

Clause 12 in Report No. 4 of Committee of the Whole was adopted, without amendment, by the Council of The Regional Municipality of York at its meeting held on March 23, 2017.

12

Contractor and Consulting Services for Sewer Rehabilitation
Project in the City of Markham

Committee of the Whole recommends adoption of the following recommendations contained in the report dated February 16, 2017 from the Commissioner of Environmental Services:

1. Council authorize the Commissioner of Environmental Services to negotiate and execute a contract with Michels Canada Co. to rehabilitate the 16th Avenue Sewer in the City of Markham with a contract value of \$24,000,000, excluding HST.
2. Council authorize the Commissioner of Environmental Services to negotiate and execute a contract with Aldea Services, LLC for the design, preparation of project scope documents, site inspection and contract administration services for rehabilitation of the 16th Avenue Sewer in the City of Markham with a contract value of \$1,000,000, excluding HST.

Report dated February 16, 2017 from the Commissioner of Environmental Services now follows:

1. Recommendations

It is recommended that:

1. Council authorize the Commissioner of Environmental Services to negotiate and execute a contract with Michels Canada Co. to rehabilitate the 16th Avenue Sewer in the City of Markham with a contract value of \$24,000,000, excluding HST.
2. Council authorize the Commissioner of Environmental Services to negotiate and execute a contract with Aldea Services, LLC for the design, preparation of project scope documents, site inspection and contract administration services for rehabilitation of the 16th Avenue Sewer in the City of Markham with a contract value of \$1,000,000, excluding HST.

2. Purpose

This report seeks Council authority pursuant to section 3.3 of the Purchasing Bylaw to negotiate directly with, and enter into an agreement with Michels Canada Co. (Michels) to rehabilitate approximately three kilometres of sewer within the existing York Durham Sewage System on 16th Avenue from Mingay Avenue to Ninth Line in the City of Markham (see Attachment 1) using the GeoSpray™ lining system manufactured by Milliken Infrastructure Solutions, LLC (Milliken). Section 3.3 allows Council to authorize any purchase or method of procurement where to do so would be in the best interests of the Region.

This report also seeks Council authority pursuant to section 3.3 of the Purchasing Bylaw to negotiate directly with, and enter into an agreement with Aldea Services, LLC (Aldea) to provide consulting services for the design, preparation of project scope documents, site inspection and contract administration of the rehabilitation of approximately three kilometres of sewer of the existing York Durham Sewage System on 16th Avenue in the City of Markham using the GeoSpray™ lining system.

3. Background and Previous Council Direction

York Region's application to the Clean Water and Wastewater Fund is anticipated to receive approval

On [June 23, 2016](#) and [October 20, 2016](#), Council received staff reports outlining federal and provincial infrastructure funding opportunities, including the Clean Water and Wastewater Fund. The project for rehabilitation of the 16th Avenue Sewer was submitted for funding to the Clean Water and Wastewater Fund. The Region is anticipating confirmation of funding for the project in the following amounts: federal funding: \$10 million; provincial funding: \$5 million, with the remaining \$10 million to be contributed by the Region.

Furthermore, the pilot study to demonstrate suitability of the GeoSpray™ lining system for the project is also anticipated to be granted funding as follows: federal funding: \$1.25 million; provincial funding: \$625,000 with the remaining \$625,000 to be contributed by the Region.

Since the Clean Water and Wastewater Fund is for projects that address immediate improvements to water and wastewater systems, projects are required to be completed prior to March 31, 2018. Where appropriate, applications can include requests for extension of up to 25 per cent of the project costs beyond March 31, 2018 to December 31, 2018. The application for the three kilometre

Contractor and Consulting Services for
Sewer Rehabilitation Pilot Project in the City of Markham

rehabilitation project requested an extension to December 31, 2018. This will provide adequate time to deliver a thorough relining program.

GeoSpray™ lining system is the recommended solution for rehabilitation of the 16th Avenue Sewer

On [September 22, 2016](#), Council endorsed a staff report requesting authorization to engage Michels to conduct a pilot for application of GeoSpray™ for sewer rehabilitation.

Following Council direction, the pilot study construction commenced on November 17, 2016 to prove the suitability of GeoSpray™ for site-specific conditions to rehabilitate the 16th Avenue Sewer. The work is now complete and Michels has demonstrated that GeoSpray™ can be installed within the 16th Avenue Sewer and adequately addresses impacts to the public, such as the following:

- Establish access to the sewer with minimal disruption to local residents and traffic
- Installation of flow control measures to allow cleaning and preparation of the sewer for application of the materials
- Injection of chemical grout to stop infiltration of groundwater into the sewer
- Equipment installation and set up to complete application of the product as designed
- Application of the product

The results of the pilot study, along with previous successful installations of this product in the United States strongly supports proceeding with the use of GeoSpray™ for the rehabilitation of the three kilometres of sewer on 16th Avenue.

This work will reduce inflow and infiltration and will support structural integrity and soil stability around the pipe. Although there is not a current concern of imminent failure, this work is part of a preventative asset management program and will prevent further degradation.

4. Analysis and Implications

Expedited procurement of construction and consulting services is required to meet funding deadlines

Although a time extension has been requested in the Clean Water and Wastewater Fund application, the funding is contingent on completing three-quarters of the work by March 31, 2018 and project completion by the end of 2018, which is a very short timeline for a project of this magnitude. The required timelines will not be achievable with conventional delivery and procurement processes, and an expedited approach is necessary to achieve the funding timelines for this project to leverage anticipated funding of \$15 million from the Clean Water and Wastewater Fund.

The expedited approach includes negotiation of contracting services with Michels and retaining Aldea to provide design services and prepare project scoping documents along with provision of services during construction.

Innovative construction methods proposed by Michels will continue to benefit the project

During implementation of the pilot study using the GeoSpray™ lining system, Michels developed multiple solutions to address site constraints and challenges, while implementing the project. The solutions developed during the pilot study can be used during the broader rehabilitation work, providing additional benefit to the Region. Furthermore, Michels' team has been fully engaged in developing and implementing of the pilot work, and it is expected that this level of effort and experience will continue to be provided, which will minimize risks and expedite construction activities.

Since 2011, GeoSpray™ has been used throughout the United States for pipe rehabilitation

The United States Environmental Protection Agency successfully demonstrated the viability of using GeoSpray™ for rehabilitation of large-diameter sewers in May 2014 and published its findings in December 2014.

GeoSpray™ is a patented product and has been used for pipe and maintenance hole rehabilitation applications throughout the United States since 2011 (approximately 11.4 kilometres of pipe). Sewer pipe size applications range from 825 mm to over 3,000 mm in diameter. Maintenance hole installations range in size from 600 mm to 2,500 mm in diameter. Examples of projects with similar conditions to the 16th Avenue Sewer are as follows:

Contractor and Consulting Services for
Sewer Rehabilitation Pilot Project in the City of Markham

- City of Springfield, Massachusetts - installed 847 metres of 1,675 mm diameter sanitary sewer
- Connecticut Department of Transportation - installed 170 metres of 1,825 mm diameter sanitary sewer on Interstate 95
- Fort Worth Storm Water Management, Texas - installed 287 metres of 2,025 mm x 2,125 mm storm arch pipe
- Hidalgo County Drainage District, Texas - installed 1.35 kilometres of 2,890 mm diameter storm sewer

Expertise provided by Aldea has been instrumental in the development of the innovative solution

Through peer review, value engineering and pilot study work for the project, the experience and expertise provided by Aldea have been beneficial to the Region to evaluate suitability of this innovative approach to sewer rehabilitation. Aldea also has experience with installation of geopolymer products in the United States. Since geopolymer is a relatively new technology in Canada, there are practically no other consulting firms in Canada that have the same level of experience and knowledge with the product as demonstrated through the initial Request for Proposal to retain a consultant to complete peer review and value engineering for this project. Therefore, providing continuity of the project team by awarding Aldea's assignment will be beneficial in expediting this project to meet funding deadlines imposed by the Clean Water and Wastewater Fund.

Experience and knowledge gained during the pilot study will be leveraged during full rehabilitation

Furthermore, experience gained by staff, Aldea and Michels through the pilot study will be critical in developing and executing the project as expeditiously as possible, potentially reducing overall duration of work and, in turn, improving opportunities for completing the project within funding time constraints.

Based on results of the pilot study, preliminary work schedules and efficiencies realized with a longer length repair of the sewer, it has been determined that if award of services occurs now, the required timelines for funding can be achieved, while maintaining strict quality control and monitoring of the installation to ensure that the end product will meet, or exceed, the 50-year design life.

Expedited procurement of services from Michels and Aldea is in the best interest of the Region

Leveraging the knowledge and experience of Michels and Aldea will mitigate risks during the construction project. Furthermore, expediting the procurement of services will allow the work to begin as quickly as possible. These factors, combined, will help to maximize anticipated funding from the Clean Water and Wastewater Fund. This is in the best interest of the Region as it reduces the burden on the funds available from the wastewater user rates, while proactively managing the Region's infrastructure.

It is anticipated that other projects receiving funding under the Clean Water and Wastewater Fund do not require Council authority for any procurements; however, should the need arise, further reports will be brought to Council for consideration.

5. Financial Considerations

Upon approval of the Region's application, \$15 million of the project costs will be provided by the Clean Water and Wastewater Fund

The current estimated project cost for the work is approximately \$25,000,000, excluding HST.

Once approval of the Region's application for this project under the Clean Water and Wastewater Fund is confirmed, contributions by federal and provincial governments, along with York Region's wastewater user rates will provide required funding to complete the project. A summary of funding sources and their respective anticipated contributions are outlined in Table 1.

Table 1
16th Avenue Sewer Rehabilitation – Anticipated Financial Contributions

Funding Source	Contribution*
Federal Government	\$10,000,000
Provincial Government	\$5,000,000
York Region (Wastewater User Rate)	\$10,000,000

*Anticipated contributions will be confirmed upon approval of Clean Water and Wastewater Fund application

Contractor and Consulting Services for
Sewer Rehabilitation Pilot Project in the City of Markham

Adequate Capital Spending Authority is included in the approved 2017 Budget to award the assignments to undertake the project. The Region's portion of the capital cost for this asset management project will be funded through the wastewater user rate.

6. Local Municipal Impact

Rehabilitation of the York Durham Sewage System in the City of Markham provides increased serviceability and reliability. This project benefits upstream local municipalities (Towns of Aurora, East Gwillimbury, Newmarket, Richmond Hill and the City of Markham) as the existing sewer collects and conveys sanitary flows for treatment to the Duffin Creek Plant in the City of Pickering.

The 16th Avenue Rehabilitation Project is located within the City of Markham. City staff will be consulted to ensure smooth project implementation and to alleviate potential construction concerns during construction phase. A construction risk management strategy will be developed to minimize impacts to residents and businesses in the general vicinity of the work.

7. Conclusion

It is recommended that Michels Canada Co. be engaged to complete the rehabilitation of three kilometres of sewer within the York Durham Sewage System on 16th Avenue in the City of Markham, using GeoSpray™ lining manufactured by Milliken Infrastructure Solutions, LLC with a total cost not to exceed \$24,000,000, excluding HST.

It is also recommended that Aldea Services, LLC be engaged for the provision of design, project scope documents, site inspection and contract administration services for rehabilitation of three kilometres of sewer within the York Durham Sewage System on 16th Avenue in the City of Markham with a total cost not to exceed \$1,000,000, excluding HST.

For more information on this report, please contact Mike Rabeau, Director, Capital Planning and Delivery, Environmental Services at 1-877-464-9675 ext.75157.

Contractor and Consulting Services for
Sewer Rehabilitation Pilot Project in the City of Markham

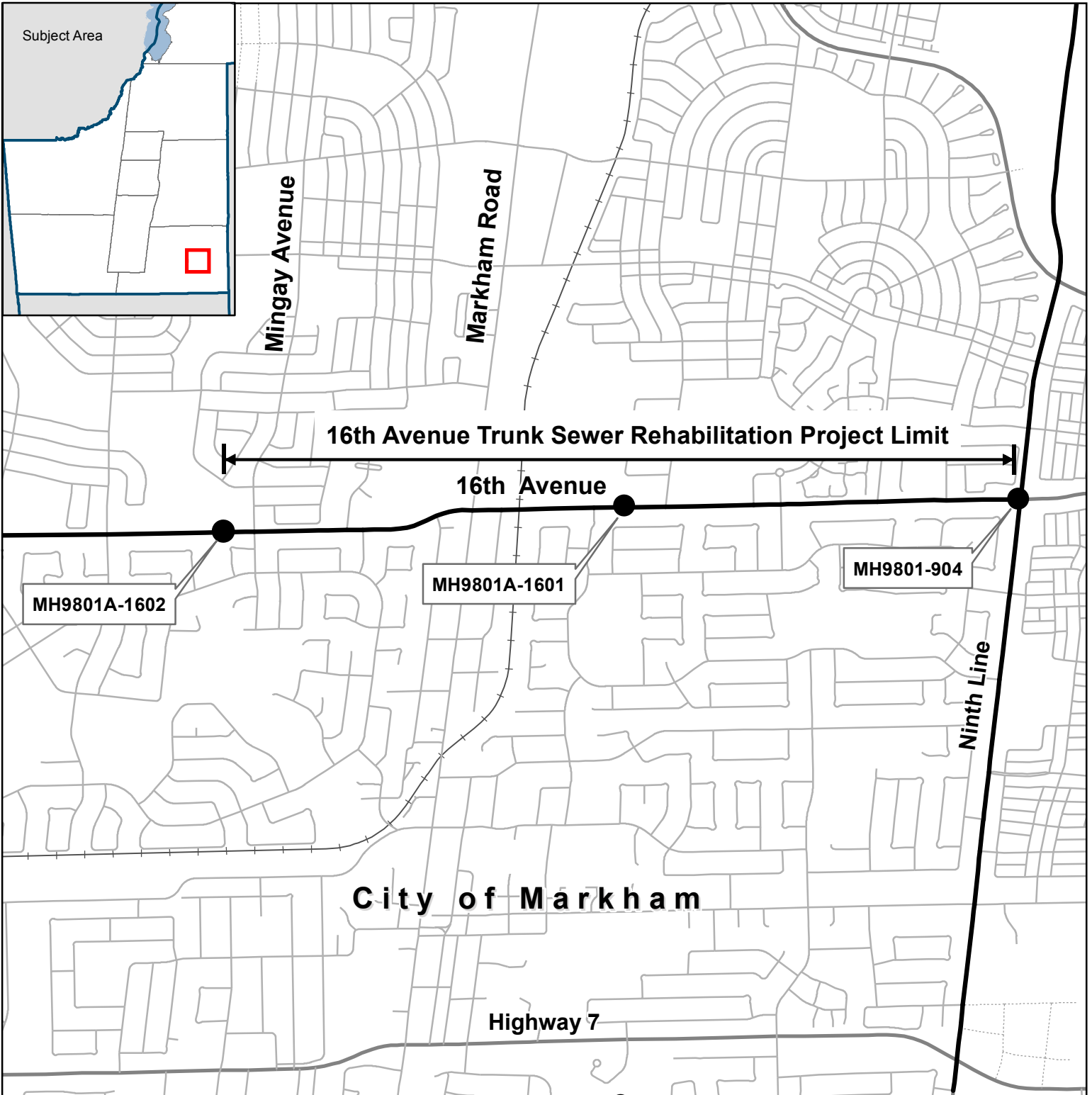
The Senior Management Group has reviewed this report.

February 16, 2017

Attachment

#7317517

Accessible formats or communication supports are available upon request



City of Markham

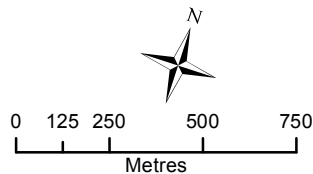
LOCATION PLAN

Contractor and Consulting Services for Sewer Rehabilitation Project in the City of Markham
 Report of the Commissioner of Environmental Services
 March 2, 2017



Produced by: The Regional Municipality of York
 Capital Planning and Delivery, Environmental Services
 © Copyright, The Regional Municipality of York, January 2017
 Data: © Queen's Printer for Ontario 2003-2017

See York.ca for disclaimer information.



Legend

- Wastewater Maintenance Hole
- York Durham Sewage System