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CONSULTANT SELECTION FOR YORK REGION'S WATER SYSTEMS

The Environmental Services Committee recommends the adoption of the recommendation contained in the following report dated September 20, 2012, from the Commissioner of Environmental Services.

1. RECOMMENDATIONS

It is recommended that:

1. AECOM Canada Ltd (AECOM) be engaged to provide engineering consulting services to undertake a criticality and vulnerability assessment and develop a risk management strategy for York Region's water systems as outlined in this report, at a fee of \$719,566 excluding taxes.

2. PURPOSE

This report seeks Council authorization to retain engineering consulting services to undertake a criticality and vulnerability assessment and develop a risk management strategy for York Region's water systems.

The Region's Purchasing By-law requires Council authorization to award a Request for Proposal (RFP) over \$500,000. In this case, the recommended proponent's bid is greater than \$500,000.

3. BACKGROUND

York Region owns and operates a complex system of infrastructure critical to delivery of reliable and quality water services

Infrastructure in York Region is key to the quality of life enjoyed by residents. Water infrastructure is a key enabler to provide drinking water services and it helps to sustain a growing community. Infrastructure owned by the Region forms the backbone of the water supply system in the Region. Water treatment, pumping, transmission and storage are critical components of the drinking water system.

York Region owns and operates two water treatment facilities, nineteen pumping stations, forty-two storage facilities, forty production wells, and three-hundred thirty kilometers of large diameter transmission mains. This infrastructure is critical to the reliability of water services. Infrastructure redundancies are key to mitigate risks

associated with infrastructure, which can have regulatory, health and safety, financial, performance and environmental consequences.

Water system criticality and vulnerability assessment will further enhance risk management efforts to date

The Region actively assesses, monitors and manages risk associated with the York water system as part of the Drinking Water Quality Management System (DWQMS) and ISO 9001. Element 7 of the DWQMS requires a risk assessment process to be documented that identifies potential hazardous events, as well as assesses and ranks the risks related to each hazardous event in the drinking water system. Reliability and redundancy of equipment is an integral part of the DWQMS risk assessment process. The DWQMS requires an annual risk review and a risk re-assessment every three years. The last annual risk assessment was completed in April 2011. These initiatives help proactively manage risk in accordance with the Statutory Standard of Care taking effect in January 2013.

One of the key objectives of the Asset Management Program is to manage and mitigate risk to water services through infrastructure renewal. This is carried out through prioritizing needed infrastructure improvements based on risk, determined by combining the consequence of failure with the probability of failure and redundancy.

The proposed water system criticality assessment project will undertake a comprehensive system-wide analysis to evaluate and update available system redundancy and determine additional redundant infrastructure necessary to further enhance the reliability of water services. This project will feed valuable information to the DWQMS and Infrastructure Improvement Planning process to further strengthen the Region's ability to mitigate risk. It will also assist the Infrastructure Management Program to develop and deploy risk management strategies, including condition monitoring and inspection programs for critical infrastructure. Similar assessment for the Region's wastewater system is planned to begin in 2014.

This assessment will inform asset management decisions where focus is necessary in order to carry out condition assessments and monitoring based on the infrastructure criticality and redundancy.

Master Plan Update 2009 recommended building adequate safety and redundancy into water system to ensure reliable water services

York Region is committed to providing safe, reliable and cost effective water services to customers through sustainable infrastructure planning and risk management. To ensure reliable water services, the 2009 Master Plan Update recommended (Recommendation #15) building appropriate safety measures and infrastructure redundancies in York Region's drinking water system to mitigate the risk of infrastructure failure.

To build on the work already done through the Region's implementation of quality management of the water systems including DWQMS and ISO 9001, Environmental Services intends to undertake a comprehensive study to assess the water system's vulnerability to infrastructure failure (e.g. watermain break in an area that does not have alternate flow routes, power failure at a facility with no backup power) and determine redundant infrastructure required to be built in the water system to minimize risk. Key components of this project include:

- Establish levels of service to be maintained during emergencies triggered by infrastructure failure
- Determine probability of failure and consequence of failure for each piece of critical infrastructure
- Analyze system vulnerabilities to the failure of critical infrastructure
- Determine required system redundancies to meet identified levels of service during emergencies
- Develop risk mitigation strategies for critical infrastructure
- Determine costs for viable risk management strategies and options
- Develop an implementation plan for risk mitigation options and strategies

4. ANALYSIS AND OPTIONS

Request for Proposal P-12-67 for the engineering consulting services issued through an open bid process closed on July 12

In accordance with the Region's Purchasing By-law, Request for Proposal P-12-67 was released to obtain engineering consulting services for a criticality and vulnerability assessment and development of a risk management strategy for York Region's water systems. Request for Proposal P-12-67 detailed the scope of work required, which included the following tasks:

- Literature review
- Establish levels of service to be maintained during emergency
- Hydraulic analysis and water system review
- Review and analysis of failure modes and likelihood of failure
- Risk assessment to determine infrastructure criticality and overall risk exposure
- System vulnerability analysis and assessment
- Development of risk management strategies
- Analysis of risk management alternatives/options
- Implementation plans for risk mitigation options
- Emergency preparedness plan for critical infrastructure

The Request for Proposal P-12-67 closed on July 12, 2012. The following six consulting firms submitted proposals:

- Associated Engineering (Ont.) Ltd.
- AECOM Canada Ltd.
- Cole Engineering Group Ltd.
- GHD Inc.
- SENES Consultants Limited.
- Stantec Consulting Ltd.

Proposals evaluated using the two-envelope system

Proposals were evaluated using the two-envelope system with technical and financial information submitted in two separate envelopes. The overall proposal score was evaluated based on a weighting of 80 points for the technical proposal and 20 points for the financial proposal. Technical proposals were evaluated prior to any knowledge of the financial proposal.

The Region's proposal evaluation team reviewed all six technical proposals based on the following criteria as listed in Request for Proposal P-12-67:

- Experience and credentials of the proponent
- Experience and qualifications of personnel assigned to the project
- Understanding of the assignment and methodologies endorsed in the proposal
- References
- Capacity to protect confidential information
- Relevancy of proposal with the scope of work as laid out in the RFP
- Familiarity with business processes for municipal program delivery
- Responsiveness to the RFP and completeness/comprehensiveness of submission
- Demonstrated full understanding of the project objectives
- Demonstrated willingness to comply with terms and conditions of the RFP
- Specific deliverables proposed in terms of meeting the requirements of the RFP
- Ability to provide research and analysis
- Quality of the proposal in terms of methodology and approach
- Ability to provide all services in accordance with the requirements of the RFP
- Availability of proponent to work within the project's schedule
- Ability to provide all services in a timely manner
- Value-added services

Technical components of the proposal must achieve a minimum technical score of 60 percent (48 points out of the potential 80 points) to have the financial portion of the proposal considered. If a proponent does not achieve this minimum technical score, their financial proposal is returned unopened. Four respondents (Stantec Consulting, Cole

Engineering Group, Associated Engineering (Ont.) and SENES Consultants) did not meet the minimum technical requirements for this project and consequently their submissions were not considered further. Technical and financial results for the two proponents that met the minimum technical requirements are summarized in Table 1.

Table 1
Consultant Proposal Evaluation Summary

Consulting Engineering Firm	Technical Score (out of 80)	Financial Score (out of 20)	Total Score (out of 100)	Total Price (\$)
AECOM Canada Ltd.	62.08	20.00	82.08	\$719,566
GHD Inc.	58.48	7.59	66.07	\$1,897,320

Given the characteristics and scale of the Region's complex wholesale water systems, there are unique and specialized requirements to assess the Region's water systems. This project requires expertise on vulnerability and risk assessment methodologies for large water systems. The skill sets required for this project encompass almost all aspects of the drinking water system, including large system design and analysis, operations, hydraulic modeling, and asset management. Many companies have strong expertise in some areas, but do not have the required skills and experience in other areas. Other contributing factors included lack of adherence to the full requirements and scope of the project.

Evaluation of proposals revealed AECOM achieved the highest total score and lowest price

The Region's proposal evaluation team, including Supplies and Services evaluated the proposal and AECOM achieved the highest total score which was attributed largely to the experience of the team and resources assembled for this project. The proposal submitted by AECOM represents the best overall value to the Region.

Supplies and Services reviewed the evaluation summary and issued an internal report confirming that AECOM be recommended as the successful overall proponent to undertake the engineering services related to a criticality and vulnerability assessment and development of a risk management strategy for York Region's water systems.

Link to Key Council-approved Plans

This project is important to ensure that critical infrastructure is identified and managed proactively to mitigate risk which aligns with the Region's 2011 to 2015 Strategic Plan objective of continuing to deliver and sustain critical infrastructure. This project also has a direct link with the 2009 Water & Wastewater Master Plan Update to ensure reliable and quality water services to customers.

5. FINANCIAL IMPLICATIONS

The fee for the proposed work being approved by this report is \$719,566 excluding taxes. Funds are allocated for this project in the approved 2012 10 year capital plan and this project is funded through water rates.

6. LOCAL MUNICIPAL IMPACT

The purpose of this project is to identify critical infrastructure in the Region's water system and manage it to ensure reliable and uninterrupted water services to customers. This project will help build appropriate redundancy in the drinking water system to minimize impacts of infrastructure failure, which will directly benefit local municipalities.

7. CONCLUSION

The engineering consulting services for the assessment of criticality and vulnerability of water infrastructure and the development of a risk mitigation strategy will help York Region to improve the reliability of water services.

Six proposals were received through an open bid process and evaluated for this project in accordance with the Region's Purchasing By-law. The proposal from AECOM represents the best overall value to the Region and it is recommended that AECOM be engaged to provide engineering consulting services to undertake a criticality and vulnerability assessment and development of a risk management strategy for York Region's water systems at a cost of \$719,566 excluding taxes.

For more information on this report, please contact Lucas Cugalj, Director, Strategy and Business Planning, Environmental Services at 905-830-4444 Ext. 5041.

The Senior Management Group has reviewed this report.