



**CITY OF  
WELLAND**

**OFFICIAL  
PLAN  
REVIEW**

# **NATURAL HERITAGE AND FORESTRY GUIDELINE AND POLICY BACKGROUND REVIEW**





City of Welland  
60 East Main Street  
Welland Ontario  
L3B 3X4

Attention: David Riley

Dear Mr. Riley

**RE: Natural Heritage and Forestry Guideline and Policy Background Review**

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GEI Consultants, Savanta Division (GEI), together with SGL Planning & Design Inc. (SGL) and urbanMetrics Inc., were retained by the City of Welland to provide consulting services for the update to the City of Welland Official Plan.

As per Phase 1 of the proposed Work Plan, a background review of Provincial and Regional policies updated since the adoption of the existing City of Welland Official Plan (2019 Consolidation) has been completed to ensure consistency and conformity with the Provincial Policy Statement (PPS; 2020), Growth Plan for the Greater Golden Horseshoe (2020) and the updated Niagara Region Official Plan (2021). The findings of this background review are provided herein.

GEI shall provide strategic advice with respect to the natural heritage system and forestry guidelines and policies within the City of Welland Official Plan Update, as informed by the background review, as part of Phase 2 (i.e., Draft Policy Recommendations) to be prepared under separate cover.

**1. NATURAL ENVIRONMENT BACKGROUND REVIEW**

As part of the natural environment background review, policy framework information relevant to the City of Welland Official Plan Update has been reviewed, including, but not limited to:

- Provincial Policy Statement (2020);
- Growth Plan for the Greater Golden Horseshoe (2020);
- Current (2014) and Updated (2021) Niagara Region Official Plan; and

- City of Welland Official Plan (May 2010, Consolidated November 2019).

For the purposes of this review, it has been assumed that the City of Welland will adopt the Natural Heritage System (NHS) identified within the new Niagara Region Official Plan (2021), which is also undergoing revisions to bring the Region into conformity with the PPS (2020) and Growth Plan (2020).

### **1.1 Federal Fisheries Act**

The Department of Fisheries and Oceans Canada (DFO) administers the federal *Fisheries Act* which defines fish habitat as “*spawning grounds and other areas, including nursery, rearing, food supply and migration areas, on which fish depend directly or indirectly in order to carry out their life processes*” [subsection (2)1]. The *Fisheries Act* prohibits the death of fish by means other than fishing [subsection 34.4 (1)] and the harmful alteration, disruption or destruction of fish habitat [HADD; subsection 35. (1)]. A HADD is defined as “*any temporary or permanent change to fish habitat that directly or indirectly impairs the habitat’s capacity to support one or more life processes*” (DFO 2019a).

Some projects may be eligible for exemption from the DFO review process, as specified under Step 3 of the DFO Fish and Fish Habitat Protection Program review process (DFO 2019b; e.g., clear-span bridges and bridge maintenance projects where DFO mitigation measures are applied, artificial waterbodies with no hydrological connection to occupied fish habitat, and projects that follow the Standards and Codes of Practice defined by DFO). All other projects or activities that have the potential to impact fish or fish habitat should be submitted to DFO through the “Request for Review” process. DFO will review the proposed project to determine whether there is potential to (1) impact an aquatic species at risk (SAR), (2) cause the death of fish or (3) result in HADD of fish habitat. The death of fish by means other than fishing or a HADD of fish habitat can be authorized by DFO under paragraphs 34.4(2)(b) or 35(2)(b) of the *Fisheries Act*. Authorizations require the preparation and submission of an application package identifying the impacts on fish and fish habitat as well as the avoidance, mitigation and offsetting measures that will be implemented as well as any monitoring that is proposed.

The *Fisheries Act* was last amended on August 28, 2019. This consolidation is current to August 10, 2021. As amendments associated with federal legislation are not identified in the most recent iteration of the City of Welland Official Plan, it is expected that applicable policies contained within the current Official Plan (2019) may not be in compliance with the most recent iteration of the *Fisheries Act*. Any amendments not in force as of August 10, 2021 are summarized under the “Amendments Not in Force” heading. Amendments not in force under the current consolidation of the *Fisheries Act* (last amended August 28, 2019) have been reviewed in the context of the Official Plan and are not expected to affect the administration of the Act in the City of Welland.

However, Official Plan Policy 6.1.2.3.F should be updated to note that all projects or activities that have the potential to impact fish or fish habitat should be submitted to DFO through the “Request for Review” process. DFO will review the proposed project to determine whether there is potential to (1) impact an aquatic species at risk, (2) cause the death of fish or (3) result in HADD of fish habitat. The death of fish by means other than fishing or a HADD of fish habitat can be authorized by DFO under paragraphs 34.4 (2)(b) or 35 (2)(b) of the *Fisheries Act*. Authorizations require the preparation and submission of an application package identifying the impacts on fish and fish habitat as well as the avoidance, mitigation and offsetting measures that will be implemented as well as any monitoring that is proposed. As a “Request for Review” process is currently in place to address potential to impact fish or fish habitat under the *Fisheries Act*, the preparation an Environmental Impact Study to the satisfaction of DFO is not required.

Furthermore, the definition of ‘fish’ provided within Section 8.0 of the Official Plan should be revised in accordance with the definition provided within the *Fisheries Act*:

***fish includes***

*(a) parts of fish,*

*(b) shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals, and*

*(c) the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals*

## **1.2 Provincial Policy Statement (2020)**

The PPS (2020) is created under the authority of the *Planning Act* and provides direction on matters of provincial interest related to land use planning and development, and “*supports a comprehensive, integrated and long-term approach to planning.*” The PPS is to be read in its entirety to guide municipalities and planning authorities in the implementation of natural heritage policies.

The background review provided herein addresses those policies that are specific to Natural Heritage (PPS Section 2.1) with some reference to other policies with relevance to natural heritage, impact assessment considerations and areas of overlap (e.g., Water, Section 2.2; and Natural Hazards Section 3.1). The impact assessment component of the PPS addresses requirements to ensure the test of no negative impacts on natural heritage features and areas or their ecological functions can be demonstrated. In addition, natural hazard management recommendations developed as part of the City of Welland Official Plan Update must be consistent with the PPS.

### **1.1.1 Natural Heritage**

Eight types of significant natural heritage features or areas are defined in the PPS, as follows:

- Significant wetlands
- Significant coastal wetlands;
- Significant woodlands;
- Significant valleylands;
- Significant wildlife habitat;
- Fish habitat;
- Habitat of endangered and threatened species; and
- Significant areas of natural and scientific interest (ANSIs).

The PPS indicates that development and site alteration shall not be permitted in significant wetlands, or in significant coastal wetlands. Development and site alteration shall not be permitted in: significant woodlands, significant valleylands, significant wildlife habitat or significant ANSIs, unless it is demonstrated that there will be no negative impacts on the natural features or their ecological functions.

The PPS indicates that development and site alteration shall not be permitted in the habitat of endangered and threatened species or in fish habitat, except in accordance with provincial and federal requirements.

The PPS indicates that development and site alteration may be permitted on lands adjacent to the above features provided it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

Policy recommendations outlined within Section 2.1 (Natural Heritage) of the PPS are generally consistent between the current (2020) and the former (2005) iterations of the PPS. Notable updates to the 2020 PPS include the following:

1. Policy 2.1.3(a) of the 2005 PPS has been revised under Policy 2.1.7 of the 2020 PPS to include exemptions in accordance with provincial and federal requirements pertaining to development and site alteration within habitat of endangered and threatened species;
2. Per Policy 2.1.4 of the 2005 PPS, development and site alteration shall not be permitted in significant woodlands and significant valleylands located south and east of the Canadian Shield. Policy 2.1.5 of the 2020 PPS, has been revised to apply to significant woodlands and significant valleylands located in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River); and
3. Policy 2.1.5 of the 2020 PPS has been updated to include coastal wetlands located in Ecoregions 5E, 6E and 7E that are not subject to Policy 2.1.4(b) (formerly Policy 2.1.3 (c)).

In accordance with the aforementioned policy revisions, Policy 6.1.2.3.C of the Official Plan may be revised, at the discretion of the City of Welland, to reflect provincial and federal exemptions with respect to the habitat of endangered and threatened species; although it is acknowledged that Municipalities can elect to go beyond provincial minimums, as authorized under the PPS (2020) and within the *Planning Act*. No further updates to the natural heritage policies of the City of Welland Official Plan are required for compliance with the PPS (2020).

### **1.1.2 Water**

In terms of the 2020 PPS Water policies, Section 2.2.1 requires that planning authorities shall protect, improve or restore the quality and quantity of water by:

- a) *“using the watershed as the ecologically meaningful scale for integrated and long-term planning, which can be a foundation for considering cumulative impacts of development;*
- b) *minimizing potential negative impacts, including cross-jurisdictional and cross-watershed impacts;*
- c) *evaluating and preparing for the impacts of a changing climate to water resource systems at the watershed level;*
- d) *identifying water resource systems consisting of ground water features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas, which are necessary for the ecological and hydrological integrity of the watershed;*
- e) *maintaining linkages and related functions among ground water features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas, which are necessary for the ecological and hydrological integrity of the watershed;*
- f) *implementing necessary restrictions on development and site alteration to:*
  - 1. *protect all municipal drinking water supplies and designated vulnerable areas; and,*
  - 2. *protect, improve or restore vulnerable surface and ground water, sensitive surface water features and sensitive ground water features, and their hydrologic functions;*
- g) *planning for efficient and sustainable use of water resources, through practices of water conservation and sustaining water quality;*
- h) *ensuring consideration of environmental lake capacity, where applicable; and,*
- i) *ensuring stormwater management practices minimize stormwater volumes and contaminant loads, and maintain or increase the extent of vegetative and pervious surfaces.”*

Section 2.2.1 of the 2020 iteration of the PPS has been revised to include Policies 2.2.1(c) and 2.2.1(h), which were previously excluded from the 2005 PPS. In addition, the 2020 PPS has provided further elaboration on Policy 2.2.1(a) as the former PPS (2005) stated *“using the watershed as the ecologically meaningful scale for planning.”* Policies 2.2.1(d) and 2.2.1(e) of the 2020 PPS (formerly Policies 2.2.1(c)

and 2.2.1(e), respectively) have been revised to include shoreline areas. Policy 2.2.1(e) has also been updated to clarify that the policy is in reference to features “*which are necessary for the ecological and hydrological integrity of the watershed.*”

Section 2.2.2 of the 2005 and 2020 iterations of the PPS further require that development and site alteration be restricted in or near sensitive surface water features and sensitive ground water features such that these features and their related hydrologic functions will be protected, improved or restored. Section 2.2.2 notes that mitigative measures and/or alternative development approaches may be required in order to protect, improve or restore sensitive surface water features, sensitive ground water features, and their hydrologic functions.

Climate adaptation is addressed under the current City of Welland Official Plan, although not specifically with respect to water resource systems. It is recommended that text referencing water resources, surface water and/or groundwater under the current Official Plan (e.g., Policy 2.5.2(v), Policy 6.1.3.3.A(iv)) be reviewed and revised, as applicable, to refer to ‘water resource systems’ to ensure that all components of the system are appropriately evaluated. Water resource systems should be clearly defined, as per Policy 2.2.1(d) of the PPS (2020), under the Water Resources and/or Definitions sections of the revised Official Plan. Policies to address environmental lake capacity should also be added to the revised Official Plan, in compliance with Policy 2.2.1(h) of the PPS (2020). Policy 6.1.2.1.A of the current Official Plan may add a provision to address linkages and associated functions in the context of systems “*which are necessary for the ecological and hydrological integrity of the watershed*”, as per Policy 2.2.1(e) of the PPS (2020). However, as previously noted, policies of the revised Official Plan may elect to go beyond provincial minimums.

### **1.1.3 Natural Hazards**

Section 3.1.1 of the PPS directs development to areas outside of hazardous lands adjacent to the shoreline of the Great Lakes – St. Lawrence River System (flooding, erosion and dynamic beach hazards), hazardous lands adjacent to river, stream and small inland lake systems (flooding and/or erosion hazards) and hazardous sites. Section 3.1.2 of the PPS (2020) further prohibits development and site alteration 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.”*

The policies of Section 3.1.2 in the 2005 and 2020 iterations of the PPS are consistent with the exception of Policy 3.1.2(b), which refers to “*defined portions of the one hundred year flood level*” under the 2005 PPS as compared to “*defined portions of the flooding hazard*” under the 2020 PPS.

Section 3.1.3 of the 2020 PPS notes that planning authorities shall consider the potential impacts of climate change that may increase the risk associated with natural hazards, which were not considered under the 2005 PPS.

As per Section 3.1.5 of the 2020 PPS, development and site alteration shall not be permitted to be located within 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.”*

The land uses defined under Policy 3.1.5(a) differ from those identified under Section 3.1.4 of the 2005 PPS, which qualifies these sites as locations “*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*” and includes nursing homes. Policy 3.1.4(b) of the 2005 PPS also includes the following qualifier: “*which would be impaired during an emergency as a result of flooding, the failure of floodproofing measures and/or protection works, and/or erosion.*”

As prohibitions for development and site alteration with respect to hazardous lands or sites within the current City of Welland Official Plan (Policy 6.1.3.6.B(i)) defer to provincial standards, no revisions to these natural hazard policies are required. Furthermore, Policy 6.1.3.6.B of the current Official Plan is consistent with Section 3.1.5 of the 2020 PPS. However, policies to address the potential impacts of climate change on natural hazards should be incorporated into the revised Official Plan.

### **1.3 Growth Plan for the Greater Golden Horseshoe (2020)**

The Growth Plan for the Greater Golden Horseshoe (the Growth Plan) was implemented under Section 7 of the *Places to Grow Act* to promote growth plans which reflect the needs, strengths and opportunities of the communities involved, and promotes growth that balances the needs of the economy with the environment. The Growth Plan reinforces the objectives of the PPS (2020) and the *Places to Grow Act* by focusing development within designated Settlement Areas. As such, the Growth Plan Area includes all lands designated as Greater Golden Horseshoe (GGH) under Ontario Regulation 416/05.

The Growth Plan contains provincial directives for natural heritage, watershed planning and the protection and identification of water resource systems. The Growth Plan requires municipalities to maintain, restore, and enhance the diversity and connectivity of the NHS and to prohibit development and site alteration where it has been demonstrated that a negative impact to the NHS will occur.

An NHS for the Growth Plan has been mapped by the Province to support a comprehensive, integrated, and long-term approach to planning for the protection of the Region's natural heritage and biodiversity. Within the NHS for the Growth Plan:

- a) *"new development or site alteration will demonstrate that:*
  - i. *there are no negative impacts on key natural heritage features or key hydrologic features or their functions;*
  - ii. *connectivity along the system and between key natural heritage features and key hydrologic features located within 240 metres of each other will be maintained or, where possible, enhanced for the movement of native plants and animals across the landscape;*
  - iii. *the removal of other natural features not identified as key natural heritage features and key hydrologic features is avoided, where possible. Such features should be incorporated into the planning and design of the proposed use wherever possible;*
  - iv. *except for uses described in and governed by the policies in subsection 4.2.8, the disturbed area, including any buildings and structures, will not exceed 25 per cent of the total developable area, and the impervious surface will not exceed 10 per cent of the total developable area;*
  - v. *with respect to golf courses, the disturbed area will not exceed 40 per cent of the total developable area; and*
  - vi. *at least 30 per cent of the total developable area will remain or be returned to natural self-sustaining vegetation, except where specified in accordance with the policies in subsection 4.2.8; and*
- b) *the full range of existing and new agricultural uses, agriculture-related uses, on-farm diversified uses, and normal farm practices are permitted. However, new buildings or structures for agricultural uses, agriculture-related uses, or on-farm diversified uses are not subject to policy 4.2.2.3 a), but are subject to the policies in subsections 4.2.3 and 4.2.4."*

As per Section 4.2.2 of the Growth Plan, *"Municipalities will incorporate the Natural Heritage System for the Growth Plan as an overlay in official plans, and will apply appropriate policies to maintain, restore, or enhance the diversity and connectivity of the system and the long-term ecological or hydrologic functions of the features and areas"*, as depicted on **Figure 1 (Attachment 1)**. However, the Region can recommend refinements to the boundaries of the NHS as part of the current regionally Official Plan review. Should revisions to the boundaries of the NHS of the Growth Plan be recommended by Niagara Region, the NHS

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overlay incorporated into the revised City of Welland Official Plan should reflect the boundaries defined by the upper tier municipality (i.e., Niagara Region) to ensure consistency with regional interests. Further refinements to NHS boundaries may occur through a municipal comprehensive review, as applicable.

Policies regarding the NHS of the Growth Plan Area should be addressed in the Official Plan update to ensure continuity and conformity with the Growth Plan. In addition to Section 4.2.2 of the Growth Plan, the following policies are also applicable to any development within the Growth Plan Area, as it relates to natural heritage features: Water Resource Systems (Section 4.2.1), Key Hydrologic Features, Key Hydrologic Areas and Key Natural Heritage Features (Section 4.2.3), Lands Adjacent to Key Hydrologic Features and Key Natural Heritage Features (Section 4.2.4) and Climate Change (Section 4.2.10; refer to Section 3.0, below). Policies defined within each of these sections of the Growth Plan have been reviewed in the context of the City of Welland Official Plan for land uses located outside of settlement areas that are adjacent to key hydrologic features and key natural heritage features. Under the current City of Welland Official Plan, references to the Growth Plan are generally limited to Section 1.2 (Planning Context for the Official Plan). As such, it is recommended that reference to specific policies defined under the Growth Plan be incorporated into the revised City of Welland Official Plan, either directly through the inclusion of policies applicable to the Growth Plan Area, or indirectly through reference to the Growth Plan, as discussed below.

As previously noted, water resource systems should be identified and appropriately defined, in accordance with the PPS (2020), within the City of Welland Official Plan update to promote the long-term protection of key hydrologic features, key hydrologic areas, and their functions as per Section 2.4.1 of the Growth Plan. Under the Growth Plan, key hydrologic features are defined as *“Permanent streams, intermittent streams, inland lakes and their littoral zones, seepage areas and springs, and wetlands”* while key hydrologic areas are defined as *“Significant groundwater recharge areas, highly vulnerable aquifers, and significant surface water contribution areas that are necessary for the ecological and hydrologic integrity of a watershed.”* Revised Official Plan mapping should also be updated to depict water resource systems, as identified by the Growth Plan (2020) and refined through the Niagara Region Official Plan review. Detailed policies corresponding to watershed planning or equivalent (including the identification of water resource systems) as defined within Section 2.4.1 of the Growth Plan should be incorporated into the Official Plan update to inform large-scale development within designated greenfield areas. In addition, *“Municipalities will consider the Great Lakes Strategy, the targets and goals of the Great Lakes Protection Act, 2015, and any applicable Great Lakes agreements as part of watershed planning and coastal or waterfront planning initiatives”*, which are not addressed under the current Official Plan. Growth Plan policies with respect to key hydrologic features, key hydraulic areas, key natural heritage features and adjacent lands (i.e., Sections 4.2.3 and 4.2.4), particularly as they related to non-settlement areas, are not addressed under the current City of Welland Official Plan and should be incorporated into the Official Plan update.

#### 1.4 Provincial Endangered Species Act (2020 Consolidation)

The provincial *Endangered Species Act (ESA; 2007)* was developed to:

- Identify SAR, based upon best available science;
- Protect SAR and their habitats and to promote the recovery of SAR; and
- Promote stewardship activities that would support those protection and recovery efforts.

The *ESA* protects all threatened, endangered and extirpated species itemized on the Species at Risk in Ontario (SARO) list. These species are legally protected from harm or harassment and their associated habitats are legally protected from damage or destruction, as defined under the *ESA*.

The *ESA* was last amended on July 21, 2021. It is expected that the current City of Welland Official Plan references the 2007 iteration of the *ESA*. Applicable amendments and repeals in force under the consolidated *ESA (2020)* have been reviewed in the context of the current Official Plan to ensure compliance.

For the purposes of the *ESA*, the Committee on the Status of Species at Risk in Ontario (COSSARO) shall maintain criteria for assessing and classifying species as endangered (i.e., lives in the wild in Ontario but is facing imminent extinction or extirpation) or threatened (i.e., lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening to lead to its extinction or extirpation). As such, the definition of ‘Endangered species’ and ‘Threatened species’ under Section 8.0 of the Official Plan should be revised to reference classifications assigned by COSSARO, as identified on the SARO list. Reference to federal designations assigned by the Committee on the Status of Wildlife in Canada (COSEWIC) may be included in the definition of endangered and threatened species at the City’s discretion, however, as federally listed species are not necessarily protected under provincial policies and guidelines on non-federal land, the inclusion of COSEWIC statuses in the revised Official Plan would go beyond provincial minimums.

The definitions of ‘Habitat of Endangered and Threatened Species’ and ‘Significant’ in regard to the habitat of endangered and threatened species provided under Section 8.0 of the Official Plan should be amended to adhere to the habitat definition provided under the *ESA (2020)*:

*“habitat” means,*

*(a) with respect to a species of animal, plant or other organism for which a regulation made under clause 56 (1) (a) is in force, the area prescribed by that regulation as the habitat of the species, or*

*(b) with respect to any other species of animal, plant or other organism, an area on which the species depends, directly or indirectly, to carry on its life processes, including life processes such as reproduction, rearing, hibernation, migration or feeding,*

*and includes places in the area described in clause (a) or (b), whichever is applicable, that are used by members of the species as dens, nests, hibernacula or other residences; (“habitat”).*

Policy 6.1.2.2.C of the Official Plan should also be amended to state that where suitable habitat for endangered and threatened species is identified, “development and site alteration shall be subject to the policies of the PPS (2020) and the *Endangered Species Act*.” Under the current Official Plan, protections applied to significant habitat of threatened and endangered species have been consolidated under the policies for Environmental Protection Areas. As these policies do not acknowledge exemptions applied to habitat of threatened and endangered species in accordance with provincial and federal requirements, as defined under the PPS (2020), it is recommended that these features instead be addressed through applicable provincial regulations.

## **1.5 Niagara Region Official Plan (2014; 2021)**

The Niagara Region Official Plan (2014) provides guidance and direction pertaining to natural heritage features and associated functions. Schedule C of the Official Plan depicts provincially and regionally significant natural features and is intended to function as a framework for natural heritage planning and development in the Region. Policy 7.B.1.1. summarizes the components of the Regional Core NHS as follows:

- a) “Core Natural Areas, classified as either Environmental Protection Areas or Environmental Conservation Areas;*
- b) Potential Natural Heritage Corridors connecting the Core Natural Areas;*
- c) the Greenbelt Natural Heritage and Water Resources Systems; and*
- d) Fish Habitat.”*

Environmental Protection Areas (EPAs) include provincially significant wetlands (PSWs), provincially significant Life Science ANSIs, and significant habitat of endangered and threatened species. Within areas of the Greenbelt NHS, EPAs also include wetlands, significant valleylands, significant woodlands, significant wildlife habitat, habitat of species of concern, publicly owned conservation lands, savannahs, tallgrass prairies and alvars.

Environmental Conservation Areas (ECAs) consist of significant woodlands, significant wildlife habitat, significant habitat of species of concern, regionally significant Life Science ANSIs, other evaluated

wetlands, significant valleylands, savannahs, tallgrass prairies, alvars and publicly owned conservation lands.

Potential Natural Heritage Corridors include areas that maintain and, where possible, enhance the ecological functions of the corridor in linking the core natural areas.

A revised Niagara Region Official Plan is currently under development and will be reviewed in its entirety once available. As per the Niagara Official Plan Consolidated Policy Report (2021) it is anticipated that policies of the revised Niagara Region Official Plan will be adjusted to accommodate the Natural Environment Work Program (NEWP), which shall incorporate a regional-scale NHS and water resource system (WRS) as an integrated Natural Environment System (NES). Under the current Official Plan (2014), the NHS and WRS are described separately. The intent of addressing the NHS and WRS as a NES is to acknowledge that these systems are ecologically linked with overlapping components that function to support each system simultaneously. Policies included within the revised Niagara Region Official Plan (2021) and subsequently within the City of Welland Official Plan Update shall be subject to the preferred alternative for the NHS and WRS selected by Regional Council. However, it is expected that all proposed alternatives will be consistent with provincial policy and will provide an improvement to the existing system.

## **1.6 City of Welland Official Plan (2019 Consolidation)**

The City of Welland Official Plan was adopted in 2010 and approved in 2011. Policy direction pertaining to the natural environment is provided within Section 6.1 (Environment) of the City of Welland Official Plan, including planning objectives defined by the municipality.

Section 6.1.2.1 defines the Core Natural Heritage System of the City of Welland, which is intended to provide *“protection, maintenance, restoration and, where possible, enhancement of Welland’s natural systems, ecological health, integrity and biodiversity”* while functioning as a foundation for establishing linkages among natural heritage features and major surface water resources. Components of the Core Natural Heritage System are synonymous with the components of the Regional Core NHS (with the exception of Greenbelt Natural Heritage and Water Resources Systems) defined within the current Niagara Region Official Plan (2014). As per Schedule C of the City of Welland Official Plan, components of the Core Natural Heritage System generally align with the key natural heritage and hydrological features defined on the draft NHS and WRS mapping prepared as part of the revised Niagara Region Official Plan (2021). Areas where discrepancies occur between regional and municipal mapping shall be reviewed in detail upon the selection of the preferred alternative for the NES.

Permitted uses within the Core Natural Heritage System shall be in conformance with the PPS (2020), Growth Plan (2020) and revised Niagara Region Official Plan (2021), and may be subject to a permit from the Niagara Peninsula Conservation Authority (NPCA) in accordance with Ontario Regulation 155/06.

### **1.7 Niagara Peninsula Conservation Authority**

NPCA reviews planning application submissions associated with future development of properties within its jurisdictional boundaries. In addition, NPCA provides planning and technical advice to planning authorities through Memoranda of Understanding to assist them in fulfilling their responsibilities regarding natural hazards, natural heritage and other relevant policy areas pursuant to the *Planning Act*, as both a watershed-based resource management agency and through planning advisory services, in addition to their regulatory responsibilities.

NPCA administers the Development, Interference with Wetlands, Alterations to Shorelines and Watercourses regulation, under Ontario Regulation (O. Reg.) 155/06. This Regulation defines the areas of interest that allow NPCA to:

- Prohibit, regulate, or provide permission for straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream, watercourse or changing or interfering with a wetland; and
- Prohibit, regulate, or provide permission for development if the control of flooding, erosion, dynamic beaches, pollution or the conservation of land may be affected by the development.

To ensure compliance with O. Reg. 155/06, Section 6.1.2.3.R of the current City of Welland Official Plan should be amended to state that “Some lands within the City of Welland are regulated by the Niagara Peninsula Conservation Authority. Any proposed development (as defined under the *Conservation Authorities Act*), including but not limited to the construction, reconstruction, erection or placing of a building or structure, any change to a building or structure which would increase its size (or the number of units), site grading or the placement of fill material within lands regulated by the Niagara Peninsula Conservation Authority will require a work permit from the Conservation Authority. Refer to the Conservation Authority Regulation 155/06 as amended for additional details.”

No additional amendments to the Official Plan are expected to be required to ensure compliance with O. Reg. 155/06.

## **2. FORESTRY BACKGROUND REVIEW**

A background review of forestry guidelines and policies has been completed to inform the Official Plan with regards to urban forests, canopy cover, pest management, forest cover targets and invasive species

management within urban areas of the City of Welland. A literature review of a suite of climate parameters relevant to the City of Welland’s urban forest has also been undertaken to guide draft policy recommendations (i.e., Phase 2). The climate data presented herein characterizes relevant climate parameters under two future time horizons: the 2050’s (represents the average for the years 2041-2070) and the 2080’s (represents the average for the years 2071-2100).

## **2.1 Provincial Policy Statement (2020)**

A review of the PPS (2020) was completed with respect to forestry practices, woodland criteria and/or definitions and tree preservation. The PPS is a high-level document that provides guidance to planning authorities on promoting conservation of natural heritage features and implementing mitigation measures to reduce harmful impacts to the environment.

Green infrastructure is defined as natural and human-made elements that provide ecological and hydrological functions and processes. Green infrastructure can include components such as natural heritage features and systems, parklands, stormwater management systems, street trees, urban forests, natural channels, permeable surfaces, and green roofs.

Planning authorities should promote green infrastructure to complement infrastructure. In addition, when supporting energy conservation and efficiency, air quality, reducing gas emissions and preparing for the impact of climate change, planning authorities shall promote design and orientation which maximizes energy efficiency and conservation, and considers the mitigating effects of vegetation and green infrastructure. Furthermore, effective stormwater management shall use green infrastructure when minimizing erosion, changes in water balance and preparing for the impacts of climate change.

Given the above, urban forests would be considered green infrastructure under the PPS (2020).

Significant woodlands and woodlands are defined under the PPS (2020) as shown below:

*“Significant means: in regard to woodlands, an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history. These are to be identified using criteria established by the Ontario Ministry of Natural Resources and Forestry.”*

*“Woodlands: means treed areas that provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. Woodlands include treed*

areas, woodlots or forested areas and vary in their level of significance at the local, regional and provincial levels. Woodlands may be delineated according to the Forestry Act definition or the Province's Ecological Land Classification system definition for "forest". The PPS further states that:

*"To be consistent with policies 2.1.4(b) and 2.1.6 of the PPS, planning authorities shall protect significant woodlands south and east of the Canadian Shield by:*

- *not permitting development and site alteration in significant woodlands south and east of the Canadian Shield unless it has been demonstrated that there will be no negative impacts on the feature or its ecological functions; and*
- *not permitting development and site alteration on adjacent lands unless the ecological function has been evaluated and it is demonstrated that there will be no negative impacts on the feature or its ecological function. The PPS definitions for "woodlands" and "significant woodlands" are broad enough to complement other provincial legislation definitions (e.g., Forestry Act) and identification approaches (e.g., Greenbelt Plan) and should not be seen as contradictory to other provincial approaches for identifying woodlands or forests (e.g., ELC).*

### **Forestry Act (1990)**

A review of the *Forestry Act* (1990) was completed with respect to forestry practices, woodland criteria and/or definitions and tree preservation. Woodlands are defined under the *Forestry Act* (1990; Section 1) as:

*"Woodlands" means land with at least,*

*(a) 1,000 trees, of any size, per hectare,*

*(b) 750 trees, measuring over five centimetres in diameter, per hectare,*

*(c) 500 trees, measuring over 12 centimetres in diameter, per hectare, or*

*(d) 250 trees, measuring over 20 centimetres in diameter, per hectare,*

*but does not include a cultivated fruit or nut orchard or a plantation established for the purpose of producing Christmas trees.*

Section 1 of the Act further defines "forestry purposes" and "good forestry practices as follows:

- *“Forestry purposes” includes the production of wood and wood products, provision of proper environmental conditions for wildlife, protection against floods and erosion, recreation, and protection and production of water supplies;*
- *“Good forestry practices” means the proper implementation of harvest, renewal and maintenance activities known to be appropriate for the forest and environmental conditions under which they are being applied and that minimize detriments to forest values including significant ecosystems, important fish and wildlife habitat, soil and water quality and quantity, forest productivity and health and the aesthetics and recreational opportunities of the landscape.*

Section 10 of the *Forestry Act* (1995) defines “boundary trees” as: *“An owner of land may, with the consent of the owner of adjoining land, plant trees on the boundary between the two lands.”*

### ***Natural Heritage Reference Manual (2005)***

A review of the *Ministry of Natural Resources Natural Heritage Reference Manual* (NHRM, 2005) was completed with respect to forestry practices, woodland criteria and/or definitions and tree preservation. Woodlands are defined under the *NHRM* (2005; Section 7.1) as per the Provincial Policy Statement (2005) definition which is:

*“means treed areas that provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. Woodlands include treed areas, woodlots or forested areas and vary in their level of significance at the local, regional and provincial levels”*

Section 7.1.1 of the NHRM further states that:

*“The identification and protection of significant woodlands do not preclude good forestry practices. Ideally, planning authorities should promote good forestry practices, which are defined under the *Forestry Act*”*

and

*“To support the PPS and good forestry practices, the *Municipal Act, 2001* empowers all levels of municipalities (at their discretion) to pass forest conservation by-laws to regulate tree cutting and provide direction to landowners on how to sustainably manage their woodlands for financial and ecological benefits (see section 12.6). Activities associated with the development, management, conservation and sustainability of forests and urban forests are subject to the *Professional Foresters Act, 2000.*”*

The NHRM sets forth evaluation criteria and standards for use in identifying and classifying woodlands. The NHRM refers supports the PPS and should be used in conjunction with it when evaluating woodlands,

as well as other natural heritage features. Evaluation criteria should be reviewed and data presented in order to adequately assess woodlands and their function.

### ***Professional Foresters Act (2000)***

A review of the *Professional Foresters Act* (2000) was completed with respect to forestry practices, woodland criteria and/or definitions and tree preservation. Section 3 of the Act defines “urban forest” as “*meaning tree-dominated vegetation and related features found within an urban area and includes woodlots, plantations, shade trees, fields in various stages of succession, wetland and riparian areas.*”

## **2.2 Niagara Region Official Plan (2014; 2021)**

A review of the Niagara Region Official Plan was completed with respect to forestry practices, woodland criteria and/or definitions and tree preservation. Good Forestry Practices is defined in the Niagara Region Official Plan (2014; Section 15) as:

- a) *“the proper implementation of harvest, renewal and maintenance activities known to be appropriate for the forest and environmental conditions under which they are being applied and that minimize detriments to forest values, including: significant ecosystems; important fish and wildlife habitat; soil and water quality and quantity; forest productivity and health; and the aesthetic and recreational opportunities of the landscape;*
- b) *the cutting and removal of hazardous, severely damaged, diseased and insect infested trees which must be removed in order to prevent contamination or infestation of other trees or because they no longer contribute to the achievement of forest values;*
- c) *in the case of hazardous, damaged, diseased or insect infested trees, the maintenance of a woodland after the cutting and removal is completed unless it is determined through a report prepared by a Registered Professional Forester that trees must be removed and a woodland as defined would not be maintained but in no case shall clearcutting be allowed; and*
- d) *the forestry management practices as set out in the Ministry of Natural Resources document “A Silvicultural Guide to Managing Southern Ontario Forests.””*

The Healthy Landscape (Section 7.A) concept is concerned with ecosystem health and environmental sustainability throughout Niagara. It recognizes that environmental conditions in any particular location affect, and are affected by, environmental conditions in the surrounding landscape. Natural vegetation and wildlife outside of the Core Natural Heritage System also contribute to ecosystem health and integrity, and to the quality of life in Niagara. Regional Council supports and encourages conservation and restoration of natural vegetation and wildlife throughout Niagara's urban, rural and agricultural areas.

As per Policy 7.A.1.2; The Region shall support the efforts of landowners to maintain and improve ecosystem health by:

- a) *“Promoting good forestry practices and development of Woodland Management Plans;*
- b) *Encouraging and supporting natural heritage conservation and restoration, including the planting of native vegetation; and*
- c) *Maintaining and implementing a Regional Forest Conservation By-law regulating harvesting, destruction or injuring of trees in woodlands. If a local municipality has entered into an agreement pursuant to the Municipal Act to adopt a by-law establishing more rigorous standards respecting cutting and destruction of trees the Region may, upon request, delegate its authority to that municipality.”*

In addition, Policy 7.A.1.3 states that *“local municipalities shall be encouraged to:*

- a) *“Adopt by-laws protecting trees and woodlands not covered by the Regional Forest Conservation By-law or delegate their authority to the Region;*
- b) *Require preparation and implementation of Tree Saving Plans for new development, if needed; and*
- c) *Integrate natural features and natural vegetation, including the planting of native species, into development.”*

### **2.3 City of Welland Official Plan (2019 Consolidation)**

Under the Forest Cover Targets (6.1.33.A) under section 6.1.3.2 (Natural Vegetation and Wildlife), Welland will support efforts to achieve the following targets through the development and implementation of watershed and environmental planning studies and through voluntary landowner stewardship and restoration:

- i. *“30% of the land area in Welland in forest cover or wetland, with at least 10% of each subwatershed in wetland; and,*
- ii. *A 30 metre wide naturally vegetated buffer along 70% of the length of the first to third order streams in Welland. Agricultural uses may continue within this buffer and are encouraged to employ best management practices to protect water resources and natural heritage.”*

The City of Welland supports conservation and improvement of woodlands by:

- i. *“Enacting and maintaining a tree cutting By-law regulating the destruction or injuring of trees in woodlands less than 1.0 hectare in size; and,*
- ii. *Where a woodland is greater than 0.5 hectares in size is located on, or adjacent to, lands which are the subject of an application for a plan of subdivision, a consent, site plan approval or a*

*development permit, the applicant shall be required to prepare a Tree Saving Plan as a condition of approval. A grading or building permit shall not be issued unless the Tree Saving Plan has been approved by the City. If an Environmental Impact Study has been approved for the development, the Tree Saving Plan shall be in accordance with the recommendations of the EIS and in accordance with the City and Regional Bylaws as well as Policy 6.1.2.3.i.)”*

Section 7.11.14.1 defines the need for a Tree Savings Plan. A Tree Saving Plan is a plan prepared for the purposes of protecting and preserving trees on properties where development or disturbance of the natural forest cover is to occur. Tree Saving Plans should attempt to retain as many trees as possible. Requirements for Tree Saving Plans are provided in the Region of Niagara Tree and Forest Conservation By-Law (30-2008) as amended from time to time. A Tree Saving Plan may be required to support an application for development or site alteration, where the development may have impacts on a wooded area.

The Tree Saving Plan will:

- i. “Inventory and assess the health and significance of the trees in the woodland;*
- ii. Identify the trees to be removed, the reasons for removal and the methods to be used;*
- iii. Identify the trees to be retained and the measures required to prevent detrimental impacts on those trees; and,*
- iv. Recommend a program to monitor the health of the trees to be retained and implement measures to ensure that trees and shrubs found.”*

Under Implementing the Recommendations of a Tree Savings Plan (7.11.14.2), the findings and recommendations of a Tree Savings Plan shall be implemented through the appropriate planning mechanism, such as a site plan, a plan of subdivision or other plans produced under the *Planning Act*.

## **2.4 Niagara Region Tree and Forest Conservation By-Law (By-Law No. 30-2008)**

A review of the Niagara Region Tree and Forest Conservation By-Law was completed with respect to forestry practices, woodland criteria and/or definitions and tree preservation. The Region of Niagara Tree and Forest Conservation By-Law is concerned with conserving and improving woodlands in Niagara. The NPCA is responsible for administering and enforcing the By-Law.

*““Woodland” or “Woodlands” is defined as land on one or more properties with a density of at least:*

*(a) 1,000 trees, of any size, per hectare;*

*(b) 750 trees, measuring over five (5) centimetres in diameter at DBH, per hectare;*

*(c) 500 trees, measuring over twelve (12) centimetres, in diameter at DBH, per hectare; or*

*(d) 250 trees, measuring over twenty (20) centimetres, in diameter at DBH, per hectare*

*Woodlands do not include cultivated fruit or nut orchard, plantations, or tree nurseries.”*

*“This By-Law shall apply to:*

- a) all Woodlands having an area of one (1) hectare or more;*
- b) all Woodlands having an area of less than one (1) hectare, upon delegation of such authority by an Area Municipality to the Region; and*
- c) Heritage Trees and Significant Community Trees identified and designated by the Council of an Area Municipality, upon delegation of such authority by an Area Municipality to the Region.”*

#### **2.4.1 General Prohibitions**

*“No person through their own actions or through any other person shall injure or destroy any Tree located in Woodlands:*

- a) Unless exempted by Section 4; or*
- b) Unless in possession of a valid Permit issued by the NPCA under Sections 5 and 6 of this By-law and in accordance with its terms or conditions.*

*No person through their own actions or through any other person shall:*

- (a) Contravene the terms or conditions of a Permit issued under this By-law;*
- (b) Fail to comply with an order issued under Section 8 of this By-law; or*
- (c) Remove or deface any order that has been posted pursuant to Section 8 of this By-law.*

*No person through their own actions or through any other person shall injure or destroy any Tree that has been designated by the Council of an Area Municipality as a Heritage Tree or a Significant Community Tree, provided that the authority to regulate such trees has been delegated to the Region by the Area Municipality.”*

#### **2.4.2 Exemptions**

This By-Law does not apply to:

- a) activities or matters undertaken by a municipality or a local board of a municipality;

- b) activities or matters undertaken under a license issued under the Crown Forest Sustainability Act, 1994, S.O. 1994, c.25, as amended;
- c) the injury or destruction of trees that is required in order to erect any building, structure or thing, install and provide utilities, including a private waste disposal system, install, provide or maintain a driveway of sufficient width for vehicular access to the building, structure or thing, in respect of which a Building Permit has been issued;
- d) the injury or destruction of trees for the construction of drainage works under the Drainage Act, R.S.O. 1990, c. D.17, as amended;
- e) the injury or destruction of trees that:
  - i. are dead;
  - ii. are diseased, as identified in a Prescription or Forest Management Plan; or
  - iii. pose a hazard to human safety or property

### **2.4.3 Permits**

Every person who intends to injure or destroy trees personally or through another person, where a Permit to do so is required under this By-Law, shall first complete and submit an application for a Permit in the form approved by the NPCA. The NPCA may impose conditions to a Permit.

Upon application by an Owner, the NPCA may issue a Good Forestry Practices Permit to permit the harvesting, injuring or destruction of trees in accordance with Good Forestry Practices provided that:

- i. a Prescription or Forest Management Plan has been submitted with the application for a Permit as per Section 6;
- ii. the trees to be cut are marked by a certified Tree Marker in accordance with a Prescription or Forest Management Plan and only such trees are cut; and
- iii. the injuring or destruction of trees will not reduce the number of trees per hectare below the minimum number of trees per hectare required to be considered a Woodland.

## **3. URBAN FORESTRY & CLIMATE CHANGE**

Owing to Welland’s location as an urban area and its position at the northern limit of the Carolinian forest, climate change poses important implications. Under climate change, Welland is expected to see warmer temperatures and greater amounts of precipitation (Prairie Climate Centre 2021). Initially this may even be beneficial by increasing productivity in forests, while reducing low winter temperatures that limit tree growth and reduce tree biodiversity. However, these gains are likely to fall short, and may potentially exacerbate existing stressors on the urban forest.

Table 1 demonstrates how climate conditions relevant for the urban forest in Welland under future change are affected. The table shows climate variables relevant to tree growth and decline under three different time horizons under the Representative Concentration Pathway (RCP) 8.5: Historical (1976-2005); Mid-Century (2050’s) and End of Century (2080’s). RCP 8.5 is the “business as usual” emission

scenario. This scenario represents little action being undertaken to reduce greenhouse gas emissions at a global scale and is the recommended pathway by most institutions for climate change adaptation planning since it takes a precautionary approach.

While summer temperatures are noted to increase sharply, especially the number of days above 30°C by the end of century, its precipitation values remain relatively unchanged. Increases of temperature and water stress are likely to be further amplified in urban areas due to the urban heat island effects. The urban heat island has been observed to be 2-8°C warmer than its rural counterparts (City of St. Catharines 2010). Furthermore, the paving of surfaces compact soils and restrict natural water conveyance, which may lead to poor infiltration and water uptake for vegetation (Ligeti et al., 2007). Additional stressors of the urban forest are amplified by the limited diversity of the urban street trees and increase the vulnerability to climate events under anticipated future change.

Initial benefits of warming temperatures and rising levels of carbon dioxide are quickly offset by potential drought and frost damage under climate change. Increasing summer temperatures under low precipitation, stresses growth and limits tree development by reducing water and nutrients for tree growth. Furthermore, if trees prematurely respond to winter warming, climate change increases the likely of winter kills. Trees may begin to prematurely circulate water and nutrients in their tissue, only to be damaged by cooling temperatures that damage vascular tissues and subsequently restrict water and nutrients through the freezing of cell tissue (Safford et al., 2013).

Furthermore, milder winters allow for the spread and proliferation of new and current insect pests, which would normally be limited by colder winter temperatures. Given the short lifecycles and rapid evolutionary capacity of insect pests, they are better able to adapt than their host trees. City trees which are likely already stressed in an urban setting, are more likely to succumb to pest damage given its sub-optimal growing conditions and reduced biodiversity (Ligeti et al., 2007). The increase in Growing Degree Days (base 15°C), or days where five consecutive days are equal to above 15°C is also noted to increase by the End of Century and this value is often used to assess the growth and development of insects and pests (Prairie Climate Centre 2021).

Climate change is expected to magnify the frequency, intensity, and duration of extreme weather events and can quickly cause widespread damage to urban forests. Extreme weather events are exacerbated under an urban interface where water is more likely to accumulate. Large storms can bring wind damage, affecting tree structure by dislodging large branches and uprooting trees through windthrow. Additionally, flooding through large precipitation events may ultimately uproot trees if waterlogged soils are allowed to persist (Safford et al., 2013). Despite the decrease of low temperatures and frost days in the winter as expected by the End of Century, large storms are expected to increase and can also cause additional snow and ice loading, damaging the structural integrity of trees which eventually may lead to tree fall.

**Table 1.** Climate Conditions for the Urban Forest under Future Change in Welland.

CLIMATE CONDITION	CLIMATE VARIABLE	TREND	HISTORICAL BASELINE (1976- 2005)	CLIMATE MODEL PROJECTIONS	
				MID- CENTURY (2050s)	END OF CENTURY (2080s)
Temperature	Mean Annual Air Temperature (°C)	↑	8.9	11	13.1
	Mean Winter Air Temperature (°C)	↑	-3.1	-0.8	1.5
	Mean Summer Air Temperature (°C)	↑	20.5	22.6	24.8
	Max Annual Air Temperature (°C)	↑	13.2	15.3	17.5
	Max Winter Air Temperature (°C)	↑	0.3	2.4	4.5
	Max Summer Air Temperature (°C)	↑	25.5	27.7	30
	Min Annual Air Temperature (°C)	↑	4.5	6.6	8.7
	Min Winter Air Temperature (°C)	↑	-6.5	-4.0	-1.5
	Min Summer Air Temperature (°C)	↑	15.5	17.4	19.5
Heat	Days Max Temperature > 30°C	↑	10.4	30.6	58.8
Drought	Total Annual Dry Days (#/year)	→	206.1	205.4	206.6
Freeze-Thaw	Days between -2°C and +2°C	↓	61.4	51.8	41.7
Precipitation	Annual Total Precipitation (mm)	↑	891	946	973

CLIMATE CONDITION	CLIMATE VARIABLE	TREND	HISTORICAL BASELINE (1976- 2005)	CLIMATE MODEL PROJECTIONS	
				MID- CENTURY (2050s)	END OF CENTURY (2080s)
	Winter Precipitation (mm/month)	↑	69.3	76.7	82
	Summer Precipitation (mm/month)	→	73.4	74.7	73.4
Ice and Snow	Icing Days	↓	48.4	32.9	18.9
	Frost Days	↓	124	98.7	72.5
	Days Min Temperature < -15°C	↓	9	2.7	0.5
Growing Degree Days (GDD)	GDD (Base 15°C)	↑	649.8	946	1273

Table 1: The following table displays common climate variables of relevance to urban forestry and tree species growth. The climate variables are displayed under three periods of change, the Historical Record (1976-2005); Mid-Century (2050's) and End of Century (2080's) estimates (Prairie Climate Centre 2021). The trend column summaries how the variable is expected to change across the time horizons (increase, decrease or remain relatively the same).

#### 4. DRAFT POLICY RECOMMENDATIONS

Through Phase 2 – Draft Policy Recommendations of the Work Plan, GEI shall prepare a Policy Gap Draft Recommendations Report to provide further direction on those policies that may need to be updated or new policies that may need to be added to bring the City of Welland Official Plan into conformity with relevant aspects of the federal *Fisheries Act*, the PPS (2020), the provincial Growth Plan (2020), the provincial *Endangered Species Act*, the revised Niagara Region Official Plan, and NPCA regulations and policies. The report will review policy conformity gaps and other matters addressed through the Phase 1 Background Information Review in order to identify preliminary recommendations to resolve each issue. The report will also include applicable amendments to Official Plan mapping to address the draft recommendations..

Yours truly,

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