

Memorandum

To: Jan Kowalski, CPA
From: Rick Barnett, PE
Date: July 12, 2023
Re: Reserve Township
Water and Sewer Rate Evaluation

Project No. 13746

Background

Reserve Township (Township) currently owns and operates public drinking water and wastewater collection systems. The drinking water provided by the Township to its customers is purchased from the Pittsburgh Water and Sewer Authority (PWSA). Wastewater treatment and disposal is provided by Alcosan. A portion of the Township sends wastewater flows to Alcosan through collection lines owned and operated by the Girtys Run Joint Sanitary Authority. Township customers using the GRJSA facilities are billed separately for their use.

The current rate structures include the following quarterly charges:

1. Water
 - a. A quarterly base charge of \$49.00 which includes up to 4,000 gallons of water.
 - b. Water consumption that exceeds 4,000 gallons per quarter is billed at \$12.25 per 1,000 gallons
 - c. A quarterly water service charge of \$10.00
 - d. A quarterly capital improvement charge of \$15.00
2. Sewage
 - a. A quarterly base charge of \$52.84 which includes up to 4,000 gallons of sewage
 - b. Usage that exceeds 4,000 gallons per quarter is billed at \$13.21 per 1,000 gallons
 - c. A quarterly Alcosan service charge of \$21.88
 - d. A quarterly Girtys Run Administration Fee of \$16.00 for those customers using the GRJSA facilities

Based on the above charges and fees the current 2023 minimum quarterly bills are as follows:

Service	Alcosan Only Customers	Alcosan/GRJSA Customers
Water	\$74.00	\$74.00
Sewer	\$74.72	\$90.72
Total	\$148.72	\$164.72

The purpose of this rate evaluation is to:

1. Consider the costs of operation, maintenance and capital improvements needed to maintain reliable water and sewer service to the residents of Reserve Township and
2. Determine the rates required to pay for ongoing operating and maintenance costs, as well as a reasonable charge for ongoing and needed capital improvements.

Discussion

The 2 main categories of costs considered in the rate evaluation included: operation and maintenance costs, and capital replacement and improvement costs.

1. Operation and maintenance costs consist of the following types of expenses:
 - a. Wages
 - b. Employee benefits\Insurances
 - c. Supplies
 - d. Maintenance and repairs
 - e. Tools, equipment, machinery and fuels
 - f. Computer and billings
 - g. Permits and regulatory costs
 - h. Professional fees
 - i. Water purchase from PWSA
 - j. Treatment costs to Alcosan
2. Capital improvement and replacement costs may include:
 - a. Sewer and manhole rehabilitation and replacement
 - b. Waterline replacement
 - c. Individual customer and mainline water meter replacements
 - d. Fire hydrant and valve replacement
 - e. Pavement, sidewalk and other infrastructure repaired or replaced as a result of water and sewer capital improvements
 - f. Allegheny County Health Department (ACHD) Consent Decree compliance costs that require capital improvements.
 - g. Capital improvement projects that are required to be bid would include engineering, legal, administrative and other associated costs.

Information used in the rate evaluation included the following information provided by the Township:

- Copies of the current water and sewer rate structures and amounts
- Water and sewer system account records for expenses and revenues from 2018 through 2022
- Customer usage records for 2018 through 2022
- Primary Facility Reports for 2018 through 2022

Other data used in the evaluations included:

- ACHD Consent Decree sewage planning information
- Records of sewage repair and rehabilitation projects
- Engineering News Record Construction Cost indices used to bring historic costs to present day values

A number of key assumptions were used in the initial estimation of future expenses and costs including:

- A delinquency rate of 5% in collection of bills. Delinquencies can affect the actual cash available to pay ongoing costs and expenses of the Township.
- Future customers and growth. Information available to the Township included a new development of 42 single family homes over the next 5 years.
- Annual increases in operating and capital expenses. These were estimated at 5% per year.
- Increases in cost for water purchased from PWSA was estimated at 5% per year.
- Increases in cost for sewage sent to Alcosan was estimated at 7% per year.
- Increases in the GRJSA administration fee was estimated at 3% per year
- Increases in capital costs was estimated at 3% per year.
- The current debt service is based on fixed interest rates and will remain constant over the next 5 years.

These initial estimations or assumptions can be easily adjusted or modified to evaluate alternate projections.

Future revenues consist in general of the following sources:

- Quarterly customers charges (as described above in the current rate structure)
- Tap-in fees from new customers or developments. The current water tap-in fee is \$2,500 per equivalent dwelling unit (EDU) and the current sewage tap-in fee is \$3,500 per EDU.
- Interest earnings
- Miscellaneous revenues (which are typically very minimal)

The future revenue projections can also be modified to evaluate the impacts to balancing the budgets.

The Township has been successful in recent years in applying for and receiving grant monies for capital improvements. While this additional source of funding has been instrumental in completing capital improvement projects it is not guaranteed nor consistent from year to year. For that reason the rates were evaluated based on the assumption that grant monies may not be available. If future grants are received the rates can be reduced, or held constant to increase the capital reserve for years when grants are not received.

The rate evaluations consist of a series of tables on Excel-based spreadsheets. A separate series of spreadsheets were used individually for the water and sewer rate evaluations.

Sheet 1 – Summary of Rates sheet (see attached) shows a summary of the pertinent factors used to determine the rates needed to produce revenues that are adequate to meet the projected expenses. The components shown in blue-shaded cells can be modified and adjusted to allocate the charges over the individual rate components. A summary of the resulting rates needed to balance the budget are shown in the bottom table on Sheet 1 – Summary of Rates.

Sheets 2 through 7 were developed for the following information:

- Sheet 2 – provides entry cells for projections of future annual increases in operating, maintenance, capital, Alcosan, and PWSA costs.
- Sheet 3 – provides a summary of 5 years of historic expenses and develops a line-item average value for projecting future expenses.
- Sheet 4 – provides a 5-year projection of expenses based on the last 5-year average and projected annual increases.
- Sheet 5 – provides a summary of 5 years of historic revenues and develops a line-item average value for projecting future revenues.
- Sheet 6 – provides a 5-year projection of revenues based on the last 5-year average and projected annual increases.
- Sheet 7 – provides a 5-year estimation of future capital improvement costs. The sewage capital costs were based on the 2015 estimates of complying with the ACHD Consent Decree with the costs adjusted for 2023 figures using the ENR index. The water system capital improvements were based on replacing the water mains, hydrants, main line meters, customer meters. The services life for various components ranged from 75 years for water mains to 15 years for meters.

The assumptions of service life, replacement cost, and other factors can be easily adjusted as needed.

Conclusions

The above evaluation considers the costs to own, operate and maintain the Township water and sewer systems and the revenues needed to cover those costs. A prudent rate evaluation also includes a component to develop and maintain a program of capital replacement and additions.

Based on the above criteria, assumptions and factors used, including the assumption of no grant funding availability and usage of 4,000 gallons per quarter included in the base rate, the charges and fees that could be needed in the 2023 minimum quarterly bills are as follows:

Service	Alcosan-Only Customers			Alcosan/GRJSA Customers		
	Current Rate	Projected Rate	% Increase	Current Rate	Projected Rate	% Increase
Water	\$74.00	\$123.67	67%	\$74.00	\$123.67	67%
Sewer	\$74.72	\$103.32	38%	\$90.72	\$119.32	32%
Total	\$148.72	\$226.99	53%	\$164.72	\$242.99	48%

It is important to note that these amounts are projections of the listed costs that are estimated for a fully-funded water and sewer system that is financed in its entirety by user fees. These projections could be reduced by:

1. Reductions in operation and maintenance expenses
2. Reductions in estimations of annual increases in expenses
3. Receipt of grant funding to reduce capital improvement expenses
4. Reduction of efforts in the capital replacement and additions program

**Reserve Township
Water Rate Analysis**

1. Summary of Water Rates

Note: Blue shaded cells are for user input. Unshaded cells are calculated values.

Water Expenses and Revenues	2023	2024	2025	2026	2027
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Projected Annual Water Expenses

To adjust future expenses enter estimated annual escalation factors in Sheet 2 - Net Projections

Projected Annual Operating Expenses	\$ 688,672	\$ 721,760	\$ 756,502	\$ 792,981	\$ 831,284
Projected Annual Capital Expenses	\$ 355,672	\$ 366,651	\$ 376,606	\$ 386,851	\$ 397,455
Total Annual Water Expenses	\$ 1,044,344	\$ 1,088,411	\$ 1,133,108	\$ 1,179,831	\$ 1,228,739

Projected Annual Water Revenues

Enter estimated future rate values in blue shaded cells below. Other values are calculated.

To adjust future interest, miscellaneous and tap-in revenues enter escalation factors in Sheet 2 - Net Projections

Future Number of Customers	1,450	1,460	1,470	1,480	1,492
Twp Customer Cost per 1,000 gal	\$ 12.25	\$ 12.50	\$ 13.50	\$ 14.50	\$ 15.00
Minimum Quarterly Water Bill / Customer	\$ 49.00	\$ 49.00	\$ 49.50	\$ 49.50	\$ 50.00
Quarterly Water Service Charge / Customer	\$ 13.35	\$ 13.70	\$ 13.95	\$ 15.00	\$ 17.25
Quarterly Capital Improvement Charge / Customer	\$ 61.32	\$ 62.78	\$ 64.05	\$ 65.35	\$ 66.60
Estimated Delinquency Rate	5%	5%	5%	5%	5%
Annual Minimum Bill Revenue	\$ 269,990	\$ 271,852	\$ 276,507	\$ 278,388	\$ 283,480
Annual Overage Revenue	\$ 353,405	\$ 360,617	\$ 389,467	\$ 418,316	\$ 432,741
Annual Water Service Charge Subtotal	\$ 73,559	\$ 76,008	\$ 77,925	\$ 84,360	\$ 97,801
Annual Capital Improvement Charge Subtotal	\$ 337,888	\$ 348,319	\$ 357,776	\$ 367,508	\$ 377,582
Annual Interest Earnings	\$ 5,440	\$ 5,440	\$ 5,440	\$ 5,440	\$ 5,440
Annual Miscellaneous Water Revenues	\$ 1,626	\$ 1,642	\$ 1,659	\$ 1,675	\$ 1,692
Annual Tap-In Fees	\$ 2,500	\$ 25,000	\$ 25,000	\$ 25,000	\$ 30,000
Total Projected Water Revenue	\$ 1,044,408	\$ 1,088,878	\$ 1,133,773	\$ 1,180,688	\$ 1,228,736

Projected Water Surplus / (Deficit)	2023	2024	2025	2026	2027
Projected Expenses	\$ 1,044,344	\$ 1,088,411	\$ 1,133,108	\$ 1,179,831	\$ 1,228,739
Projected Revenues	\$ 1,044,408	\$ 1,088,878	\$ 1,133,773	\$ 1,180,688	\$ 1,228,736
Projected Annual Water Surplus / (Deficit)	\$ 64	\$ 467	\$ 665	\$ 856	\$ (3)

Calculated 2023 Water Rate Needed to Balance Draft Budget

Minimum Quarterly Bill	\$ 49.00	
Quarterly Service Charge	\$ 13.35	
Quarterly Capital Improvement Charge	\$ 61.32	
Total Minimum Quarterly Charge	\$ 123.67	
Additional Usage > 4,000 Gal/Quarter	\$ 12.25	/1,000 Gallons

**Reserve Township
Sewer Rate Analysis**

1. Summary of Sewer Rates

Note: Blue shaded cells are for user input. Unshaded cells are calculated values.

Sewer Expenses and Revenues	2023	2024	2025	2026	2027
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Projected Annual Sewer Expenses

To adjust future expenses enter estimated annual escalation factors in Sheet 2 - Net Projections

Projected Annual Operating Expenses	\$ 707,292	\$ 741,922	\$ 778,284	\$ 816,464	\$ 856,554
Projected Annual Capital Expenses	\$ 250,110	\$ 262,616	\$ 275,746	\$ 289,534	\$ 304,010
Total Annual Sewer Expenses	\$ 957,402	\$ 1,004,538	\$ 1,054,030	\$ 1,105,998	\$ 1,160,564

Projected Annual Sewer Revenues

Enter estimated future rate values in blue shaded cells below. Other values are calculated.

To adjust future interest, miscellaneous and tap-in revenues enter escalation factors in Sheet 2 - Net Projections

Future Number of Customers	1,450	1,460	1,470	1,490	1,492
Twp Customer Cost per 1,000 gal	\$ 13.21	\$ 14.00	\$ 15.00	\$ 16.00	\$ 17.00
Minimum Quarterly Sewer Bill / Customer	\$ 52.84	\$ 52.84	\$ 52.84	\$ 52.84	\$ 52.84
Quarterly Alcosan Service Charge / Customer	\$ 21.88	\$ 21.88	\$ 21.88	\$ 21.88	\$ 21.88
Quarterly Capital Improvement Charge / Customer	\$ 28.60	\$ 32.75	\$ 35.25	\$ 38.30	\$ 42.25
Quarterly Girty's Run Admin Fee	\$ 16.00	\$ 16.00	\$ 16.00	\$ 16.00	\$ 16.00
Estimated Delinquency Rate	5%	5%	5%	5%	5%
Annual Minimum Bill Revenue	\$ 291,148	\$ 293,156	\$ 295,164	\$ 299,180	\$ 299,582
Annual Overage Revenue	\$ 381,100	\$ 403,891	\$ 432,741	\$ 461,590	\$ 490,439
Annual Water Service Charge Subtotal	\$ 120,559	\$ 121,390	\$ 122,222	\$ 123,885	\$ 124,051
Annual Capital Improvement Charge Subtotal	\$ 157,586	\$ 181,697	\$ 196,907	\$ 216,855	\$ 239,541
Annual Interest Earnings	\$ 4,620	\$ 4,620	\$ 4,620	\$ 4,620	\$ 4,620
Annual Tap-In Fees	\$ 3,500	\$ -	\$ 3,500	\$ -	\$ 3,500
Total Projected Sewer Revenue	\$ 958,514	\$ 1,004,755	\$ 1,055,153	\$ 1,106,129	\$ 1,161,733

Projected Sewage Surplus / (Deficit)	2023	2024	2025	2026	2027
Projected Expenses	\$ 957,402	\$ 1,004,538	\$ 1,054,030	\$ 1,105,998	\$ 1,160,564
Projected Revenues	\$ 958,514	\$ 1,004,755	\$ 1,055,153	\$ 1,106,129	\$ 1,161,733
Total Annual Sewage Surplus / (Deficit)	\$ 1,112	\$ 217	\$ 1,123	\$ 131	\$ 1,169

Calculated 2023 Sewer Rate Needed to Balance Draft Budget

Minimum Quarterly Bill	\$ 52.84
Alcosan Quarterly Service Charge	\$ 21.88
GRJSA Admn Fee	\$ 16.00
Quarterly Capital Improvement Charge	\$ 28.60
Alcosan Customer Total Minimum Quarterly Charge	\$ 103.32
GRJSA Customer Total Minimum Quarterly Charge	\$ 119.32
Additional Usage > 4,000 Gal/Quarter	\$ 13.21 /1,000 Gallons