

Executive Report

**South Haven Water and Sewer
Authority**

Sewer Cost of Service and Rate Design Report

October 8, 2020



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

Cost Design and Financial Analysis

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October 8, 2020

Mr. William Hunter
Director of Public Works
City of South Haven
1199 8th Avenue
South Haven, MI 49090

Dear Mr. Hunter,

We are pleased to present this executive summary report for a cost of service, financial projection and rate design study completed for South Haven Area Water and Sewer Authority (SHAWSA) sewer 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 water utility's revenue requirements for 2022
- 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 projections, and identified future rate adjustments for the sewer 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 2021 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 summary for the Sewer Operation from 2021-2025 without any additional rate changes for the years 2022-2025. A 9.3% rate adjustment for 2021 is currently forecasted with projected rates to be effective July 1, 2020. The financial summary also includes projected bond issues of \$2.5 million in 2021 and \$3.0 million in 2024. Without these projected bond issues, projected cash balance goes negative in 2022. The operating income for 2021 is projected at \$284,770 and decreases to operating losses by 2024. The cash generated from operations decreases throughout the period from \$2.2 million to (\$1.5 million) by 2025. The debt coverage ratio is also below the targeted revenue bond requirement of 1.25/1.45.

Table 1 – Financial Summary – (with no Additional Rate Adjustments – with Bond Issues)

Fiscal Year	Projected Rate Adjustments	Projected Revenues	Projected Expenses	Adjusted Operating Income	Projected Cash Balances	Capital Improvements	Bond Issued	Debt Coverage Ratio
2021	9.3%	4,381,625	4,096,855	284,770	2,233,299	1,118,000	2,491,862	1.22
2022	0.0%	4,381,625	4,199,964	181,661	1,887,549	423,793	-	1.05
2023	0.0%	4,381,625	4,286,352	95,273	959,040	950,069	-	1.02
2024	0.0%	4,381,625	4,437,843	(56,218)	(772,631)	4,605,975	3,000,000	0.92
2025	0.0%	4,381,625	4,582,942	\$ (201,317)	(1,493,949)	410,434	-	0.81
Target in 2021				\$ 1,141,264				
Target in 2025				\$ 1,444,668				
Minimum Target 2021					\$ 2,355,922	1.25/1.45		
Minimum Target 2025					\$ 2,597,542	1.25/1.45		

PROJECTED CASH FLOW

Table 2 is the projected cash flow for 2021-2025, including projections of capital improvements as provided by SHAWSA. Changes in the capital improvement plan can greatly affect the cash balance and targeted minimum cash reserve. The projection includes bond issues of \$2.5 million in 2021 and \$3.0 million in 2024. Cash balances decrease throughout the projection period from \$2.2 million in 2021 to (\$1.5 million) by 2025.

Table 2 – Projected Cash Flows (with no Additional Rate Adjustments – with Bond Issues)

Projected Cash Flows	Projected 2021	Projected 2022	Projected 2023	Projected 2024	Projected 2025
Add Net Income	\$ (555,030)	\$ (680,082)	\$ (750,926)	\$ (942,063)	\$ (1,120,481)
Add Back Depreciation Expense	1,515,582	1,538,942	1,559,758	1,643,941	1,719,947
Subtract Debt Principal	672,824	780,818	787,273	827,574	910,349
SHAWSA Loan Principal	60,750	60,750	60,750	60,750	60,750
Add Bond Sale Proceeds	2,491,862	-	-	3,000,000	-
Cash Available from Operations	\$ 2,779,590	\$ 78,043	\$ 21,560	\$ 2,874,304	\$ (310,883)
Estimated Annual Capital Additions	1,118,000	423,793	950,069	4,605,975	410,434
Net Cash From Operations	\$ 1,661,590	\$ (345,750)	\$ (928,509)	\$ (1,731,671)	\$ (721,317)
Beginning Cash Balance	571,709	2,233,299	1,887,549	959,040	(772,631)
Ending Cash Balance	\$ 2,233,299	\$ 1,887,549	\$ 959,040	\$ (772,631)	\$ (1,493,949)
Total Cash Available	\$ 2,233,299	\$ 1,887,549	\$ 959,040	\$ (772,631)	\$ (1,493,949)
Targeted Minimum	\$ 2,355,922	\$ 2,349,152	\$ 2,432,022	\$ 2,592,660	\$ 2,597,542

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:

- 1) **Debt Coverage Ratio** - Debt coverage ratios are mandated by covenants in the revenue bond ordinance and must be maintained to ensure the utility maintains its bond rating and has the capacity to issue additional revenue bonds in the future. SHAWSA does not meet the minimum target coverage ratios throughout the projection period.

Table 3 below contains projected debt coverage ratios from 2021-2025.

Table 3 - Debt Coverage Ratio (with no Additional Rate Adjustment - with Bond Issues)

Debt Coverage Ratio	Projected 2021	Projected 2022	Projected 2023	Projected 2024	Projected 2025
Add Net Income	\$ (555,030)	\$ (680,082)	\$ (750,926)	\$ (942,063)	\$ (1,120,481)
Add Depreciation Expense	1,515,582	1,538,942	1,559,758	1,643,941	1,719,947
Add Interest Expense	653,419	673,670	646,398	671,400	694,925
Cash Available for Debt Service	<u>\$ 1,613,971</u>	<u>\$ 1,532,530</u>	<u>\$ 1,455,230</u>	<u>\$ 1,373,279</u>	<u>\$ 1,294,391</u>
Debt Principal and Interest	\$ 1,326,243	\$ 1,454,487	\$ 1,433,671	\$ 1,498,975	\$ 1,605,274
Projected Debt Coverage Ratio (Covenants)	1.22	1.05	1.02	0.92	0.81
Minimum Debt Coverage Ratio	1.45	1.45	1.45	1.45	1.45

Debt Coverage Ratio are below the minimum targets throughout the projection period.

2) Minimum Cash Reserve Target - To help ensure timely completion of capital improvements and enable the utility to meet requirements for large unexpected expenditures, a minimum cash reserve policy should be established. Minimum cash reserve attempts to quantify the minimum amount of cash the utility should keep in reserve; actual cash reserves may vary substantially above the minimum and is dependent on the life cycle of assets that are currently in service. The methodology used in this report is based on certain assumptions related to percent of operation and maintenance, rate base, capital improvements, and debt service. The establishment of minimum cash reserves should consider a number of factors including:

- **Working Capital Lag** - Timing differences between when expenses are incurred, and revenues received from customers. Establishing a minimum cash reserve helps to ensure cash exists to pay expenses in a timely manner.
- **Investment in assets** – Catastrophic events may occur that require substantial amounts of cash reserves to replace damaged assets. Some examples of catastrophic events include ice storms, earthquakes, windstorms, floods, or tornadoes. Many of these catastrophic events may allow the utility to recover the cost of damages from FEMA; however, FEMA reimbursements can take between 6 months to 2 years to recover. The utility should ensure adequate cash reserves exist to replace the assets in a timely fashion. The minimum reserve levels are often combined with emergency funding from banks or bonding agencies.
- **Annual debt service** – Debt service payments do not occur evenly throughout the year and often occurs at periodic times typically every six months. The utility must ensure adequate cash reserves exist to fund the debt service payment when the payment is due.
- **Capital improvement program** – Some capital improvements are funded through bond issuances and some through cash reserves. The establishment of a minimum cash reserve level helps to ensure timely replacement or construction of assets.

The minimum proposed cash reserve is approximately \$2.5 million. Table 4 provides the minimum cash reserve calculation.

Table 4 – Minimum Cash Reserves

	Percent Allocated	Projected 2021	Projected 2022	Projected 2023	Projected 2024	Projected 2025
Operation & Maintenance Less Depreciation Expense	12.3%	\$ 317,497	\$ 327,306	\$ 335,371	\$ 343,650	\$ 352,148
Historical Rate Base	1.0%	503,281	507,519	517,020	563,079	567,184
Current Portion of Debt Service Reserve	100.0%	1,454,487	1,433,671	1,498,975	1,605,274	1,597,554
Five Year Capital Improvements - Net of bond proceeds	20.0%	80,656	80,656	80,656	80,656	80,656
Minimum Cash Reserve Levels		\$ 2,355,922	\$ 2,349,152	\$ 2,432,022	\$ 2,592,660	\$ 2,597,542
Projected Cash Reserves		\$ 2,233,299	\$ 1,887,549	\$ 959,040	\$ (772,631)	\$ (1,493,949)

Notes:

1. Rate base is historical investment in plant and equipment
2. Five-year capital includes budgeted capital improvements for the next five years and excludes capital improvements funded through debt issuances

- 3) 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 is \$1.1 million with a projected operating income of \$284,770 in 2021. Operating income decreases throughout the period to an operating loss of (\$201,317) in 2025.

Table 5 - Optimal Operating Income Targets Compared to Projected

	Percent Allocated	Projected 2021	Projected 2022	Projected 2023	Projected 2024	Projected 2025
Outstanding Principal on Debt	3.2%	653,419	673,670	646,398	671,400	694,925
Contributed Capital Estimated	2.7%	-	-	-	-	-
System Equity	5.4%	487,845	492,151	522,852	736,040	749,743
Target Operating Income		\$ 1,141,264	\$ 1,165,820	\$ 1,169,249	\$ 1,407,440	\$ 1,444,668
Projected Adjusted Operating Income		\$ 284,770	\$ 181,661	\$ 95,273	\$ (56,218)	\$ (201,317)
Rate of Return in %		3.9%	4.1%	4.2%	4.6%	4.9%

Target 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. Table 6 and 7 below projects the billed units and number of customers in 2021.

TABLE 6 – PROJECTED BILLED UNITS

Meter Size	Projected 2021
All	388,694
Total CCF	388,694

TABLE 7 – PROJECTED NUMBER OF CUSTOMERS

Meter Size	Projected 2021
Residential	
<u>In City</u>	
5/8"	1,877
3/4"	574
1"	143
1.5"	11
2"	22
3"	-
4"	2
6"	-
8"	-
<u>Outside City</u>	
5/8"	681
3/4"	424
1"	245
1.5"	7
2"	14
3"	-
4"	-
6"	-
8"	-
Commercial	
<u>In City</u>	
5/8"	149
3/4"	120
1"	95
1.25"	-
1.5"	40
2"	91
3"	6
4"	4
6"	2
8"	-
<u>Outside City</u>	
5/8"	50
3/4"	22
1"	52
1.25"	-
1.5"	12
2"	46
3"	2
4"	1
6"	1
8"	-
Total	4,693

SUMMARY OF FINANCIAL POSITION:

To work toward financial health and a healthy debt coverage ratio, a series of rate adjustments should be considered.

Table 8 is a financial projection summary without additional rate adjustments and includes bond issues. This table reflects the projected 2021 9.3% rate increase and bond issues of \$2.5 million in 2021 and \$3.0 million in 2024. Operating income for 2021 is projected at \$284,770 and turns to a loss by 2024. The cash generated from operations decreases throughout the period from \$2.2 million to (\$1.5 million). The debt coverage ratio is also below the targeted revenue bond requirement of 1.25/1.45.

Table 8 – Financial Summary (with No Additional Rate Adjustments – with Bond Issues)

Fiscal Year	Projected Rate Adjustments	Projected Revenues	Projected Expenses	Adjusted Operating Income	Projected Cash Balances	Capital Improvements	Bond Issued	Debt Coverage Ratio
2021	9.3%	4,381,625	4,096,855	284,770	2,233,299	1,118,000	2,491,862	1.22
2022	0.0%	4,381,625	4,199,964	181,661	1,887,549	423,793	-	1.05
2023	0.0%	4,381,625	4,286,352	95,273	959,040	950,069	-	1.02
2024	0.0%	4,381,625	4,437,843	(56,218)	(772,631)	4,605,975	3,000,000	0.92
2025	0.0%	4,381,625	4,582,942	\$ (201,317)	(1,493,949)	410,434	-	0.81
Target in 2021				\$ 1,141,264				
Target in 2025				\$ 1,444,668				
Minimum Target 2021					\$ 2,355,922	1.25/1.45		
Minimum Target 2025					\$ 2,597,542	1.25/1.45		

Financial targets for operating income, projected balances, and debt coverage ratios are not being met throughout the projection period.

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 9 below is the financial projection with an additional projected rate track of 9.9% in 2022-2024 and 2.9% in 2025. The rate track was developed to move toward minimum targets. Cash balances stabilize and are maintained around \$2.1 million. There are no operating losses throughout the period. The debt coverage ratio meets targets starting in 2023. The rate track should be reviewed annually as changes in revenues, expenses and capital can impact the rate track.

Table 9 – Financial Summary with Proposed Rates

Fiscal Year	Projected Rate Adjustments	Projected Revenues	Projected Expenses	Adjusted Operating Income	Projected Cash Balances	Capital Improvements	Bond Issued	Debt Coverage Ratio
2021	9.3%	4,381,625	4,096,855	284,770	2,233,299	1,118,000	2,491,862	1.22
2022	9.9%	4,777,019	4,218,441	558,579	2,264,467	423,793	-	1.31
2023	9.9%	5,211,558	4,325,134	886,424	2,128,993	950,069	-	1.57
2024	9.9%	5,689,116	4,498,941	1,190,174	1,649,564	4,605,975	3,000,000	1.75
2025	2.9%	5,842,855	4,651,224	\$ 1,191,631	2,329,443	410,434	-	1.68
Target in 2021				\$ 1,141,264				
Target in 2025				\$ 1,444,668				
Minimum Target 2021					\$ 2,355,922	1.25/1.45		
Minimum Target 2025					\$ 2,605,941	1.25/1.45		

Projected operating income stabilize and move toward targets. The debt coverage ratio target is met starting in 2024.

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 sewer 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 10 compares SHAWSA’s current customer charge and current commodity rate with results of the cost of service analysis.

Table 10 – Comparison of Current Customer Rates with Actual Cost of Service

Meter Size	Current Charges (for 2021)	Cost of Service Charges
5/8"	\$ 36.64	\$ 39.77
3/4"	36.64	37.55
1"	48.87	62.58
1.25"	75.86	62.58
1.5"	101.99	125.16
2"	143.56	200.26
3"	228.01	375.49
4"	342.08	625.81
6"	537.47	1,251.62

Meter size	Current Average Cost Gallons (for 2021)	Cost of Service Average Cost (CCF)
All	\$ 4.420	\$ 5.243

SIGNIFICANT ASSUMPTIONS

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

Forecasted Operating Expenses

Forecasted expenses were based on 2019 actual and Budget 2021 and adjusted for inflation.

Inflation

Inflation was assumed at 2.65% annually.

Growth

Growth on sales was projected at 0.0%

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

The capital improvement projections were provided by SHAWSA. Projections for 2021-2025 are listed below:

Year	Projected Capital Improvement
2021	1,118,000
2022	423,793
2023	950,069
2024	4,605,975
2025	410,434

SEWER OPERATION FINDINGS

- For SHAWSA to maintain long-term financial targets of the sewer utility, rate increases should be considered. Below is a summary of the five-year financial projection with proposed rate increases of 9.9% in 2022-2024 and 2.9% in 2025. The rate track was developed to move toward minimum targets. Cash balances stabilize and are maintained around \$2.1 million. There are no operating losses throughout the period and the debt coverage ratio improves and moves towards the targets. 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	Projected Cash Balances	Capital Improvements	Bond Issued	Debt Coverage Ratio
2021	9.3%	4,381,625	4,096,855	284,770	2,233,299	1,118,000	2,491,862	1.22
2022	9.9%	4,777,019	4,218,441	558,579	2,264,467	423,793	-	1.31
2023	9.9%	5,211,558	4,325,134	886,424	2,128,993	950,069	-	1.57
2024	9.9%	5,689,116	4,498,941	1,190,174	1,649,564	4,605,975	3,000,000	1.75
2025	2.9%	5,842,855	4,651,224	\$ 1,191,631	2,329,443	410,434	-	1.68
Target in 2021				\$ 1,141,264				
Target in 2025				\$ 1,444,668				
Minimum Target 2021					\$ 2,355,922			1.25/1.45
Minimum Target 2025					\$ 2,605,941			1.25/1.45

- The financial projection revenue, expenses and cash flow should be updated annually with the budget process to determine if the rate track is on target. Any changes in revenues, expenses and capital improvements can greatly affect the rate track and bonding requirements.

Appendix 1 – Combined Financial Summary

Combined Financial Summary

The table below represents the combined projected financial summary for the water and sewer departments for SHAWSA. 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 (Water)	Projected Rate Adjustments (Sewer)	Projected Revenues	Projected Expenses	Adjusted Operating Income	Operating Cash Balance	Capital Improvements	Bond Issues	Debt Coverage Ratio
2021	6.5%	9.3%	9,207,582	7,667,192	1,540,390	5,259,288	1,943,000	5,707,128	1.13
2022	6.5%	9.9%	9,874,508	7,902,528	1,971,980	4,775,476	1,120,418	-	1.19
2023	6.5%	9.9%	10,598,226	8,124,721	2,473,505	3,298,145	2,643,710	-	1.33
2024	2.9%	9.9%	11,213,228	8,447,414	2,765,814	6,570,730	7,946,032	9,675,940	1.43
2025	2.9%	2.9%	11,508,397	8,775,409	2,732,989	4,785,475	3,746,317	-	1.43
Target 2021					\$ 2,358,321	\$ 5,293,021			1.25/1.45
Target 2025					\$ 2,712,272	\$ 5,605,087			1.25/1.45

Appendix 2 – Proposed Rate Designs and Impacts

Year One (Proposed 2022) - Rate Design 9.9% Overall

The rate was designed to blend Inside City and Outside City rates to reflect “one system” that the Authority is currently operating under. This blending will take place over several years of rate designs in order to work the inside city and outside city rates together overtime to lessen impacts to customers.

SHAWSHA, MI					
Sewer Department					
Forecasted 2022 with 9.9% Proposed Rate Increase					
			Current Rates	COS Rates	Proposed 2021
	<i>Commodity Rate</i>		\$4.420	\$5.243	\$5.000
Inside City - Customer Charge					
	5/8"		\$ 36.64	\$ 37.55	\$ 38.85
	3/4"		36.64	38.99	\$ 38.85
	1"		48.87	38.99	\$ 52.00
	1.25"		75.86	77.99	\$ 75.00
	1.5"		101.99	124.78	\$ 105.00
	2"		143.56	233.96	\$ 155.00
	3"		228.01	389.94	\$ 240.00
	4"		342.08	779.88	\$ 385.00
	6"		537.47	1,247.81	\$ 600.00
					\$ -
Outside City - Customer Charge					\$ -
	5/8"		\$ 26.54	\$ 38.99	\$ 28.85
	3/4"		26.54	38.99	\$ 28.85
	1"		35.43	38.99	\$ 38.50
	1.25"		50.73	-	\$ 55.50
	1.5"		66.10	124.78	\$ 78.00
	2"		94.35	233.96	\$ 115.00
	3"		165.18	389.94	\$ 178.00
	4"		247.81	779.88	\$ 285.00
	6"		389.35	1,247.81	\$ 445.00
Overall Increase					9.9%

Appendix 2 – Proposed Rate Designs and Impacts

Year One (Proposed 2022) - Rate Design 9.9% Overall (Continued)

INSIDE CITY					OUTSIDE CITY						
5/8"		Current Rates	Proposed Rates			5/8"		Current Rates	Proposed Rates		
Customer Service Charge		\$ 36.64	\$ 38.85			Customer Service Charge		\$ 26.54	\$ 28.85		
Commodity Rate		\$ 4.420	\$ 5.000			Commodity Rate		\$ 4.420	\$ 5.000		
Monthly Usage Level in CCF	Current Rates	Proposed Rates	Dollar Impact	Percent Change		Monthly Usage Level in CCF	Current Rates	Proposed Rates	Dollar Impact	Percent Change	
5	\$ 58.74	\$ 63.85	\$ 5.11	8.70%		5	\$ 48.64	\$ 53.85	\$ 5.21	10.71%	
7	\$ 67.58	\$ 73.85	6.27	9.28%		7	\$ 57.48	\$ 63.85	6.37	11.08%	
9	\$ 76.42	\$ 83.85	7.43	9.72%		9	\$ 66.32	\$ 73.85	7.53	11.35%	
12	\$ 89.68	\$ 98.85	9.17	10.23%		12	\$ 79.58	\$ 88.85	9.27	11.65%	
15	\$ 102.94	\$ 113.85	10.91	10.60%		15	\$ 92.84	\$ 103.85	11.01	11.86%	
3/4"		Current Rates	Proposed Rates			3/4"		Current Rates	Proposed Rates		
Customer Service Charge		\$ 36.64	\$ 38.85			Customer Service Charge		\$ 26.54	\$ 28.85		
Commodity Rate		\$ 4.420	\$ 5.000			Commodity Rate		\$ 4.420	\$ 5.000		
Monthly Usage Level in CCF	Current Rates	Proposed Rates	Dollar Impact	Percent Change		Monthly Usage Level in CCF	Current Rates	Proposed Rates	Dollar Impact	Percent Change	
5	\$ 58.74	\$ 63.85	\$ 5.11	8.70%		5	\$ 48.64	\$ 53.85	\$ 5.21	10.71%	
7	\$ 67.58	\$ 73.85	6.27	9.28%		7	\$ 57.48	\$ 63.85	6.37	11.08%	
9	\$ 76.42	\$ 83.85	7.43	9.72%		9	\$ 66.32	\$ 73.85	7.53	11.35%	
12	\$ 89.68	\$ 98.85	9.17	10.23%		12	\$ 79.58	\$ 88.85	9.27	11.65%	
15	\$ 102.94	\$ 113.85	10.91	10.60%		15	\$ 92.84	\$ 103.85	11.01	11.86%	
1"		Current Rates	Proposed Rates			1"		Current Rates	Proposed Rates		
Customer Service Charge		\$ 48.87	\$ 52.00			Customer Service Charge		\$ 35.43	\$ 38.50		
Commodity Rate		\$ 4.420	\$ 5.000			Commodity Rate		\$ 4.420	\$ 5.000		
Monthly Usage Level in CCF	Current Rates	Proposed Rates	Dollar Impact	Percent Change		Monthly Usage Level in CCF	Current Rates	Proposed Rates	Dollar Impact	Percent Change	
5	\$ 70.97	\$ 77.00	\$ 6.03	8.50%		5	\$ 57.53	\$ 63.50	\$ 5.97	10.38%	
10	\$ 93.07	\$ 102.00	8.93	9.59%		10	\$ 79.63	\$ 88.50	8.87	11.14%	
15	\$ 115.17	\$ 127.00	11.83	10.27%		15	\$ 101.73	\$ 113.50	11.77	11.57%	
20	\$ 137.27	\$ 152.00	14.73	10.73%		20	\$ 123.83	\$ 138.50	14.67	11.85%	
25	\$ 159.37	\$ 177.00	17.63	11.06%		25	\$ 145.93	\$ 163.50	17.57	12.04%	
1.5"		Current Rates	Proposed Rates			1.5"		Current Rates	Proposed Rates		
Customer Service Charge		\$ 101.99	\$ 105.00			Customer Service Charge		\$ 66.10	\$ 78.00		
Commodity Rate		\$ 4.420	\$ 5.000			Commodity Rate		\$ 4.420	\$ 5.000		
Monthly Usage Level in CCF	Current Rates	Proposed Rates	Dollar Impact	Percent Change		Monthly Usage Level in CCF	Current Rates	Proposed Rates	Dollar Impact	Percent Change	
50	\$ 322.99	\$ 355.00	\$ 32.01	9.91%		50	\$ 287.10	\$ 328.00	\$ 40.90	14.25%	
60	\$ 367.19	\$ 405.00	37.81	10.30%		60	\$ 331.30	\$ 378.00	46.70	14.10%	
70	\$ 411.39	\$ 455.00	43.61	10.60%		70	\$ 375.50	\$ 428.00	52.50	13.98%	
80	\$ 455.59	\$ 505.00	49.41	10.85%		80	\$ 419.70	\$ 478.00	58.30	13.89%	
90	\$ 499.79	\$ 555.00	55.21	11.05%		90	\$ 463.90	\$ 528.00	64.10	13.82%	

Appendix 2 – Proposed Rate Designs and Impacts

Year One (Proposed 2022) - Rate Design 9.9% Overall (Continued)

2"		Current Rates	Proposed Rates				2"		Current Rates	Proposed Rates			
Customer Service Charge		\$ 143.56	\$ 155.00				Customer Service Charge		\$ 94.35	\$ 115.00			
Commodity Rate		\$ 4.420	\$ 5.000				Commodity Rate		\$ 4.420	\$ 5.000			
Monthly Usage Level in CCF	Current Rates	Proposed Rates	Dollar Impact	Percent Change			Monthly Usage Level in CCF	Current Rates	Proposed Rates	Dollar Impact	Percent Change		
60	\$ 408.76	\$ 455.00	\$ 46.24	11.31%			60	\$ 359.55	\$ 415.00	\$ 55.45	15.42%		
70	\$ 452.96	\$ 505.00	52.04	11.49%			70	\$ 403.75	\$ 465.00	61.25	15.17%		
80	\$ 497.16	\$ 555.00	57.84	11.63%			80	\$ 447.95	\$ 515.00	67.05	14.97%		
90	\$ 541.36	\$ 605.00	63.64	11.76%			90	\$ 492.15	\$ 565.00	72.85	14.80%		
100	\$ 585.56	\$ 655.00	69.44	11.86%			100	\$ 536.35	\$ 615.00	78.65	14.66%		
3"		Current Rates	Proposed Rates				3"		Current Rates	Proposed Rates			
Customer Service Charge		\$ 228.01	\$ 240.00				Customer Service Charge		\$ 165.18	\$ 178.00			
Commodity Rate		\$ 4.420	\$ 5.000				Commodity Rate		\$ 4.420	\$ 5.000			
Monthly Usage Level in CCF	Current Rates	Proposed Rates	Dollar Impact	Percent Change			Monthly Usage Level in CCF	Current Rates	Proposed Rates	Dollar Impact	Percent Change		
70	\$ 537.41	\$ 590.00	\$ 52.59	9.79%			70	\$ 474.58	\$ 528.00	\$ 53.42	11.26%		
80	\$ 581.61	\$ 640.00	58.39	10.04%			80	\$ 518.78	\$ 578.00	59.22	11.42%		
90	\$ 625.81	\$ 690.00	64.19	10.26%			90	\$ 562.98	\$ 628.00	65.02	11.55%		
100	\$ 670.01	\$ 740.00	69.99	10.45%			100	\$ 607.18	\$ 678.00	70.82	11.66%		
110	\$ 714.21	\$ 790.00	75.79	10.61%			110	\$ 651.38	\$ 728.00	76.62	11.76%		
4"		Current Rates	Proposed Rates				4"		Current Rates	Proposed Rates			
Customer Service Charge		\$ 342.08	\$ 385.00				Customer Service Charge		\$ 247.81	\$ 285.00			
Commodity Rate		\$ 4.420	\$ 5.000				Commodity Rate		\$ 4.420	\$ 5.000			
Monthly Usage Level in CCF	Current Rates	Proposed Rates	Dollar Impact	Percent Change			Monthly Usage Level in CCF	Current Rates	Proposed Rates	Dollar Impact	Percent Change		
80	\$ 695.68	\$ 785.00	\$ 89.32	12.84%			80	\$ 601.41	\$ 685.00	\$ 83.59	13.90%		
90	\$ 739.88	\$ 835.00	95.12	12.86%			90	\$ 645.61	\$ 735.00	89.39	13.85%		
100	\$ 784.08	\$ 885.00	100.92	12.87%			100	\$ 689.81	\$ 785.00	95.19	13.80%		
110	\$ 828.28	\$ 935.00	106.72	12.88%			110	\$ 734.01	\$ 835.00	100.99	13.76%		
120	\$ 872.48	\$ 985.00	112.52	12.90%			120	\$ 778.21	\$ 885.00	106.79	13.72%		
6"		Current Rates	Proposed Rates				6"		Current Rates	Proposed Rates			
Customer Service Charge		\$ 537.47	\$ 600.00				Customer Service Charge		\$ 389.35	\$ 445.00			
Commodity Rate		\$ 4.420	\$ 5.000				Commodity Rate		\$ 4.420	\$ 5.000			
Monthly Usage Level in CCF	Current Rates	Proposed Rates	Dollar Impact	Percent Change			Monthly Usage Level in CCF	Current Rates	Proposed Rates	Dollar Impact	Percent Change		
90	\$ 935.27	\$ 1,050.00	\$ 114.73	12.27%			90	\$ 787.15	895.00	\$ 107.85	13.70%		
100	\$ 979.47	\$ 1,100.00	120.53	12.31%			100	\$ 831.35	945.00	113.65	13.67%		
110	\$ 1,023.67	\$ 1,150.00	126.33	12.34%			110	\$ 875.55	995.00	119.45	13.64%		
120	\$ 1,067.87	\$ 1,200.00	132.13	12.37%			120	\$ 919.75	1,045.00	125.25	13.62%		
130	\$ 1,112.07	\$ 1,250.00	137.93	12.40%			130	\$ 963.95	1,095.00	131.05	13.60%		

Appendix 2 – Proposed Rate Designs and Impacts

The rate was designed to blend Inside City and Outside City rates to reflect “one system” that the Authority is currently operating under. This blending will take place over several years of rate designs in order to work the inside city and outside city rates together overtime to lessen impacts to customers.

Year Two (Proposed 2023) - Rate Design 9.9% Overall

SHAWSHA, MI						
Sewer Department						
Forecasted 2022 with 9.9% Proposed Rate Increase						
				Current Rates	COS Rates	Proposed 2021
	<i>Commodity Rate</i>			\$5.000	\$5.243	\$5.500
Inside City - Customer Charge						
	5/8"			\$ 38.85	\$ 37.55	\$ 42.50
	3/4"			38.85	38.99	\$ 42.50
	1"			52.00	38.99	\$ 56.00
	1.25"			75.00	77.99	\$ 76.00
	1.5"			105.00	124.78	\$ 110.00
	2"			155.00	233.96	\$ 166.50
	3"			240.00	389.94	\$ 252.00
	4"			385.00	779.88	\$ 428.00
	6"			600.00	1,247.81	\$ 662.50
						\$ -
Outside City - Customer Charge						
	5/8"			\$ 28.85	\$ 38.99	\$ 32.60
	3/4"			28.85	38.99	\$ 32.60
	1"			38.50	38.99	\$ 42.50
	1.25"			55.50	-	\$ 57.50
	1.5"			78.00	124.78	\$ 83.00
	2"			115.00	233.96	\$ 126.00
	3"			178.00	389.94	\$ 191.00
	4"			285.00	779.88	\$ 324.00
	6"			445.00	1,247.81	\$ 500.75
Overall Increase						9.9%

Appendix 2 – Proposed Rate Designs and Impacts

Year Two (Proposed 2023) - Rate Design 9.9% Overall (Continued)

INSIDE CITY						OUTSIDE CITY					
5/8"						5/8"					
	Current Rates	COS Charge	Proposed Rates				Current Rates	COS Charge	Proposed Rates		
Customer Service Charge	\$ 38.85	\$ 37.55	\$ 42.50			Customer Service Charge	\$ 28.85	\$ 38.99	\$ 32.60		
Commodity Rate	\$ 5.000	\$ 5.243	\$ 5.500			Commodity Rate	\$ 5.000	\$ 5.243	\$ 5.500		
Monthly Usage Level in CCF	Current Rates	COS Charge	Proposed Rates	Dollar Impact	Percent Change	Monthly Usage Level in CCF	Current Rates	COS Charge	Proposed Rates	Dollar Impact	Percent Change
5	\$ 63.85	\$ 63.77	\$ 70.00	\$ 6.15	9.63%	5	\$ 53.85	\$ 65.21	\$ 60.10	\$ 6.25	11.61%
7	\$ 73.85	\$ 74.25	\$ 81.00	7.15	9.68%	7	\$ 63.85	\$ 75.70	\$ 71.10	7.25	11.35%
9	\$ 83.85	\$ 84.74	\$ 92.00	8.15	9.72%	9	\$ 73.85	\$ 86.19	\$ 82.10	8.25	11.17%
12	\$ 98.85	\$ 100.47	\$ 108.50	9.65	9.76%	12	\$ 88.85	\$ 101.92	\$ 98.60	9.75	10.97%
15	\$ 113.85	\$ 116.20	\$ 125.00	11.15	9.79%	15	\$ 103.85	\$ 117.65	\$ 115.10	11.25	10.83%
3/4"						3/4"					
	Current Rates	COS Charge	Proposed Rates				Current Rates	COS Charge	Proposed Rates		
Customer Service Charge	\$ 38.85	\$ 38.99	\$ 42.50			Customer Service Charge	\$ 28.85	\$ 38.99	\$ 32.60		
Commodity Rate	\$ 5.000	\$ 5.243	\$ 5.500			Commodity Rate	\$ 5.000	\$ 5.243	\$ 5.500		
Monthly Usage Level in CCF	Current Rates	COS Charge	Proposed Rates	Dollar Impact	Percent Change	Monthly Usage Level in CCF	Current Rates	COS Charge	Proposed Rates	Dollar Impact	Percent Change
5	\$ 63.85	\$ 65.21	\$ 70.00	\$ 6.15	9.63%	5	\$ 53.85	\$ 65.21	\$ 60.10	\$ 6.25	11.61%
7	\$ 73.85	\$ 75.70	\$ 81.00	7.15	9.68%	7	\$ 63.85	\$ 75.70	\$ 71.10	7.25	11.35%
9	\$ 83.85	\$ 86.19	\$ 92.00	8.15	9.72%	9	\$ 73.85	\$ 86.19	\$ 82.10	8.25	11.17%
12	\$ 98.85	\$ 101.92	\$ 108.50	9.65	9.76%	12	\$ 88.85	\$ 101.92	\$ 98.60	9.75	10.97%
15	\$ 113.85	\$ 117.65	\$ 125.00	11.15	9.79%	15	\$ 103.85	\$ 117.65	\$ 115.10	11.25	10.83%
1"						1"					
	Current Rates	COS Charge	Proposed Rates				Current Rates	COS Charge	Proposed Rates		
Customer Service Charge	\$ 52.00	\$ 38.99	\$ 56.00			Customer Service Charge	\$ 38.50	\$ 38.99	\$ 42.50		
Commodity Rate	\$ 5.000	\$ 5.243	\$ 5.500			Commodity Rate	\$ 5.000	\$ 5.243	\$ 5.500		
Monthly Usage Level in CCF	Current Rates	COS Charge	Proposed Rates	Dollar Impact	Percent Change	Monthly Usage Level in CCF	Current Rates	COS Charge	Proposed Rates	Dollar Impact	Percent Change
5	\$ 77.00	\$ 65.21	\$ 83.50	\$ 6.50	8.44%	5	\$ 63.50	\$ 65.21	\$ 70.00	\$ 6.50	10.24%
10	\$ 102.00	\$ 91.43	\$ 111.00	9.00	8.82%	10	\$ 88.50	\$ 91.43	\$ 97.50	9.00	10.17%
15	\$ 127.00	\$ 117.65	\$ 138.50	11.50	9.06%	15	\$ 113.50	\$ 117.65	\$ 125.00	11.50	10.13%
20	\$ 152.00	\$ 143.86	\$ 166.00	14.00	9.21%	20	\$ 138.50	\$ 143.86	\$ 152.50	14.00	10.11%
25	\$ 177.00	\$ 170.08	\$ 193.50	16.50	9.32%	25	\$ 163.50	\$ 170.08	\$ 180.00	16.50	10.09%
1.5"						1.5"					
	Current Rates	COS Charge	Proposed Rates				Current Rates	COS Charge	Proposed Rates		
Customer Service Charge	\$ 105.00	\$ 124.78	\$ 110.00			Customer Service Charge	\$ 78.00	\$ 124.78	\$ 83.00		
Commodity Rate	\$ 5.000	\$ 5.243	\$ 5.500			Commodity Rate	\$ 5.000	\$ 5.243	\$ 5.500		
Monthly Usage Level in CCF	Current Rates	COS Charge	Proposed Rates	Dollar Impact	Percent Change	Monthly Usage Level in CCF	Current Rates	COS Charge	Proposed Rates	Dollar Impact	Percent Change
50	\$ 355.00	\$ 386.96	\$ 385.00	\$ 30.00	8.45%	50	\$ 328.00	\$ 386.96	\$ 358.00	\$ 30.00	9.15%
60	\$ 405.00	\$ 439.39	\$ 440.00	35.00	8.64%	60	\$ 378.00	\$ 439.39	\$ 413.00	35.00	9.26%
70	\$ 455.00	\$ 491.82	\$ 495.00	40.00	8.79%	70	\$ 428.00	\$ 491.82	\$ 468.00	40.00	9.35%
80	\$ 505.00	\$ 544.26	\$ 550.00	45.00	8.91%	80	\$ 478.00	\$ 544.26	\$ 523.00	45.00	9.41%
90	\$ 555.00	\$ 596.69	\$ 605.00	50.00	9.01%	90	\$ 528.00	\$ 596.69	\$ 578.00	50.00	9.47%

Appendix 2 – Proposed Rate Designs and Impacts

Year Two (Proposed 2023) - Rate Design 9.9% Overall (Continued)

2"						2"					
	Current Rates	COS Charge	Proposed Rates				Current Rates	COS Charge	Proposed Rates		
Customer Service Charge	\$ 155.00	\$ 233.96	\$ 166.50			Customer Service Charge	\$ 115.00	\$ 233.96	\$ 126.00		
Commodity Rate	\$ 5.000	\$ 5.243	\$ 5.500			Commodity Rate	\$ 5.000	\$ 5.243	\$ 5.500		
Monthly Usage Level in CCF	Current Rates	COS Charge	Proposed Rates	Dollar Impact	Percent Change	Monthly Usage Level in CCF	Current Rates	COS Charge	Proposed Rates	Dollar Impact	Percent Change
60	\$ 455.00	\$ 548.57	\$ 496.50	\$ 41.50	9.12%	60	\$ 415.00	\$ 548.57	\$ 456.00	\$ 41.00	9.88%
70	\$ 505.00	\$ 601.01	\$ 551.50	46.50	9.21%	70	\$ 465.00	\$ 601.01	\$ 511.00	46.00	9.89%
80	\$ 555.00	\$ 653.44	\$ 606.50	51.50	9.28%	80	\$ 515.00	\$ 653.44	\$ 566.00	51.00	9.90%
90	\$ 605.00	\$ 705.88	\$ 661.50	56.50	9.34%	90	\$ 565.00	\$ 705.88	\$ 621.00	56.00	9.91%
100	\$ 655.00	\$ 758.31	\$ 716.50	61.50	9.39%	100	\$ 615.00	\$ 758.31	\$ 676.00	61.00	9.92%
3"						3"					
	Current Rates	COS Charge	Proposed Rates				Current Rates	COS Charge	Proposed Rates		
Customer Service Charge	\$ 240.00	\$ 389.94	\$ 252.00			Customer Service Charge	\$ 178.00	\$ 389.94	\$ 191.00		
Commodity Rate	\$ 5.000	\$ 5.243	\$ 5.500			Commodity Rate	\$ 5.000	\$ 5.243	\$ 5.500		
Monthly Usage Level in CCF	Current Rates	COS Charge	Proposed Rates	Dollar Impact	Percent Change	Monthly Usage Level in CCF	Current Rates	COS Charge	Proposed Rates	Dollar Impact	Percent Change
70	\$ 590.00	\$ 756.98	\$ 637.00	\$ 47.00	7.97%	70	\$ 528.00	\$ 756.98	\$ 576.00	\$ 48.00	9.09%
80	\$ 640.00	\$ 809.42	\$ 692.00	52.00	8.13%	80	\$ 578.00	\$ 809.42	\$ 631.00	53.00	9.17%
90	\$ 690.00	\$ 861.85	\$ 747.00	57.00	8.26%	90	\$ 628.00	\$ 861.85	\$ 686.00	58.00	9.24%
100	\$ 740.00	\$ 914.29	\$ 802.00	62.00	8.38%	100	\$ 678.00	\$ 914.29	\$ 741.00	63.00	9.29%
110	\$ 790.00	\$ 966.72	\$ 857.00	67.00	8.48%	110	\$ 728.00	\$ 966.72	\$ 796.00	68.00	9.34%
4"						4"					
	Current Rates	COS Charge	Proposed Rates				Current Rates	COS Charge	Proposed Rates		
Customer Service Charge	\$ 385.00	\$ 779.88	\$ 428.00			Customer Service Charge	\$ 285.00	\$ 779.88	\$ 324.00		
Commodity Rate	\$ 5.000	\$ 5.243	\$ 5.500			Commodity Rate	\$ 5.000	\$ 5.243	\$ 5.500		
Monthly Usage Level in CCF	Current Rates	COS Charge	Proposed Rates	Dollar Impact	Percent Change	Monthly Usage Level in CCF	Current Rates	COS Charge	Proposed Rates	Dollar Impact	Percent Change
80	\$ 785.00	\$ 1,199.36	\$ 868.00	\$ 83.00	10.57%	80	\$ 685.00	\$ 1,199.36	\$ 764.00	\$ 79.00	11.53%
90	\$ 835.00	\$ 1,251.79	\$ 923.00	88.00	10.54%	90	\$ 735.00	\$ 1,251.79	\$ 819.00	84.00	11.43%
100	\$ 885.00	\$ 1,304.23	\$ 978.00	93.00	10.51%	100	\$ 785.00	\$ 1,304.23	\$ 874.00	89.00	11.34%
110	\$ 935.00	\$ 1,356.66	\$ 1,033.00	98.00	10.48%	110	\$ 835.00	\$ 1,356.66	\$ 929.00	94.00	11.26%
120	\$ 985.00	\$ 1,409.10	\$ 1,088.00	103.00	10.46%	120	\$ 885.00	\$ 1,409.10	\$ 984.00	99.00	11.19%
6"						6"					
	Current Rates	COS Charge	Proposed Rates				Current Rates	COS Charge	Proposed Rates		
Customer Service Charge	\$ 600.00	\$ 1,247.81	\$ 662.50			Customer Service Charge	\$ 445.00	\$ 1,247.81	\$ 500.75		
Commodity Rate	\$ 5.000	\$ 5.243	\$ 5.500			Commodity Rate	\$ 5.000	\$ 5.243	\$ 5.500		
Monthly Usage Level in CCF	Current Rates	COS Charge	Proposed Rates	Dollar Impact	Percent Change	Monthly Usage Level in CCF	Current Rates	COS Charge	Proposed Rates	Dollar Impact	Percent Change
90	\$1,050.00	\$ 1,719.72	\$ 1,157.50	\$ 107.50	10.24%	90	\$ 895.00	\$ 1,719.72	\$ 995.75	\$ 100.75	11.26%
100	\$1,100.00	\$ 1,772.15	\$ 1,212.50	112.50	10.23%	100	\$ 945.00	\$ 1,772.15	\$ 1,050.75	105.75	11.19%
110	\$1,150.00	\$ 1,824.59	\$ 1,267.50	117.50	10.22%	110	\$ 995.00	\$ 1,824.59	\$ 1,105.75	110.75	11.13%
120	\$1,200.00	\$ 1,877.02	\$ 1,322.50	122.50	10.21%	120	\$ 1,045.00	\$ 1,877.02	\$ 1,160.75	115.75	11.08%
130	\$1,250.00	\$ 1,929.46	\$ 1,377.50	127.50	10.20%	130	\$ 1,095.00	\$ 1,929.46	\$ 1,215.75	120.75	11.03%