

MEMORANDUM

Operations & Maintenance Cost Opinion
Transfer of Wells College Water System
Village of Aurora
Cayuga County, New York

Date: November 18, 2024

To: James Orman, Mayor

From: Greg Mosure, P.E./B&L *GDM*
Olivia Hicklen, P.E./B&L

Cc: Ken Teter, P.E./K. Teter Consulting

RE: Water Treatment Plant Operational Costs, rev 3

Summary and Methodology

The Village of Aurora retained Barton & Loguidice, D.P.C. (B&L) on June 26, 2024 to support the Village's efforts in assuming ownership and operation of the Wells College water system. This report estimates the costs that the Village may expect to incur when taking over the operation and maintenance responsibilities of the water treatment plant. The analysis estimates annual operating costs over the next five years. The analysis also considers replacement costs of short-lived assets; that is, assets expected to be replaced within the next five years. The capital cost of short-lived asset replacement was amortized over the five-year study period.

The Village's adopted 2024-2025 water budget is **\$118,100**. At the average annual consumption of 11,351,783 gallons, this budget equates to an average water rate of **\$10.40/1000 gallons**. In assuming operation of the Wells WTP, this analysis estimates the Village's cost to operate the expanded water system may *increase* by **\$115,686/year**. Including the additional costs of the plant, the Village's total anticipated operating cost may be as much as **\$318,879/year**.

Based on this historical water usage, this cost equates to approximately **\$28.09/1000 gallons**. The increased cost associated with operating the WTP represents a user cost *increase* of **\$17.69/1000 gallons**. A summary of cost components is tabulated below. Details of our analysis is described herein.

Table 1: Summary of Costs

Cost Component	Annual Cost
Annual operating costs	\$207,563
Village annual water budget	\$118,100
Short-lived assets	\$31,812
Wholesale water cost	(\$38,596)
Total annual cost	\$318,879



Annual Operating Costs

Labor, Salaries, and Benefits

The annual operating costs include the salaries and benefits for the two primary operators and the operational expenses for the WTP. The Village currently employs two licensed water plant operators to operate the WTP. The salary amount for the Water Operator was provided by the Village based on the actual figures for the base salary plus the fringe benefits provided to each operator.

Operational Costs

The operational costs include operator training, contracted services, plumbing services and supplies, and tools for use at the WTP.

Revenue Water Loss

The water plant operators manage disinfection by-products (DBPs) during the summer months with a hydrant flushing program. The WTP operators flush nine hydrants per month from May through November. The Village buys this water from Wells, but does not bill customers directly. The revenue water loss is the amount of revenue lost to the Village from managing DBPs through the hydrant flushing program.

Utilities

The cost of providing electricity and heat to the WTP is included in Table 2 below as the utilities costs. The annual electric cost is based on a recent monthly billing since the Village took over operations. The cost for propane gas to heat the facility is an estimate since the new boiler system is now being installed.

Property Insurance

The property insurance costs in Table 2 includes an estimated \$6,000 increase to the Village's insurance premium to insure both the WTP building and the elevated water storage tank located on the Wells College campus.

Purification

The purification costs include the costs of the chemicals utilized in the treatment process, the laboratory fees for monthly testing, and DEC permit fees. After reviewing the chemical purchase orders for the WTP, the WTP ordered 20 bags of diatomaceous earth (DE) over a 6-month period; however, the WTP operators stated that the WTP uses approximately 60 bags of diatomaceous earth (DE) per year. The Wells operators noted that they can perform two backwash cycles per bag of DE, and during the summer months have been backwashed the DE filters after 15 hours of production. The filtration costs included in Table 2 below were computed using the unit cost rate from the 2023 to 2024 chemical purchase order for the WTP and the quantity stated by the Wells College operators.

The WTP adjusts the amount of sodium hypochlorite used for disinfection depending on the raw water quality of the lake. The Wells operators use one 5-gallon container of sodium hypochlorite approximately every other day during the summer. In the winter, they use one 5-gallon container of sodium hypochlorite every week. The chemical purchase order included the purchase of 118 5-gallon containers of sodium hypochlorite per year. The disinfection costs included in Table 2 below were

computed using the unit cost rate from the 2023 to 2024 chemical purchase order for the WTP for sodium hypochlorite.

Table 2: Annual Operating Costs

	Cost
WATER PLANT OPERATIONS	
Labor, Salaries, Benefits	\$146,600
Operational Costs	\$14,250
Revenue Water Loss	\$500
Utilities	\$22,000
Property Insurance	\$6,000
	\$189,350
PURIFICATION	
Filtration (Diatomaceous Earth)	\$3,480
Disinfection (Sodium Hypochlorite)	\$4,133
Hydrochloric Acid	\$200
Water Softener Pellets	\$2,150
Lab Fees	\$8,000
DEC Permit Fees	\$250
	\$18,213
Total Annual Costs	\$207,563

Short-Lived Assets

B&L performed an assessment of short-lived assets (SLA) to calculate the required annual SLA reserve contribution to finance potential replacements and repairs at the WTP over the next five years. The SLAs for the WTP include a bi-annual intake cleaning and replacing the diatomaceous earth transfer pump.

The costs for replacing the granular activated carbon (GAC) media for the pressure vessels was not included in this assessment as the WTP currently has one GAC media replacement for the pressure vessels stored on site. The GAC system is brought on-line seasonally during harmful algal bloom (HAB) season (May through November) and are tested every year before they are put into service. The Wells WTP operators have found no breakthrough in the pressure vessels.

The Wells operators clean the intake every other year to remove infestations of Zebra mussels. While the diatomaceous earth transfer pump is operating without issue, it has been included as short-lived assets as it can be a point of mechanical failure within the WTP and are not currently scheduled for replacement. The sodium hypochlorite feed pumps were not included in the scope of this assessment as Wells College is planning to rebuild these pumps with remaining grant funds.

Table 3 summarizes the short-lived assets associated with the operation of the Water Treatment Plant. The annual SLA reserve contribution is the annualized cost that should be set aside each year to pay for replacement equipment when it exceeds its useful life.



Table 3: Short-Lived Assets

Equipment	Quantity	Unit Cost	Useful Life (yr)	Required Annual SLA Reserve Contribution
Cleaning Intake	1	\$150,000	2.5	\$30,897
DE Transfer Pump	1	\$5,000	5	\$915
Total Annual Short Lived Assets				\$31,812

Water Rates

The average Village water consumption from 2022 to 2024 is 11,351,783 gallons per year. The Village pays \$4.40/1000 gallons to Wells College to purchase water wholesale. The Village then bills residential customers for their water use at a rate of \$7.80/1000 gallons plus a \$35 flat fee. At these rates, the Village pays Wells \$49,948 per year to buy water wholesale, then generates \$88,538 in revenue through residential customer billing. If the Village takes over water plant operation, the Village would still bill customers for usage, but payments to Wells would cease. This represents a cost savings of \$38,590.

Wholesale water purchase cost	(\$49,948)
Village water revenues	\$88,538
Net increase to water revenue	+\$38,590

In this analysis, this cost savings is applied to the Water Budget as a reduction in total cost to the Village to operate and maintain the water system, as reflected in Table 1.

The Village charges for \$7.00/1000 gallons for water haulers. Commercial customers are charged \$8.35/1000 gallons plus a \$35 access flat fee. Inns of Aurora spa and outside customers are charged \$11.70/1000 gallons plus the \$35 access fee. At the time of this analysis, the number of EDUs, commercial customers, and individual billing/metering was not available. This analysis is based on the residential rate only and does not factor in the flat fee. It is therefore considered a conservative estimate of cost to the Village.

Summary and Conclusions

The annual operational costs estimated and presented within this memorandum were computed based on available information from the Village and from Wells College.

Following discussions with the Village of Aurora, the Village does not have the resources to generate revenues to support the operation of the Wells WTP. Additional strain has been placed on the Village as the population served by the Wells Wastewater Treatment Plant (WWTP) has significantly reduced, by approximately 65 percent, due to the closing of Wells College. With the reduced population, the flow conveyed to the WWTP will be reduced and therefore Village will no longer receive the annual revenue payment from Wells College of approximately \$50,000 to \$60,000. It is important to understand that the implications of the combined additional costs and reduced revenue are significant to a small village whose total annual budget this year is \$1.12 million. Assumption of WTP operation and maintenance obligations puts the Village in a financially unsustainable position without financial assistance.



As discussed in the annual operating costs section, the Village of Aurora has hired two full time operator(s) to run the Wells College WTP. In addition to the annual operating costs, the Village of Aurora would benefit from hiring technical and legal consultants to assist in navigating the transition process. There are expected to be other financial impacts that have not been identified to date.

Finally, it is recommended for the Village of Aurora to draft a Preliminary Engineering Report (PER) which can further examine the annual operational costs and all potential alternatives of taking over the Wells College WTP. A PER would also be used to list the potential project on the NYS Environmental Facilities Corporation (EFC) Intended Use Plan (IUP) and position the Village for grant funding through the NYS Drinking Water State Revolving Fund (DWSRF) and Water Infrastructure Improvement Act (WIIA). This interim financial assistance could be leveraged to help the Village manage its public water assets in a financially sustainable manner.