

**Municipality of Northern Bruce Peninsula  
2017 Natural Hazards Mapping Project Brief  
Grey Sauble Conservation Authority**



*Judges Creek, October 2016*

The Municipality of Northern Bruce Peninsula, the County of Bruce, and the Grey Sauble Conservation Authority have collaborated to produce draft Natural hazards mapping for the Municipality. This mapping is being made available online, at the Municipal office, and at the Tobermory and Lion's Head public Libraries, and public Open houses are scheduled for Sunday May 28<sup>th</sup>, 2017 at the Tobermory Community Centre (2-4pm); Saturday July 8, 2017 at the Rotary Hall Lion's Head (1-3pm) and at the Municipal Office (6-8pm); and Monday September 25, 10AM to noon at the Municipal Office).

## Why Map Hazards?

Ontario's long-term prosperity, environmental health and social well-being depend on reducing the potential for public cost or risk to Ontario's residents from natural or human-made hazards. The Province directs development away from areas of natural or human-made hazards where there is an unacceptable risk to public health or safety or of property damage, and not create new or aggravate existing hazards. (Provincial Policy Statement).

A guide to Understanding Natural hazards produced by the Province of Ontario is available at the following link. <http://www.otonabee.com/wp-content/uploads/2012/05/Understanding-Natural-Hazards-Full-Document.pdf>.

## What are "Hazards"?

The Municipality of Northern Bruce Peninsula established a Pilot Project Steering Committee consisting of Council and members of the public to review and summarize definitions of Natural Hazards. This report is available online.

It should be noted that this mapping does not identify Natural heritage features across the landscape or address policies for Natural heritage features under the Provincial Policy Statement.

The following is a list of layers produced for the Municipality for consideration and potential inclusion into the Comprehensive Zoning By-law, with some commentary on the mapping and potential implementation.

### **Environmental Hazard Layer - Flood:**

This layer includes areas of potential flood plain associated with watercourses and wetlands, including the natural hazard aspects of provincially significant wetlands. It also includes other potential flood prone areas. This layer also includes a minimum setback of 15 metres on watercourses for potential flood and erosion hazards. In the absence of detailed site specific flood and erosion rates, a minimum setback is used as a precaution from a natural hazards perspective. For inland lakes we have mapped the estimated flooded area or high watermark of the lake along with any adjacent wetlands that are influenced by the lake or river system.

### **Environmental Hazard Layer- Inland Lake Erosion Setback:**

Typically, Comprehensive Zoning by-laws will include a minimum 15 metre setback from an inland lake for new development to account for potential shoreline erosion due to boat traffic and wind storms. (I.e. The Town of South Bruce Peninsula has this setback in their by-law for new development) We have provided an additional layer to address these potential hazards associated with major inland lakes shoreline erosion for the following lakes: Miller, Cameron, Gillies, Shouldice, and Britain Lakes.

Environmental Hazard Layer – Provincially Significant Wetland (PSW) (existing)

This layer includes the existing Provincially Significant Wetland layer as provided by the Ministry of Natural Resources and Forestry in the Province of Ontario and can be utilized for reference purposes. Anything mapped as Provincially Significant wetland would also be considered hazard land. The natural hazards associated with these wetlands are included in the flood hazard layer.

Note: The limits of Provincially Significant Wetlands(PSW) are determined by the Province of Ontario. As part of the hazard mapping process, we have identified some potential errors in this mapping, and the County and Municipality will be recommending that the province review the PSW boundaries to adjust them where appropriate.

### **Environmental Hazard Layer – Slope Hazard- Erosion Hazard**

This layer includes potential slope hazards associated with slopes that are 3:1 or steeper of unconsolidated material. Some slopes may be a combination of rock and soil. There are relatively few areas of slope hazard, primarily on the Georgian Bay side. The majority of this area is subject to the Niagara Escarpment Plan development control regulation; slope hazard identification is limited to the Niagara Escarpment Recreation area.

### **Environmental Hazard Layer- Great Lakes Shoreline Flood Hazard**

This layer will include 100 year flood line at elevation 177.8 metres (Geodetic Survey of Canada (GSC)) on the Georgian Bay Side, 177.7 metres GSC along the top of the Peninsula and 177.6 metres GSC along the Lake Huron shore. In the absence on detailed wave uprush calculations prepared by a coastal engineer, a minimum setback of 15 metres is recommended from this line to protect development from potential flooding due to wave uprush.

In some instances, an additional setback may be required if the backshore area is lower in elevation than the initial shoreline ridge. As a coastal analysis was not part of the project, a minimum 30 metre setback from the 100 year flood line should be considered for an area of coastal influences on new development. Some of the lower areas have been included as wetlands in the flood prone layer where applicable.

In reviewing the flood line along the entire shoreline, we looked at Environment Canada's Environmental Sensitivity Atlas for Lake Huron's Canada Shoreline in conjunction with our aerial photography assessment.

Our review did not identify any significant Dynamic Beaches on the Municipality's Shoreline. The few sand beaches are relatively small and the cobble beaches tend to be founded on bedrock primarily on the Georgian Bay side. While some of these small beaches may have some dynamic properties, further assessment by a coastal engineer may be warranted to confirm absence or presence of dynamic beaches in the municipality. Where cobble beaches are present, a minimum 30 metre setback from the 100 year flood line should be considered or utilized to ensure natural hazards do not present a problem for development.

Shoreline bluff erosion due to unconsolidated soil is virtually non-existent along the shoreline of the Municipality. Therefore, we have not provided a layer for Great Lakes Shoreline erosion. Most of the shoreline bluffs are more bedrock dominated and primarily on the Georgian Bay Shoreline.

### **How are they mapped?**

Most Hazards are based on the height of the ground relative to its surroundings. Historical hazard mapping was based on limited ground elevations and contours. New technology uses the overlap in airphotos to create a 3-dimensional digital elevation model which is much more accurate. For examples please see the "Northern Bruce Peninsula Hazard Mapping Examples" pdf on the [project website](#).

### **Why are some lands not mapped?**

Federal lands such as the Bruce Peninsula National Park / Fathom Five National Marine Park and Provincial Parks have not been mapped as they are generally outside of the Municipality's jurisdiction and experience little development pressure in Hazard areas.

Within the Niagara Escarpment Plan Area most lands are subject to a Development Control Regulation, and experience limited development pressure; mapping efforts in this area have been focused on the areas where the Municipality has jurisdiction through the local zoning by-law.

### **What if I think the maps are still not right?**

If there are specific concerns regarding the mapping that you would like the County and/or the GSCA to review, please contact us by sending a written request to the following emails:

[bcplwi@brucecounty.on.ca](mailto:bcplwi@brucecounty.on.ca) and [bruce.county@greysauble.on.ca](mailto:bruce.county@greysauble.on.ca)

Please reference MNBP Hazard Mapping and the property roll number (and Civic address if assigned) of the property of concern.

If you don't have access to email you can still contact us:

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