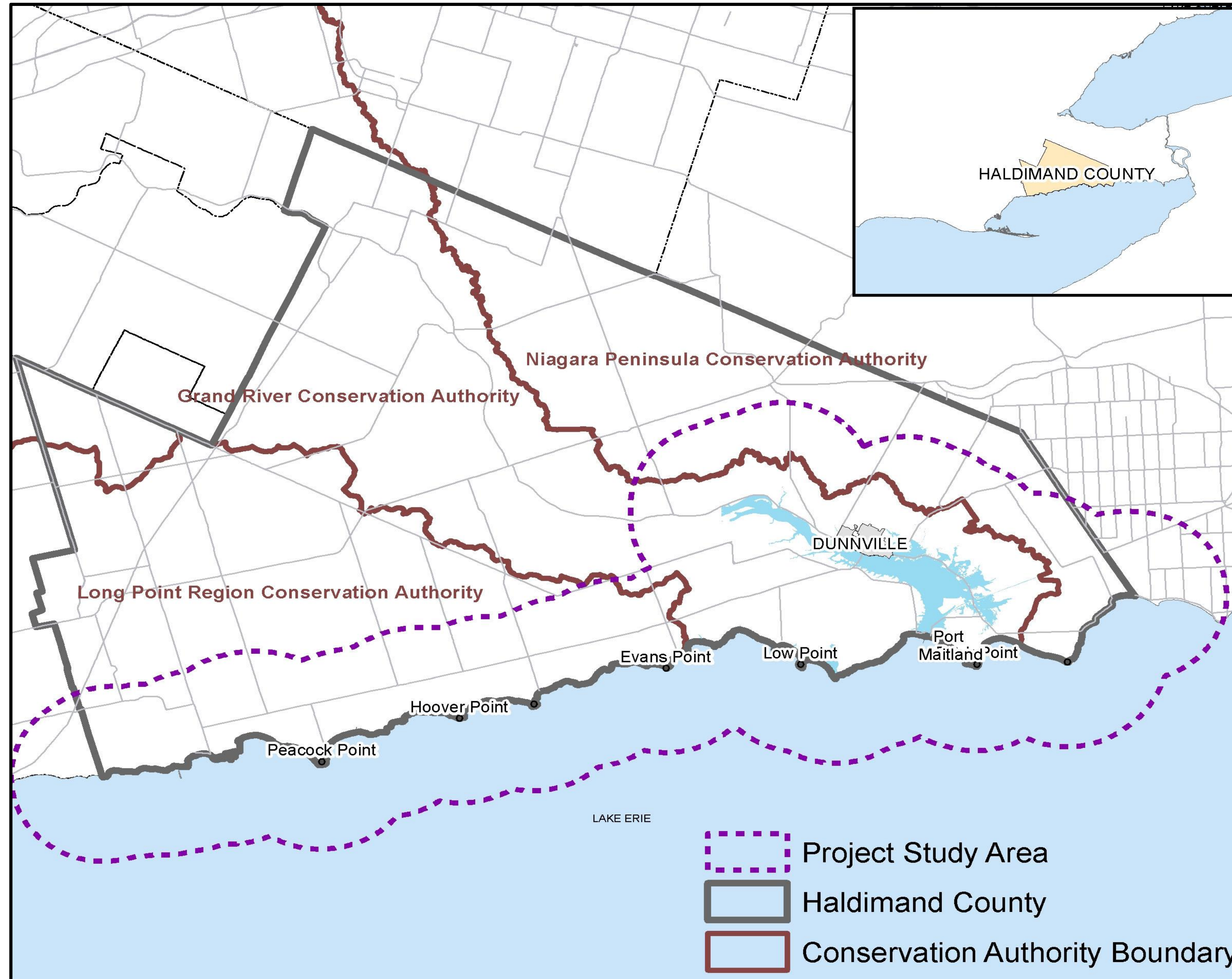


PROJECT PARTNERS AND STUDY AREA

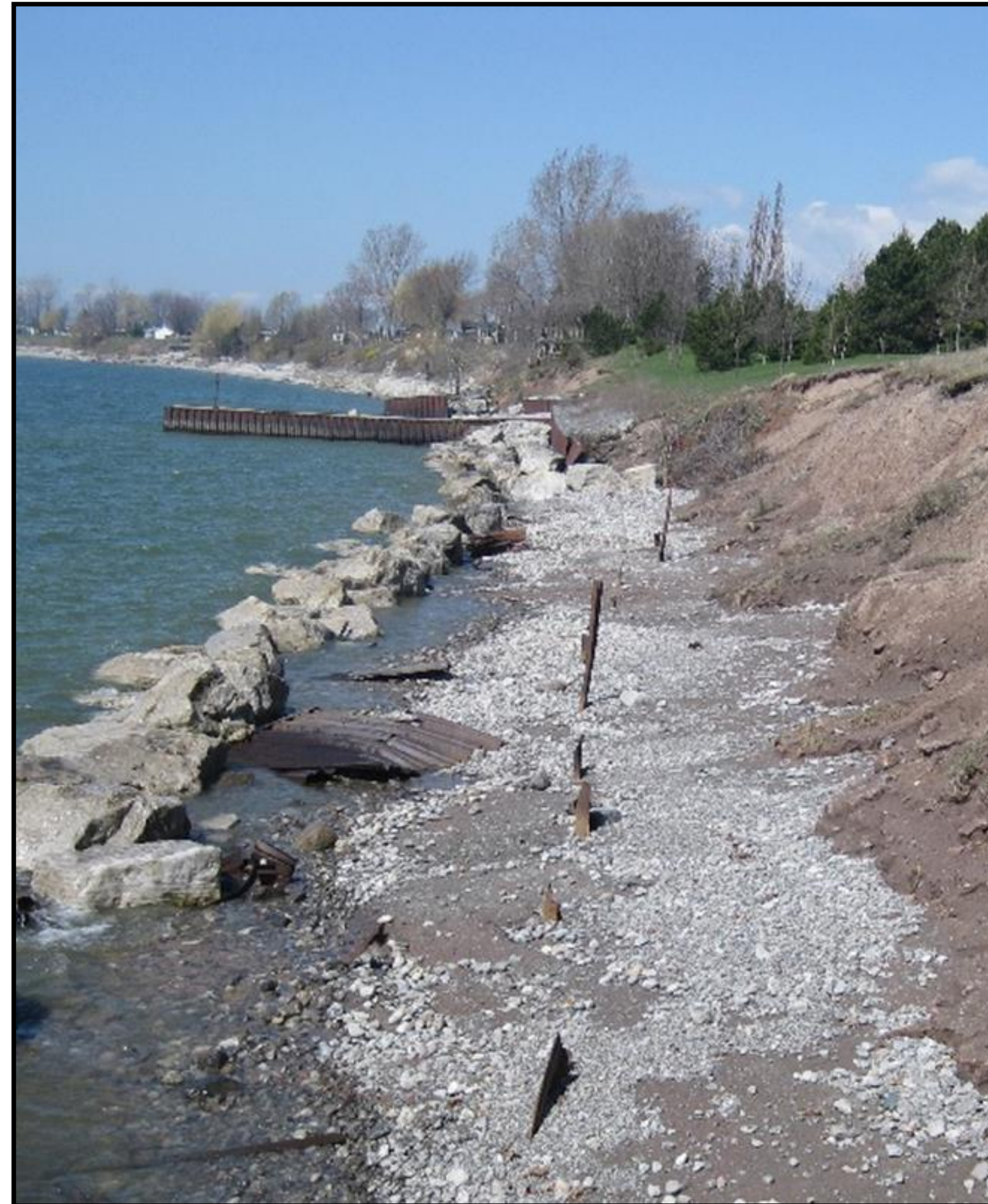


WHAT ARE THE HAZARDS?

TYPES OF HAZARDS



Flooding



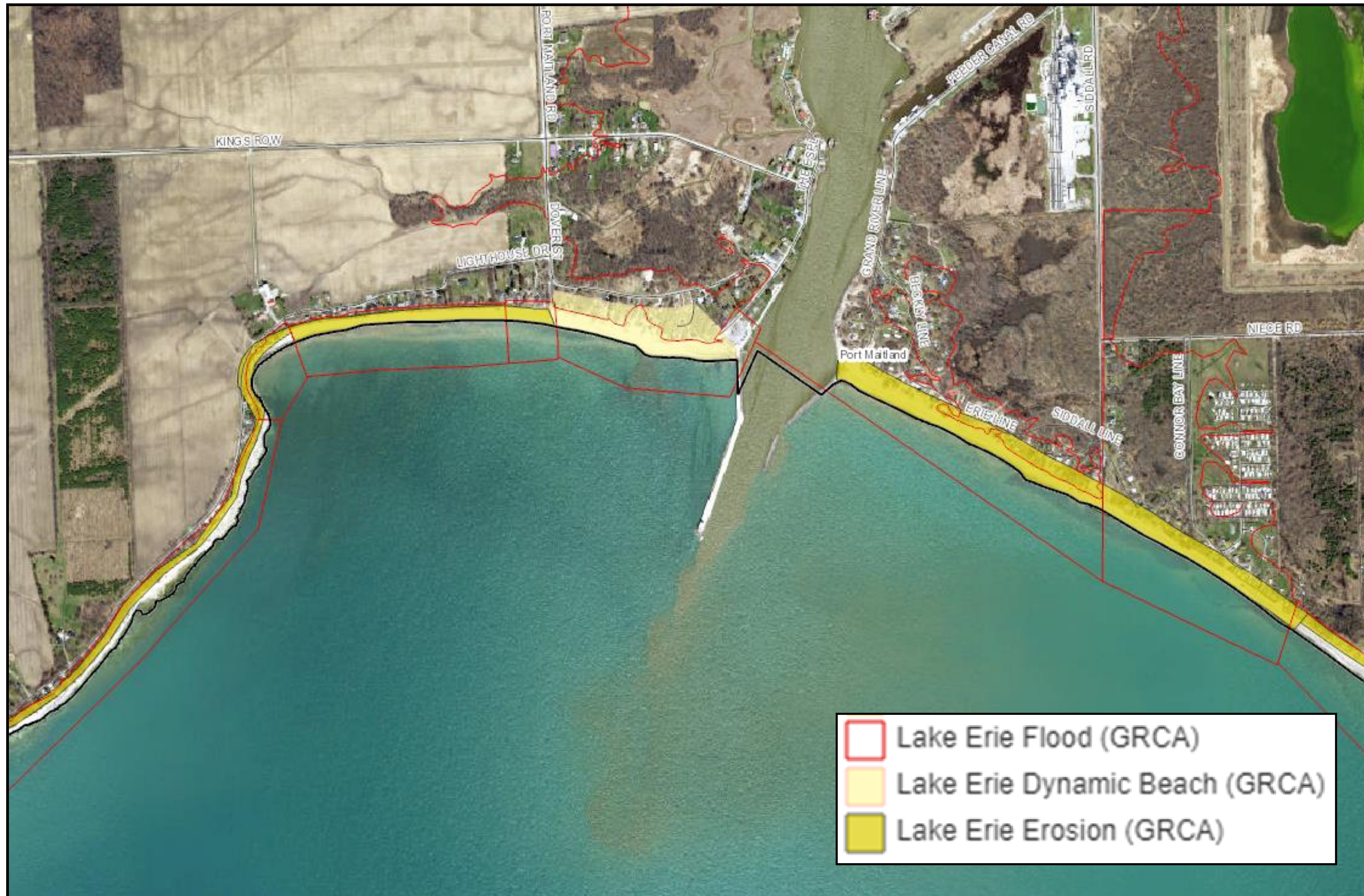
Erosion



Dynamic Beaches



WHAT IS HAZARD MAPPING?



HAZARD MAPPING:

- 01 Identifies shoreline areas at risk of flooding and erosion, or that meet the criteria for dynamic beaches.
- 02 Supports implementation of County Official Plan policies and Conservation Authority regulation of development in shoreline areas.
- 03 The Ontario Ministry of Natural Resources and Forestry provides the technical guidance on how to identify and map these hazard areas.

HALDIMAND COUNTY LAKE ERIE SHORELINE HAZARD MAPPING AND RISK ASSESSMENT

PROJECT SCOPE

PURPOSE

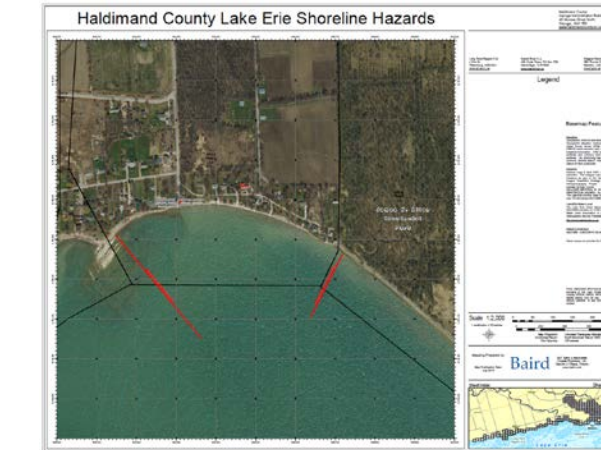
- 01 To update to current mapping and technical standards, the Lake Erie shoreline flooding, erosion and dynamic beach hazard mapping within Haldimand County.
- 02 To develop consistent hazard mapping across conservation authority jurisdictions (LPRCA, GRCA, NPCA), that will support flood and erosion related response and mitigation planning, land use planning and permitting decisions.
- 03 To update flood risk assessment information for shoreline flooding, including estimates of damage potential

KEY TASKS



Background Data Review and Site Visits

- Site visits by consulting team
- Review background data and reports
- Prepare Technical Memo



Prepare Base Maps

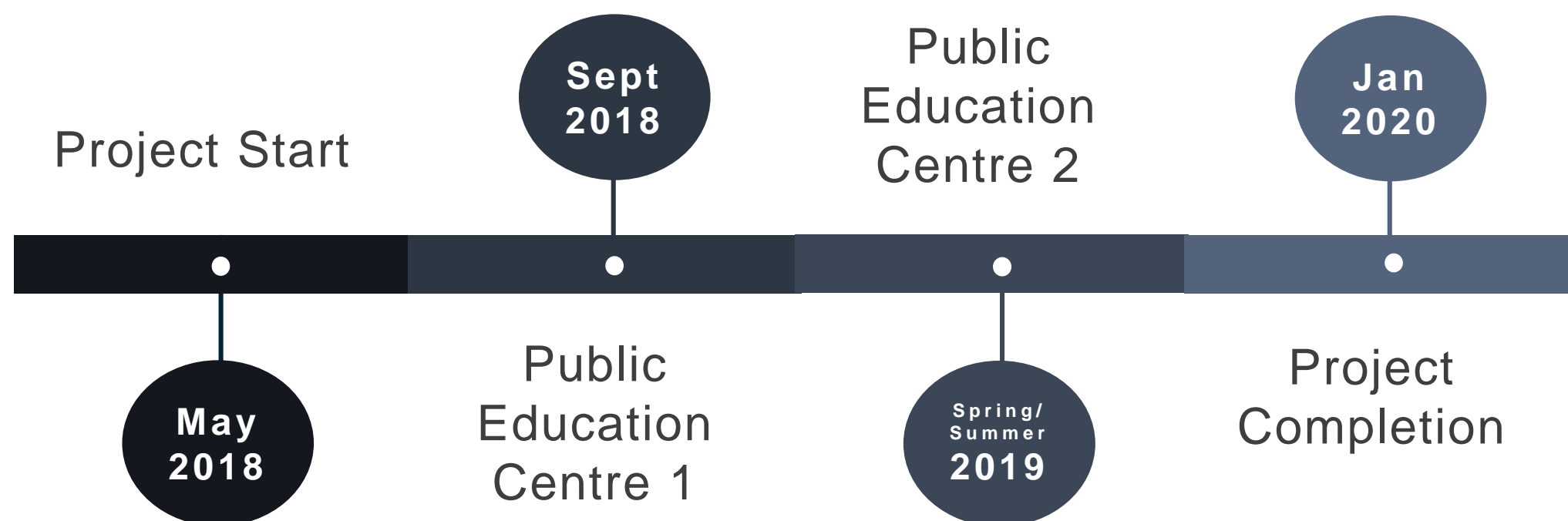
- 1:2000 scale base maps will be prepared for the study area
- The maps will show topographic contours, surface water features, wetlands, buildings, parcel fabric and municipal infrastructure



Public Engagement

- Public Education Centres (2)
- Community Liaison Group will attend project meetings, receive updates and provide input

SCHEDULE



Update Flood Risk Assessment

- Inventory of at risk buildings, roads and bridges within flood, erosion and dynamic beach hazards will be identified
- Vulnerability assessment of at risk structures
- Review of existing flood mitigation measures
- Assessment of future risks considering climate change
- Workshop with County and CA staff
- Prepare report



Prepare Shoreline Hazard Mapping

- Technical analyses to delineate Flood, Erosion and Dynamic Beach Hazards based on guidance provided in the MNR Technical Guide;
- Identification of flood and erosion related risks and issues;
- Vulnerability assessment of at risk structures
- Recommendations will be made for protection and maintenance of municipal infrastructure
- Slope Stability Risk report is a value added deliverable
- Maps will highlight emergency ingress-egress routes during flooding



HALDIMAND COUNTY LAKE ERIE SHORELINE HAZARD MAPPING AND RISK ASSESSMENT

SITE VISITS & BACKGROUND REVIEW

SITE VISITS BY CONSULTING TEAM

- Familiarize team with shoreline characteristics and local issues
- Site visits in May (Baird) and August (Terraprobe)
- Assess flood, erosion and dynamic beach vulnerabilities
- UAV and ground photos used to document shoreline



REVIEW BACKGROUND DATA & REPORTS

- Ontario Regulations for the Administration of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses (150/06, 178/06, 155/06)
- Shoreline Management Plans
- Haldimand County Official Plan
- Haldimand County Flood Risk Assessment
- Haldimand County Emergency Response Plan
- Source Water Protection Plans
- Great Lakes – St. Lawrence River System: Technical Guide
- Great Lakes System Flood Levels and Water Related Hazards
- Digital Terrain Models
- Regulated Areas Mapping
- Mapping of Haldimand County feature (municipal drains, roads, water/wastewater/stormwater management infrastructure, parks, roads)

PREPARE TECHNICAL MEMO

- Describe background review
- Confirm analytical approach to project
- Identify gaps in data and provide a strategy for resolution



HALDIMAND COUNTY LAKE ERIE SHORELINE HAZARD MAPPING AND RISK ASSESSMENT

The base mapping prepared for this Public Education Centre will ultimately be used to show the natural hazard regulation limits (erosion, flood and dynamic beach).

New topographic and bathymetric information and aerial imagery collected in 2017 and 2018 will be used when available (expected in October 2018)

The base mapping provides a common mapping foundation for Haldimand County

The mapping will be at 1:2,000 scale (1 cm = 20 metres; sufficient detail to differentiate a car from a pick-up truck)

Mapped features include: topographic and bathymetric contours, structures, infrastructure and aerial imagery

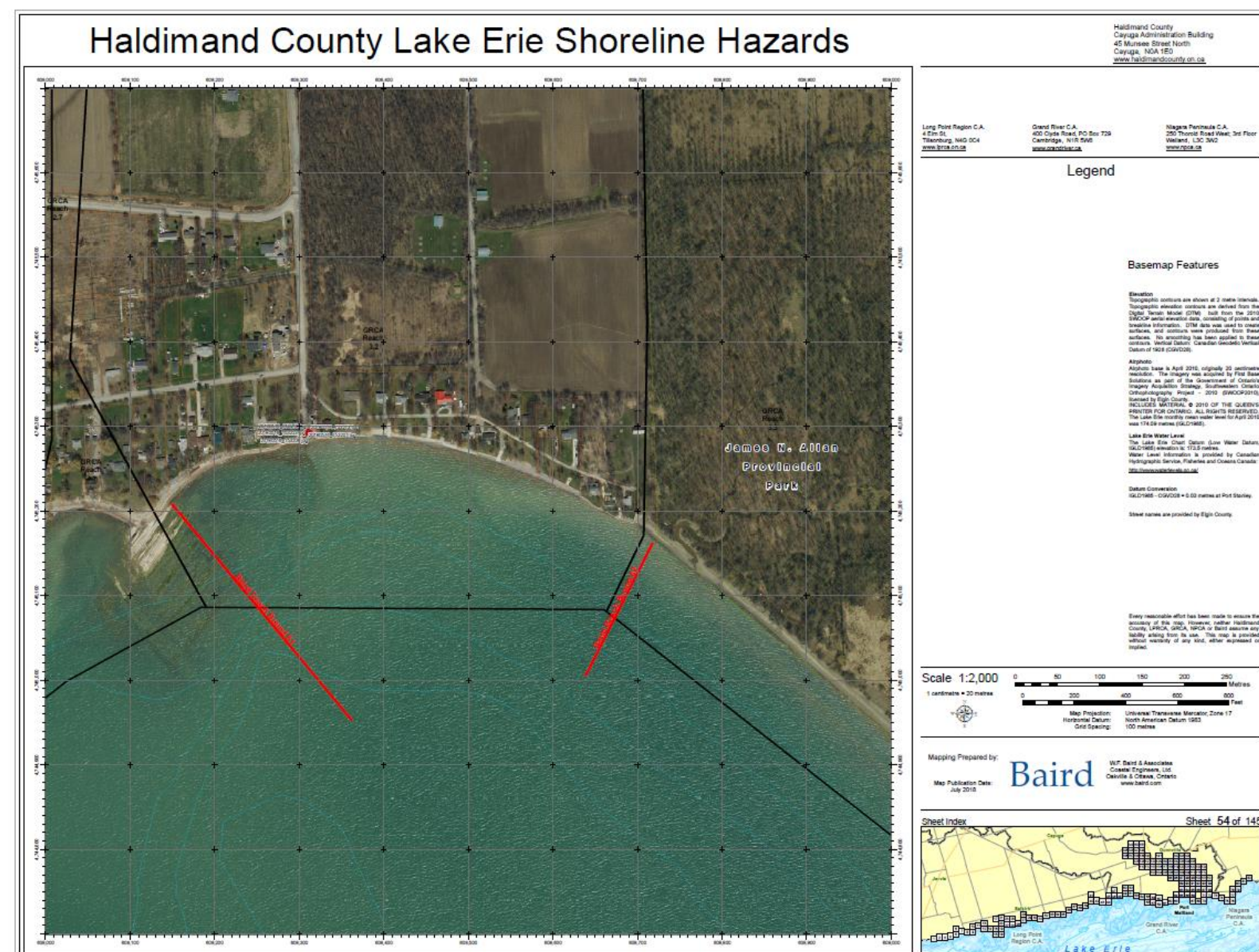
The shoreline will be divided into reaches based on similar shoreline characteristics.



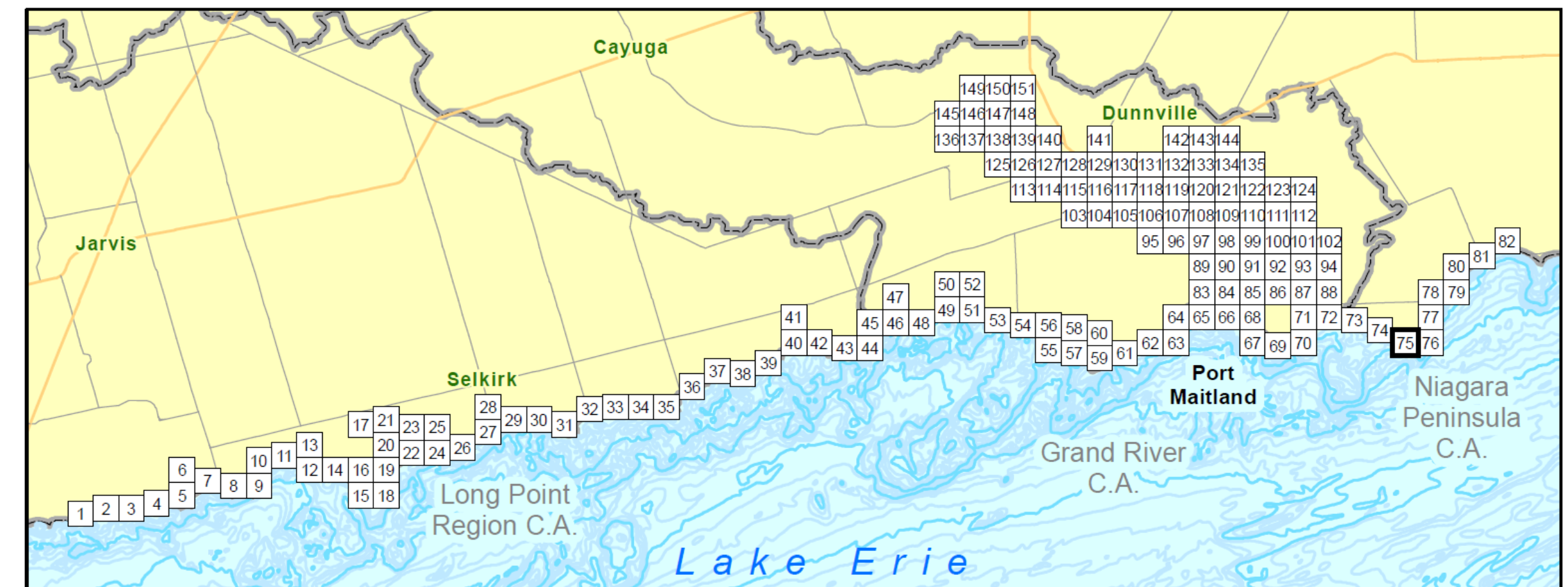
DRAFT
BASE
MAPPING

145 map tiles

MAP TILE EXAMPLE



MAP TILE SHEET INDEX

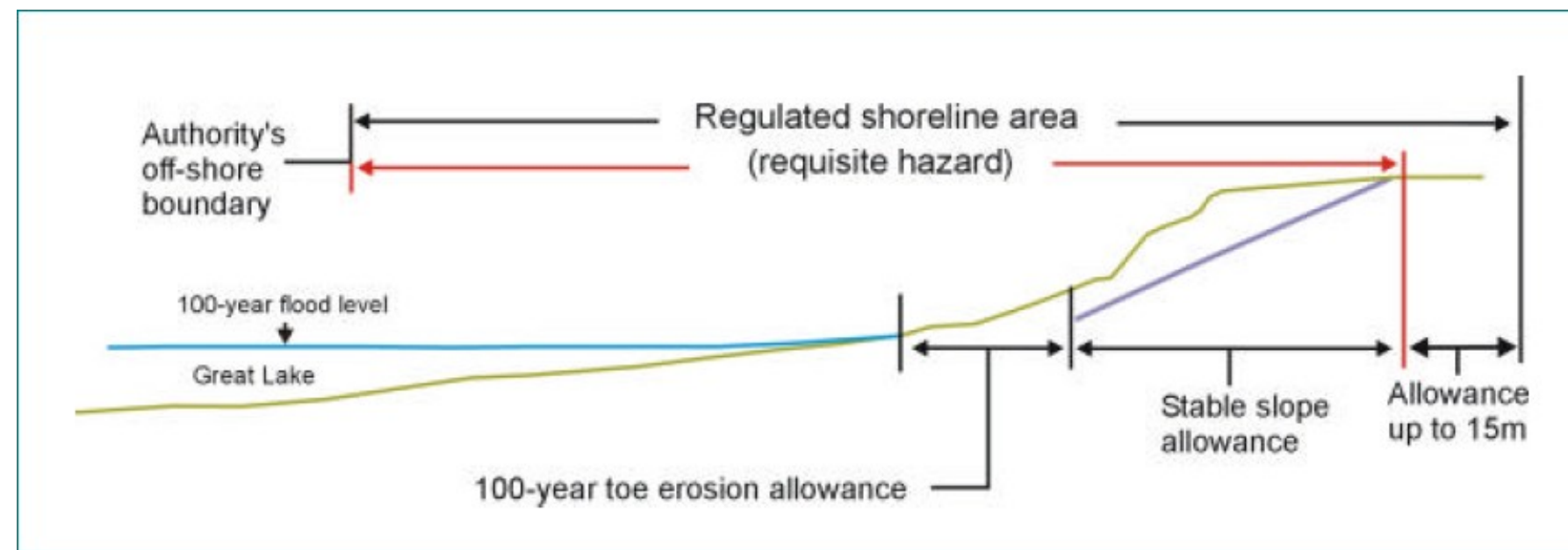


HALDIMAND COUNTY LAKE ERIE SHORELINE HAZARD MAPPING AND RISK ASSESSMENT

PROVINCIAL TECHNICAL GUIDELINES

The Area of `Shoreline Regulation' extends from the furthest offshore extent of the Authority's jurisdictional boundary to the furthest landward extent of the aggregate of the following natural hazards and allowances.

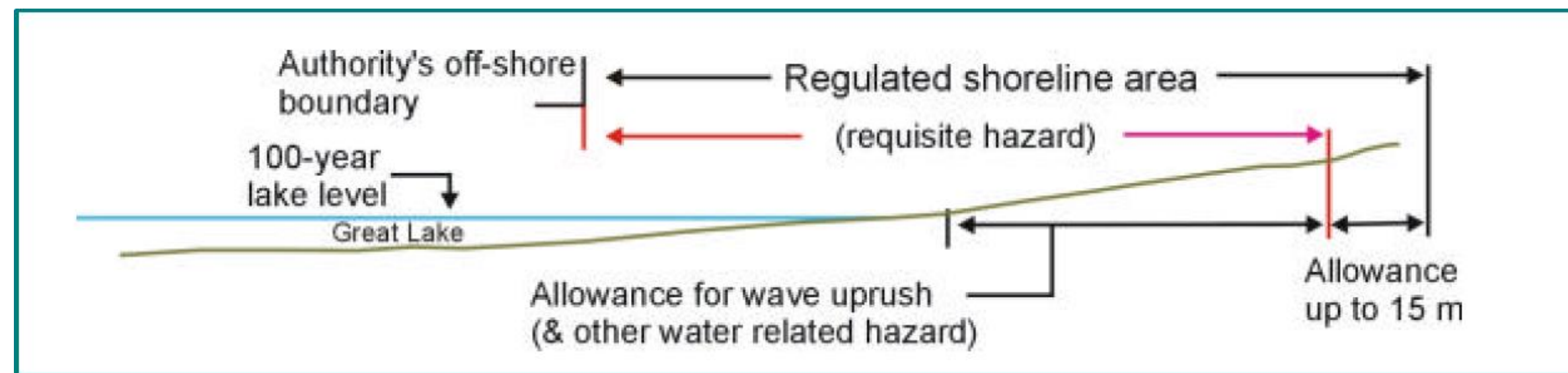
SHORELINE EROSION HAZARD



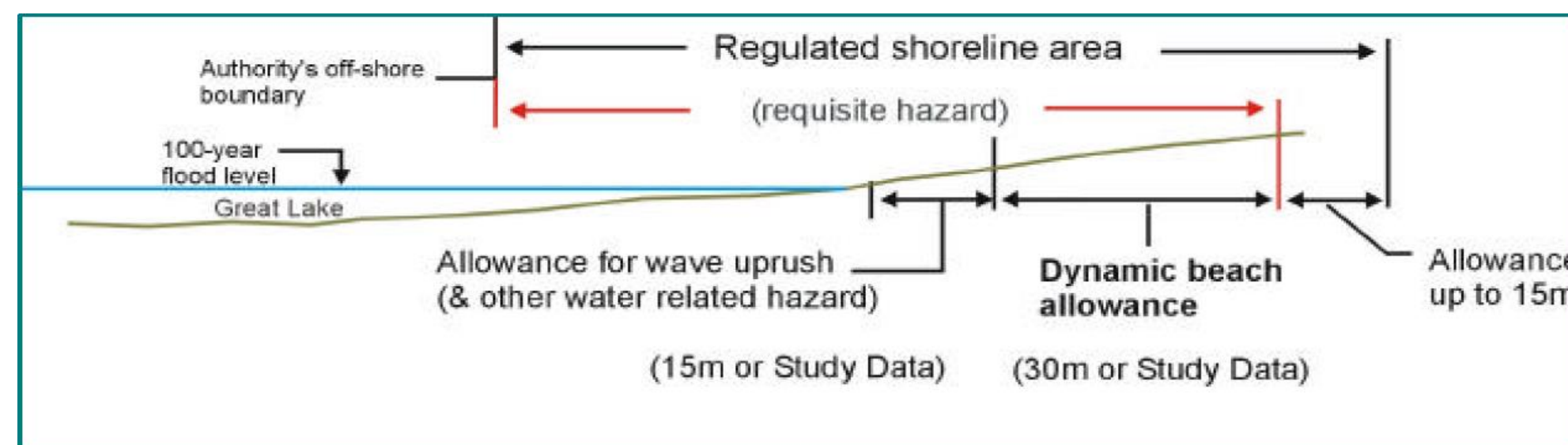
EQUALS
the stable toe of slope (as may be shifted as a result of erosion over a 100 year period)
PLUS
the predicted long term stable slope projected from the stable toe of slope

SHORELINE FLOOD HAZARD

EQUALS
the 100-year flood level
PLUS
an allowance for wave uprush



SHORELINE DYNAMIC BEACH HAZARD



EQUALS
the 100-year flood level
PLUS
an allowance for wave uprush
PLUS
an allowance to accommodate dynamic beach movement

