

Executive Report

Allendale Charter Township, MI

Water Cost of Service and Rate Design Report

September 6, 2019



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

Rate Design and Financial Analysis



September 6, 2019

Chad E Doornbos
Superintendent of Public Utilities
Allendale Charter Township
6676 Lake Michigan Drive
Allendale, MI 49401

Dear Mr. Doornbos,

We are pleased to present this executive summary report for a cost of service, financial projection and rate design study completed for Allendale Charter Township, MI water 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 study are:

- 1) Determine the water utility's revenue requirements for 2020
- 2) Recommend 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 recommendations on future rate adjustments for the water operation. Specific recommendations included in this report are:

- 1) Rate adjustments that are based on the utility's ability to work toward three factors listed below:
 - a. Debt Coverage Ratio
 - b. Minimum Cash Reserves
 - c. Optimal Operating Income
- 2) Rate adjustments are designed to work toward cost of service results.
 - a. A comparison of current and proposed rates and the impact to rate payers is included

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

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Allendale Charter Township, MI
Water Operation

Utility Revenue Requirements

The utility currently has combined financial statements for water and wastewater. This report separates the water department as its own enterprise fund for rate determination purposes. To determine revenue requirements, the revenues and expenses for Fiscal Year 2018 and Budget 2019 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 water operation from 2020-2025; with 2020 being the test year. The operating income is projected at \$169,210 for 2020. The cash generated from operating income is currently not enough to fund the recommended target of \$596,287 or the capital improvement program.

Table 1 – Financial Statements (without rate adjustments)

Fiscal Year	Projected Rate Adjustments	Projected Revenues	Projected Expenses	Adjusted Operating Income	Operating Cash Balance	Capital Improvements	Bond Issues	Debt Coverage Ratio
2020	0.0%	2,633,492	2,543,106	169,210	757,674	1,240,000	-	1.47
2021	0.0%	2,686,162	2,617,602	147,383	1,046,876	-	-	2.19
2022	0.0%	2,889,885	2,691,529	277,180	379,868	1,105,000	-	2.81
2023	0.0%	2,947,683	2,766,972	259,535	814,610	-	-	2.80
2024	0.0%	3,006,637	2,835,030	250,430	736,396	515,000	-	2.82
2025	0.0%	3,066,770	2,930,519	215,075	(537,466)	1,705,000	-	2.77
Recommended Target 2020				\$ 596,287	\$ 1,280,922			1.45
Recommended Target 2025				\$ 718,070	\$ 1,354,060			1.45

Projected Operating Income and Cash Balances are below the recommended minimum throughout the projection period.



KEY TARGETS:

Projected Cash Flow

Table 2 is the projected cash flow for 2020-2025, including projections of capital improvements as provided by the Utility. Changes in the capital improvement plan can greatly affect the cash balance and recommended minimum cash reserve target. The cash balance for 2020 is projected at \$757,674.

Table 2 - Projected Cash Flows (without rate adjustments)

Projected Cash Flows	Projected 2020	Projected 2021	Projected 2022	Projected 2023	Projected 2024	Projected 2025
Add Net Income	\$ 54,514	\$ 34,504	\$ 171,552	\$ 156,560	\$ 155,801	\$ 126,517
Add Back Depreciation Expense	440,910	459,698	476,440	493,182	500,985	534,622
Subtract Debt Principal	322,087	205,000	210,000	215,000	220,000	230,000
Add Bond Sale Proceeds	-	-	-	-	-	-
Cash Available from Operations	\$ 173,337	\$ 289,202	\$ 437,992	\$ 434,742	\$ 436,786	\$ 431,139
Estimated Annual Capital Additions	1,240,000	-	1,105,000	-	515,000	1,705,000
Net Cash From Operations	\$ (1,066,663)	\$ 289,202	\$ (667,008)	\$ 434,742	\$ (78,214)	\$ (1,273,861)
Beginning Cash Balance	1,824,337	757,674	1,046,876	379,868	814,610	736,396
Ending Cash Balance	\$ 757,674	\$ 1,046,876	\$ 379,868	\$ 814,610	\$ 736,396	\$ (537,466)
Total Cash Available	757,674	1,046,876	379,868	814,610	736,396	(537,466)
Recommended Minimum	1,280,922	1,286,969	1,304,065	1,310,114	1,326,212	1,354,060

Projected Cash Balances are below recommended minimum throughout the projection period.

Minimum Cash Reserve

Table 3 is the minimum level of cash reserves required to help ensure timely replacement of assets and to provide financial stability of the water utility. The methodology used to establish this minimum is based on certain assumptions related to a percentage of operating expense, historical investment, capital improvements, and debt service 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 will 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, Allendale Charter Township should maintain a minimum of \$1.3 million in cash reserves.

Table 3 – Minimum Cash Reserves for 2020-2025

	Percent Allocated	Projected 2020	Projected 2021	Projected 2022	Projected 2023	Projected 2024	Projected 2025
Operation & Maintenance Less Depreciation Expense	12.3%	\$ 258,570	\$ 265,422	\$ 272,456	\$ 279,676	\$ 287,087	\$ 294,695
Historical Rate Base	1%	207,508	207,508	218,558	218,558	223,708	240,758
Current Portion of Debt Service Reserve	100%	242,844	242,039	241,051	239,879	243,416	246,607
Five Year Capital Improvements - Net of bond proceeds	20%	572,000	572,000	572,000	572,000	572,000	572,000
Recommended Minimum Cash Reserve		\$ 1,280,922	\$ 1,286,969	\$ 1,304,065	\$ 1,310,114	\$ 1,326,212	\$ 1,354,060
Projected Cash Reserves		\$ 757,674	\$ 1,046,876	\$ 379,868	\$ 814,610	\$ 736,396	\$ (537,466)

Projected Cash Balances are below recommended minimum throughout the projection period.

Debt Coverage Ratio

Table 4 is the projected debt coverage ratios with capital additions as provided by Allendale Charter Township. The minimum recommended debt coverage ratio was established at 1.25. The current bonds are revenue bonds with a 1.25 requirement ratio. However, we recommend a 1.45 coverage ratio to help achieve the following:

- Helps to ensure adequate funds are available to meet debt service payments in years when sales are low due to cold or wet summers or loss of a major customer(s).
- Obtain higher bond rating, if revenue bonds are sold in the future, to lower interest cost.

Table 4 – Projected Debt Coverage Ratios:

<u>Debt Coverage Ratio</u>	<u>Projected 2020</u>	<u>Projected 2021</u>	<u>Projected 2022</u>	<u>Projected 2023</u>	<u>Projected 2024</u>	<u>Projected 2025</u>
Add Net Income	\$ 54,514	\$ 34,504	\$ 171,552	\$ 156,560	\$ 155,801	\$ 126,517
Add Depreciation Expense	440,910	459,698	476,440	493,182	500,985	534,622
Add Interest Expense	44,994	37,844	32,039	26,051	19,879	13,416
Cash Available for Debt Service	\$ 540,417	\$ 532,046	\$ 680,031	\$ 675,793	\$ 676,665	\$ 674,555
Debt Principal and Interest	\$ 367,081	\$ 242,844	\$ 242,039	\$ 241,051	\$ 239,879	\$ 243,416
Projected Debt Coverage Ratio (Covenants)	1.47	2.19	2.81	2.80	2.82	2.77
Minimum Debt Coverage Ratio	1.45	1.45	1.45	1.45	1.45	1.45

The Debt Coverage Ratio is sufficient throughout the projection period.

Rate of Return

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

- A. 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.
- B. 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
- C. 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 2020 is \$596,287 and increases to \$718,070 in 2025. This equates to approximately a 4.5% rate of return.

Table 5 - Rate of Return Calculation

	Percent Allocated	Projected 2020	Projected 2021	Projected 2022	Projected 2023	Projected 2024	Projected 2025
Effective Interest Expense	3.9%	\$ 44,994	\$ 37,844	\$ 32,039	\$ 26,051	\$ 19,879	\$ 13,416
Contributed Capital Estimated	2.4%	56,516	58,484	58,799	60,973	62,344	61,690
Inflationary Increase on Assets	4.9%	494,777	499,193	544,279	549,816	574,724	642,964
Target Operating Income		\$ 596,287	\$ 595,520	\$ 635,117	\$ 636,840	\$ 656,948	\$ 718,070
Projected Adjusted Operating Income		\$ 169,210	\$ 147,383	\$ 277,180	\$ 259,535	\$ 250,430	\$ 215,075
Rate of Return in %		4.4%	4.5%	4.6%	4.8%	4.9%	4.9%

Rate of Return falls below recommended minimum throughout the projection period

REVENUE FORECAST

Sales were projected based on number of meters and 1,000 gallons billed.

Table 6 – Number of Meters and 1,000 Gallons Billed

Customer Class	Projected 2020
5/8	1,306
3/4	1,162
1	375
1.5	249
2	119
3	22
4	12
6	6
8	1
Total	3,252
Meter Size	Units Projected 2020
All	585,831
Total 1000 Gallons	585,831

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 2020-2025 should be considered.

An operating income of \$169,210 is projected for 2020 and below the targeted operating income of \$596,287 without rate adjustments. Cash reserves are projected at \$757,674 in 2020 and below the targeted cash reserves of \$1.3 million. Cash balances turn negative in 2025. Recommended debt coverage ratios are sufficient throughout the projection period. Table 7 is a financial projection without rate adjustments.

Table 7 – Financial Summary Without Rate Adjustments

Fiscal Year	Projected Rate Adjustments	Projected Revenues	Projected Expenses	Adjusted Operating Income	Operating Cash Balance	Capital Improvements	Bond Issues	Debt Coverage Ratio
2020	0.0%	2,633,492	2,543,106	169,210	757,674	1,240,000	-	1.47
2021	0.0%	2,686,162	2,617,602	147,383	1,046,876	-	-	2.19
2022	0.0%	2,889,885	2,691,529	277,180	379,868	1,105,000	-	2.81
2023	0.0%	2,947,683	2,766,972	259,535	814,610	-	-	2.80
2024	0.0%	3,006,637	2,835,030	250,430	736,396	515,000	-	2.82
2025	0.0%	3,066,770	2,930,519	215,075	(537,466)	1,705,000	-	2.77
Recommended Target 2020				\$ 596,287	\$ 1,280,922			1.45
Recommended Target 2025				\$ 718,070	\$ 1,354,060			1.45

PROPOSED 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 six-year financial projection with recommended rate increases of 3.5% every year from 2020 through 2025. The rate track was developed to move toward the operating income and cash balance, while maintaining debt coverage ratios targets. 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 Summary With Proposed Rates

Fiscal Year	Projected Rate Adjustments	Projected Revenues	Projected Expenses	Adjusted Operating Income	Operating Cash Balance	Capital Improvements	Bond Issues	Debt Coverage Ratio
2020	3.5%	2,716,839	2,543,106	252,556	841,020	1,240,000	-	1.70
2021	3.5%	2,859,164	2,617,602	320,385	1,303,641	-	-	2.91
2022	3.5%	3,159,237	2,691,529	546,532	907,268	1,105,000	-	3.93
2023	3.5%	3,320,486	2,766,972	632,338	1,717,450	-	-	4.36
2024	3.5%	3,490,421	2,835,030	734,215	2,127,535	515,000	-	4.86
2025	3.5%	3,669,522	2,930,519	817,827	1,463,381	1,705,000	-	5.28
Recommended Target 2020				\$ 596,287	\$ 1,280,922			1.45
Recommended Target 2025				\$ 718,070	\$ 1,354,060			1.45

- Operating Income and Projected Cash Balance improve and are within an acceptable range by the end of the projection period. Debt Coverage Ratio are maintained and are within acceptable ranges.

COST OF SERVICE COMPONENTS WATER OPERATION

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 Water Works Association.

Commodity Costs are costs that tend to vary with the quantity of water used, as well as costs associated with purchasing, pumping and distributing water to customers. Commodity costs include water purchase/treatment costs plus pumping stations and transmission lines.

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 on the basis of the relative cost of meters and services and the number of customers.

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

Table 9 – Comparison of Current Customer Service Charge with Cost of Service

Meter Size	COS Quarterly Customer Charge	Current Quarterly Customer Charge
5/8"	\$ 40.06	\$ 10.20
3/4"	55.44	15.30
1"	87.01	25.50
1.5"	179.31	51.00
2"	276.12	76.50
3"	502.13	127.50
4"	835.51	204.00
6"	1,604.70	255.00
8"	2,527.73	306.00
Overall Commodity	\$ 3.02	\$ 3.59

These rates are not recommended in the first-year rate design, but could be worked toward over time. The results show that any increase in the future should be put on the fixed quarterly charge to the extent possible, while watching the impacts to customers by meter size.

SIGNIFICANT ASSUMPTIONS

This section outlines the procedures used to develop the cost of service study for Allendale Charter Township and the related significant assumptions.

Forecasted Operating Expenses

Forecasted expenses were based on 2018 actual and Budget 2019 and adjusted for inflation.

Inflation

Inflation was assumed at 2.65% annually.

Growth

Growth on sales was projected at 2.0%

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 0.50%.

Capital Improvements and recommended bonds

The capital improvement projections were provided by Allendale Charter Township. Projections for 2020-2025 are listed below:

Fiscal Year	Projected Capital Improvement
2020	1,240,000
2021	-
2022	1,105,000
2023	-
2024	515,000
2025	1,705,000

WATER OPERATION FINDINGS:

1. For Allendale Charter Township to maintain long-term financial targets of the water utility, rate increases should be considered. Below is a summary of the six-year financial projection with proposed rate increases of 3.5% in 2020-2025. This rate track will improve targeted operating income and targeted cash balances. The rate track should be reviewed annually 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	Operating Cash Balance	Capital Improvements	Bond Issues	Debt Coverage Ratio
2020	3.5%	2,716,839	2,543,106	252,556	841,020	1,240,000	-	1.70
2021	3.5%	2,859,164	2,617,602	320,385	1,303,641	-	-	2.91
2022	3.5%	3,159,237	2,691,529	546,532	907,268	1,105,000	-	3.93
2023	3.5%	3,320,486	2,766,972	632,338	1,717,450	-	-	4.36
2024	3.5%	3,490,421	2,835,030	734,215	2,127,535	515,000	-	4.86
2025	3.5%	3,669,522	2,930,519	817,827	1,463,381	1,705,000	-	5.28
Recommended Target 2020				\$ 596,287	\$ 1,280,922			1.45
Recommended Target 2025				\$ 718,070	\$ 1,354,060			1.45

- Any approved rate increase should be placed on the customer charge to the extent possible while watching the impacts to customers by meter size. It may take several years to move closer to cost of service and recover the relative fixed costs of the system. If the Board chooses a phase-in approach, it will be important to stay committed to the plan. The rate design should work towards cost of service, while phasing-in increases to customers.
- The financial projection revenue, expenses and cash flow should be updated annually with the budget process to determine if rate track is on target. Any changes in revenues, expenses and capital improvements can greatly affect the rate track and bonding requirements.

Rate Design and Impacts

Projected Rate Design vs Current Design – 3.5% Rate Increase

Summary Current vs Proposed Water Rates				
			Total Current Quarterly Customer Charge	Total Proposed Quarterly Customer Charge
	Meter Size			
	5/8"		\$ 10.20	\$ 12.00
	3/4"		\$ 15.30	\$ 18.00
	1"		\$ 25.50	\$ 30.00
	1.5"		\$ 51.00	\$ 60.00
	2"		\$ 76.50	\$ 90.00
	3"		\$ 127.50	\$ 145.00
	4"		\$ 204.00	\$ 230.00
	6"		\$ 255.00	\$ 290.00
	8"		\$ 306.00	\$ 350.00
Current Commodity Rate			\$ 3.59	
Proposed Commodity Rate				\$ 3.65
Overall Revenue Increase on Water Sales				3.5%

Rate Design and Impacts

Rate Design by Meter Size Continued – 3.5% Rate Increase.....

5/8"	Current Rates	Proposed Rates			
Customer Service Charge	\$ 10.20	\$ 12.00			
Commodity Rate /1000 Gallons	3.59	3.65			
Quarterly Usage Level in 1000 Gallons	Current Rates	Proposed Rates	Dollar Impact	Monthly Impacts	Percent Change
12.00	\$ 53.28	\$ 55.80	\$ 2.52	\$ 0.84	4.73%
18.00	74.82	77.70	2.88	0.96	3.85%
24.00	96.36	99.60	3.24	1.08	3.36%
30.00	117.90	121.50	3.60	1.20	3.05%
36.00	139.44	143.40	3.96	1.32	2.84%
3/4"	Current Rates	Proposed Rates			
Customer Service Charge	\$ 15.30	\$ 18.00			
Commodity Rate /1000 Gallons	3.59	3.65			
Quarterly Usage Level in 1000 Gallons	Current Rates	Proposed Rates	Dollar Impact	Monthly Impacts	Percent Change
18.00	\$ 79.92	\$ 83.70	\$ 3.78	\$ 1.26	4.73%
24.00	101.46	105.60	4.14	1.38	4.08%
30.00	123.00	127.50	4.50	1.50	3.66%
36.00	144.54	149.40	4.86	1.62	3.36%
42.00	166.08	171.30	5.22	1.74	3.14%
1"	Current Rates	Proposed Rates			
Customer Service Charge	\$ 25.50	\$ 30.00			
Commodity Rate /1000 Gallons	3.59	3.65			
Quarterly Usage Level in 1000 Gallons	Current Rates	Proposed Rates	Dollar Impact	Monthly Impacts	Percent Change
24.00	\$ 111.66	\$ 117.60	\$ 5.94	\$ 1.98	5.32%
45.00	187.05	194.25	7.20	2.40	3.85%
60.00	240.90	249.00	8.10	2.70	3.36%
75.00	294.75	303.75	9.00	3.00	3.05%
90.00	348.60	358.50	9.90	3.30	2.84%

Rate Design and Impacts

Rate Design by Meter Size Continued – 3.5% Rate Increase.....

1.5"		Current Rates	Proposed Rates			
Customer Service Charge		\$ 51.00	\$ 60.00			
Commodity Rate /1000 Gallons		3.59	3.65			
Quarterly Usage Level in 1000 Gallons	Current Rates	Proposed Rates	Dollar Impact	Monthly Impacts	Percent Change	
30.00	\$ 158.70	\$ 169.50	\$ 10.80	\$ 3.60	6.81%	
50.00	230.50	242.50	12.00	4.00	5.21%	
70.00	302.30	315.50	13.20	4.40	4.37%	
90.00	374.10	388.50	14.40	4.80	3.85%	
110.00	445.90	461.50	15.60	5.20	3.50%	
2"		Current Rates	Proposed Rates			
Customer Service Charge		\$ 76.50	\$ 90.00			
Commodity Rate /1000 Gallons		3.59	3.65			
Quarterly Usage Level in 1000 Gallons	Current Rates	Proposed Rates	Dollar Impact	Monthly Impacts	Percent Change	
55	\$ 273.95	\$ 290.75	\$ 16.80	\$ 5.60	6.13%	
75	345.75	363.75	18.00	6.00	5.21%	
95	417.55	436.75	19.20	6.40	4.60%	
115	489.35	509.75	20.40	6.80	4.17%	
135	561.15	582.75	21.60	7.20	3.85%	
3"		Current Rates	Proposed Rates			
Customer Service Charge		\$ 127.50	\$ 145.00			
Commodity Rate /1000 Gallons		3.59	3.65			
Quarterly Usage Level in 1000 Gallons	Current Rates	Proposed Rates	Dollar Impact	Monthly Impacts	Percent Change	
85	\$ 432.65	\$ 455.25	\$ 22.60	\$ 7.53	5.22%	
105	504.45	528.25	23.80	7.93	4.72%	
125	576.25	601.25	25.00	8.33	4.34%	
145	648.05	674.25	26.20	8.73	4.04%	
165	719.85	747.25	27.40	9.13	3.81%	