



Date: October 16, 2018

To: Mayor Mary Smith and Council Members

From: R. Lane Vance, Manager of Financial Services
Adam Tobin, Project Coordinator-Water&Sewer

Subject: Water Treatment Plant SCADA Upgrades

Status: For Endorsement

Recommendation

That the report entitled Water Treatment Plant SCADA Upgrades be received for information; and

That staff be directed to finalize details of an agreement with WSP Canada Inc. to complete services in relation to SCADA upgrades at the Lakefield Water Treatment Plant based on their proposal and adjusted project price of \$178,079 (HST excluded); and

That contract administration for this project be completed by representatives from CIMA Canada Inc. at an approximate cost of 6% of the actual contract price or \$11,000.

That a by-law to execute an agreement with WSP Canada Inc. be forwarded to the by-law section of tonight's agenda for Council consideration.

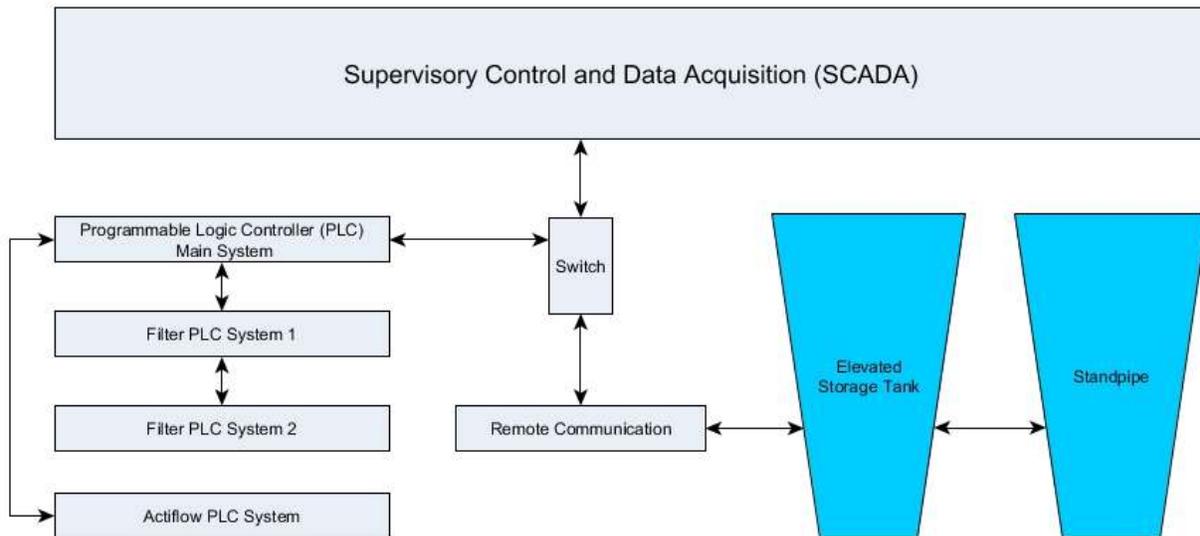
Information

Supervisory Control And Data Acquisition

SCADA (supervisory control and data acquisition) is a category of applications for process control and the gathering of data in real time from remote locations in order to control equipment and conditions. SCADA is used in power plants as well as in oil and gas refining, telecommunications, transportation, and water and waste control. SCADA systems include hardware and software components. The hardware gathers and feeds data into a computer that has SCADA software installed. The computer then processes this data and presents it in a timely manner. SCADA also records and logs all events into a file stored on a hard disk or sends them to a printer. SCADA applications also warn when conditions fall outside of set points by sounding alarms.

The Lakefield Water Treatment Plant utilizes SCADA to control valves, pumps, sensors, and monitors. The SCADA system connects through three Allen-Bradley SLC500 Program Logic Controllers (PLC's). These PLC's in turn communicate directly and remotely with the various components of the treatment and distribution network.

Lakefield Water Treatment Plant



The SCADA software simultaneously manipulates plant operations to accommodate operator adjusted set points. Logic and interlocks within the program help to maintain plant operation within Ministry of the Environment Conservation and Parks compliance and permit limits.

The current SCADA system is based on old IFIX software using a MS Windows XP operating system. This system was installed as part of the plant upgrades that were completed in 2004.

The Programmable Logic Controllers and the proprietary communication network currently used have reached end of useful life. Allen Bradley no longer manufactures the SLC500 model. Replacements are sourced from vendors limited remaining stock or second hand units from upgrades at other facilities.

2018 Project Details

Township staff has secured quotes from three of the main vendors specializing in water and wastewater treatment process control; WSP Canada, Summa Engineering and Eramosa Engineering. The quotes were reviewed by Township staff, consulting engineers at CIMA Canada Inc.(CIMA+) completed a comparative table and a detailed review of the vendor proposals was completed.

CIMA+'s assessment is based on the information contained in the above noted proposals including follow up discussions and correspondence with the respective vendors to clarify the scope of supply and services. The proposals were reviewed by CIMA+, with vendor costing adjusted, to ensure the evaluations were based on a reasonably equivalent scope of work. A summary of the adjusted vendor prices is as follows:

- WSP - \$178,079.00 (excluding HST)
- Summa (Option 1) - \$203,706.00 (excluding HST)
- Summa (Option 2) - \$224,014.00 (excluding HST)
- Eramosa - \$243,074.39 (excluding HST)

Through this review it was concluded that WSP Canada provided the best value for the identified scope of work.

The WSP Canada proposal is based on a single option for the upgrade of the existing PLC hardware, related PLC programming and SCADA integration. The proposed WSP Canada PLC upgrade solution is based on the Allen Bradley ControlLogix PLC hardware platform and includes supply of uninterrupted power sources for the main panel and Actiflo panel.

The intended scope of work includes the following:

- PLC programming based on all new logic (not a conversion of the existing SLC500 code)
- WSP to develop a detailed plant control narrative for review by the Township
- 90% SCADA screens to be submitted for Township review
- Site review meeting to identify current status of all PLC connected equipment including a meeting with Township & Operations staff to identify current operational concerns
- Site meeting to plan switch-over & commissioning once all off-site work is complete
- Integration of the two off-site facilities (elevated tank, standpipe) into the new control system

Coordination and software development of this project is expected to occur in the remaining months of 2018, with installation of the new SCADA system in early 2019.

In addition, a scope of work and price proposal has been requested for the integration of the new George Street pumping station into the SCADA system as a provisional item to the project. The George Street pumping station project will be complete in December and work to integrate the station would be completed after the new SCADA system is commissioned. Further information will be provided as part of the 2019 capital budget process.

Strategic Plan Reference

Achieve excellence in governance and service delivery.

Financial Impact

While the SCADA upgrade is included in the approved 2018 budget, based on timing this project will carry over into the 2019 budget year. As well, communication channels will include the new George Street Pumping Station with costs allocated to the Sewer department. As such, updated capital sheets will also be included in the 2019 Water and Sewer capital budget.

Funding for these upgrades are through Transfers from the Lakefield Water reserve and Lakefield Sewer reserve.

Adam Tobin

Prepared By: Adam Tobin, Project Coordinator – Water & Sewer

R. Lane Vance

Prepared By: R. Lane Vance, Manager of Financial Services

Janice Lavalley

Approved By: Janice Lavalley, CAO