



REPORT

COUNCIL MEETING

MEETING DATE: SEPTEMBER 19, 2016

FROM: Engineering and Construction Department

DATE: September 13, 2016

SUBJECT: Lakeshore Road Bridge Rehabilitation at Sixteen Mile Creek
Update and Funding Approval

LOCATION: Lakeshore Road at Sixteen Mile Creek

WARD: Multiple Wards: 2 & 3

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RECOMMENDATION:

That the capital budget for the Lakeshore Road Bridge at Sixteen Mile Creek Rehabilitation Project (project 53361501) in the amount of \$10,500,000, as detailed in the report from the Engineering and Construction dated September 13, 2016 be pre-approved from the 2017 capital budget to allow staff to tender and award the project contract this autumn to meet the construction start date of January 2017.

KEY FACTS:

The following are key points for consideration with respect to this report:

- Council was previously advised of the need to rehabilitate the Lakeshore Road Bridge at Sixteen Mile Creek and the construction methodology and schedule. The work would be undertaken in 2017 and Lakeshore Road would be closed to through traffic between Navy Street and Forsythe Street during the project.
- Recent geotechnical (soil) testing has revealed that the existing steel piles under the bridge abutments are experiencing corrosion and it will be necessary to revise the project scope to replace the east and west bridge abutments, including the retrofit of micro-piles to support the new abutments.
- The revised scope of work will add cost to the overall project budget as well as additional time to the project schedule. The revised project budget is \$10.5 million and Council will need to pre-approve the 2017 capital budget in order to allow staff to tender and award the project this autumn to meet the proposed construction start date of January 2017.
- Staff are reviewing opportunities to accelerate the project where possible in order to achieve a completion date of December 2017. However, some work may have to carry over into 2018.

BACKGROUND:

In 2015, the town retained the firm of Marshall Macklin Monaghan (MMM) to undertake the engineering design work for the Lakeshore Road East Reconstruction and Streetscape Project as well as the Lakeshore Bridge Rehabilitation at Sixteen Mile Creek.

Detailed inspections were undertaken of the upper bridge structure (bridge deck and girders) in the autumn of 2015 which revealed concerns with the existing steel box girders below the concrete deck. While the exterior of the steel box girders were found to be in fair to good condition, the interior of the girders were found to be in poor condition.

It was recommended to move forward to include the replacement of the steel girders as part of the bridge project. The bridge project was originally planned to commence together with the Lakeshore Road Reconstruction and Streetscape Project in 2019; due to the condition of the girders, it was recommended to undertake the bridge rehab starting in January of 2017. To expedite the project schedule, a full closure of the bridge to traffic was recommended. The estimated construction timeline to complete the project, which also includes the reconstruction and streetscape of the road approaches between Navy Street and Forsythe Street, was approximately 9 months. The project would be complete and the road open to traffic by around the end of September 2017.

Staff presented a staff report to Community Services Committee on April 25, 2016 that detailed the need to rehabilitate the Lakeshore Road Bridge at Sixteen Mile Creek and the proposed construction methodology and schedule for the work. Council approved the recommendations of the report which included a pilot project involving mechanically compacting solar powered trash receptacles in downtown Oakville at Towne Square and along selected locations along Lakeshore Road East. The pilot project would commence in the Spring of 2017. The overall project was estimated at approximately \$6.7 million. A copy of the staff report is attached as Appendix A to this report.

Council also provided staff with the following direction:

That staff report back to Council on a plan to address the additional funding required to undertake the bridge project and the trash receptacle pilot project, including the potential for any federal infrastructure funding, prior to awarding the construction contract in October of this year.

The purpose of this report is to provide Council with an update on the status of the bridge project and to address the direction provided to staff.

COMMENT/OPTIONS:

Engineering Work:

Engineering work has been progressing well to meet the planned January 2017 construction start date. Over the summer period, soil testing was undertaken in the vicinity of the bridge abutments. The testing indicated that the soil conditions had highly corrosive properties, and, as a result, staff implemented a condition assessment of the existing steel piles under the abutment structures and also the piers within the creek. In order to avoid "in-stream" activity, an exploratory excavation was conducted at the west abutment (within the valley) to expose the piles under the abutment for visual inspection.

The excavation was carried out in two phases. The first phase exposed the upper sections of the steel piles (above the water table) which provided a good sample of the pile condition for the abutments within the corrosive soil area. The second phase involved a deeper excavation to expose the piles well below the water table in order to simulate pile condition below the piers within the creek.

The results of the exploratory excavation has revealed that the upper sections of the steel piles (above the water table) are experiencing corrosion and some level of steel loss. The excavation below the water table level has revealed that the piles are in reasonably good condition.

What this means is that the condition of the steel piles for the bridge piers are satisfactory; however, the same cannot be said for the steel piles supporting the bridge abutments.

The concern is that the rehabilitation of the upper bridge structure (deck and girders) are being designed for a design life cycle that would far exceed the remaining life cycle of the existing abutments, based on the assessment of the piles. As a result, it is recommended the project scope be modified to include the replacement of both abutment structures including the retrofit of several micro-piles to support the abutments.

Revised Cost Estimate for Bridge Project:

The additional scope to include the replacement of the bridge abutments and install micro-piles will add significant cost to the overall

project budget that was previously estimated at \$6.7 million when staff last reported to Council in April. The project team has developed a revised cost and it is outlined below:

• Bridge Rehab/Reconstruction:	\$ 8,200,000
• Road Reconstruction and Streetscape:	\$ 1,150,000
• Pilot Project – Trash Receptacles	\$ 50,000
• Contract Admin/Quality Assurance:	\$ 255,500
• Geotechnical Investigation	\$ 71,400
• Exploratory Excavation	<u>\$ 145,000</u>
Sub-total	\$ 9,871,900
6 % Contingency (rounded)	<u>\$ 628,100</u>
Total	\$10,500,000

The contingency is required for the most part to address emergent work that may arise during the project construction. It will also address any premium costs for necessary change orders relating to streetscape furnishing items. The project needs to be tendered this autumn to meet the January start date and a final decision on the streetscape furnishing items will not be made until after the project has started. The final selections (in particular light poles) may require some redesign work which also would be covered off by the contingency amount.

Project Schedule:

The additional scope of work for the project is a very recent development. Preliminary review indicates that the additional work would add about three (3) months to the project schedule. Work would still commence in January 2017 with the demolition of the bridge occurring over the winter months. The micro-piles and the bridge abutments would be completed in the early to mid-spring season. Erection of the girders would take place in the mid to late spring season and the bridge deck work and the road reconstruction and streetscape work would occur over the summer and autumn months.

It is possible that the work can be completed and the bridge re-opened to traffic before the end of the 2017; however, there may be some work that could carry over into early 2018. At this point, we are not able to tie down a final exact schedule – we will have a more accurate timeline after the contract is awarded. Staff will be reviewing measures to accelerate the project schedule where possible to complete the project by the end of 2017.

The conversion of Navy Street to two-way operation will be completed later this autumn as it is required to support the traffic detour during the bridge closure.

Funding:

Presently, there are no Federal or Provincial funding opportunities that the town can look to for assistance in funding this project. The overall revised project budget of \$10.5 million needs to be pre-approved by Council in order for staff to issue and award a tender to meet the January 2017 project start date. Funding from the project has been identified from the capital reserve.

Public Engagement:

Staff will be hosting a public information centre later in September or early in October to present the project details. The Downtown BIA has been advised of the revised scope of work and they have been made aware of this staff report.

Pilot Project - Solar Powered Trash Receptacles:

The revised project budget includes the estimated cost (\$50,000) for this pilot. Staff will be moving forward to procure appropriate units for a Spring 2017 launch. Staff will work with the BIA to resolve the specific locations for the units.

Next Steps:

After the public information centre, staff will be moving forward to tender the project and award it as soon as possible this autumn in order to meet a January 2017 start date.

CONSIDERATIONS:

(A) PUBLIC

A public information centre will be scheduled for later this month or early October where staff will be presenting design details for the project. Streetscape furnishing selections are still ongoing as part of a separate process – these selections will be resolved after the start of this project but will be incorporated into the project via change orders.

(B) FINANCIAL

The capital project for the rehabilitation of the Lakeshore Road Bridge (Lakeshore Road at 16 Mile Creek project # 53361501) has been included

in the 2017 capital budget. The project is currently fully funded, with funding coming from the general working capital reserve. As the capital budget will not be approved by Council until December 12, 2016 staff are requesting that the project be pre-approved to allow the project to be awarded this fall to meet the construction start date of January 2017.

(C) IMPACT ON OTHER DEPARTMENTS & USERS

Roads and Works Operations is aware of the impending road closure and Emergency Services will be notified. Parks and Open Space and Roads and Works will be involved in the implementation of the pilot project involving the solar powered trash receptacles.

(D) CORPORATE AND/OR DEPARTMENT STRATEGIC GOALS

This report addresses the corporate strategic goal to:

- enhance our economic environment
- continuously improve our programs and services
- provide outstanding service to our residents and businesses
- be accountable in everything we do
- enhance our cultural environment
- enhance our social environment

(E) COMMUNITY SUSTAINABILITY

The life cycle replacement/maintenance of our bridge inventory ensures a safe and integrated transportation network which addresses the economic, social and cultural pillars for our community.

APPENDICES:

Appendix A – Staff Report dated March 29, 2016 presented to CSC of April 25, 2016.

Submitted by:

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Engineering & Construction Department