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JOINT STUDY WITH THE CITY OF TORONTO – WATER SYSTEM SUSTAINABILITY DURING A MAJOR POWER FAILURE

The Transportation and Works Committee recommends the adoption of the recommendation contained in the following report, May 15, 2007, from the General Manager, Water and Wastewater:

1. RECOMMENDATION

It is recommended that:

1. Staff report back to the Transportation and Works Committee and Regional Council on the findings of the joint study with the City of Toronto to examine water system sustainability during a major area wide power failure.

2. PURPOSE

This report informs the Transportation and Works Committee and Regional Council of a joint project with the City of Toronto which will evaluate and recommend optimum solutions for continuing to supply drinking water during a major black out situation.

3. BACKGROUND

In August 2003, there was a widespread power black out in the southern parts of Ontario and parts of the north eastern United States. Though water supply was maintained throughout York Region during this time, the black out greatly impacted the ability of several municipalities to continually supply safe drinking water to consumers.

As a result of this black out, the American Water Works Association published the *“Emergency Source Planning for Water and Wastewater”*, which states on page 43 that *“current regulations and recommended practices for water treatment and distribution tend to focus on average-day demand scenarios. However, without a thorough study of requirements and capacity, average day demand may be insufficient during a power outage.”* All this has led most water supply providers to re-evaluate their capabilities to supply water during a black out.

As a consequence, the City of Toronto initiated a study that will evaluate the water treatment and supply system’s ability to continually supply drinking water to the system service area. York Region draws water from the City of Toronto system and much of the background technical work has been completed through the Joint Optimization Study to include York Region. The Transmission Operations Optimizer project, York Region and Toronto proposed to include the York Region water system in the study scope for the system sustainability project.

This arrangement is in accordance with the 2005 Water Supply Agreement between the City of Toronto and York Region. Section 7.6 of the agreement partly states that “parties shall use their best efforts to complete joint infrastructure studies” and that “parties shall share in the cost of any joint infrastructure studies”.

Funds for this project are allotted within the Region’s approved 10 year capital program under the “Toronto Cost Shared Projects” line item.

4. ANALYSIS AND OPTIONS

The main elements of the project, project management and the benefits to York Region in participating are outlined in subsequent subsections.

4.1 Project Description

The City of Toronto has retained Earth Tech Canada to provide engineering services for a water treatment and supply sustainability study including stand-by power and storage requirements. The study will evaluate the optimum solution for continuing to reliably supply drinking water to the City of Toronto service area and the integrated York water system, which currently includes Aurora, Newmarket, Markham, Richmond Hill, Vaughan.

The study will consider a City and Region wide power failure for a period of 24 hours, 48 hours, 72 hours and 96 hours and review how the system responds to these events. The study will investigate the feasibility of using standby power at facilities, increased storage at treatment plants and/or at water supply storage facilities and the provisions to supply water by gravity from higher pressure districts.

The study will produce a cost for each recommendation, including but not limited to the cost for an Environmental Assessment, design and construction. It will also produce a schedule for implementation and examine the impact to water quality, operations, maintenance life cycle costs and the impact of the recommendations to the Joint Optimization Study.

4.2 Project Management

Project management will be through a steering committee comprised of staff from the City of Toronto and York Region. As with previous joint studies projects and other cost-shared works projects with the City of Toronto, consultant contracts are with the City of Toronto and York Region pays its agreed share of the project cost directly to the City

In January 2007, the City of Toronto issued a Request for Proposal (RFP) to provide engineering services for a water treatment and supply sustainability study. The 3 proposals received were evaluated by a joint technical team comprised of City of Toronto and York Region staff. The process resulted in the City of Toronto awarding the

assignment to Earth Tech Canada in April 2007. It is anticipated that the study will be done in 6 months, with completion scheduled for end of November 2007.

4.3 Benefits to York Region

By participating in this project, York Region will realize a number of benefits including:

- Recommendations for improved security and reliability of the York Water system.
- Recommendations for improved management of the York Water system during an emergency situation.
- Efficient integration of the system with the City of Toronto including sharing of common practices and protocols.
- Efficient use of study investment by sharing project costs results at a lower cost for both York and Toronto.

Because the York and Toronto water supply systems are integrated and function as one system, it was necessary for York Region to participate in this project.

5. FINANCIAL IMPLICATIONS

Section 8.1(f) of the 2005 Water Supply Agreement between the City of Toronto and York Region agreement authorizes City of Toronto and Regional staff to agree on the cost sharing of any joint infrastructure studies, the City of Toronto and Region have agreed that, as with previous joint studies, York Region's share will be 50%. The 50/50 cost split ensures that Region staff have an equal share in steering the project. Capital costs of any resulting recommendation(s) would be shared based on pro-rata benefit to each party.

The fee for the consultant services is \$295,394 plus GST of which 50% is attributable to York Region. There is sufficient funding available in the 2007 capital budget under the Toronto Water Supply Cost Shared projects.

6. LOCAL MUNICIPAL IMPACT

This project will have a number of benefits to local municipalities served by the City of Toronto water system, including improved security, reliability and better management of the system during emergency situations.

7. CONCLUSION

This report provides an overview of the Toronto / York system sustainability study during a City of Toronto and York Region area wide power failure. Participation in this joint study will enable York Region to better serve the local municipal customers by

ensuring improved system security and reliability during a black out situation. In addition it will provide for better management of the system during emergency situations.

For more information on this report contact Ilmar Simanovskis, extension 5027, Manager Technical Support of the Water and Wastewater Branch in the Transportation and Works Department.

The Senior Management Group has reviewed this report.