

Haldimand County

# Official Plan Update



*Help Shape Haldimand's Future*

## Report on Hazard Land Policies



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## Table of Contents

<b>Section</b>	<b>Title</b>	<b>Page</b>
<b>1.</b>	<b>Introduction</b>	<b>1</b>
<b>2.</b>	<b>Background</b>	<b>1</b>
<b>3.</b>	<b>Provincial Policy Statement 2020</b>	<b>2</b>
<b>4.</b>	<b>Flood Plain Policy Approaches</b>	<b>4</b>
4.1	Conservation Authorities	4
4.2	One-Zone Concept	7
4.3	Two-Zone Concept	8
4.4	Special Policy Areas	9
4.5	Lakeshore Hazard Lands	9
<b>5.</b>	<b>Official Plan – Hazard Land Policies</b>	<b>16</b>
5.1	Riverine Hazard Lands	16
5.2	Lakeshore Hazard Lands	25
5.3	Other Hazard Lands	28
<b>6.</b>	<b>Zoning Bylaw</b>	<b>29</b>
<b>7.</b>	<b>Proposed Official Plan Policies</b>	<b>31</b>
<b>Appendices</b>		
<b>A</b>	<b>Provincial Policy Statement, 2020 Policies on Natural Hazards</b>	<b>45</b>
<b>B</b>	<b>Haldimand County Official Plan Extract of Hazard land Policies</b>	<b>48</b>
<b>C</b>	<b>Haldimand County Comprehensive Zoning Bylaw: Natural Hazard Lands Regulations</b>	<b>58</b>
<b>List of Figures</b>		
<b>1</b>	Regulatory Flood Plain and Regulated Area	<b>6</b>
<b>2</b>	One-Zone Flood Plain Concept	<b>7</b>
<b>3</b>	Two-Zone Flood Plain Concept	<b>8</b>
<b>4</b>	Flooding Hazard Limit for Lake Erie Shoreline	<b>12</b>
<b>5</b>	Erosion Hazard Limit	<b>13</b>
<b>6</b>	Dynamic Beach Hazard Limit	<b>14</b>

## **1. Introduction**

The *Planning Act* for Ontario outlines the matters of provincial interest that municipal councils are to have regard to in carrying out their responsibilities relating to land use planning. One of the matters of provincial interest listed in the *Act* is the protection of public health and safety. This interest is laid out in further detail in the Provincial Policy Statement, 2020. The hazard land policies in the Haldimand County Official Plan address this provincial interest in the protection of properties and public safety that may result from potential flooding and other hazards along the Grand River, major creeks and tributaries and along the shoreline of Lake Erie.

The Hazard Land policies of the Official Plan can be found in sub-section C of Section 2, “Environment”. Sub-section C is divided further into three sub-sections:

1. Riverine Hazard Lands;
2. Lakeshore Hazard Lands; and
3. Other Hazard Lands.

This discussion paper will review the Hazard Land policies under each of these sub-sections, identify issues and recommend policy changes for consideration in the update to the Official Plan. Before reviewing these policies, the discussion paper will examine the provincial policy context in the planning for hazard land areas and the role of conservation authorities in the implementation of hazard land policies.

## **2. Background**

During the spring of 2019, heavy rains accompanied by melting snow and a sudden spike in temperature led to devastating floods in many communities across Ontario. According to the report “An Independent Review of the 2019 Flood Events in Ontario”, commissioned by the Province of Ontario<sup>1</sup>, this flood event led to emergency declarations in 23 municipalities and one First Nation community. The Independent Review Report “Protecting People and Property: Ontario’s Flooding Strategy” released by the Ontario

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<sup>1</sup> Report is available at <https://files.ontario.ca/mnrf-english-ontario-special-advisor-on-flooding-report-2019-11-25.pdf>

Ministry of Northern Development, Mines, Natural Resources and Forestry<sup>2</sup> stated that:

    Flooding is considered the most significant natural hazard in Ontario in terms of death, damage and civil disruption and is the costliest disaster in Canada in terms of property damage.

In 1954, 81 lives were lost in Hurricane Hazel and property damages were estimated to be upwards of \$1 billion in current dollars. According to information provided in the Ontario Flooding Strategy document, insurance payouts have doubled every five to ten years since the 1980s and across Canada insurable payouts have exceeded \$1 billion per year in eight of the past nine years. Climate change, according to the Ontario's Flooding Strategy document, will likely increase the intensity of heavy rainfall events resulting in more flooding.

The most effective way of reducing flood risks is to keep people and property out of high-risk areas prone to flooding. Municipalities, along with conservation authorities, have a primary responsibility in identifying and managing flood risk. Conservation authorities are responsible for mapping of the flood plain and regulating development within the flood plain and adjacent lands. Municipalities, through their official plans and comprehensive zoning by-laws, can adopt policies and regulations restricting development in the flood plain.

### **3. Provincial Policy Statement, 2020**

Part IV: Vision for Ontario's Land Use Planning System of the Provincial Policy Statement, 2020 (PPS), provides the following statement on planning for hazard lands:

    The Provincial Policy Statement directs development away from areas of natural and human-made hazards. This preventative approach supports provincial and municipal financial well-being over the long-term, protects public health and safety, and minimizes cost, risk and social disruption.

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<sup>2</sup> Report is available at <https://files.ontario.ca/mnrf-2020-flood-strategy-en-2020-03-10.pdf>

## Haldimand County Official Plan Update: Report on Hazard Land Policies

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The PPS policies on hazard lands are found in Section 3.0 Protecting Public Health and Safety. These policies are provided in **Appendix “A”** to this discussion paper. The following points provide a brief synopsis of the policies that are pertinent to Haldimand County:

- development shall generally be directed outside of the hazardous lands adjacent to the shorelines of Lake Erie, rivers, streams, small inland lakes, impacted by flooding and/or erosion and/or dynamic beach hazards and outside of other hazardous sites,
- development and site alteration shall not be permitted within dynamic beach hazards, a floodway and areas that would be inaccessible to people and vehicles during times of flooding, erosion and/or dynamic beach hazards unless it is demonstrated that that the site has safe access,
- planning authorities shall prepare for the impacts of a changing climate that may increase the risk associated with natural hazards. This requires the consideration of the present and future consequences from changes in weather patterns at local and regional levels including extreme weather events and increased climate variability,
- development and site alteration may be permitted in certain areas associated with flooding hazards along river, stream and small inland lake systems, where in exceptional situations a Special Policy Area has been approved by the appropriate provincial ministries,
- development and site alteration may be permitted in certain areas associated with flooding hazards along river, stream and small inland lake systems, where the development is limited to uses which by their nature must locate within the floodway, including flood and/or erosion control works or minor additions or passive non-structural uses which do not affect flood flows,
- the following uses will not be permitted in hazardous lands or sites:
  - a) an institutional use including hospitals, long-term care homes, retirement homes, pre-schools, school nurseries, day cares and schools,
  - b) an essential emergency service such as that provided by fire, police and ambulance stations and electrical substations, or
  - c) uses associated with the disposal, manufacture, treatment or storage of hazardous substances.

- where the two-zone concept for flood plains is applied, development and site alteration may be permitted in the flood fringe, subject to appropriate flood proofing to the flooding hazard elevation or another flooding hazard standard approved by the Province,
- development and site alteration may be permitted in portions of hazardous lands and sites where the effects and risk to public safety are minor, can be mitigated in accordance with provincial standards, and where all of the following are demonstrated and achieved:
  - a) development and site alteration is carried out in accordance with floodproofing standards, protection works standards, and access standards,
  - b) vehicles and people have a way of safely entering and exiting the area during times of flooding, erosion and other emergencies,
  - c) new hazards are not created and existing hazards are not aggravated, and
  - d) no adverse environmental impacts will result.

The Haldimand County Official Plan must be consistent with these policies of the PPS. The policies relating to flooding along rivers, streams and small inland lakes will be dealt with in the section on Riverine Hazard Lands. Policies dealing with floods, erosion and dynamic beach hazards will be discussed in the section on Lakeshore Hazard Lands.

Generally, development is not permitted within flood plains. However, provincial policies allow for some flexibility in certain circumstances where a flood fringe has been defined or in special policy areas approved by a conservation authority and the requisite provincial ministries.

## **4. Flood Plain Policy Approaches**

### **4.1 Conservation Authorities**

to develop in river and stream valleys, shorelines, wetlands or other hazardous lands and to alter a river, creek or watercourse or interfere with a wetland.

Three conservation authorities have jurisdiction in Haldimand County. They are, from west to east:

- i. Long Point Region Conservation Authority (LPRCA),
- ii. Grand River Conservation Authority (GRCA), and

iii. Niagara Peninsula Conservation Authority (NPCA).

The LPRCA's jurisdiction includes the watersheds of Nanticoke Creek and Sandusk Creek and covers approximately the western third of the County's geographical area. The urban communities of Hagersville, Jarvis and Townsend are located within the area covered by the LPRCA. The riverine flooding limit established by the LPRCA is generally based on a 100-year return period storm; that is, a storm event that is statistically likely to occur once every 100 years. The flood plain mapping is generally based on engineered mapping. Where engineering mapping is not available, the flood plain is determined from available information, field investigation mapping and aerial photography. The flood plain limit also takes into consideration stream bank erosion, the slope of the valley wall and meander belts. The LPRCA recently reviewed flood plain mapping in various areas under its jurisdiction, including sections along Sandusk Creek in the vicinity of Garnet and Jarvis.

The NPCA also uses the 100-year flood event as the basis for flood plain mapping in the area of its jurisdiction. The 100-year flood event is the minimum acceptable standard in Ontario in defining the regulatory flood plain<sup>2</sup>.

The GRCA differs from the other two conservation authorities as it defines the floodplain based on the greater of the Hurricane Hazel storm event (referred to as the Regional Storm) or the 100-year flood event. The urban communities of Caledonia, Cayuga and Dunnville are located within the Grand River watershed.

The result of the calculations and mapping carried out by the conservation authorities is referred to as the Regulatory Floodline, the limits of which define the extent of the hazard area (see **Figure 1**).<sup>4</sup> The Regulated Area is an area beyond the Regulated Flood Plain and is an allowance to address limitations in mapping scale and accuracy. Where the regulatory flood plain is based on engineered mapping, the allowance is 5 metres (16.4 feet). Where the flood plain mapping is estimated or approximated and in headwater areas, the allowance is 15 metres (49.2 feet). **Figure 1** illustrates the regulatory flood

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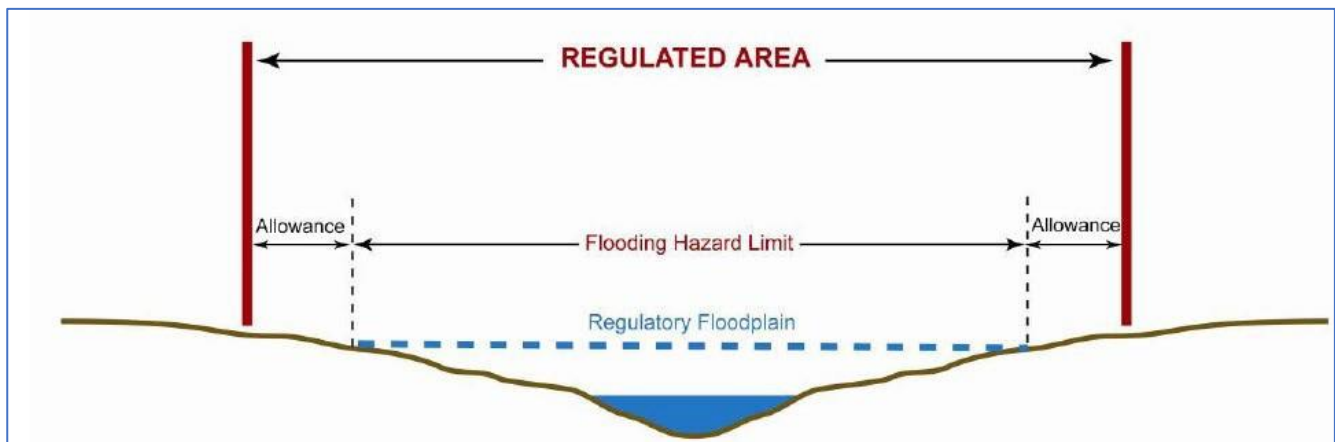
<sup>2</sup> See

[https://npc.ca/images/uploads/common/NPCA\\_Policy\\_Document\\_2018\\_%28May\\_2020\\_Office\\_Consolidation%29.pdf](https://npc.ca/images/uploads/common/NPCA_Policy_Document_2018_%28May_2020_Office_Consolidation%29.pdf)

plain and the regulated area<sup>3</sup>.

Generally, development is prohibited or restricted within the regulatory flood plain. Between the limits of the regulatory flood plain and the regulated area boundary, development is conditional upon demonstration of the following to the satisfaction of the applicable conservation authority:

- that there will be no adverse impact on the hydraulic or fluvial functions of rivers, creeks, streams or watercourses,
- that there will be no adverse impacts on public safety, and,
- that the impact of grading and construction activities on sedimentation, pollution and erosion are minimized.



**Figure 1: Regulatory Flood Plain and Regulated Area**

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<sup>3</sup> Diagram is from GRCA publication "Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation Ontario Regulation 150/06".

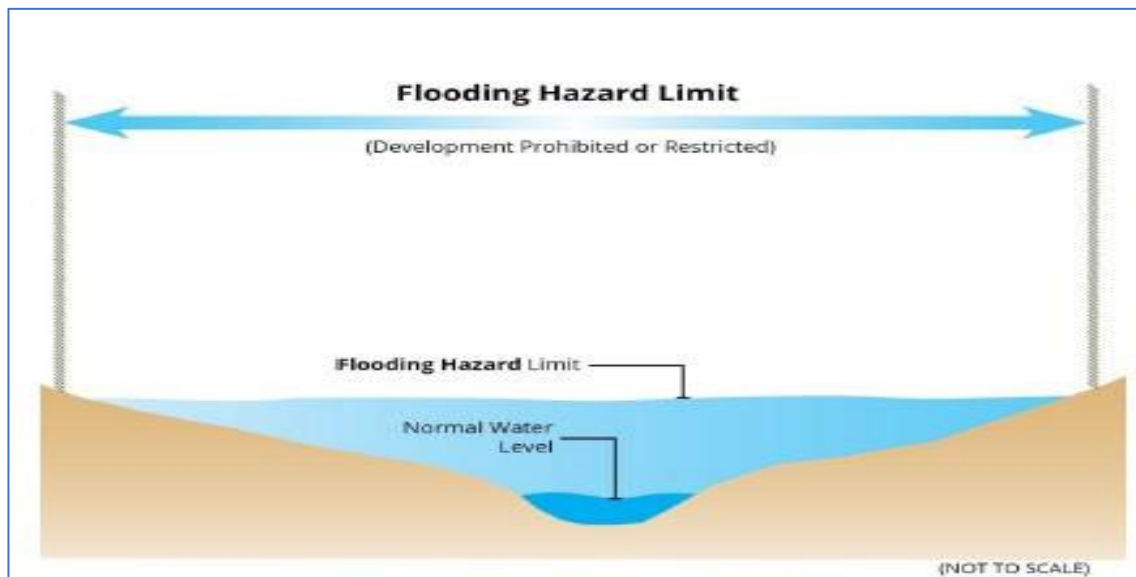


Official Plan policies and mapping schedules generally focus on development issues relating to the regulatory flood plain. There are three policy options for the regulatory flood plain. These concepts, which differ to the extent by which development may be permitted or restricted, are:

- a) One-zone concept,
- b) Two-zone concept (floodway/flood fringe) and
- c) Special Policy Area concept

#### **4.2 One-Zone Concept**

The one-zone concept is most often used for flood plain management. Most forms of development or site alteration are prohibited within the regulated flood plain. The one-zone concept is illustrated in **Figure 2**. In the one-zone concept, the entire regulated flood plain is considered to be the floodway. The floodway is defined in the PPS as the portion of the flood plain “where development would cause a danger to public health and safety and property damage”.



**Figure 2: One-Zone Flood Plain Concept<sup>4</sup>**

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<sup>4</sup> Diagram is from NPCA “Policy Document: Policies for the Administration of Ontario Regulation 155/06 and the Planning Act”.

### 4.3 Two-Zone Concept

The two-zone flood plain concept is illustrated in **Figure 3**. The two-zone concept consists of the floodway in which development is prohibited or restricted and an outer flood fringe in which development may occur subject to conditions. The two-zone concept is generally applied in urban areas where the flood plain may be extensive and the strict application of the one-zone concept may impact community viability or where major channel improvements or dyke works have been carried out. In the flood fringe, buildings and structures may be permitted subject to floodproofing to the elevation of the regulatory flood line and where safe ingress and egress to the building or structure can be provided during flood events. Where new dwelling units may be permitted in the flood fringe, habitable floorspace and electrical, mechanical and heating services must be above the regulatory flood elevation. Basements are generally not permitted.

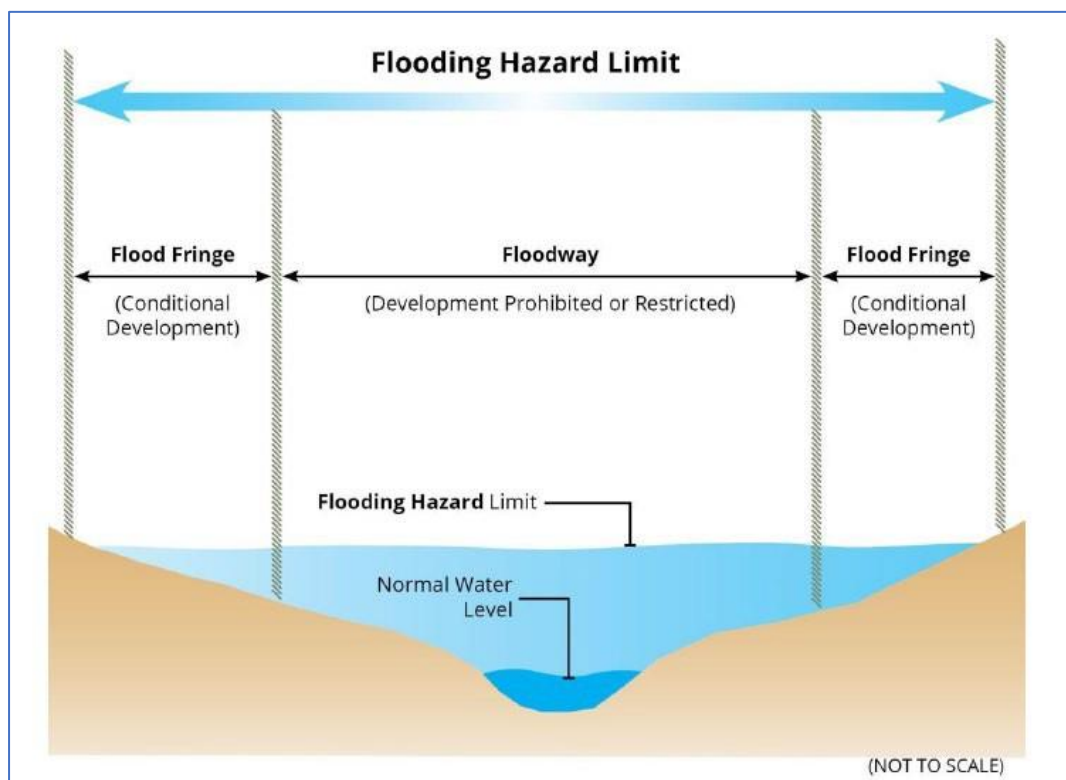


Figure 3: Two-Zone Flood Plain Concept<sup>5</sup>

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<sup>5</sup> Diagram is from NPCA "Policy Document: Policies for the Administration of Ontario Regulation 155/06 and the Planning Act".

#### **4.4 Special Policy Areas**

Special Policy Areas are put in place at the request of municipalities and involve the assumption of a higher level of risk to flooding on the part of the municipality, the Province and the applicable conservation authority. Special Policy Areas are only put in place where it is demonstrated that the application of the one-zone or two-zone concepts are not adequate to maintain a community's social and economic viability. The creation of a Special Policy Area requires the completion of detailed studies and documentation, funded by the municipality, to determine the extent of the floodway and the flood fringe and the preparation of appropriate policies and standards that are to be implemented in the municipality's official plan and zoning by-law. The creation of a Special Policy Area requires the approval of the conservation authority and the Province.

#### **4.5 Lakeshore Hazard Lands**

According to the PPS, hazardous lands along the shorelines of the Great Lakes, including Lake Erie, are impacted by flooding hazards, erosion hazards and/or dynamic beach hazards. Development shall generally be directed outside of those hazard areas. Development and site alteration shall not be permitted within areas that would be inaccessible to people and vehicles during times of flooding, erosion hazards and/or dynamic beach hazards.

The PPS defines the dynamic beach hazard as:

areas of inherently unstable accumulations of shoreline sediments along the Great Lakes - St. Lawrence River System and large inland lakes, as identified by provincial standards, as amended from time to time. The dynamic beach hazard limit consists of the flooding hazard limit plus a dynamic beach allowance.

The Official Plan's definition of a dynamic beach, as provided in **Appendix 1: Glossary**, is consistent with the PPS definition.

According to the NPCA Policy Document: Policies for the Administration of Ontario Regulation 155/06 and the *Planning Act* the objectives for lakeshore hazard policies are to:

- a) prevent loss of life and minimize potential for property damage and social disruption,
- b) reduce the potential for incurring public costs associated with the impacts of shoreline hazards,
- c) manage existing risks and reduce the potential for future risks,
- d) promote the conservation of land and a co-ordinated approach to the management of the shoreline, and
- e) reduce the potential for adverse impacts, including pollution, on the ecological function of shorelines.

All three conservation authorities with jurisdiction in Haldimand County have established hazard land policies and mapping based on the dynamic beach hazard, flooding hazard, wave uprush, and erosion hazard. In conjunction with these conservation authorities and Haldimand County, a report, entitled Haldimand County Lake Erie Hazard Mapping and Risk Assessment, was completed in March 2020 by W. F. Baird & Associates Coastal Engineers Ltd. and Terraprobe Inc. This report will be referred to as the Baird Report.

The purpose of the Baird Report was to update the previous shoreline hazard mapping in accordance with updated provincial technical guidelines, revisions to the PPS and new regulations under the Conservation Authorities Act. Some of the previous shoreline hazard mapping dated to the late 1980s and early 1990s. An objective of the study was to prepare a common base mapping foundation for the entire Lake Erie shoreline in Haldimand County. In addition, the study completed a flood risk assessment inventory based on:

- at risk buildings, roads and bridges within flood, erosion and dynamic beach hazards,
- vulnerability assessment of at risk structures,

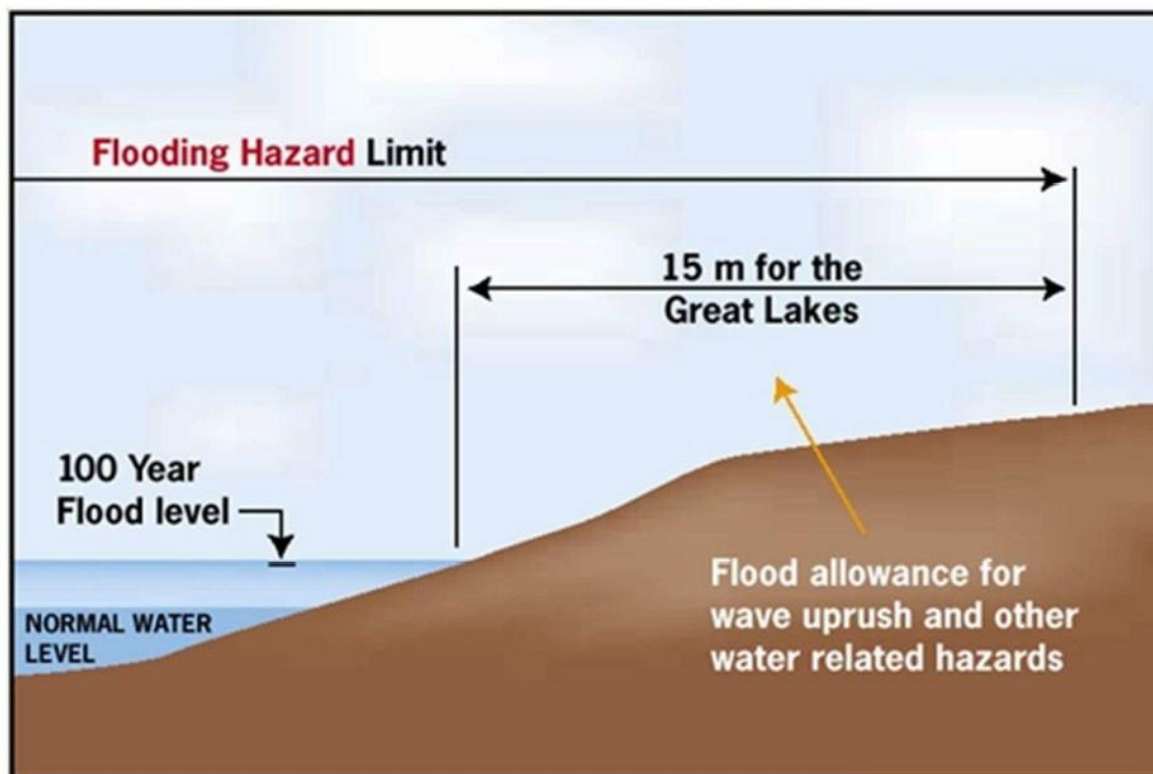
- review of existing mitigation measures,
- assessment of future risks considering climate change,
- slope stability risk assessment, and
- updated flood mapping including wave uprush, erosion and dynamic beach hazards mapping.

As the Lake Erie shoreline conditions vary considerably along the 87 kilometres (54 miles) of waterfront in Haldimand County, the Baird Report divided the shoreline into 84 reaches with the length of the reach based on generally common shoreline, soil, bedrock and bluff conditions.

The Baird Report describes and illustrates the various shoreline hazards. The technical basis and methodologies used in the Baird Report for the delineation of flood, erosion and dynamic beach hazards followed the guidelines set out in the Technical Guide for Flooding, Erosion and Dynamic Beaches, Great Lakes- St. Lawrence River System and Large Inland Lakes from the Ministry of Natural Resources and Forestry (MNRF, 2001a). The following descriptions and illustrations are based on the Baird Report. The shoreline hazard limit is determined by the most landward limit of the flooding erosion and dynamic beach hazards, and as outlined in the technical guidelines, the limit is not modified by the presence of existing or proposed shoreline protection measures such as break walls.

### **Flooding Hazard**

The flooding hazard limit is based on the 100-year flood level plus an allowance for wave uprush and other water-related hazards and this is illustrated on **Figure 4**. Other water-related hazards include ship-generated waves and ice. According to the technical guidelines, a 15 metre (49 feet) allowance is measured horizontally from the 100-year flood level. In the Baird Study, wave uprush was calculated on a reach basis.



**Figure 4: Flooding Hazard Limit for Lake Erie Shoreline<sup>6</sup>**

In the Baird Report, it is noted that there is no need to adjust the 100-year flood level for Haldimand County's Lake Erie shoreline. However, the Baird Report used 2015 and 2017 elevation data sets which means that the horizontal extent of the 100-year flood level may vary from previous mapping using older data, such as that used in the mapping for the Haldimand County Official Plan. Wave uprush was modelled for each of the 84 reaches along of the Haldimand County shoreline. The average horizontal wave uprush was 14.6 metres (47.9 feet). Where the wave uprush was less than 15 metres (49.2 feet), the Baird Report has recommended that it be mapped as 15 metres.

The risk of ice ride-up/pile-up was evaluated for the 84 reaches based on the examination of factors that contribute to ice build-up. The reaches were classified according to their risk of ice

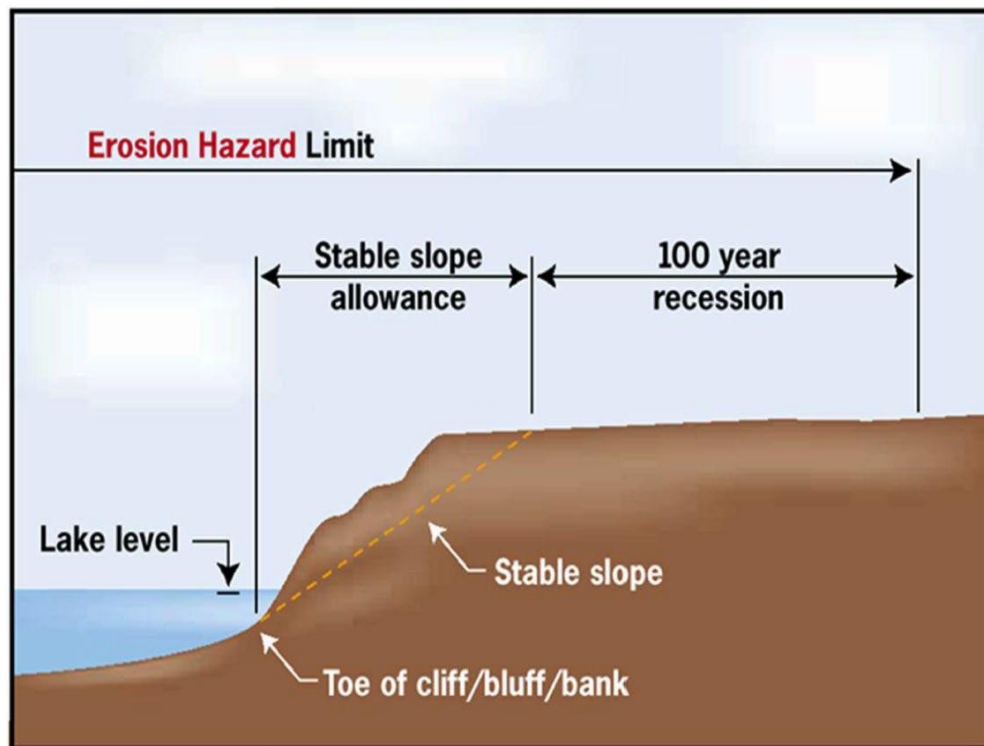
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<sup>6</sup> Extracted from Haldimand County Lake Erie Hazard Mapping and Risk Assessment, W. F. Baird and Associates, 2020

ride-up. Slightly over 50% of the reaches are considered to be of low risk with the remaining reaches being of medium risk. None of the reaches are of high risk for ice ride-up.

### **Erosion Hazard**

The erosion hazard limit is calculated as the sum of the stable slope allowance plus the 100-year erosion allowance. The stable slope allowance is measured landward from the toe of the bluff or bank. It is dependent on soil characteristics and groundwater conditions. In the absence of a site-specific study, a stable slope allowance of three times the bluff height was used. The 100-year erosion allowance is determined by multiplying the annual average recession rate by a factor of 100. In the absence of adequate data or where the shoreline is protected, a 30 metre (98 feet) erosion allowance from the stable slope allowance was used. The determination of the erosion hazard limit is illustrated in **Figure 5**.



**Figure 5: Erosion Hazard Limit<sup>7</sup>**

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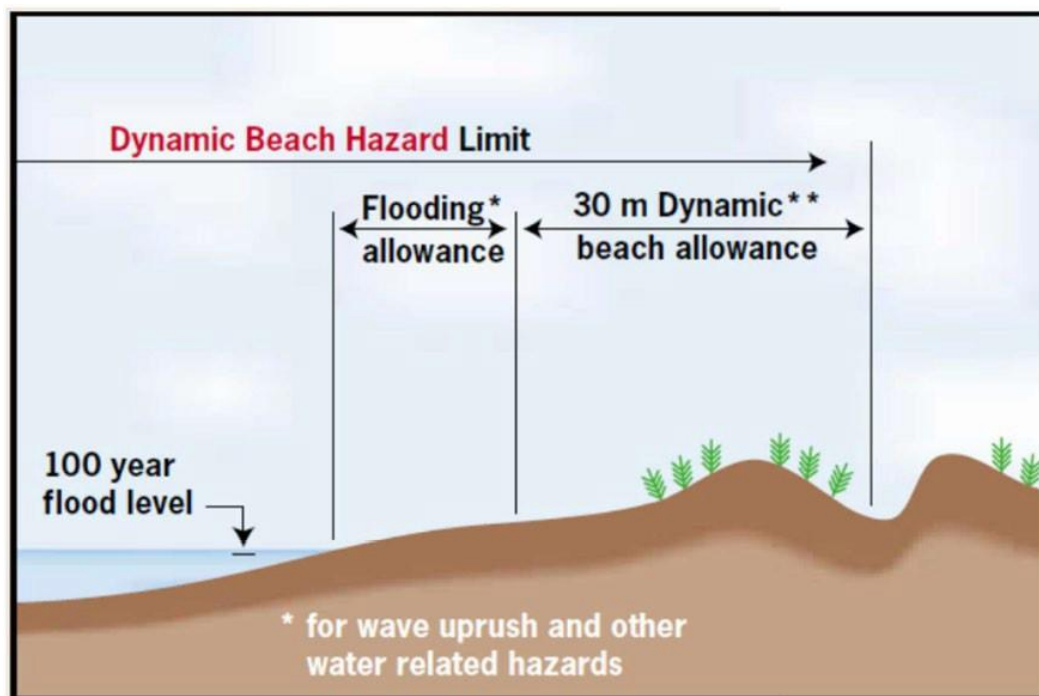
<sup>7</sup> Extracted from Haldimand County Lake Erie Hazard Mapping and Risk Assessment, W. F. Baird and Associates, 2020.



A detailed engineering analysis of the erosion hazard was carried out at 52 representative locations with a focus on reaches subject to slope erosion. The erosion hazard varied amongst the locations selected due to bluff, slope, bedrock, and soil conditions.

### Dynamic Beach Hazard

According to the Baird Report, the dynamic beach hazard is only applied where a beach or dune deposit exists landward of the water line and meets the criteria for thickness, width and length set out in the technical guidelines. The dynamic beach hazard limit is the landward limit of the flooding hazard (100-year flood level plus an allowance for wave uprush and other water-related hazards), plus a 30 metre (98 feet) dynamic beach allowance or a distance determined by an accepted coastal study. If the dynamic beach is backed by an eroding bluff, the definition of the erosion hazard is applied to the bluff feature. The determination of the dynamic beach hazard is illustrated in **Figure 6**.



**Figure 6: Dynamic Beach Hazard Limit<sup>8</sup>**  
**Climate Change**

<sup>8</sup> Extracted from Haldimand County Lake Erie Hazard Mapping and Risk Assessment, W. F. Baird and Associates, 2020



The Baird Report examined the potential impact of climate change on Lake Erie water levels. The impact is uncertain due to the complexities of the hydrological conditions in the Great Lakes basin, the difficulties in modelling the conditions and predicting future human behaviours that influence green house gas levels. The following are some of the future impacts anticipated from climate change:

- average annual air temperature has already increased by up to 2° C and will continue to rise with greater increases expected in winter months with projected decreases in ice cover duration, thickness and extent,
- it is expected that annual precipitation will increase by 20%, with heavy rainfalls becoming more frequent, and less snowfall - by the end of the century, snowfall may decline by as much as 48%. Rainfall amounts are expected to decrease in summer months and increase in spring,
- the Great Lakes basin may become more vulnerable to drought as air temperature and evapotranspiration are expected to increase while overall precipitation declines,
- there is no confidence in projections of future wind speeds and patterns,
- there is moderate confidence that surface water temperature will continue to rise in the future, resulting in less ice coverage and more evaporation,
- impact on future water levels in the Great Lakes Basin is uncertain although projections of higher evapotranspiration rates and decreased precipitation may result in slightly lower water levels, and
- there is some confidence that summer floods may become more frequent and severe and that spring floods will become less severe. More extreme rainfall events will likely result in more urban flooding.

## 5. Official Plan – Hazard Land Policies

The Hazard Land policies in the Haldimand County Official Plan are provided in Section 2C which is a sub-section of Section 2. Environment. In the introductory statement of this section (Policy 2.C.1.), the Plan states that:

Haldimand County is committed to the protection of life and property by respecting natural and man-made hazards. As such, development shall generally be directed away from hazard lands. However, it is recognized that there are certain areas of the County where extensive development has historically taken place within hazard lands. While development is generally to be directed away from such areas, the County is under no obligation to re-designate or purchase any lands designated as Hazard Lands.

While the introductory statement refers to natural and man-made hazards, the focus in Section 2.C is primarily on naturally occurring hazards. Man-made hazards, such as contaminated sites and abandoned landfill sites are dealt with elsewhere in the Official Plan.

The Hazard Land policies are grouped into three sections. The Riverine Hazard Lands sub-section provides policies relating to the flood plain of the Grand River and other creeks and streams in the County where a flood plain has been identified. The Lakeshore Hazard Lands provides policies on shoreline flooding and other hazards such as erosion and dynamic beaches that relate to the shoreline. The third section, Other Hazard Lands contains policies for areas subject to undermining, and to natural hazards such as steep slopes, unstable soils and other hazards. The hazard land policies of the Official Plan are attached as **Appendix “B”** to this discussion paper.

### 5.1 Riverine Hazard Lands

The Riverine Hazard Lands designations in the Haldimand County Official Plan are designed to protect properties from damage and to maintain public safety from flooding events occurring from major storms or ice jams along the Grand River, major tributaries and streams within the County. The Riverine Hazard Land policies are found in Section 2.C.1 of the Official Plan. Generally, the Official Plan policies adhere to the PPS policies

and the requirements of the three conservation authorities having jurisdiction in Haldimand County. However, a careful reading of the policies and a review of the Official Plan land use schedules indicates that the policies will benefit from greater clarity. The following is a detailed review of the Riverine Hazard Lands policies.

**Policy 2.C.1) 1. Introduction**

This is an introductory policy that basically states that the County will use the one-zone concept, the two-zone (floodway/flood fringe) concept and the Special Policy Area approach for Riverine Hazard Lands. The one-zone concept will be generally applied to most areas of the flood plain and the two-zone (floodway/flood fringe) concept may be applied in specific portions of urban areas or hamlets. The Special Policy Area approach is to be used only in special cases. Presently, there is only one Special Policy Area, and it is located in Dunnville. This policy suggests that the term Riverine Hazard Lands is a catchall for all three flood plain concepts.

**Policy 2.C.1) 2**

This policy states that the flood control management programs of the conservation authorities is supported by the County and that the regulatory flood standards are based on the 1 in 100 year flood event except within the GRCA watershed where it is based on Hurricane Hazel. This is essentially a factual statement. The policy can be expanded to state that the flood plain mapping in the Official Plan is based on mapping provided by the conservation authorities and prepared in accordance with provincial standards and methodologies.

There is no reference anywhere in Section C.1) that directs the reader to the various map schedules of the Official Plan. This would be an appropriate place to provide such a reference.

In examining the Official Plan schedules, the reader finds three designations pertaining to the flood plain; a Riverine Hazard Lands designation, a Floodway designation, and a

Floodway/Flood Fringe Limits designation and in the case of Dunnville, a Special Policy Area designation. In reviewing the various land use schedules of the Official Plan, the Riverine Hazard Lands designation can be found in the following situations:

- As a standalone land use designation (see Schedules “B.1”, “B.2”, “B.4”, “B.5” and “B.6” for the urban areas of Caledonia, Cayuga, Hagersville, Jarvis and Townsend respectively),
- As an overlay designation with another underlying land use designation such as residential (see Schedules “B.1”, through to “B.6” for all six urban areas),
- Next to a Floodway designation as a separate land use designation; (see Schedule “B.6” for Townsend urban area),
- Next to Floodway designation as an overlay to another land use designation (see Schedules “B.1”, “B.2”, “B.5” and “B.6” for the urban areas of Caledonia, Cayuga, Jarvis and Townsend respectively),
- Within a Flood Fringe area,
- Within Floodway areas (see Schedule “B.1”, Caledonia Urban Area),
- Along some streams, the Floodway designation gives way to the Riverine HazardL Lands designation or overlay (see Schedules “B.5” and “B.6” for Jarvis and Townsend urban areas), and
- Floodway is shown without a corresponding Flood Fringe (see Schedule “B.1”, Caledonia Urban Area).

In the hamlet areas and the lakeshore nodes, the Riverine Hazard Lands designation is generally shown as an overlay over the hamlet designation. In the hamlets of Sims Lock (Schedule “C.19”) and York (Schedule “C.25”), the Riverine Hazard Lands designation is shown as an overlay within the Flood Fringe area. In the Lakeshore Node of Beckley Beach (Schedule “D.15”), the Riverine Hazard Lands designation coincides with the Natural Environment/Wetlands areas overlay over the Lakeshore Node designation.

With all these variations it is difficult to understand how the Riverine Hazard Lands designation is to be interpreted and applied. To add to this confusion, the land use map schedules place the Riverine Hazard Lands designation in the Core Natural Environment

Areas grouping along with Provincially Significant Wetlands. Policy 2.A.3 states:

That development and site alteration shall generally not be permitted on lands that are identified as Core Natural Environmental Areas.

Linking the Riverine Hazard Land policies to the Official Plan policies on natural environmental areas seems to suggest that any potential development in the flood plain areas are also subject to the natural environmental policies of the Plan even though the lands may not contain a wetland or any other significant natural feature. A policy on Riverine Hazard Lands as a specific land use designation and what this designation entails is not clearly provided in the Plan.

The Floodway and the Flood Fringe areas are grouped under the category of Natural Environment Areas along with Lakeshore Hazard Lands, Other Hazard Lands and Natural Environment/Wetland Areas. According to Policy 2.A.3., development and site alteration may be permitted where it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions. The Floodway and Flood Fringe areas do not belong within this grouping. Development and site alteration should generally not be permitted within the Floodway and the concern within Flood Fringe areas is with floodproofing, safe access and ensuring that the elevation of habitable rooms and electrical, mechanical and heating equipment are all located above the elevation of the regional flood.

**Policy 2.C.1) 3.**

This policy states that where the one-zone concept is applied, the entire flood plain defines the floodway and that development will be prohibited or restricted. A review of the various mapping schedules in the Official Plan indicates that there is no clear indication of where the one-zone concept applies. The Floodway designation is used primarily in the urban areas of Caledonia, Cayuga, Jarvis and Townsend. In several areas along the Grand River in and adjacent to Caledonia, the Riverine Hazard Land designation overlaps with the Floodway designation. In most cases the Floodway designation is accompanied with an area demarcated as the Flood Fringe. The Floodway is a specific land use designation while the area between the Floodway designation and

the Floodway/Flood Fringe Limits line has an underlying land use designation, this implies that the lands can be developed provided that the floodproofing policies of Policy C.1) 7 are met to the satisfaction of the applicable conservation authority. The term “Floodway/Flood Fringe Limits” on the land use schedules should be rephrased as simply “Flood Fringe Limits” as the line does not indicate the limit of the floodway.

In these two policies, there is no mention of the Riverine Hazard Lands designation. Does this term apply only to the one-zone concept? The Official Plan does not clearly state that that is the case.

**Policy 2.C.1) 4.**

This policy states that the County may apply the two-zone floodway/flood fringe concept for selected portions of the flood plain in the urban areas of Caledonia, Cayuga, Dunnville, Jarvis and Townsend subject to the review of the technical justification and flood proofing measures by the conservation authority having jurisdiction. Within the floodway, new development will not be permitted and development within the flood fringe will need to be protected to the level of the Regulatory Flood. The establishment of new areas to be subject to the two-zone concept will be through an amendment to the Official Plan. This policy is appropriate as it expresses the possibility that the County may consider other areas for the application of the two-zone concept for flood plain management. The policy, however, does not state that the County has already applied the two-zone concept in the urban areas of Caledonia and Cayuga and in the hamlets of Sims Lock and York. Staff from the GRCA has advised that there has been no technical justification provided for the existing flood fringe mapping in these communities. The Floodway and Flood fringe demarcations on the Official Plan schedules should therefore be removed from these areas.

**Policy 2.C.1) 5.**

This policy states that the County may, where the “strict adherence to the one-zone or two-zone concept would affect the economic and social viability for areas of existing development within a community,” create a Special Policy Area by following the

established procedures and in consultation with the appropriate provincial ministries and conservation authority. The establishment of such a Special Policy Area will set out policies for appropriate development and the acceptable level of flood protection that will be required. This policy is appropriate as it provides the County with flexibility to pursue the establishment of new special policy areas. The discussion on procedures for the establishment of such areas should be expanded to outline in more detail what is required for the creation of such special policy areas. This policy statement would be more appropriately located following Policy C.1) 11 on the Dunnville Special Policy Area.

**Policy 2.C.1) 6.**

This policy outlines the permitted uses in the Floodway under the one-zone and two-zone concepts provided that the requirements of the conservation authority or other approval agencies are met. The permitted uses include the following:

- a) established agriculture and related uses, excluding new buildings and structures;
- b) outdoor recreation, parks and open space;
- c) forestry;
- d) conservation uses;
- e) limited marine commercial and marine industrial uses, including buildings and structures normally associated therewith along river edges and shorelines;
- f) wastewater treatment facilities and expansions; water facilities and outstations; and, utilities with adequate flood proofing measures;
- g) flood and erosion control structures; and
- h) continued maintenance of existing buildings and structures and replacement of existing buildings and structures lost to fire or other natural disasters provided that they can be protected by flood proofing measures.

This policy requires review with respect to the guidelines of the conservation authorities. These guidelines also deal with expansion to existing buildings, accessory buildings or structures, parking lots, driveways, relocations of existing residential buildings or structures, and storm water management facilities. There may be opportunity to provide more flexibility within the Floodway than what is currently provided in the Official Plan.

**Policy 2.C.1) 7.**

Policy 2.C.1) 7. outlines the permitted uses within the Flood Fringe and where a Hazard

Land designation overlays another land use designation. The permitted uses are subject to consultation with the conservation authority and the consideration of the following factors:

- a) the nature and scale of the development proposed;
- b) the flooding effect of the proposal on upstream and downstream areas;
- c) the feasibility of employing flood damage reduction measures or flood proofing (feasibility of placing fill to attain desired lot elevation, feasibility of construction on organic soils, increased structural requirements, sump pumps, one-way valves, availability of suitable outlets for storm sewers, weeping tile, drains, etc.); and
- d) uses permitted in the underlying designations.

This policy also needs to be reviewed with respect to conservation authority guidelines. The matter of safe ingress and egress to the building or structure must also be included. The phrase “and where a hazard land designation overlays another land use designation” adds confusion to the policy. The Flood Fringe designation is an overlay over other land use designations but what are the other Hazard Land designations that also act as overlays?

The Riverine Hazard Lands designation in many areas is an overlay over other land use designations and in other cases it is not. Is it the floodway or another term for the Flood Fringe? The Official Plan needs to be clear on this matter. Based on the PPS and the conservation authorities’ regulations, the Riverine Hazard Lands designation must be considered as the Floodway.

**Policy 2.C.1) 8.**

Policy 2.C.1) 8. lists the uses that are prohibited in Riverine Hazard Lands. The prohibited uses are:

- a) institutional uses including hospitals, nursing homes, pre- schools, school nurseries, day care and schools, where there is a threat to the safe evacuation of the sick, the elderly, persons with disabilities or the young during an emergency as a result of flooding, failure of floodproofing measures or protection works, or erosion;
- b) an essential emergency service such as that provided by fire, police and ambulance stations and electrical substations, which would be impaired during an emergency as a result of flooding, the failure of floodproofing measures



- c) protection works, or erosion; and uses associated with the disposal, manufacture, treatment or storage of hazardous substances.

This list of uses is generally in conformity with the list of prohibited uses contained in the PPS. Policy C.1) 8. a) should be amended to also include long-term care homes and retirements homes and by deleting nursing homes. Group homes and similar residential care facilities should also be considered as prohibited uses.

The use of the term “Riverine Hazard Lands” as both a catchall to include the one-zone, two-zone and special policy areas and as a specific designation along with the Floodway and Flood Fringe areas, makes this policy difficult to interpret. If “Riverine Hazard Lands” applies to all three flood plain areas the policy is quite clear. If the term applies only to a specific land use designation, then the list of prohibited uses would not apply to Floodway and Flood Fringe areas subject to the two-zone concept and would be contrary to provincial policy and conservation authority regulations.

**Policy 2.C.1) 9.**

Policy 2.C.1) 9. provides development standards and criteria where replacement and minor expansions may be permitted in areas of existing development within the Riverine Hazard Lands. The development criteria need to be reviewed with respect to the conservation authority guidelines. The issue with the term “Riverine Hazard Lands” discussed with respect to Policy C.1) 8. also applies to this policy.

**Policy 2.C.1) 10.**

The placement and/or removal of fill material in designated Riverine Hazard Lands is subject to the jurisdiction of the conservation authorities. This policy would benefit from a brief statement on the purpose or objective of regulating fill within the flood plain areas. The problem with the use of the term “Riverine Hazard Lands” area discussed in the previous two policies also applies here.

**Policy 2.C.1) 11.**

The Dunnville Special Policy Area policies are provided in Section C.1) 11. These policies are based on studies previously carried out for the former Town of Dunnville.

The policies are the result of negotiations between the former Town of Dunnville, the GRCA and the Province. The review of the engineering studies that are basis of the Special Policy Area designation are beyond the scope of the Official Plan Update work program. As there is no new information available, the Special Policy Area policies should be largely left as they are. However, a few technical adjustments can be made:

1. A reference in the opening paragraph of Policy C.1) 11. should be made to Schedule “J.1” which shows the boundaries of Areas 1, 2 and 3 of the Special Policy Area.
2. Policy C.1) 11 e) permits new nursing homes, homes for the aged or group homes under very limited circumstances. This policy should be reviewed with the Ministry of Municipal Affairs and Housing to ensure that it is consistent with the PPS or alternatively removed from the Official Plan.

### **Land Use Schedules**

The inconsistent application and mapping of the Riverine Hazard Lands, Floodway and Flood Fringe have been noted in the above discussion. One matter not discussed above is that with the separate designations of the Floodway and the Riverine Hazard Lands, it is suggested that the Riverine Hazard Lands are not to be considered as the floodway.

Review of flood plain mapping for the hamlets of Attercliffe and Canborough, from the NPCA website at <https://npca.ca/administration/geographic-information-services>, indicates that the Official Plan flood plain mapping may not be consistent with its mapping. The Riverine Hazard Land mapping in the Official Plan may include regulated areas that are beyond the regulatory flood limits. The NPCA mapping is also on the 2015 ortho base aerial photography.

Mapping from the LPRCA was not available online. The LPRCA is currently reviewing its flood plain mapping along the Sandusk Creek in the vicinity of Garnet and Jarvis.

An approach to the mapping of flood plain hazard lands often used in urban municipalities is for the flood plain to be delineated on a separate schedule of the Official

Plan which can be an overlay on the land use schedule. On the land use schedule, the lands that would be subject to the one-way flood plain policies would be placed in a land use designation that does not generally permit development. In Guelph, the floodway lands are designated as “Open Space and Park”, in Kitchener as “Natural Heritage Conservation”, in Cambridge as “Natural Open Space”, and in Brantford as “Core Natural Area”. The overlay flood plain schedule shows the regulatory flood line, the lands subject to the floodway policies, the flood fringe areas within the regulatory flood line and the lands designated as special policy areas. The application of this approach in the Haldimand County Official Plan should alleviate the confusion that currently exists within the flood plain policies of the Plan.

## **5.2 Lakeshore Hazard Lands**

### **Policy 2.C.2) 1. Introduction**

The introductory paragraphs provide brief statements outlining the potential damage due to fluctuating water levels, wave action, seiche episodes and storms along the Lake Erie shoreline of the County. The Lakeshore Hazard Lands designation on the Official Plan schedules is based on the Regulatory Shoreline and is the furthest landward line of three hazards: the Dynamic Beach Hazard, the Flood Hazard and the Erosion Hazard. Development is generally to be directed outside of the Regulatory Shoreline.

The introductory paragraphs should be updated to refer to the Baird Report which was prepared in partnership with the three conservation authorities and Haldimand County. The introduction should describe in general terms the considerations and allowances used in the establishment of the regulatory flood line. The considerations include the 100-year flood line, wave uprush, ice build-up, erosion and the calculation of the 100-year recession line from the edge of the stable slope allowance, the extent of dynamic beach hazards, and the potential impact of climate change. The Lakeshore Hazard Land mapping on the Official Plan schedules need to be reviewed and updated with the mapping provided in the Baird Report.

### **Policy 2.C.2) 2. Permitted Uses**

This policy is similar to Policy 2.C.1) 6. on permitted uses with the Floodway with

basically the same list of permitted uses, with a few exceptions. In the Floodway, Policy 2.C.1) 6. h) permits maintenance of existing buildings and structures and the replacement of buildings and structures lost to fire or other disasters provided that they can be protected by flood proofing measures. A similar policy could be considered for Lakeshore Hazard Lands. In Lakeshore Residential Nodes, Policy 2.C.2) 2. i) permits a limited amount of residential infilling provided that the lots are of sufficient size to support individual sewage disposal systems. It is also noted in Policy 2.C.2) 2. the Province may have additional requirements for the construction of structures along the lakeshore.

### **Policy 2.C.2) 3. Prohibited Uses**

The list of prohibited uses the Lakeshore Hazard Lands is the same as that for the Riverine Hazard Lands. This list of uses is generally in conformity with the list of prohibited uses contained in the PPS. As with the Riverine Hazard Lands, this policy should be amended to include long-term care homes and retirement homes and to remove nursing homes. It should also be noted that Policy 2.C.2) 3. prohibits any development and site alteration within the Dynamic Beach Hazard area.

### **Policy 2.C.2) 4 Development Criteria**

This policy outlines the development criteria that must be met before any development or site alteration may be permitted within Lakeshore Hazard Land areas. The development criteria are to be satisfied by a study prepared by a qualified professional at the proponent's expense and must meet the approval of the applicable conservation authority. This policy is appropriate as it provides some flexibility within the Lakeshore Hazard Land area and it is the responsibility of the proponent to demonstrate that the development can be done safely by addressing all flooding and erosion hazards, not aggravating or creating new hazards, not negatively impacting identified natural environmental features and that safe access and egress can be provided during flooding and erosion emergencies.

**Policy 2.C.2) 5 Placing or Removal of Fill**

This policy states that the conservation authorities have jurisdiction over the placing or removal of fill of any kind within the Regulated Hazard Land area. This policy directs proponents to the authority having jurisdiction and is appropriate. This policy would benefit from a brief statement on the purpose or objective of regulating fill within the lakeshore areas.

**Policy 2.C.2) 6 Relocation of Buildings or Structures**

This policy provides the opportunity to relocate a building or structure located within the Lakeshore Hazard Land designation to a location further away from the edge of a bluff either on the same lot or on another lot even if the new location is still within the Lakeshore Hazard Land area, subject to meeting the requirements of the Zoning By-law. If the relocation is to another lot, a replacement structure cannot be constructed on the original lot. This policy provides some flexibility to property owners who may be required to relocate their buildings or structures to protect them from existing or potential erosion hazards. This policy is appropriate.

**Policy 2.C.2) 7 Infilling**

This policy permits a limited amount of residential infilling in resort residential nodes subject to the lot being of sufficient size for an individual sewage disposal system. This policy is redundant with Policy 2.C.2) 2. i) and can be deleted. It should be noted that the text of the Official Plan refers to “resort residential nodes” while the map schedules (Schedule D) refer to Lakeshore Nodes. The references in the text and map schedules of the Official Plan should be consistent.

**Policy 2.C.2) 8. *Shoreline Property Assistance Act***

This policy outlines the County’s requirements in the administration of grants under the provincial *Shoreline Property Assistance Act* to assist in the installation of erosion control structures along the shoreline. A search of the County’s website did not reveal any by-laws approved by the County under this legislation. The legislation is still in place and the

policy outlines the County's requirements and responsibilities should proposals come forward requesting the assistance provided by this Act. This policy is appropriate.

### **5.3 Other Hazard Lands**

Other Hazard Lands refers to areas subject to hazards relating to undermined areas, steep slopes, unstable soils and other naturally occurring hazards located outside of either Riverine Hazard Lands or Lakeshore Hazard Lands. Areas of steep slopes and unstable soils are generally mapped by the conservation authorities. In Caledonia and vicinity, large areas have been impacted by undermining.

The Official Plan policies on Other Hazard Lands can be found in Section 2.C.3). Policies 2.C.3) 1. to 2.C.3) 5. deal with permitted uses, development criteria to be met before a permitted use can be developed, the repair and maintenance of existing buildings and structures, and prohibited uses. These policies are reasonable.

The Other Hazard Lands are designated on the land use schedules of the Official Plan. A review of these schedules indicated that the Other Hazard Land designation can be found on Schedule "A.1" and Schedule "B.1" for the Caledonia Urban Area. On Schedule "B.1", Other Hazard Lands appear as a specific land use designation and, in the vicinity of Industrial Drive, as an overlay over the Urban Business Park and Riverine Hazard Land designations. As this area is essentially developed, the need for the Other Hazard Lands designation as an overlay should be reviewed. If it is to serve as an overlay in this area, then there should be specific Official Plan policies associated with the overlay.

#### **Policy 2.C.3) 6. Methane Gas**

In some areas of the County, particularly in the vicinity of Jarvis, methane gas from naturally occurring natural gas deposits is a concern. Natural Gas Resource Areas are shown on Schedule "G" of the Official Plan. This designation is an overlay as development can be considered subject to capping of abandoned water and gas wells and/or the installation of detection and ventilation systems designed by an engineer. However, these policies are largely redundant with the policies on Petroleum Resources

that can be found in Policy 3.A.4) of the Official Plan. Including the policies on where methane gas may be an issue in the Other Hazard Lands section can lead to confusion as Policy 2.C.3) 5. states that other than the limited uses permitted in 2.C.3) 2., which are similar to the uses permitted in the Riverine and Lakeshore Hazard Lands, no buildings or structures are permitted in Other Hazard Lands. This is not the development policy for lands where naturally occurring natural gas is found. Where there is no overlap, the policies in section Policy 2.C.3) 6. should be amalgamated into the Petroleum Resources policies of Policy 3.A.4) of the Official Plan.

## **6. Zoning By-law**

A new Comprehensive Zoning By-law for Haldimand County was approved by County Council in November 2020. The Comprehensive Zoning By-law uses an overlay approach to regulating development within the flood plain. The Zoning By-law regulations pertaining to natural hazard lands are attached as **Appendix “C”** to this discussion paper. The new Zoning By-law is best read online on Haldimand County’s website using the Interactive Zoning Map feature. The interactive feature allows the user to turn on and off various layers and zoom into an individual property. The “Zones” layer is the principal layer that shows all the zones and their location throughout the County. There are three overlays:

- Hazard Lands Overlay: Natural Hazards,
- Hazard Lands Overlay: Natural Environment Areas,
- Hazard Lands Overlay: Other Hazard Lands,

The regulations pertaining to a property based on its zoning in the Zones layer and the applicability of any of the three Hazard Lands Overlay layers and their associated regulations provides users with the development regulations pertaining to the property being investigated. The Natural Hazards overlay refers to wetlands, shorelines and watercourses that are regulated by any of the three conservation authorities having jurisdiction within the County. The mapping on the Natural Hazards Overlay is based on the regulated area approved by the conservation authority under Section 28 of the *Conservation Authorities Act*.

Where a property or a portion of a property is subject the Natural Hazard Lands overlay, any development that may be permitted according to the underlying zoning category will be subject to the following provisions:

The following provisions shall apply to all lands within the Natural Hazard Lands (on Schedule A or to lands that meet the description of regulated areas in the applicable Conservation Authority's regulation):

- a) Development (as defined above) is subject to the applicable Conservation Authority's review and may require a permit pursuant to the Conservation Authority's regulation, prior to any works taking place;
- b) The Natural Hazard Lands shown on Schedule A may be subject to change. The final boundaries of the Natural Hazard Lands shall be determined by the applicable Conservation Authority;
- c) The following uses shall be prohibited in lands identified as Natural Hazard Lands, as determined by the Municipality in consultation with the Conservation Authority:
  - i) institutional uses including hospitals, long-term care homes, retirement homes, day cares, day nurseries and schools;
  - ii) essential emergency services including fire, police, ambulance stations and electrical substations; and
  - iii) uses associated with disposal, manufacture, treatment or storage of hazardous substances.

The Other Natural Hazard Lands Overlay refers to lands that are subject to steep slopes, undermined areas or naturally occurring hazards. On lands impacted by this overlay, development is subject to the following provisions:

- a) The following uses are permitted within the Other Natural Hazards Lands Overlay:
  - i) established agriculture and related uses excluding new buildings and structures;
  - ii) outdoor recreation not requiring buildings or structures;
  - iii) open space;
  - iv) parks;
  - v) golf courses excluding buildings;
  - vi) forestry;
  - vii) uses which assist in conserving or managing water supply, wildlife, fisheries, or other natural features;
  - viii) resource extraction excluding administrative, maintenance, and storage



- buildings;
  - ix) uses pertaining to public utilities such as transmission lines and pipe lines;
  - x) buildings and structures necessary for flood and/or erosion control;
  - xi) marine uses along the shoreline including buildings and structures normally associated therewith; and
  - xii) minor expansions and accessory buildings or structures and replacement of existing buildings and structures lost to fire or other natural disasters provided that they can be protected by flood proofing measures may be permitted subject to consultation with the appropriate authority.
- b) Notwithstanding subsection a), the permitted uses, lot and building requirements of the underlying zone category may be permitted subject to satisfaction of the following matters to the satisfaction of the approval authority or relevant agency:
- i) the existing physical hazards can be safely addressed;
  - ii) existing physical hazards are not aggravated or new hazard areas created;
  - iii) the proposed methods by which these impacts may be overcome in a manner consistent with accepted engineering techniques and resource management practices and techniques;
  - iv) no negative impact on identified Natural Environment Areas will result;
  - v) vehicles and pedestrians have safe access and exit during times of flooding and erosion emergencies; and
  - vi) development and maintenance can be carried out in accordance with established standards and procedures.

## **7. Proposed Official Plan Policies**

The following proposed Hazard Lands policies for consideration in the update of the Official Plan are based on the existing policies in the Plan and take into consideration the updated, 2020 PPS policies and the regulations of the conservation authorities. Policies of other municipalities were also examined. As the problems with the Riverine Hazard Land Policies were mostly encountered in the settlement areas of the County, particularly in the application of Floodway and Flood Fringe policies and the Riverine Hazard Land policies, official plans from larger urban municipalities that applied all flood plain concepts were most relevant. Consistent with the approach followed in many municipalities and with the recently approved Comprehensive Zoning By-law, an overlay approach is proposed.

## **C. HAZARD LAND POLICIES**

1. Natural hazards such as flooding, erosion, slope failures, unstable soils, undermined areas and dynamic beaches pose a risk to human health and safety, as well as to property. Haldimand County is committed to the protection of life and property by generally directing development away from hazard lands. However, it is recognized that there are areas of the County where extensive development has taken place within Hazard Lands. The three conservation authorities having jurisdiction in Haldimand County, which include the Niagara Peninsula Conservation Authority, the Grand River Conservation Authority and the Long Point Region Conservation Authority, are key partners in the regulation of development in river or stream valleys, wetlands, along shorelines and on other hazardous lands.
2. Haldimand County shall be under no obligation to re-designate or purchase any areas that are designated “Hazard Lands” nor should such designation imply that the lands are open to the general public.

### **1) RIVERINE HAZARD LANDS**

1. For Riverine Hazard Lands, which are comprised of all lands within the regulatory flood plain established by the conservation authorities in accordance with provincial guidelines and methodologies, the County will generally utilize a one-zone concept. The Two-Zone Floodway/Flood Fringe and Special Policy Area concepts may be applied where development, redevelopment and rehabilitation of buildings and structures are considered vital to the continued economic and social viability of the community. A two-zone (floodway/flood fringe) concept may be utilized in specific portions of urban areas or hamlets in consultation with the Province and appropriate conservation authority. In unique cases, where the application of the two-zone concept is not feasible, Special Policy Areas may be created following the completion of the required technical studies and with the approval of the conservation authority having jurisdiction and the Province.

The County supports appropriate flood control management programs of the conservation authorities and will work in partnership with the conservation authorities in the regulation and control of development and site alteration within the regulated flood plain areas.

2. The County uses the following flood standards for development as the level of the Regulatory Flood:
  - a) The 1 in 100-year flood for all riverine flood plains, except for the Grand River watershed; and
  - b) The Regional Storm, which is based on Hurricane Hazel, for the Grand River watershed.
3. The Riverine Hazard Lands designation is comprised of the flood plain limits of the Grand River and major streams and creeks of the County and is shown on Schedule “X” Flood Plain Hazard Lands as an overlay to applied to the land use schedules of this Plan. The limits of the flood plain are as established by the conservation authorities. The Official Plan establishes three policy areas for flood plain lands:
  - a) One-Zone Floodway Policy Area;
  - b) Two-Zone Floodway Flood Fringe Policy Area; and
  - c) Special Policy Area.
4. Where a conflict exists between the policies of the underlying land use designation, as shown on Schedules “A”, “B”, “C”, and “D” of this Plan, and the policies of this section, the policies of this section shall prevail.
5. In consultation with the Province and appropriate conservation authority, the County may apply the two-zone concept (floodway/flood fringe) to portions of the flood plain, including but not limited to, portions of the urban areas of Caledonia, Cayuga, Dunnville, Hagersville, Jarvis and Townsend through an official plan amendment. The technical justification and required flood proofing measures must satisfy the requirements of the applicable conservation authority.

6. As new or revised flood plain mapping is made available and is accepted by a conservation authority with jurisdiction in the County, such mapping will be used to illustrate the lands identified as being subject to environmental constraints associated with flooding. Where there is a difference between conservation authority mapping and an Official Plan Schedule, the conservation authority mapping will be deemed to represent the most recent flood plain delineation for the purposes of this Section and an amendment to this Plan will not be required.
7. Where engineered flood plain mapping has not been completed, proponents may be required to complete such mapping to the satisfaction of the relevant conservation authority prior to development. Such mapping will be completed at the proponent's expense.
8. Where more current mapping of the Regulatory Flood Plain is made available by a conservation authority, Schedule "X" Flood Plain Hazard Lands may be revised through an amendment to this Plan. Minor refinements to the regulatory flood lines may be made without an amendment to this Plan, subject to the approval of the conservation authority.
9. In the One-Zone Floodway Policy Area, new development or site alteration in the defined flood plain will be prohibited or restricted. Existing buildings and structures will be recognized as legal non-conforming. Where a one-zone concept is applied, the entire flood plain defines the floodway.
10. In both the One-Zone Floodway Policy Area and Two-Zone Floodway Flood Fringe Policy Area concepts, the following uses may be permitted in the floodway provided the hazard will not be aggravated and the requirements of the conservation authority or other approval agencies are met:
  - a) established agriculture and related uses, excluding new buildings and structures;
  - b) outdoor recreation, parks and open space;
  - c) forestry;

- d) uses which assist in conserving or managing water supplies, wildlife, fisheries or other natural features;
  - e) limited marine commercial and marine industrial uses, including buildings and structures normally associated therewith along river edges and shorelines;
  - f) wastewater treatment facilities and expansions thereto, subject to applicable provincial legislation; water facilities and outstations; and, utilities with adequate flood proofing measures;
  - g) flood and erosion control structures; and
  - h) continued maintenance of existing buildings and structures and replacement of existing buildings and structures lost to fire or other natural disasters provided that they can be protected by flood proofing measures.
11. The following uses shall be prohibited in the Riverine Hazard Lands:
- a) institutional uses including hospitals, nursing homes, preschools, school nurseries, daycares, schools, and group homes where there is a threat to the safe evacuation of the sick, the elderly, persons with disabilities or the young during an emergency as a result of flooding, failure of floodproofing measures or protection works, or erosion;
  - b) an essential emergency service such as that provided by fire, police and ambulance stations and electrical substations, which would be impaired during an emergency as a result of flooding, the failure of floodproofing measures, protection works, or erosion; and
  - c) uses associated with the disposal, manufacture, treatment or storage of hazardous substances.
12. One-Zone Floodway Policy Area lands will be placed in an appropriate hazard lands overlay in the implementing Zoning By-law.
13. Where the Flood Fringe Policy Area overlays another land use designation (excluding agriculture), the appropriate conservation authority shall be consulted and consideration given to the following factors before development is allowed:

- a) uses permitted in the underlying designations;
  - b) the flooding effect of the proposal on upstream and downstream areas;
  - c) The applicant has demonstrated through a complete application that:
    - i. The effects and risk to public safety are minor and can be mitigated in accordance with provincial standards;
    - ii. Development, intensification and site alteration are carried out in accordance with floodproofing standards, protection works standards, and access standards;
    - iii. Vehicles and people have a way to safely enter and exit the area during times of flooding, erosion and other emergencies;
    - iv. New hazards are not created, and existing hazards are not aggravated;
    - v. Appropriate floodproofing to the regulatory flood level or another flooding hazard standard approved by the Minister of Natural Resources and Forestry is required; and
    - vi. No adverse environmental impacts will result.
14. Replacement and minor expansion may be permitted in some areas of existing development within the floodway. To assess such development proposals, a study is required to demonstrate how all of the following can be achieved:
- a) Flooding and erosion hazards can be safely addressed;
  - b) Existing physical hazards are not aggravated or new hazard areas created;
  - c) No negative impact on identified Natural Environment features will result;
  - d) No additional dwelling units are created;
  - e) Vehicles and pedestrians have safe access and exit during times of flooding and erosion emergencies; and
  - f) Development and maintenance can be carried out in accordance with established standards and procedures.
- The study shall be prepared by a qualified professional at the proponent's expense to address the above noted items. Approval shall be provided by the applicable conservation authority and/or other appropriate agencies in consultation with the County. The proponent may be required to enter into a site plan approval agreement with the County regarding the undertaking of the measures outlined in the study and subsequent approval process.
- 15 Non-habitable accessory buildings or structures associated with an existing

residence or commercial, industrial or institutional uses may be permitted provided that all requirements of the applicable conservation authority and all other policies of this Plan are satisfied.

16. Conservation authorities have the jurisdiction in prohibiting the placement or removal of fill of any kind, whether originating on the site or elsewhere, in a regulated Riverine Hazard Land area. Proposals for the placing and/or removal of fill material must meet the policies and guidelines of the applicable conservation authority and demonstrate that there will be no negative impacts on the ecological or hydrological function of wetlands, valleylands or other significant natural features and have no adverse impact on the hydraulic conveyance capabilities of the watercourse.
  
17. A Special Policy Area was approved by the Province in conjunction with the former Town of Dunnville, former Region of Haldimand-Norfolk, and the GRCA for the Dunnville urban area. This Plan delineates those lands included as a Special Flood Plain Policy Area on Schedule “B.3” and Schedule “J.1” Dunnville Secondary Plan - Site-Specific Policy Area. The Special Policy Area consists of Areas 1, 2 and 3. Any development or redevelopment in these areas shall be in accordance with the following policies:
  - a) All new buildings, structures and major additions (i.e. more than 50 percent of existing floor area of existing buildings or structures), shall be protected:
    - i. To the level of the Regulatory Flood in Area 1 which for the purpose of this Special Policy Area shall be an elevation of 179.0 metres Canadian Geodetic Datum (C.G.D.) and describes the flood level in a storm where floodwaters would flow at a rate of 2,690 cubic metres per second;
    - ii. To the level of the Regulatory Flood in Area 2 which for the purpose of this Special Policy Area shall be an elevation of 176.5 metres C.G.D. and describes the flood level in a storm where flood waters would flow at a rate of 2,690 cubic metres per second; and
    - iii. To the level of the 100 Year-Flood in Area 3 which for the purpose of this

Special Policy Area shall be an elevation 178.7 metres C.G.D. and describes the flood level in a storm where flood waters would flow at a rate of 1,996 cubic metres per second. In some portions of Area 3, the level of protection maybe less than the stated elevation herein because of the graduated elevations of the applicable 1 in 100-year storm flood levels as specified by the Grand River Conservation Authority.

- b) Minor additions or alterations less than 50 percent of the floor area of existing buildings and structures may be permitted below the elevations identified above but not lower than existing elevations, where the economic, social and environmental cost is proven to be too great;
- c) Where practical, new services shall be located higher than the level of the Regulatory Flood Line in Areas 1 and 2 and the level of the 1 in 100 Year Flood in Area 3 but where this is not feasible, such services shall be flood proofed using measures satisfactory to the County and the Grand River Conservation Authority;
- d) Bulk storage facilities for dangerous, flammable, explosive, toxic or corrosive materials below the elevations identified in policy 2.C.1).13 a) shall not be permitted;
- e) The County shall review development proposals in consultation with the Grand River Conservation Authority and, where appropriate, require floodproofing techniques which reduce the risk of flooding. The following matters will be taken into consideration in the review of such proposals:
  - i) Flood depths and velocities;
  - ii) Adverse hydraulic effects;
  - iii) Adjacent land uses and properties; and
  - iv) The economic, social and environmental costs required to overcome the flood hazard.
- f) The County, in conjunction with the Grand River Conservation Authority, will explore the feasibility of structural flood damage reduction measures in accordance with the 1978 Phillips Planning and Engineering Consultants Ltd. "Report on Flood Line Mapping from Lake Erie to Brantford and Flood Plain



- Studies in Dunnville”, to reduce the risk of flooding; and
- g) In recognition of the ongoing modelling of the Grand River and the establishment of new and more detailed hydrologic information for the area, the Special Policy Area policies and boundaries may need to be updated by amendment to this Plan to reflect this information. The County intends to proceed with a review of the Special Policy Area in conjunction with the Grand River Conservation Authority and the Province.
18. Where strict adherence to the one-zone or two-zone concept would affect the economic and social viability for areas of existing development within a community, a Special Policy Area may be considered and implemented through an Official Plan Amendment following consultation with the Province and the appropriate conservation authority, and demonstration that the technical requirements are met to the satisfaction of all approval agencies. The County must apply for Special Policy Area status in accordance with established procedures. Once such status is obtained, controlled development may be permitted subject to the special policies. The County will define special policy areas in the Official Plan, in consultation with the applicable conservation authority and the Province, and set out policies for appropriate development. The minimum acceptable level of flood protection for all development within the Special Policy Area will be identified.

## **2) LAKESHORE HAZARD LANDS**

1. The Lake Erie shore is subject to fluctuating water levels, storms, wave uprush, ice build-up, and erosion. Consequently, development along the shore is subject to significant damage potential. The Lakeshore Hazard Lands designation is based on the Regulatory Shoreline Area which is comprised of four hazards: the Dynamic Beach Hazard, the Wave Uprush Hazard, the Flood Hazard and the Erosion Hazard. The Regulatory Shoreline is the farthest landward line of the four hazards. The Regulatory Shoreline is based on mapping completed in 2020 by W. F. Baird & Associates Coastal Engineers Ltd. in partnership with the three conservation

authorities having jurisdiction along the shoreline and Haldimand County.

2. This Plan recognizes the detailed shoreline management plans prepared by the conservation authorities for their respective jurisdictions within the County. In consideration of development proposals along the lakeshore, the information and concepts of such shoreline management plans will be considered.
3. Lakeshore Hazard Lands are mapped on the Schedule “X” Hazard Lands as an overlay to land use designations on Schedules “A” and “D”. and reflect the Regulatory Shoreline Area as established by the respective conservation authority. Development will generally be directed to areas outside the Lakeshore Hazard Lands Designation.
4. Where a conflict exists between the policies of the underlying land use designation, as shown on Schedules “A”, “B”, “C” and “D” of this Plan, and the policies of this Section, the policies of this section shall prevail.
5. The following uses may be permitted within Lakeshore Hazard Lands provided other policy requirements of this Plan and the requirements of the conservation authority or other approval agency are met:
  - a) established agriculture and related uses, excluding new buildings and structures;
  - b) outdoor recreation, boardwalks, trails and parks;
  - c) forestry;
  - d) uses which assist in conserving or managing water supplies, wildlife, fisheries or other natural features;
  - d) limited marine commercial and marine industrial uses along shorelines including buildings and structures normally associated therewith;
  - e) wastewater treatment facilities and expansions thereof, subject to applicable provincial legislation; water facilities and outstations; and, utilities with

- adequate flood proofing measures;
- g) flood or erosion control structures;
- h) facilities which by their nature must locate near water or traverse watercourses, such as roads, bridges, railways, and other public services having an approved hydraulic design acceptable to the conservation authority with jurisdiction;
- i) buildings accessory to the permitted uses, such as restrooms, concession booths or sheds; and
- j) limited amounts of infilling may be permissible in designated resort residential nodes in Lakeshore Hazard Lands areas. Such infilling would be limited to residential uses, and all lots must be of sufficient size for an individual sewage disposal system.

It should be noted that the requirements of the Ministry of Northern Development, Mines, Natural Resources and Forestry may also have to be met regarding the construction of structures that require permissions under the *Lakes and Rivers Improvement Act*. For the construction of marinas, other agency permission may be required.

6. Development and site alteration shall not be permitted within the Dynamic Beach Hazard.
7. The following uses shall be prohibited in the Lakeshore Hazard Lands:
  - a) institutional uses including hospitals, long-term care homes, retirement homes, preschools, school nurseries, daycare, schools, and group homes;
  - b) where there is a threat to the safe evacuation of the sick, the elderly, persons with disabilities or the young during an emergency as a result of flooding, failure of floodproofing measures or protection works, or erosion;
  - c) an essential emergency service such as that provided by fire, police and ambulance stations and electrical substations, which would be impaired during an emergency as a result of flooding, the failure of floodproofing measures, protection works, or erosion; and

- d) uses associated with the disposal, manufacture, treatment or storage of hazardous substances.
8. Except as prohibited in the above policy 2.C)2.3 – Prohibited Uses, development and site alteration may be permitted in Lakeshore Hazard Lands after the preparation of a study that demonstrates how all of the following can be achieved:
- a) Flooding, wave uprush and erosion hazards can be safely addressed;
  - b) Existing hazards are not aggravated or new hazard areas created;
  - c) No negative impact on identified Natural Environment features will result;
  - d) Vehicles and pedestrians have safe access and exit during times of flooding and erosion emergencies; and
  - f) Development is carried out in accordance with established standards and procedures and the policies of the underlying resort residential or hamlet designation.

The study, to address the above noted items, shall be prepared by a qualified professional at the proponent's expense. Approval should be provided by the applicable conservation authority and/or other appropriate agencies in consultation with the County. The proponent may be required to enter into a site plan approval agreement with the County regarding the undertaking of the measures outlined in the study and subsequent approval process.

9. Conservation authorities have jurisdiction to prohibit the placing or removal of fill of any kind, whether originating in the site or elsewhere, in a regulated Lakeshore Hazard Area. Proposals for the placing and/or removal of fill material must meet the policies and guidelines of the applicable conservation authority and demonstrate that there will be no negative impacts on the ecological or hydrological function of wetlands, valleylands or other significant natural features and have no adverse impact on the hydraulic conveyance capabilities of the watercourse.

10. Nothing in the above policies shall be interpreted to prohibit the relocation of an existing building or structure presently located within the Lakeshore Hazard Lands designation to a location farther away from the edge of the bluff on the same lot or to another lot farther away from the edge of the bluff or hazard, even if it is still within the Lakeshore Hazard Lands subject to meeting the provisions of the Zoning By-law. If a structure is relocated to another lot, no replacement structure may be constructed on the lot from which the original structure was moved. The Zoning By-law may contain minimum building setbacks from the top of the bluff. Such setbacks will be established in consultation with the appropriate conservation authority.
  
11. Limited amounts of infilling may be permissible in designated resort residential nodes in Lakeshore Hazard Lands areas. Such infilling would be limited to residential uses, and all lots must be of sufficient size for an individual on-site sewage disposal system.
  
12. In the administration of grants under the *Shoreline Property Assistance Act*, the County may require detailed studies of the impact of proposed private erosion control structures on the adjacent shoreline. All property owners within 152 metres of the proposed shoreline modification shall be notified. Steps shall be taken to determine whether the proposed scheme could damage adjacent properties. Joint schemes between adjoining property owners will be encouraged. The County will direct shoreline owners to agencies which are able to propose the best solution for controlling erosion or flooding. However, no direct involvement or responsibility is assumed to apply toward the County.

### **3) Other Hazard Lands**

1. Other Hazard Lands are lands that are subject to hazards due to steep slopes, unstable soils, undermined areas, or other naturally occurring hazards in locations other than Riverine Hazard Lands or Lakeshore Hazard Lands.

2. The permitted uses of the underlying designation on Schedules “A”, “B”, “C” or “D” are subject to addressing the following matters to the satisfaction of the approval authority or relevant agency:
  - a) The existing physical hazards can be safely addressed;
  - b) Existing physical hazards are not aggravated or new hazard areas created;
  - c) The proposed methods by which these impacts may be overcome in a manner consistent with accepted engineering techniques and resource management practices and techniques;
  - d) No negative impact on identified Natural Environment features will result;
  - e) Vehicles and pedestrians have safe access and exit during times of flooding and erosion emergencies; and
  - f) Development and maintenance can be carried out in accordance with established standards and procedures.

The study to address the above noted items shall be prepared by a qualified professional at the proponent’s expense. Approval shall be provided by the applicable conservation authorities and/or other appropriate agencies in consultation with the County. The proponent may be required to enter into a site plan approval agreement with the County regarding the undertaking of the measures outlined in the study and subsequent approval process.

3. Continual maintenance and replacement of existing buildings may be permitted provided that such replacement does not result in major increase in the original usable ground area of the building or structure, subject to the approval of the conservation authority and/or applicable agencies.
4. Other than as specified in policies of this Section, no buildings or structures are permitted in Other Hazard Lands.

## **Appendix “A”**

### **Provincial Policy Statement 2020 Policies on Natural Hazards**

## Provincial Policy Statement 2020 Policies on Natural Hazards

### Natural Hazards<sup>9</sup>

- 3.1.1 Development shall generally be directed, in accordance with guidance developed by the Province (as amended from time to time), to areas outside of:
- a) *hazardous lands* adjacent to the shorelines of the *Great Lakes - St. Lawrence River System* and *large inland lakes* which are impacted by *flooding hazards, erosion hazards* and/or *dynamic beach hazards*;
  - b) *hazardous lands* adjacent to *river, stream and small inland lake systems* which are impacted by *flooding hazards* and/or *erosion hazards*; and
  - c) *hazardous sites*.
- 3.1.2 *Development* and *site alteration* shall not be permitted within:
- a) the *dynamic beach hazard*;
  - b) *defined portions of the flooding hazard along connecting channels* (the St. Marys, St. Clair, Detroit, Niagara and St. Lawrence Rivers);
  - c) areas that would be rendered inaccessible to people and vehicles during times of *flooding hazards, erosion hazards* and/or *dynamic beach hazards*, unless it has been demonstrated that the site has safe access appropriate for the nature of the *development* and the natural hazard; and
  - d) a *floodway* regardless of whether the area of inundation contains high points of land not subject to flooding.
- 3.1.3 Planning authorities shall prepare for the *impacts of a changing climate* that may increase the risk associated with natural hazards.
- 3.1.4 Despite policy 3.1.2, *development* and *site alteration* may be permitted in certain areas associated with the *flooding hazard along river, stream and small inland lake systems*:
- a) in those exceptional situations where a *Special Policy Area* has been approved. The designation of a *Special Policy Area*, and any change or modification to the official plan policies, land use designations or boundaries applying to *Special Policy Area* lands, must be approved by the Ministers of Municipal Affairs and Housing and Natural Resources and Forestry prior to the approval authority approving such changes or modifications; or
  - b) where the *development* is limited to uses which by their nature must locate within the *floodway*, including flood and/or erosion control works or minor additions or passive non-structural uses which do not affect flood flows.

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<sup>9</sup> Note that the italicized terms have specific definitions in the PPS 2020.



- 3.1.5 *Development* shall not be permitted to locate in *hazardous lands* and *hazardous sites* where the use is:
- a) an *institutional use* including hospitals, long-term care homes, retirement homes, pre-schools, school nurseries, day cares and schools;
  - b) an *essential emergency service* such as that provided by fire, police and ambulance stations and electrical substations; or
  - c) uses associated with the disposal, manufacture, treatment or storage of *hazardous substances*.
- 3.1.6 Where the *two-zone concept* for *flood plains* is applied, *development* and *site alteration* may be permitted in the *flood fringe*, subject to appropriate flood proofing to the *flooding hazard* elevation or another *flooding hazard* standard approved by the Minister of Natural Resources and Forestry.
- 3.1.7 Further to policy 3.1.6, and except as prohibited in policies 3.1.2 and 3.1.5, *development* and *site alteration* may be permitted in those portions of *hazardous lands* and *hazardous sites* where the effects and risk to public safety are minor, could be mitigated in accordance with provincial standards, and where all of the following are demonstrated and achieved:
- a) *development* and *site alteration* is carried out in accordance with *floodproofing standards*, *protection works standards*, and *access standards*;
  - b) vehicles and people have a way of safely entering and exiting the area during times of flooding, erosion and other emergencies;
  - c) new hazards are not created and existing hazards are not aggravated; and
  - d) no adverse environmental impacts will result.
- 3.1.8 *Development* shall generally be directed to areas outside of lands that are unsafe for *development* due to the presence of *hazardous forest types for wild/and fire*.

*Development* may however be permitted in lands with *hazardous forest types for wild/and fire* where the risk is mitigated in accordance with *wild/and fire assessment and mitigation standards*.

## **Appendix “B”**

**Haldimand County Official Plan**

**Extract of**

**Hazard Land Policies**

## Haldimand County Official Plan

### Extract of Hazard Land Policies

## C. HAZARD LAND POLICIES

1. Haldimand County is committed to the protection of life and property by respecting natural and man-made hazards. As such, development shall generally be directed away from hazard lands. However it is recognized that there are certain areas of the County where extensive development has taken place within Hazard Lands.
2. Haldimand County shall be under no obligation to redesignate or purchase any areas that are designated “Hazard Lands”.

### 1) RIVERINE HAZARD LANDS

#### INTRODUCTION

1. For Riverine Hazard lands, the County will generally utilize a **one-zone concept**. A **two-zone (floodway/flood fringe)** concept may be utilized in specific portions of the various affected urban areas or hamlets in consultation with the Province and appropriate conservation authority. In unique cases, Special Policy Areas may be developed in consultation with the Province and appropriate conservation authority.

The County supports appropriate flood control management programs of the conservation authorities.

#### REGULATORY FLOOD STANDARDS

2. The County uses the following flood standards for development as the level of the **Regulatory Flood**:
  - a) The 1 in 100 year flood for all riverine flood plains, except for the Grand River watershed; and
  - b) The **Regional Storm**, which is based on Hurricane Hazel, for the Grand River watershed.

#### ONE-ZONE CONCEPT

3. In a **one-zone concept**, new development or site alteration in the defined floodplain will be prohibited or restricted. Where a **one-zone concept** is applied, the entire flood plain defines the floodway.

#### TWO-ZONE CONCEPT

4. In consultation with the Province and appropriate conservation authority, the County, may opt to apply a **two-zone concept** (floodway/flood-fringe) for selected portions of the flood

plain, including but not limited to, portions of the urban areas of Townsend, Jarvis, Caledonia, Cayuga and Dunnville through an official plan amendment. The conservation authority will need to review the technical justification and determine flood proofing measures that should be required. New development will not be permitted in the floodway. Development that may be permitted in the flood fringe area will need to be protected to the level of the **Regulatory Flood**.

#### SPECIAL POLICY AREA

5. Where strict adherence to the **one-zone** or **two-zone** concept would affect the economic and social viability for areas of existing development within a community, a special policy area may be considered and implemented through an Official Plan Amendment following consultation with the Province and the appropriate conservation authority. The County must apply for special policy area status in accordance with established procedures. Once such status is obtained, controlled development may be permitted subject to the special policies. The County will define special policy areas in the Official Plan in consultation with the conservation authority and the Province and set out policies for appropriate development. The minimum acceptable level of flood protection for all development will be identified.

#### PROHIBITED USES IN FLOODWAY

6. In both the one-zone and two-zone concepts, the following uses may be permitted in the Floodway provided the hazard will not be aggravated and the requirements of the conservation authority or other approval agencies are met:
  - a. established agriculture and related uses, excluding new buildings and structures;
  - b. outdoor recreation, parks and open space;
  - c. forestry;
  - d. uses which assist in conserving or managing water supplies, wildlife, fisheries or other natural features;
  - e. limited marine commercial and marine industrial uses, including buildings and structures normally associated therewith along river edges and shorelines;
  - f. wastewater treatment facilities and expansions thereto, subject to applicable provincial legislation; water facilities and outstations; and, utilities with adequate flood-proofing measures;
  - g. flood and erosion control structures; and
  - h. continued maintenance of existing buildings and structures and replacement of existing buildings and structures lost to fire or other natural disasters provided that they can be protected by flood proofing measures.

#### PERMITTED USES IN FLOOD FRINGE

7. In the two zone concept, and where a hazard land designation overlays another land use designation (excluding agriculture), the appropriate conservation authority shall be consulted and consideration given to the following factors before development is allowed in the Flood Fringe:
  - a) the nature and scale of the development proposed;
  - b) the flooding effect of the proposal on upstream and downstream areas;
  - c) the feasibility of employing flood damage reduction measures or flood proofing

## Haldimand County Official Plan Update: Report on Hazard Land Policies

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- (feasibility of placing fill to attain desired lot elevation, feasibility of construction on organic soils, increased structural requirements, sump pumps, one way valves, availability of suitable outlets for storm sewers, weeping tile, drains, etc.); and
- d) uses permitted in the underlying designations.

### PROHIBITED USES

8. The following uses are prohibited in Riverine Hazard Lands:

- a) institutional uses including hospitals, nursing homes, pre-school, school nurseries, day care and schools, where there is a threat to the safe evacuation of the sick, the elderly, persons with disabilities or the young during an emergency as a result of flooding, failure of floodproofing measures or protection works, or erosion;
- b) an essential emergency service such as that provided by fire, police and ambulance stations and electrical substations, which would be impaired during an emergency as a result of flooding, the failure of floodproofing measures protection works, or erosion; and
- c) uses associated with the disposal, manufacture, treatment or storage of **hazardous substances**.

### DEVELOPMENT STANDARDS CRITERIA

9. Replacement and minor expansion may be permitted in some areas of existing development which lie in Riverine Hazard Lands. To assess such development proposals within Riverine Hazard Lands, a study is required to demonstrate how all the following can be achieved:

- a) Flooding and erosion hazards can be safely addressed;
- b) Existing physical hazards are not aggravated or new hazard areas created;
- c) No negative impact on identified Natural Environment features will result;
- d) Vehicles and pedestrians have safe access and exit during times of flooding an erosion emergencies; and
- e) Development and maintenance can be carried out in accordance with established standards and procedures.

The study should be prepared by a qualified professional at the proponent's expense to address the above noted items. Approval should be provided by the applicable conservation authorities and/or other appropriate agencies in consultation with the County. The proponent may be required to enter into a site plan approval process with the County regarding the undertaking of the measures outlined in the study and subsequent approval process.

10. Conservation authorities have the jurisdiction in prohibiting the placement or removal of fill of any kind, whether originating on the site or elsewhere, in a regulated Riverine Hazard.

### SPECIAL POLICY AREA DUNNVILLE

11. A Special Policy Area was on Schedule "B.3". approved by the Province in conjunction with the former Town of Dunnville and former Region of Haldimand-Norfolk and Grand River Conservation Authority for the Dunnville urban area. This Plan delineates those lands included as a Special Policy Area on Schedule "B.3". The Special Policy Area consists of Areas 1, 2 and 3. Any development or redevelopment in these areas shall be in accordance

with the following policies:

- a) All new buildings, structures and major additions (i.e. more than 50% of existing floor area of existing buildings or structures), shall be protected:
  - i. To the level of the **Regulatory Flood** in Area 1 which for the purpose of this Special Policy Area shall be an elevation of 179.0 m. (587.3 ft) Canadian Geodetic Datum (C.G.D.) and describes the flood level in a storm where flood waters would flow at a rate of 2,690 m<sup>3</sup>/s (95,000 ft<sup>3</sup>/s);
  - ii. To the level of the **Regulatory Flood** in Area 2 which for the purpose of this Special Policy Area shall be an elevation of 176.5 m (579.1 ft) C.G.D. and describes the flood level in a storm where flood waters would flow at a rate of 2,690 m<sup>3</sup>/s (95,000 ft<sup>3</sup>/s); and
  - iii. To the level of the 100 Year Flood in Area 3 which for the purpose of this Special Policy Area shall be an elevation 178.7 m) (586.3 ft) C.G.D. and describes the flood level in a storm where flood waters would flow at a rate of 1,996 m<sup>3</sup> (70,000 ft<sup>3</sup>/s). In some portions of Area 3, the level of protection may be less than the stated elevation herein because of the graduated elevations of the applicable 1 in 100 year storm flood levels as specified by the Grand River Conservation Authority;
- b. Minor additions or alterations less than 50% of the floor area of existing buildings and structures may be permitted below the elevations identified above but not lower than existing elevations, where the economic, social and environmental cost is proven to be too great;
- c. Where practical, new services shall be located higher than the level of Regulatory Flood Line in Areas 1 and 2 and the level of the 1 in 100 Year Flood in Area 3 but where this is not feasible, such services shall be flood proofed using measures satisfactory to the County and the Grand River Conservation Authority;
- d) Bulk storage facilities for dangerous, flammable, explosive, toxic or corrosive materials below the elevations identified in policy 2.C.1).13 a) shall not be permitted;
- e) New nursing homes, homes for the aged or **assisted living group homes** and **correctional group homes** shall only be permitted to locate in the Special Policy Area where the building is flood proofed to the elevations as set out above and dry land access to the building (i.e. less than 0.3 m of flood waters during a regulatory flood event, or within Area 3, a 1:100 year flood event) can be provided;
- f) The County shall review development proposals in consultation with the Grand River Conservation Authority and, where appropriate, require floodproofing techniques which reduce the risk of flooding. The following matters will be taken into consideration in the review of such proposals:
  - Flood depths and velocities;
  - Adverse hydraulic effects;
  - Adjacent land uses and properties; and

- The economic, social and environmental costs required to overcome the flood hazard.
- g) The County, in conjunction with the Grand River Conservation Authority, will explore the feasibility of structural flood damage reduction measures in accordance with the 1978 Phillips Planning and Engineering Consultants Ltd. :Report on Flood Line Mapping from Lake Erie to Brantford and Floodplain Studies in Dunville” to reduce the risk of flooding; and
- h) In recognition of the ongoing modelling of the Grand River and the establishment of new and more detailed hydrologic information for the area, the Special Policy Area policies and boundaries may need to be updated by amendment to this Plan to reflect this information. The County intends to proceed with a review of the Special Policy Area in conjunction with the appropriate conservation authority and Province.

## **2) LAKESHORE HAZARD LANDS**

### INTRODUCTION

1. The Lake Erie shore is subject to fluctuating water levels, **seiche episodes**, wave action and storms. Consequently, development along the shore is subject to significant damage potential. The **Regulatory Shoreline Area** comprises three hazards: the **Dynamic Beach Hazard**, the **Flood Hazard** and the **Erosion Hazard**. The Regulatory Shoreline is the farthest landward line of the three.

This Plan recognizes the detailed shoreline management plans prepared by the conservation authorities for their respective jurisdictions within the County. In consideration of development proposals along the lakeshore, the information and concepts of such shoreline management plans will be considered.

Lakeshore Hazard Land is mapped on the Official Plan schedules and reflects the Regulatory Shoreline Area as established by the respective conservation authority. Development will generally be directed outside the Regulatory Shoreline Area.

### PERMITTED USES

2. The following uses may be permitted within Lakeshore Hazard Lands provided other policy requirements of this Plan and the requirements of the conservation authority or other approval agency are met:
  - a) established agriculture and related uses, excluding new buildings and structures;
  - b) outdoor recreation, boardwalks, trails and parks;
  - c) forestry;
  - d) uses which assist in conserving or managing water supplies, wildlife, fisheries or other natural features;
  - e) limited marine commercial and marine industrial uses along shorelines including buildings and structures normally associated therewith;
  - f) wastewater treatment facilities and expansions thereof, subject to applicable provincial legislation; water facilities and outstations; and, utilities with adequate flood-proofing

- measures;
- g) flood or erosion control structures;
- h) buildings accessory to the permitted uses, such as restrooms, concession booths or sheds; and
- i) limited amounts of infilling may be permissible in designated resort residential nodes in Lakeshore Hazard Lands areas. Such infilling would be limited to residential uses, and all lots must be of sufficient size for an individual sewage disposal system.

It should be noted, that the requirements of the Ministry of Natural Resources may also have to be met regarding the construction of structures that require permissions under the *Lakes and Rivers Improvement Act*. For the construction of marinas, other agency permission may be required.

### PROHIBITED USES

3. Development and site alteration shall not be permitted within the Dynamic Beach Hazard and the following uses shall be prohibited in the Lakeshore Hazard Lands:
  - a) institutional uses including hospitals, nursing homes, pre-school, school nurseries, day care and schools, where there is a threat to the safe evacuation of the sick, the elderly, persons with disabilities or the young during an emergency as a result of flooding, failure of floodproofing measures or protection works, or erosion;
  - b) an essential emergency service such as that provided by fire, police and ambulance stations and electrical substations, which would be impaired during an emergency as a result of flooding, the failure of floodproofing measures, protection works, or erosion; and
  - c) uses associated with the disposal, manufacture, treatment or storage of **hazardous substances**.

### DEVELOPMENT CRITERIA

4. Except as prohibited in the above policy 2.C.2.3 Prohibited Uses, development and **site alteration** may be permitted in Lakeshore Hazard Lands after the preparation of a study that demonstrates how all of the following can be achieved:
  - a) Flooding and erosion hazards can be safely addressed;
  - b) Existing hazards are not aggravated or new hazard areas created;
  - c) No negative impact on identified Natural Environment features will result;
  - d) Vehicles and pedestrians have **safe access** and exit during times of flooding and erosion emergencies; and
  - e) Development is carried out in accordance with established standards and procedures and the policies of the underlying resort residential or hamlet designation.

The study shall be prepared by a qualified professional at the proponent's expense to address the above noted items. Approval should be provided by the applicable conservation authority and/or other appropriate agencies in consultation with the County. The proponent may be required to enter into a site plan approval process with the County regarding the undertaking of the measures outlined in the study and subsequent approval process.



5. Conservation authorities have the jurisdiction in prohibiting the placing or removal of fill of any kind, whether originating in the site or elsewhere, in a regulated Lakeshore Hazard.
6. Nothing in the above policies shall be interpreted to prohibit the relocation of an existing building or structure presently located within the Lakeshore Hazard Lands designation to a location farther away from the edge of the **bluff** on the same lot or to another lot farther away from the edge of the bluff, even if it is still within the Lakeshore Hazard Lands subject to meeting the provisions of the applicable Zoning By-law. If a structure is relocated to another lot, no replacement structure may be constructed on the lot from which the original structure was moved. The Zoning By-law may contain minimum building setbacks from the top of the bluff. Such setbacks will be established in consultation with the appropriate conservation authority.

#### INFILLING

7. Limited amounts of infilling may be permissible in designated **resort residential nodes** in Lakeshore Hazard Lands areas. Such infilling would be limited to residential uses, and all lots must be of sufficient size for an individual sewage disposal system.

#### SHORELINE PROPERTY ASSISTANCE ACT

8. In the administration of grants under the *Shoreline Property Assistance Act*, the County may require detailed studies of the impact of proposed private erosion control structures on the adjacent shoreline. All property owners within 152 metres of the proposed shoreline modification shall be notified. Steps shall be taken to determine whether the proposed scheme could damage adjacent properties. Joint schemes between adjoining property owners will be encouraged. The County will direct shoreline owners to agencies which are able to propose the best solution for controlling erosion or flooding. However, no direct involvement or responsibility is assumed to apply toward the County.

### 3) OTHER HAZARD LANDS

#### INTRODUCTION

1. Other Hazard Lands are lands that are subject to hazards due to steep slopes, unstable soils, undermined areas, or other naturally occurring hazards in locations other than Riverine Hazard Lands or Lakeshore Hazard Lands.
2. Permitted uses within the Other Hazard Lands designation shall include:
  - a) Established agriculture and related uses excluding new buildings and structures;
  - b) Outdoor recreation not requiring buildings or structures;
  - c) Open Space;
  - d) Parks;
  - e) Golf courses excluding buildings;
  - f) Forestry;
  - g) Uses which assist in conserving or managing water supply, wildlife, fisheries, or other natural features;
  - h) Resource extraction excluding administrative, maintenance, and storage buildings;

## Haldimand County Official Plan Update: Report on Hazard Land Policies

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- i) Uses pertaining to public utilities such as transmission lines and pipelines, if adequately engineered;
- j) Buildings and structures necessary for flood and/or erosion control;
- k) Limited marine uses along the shoreline including buildings and structures normally associated therewith; and
- l) Minor expansions and accessory buildings or structures and replacement of existing buildings and structures lost to fire or other natural disasters provided that they can be protected by flood proofing measures may be permitted subject to consultation with the appropriate authority.

### DEVELOPMENT CRITERIA

3. To review development proposals within Other Hazard Lands, a study is required to demonstrate how all the following can be achieved:
  - a) The existing physical hazards can be safely addressed;
  - b) Existing physical hazards are not aggravated or new hazard areas created;
  - c) The proposed methods by which these impacts may be overcome in a manner consistent with accepted engineering techniques and resource management practices and techniques;
  - d) No negative impact on identified Natural Environment features will result;
  - e) Vehicles and pedestrians have **safe access** and exit during times of flooding and erosion emergencies; and
  - f) Development and maintenance can be carried out in accordance with established standards and procedures.

The study should be prepared by a qualified professional at the proponent's expense to address the above noted items. Approval should be provided by the applicable conservation authorities and/or other appropriate agencies in consultation with the County. The proponent may be required to enter into a site plan approval process with the County regarding the undertaking of the measures outlined in the study and subsequent approval process.

4. Continual maintenance and replacement of existing buildings may be permitted provided that such replacement does not result in major increase in the original usable ground area of the building or structure, subject to the approval of the conservation authority and/or applicable agencies.
5. Other than as specified in policy 2.C.3.2 of this Section, no buildings or structures are permitted in Other Hazard Lands.

## METHANE GAS

6. There are areas in Haldimand County, predominately near the urban area of Jarvis, where naturally occurring methane gas migration is found. Methane gas is generally produced from natural gas deposits. Natural gas resources in Haldimand County are identified in Schedule "G".

Methane gas located in the Jarvis area appears to be vented to the surface through water and gas wells. Properly plugging, capping or sealing abandoned water and gas wells can reduce the risk associated with methane gas venting to the surface. As part of a development application process, if the County becomes aware of an abandoned gas or water well, the County will advise the Ministry of Natural Resources and/or Ministry of the Environment for follow up.

When considering development proposals, the County will encourage all known abandoned water and gas wells within the resource areas identified on Schedule "G" to be capped appropriately to reduce the risk of methane gas from venting into structures. Further studies are required to determine the long-term solutions to the methane gas migration problem in the Jarvis area of Haldimand County.

In the interim, within natural gas resource areas in the Jarvis area identified on Schedule "G", the County will require, at a minimum, that any new building or structure requiring a building permit be specifically reviewed by a qualified engineer for the possibility of methane gas infiltration in the building or structure and where there is a danger of methane gas infiltration, that a detection and ventilation system be designed by an engineer and installed. The County will further require review and design through subdivision and site plan agreements. The County encourages methane gas detection devices be installed in all existing homes and in all existing public, institutional, recreational and commercial buildings within the natural gas resource area in Jarvis.

## **Appendix “C”**

### **Haldimand County Comprehensive Zoning Bylaw**

#### **Extract of**

#### **Hazard Land Regulations**

## **Extracts from Haldimand County Comprehensive Zoning Bylaw**

### **2.4.4 Natural Hazard Lands**

Where lands are located within an area as illustrated as an overlay on Schedule A they may be susceptible to flooding, erosion hazards or other Natural Hazards, as mapped by the Conservation Authority, and are subject to the general provisions of Section 4.40.2 (Natural Hazard Lands Overlay) of this by-law and the requirements of the Conservation Authority shall apply with respect to the erection of buildings and structures and/or the placement or removal of fill.

### **2.4.5 Natural Hazard Boundary**

Where a boundary of a Natural Hazard appears to follow the top of a bank, it shall be deemed to be a minimum of 6 metres inland from the top of the bank which is in the direction away from the lower elevation lands and/or subject to any County or Conservation Authority requirements.

### **4.40.2 Natural Hazard Lands Overlay**

The areas illustrated on Schedule A are an overlay, and indicate the areas that are subject to Haldimand County Zoning By-law HC 1-2020 Page 75

the applicable Conservation Authority's regulation under Section 28 of the Conservation Authorities Act for any development (including site alteration), any interference with wetlands and alterations to shorelines and watercourses. In this regard, the applicable Conservation Authority must be contacted prior to any such work taking place in the Regulated Area. The underlying zone category on Schedule A shall apply in addition to the provisions of this Section.

Development in the Conservation Authorities Act, is defined as (a) the construction, reconstruction, erection or placing of a building or structure of any kind; (b) 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; (c) site grading; or (d) the temporary or permanent placing, dumping or removal of any material, originating on the site or elsewhere.

The Natural Hazard Lands overlay may differ from the area delineated on Schedule A, as it may be subject to changes resulting from new environmental information obtained by the Conservation Authority's over time. The boundaries of the Natural Hazard Lands shall be determined by the applicable Conservation Authority. In case of a conflict between the description of the Natural Hazard Lands in the text of the regulation and the areas as shown on Schedule A, the description of the Natural Hazard Lands in the regulation prevails. An amendment to this By-law shall not be required to update or revise the limits

of the Natural Hazard Lands as illustrated on Schedule A.

The following provisions shall apply to all lands within the Natural Hazard Lands (on Schedule A or to lands that meet the description of regulated areas in the applicable Conservation Authority's regulation):

- a) Development (as defined above) is subject to the applicable Conservation Authority's review and may require a permit pursuant to the Conservation Authority's regulation, prior to any works taking place;
- b) The Natural Hazard Lands shown on Schedule A may be subject to change. The final boundaries of the Natural Hazard Lands shall be determined by the applicable Conservation Authority;
- c) The following uses shall be prohibited in lands identified as Natural Hazard Lands, as determined by the Municipality in consultation with the Conservation Authority:
  - i) institutional uses including hospitals, long-term care homes, retirement homes, day cares, day nurseries and schools;
  - ii) essential emergency services including fire, police, ambulance stations and electrical substations; and
  - iii) uses associated with disposal, manufacture, treatment or storage of hazardous substances.

#### **4.40.3 Other Natural Hazard Lands Overlay**

The Other Natural Hazard Lands Overlay includes lands that may be subject to steep slopes, unstable soils, undermined areas or naturally occurring hazards. Where the Other Natural Hazards Overlay is shown as an overlay on Schedule A, the following provisions shall apply: Haldimand County Zoning By-law HC 1-2020 Page 76

- a) The following uses are permitted within the Other Natural Hazards Lands Overlay:
  - i) established agriculture and related uses excluding new buildings and structures;
  - ii) outdoor recreation not requiring buildings or structures;
  - iii) open space;
  - iv) parks;
  - v) golf courses excluding buildings;
  - vi) forestry;

- vii) uses which assist in conserving or managing water supply, wildlife, fisheries, or other natural features;
  - viii) resource extraction excluding administrative, maintenance, and storage buildings;
  - ix) uses pertaining to public utilities such as transmission lines and pipe lines;
  - x) buildings and structures necessary for flood and/or erosion control;
  - xi) marine uses along the shoreline including buildings and structures normally associated therewith; and
  - xii) minor expansions and accessory buildings or structures and replacement of existing buildings and structures lost to fire or other natural disasters provided that they can be protected by flood proofing measures may be permitted subject to consultation with the appropriate authority.
- b) Notwithstanding subsection a), the permitted uses, lot and building requirements of the underlying zone category may be permitted subject to satisfaction of the following matters to the satisfaction of the approval authority or relevant agency:
- i) the existing physical hazards can be safely addressed;
  - ii) existing physical hazards are not aggravated or new hazard areas created;
  - iii) the proposed methods by which these impacts may be overcome in a manner consistent with accepted engineering techniques and resource management practices and techniques;
  - iv) no negative impact on identified Natural Environment Areas will result;
  - v) vehicles and pedestrians have safe access and exit during times of flooding and erosion emergencies; and
  - vi) development and maintenance can be carried out in accordance with established standards and procedures.