

## REPORT

### Council

**Meeting Date: May 25, 2021**

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**FROM:** Transportation and Engineering Department

**DATE:** May 11, 2021

**SUBJECT:** Shorewood Promenade Shoreline Rehabilitation Study

**LOCATION:** 34 Shorewood Promenade Shoreline

**WARD:** Ward 2

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#### **RECOMMENDATION:**

1. That the Project File Report project file and the preferred planning solutions for the stabilization and rehabilitation of Shorewood Promenade shoreline as outlined in the staff report from the Transportation and Engineering Department dated May 11, 2021, be received; and
2. That the Notice of Completion for the Shorewood Promenade Shoreline Rehabilitation Study, Project File Report be published commencing the mandatory public review period (30 days commencing – June 1, 2021 to June 30, 2021).

#### **KEY FACTS:**

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

- Shorewood Promenade shoreline was identified as a high priority erosion site during the post 2019 record breaking high lake levels inspections. While the site was not listed as a high priority within the 2016 Shoreline Inventory and Assessment study, the re-inspections following the high lake levels of 2017 and 2019 determined that the site had significantly deteriorated.
- The engineering planning and review process to remediate the shoreline must follow a Municipal Class Environmental Assessment (EA) process (as a Schedule B undertaking).
- Based on the coastal, ecological and erosion hazard assessments, three mitigation alternatives were investigated for this site.

- Alternatives were assessed based on the following evaluation factors: physical and ecological environment; technical and engineering considerations; social and cultural considerations; and economic considerations.
- Based on this evaluation, alternatives were short-listed and discussed with staff from Conservation Halton.
- An overview of the issues, alternatives, evaluation and preliminary preferred alternative solutions were presented at a virtual Public Information Center (PIC) between December 3, 2020 and January 7, 2021.
- The recommended solution addresses the long term sustainability of the shoreline and considers such factors as lake levels, wave events, habitat function and tableland uses.
- A Project File Report has been compiled, documenting the selection of a preferred solution and provides preliminary design plans, and is required under a Schedule B Class EA undertaking to be made available for a mandatory public review period (30 days commencing – June 1, 2021 to June 30, 2021).

**BACKGROUND:**

Past inventories and assessments of the town-owned Lake Ontario infrastructure and property were carried out in 2006, 2008, 2011, and 2016. While some erosion was noted at the site, Shorewood Promenade shoreline was not included within the top ten sites identified within the 2016 inventory. In 2017, the level of Lake Ontario was the highest it had been in recorded history. The high water, wave action and a number of rain and storm events created significant flooding and erosion at a number of lakefront parks and properties. Once again in 2019 high lake level conditions prevailed resulting in further deterioration of the shoreline. Given the high lake level event in 2017 and 2019, town staff thought it was prudent to re-inspect the shoreline which revealed further deterioration of previously identified high priority sites as well as failures of a number of shoreline properties not previously flagged within the top ten priority sites, Shorewood Promenade being one such site.

Funding was included in the 2021 approved capital budget to move Shorewood Promenade Shoreline Rehabilitation Study forward through the environmental assessment and detailed design process. Funding available within the existing capital budget has been allocated to undertake the physical remediation works associated with the erosion issues.

The study and the development of a preferred improvement solution has been completed in accordance with the Municipal Class Environmental Assessment (EA) process as a Schedule B undertaking. Public and technical review agencies were consulted as required through the EA planning process.

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**COMMENT/OPTIONS:**

The Shorewood Promenade Shoreline Rehabilitation Study was initiated in January 2020. The consulting firm of W.F. Baird and Associates was retained to carry out the study assignment.

Shorewood Promenade shoreline is approximately 100m long. The site consists of a cobble and shingle beach that is in front of a high cohesive bluff with a town owned trail running along the perimeter at the top of the bluff. Works carried out as part of the subdivision creation in the 1990's included a storm outfall and short armour stone headwall section towards the western property line. The bluff feature is fairly unique to the town and has a substantial height of about 5 m. The Map of Study Area can be found in Appendix A.

The 2016 Shoreline Inventory and Assessment indicated that there were signs of toe erosion, seepage, exposed soil at the toe of the bluff, and undercutting of the top of the bluff. The follow-up inspections in 2017 and 2019 indicated that there is extensive erosion along the bluff as indicated by loss of vegetation and soil material along the bluff's face. If left unmanaged, this erosion can result in increased risk to public infrastructure (public trail, trees, and shoreline), as well as loss of private property as the bank will continue to deteriorate and become undercut leading to further erosion along top of bank. While in the short term the erosion does not pose a risk to any buildings, if it is not addressed it will result in the loss of part of the park and trail and could pose a threat to private property over time.

An inventory of the study area was carried out to determine the root cause of the problem in order to better identify a solution. The following disciplines were included in the inventory: coastal engineering, aquatic assessment, tree inventory, breeding bird surveys, ecological land classification, Species at Risk (SAR) habitat screening, wildlife observations and terrestrial resources. During an initial site visit, the presence of bluff swallows, which are designated under the Endangered Species Act (ESA) and Species at Risk Act (SARA), were confirmed.

Site-specific constraints that influence the type of mitigation options available for the project have been identified, specifically: ownership of lands and access to and along the shoreline, the avoidance of disturbing the bluffs, presence of bank swallow colony and existing vegetation.

Alternative solutions were assessed based on the following evaluation factors:

- Environmental/Physical considerations;
- Social considerations; and:
- Economic considerations (short and long term).

The following alternative solutions were considered:

- Alternative 1- Do nothing:  
This alternative involves leaving the site as it is and allowing erosional processes to continue along the shoreline.
- Alternative 2: Armour Stone Revetment  
This alternative consists of a double layer revetment at the toe of the bluff to address erosion issues at the site.
- Alternative 3: Cobble Beach with Armour Stone Groynes  
This alternative consists of the construction of a cobble beach that extends the width of the shoreline as well as two armour stone groynes extending into the water at the property limits to contain the beach.

Based on this evaluation, alternatives were short-listed and discussed with staff from Conservation Halton, as a permit is required from Conservation Halton to implement shoreline works. Based on these discussions and public input, the preferred alternative was selected as Alternative 2. Preliminary plans for each sites are provided in Appendix B. The revetment was selected as the preliminary preferred alternative for the following reasons:

- Lower cost alternative with higher level of protection;
- Smaller footprint of occupied lakebed and altered fish habitat; and,
- Does not disrupt alongshore sediment transfer.

In order to accommodate this solution, removal of some localized vegetation/trees along the bank and a temporary access route will be required. These plans will be further developed during the detailed design phase. The design phase will also include landscaping plans with details on trees, shrubs and/or groundcover requirements for compensating the above loss. This work will be planned in coordination with staff from the Town's Forestry Services Department and Conservation Halton.

Access for construction is planned via Shorewood Promenade and a temporary access road overtop of the existing armour stone headwall. In the long term, the preferred access is along the shoreline from the west of the site, however, this will take time for redevelopment to occur.

A Project File Report has been compiled documenting the selection of a recommended preferred solution and preliminary design plans. In accordance with a Schedule B undertaking, the project file must be made available for a mandatory 30-day public review period and staff are proposing a review period commencing June 1, 2021 to June 30, 2021. In recognition of current COVID 19 restrictions, the report will be made available on the town's website and special accommodations to

view hard copies will be determined on an as needed basis. Should no Part II Board Orders be received by the Minister of Environment, Conservation and Parks (MECP) during the review period, the project will be deemed approved allowing it to proceed to detailed design and implementation.

Appendix B presents the consultant's executive summary report and preliminary design plans for this project.

Next steps include the detailed design of the preferred alternative, as well as permitting and/or agreement by Conservation Halton (CH) and Ontario Ministry of Environment, Conservation and Parks (MECP). The permitting process will also consider the bat and bird breeding periods and timing windows from construction will be based on avoiding work during these times. The bank swallow species are protected under the ESA and SARA. Town staff and our consultants are working closely with the MECP to obtain the necessary approvals for this project. Through this process the project will be required to demonstrate that it can provide an overall benefit to Bank Swallows to the satisfaction of the MECP prior to being able to proceed. Compensatory works will be required to achieve the net benefit and will likely include a structural component such as a concrete wall with holes/burrows incorporated appropriately, as well as education and monitoring components. Staff have discussed preliminary compensatory work options with MECP staff and the South Shell Park shoreline is a candidate location for the compensatory work. The structural compensatory works could be incorporated into proposed rehabilitation works needed at South Shell Park to address a failed shoreline structure. The proposed concrete wall with burrows will require regular maintenance including the clean out of burrows to attract the Bank Swallows. The tall bluffs at Shorewood are not conducive to constructing or maintaining such a structure, while access at South Shell Park is more attractive. The timeline for construction of erosion protection at Shorewood Promenade is dependent on the approval of the compensatory works by the MECP. The MECP permit process is estimated to take approximately 9 months. As such, construction for Shorewood Promenade would not be permitted until January 2022 at the earliest, but more likely July 2022. Construction of in-water works will not be permitted to occur between March 31st and July 1st due to fisheries concerns.

## **CONSIDERATIONS:**

### **(A) PUBLIC**

Property owners in the area, including those on Shorewood Promenade, were notified of the study work and were invited to the virtual public consultation.

An overview of the issues, alternatives, evaluation and preliminary preferred alternative solutions was presented within virtual public consultation materials made available to the public between December 3, 2020 and January 7, 2021.

While primarily positive comments were received by the public during and following this review period, there were some concerns regarding the bank swallows and potential impacts to mature trees in the area. These concerns will continue to be considered during the detailed design process.

Stakeholders, as well as residents/landowners who expressed an interest in being updated of the progress of this project will be advised, via the formal Notice of Completion for the EA study, regarding the commencement of the 30-day public review period.

**(B) FINANCIAL**

The 2021 capital budget provided sufficient funds to complete the EA Study and to move forward with the detailed engineering design and construction of the shoreline erosion works.

The estimated construction cost for the shoreline erosion works is approximately \$1.3 million. This includes costs for materials and mobilization at Shorewood Promenade.

In addition to the above, costs associated with the compensatory works have not been included within the 2021 capital budget. Costs associated with the construction of the compensatory works are approximately \$750,000. These costs will be included within the 2022 capital budget.

**(C) IMPACT ON OTHER DEPARTMENTS & USERS**

As this project moves into detailed design and forward to implementation, staff will work with both internal partners including staff from Parks and Open Space, and external parties such as Conservation Halton, MECP and area stakeholders, to facilitate the design and construction of the recommended works.

**(D) CORPORATE STRATEGIC GOALS**

This report addresses the corporate strategic goal(s) to:

- enhance our natural environment
- have environmentally sustainable programs/services

**(E) CLIMATE CHANGE/ACTION**

This report is in support of the pillars of social (health and well-being), economic responsibility, and environmental sustainability. The recommendations of the report support both the stewardship of the town's natural environment as well as the incorporation of climate change resiliency into shoreline protection measures. Erosion protection measures provide shoreline protection for both town infrastructure and parkland and private properties abutting the shoreline. This provides a benefit to the community through protection of table lands and park areas adjacent to the shoreline, as

well as, preserving and protecting the aquatic and terrestrial habitat. The design work for the erosion protection works will consider the impacts of the 2017 and 2019 record breaking high lake levels. The build back better design will utilize the updated 100 year water level based on the 2017 and 2019 data.

**APPENDICES:**

- Appendix A - Map of Study Area
- Appendix B - Shorewood Promenade Shoreline Rehabilitation Municipal Class Environmental Assessment Study Executive Summary.

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