

TO: Mayor J. Lehman and Members of Council

FROM: J. Weston, M.A.Sc., P. Eng., PMP, Director of Engineering

NOTED: R. J. Forward, MBA, M.Sc., P. Eng., General Manager of Infrastructure & Growth Management
C. Ladd, Chief Administrative Officer

RE: Harvie Road and Big Bay Point New Crossing of Highway 400 – Project Update

DATE: March 7, 2016

The purpose of this memo is to provide an update regarding plans to accelerate the construction of the Harvie Road and Big Bay Point New Crossing of Highway 400. This memo also reviews the risks of using a performance based contract for the engineering design assignment, and suggests the use of performance based clauses (bonus/penalty) in the construction tender which has much greater potential for schedule acceleration.

City and MTO staff met most recently on March 2, 2016 to review MTO comments on the RFP and a follow-up meeting is being arranged for next week regarding coordination of the MTO's Centre Median project. City staff are incorporating MTO comments and will send the document back to MTO for a final review before issuing the RFP to the short-listed consultants in April.

The current level of cooperation between the City and MTO on this project is excellent. MTO senior management are treating this project as a high priority and have assigned one of their Project Managers to be the City's contact to facilitate provision of MTO comments. The City's dedicated Project Manager, Phil Pawliuk, who has over 30 years of experience working at the MTO, will work closely with the MTO's Project Manager to ensure that the project moves forward without any delays. Phil will follow a similar approach of close cooperation with the other approval agencies such as the Lake Simcoe Region Conservation Authority (LSRCA), Department of Fisheries and Oceans (DFO) and Ministry of Municipal Affairs and Housing (archeological).

Since the Class EA was completed in September 2015 and through development of the RFP for the bridge design, several options for accelerating the project schedule have been reviewed and will be included in the design RFP:

- **No Centre-Line Shift of Highway 400** - At the March 2 meeting with MTO, there was very good news regarding a change in the scope of work which will result in significant time and cost savings for both the design and construction phases of the project. Pending confirmation through completion of the MTO's environmental assessment process, there is no longer a centreline shift of Highway 400 planned at Harvie Road/Big-Bay Point Road. This reduces the staging requirements for the construction of the Harvie Crossing and allows coordination of the MTO's centre median barrier project with construction of the centre pier of the new bridge. The City supports maintaining the current centreline. The RFP is being revised to reflect this change.
- **Simplified Scope of Work** - In order to accelerate the design schedule, the scope of work will include only the bridge within the MTO's corridor and so the consultant will only need to use MTO's design criteria. Design of the sections of Harvie Road and Big Bay Point Road on either side of the bridge limits which requires use of the City's design criteria will be included in the scope of work for the respective road widening design projects. The road widening projects are planned to occur concurrently with the bridge project so that the connecting roads are operational when the bridge opens to traffic.

- **Reduced Timeframe for Design** - At the time of completion of the Class EA, the timeline for the design phase was estimated to be approximately 24 months because this is the amount of time MTO typically requires for projects of similar scope and complexity. Through recent discussions with the City's dedicated Project Manager and the MTO, the timeline for design has been reduced from 24 months to 14-16 months, which is considered an aggressive schedule but achievable unless there are unforeseen delays. Based on the time required to complete the bridge design and obtain approvals from MTO, the need for approvals from LSRCA and DFO related to Whiskey Creek which is a cold-water fishery, and the need to undertake a Stage 3 archeological assessment, 14-16 months is considered the shortest possible timeframe for completing the design.
- **Advanced Land Acquisition** - The scope of work in the RFP will advance the land acquisition process by requiring the consultant to determine land requirements at the 30% design stage instead of at the end of detailed design. Upon acceptance of the 30% design by City and MTO, the consultant will be required to prepare an R-Plan that the City's Legal Department can then use to begin the land acquisition process. This will help accelerate the overall project schedule.
- **Advanced Utility Relocation** - The scope of work in the RFP will advance the utility relocation process by requiring the consultant to confirm utility relocation requirements at approximately the 60% design stage; typically this is done at the end of detailed design. This will allow the utility companies to begin their designs in parallel with completion of the bridge design. This will help accelerate the overall project schedule.

With the approach described above, it is anticipated that we will be able to accelerate the start of construction by at least a year, depending on the time required to obtain the land and complete the utility relocations. The MTO believe that based on all the work planned for Highway 400 the earliest opportunity for construction on the structure (or pier) would be 2019.

Performance contracts with bonus/penalty clauses are used for certain types of contracts such as delivery of goods or construction contracts where deliverables are clearly within the control of the contractor (i.e. refer to the *Public Works and Government Services Canada Supply Manual - Section 4.70.25 "Contract Performance Incentives"* and *Accelerating the Tendering Cycle: A Legal Due Diligence Guide* by Paul Emanuelli). However, performance contracts are rarely, if ever, used for engineering services contracts where there are factors that are outside the consultant's direct control. In the case of the Harvie and Big Bay Point New Crossing of Highway 400 project, the timelines for approvals from MTO, LSRCA and DFO are not directly within the consultant's control and these approvals are necessary for completion of the tender documents. Another key factor that is outside the consultant's control is archeological requirements that may be identified in the Stage 3 archeological assessment.

Risks with the use of performance contracts for engineering services include:

1. **Consultants may choose not to bid** – The City has pre-qualified a shortlist of consultants for this assignment and the next step is for these consultants to respond to an RFP. Due to the shortened design timeline of 14-16 months and the availability of consultants at this time, only two consultants have been shortlisted. If bonus/penalty clauses are included in the RFP, then one or both of the short-listed consultants may choose not to respond. If the result is an unsuccessful process and we need to restart the procurement, then the project would be delayed by 3-5 months.
2. **Increased Project Costs** – Consultants bidding on the project would likely build the cost of a potential penalty into their proposal prices. The end result could be a higher design cost without achieving the desired outcome.
3. **Design Quality** - The fundamental rule of project management is that time, cost and quality are interrelated; a project can be delivered faster with the same quality but only at a higher cost, or

with the same cost but only with lower quality. Time spent on ensuring a quality design will reduce delays and costly change orders during construction, and save time more time overall in delivering the project.

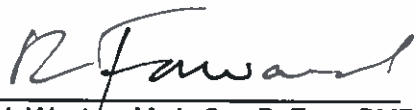
4. **Project Disputes** – Delays outside the control of the consultant (such as time required to obtain approvals) may result in project disputes that would take focus and effort away from the main goal of completing the bridge design preparing the construction tender package.

There is an opportunity for even greater schedule acceleration during construction through use of a performance contract for the construction tender. This will be added to the scope of work in the RFP for the design consultant. The RFP will also require the design consultant to assess other possible opportunities for accelerating the construction schedule.

With respect to project communications, the scope of work outlined in the RFP includes regular stakeholder meetings and a Public Information Centre, along with regular updates to the project website. City staff would be happy to meet with members of Council and the Harvie Road Crossing Coalition to answer questions or provide project updates.

City staff will continue to prioritize this project and to work collaboratively with the MTO, LSRCA, community stakeholders and members of Council to ensure a successful outcome for this important project in an accelerated timeframe.

If you have any questions, please contact Jacqueline Weston at extension 4551, Ralph Scheunemann at extension 4782 or Stew Patterson at ext. 4481.

for 

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