



Grand River
Conservation Authority

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Lake Erie Shoreline Protection Policy

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Grand River Conservation Authority Lake Erie Shoreline Protection Policy

Introduction

In May 2006, it is expected that the forthcoming *Development, Interference with Wetlands and Alteration to Shorelines and Watercourses Regulation* for the Grand River Conservation Authority will be approved by the Minister of Natural Resources. This regulation will conform with the Generic Regulation (Ontario Regulation 97/04) which provides a template for the development of all Conservation Authority *Development, Interference with Wetlands and Alteration to Shorelines and Watercourses Regulations*.

The *Development, Interference with Wetlands and Alteration to Shorelines and Watercourses Regulation* empowers Conservation Authorities to prevent or restrict development in areas where the control of flooding, erosion, dynamic beaches, pollution or the conservation of land may be affected by development. The regulation of shorelines is an added element to the new *Regulation*.

Under the Conservation Authorities Act, the definition of development includes:

- the construction, reconstruction, erection or placing of a building or structure of any kind,
- any change to a building or structure that would have the effect of altering the use or potential use of the building or structure, increasing the size of the building or structure or increasing the number of dwelling units in the building or structure,
- site grading, or
- the temporary or permanent placing, dumping or removal of any material, originating on the site or elsewhere (Conservation Authorities Act, R.S.O. 1990, Chapter C.27, Section 28, subsection 25)

To ensure a consistent and fair approach to decisions regarding permit applications, the following policy statement will be used in the review of permit application for Lake Erie shoreline development proposals.

Policy Approach

This Policy complements the current Provincial Policy Statement regarding Natural Hazards and provides guidance to GRCA staff for the implementation of the Regulation.

The intent of this Policy is to provide:

- a stronger level of protection for properties and residents along the Lake Erie Shoreline
- a framework for the review of applications for the *Regulation of Development, Interference with Wetlands and Alteration to Shorelines and Watercourses of the Grand River Conservation Authority*

Guiding Principles

Three guiding principles form the basis of this Policy:

- Human life and property should be protected from the impacts of naturally occurring physical processes along the shoreline.
- Maintaining or improving public access to the shoreline for recreational purposes should be encouraged.
- Non-structural protection is preferable to structural protection measures.

Goals

The Grand River Conservation Authority will pursue four management goals for the portion of the Lake Erie shoreline within the Grand River watershed:

- To minimize the potential for the loss of life or property damage.
- To direct development away from natural hazards associated with the shoreline.
- To educate the public on the hazards associated with the Lake Erie shoreline.
- To minimize public expenditures resulting from damage and emergency operations associated with flooding and erosion along the shoreline.

Shoreline Hazards

The north shore of Lake Erie is subject to natural hazards associated with flooding and erosion. Flooding, erosion, and dynamic beaches are naturally occurring physical and ecological processes that have continuously shaped and re-shaped the landscape. These processes include, but are not limited to, shoreline regression, erosion by waves, nearshore currents, sediment transport, wind action, water level fluctuations, ice, weathering and human activities. These processes are perceived to be hazards by the public when these natural processes directly impact the structures that are located within these areas. In order to address these hazards, proper management of the lakeshore is required.

Proper management of the lakeshore depends on identifying the existence and extent of the natural hazards and directing development away from such unsafe areas. The extent of these hazards within the Grand River watershed has been determined through a Shoreline Management Plan (1994) and has been refined through the completion of updated mapping and analysis of the existing shoreline conditions.¹

Any development adjacent to the shoreline of Lake Erie that is subject to flooding, erosion or dynamic beach processes requires a permit from the Grand River Conservation Authority. For the purposes of defining the extent of the “Regulated Area”, a 15 metre allowance is added to the furthest landward extent of the *flooding hazard*, *erosion hazard* or *dynamic beach hazard* (Figure 1).

¹ A Shoreline Management Plan (SMP) was completed by Shoreplan Engineering in May 1994 and subsequently adopted by the GRCA for Lake Erie shoreline of the Grand River watershed. The plan lays out the technical basis and recommended management plan for the lakeshore. Map schedules for regulatory areas along the shoreline have largely been developed based on mapping and assessments in the SMP.

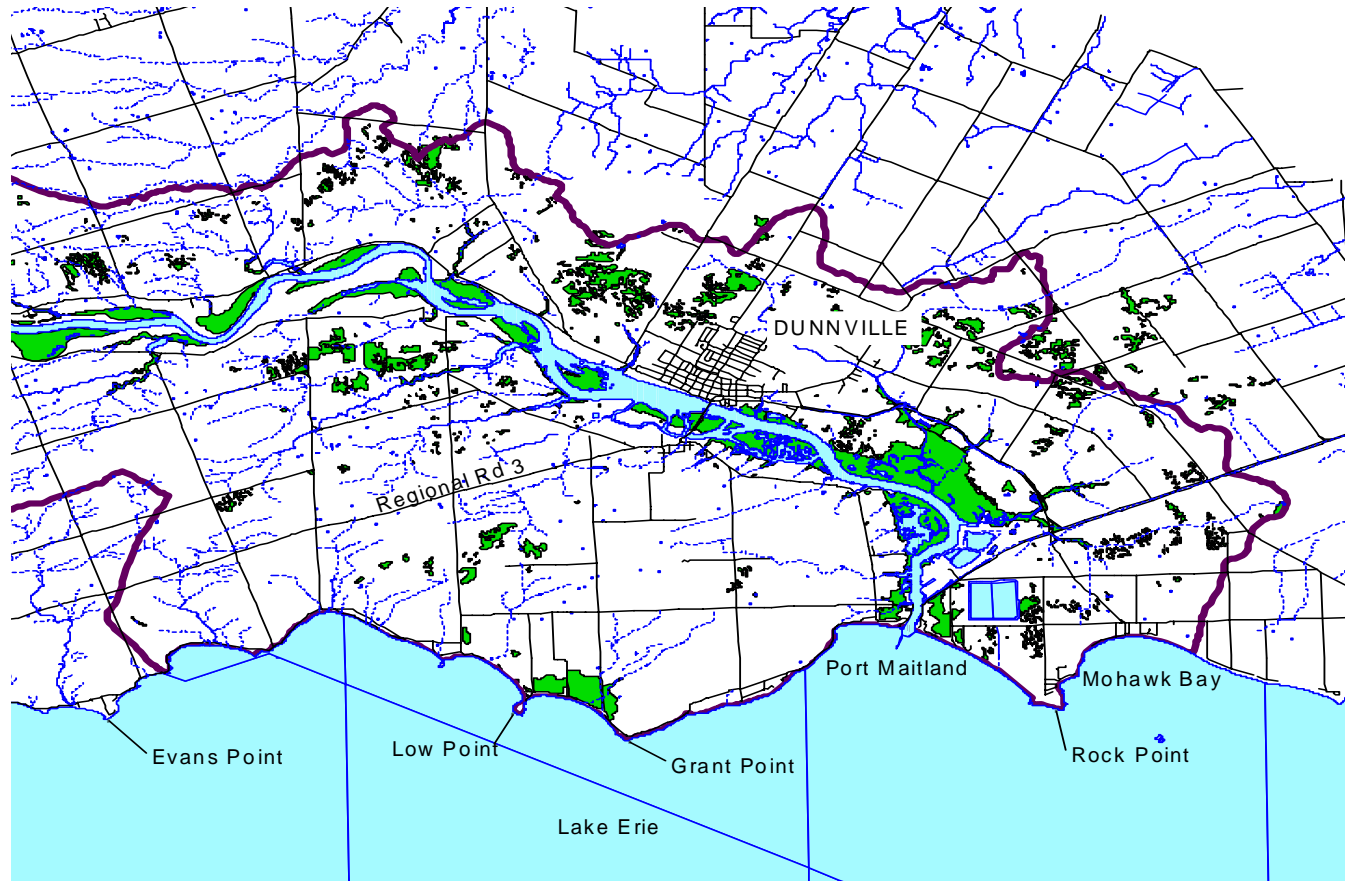


Figure 1 Lake Erie Shoreline within the Grand River Watershed

Lake Erie Flooding Hazard Limits

The *Lake Erie Flooding Hazards Limit* is defined by the 100 year lake level plus an allowance for wave uprush and other related water hazards. Flooding from Lake Erie affects the entire shoreline area, backshore areas, and also extends up the lower portions of the Grand River and its tributaries including Dunnville.

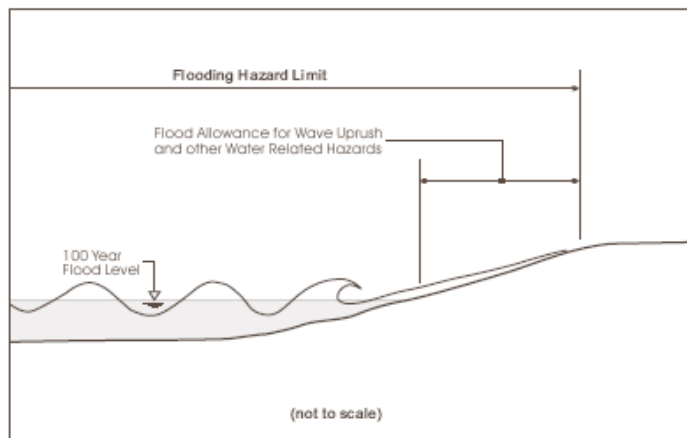


Figure 2 Flooding Hazard Limit

Lake Erie Shoreline Erosion Hazard

The *Lake Erie Shoreline Erosion Hazard* is defined as the average annual rate of recession extended over a 100 year period. The erosion hazard is determined using a stable slope allowance (equal to the horizontal distance measured landward from the toe of the slope equal to 3 times the height of the cliff, bluff or bank), an erosion allowance equal to 100 times the average annual recession rate, and a 15 metre structural setback.

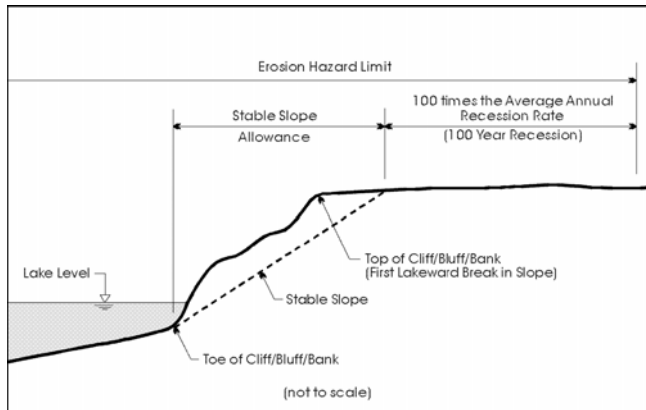


Figure 3: Erosion Hazard Limit

Lake Erie Dynamic Beach Hazard

The *Lake Erie Dynamic Beach Hazard* is that portion of a shoreline where accumulated unconsolidated sediment continuously moves as a result of naturally occurring processes associated with wind and water and changes in the rate of sediment supply. The extent of the *dynamic beach hazard* is defined as the extent of the *flooding hazard* plus a 30 metre dynamic beach allowance or scientific and engineered dynamic beach allowance, as identified in the Shoreline Management Plan.

These areas are highly unstable and/or critical to the natural protection and maintenance of the first main foredune feature and/or beach profile where the impacts of flooding, wave action, and wind are greatest and as such poses an unacceptable risk to life and property (OMNR, 1997, p.55). If left unaltered, beach and foredune areas often naturally protect inland shoreline development from the destructive impacts of shoreline flooding and erosion.

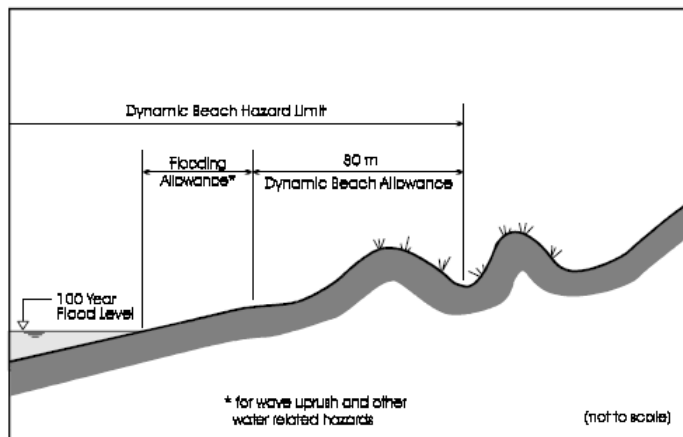


Figure 4: Dynamic Beach Hazard Limit

Shoreline Protection Policies

1. The GRCA will prohibit development in hazardous lands associated with the Lake Erie shoreline that are impacted by flooding hazards, erosion hazards and/or dynamic beach hazards.
2. Notwithstanding Section 1, the GRCA may grant approval of development within lands subject to flooding hazards and/or erosion hazards where the risk to public safety and property is minor and can be mitigated in accordance to provincial standards where:
 - development and site alteration is carried out in accordance with floodproofing standards, protection works standards and access standards;
 - vehicles and people have a way of safely entering and exiting the area during times of flooding and erosion hazards and other emergencies;
 - new hazards are not created and existing hazards are not aggravated; and
 - no adverse environmental impacts will result.
3. In all circumstances, the GRCA will prohibit development
 - on lands subject to the *dynamic beach hazard*;
 - where the use is an institutional use associated with hospitals, nursing homes, pre-school, nurseries, day care or schools, where there is a threat to the safe evacuation of the sick, the elderly, person with disabilities or the young;
 - where the use is an essential emergency service such as fire, police, ambulance or electrical substation; or
 - where the use is associated with the disposal, manufacture, treatment or storage of hazardous substances.

References

Conservation Authorities Act, R.S.O. 1990, Chapter C.27, Section 28, subsection 25)

Grand River Conservation Authority. 2005. Reference Manual: Determination of Regulation Limits. December. Cambridge: Grand River Conservation Authority.

Ontario Ministry of Municipal Affairs and Housing. 2005. Provincial Policy Statement. Queen's Printer for Ontario.

Ontario Ministry of Natural Resources. 1997. Natural Hazards Training Manual. Ontario Ministry of Natural Resources.

Ontario Regulation 97/04. Development, Interference with Wetlands and Alterations to Shorelines and Watercourses (Generic Regulation).

Shoreplan Engineering Limited. 1994. Shoreline Management Plan (SMP). Prepared for the Grand River Conservation Authority.