

Protecting Water Resources: Policy Options

Peel 2041 Discussion Paper

November 2018



This policy discussion paper (including any attachments) has been prepared using information current to the report date. It provides an assessment of provincial policy conformity requirements, recognizing that Provincial plans and policies were under review and are potentially subject to change. The proposed direction contained in this discussion paper will be reviewed to ensure that any implementing amendments to the Regional Official Plan will conform or be consistent with the most recent in-effect provincial policy statement, plans and legislation. Additional changes will not be made to the contents of this discussion paper.

Table of Contents

Section	Page
1. INTRODUCTION	1
1.1 Water Resources Policy Review	1
1.1.1 Coordinated Land Use Plan Review.....	3
1.2 Current Water Resources Jurisdictional Framework	3
1.3 Land Use Planning Context	3
1.4 Climate Change Context.....	4
2. WATER OPPORTUNITIES ACT.....	7
2.1 Description of Key Theme Area.....	7
2.2 Policy Gaps and Best Practices.....	7
2.2.1 City of Mississauga	8
2.2.2 City of Brampton	8
2.2.3 Town of Caledon.....	8
2.2.4 Region of Peel.....	9
2.3 Policy Options	9
3. GREAT LAKES PROTECTION ACT AND STRATEGY.....	11
3.1 Description of Key Theme Area.....	11
3.2 Policy Gaps and Best Practices.....	11
3.3 Policy Options	12
4. LAKE SIMCOE PROTECTION PLAN (2009).....	13
4.1 Description of Key Theme Area.....	13
4.2 Policy Gaps and Best Practices.....	14
4.3 Policy Options	15
5. CLEAN WATER ACT (SOURCE WATER PROTECTION PLANNING).....	17
5.1 Description of Key Theme Area.....	17
5.1.1 Assessment Reports	18
5.5.2 Source Protection Plans	18
5.5.3 Vulnerable Areas	19
5.2 Policy Gaps and Best Practices.....	20
5.3 Policy Options	20
6. PROVINCIAL POLICY STATEMENT (PPS) 2014.....	23
6.1 Description of Key Theme Area.....	23
6.2 Policy Gaps and Best Practices.....	26
6.3 Policy Options	31

7. PROVINCIAL LAND USE PLANS (COORDINATED PLAN REVIEW AND UPDATE)35

7.1 Description of Key Theme Area..... 35

7.1.1 Growth Plan, 2017..... 36

7.1.2 Greenbelt Plan, 2017..... 36

7.1.3 Oak Ridges Moraine Conservation Plan, 2017 37

7.1.4 Niagara Escarpment Plan, 2017..... 37

7.2 Policy Gaps and Best Practices..... 37

7.3 Policy Options 37

8. CONSERVATION AUTHORITY GUIDANCE39

9. CONCLUSION AND NEXT STEPS.....41

List of Figures

Figure 2.1: Region Wide Sustainability Guidance 9

Figure 4.1: Lake Simcoe Protection Plan Boundary..... 13

Figure 5.1: Source Water Protection Plan Implementation Process 17

Figure 5.2: Source Protection Plan Areas in Peel Region 18

Figure 6.1: Scales of Watershed Planning and Implementation 29

Figure 7.1: Key Water Resources Themes in Provincial Land Use Plans 35

Appendix

A: Lake Simcoe Protection Plan, July 2009 Designated Policies Applicable to Peel Region

1. Introduction

The *Ontario Planning Act* requires that municipalities update their Official Plan every five years in order to ensure the policies stay current, are consistent with provincial plans and policy statements, and achieve their goals and objectives. The Region of Peel is undertaking a five-year review and update of the Region of Peel Official Plan (Regional Official Plan) known as “*Peel 2041: Regional Official Plan Review*”.



1.1 Water Resources Policy Review

Water resources are a central component in the Regional Official Plan review. The sustained social, economic and environmental well-being of the region is dependent on the proper protection, management and conservation of Peel's water resources and related natural systems. It is recognized that water resource systems are complex and made up of a variety of water resource features, areas and functions. Associated protection and management requirements need to be tailored to each specific resource and fully integrated.

The objective of the water resources policy review is to:

- provide an overview of the changing policy framework for water resources and best practices guidance developed through research by Peel's conservation authorities and others;
- consider proposed official plan policy options for the Region;
- ensure the policies in the Regional Official Plan conform to provincial legislation, plans and policies; and
- educate and engage stakeholders on proposed changes to the Region's water resources policies.

The purpose of this Background Paper is to provide background information on the components of the water resources policy review that will inform updates to the Regional Official Plan. The updates will address conformity with provincial plans and policies and current best practices in land use planning for water resources protection. The key theme areas discussed in this paper include:

Federal Government

- Influence of the federal policy in shaping water resources protection.

Provincial Legislation

- *Great Lakes Protection Act and Plan* (Great Lakes Protection)
- *Ontario Water Opportunities Act* (Water Sustainability Plans)
- *Lake Simcoe Protection Act and Plan*
- *Clean Water Act* (Source Water Protection)
- *Ontario Water Resources Act* (water quality and quantity control)

Provincial Policy Guidance

- Provincial Policy Statement (2014)
 - Climate change
 - Green infrastructure
 - Stormwater management
 - Watershed planning and Subwatershed planning
 - Water conservation
 - Identification of water resource systems
 - Water quantity and quality protection, restoration and improvement

Coordinated Provincial Land Use Plans

- Growth Plan for the Greater Golden Horseshoe, 2017
- Greenbelt Plan, 2017
- Oak Ridges Moraine Conservation Plan, 2017
- Niagara Escarpment Plan, 2017

Conservation Authority Guidance

- Watershed Management
- Watershed Plans

The application of these provincial and conservation authority policies and guidance to the Regional Official Plan will be the final outcome of the policy review and update. The following sections discuss the applicable provincial legislation, policy gaps, best practices and policy options to update the Regional Official Plan for each of the themes.

1.1.1 Coordinated Land Use Plan Review

In 2017, the Province completed a review of the provincial land use plans that guide growth in the Greater Golden Horseshoe region of Southern Ontario – Growth Plan, Greenbelt Plan, Oak Ridges Moraine Conservation Plan and Niagara Escarpment Plan. Through policy updates, the Province has elevated the importance of watershed scale planning, the preparation of watershed and sub-watershed plans, and the integration of natural heritage and water resource planning with growth management. While this water resources policy review will ensure conformity with provincial plans, the specific water resource policy changes in each of the Greenbelt Plans are being addressed through separate conformity amendments to the Regional Official Plan as a part of Peel 2041. The water resource policy revisions included in the new Growth Plan are being addressed through the Water Resource Policy Review component of Peel 2041.

1.2 Current Water Resources Jurisdictional Framework

It is important to consider the jurisdictional framework within which water resources policies are developed and implemented. The current water resources jurisdictional framework is complex. This is reflected in the fact that several departments within all three levels of government, as well as a variety of government agencies, such as conservation authorities have a responsibility for some aspect of water resources.

Regional plans support the implementation of provincial policy by means of strategic, coordinated approaches to physical, social and economic development. These approaches include the coordination and planning of resources at a regional level. Due to their wide geographical context, regional official plans establish a broad strategy for growth, which advances provincial, regional and local interests and programs in a municipal context. Local area municipal plans address specific community needs while remaining in conformity with the broad policy frameworks of the province and as set out in regional plans.

Further detailed information on the jurisdictional framework for water resources is provided in the accompanying Discussion Paper on Water Resources Jurisdiction, Roles and Responsibilities.

1.3 Land Use Planning Context

Provincial direction to municipalities on matters related to land use planning and water resources is provided by the Ministry of Municipal Affairs under the *Planning Act*. The Province provides both broad policy direction that applies province-wide and policy direction that is geographically focused. The Provincial Policy Statement, 2014, and provincial land use plans applying to the Greenbelt and Lake Simcoe Watershed are examples of the provincial policy framework applicable to municipal planning. The province considers water resources to be an important consideration when planning and managing growth. Provincial policy direction is to ensure sustainability of water resources and ensure water quantity and water quality is protected, improved or restored.

In 2014, the Provincial Policy Statement's water resources policies were revised to introduce a requirement to identify water resource systems and confirm the watershed as the ecologically meaningful scale for integrated and long-term planning. In 2017, the province made revisions to the four provincial land use plans that work together to manage growth and protect the natural environment in the Greater Golden Horseshoe (Growth Plan, Greenbelt Plan, Oak Ridges Moraine Conservation Plan, and Niagara Escarpment Plan). An objective of these updates was to enhance the provincial direction to protect natural heritage and water resources systems by confirming the watershed as the appropriate scale for resources planning and by further integrating water resources planning with growth management.

Complementary regulatory and policy guidance is also provided in provincial legislation including the *Great Lakes Protection Act* and Plan (Great Lakes Protection), *Ontario Water Resources Act* (water quality and quantity control), *Ontario Water Opportunities Act* (Water Sustainability Plans), *Lake Simcoe Protection Act* and Plan, and *the Clean Water Act* (Source Protection Plans). In 2009, the Province released the Lake Simcoe Protection Plan as part of the government's overall strategy to protect and restore the ecological health of the Lake Simcoe watershed. In 2015, source protection plans for the Credit River, Toronto and Central Lake Ontario (CTC), South Georgian Bay Lake Simcoe (SGBLS) and the Halton-Hamilton Source Protection Regions came into effect providing policy direction for the protection of municipal drinking water sources. Provincial legislation provides both prescriptive direction requiring amendments to the Regional Official Plan, as well as opportunities for the Region to provide policies that are complementary to provincial objectives.

Municipalities are responsible for implementing provincial direction. The land use planning framework in particular is structured to require regional municipalities to incorporate provincial interests into their official plans and in turn provide implementation direction to local municipalities. Peel Region undertakes its planning responsibilities through a series of policies, plans and programs including the Regional Official Plan which provides guidance for managing water resources. The Regional Official Plan is one tool for implementing provincial legislation.

1.4 Climate Change Context

When planning for water resources, the changing environmental context must be considered. There is strengthening evidence to suggest that as a result of climate change Peel will be exposed to gradual warming of average annual temperatures extending the spring and fall, and increases in extreme heat events and extreme rainfall. In order to understand and provide a baseline for the risks related to climate change, vulnerability assessments were conducted across a number of sectors in the Region of Peel, including a Water Infrastructure Systems Vulnerability Assessment¹ and a Natural Systems Vulnerability Assessment².

¹ Credit Valley Conservation (2017). Water Infrastructure Vulnerability to Climate Change in the Region of Peel.

² Tu, C., Milner G., Lawrie, D., Shrestha, N., Hazen, S., (2017). Natural Systems Vulnerability to Climate Change in Peel Region. Toronto, Ontario: Toronto and Region Conservation Authority and Ontario Climate Consortium Secretariat.

Key conclusions of these assessments were:

- Climate change is likely to lead to increased severity and frequency of extreme rainfall events.
- Stormwater infrastructure is vulnerable to being overwhelmed during extreme rainfall events, leading to overland and riverine flooding.
- Precipitation patterns are likely to shift. Altered precipitation patterns, in combination with urban development, can change streamflow regime in natural and urban streams, with higher flows in winter and summer and reduced spring freshet. Warming temperatures are also predicted to increase water temperature in natural water systems, with potential negative impacts on aquatic species and habitat, including warm, cool and cold water species.

Land use planning is an important processes to facilitate local adaptation and mitigation to climate change. Peel can minimize risks from floods and other natural hazards and protect, enhance and restore natural features, areas and system through improved processes to integrate land use planning, watershed planning and infrastructure planning.

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2. Water Opportunities Act

2.1 Description of Key Theme Area

Proclaimed in 2010, the Water Opportunities Act (WOA) is intended to:

- foster innovative water, wastewater and stormwater technologies, services and practices in the private and public sectors;
- create opportunities for economic development and clean-technology jobs in Ontario; and
- conserve and sustain water resources for present and future generations.

The WOA contains regulation-making authority to require municipalities to prepare water sustainability plans. Once regulations are in place and municipalities are directed to prepare water sustainability plans, these plans would need to include:

- an asset management plan;
- a financial plan;
- a water conservation plan;
- a strategies for maintaining and improving the service;
- a risk assessment; and
- other prescribed information.

Through proposed regulation, the WOA may require public agencies to consider water conservation and innovation in their day to day operational practices. Further, through WOA regulation, the Minister of the Environment and Climate Change (MOECC) may establish performance indicators and targets for municipal water, wastewater and stormwater services. This requirement is well aligned with the Growth Plan policies which speak to a “Culture of Conservation” and requires municipalities to develop and implement official plan policies and other strategies in support of water conservation, including water demand management for the efficient use of water and water recycling to maximize the reuse and recycling of water.

2.2 Policy Gaps and Best Practices

One component of fostering a culture of conservation is creating a water efficiency strategy. Through the 2013 Water Efficiency Strategy, the Region of Peel aims to reduce indoor water consumption for single family households, in line with the intended purposes of the WOA. The strategy will also help the Region in fulfilling its requirements to prepare a water conservation plan. The water efficiency strategy demonstrates the Region’s dedication to conserving and protecting its water resources and promoting sustainable water use. The Regional Official Plan currently contains policies which support the reduction of per capita water consumption by 10-15%, as described in the water efficiency strategy. The Regional Official Plan policies also recognize the need for a sustainable development framework to review programs and services and establish efficiency targets in order to achieve the water efficiency goal.

Fostering innovative stormwater technologies and practices is a newly emerging practice in the Region. Leading municipalities are considering how a “one water” approach which considers the water resources system, including stormwater, holistically on a watershed scale can be incorporated into aspects of infrastructure programming and delivery. While the Region has design criteria for stormwater management systems, the Region does not have a fully integrated approach to comprehensively incorporate stormwater management into the water efficiency planning process or to link new stormwater management technologies to climate change mitigation, natural heritage protection or growth management planning.

As a best practice, municipal official plans can provide supportive policies to implement water sustainability, innovation and conservation measures through land use planning. The policy would be consistent with the intended purposes of the WOA. Municipal official plan policies can require or promote the use of tools under the *Planning Act* to incorporate water conservation and efficiency measures through sustainable urban and rural design and construction practices. Leading municipalities are now adopting and implementing water sustainability and conservation policies through sustainable development guidelines, targets and metrics, which address a variety of topics, including water conservation, water quality and the use of Low Impact Development (LID) best management practices. Establishing sustainable development guidelines with targets and metrics can also help to advance municipal climate change adaptation and mitigation implementation plans.

2.2.1 City of Mississauga

The City of Mississauga developed a voluntary sustainable development program that adopts a third-party LEED® New Construction rating system and promotes certification to a Silver standard. The focus of the standard is on low impact development practices, specifically stormwater management. Developers are encouraged to incorporate sustainable elements into proposed buildings, site works, construction methods and long-term maintenance programs.

2.2.2 City of Brampton

The City of Brampton’s sustainable development program includes the Sustainable Community Development Guidelines (SCDG) and Performance Metrics, which guide the implementation of sustainable practices in new developments. The SCDG encourages natural heritage protection and green infrastructure practices, among other factors. Development applications are required to consider mandatory requirements, and consider minimum and aspirational targets.

2.2.3 Town of Caledon

The Green Development Program in the Town of Caledon is an incentive based program that provides developers with municipal development charge discounts based on the level of LEED® certification achieved. The program adopts a LEED® based approach with certification undertaken by a third party. The Green Development Program emphasizes low impact development practices.

2.2.4 Region of Peel

The Region of Peel recently completed a review of sustainability guidelines and initiatives in Peel and endorsed a framework to collaboratively develop complementary programs and guidance at the Regional level to support local implementation through planning approvals. The Sustainable Development Framework for the Region of Peel identifies Regional policy and program interests, including potable water conservation and efficiency, along with the recommended process through which complementary guidance and coordination could be provided. These initiatives address the Regional Official Plan direction in Section 7.6.2.4 to prepare green development standards in consultation with the local municipalities.

2.3 Policy Options

Through Peel 2041, there is an opportunity for the Region to enhance policy direction that supports the use of sustainable development guidelines, policies and tools at the local level to aid in the implementation of regional programs, services and targets that reduce water consumption. The Regional Official Plan should continue to support the sustainable development guidelines policies and tools that have been developed by the local municipalities and assist in the implementation and further development of these local guidelines when possible. Through the sustainable development process, the goals set out in a water sustainability plan and in the Region's Water Efficiency Strategy can be achieved.

Policy options being considered in this review include:

- adding a guiding section to the Regional Official Plan on the use of sustainable development guidelines as a means to achieve Regional planning objectives including adapting to and mitigating against climate change;
- encouraging and supporting the local municipalities to develop policies to implement sustainability requirements, guidelines and tools through the local land use planning process in collaboration with the Region and other agencies; and
- providing direction that the Region work collaboratively with the local municipalities and conservation authorities to develop and promote Regional programs and guidance that support development and implementation of water efficiency and conservation requirements in local planning approvals.

Figure 2.1: Region Wide Sustainability Guidance



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3. Great Lakes Protection Act and Strategy

3.1 Description of Key Theme Area

Ontario relies on the water from the Great Lakes-St. Lawrence River Basin for electricity generation, human consumption, agriculture, manufacturing and shipping. Lake Ontario provides drinking water for more than half of Peel's residents and is also a defining natural feature for Peel Region. The Great Lakes are vulnerable to the effects of climate change and have additional pressures associated with development, population growth, degradation of natural features, pollution and invasive species. The Regional Official Plan is one vehicle through which Peel Region can assist in protecting, maintaining and enhancing the health of Lake Ontario.

The purpose of the *Great Lakes Protection Act, 2015* (GLPA) is to protect and restore water quality, hydrologic functions, watersheds, wetlands, beaches, shorelines and coastal areas of the Great Lakes-St. Lawrence River Basin. The GLPA enables the MOECC to set targets that achieve protection and restoration goals. Through collaboration with other public bodies, including municipalities and conservation authorities, MOECC may develop geographically focused initiatives, which would target stressed areas or priority issues.

The Ontario Great Lakes Strategy, 2012 (the Strategy) aids in the implementation of the GLPA by describing the vision, goals, and principles that are intended to guide decisions under the GLPA and actions taken to achieve the purposes of the GLPA. The Strategy promotes engaging and empowering communities to assist the province in restoring the health of the great lakes.

Under the GLPA, the MOECC may direct a public body to develop a proposal for a geographically focused initiative. Once the proposal is approved by the MOECC, the resulting initiatives could include legally enforceable policies and recommendations, including requirements for municipalities to amend their official plan to conform with designated policies set out in the initiative. There are currently no initiatives that prescribe policies for official plans at this time.

The Region of Peel's Official Plan policies and other decisions under the *Planning Act* must conform with the policies in the geographically focused initiatives and have regard to policies set out in other initiatives.

3.2 Policy Gaps and Best Practices

The Regional Official Plan establishes a framework, in partnership with the area municipalities and the conservation authorities, to protect the Region's natural systems, restore poorly functioning ecosystems and promote clean air and water. The official plan contains policies that recognize Lake Ontario as a prominent feature within the natural heritage system of Peel. The Lake Ontario policies (section 2.2.6) communicate the Region's commitment to participating in inter-governmental initiatives that protect and restore the aquatic ecosystem of Lake Ontario and its associated shoreline. This includes the implementation of the Lake Ontario Greenway Strategy and the preparation of remedial action plans focused on Lake Ontario.

The current policies reflect the general intent of the *Great Lakes Protection Act* and Ontario Great Lakes Strategy (OGLS) with respect to the principles of protection and enhancement. However, further updates to the ROP are being considered in order to remain current with provincial direction. The reference to the Lake Ontario Greenway Strategy is now obsolete. The new provincial vision and goals for the Great Lakes are now reflected in the GLPA, OGLS and PPS, 2014. The PPS, 2014 requires municipalities to consider cumulative impacts of development and site alteration in significant coastal wetlands and increase protection for all coastal wetlands in southern Ontario, including the Lake Ontario shoreline. The Growth Plan requires municipalities to consider the targets and goals of the Great Lakes Strategy. According to the State of the Great Lakes, 2017 report, run-off from land is a major source of non-point source pollutants to the Great Lakes. The Region recognizes that stormwater run-off is one of the pollution sources for Lake Ontario and that stormwater quality and quantity control measures can help to improve the Lake quality.

It is a best practice for municipalities to acknowledge the Great Lakes as a feature within the local water resource system. In the case of Peel Region, protection, enhancement and restoration of Lake Ontario are required in order to maintain a healthy water resource system. By recognizing the inter-relationship between land use planning, infrastructure investment and environmental protection the Region in partnership with the Province and the Conservation Authorities can establish an integrated and comprehensive approach to protect Lake Ontario. The City of Hamilton Official Plan contains a policy addressing its support for and participation in remedial action plans within its jurisdiction. The Hamilton Official Plan policies include employing “best practice” techniques for stormwater management to minimize reliance on the existing combined sewer system, thereby integrating infrastructure planning with environmental management in order to protect the health of Lake Ontario. The Plan also identifies and protects public views and access to the Hamilton Harbour thereby achieving public health and well-being benefits.

3.3 Policy Options

The Region should review its current Lake Ontario policies to ensure consistency with the new legislation, reflect the goals and objectives of the GLPA, and acknowledge Provincial authority related to potential future geographically focused initiatives applicable to Lake Ontario. The Region should also seek to further opportunities to integrate Lake Ontario protection with land use planning and infrastructure planning.

Policy options for Lake Ontario being considered in this review include:

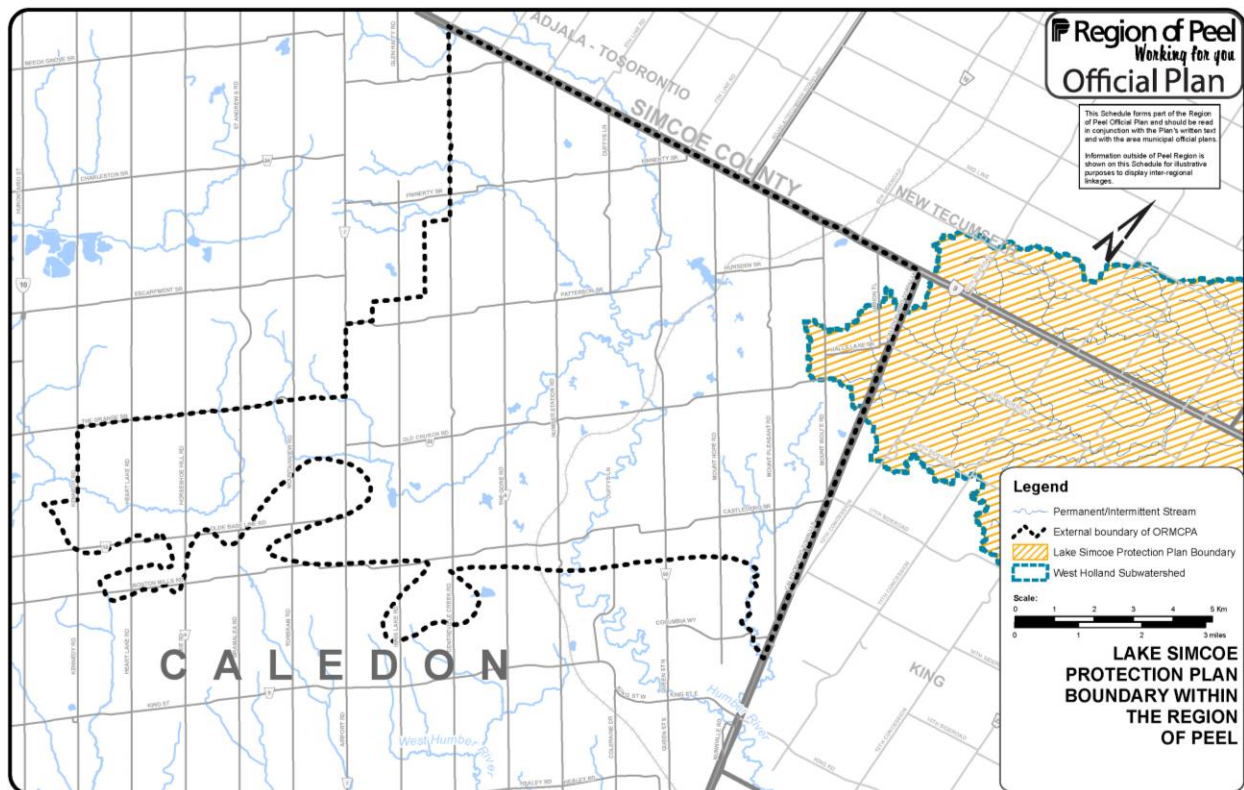
- updating and/or deleting obsolete references to provincial legislation and initiatives involving Lake Ontario and the Great Lakes;
- making revisions to the general objectives and policies for Lake Ontario to reflect the *Great Lakes Protection Act* and Strategy; and
- acknowledging the need for better stormwater quality and quantity controls to protect the lake.

4. Lake Simcoe Protection Plan (2009)

4.1 Description of Key Theme Area

The Lake Simcoe Protection Plan (LSPP) came into effect on June 2, 2009. It is a comprehensive provincial plan to protect and restore the ecological health of Lake Simcoe and its watershed. Through the *Lake Simcoe Protection Act*, any municipality that has jurisdiction within the Lake Simcoe Watershed must amend its official plan to conform with the policies of the LSPP. The watershed includes the area surrounding Lake Simcoe where water, such as streams or wetlands, drain into Lake Simcoe. A small portion of the watershed boundary, known as the West Holland Sub-Watershed extends into Peel Region, in the northeast corner of the Town of Caledon. Agriculture is the predominant land cover in the West Holland sub-watershed occupying 57% of the land area, followed by natural heritage features at 31%.

Figure 4.1: Lake Simcoe Protection Plan Boundary



Lake Simcoe has gradually degraded due to the input of various contaminants, in particular phosphorus. The sources of the contaminants include agricultural and urban runoff, and treated effluent from sewage treatment plants. The increase in contaminant loadings (particularly phosphorus) has caused an increase in nutrients which has promoted adverse growth of vegetation (i.e. algae), reduced dissolved oxygen and degraded aquatic habitat.

The LSPP seeks to improve the overall health of the Lake Simcoe watershed, by focusing on water quality and the reduction of phosphorus and other pollutants, as well as the protection, improvement or restoration of elements that contribute to ecological health.

The LSPP addresses the long-term environmental health of Lake Simcoe and its watershed by:

- promoting immediate action to address threats to the ecosystem, such as excessive phosphorus;
- targeting new and emerging causes of stress such as invasive species and climate change;
- protecting and restoring important natural areas such as shorelines and wetlands; and
- restoring the health of the fish and other aquatic life.

4.2 Policy Gaps and Best Practices

There are a number of strategies being advanced by the Province, the conservation authorities and municipalities to address phosphorus loading to Lake Simcoe. These include the following:

- preparation of comprehensive stormwater management master plans, including application of low impact development practices for new development;
- retrofit of existing storm sewer outfalls and storm water management facilities;
- best practices on agricultural lands;
- implementation of a phosphorus offset program; and
- improved treatment technologies at sewage treatment plants.

Essentially, these strategies illustrate an integration of land-use planning, infrastructure planning and natural heritage planning as the best practice approach to restore the Lake. The Lake Simcoe Region Conservation Authority (LSRCA) recognizes that changes in land use, especially urbanization, can have a significant impact on watershed hydrology and water quality. The LSPP promotes the incorporation of low impact development practices into new development projects by working with developers to incorporate best practices into site design. LSRCA is also working with municipalities to identify opportunities to implement low impact development best practices as a stormwater management approach and has prepared guidance for the preparation of comprehensive stormwater management master plans for settlement areas in the Lake Simcoe Watershed.

Within the Sustainable Natural Environment Chapter, the York Region Official Plan contains a section with objectives and policies to support implementation of the LSPP. In addition, Lake Simcoe protection policies are also dispersed throughout the plan in the sustainable natural environment, agricultural, rural area, servicing and official plan implementation sections. Through its official plan policies, York Region requires environmental impact studies when development and site alteration occurs. These impact studies must address the requirements of the LSPP including protecting and enhancing the key hydrologic functions within the Lake Simcoe watershed.

4.3 Policy Options

The Lake Simcoe Protection Plan provides land use policy direction for municipalities draining into Lake Simcoe. The Regional Official Plan must conform to “designated policies” and have regard for other policies as set out in the LSPP. The policies of the Lake Simcoe Protection Plan therefore need to be incorporated into the Regional Official Plan along with recognition of support for future potential strategies to address contaminant loading, and in particular phosphorus. The policy additions will need to consider establishing goals, objectives and policies to implement the LSPP and support the Lake Simcoe Conservation Authority in improving the health of the watershed, keeping in mind that not all policies of the LSPP will be applicable to Peel Region.

Policies applicable to the Region of Peel in the Lake Simcoe Watershed will be focused on the Town of Caledon’s rural headwaters in the northeast portion of Peel. The proposed regional policy options will need to consider policy to restrict land uses, support best practices for agricultural lands, place restrictions on locating servicing infrastructure including new public and private sewage treatment plants and opportunities to minimize adverse environmental impacts.

The Regional Official Plan will need to consider policies that:

- protect, improve or restore the elements that contribute to the ecological health of the Lake Simcoe Watershed;
- promote environmentally sustainable land and water uses, activities and development practices; and
- integrate the protections for the Lake Simcoe watershed that are provided in other provincial plans including the *Clean Water Act* and the *Ontario Water Resources Act*.

Modifications to the Regional Official Plan will be necessary to ensure conformity with the LSPP. Amendments will need to address:

- restrictions on the establishment of new sewage treatment plants;
- minimizing adverse impacts caused by recreational water use, soil disturbance and alteration to intermittent streams;
- managing stormwater, including the use of low impact development practices;
- managing development and site alteration; and
- promoting the protection, restoration and enhancement of natural heritage and shorelines within the watershed.

In summary, the *Lake Simcoe Protection Act* requires official plans approved or amended under the Planning Act to conform to “designated policies” in the Lake Simcoe Protection Plan and have regard for “other applicable policies” as set out in the Plan. The list of designated land use planning policies applicable to the Region of Peel is provided in Appendix A. Copies of the Lake Simcoe Protection Plan are available from the MOECC’s website at <https://www.ontario.ca/page/lake-simcoe-protection-plan>.

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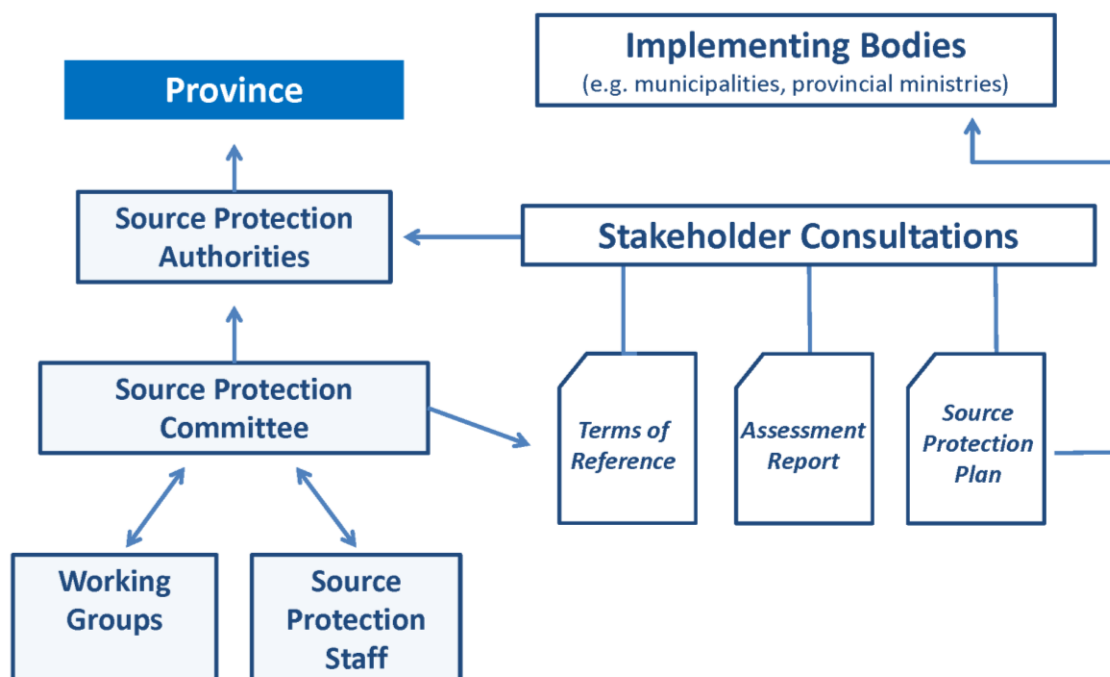
5. Clean Water Act (Source Water Protection Planning)

5.1 Description of Key Theme Area

The Region of Peel is responsible for providing safe drinking water to 1.4 million residents. As a drinking water provider, the Region is one of the organizations responsible for implementing the Clean Water Act (CWA). The CWA is part of the Ontario Government's commitment to protect existing and future planned municipal sources of drinking water (i.e. lakes and groundwater aquifers). The Act protects municipal drinking water resources on a watershed basis by preventing contamination of sources of drinking water before the water enters the municipal drinking water treatment system and by protecting water quantity from activities which remove water without replacing it or reducing ground water recharge. The Act:

- requires drinking water providers to assess existing and potential threats to their drinking water sources;
- requires the development of source protection plans;
- empowers municipalities to implement programs and policies to prevent drinking water threats from becoming significant; and
- requires that all plans and actions be based on sound science.

Figure 5.1: Source Water Protection Plan Implementation Process



5.1.1 Assessment Reports

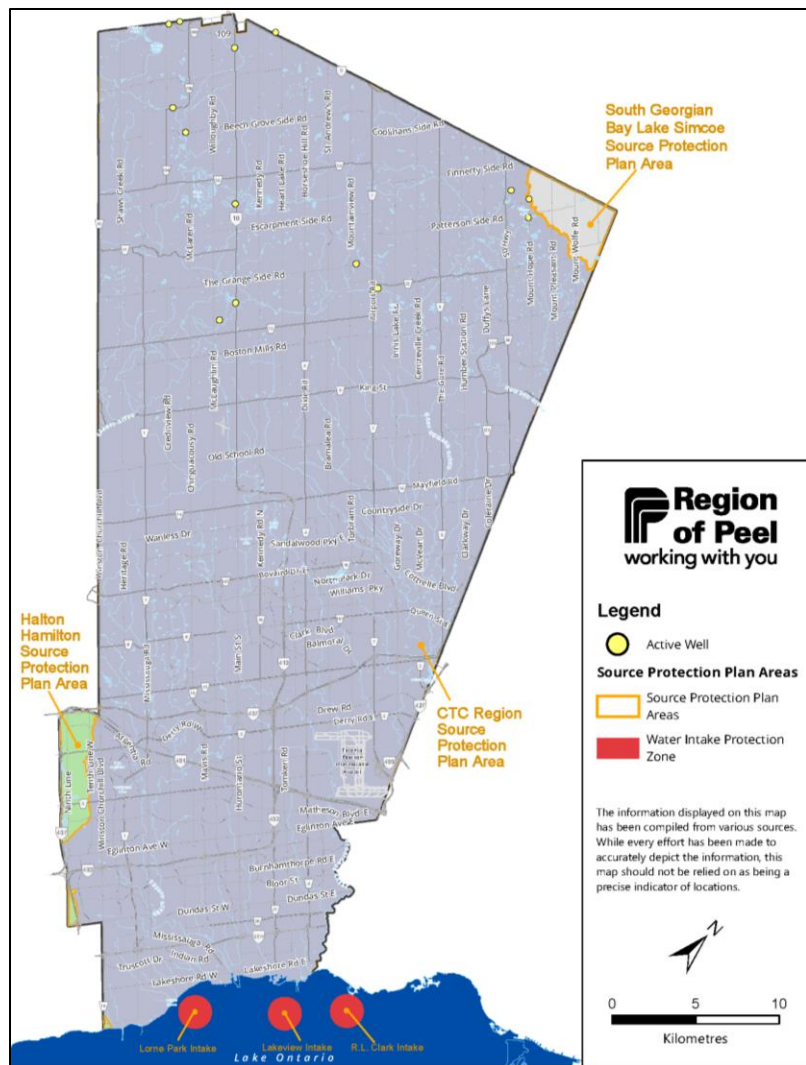
Assessment reports provide the technical information to delineate vulnerable surface and groundwater areas and assess specific activities on the landscape to determine if they are potential drinking water threats. These reports have been prepared for each of the source protection areas within Peel Region. When the report identifies “significant” drinking water threats, the Region’s source protection plans provide policies to manage the threat.

- Assessment Report: Credit Valley Source Protection Area (July 2015);
- Assessment Report: Toronto and Region Source Protection Area (July 2015); and
- Assessment Report: Halton Region Source Protection Area (July 2015).

5.5.2 Source Protection Plans

The Region of Peel is under the jurisdiction of three Source Protection Authorities (SPA). The Region, in partnership with the Conservation Authorities and other stakeholder groups, have been required to create source water protection plans to protect and maintain secure sources of municipal drinking water supplies. Source protection plans contain policies that address activities having the potential to adversely impact the quality or quantity of local drinking water sources. These policies require landowners to manage or eliminate risks to water supplies posed by activities that are “significant drinking water threats”. Source Protection Plans applicable to Peel Region have been prepared by the Credit Valley Conservation –Toronto and Region Conservation –Central Lake Ontario Conservation (CTC), South Georgian Bay –Lake Simcoe (SGBLS) and Halton-Hamilton (HH) Source Protection Committees. Most of the Region’s ground water wells and surface water intakes fall within the CTC SPA. Only Palgrave Well no.3 falls within the SGBLS SPA.

Figure 5.2: Source Protection Plan Areas in Peel Region



5.5.3 Source Protection Plan Policy Requirements

The CWA requires that upper-tier and lower-tier municipalities review and, where required, amend their official plans to ensure conformity with “significant threat policies” contained in source protection plans and have regard for policies that address “low and moderate threats”. Only the CTC and SGBLS source protection plans include “significant threat policies” for vulnerable areas that are applicable to Peel Region. Through these plans, land use policies are a prescribed implementation requirement and require official plan conformity. The Region is also required to have regard for one “low and moderate threat policy” in the CTC Region Source Protection Plan specific to the application of road salt in vulnerable areas. The Halton-Hamilton plan does not contain significant threat policies that are applicable to Peel Region. However, Peel can have regard for the strategic, non-legally binding, policies.

The CWA requires that these source water protection plan's be implemented through a range of tools and new authorities, including land use planning tools under the *Planning Act*, (e.g. municipal official plans and zoning by-laws). Official Plans, through mapping and policies, are required to identify vulnerable areas and drinking water threats, and include policies that conform to significant drinking water threat policies set out in approved source protection plans.

5.5.4 Vulnerable Areas

Vulnerable areas are areas where groundwater or surface water may be vulnerable to contamination or depletion by land use activities. Within these areas precaution must be taken when conducting activities that may impact the quality or quantity of drinking water sources. Within Peel Region, the following vulnerable areas have been identified:

- Wellhead Protection Areas (WHPA): areas on the land around a municipal well, the size of which is determined by how quickly water travels underground to the well (measured in years).
- Wellhead Protection Area-Q (Water Quantity): an area where significant drinking water quantity threat activities can occur. Within these areas, activities which take water without returning it to the same source or which reduce recharge to the aquifer are significant water quantity threats.
- Issue Contributing Areas: are areas within a WHPA where, in the applicable assessment reports, contaminants (e.g. pathogens, chlorine or sodium) have been detected at a concentration that may result in the deterioration of the quality of water, or if there is a trend of increasing concentrations of contaminants.
- Intake Protection Zones: the area on the water (Lake Ontario) and land surrounding a municipal surface water intake for a drinking water system.
- Highly Vulnerable Aquifer: an area underground that contains water that is being withdrawn for human use and is particularly susceptible to contamination because of its location near the ground's surface or where the types of soil in the ground around it is highly permeable.
- Significant Groundwater Recharge Areas: areas on the landscape that are characterized by porous soils, such as sand or gravel, which allows water to seep easily into the ground and flow to an aquifer.

These vulnerable areas are particularly threatened when an activity that adversely affects, or has the potential to adversely affect, water quality or quantity exists or is proposed within the area. The CWA refers to these potential harmful activities as prescribed threats.

5.2 Policy Gaps and Best Practices

The implementation of land use policy to protect drinking water sources is not new and policies have been included in the Regional Official Plan for the protection of surface and ground water resources when the Plan was first adopted. The Regional Official Plan provides policy direction to the local municipalities to identify and regulate land uses, development and site alteration, within and near, sensitive groundwater recharge areas, sensitive surface water features, groundwater dependent areas and municipal well-head protection areas. Policies for watershed planning, wellhead protection, protection of vulnerable aquifers, water budgets and water conservation plans were added and further updated when the Regional Official Plan was amended to conform to the Oak Ridges Moraine Conservation Plan. As a result, the Regional Official Plan currently provides an existing policy framework to protect, maintain and enhance the quantity and quality of water resources for the supply of potable water and a framework for groundwater resources including well-head protection. The Plan does not contain policies which conform to the CTC and SGBLS Source Protection Plans, prepared under the CWA. The existing policy framework of the Plan provides a foundation from which to incorporate new policies conforming to the approved source protection plans.

5.3 Policy Options

The Region must incorporate source water protection policies that conform to the provisions of the CTC and SGBLS source protection plans, to safeguard Peel's drinking water supplies. The policies should support a multi-barrier approach that starts with preventing contaminants from entering sources of municipal drinking water by avoiding future incompatible land uses or activities.

In keeping with the integrated approach to water resources planning, the Region should consider the impact of stormwater on drinking water sources and the role that stormwater master planning could have to complement and support the source water protection initiative.

The Region of Peel will have to translate the policies from the source protection plans into regional level official plan policies which gives rise to the need for:

- avoiding duplication between Regional and Local Municipal Official Plan policies;
- creating consistent policies that can meet the requirements of multiple source protection plans that apply within Peel Region; and
- providing consistent guidance for studies that may be required as a part of a complete application and guidance on integrating study results into ROP policies.

The Regional Official Plan update will need to include source protection policies that:

- provide policy goals or objectives related to source water protection;
- acknowledges a multi-barrier approach to drinking water safety;
- recognize that source water protection plans provide direction for protection of municipal drinking water systems at their source;
- identify or update vulnerable ground and surface water areas on a schedule or figure;
- provide updated policy direction to implement restrictions on development and site alteration in accordance with the SPPs;
- incorporate policies to prohibit or regulate specific uses that are significant drinking water threats in wellhead protection areas and issue contributing areas in accordance with source protection plans;
- incorporate policies for low or moderate drinking water threats as appropriate;
- incorporate policy direction for highly vulnerable aquifers and significant recharge areas in accordance with source protection plans;
- recognize that in significant groundwater recharge areas, watershed and subwatershed plans should consider management approaches to protect, improve or restore groundwater recharge; and
- add definitions to clarify source water protection terms.

A companion background report on source water protection plan implementation provides further information on the policy options and recommended approach to amend the Region's Official Plan to address requirements of *the Clean Water Act*.

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6. Provincial Policy Statement (PPS) 2014

The Provincial Policy Statement is issued under the authority of section 3 of the *Planning Act* and came into effect on April 30, 2014. Section 3 of the *Planning Act* requires that decisions affecting planning matters “shall be consistent with” policy statements issued under the *Act*.

6.1 Description of Key Theme Area

The PPS, 2014 provides policy direction on matters of provincial interest related to land use planning and development and sets the policy foundation for regulating the development and use of land. The PPS sets out the provincial government's vision for how built environments are developed and how land and resources are managed in order to achieve livable resilient communities. Specifically, the PPS, 2014 provides policy direction on:

- ***Building Strong Healthy Communities***, to promote efficient land use and development patterns; promote strong, livable, healthy, and resilient communities.
- ***The Wise Use and Management of Resources***, to protect natural heritage, water, agricultural, mineral and cultural heritage and archaeological resources for their economic, environmental and social benefits.
- ***Protecting Public Health and Safety***, to reduce the potential for public cost or risk to Ontario's residents from natural or human-made hazards.

The Regional Official Plan is required to be consistent with the PPS. In relation to water resources, consideration should be given to the policies governing:

- Climate Change
- Green Infrastructure
- Storm Water Management
- Watershed Planning
- Identification of water resource systems and features
- Water quality and quantity protection, restoration and improvement

Climate Change (Policies 1.1, 1.6 and 1.8)

Regional official plans address climate change through a variety of approaches, although the term Climate change refers to a change of weather over a long period of time (attributed directly or indirectly to human activity) that alters the composition of the global atmosphere. Climate Change policy requirements of the PPS is discussed in more detail in the Climate Change Discussion Paper, 2017. In relation to water resources, notable impacts for Peel Region have been the frequency and magnitude of storms, as well as anticipated increases in seasonal and annual temperatures. These conditions are predicted to lead to increased risk of flooding, erosion and degradation of habitat and form in receiving streams and lakes that will continue to change hydrologic processes and the ecological composition of Peel's environment.

The tools and actions to address climate change can be classified broadly as increasing adaptive capacity, “adaptation”, or reducing impact on the environment, “mitigation”, or both. To promote municipal adaptation and mitigation to climate change, the PPS, 2014 policies require municipalities to:

- promote development and land use patterns that conserve biodiversity and consider the impacts of a changing climate;
- provide infrastructure in a coordinated, efficient and cost-effective manner that considers impacts from climate change while accommodating projected needs;
- minimize negative impacts from a changing climate and considering the ecological benefits provided by nature; and
- consider the potential impacts of climate change that may increase the risk associated with natural hazards.

Green Infrastructure (Policy 1.6.2)

Green infrastructure is defined in the PPS as “natural and human-made elements that provide ecological and hydrological functions and processes.” Green infrastructure can include natural heritage features and systems, parkland, stormwater management systems, street trees, urban forests, natural channels, permeable surfaces, and green roofs. Green infrastructure is important to Peel Region because it offers opportunities to manage the impacts of development in ways that mimic natural systems, thereby mitigating impacts associated with climate change. Green infrastructure offers many benefits including providing stormwater retention, providing wildlife habitat, and improving air quality. The PPS, 2014 directs planning authorities to:

- promote green infrastructure to complement traditional forms of infrastructure.

Stormwater Management (Policy 1.6)

Stormwater management has been a rapidly evolving discipline over the past 30 years. Initially, stormwater management, in the 1970’s, focused largely on peak flow controls to address flooding. This was largely accomplished by dry stormwater management detention facilities. As the need for, and understanding of, stormwater management advanced so too did the objectives. In the late 1980’s and early 1990’s stormwater management also considered erosion control and water quality controls by way of extended detention and stormwater management facilities with permanent pools or ponded areas (wetlands and wet ponds). As the science and understanding advanced further in the latter part of the 1990’s and early 2000’s, volume control through water budgeting and water balance techniques was recognized and encouraged through distributed infiltration and source controls. The current best practice involves using a series of approaches which combine lot level, conveyance, and end-of pipe stormwater management practices to meet multiple objectives, including maintaining the hydrologic cycle, protecting water quality, and preventing increased erosion and flooding. This method is referred to as a treatment train approach to stormwater management.

Generally, end-of-pipe systems address flood and erosion control. Water quality control is achieved through wet ponds, wetlands and hybrid systems. Conveyance controls, including swales and

exfiltration pipes, contribute to the overall treatment of stormwater. In recent years, stormwater management through Low Impact Development Best Management Practices (LID BMPs) and Green Infrastructure is being promoted and applied to achieve overall water balance, and water quality control. In 2017, the MOECC released draft run-off volume control targets for Ontario in the Low Impact Development Stormwater Management Guidance Manual. The manual also addresses stormwater management best practices for climate change mitigation and adaptation. When finalized, the new targets will be applied to all new development, redevelopment, reurbanization, residential intensification, linear projects and stormwater retrofit projects. MOECC will also be providing the legislative framework to implement climate change adaptation measures within municipal stormwater water projects through approvals under the *Ontario Water Resources Act*.

The PPS, 2014 policies provide specific direction with respect to planning for stormwater management including requiring municipalities to:

- minimize, or, where possible, prevent increases in contaminant loads;
- minimize changes in water balance and erosion;
- not increase risks to human health and safety and property damage;
- maximize the extent and function of vegetative and pervious surfaces; and
- promote stormwater management best practices, including stormwater attenuation and re-use, green infrastructure and low impact development.

Watershed Planning (Policy 2.2)

Watersheds and subwatersheds are dynamic. Issues and problems emerge over time, at various scales and as a result of various interactions between water, the built environment and the natural environment. Watershed planning allows for the integrated management of both ground and surface water planning in a comprehensive manner. Municipal levels of government are in a good position to use a watershed and subwatershed approach to integrate water resources planning, land use planning and infrastructure planning given the geographical scale at which these plans are prepared. Municipalities in partnership with the conservation authorities undertake flood hazard mitigation planning on a watershed scale. Many aspects of the planning for watersheds, natural hazards and infrastructure planning are interconnected and need to be considered comprehensively.

The PPS, 2014 has been modified to more clearly identify the importance of the watershed as “the ecologically meaningful scale for integrated and long-term planning”. The PPS 2014, directs planning authorities to protect, improve or restore the quality and quantity of water by using the watershed as the scale to integrate planning and consider the cumulative impacts of development.

Land use activities that occur within the watershed have ripple effects through the environment. Planning for the protection of water resources therefore involves giving consideration to the impact of development and promoting sustainable land use practices. Urban growth and the corresponding increase in impervious surfaces affects the water cycle in watersheds through changes to surface drainage patterns, surface water hydrology and ground water recharge. Surface water quality is influenced by the quality and quantity of groundwater that discharges into streams, contaminants from

urban stormwater runoff and runoff from rural lands. These effects can be widespread across the watershed and therefore need to be managed on a watershed basis. Increased impervious surfaces without adequate stormwater management infrastructure will also have impacts on flood hazard mitigation.

Updates to the PPS, 2014 require planning authorities to:

- identify water resource systems;
- use the watershed as the ecologically meaningful scale for integrated and long-term planning;
- maintain linkages and related functions among natural heritage features and areas including shorelines;
- plan for efficient and sustainable use of water resources;
- implement necessary restrictions on development and site alteration to protect municipal drinking water supplies and improve water features and areas; and
- ensure consideration of lake capacity.

Water Conservation and Water Quality (Policy 2.2.1)

The PPS now requires that planning authorities plan for efficient and sustainable use of water resources, whereas previously only promotion was required.

- the Region of Peel will need to determine appropriate official plan policies that support the planning of efficient and sustainable uses of water resources.

Identification of Water Resource Systems, Features and Areas (Policy 2.2.1)

The PPS, 2014 was updated to require municipalities to identify water resource systems. This policy direction is different from the previous *feature* based identification approach included in earlier versions of the PPS. The new direction requires identification and mapping of water system components. Although there are limitations to the mapping of system components at a regional scale, identification and mapping may include surface and ground water features and areas that maintain or support hydrologic functions, natural heritage features and areas and shoreline areas, which are necessary for the ecological and hydrological integrity of the watershed.

6.2 Policy Gaps and Best Practices

The following provides selected examples of best practices for consideration in the Region's policy review.

Climate Change

Regional official plans address climate change through a variety of approaches, although the term 'climate change' is not always used and the emergence of climate change policy for planning is recent and evolving. For instance, the Region of York Official Plan includes policies on Sustainable Communities (Section 5.2) including policy for specific efficiency and conservation targets for new buildings. York's

Official Plan includes a target of 10% greater water conservation than the Ontario Building Code for all new buildings.³ The City of Toronto's Official Plan supports the implementation of the Toronto Green Standard to facilitate the development of sustainable site and building design. The goal of the Toronto Green Standard is to decrease future infrastructure demands and environmental impacts including minimizing stormwater run-off. The standard implements the City's Wet Weather Flow Management Guidelines and encourages retention of 10mm of each 24-hour rainfall event, for rainwater reuse, on-site infiltration and/or evapotranspiration. The guidelines set out requirements for stormwater performance so that source control is undertaken as a priority. The guidelines also set out targets which focus on flood management and erosion control with an aim to minimize the impacts on downstream flooding, stream bank erosion, and overflows of infrastructure.

The Region of Peel Official Plan speaks to sustainability as an overarching theme of the plan. Section 7.6.2 of the ROP inserts sustainability policies and encourages the preparation of green development standards. Through Peel 2041, the Region has the opportunity to address climate change in a multi-faceted way by embedding policies related to adaptation and mitigation throughout the ROP to support the implementation of the PPS, 2014 and initiatives under the Peel Climate Change Strategy including regional assessments of vulnerability to climate change.

The Region of Peel, Credit Valley Conservation (CVC) and the Toronto and Region Conservation Authority (TRCA) have recently completed vulnerability assessments to better understand how climate change may affect different sectors of the community in Peel, including the Region's natural systems and water infrastructure. Information from the Water Infrastructure System Vulnerability report will inform policy options being considered as part of the Water Resources Policy Review. In particular, the report recommends an integrated watershed management framework whereby staff would coordinate the planning for infrastructure watersheds and land-use in order to reduce flood risk and protect the environment. As noted in the Climate Change Discussion Paper, 2018 investments in climate-resilient infrastructure help to protect against flood damage.

Green Infrastructure

Municipalities are integrating watershed management, stormwater management, natural heritage planning and land use planning to ensure supportive policies are in place that recognize and encourage the use of green infrastructure approaches. Increasingly, municipalities are recognizing that green infrastructure can be developed to support city-building objectives including environmental sustainability and to assist with mitigating natural flooding hazards in urban areas.

New LID guidance material is being made available to municipalities. The CVC and TRCA have developed a series of guidance documents to assist public and private landowners with implementing green infrastructure and low impact development best management practices on their properties. MOECC has updated its stormwater management guidance to better support the use of green infrastructure. Peel's Official Plan policies can support these efforts through encouraging and facilitating appropriate Low Impact Development (LID) practices.

³ Regional Municipality of York. York Region Official Plan – Office Consolidation. April 2016.

Stormwater Management

Municipalities no longer view stormwater as simply run-off from urbanized areas, but as a resource that needs to be managed. Stormwater management can be integrated into the land-use planning process through official plan policy guidance and the development application review process. Integrating stormwater management and the land use planning process can help to ensure the continued health of streams, rivers, lakes and groundwater including terrestrial habitats and mitigate against extreme precipitation events which are anticipated to become more frequent as the climate changes. Municipal official plan policies can support stormwater management planning by specifying the required type, content, and timing of stormwater management plans in the planning process. Policies can also promote or require specific stormwater approaches, such as LID or specific best practices (e.g. green roofs) and set out the intended general objectives, performance standards or targets to be achieved.

The Region of Peel's Official Plan includes stormwater management policies for areas in the Greenbelt Plan, but does not formally provide general policies or detailed guidance in relation to stormwater management as a program or as a component of growth planning and the development review process.

Although, the Region of Peel is responsible for stormwater management on Regional property, including Regional roads, it is also a Regional interest to ensure that stormwater from properties adjacent to regional facilities and infrastructure is properly managed and coordinated and that stormwater management planning and design is integrated to ensure that water resources are managed efficiently in an environmental sustainable manner. From a broader perspective, Peel has an interest in overall watershed health, water resources protection, and stormwater management from a public safety consideration (i.e. flooding) therefore stormwater quantity and quality control is of Regional interest.

Best practices in Regional official plans include devoting specific sections pertaining to stormwater management. These plans provide Regional objectives and policy guidance to local municipalities. Regional official plans that provide detailed guidance require the preparation of comprehensive Master Environmental Servicing Plans (MESP) as a component of Secondary Plans and/or prior to major development or redevelopment, to manage stormwater and reduce contaminant loads, and optimize infiltration through an integrated treatment approach. Municipal official plans, such as the City of Toronto, require new development to "include stormwater management in accordance with best management practices". The Toronto Official Plan then references the Wet Weather Flow Management Master Plan which was developed to improve the way stormwater is handled.

Recognizing the direction in the PPS 2014 and Growth Plan, it would be a best practice to encourage the development of stormwater master plans at various scales ranging from municipal-wide master plans that support municipal stormwater programs, to master plans developed at a watershed and sub-watershed scale. This would allow for stormwater to be recognized as a resource, and be addressed as integrated components of watershed and sub-watershed plans.

Watershed Planning

Many historical development practices have resulted in impacts which have degraded natural systems. As such, municipalities are now using a holistic approach that involves considering the impacts of

development patterns and practices on the natural environment. Many municipalities, including the Region, have endorsed a watershed management approach through their official plans that recognize the impacts of development, including intensification, on natural systems and the requirements for maintaining or enhancing watershed conditions.

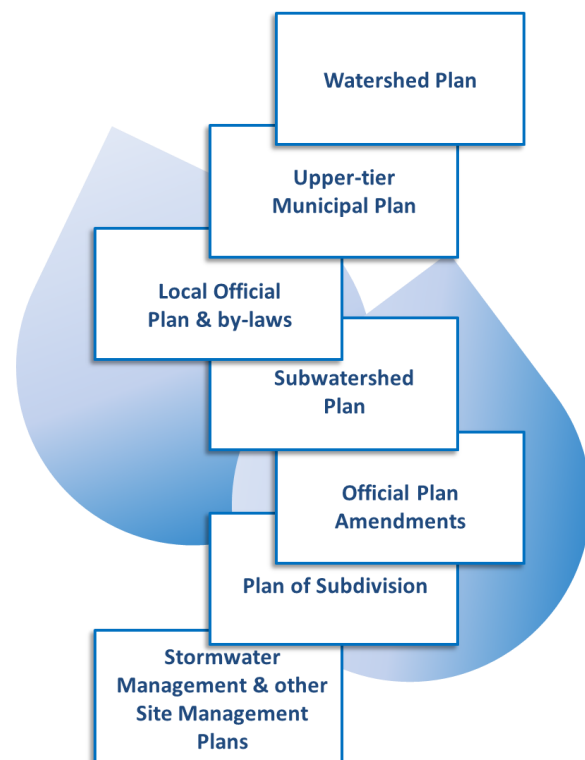
Watershed plans allow municipalities and conservation authorities to establish broad goals, objectives and targets for the watershed and contribute to the land use planning process by providing a detailed understanding of natural system functions within the watershed and making recommendations regarding the management of the ecosystem, in light of alternative land use patterns.

Best practices and guidance on integrating watershed approaches in municipal planning recognize the importance of requiring watershed planning at different scales and levels of detail. Policy practices typically recognize a hierarchy of plans and studies. Watershed planning approaches in official plans generally require or promote the development of watershed plans to understand the impacts of development at a broad scale, outline broad management approaches to address impacts, and provide a structure for more detailed planning to be implemented throughout the planning and development process. The integration of watershed planning and growth management planning also provides an opportunity for municipalities to manage natural hazards, especially in flood vulnerable areas.

Policy guidance may include requirements for subwatershed planning, stormwater management planning, master environmental and servicing planning, and environmental impact studies. Policy best practices have evolved over time to provide more detailed direction with respect to requirements for these types of plans and studies in the planning process, their required content, and requirements regarding implementation of recommendations contained in the plans and studies. Halton Region, for example, has adopted policies that outline required content for watershed plans and policy direction requiring appropriate amendments to incorporate recommendations from the watershed plans into the official plan, with recognition that watershed plans are to provide more detailed direction for subwatershed planning.

Recent amendments to the provincial land use planning framework through the Coordinated Plans Review resulted in changes to the provincial plans including stronger requirements for municipalities to

Figure 6.1: Scales of Watershed Planning and Implementation



undertake watershed and sub-watershed planning. The Ministries of Natural Resources and Forestry and Environment and Climate Change are currently leading a process to update watershed planning guidance to support implementation of the new policy direction. The Region will be monitoring this process and using the guidance to update policies as it becomes available.

Through the TRCA's Living City Policies the TRCA has established criteria for water quality, water quantity, erosion control and water balance. The Living City Policies provide guidance for municipal official plans by establishing criteria to be applied at all stages of the planning and development process including master plans, official plan amendments, draft plans of subdivisions and site plans. This process is supported by technical reports and studies including watershed and subwatershed plans, the scope of which is recommended by TRCA in consultation with municipalities.

The Regional Official Plan watershed planning framework could be clarified and strengthened to reflect current practice in Peel Region and provide more detailed direction with respect to how watershed planning approaches should be implemented.

Water Conservation and Water Quality

Many regional official plans provide direction on water conservation and water quality including having a section dedicated to water conservation and efficiency. The York Region policies specifically identify sustainability, as an objective when providing water and waste water servicing. The "Water Conservation and Efficiency" Section of the York Region Official Plan established objectives for development a long-term conservation strategy and implementing a conservation master plan.

The Region of Peel uses a number of tools to address water conservation and quality. Peel has adopted a water efficiency strategy that sets out goals and targets for reducing per capita consumption by 10-15% over the next 20 years. This goal has been translated into official plan policy in order to guide development decisions. There is opportunity to enhance the Peel Official Plan to promote and support the development of water conservation master planning and community education in order to foster greater conservation efforts.

Water quality is addressed through a number of policies related to protecting environmental health. Water quality policies typically reflect the general policy direction in the PPS and provincial plans to protect, improve or restore water quality. Growth planning and development decisions are typically required to demonstrate how negative impacts are to be avoided or minimized. Study requirements are identified in an integrated watershed planning framework ranging from broad scale to more site-specific environmental impact studies requiring demonstration of how policy requirements are met.

Identification of Water Resource Systems, Features and Areas

The Region's Official Plan recognizes water resources in Peel as interrelated systems such as aquifers, groundwater recharge and discharge areas, rivers, streams, ponds, wetlands and lakes. Although identified and recognized as an interrelated system in the policies, the Regional Official Plan does not currently include schedules or figures which map individual water resource features or areas that represent components of Peel's water resource system.

The watershed is considered the logical geographic unit for water resources system planning and therefore it would be a best practice to present the mapping on a watershed scale. Using information provided through the conservation authorities, systems, features and areas can be identified and mapped. The Regional Official Plan policies should be supported with mapping and integrate the protection of water resources systems, features and areas identified on the maps through growth management and the development application review process.

Mapping in municipal official plans occurs at various scales. A regional official plan should present information at broad scale. At the local level, more detailed mapping of the precise location of features and areas can be refined and detailed mapping generated through watershed planning. The Region of Peel will need to consider how best to partner with the local municipalities in order to present this information. These actions would support the Promote the continued protection of natural heritage and water systems in the Region as a basis for informing land use planning decisions.

6.3 Policy Options

The Region of Peel Official Plan is generally consistent with the PPS, 2014, however some modifications to the Plan are necessary with respect to water resources to ensure complete consistency.

Climate Change

Explicit identification of the threat posed by climate change to the Region's water resources systems should be recognized in the Official Plan. The Official Plan could acknowledge the benefits of the Region's water resources and natural heritage systems in mitigating the impacts of climate change. Adaptation and mitigation policies can be embedded throughout the Official Plan, including policies that support the recommendations presented in the Peel Climate Change Vulnerability Assessments. As detailed in the Climate Change Discussion Paper, 2018, Peel's Official Plan can also indicate how land use planning is clearly linked to climate change mitigation and adaptation, and include Regional policies at a strategic level that can enable local municipalities to address climate change more readily in their official plans. Policies should clearly describe how growth management and the support for complete communities, land use patterns, population and employment densities, compact form, and strategic growth areas minimize the negative impacts of climate change and GHG emissions.

Green Infrastructure

The concept of "green infrastructure" and its potential to complement "gray infrastructure" should be introduced into the Official Plan. Consideration should be given to adding a new subsection to Section 3, Resources, to require green infrastructure approaches throughout the planning approvals process when planning new communities and redeveloping existing areas and as a guiding consideration for stormwater management planning and design.

Planning for Stormwater Management

The Regional Official Plan should promote stormwater as a resource which can be used to enhance sustainable community development through the use of LID, as opposed to considering stormwater as run-off which must be channeled and conveyed into storm drains and sewers. Conservation Authorities, including the TRCA, are encouraging municipalities to implement stormwater management practices that implement a treatment train approach in order to integrate stormwater management into the land use planning process and consider how stormwater may be captured and reused for beneficial purposes. As noted in the Climate Change Discussion Paper 2017, the Region should also identify the risks to infrastructure through vulnerability assessments and promote infrastructure planning which provide solutions to the identified vulnerabilities.

Detailed policies on stormwater management should be added to the Plan in Section 3.4, Water Resources. These policies should:

- define stormwater management;
- clarify roles and responsibilities among various levels of government at different planning stages;
- provide both broad and specific direction for stormwater planning that supports implementation of watershed and subwatershed plans through land use planning;
- provide guidance for stormwater management in greenfield versus intensification areas;
- establish the need to prepare stormwater management and master plans at appropriate scales;
- require higher standards of stormwater planning and design including implementation of green infrastructure and Low Impact Development best management practices and broad level performance standards (e.g. provincial requirements for volume control);
- establish the Region's objectives with respect to stormwater management including those outlined in Section 1.6.6.7 of the PPS; and
- require integrated consideration of stormwater management for Regional infrastructure through the planning approval process.

Watershed Planning

More explicit direction is required in the Official Plan related to watershed and subwatershed planning in Section 2.2.4, Watersheds, including:

- a preamble to communicate the benefits of watershed and subwatershed planning in protecting the natural environment and mitigating the effects of climate change;
- a requirement for watershed and subwatershed planning;
- direction with respect to the purpose of such plans, including how the information contained in the plans will inform growth management and infrastructure planning decisions;
- establishment of the process for carrying out such plans; and,
- direction for the key matters which the plans should address including the protection of features and areas.

In addition, the policies on Water Resources in Section 3.4 require updating to reference “water resource systems”.

Water conservation and Water Quality

The current Regional Official Plan policies in Section 6.3 with respect to sewage and water services focus on providing such services in an efficient and cost-effective manner. The modification of the policies is recommended to strengthen implementation of water conservation and provide more explicit direction on how this may be achieved. To support Peel’s water conservation targets policies can be inserted to encourage the development of a water conservation master plan.

Identification of Water Resource System, Features and Areas

The Region’s approach to identifying a water resource system consistent with the PPS, 2014 should be based on definitions and policy in the PPS and the data available to map features and areas on a consistent Region-wide basis. Policy options for mapping of surface and ground water should consider the Regional scale at which mapping can be provided and options for undertaking refinement of mapping at the local level. Potential options to identify and map the Region’s water resource system, features and areas include:

- Identifying surface water features and areas including lakes, rivers, streams and groundwater recharge areas;
- Including groundwater resource areas such as highly vulnerable aquifers; and
- Mapping source water protection vulnerable areas.

More precise delineation of features and areas would require site level evaluation of the boundaries.

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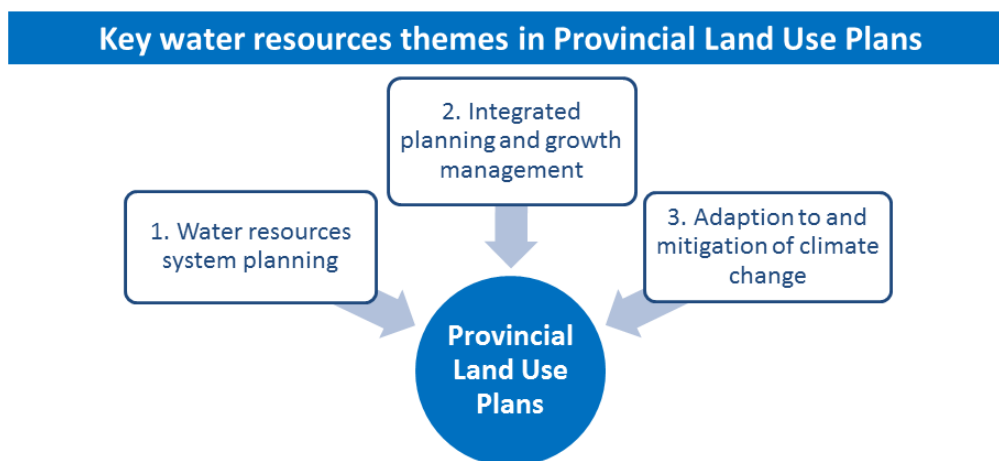
7. Provincial Land Use Plans (Coordinated Plan Review and Update)

In 2015, the Province began a review of the Growth Plan for the Greater Golden Horseshoe, the Greenbelt Plan, the Oak Ridges Moraine Conservation Plan and the Niagara Escarpment Plan. These four provincial land-use plans build upon the PPS and work together to manage growth and protect the natural environment in the Greater Golden Horseshoe. The Co-ordinated Land-Use Plan Review began with an advisory panel, chaired by David Crombie which provided recommendations to the government through the “Planning for Health, Prosperity and Growth in the Greater Golden Horseshoe: 2015 – 2041” report. Based on these recommendations, the province released proposed changes to the four plans for consultation. In spring 2017, the final updated plans were released and took effect July 2017. To support the implementation of the policies, the province will release guidance material including direction on watershed planning with guidance in identifying water resources systems.

7.1 Description of Key Theme Area

With regards to water resources there are three predominant themes that run through all of the plans:

Figure 7.1: Key Water Resources Themes in Provincial Land Use Plans



Climate change is an overarching theme within all of the provincial land use plans. The Province has established a commitment to reducing greenhouse gas emissions and providing direction and tools to adapt communities to the effects of climate change. Municipal land-use planning is a part of the solution. Through the updated policies in the provincial land-use plans, municipalities are encouraged to consider climate change adaptation and mitigation including moving towards low-carbon communities and undertaking infrastructure vulnerability risk assessments, promoting stormwater management best practices and green infrastructure as climate change adaptation measures.

7.1.1 Growth Plan, 2017

The changes to the Growth Plan reinforce the changes in the PPS, 2014. The new policies in the Growth Plan direct municipalities to undertake a greater level of integration between planning for growth and protecting natural resources. The two key Growth Plan amendments pertaining to water are as follows:

- New Growth Plan policies require municipalities to identify water resource systems and protect key hydrologic features and areas. This means new mapping and corresponding policy will be required. The Province has provided definitions in the Growth Plan policy to assist municipalities in understanding which features need to be mapped. However, there is flexibility in the policy for municipalities to determine which features would be appropriately mapped to meet the intent of this policy.
- The Province has complemented water resource system mapping with the requirement to undertake watershed scale planning in order to inform the protection of water resource systems and decisions related to planning for growth.⁴ The Growth Plan now lays out the building blocks for this approach. The process starts with municipalities, in partnership with conservation authorities, undertaking watershed planning. Watershed planning will provide for a comprehensive, integrated and long-term approach for the protection, improvement or restoration of the quality and quantity of water within a watershed.

Based on the information obtained through watershed scale studies, municipalities are now required to identify water resource systems. Once identified, and the appropriate designations and policies can be applied in official plans to provide for the long-term protection of key hydrologic features, key hydrologic areas and their functions, similar to the level of protection provided in the Greenbelt.

Decisions on how and where growth is planned in conjunction with planning for infrastructure can be informed by watershed planning through the planning approval process. In particular, the Growth Plan now requires that decisions on settlement area boundary expansions and secondary plans for designated greenfield areas, will be informed by a subwatershed plan or equivalent.

The purpose of these policy changes are to provide consistent protection for water resources across the Greater Golden Horseshoe, both inside and outside of the Greenbelt protected areas, and to better integrate water resources management with growth management.

7.1.2 Greenbelt Plan, 2017

Like the Growth Plan, the 2017 Greenbelt Plan further integrates growth management with land-use planning by requiring consideration of water resources when undertaking watershed, sub-watershed and stormwater management planning. Integrated watershed planning is required to be based on watershed plans and watershed management approaches. Watershed and sub-watershed plans must be used to inform decisions on growth, settlement area boundary expansions and planning for

⁴ Ministry of Municipal Affairs and Housing. Growth Plan.

infrastructure. The intent of the policy changes is to protect the key hydrologic features, areas and functions. The revised water resources policies in the Greenbelt Plan complement the updated Growth Plan and PPS by recognizing the inter-connected system of landform features, areas and functions that work together to support healthy water resources.

7.1.3 Oak Ridges Moraine Conservation Plan, 2017

The amendments to the Oak Ridges Moraine Conservation Plan, 2017 are consistent with the Province's efforts to address climate change while, increasing the profile of integrated watershed planning and growth management. While the development of watershed plans for streams that originate on the moraine is not new, the Province has updated its policies to more explicitly require the consideration of climate change when preparing watershed plans and water budgets. Policies now require stormwater management master plans and stormwater management plans for settlement areas and provide direction with respect to the objectives and content of such plans.

7.1.4 Niagara Escarpment Plan, 2017

The Niagara Escarpment Plan was the first provincial land use plan. The NEP's policies strike a balance between development, protection and enjoyment of the Niagara's Escarpment's features and the resources it supports. Revisions in the NEP align with the systems-based approach to protection key hydrologic features, as set out in the Greenbelt Plan.

7.2 Policy Gaps and Best Practices

The updates to the provincial land use plans "close the gap" between watershed planning and growth management establishing stronger environmental protection requirements. The province has recognized the need to identify natural systems as the first step in planning for and protecting the water resources system. Once important water features and areas have been identified, development in and adjacent to these features and areas can be managed to ensure water quantity and quality is maintained, restored or improved. A consistent policy approach for the protection of all water resources would assist municipalities in developing and applying policies. The proposed changes will also bring a consistent approach to water resources protection within and outside of the Greenbelt.

Peel Region has an established practice of working with its conservation authorities to undertake watershed and subwatershed planning and thereby develop watershed plans. The information and guidance presented in these watershed/sub-watershed plans informs Peel's land-use planning policies and development decisions. This best practice is now reflected in the provincial policies.

7.3 Policy Options

The provincial legislation for the Growth Plan, Greenbelt Plan, Oak Ridges Moraine Conservation Plan and Niagara Escarpment Plan require municipal official plans to conform to the provincial plans. The ROP will be reviewed and updated to ensure conformity with provincial requirements. Separate conformity reviews are being prepared to ensure the ROP conforms with the Greenbelt Plan, Oak Ridges

Moraine Conservation Plan and Niagara Escarpment Plan. Water resource policies in the Growth Plan are being addressed through the Water Resources Policy Review component of Peel 2041 and integrated with changes directed by the PPS and other provincial legislation to ensure policies are integrated as necessary as outlined in this discussion paper.

The Regional Official Plan currently recognizes the watershed as the appropriate scale for planning and encourages the development of watershed/sub-watershed plans to inform land-use planning decisions. The Region should consider inserting policies that:

- Identify and protect a water resources system, features and areas, on a region-wide bases, either as a schedule or figure to the official plan.
- Strengthen policy direction for watershed and subwatershed planning to inform the protection of water resources systems and decisions related to the planning for growth. Additional specific requirements related to undertaking watershed planning and to completing subwatershed plans, or their equivalent, when planning settlement boundary expansions and new greenfield areas could be inserted into the Regional Official Plan.
- Clarify requirements for watershed and subwatershed master plans, which are informed by watershed planning, and requiring that municipalities develop stormwater master plans for services settlement areas.
- Adding policies for stormwater management requirements including requirements that new development be supported by stormwater management plans and that stormwater management planning incorporate low impact development and green infrastructure approached.
- Insert policies related to climate change planning throughout the relevant sections of the official plan which provide direction on how climate change impacts, adaptation practices and mitigation practices will be considered throughout the growth management planning and development review processes.
- Provides policy direction that stormwater management planning assess the impacts of extreme weather events and incorporate green infrastructure and low impact development stormwater management approaches.
- Provides direction requiring risk and vulnerability assessments for water, wastewater and stormwater infrastructure.
- Updates the policy direction for water conservation in keeping with policy objectives that support a culture of conservation in the Region.
- Add policies that support the general directions and recommendations of the community sector vulnerability assessments undertaken through the implementation of the Peel Climate Change Strategy.

8. Conservation Authority Guidance

Credit Valley Conservation and Toronto and Region Conservation prepare watershed and sub-watershed plans that inform development within the conservation authority regulated areas and guides the Region and its local municipalities as they update their official plan policies and practices for environmental stewardship. Watershed planning is a continuous process that requires the:

- collection of water resource data and associated analysis to identify issues and problems;
- planning recommendations to protect and promote resource sustainability;
- implementation of the watershed and/or sub-watershed plan; and
- monitoring and evaluating the plan while continuously updating it to adapt to new information or technology.

Watershed plans have been prepared for all four of the major watersheds that cross through Peel Region. In addition to watershed plans, the CAs undertake monitoring to evaluate the health of watersheds and sub-watersheds, therefore evaluating the effectiveness of existing policies and as a basis to make recommendations on new policies. The Region values this conservation authority guidance and uses it to inform planning decisions.

The TRCA Living City Policies and the CVC Watershed Planning and Regulation Policies are the leading standard in conservation authority guidance. Both documents set out the principles, goals, objectives and policies for guiding planning and development. These documents highlight the conservation authority commitment to a systems approach to managing watersheds within their jurisdiction.

The new policy direction on water resources, and the renewed emphasis and guidance regarding watershed planning will be the basis for ongoing work by the conservation authorities to update the next generation of watershed plans for the Region in collaboration with local municipalities and other stakeholders, agencies and partners.

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9. Conclusion and Next Steps

The Region's current official plan policies serve to protect, maintain and enhance the quality and quantity of water resources while maintaining ecosystem integrity in Peel Region. As the science of water resource planning evolves, the Regional Official Plan should be updated to remain current. In addition to best practices, the Province has updated various pieces of legislation to address a variety of matters which have been presented in this paper. It is the Region's responsibility to implement provincial direction in its efforts to resolve water resource conflicts and mitigate against adverse impacts.

This discussion paper has provided an overview of the components which together make-up the Peel 2041 Water Resources Policy Review. Best practices have been presented and policy options for consideration have been proposed. Ultimately, through the Peel 2041 policy review and update, Peel Region will be strengthening its water resources policies. The proposed policy and mapping amendments conform to provincial plans, legislation and policy statements, as well as reflect current best practice guidance in water resources management. Peel will be using a series of strategies to complete these objectives including:

- identification of a water resources system;
- establishment of an approach for fostering water conservation and protection of water system features and areas;
- creation of a framework to protect drinking water sources;
- understanding the regional role in stormwater master planning; and
- developing direction for integrating watershed planning and growth management, using a "one water" perspective.

New mapping and policies will be developed and inserted into the Regional Official Plan. Together, these policies will form the framework for decision making to protect and enhance water resources.

References

Credit Valley Conservation (2017). Water Infrastructure Vulnerability to Climate Change in the Region of Peel.

Tu, C., Milner G., Lawrie, D., Shrestha, N., Hazen, S., (2017). Natural Systems Vulnerability to Climate Change in Peel Region. Toronto, Ontario: Toronto and Region Conservation Authority and Ontario Climate Consortium Secretariat.

Regional Municipality of York. York Region Official Plan – Office Consolidation. April 2016.

Ministry of Municipal Affairs and Housing. 2005. Places to Grow Act (Growth Plan).

Appendix A: Lake Simcoe Protection Plan, July 2009 - Designated Policies Applicable to Peel Region

Designated policies affect how decisions are made under specific statutes (i.e. the *Planning Act*). The *Lake Simcoe Protection Act* requires decisions under the *Planning Act* or the *Condominium Act, 1998*, to conform to the applicable designated policies in the Lake Simcoe Protection Plan and have regard to other applicable policies. The *Act* also requires that municipalities bring their official plans into conformity with the applicable “designated policies” at their five-year official plan review.

Sewage Treatment

4.1-DP For a proposed settlement area expansion, establishment of a new settlement area or a development proposal outside of a settlement area that requires an increase in the existing rated capacity of a sewage treatment plant or the establishment of a new sewage treatment plant, an environmental assessment of the undertaking shall be completed or approved prior to giving any approvals for the proposal under the *Planning Act* or the *Condominium Act, 1998*.

4.3-DP No new municipal sewage treatment plant shall be established in the Lake Simcoe watershed unless:

- a. the new plant is intended to replace an existing municipal sewage treatment plant; or b. the new sewage treatment plant will provide sewage services to,
 - i. a development that is on partial services, or
 - ii. a development where one or more subsurface sewage works or on-site sewage systems are failing.

4.4-DP No new non-municipal sewage treatment plant shall be established in the Lake Simcoe watershed unless the person applying to establish the plant can demonstrate that:

- a. the plant will result in a net reduction of phosphorous loadings to the watershed from the baseline conditions for the property that would be serviced by the new plant; or
- b. the undertaking that the plant will serve will not add phosphorous loadings to the Lake Simcoe watershed.

Stormwater Management

4.7-DP Municipalities shall incorporate into their official plans policies related to reducing stormwater runoff volume and pollutant loadings from *major development* and *existing settlement areas* including policies that:

- a. encourage implementation of a hierarchy of source, lot-level, conveyance and end-of-pipe controls;
- b. encourage the implementation of innovative stormwater management measures;
- c. allow for flexibility in development standards to incorporate alternative community design and stormwater techniques, such as those related to site plan design, lot grading, ditches

- and curbing, road widths, road and driveway surfaces, and the use of open space as temporary detention ponds;
- d. support implementation of programs to identify areas where source control or elimination of cross connections may be necessary to reduce pathogens or contaminants; and
- e. support implementation of source control programs, which are targeted to existing areas that lack adequate stormwater controls.

4.8-DP An application for *major development* shall be accompanied by a stormwater management plan that demonstrates:

- a. consistency with stormwater management master plans prepared under policy 4.5, when completed;
- b. consistency with subwatershed evaluations prepared under policy 8.3 and water budgets prepared under policy 5.2, when completed;
- c. an *integrated treatment train approach* will be used to minimize stormwater management flows and reliance on end-of-pipe controls through measures including source controls, lot-level controls and conveyance techniques, such as grass swales;
- d. through an evaluation of anticipated changes in the water balance between pre-development and post-development, how such changes shall be minimized; and
- e. through an evaluation of anticipated changes in phosphorus loadings between pre-development and post-development, how the loadings shall be minimized.

Settlement Areas

6.32-DP Policies 6.32 - 6.34 apply to existing settlement areas and areas of Lake Simcoe adjacent to these lands, including the littoral zone, and these areas are not subject to policies 6.1 – 6.3, 6.5, 6.11 and policies 6.20 - 6.29.

6.33-DP An application for development or site alteration shall, where applicable:

- a. increase or improve fish habitat in streams, lakes and wetlands, and any adjacent riparian areas;
- b. include landscaping and habitat restoration that increase the ability of native plants and animals to use valleylands or riparian areas as wildlife habitat and movement corridors;
- c. seek to avoid, minimize and/or mitigate impacts associated with the quality and quantity of urban run-off into receiving streams, lakes and wetlands; and
- d. establish or increase the extent and width of a vegetation protection zone adjacent to Lake Simcoe to a minimum of 30 metres where feasible.

6.34-DP Where, through an application for development or site alteration, a buffer is required to be established as a result of the application of the PPS, the buffer shall be composed of and maintained as natural self-sustaining vegetation.

6.35-DP For greater certainty, where lands have been incorporated into a settlement area after the effective date of the Plan, an application for development or site alteration within those lands are subject to the policies in this Chapter other than policies 6.32 to 6.34.

Recharge Areas

6.36-DP A significant groundwater recharge area is an area identified,

- a. as a significant groundwater recharge area by any public body for the purposes of implementing the PPS;
- b. as a significant groundwater recharge area in the assessment report required under the *Clean Water Act, 2006* for the Lake Simcoe and Couchiching/Black River Source Protection Area; or
- c. by the LSRCA in partnership with MOE and MNR as an ecologically significant groundwater recharge area in accordance with the guidelines developed under policy 6.37.

6.38-DP Once identified, municipalities shall incorporate significant groundwater recharge areas into their official plans together with policies to protect, improve or restore the quality and quantity of groundwater in these areas and the function of the recharge areas.

6.39-DP Outside of the Oak Ridges Moraine area, urban settlement area expansions should avoid significant groundwater recharge areas.

6.40-DP Outside of the Oak Ridges Moraine area, an application for major development within a significant groundwater recharge area shall be accompanied by an environmental impact study that demonstrates that the quality and quantity of groundwater in these areas and the function of the recharge areas will be protected, improved or restored.

Existing Uses

6.45-DP Where a policy in this Chapter permits development or site alteration in relation to existing uses, the following policies apply:

- a. All existing uses lawfully used for such purposes on the day before the Lake Simcoe Protection Plan comes into force are permitted;
- b. The construction of a building on an existing lot of record is permitted, provided it was zoned for such as of the date the Plan comes into effect, or where an application for an amendment to a zoning by-law is required as a condition of a severance granted prior the date this Plan comes into effect;
- c. The development permitted in b., expansion to existing buildings or structures, accessory structures and uses, and conversions of legally existing uses which bring the use more into conformity with this Plan are permitted subject to a demonstration that the use does not expand into a key natural heritage feature, a key hydrologic feature and any minimum vegetation protection zone associated with a feature or the Lake Simcoe shoreline, unless

- there is no alternative in which case any expansion shall be limited in scope and kept within close geographical proximity to the existing structure;
- d. The expansion to existing agricultural buildings and structures, residential dwellings and accessory uses to both, may be considered within a key natural heritage feature, a key hydrologic feature, and any minimum vegetation protection zone associated with these features or the Lake Simcoe shoreline, if it is demonstrated that:
 - i. there is no alternative to the expansion or alteration and the expansion or alteration is directed away from the feature and vegetation protection zone to the maximum extent possible, and,
 - ii. the impact of the expansion or alteration on the feature and its functions is minimized to the maximum extent possible.
 - e. Expansion, maintenance or replacement of existing infrastructure is permitted.