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**TO:** GENERAL COMMITTEE


**SUBJECT:** COST SHARING AGREEMENT FOR THE RECONSTRUCTION OF THE HIGHWAY 400 BRIDGE AT TIFFIN STREET

**WARDS:** 2 & 6

**PREPARED BY AND KEY CONTACT:** R. MADORE, CET, LEL,  
PROJECT MANAGER (Ext. 4303)

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(Acting) 

**CHIEF ADMINISTRATIVE OFFICER APPROVAL:** C. LADD  
CHIEF ADMINISTRATIVE OFFICER 

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**RECOMMENDED MOTION**

1. That the principles of a cost sharing agreement with the Ministry of Transportation (MTO) relating to the reconstruction of the Highway 400 bridge at Tiffin Street, as shown in Appendix "A" to Staff Report ENG011-14, be endorsed.
2. That the Director of Engineering and the Director of Legal Services be authorized to finalize the terms of a cost sharing agreement with the MTO, in general accordance with the endorsed cost sharing principles.
3. That the Mayor and City Clerk be authorized to enter into a cost sharing agreement with the MTO, in general accordance with the endorsed cost sharing principles.
4. That funding for the City's share of the construction costs for the reconstruction of the Highway 400 Bridge at Tiffin Street, currently estimated to be \$5.06 million, be approved for inclusion in the 2015 Business Plan.

**PURPOSE & BACKGROUND**

Purpose

5. The purpose of this report is to request Council's endorsement to enter into a cost sharing agreement with the MTO for the reconstruction of the Highway 400 bridge at Tiffin Street based on the City's request to expand the bridge to accommodate a future road widening, and to request Council's approval of the City's share of the project costs for inclusion in the 2015 Business Plan so that the MTO may proceed to include the City's requirements in the design and construction.

MTO Bridge Replacement Project

6. In October 2012, the MTO advised the City of Barrie that the Highway 400 bridge at Tiffin Street and the railway bridge located approximately 100 metres south of Tiffin Street had reached the end of their useful life and that they intended to reconstruct both bridges. There are no costs to the City for the reconstruction of the railway bridge.
7. The Tiffin Street bridge would be constructed to its existing 15.5 metre span, unless the City requested a greater span to accommodate a future road widening of Tiffin Street. Further the MTO advised that the City would be responsible for design and construction costs associated with a bridge expansion to facilitate our future traffic volumes. The life span of the reconstructed bridge is expected to be approximately 75 years.
8. In July 2013, the MTO advised City staff that they would be using a Design-Build (DB) procurement process for the project, and that as the first step in this process they would be retaining a Consulting Engineering firm to undertake the preparation of a preliminary (30%) design and DB procurement package. The MTO subsequently retained Morrison Hershfield to provide the preliminary design engineering services.
9. The MTO plan to complete the preliminary design by February 2015, and have the DB contract awarded by August 2015. Construction is planned to start by May 2016, and to be Substantially Performed by the end of 2018.
10. Based on Council's approval of the City's share of the design funds for this project (see below), the MTO included the City's requirements in the terms of reference for the preliminary design consulting assignment. However, the MTO is now requesting that the City obtain Council approval of the construction funds so that they may complete the preliminary design and issue the DB RFP to include the City's requirements.
11. The City is proposing to install a transmission watermain under the Tiffin Street bridge. This was identified in the City's Water Storage and Distribution Master Plan. The City is proposing to coordinate the installation of a steel watermain casing with the bridge reconstruction project for future use.

Future Widening of Tiffin Street

12. In May 2013, City staff advised the MTO that a bridge expansion to a 27.2 metre span would be required to accommodate an expansion of Tiffin Street to five vehicle lanes, two bike lanes and sidewalks as identified in the draft Multi-Modal Active Transportation Master Plan (MMATMP).
13. In December 2013, the MMATMP was approved including a project to widen Tiffin Street by 2021 to 27.2 metres, including five vehicle lanes, two bicycle lanes and two sidewalks. The MMATMP completed Phases 1 and 2 of the Municipal Class Environmental Assessment process for this project and identifies the need for a Schedule C study to complete Phases 3 and 4 prior to the City proceeding with the widening of Tiffin Street.
14. It can be noted that the proposed widening is generally consistent with the 1999 Transportation Study which called for a widening of Tiffin Street to four lanes to accommodate future traffic volumes (based on lower growth projections than the 2013 MMATMP).
15. Through the development of the Fiscal Impact Analysis, the planned project implementation schedule was deferred by four years to 2025 as part of an overall effort to reduce the City's debt in the first 10 years of the program.

City Share of Design Funding

16. The MTO included consideration for expansion of the bridge in the scope of work for the preliminary design services, and advised the City that its share of the preliminary design cost would be \$300,000. This amount was approved through the 2014 Business Plan in the amount of \$300,000.
17. Through the June 2014 Capital Status Report, Council approved an increase to the design funding for this project by \$140,000 from \$300,000 to \$440,000. The increase was required based on a revised estimate from the MTO for the City's share of the preliminary design of \$380,000, and to include an allowance of \$60,000 for the City's internal costs for the project.

**ANALYSIS**

Timing

18. The City does not need to widen Tiffin Street immediately, and, although projected traffic volumes have indicated that there will be a need within the next 10-15 years, there are several other higher priority road widenings that the City needs to complete in advance of Tiffin Street.
19. However, the City has an opportunity now to coordinate the bridge widening with the MTO's bridge replacement project. The existing bridge has reached the end of its useful life and must be replaced now. The MTO has already rehabilitated this bridge several times in the past and it cannot be further rehabilitated to extend the life. Cost-sharing with the MTO on their current project represents an opportunity for the City of Barrie to avoid spending more money to widen the bridge on its own at a later date.

Bridge Widening

20. In order to reduce the City's costs, staff reviewed the width requirement for the expansion of Tiffin Street under Highway 400, and determined that a modified cross section of 26.1 metres will be sufficient to meet the requirements. This is a width reduction of 1.1 metres from the 27.2 metre width proposed in the MMATMP. The revised cross-section includes two vehicle lanes in each direction of 3.5 metres each; a centre left turn lane of 4.0 metres, and 1.5 metres bicycle lane, 0.55 metre curb and 2.0 metre sidewalk in each direction. Based on the cost sharing formula outlined below, this width reduction will represent a reduction in the City's costs of over \$600,000.

Cost Sharing Formula

21. The proposed cost sharing formula is based on a simple percentage of the additional bridge deck area required to accommodate the City's required width under the bridge of 26.1 metres as compared to the existing 15.5 metre width. Based on this formula, the City's share of the bridge construction costs will be 40.6%.
22. The proposed cost sharing principles have been developed through discussions between City staff and MTO staff and are provided in Appendix "A". These principles, if approved, would form the basis of a formal cost sharing agreement between the City and MTO to be signed after the DB proposals have been evaluated and the actual construction costs are known.
23. The City will pay 100% of the cost for the illumination under the bridge and the steel watermain casing.

24. The City's share of the project costs including design and construction is estimated to be \$5.50 million based on the proposed cost sharing principles.
25. At this point the cost sharing principles do not include an upset limit relating to the City's contribution, however once actual costs are known staff propose to request an upset limit in the final agreement.
26. In addition to the cost sharing principles provided in Appendix "A", the MTO has requested that the City contribute 40.6% towards the first two rounds of bridge rehabilitation (at 25 years and 50 years) to be payable at the completion of the bridge reconstruction at an estimated cost of \$1.50 million. However, there is no legislative or policy basis for municipalities to contribute towards future rehabilitation costs for MTO owned infrastructure. Therefore, this has not been included in the proposed cost sharing principles.

### **ENVIRONMENTAL MATTERS**

27. The proposed bridge widening will promote active transportation by allowing for the construction of sidewalks and bicycle lanes in each direction through the Tiffin Street bridge at Highway 400. These active transportation elements promote healthy living and reduce reliance on motor vehicles to help reduce impacts on the environment.

### **ALTERNATIVES**

28. There is one Alternative available for consideration by General Committee:

**Alternative #1** General Committee could choose not to ask the MTO to reconstruct the bridge wider than its current width, and either defer the widening of Tiffin Street until required due to traffic volumes at 100% City cost, or defer the widening to cost share with the MTO at the time of the next bridge reconstruction in approximately 75 years.

Although Tiffin Street is not a priority for widening at the present time, this Alternative is not recommended as traffic volumes on Tiffin Street are projected to continue to increase such that Tiffin Street will require widening in approximately 10-15 years from now, which is well in advance of the next time the bridge would need to be replaced in about 75 years. If the City does not contribute to the MTO's current project, then the City would be responsible for 100% of the costs to widen the bridge when traffic volumes warrant, which would have a much greater cost to the City than cost-sharing the current MTO project.

### **FINANCIAL**

29. The current approved budget for this project is \$440,000 for the City's share of the preliminary design and for City staff time on the project.
30. The current estimate for the City's share of the construction costs to increase the bridge width from 15.5 metres to 26.1 metres is approximately \$5.06 million.
31. The majority of this cost would be recovered through Development Charges (65% or approximately \$3.29 million) and with the balance paid from tax based revenues (35% or approximately \$1.77 million).

32. As part of the development of the 10 Year Capital Plan for the 2015 Business Plan, the capital forecast as set out in the Fiscal Impact Analysis will be reviewed and adjusted to accommodate this expenditure.
33. If the City had to pay the entire cost to widen the bridge in approximately 10 years, the present value of this cost to the City would be more than three times the proposed cost-sharing amount to widen the bridge in coordination with the MTO project.
34. Therefore, staff recommend that the City's contribution to this project be approved and that the funds be included in the 2015 Business Plan.

**LINKAGE TO 2010 – 2014 COUNCIL STRATEGIC PLAN**

35. The recommendations included in this Staff Report support the following goal identified in the 2010-2014 City Council Strategic Plan:
  - Manage Growth and Protect the Environment
  - Strengthen Barrie's Financial Condition
36. Widening the Tiffin Street Bridge will allow for future growth and provide improved infrastructure for pedestrian and bicycle safety.
37. The City will spend approximately three times less (\$5 million versus \$15 million) to widen the bridge as part of the MTO's reconstruction project, rather than having to widen the bridge at the City's sole cost at a future date.

**APPENDIX "A"**

**Proposed Cost Sharing Principles**

**for the Reconstruction of the Highway 400 Bridge at Tiffin Street**

Preliminary Design

The City will contribute 40.6% of the preliminary design costs, currently estimated at \$0.38 million.

Construction

The City of Barrie (City) share of the construction costs to reconstruct the Highway 400 Bridge at Tiffin Street is currently estimated at \$5.06 million (design and construction) based on the following:

Direct costs of approximately \$3.75 million, including:

- The City will contribute 40.6% of the actual cost to replace the bridge deck of the reconstruction of the Tiffin Street Bridge based on the additional bridge deck area required to widen the bridge to 26.1 metres versus the existing width of 15.5 metres, currently estimated at \$2.70 million
- The City will contribute 40.6% of the construction staging costs for the Tiffin Street bridge, currently estimated at \$0.90 million
- The City will contribute 100% of the cost of illumination under the bridge, currently estimated at \$0.10 million
- The City will contribute 100% of the cost of the installation of a steel casing for the future transmission watermain estimated at \$50k.

Indirect costs of approximately \$1.31 million, including:

- Administration fee in the amount of 5% of the City's direct costs, currently estimated at \$0.20 million
- Contract administration/inspection costs in the amount of 8% of the City's direct costs, currently estimated at \$0.31 million
- Contingency of 20% of the City's direct costs, currently estimated at \$0.80 million

The City does not agree to pay any other costs, unless such costs are shown to be directly required for the successful completion of the project, and are approved in writing by the City prior to being incurred.

The City will pay when invoiced by the MTO in accordance with the following cash flow schedule:

2014 - Preliminary Design \$0.38 million  
2015 - Detailed Design and Construction \$0.86 million  
2016 - Construction \$1.95 million  
2017 - Construction \$1.95 million  
2018 - Construction \$0.30 million