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SOLE SOURCE PURCHASE OF MULTI-SENSOR INSPECTION SERVICES FOR YDSS ASSESSMENT IN THE TOWN OF MARKHAM PROJECT 73770-08-01

The Transportation and Works Committee recommends the adoption of the recommendations contained in the following report dated June 2, 2009, from the Commissioner of Environmental Services.

1. RECOMMENDATIONS

It is recommended that:

1. Regional Council authorize entering into a contract with D.M. Robichaud Associates Ltd. (RedZone Robotics Inc.) for the supply of multi-sensor inspection services in the amount of \$368,609.96 exclusive of GST and PST.
2. The Regional Chair and Regional Clerk be authorized to execute the contract with D.M. Robichaud Associates subject to review by Legal Services.

2. PURPOSE

This report seeks Council approval for the sole source purchase of multi-sensor inspection services for two sections of the York Durham Sewer System (YDSS) in the Town of Markham.

The Purchasing By-law requires Council authorization for sole source purchases of goods, services or construction if the total cost exceeds one hundred thousand dollars (\$100,000).

3. BACKGROUND

Longitudinal cracks identified in Steeles and Markham Central Collectors

York Region uses a three-phased approach to the management of regional water and wastewater infrastructure including the YDSS. The first phase of the program involves an analysis of available data (i.e. location, age, past inspections, etc.) to determine potential risk areas in our water and wastewater infrastructure. The second phase of the program is the preliminary inspection of risk areas using Closed Circuit Television (CCTV) and visual inspections to establish actual sewer conditions. The third phase involves the detailed inspection of areas of concern in the infrastructure to determine mitigating capital project requirements.

The Environmental Services Department has been inspecting sewers using CCTV technology since 1996. Recent inspections have shown cracks in the 2400mm diameter Markham Central Collector sanitary sewer. This section of the sanitary sewer is located in the Town of Markham, east of McCowan Road and south of Highway 7 (*See Attachment 1*). Areas of concern were also identified in the 2100mm diameter Steeles Collector sanitary sewer. This section of sewer is located in the Town of Markham on Steeles Avenue between Bayview Avenue and Leslie Street (*See Attachment 2*).

Based on the CCTV inspection results, a more detailed inspection of both sanitary sewer sections is recommended to proactively assess current conditions including an analysis of any changes from the previous CCTV inspection and established flaws. This analysis will support decisions around required mitigating capital projects and required timelines. The work will also include a preliminary inspection of a section of the Steeles Collector that was not achievable through previous attempts to use conventional CCTV technology.

These cracks are currently not of an urgent nature, but over time without the proper review and potential mitigation, they could develop to cause more critical issues.

4. ANALYSIS AND OPTIONS

In order to perform the required detailed inspections, there are many constraining factors potentially influencing success. The Markham Central Collector and Steeles Collector sewers are of large diameter (2400mm and 2100mm respectively) and the sewers are live with large sewage flows. Distance between manholes for both sewer sections is quite long making for extensive monitoring lengths. Both sections are located under heavily travelled sections of the road and bypassing these sections is not cost effective. Access through the manholes is difficult and it is hard to manoeuvre equipment in the sewer. Previous attempts to utilize CCTV technology for the Steeles Collector sewer section between Bayview Avenue and the Leslie Street Pumping Station were unsuccessful, resulting in the preliminary inspection requirements noted in Section 3.0.

In accordance with the Infrastructure Management three-phased approach, these two sewers now require a detailed assessment. The assessments will assist in evaluating the overall structural condition and stability of the sewers in their current state. Rehabilitation alternatives to correct defects will be evaluated and the most suitable repair options and required timelines will be recommended.

It is recommended that multiple technologies including CCTV, 3D lasers, sonar, Ground Penetrating Radar (GPR) and hydrogen sulphide (H₂S) sensors be utilized to perform the detailed assessment. Use of these technologies will provide information on the current condition of the sewers including depth of the cracks, sedimentation in the pipe, life

expectancy of the sewers as well as give the current hydrogen sulphide level in various sections of the sewers.

D.M. Robichaud Associates Ltd. is the only firm using multi-sensor technology in Canada

D.M. Robichaud Associates is the only consulting firm in Canada that can perform the detailed assessment using multi-sensor inspection technology in live, large-diameter sewers with limited access using a single vehicle. This is the only viable technology to be used to complete the required inspections of the Markham Central Collector and the Steeles Collector.

This company recently completed inspection of sewers in other large municipalities including Toronto

D.M. Robichaud Associates has recently performed detailed crack assessments in large-diameter sections of sanitary sewer for the City of Toronto, the City of Hamilton, the City of Cambridge and the City of Kingston. D.M. Robichaud Associates is recognized as the industry leader in providing multi-sensor inspections of physically large and critical infrastructure including pipes, siphons, tunnels and outfalls.

5. FINANCIAL IMPLICATIONS

The cost to procure the multi-sensor inspection and assessment service is \$368,609.96, exclusive of GST and PST. Region staff has reviewed the cost and confirmed that, based on the scope of work, the price is in line with cost estimates and industry pricing. There are sufficient funds in the 2009 approved budget for Asset Rehabilitation, without affecting other projects.

6. LOCAL MUNICIPAL IMPACT

The Markham Central Collector and Steeles Collector sanitary sewers are integral components of the YDSS conveying sanitary flows from Vaughan, Richmond Hill and Markham. Conducting detailed inspections at potential risk areas is an important element of proactive management and maintenance of the YDSS. The Town of Markham, the City of Vaughan and the Town of Richmond Hill would be affected in the event of a sewer failure.

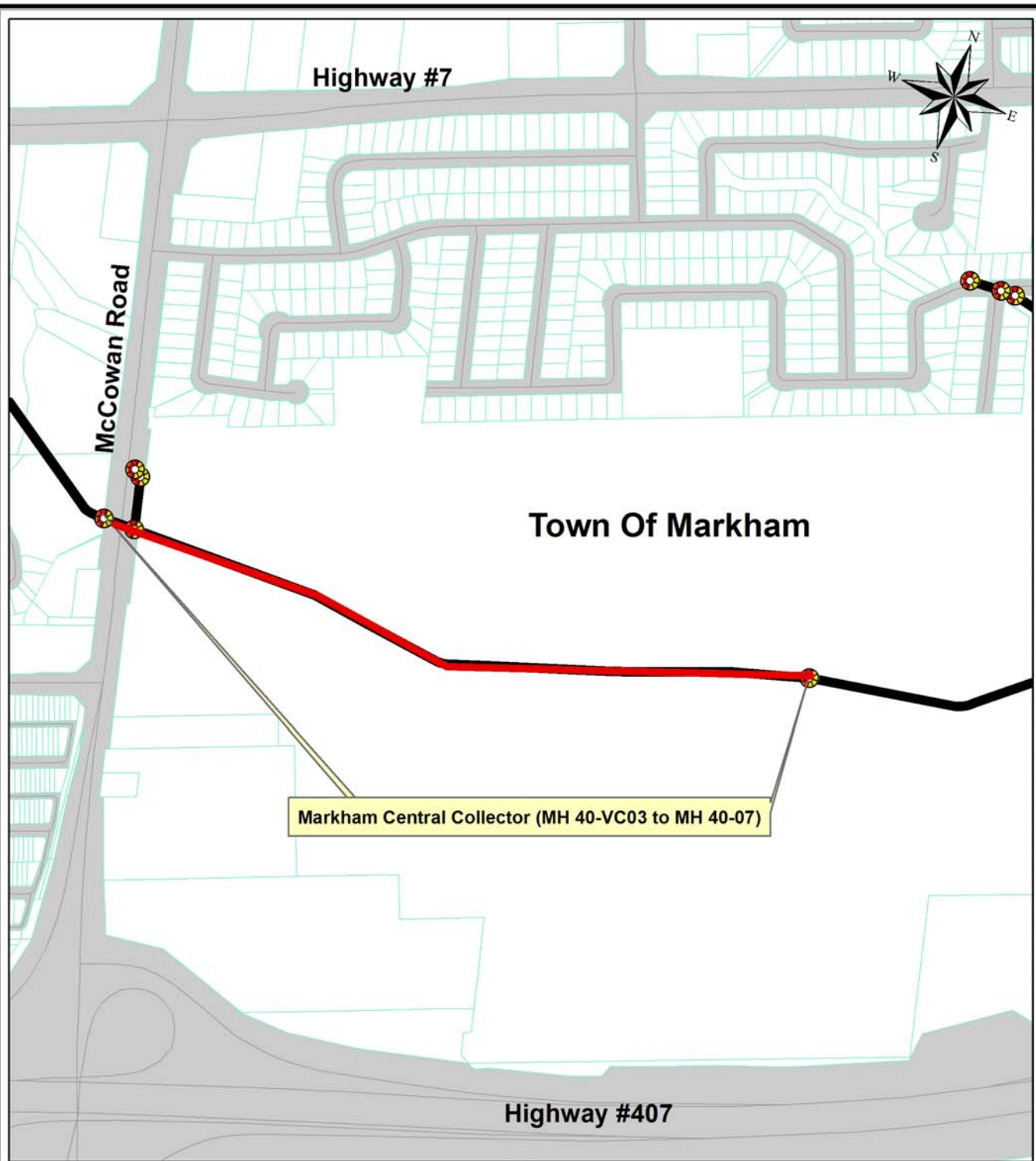
7. CONCLUSION

It is recommended that Regional Council authorize entering into a contract with D.M. Robichaud Associates for the supply of multi-sensor inspection services in the amount of \$368,609.96, exclusive of GST and PST.

For more information on this report, please contact Daniel Kostopoulos, Director, Capital Planning and Delivery, Environmental Services at extension 5070.

The Senior Management Group has reviewed this report.

(The two attachments referred to in this clause were included in the agenda for the June 17, 2009 meeting.)



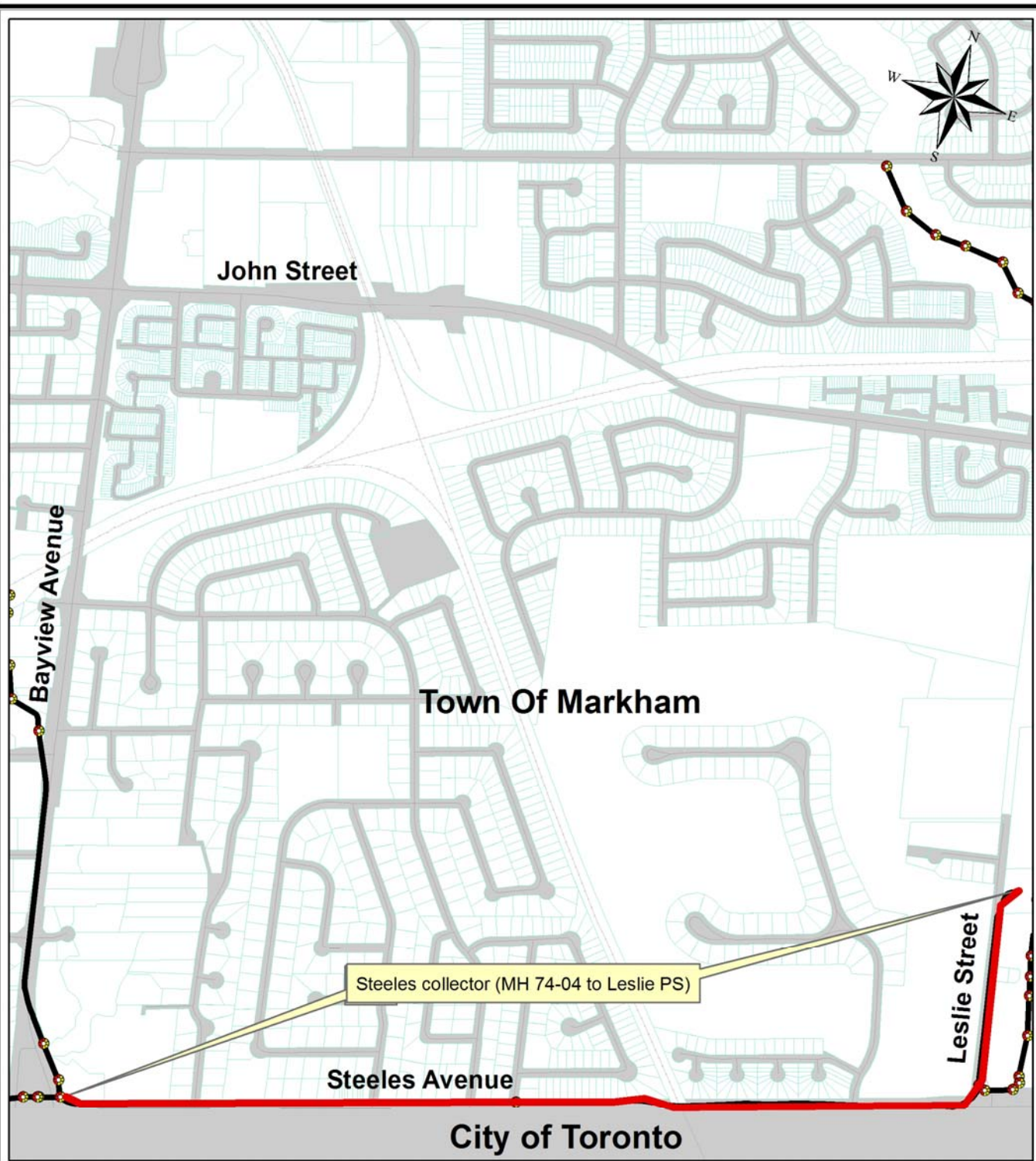
LOCATION PLAN
Multi-Sensor Inspection Services for YDSS Assessment
Markham Central Collector, Town of Markham



ENVIRONMENTAL SERVICES

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LOCATION PLAN

Multi-Sensor Inspection Services for YDSS Assessment
Steeles Collector, Town of Markham



ENVIRONMENTAL SERVICES