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<b>TO:</b>	<b>CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON MAY 5, 2015</b>
<b>FROM:</b>	<b>JOHN BRAAM, P. ENG. MANAGING DIRECTOR, ENVIRONMENT AND ENGINEERING SERVICES &amp; CITY ENGINEER</b>
<b>SUBJECT:</b>	<b>SCADA SYSTEM INTEGRATION SERVICES</b>

<b>RECOMMENDATION</b>
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That, on the recommendation of the Managing Director of Environment and Engineering Services & City Engineer, the following report **BE RECEIVED** for information.

<b>PREVIOUS REPORTS PERTINENT TO THIS MATTER</b>
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None.

<b>BACKGROUND</b>
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**PURPOSE**

This report outlines why Supervisory Control and Data Acquisition (SCADA) integration will be carried as a cash allowance in general contract tenders and how the integration component will be awarded following the City's Procurement of Goods and Services Policy.

**CONTEXT**

The City of London SCADA system is one the largest and most complex in Ontario, managing the remote operation of six wastewater treatment plants, 35 wastewater pumping stations, six water pumping stations, various water treatment processes, well systems and 15 water control chambers. SCADA Integration involves translating the concept of how the various equipment and sensors will interact into computer code to ensure the equipment performs as expected. Few design engineering firms have the expertise and experience to work on London's SCADA system. Specifying the integration consultant and assigning the work as a cash allowance under a general contract award allows engineering firms without integration expertise to complete the project design while ensuring only qualified firms have access to the City's SCADA system. It also allows the general contractor to retain control of scheduling and coordination of an entire project, limiting the potential for claims against the City.

**DISCUSSION**

London's wastewater and water infrastructure is constantly undergoing upgrades which often include modifications to the SCADA system, the nerve centre that monitors and controls the equipment and sensors across the City. London has staff dedicated to maintaining the operation and security of the system including implementation of the many software upgrades needed to keep it operational. These staff members also integrate smaller equipment and process upgrades and work with consulting firms on larger, more complex upgrades which are too large to complete in house.

Successful SCADA integration is absolutely critical to the completion of construction projects for water and wastewater facilities. Integrating the new work into the complex SCADA network is usually one of the final tasks completed in a project and can impact the progress and ultimately a contractor's ability to achieve substantial completion of a project; however, the scope of the SCADA component of the design assignment is not well defined at the time that a request for

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proposal (RFP) for project design engineering services is issued.

The City has developed SCADA standards to guide the development and integration of new programming into the system. Even with the standards integrators may implement changes based on their own design standards and preferences which could quickly lead to a slow, unstable system prone to “crashing”. The City restricts this work to familiar, knowledgeable and trustworthy firms as these companies require full access to the system while performing the work. Currently there are only two firms with experience on London’s SCADA system.

Integration is typically priced on the number of sensors and control devices (SCADA inputs and outputs) required which is only known near the end of the project design stage. Staff will request pricing from potential integrators at this stage and assign the work following the City’s Procurement of Goods and Services Policy. For reference, the total cost for SCADA integration on the pending \$43 million Greenway expansion will approach \$400,000.

**Summary**

Including SCADA integration as a cash allowance under the general contract allows staff to assign the work to a firm experienced with the system when sufficient information for accurate pricing detail is available, all while still enabling the general contractor to control the scheduling and coordination of the work. It also enables engineering firms without sufficient integration expertise to continue to be competitive for the design portion of City wastewater and water projects. The award of the integration component will follow the City’s Procurement of Goods and Services Policy and will be reported to the Municipal Council as required under this policy.

**ACKNOWLEDGEMENTS**

This report was prepared with assistance from Mark Spitzig and Kirby Oudekerk, P.Eng., Wastewater Treatment Operations and John Freeman, Purchasing and Supply.

<b>PREPARED BY:</b>	
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<b>REVIEWED BY:</b>	<b>RECOMMENDED BY:</b>
<b>JOHN LUCAS, P. ENG. DIRECTOR, WATER and WASTEWATER</b>	<b>JOHN BRAAM, P.ENG. MANAGING DIRECTOR, ENVIRONMENTAL &amp; ENGINEERING SERVICES &amp; CITY ENGINEER</b>