CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF SEPTEMBER 25, 2012

Item 38, Report No. 33, of the Committee of the Whole, which was adopted without amendment by the Council of the City of Vaughan on September 25, 2012.

38 BOWSTRING ARCH BRIDGE ON HUMBER BRIDGE TRAIL CLASS ENVIRONMENTAL ASSESSMENT STUDY NOTICE OF STUDY COMPLETION WARD 1

The Committee of the Whole recommends approval of the recommendation contained in the following report of the Commissioner of Engineering and Public Works, dated September 4, 2012:

Recommendation

The Commissioner of Engineering and Public Works recommends that staff be directed to issue a Notice of Study Completion for the Class Environmental Assessment of the bowstring arch bridge on Humber Bridge Trail, recommending the rehabilitation of the bridge.

Contribution to Sustainability

The Class Environmental Assessment (Class EA) conducted on the bridge considers all environmental implications of each possible alternative action.

The recommended alternative is consistent with Green Directions Vaughan Goal #3: To ensure that Vaughan is a City that is easy to get around with a low environmental impact, in particular Objective 3.1: To develop and sustain a network of sidewalks, paths and trails that supports all modes of non-vehicular transportation.

Economic Impact

There is no direct economic impact as a result of this report. However rehabilitating the bowstring arch bridge on Humber Bridge Trail is estimated at a cost of $800,000.00, funded from taxation.

Communications Plan

A comprehensive public consultation program to obtain input from all affected stakeholders was completed as part of the study. The main components undertaken included:

- A Notice of Study Commencement
- A Public Information Centre
- Various individual stakeholder meetings

All notifications related to the study were directly mailed to the affected stakeholders on the project mailing list, advertised in local newspapers and posted on the City's website.

A final Notice of Study Completion will be issued to area residents and stakeholders in the Fall of 2012. Upon issuance of this notice, the final study report will be placed on public record for a 30-day review period, in accordance with the requirements of the Municipal Class Environmental Assessment process.

Purpose

The purpose of this report is to seek Council's approval in principle of the conclusions and recommendations of the Humber Bridge Trail Bowstring Arch Bridge Class Environmental Assessment. A Draft Executive Summary for the study is appended to this report.

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Background - Analysis and Options

The 98 year old bridge requires rehabilitation or replacement

The Humber River, West Branch Bridge (Bridge No. 008601) is located on Humber Bridge Trail, approximately 200 m east of Highway 27 (See Attachment No.1). Humber Bridge Trail was the original alignment for Major Mackenzie Drive, however, when Major Mackenzie Drive was re-aligned to the south, the bridge and a portion of the road remained and the road was renamed as Humber Bridge Trail.

The existing bridge was constructed in 1914 and is an 18.3 metre single span, cast in place concrete bowstring arch bridge with a concrete deck and wearing surface. The bridge provides a roadway width of 3.7 metres and accommodates a single lane for two way vehicular traffic.

Regulations under the Highway Traffic Act (Section 123(2)) and the Bridges Act (Section 2) requires the City to ensure that the bridges are kept safe and in good repair. This requirement is completed through the performance of regular biennial structure inspections in accordance with the Ministry of Transportation Ontario Structure Inspection Manual. Recent inspections, carried out in 2010 and confirmed in 2012, indicate that the bridge is in an advanced state of disrepair and will require some form of rehabilitation or replacement for it to remain in service.

The bowstring arch bridge on Humber Bridge Trail provides the only vehicular access to 5789 Humber Bridge Trail, a residential property on the east bank of the Humber River. The City has a legal obligation to ensure that property road access is maintained. The City cannot close a road to deprive an owner of the only means of access, unless another is available. In addition, Humber Bridge Trail and the bridge are included in the City's Pedestrian and Bicycle Master Plan as a linkage to a future pedestrian hiking trail(s) along the Humber River.

A Class Environmental Assessment study to identify options and to recommend a solution is nearing completion

As the bridge is greater than 40 years of age, the City was required to undertake a Schedule "B" Class Environmental Assessment to identify an appropriate solution to address the structural and safety concerns, as well as access issues, associated with this bridge crossing the Humber River. This process includes developing alternative remedial solutions, evaluation of alternatives against a set of criteria, and selection of a preferred option. The City retained a consulting engineer, AECOM, to undertake this investigation.

The following are the three key areas of interest in relation to the bowstring arch bridge that factored heavily into this Class EA:

- Structural integrity
- Financial impact
- Heritage potential

A requirement of the Schedule "B" Class Environmental Assessment is that a review of the bridge's heritage potential must be undertaken. The heritage potential was assessed in accordance to the *Ontario Heritage Act* Regulation 9/06. The Act identifies criteria to be used in determining the cultural heritage value or interest of built heritage resources and cultural heritage landscapes. The set of criteria are grouped into the categories of Design/Physical Value, Historical/Associative Value and Contextual Value.

This bridge is not protected under the Ontario Heritage Act, therefore, there is no obligation for the City to preserve it. However, the bridge does have heritage significance which was reflected when evaluating the alternatives.

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Tradeoffs with respect to these three key areas were addressed in order to select a preferred option for the bridge.

The following alternatives were investigated for the bridge:

1. **Doing nothing puts the structural integrity of the bridge at risk and does not fulfill the City's obligation of providing access to 5789 Humber Bridge Trail**

   This alternative would allow the bridge to continue to deteriorate with minimal maintenance other than emergency repairs.

   As the bridge deteriorates over time, the City would have to decommission the bridge when it is determined that it is no longer able to accommodate any vehicular access. This would involve demolishing or closing the bridge without replacing it. Decommissioning and removing the bridge would cost the City approximately $284,000. However, access to 5789 Humber Bridge Trail would be eliminated as it is not technically and economically feasible to provide another access without crossing the Humber River. The potential for the alternative has been explored, and was found to be cost prohibitive, exceeding the cost of constructing a new bridge at this time.

   Since this option does not immediately improve the safety of the bridge, and does not ensure that access will be maintained at 5789 Humber Bridge Trail, this option was deemed not feasible.

2. **Decommissioning the bridge and constructing a new bowstring arch bridge would cost the City approximately $1,700,000**

   This option considers construction of a new bowstring arch bridge. The costs associated with this option include retaining working easements, property acquisition, decommissioning of the existing bridge and construction of the new bridge. This option does improve the bridge's integrity and ensures that access will be maintained for 5789 Humber Bridge Trail. However, the cost is higher than other alternatives and it does not preserve its heritage potential. It also has increased potential for environmental impacts, and is therefore deemed not feasible.

3. **Decommissioning the bridge and constructing a new "modern" bridge type would cost the City approximately $1,350,000 and causes the loss of the bridge's heritage value**

   This option considers construction of a precast concrete box girder bridge and a structural steel bridge, both typical modern bridge types. The costs associated with this option include retaining working easements, property acquisition, decommissioning of the existing bridge and construction of the new bridge. This option does improve the bridge's integrity and ensures that access will be maintained for 5789 Humber Bridge Trail. However, the cost is higher than other alternatives and it does not preserve its heritage potential. It also has increased potential for environmental impacts, and is therefore deemed not feasible.

4. **Rehabilitating the bridge is feasible and will cost the City approximately $800,000**

   The City's engineering consultant thoroughly investigated the existing bridge, and determined that rehabilitation is possible, which will improve the structural integrity of the bridge, while preserving its heritage value. Rehabilitation of the bridge is the most cost effective alternative with the lowest environmental impact. In addition, it is the only option that successfully addresses the key areas of interest considered in the Class EA, including the maintenance of access to 5879 Humber Bridge Trail.

A summary of the evaluation of each alternative solution according to all three key areas of interest in included in the Draft Executive Summary of the Environmental Assessment Report, which is attached to this report.

The Recommended Alternative

The recommended alternative contained within the DRAFT Environmental Study Report for the Humber Bridge Trail Bridge is to fully rehabilitate it. This is the most cost effective option, while improving the bridges safety and ensuring that access is maintained to 5789 Humber Bridge Trail. In addition, this is the only option that preserves the heritage potential, improves the structural integrity and minimizes impacts on the surrounding environment.

Relationship to Vaughan Vision 2020/Strategic Plan

In consideration of the strategic priorities related to Vaughan Vision 2020, the recommendations of the report will assist in enhancing and maintaining community safety, health and wellbeing, by ensuring that an appropriate level of service for bridge conditions are maintained for the citizens of Vaughan.

Regional Implications

None.

Conclusion

The DRAFT Environmental Study Report has been completed. The recommended alternative contained within the report is to fully rehabilitate the bridge.

Staff recommends that the DRAFT Environmental Study Report's Executive Summary be approved in principle, in order for the Notice of Study Completion to be publicly issued, allowing the process of finalizing the report to begin.

Attachments

1. Location Map
2. Draft Executive Summary – AECOM Canada

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CC:mc

(A copy of the attachments referred to in the foregoing have been forwarded to each Member of Council and a copy thereof is also on file in the office of the City Clerk.)