capital Charge
All REU	6,297	\$ 52.45	\$ 43.45

Year One Proposed Rate Design

The following rates would be the first-year rate design under a new proposed rate structure. It will take time to work toward the cost of service rates listed on page 10. We recommend slow movement with yearly incremental rate designs.

Meter Size	Quarterly Rate	Rate Usage	Min Usage	Max
5/8	\$ 35.90	\$ 4.00	60,000	75,000
3/4	35.90			
1	35.90			
1 1/2	71.80			
2	114.88			
3	215.40			
4	359.00			
6	718.00			
8	1,148.80			
10	1,651.40			