Trojan UV System Replacement
Cardinal Water Treatment Plant

2025 Budget

Trojan UV System Replacement

Executive Summary

The Cardinal Water Plant utilizes two Trojan UV Swift Gen 1 Systems. The UV Systems play a critical role in the inactivation of disease-causing organisms including Cryptosporidium, Giardia and Viruses. Cryptosporidium and Giardia outbreaks have occurred around the world causing gastrointestinal disease and severe illness in vulnerable populations. The UV Systems were installed and commissioned in 2003 as part of a larger WTP upgrade outlined in our Engineer's Report prepared as an outcome of the Walkerton Inquiry.

Business Need

Trojan UV provided notice that critical components including the Programmable Logic Controller (PLC) and dosimeter boards are obsolete and can no longer be purchased. Spares were purchased of available stock to ensure adequate protection until the UV systems are replaced. Additional parts including the High-Definition Multimedia Interface (HDMI) touch screen are difficult to locate and the current software is out dated. Trojan UV is recommending replacing the UV reactors and panels with the Generation 2 model.

This project requires engineering services. Environmental Services contacted three qualified firms for pricing.

Engineering Firm	Price
Greer Galloway	$39,670
WSP Engineering	$52,900
Nova tech	Declined to price.

Phase 1

- Review to confirm the Trojan UV Swift Gen 2 is a direct replacement.
- Review proposed unit, assist with specific requirements, including discussions with H2Flow.
- Prepare design drawings for mechanical and electrical, including removals.
- Prepare technical specifications and scope of work.
- Provide a cost estimate to complete this project (supply, installation and commissioning).

Phase 1

- Coordinate with Supervisory Control and Data Acquisition (SCADA) service provider- Schneider Electric. Liaise with provider to ensure compatibility with existing system, define scope of work for installation, and specify scope for tendering purposes. Integrator to work directly for Township.

Phase 2

Engineering services in phase 2 would include:

- Develop and issue tender package.
- Tender period assistance including response to questions via addendums, attendance at one bidders meeting.
- Provide a recommendation for contractor awarding.
- Contract administration for project.

This is a significant project for a small user-based system to cover without utilizing the 2025 OCIF funding. The 2025 OCIF funding will be $475,142. The Cardinal Water System Reserve fund currently has a balance of $781,299.66.

Options or Solutions Analysis

Option 1: Award Greer Galloway the engineering and contract administration services. Tender project in 2025, return to Municipal Council with a recommendation and seek direction.

Option 2: Status quo. Delay replacement with the increased risk that spare parts will become unavailable.

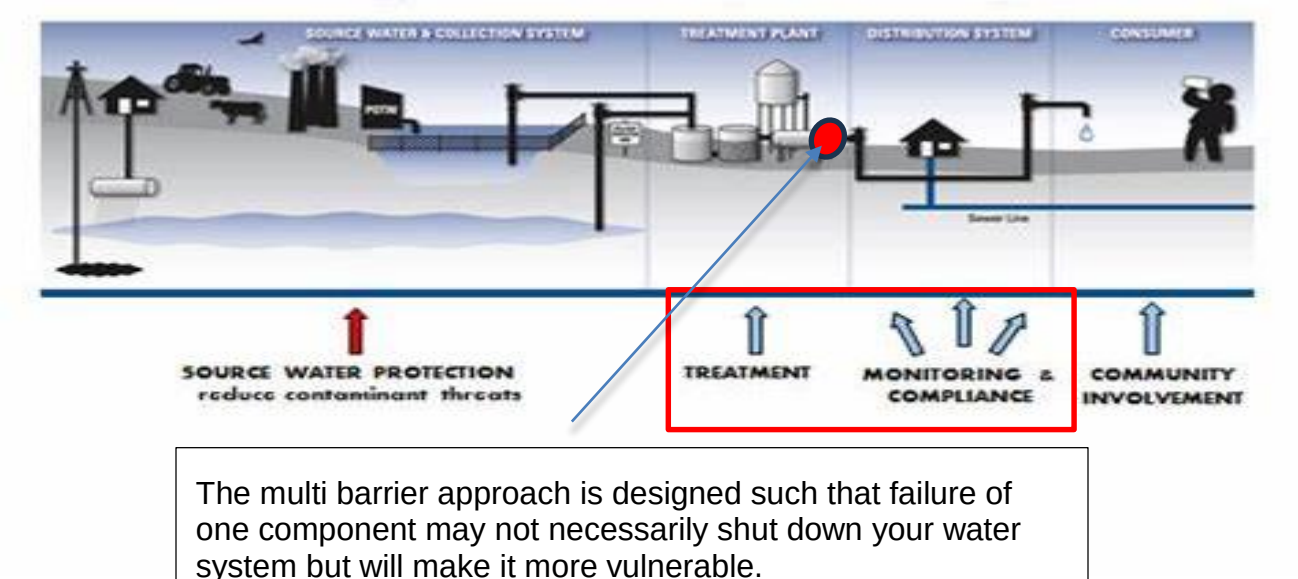
Financial and/or Non Financial Benefits

Option 1: This project is estimated to cost between $400,000-500,000. Revenue sources to cover the estimated project cost is $300,000 from the 2025 OCIF funding and the remainder from the Cardinal Water System Reserves. Replacing the UV system will reduce the likelihood of failure and disruption to the treatment process.

Option 2: No initial capital costs.

Risk Analysis

The UV Systems play a critical role in the multi barrier approach for ensuring safe drinking water to consumers. The UV systems provide removal credits for the inactivation of Giardia, Cryptosporidium and Viruses. Losing the UV system would require enhanced chlorination in order to achieve the minimum credits required for disinfection. During the winter months, without the UV, our flow rate capacity would be substantially decreased in order to achieve the necessary credits required due to colder temperatures and pH. This could impact supply availability for fire protection and potentially lead to health and regulatory compliance issues.



The multi barrier approach is designed such that failure of one component may not necessarily shut down your water system but will make it more vulnerable.

Recommendation

That Committee recommend that Municipal Council include the estimated $500,000 project into the 2025 budget for the Cardinal Water System and authorize staff to issue tender documents requesting submissions from qualified bidders and return to Council with tender results and final recommendation

Implementation Plan

Award engineering by end of December 2024. Issue request for tender documents by January 2025. Council award of successful bidder by end of February. Installation and commissioning in May or June 2025.

Documentation

Greer Galloway engineering proposal.

Acceptance Sign-off

Lead Department

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