

Summary of Stormwater Management Policies: Cataraqi Source Protection Plan (November 2014)

Purpose

This document has been prepared to summarize policies in the Cataraqi Source Protection Plan (the Plan) that are intended to protect vulnerable areas from stormwater runoff across the Cataraqi area of southeastern Ontario.

The Plan was approved by the Ontario Ministry of the Environment and Climate Change (MOECC) on November 26, 2014. It became effective on April 1, 2015. The Plan serves to help protect the source water for municipal residential drinking water supplies and sensitive groundwater areas across the Cataraqi Source Protection Area (see <http://cleanwatercataraqui.ca/cataraqi-source-protection-plan-explanatory-document/>). The Plan was prepared by the multi-stakeholder Cataraqi Source Protection Committee based on technical studies and extensive public consultation. It includes responsibilities and recommendations for provincial ministries, municipalities, the Cataraqi Source Protection Authority and others.

This document summarizes policies from Chapters 4, 5, 6 and 7 of the Plan that encourage or require the effective management of stormwater runoff where it would be a significant, moderate, or low drinking water threat in vulnerable areas across the Cataraqi Source Protection Area (CSPA). Policies which apply to municipalities, as well as policies which apply to provincial ministries, are included in this document.

Stormwater Management in the Cataraqi Source Protection Plan

Stormwater refers to runoff from rainwater, roofs, snowmelt, and the ground surface. As it flows over the ground, stormwater picks up pollutants such as sand, oil, and pesticides, and carries them to streams and lakes. Under drinking water source protection, stormwater also includes runoff from activities such as car washing and lawn watering, as this water also makes its way into waterbodies through the storm sewer system. Stormwater by its nature exists throughout the Cataraqi Source Protection Area.

Stormwater management refers to controlling surface runoff from properties in order to prevent flooding and erosion in watercourses, allow for groundwater recharge, provide sediment control, limit nutrient and bacteria loading, as well as reduce the impact to the aquatic environment. Under the *Clean Water Act*, the threat to drinking water is posed by stormwater management facilities, defined as a facility for the treatment, retention, infiltration, or control of stormwater. A stormwater management facility can be a significant, moderate, or low drinking water threat, although the level of risk depends on the location, drainage area and type of land use where the stormwater management facility is or would be located. The majority of stormwater flows directly from streets and gutters into creeks, rivers, and lakes, although a small portion of stormwater from urban areas is treated or managed using stormwater facilities (e.g. ponds). Stormwater is typically only managed in built up areas where impervious surfaces are prevalent, such as population centres and roads.

The policies included in this document apply to vulnerable areas in the Cataraqi Source Protection Area, including sensitive groundwater areas, wellhead protection areas, and intake protection zones. Highly vulnerable aquifers and/or significant groundwater recharge areas were identified across about 93 per cent of the CSPA, as shown on the map below (Figure 1). Wellhead protection areas (WHPAs) which rely on groundwater as a drinking water source, as well as intake protection zones (IPZs) which rely on surface water as a drinking water source, exist across the CSPA and are also shown on the map below.

All source protection plans are made pursuant to the *Clean Water Act*. The Act requires that source protection plans include policies to address all activities that are ranked as significant drinking water threats. There are only six locations (less than 1 per cent of the total area) within the CSPA where significant drinking water threats can or do occur. The Plan also includes policies to address activities that are ranked as moderate or low drinking water threats, which can or do occur in all vulnerable areas across the CSPA.

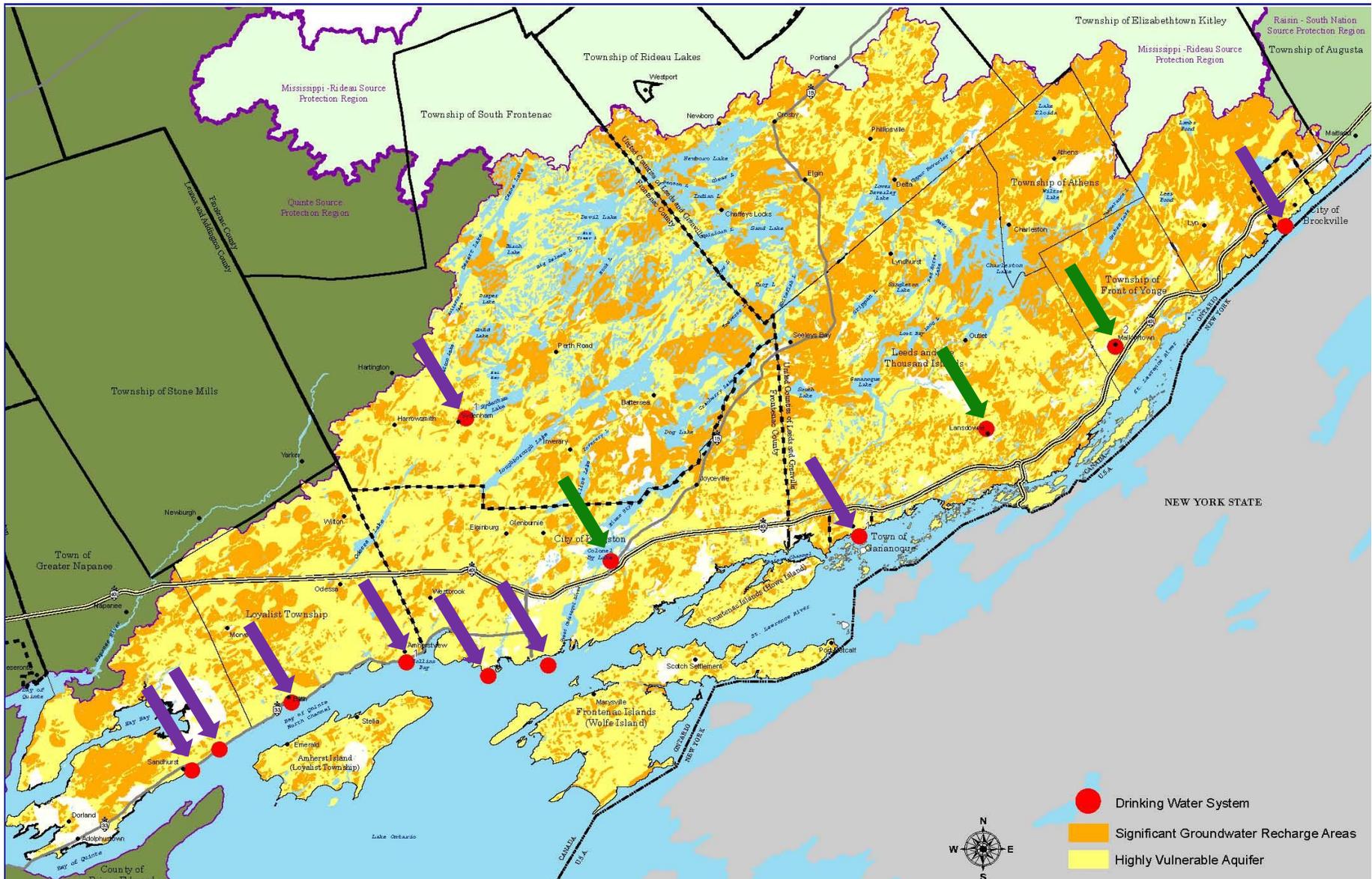


Figure 1. This image of the Cataraqui Source Protection Area (CSPA) indicates the sensitive groundwater areas (highlighted in yellow and orange), as well as municipal residential drinking water systems (highlighted by the red dots), which can either indicate a wellhead protection area (indicated by the green arrows) or an intake protection zone (indicated by the purple arrows). Policies in the Plan aim to protect these vulnerable areas.

Stormwater Management Policies in the Cataraqui Source Protection Plan

The table below displays key policies in the Cataraqui Source Protection Plan applicable to stormwater management, where sources of drinking water would be protected from contamination from stormwater runoff/discharge. Most of these policies are “have regard to” (marked ‘HR’) in that implementers are not legally compelled to act. However, other policies in the Plan that address stormwater are “non-binding” (marked ‘NB’) in that implementers are not legally compelled to act, or “comply with” (marked ‘CW’) in that implementers are legally required to conform to the policy in the Plan.

Policy Number	Topic	Implementing Body	Implementation Timeline
4.7.4-NB	Review and update the Stormwater Management Planning and Design Manual (2003)	Ontario Ministry of the Environment and Climate Change (MOECC)	5 years following the effective date (or at the next review of the design manual)
5.5.5-HR	Provincial approvals for sewage works in sensitive groundwater areas	MOECC	Immediate
6.2.8-HR	Municipal approvals and low impact development techniques in wellhead protection areas	Municipalities	Immediate
7.2.8-NB	Stormwater management retrofits in intake protection zones	Municipalities	2 years following the effective date
7.2.12-HR	Provincial approvals for sewage works in intake protection zones (risk management measures)	MOECC	Immediate
7.3.5-HR	Incorporating stormwater management into land use planning and development (Sydenham Intake Protection Zone)	Township of South Frontenac	Immediate
7.7.1-HR	Incorporating stormwater management into land use planning and development (Bath Intake Protection Zone)	Loyalist Township	Immediate

Policy 4.7.4-NB: Provincial stormwater management guidelines

The Stormwater Management Planning and Design Manual (2003) provides technical and procedural guidance for the planning, design and review of stormwater management practices, and is a reference document used in the review of applications for approval under section 53 of the *Ontario Water Resources Act*. Although the manual includes requirements for the enhanced treatment of discharges to sensitive surface water areas, it does not address treatment requirements for sensitive groundwater areas.

During pre-consultation, the Ministry of the Environment and Climate Change (MOECC) indicated that it would continue to review and update policies and guidelines, and consideration would be given to source protection information. In this policy, MOECC is encouraged to incorporate additional considerations and requirements for stormwater management facilities in wellhead protection areas, highly vulnerable aquifers and significant groundwater recharge areas. Discharge from a stormwater management facility can be a significant drinking water threat depending on the vulnerable area, predominant land use, and drainage area.

Updates to the Stormwater Management Planning and Design Manual (2003) under policy 4.7.4-NB could enhance the treatment of discharge in sensitive groundwater areas, and improve aquifer protection measures.

Intent	Policy
Encourage the Ministry of the Environment and Climate Change to incorporate source water protection considerations for stormwater management facilities in sensitive groundwater areas.	<ol style="list-style-type: none"> The Ministry of the Environment should review the Stormwater Management Planning and Design Manual (2003) to determine how it could be improved to provide a greater level of protection to groundwater from the discharge of stormwater from a stormwater retention pond, especially in wellhead protection areas, highly vulnerable aquifers and significant groundwater recharge areas. The strategic action outlined in a. should be implemented at the next review of the design manual or within five years of the Source Protection Plan taking effect, whichever comes first. In order to monitor the implementation of a., the Ministry should include information about implementation of this policy in an annual summary of

actions to achieve outcomes of source protection policies and make it available to the Cataraqui Source Protection Authority.

Policy 5.5.5-HR: Provincial approvals for sewage works in sensitive groundwater areas

Provincial ministries have an important role to play in protecting highly vulnerable aquifers and significant groundwater recharge areas. Provincial ministries can:

- Incorporate source water protection considerations into decision-making frameworks for environmental compliance approvals, certificates of approval, licenses and permits
- Provide guidance to municipalities on practical groundwater protection
- Optimize the usefulness of collected data

Sewage works may be moderate or low drinking water threats in the highly vulnerable aquifers and significant groundwater recharge areas. Moderate and low drinking water threats will be managed in these sensitive groundwater areas where the activity is a common occurrence, or where it has the potential to become established based on the land uses permitted by the municipality, local development patterns, and the physical characteristics of the area.

Incorporating source water protection considerations into prescribed instrument under policies such as 5.5.5-HR would encourage provincial ministries to manage activities of concern properly to protect source water in the future.

Intent	Policy
Encourage the Ministry of the Environment and Climate Change to include source water protection considerations as part of any environmental compliance approvals for sewage works.	<p>a. The Ministry of the Environment, when reviewing applications for the establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage should incorporate available source protection information in its decision-making process, and require the incorporation of appropriate risk management measures to protect the source of drinking water as part of any environmental compliance approval.</p> <p>b. The action identified in a. applies to the following types of sewage works where they would be low drinking water threats in the highly vulnerable aquifers and significant groundwater recharge areas:</p> <ul style="list-style-type: none"> i. discharge of stormwater from a stormwater retention pond ii. sanitary sewers and related pipes iii. septic systems or holding tanks iv. sewage treatment plant effluent discharges (including lagoons) v. storage of sewage (e.g., treatment plant tanks) <p>c. Items to consider include enhanced level of quality control for stormwater, strict monitoring requirements and annual reporting.</p>

Policy 6.2.8-HR: Municipal approvals and low impact development techniques in wellhead protection areas

Low impact development aims to maintain water cycle balance and improve water quality by considering the full spectrum of stormwater management. It is an approach that employs techniques to manage stormwater as close as possible to its source.

Implementation of low impact techniques under policy 6.2.8-HR could improve stormwater quality and quantity in wellhead protection areas.

Intent	Policy
Encourage municipalities to include low impact development considerations in municipal approvals in wellhead protection areas.	Municipalities should consider how to incorporate low impact development techniques in <i>Planning Act</i> or <i>Condominium Act</i> decisions related to proposed stormwater management for new or expanding development, excluding single lot residential development, in the wellhead protection areas. These techniques should be used to reduce impervious surfaces, maintain pre-development recharge and use lot level controls to emphasize infiltration of clean water at the point of origin to improve the quality discharge of stormwater from a stormwater retention pond that would be a moderate or low drinking water threat.

Policy 7.2.8-NB: Stormwater management retrofits in intake protection zones

Stormwater runoff can pose a moderate threat to a community’s drinking water in the Sydenham, Brockville, James W. King, Fairfield and Bath Intake Protection Zones. Stormwater runoff would be a moderate threat in IPZ-1 and a low threat in IPZ-2 for the balance of the Intake Protection Zones. This policy applies to all nine Intake Protection Zones.

Only a small portion of stormwater from urban areas is currently treated or managed, meaning that it flows directly from the streets and gutters into the nearest waterbody. Stormwater runoff can be controlled to avoid flooding and erosion in watercourses, allow for groundwater recharge, provide sediment control, limit nutrient and bacteria loading to the waterways and reduce the impact on the aquatic environment. However it can be costly to retrofit existing situations to provide stormwater management.

Developing a stormwater management strategy under policy 7.2.8-NB could effectively address the drinking water threat that is posed by stormwater runoff over the long term.

Intent	Policy
Encourage municipalities to develop strategies to address the drinking water threat posed by untreated/inadequately treated stormwater runoff.	<ul style="list-style-type: none"> a. The municipalities should develop a strategy to address untreated stormwater runoff or inadequate treatment in IPZ-1 and IPZ-2, within their respective jurisdictions, within two years of the Source Protection Plan taking effect. Discharge of stormwater from a stormwater retention pond is a moderate drinking water threat in the Intake Protection Zone. b. Such a strategy could include mapping existing storm sewers, catch basins and outfalls, and monitoring storm water quality, so that treatment can be incorporated at the right location(s); and ensure that road reconstruction projects include appropriate storm runoff controls. c. The strategy should be implemented as funding becomes available.

Policy 7.2.12-HR: Provincial approvals for sewage works in intake protection zones (risk management measures)

Provincial ministries play an important role in protecting sources of municipal residential drinking water from contamination, most notably through their decision-making frameworks for specific types of approvals, and through existing programs, policies, and procedures.

Incorporating source water protection considerations into prescribed instrument under policies such as 7.2.12-HR would encourage provincial ministries to manage activities of concern properly to protect source water in the future.

Intent	Policy
Encourage the Ministry of the Environment and Climate Change to include source water protection considerations as part of any environmental compliance approvals for sewage works.	<ul style="list-style-type: none"> a. The Ministry of the Environment, when reviewing applications for the establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage should incorporate available source protection information in its decision-making process, and require the incorporation of appropriate risk management measures to protect the source of drinking water as part of any environmental compliance approval. b. The provision in a. applies to the following types of sewage works where they would be a moderate or low drinking water threat: <ul style="list-style-type: none"> i. for the Brockville and James W. King Intake Protection Zones 1 and 2 and Sydenham Intake Protection Zones 1, 2 and 3a: <ul style="list-style-type: none"> i. discharge of stormwater from a stormwater retention pond ii. industrial effluent discharges iii. management of agricultural source material where land or water is used for aquaculture iv. storage of sewage (e.g., treatment plant tanks) ii. for the A.L. Dafoe, Bath, Fairfield, Kingston Central, Point Pleasant and Sandhurst Shores Intake Protection Zones 1 and 2: <ul style="list-style-type: none"> i. combined sewer discharge from a stormwater outlet to surface water ii. discharge of stormwater from a stormwater retention pond iii. industrial effluent discharges iv. sanitary sewers and related pipes v. sewage treatment plant bypass discharge to surface water

	<ul style="list-style-type: none"> vi. sewage treatment plant effluent discharges (including lagoons) vii. sewage storage (e.g., treatment plant tanks) viii. management of agricultural source material where land or water is used for aquaculture.
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Policy 7.3.5-HR: Incorporating stormwater management into land use planning and development (Sydenham Intake Protection Zone)

Due to the characteristics of the receiving water body in the Sydenham Intake Protection Zone, the Township of South Frontenac is encouraged to require enhanced protection (i.e. 80% suspended solids removal) through stormwater management.

Incorporating stormwater management into land use planning and development under policy 7.3.5-HR could reduce the risk to the drinking water source posed by stormwater runoff in the Sydenham Intake Protection Zone.

Intent	Policy
Encourage the Township of South Frontenac to require the incorporation of stormwater management features into building and site plans.	<ul style="list-style-type: none"> a. Municipalities should require proponents to incorporate stormwater management features in accordance with best practices and that provides enhanced protection (i.e., 80 per cent suspended solids removal), into building and site plans that reduce the volume of contaminants entering storm sewer systems and roadside ditches draining to Sydenham IPZ-1 and/or IPZ-2, or directly to Sydenham Lake, where discharge of stormwater from a stormwater retention pond is a moderate or low drinking water threat. b. In addition to the municipal official plan, the requirement identified in a. should be reflected in the site plan control by-law and any development guideline documents.

Policy 7.7.1-HR: Incorporating stormwater management into land use planning and development (Bath Intake Protection Zone)

Due to existing concerns about sedimentation at the intake pipe in the Bath Intake Protection Zone, Loyalist Township is encouraged to require enhanced protection (i.e. 80% suspended solids removal) through stormwater management. It is current practice in Loyalist Township to require new developments to treat stormwater runoff.

Incorporating stormwater management into land use planning and development under policy 7.7.1-HR could reduce the risk to the drinking water source posed by stormwater runoff in the Bath Intake Protection Zone.

Intent	Policy
Encourage Loyalist Township to require the incorporation of stormwater management features into building and site plans.	<ul style="list-style-type: none"> a. Loyalist Township should require proponents to incorporate stormwater management features in accordance with best practices and that provides enhanced protection (i.e., 80 per cent suspended solids removal), into building and site plans that reduce the volume of sediments and contaminants entering storm sewer systems and roadside ditches draining to Bath IPZ-1 or IPZ-2, where discharge of stormwater from a stormwater retention pond is a moderate or low drinking water threat. b. In addition to the municipal official plan, the requirement identified in a. should be reflected in the site plan control bylaw and any development guideline documents.

Stormwater Management Options

The Ontario Ministry of the Environment and Climate Change (MOECC) recently released an interpretation bulletin regarding its expectations for stormwater management. In the bulletin, MOECC clarifies that the ministry's existing policies and guidance on stormwater management emphasize an approach which mimics the natural hydrology of a site as the landscape is developed. This approach to stormwater management manages precipitation as close as possible to its source (i.e. where it falls) by applying controls at the lot level, which is known as Low Impact Development (LID). The ministry is also in the process of developing a LID stormwater management guidance document with an expected release in 2016, which will identify the ministry's

expectations on appropriate tools for water balance calculations, the proper maintenance and monitoring of stormwater facilities, as well as the role that LID can play within the stormwater treatment process.

Several guidance documents, acts and regulations already encourage effective stormwater management, including but not limited to:

- Ontario Water Resources Act
- Ontario Environmental Protection Act
- Water Management Policies, Guidelines, Provincial Water Quality Objectives (PWQO) of the Ministry of the Environment and Climate Change
- Stormwater Management Planning and Design Manual (2003)
- Interpretation Bulletin: Ontario Ministry of the Environment and Climate Change Expectations RE: Stormwater Management
- Credit Valley Conservation (CVC) Stormwater Management Guide
- CVC Landscape Design Guide for LID
- CVC LID Stormwater BMP Fact Sheets
- CVC Grey-to-Green Guides (for residential properties, public lands, businesses, and roads)
- CVC LID Case Studies (17 case studies, each with its own report)

More Information

Visit www.cleanwatercataraqui.ca to find a variety of resources including:

- Cataraqui Source Protection Plan and related technical studies
- Fact sheets and primers
- Maps, including clickable versions tailored to each vulnerable area for residents and municipalities
- Helpful links

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CATARAQUI REGION
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