



Staff Report

If this information is required in an alternate accessible format, please contact the Accessibility Coordinator at 905-623-3379 ext. 2131.

Report To: Joint Committees

Date of Meeting: October 25, 2021

Report Number: PDS-054-21

Submitted By: Ryan Windle, Director of Planning and Development Services

Reviewed By: Andrew C. Allison, CAO

By-law Number:

File Number: PLN15.18

Resolution#:

Report Subject: Lake Ontario Shoreline Management Plan Update

Recommendation:

1. That Report PDS-054-21 be received for information.

Report Overview

The purpose of this report is to inform Council of the completion of an update to the Lake Ontario Shoreline Management Plan for the Lower Trent Region, Ganaraska Region and Central Lake Ontario Conservation Authority shoreline areas, review the findings and recommendations for Clarington, and outline proposed next steps for implementation of the Plan.

1. Background

- 1.1 In 1990, the Central Lake Ontario (CLOCA), Lower Trent Region (LTRCA) and Ganaraska Region (GRCA) Conservation Authorities completed a shoreline management plan for the Lake Ontario shoreline within their respective jurisdictions. The *Lake Ontario Shoreline Management Plan* (Sandwell Swan Wooster Inc., December 1990) provided shoreline management direction, including defining flood and erosion limits, identifying concentrations of natural hazards in conflict with existing development (“Damage Centres”), and identifying land use considerations.
- 1.2 In 2017, an update of this Plan was jointly initiated by the three Conservation Authorities, with funding support from the National Disaster Mitigation Program and the affected municipalities (locally from Durham Region), with the Municipality providing in-kind support. The update provided an opportunity to account for physical shoreline changes that have occurred since completion of the original Plan, changing lake conditions as a result of new water level planning, climate change forecasting, and technological advances that contribute to improved data collection and modelling.
- 1.3 The objective of the renewed *Lake Ontario Shoreline Management Plan* (Zuzek Inc., Nov. 2020) (Plan) is to provide updated information and mapping of coastal hazards and to increase the resilience of coastal communities by providing information and direction for mitigating risk. The conceptual management approaches recommended in the Plan include a hierarchy of four approaches: Avoid, Accommodate, Protect and Retreat.
- 1.4 The Plan area covers a shoreline length of approximately 135 kilometers from Ajax to Carrying Place (Quinte West), including the entirety of Clarington’s Lake Ontario shoreline area (approximately 35 kilometers). It further sub-divides the Plan area into 12 reaches, delineated based on sediment transport, sediment deposition and physical barrier (e.g. headlands and jetties) information and observations.
- 1.5 A Notice of Study commencement was released for the project in October 2018. Staff from Planning & Development Services and Public Works participated in a Steering Committee of municipal, provincial, federal, and Conservation Authority staff, receiving information and presentations throughout the project and providing input. Staff attended

Council and Public Information Sessions held in November 2019 and provided comments on the Draft Plan released in June 2020.

- 1.6 The Plan contains information to assist the Conservation Authorities, municipalities, and shoreline property owners within the Plan area, including:
 - Shoreline photo inventories (2018 and 2019);
 - A breakdown of shoreline structure types presents along the shoreline and their current condition;
 - Updated flood, erosion and dynamic beach hazard limits and hazard maps; and
 - A reach-by-reach summary of conditions, threats, and recommendations.
- 1.7 The Plan defines hazards for the purposes of managing development along the shoreline to minimize / avoid future property damage and risk to life. It does not comment on or provide direction regarding the management of Lake Ontario outflows, as this is within the jurisdiction of the International Joint Commission.
- 1.8 The completed Plan and hazard mapping is available to the public on both the CLOCA website (<https://www.cloca.com/lake-ontario-shoreline-hazard-manag>) and GRCA website (<https://www.grca.on.ca/programs-management/>). An overall summary of the Plan is provided in CLOCA Board report [SR5723-21](#). The Plan was endorsed by the CLOCA and GRCA Boards earlier this year.

2. Planning Policy Framework

- 2.1 The Provincial Policy Statement, 2020 (PPS) sets out the policy foundation for regulating the development and use of land in Ontario. Section 3.1 deals with the protection of public health and safety relating to natural hazards and requires that development be directed to areas outside of hazardous shoreline lands which are impacted by flooding, erosion and/or dynamic beach hazards. Section 3.1.2 of the PPS sets out specific prohibitions for development and site alteration in the dynamic beach hazard and areas where safe access cannot be maintained as a result of present natural hazards. In addition, Section 3.1.3 of the PPS requires that “Planning Authorities shall prepare for the impacts of a changing climate that may increase the risk associated with natural hazards.”
- 2.2 A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2020 (Growth Plan) provides a framework for implementation of the PPS in the region. In implementing the PPS, the Growth Plan requires that growth management planning direct development away from hazardous lands (Policy 2.2.1 e)).

- 2.3 The Durham Region Official Plan (DROP) designates the majority of Clarington's shoreline as "Waterfront Areas." Lands in the "Waterfront Areas" designation are to be developed as people-places, except for significant natural areas, which are to be protected in their natural states. The DROP recognizes development areas adjacent to the shoreline in Newcastle, Wilmot Creek and Port Darlington east of Bowmanville Creek as designated Living Areas. Notwithstanding, environment policies contained in Section 2 conform with the policy direction set out by the PPS, prohibiting development and site alteration within the dynamic beach hazard and areas that would not have safe access appropriate for the nature of the development and the natural hazard.
- 2.4 The Clarington Official Plan generally designates Clarington's Lake Ontario shoreline reach Environmental Protection Area and Waterfront Greenway. Similar to the DROP, the Official Plan recognizes the development areas adjacent to the shoreline in Newcastle, Wilmot Creek and Port Darlington east of Bowmanville Creek, designating these areas Urban Residential. The predominant use of land in the Waterfront Greenway designation is recreation, tourism uses, conservation and agricultural uses. Within areas designated Environmental Protection, permitted development is limited to low-intensity recreation and uses related to forest, fish and wildlife management or erosion control and stormwater management.
- 2.5 Some properties along the edge of Lake Ontario are designated in the Official Plan as being within the Regulatory Shoreline Area. Policies of the Regulatory Shoreline Area do not permit the construction of new buildings or structures of any type. Further, if an existing dwelling is destroyed or demolished, reconstruction must commence within a 24 month period, after which reconstruction is not permitted
- 2.6 Implementation of the policies set out in the Official Plan is achieved through zoning by-laws. A comprehensive review of Clarington's zoning by-laws to implement the Official Plan is underway and includes the updating of regulations for development along Clarington's shoreline to be consistent with provincial natural hazard policies. It is important to note, however, that an existing building or structure which is lawfully in existence prior to the passing of the relevant zoning by-law and which does not conform to the Official Plan, but continues to be used for such purposes, shall be deemed legal non-conforming.

3. Summary of Findings for Clarington Shoreline Reaches

- 3.1 The Plan includes 21 hazard maps for the Clarington shoreline, which identify updated erosion, flood and dynamic beach hazard limits across the entirety of Clarington's shoreline area. The hazard maps applicable to Clarington are provided in **Attachment 1**.

- 3.2 In general, the updated hazard mapping reflects a higher 100-year flood elevation of +76.01 m (IGLD85). In addition, the 100-year erosion rates for non-dynamic beach areas range from 0.17 to 0.59 m/year. For dynamic beaches, the 100-year erosion rates range from 0.11 to 0.25 m/year.
- 3.3 Existing buildings and structures are present within shoreline hazard limits in older development areas across Clarington, including in the Port Darlington, Wilmot Creek, and Bond Head areas, as well as along Lakeshore Road between Newcastle and Port Granby. The setback of new development from shoreline hazards can be seen in both the Lakebreeze and Port of Newcastle communities. The updated hazard mapping will change development limits across Clarington, generally increasing setbacks.
- 3.4 The Plan sub-divides Clarington's shoreline area amongst four reaches, as follows:
- Reach 3 – Oshawa Harbour to St. Marys;
 - Reach 4 – St. Marys to Bowmanville Harbour;
 - Reach 5 – Port Darlington to Port of Newcastle; and
 - Reach 6 – Bond Head to Port Hope West Beach.
- 3.5 The summary of conditions and recommendations for each of these reaches is provided in **Attachment 2**.
- 3.6 Infrastructure (engineered and natural) threats identified along Clarington's shoreline include the following:
- Inland migration of the barrier beach in Darlington Provincial Park;
 - Unprotected shoreline area at the end of the Darlington Nuclear Generating Station;
 - Poor structural condition of the west jetty at Bowmanville Creek;
 - Sediment transmission into the navigation channels at Bowmanville Creek and Graham Creek;
 - Flooding and/or erosion threat for existing development areas within hazard limits; and
 - Erosion threat, compounded by sediment deficit, for Port Darlington East Beach Park and Bond Head Park.
- 3.7 The Plan provides management recommendations for each reach, which will require both public and private landowner action to implement. The management recommendations for the reaches that capture Clarington's shoreline have been divided into four categories and are summarized in Table 1. Reach-specific recommendations are provided in **Attachment 2**.

Table 1. Summary of Lake Ontario Shoreline Management Plan (Zuzek Inc., Nov. 2020) Recommendations for Clarington’s Shoreline Reaches

Category	Summary of Recommendations
Ecosystem	<ul style="list-style-type: none"> - Maintain natural bluff environments and buffers - Continue dune restoration at Port Darlington West Beach Park
Monitoring	<ul style="list-style-type: none"> - Conduct routine monitoring of the existing shore protection at Darlington Nuclear Generating Station, St. Marys Cement and Wilmot Creek Retirement Community - Monitor the waterfront trail location relative to the eroding bluffs at the Port of Newcastle - Monitor bluff crest regression and slope stability along the Bond Head Bluffs and implement frequent hazard map updating
Infrastructure	<ul style="list-style-type: none"> - Structural upgrades to the west jetty at Bowmanville Creek and the jetties at Graham Creek - Development of sediment by-passing programs at Bowmanville Creek and Graham Creek to nourish eroding park areas to the east of these locations - Implementation of flood proofing measures for development on low lying lands within the hazard limit
Land Use Planning	<ul style="list-style-type: none"> - Avoid further development on hazardous lands - Consideration of community scale solutions for hazard protection or retreat for land subject to acute hazard risk

3.8 Climate change impacts are also assessed in the Plan and it is noted that warmer winters will cause a reduction in ice cover on Lake Ontario, with ice-free winters predicted by late century. Winter ice cover and shoreline ice accumulations in spring protect shoreline areas from wave impacts. Without ice protection, winter and spring wind events will drive waves into the shoreline and cause greater shoreline erosion.

4. Implementation

4.1 A collaboration of municipal, Conservation Authority, provincial and federal agencies, and shoreline property owners will be needed to meet the objectives of the Plan and implement strategies to mitigate risks.

4.2 Initiatives already completed or underway include:

- Adoption of the Clarington Flood Response Plan by Council in December 2017 and its incorporation into the Municipality of Clarington Emergency Plan;
- Updating of natural hazard mapping by CLOCA and GRCA to reflect shoreline flood hazard, erosion hazard, and dynamic beach hazards as mapping in the Plan;
- An Erosion Analysis and Report for the jetty at Bond Head Park to identify solutions to identify long-term strategies for beach nourishment and erosion prevention and conceptual design alternatives for repair of the jetty and beach area;
- A comprehensive review of Clarington's zoning by-laws, which will implement shoreline natural hazard policies of the Clarington Official Plan, as amended by Official Plan Amendment 107, and updated natural hazard mapping;
- Submission of correspondence by the Municipality to Fisheries and Oceans Canada – Small Craft Harbours, the federal agency responsible for piers on the east and west of the channel entrance at Bowmanville Creek, requesting they carry out the work identified by the Lake Ontario Shoreline Management Plan (**Attachment 3**);
- Initiation by CLOCA of a Lake Ontario Shoreline Hazard Summary, Risk Assessment and Management Plan to better understand and quantify the risks associated with the hazards where existing development has been identified within the shoreline hazard limits and to identify potential mitigation solutions to eliminate or reduce the risks;
- Integration of relevant shoreline hazard management recommendations into the Clarington Corporate Climate Action Plan, supporting coordination of mitigation and resiliency planning for areas of Municipal authority; and
- Development of flood risk assessment data and public communications strategy by the Region of Durham, in consultation with local municipalities and community stakeholders, to raise awareness across Durham Region about climate change related flood risks, improve flood preparedness.

4.3 The potential cost implications to address management recommendations for existing development within the shoreline hazard limits will be significant and requires support from local Conservation Authorities and other levels of government. The Municipality and the local Conservation Authorities continually explore funding options to contribute to addressing shoreline changes in the community.

4.4 The frequency for future updating the plan to reflect notable changes in natural hazard policy, Lake Ontario water level regulation, or physical changes to the shoreline will need to be further explored with the Conservation Authorities. In addition,

implementation will need to consider roles and responsibilities for shoreline erosion monitoring.

- 4.5 To support the prioritization of actions that are the responsibility of the Municipality to implement from the updated Plan, the Planning & Development Services Department has budget allocated to undertake an update to the Municipality of Clarington Waterfront Study completed in 1993. This Study outlined the need for land acquisition and development of waterfront parks for the Courtice, Bowmanville and Newcastle urban centres. In particular it emphasized public access to the waterfront and was the basis for the Waterfront Trail linkages through Clarington. The recommendations of this Study have been largely implemented. Compiling data and background information gathering will continue through the fall, drafting and issuance of Terms of Reference for the engagement of consulting services to undertake the update study is anticipated early in 2022.

5. Concurrence

This report has been reviewed by the Director of Public Works who concurs with the recommendation.

6. Conclusion

- 6.1 The updated *Lake Ontario Shoreline Management Plan* (Zuzek Inc., November 2020) provides updated hazard limits and management recommendations for the shoreline reaches within the Municipality.
- 6.2 The information contained in the Plan provides the Municipality with important information to address provincial land use planning policy requirements for shoreline areas. Beyond implementing the updated shoreline hazard mapping, the Municipality, the Region of Durham, GRCA and CLOCA have a number of initiatives underway or planned that will contribute to reducing coastal risks and increasing community resilience.
- 6.3 Implementation of the Plan will require resources and collaboration, both public and private. Where shoreline hazards pose a significant risk to human safety and property, collaboration with senior levels of government will be needed to implement strategies to mitigate the risk. Staff will continue to seek funding opportunities to support Municipal projects that will contribute to implementation of the Plan.

Staff Contact: Amy Burke, Senior Planner, 905-623-3379 ext. 2423 or aburke@clarington.net.

Attachments:

Attachment 1 – Lake Ontario Shoreline Management Plan (2020) Hazard Maps – Clarington

Attachment 2 – Summary of Conditions and Recommendation, Reach 3 – 6 (Clarington)

Attachment 3 – Letter to Small Crafts and Harbours regarding West Jetty at Bowmanville

Interested Parties:

The following interested parties will be notified of Council's decision:

Central Lake Ontario Conservation Authority

Ganaraska Region Conservation Authority

Port Darlington Community Association

St. Marys Cement

Ontario Power Generation