

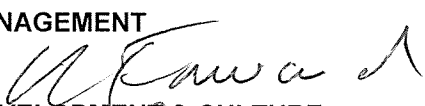


TO: GENERAL COMMITTEE

SUBJECT: PEDESTRIAN BRIDGES 31 and 32 (LOVERS CREEK RAVINE TOLLEDALE)

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CHIEF ADMINISTRATIVE OFFICER APPROVAL: JON M. BABULIC 
CHIEF ADMINISTRATIVE OFFICER

RECOMMENDED MOTION

1. That the removal of Pedestrian Bridges 31 and 32 from Lovers Creek Ravine Tollendale be authorized to proceed in 2011, and funded in the amount of \$7,500 from the Tax Capital Reserve (13-04-0440).
2. That the design and construction of a culvert with associated grading to provide trail access, in the general location of Bridge 32, as well as the restoration associated with the proposed bridge and trail removals, be authorized to proceed in 2011 and funded in the amount of \$36,000 from the Tax Capital Reserve (13-04-0440).

PURPOSE & BACKGROUND

3. Pedestrian Bridges 31 and 32 are located in Lovers Creek Ravine Tollendale. Several land parcels make up this natural area, which is zoned Environmentally Protected Open Space. The majority of the natural area is owned by the City of Barrie, including the parcels on which Pedestrian Bridges 31 and 32 are located. Please refer to Appendix "A" for the location.
4. The bridges cross a drainage ditch and provide access from trails on the Tollendale Village site, to a path around a storm water management pond, known as Pond LV32.
5. Lovers Creek Ravine Tollendale is located within the jurisdiction of the Lake Simcoe Region Conservation Authority (LSRCA). The specific area of concern relating to the bridges falls within the LSRCA's Regulation Limits, therefore the LSRCA must be closely consulted about any proposed work in the area, and a permit is required for any modifications or construction works. Staff have been in contact with the LSRCA regarding removal of the bridges and replacement options.
6. The Public Transportation and Highway Improvement Act (PTHIA) requires that all bridges be inspected at least once every second year, under the direction of a professional engineer and in accordance with the Ontario Structure Inspection Manual (OSIM).

7. In addition to meeting this requirement for our large bridges within the transportation network, the same due diligence is applied to all bridges under City ownership, including all pedestrian bridges. The City typically outsources such inspections to a structural engineering consultant. The resulting report and recommendations are incorporated into the next capital planning cycle. The inspections undertaken in 2010 revealed that Pedestrian Bridges 31 and 32 have significant deficiencies.
8. Bridge 31 is wood framed and supported on log girders and wood piers. The bridge is in fair to poor condition. The substructure is unstable and does not have proper foundations. The log girders deflect significantly when the bridge is used. The bridge barriers (handrails) do not satisfy Ontario Building Code requirements.
9. Bridge 32 is wood framed and supported on rough sawn wood girders and wood piers. The bridge is in fair to poor condition. The substructure is unstable and does not have proper foundations. The girders deflect significantly when the bridge is used and the bridge can be pulled off of its structure by hand. The bridge barriers (handrails) do not satisfy Ontario Building Code requirements.
10. Considering these significant deficiencies, the structural consultant and staff deemed both bridges severe safety hazards that should be closed to public access immediately. Operations Department staff recently posted signage indicating closure of the bridges. Members of Council were advised of steps being taken to post this signage in a memo dated January 27, 2011. A copy of the memo was forwarded to the management of Tollendale Village on January 28, 2011.

ANALYSIS

11. While the closure of the bridges temporarily mitigates the liability to the City, it does not offer a permanent solution to the liability issue. The closure also results in a small reduction in the service level that the public has become accustomed to.
12. The results of the biannual structural inspection reports are incorporated into the annual capital planning cycle. The 2010 report was received in the fall, after the majority of the work on the 2011 – 2020 Capital Plan had been completed, therefore the recommendations from the 2010 report will be incorporated into preparation of the 2012 – 2021 Capital Plan. However, due to the public safety issues associated with Bridges 31 and 32, these issues should be addressed as soon as possible.
13. The preferred path forward would have been to address any urgent issues in the staff report that accompanies the 2011 Business Plan, however there may be timing requirements associated with work on these bridges (such as removal during the winter months, and elements associated with the permitting process), that are most easily met if the issues are addressed prior to the 2011 Business Plan.
14. During preparation of the 2011 – 2020 Capital Plan, a risk management framework was used to prioritize projects. Capital needs were assessed a probability and consequence of failure of an existing asset or circumstance, as well as a redundancy factor. The redundancy factor considers the availability of other assets to provide the same level of service. The product of the probability of failure, consequence of failure and redundancy, results in a risk exposure score. The risk exposure scores of various needs can be compared to determine which needs should be considered the highest priority for capital funding.

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15. The poor condition of Bridges 31 and 32 results in both bridges having a probability of failure in the critical range. The consequence of failure is high for both bridges also, as serious injury could result if a bridge fails while a pedestrian is using it. There is also a financial consequence of failure associated with liability if a pedestrian is injured due to bridge failure.
 16. The path around the storm water management pond can be accessed from the driveway off of Hurst Drive, in addition to the access that Bridges 31 and 32 provide. This driveway is used by maintenance vehicles to gain access to the pond. The existence of two bridges from the Tollendale Village trails, in addition to the driveway provides a greater level of redundancy than is required.
 17. The critical probability of failure, and the high consequence of failure, combines for an overall risk exposure score in the high to critical range. Capital needs with risk scores in the high to critical range were considered the highest priority renewal needs in the preparation of the 2011 – 2020 Capital Plan.
 18. Replacing only one of the crossings still provides 100% redundancy in terms of access to the path. Replacing just one crossing also minimizes the initial capital costs, as well as the ongoing lifecycle, maintenance and operations, disposal and replacement costs associated with the infrastructure.
 19. Staff are investigating options that will maintain the level of service associated with providing access across the ditch to the path around the pond, while minimizing the liability exposure to the City, as well as the initial capital investment, and ongoing lifecycle costs. The City's preferred alternative is to install a drainage culvert and grading to facilitate construction of a path. This will be assessed in terms of capital and lifecycle costs, and acceptability to the LSRCA.
 20. Staff have engaged in discussions with the LSRCA and have been advised that no permit is required to remove the bridges, provided the work is undertaken during the winter. To minimize impact on the environment, the existing piers should be cut off, rather than removed.
 21. The 2011 work plan for the Engineering Department can accommodate the hours required to coordinate the removal of the existing bridges, to complete the design of the new access, including obtaining necessary approvals, and to finalize the tender documents and undertake the construction administration for this project. There may be temporary delays to other projects already included in the work plan, during peak work times, however these impacts are not expected to be significant, as the total time required for the work being recommended in this report, is not a substantial portion of the overall work plan for 2011.
 22. The risks of not proceeding with this work in 2011 include: public health and safety concern associated with leaving the existing bridges in place; eliminating a service which has become an expectation of the public in the area, particularly the residents of Tollendale Village.

ENVIRONMENTAL MATTERS

23. Staff have been engaging in discussions with the LSRCA to determine the requirements associated with the removal of the bridges, and options to replace one of the crossings. Staff will continue to work with the LSRCA to ensure that all environmental issues are addressed.

ALTERNATIVES

24. The following alternatives are available for consideration by General Committee:

- Alternative #1** General Committee could not approve the removal of the existing bridges.
- This alternative is not recommended, as the bridges present a public health and safety issue, and associated liability exposure for the City.
- Alternative #2** General Committee could choose not to approve the replacement of the bridges with any alternate crossing.
- This alternative is not recommended, as it would reduce the service level which is currently available to the public, particularly the residents of Tollendale Village.
- Alternative #3** General Committee could direct staff to construct a bridge to provide access to the path around the storm water management pond.
- This alternative is not recommended, as a bridge has higher initial capital and ongoing lifecycle costs than a culvert crossing, as well as higher liability exposure for the City.

FINANCIAL

25. Cost estimates for removal of the existing bridges, restoration following removal, and construction of a culvert and walkway have been prepared by the Engineering Department, and amount to \$43,500. The work would be funded 100% from the Tax Capital Reserve (13-04-0440).

LINKAGE TO COUNCIL STRATEGIC PRIORITIES

26. The 2010-2014 Council's Strategic Priorities have not been established as of the time of writing of this report.

APPENDIX "A"



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