Peel2041

Regional Official Plan Review

Protecting Water Resources: Roles and Responsibilities

Peel 2041 Discussion Paper

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Region of Peel
working with you

Table of Contents

Section **Page**

1. INTRODUCTION 4
1.1 Study Purpose and Objectives 4
1.2 Overview of Water Resources in the Region of Peel 5
1.2.1 Watershed Level 5
1.2.2 Lake-Based Systems 6
1.2.3 Groundwater Systems 6
1.2.4 Surface water Systems 6
1.2.5 Stormwater Management 6
1.3 Impacts on Water Resources and Potential Consequences 8
1.3.1 Land Use 8
1.3.2 Climate Change 9

2. WATER RESOURCE POLICY CONTEXT 11
2.1 Current Water Resources Jurisdictional Framework 11
2.2 Relationship of Upper and Lower Tier Official Plans 12
2.3 Water Management and Planning Roles and Responsibilities 12
2.3.1 Region of Peel 12
2.3.2 Local Municipalities 14
2.3.3 Conservation Authorities 15
2.3.4 Provincial 17
2.3.5 Federal 19

3. CONCLUSION 21

List of Figures

Figure 1: Watershed Boundaries within Peel Region

Figure 2: Typical Water Cycle

Figure 3: Roles and Responsibilities Summary

Figure 4: Local Municipal and Region of Peel Policy and Regulatory Context

Figure 5: Conservation Authority Jurisdictional Map

Figure 6: Federal Policy and Regulatory Context

Tables

Table 1: Watersheds of Peel Region

Table 2: Region of Peel Policy and By-laws

Table 3: Local Area Municipalities Policy and By-Laws

Table 4: Conservation Authorities Policy and Regulatory Context

Table 5: Provincial Policy and Regulatory Context

Table 6: Federal Government and Others Policy and Regulatory Context

Appendices

Appendix A Figures

1. Introduction

1.1 Study Purpose and Objectives

Currently, the Region of Peel is undertaking a review and update of the Regional Official Plan (ROP) – *Peel 2041: Regional Official Plan Review*. The *Ontario Planning Act* currently requires municipalities to update their Official Plan every five years in order to ensure official plan policies stay current and are consistent with Provincial plans and policy. Under the Growth Plan, the Region of Peel is expected to grow to a population of 1,970,000 by 2041. Peel's ROP provides direction and guidance related to growth in Peel with an emphasis on sustainability. The updating of policies in the ROP ensures that growth is managed in a way that sustains the Region's water resources.

The Peel 2041: Regional Official Plan Review is focused on the following areas:

- Age-friendly Planning;
- Agriculture;
- Climate Change;
- Greenlands Systems Planning;
- Greenbelt Plans Conformity;
- Growth Management;
- Health and the Built Environment;
- Housing;
- Transportation; and
- Water Resources.



Source: Region of Peel 2041 Newsletter

Water resources are a central component in the ROP 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 surface and ground water features, areas and functions that are sensitive to the impacts of growth and development and to a changing climate. As such, water resource policies need to:

- Reflect current science and best practice;
- Recognize the role of water in preserving the health of the ecosystem;
- Ensure the protection of people and property;
- Embrace climate change impacts and adaptation strategies, and
- Consider the health of residents.

The objectives of the Water Resources Policy Review are to:

- Educate and engage stakeholders on proposed changes to the Region's water resources policies;
- Provide an overview of the changing policy framework for water resources and best practices guidance developed through research of Peel's conservation authorities and others;
- Consider proposed official plan policy options for the Region; and
- Ensure the policies in the ROP conform to provincial legislation, plans and policies.

The Water Resources Discussion Paper on roles and responsibilities is intended to provide information on the jurisdictional framework for managing water resources and clarify the role that regional and land use planning plays in relation to the other elements of the regulatory framework.

1.2 Overview of Water Resources in the Region of Peel

1.2.1 Watershed Level

Water resources interact on the landscape within a watershed. A watershed is defined as the area of land where all surface water drains to the same place, whether it is a creek, a stream or river. Watersheds cross municipal, provincial, and national boundaries and require integrated approaches to planning.

The Region of Peel is made up of four (4) main watersheds including the Etobicoke Creek, Mimico Creek, and the Humber River, which are under the jurisdiction of the Toronto and Region Conservation Authority (TRCA); and the Credit River (and its tributaries) which is under the jurisdiction of the Credit Valley Conservation (CVC). There are three smaller portions of watersheds that extend into Peel Region; these include the West Holland Subwatershed, within the jurisdiction of the Lake Simcoe Region Conservation Authority (LSRCA); the Nottawasaga River Watershed in the north east corner of Caledon, within the jurisdiction of Nottawasaga Valley Conservation Authority (NVCA); and the Sixteen Mile Creek Subwatershed in the southwest portion of Mississauga, within the jurisdiction of Conservation Halton (CH). The watersheds in Peel Region are depicted in Figure 1 and are summarized in Table 1.

Table 1: Watersheds of Peel Region

Conservation Authority	Watershed	Total Area (km^2)	Approximate Area in Peel Region	
			km^2	%
TRCA	Etobicoke Creek	211	34	16
TRCA	Mimico Creek	77	3	4
TRCA	Humber River	911	283	31
CVC	Credit River (and its tributaries)	1000	420	42
LSRCA	West Holland	354	2.8	0.3
NVCA	Nottawasaga	3, 147	0.01	0.9
CH	Sixteen Mile Creek	394	13	1.11

1.2.2 Lake-Based Systems

Water resources play a vital role in maintaining ecosystem integrity and are important for recreation, agriculture, industrial purposes and the supply of drinking water. Lake Ontario is an important part of everyday life in the Region of Peel. It is the source of drinking water for Brampton and Mississauga and parts of Caledon and it is also a place for leisure activities for many. All of the major watersheds within the Region of Peel drain into Lake Ontario and it remains a vital resource to be protected. Nearly one-quarter of the present population of Canada lives in southern Ontario near Lake Ontario and relies on this resource. Lake Ontario is the 14th largest lake in the world and the smallest of the Great Lakes in surface area but has a drainage area of 90,130 km^2.

Significant portions of Peel Region are serviced by lake-based systems for drinking water and wastewater treatment. The Lake Ontario based water supply provides water for the City of Mississauga, City of Brampton, and parts of Caledon. The lake-based system includes two water treatment facilities, the Lakeview Water Treatment Plant (WTP) in the central system and Lorne Park Water Treatment Plant in the west, as well as other infrastructure including trunk transmission mains, pumping stations and storage facilities. The system currently supplies water to a population of over 1.4 million. In 2016, the Lakeview WTP and Lorne Park WTP produced over 227 billion of litres of treated drinking water.[1]

1.2.3 Groundwater Systems

Groundwater is also an important regional resource. Not only does this resource supply drinking water, it also serves a vital role in maintaining ecosystem integrity. In the Town of Caledon, groundwater aquifers are the primary source for private and municipal water supplies not serviced by the lake-based system supplied by Lake Ontario. The Region of Peel provides potable water through a well-based system that draws water from 14 municipal wells.

1.2.4 Surface water Systems

Surface water is water that collects on the land surface (i.e. wetlands) or in a stream, river, lake, reservoir, or ocean. Surface water is constantly replenished through precipitation, and lost through evaporation and seepage into ground water supplies. Many of Peel's surface water features are shown on Figure 3 to the Regional Official Plan. It is important to note that these features are supported by areas which allow for the continuous movement of water both on the land and through the ground.

1.2.5 Stormwater Management

More recently, advancement in water resources planning acknowledges stormwater runoff as a resource. Stormwater is produced from precipitation in the form of runoff from rain or snow. Stormwater runoff is managed through a number of different approaches including practices that reduce the rate and/or volume of stormwater runoff and remove pollutants from runoff generated on development sites. The minor drainage systems consist of the subsurface pipes that convey smaller

[1] Region of Peel. 2016 Water Quality Report (South Peel Drinking Water System).

volumes of stormwater. These systems are designed to convey stormwater runoff from a storm occurring on average one in two- to ten-years. Working in conjunction with the minor system is the major drainage system. The major system consists of roadways, open features and waterways and is designed to convey the stormwater runoff that exceeds the capacity of the minor system in a controlled manner. Major drainage systems are typically designed to accommodate the 100 year storm event.

Stormwater management facilities are an effective way to manage stormwater runoff peaks due to their comparatively large holding capacity. Generally, two types of facilities are implemented, referred to as "dry" and "wet" ponds. Dry ponds hold water for a limited time only, releasing it to receiving waters slowly through a controlled outlet. Wet ponds have permanent water bodies designed to hold water until their capacity is exceeded, and then overflow to a receiving water body. Wet ponds provide filtration of sediments, long-term storage facilities and therefore provide long retention times. Wet ponds may also serve as groundwater recharge sites.

Although ponds are an important component of stormwater management, they are recommended to be designed as part of an integrated system of stormwater measures that ensure the rate and volume of stormwater release is controlled from source to discharge to meet desired water quality and water quantity objectives.

Low impact development best management practices are now a required approach in stormwater management. Low impact development approaches emphasize replicating the predevelopment hydrologic regime of watersheds through infiltrating, filtering, storing, evaporating, and detaining runoff close to its source and/or along its path to receivers. Low impact development systems typically do not require large parcels of land to construct and rather use decentralized, smaller scale controls which can be better integrated into the urban environment.

Rooftops of large flat buildings, parking lots, streets and underground facilities can be used as storage in order to delay runoff and reduce the discharge rate to the major and minor systems. The basic requirements for the use of this technique include a containment location and an outflow release device to control the rate of runoff.

Within an integrated water systems approach “one water”, stormwater is acknowledged as having linkages to natural water resources system – i.e. replenishing ground and surface water features and linkages to drinking and wastewater systems. Adopting approaches that promote the preservation of pre-development hydrologic conditions can reduce risks within both stormwater and integrated water management systems.

1.3 Impacts on Water Resources and Potential Consequences

1.3.1 Land Use

Different types of land uses impact the quality and quantity of surface and ground water resources in varying ways. Land use planning is an important tool to regulate development and site alteration to ensure and support the protection, improvement and restoration of water resources and the environmental features which are water dependant.

1.3.1.1 Urbanization

Urbanization typically involves the conversion of permeable surfaces (i.e. agricultural lands, and natural spaces) to less permeable impervious surfaces comprised of roadways, buildings, and parking areas that serve residential and employment uses. Urbanization affects the water cycle by reducing the amount of infiltration into the ground and altering evaporation and vegetative transpiration, resulting in higher rates and volumes of runoff. This change in hydrology results in more frequent and intense runoff from rainfall and snowmelt which leads to increased flood and erosion risk and reduced groundwater recharge, all of which impacts the natural environment. Urbanization affects the quantity and quality of the underlying groundwater by changing patterns and rates of recharge and adversely affecting groundwater quality. The total amount of impervious cover in a watershed is an important measure of watershed health and is particularly related to surface water quality and stream health.[2]

Urbanization also contributes to a reduction in the water quality of the runoff draining to watercourses, wetlands, and lakes, which can degrade habitat and result in a decline in the health of the ecosystem (Figure 2: Urban Water Cycle). In addition, urbanization increases the demand for water resources (drinking water and water treatment), and results in a need for conservation measures. As the rate of urbanization within the Region of Peel continues to increase, there is a corresponding increase in demand and potential impact on water resources. All levels of government, starting at the municipal level, have a shared responsibility to mitigate and manage the impact of urbanization. Further information on the impacts of urbanization in Peel Region can be found in the TRCA's Living City Policies for Planning and Development[3], the CVC's Low Impact Development Stormwater Management Planning and Design Guide and in the various watershed studies prepared by the conservation authorities having jurisdiction in Peel.

1.3.1.2 Rural/Agriculture

Rural and agricultural uses can affect surface water and ground water resources. Agricultural activities can contribute contaminants associated with cropping and livestock practices including from inorganic fertilizers and organic livestock wastes, and chemicals, such as herbicides and insecticides. Contaminants are transported, either attached to sediment or dissolved in water, to surface and ground water through

[2] Credit Valley Conservation. 2011. Towards a Natural Heritage System for the Credit River Watershed. Phases 1 & 2: Watershed characterization and Landscape Scale Analysis. Final technical report, February 2011.

[3] The Living City Policies for Planning and Development in the Watersheds of the Toronto and Region Conservation Authority, November 2014.

all phases of the hydrologic cycle. Increases in erosion and sedimentation are also attributed to agricultural production and land uses in rural communities. It is also recognized that there are positive benefits associated with agriculture which can include the filtration of surface water runoff prior to discharge to ground or surface water sources and the contribution of landowner stewardship of natural heritage features including woodlots, wetlands and streams.

1.3.1.3 Aggregate

Aggregate resources are present within the Region of Peel, particularly within the Town of Caledon. Within the Region, aggregate resource extraction predominantly occurs as sand and gravel operations. Potential impacts to groundwater and surface water quantity are associated with dewatering activities, typically required in quarry operations, water taking for the purposes of aggregate washing processes, and the removal of material below the water table. The pumping and management of onsite ground water and surface water resources is regulated through the Permit to Take Water Program of the Ministry of the Environment and Climate Change (MOECC).

Potential impacts to water resources are also regulated through conditions attached to licences issued under the *Aggregates Resources Act* administered by the Ministry of Natural Resources and Forestry (MNRF). Monitoring and mitigation conditions relating to site specific permits are put in place to prevent unacceptable impacts to water supply wells and water-related ecosystem connections. Potential impacts to ground water and surface water quality generally relate to fuel handling, dust suppression and direct discharge of poor quality water from onsite processes. Best management practices are required to prevent unacceptable water quality degradation.

1.3.2 Climate Change

Analysis of current regional stormwater infrastructure shows 17%[4] of Mississauga and 40% of Brampton is designed to provide stormwater quality and quantity control. New communities are designed and built to meet current standards; however, continuous improvements to current standards and practices are needed as water resources and watershed health are at risk as a result of altered hydrology due to development and climate change. Climate change will further exacerbate impacts and strain the existing capacity available within the water management system.

A Region of Peel Climate Trends Analysis[5] found that temperature and precipitation are expected to increase over the coming decades resulting in hotter, wetter annual conditions with extended hot, dry periods in the summer. The frequency and intensity of extreme temperature and precipitation is also likely to increase.

These changes in local weather patterns are likely to have significant prolonged impacts on water resource availability, quantity and quality over the long-term with potentially significant impacts on the

[4] City of Mississauga. Watercourses and Ponds: http://www7.mississauga.ca/documents/TW/stormwater/pdf/Watercourses%20and%20Ponds.pdf (Accesses January 8, 2018)
[5] Auld, H., Switzman, H., Comer, N., Eng, S., Hazen, S., and Milner, G. 2015. *Climate Trends and Future Projections in the Region of Peel*. Ontario Climate Consortium: Toronto, ON.

Region, Local Municipalities and Conservation Authorities collectively, as these organizations are responsible for managing water resources locally within their areas of jurisdiction and responsibility. Preliminary results examining the potential impacts of these changes on water and wastewater infrastructure in Peel Region[6] found:

- Increased extreme rainfall events exceeding wastewater systems inflow/infiltration capacity may lead to increased sewage bypass events at the waste water treatment plant affecting nearshore water quality;
- Extended seasonal dry periods may result in reduced baseflow in streams, impacting aquatic life and water quality, as well as lowering shallow groundwater tables and potentially impacting wells;
- More frequent rain or snow events may impact stormwater systems not designed for those types of events;
- Reduced snowpack and early spring may lead to increased algae production affecting the performance of water treatment plants, beaches and recreational opportunities; and
- Increased storm events may impact other systems, including flooding of urban drainage and riverine systems, residential buildings, roads and other infrastructure.

[6] Draft Water Systems Infrastructure Vulnerability Assessment in the Region of Peel. 2016. Region of Peel.

2. Water Resource Policy Context

2.1 Current Water Resources Jurisdictional Framework

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, including conservation authorities have a responsibility for some aspect of water resources. Since water systems are complex, an integrated regulatory, planning and management response from all levels of government is needed.

In terms of municipal land use planning and water resource planning, an integrated watershed and land use planning approach is recommended as a basis for developing and implementing water-related management strategies, programs and policies.

Integrated watershed, land use and infrastructure planning is promoted in plans and guidance issued by the Province through which recommendations are provided at different scales and stages throughout the planning process. Figure 1 describes the typical components of the framework. [7]

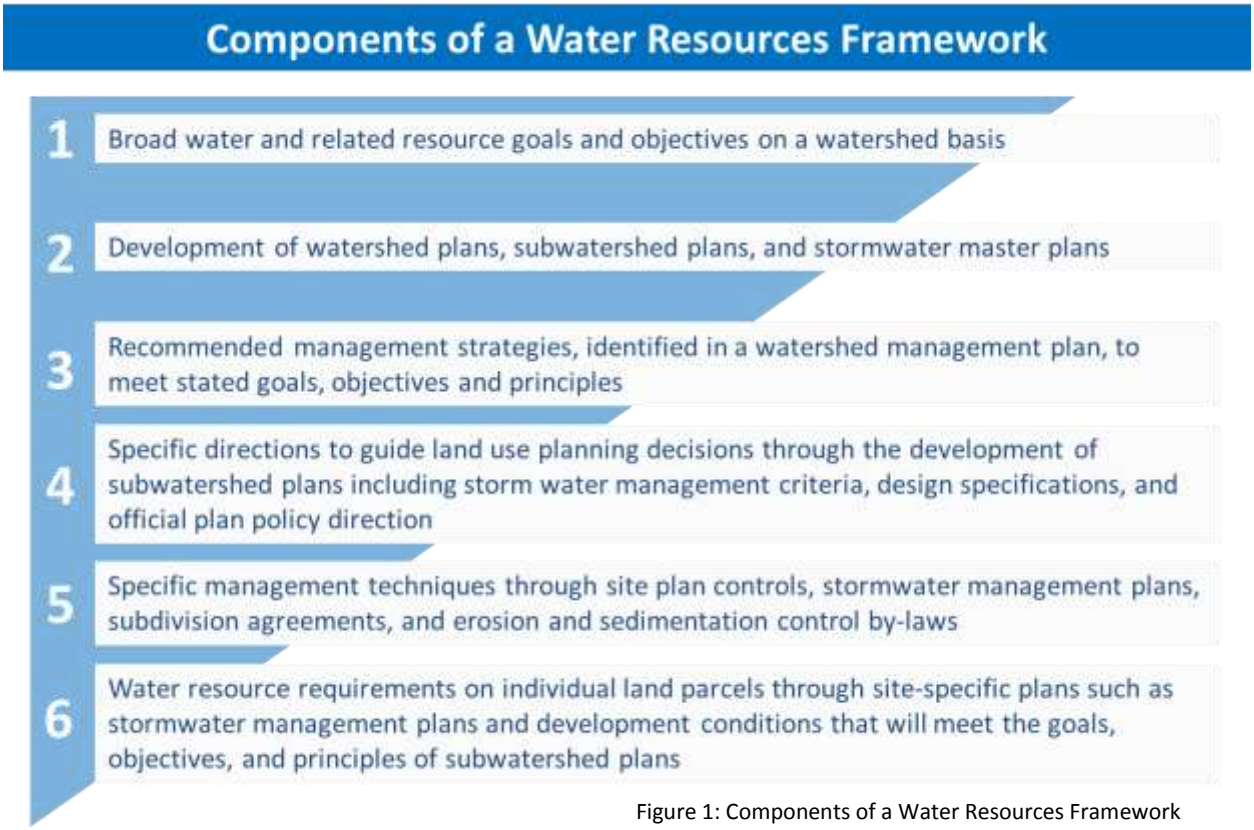

Figure 1: Components of a Water Resources Framework

[7] Ministry of Natural Resources and Ministry of the Environment, Integrating Water Management Objectives into Municipal Planning Documents, 1993. The current guidelines for integrating watershed, sub-watershed and stormwater planning with land use planning are being reviewed and updated by the Province as guidance to implement new policies in the Growth Plan.

Each step in the watershed framework requires implementation through different levels of planning, from regional to local governments. At each level there are assigned roles and responsibilities associated with the municipalities, agencies and stakeholders.

The municipal land use planning process, under the *Planning Act*, sets out a distinct framework for the development of environmental, social, and economic goals and objectives for the subject municipality. The implementation of a watershed planning framework often considers several specific actions which would inherently fall outside of the scope of the municipal land use planning process. Furthermore, the planning process in and of itself, does not fully incorporate and implement all aspects of an effective watershed planning and management process, hence it is necessary to consider linkages between the two processes at each stage of planning.

2.2 Relationship of Upper and Lower Tier Official Plans

Since water resources can be influenced by land use activities beyond the boundaries of individual municipalities, it is important that municipalities (upper and lower tier) incorporate the input of those agencies mandated to manage water resources on a watershed basis. Regional plans support the implementation of provincial policy, provide for resource protection and manage growth by means of a strategic, coordinated approach that considers physical (land use), natural (including stormwater master planning), social and economic objectives. Due to their wide geographical context, Regional official plans establish the broad land use strategy for the Region, while suitably advancing provincial interests and programs in municipal terms. Upper tier municipalities are considered the appropriate level at which to develop broad policy direction for lower tier municipalities to protect environmental and resource features and areas.

Local municipal plans address specific community needs while remaining in conformity with the broad strategic framework of the regional plan, however at a local, detailed level. This approach allows both the upper and lower tier plans to be based on a long-term horizon, at different levels of detail, and different geographic perspectives. The coordination of upper and lower tier plans provides a unique opportunity for the development of a strategic and multidisciplinary approach to land use planning, while considering and accommodating the specific needs of water and related resource management.

2.3 Water Management and Planning Roles and Responsibilities

Sustainable water resource policies are essential to ensure protection of the natural environment and drinking water sources, given the complexities of the water cycle (surface, ground and related interactions) and its influences on both natural systems and built infrastructure. All levels of government have shared responsibility including local municipalities, regional, provincial and federal departments and conservation authorities (Figure 3: Roles and Responsibilities Summary). The following sections outline these roles, responsibilities and jurisdictional framework related to water resources for each level of government.

2.3.1 Region of Peel

The Region of Peel provides essential services to 1.4 million residents and businesses within its jurisdiction including providing a holistic approach to land use planning through an overarching sustainable development framework that integrates environmental, social, economic and cultural imperatives. As related to Water Resources, the Region of Peel is responsible for the following:

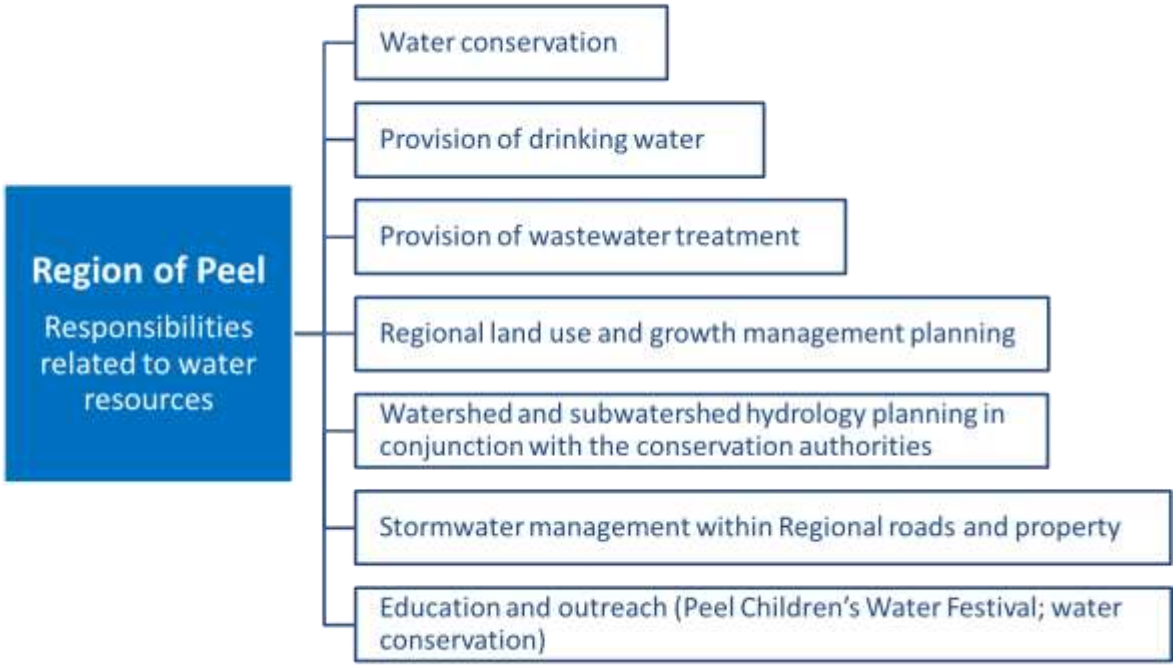

Figure 2: Region of Peel Water Resources Related Responsibilities

2.3.1.1 Regional Planning Policy and Regulatory Context

The Regional Official Plan sets out overall policy direction with respect to protection, improvement and restoration of water quality and quantity at the Regional level. It provides direction to the local municipalities with respect to requirements they need to conform with and works in conjunction with other Regional programs and services, which support water resource protection and management. The Regional Official Plan also provides requirements for source water protection, setting requirements for water related studies and wellhead protection.

Specific strategies and by-laws implement the general policies in the Regional Official Plan. The strategies include the Peel Climate Change Strategy, 2013 Region of Peel Water Efficiency Strategy and Peel Rural Water Quality Program (PRWQP). The Region of Peel Water and Wastewater Master Plan provides for the comprehensive evaluation and identification of water and wastewater servicing strategies to meet servicing needs of existing and future development in Peel. Regional by-laws include the Region of Peel Wastewater By-law that regulates discharges to the Region's sanitary and storm sewer systems. Figure 4 depicts the various policies and regulatory context for the Region of Peel. The following table provides a listing of the relevant water resources policies, strategies and by-laws applicable to water resources.

Table 2: Region of Peel Policy and By-laws Related to Water Resources and Infrastructure
• Region of Peel Official Plan • Region of Peel Strategic Plan (2015-2035) • Term of Council Priorities (2015-2035) • Peel Climate Change Strategy – A Strategic Plan for Climate Change for the Geographic Region of Peel • Water and Wastewater Master Plan and Programs • Wastewater By-law 15-2010 • Long Range Transportation Plan (Environment and Stormwater Provisions) • Peel Rural Water Quality Program (PRWQP) • Public works design specifications and procedures manual • 2013 Region of Peel Water Efficiency Strategy

2.3.2 Local Municipalities

The Region of Peel, the Cities of Brampton and Mississauga and the Town of Caledon operate in a two-tier municipal governance structure. Municipal responsibilities are set out in several pieces of provincial legislation including the *Municipal Act* and *Planning Act*. The following provides a listing of policies, strategies and by-laws applicable to water resources.

The local municipalities are responsible for the following activities, related to water resources:

- Land-use planning (including local official plans, secondary plans, subdivisions and zoning);
- Implementation of Provincial and Regional plans and policies;
- Implementation of watershed, subwatershed, source water protection, flood plain planning; and
- Local stormwater management (including planning, design and construction of infrastructure, operations, maintenance and monitoring).

2.3.2.1 Local Municipal Planning Policy and Regulatory Context

Local official plans set out overall policy direction with respect to protection, improvement and restoration of water quality and quantity at the local municipal level as it relates to land use planning. The plans also provide for the protection of water resources through policies which prohibit development that may negatively impact significant natural heritage features, such as wetlands and woodlands. In addition, local municipalities also have specific strategies and by-laws which implement the general policies in official plans. By-laws include tree protection by-laws, zoning by-laws, stormwater by-laws and erosion and sediment control by-laws (see Table 3).

Table 3: Local Municipal Policy and By-Laws		
City of Mississauga	***City of Brampton***	***Town of Caledon***
• Mississauga Official Plan • • Mississauga Strategic Plan (2007) Pillars for Change: Move, Belong, Connect, Prosper and Green • Living Green Master Plan (2012) • Credit River Parks Strategy (2013) • Natural Heritage Strategy and Urban Forest Strategy (2014) • City of Mississauga Zoning By-law 0225-2007 • Erosion and Sediment Control By-law 512-91 • Storm Sewer By-law 259-05 • Stormwater Fees and Charges By-law 135-15 • Private Tree Protection By-law 0254-2012 • Site Plan Control By-law	• City of Brampton Official Plan • Secondary Plans (45 in total such as SPA 51 Mount Pleasant and SPA1 Snelgrove) • Community Block Plans (16 approved including technical documents) • Brampton Grow Green Environmental Master Plan • Brampton City – Building for our Future Strategic Plan • City of Brampton Zoning By-law 270-2004 • Tree Preservation By-law 317-2012 • Development Design Guidelines (DDG) Manual	• Town of Caledon Official Plan • Town of Caledon Community Based Strategic Plan • Caledon Environmental Progress Action Plan Update • Town of Caledon Zoning By-law 2006-50 (applies to all areas outside the Oak Ridges Moraine) • Town of Caledon Zoning By-law 87-250 (applies to lands in the Oak Ridges Moraine) • Town of Caledon Zoning By-law amendment 2008-50 (waiting for approval)

2.3.3 Conservation Authorities

The Region of Peel is unique in that the Region is within the jurisdictional area of five (5) separate conservation authorities. The majority of the Region of Peel is within the Credit Valley Conservation Authority (CVC) and the Toronto Region Conservation Authority (TRCA), with smaller portions that are part of the Lake Simcoe Region Conservation Authority, the Nottawasaga Valley Conservation Authority and Conservation Halton (Figure 5). Conservation authorities in Ontario are mandated through the Ministry of Natural Resources and Forestry and Conservation Ontario to ensure Ontario's water, land and natural habitats are conserved, restored and responsibly managed through watershed-based programs.

Under Section 28 of the Conservation Authorities Act, the conservation authorities regulate development in, or adjacent to, river or stream valleys, shorelines, watercourses, hazardous lands and wetlands. The areas regulated by the conservation authorities represent the greatest physical extent of the combined hazards, plus a prescribed allowance as set out in the regulations. Typical programs that the conservation authorities are involved in include: water resources management, natural hazards management, regulation and permitting, land management and acquisition, environmental advisory services, conservation area management, stewardship and education, and natural heritage restoration and enhancement.

As related to water resources, the conservation authorities are responsible for the following activities within the regulated areas:

- Undertaking watershed studies;
- Developing and implementing watershed plans;
- Regulating (permitting) development, and alterations to watercourses, shorelines and wetlands;
- Eliminating or reducing risk from pollution, flood and erosion hazards;

- Conservation of land;
- Implementation of stewardship programs; and
- Fulfilling responsibilities as source protection authorities under the *Clean Water Act*.

Conservation authorities also play an advisory/commenting role with respect to land use planning policy development and the planning application approval process. More recently, Conservation Authorities have been assigned responsibilities to support the development and implementation of source water protection plans under the *Clean Water Act*. These plans will be implemented through municipal official plans, zoning by-laws and other prescribed instruments relating to significant drinking water threats.

2.3.3.1 Conservation Authority Planning Policy and Regulatory Context

The implementation of watershed plans allows conservation authorities and other stakeholders to establish policies and programs to protect important water resources, while at the same time addressing critical issues such as the current and future impacts of urban growth and climate change. Watershed plans help direct land use planning at the regional and municipal levels. Also, conservation authorities influence the decision-making process and the design of public infrastructure through the development and implementation of technical guidelines related to conservation authority mandated interests. Technical guidance supports the conservation authorities' review of applications including official plan policies and development applications under the *Planning Act*. Table 4 highlights the various policies and regulatory context for the principal Conservation Authorities in the Region of Peel.

Table 4: Conservation Authorities Policy and Regulatory Context

	Conservation Authorities Act: • Ontario Regulation 160/06 Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses	
	Source Protection Planning: • Clean Water Act, 2006 • CTC Region Source Protection Plan • South Georgian Bay Lake Simcoe Source Protection Plan • Halton-Hamilton Source Protection Plan	
	Watershed/Subwatershed Plans	Policies and Guidelines

TRCA	• Humber River Watershed Plan – Pathways to a Healthy Humber
	  ○ Humber River Watershed Plan Implementation Guide, 2008
	• Etobicoke-Mimico Watershed Plan
	  ○ Etobicoke and Mimico Creeks Watersheds Technical Update Report
	  ○ Greening Our Watersheds – Revitalization Strategies for Etobicoke and Mimico Creeks
		• Planning and Development Procedural Manual
		• Stormwater Management Criteria
		• The Living City Policies for Planning and Development in the Watershed of the TRCA
		• The Erosion and Sediment Control Guideline for Urban Construction
		• Low Impact Development
		• Hydrogeological Submission Guidelines for Infrastructure and Development Projects
		• Complete Submission Checklist for OR166/06 Applications for Infrastructure Projects
		• Watercourse Crossing Design and Submission Requirements
		• Guidelines for Submission of Technical Reports for Infrastructure Projects – OR 166/06 –
		• Erosion and Sediment Control Guideline for Urban Construction
		• Evaluation, Classification and Management of Headwater Drainage Features Guidelines
		• Post-Construction Restoration Guidelines

		• Stormwater Management Pond Planting Guidelines • TRCA Environmental Impact Statement Guidelines
CVC	• Credit River (various) • Credit River Tributaries (various)	• Watershed Planning & Regulation Policies • Watershed Planning & Regulation Policies Companion Document • Stormwater Management (SWM) Criteria document • Environmental Impact Study Terms of Reference • Erosion & Sediment Control Guideline for Urban Construction • Evaluation, Classification and Management of Headwaters Drainage Features: Guidelines • Floodproofing Guidelines • Pedestrian Bridge Crossings Guidelines • Slope Stability Definition & Determination Guideline • Fluvial Geomorphic Guidelines • Credit Valley Conservation Stormwater Management Criteria, August 2012 • Low Impact Development Stormwater Management Planning and Design Guide • Construction Guide for Low Impact Development • Credit River Water Management Strategy Update – Municipal Stormwater Financing Study • **Credit River Watershed Natural Heritage Strategy** • The Credit River Fisheries Management Plan (CRFMP) • Credit River Watershed Management Strategy Update • Credit River Flow Management Study

2.3.4 Provincial

In the Province of Ontario, sustainable water management is essentially delivered by MOECC and MNRF. Those Ministries, in collaboration with conservation authorities, support the majority of the provincial water management mandate. Other Provincial ministries with mandates affecting water policy and associated governance include the Ministry of Agriculture, Food, and Rural Affairs (OMAFRA) and the Ministry of Municipal Affairs and Housing (MMAH). OMAFRA's mandate focuses on agricultural practices that affect water quality and require water supply, while MMAH's mandate establishes the jurisdictional framework, roles and responsibilities within which municipalities operate and provides legislation and policy to guide municipal land-use planning. Under provincial legislation, Ontario municipalities deliver water, manage wastewater effluent, locally approve, operate and maintain stormwater infrastructure, develop water sustainability plans and develop official plans to protect, improve and restore water quantity and quality.

Within urban areas, the province's water management framework is based on the "One Water" approach. This approach considers the water cycle as a single integrated system, in which all urban and rural water flows are recognized as potential resources, and the interconnectedness of water supply, groundwater, stormwater and wastewater is optimized and the combined impact on flooding, water quality, watercourses, wetlands and coastal waters is recognized. Much of the emerging provincial policy and guidance promotes an integrated watershed scale approach to water resources management.

As it relates to water resources, the Province is responsible for the following activities:

- Ensuring safe water quality;
- Maintaining water quantity;
- Establishing a framework for watershed management and land use planning;
- Regulation of municipal water, wastewater and stormwater infrastructure; and
- Funding for infrastructure.

2.3.4.1 Provincial Planning Policy and Regulatory Context

The Provincial Government plays a large role in shaping and influencing how land is developed across the Province through the land use planning process. The Province has developed a number of legislative, regulatory and policy tools to guide land use planning across the province. The key legislation that governs land use planning in Ontario is the *Planning Act* administered by the Ministry of Municipal Affairs and Housing. This legislation grants municipal government's authority to control the use of land through a range of planning tools, including official plans, zoning bylaws, site plan control and subdivision approvals.

The Provincial Policy Statement (2014) provides direction on matters of provincial interest related to land use planning and development, and guides the provincial "policy-led" planning system, including providing broad direction on land use patterns, forms of development, planning for natural resources, and other issues, such as natural hazards. Complementary and supporting policy includes the Growth Plan, which directs municipalities to apply an integrated approach to growth management and water systems planning, and the provincial Greenbelt Plans.

The *Clean Water Act, Ontario Water Resources Act, Environmental Assessment Act* and *Envronmental Protection Act* are also administered by the Ministry of Environment and Climate Change. The environmental assessment process ensures that governments and public bodies consider potential environmental effects before undertaking public infrastructure projects.

Table 5 depict the various policies and regulatory context for the Province related to water resources. The various policies, organized by Ministry, are summarized in the following table:

Table 5: Provincial Policy and Regulatory Context		
Ministry of Environment and Climate Change	*Ministry of Natural Resources and Forestry*	*Ministry of Municipal Affairs and Housing*

• Environmental Protection Act
• Environmental Assessment Act
• Safe Drinking Water Act
  ○ O.Reg. 164/03 Ontario Drinking Water Quality Standards
  ○ O.Reg. 170/03 Drinking Water Systems
  ○ O.Reg. 128/09: Certification of Drinking Water System Operators and Water Quality Analysts
• Water Opportunities and Conservation Act
• Ontario Water Resources Act
  ○ R.R.O. 1990 Reg. 903: Wells
• Clean Water Act
  ○ O. Reg. 284/07 Source Protection Areas and Regions
• Sustainable Water Sewage Systems Act
• Great Lakes Protection Act
• Canada - Ontario Agreement on Great Lakes Quality and Ecosystem Health
	• Water Resources and Great Lakes Programs
	• Lakes and Rivers Improvement Act
	• Conservation Act
	• Aggregate Resources Act
	• Conservation Authorities Act
	• Conservation Land Act
	• Fish and Wildlife Conservation Act, 1997
	• Fisheries Act (Canada) – Ontario Fishery Regulations
	• Ministry of Natural Resources Act
	• Public Lands Act
		• Planning Act
		  ○ Provincial Policy Statement (2014)
		• Building Code
		• Growth Plan for the Greater Golden Horseshoe (2017)
		• Greenbelt Act
		  ○ Greenbelt Act, 2005
		  ○ Designation of Greenbelt Area (O.Reg. 59/05)
		  ○ Greenbelt Plan
		• Oak Ridges Moraine Conservation Act (2001)
		  ○ Oak Ridge Moraine Conservation Plan Regulation 140/02
		• Niagara Escarpment Planning and Development Act (1990)
		  ○ Niagara Escarpment Plan
		  ○ Development Control Regulation 828-90
		• Municipal Act

2.3.5 Federal

The Federal Government's role in managing and protecting water resources and the environment is varied. Generally, as it relates to water resources, the Federal Government addresses matters of national interest including issues such as boundary waters, fisheries, public health and drinking water standards and guidelines. The division of responsibilities between federal and provincial levels allows the provinces to focus on provincial, regional and local matters and guide the implementation of federal policy. The federal and provincial governments may also share responsibility for water resources through federal-provincial agreements and related shared management programs and activities. For example, the Federal Government is responsible for fisheries and the provincial governments for natural resources, including water.

As related to water resources, the Federal Government is responsible for the following activities:

- International agreements;
- Protection of fisheries and oceans;
- Great Lakes management;
- Funding for water infrastructure; and

- Protection of human health and the environment.

2.3.5.1 Federal Planning Policy and Regulatory Context

The Federal Government plays a limited role in directly influencing land use planning and development. The Federal Government is responsible to make decisions and enact change within its federal mandate and jurisdiction and provides for provincial and municipal governments to manage matters related to land use planning at the local level. Its influence lies in providing direction to the Provincial Government on federal matters specific to water resources. It enables those government bodies closest to the issue, and having specific local knowledge, the power to govern and manage provincial, regional and local matters. Figure 6 depicts the various policies and regulatory context for the Federal Government as related to water resources:

Table 6: Federal Government and Others Policy and Regulatory Context

Environment Canada	***Health Canada***	***Foreign Affairs, Trade and Development***	***Transport Canada***	***Fisheries and Oceans***
• Canadian Environmental Protection Agency • Canadian Environmental Assessment Act • Canada Water Act • International Rivers Improvement Act (IRIA)	• Guidelines for Canadian Drinking Water Quality • Guideline Technical Documents • Guidelines for Canadian Recreational Water Quality	• International Boundary Waters Treaty Act	• Navigable Protection Act ○ Navigable Waters Bridges Regulations ○ Navigable Waters Works Regulations ○ Minor Works and Waters (Navigable Waters Protection Act) Order	• Fisheries Act • Species at Risk Act

3. Conclusion

The jurisdiction over water resources is complex and therefore responsibilities associated with water resources management are distributed amongst numerous departments within all three levels of government and local agencies including conservation authorities. This jurisdiction is continually evolving through the establishment of new government and agency departments and expansion of roles within existing departments. This structure allows for innovative responses to water resource management challenges. The current structure distributes roles and responsibilities for water resources management and requires a high level of coordination.

New provincial growth planning direction promotes an integrated long-term approach to water resources planning and growth management at a watershed scale. The Region will need to consider how it can show leadership in fulfilling the provincial direction. Municipalities and conservation authorities work together in order to integrate land use planning and water resources management. Municipal land use plans incorporate relevant provincial water policies and the guidance provided by the conservation authorities. There are opportunities to improve the integration of land use planning and water resources management and to consider how water resources planning is integrated with growth management. Regional and local official plan policies represent a significant contribution in the broader water management and planning system. Regional planning policy options are being addressed through the Water Resources Policy Review of Peel 2041.

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Appendix A

Figures

Figure 1: Watersheds in Peel Region of Peel

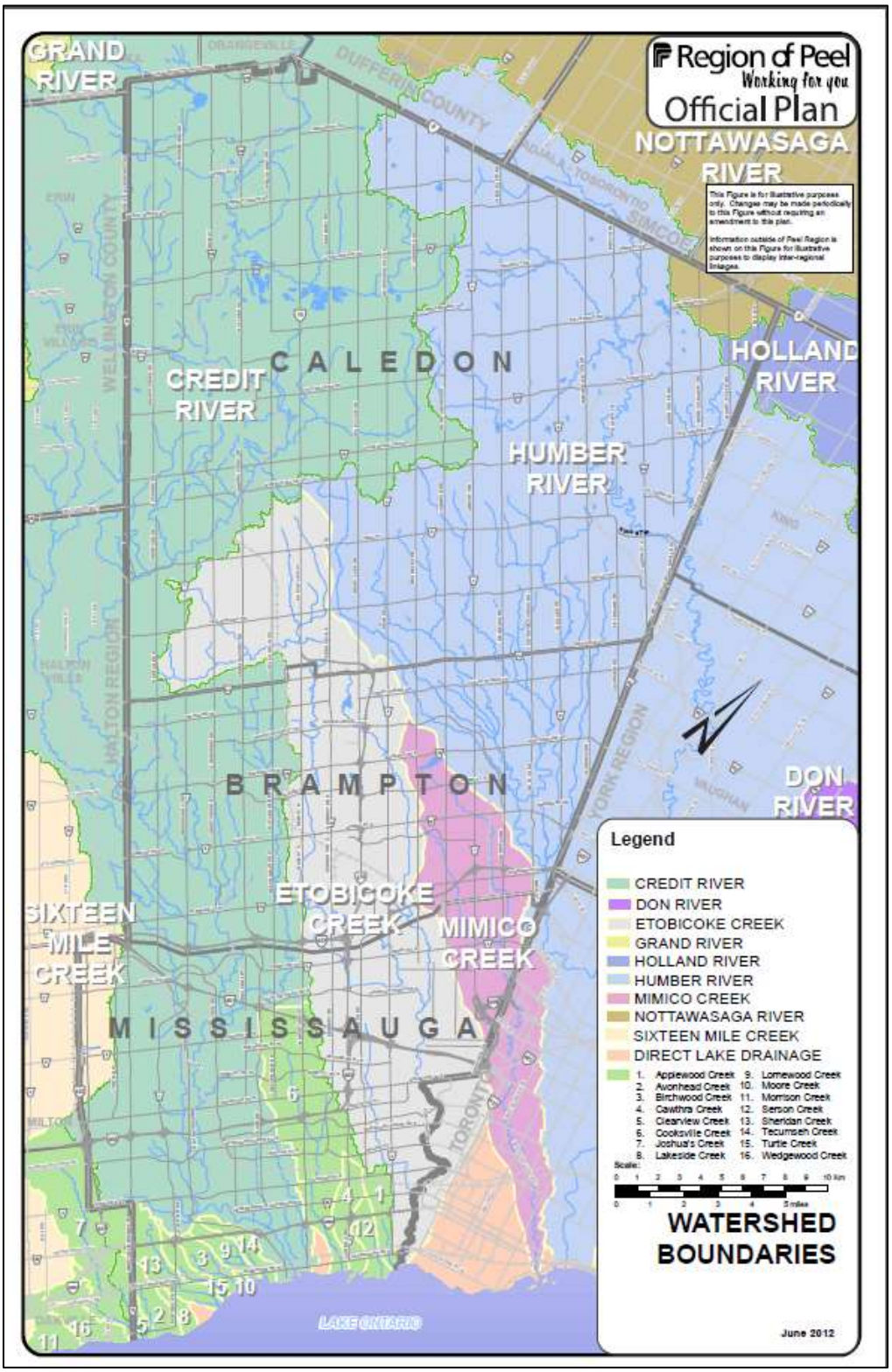

Figure 2: Typical Water Cycle

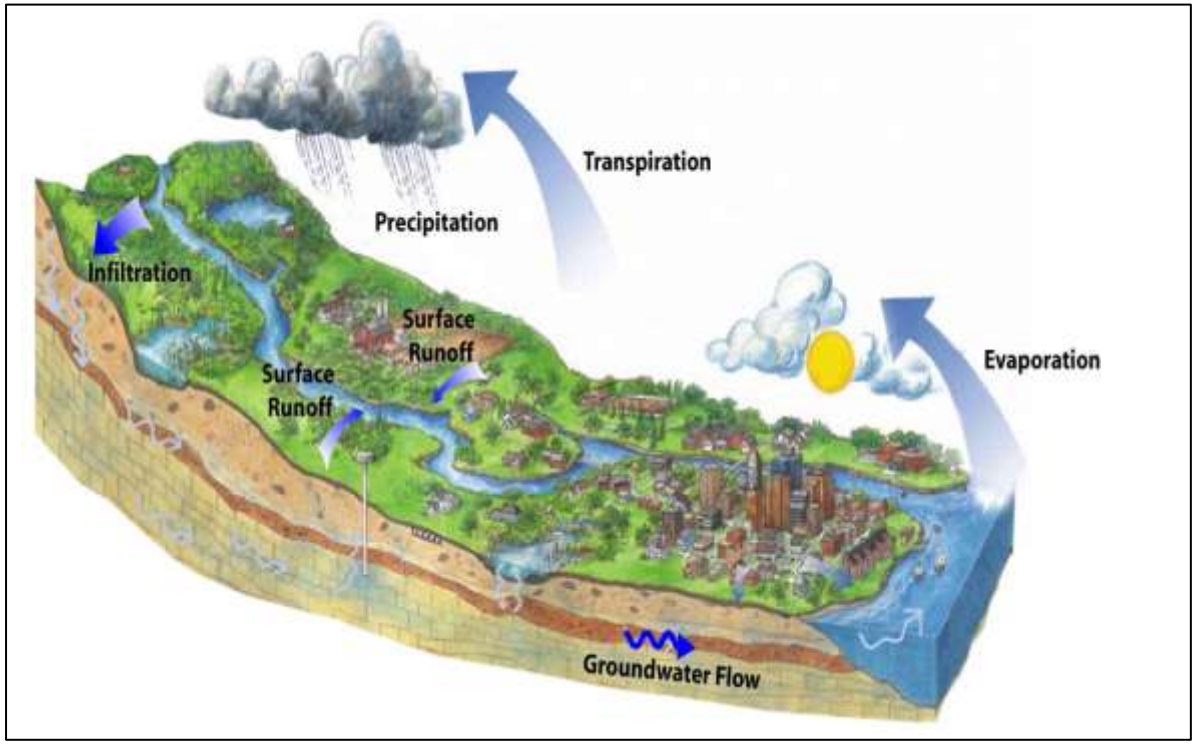

Figure 3: Roles and Responsibilities Summary

Federal	Provincial	Municipal	Conservation Authority
• International Agreements • Protection of Fisheries and Oceans • Great Lakes Water Management • Funding for Water Infrastructure • Protection of Human Health and the Environment	• Ensuring Water Quality • Maintaining Water Quantity • Establishes Watershed Management Planning Framework • Regulation of Municipal Water, Wastewater and Stormwater Infrastructure • Funding Infrastructure	• Land-use Planning • Implementation of Provincial Plans and Policies • Provision of Drinking Water & Wastewater Infrastructure and Services • Stormwater Management	• Undertaking Watershed Studies • Develops & Implements Watershed Plans • Regulate (permitting) development, and alterations to watercourses, shorelines and wetlands • Eliminate or reduce the risks from pollution, flood and erosion hazards • Conservation of land • Implement Stewardship Programs

Figure 4: Local Municipal and Region of Peel Policy and Regulatory Context



Figure 5: Conservation Authority Jurisdictional Map

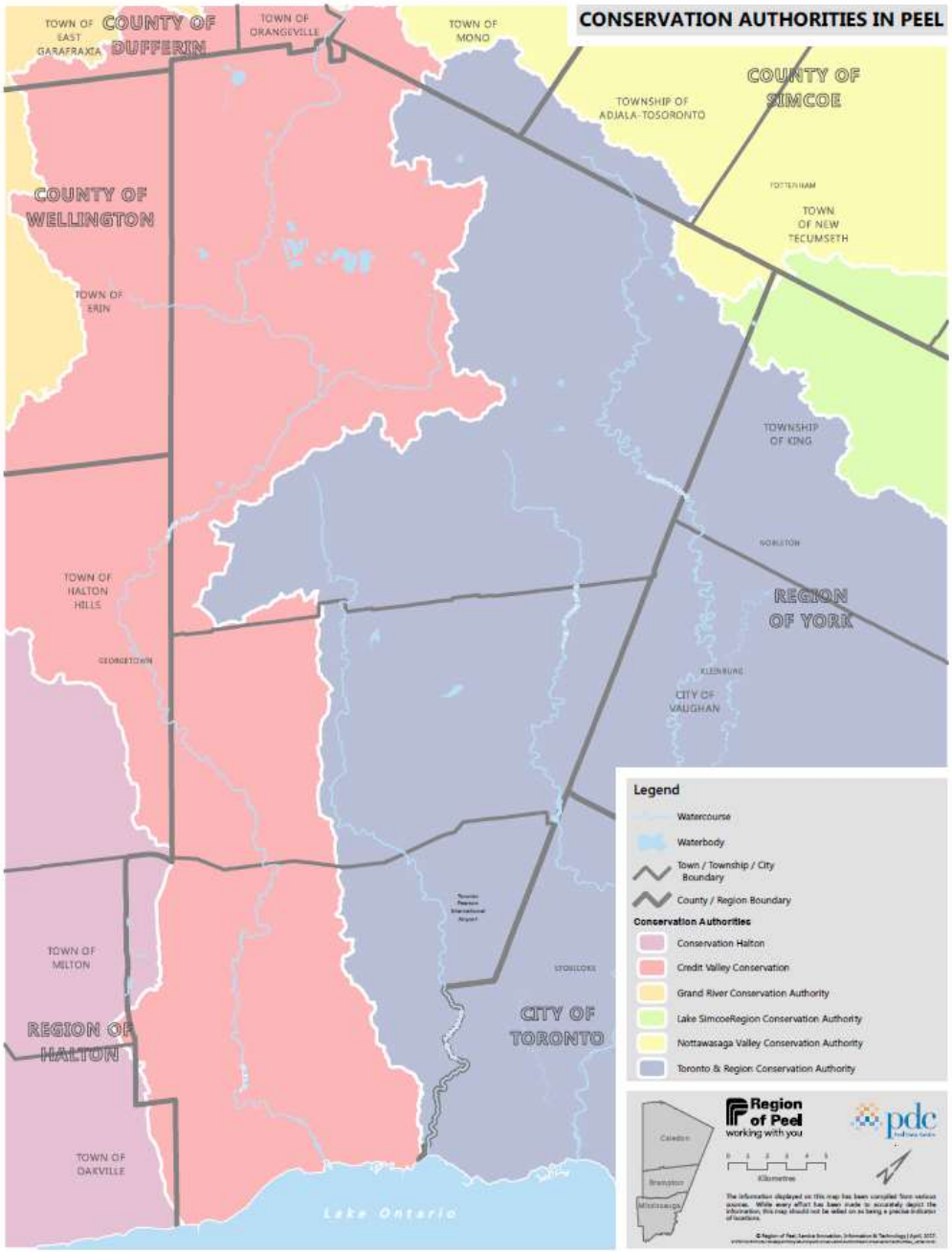

Figure 6: Federal Policy and Regulatory Context

