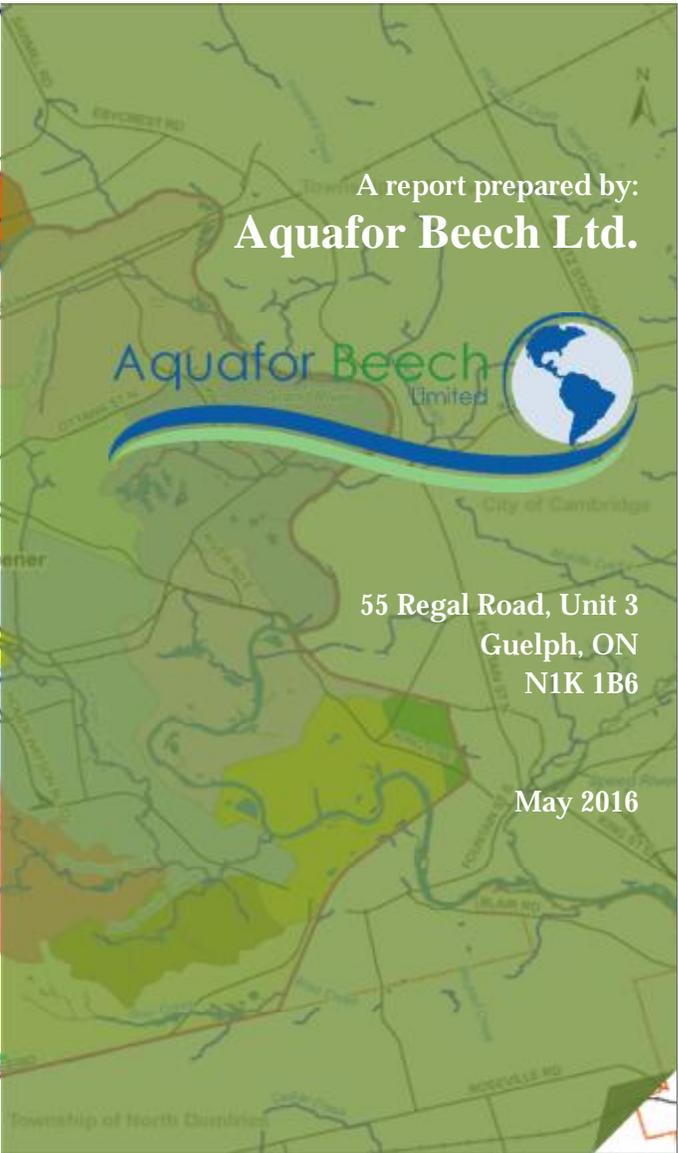
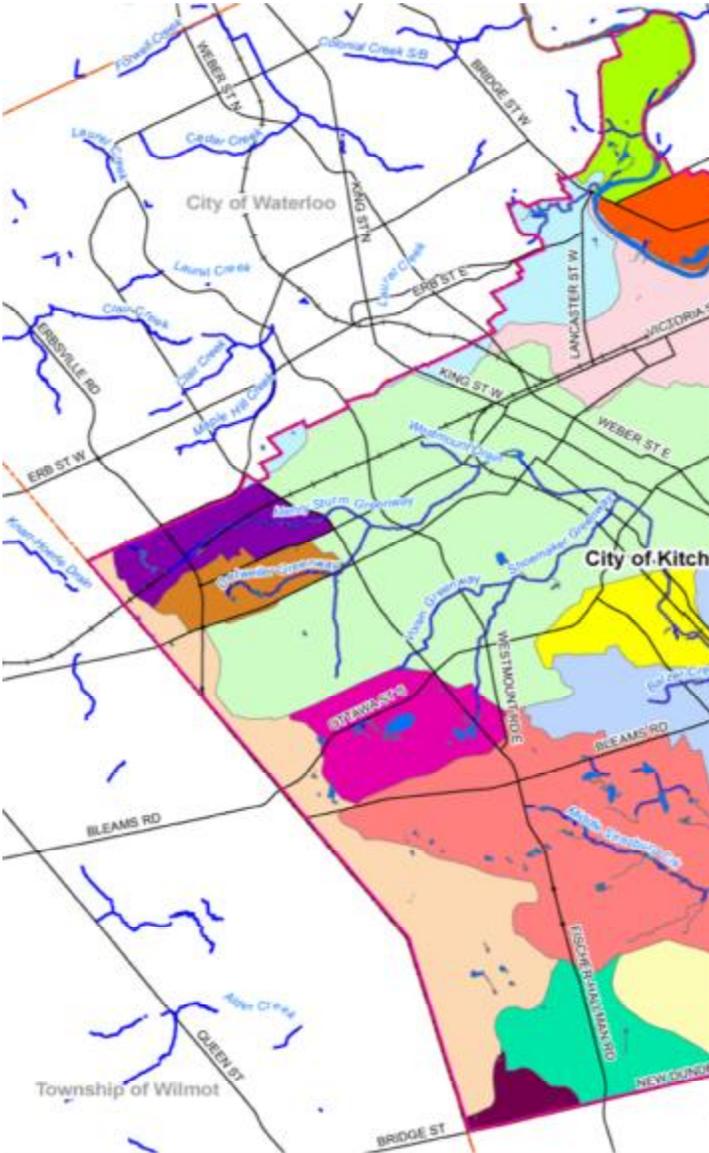


**INTEGRATED STORMWATER MANAGEMENT MASTER
PLAN (ISWM-MP)
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT**

SUMMARY OF POLICIES, GUIDELINES & LEGISLATION



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1.1 Overview

There exists a hierarchy of authority, described as policies, statutes, regulations, plans and guidelines. Legislative terms and principles are described below in order to provide a baseline context and shed light over basic definitions, what is enforceable and how. Relevant fundamental definitions are listed below.

A Policy is a statement of intent or a commitment to achieve a goal, for which decision-makers can be held accountable. For example, within a municipality, policies like the Provincial Policy Statement (PPS) are enacted through the Official Plan.

An Act is a written law to declare a policy, and typically commands or prohibits something. Examples include:

- Ontario Water Resources Act (OWRA)
- Bill 6: Great Lake Protection Act (1st Reading)

A Regulation is a subordinate legislation, passed pursuant to an Act. Because legislatures are reluctant to become embroiled in technical matters, regulations are delegated to an executive or technical branch, which provides details, measures or procedures for implementing the Act. A regulation is a rule that creates, limits, or constrains a right or a duty. Regulations are enacted to produce outcomes which might not otherwise occur or to prevent outcomes that might otherwise occur, usually with specific time frames. Regulations can impose sanctions if they are disregarded. Examples include:

- O. Reg. 150/06 made under the Conservation Authorities Act: Grand River Conservation Authority, Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.
- O. Reg. 60/08 made under the OWRA: Lake Simcoe Protection.
- O. Reg. 454/96 made under Lakes and Rivers Improvement Act: Construction.
- O. Reg. 284/07 made under the Clean Water Act: Source Protection Areas and Regions.

A Plan (or Strategy) is list of steps (with requirements for timing and resources) that will be taken to achieve a desired objective. It is a set of intended actions through which a goal can be achieved or a policy implemented. For example, a plan (such as an Official Plan) provides direction for land uses within a particular area and for mitigating the corresponding environmental impacts. A plan defines the where and how Regulations or Acts are applied. Examples include:

- Municipal Official Plan
- Ontario Recovery Strategy Series for Redside Dace (for species at risk under the Endangered Species Act).
- GRCA Fisheries Management Plan
- Great Lakes Protection Plan

A Guideline is a statement of intent that determines a desirable course of action, which directs a process according to sound, predictable and high quality practices or procedures. By definition, guidelines are not mandatory, not binding and are not legally enforceable. However, many regulators consider guidelines (especially numerical guidelines) as *de facto* minimum standards to be enforced. Examples include:

MOECC Stormwater Management Plan and Design Manual (2003)

The following sections detail the key Federal, Provincial, Regional and local policies, guidelines, and regulations and is intended to consolidate the information contained within the 2014 Policy Review & Recommendations Report and has been augmented as required.

1.1 Local Level

Local legislative level is defined here as the level that includes regional and municipal government, and the conservation authority (i.e. GRCA).

1.1.1 Grand River Conservation Authority (GRCA)

1.1.1.1 Conservation Authorities Act (1990), Ontario Regulation 150/06

A Conservation Authorities' regulatory powers are granted under Section 28 of the Conservation Authorities Act.

Applicable Provisions

Section 28(3) - A regulation may provide for permission to be granted subject to conditions and for the cancellation of the permission if conditions are not met

Section 28(16) - Every person who contravenes a regulation or the terms and conditions of a permission of an authority is guilty of an offence

Section 28(17) - Upon conviction the court may order the removal of the development or the rehabilitation of the watercourse or wetland. Any and all end-of-pipe and outfall retrofit works as well as any stream restoration works will require consultation and permits under this legislation.

The relevance to the City and Stormwater Management is Ontario Regulation 150/06 for the Grand River Conservation Authority (GRCA). The regulation establishes 'Regulated Areas' where development could be subject to flooding, erosion or dynamic beaches, or where interference with wetlands or alterations to watercourses might have an adverse effect.

Ontario Regulation 150/06 defines the permitting process for the regulation of development and placement of fill within the regulated area, construction within the floodplain and/or alteration of a watercourse (including obtaining stormwater outlets), disturbance to a wetland, shoreline or water body and/or the development in the vicinity of hazardous lands. Through this legislation, Conservation Authorities regulate flood and erosion control policies in their watershed.

The GRCA operates under the Conservation Authorities Act of Ontario. It is a corporate body, through which municipalities work cooperatively to manage the water and natural resources in the watershed for everyone's benefit. The GRCA has the responsibility to regulate activities in natural and hazardous areas in accordance with the policies of Ontario Regulation 150/06 in order to:

- Prevent the loss of life and property due to flooding and erosion; and,
- Conserve and enhance natural resources.

Any projects within the regulated area of the GRCA or impacting wetland will require the acquisition of a permit pursuant to GRCA's 2003 Wetland Policy and 2009 Policies for the

Administration of the Development Interference with Wetlands and Alterations to Shorelines and Watercourse Regulation 150/06.

1.1.1.2 GRCA Fisheries Management Plan (2005)

The Grand River Fisheries Management Plan reviews the status of the fish resource within the Grand River Watershed and provides direction on how this resource and the land base which affects it can be managed. This document serves two purposes: namely, as a stand-alone fisheries management plan and as an integral component of the watershed management plan being developed by the Grand River Conservation Authority

1.1.2 Regional Municipality of Waterloo (RMOW)

1.1.2.1 Region of Waterloo Source Protection Policies (Water Resources Protection Master Plan, 2008)

The purpose of the Water Resources Protection Master Plan is to guide source protection activities within the Region of Waterloo between 2007 and 2016. With respect to stormwater management, the following areas apply:

Surface Water Intake Protection Areas - The Master Plan indicates that the extent of these areas would change to reflect moving from a natural drainage system to a controlled system using stormwater management facilities, where the extent of retention in the stormwater management facilities would potentially affect travel time to the intake.

Groundwater and Surface Water Threats - The Master Plan summarizes land use activities that may negatively impact groundwater and surface water resources. Activities include road salt application, stormwater management ponds, nutrient management, industrial and commercial land use, residential land use, and aggregate/mining operations.

1.1.2.2 Region of Waterloo Proposed Grand River Source Protection Plan (SPP) (2013)

The assessment report prepared for the Region of Waterloo by the Grand River Source Protection committee was approved by the Ministry of the Environment and Climate Change on August 16, 2012. The proposed SPP for the Region of Waterloo was issued on January 16, 2013. The proposed Source Protection Plan (SPP) extends the 2008 Region of Waterloo's "Water Resources Protection Master Plan", an implementation guide to the watershed-based Source Protection Plan. The Master Plan outlined Well Head Protection Areas (WHPA) around the Region's supply wells, Intake Protection Zones (IPZ) and a threat assessment for potential contaminated sites. With regard to future development, the Master Plan updated the mandate of the 1993 Water Resources Protection Strategy (WRPS) to minimize the risks to water quality and quantity from future land uses and activities, primarily focused on areas that are intrinsically vulnerable (e.g. characterized by permeable sandy soils, shallow water tables, groundwater recharge and areas lying within a WHPA and IPZ).

The proposed SPP is anticipated to be approved by the Ministry of the Environment and Climate Change late in 2015, at which time the Region will work with its municipalities to adopt an Official Plan Amendment to conform with the significant threat policies within five (5) years

from the date the Source Protection Plan comes into effect or the next Official Plan review required under Section 26 of the Planning Act whichever comes first. All Zoning By-law Amendments to conform with the significant threat policies shall be completed within two (2) years from the adoption of the Official Plan conformity amendment.

The specific Region policies addressing drinking water activities listed above can be found in the proposed SPP. Relevant Policies Addressing Prescribed Drinking Water Threats in the Region of Waterloo under their respective heading are summarized in Table 2.2. The summary presented in Table 2.2 is in not intended to be comprehensive, rather it provides direction to the readers to the location of additional information.

Table 2.2 – Summary of Policies Addressing Prescribed Drinking Water Threats Relating to Stormwater Management

Policy #	General Focus and Relevance
Sewage System or Sewage Works -Discharge of Stormwater from a Stormwater Management Facility	
RM-MC-15	Addressed existing SWM facilities within vulnerable areas where the activity is a significant threat and the amendment of Environmental Compliance Approvals (ECA) to ensure that the activity ceases to be a significant threat.
RM-MC-16	Addressed establishment of new SWM facilities, as well as minimum monitoring programs and mandatory monitoring programs for facilities within Issue Contributing Areas (ICA).
RM-MC-17	Addresses future land-use planning amendments (Official Plan & Zoning By-law) to reflect policy RM-MC-16
RM-MC-18	Addresses future land-use planning (Official Plan) amendments to require a study to assess impact and mitigation measures per Regional Implementation Guidelines.
RM-MC-19	Addressed the collaborative assessment of existing SWM facilities to determine the scope and type measure to protect drinking water within 2 years of SPP finalization
RM-MC-20	Addresses SWM facilities which are exempt from the from Environmental Compliance Approvals (ECA) requirements and requires the development of a Risk Management Plan for Existing and Future SWM facilities. Requirements include the implementation of a monitoring plan and reporting to the Risk Management Official.
The Application of Road Salt / The Handling and Storage of Road Salt	
RW-CW-34	Addresses application road salt for new development
RW-CW-34.1	Prohibits the existing and future handling and storage of road salt within designated areas.
RW-CW-35	Addresses existing and new application, handling and storage of road salt within vulnerable areas including roadways, medium to large parking lots and condominiums. Requires the development of a Risk Management Plan.
RW-CW-35.1	Addresses existing and future road salt storage areas. Requires the development of a Risk Management Plans.
RW-CW-36	Addresses future land-use planning (Official Plan) amendments relating to planning of new roads and the requirements under the SPP policies.
RW-CW-37	Describes future incentive program development by the MROW as well as the education and outreach programs for persons involved in the application and storage of road salts.

RW-CW-38	Smart about Salt Accreditation requirements for large and medium parking lots
RW-CW/NB-39	Addressed Issue Contributing Areas (ICA) relating to Chloride and Nitrates relating to application rates on existing roadways and the requirement to revise the respective Salt Management Plan.
RW-CW/NB-40	Future action relating to enhanced roadway design as part of Environmental Assessments to minimize impacts from salt application on roads as part of new development.
The Storage of Snow	
RW-CW-41	Addresses existing and future snow storage
RW-CW-42	Addresses existing and new handling of snow and the requirement of Risk Management Plans
RW-CW-43	Development and implementation of educational program by the MROW addressing the storage of snow
RW-CW-44	Recommends consideration by MOECC for an approval process for storage or snow in WHPA where a significant threat exists.
http://www.sourcewater.ca/SWP_watersheds_Grand/GRCA_SPPVol2_Proposed_Submitted_Jan2013_Ch9.pdf	

Pursuant to Region of Waterloo SPP Policy No. RM-MC-19, the City has identified thirty-three (33) existing SWM facilities within Source Protection Areas that are considered potential threats to drinking water sources as a result of chlorides from road de-icers applied during winter maintenance operations. These facilities include:

SWMF #: 13, 15, 24, 26, 33, 34, 39, 40, 47, 49, 50, 51, 61, 65, 66, 75, 88, 94, 95, 96, 97, 100, 108, 109, 115, 116, 121, 129, 133, 136, 138 and 157.

1.1.2.3 Region of Waterloo Official Plan (2009)

The Regional Official Plan (ROP, adopted 2009 and appealed) is the Regional Municipality of Waterloo's guiding document for directing growth and change for the next 20 years in order to further the sustainability and liveability of the community in accordance with the following vision:

"Waterloo Region will be an inclusive, thriving, and sustainable community committed to maintaining harmony between rural and urban areas and fostering opportunities for current and future generations".

The original Regional Official Plan was approved in 1976 and updated in 1986. In 1991, Regional Council determined that a comprehensive review of the Regional Official Plan was needed to address the social, economic and environmental changes that had occurred since 1976. This review resulted in a new Regional Official Plan, which was approved in 1995. Regional Council's adoption of the Regional Growth Management Strategy in 2003 prompted work to begin on another comprehensive review of the Regional Official Plan. The purpose of this review was to implement the policy directions of the Regional Growth Management Strategy, and to bring the Regional Official Plan policies into conformity and/or consistency with a range of new Provincial policies and legislation including the Municipal Act, the Places to Grow Act and Growth Plan, the Safe Drinking Water Act, the Clean Water Act, and updates to the Provincial Policy Statement and the Planning Act. On June 16, 2009, the Regional Council adopted the new ROP.

The new ROP was approved by the Ministry of Municipal Affairs and Housing (MMAH) in December 2010 and is currently under appeal.

Specific environmental policies within the ROP that relate to stormwater management include:

- Protecting existing and future sources of drinking-water from incompatible land uses.
- Maintaining and, wherever feasible, enhancing the quantity and quality of water infiltration and recharge to groundwater aquifers.
- Minimizing the potential for contamination, including potential contamination from de-icing salts, on sources of municipal drinking-water.
- Promoting informed stewardship of Source Water Protection Areas in collaboration with the Province, Area Municipalities and Grand River Conservation Authority.

1.1.2.4 Regional Official Plan (ROP, 2009) and Groundwater Management

The Regional OP (ROP) designates Wellhead Protection Sensitivity Areas (WPSA) around each municipal drinking water supply well.

Wellhead Protection Areas (WHPA) are lands which contribute water to a municipal drinking-water supply well. Within each Wellhead Protection Area, one or more Wellhead Protection Sensitivity Areas (WPSA) are degrees of management relative to the vulnerability of the underlying groundwater to contamination, the importance of the well to the capacity of the municipal drinking-water supply systems, as well as the time of- travel for groundwater within the WPSA before it reaches the municipal drinking-water supply intake. The purpose of these designations is to prevent land uses associated with hazardous substances, disease-causing organisms and land uses that increase the vulnerability of municipal drinking-water wells.

Policies of the ROP addressing source water protection prescribe the following prohibitions:

employment uses that would direct infiltration of stormwater run-off without pre-treatment through the use of dry wells or artificial/enhanced recharge will not be permitted (*ROP 8.A.5*);

employment uses that would require new water taking for industrial/commercial purposes and/or for irrigation purposes, except for water taking associated with *mineral aggregate operations* will not be permitted (*ROP 8.A.5*);

ROP 8.A.8 outlines implementation considerations for source water protection. In that regard, four (4) categories of land uses that may pose a risk to drinking-water have been identified and are listed within Schedule "B" of the ROP and Cambridge OP. The four land-use categories are:

- Category A (Very High Risk Uses);
- Category B (High Risk Uses);
- Category C (Moderate Risk Uses); and,
- Category D (represents *preferential pathways* or other land uses that involve soil excavation and/or the creation of subsurface facilities that contribute to the risk to municipal drinking water supplies by increasing vulnerability);

ROP 8.A.11 provides a description of each of WPSAs (1 to 8) and the limitations associated with development, including in relation to the four categories of land uses (A, B, C and D);

ROP 8.A.19 designates municipal drinking-water supply wells supplied by Groundwater Under the Direct Influence of Surface Water (GUDI) are shown on ROP Map 6f. *Development* applications proposing individual wastewater treatment systems and/or private wells are not permitted within the High Microbial Risk Management Zone surrounding the GUDI wells.

ROP 8.B.1 through 8.B.3 may require a Salt Management Plan to be submitted for certain types of development applications, including plans of subdivision and zoning by-laws proposing new employment land. The purpose is to encourage sound salt management practices and urban design to reduce the need for salt application to sidewalks, parking lots and roads.

1.1.3 City of Kitchener

1.1.3.1 City of Kitchener Official Plan (adopted 2014 and appealed)

The Official Plan (adopted and appealed) of the City of Kitchener prioritizes the protection, enhancement and/or restoration of Kitchener's natural heritage, surface water, and groundwater systems through the application of the natural heritage and environmental management policies contained within the Plan, the City endeavors to ensure that development maintains and improves the quality of the natural environment within the City while protecting and contributing to the health and well-being of its residents. These plans are supported by the Grand River Conservation Authority (GRCA) through various polices which promote the protection, restoration and enhancement of natural features through long-term adaptive management. With respect to stormwater management, the Official Plan addresses the following issues:

- Groundwater quantity and quality
- Runoff volumes and time distribution
- Erosion and sedimentation
- Floodplain storage
- Fish habitat and benthic environment
- Water balance

In addition, potential impacts of change with respect to the following infrastructure and structure works are addressed:

- Floodplain buildings and structures
- Reservoir operations
- Capacities of existing infrastructure works

1.1.3.2 Stormwater Management Policy (2001)

The City of Kitchener Stormwater Management Policy (I-1135) is based on a comprehensive study titled the Stormwater Management Policy Development Study (TSH, 2001), with an overarching objective to provide a Master Stormwater Management Plan to guide the implementation of stormwater management measures within the City. The study evaluated existing stormwater management approaches within the City and investigated alternative approaches and measures to ensure effective City-wide stormwater management.

The Stormwater Management Policy articulated several environmental objectives that include:

1. Meeting water quality targets;
2. Reducing contaminants loading to surface water;
3. Maintaining baseflow and temperature regime;
4. Improving stream and riparian habitat
5. Maximizing the use of source control with pollution prevention and infiltration;

The Policy identified and recommended an action plan for implementing stormwater management measures and technologies within the context of policy/guidance documents, suitability criteria, and potential for development. The 2001 SWM Policy recommended that

the City implement a cash-in-lieu (CiL) policy to be applied to site plans which met the prerequisite criteria in order to permit the City to construct centralized water quality control facilities rather than implementing on-site stormwater infrastructure. As part of the recommendations of the 2001 Stormwater Management Policy, a city-wide monitoring program was recommended to ensure that the CiL policy was providing a “net gain” to the municipal SWM system (i.e. more spatial area was to receive quality control treatment vs. private land area that contributed CiL on an annual basis). The city-wide monitoring program (audit) has been conducted annually since 2001 and is discussed in the subsequent section.

1.1.4 Plans, Strategies, and Guidelines

In addition to local acts and policies, there are strategy and planning documents that are related to stormwater management within the City of Kitchener. These strategies and plans include:

1. Strategic Plan for the Environment - Water;
2. Official Plan – Natural Heritage and Environmental Management;
3. Detailed Asset Management Plan – Stormwater;
4. Grand River Water Management Plan – Stormwater
5. Subwatershed Studies and Master Drainage Plans
6. Development Manual
7. Multi-use Pathways and Trails Master Plan
8. Parks Strategic Plan
9. Kitchener Storm Water Charges By-law
10. SWM Audit programs
11. Relevant Documents from External Jurisdictions

1.1.4.1 Strategic Plan for the Environment – Water (2011-2014)

The Strategic Plan is a document that promotes policies and practices that support the ecological wellbeing of environmental features and functions within the City of Kitchener. The Plan includes recommendations that cover the natural heritage system, water resources, air quality, land resource, energy systems, resource consumption, and environmental education. With respect to water resources management, the Strategic Plan calls for ensuring the integrity and long-term sustainability of watercourses and municipal water supply systems. The five (5) program priorities are:

1. To contribute to an interdisciplinary and inter-agency approach to the sound management of the city’s surface watercourses and associated hydrological and ecological functions.
2. To protect and conserve the natural hydrological and hydrogeological functions within the city so as to ensure the quality and continued replenishment of the groundwater supply.

3. To improve the quantity and quality of the city's potable water supply while maintaining an efficient distribution network.
4. To monitor and publicize city initiatives to conserve and enhance water resources.
5. To build public awareness, educate and provide expertise to the community on conserving and enhancing water resources.

1.1.4.2 Official Plan (adopted 2014 and appealed) – Natural Heritage & Environment Management

The Plan recognizes that any development needs to take into consideration all plants, animals, habitat, and environmental features within the City including greenfield areas and built boundary. As part of the overall discussion, the Plan involves issues related to stormwater management including:

1. Locally Significant Valleylands and Wetlands;
2. Ecological restoration of streams (Ecological Restoration Areas are identified);
3. Recharge and discharge areas; and
4. Fish habitat.

This section of the OP includes relevant subsections addressing, among other matters: Source Water Protection; the Kitchener Natural Heritage System; Watershed Planning; and, Water Conservation.

1.1.4.3 Stormwater Asset Management Plan (2013)

The City of Kitchener Stormwater Asset Management Plan (September 2013) is concerned with the planning of maintenance, rehabilitation, and reconstruction of storm assets within the City. According to the Plan, storm assets include storm network (i.e. pipes, catch basins, manholes, etc), SWM ponds, and to a certain extent stream reaches.

The Asset Management Plan states that the City of Kitchener infrastructure planning includes two activities:

1. The assessment of existing storm assets condition to provide a reference frame for future decision making in regard to deterioration of storm assets and implications;
2. The integrated planning including (roads, water, sanitary, and storm) and focused on the Accelerated Infrastructure Replacement Program (AIRP) would result in an efficient and effective expenditure of funds.

Inventories of the stormwater system within the City are tabulated and restoration priorities are enlisted accordingly. Restoration opportunities include pond retrofits and cleanups in the coming years. Maintenance activities include the following categories:

1. Storm sewer maintenance;
2. Watercourse maintenance; and
3. Bridge and culvert maintenance

The report emphasizes the importance of concurrent programs such as the SWM Audit program in providing an important feedback element into the Asset Management activities, which would

fit into providing a Level of Service (LOS) that is satisfactory to the customer and the surrounding environment.

1.1.4.4 Grand River Water Management Plan Update – Stormwater (2014)

With respect to stormwater management relevant to the City of Kitchener, the most recent (2014) document of the Grand River Water Management Plan (GRWMP) discusses the following environmental issues:

Flood Damage: the plan recommends the following actions that are relevant to SWM:

- maintaining flood control infrastructure safe and ready for floods;
- recommending that municipalities undertake stormwater major system assessment;
- improving floodplain management, emergency preparedness planning and flood damage assessment

Rural Stormwater Quality: issues include elevated sediment and phosphorus loadings in rural subwatersheds and catchments.;

Urban Stormwater Quality: issues are mostly related to road salt application, heavy metal, sediment following construction activities, and to a certain extent nutrient and phosphorus from upstream sources.

The Water Management Plan also discusses pollution from point and non-point sources.

In rural areas, the Rural Water Quality Program promotes the adoption of best management practices to mitigate nonpoint source pollution; and

In urban areas, the focus is on urban pollutants (including heavy metals, salt, and sediment) and urban drainage system (including ponds and their location within the drainage system).

The Plan also discusses in-river water quality and fish habitat issues including turbidity, fish barriers, thermal regime, and stream erosion. Broadly, the GRWMP is an integrated water management plan with four (4) main goals to:

- Ensure sustainable water supplies for communities, economies and ecosystems;
- Improve water quality for river health and reduce the river's impact on Lake Erie;
- Reduce flood damage potential; and
- Increase resiliency to deal with climate change.

Relevant sections to this study include:

Urban Nonpoint Source Pollution Strategy (D10 and D11): relating to stormwater management, water quality and sediment control and chloride levels in groundwater and surface water respectively,

Reducing Flood Damage (E2): relating stresses on urban SWM systems, including from climate change impacts.

The City of Kitchener Council endorsed the GRWMP and City staffs are currently implementing its recommendations.

1.1.4.5 Best Practices Guide for Reducing Urban Non-point Source Pollution in the Grand River Watershed (2014)

Building on the recommendations of the Grand River Water Management Plan (2014), the Best Practices Guide for Reducing Urban Non-point Source (NPS) Pollution in the Grand River Watershed was prepared in cooperation with the City of City of Kitchener and other municipalities within the Grand River watershed.

In order to meet the four (4) main goals of the GRWMP, the Best Practices Guide for Reducing Urban Non-point Source Pollution in the Grand River Watershed has three (3) main objectives:

- Improve Stormwater Management Governance and Stewardship
- Secure Sustainable Funding to Implement Stormwater BMPs
- Improve Stormwater Management Education

The Best Practices Guide report identified thirteen (13) recommendations for watershed stakeholders to achieve an 'ideal SWM program' and ultimately reduce urban NPS pollution and peak flooding in the Grand River over the short term (1-3 years) and Long term (>3 years).

GRWMP & Best Practices Guide Staff Report

In May 2014, the City of Kitchener staff put a report (INS-14-035) to Council recommending that the GRWMP be endorsed by Council, which included the three (3) main objectives of the Best Practices Guide, stating that "with the implementation of the stormwater utilities and the related programming, Kitchener and Waterloo are the best positioned municipalities to be able to achieve these objectives". The report highlighted the alignment with the City of Kitchener Strategic Plan:

Community Priority - Environment

"Continue to show leadership in the development of an environmentally sustainable community." The City continues to ensure effective functioning of stormwater infrastructure to maintain or enhance aquatic and terrestrial habitat – striving for improved water quality and quantity control.

Community Priority – Development

"Advocate for and bring forward new technologies as the infrastructure of the future." The City continues to be on the leading edge of implementing innovative solutions to mitigate stormwater runoff while developing state-of-the-art sustainable infrastructure solutions.

1.1.4.6 Subwatershed Studies and Master Drainage Plans

A number of subwatershed plans and master drainage plans have been developed for subwatersheds within the City of Kitchener. The levels of analysis and management strategies vary across the subwatersheds, based upon the watershed characteristics and provincial policies in existence at the time of the study.

Generally, each management strategy addresses stormwater management control requirements for both quantity and quality. The criterion reflects the needs of the subwatershed and may be more stringent and supersede general Provincial or City requirements. With respect to quality control, requirements are generally based upon protection of fishery resources as well as overall water quality. Quantity control requirements are based upon downstream capacity and flood protection.

In many of the older-previously developed areas of the City of Kitchener existing Subwatershed Studies and Master Drainage Plans, may not exist or are outdated. These older areas are also areas of anticipated intensification and or re-development. They also contain degraded portions of Kitchener's stream ecosystems which have been identified as Ecological Restoration Areas in the City's OP.

Completed subwatershed and master drainage plans are detailed in Section 3.0. It is anticipated that additional subwatershed and master drainage plans will be developed in support of future greenfield development areas.

1.1.4.7 City of Kitchener Development Manual (2015)

Section G of the 2015 Development Manual discusses the implementation of stormwater management measures within the context of the Stormwater Management Policy and other related policy/guidance documents. In addition, other parts of the document discuss site-based measures such as lot-grading, mapping, and reporting. The most current version of the Development Manual is posted on the City of Kitchener Website and is updated on a regular basis. At the conclusion of this ISWM-MP, it is anticipated that a review and update to the existing Development Manual will be required to update the relevant sections accordingly.

1.1.4.8 Multi-use Pathways and Trails Master Plan (2012)

The Multi-use Pathways and Trails Master Plan received Council approval in May 2012. Council-approved recommendations direct staff to identify priority trail sections, to budget for, plan and implement the approved Multi-use Pathway Network Plan where they correspond with other City infrastructure projects. The Network Plan identifies Type 1 and 2 multi-use pathways (MUPs) within storm water management facilities throughout Kitchener, and directs that staff plan local community trails to link with the Network system via the open space system, including storm water management facilities and greenway corridors. The following Master Plan recommendations provide the direction to staff:

Recommendation 5-1: Staff shall systematically implement the recommended Multiuse Pathway Network as illustrated in the Network Map and Schedule through the subdivision and site planning process as well as through Engineering, Transportation and Parks capital projects within existing city lands or corridors.

Recommendation 5-4: The planning, design and development of multi-use pathways in the City shall be consistent with the Network Map and Official Plan Schedule, and master plan standards and guidelines.

Recommendation 5-6: Implementation of the multi-use pathway network shall be the responsibility of all departments engaged in the planning, design, engineering and implementation of municipal infrastructure and the Multi-use Pathway network requirements shall be considered within the Asset Management programs of the Engineering and Operations divisions and the Long Range Planning, Development Planning and Site Plan review processes. Projects within road rights-of-way: Engineering Capital; projects within parks and open space: Operations Capital.

Recommendation 5-7: All city departments and staff involved in long range planning, development planning, transportation planning, site plan and subdivision development review, urban design, infrastructure design and implementation shall include the planning and implementation of the approved Multi-use Pathway Network and related facilities into their standard processes and projects. Where necessary, staff will revise their standard processes to include the planning and implementation of the approved Multi-use Pathway Network.

Recommendation 5-8: The coordination and implementation of multi-use pathways shall be included in all related capital infrastructure projects and funding shall be appropriately included as a portion of the project budget.

1.1.4.9 Parks Strategic Plan (2010)

The Strategic Plan does not specifically identify storm water management facilities as a part of the city's natural area inventory, however some Plan recommendations offer relevant guidance for supporting the existing public use of storm water management facilities and in order to protect the wildlife habitat resource aspect of many storm water management facilities, especially where these intersect with the city's natural areas. The following planning and management objectives from the Parks Strategic Plan provide guidance:

Provide public access where possible at a sustainable level to facilitate human contact with, appreciation and understanding of the natural environment through compatible recreational and educational activities.

Support linkages that improve the health and long term sustainability of the natural areas system and provide opportunities for compatible public access and use.

Balance facility provision and accessibility supports with the ecologically-based constraints of the natural feature on a site-specific level.

1.1.4.10 City of Kitchener Storm Water Charges By-law (2011-153)

Through this by-law (2010-113, as amended by 2012-036, as amended by 2011-153) the City of Kitchener created a separate storm water utility to fund operation, maintenance and capital projects pertaining to stormwater management in compliance with the legislated requirements and guidelines. In this manner the City of Kitchener transferred stormwater management funding from property taxes to a user-fee program, effective January 1, 2011. The storm water utility established a stormwater charge based on impervious areas per an established rate structure.

A complimentary element established a stormwater charge credit for landowners. In March 2012, council approved the stormwater credit policy. These incentives are provided to residential and non-residential property owners who use best management practices (BMPs) to reduce the quantity and improve the quality of stormwater runoff entering the municipal stormwater system. Encouraging the use of stormwater BMP's supports the city's stormwater management policies and water quality initiatives. Property owners are now able to apply for stormwater credits of up to 45% of the stormwater portion of their utility bill.

1.1.4.11 SWM Audit programs (2002-2014)

As part of the recommendations of the 2001 Stormwater Management Policy, a city-wide monitoring program was recommended to ensure that the CiL policy was providing a “net gain” to the municipal SWM system (i.e. more spatial area was to receive quality control treatment vs. private land area that contributed CiL on an annual basis).

The city-wide monitoring plan was initiated in 2002 by AECOM as part of the SWM plan to provide a process for evaluating the effectiveness of the SWM approach. Since then, the monitoring program focused on surface water quality (chemical and bacteriological) and invertebrate and fish community sampling (biological) to identify and monitor the impact of the SWM Policy Implementation on stream water quality. The monitoring program also included continuous temperature and flow monitoring components to provide greater context for the chemical and biological monitoring data. Conclusions and recommendations of the SWM audit reports from 2008 to 2012 focused on the following monitoring and management activities:

1. Water quality monitoring;
2. Aquatic biology monitoring;
3. Erosion monitoring;
4. Source water protection monitoring; and
5. Capital Project Forecast – Priority Stormwater Projects;

1.1.4.12 Relevant Documents from External Jurisdictions

Although the following documents are not within the Grand River Watershed or the City of Kitchener jurisdiction, they are relevant examples of pending and approved guidance documents specifically targeting stormwater management within a specific watershed. If similar approaches and or criteria are developed for the Grand River Watershed it will inevitably impact future SWM policy development with the City of Kitchener.

The TRCA and CVC criteria documents provides guidance in the planning and design of stormwater management infrastructure for developers, consultants, local municipalities, and landowners, and outlines the processes and infrastructure needed to address flooding, water quality, erosion, water balance, and natural heritage. While these documents addresses SWM throughout CVC's and TRCA's jurisdiction, a review of site specific conditions is recommended to ensure that any necessary variations on these requirements are identified early in the planning and design process, through thorough consultation with all affected agencies and stakeholders, to maintain sound engineering and environmental practices.

The respective Stormwater Management Criteria documents articulate a SWM planning framework, with associated criteria, to be applied at the various stages of the planning process, ranging from Official Plan and Secondary Plan studies through to plans of subdivision and site plans. Together the planning process and the design criteria provide a procedure for the selection of the most appropriate approaches to SWM.

Stormwater Management Criteria (CVC, 2012)

The purpose of this document is to reference and build upon current design guidelines and requirements relating to SWM, and provide additional and specific detail for those areas within Credit Valley Conservation's (CVC) jurisdiction. Referenced documents include:

- the Ministry of the Environment and Climate Change's Stormwater Management Planning and Design Manual (SWMPD, 2003),
- the CVC/TRCA Low Impact Development Stormwater Management Planning and Design Guide, Version 1.0 (CVC/TRCA, 2010),
- CVC Study Report: Thermal Impacts of Urban Stormwater including Preventative and Mitigation Techniques (CVC, 2011), and
- CVC's Planning and Development Administrative Procedural Manual (CVC, 2011).

Stormwater Management Criteria (TRCA, August 2012, V 1.0)

This Stormwater Management Criteria document has been prepared to supplement the Toronto and Region Conservation Authority's (TRCA) Planning and Development Procedural Manual (PDP Manual, 2007) with more detailed direction regarding the Stormwater Management (SWM) component of development approvals. The purpose of this document is to consolidate and build upon current design guidelines and requirements relating to SWM from watershed plans and hydrology studies, and provide additional and specific detail for those areas within TRCA's jurisdiction. Referenced documents include:

- the Ministry of the Environment and Climate Change's Stormwater Management Planning and Design Manual (SWMPD, 2003),
- the TRCA/CVC Low Impact Development Stormwater Management Planning and Design Guide, Version 1.0 (TRCA/CVC, 2010), and
- TRCA's PDP Manual.

Grey to Green: LID Retrofits (2014-2015)

Funded by the Ministry of Environment's Showcasing Water Innovation (SWI), the five (5) guides focus on Infrastructure Optimization (An Adaptive Planning and Water Management Approach) to Retrofits using Low Impact Development (LID) and Green Infrastructure (GI) for Small, Medium and Large Municipalities Projects. The four of the five guides focused on the implementation of LID & GI within individual land uses:

1. Grey to Green Road Retrofits: Optimizing your Infrastructure Assets Through LID
2. Grey to Green Business and Multi-Residential Retrofits: Optimizing your Bottom-line Through Low Impact Development

3. Grey to Green Grey to Green Public Lands Retrofits: Optimizing Parks, Public Buildings, Schools and Places of Worship through Low Impact Development
4. Grey to Green Residential Retrofits: Engaging Residents to adopt Low Impact Development on their Properties

The fifth guide outlines the process by which integrated stormwater management master plans can be completed.

5. Grey to Green: A How to Guide for the Completion of an Integrated Stormwater Management Master Plans (ISWM-MP)

1.2 Provincial Level

In regard to water resources and stormwater related issues, Provincial legislative powers include, but are not limited to:

- Flow regulation;
- Authorization of water use development;
- Water supply; and
- Pollution control

Ontario legislative mechanisms (e.g., policies and guidelines) to regulate water quality and quantity are primarily administered by:

Ministry of the Environment & Climate Change (MOECC):

- The Blue Book
- Water Resources Act;
- Clean Water Act;
- Environmental Protection Act;
- Water Opportunities Act; and
- Safe Drinking Water Act
- BMP for Excess Soil Management

Ministry of Natural Resources and Forestry (MNRF)

- Lakes and Rivers Improvement Act; and
- Endangered Species Act

Ontario Ministry of Agriculture, Food, and Rural Affairs (OMAFRA):

- Drainage Act; and
- Nutrient Management Act

Ministry of Municipal Affairs and Housing (MMAH)

- The Planning Act and the Provincial Policy Statement (Ministry of Municipal Affairs and Housing); and
- The Municipal Act

Ministry of Infrastructure

- The Places to Grow Act

1.2.1 Water Management: Goals, Policies, Objectives and Implementation Procedures of the Ministry of the Environment and Climate Change (The Blue Book), 1994, reprinted 1999, MOECC

The “Blue Book” was issued by the MOECC under the authority of the Ontario Water Resources Act and the Environmental Protection Act. It provides direction on how to manage the quality and quantity of both surface water and ground water. It provides a framework but not procedures: how the policy is applied to (for example) pollutant discharge limits is a matter of local choice or conditions or other pollutant management strategies.]

The Provincial Water Quality Objectives (PWQO) forms an integral part of the policy. The PWQO are set at levels that are protective of aquatic life and aquatic life cycles during indefinite exposure to water, in addition to recreation. The PWQO are guidelines to making rational water quality decisions. In addition to the PWQO, other objectives and guidelines may be used that relate to specific uses. Meeting the PWQOs “should be determined from data that adequately reflect the spatial and temporal variations of the quality of the waterbody under consideration”. Section 3.5.1 sets out procedures for effluent requirements. Of interest is the determination of effluent requirements are expressed as “waste loadings and/or concentrations”.

To accomplish this through stormwater quality analyses, it is necessary to determine the event mean concentration (EMC) values for various representative pollutants.

The general policies that relate to Stormwater are listed below:

Policy #1: “In areas which have water quality better than the PWQO, water quality shall be maintained at or above the Objectives”.

Policy #2: “Water quality which presently does not meet the PWQO shall not be degraded further and all practical measures shall be taken to upgrade that water quality to meet the Objectives”.

Policy #3: To prevent the release, in any concentration, of hazardous substances that have been banned.

Policy #4: Ensure that special measures are taken on a case by case basis to minimize the release of hazardous substances that have not been banned.

Policy #5: refers to a mixing zone as an area of water contiguous to a point source or definable diffuse source where water quality does not comply with one or more PWQO. It states “Mixing zones should be as small as possible and not interfere with beneficial uses. Mixing zones are not to be used as an alternative to reasonable and practical treatment”.

Policies of most relevance to stormwater management are Policies #1 and #2. These policies are enforceable when incorporated into control documents, such as Environmental Compliance Approvals issued by the Ministry of the Environment and Climate Change (MOECC) through the Environmental Protection Act and the Ontario Water Resources Act, which regulates stormwater. The Conservation Authorities Act mandates Conservation Authorities to protect and regenerate natural systems and to maintain the quality, safety and sustainability of water resources.

The application of the policy is as follows:

1. The water management policies and guidelines supporting the Provincial Water Quality Objectives (PWQO) are the basis for establishing acceptable limits for water quality and quantity that protect aquatic ecosystems and groundwater. They are equally applicable to a local site-specific situation, an entire watershed or to the Great Lakes Basin.
2. The policies and guidelines do not have any formal legal status but, by their successful use over the years, are now accepted as a standard code of practice for water resources management.
3. Meeting the policies related to the PWQO is the minimum requirement.

[1.2.2 Ontario Water Resources Act, MOECC, R.S.O. 1990, CHAPTER 0.40](#)

The Ontario Water Resources Act (OWRA) O.Reg 525/98 is designed to conserve, protect and manage Ontario's water resources for efficient and sustainable use. The act focuses on both groundwater and surface water throughout the province.

The Ontario Water Resources Act regulates works related to water supplies, the distribution of water and stormwater management and conveyance infrastructure. The act provides for the protection and conservation of water, and the control of the quality of drinking water supplied to the public. Under the Act, stormwater is included in the definition as sewage and, as such is required to be managed properly. Accordingly, the act "regulates sewage disposal and "sewage works" and prohibits the discharge of polluting materials that may impair water quality".

Key stormwater-related issues addressed within the Water Resources Act are:

- Prohibiting the discharge of polluting material in or near water (Section 30);
- Prohibiting or regulating the discharge of sewage (Section 31);
- Enabling the issuance of orders requiring measures to prevent, reduce or alleviate impairment of water quality (Section 32);
- Enabling the designation and protection of sources of public water supply (section 33);
- Imposing a duty on corporate officers and directors to take all reasonable care to prevent the corporation from discharging materials into or near water that may impair water quality (Section 116).

Recent Modifications/ Amendments

Recent changes under the act (Consolidation Period: From July 26, 2007 to Current), specifically subsection 53(1) and (3), whereby all Industrial lands are no longer exempt from requiring an Environmental Compliance Approval (ECA), formerly referred to a Certificate of Approval (CofA) for their stormwater discharges. O. Reg. 525/98 – Approval Exemption, last amendment O.Reg. 396/0, Section 3, Subsection 53(1) and (3) of the Act apply to the establishment, alteration, extension or replacement of or a change in a stormwater management facility that:

- a) Is designed to service one lot or parcel of land;
- b) Discharges into a storm sewer that is not a combined sewer;
- c) Does not service industrial land or a structure located on industrial land; and
- d) Is not located on industrial land O. Reg 525/98, s. 3.

Local MOECC enforcement officers have begun enforcing the above within existing industrial lands within the local jurisdiction around Kitchener, requiring the retrofit, upgrade or construction of stormwater management controls to the standard of the relevant municipality.

Applicable Provisions

Section 30(1): Offence to discharge any material of any kind in any waters or shore or bank thereof or in any place that may impair the quality of the water (s. 30.1)

Section 30(2): Person who discharged or caused or permitted the discharge to forthwith notify the Minister

Section 32: Ensures the cleanup of the spill and restores the environment to its original condition

The following are considered Aggravating Factors when imposing Sentencing Considerations:

- Offence caused impairment of water quality
- Defendant committed the offence intentionally or recklessly
- Defendant was motivated to increase revenue or decrease costs
- After the commission of the offence, the defendant:
 - Failed to co-operate with the Ministry or other public authorities
 - Failed to take prompt action to mitigate the effects
 - Failed to take prompt action to reduce the risk of similar offences being committed in the future

Under this legislation, an ECA is required for all municipally owned stormwater management facilities and water quality controls. Where existing municipally owned stormwater management facilities or water quality controls are retrofitted or altered, an amendment to the previously issued ECA is required.

1.2.3 Clean Water Act, MOECC (2006)

The Clean Water Act 2006 was enacted to protect existing and future sources of drinking water. The Act specifies that drinking water source protection plans (SPP) be developed as a result of an overall assessment report and that the SPP sets forth policies that prevent activities from becoming a significant drinking water threat to surface and groundwater drinking supplies. Specifically, the regulations define threatened areas to include highly vulnerable aquifers, significant groundwater recharge areas (SGRA), wellhead protection areas (WHPA), and surface water intake protection zones (IPZ). Furthermore, Ontario Regulation 287/07 (as amended), lists 21 prescribed drinking water threats. Several of these prescribed activities may impact where infiltration of water is promoted, specifically:

Activity 2: A system that collects, stores, transmits, treats or disposes of sewage, including stormwater;

Activity 12: The application of road salt, including salt transmitted in stormwater runoff;

Activity 13: The handling and storage of salt, including salt treated or disposed in stormwater; and,

Activity 14: The storage of snow, including snow stored in or near stormwater management facilities.

See Section 2.4.2 and Section 3.12 for additional information, mapping and specific policies.

1.2.4 Environmental Protection Act, MOECC, R.S.O. 1990,

The Environmental Protection Act is Ontario's key legislation for environmental protection. The act grants the Ministry of the Environment and Climate Change broad powers to deal with the discharge of contaminants which cause negative effects. Under this legislation a contaminant is defined as "any solid, liquid, gas, odour, heat, sound, vibration, radiation or combination of them resulting directly or indirectly from human activities that causes or may cause an adverse effect." The Environmental Protection Act was enacted to protect the natural environment and animal and human health from adverse effects of pollution contamination.

Applicable Provisions

Section 14(1): prohibits the discharge of any contaminants into the environment which cause or are likely to cause adverse effects - and in the case of some approved contaminants requires that they must not exceed approved and regulated limits.

Section 92: Requires the controller of a spilled pollutant and/or the person that caused the "spill" to report the spill if it is abnormal in quality or quantity. Agencies need to report if not certain it has been reported.

Section 93: Requires the owner and/or person in control of a spilled pollutant to clean up and restore the natural environment

Key stormwater-related applications include:

Forbidding the discharge of contaminants into the natural environment in an amount, concentration or level in excess of that prescribed by the regulations;

Allowing the issuance of binding administrative orders to prevent, control, minimize or remediate discharges of contaminants into the natural environment;

Imposing duties to report and clean up pollutant spills and imposes civil liability for loss or damage arising from spills; and

Imposing a duty on corporate officers and directors to take all reasonable care to prevent the corporation from causing or permitting unlawful discharges of contaminants into the natural environment.

1.2.5 Water Opportunities Act, MOECC (2010)

The Water Opportunities Act established in 2010 lays the foundations for new jobs in Ontario and develops new technologies and services for water conservation and treatment. The act has an overarching objective to improve the efficiency of municipal infrastructure. The purposes of this Act are,

To foster innovative water, wastewater and stormwater technologies, services and practices in the private and public sectors;

To create opportunities for economic development and clean-technology jobs in Ontario; and

To conserve and sustain water resources for present and future generations.

1.2.6 Safe Drinking Water Act, MOECC (2002)

The Safe Drinking Water Act, passed in 2002, has a main purpose to “provide for the protection of human health and the prevention of drinking-water health hazards through the control and regulation of drinking-water systems and drinking-water testing”.

1.2.7 Management of Excess Soil – A Guide for Best Management Practices (2014)

The best management practices in this document provide guidance on how to handle excess soil beginning at the place where the soil is excavated (a “Source Site”), during the transportation of the excess soil, and through to a site where the excess soil can be reused for a beneficial purpose (a “Receiving Site”).

This document also includes recommendations for temporary storage of excess soil at an intermediate site, between the Source Site and Receiving Site, where the intermediate site (a “Temporary Storage Soil Site”) is owned or leased by the owner/operator of the Source Site or Receiving Site, for temporary storage of the excess soil.

The best management practices are not intended to be applied to small, low-risk construction or maintenance activities that are limited to single-dwelling residential properties, or activities associated with minor municipal road work or sewer/water main construction or repair. However, those involved in these smaller-scale projects and smaller-scale soil management activities are encouraged to consider whether the best practices may be useful, and to consult

with any applicable approval authorities and Receiving Site owners/operators on reuse or disposal options before moving excess soil from a Source Site to a Receiving Site or Temporary Soil Storage Site.

All those who create, manage, transport, receive or store excess soil are responsible for ensuring that the excess soil is managed in an environmentally sound manner. They must also meet all applicable legal requirements, including current provincial and federal regulatory requirements, such as: site alteration, noise and traffic by-laws and permitting regimes established by municipalities and Conservation Authorities; the soil management provisions in Ontario Regulation 153/04 that relate to the submission and filing of a Record of Site Condition; and, when excavated soil and other excavated materials are being managed as a waste, the EPA and waste regulations.

1.2.8 Lakes and Rivers Improvement Act, MNRF (1990)

Under the Lakes and Rivers Improvement Act, review and approval is required by the MNRF to permit work on watercourses and shore-lands. The purposes of this Act are to provide for,

- a) the management, protection, preservation and use of the waters of the lakes and rivers of Ontario and the land under them;
- b) the protection and equitable exercise of public rights in or over the waters of the lakes and rivers of Ontario;
- c) the protection of the interests of riparian owners;
- d) the management, perpetuation and use of the fish, wildlife and other natural resources dependent on the lakes and rivers;
- e) the protection of the natural amenities of the lakes and rivers and their shores and banks; and
- f) the protection of persons and of property by ensuring that dams are suitably located, constructed, operated and maintained and are of an appropriate nature with regard to the purposes of clauses (a) to (e).

Applicable Provisions

Section 36(1): Offence to deposit refuse, substance or matter into water (including lands covered by ice)

Section 36(2): Minister may order removal of refuse, substance or matter from lake, river or from the shore or bank, as the case may be

In accordance with existing regulatory administration and approval agreements, the Conservation Authority (i.e. GRCA) would conduct reviews of proposed works pertaining to watercourses and shore-lands under this act.

1.2.9 Endangered Species Act, MNRF (2007)

The Endangered Species Act came into effect in 2007 and provides for broader protection for species at risk and their habitats. In general the purpose of the act includes the preservation and rehabilitation of habitat and the enhancement of other areas so that they can become

habitat. Under the act habitat may be described by specific boundaries, features or “in any other manner” and may prescribe areas where species live, used to lie or is believed to be capable of living and beyond.

Applicable Provisions

Section 10: A person shall not damage or destroy the habitat of a species that is listed as an endangered or threatened species. Policies under this legislation have relevance to urban development and stormwater management. As an example, the impacts to habitat can be as a result of:

- Alteration to hydrologic regimes (increased runoff, flow regime change and decreased infiltration) and increased water temperature (through increasing impervious surfaces and end-of-pipe discharges);
- Increased sedimentation and erosion through site grading and excavation;
- Releases of untreated stormwater which carry pollutants; and
- General habitat losses through the loss of riparian vegetation, in-stream habitat features, wetland and groundwater sources.

Potential aquatic Species at Risk (SAR) identified with the City of Kitchener are listed in Table 2.1. Screening tools (mapping) is available from the DFO website and is updated regularly.

Table 2.1 Potential Aquatic Species at Risk (SAR) identified with the City of Kitchener

Fish Species	Status	Mussels	Status
1. Silver Shiner 2. Black Redhorse	Threatened	1. Wavy-Rayed Lampmussel 2. Rainbow Mussel	Threatened

Source: MNRF, unless otherwise noted

1.2.10 Drainage Act, OMAFRA (1990)

The Drainage Act regulates the construction and maintenance of municipal drains. More specifically, under Section 74 of the Drainage Act, municipalities are responsible to maintain municipal drainage systems within their jurisdiction.

Currently there are no municipal drains in the City of Kitchener, however recent petitions have been submitted to the City on behalf of residents of the Voisin-Borden Watershed.

1.2.11 Nutrient Management Act, OMAFRA (2002)

The Nutrient Management Act regulates the use, storage and disposal of agricultural fertilizers and farm wastes with the objective of protecting surface water and groundwater quality. The Nutrient Management Act is relevant to the remaining agricultural lands within the south-west quadrant of the City of Kitchener.

1.2.12 The Planning Act (updated 2010) and the Provincial Policy Statement (PPS 2014) MMAH

The Provincial Policy Statement is issued by the Ministry of Municipal Affairs and Housing under Section 3 of the Planning Act. The Planning Act sets out the ground rules for land use planning in Ontario and describes how land uses may be controlled, and who may control them.

It requires that decisions affecting planning matters in Official Plans (OP) “shall be consistent with” the PPS. The PPS provides “for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural environment”. The PPS focuses growth within settlement areas and away from significant or sensitive resources. It directs planning authorities to identify and promote opportunities for intensification and redevelopment where this can be accommodated, taking into account existing building stock, including existing or planned infrastructure. The PPS provides a higher degree of protection for employment lands against conversions to residential uses. The new policies also provide for intensifications and brownfields development to ensure the maximum use of sewer, water and energy systems, roads and transit. The OP is the most important tool to implement the PPS.

Section 2.2 of the PPS addresses water, stating that planning authorities shall protect, improve or restore the quality and quantity of water, using the watershed as the ecologically meaningful scale for planning. Planning authorities shall ensure that stormwater management practices minimize stormwater volumes and contaminant loads, and maintain or increase the extent of vegetative and pervious surfaces.

The PPS acknowledges that, in addition to approvals under the Planning Act, necessary infrastructure may require approvals under the EA, CEAA, EPA, OWRA, the Conservation Authorities Act and the Safe Drinking Water Act, and provincial plans (e.g. Niagara Escarpment Planning & Development Act or the Oak Ridge Moraine Conservation Act). Conservation Authorities have Memoranda of Understanding with municipalities to ensure that the quality and quantity of water are protected through proper planning.

Applicable Provisions of the Planning Act

- Section 24: Official Plans,
- Section 34: Zoning By-law,
- Section 41: Site Plan Control Areas and
- Section 51: Plan of Subdivision Approvals.

The relevance to stormwater, is in regards to Site Plan and Subdivision Approvals at the municipal level. Site Plan and Subdivision Approvals are:

- Subject to Conditions
 - Grading and alterations to land, including storm and surface waters
 - Sediment and erosion control requirements
- Criteria for conservation of natural resources and flood control
- Requires entry into legal agreements
- Requires compliance with imposed conditions

- Can impose financial securities
- Linked to other regulatory approvals (i.e. Conservation Authorities)

Applicable Provisions of the PPS (2014)

The relevance to the PSS to stormwater management include:

- Section 1.6.2 directs planning authorities to promote *green infrastructure* to complement *infrastructure*.
- Section 1.6.6.7 directs planning for stormwater management to include:
 - a) minimize, or, where possible, prevent increases in contaminant loads;
 - b) minimize changes in water balance and erosion;
 - c) not increase risks to human health and safety and property damage;
 - d) maximize the extent and function of vegetative and pervious surfaces; and
 - e) promote stormwater management best practices, including stormwater attenuation and re-use, and low impact development.

The PPS (2014) defines Green infrastructure as: means natural and human-made elements that provide ecological and hydrological functions and processes. Green infrastructure can include components such as natural heritage features and systems, parklands, stormwater management systems, street trees, urban forests, natural channels, permeable surfaces, and green roofs.

1.2.13 The Municipal Act, MMAH (2001)

Ontario's Municipal Act, 2001 is the main statute governing the creation, administration and government of municipalities in the province of Ontario.

The Municipal Act empowers municipalities to enact and enforce by-laws on water-related matters including industrial discharges into municipal sewers and water rates. With respect to stormwater planning and management, municipalities have the responsibility to:

- Promote current and future economic, social and environmental well-being of the municipality;
- Manage and preserve the public's assets of the municipality;
- Provide services considered necessary or desirable for the effective management of stormwater; and
- Participate and deliver in provincial programs and initiatives.

1.2.14 Places to Grow Act, Ministry of Infrastructure (2005)

This Act maintains that municipalities that share an inland water source and/or receiving water body should coordinate their planning for potable water, stormwater, and wastewater systems to ensure that water quality and quantity is maintained or improved. In conjunction with CAs, municipalities are encouraged to prepare watershed plans and use these plans to guide development decisions and water and wastewater servicing decisions. Finally, municipalities are encouraged to implement and support innovative SWM actions as part of redevelopment and intensification (Ministry of Public Infrastructure and Renewal, 2006).

Pursuant to the Places to Grow Act, 2005: the Growth Plan for the Greater Golden Horseshoe, was approved in 2006. The Growth Plan has been amended twice since its release in 2006. The first amendment was released in January 2012 and contains new policies, schedules and definitions that apply in the Simcoe Sub-area. The second amendment was released in June 2013 to update and extend the Growth Plan's population and employment forecasts.

The Greater Golden Horseshoe (GGH) is one of the fastest growing metropolitan areas in North America and almost two-thirds of Ontario's residents live in the Greater Golden Horseshoe. An additional 3.7 million people are expected to live in this area by 2031 bringing the total population of the GGH to 11.5 million.

Growth Plan for the Greater Golden Horseshoe is a 25-year plan that aims to:

- Provides coordinated population and job growth forecasts for municipalities to help plan for new residents and new employment opportunities.
- Encourages revitalization of downtowns and city centres, making them more vibrant, people-oriented and attractive.
- Reduces development pressures on agricultural lands and natural areas by directing more growth to existing urban areas.
- Ensures that new development helps create complete communities that offer more choices in housing, better transit and a range of amenities like shops, schools, entertainment and services that are closer to where people live.
- Complements the province's Greenbelt Plan, which protects nearly two million acres of valuable farmland and natural areas at the heart of the Greater Golden Horseshoe.
- Encourages an integrated transit and transportation network that offers people more choices for getting from place to place.
- Links planning for growth with planning for infrastructure, so that the roads, sewers, schools and other services are in place to meet the needs of growing communities.
- Identifies 25 downtown locations as urban growth centres that will be revitalized as community focal points, centres of culture and recreation and economic generators. These centres will also support transit and the economy of the surrounding area. Downtown Kitchener is identified as one of the GGH Urban Growth Centres.

[1.2.15 Policy Review of Municipal Stormwater Management in the Light of Climate Change \(2011\)](#)

The document reviews the need for a new policy, act, or regulation to deal with municipal SWM systems in light of climate change. The key findings of the policy review include:

Adaptation to climate change is best priority;

The Ontario Water Resources Act (OWRA) and the Environmental Protection Act (EPA) are anticipated to provide a sufficient legislative framework for climate change adaptation;

The 2003 Stormwater Management Planning and Design Manual requires updating to include additional best practices for climate change adaptation for municipal stormwater management;

The MOECC approvals process requires review to include identifying measures to encourage source control best practices;

Data collection and information management systems are necessary to track the performance of SWM systems in order to assess vulnerability to climate change

Public education, demonstration projects and incentives are necessary to support SWM resilient systems; and

It is recommended that ministries work together to collaboratively seek solutions

1.3 Federal Level

The federal government exercises jurisdiction over a group of environmental issues related to stormwater planning and management including fish and fish habitat, navigable waters, environmental impact assessments, toxic substance releases, and some wildlife issues. More specifically, the main pieces of legislation that deal with stormwater are:

- The Fisheries Act;
- The Canada Water Act;
- The Canadian Environmental Protection Act;
- The Canadian Environmental Assessment Act
- The Migratory Convention Birds Act
- The Species at Risk Act
- Navigable Waters Protection Act

1.3.1 Fisheries Act (2012)

Prior to November 2012, the Fisheries Act focused on the protection of fish and aquatic habitat. It prohibited the deposit (direct discharging, spraying, releasing, spilling, leaking, seeping, pouring, emitting, emptying, throwing, dumping or placing) of harmful substances into waters frequented by fish, such as oceans, rivers, lakes, creeks, and streams, or into storm drains that lead to such waters.

Recent Modifications/ Amendments

On June 29 2012, amendments to the Fisheries Act received Royal Assent. The new Fisheries Act:

- Focuses on the Act's regulatory regime on managing threats to the sustainability and ongoing productivity of Canada's commercial, recreational and Aboriginal fisheries;
- Provides enhanced compliance and protection tools;
- Provides clarity, certainty and consistency of regulatory requirements through the use of standards and regulations; and
- Enables enhanced partnerships to ensure agencies and organizations that are best placed to provide fisheries protection services to Canadians are enabled to do so.

The new Fisheries Act (new subsection 35(1)) now reads: "No person shall carry on any work, undertaking or activity that results in serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery" . They key changes include:

1. All explicit references to fish habitat have been removed.
2. Harmful alteration, disruption, or destruction of fish habitat (HADD) has been replaced by "serious harm to fish".
3. General prohibitions against harm to fish habitat have been replaced by those that apply now only to fish that are important to a "commercial, recreational, or

Aboriginal fishery" (i.e. fish that are of some economic or recreation value and/or of cultural value to a component of the Canadian population)

As a result, effective in November 2013, Ontario Conservation Authorities no longer have Review Agreement with Fisheries and Oceans Canada (DFO) and are no longer undertaking reviews under the *Fisheries Act* on behalf of DFO. As a result, it is up to the proponent to ensure that their projects meet the DFO requirements under the self-assessment process. Further information regarding this process can be found at the following link <http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html>.

This self-assessment process applies to any on-going projects currently under review with the local CAs, applications where permits have not yet been issued and any future permit applications that would normally have involved CA review under the *Fisheries Act*. See www.dfo-mpo.gc.ca. Note: Further implications resulting from the modifications and amendments of the Fisheries Act can be anticipated but are not predictable at this time.

The City of Kitchener has developed a tool to assist municipal staff in the review of specific water resources projects to determine if the self-assessment process applies.

1.3.2 Canada Water Act (2005)

The Canada Water Act (last amended in 2005) is divided into four parts:

1. Comprehensive Water Resource Management;
2. Water Quality Management;
3. Nutrient Management; and
4. Administration and Enforcement

Guidelines originally issued under this part of the Act are now listed under Canadian Environmental Protection Act. These include the Canadian Drinking Water Quality Guidelines and the Guidelines for Effluent and Waste Water Treatment at Federal Establishments. The final part focuses on administration and enforcement of the Act.

1.3.3 Canadian Environmental Protection Act (S.C. 1999, c. 33)

The Canadian Environmental Protection Act (CEPA) is administered by Environment Canada and Health Canada and is "An Act respecting pollution prevention and the protection of the environment and human health in order to contribute to sustainable development."

Applicable provisions

Section 64 of CEPA states "a substance is toxic if it is entering or may enter the environment in a quantity or concentration or under conditions that:

- a) Have or may have an immediate or long-term harmful effect on the environment or its biological diversity;
- b) Constitute or may constitute a danger to the environment on which life depends; or
- c) Constitute or may constitute a danger in Canada to human life or health."

Section 95 states that when a toxic substance is released into the environment, the person responsible must report the release, take measures to prevent the release, and mitigate any danger to the environment or public safety.

The focus of the CEPA is pollution prevention and the protection of the environment, primarily through the control of toxic substances. The CEPA applies indirectly to SWM through Section 95 which outlines that there are duties to report and take remedial measures in the event of a spill of a listed toxic substance. If stormwater contains a listed toxic substance and is released, it could be considered a reportable offence (Department of Justice Canada, 1999). For example, dust from construction sites also contributes to Particulate Matter in the air, and in specified quantities, is identified in the "List of

Toxic Substances" under Schedule 1 of CEPA. Salt is also listed as a toxic substance under CEPA.

[1.3.4 Canadian Environmental Assessment Act \(2012\)](#)

The Canadian Environmental Assessment Act (CEAA) is administered by the Canadian Environmental Assessment Agency, an independent agency that reports to the Minister directly. The Act is intended to prevent any projects associated with the federal government from having any adverse environmental effects outside the jurisdictions in which they are undertaken.

[1.3.5 Migratory Convention Birds Act \(1994\)](#)

The Migratory Convention Birds Act deals with the protection of migratory game birds. It's relevance to stormwater is based on the protection of water that may be used by migratory birds. Section 35 outlines that it is an offence to deposit or permit the deposit of oil, oil wastes or other substances harmful to migratory birds in water or any area frequented by migratory birds.

In addition, tree removals which impact nesting or migratory birds are also prohibited under this act. Construction activities which proposed tree removals are required to complete surveys prior to removal to ensure impacts and disturbances are avoided.

[1.3.6 Species at Risk Act \(S.C. 2002, c. 29\)](#)

Environment Canada is the lead federal government department responsible for issues concerning species at risk, however Fisheries and Oceans Canada is responsible for the protection of aquatic species and habitat at risk.

The Species at Risk Act (SARA) is a key federal government commitment to prevent wildlife species from becoming extinct and secure the necessary actions for their recovery. It provides for the legal protection of wildlife species and the conservation of their biological diversity. The Act applies on federal lands, including national parks, and other protected heritage areas administered by Parks Canada, species protected under the Migratory Birds Convention Act, or aquatic species as defined in the Fisheries Act, SARA applies automatically on provincial and territorial lands and waters as well.

Applicable Provisions include Section 58: no person shall destroy any part of the critical habitat of any listed endangered species or of any listed threatened species -or of any listed extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada – if:

- (a) the critical habitat is on federal land, in the exclusive economic zone of Canada or on the continental shelf of Canada;
- (b) the listed species is an aquatic species; or
- (c) the listed species is a species of migratory birds protected by the Migratory Birds Convention Act, 1994.

The relevance to stormwater is founded on surface runoff from different sources and land uses that may carry contaminants, adversely affecting physical habitat and water quality.

[1.3.7 Navigation Protection Act \(R.S.C., 1985, c. N-22, Amended 2012\)](#)

The Navigable Waters Protection Act (NWPA) is administered by Transport Canada and is designed to protect the public right of navigation in Canadian waters. The Act prohibits unauthorized "work" involving construction or placement in, on, over, under, through, or across any navigable water.

In 2012, the Act was amended by the Jobs and Growth Act, 2012[23] to provide for:

The limitation of the Act's application to works in certain navigable waters that are set out in its schedule. Note: no scheduled waterways exist within the City of Kitchener.

It to be deemed to apply to certain works in other navigable waters, with the approval of the Minister of Transport,

An assessment process for certain works and to provide that works that are assessed as likely to substantially interfere with navigation require the Minister's approval, and Administrative monetary penalties and additional offences.

The amendments came into force in April 2014.

[1.4 Summary of Policy Implications & Guidelines for Stormwater Management](#)

Presented in Table 1.4.1 and Table 1.4.2 are summaries of the policy implications and the relevant federal and provincial stormwater management guideline documents respectively.

Table 1.4.1 lists the policies and acts applicable to stormwater management planning, design, permitting and best management practices under key federal, provincial, and local legislations discussed earlier. Table 1.4.2 lists the guidelines applicable to stormwater management planning and best management practices under federal and provincial levels.

Table 1.4.1 - Summary of Policies, Acts, Regulations, and Plans Relating to Stormwater Management

Level of Government	Name of Management Tool: Policy/Act/Regulation/Plan	Type of Tool	Purpose and Relevance to Stormwater Management
Federal	Federal Fisheries Act	Act	Purpose is to ensure the conservation and protection of fish and fish habitat.
	Navigable Waters Protection Act	Act	Prohibits dumping of wastes that may interfere with navigation. Prohibits construction in navigable waters.
	Migratory Birds Convention Act (1994)	Act	Protection of migratory songbirds and their nests from disturbance or destruction.
	Species at Risk Act	Act	Protection of Wildlife species at risk and recovery plans
	Canadian Environmental Protection Act (CEPA)(1999)	Act	The goal of the Canadian Environmental Protection Act (CEPA) is to contribute to sustainable development through pollution prevention and to protect the environment, human life and health from the risks associated with toxic substances.
	Canadian Environmental Assessment Act	Act	The Act requires federal departments, including Environment Canada, agencies, and crown corporations to conduct environmental assessments for proposed projects where the federal government is the proponent.
	Canada Water Act	Act	An Act to provide for the management of the water resources of Canada, including research and the planning and implementation of programs relating to the conservation, development and utilization of water resources. Authorizes agreements with provinces for the delineation of flood plains and hazardous shorelines for flood and erosion control. In 2010–2011 the governments of Canada and Ontario extended the Canada–Ontario Agreement to June 2012, and added six new commitments to maintain momentum on the restoration, protection and conservation of the Great Lakes, while negotiations proceed between the federal governments of Canada and the United States to amend and strengthen the Great Lakes Water Quality Agreement. The Canadian Federal Great Lakes Program, a partnership of federal departments, provides the framework for working toward Canada’s commitments under the Great Lakes Water Quality Agreement. Canada’s activities are integrated with those of Ontario through the Canada–Ontario Agreement Respecting the Great Lakes Basin Ecosystem, which outlines how the two governments will cooperate and coordinate their efforts to restore, protect and conserve the Great Lakes Basin ecosystem. Highlights of actions in 2010–2011 include a wide range of research, monitoring and restoration projects in Great Lakes Areas of Concern through the Great Lakes Action Plan and the Cooperative Science and Monitoring Initiative; projects to reduce the amount of nutrients, solids and bacteria entering watercourses; and research in support of Canada–U.S. Lakewide Management Plans (LaMP).
Provincial	Water Management Policies, Guidelines and Provincial Water Quality Objectives (PWQO) 1994 Blue Book	Policy	Policies for surface (and groundwater) quality management in Ontario. Surface water objectives for the protection of aquatic life.
	Provincial Policy Statement (PPS - 2005)	Policy	The PPS is issued by the Ministry of Municipal Affairs and Housing under Section 3 of the Planning Act. It requires that decisions affecting planning matters in Official Plans “shall be consistent with” the PPS. The PPS provides “for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural environment”. The PPS focuses growth within settlement areas and away from significant or sensitive resources. It directs planning authorities to identify and promote opportunities for intensification and redevelopment where this can be accommodated, taking into account existing building stock, including existing or planned infrastructure. The PPS provides a higher degree of protection for employment lands against conversions to residential uses. The new policies also provide for intensifications and brownfields development to ensure the maximum use of sewer, water and energy systems, roads and transit. The Official Plan is the most important tool to implement the PPS. Section 2.2 of the PPS addresses water, stating that planning authorities shall protect, improve or restore the quality and quantity of water, using the watershed as the ecologically meaningful scale for planning. Planning authorities shall ensure that stormwater management practices minimize stormwater volumes and contaminant loads, and maintain or increase the extent of vegetative and pervious surfaces.
	Integrating Water Management Objectives into Municipal Planning Documents (MOECC - 1993)	Policy	Policy manual on the integration of watershed management practices into municipal planning documents.
	Environmental Assessment Act	Act	Provides protection, conservation and management of the environment in Ontario. Retrofits of stormwater facilities may be carried out as a Class EA subject to the selection of the appropriate schedules under the Municipal Engineers Association (2000, as amended in 2007).
	Drainage Act	Act	Provides for the regulation of drainage practices in Ontario.
	Clean Water Act	Act	Policies and plans will be developed to define and to clarify roles and responsibilities, define permissible actions and identify land uses. For SWM, Non-structural BMPs that use infiltration must consider the relevance of site locations with respect to WHPA, the source of runoff and whether groundwater threats have been identified within the relevant Provincial or Regional documents.
	Lakes and Rivers Improvement Act	Act	The Lakes and Rivers Improvement Act gives the Ministry of Natural Resources and Forestry the mandate to manage water-related activities, particularly in the areas outside the jurisdiction of Conservation Authorities.
	Endangered Species Act	Act	Provides for the protection for species at risk and their habitats.
	Ontario Water Resources Act	Act	The Ontario Water Resource Act deals with the powers and obligations of the Ontario Clean Water Agency, as well as an assigned provincial officer, who monitors and investigates any potential problems with regards to water quality or supply. There are also sections on wells, water works, and sewage works (including stormwater management facilities) involving their creation and operation.
	Environmental Protection Act	Act	The purpose of this Act is to provide for the protection and conservation of the natural environment. Act prohibits discharge of contaminants having an adverse effect.
	Endangered Species Act (2007)	Act	Enacts the protection of Endangered, Threatened and Special Concern species (provincial) and their habitats; regulates activities which may affect these species, and provides for development of Recovery Strategies.
	Fish and Wildlife Conservation Act (1997)	Act	<i>Fish and Wildlife Conservation Act</i> enables the Ministry of Natural Resources and Forestry (MNRF) to provide sound management of the province’s fish and wildlife.
	SWM in light of Climate Change	Policy Review	Review of the need for a new policy, act, or regulation to deal with municipal SWM systems in light of climate change
	Bill 127, Ontario Water Resources Amendment Act (Water Source Protection), 2002	Act	The Bill amends the <i>Ontario Water Resources Act</i> in regard to the availability and conservation of Ontario water resources. Specifically, the Bill requires the Director to consider the Ministry of Environment’s statement of environmental values when making any decision under the Act. The Bill also requires that municipalities and conservation authorities are notified of applications to take water that, if granted, may affect their water sources or supplies.
	Water Opportunities Act (2010)	Act	The purposes of the Act are : a) to foster innovative water, wastewater and stormwater technologies, services and practices in the private and public sectors; b) to create opportunities for economic development and clean-technology jobs in Ontario; and, c) to conserve and sustain water resources for present and future generations. The Minister of the Environment may, to further the purposes of this Act, establish aspirational targets in respect of the conservation of water and any other matter the Minister considers advisable.
Local	Conservation Authorities Act	Act	Prevention of the loss of life and property due to flooding and erosion; and, the conservation and enhancement of natural resources. Any projects within the regulated area of the GRCA or impacting wetland will require the acquisition of a permit pursuant to GRCA’s 2003 Wetland Policy and 2009 Policies for the Administration of the Development Interference with Wetlands and Alterations to Shorelines and Watercourse Regulation 150/06.
	Region of Waterloo Official Plan (2009)	Official Plan	Intends to direct growth and change within the Region while conforming with existing policy framework in order to further the sustainability and liveability of the community.
	City of Kitchener Official Plan	Official Plan	Intends to direct growth and provide policy framework and guidance to the development of the City.
	Stormwater Management Policy (2001)	Policy	overarching objective is to provide a Master Stormwater Management Plan to guide the implementation of stormwater management measures within the City
	Kitchener Strategic Plan for the Environment – Water	Plan	a document that promotes policies and practices that support the ecological wellbeing of environmental features and functions within the City of Kitchener
	Official Plan–Natural Heritage System	Plan	The Plan involves issues related to stormwater management including Ecological restoration of watercourses; Recharge and discharge areas; and Fish habitat
	Stormwater Asset Management Plan	Plan	concerned with the planning of maintenance, rehabilitation, and reconstruction of storm assets within the City
	Grand River Water Management Plan – Stormwater	Plan	The document discusses stormwater management in urban and rural settings. It also discusses point and non-point source pollution.
	Development Manual	Plan/Regulation	Section G of the Development Manual discusses the implementation of stormwater management measures within the context of the Stormwater Management Policy and other related policy/guidance documents

Table 1.4.2 - Guidelines applicable to Stormwater Management at Federal and Provincial Levels

Level of Government	Guideline Document	Purpose and Relevance to Stormwater Management
Federal	Canadian Water Quality Guidelines for the Protection of Aquatic Life	The Canadian Water Quality Guidelines consist of a set of recommended "safe limits" for various polluting substances in raw (untreated) drinking water, recreational water, water used for agricultural and industrial purposes, and water supporting aquatic life. They are designed to protect and enhance the quality of water in Canada. The guidelines apply only to inland surface waters and groundwater's and not to estuarine and marine waters.
	Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses	The Canadian Water Quality Guidelines consist of a set of recommended "safe limits" for various polluting substances in raw (untreated) drinking water, recreational water, water used for agricultural and industrial purposes, and water supporting aquatic life. They are designed to protect and enhance the quality of water in Canada. The guidelines apply only to inland surface waters and groundwater and not to estuarine and marine waters.
	Guidelines for Canadian Drinking Water Quality	To provide a national guideline for the protection of drinking water.
	Guidelines for Canadian Recreational Water	To provide a national guideline for the protection of recreational waters used for primary contact recreation such as swimming, windsurfing and water skiing and for secondary contact recreation activities including boating and fishing.
	Canada/Ontario Agreement Respecting Great Lakes Basin Ecosystems.	Since 1971, Canada-Ontario Agreements Respecting the Great Lakes Basin Ecosystem have guided the Parties in their work to improve the environmental quality of the Basin.
Provincial	Stormwater Management Planning and Design Manual (2003)	This document provides practical guidance that can be used as a baseline reference document for the review of stormwater management applications for approval under Section 53 of the Ontario Water Resources Act. It includes: <ul style="list-style-type: none"> Providing direction for sizing of the stormwater quality control component of stormwater management facilities in order to achieve water quality objectives which provide protect fisheries habitat; Incorporating in-stream erosion control and water balance objectives in addition to flood and water quality objectives into the selection and design of Stormwater Management Practices (SWMPs); Providing information on SWMPs such as sand filters, bioretention filters, wet swaels and hybrid wet pond/wetlands; Providing design examples for SWMPs; Providing an appendix which deals with integrated planning for stormwater management.
	Technical Guide, River & Stream Systems: Flooding Hazard Limit (MNRF - 2002)	The technical guide has been developed to assist in the understanding of the latest Provincial Policy Statement (PPS – 2005). It describes approaches consistent with the PPS. This guide serves in an advisory role and should be read in conjunction with the PPS and other flood related implementation guides. The 2002 Technical Guide updates the 1986 Flood Plain Management in Ontario Technical Guidelines. The primary purpose of this document is to "provide a consistent and standardized procedure for the identification and management of riverine erosion hazards in the Province of Ontario."
	Natural Heritage Reference Manual for the Natural Heritage Policies of the Provincial Policy Statement, 2005.	Provides guidelines for the implementation of the PPS by planning authorities.
	Significant Wildlife Habitat Technical Guide (2000, MNRF)	Significant Wildlife Habitat has been identified as one of the natural heritage feature areas under the Provincial Policy Statement.
	Protection and Management of Aquatic Sediment Quality in Ontario (MOECC) (1993)	The purpose of the sediment quality guideline is to protect the aquatic environment by setting safe levels for metals, nutrients and organic compounds.
	Guidelines for Evaluating Construction Activities Impacting on Water Resources (MOECC) (1995)	These guidelines were developed to protect the receiving environment according to the physical, the chemical and the biological quality of the material being dredged.
	Incorporation of the Reasonable Use concept into MOECC Groundwater Management Activities (1994)	This guideline establishes the basis for the reasonable use of groundwater on property adjacent to sources of contaminants and for determining the levels of contaminants acceptable to the MOE.
	Watershed Management on a Watershed Basis (MOECC - 1993)	Guideline manual on watershed management practices.
	Redside Dace – Ontario Recovery Strategy (2010)	Uplisted as endangered species in 2009 under the Endangered Species Act. This protects both the species and its habitat, prohibiting damage or destruction of the habitat without authorization by the Ministry of Natural Resources and Forestry ((MNRF).
Draft Guidance for Development Activities in Redside Dace Protected Habitat (February 2011)	Assist in describing redside dace habitat, the protection afforded under , requirements for review and permitting and BMPs to mitigate impacts.	