



Explanatory Document for the Source Protection Plan

Cataraqui Source Protection Committee

September 2014



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1.0 Introduction

This explanatory document was prepared by the Cataraqui Source Protection Committee as a companion piece to the Source Protection Plan, in accordance with the requirements of Ontario Regulation 287/07 (General).

This project received funding support from the Government of Ontario. Such support does not indicate endorsement by the Government of Ontario of the contents of this document.

The Committee's intent was for the planning process to be open and consultative. There were many opportunities for municipalities, community organizations, businesses, residents and provincial ministries to provide input to the development of the policies throughout the process, including:

1. Twelve community roundtables
2. Pre-consultation on draft policies with designated implementation bodies
3. Municipal staff level meetings, a forum, and presentations to municipal councils
4. Provincial staff level forum
5. Consultation on the draft Source Protection Plan with the public and designated implementation bodies, including five public meetings/open houses.

The Cataraqui Source Protection Authority was responsible for consultation on the proposed Source Protection Plan, leading to its submission to the Minister of the Environment for review and approval.

The purpose of the Explanatory Document is to provide the public and stakeholders with information that influenced the policy decisions made by the Committee. In accordance with Sections 40 and 43 of Ontario Regulation 287/07 (General), the Explanatory Document includes the following information:

- a summary of comments received on the policies
- consideration of financial implications
- consideration of climate change
- an explanation of the Source Protection Committee's reasons for each policy or group of policies set out in the Source Protection Plan, and how comments received during the pre-consultation and consultation processes affected the development of the policies

- an explanation of reasons for prohibiting certain activities using Section 57 of the *Clean Water Act*
- an explanation of why non-regulatory measures are being used to address significant drinking water threats, as stand-alone policy tools.

The explanations are generally presented in the same order as the policies in the Source Protection Plan.

2.0 Development of the Source Protection Plan

The Source Protection Committee took into consideration its mission statement when it developed and evaluated policies:

The overall objective of the Source Protection Committee, in partnership with local communities and the Ontario government, is to protect the quality and quantity of present and future sources of drinking water in the Cataraqui Source Protection Area. We will work with others to gather technical knowledge on which well-informed, consensus-based decisions can be made in an open and consultative manner. **We will aim to propose policies in the Cataraqui Source Protection Plan that are appropriate, effective, and economical for local communities.** We will make use of the available science to assess drinking water threats and issues and where there is uncertainty we will be mindful of the precautionary approach.

The Committee's intent for the Source Protection Plan is to fulfill the objectives stated in section 1.2 of the Plan, by

1. ensuring that existing activities that are significant threats to municipal sources of drinking water are adequately managed, and that new activities that are significant threats are not permitted around these sources,
2. ensuring that new activities that are moderate or low threats will be adequately managed around these sources, and
3. acknowledging and responding to community expectations that regional areas of vulnerable groundwater should be identified and protected to the extent possible through the *Clean Water Act*.

2.1 Policy Evaluation

The Source Protection Committee discovered early in the planning process that only a few types of the prescribed threats to drinking water are common throughout the Cataraqui Source Protection Area. There are limited overall occurrences of significant threats, but there are many moderate and low threats. A total of 158 significant threats were identified as occurring on 114 properties, compared to thousands of occurrences identified in other communities in Ontario. Although there are several types of policy tools available through the *Clean Water Act*, their applicability varies by threat. These findings are based on the results of the Assessment Report, a detailed analysis of the land uses in each of the wellhead protection areas and intake protection zones, and a series of staff-generated background reports on the prescribed and local drinking water threats.

The Committee aimed to build on existing actions by government, organizations and individuals, and to use more than one type of policy tool to address a drinking water threat, wherever possible and suitable so that all regulators address particular drinking water threats in a complimentary fashion. It also took into consideration a number of factors that were used to determine whether or not a policy was appropriate, effective and affordable for local communities (**Table 2-1**).

Table 2-1: Considerations for Policy Evaluation

Criteria	Factors for Consideration
Effectiveness	<ul style="list-style-type: none"> • Will the policy adequately manage site-specific activities that are or would be threats to drinking water so that the risk of water quality being adversely affected is eliminated or reduced? • The sooner the policy is implemented and the threat is addressed, the least amount of time the threat poses an inherent risk to people and the environment.
Appropriateness	<ul style="list-style-type: none"> • Is the scale of the policy suitable for the severity of inherent risk? (e.g., in groundwater, bacteria will eventually die and is treatable whereas dry cleaning solvents (DNAPL) do not degrade and are difficult to clean up) • What is the administrative capacity of the delivery agent to implement the policy, including compliance monitoring? (e.g., mandate, expertise) • Does the policy have community buy in, or is there opposition from landowners? • Does the approach treat parties with similar circumstances (in the vulnerable area and elsewhere) equitably?

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Criteria	Factors for Consideration
Affordability	<ul style="list-style-type: none"> • What is the financial capacity of the delivery agent to implement the policy, including compliance monitoring? • Direct and indirect financial costs and benefits for those responsible for implementation (program delivery and on-the-ground actions) now and in the future. • The cost of watershed monitoring required to demonstrate the effectiveness of the policy.
Other Considerations	<ul style="list-style-type: none"> • Text that can easily be transferred to official plans and other documents for consistency between municipalities. • The method of policy introduction to the community. • What is the breadth of the policy approach – will it address a threat that affects the entire Cataraqui Source Protection Area? • Does the policy avoid regulatory duplication? • Is this precedent setting? Does it have broader implications beyond the Cataraqui Source Protection Area?

3.0 Policy Organization

The policies in the Source Protection Plan are arranged by those applicable to:

1. All vulnerable areas in the Cataraqui Source Protection Area (Chapter 4)
2. Highly vulnerable aquifers and significant groundwater recharge areas (Chapter 5)
3. Wellhead protection areas (Chapter 6)
4. Surface water intake protection zones (Chapter 7).

Within each chapter, the policies for the specific vulnerable areas are organized by topic and then by policy tool or drinking water threat. They are organized in this way to provide the reader with a comprehensive view of the method used to ensure that sources of drinking water are protected, regardless of implementing body.

The policy organization and generally the policy requirements are based in part on comments received from municipalities and provincial ministries during the pre-consultation and consultation processes, as well as based on self-reflection.

Many of the policies were revised based on comments received during consultation to specify what the outcome of implementation should be, rather than specifying how the policy should be

implemented. This leaves the implementing body with the discretion to determine the specific activities associated with policies that will be performed based on its available resources and capacity to undertake the task. For example, policy 5.5.1-HR was revised to specify the intent, which is that municipalities consider the impact of development on groundwater quality, rather than specifying how to do it. There are various ways by which municipalities can meet the intent of this policy, such as by requiring upfront disclosure of activities, site plan control, development agreements, and/or conditional zoning (once enabled by the Province).

4.0 Consultation Process

The *Clean Water Act* sets out the process for consultation on the Source Protection Plan. It specifies who must be consulted, the notification process, and the timelines for giving notice and holding public meetings. There are three main opportunities for consultation:

1. Pre-consultation on the draft policies,
2. Consultation on the draft source protection plan, and
3. Consultation on the proposed source protection plan.

4.1 Pre-consultation on Draft Policies

The Source Protection Committee consulted on the draft source protection policies with the parties that would be responsible for their implementation, in accordance with Ontario Regulation 287/07 (General). Customized notices were sent to all of the parties, with a request for comments. These parties included municipalities, health units and provincial ministries.

The pre-consultation process was broken into three parts: June, September and October 2011. Each part consisted of the draft policies for specific vulnerable areas. More details on the pre-consultation process are located in **Appendix B** of the Source Protection Plan.

The Committee received one or more sets of written comments through the pre-consultation process between July 2011 and February 2012 from the stakeholders identified in **Table 4-1**.

Table 4-1: Stakeholders that Commented during the Pre-consultation Process

Stakeholder Category	Comments Received
Municipalities, Health Units and Source Protection Authority	<ul style="list-style-type: none">• City of Brockville• Township of Elizabethtown-Kitley• Township of Front of Yonge

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Stakeholder Category	Comments Received
	<ul style="list-style-type: none"> • Town of Gananoque • City of Kingston • Utilities Kingston • Township of Leeds and the Thousand Islands • Loyalist Township • Township of South Frontenac • United Counties of Leeds and Grenville • County of Frontenac • Kingston, Frontenac, Lennox and Addington Public Health • Leeds, Grenville and Lanark District Health Unit • Cataraqui Source Protection Authority
Provincial Ministries	<ul style="list-style-type: none"> • Ministry of Agriculture, Food and Rural Affairs • Ministry of Consumer Services • Ministry of the Environment • Ministry of Municipal Affairs and Housing • Ministry of Natural Resources • Ministry of Transportation
Organizations and the General Public	<ul style="list-style-type: none"> • Canadian Oil Heat Association – Ontario Chapter • Ontario Good Roads Association • Salt Institute • Technical Standards and Safety Authority • Well Aware • One affected property owner

Comments received were generally supportive of the intent of the draft policies. There were concerns raised about the required level of effort and implementation costs, and the need for provincial funding. There were also suggestions on specific policy wording that the Committee found useful to improve the readability and clarity of the policies.

4.2 Consultation on the Draft Plan

The Source Protection Committee also consulted on the draft Source Protection Plan with the parties that would be responsible for plan implementation and the general public, in accordance with Ontario Regulation 287/07 (General). Customized notices were sent to all of the parties,

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with a request for comments. These parties included municipalities, provincial ministries, and persons whose activities could be a significant threat to the sources of drinking water.

More details on the consultation process are located in **Appendix B** of the Source Protection Plan.

The Committee received one or more sets of written comments through the consultation process between March 2012 and May 2012 from the stakeholders identified in **Table 4-2**.

Table 4-2: Stakeholders that Commented during the Consultation Process

Stakeholder Category	Comments Received
Municipalities, Health Units and Source Protection Authority	<ul style="list-style-type: none"> • Township of Athens • City of Brockville • Township of Elizabethtown-Kitley • Township of Front of Yonge • Township of Frontenac Islands • City of Kingston • Utilities Kingston • Township of Leeds and the Thousand Islands • Loyalist Township • Prince Edward County • Township of Rideau Lakes • Township of South Frontenac • Kingston, Frontenac, Lennox and Addington Public Health • Cataraqui Source Protection Authority
Provincial Ministries	<ul style="list-style-type: none"> • Ministry of Agriculture, Food and Rural Affairs • Ministry of Consumer Services • Ministry of the Environment • Ministry of Municipal Affairs and Housing • Ministry of Transportation
Organizations and the General Public	<ul style="list-style-type: none"> • Bay of Quinte Remedial Action Plan Office • Ontario Good Roads Association • Technical Standards and Safety Authority • Well Aware • Thirteen affected property owners • Seven open house participants

Similar to those comments received during the pre-consultation process, a majority of the comments were constructive, and resulted in a stronger Source Protection Plan. Specific policies were identified that may not be effective, appropriate and/or affordable to implement, in their opinions. Again, most municipalities stressed their unwillingness to implement policies, especially non-legally binding policies, unless there is provincial funding and other resources made available to do so. Concerns were also raised by local residents who could be impacted by the Plan.

4.3 Consultation on the Proposed Plan

The Cataraqui Source Protection Authority consulted on the proposed Source Protection Plan, prior to its submission to the Minister of the Environment for review and approval. Comments received on the proposed Plan were forwarded to the Minister for his consideration, and are not addressed in the Explanatory Document.

Following provincial review of the proposed Plan additional policies were added to address a Ministry of the Environment comment. The policies require that risk management plans be used to manage existing and future storage of hazardous waste at waste disposal sites and storage of wastes at waste disposal sites as described in clauses (p), (q), (r), (s), (t) or (u) of the definition of hazardous in Ontario Regulation 347 (General – Waste Management), as amended.

Only minor comments were received regarding clarity and more direct reflection of applicable legislation in the policy wording. The policies were revised accordingly.

5.0 Financial Considerations

Local affordability (economics) was one of the three criteria that the Source Protection Committee used to evaluate the policies that are included in the Source Protection Plan.

At the request of municipalities and on behalf of the Committee, staff of the Cataraqui Region Conservation Authority developed a series of documents during the pre-consultation process to help explain the intent behind the draft policies, estimate the anticipated level of effort, and outline some options for implementation. The topics covered by the documents are Part IV implementation, municipal land use planning, municipal operations, on-site sewage system maintenance inspection programs, education and outreach, and incentives.

The Cataraqui Source Protection Authority and the majority of the municipalities that responded to the Source Protection Committee's requests for written comments made it clear that their

implementation of policy will be contingent on provincial funding. Following Committee discussion, the Chair sent a letter (dated January 26, 2012) to the Director of the Source Water Protection Branch at the Ministry of the Environment requesting support for municipal implementation costs. It has funded 100% of the drinking water source protection initiative to-date, with money going to technical research, plan development and stewardship. The Province announced the Source Protection Municipal Implementation Fund on November 1, 2013. The funding is to provide the financial means for “small and rural” municipalities over three years to implement significant drinking water threat policies.

Wherever possible, the Source Protection Committee endeavored to make the link between source protection planning and existing policy tools and programs. Implementation timelines were aligned with established review and reporting cycles (e.g., circulation of notices of decision under the *Planning Act*) in consideration for the potential cumulative impact that the requirements of various policies could have on the financial capacity and available resources (e.g., staffing) of the Authority and municipalities. Some of the timelines were revised based on comments received from municipalities and provincial ministries during the pre-consultation and consultation process.

In addition to the policies pertaining to significant threats to drinking water that implementing bodies are legally obligated to implement, the Source Protection Plan contains many strategic action policies that the Source Protection Committee believes would be effective and appropriate for protecting sources of drinking water. The non-binding legal effect of these policies does not always mean that a given policy is deemed by the Source Protection Committee to be less important; rather this effect has been assigned so that the plan complies with the *Clean Water Act*.

The implementing bodies are strongly encouraged to implement these policies even though they are not legally obligated to do so. Implementing bodies should consider the non-binding policies in the context of their existing and planned policies, procedures and programs as well as their financial means. They will need to prioritize actions based on best practices and community goals and objectives.

Residents of several of the vulnerable areas raised concerns about the financial implications of the Plan to their properties, businesses and communities. In particular, some of these residents that have already invested large amounts of money to implement best management practices on their properties to address environmental and water quality issues are concerned about what additional measures they may be required to take. It is not the intent of the Committee to harm any of the affected communities through the introduction of source protection plan policies. The proposed policies do not require that any existing activities cease to continue, and the restrictions on some future activities only apply to a small portion of the communities.

Still others raised concerns about the potential for property devaluation as a result of being in a vulnerable area. In May 2012 representatives of the Source Protection Committee met with the agents from the Rideau-St. Lawrence Real Estate Board to discuss this aspect. A majority of the agents in attendance indicated that the proposed policies for septic systems, home heating oil, etc. were consistent with emerging best practices across Ontario. It was clearly noted by the agents that misperceptions about the impact of the proposed policies could, at least in the short term, raise concerns amongst potential buyers. It was believed that ongoing clarification by the Committee would help to alleviate such concerns.

6.0 Consideration of Climate Change

The Assessment Report contains a summary, based on readily accessible information, of how the conclusions reached in the Assessment Report may be affected by climate change over the next 25 years. The summary indicated that depending on the extent of climate change there may or may not be an impact on the quality and quantity of sources of drinking water, and that the impact could be positive or negative.

The Source Protection Plan includes policies (i.e., 5.3.1-NB, 5.3.2-NB) intended to gather data on climate conditions in the Cataraqui Source Protection Area to address the uncertainty expressed in the Assessment Report. There are also a number of policies that can be linked to climate change. For example,

- managing moderate and low drinking water threats in wellhead protection areas and intake protection zones where the threat would become significant if the delineations and/or vulnerability scores changed due to changing climate;
- updating salt management plans if general precipitation and temperature norms change to consider the impact of varying levels of service (e.g., salt usage) on the quality of drinking water sources;
- encouraging the continued separation of combined sewers, and stormwater retrofits, especially if storm intensity and frequency increases; and
- including material on water conservation in regional education and outreach programs, particularly if average summer or annual precipitation decreases.

7.0 Reasons for Chapter 4 Policies (All Vulnerable Areas)

Chapter 4 of the Source Protection Plan identifies actions that should be taken by municipalities, provincial ministries and the Cataraqui Source Protection Authority to protect sources of

drinking water in the Cataraqui Source Protection Area. Depending on local circumstances, some municipalities may already have similar policies, programs and procedures in place.

The policies apply to all or some of the vulnerable areas: wellhead protection areas, intake protection zones, highly vulnerable aquifers and significant groundwater recharge areas. The purpose of these policies is to make sure that the vulnerable areas identified in the Assessment Report are given due consideration through existing and proposed policies, procedures and programs in the Cataraqui Source Protection Area.

7.1 Raw Water Quality Sampling

Policy Number	Topic
4.2.1-NB	Ontario Drinking Water Surveillance Program
4.2.2-NB	Local raw water quality sampling

Raw water quality sampling at the municipal intakes and supply wells is limited. Samples are generally taken for turbidity, pH, colour, temperature, total coliform and E. coli. Samples may be taken for other parameters based on the system engineer's reports, and on a site-specific basis where there may be additional conditions imposed in Drinking Water Permits, Environmental Compliance Approvals, or Provincial Officer's Orders.

There are detailed sampling requirements for treated and distributed water, however the presence and concentrations of the parameters have been affected by the treatment process and no longer reflect source water quality. Also, the sampling isn't necessarily tied to any particular water issue or drinking water threat activity that may be present in the wellhead protection area or intake protection zone.

The City of Kingston and the City of Brockville voluntarily participate in the Ministry of Environment Drinking Water Surveillance Program, an enhanced sampling program to monitor raw and treated water quality. The program focuses largely on monitoring for chemicals and radionuclides that are currently not regulated and are emerging contaminants. The information gathered is used to develop standards and guidelines.

For source water protection it is important to know whether or not activities associated with drinking water threats are impacting the quality of the source water so that action can be taken to determine the source of contamination and impose or encourage appropriate risk management measures. The Source Protection Committee believes that additional targeted raw water sampling will better characterize the source water for the municipal intakes and supply wells and act as an important measure of the effectiveness of source protection policies.

Policies 4.2.1-NB and 4.2.2-NB are based on a progression of thought through the pre-consultation and consultation processes. They expand on the draft policy proposed during the pre-consultation process (SD.23-SA) that encouraged the Township of South Frontenac to undertake baseline inspections and monitoring of water conditions of Sydenham Lake from various activities.

At the consultation stage, there was a policy that indicated that the Ministry of the Environment should amend Ontario Regulation 170/03 so that it would require the necessary base information about the raw water quality to inform issues identification and to aid in determining whether the source protection policies are effective. A second policy encouraging locally-led sampling was proposed as a bridge between the source protection plan effective date and the regulatory amendment so that locally important raw water quality data would be collected sooner.

Comments received from the Ministry of the Environment Safe Drinking Water Branch, Utilities Kingston, and the Township of Leeds and the Thousand Islands did not support the inclusion of these draft policies in the Plan. Their comments related to existing regulatory requirements that provide a high level of protection, and the need to keep sampling costs at a manageable level. Subsequent discussion with selected water treatment operators in the CSPA suggested that there is local support for sampling for specific parameters that are identified as a risk to their systems. The monitoring plans need to be tangible, rational, specific and purposeful. The subject policies were revised accordingly (e.g., the policy recommending a regulatory amendment was deleted, the focus of the local sampling policy became more about outreach, and a policy recommending an evaluation of the Drinking Water Surveillance Program was added).

Comments received from the Ministry of the Environment on the proposed Plan indicated that the policy did not align with the current mandate of the Drinking Water Surveillance Program and that resources available for program expansion are limited. It was further communicated that the Ministry of the Environment is interested in the science contained in Assessment Reports and they would like to investigate the need to evaluate the current program in relation to the source protection science.

The policy was revised to reflect Ministry comments about program evaluation while maintaining the intent of the policy: to link monitoring to contaminants associated with threat activities included in the Assessment Report. The Committee wanted the policy to move beyond consideration of whether an evaluation of the program is necessary so the policy also includes that if the Drinking Water Surveillance Program were expanded, that the Ministry should seek opportunities to include additional drinking water system owners.

7.2 Emergency and Spill Response

Policy Number	Topic
4.3.1-NB	Provincial emergency and spill response in wellhead protection areas and intake protection zones
4.3.2-CW	Municipal emergency and spill response in wellhead protection areas and intake protection zones where there are significant threats
4.3.3-NB	Municipal emergency and spill response in all wellhead protection areas and intake protection zones

It is important that those agencies and municipal departments (e.g., utilities, public works and emergency response teams) that respond to emergencies and spills have up-to-date information and procedures that would help improve provincial and/or local response to these situations. Examples of the municipal plans that could be updated are the emergency management plan, emergency response plan, public works department supplementary plan and Drinking Water Quality Management System Operational Plan. Increased awareness of vulnerable areas would result in more informed responders, there is a potential for reduced reaction time for drinking water system operators to shut down intakes or pumps, and may improve incident clearance time.

There is a recommendation for the Province to directly inform the Cataraqui Source Protection Authority of spill occurrences in the wellhead protection areas and intake protection zones so that the information can be considered in future policy development and forwarded to drinking water treatment plant operators to inform decisions about raw water quality sampling if appropriate.

During the pre-consultation process, the Ministry of the Environment indicated that it would review options for how Spills Action Centre may more directly identify the source protection information available for a given spill, and evaluate how this information would affect spill response. During the consultation process, the Ministry recommended that this policy be revised to provide it with more flexibility in when and how the policy would be implemented. The revised policy maintains that the Ministry's emergency and spill response plans be revised to identify wellhead protection areas and intake protection zones within one year of the Source Protection Plan taking effect, however, the Ministry is provided flexibility in determining what other measures may be required through the completion of a program analysis.

The municipal policies relate to Emergency Management Plans, department supplementary plans, and Drinking Water Quality Management System Operational Plans, based on comments received from the City of Kingston and Loyalist Township during pre-consultation. The City of Kingston Emergency Management Office recommended that the vulnerable area information

should be included in the City GIS system and in the standard operating procedures for the divisions and agencies directly responsible for tactical and operational responses to spills and emergencies. The policy remains generalized, recognizing that the capacity of individual municipalities varies. The implementation timeline was revised from one year to two years to recognize the potentially detailed review and update process required, based on comments received from the Township of Leeds and the Thousand Islands during the consultation process.

A Ministry of the Environment comment on the proposed plan noted that spills policies cannot directly address prescribed drinking water threats. To address this comment policy 4.3.2-CW and 4.3.3-NB were revised as follows:

- 4.3.2-CW addresses local drinking water threats where they are significant
- 4.3.3-NB recommends that all vulnerable areas be included and considered in any municipal plan

The policy wording for both policies was also improved to better define what is considered a spill.

7.3 Education and Outreach Programs

A key component to the successful implementation of source protection is education and outreach. More than 90 per cent of the Cataraqui Source Protection Area is identified as some type of vulnerable area, whether it is a wellhead protection area, intake protection zone, highly vulnerable aquifer, or significant groundwater recharge area. Education and outreach programs are important to the successful implementation of the Source Protection Plan, especially considering that source water protection is a relatively new concept in the Area, and many of the policies in the Source Protection Plan rely on voluntary action by implementing bodies and individuals. The specific components of the education and outreach program listed in the Plan focus on activities that are threats to drinking water and on transport pathways that are common throughout the Cataraqui Source Protection Area.

Education and outreach programs can take many forms, from simple and economical such as mailing out brochures to comprehensive such as classroom programming.

Policy Number	Topic
4.4.1-NB	Source protection road signs
4.4.2-CW, 4.4.3-NB	Local initiatives
4.4.4-NB	Municipal waste management strategies
4.4.5-NB	Pesticide education program

Source Protection Road Signs

The main purpose for posting road signs in wellhead protection areas and intake protection zones is to make road users and emergency responders aware that they are entering a vulnerable area. Increased awareness of vulnerable areas would result in more informed responders, could reduce reaction time for drinking water system operators to shut down intakes or pumps, and may improve incident clearance time. All other travelers along the marked roads will also become more familiar with the drinking water protection areas and may take the initiative to learn more.

There were no comments received from municipalities about this policy during the pre-consultation and consultation processes.

The policy wording was generally revised at the request of the Ministry of Transportation to reflect the standardized text developed by the Ministry of Transportation and the Ministry of the Environment. The Ministry indicated its support for installing signs at locations in accordance with criteria agreed to by the Road Sign Working Group, which has representation from both of the Ministries and from source protection committees across Ontario. The criteria are wellhead protection areas with a vulnerability score of 10, and within intake protection zones with a vulnerability score of 8 or higher.

The proposed policy also included the following clause: “The Ministry should also install and maintain the signs along Highway 33 within the A.L. Dafoe, Bath, Fairfield and Sandhurst Shores Intake Protection Zones.” A formal request to consider exemptions was forwarded to the Road Sign Working Group on April 13, 2012. The Ministry of Transportation requested a minor wording change regarding consideration of signage along Highway 33 on the proposed policy to ensure that this deviation from the provincial standard wording is clearly a consideration rather than a requirement.

These four municipal intakes are in Lake Ontario adjacent to Highway 33 in the Cataraqui Source Protection Area. These intakes were classified as Great Lakes Type ‘A’ intakes, which means that the vulnerability scores of their intake protection zones (IPZ) cannot exceed 7 according to the Technical Rules: Assessment Report (Ministry of the Environment, 2009b). However, these intakes are relatively shallow and close to shore.

Although significant drinking water threats, as they are defined by the *Clean Water Act*, cannot occur in these IPZs, spills along Highway 33 could have critical impacts on the municipalities’ abilities to provide safe drinking water. The proximity of the road to the intakes leaves them susceptible to spill contamination – and road signs are one tool that may be useful to help reduce prevent (e.g. curb illegal dumping) and respond to spill events. The Road Sign Working Group’s

current criteria would exclude road signs from being installed on Highway 33 where it travels through these IPZs, leaving a significant gap in the local source protection framework.

Local Initiatives

The Source Protection Committee is aware of a number of successful programs currently in operation in the Cataraqui Source Protection Area that aim to reduce the impact of particular drinking water threats and transport pathways on source water (e.g., Environmental Farm Plan). In addition, there are organizations with expertise on particular topics that could help to develop and/or deliver educational materials throughout the Area. The Committee intends that the Cataraqui Source Protection Authority would work with pertinent organizations in the Area to capitalize on the existing, successful programs and to fill any gaps such that area residents and business owners are provided with information on a variety of topics from local experts.

The Source Protection Authority indicated through resolution that it would consider undertaking this role subject to the identification and clarification of adequate funding and jurisdiction.

During the pre-consultation process, the Township of South Frontenac indicated that although education and outreach measures seem important and appropriate, cumulatively, they will require a great amount of staff time and municipal expense. This opinion was repeated during consultation. Utilities Kingston questioned who should undertake the communication and education piece with City of Kingston residents and businesses, and how such a program would be funded.

The policy was revised based on comments received during the consultation process from the Ministry of the Environment to identify the topics that should be addressed, at a minimum, through the potential partnerships. It was also revised to incorporate comments provided by Well Aware. The reference to geothermal heating was removed from the Plan since it is not classified as a drinking water threat to be considered by the source protection plan.

The following provides information about each potential component of the education and outreach program in the Source Protection Plan, in support of policies 4.4.2-CW and 4.4.3-NB. Note this policy has been split into two separate policies to ensure that it is binding in areas where it addresses significant drinking water threats.

Some of the details presented below were included in the body of the policy in the proposed Plan.

Agriculture

Almost half of the prescribed drinking water threats relate to agricultural operations. Farming is a common land use in the rural portions of the Cataraqui Source Protection Area. There are a number of active local farm organizations that could be approached to incorporate source water protection information into their education and outreach materials and events. The Ontario Ministry of Agriculture, Food and Rural Affairs, which is actively involved in the education of farmers and rural residents, indicated during the pre-consultation process that it is supportive of this aspect of the education and outreach policy and that they could assist in identifying resources that would help implementation within the Cataraqui Source Protection Area.

Fuel

The policy aims to reduce the risk of fuel leaks and spills that could contaminate sources of drinking water.

The Canadian Oil Heat Association and the Ontario Marine Operators Association play an active role in educating the public on best practices for the handling and storage of fuel. As industry professionals, these two organizations would be key partners in developing accurate local educational materials on fuel.

Early in the pre-consultation process, the executive director of the Ontario Chapter of the Canadian Oil Heat Association noted on behalf of its members that they fully support participating in an inclusive dialogue, and encourage creating awareness of source water protection through public outreach and education.

The Clean Marine Program offered by the Ontario Marine Operators Association includes a component about the handling and storage of fuel at marinas which they could consider revising to incorporate the identification and consideration of drinking water intakes in the vicinity of marinas.

On-site Sewage Systems

The proper care and maintenance of on-site sewage systems (e.g., septic systems and holding tanks) is critical to reducing the risk to drinking water that is associated with these structures. All development in the Cataraqui Source Protection Area is serviced by private on-site sewage systems, except in the urban areas and some smaller communities like the Cana Subdivision and the Village of Lansdowne. The Source Protection Committee believes that it is important to educate the owners of on-site sewage systems in order to reduce the threat to sources of drinking water. This education and outreach would occur on a broad scale, as well as part of any on-site sewage system maintenance inspection programs that are implemented in targeted areas.

KFL&A Public Health, the Leeds, Grenville, Lanark and District Health Unit, and the Township of Rideau Lakes are the principle authorities for the enforcement of Part 8 of the Ontario Building Code (Sewage Systems) in the Cataraqui Source Protection Area. The two health units currently produce educational material, and lead the septic portion of the locally successful well and septic workshops.

During the pre-consultation process, KFL&A Public Health indicated support for the principles of education, public outreach and data-gathering/sharing related to safe water activities; however, budgetary constraints mean that priorities will need to be set. It also indicated that the policies referencing education and outreach for the operation of on-site sewage systems is achievable, and that it has existing educational material that could be enhanced to meet the objectives of the drinking water source protection program. During the consultation process, KFL&A Public Health indicated that it currently has limited funds for program enhancements, and that it may be advantageous to pursue a regional funding model with start-up funds from the provincial level.

The Leeds, Grenville and Lanark District Health Unit also indicated that it should be included in the development and implementation of such an education and outreach program.

Drinking Water Wells (transport pathways)

There are more than 23,000 private wells in the Cataraqui Source Protection Area. Wells must be in good working order (e.g. proper casing with adequate grout located away from sources of contamination) or they can create short-cuts for contamination to reach the underlying groundwater used as a municipal or private drinking water source.

The Source Protection Plan identifies Well Aware, the Ontario Groundwater Association and licensed professionals as groups that could lead education about properly constructing and maintaining wells, and the de-commissioning of abandoned wells.

Well Aware was a program of Green Communities Canada that focused on encouraging residential well owners to protect their wells and groundwater supplies. Provincial Funding to this group was cut in 2014. The main component of the program involved property visits where a trained advisor educated the well owner about ways to reduce potential risks to his or her well. Well Aware provided support for the aspect of this policy that would address groundwater basics and proper well maintenance during the pre-consultation process. When in operation Well Aware also indicated that its education material could be adapted to more directly address source water protection, if the changes are agreeable and if funding is made available for the modifications.

The Ontario Groundwater Association facilitates various sectors of the groundwater industry to deliver safe and clean water supplies. Since the Association's goals are similar to those of the drinking water source protection initiative, the Source Protection Committee believes that the Association's members can provide technically valid information to well owners to ensure their wells are in good working order.

Locating New Drinking Water Wells

Given the highly vulnerable nature of groundwater in the Cataraqui Source Protection Area, it is important that individuals and businesses give due consideration to the proper placement and construction of drinking water wells. Regulation 903 (Wells) includes minimum setback requirements between wells and potential sources of contamination.

The Water Supply Wells – Requirements and Best Management Practices (Ministry of the Environment, 2009c) specifies the considerations that should be made when determining where to place a new well, and outlines well construction standards. This publication is a good source of information that can be used to inform future well owners about well placement and construction. The publication also notes that it is important to exceed the minimum setback distance included in Regulation 903 in situations where wells are in highly fractures bedrock with thin soil (i.e., the highly vulnerable aquifers in the Cataraqui Source Protection Area). Future well owners need to be made aware of this best practice since it is common to drill a well as close as possible to the building being serviced as well as any related sources of contamination in order to reduce the cost of piping.

The aspect of this policy that recommends a checklist for well siting and construction considerations during development was originally directed to the municipalities for implementation. While Loyalist Township indicated during the pre-consultation process that this policy could easily be implemented by adding language to the Township's forms and staff can also disclose during pre-consultation, other municipalities had differing opinions. For example, the Township of Elizabethtown-Kitley suggested that this same policy should not be the responsibility of the Township. The Township of the South Frontenac and the City of Brockville suggested that the local health unit could help to implement the policy.

Individuals who are considering development (new, expansion or renovation) on private services should be provide with informational material about factors that they should take into account when determining the location of a new well and about well construction standards

This aspect of the education and outreach policy was revised to incorporate comments provided by Well Aware during the consultation process.

Hauled Sewage

The majority of development on waterfront properties, and all of the island properties, that are located in the Brockville and James W. King Intake Protection Zones are serviced by on-site sewage systems. Participants at the community roundtables for these areas admitted that it can be difficult to secure the services of sewage pumping companies with barges since it is costly to mobilize the equipment, and generally only worthwhile when there are a number of tanks to pump at the same time. Participants suggested that if these companies developed a regular schedule for septic tank pump-outs, it would help residents to properly maintain their systems thereby reducing the sewage-related threat to drinking water.

Such a schedule would be important to the success of any on-site sewage system maintenance inspection program that might be implemented along the St. Lawrence River in these two intake protection zones.

Business operators that haul septage by barge from island and waterfront properties should be encouraged to develop and circulate/post a pump-out schedule to provide consistent service options for landowners of these properties and to minimize the effort and cost of mobilizing the necessary marine equipment.

Source Protection Measures for Business

Participants at some of the community roundtables raised concerns about the potential impact of existing businesses that involve the handling and storage of liquid fuel, DNAPLs and/or organic solvents on their communities' sources of drinking water.

Since the prohibition and risk management plan tools under Part IV of the *Clean Water Act* cannot be used to address activities that are moderate and low drinking water threats, municipalities are encouraged to use other means to work with property and business owners to manage the risk associated with existing activities to better protect their community's source of drinking water.

This topic was a standalone policy at the pre-consultation phase. During the pre-consultation process, Loyalist Township observed that it may be difficult to complete the activities identified in the original policy, and that their success would be dependent on the cooperation of property owners.

Awareness of Incentive Programs

Incentive programs are variable in terms of focus, location and timing. People may not be aware of opportunities to subsidize the cost of making improvements to their properties to reduce the risk of drinking water threats and transport pathways to sources of drinking water. An assessment of all available funding opportunities should be completed by the Cataraqui Source

Protection Authority on an on-going basis that would match risk management measures to programs.

Marina Spill Prevention and Contingency Plans

There are marinas located in the following intake protection zones: Bath, Brockville, James W. King and Kingston Central. These marinas should be encouraged to develop new, or update existing, spill prevention and contingency plans for their operations to address spills related to the handling and storage of liquid fuel, and the collection and storage of sewage from marine vessels. Spills involving these activities could negatively impact water quality at the municipal intakes. The plans could result in measures being implemented to reduce the likelihood of spills, and should identify how to react quickly to a spill so that the drinking water source will be better protected.

Existing private and municipal marinas in the intake protection zones should be encouraged to develop new, or update existing, spill prevention and contingency plans for their operations that would address spills related to the handling and storage of liquid fuel, and the collection and storage of sewage from marine vessels.

This topic was a standalone policy at the pre-consultation phase.

Water Access Point Signage

The majority of the intake protection zones have marinas or water access points (e.g., boat ramps) within their boundaries. Educational signage at these facilities would make boaters aware of the location of nearby sources of drinking water, and identify reasonable actions that they could take to reduce the impact of their boating activities (e.g., handling of fuel, sewage pump-outs) on sources of drinking water. The signs could be standardized, as per policy 4.4.1-NB (source protection road signs)

Municipalities, private marinas and resident associations should be encouraged to erect signage at their boat ramps and docks in the intake protection zones to make people aware of the nearby intake and to indicate reasonable actions to take to keep the waterbody safe for all water users.

This topic was a standalone policy at the pre-consultation phase.

Municipal Waste Management Strategies

In 2004 the Government of Ontario gave waste managers across the Province the goal of diverting 60 per cent of waste from disposal by the end of 2008. To achieve this goal, waste managers have begun to implement policies and programs that increase the lifespan of waste

disposal sites (i.e., fewer new sites are required), and that help to keep hazardous materials out of landfills, thereby improving the quality of runoff and leachate.

All municipalities in the Cataraqui Source Protection Area have or are implementing programs and projects to reduce the amount of waste that requires disposal, include household hazardous waste. The scale of the programs and projects varies substantially between municipalities, and in some locations, they could be enhanced to provide better protection to sources of drinking water. Given the vulnerability of the Cataraqui Source Protection Area to contamination, it is important that communities have frequent access to convenient venues in which to properly dispose of waste products (rather than into the environment). Work on this front will decrease the risk posed to drinking water sources from multiple drinking water threats including the handling and storage of dense non-aqueous phase liquids, organic solvents, liquid fuel, and pesticides, waste disposal sites, on-site sewage systems, and wastewater treatment facilities.

Municipalities that provided comments during pre-consultation had minor suggestions for this policy which were taken into consideration, and revisions made where appropriate. This policy is intended to apply to all municipalities, so its implementation would require varying levels of effort depending on the municipality's program.

During the consultation process, the Township of Leeds and the Thousand Islands suggested that this policy is out of scope, creates duplication and inefficiencies, and will not be adhered to. No changes were made as a result of this comment. The policy is permitted under the *Clean Water Act*. The Township may determine that it does not need to make changes to its program, while other municipalities might.

Ontario Pesticide Education Program

The application to land, handling and storage of pesticides can be significant drinking water threats in parts of the wellhead protection areas, and the intake protection zones where the vulnerability score is greater than eight (i.e., Brockville, James W. King, Sydenham). These activities are considered to be a moderate or low threat in the other vulnerable areas.

Ontario Regulation 63/09 (Ontario's Cosmetic Pesticides Ban) requires that all pesticide operators and vendors be licensed and certified to purchase, sell or apply pesticides. Certification programs are conducted through the Ontario Pesticide Education Program. The Source Protection Committee determined that this existing program is an appropriate venue for raising awareness of the risk associated with pesticide use near municipal supply wells, intakes and in sensitive groundwater areas.

The intent of policy 4.4.5-NB is to include source protection information in education and training materials to raise source protection awareness of those individuals that store, handle and apply pesticides.

This policy was revised based on comments received from the Ministry of the Environment during pre-consultation. The Ministry indicated that it would look into bringing source water protection information forward to the Ontario Pesticides Education Program Committee.

The policy was revised further based on the Ministry's recommendation during the consultation process that it be provided flexibility in determining what measures may be required through the completion of a program analysis.

7.4 Incentive Programs

Policy Number	Topic
4.5.1-NB, 4.5.2-NB	Financial incentives
4.5.3-NB	Recognition for proactive businesses

Financial Incentives

The Cataraqui Source Protection Committee evaluated the prevalence and level of risk associated with drinking water threats and transport pathways within the Cataraqui Source Protection Area. It was determined that there are three priorities for on-the-ground actions that could benefit from an incentive program:

- Fuel storage improvements
- On-site sewage system replacement or repair
- Properly decommissioning (e.g., plugging) unused wells and upgrading wells with sub-standard construction.

The comments received during the pre-consultation process about the proposed incentive programs, which were originally directed to each of the vulnerable areas, varied considerably by respondent.

Loyalist Township suggested that a fuel incentive program could require considerable effort and expense on the part of the Township, but staff suggested that there may be merit in considering this further.

The Township of South Frontenac suggested that the septic and fuel incentive program policies for Sydenham should be explored as these measures seem innovative and very appropriate, and

that grants and loans to help fund them may be obtained through the development of a Community Improvement Plan for Sydenham.

City of Brockville staff said that priority should be given to converting private services to municipal services when such municipal servicing is or becomes available. They questioned the need for a fuel incentive program in the Brockville Intake Protection Zone.

The City of Kingston suggested that the general tax base would not likely be supportive of a program that would provide funding to a selective number of residents to conduct home maintenance.

The intent of the policy in the Source Protection Plan is to provide economies of scale to such a program by having it organized and administered on an area-wide basis. It recognizes that the three priorities (i.e., fuel storage, on-site sewage systems, and wells) are most applicable to the highly vulnerable aquifers and significant groundwater recharge areas; and that landowners in the wellhead protection areas and intake protection zones had multiple opportunities to access funds for similar projects through the Ontario Drinking Water Stewardship Program since 2007.

There were no comments received on this policy during the consultation process, however, it was revised to apply to activities in the highly vulnerable aquifers and significant groundwater recharge areas, and in the wellhead protection areas where they would not be eligible under the Ontario Drinking Water Stewardship Program, which was the intent of the Committee following pre-consultation.

The following reasons are provided for each of the three aspects of this policy.

Fuel Storage

- Leaking underground storage tanks contaminate groundwater.
- The United Counties of Leeds and Grenville Groundwater Study (Dillon Consulting, 2001) recommended the creation of an incentive program to replace underground fuel storage tanks with above ground ones.
- The majority of tanks manufactured before 1980 were made from easily corroded steel. It is estimated that 50 per cent of these tanks leaked within 15 years of installation unless they were properly maintained (Environment Canada, 1999; International Joint Commission, 2010).
- It is estimated that between 5 and 35 per cent of all commercial underground storage tanks, including those containing fuel, are leaking (International Joint Commission, 2010).

- Participants at the community roundtables were concerned about fuel tanks that are not removed upon the closure of gas stations. They were also interested in the idea of funding for secondary containment.

On-site Sewage Systems

- The concept of an incentive program for on-site sewage systems was raised by the majority of participants at the community roundtables. There are thousands of private septic systems across the rural areas of the Cataraqui Source Protection Area.
- The International Joint Commission Study on the Great Lakes Basin (2010) notes that overall, 90 per cent of water-borne pathogenic disease outbreaks are attributable to water systems supplied from groundwater, and more than half of these water-related illnesses may be due to viruses. The primary source of disease-causing viruses is human fecal waste from malfunctioning septic tank and seepage bed systems and leaking sanitary sewers. Studies have correlated the occurrence of waterborne viral disease to the density of septic systems.

Drinking Water Wells

- The concept of an incentive program for wells was raised by the majority of participants at the community roundtables. There are thousands of private drinking water wells across the rural areas of the Cataraqui Source Protection Area.
- Abandoned wells or those wells that are sub-standard allow contaminants from the surface to by-pass any natural attenuation afforded by materials overlying the aquifer.
- Part One Report of the Walkerton Inquiry (O'Connor, 2002a) notes that:
 - Unused wells were a factor in the Walkerton Tragedy; and
 - Holes in well casing, improperly maintained backflow valves, and other aspects of well construction may provide a direct route for contamination.
- There is often no evidence of the existence of abandoned wells, and contaminating activities could be happening in close proximity.
- The Water Well Sustainability in Ontario, Expert Panel Report (prepared for the Ontario Ministry of the Environment Sustainable Water Well Initiative Final Report January 30, 2006) notes that in many cases, wells that are discovered to perform poorly or have poor water quality can be rehabilitated through upgrading and proper maintenance.

- Western Cataraqui Regional Groundwater Study (Trow, 2007) recommends that all abandoned wells should be plugged and that all wells constructed before 1974 be upgraded.
- The Well Aware guides indicated the need for a repair in 89 per cent of the visits conducted
- The Watershed Based Source Protection: Implementation Committee Report to the Minister of the Environment (Government of Ontario, 2004), the Water Well Sustainability in Ontario, Expert Panel Report (prepared for the Ontario Ministry of the Environment Sustainable Water Well Initiative Final Report January 30, 2006), and the United Counties of Leeds and Grenville Groundwater Study (Dillon Consulting, 2001) all recommend that an incentive program be made available to well owners to repair, upgrade and decommission wells.

Recognition for Proactive Businesses

Public recognition of the good work being done by landowners and businesses, who are making changes to their properties and practices to reduce the risk of their activities on the environment, would provide positive reinforcement in the community and across Ontario of the importance of protecting sources of drinking water.

There is a number of existing recognition programs on which to base a source water related program. For example, the Wildlife Habitat Council is a body that was formed to help businesses develop biodiversity programs and to provide third party validation that the work done meets a pre-set standard. This enables them to put signs up on their properties that indicate they are certified and to use it as part of their Corporate Social Responsibility programs. Another example would be an awards program to which businesses that have implemented novel water improvement ideas or related programs could apply for an award.

Such a recognition program is appropriate at the provincial level so that there is consistency across each source protection region and area. Also, as Lake Ontario modeling in the Assessment Report demonstrated, activities at one end of Lake Ontario can impact source water at other locations along the lake.

The United Road Ratepayers Association suggested during the consultation process that this policy should also recognize proactive community-based organizations; however, the Committee does not believe that this would fit well with the intent of the policy. There were no specific comments received from the Ministry of the Environment.

7.5 Research Initiatives

Policy Number	Topic
4.6.1-NB	Septic system and well separation
4.6.2-NB	Discharge from water softeners

Research on Septic System and Well Separation

The hydrogeologic setting of the Cataraqui Source Protection Area, as with other parts of Eastern Ontario, is complex and features thin soil overburden and fractured bedrock. The minimum setback requirements and evaluation tools used to determine the appropriate location and density of on-site sewage systems may not be sufficient to account for the highly vulnerable nature of the aquifers. The research proposed in this policy could help to develop separation distances and a water quality impact assessment that would be effective for our local context and to improve the existing requirements.

There were no comments received on this policy during the pre-consultation process. During the consultation process, the Ministry of Municipal Affairs and Housing supported research in the area of on-site sewage systems. Bullet (c) was revised to reference consideration of future “reviews” instead of “revisions” of the Ontario Building Code and provincial guidelines, since it is presumptuous to assume that revisions would be required without a program analysis.

Research on Discharge from Water Softeners

Research is one of the non-regulatory tools used by the Committee to address the significant threat associated with backwash discharge from water softeners because, in the opinion of the Committee, there are no regulatory mechanisms that are appropriate to prohibit or manage this activity. Education and outreach policies are complementary (see 4.4.2-CW and 4.4.3-NB). If implemented, this policy will promote the achievement of the objectives of the Plan to ensure this significant drinking water threat ceases to exist or does not come into existence.

This research project is proposed for the following reasons:

- Hard water is prevalent throughout the Cataraqui Source Protection Area. The Cataraqui Source Protection Watershed Characterization Study (Cataraqui Region Conservation Authority, 2008) identified that the median hardness value for groundwater in the Cataraqui Source Protection Area was 316 milligrams per litre (note: sample size of 423 wells) whereas the upper limit for ideal hardness is 200 milligrams per litre. This means that many homes use water softeners to obtain more acceptable water hardness.

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- Concrete septic tanks will corrode as a result of water softener backwash effects unless the tank is specifically cured during manufacturing.
- Water softener backwash can change the density of the liquid in the septic tank such that proper settling is impeded.
- There is no agreement in the scientific community about the best method for disposing of water softener backwash.
- A local research project would ensure that the most effective disposal method is being used for water softener backwash.
- The Ontario Building Code states that water softener backwash can be disposed in a septic system if it is designed to accept it, but there is no clear indication of said proper design.

The Ministry of Municipal Affairs and Housing indicated during pre-consultation that it would work with the Ministry of the Environment to consider the feasibility of undertaking a research project on effective disposal methods for water softener backwash. There were no comments received on this policy during the consultation process.

7.6 Provincial and Municipal Programs, Policies and Procedures

Policy Number	Topic
4.7.1-NB	Provincial salt management plan
4.7.2-NB	Municipal salt management plans
4.7.3-NB	Management of hauled sewage
4.7.4-NB	Provincial stormwater management guidelines
4.7.5-NB	Fuel storage standards and safety
4.7.6-NB	
4.7.7-NB	
4.7.8-NB	Review of nutrient management legislation

Salt Management Plans

All road authorities in the Cataraqui Source Protection Area use road salt as part of winter road maintenance. Salt management plans are a widely accepted tool used to responsibly plan for and record road salt storage, handling and application. The purpose of the policies is to make sure

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that the vulnerable areas identified in the Assessment Report are given due consideration in salt management plans so that the potential for future contamination of drinking water sources is reduced.

Winter in the Cataraqui Source Protection Area brings with it a number of specific activities that can negatively impact the quality of our sources of drinking water. These activities include:

- application of road salt,
- handling and storage of road salt, and
- storage of snow, which can contain salt and other contaminants.

The majority of road salt is used as a de-icer or an ice prevention agent. The most commonly used products are sodium chloride and calcium chloride because they are effective, inexpensive, readily available and easy to use. The main reason road salt is considered a threat is due to the potential for these products to run off roads and parking areas and enter into sources of drinking water. More than half of the road salt applied to roads infiltrates through soil into the groundwater, the remainder is transported in surface runoff (RiverSides Stewardship Alliance and Sierra Legal Defence Fund, 2006). This is most noticeable in urbanized areas and along major roads.

Sodium and chloride are the two main components of the most commonly applied de-icer. They both readily dissolve in water, and once in solution are difficult to remove, especially chloride. Some water purification technologies (reverse osmosis, distillation and ion exchange) can remove sodium, but these technologies are more expensive than the methods normally applied such as chlorine disinfection or activated carbon filters. The Ontario Drinking Water Standards include both an aesthetic objective (200 milligrams/litre) and health objective (20 milligrams/litre) for sodium. If the amount of sodium in drinking water is measured to be at or above the health objective threshold, the local Medical Officer of Health should be notified so that local physicians can advise their patients on sodium restrictive diets not to drink the water as it could cause adverse cardiac impacts.

Snow plowed from roads and parking lots can be contaminated with salt, oil, grease and heavy metals from vehicles, litter and airborne pollutants. Therefore it must be stored and disposed of in an appropriate manner. Storing large quantities of snow in one location concentrates the contaminants in melt water, which results in a greater impact on the surrounding environment.

Road authorities in the Cataraqui Source Protection Area have road salt management plans that address the activities listed above, with the exception of the Township of Frontenac Islands and the Township of South Frontenac. Also, the Township of Leeds and the Thousand Islands

operates a public works yard that includes the handling and storage of road salt in Lansdowne WHPA-B. The specific protection measures recommended to protect this aquifer are generally outside the scope of the Salt Management Plan for the United County of Leeds and Grenville, which applies to this Township.

These policies were revised based on comments received from several municipalities, the Ministry of Transportation and the Ministry of Municipal Affairs and Housing during pre-consultation. The comments generally related to the proposed requirements and timing of the updates.

The Ontario Good Roads Association, of which all municipalities in the Cataraqui Source Protection Area are members, indicated during pre-consultation that its board endorsed a high level policy statement that complements these policies. The Association also reviewed and updated its salt management plan template to require the identification of vulnerable areas, and to outline steps to be taken to minimize impacts on vulnerable areas. During consultation, the Association indicated that the policies related to the application, handling and storage of road salt and the storage of snow are fair and reasonable.

During the consultation process, the Ministry of Transportation suggested revised wording for policy 4.7.1-NB. In the Ministry's opinion, all that is technically and economically feasible is being done to minimize salt usage while maintaining roadway safety therefore it would be significantly challenged to comply with the proposed policy. The Ministry's Salt Management Plan is currently up-to-date and is consistent with the Environment Canada and Transportation Association of Canada documents. It will be revised accordingly, and as frequently as necessary, to ensure that changes to the above-noted Environment Canada and Transportation Association of Canada documents are both accurately and completely reflected. The policy was revised, with the addition of a request to report to the Source Protection Authority on actions taken. The proposed version of this policy was further revised to address a Ministry comment about reporting. Instead of circulating annual updates the policy now asks that pertinent information be published and in a location that is accessible to the Cataraqui Source Protection Authority.

The Township of Frontenac Islands indicated that the topic of road salt management will be addressed at Council in the near future.

Management of Hauled Sewage (Untreated Septage)

In the Cataraqui Source Protection Area (CSPA), approximately 36 per cent of the population lives in a rural area that is not serviced by municipal water and sanitary sewers. There are also many businesses that are connected to private services in the rural area. There are more than 23,000 septic systems and/or holding tanks in the CSPA. The number of septic systems will increase with the creation of new rural lots over time. The standard recommendation in Ontario is for septic tanks to be pumped out every three to five years as part of regular septic system

maintenance. This will be actively encouraged through the septic system education and awareness programs recommended elsewhere in this Plan.

The City of Kingston's Cataraqui Bay Wastewater Treatment Plant is the main municipal facility in the CSPA that accepts hauled sewage from the greater area. It is partly located in the Point Pleasant Intake Protection Zone. The Town of Greater Napanee and Loyalist Township accept limited quantities of hauled sewage generated within their jurisdictions. None of the other local facilities are designed to accept and process hauled sewage. A septage and biosolids management study was completed in 2009 by WESA for the United Counties of Leeds and Grenville. The report meets the intent of policy 4.7.3-NB.

If there is limited or no capacity at local wastewater treatment facilities due to increased demand and there are no other available options for stabilization and/or treatment, this could lead to more frequent land application of hauled sewage in the highly vulnerable aquifers, significant groundwater recharge areas, Bath IPZ-2, Sandhurst Shores IPZ-2, and Lansdowne WHPA-C and WHPA-D, where this activity would be a moderate or low drinking water threat depending on the vulnerable area. These vulnerable areas contain land that may meet the provincial guidelines for the application of hauled sewage.

Some municipalities that commented during pre-consultation, particularly Utilities Kingston on behalf of the City of Kingston, had concerns regarding the implications of this policy on capital expenditures related to wastewater treatment facilities. These concerns were also raised by Utilities Kingston during consultation. Other municipalities, such as Loyalist Township, were satisfied with this policy since they have already considered hauled sewage management for their jurisdictions.

Further discussions with Utilities Kingston during consultation led to a revision of the wording in this policy, including removal of the reference to municipalities working cooperatively (i.e., they may wish to work independently).

The Source Protection Committee continues to promote this policy as an appropriate action to protect municipal sources of drinking water as well as the highly vulnerable aquifers and significant groundwater recharge areas.

Provincial Stormwater Management Guidelines

Stormwater is runoff from precipitation or snow melt. As it flows over the ground surface it picks up pollutants such as road salt, oil, chemicals, fertilizer and pesticides. By its nature stormwater exists throughout the Cataraqui Source Protection Area, but is only typically managed (i.e., treated) in the built up areas using stormwater management facilities (e.g., ponds).

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*. The manual includes requirements for the enhanced treatment of discharges to sensitive surface water areas, but does not address treatment requirements for sensitive groundwater areas. The Source Protection Committee believes that it is appropriate to require enhanced treatment and aquifer protection measures in sensitive groundwater areas.

During the pre-consultation process, the Ministry of the Environment indicated that its policies and guidelines are undergoing continuous review and updating, and source protection information will be reviewed for incorporation into guidelines as they are updated. The policy was revised further based on the Ministry's recommendation during the consultation process that it be provided flexibility in determining what measures may be required through the completion of a program analysis.

Fuel Storage Standards and Safety

The source protection plan includes policies requiring risk management plans under Part IV of the *Clean Water Act* for particular liquid fuel storage. This type of management measure was deemed necessary by the Source Protection Committee because it is believed that the existing legislative framework does not adequately manage this drinking water threat.

In addition to Part IV and complimentary land use planning policies there are three more policies included in the source protection plan aimed at reducing the risk of fuel storage to sources of drinking water.

1. Consideration of changes to Ontario Regulations 213/01 and 217/01 to realize fewer and smaller spills.
2. Consideration of changes to the Fuel Codes to realize fewer and smaller spills.
3. Information sharing between local source water practitioners and provincial experts.

In order to conclude that these three additional policies are warranted, the Source Protection Committee has considered the prevalence of fuel storages in the Cataraqui Source Protection Area, the highly vulnerable nature of the Cataraqui Source Protection Authority and published research on fuel spills in consideration of fuel equipment and inspection cycles.

Groundwater and surface water in Eastern Ontario, including the Cataraqui Source Protection Area, has been impacted by fuel spills from storage tanks used to hold home heating oil and gasoline at service stations.

One such example is Roblin, a hamlet 15 minutes north of Napanee west of the Cataraqui Source Protection Area, which has been impacted twice in recent history from liquid fuel spills. The first

was from a home heating oil tank that required a major cleanup in the mid-2000s and the second was from a gas station in 2011.

Although the owners of the gas station followed all necessary standards about equipment inspections, it appears that the tank(s) still leaked. The most recent contamination affected the drinking water of at least 13 property owners. The fractured rock allowed the gasoline to travel faster and farther than it would in other environments. It is also very difficult to track and clean up. It is estimated that it will take between three and five years for the gasoline to dissipate.

Comments on policies were provided by the Ministry of Consumer Services (MCS) and the Technical Standards and Safety Authority (TSSA). The MCS is responsible for the regulations and codes, but has delegated their enforcement authority to the TSSA so that both bodies are actively involved in either program oversight or delivery.

During pre and draft consultation, the Ministry and TSSA suggested that source water protection falls beyond their respective expertise and authority. They encouraged the Committee to consider that Ontario's current regulatory framework supports source water protection by effectively reducing the probability and incidents of spills and leaks. They also indicated that there is currently no evidence that the provincial regulatory framework is not effectively managing the risk to source water and therefore no plans to review the regulatory framework. Finally, it is suggested that if, beyond the provincial regulatory framework, the Committee's research and analysis indicates that additional local measures are necessary to protect source water in the Cataraqui Source Protection Area, that these measures (e.g., risk management plans) be established at local levels.

The Source Protection Committee continued to promote the policy asking for consideration of changes to existing provincial requirements to protect municipal sources of drinking water as well as the highly vulnerable aquifers and significant groundwater recharge areas.

The MCS, the TSSA and the Ministry of the Environment (MOE) provided comments on the proposed policy in the Director's letter. Comments focused on removal of details about specific changes to the regulations and codes since it is believed that these specifics circumvent deliberations of an existing Code Committee. It was noted that it would be appropriate to include the Ministry of the Environment in code reviews to capitalize on their source water protection expertise. Finally the Source Protection Committee was informed that the TSSA would not be able to conduct inspections of private fuel outlets since there is no licensing requirement for these facilities (i.e. TSSA is not aware of their locations). TSSA stated that they may consider inspections on a fee-for-service basis in vulnerable areas, provided that local source water practitioners provide the locations. The MOE Source Protection Programs Branch suggested that a separate policy be developed to replace c. i. of the proposed policy and that it be about

information sharing between the source protection authority and TSSA where a risk to a source of drinking water has been identified.

Further to the Director's letter, suggested policy wording was supplied to replace proposed policy **4.7.5-NB** and additional information was communicated that changes to inspection cycles or additional licensing is not a Code change, but would rather necessitate a regulation amendment.

The Source Protection Committee carefully considered the comments and revised the policy as they deemed appropriate. They noted that the policy is non-binding and the the suggested considerations for regulation and code changes are to point the Ministries and TSSA toward some items for further discussion, not to limit the scope of their review. The policy wording was revised to reflect this and identification of inspection cycle timeframes were removed in order to allow evidence based research to determine the specifics.

Proposed policy **4.7.5-NB** was split into two separate policies to appropriately present regulation or code considerations and an additional consideration about licensing requirements was added to the regulations policy to fill this apparent gap.

Finally, and as per a Ministry of the Environment recommendation, a policy about information sharing between the Source Protection Authority and the TSSA was added. The intent of this policy is to provide a link between source water protection work and provincial fuel experts.

Review of Nutrient Management Regulation

Complementing the requirement for risk management plans, the purpose of this policy is to encourage the Ministry of Agriculture, Food and Rural Affairs (OMAFRA) to amend Ontario Regulation 267/03 (General) under the *Nutrient Management Act* to apply to all farms in wellhead protection areas and intake protection zones where the application, storage and management of agricultural source material is a significant drinking water threat. The original draft policy applied to all wellhead protection areas and intake protection zones regardless of the level of risk associated with these activities.

In making their decision to include this policy in the source protection plan, the Source Protection Committee considered the existing legislative framework as well as the fact the agricultural operators are generally aware of and comfortable with the *Nutrient Management Act* requirements. It was determined that it would be better to phase in the significant drinking water threat activities under the *Nutrient Management Act* than to introduce a new method of regulation through the *Clean Water Act* that essentially duplicates the process.

During the pre-consultation process, OMAFRA indicated that regulatory amendments are not anticipated at this time, but that the suggestion is noted for future consideration. It is the opinion

of the Ministry that farming operations with significant drinking water threats that are not phased in under the *Nutrient Management Act* (NMA) can have risk management plans that utilize NMA standards and management practices, and offered existing educational material that could be used by the risk management official to negotiate the plans. Further discussions with OMAFRA during the consultation process resulted in revised policy wording.

8.0 Reasons for Chapter 5 Policies (Sensitive Regional Groundwater Sources)

Chapter 5 of the Source Protection Plan identifies actions that should be taken to help protect vulnerable regional groundwater sources from contamination, in particular where groundwater is used as a private source of drinking water (e.g., by individuals, businesses, institutions and community organizations). The policies apply to all areas identified as either a highly vulnerable aquifer or a significant groundwater recharge area. The exception is where these sensitive regional groundwater areas overlap a wellhead protection area or an intake protection zone. In these situations the more restrictive policies that address the specific drinking water threat will apply.

8.1 Education and Outreach Programs

Policy Number	Topic
5.2.1-NB	Protecting groundwater in rural settlement areas
5.2.2-NB	Targeting clusters of water contamination
5.2.3-NB	Groundwater protection information sessions

Protecting Groundwater in Rural Settlement Areas

There are many rural settlement areas (i.e., hamlets and villages) and countryside development where private wells are used for drinking water. It became apparent to the Source Protection Committee while preparing the Assessment Report (June 2011) and through consultation with communities across the Cataraqui Source Protection Area that historical and current land uses and practices may be affecting the quality of the groundwater on which residents and businesses of these communities rely.

The Cataraqui Source Protection Authority should provide municipalities with the information necessary for them to consider how to proactively protect the sources of drinking water for these

areas, to consider protecting these sources for the long term where a municipal drinking water supply may be required in the future, and to manage activities that would pose a threat to the quality of the public groundwater sources.

This policy supports subsection 2.2.1 of the Provincial Policy Statement which states that planning authorities shall protect, improve or restore the quality and quantity of water through a variety of actions.

In order to be within the scope of the *Clean Water Act*, the focus of this policy changed since pre-consultation from having the municipalities confirm the extent of significant groundwater recharge areas that provide drinking water to unserviced hamlets and villages to the Source Protection Authority providing the municipalities with information that they need to make decisions about how to protect these settlement areas.

During the pre-consultation process, Loyalist Township suggested that the implementation cost for the original draft policy would be high, and that the Ministry of the Environment and the Cataraqui Source Protection Authority should act as the lead so that a common approach is taken throughout the Cataraqui Source Protection Area.

The Township of Elizabethtown-Kitley and the City of Kingston voiced similar concerns about the cost of implementing the study portion of the original draft policy. The Township of Elizabethtown-Kitley suggested that prioritizing locations should be part of the policy, and that agricultural nutrients should be considered in addition to the activities listed in the land use planning policy (5.5.1-HR). The Township of South Frontenac supported the original draft policy during pre-consultation.

There were no comments specific to this policy received during the consultation process.

Targeting Clusters of Water Contamination

Bacteriological sampling by homeowners is one of the few sources of water quality data in the highly vulnerable aquifers and significant groundwater recharge areas with relatively good geographic coverage. Wherever possible the Source Protection Committee has endeavored to use existing programs and information to bolster source protection policies and vice versa. Knowing on-the-ground impacts of drinking water threat activities is valuable to inform education program delivery (refer to policies 4.4.2-CW and 4.4.3-NB) and to consider how source protection policies could be improved for the future.

There were no comments specific to this policy received during the pre-consultation or consultation processes.

Groundwater Protection Information Sessions

Groundwater protection is a relatively new consideration for some municipal Councils and staff. The implementation of groundwater protection policies and principles in municipal planning documents and decisions is an important aspect of overall source water protection.

The Ministry of Municipal Affairs and Housing provides municipalities with guidance on a wide variety of matters, therefore the Source Protection Committee believes that the Ministry is the appropriate body to disseminate information about groundwater protection to the municipalities in the Cataraqui Source Protection Area. The Ministry supported the intent of this policy during consultation discussions.

8.2 Research and Monitoring Initiatives

During preparation of the Assessment Report (June 2011), it became evident that there is a need for more and better groundwater information in the Cataraqui Source Protection Area for source protection assessment and planning purposes, and that the existing information is not organized in an accessible manner. This was echoed by municipalities and local agencies during pre-consultation on the draft source protection policies.

The Cataraqui Source Protection Area is already affected by drought conditions. Private well owners experience water shortages and it is of interest to monitor how climate change may impact these sources of drinking water in the future as well as the municipal supplies. Implementation of the two policies that follow would provide a more comprehensive dataset for consideration and could help to identify specific locations of at-risk and poor water quantity and/or quality for which further research or education and outreach programs could be used to better define the problem areas and mitigate the drought condition where possible.

Policy Number	Topic
5.3.1-NB	Organization of groundwater data
5.3.2-NB	Groundwater monitoring network

Organization of Groundwater Data

The existing groundwater data collected by agencies in the Cataraqui Source Protection Area is one source of information that should be used to fill the knowledge gap on groundwater quality and quantity. The Source Protection Authority should facilitate a meeting of these agencies to determine what data are available and how it would best be organized and shared. The provincial “CA Maps” initiative (an internet mapping portal) is an established tool that may be used to implement this policy.

The Leeds, Grenville, Lanark and District Health Unit indicated during pre-consultation that it is interested in the data sharing envisioned in this policy. Staff of the City of Brockville and KFL&A Public Health also supported the intent of this policy.

The types of gaps were identified in the Plan based on comments received from the Unity Road Ratepayers Association during consultation.

Groundwater Monitoring Network

The Cataraqui Region Conservation Authority (CRCA), in cooperation with the Ministry of the Environment, operates a groundwater monitoring network within its jurisdiction, which was established in 2002. The main purpose of the network is to collect ambient water level (quantity measure) and quality data from representative aquifer types. The high quality data from the seven existing monitoring wells is instrumental to understanding what the quality and quantity of groundwater should be when it is not impacted by contamination. It is a valuable resource for identifying benchmark conditions on a major aquifer basis, as well as for drought monitoring and regional groundwater studies.

There are at least three geographically extensive aquifer types that are not currently included in the network. The addition of at least three monitoring wells in these aquifer types within the CRCA Provincial Groundwater Monitoring Network would provide a more comprehensive and representative set of data for analysis.

There were no comments specific to this policy received during the pre-consultation and consultation processes.

8.3 On-site Sewage System Maintenance

Policy Number	Topic
5.4.1-NB	Maintenance inspection program and complementary education and outreach

The Ontario Building Code requires on-going maintenance of every on-site sewage system (e.g., septic system) and the remediation of unsafe or failing systems. It is the responsibility of Principal Authorities (e.g., municipalities or health units) to enforce the Building Code. Owners/operators are responsible for septic system maintenance.

In addition, the *Building Code Act, 1992* and the Building Code require mandatory maintenance inspections in vulnerable areas where these systems are identified as significant threats to a source of drinking water (e.g., wellhead protection areas A and B). The purpose of the mandatory inspection program is to confirm that on-site sewage systems are functioning properly

and to require the remediation of failed and improperly functioning systems so that they do not release untreated or poorly treated sewage to groundwater and surface water. The Act and Code contain provisions that allow the Principal Authority to establish maintenance inspection programs in other parts of the municipality.

The Source Protection Plan encourages municipalities to establish on-site sewage system maintenance inspection programs, and to support these programs with targeted education and outreach initiatives. Such a program would normally be organized and/or delivered by a municipality's principal authority for Part 8 of the Ontario Building Code. The principal authorities in the Cataraqui Source Protection Area are KFL&A Public Health and the Leeds, Grenville, Lanark and District Health Unit, except in the Township of Rideau Lakes.

The discharge from on-site sewage systems is a low drinking water threat in the highly vulnerable aquifers and significant groundwater recharge areas, but this low ranking should not undermine the impact poorly functioning systems can have on ground and surface water sources. The International Joint Commission Study on the Great Lakes Basin (2010) notes that 90 per cent of water-borne pathogenic disease outbreaks are attributable to water systems supplied from groundwater and more than half of these water-related illnesses may be due to viruses. The primary source of disease-causing viruses is human fecal waste from malfunctioning septic tank and seepage bed systems and leaking sanitary sewers. Studies have correlated the occurrence of waterborne viral disease to the density of septic systems.

An education and outreach program is important to the successful implementation of any program. Therefore the on-site sewage system maintenance inspection programs described above must be complemented with an awareness campaign to assist landowners to understand the proper operation and maintenance of their on-site sewage systems, and to inform them of the benefits of well-maintained systems.

KFL&A Public Health and the Leeds, Grenville, Lanark and District Health Unit indicated during pre-consultation that they should likely coordinate the inspection programs with municipalities since the health units are generally involved with existing septic maintenance inspection programs. They should also be involved in developing the corresponding educational material. Loyalist Township suggested that there may be value in such an inspection program where rural residential density is greater such as in the Township's hamlets and some rural clusters.

During the consultation process, KFL&A Public Health indicated that it currently has limited funds for program enhancements, and that it may be advantageous to pursue a regional funding model with start-up funds from the provincial level.

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The Township of Elizabethtown-Kitley raised concerns about the financial and other resources that would result from septic system pump outs, the cost of these pump outs (every 3-5 years), the amount of raw sewage to be disposed of due to these tanks being emptied more regularly (as a result of maintenance inspections) that would increase the required treatment at wastewater treatment facilities or lagoons. The intent of policy 5.4.1-NB is that the focus of a maintenance inspection program, if the Township decided to have one, could be scoped to “hot spots” in the community where there are or is the potential for water quality problems. The proposed policy was revised so that only consideration of discretionary program establishment is to be completed by October 6, 2016 instead of program implementation. This change allows principal authorities to focus on the mandatory programs before taking on additional work.

The two policies included in the proposed plan are now combined to present both the inspection program and the related education component.

8.4 Land Use Planning and Development

Policy Number	Topic
5.5.1-NB	Municipal approvals under the <i>Planning Act</i>
5.5.2-NB	Municipal reporting
5.5.3-HR	Provincial approvals for waste disposal sites
5.5.5-HR	Provincial approvals for sewage works
5.5.6-NB	Provincial reporting
5.5.7-HR	Provincial approvals for fuel storage at aggregate extraction sites
5.5.8-NB	Provincial reporting

Although highly vulnerable aquifers and significant groundwater recharge areas are vulnerable, activities in these areas cannot be identified as significant drinking water threats according to the Ministry of the Environment Technical Rules. Activities that are moderate and low threats occur throughout these vulnerable areas.

Moderate and low drinking water threats will be managed in the vulnerable areas where the activity is a common occurrence, or 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. Minimum thresholds are associated with these threats in most cases (e.g., handling and storage of more than 2,500 litres of liquid fuel).

Local stakeholders raised concerns about the potential impact of many of the activities listed in these policies on their drinking water (e.g., public works yards, waste disposal sites) at the

community roundtables about the highly vulnerable aquifers and significant groundwater recharge areas.

The Source Protection Committee believes that it is appropriate to ensure that these activities are managed properly such that source water is protected if they are permitted in the future.

Municipal Approvals and Reporting

During the pre-consultation process, the Ministry of Municipal Affairs and Housing was supportive of the policies that required disclosure reports as part of a complete application under the *Planning Act*. The Township of South Frontenac was also supportive of these policies. Loyalist Township noted that these policies can easily be incorporated into its planning approvals process. The City of Kingston Legal Department confirmed that there may be circumstances under which activities can be regulated by municipalities under the *Planning Act*. These policies are intended to ensure that municipalities are aware of planned development related to drinking water threat activities early in the development review process so that discussions about appropriate risk management measures can be identified and incorporated into the design.

During the consultation process, a number of municipalities raised concerns about using the *Planning Act* to regulate activities instead of land uses, and about the logistics of requiring disclosure reports. The policy was revised to specify the intent, which is that municipalities consider the impact of development on groundwater quality, rather than specifying how to do it. There are various ways by which municipalities can meet the intent of this policy. Some examples include: upfront disclosure of activities, site plan control, development agreements, and/or conditional zoning (once enabled by the Province).

The City of Kingston, Loyalist Township and the Township of South Frontenac raised a number of questions and concerns about the karst policy that was included in the draft Source Protection Plan, including that the referenced mapping places extensive areas of inferred karst and potential karst across the municipalities, and that the policy says to “restrict” development related to certain activities. The need to consider karst was incorporated into policy 5.5.1-HR, such that it would be considered on a site by site basis. This revision is based on consultation with karst specialists to determine the most appropriate way to address karst. There is currently no policy in the Plan recommending a regional karst study.

During consultation, the City of Kingston and Township of Leeds and the Thousand Islands suggested that there were inconsistencies between the timelines listed in Appendix C (now Appendix D), particularly the requirements for an immediate implementation timeline. The policies in question had two timelines that did not translate well into Appendix C. The reporting policy was revised so that it only references notices of decisions for applications. The official

plan amendment for significant threat policies is required by section 40 of the *Clean Water Act*, and the Source Protection Authority will find out about it through *Planning Act* notification requirements to the Cataraqui Region Conservation Authority.

Provincial Approvals: Waste Disposal Sites and Sewage Works

Moderate and low drinking water threats will be managed in the highly vulnerable aquifers and significant groundwater recharge areas where the activity is a common occurrence, or 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. Waste disposal sites and sewage works may be moderate or low drinking water threats in the highly vulnerable aquifers and significant groundwater recharge areas. They are generally associated with permitted land uses in these areas. At the community roundtables, local stakeholders raised concerns about the potential impact of many of these activities on their drinking water (e.g., marinas and large industry adjacent to surface water intakes).

The Source Protection Committee believes that it is appropriate to ensure that these activities are managed properly such that source water is protected if they are permitted in the future. These activities will be managed using prescribed instruments where applicable.

During the pre-consultation process, the Ministry of the Environment indicated that it does consider the potential impact to the environment when issuing approvals under the *Environmental Protection Act* and the *Ontario Water Resources Act*, and could revise or add terms and conditions in existing and future prescribed instruments given the sensitivity of the area and improved science. In the future, the Ministry will review options for how it can more directly identify the source protection information available for a specific approval application and transparently demonstrate how the information would be incorporated into its decision-making. The policy was revised to reflect this comment.

The Ministry also indicated that it will consider how to implement reporting that would meet the requirements for the monitoring policies of all of the source protection plans in Ontario to streamline implementation.

All proposed policies regarding provincial reporting have been revised to reflect Ministry of the Environment comments requesting that required or recommended reporting is in-line with provincial plans and capabilities. It was suggested that policies about reporting be more outcome-based and that detailed requirements be presented instead as recommendations. The changes have been made with the expectation that provincial ministries will report in a manner that is straight-forward and that includes information needed to adequately gauge compliance and effectiveness of the source protection plan.

Following consultation, the reference to “active and inactive” waste disposal sites was removed from the policy since the Plan cannot address closed sites unless they were identified as drinking water conditions in the Assessment Report.

The Ministry of the Environment commented on the proposed policy that part **b.** does not relate to a prescribed instrument; therefore, the legal effect of this portion of the policy should not be “have regard for”. This comment was addressed by splitting the policy (i.e. one for the prescribed instrument portion and another about the recommendation to prioritize the closure plans).

Provincial Approvals: Licenses for Aggregate Resources

The Cataraqui Source Protection Area includes aggregate deposits (e.g., sand and gravel) of economic value for which pits and quarries are developed to extract the material. These aggregate extraction sites are generally situated in hydrogeologically sensitive areas (i.e., highly permeable sand and gravel deposits), and can be considered transport pathways since the protective soil layers are removed to access the underlying sand and gravel deposits.

It is common for the handling and storage of liquid fuel to occur at these sites to power the heavy equipment necessary to extract and move the material within and off the site. It is important to ensure that the licenses for the extraction sites include consideration for measures to reduce the risk of contamination from a spill or leak.

It is important that risk management measures be implemented through the licenses for these sites to reduce the chance of groundwater contamination from a spill or leak associated with the handling and storage of liquid fuel.

During the pre-consultation process, the Ministry of Natural Resources indicated that it is prepared to require risk management measures for fuel at aggregate extraction sites where necessary.

During consultation, the City of Kingston suggested that this type of policy should be applied not only to pits and quarries, which are licensed by the Ministry of Natural Resources, but also to mineral deposits, which are overseen by the Ministry of Northern Development and Mines (MNDM). This policy continues to impact the *Aggregate Resources Act* (a prescribed instrument) only since the MNDM does not approve site plans, and therefore this type of policy cannot be directed to it.

The Ministry of the Environment provided four comments on proposed policy 5.5.7-HR which resulted in policy revisions including:

- Removed language requesting that existing prescribed instruments are to be amended.

- Changed reporting recommendations to be in-line with Ministry plans and capabilities, with the understanding that the more generalized language will still realize adequate reporting.
- Changed “implemented” to “included” since the Ministry is only responsible for including terms any applicable environmental compliance approval, not for the actual implementation.
- Split the policy to ensure that only the prescribed instrument portion has the legal effect of, “have regard for”.

9.0 Reasons for Chapter 6 Policies (Wellhead Protection Areas)

Chapter 6 of the draft Source Protection Plan includes specific policies that are applicable to the Cana, Lansdowne and Miller Manor Wellhead Protection Areas.

9.1 On-site Sewage System Maintenance

Policy Number	Topic
6.2.1-CW	Complementary education and outreach
6.2.2-NB	Maintenance inspection program and reporting
6.2.3-CW	Reporting

The Ontario Building Code requires on-going maintenance of every on-site sewage system (e.g., septic system) and the remediation of unsafe or failing systems. It is the responsibility of Principal Authorities (e.g., municipalities or health units) to enforce the Building Code. Owners/operators are responsible for septic system maintenance.

In addition, the *Building Code Act, 1992* and the Building Code require mandatory maintenance inspections in vulnerable areas where these systems are identified as significant threats to a source of drinking water (e.g., wellhead protection areas A and B). The purpose of the mandatory inspection program is to confirm that on-site sewage systems are functioning properly and to require the remediation of failed and improperly functioning systems so that they do not release untreated or poorly sewage to groundwater and surface water. The *Act* and Code contain provisions that allow the Principal Authority to establish maintenance inspection programs in other parts of the municipality.

The discharge from on-site sewage systems is or would be a significant drinking water threat in the Cana, Lansdowne and Miller Manor WHPA-A and WHPA-B where the vulnerability score is ten. There are three systems in each of Cana and Lansdowne, and 17 systems in Miller Manor.

Policy 6.2.2-NB encourages the City of Kingston, Township of Leeds and the Thousand Islands and the Township of Front of Yonge to extend the mandatory inspection program required by the Ontario Building Code to the remainder of each of the wellhead protection areas. There are 13 systems in Cana, 2 in Lansdowne and 85 in Miller Manor that would fall under such a program.

An education and outreach program is important to the successful implementation of any program. Therefore the on-site sewage system maintenance inspection programs described above must be complemented with an awareness campaign to assist landowners to understand the proper operation and maintenance of their on-site sewage systems, and to inform them of the benefits of well-maintained systems. The Source Protection Committee is of the opinion that this education and outreach policy is sufficient to address the significant threat associated with on-site sewage systems, since the inspection of these systems is mandated by the Ontario Building Code. The inspection program will identify any systems that require repair or replacement, and ensure that remedial work is performed.

Both KFL&A Public Health and the Leeds, Grenville, Lanark and District Health Unit indicated during pre-consultation that they should likely coordinate the inspection programs with municipalities since the health units are generally involved with existing septic maintenance inspection programs. They should also be involved in developing the corresponding educational material. During the consultation process, KFL&A Public Health indicated that it currently has limited funds for programs enhancements, and that it may be advantageous to pursue a regional funding model with start-up funds from the provincial level.

Proposed policies 6.2.2-NB and 6.2.4-NB were combined to present all related requirements in one place.

9.2 Land Use Planning and Development

Policy Number	Topic
6.2.5-CW to 6.2.6-CW	Municipal approvals under the <i>Planning Act</i>
6.2.7-HR to 6.2.8-HR	
6.2.9-CW, 6.2.10-NB	Municipal reporting
6.2.11-CW, 6.2.12-HR	Provincial approvals for waste disposal sites

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Policy Number	Topic
6.2.13-CW to 6.2.15-CW	Provincial approvals for sewage works
6.2.16-HR	
6.2.17-CW, 6.2.18-NB	Septic system maintenance inspections and related reporting
6.2.19-CW	Provincial reporting
6.2.20-NB	
6.2.21-CW	NASM plans
6.2.22-CW, 6.2.23-HR	Nutrient management
6.2.24-CW, 6.2.25-NB	Provincial reporting
6.2.26-NB	Transport pathways in WHPA

Significant Drinking Water Threats

The *Clean Water Act* requires that policies be developed for all significant drinking water threats identified in the Assessment Report (June 2011) in order to ensure that source protection committees capture all land-based activities that are or would be significant drinking water threats. In some cases the Plan only includes policies addressing future drinking water threats. This is because the Source Protection Committee is confident particular drinking water threats do not occur. The Source Protection Committee considered whether a given significant drinking water threat can be managed, or whether it should be prohibited now and/or in the future. Existing significant threats will be managed, and those activities that would be significant threats if they were to occur in the future are prohibited.

In the Cataraqui Source Protection Area, detailed analyses and site verifications were performed for the wellhead protection areas where significant drinking water threats can occur based on their vulnerability scores to determine what activities and land uses have the potential to occur now and in the future.

Land use planning tools are used to prohibit waste and sewage-related activities that cannot be addressed through prohibition under section 57 of the *Clean Water Act*. Currently, new waste and sewage-related activities are generally not permitted in the Wellhead Protection Areas by their respective municipalities.

Prescribed instruments are used to prohibit activities that would be significant threats wherever possible (e.g., section 10 of Ontario Regulation 267/03 (General) with respect to nutrient management strategies to address the application and storage of agricultural source material).

During the pre-consultation process, the Ministry of the Environment supported the use of complementary land use planning policies and prescribed instrument policies to prohibit significant drinking water threats. The Ministry raised concerns about the policies prohibiting the Director from issuing approvals, and recommended that the policies use more direct language that prohibits the activity. This recommendation was incorporated into the policies to the extent possible.

In order to reduce regulatory duplication, prescribed instruments are used to manage existing activities that are significant drinking water threats in circumstances where the activity requires an approval related to legislation included in the *Clean Water Act* (as opposed to risk management plans under section 58 of the Act).

Waste Disposal Sites

There are no existing waste disposal sites in the wellhead protection areas where they are significant drinking water threats. The only exception is for those wastes included in two of the waste sub-threat categories related to temporary storage of small quantities of waste at locations where the waste is generated (i.e. the storage of hazardous and liquid industrial wastes and the storage of hazardous waste described in clause p, q, r, s, t, or u of the definition of hazardous waste as defined by Ontario Regulation 347 (General – Waste Management)) which are addressed through risk management plans.

All other waste disposal sites are prohibited in the wellhead protection areas where they are significant drinking water threats for the following reasons:

- The predominant land uses in the wellhead protection areas are not compatible with waste disposal sites.
- Current land designations and zoning do not permit waste disposal sites in the wellhead protection areas.
- Areas exist outside of the wellhead protection areas that are better suited to this land use.
- Waste disposal sites, especially landfills, always generate leachate which could contaminate the aquifer providing water to the supply wells.
- The aquifers underlying the wellhead protection areas were also identified as highly vulnerable.

Revisions were made to proposed land use planning policy 6.2.5-CW in relation to a Ministry of the Environment comment about the following drinking water threats:

- the storage of hazardous and liquid industrial wastes; and

- the storage of hazardous wastes described in clause p, q, r, s, t, or u of the definition of hazardous waste as defined by O. Reg. 347 (General – Waste Management).

The Ministry noted that these two waste categories involving the temporary storage of small quantities of certain wastes where they are generated may be too broad for prohibition via land use planning (i.e. the prohibition of a photofinishing shop versus a traditional waste disposal site). Risk management plans are now used to manage these drinking water threats.

The drinking water threats noted above were also removed from proposed policy 6.2.11-CW since the Ministry of the Environment commented that they are exempt from environmental compliance approvals.

Sewage-related Activities

There are existing sewage-related activities that require an environmental compliance approval or certificate of approval in some of the Wellhead Protection Areas, and they have the potential to become established in all three WHPAs.

The Source Protection Committee is of the opinion that new wastewater treatment facilities/outfalls should not be located in areas where they would be significant threats. The nature of development in the Wellhead Protection Areas does not necessitate their establishment in these vulnerable areas. The originally proposed policy was revised to reflect the Ministry of the Environment pre-consultation comment that the policy should be re-worded to specifically state what types of sewage works are prohibited.

Proposed policy 6.2.5-CW was revised to exclude sanitary sewers and related pipes from the WHPA-A and WHPA-B of the Miller Manor WHPA since their installation will be necessary if the community of Mallorytown decides to install a sanitary sewer system.

Policies 6.2.13-CW, 6.2.14-CW and 6.2.15-CW will ensure that source water protection is considered as part of the anticipated upgrade or replacement of the Cana Sewage Treatment Plant that is located in Cana WHPA-A, if sanitary sewers are proposed in the Miller Manor WHPA-A and WHPA-B, and if large on-site sewage systems (e.g., septic systems) are proposed in any of the three WHPA-A or WHPA-B zones, respectively. Minor revisions were made to policy 6.2.13-CW based on comments received from Utilities Kingston.

The Ministry of the Environment noted that proposed policy 6.2.15-CW did not have a corresponding monitoring policy; subsequently, an addition was made to 6.2.19-CW.

Policy 6.2.17-CW will ensure that any existing large septic systems in WHPA-A and WHPA-B are subject to regular maintenance inspections similar to those systems approved under the Ontario Building Code. The Ministry of the Environment provided input on policy 6.2.17-CW during the consultation process.

Proposed policies 6.2.18-NB and 6.2.21-NB were combined to present all recommendations for the Ministry of the Environment on this topic in one place.

The Ministry also indicated during pre-consultation that it will consider how to implement reporting that would meet the requirements for the monitoring policies of all of the source protection plans in Ontario to streamline implementation.

All proposed policies regarding provincial reporting have been revised to reflect Ministry of the Environment comments requesting that required or recommended reporting is in-line with provincial plans and capabilities. It was suggested that policies about reporting be more outcome based and that detailed requirements be presented instead as recommendations. The changes have been made with the expectation that provincial ministries will report in a manner that is straight-forward and that includes information needed to adequately gauge compliance and effectiveness of the source protection plan.

Agricultural Nutrient-related Activities

There are existing agricultural-related activities in the Lansdowne and Miller Manor WHPA-A and WHPA-B that could require a provincial approval. Otherwise they will be subject to a risk management plan under section 58 of the *Clean Water Act*.

Policy 6.2.21-CW prohibits the approval of NASM plans for the application, handling and storage of non-agricultural source material in WHPA-A and WHPA-B. Detailed analyses and site verification determined that these activities do not have the potential to occur in these areas (e.g., residential areas, shallow soil). The exception is Lansdowne WHPA-B, where these activities may be permitted provided that the land is proven suitable for these activities and appropriate risk management measures are implemented. This exception is consistent with comments made by the Ministry of Agriculture, Food and Rural Affairs during the consultation process.

Policy 6.2.22-CW will ensure that source water protection is considered in the nutrient management strategies and/or plans for existing farms where the application and/or storage of agricultural source material occur. This policy was supported by the Ministry of Agriculture, Food and Rural Affairs during the pre-consultation and consultation processes.

The Ministry also indicated during pre-consultation that it will consider how to implement reporting that would meet the requirements for the monitoring policies of all of the source protection plans in Ontario to streamline implementation. It is our understanding that all of the Assessment Report data and mapping, and the Plan policies will be made accessible to all Ministries by the Ministry of the Environment, to assist them with reporting requirements.

The Ministry of the Environment commented on the proposed policy that part **b.** does not relate to a prescribed instrument; therefore, the legal effect of this portion of the policy should not be “have regard for”. This comment was addressed by splitting the policy (i.e. one for the prescribed instrument portion and another about the recommendation to prioritize the closure plans).

All proposed policies regarding provincial reporting have been revised to reflect Ministry of the Environment comments requesting that required or recommended reporting is in-line with provincial plans and capabilities. It was suggested that policies about reporting be more outcome based and that detailed requirements be presented instead as recommendations. The changes have been made with the expectation that provincial ministries will report in a manner that is straight-forward and that includes information needed to adequately gauge compliance and effectiveness of the source protection plan.

The Ministry of the Environment identified what was believed to a gap in proposed policy to address a significant drinking water threat. It was thought that fuel storage policies did not address, “storage of fuel at bulk plants” where it is a significant drinking water threat. However, it only excludes bulk plants that are above grade since they are not significant drinking water threats. All applicable policy wording has been revised to improve clarity.

Moderate and Low Drinking Water Threats

Moderate and low drinking water threats will be managed using land use planning tools in the vulnerable areas where the activity is a common occurrence, or 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. Minimum thresholds are associated with these threats in most cases (e.g., handling and storage of more than 2,500 litres of liquid fuel).

The activities listed in these policies may be moderate or low drinking water threats in the specified wellhead protection areas. They are generally associated with permitted land uses in these areas. Local stakeholders raised concerns about the potential impact of many of these activities on their drinking water (e.g., public works yards, waste disposal sites) at the community roundtables for the wellhead protection areas.

The Source Protection Committee believes that it is appropriate to ensure that these activities are managed properly such that source water is protected if they are permitted in the future.

During the pre-consultation process, the Ministry of Municipal Affairs and Housing was supportive of the policies that required disclosure reports as part of a complete application under the *Planning Act*. The City of Kingston Legal Department confirmed that there may be circumstances under which activities can be regulated by municipalities under the *Planning Act*.

The intent of these policies is to ensure that appropriate risk management measures are identified and incorporated into the design of development proposed under the *Planning Act*.

During the consultation process, a number of municipalities raised concerns about using the *Planning Act* to regulate activities instead of land uses, and about the logistics of requiring disclosure reports. The policy (6.2.7-HR) was revised to specify the intent, which is that municipalities consider the impact of development on groundwater quality, rather than specifying how to do it. There are various ways by which municipalities can meet the intent of this policy (e.g., by requiring upfront disclosure of activities, site plan control, development agreements, and/or conditional zoning (once enabled by the Province)). The draft policy specific to gas stations was incorporated into policy 6.2.7-HR.

During consultation, the City of Kingston and Township of Leeds and the Thousand Islands suggested that there were inconsistencies between the timelines listed in Appendix C (now Appendix D), particularly the requirements for an immediate implementation timeline. The policies in question had two timelines that did not translate well into Appendix C. The reporting policy was revised so that it only references notices of decisions for applications. The official plan amendment for significant threat policies is required by section 40 of the *Clean Water Act*, and the Source Protection Authority will find out about it through Planning Act notification requirements to the Cataraqui Region Conservation Authority.

As per a supplementary Ministry of the Environment comment on the proposed Plan, the intent of policy 6.2.8-HR has been made clearer through minor policy wording changes and the addition of a preamble. The intent of policy 6.2.8-HR is for the municipalities to employ low impact development techniques to improve stormwater quality and quantity in wellhead protection areas. It is complemented by policy 4.7.4-NB, which encourages the Ministry of the Environment to review and update the *Stormwater Management Planning and Design Manual* (2003) to address treatment requirements for sensitive groundwater areas.

Waste disposal sites, sewage works and agricultural activities involving nutrients may be moderate or low drinking water threats in parts of the wellhead protection areas. They are generally associated with permitted land uses in these areas. At the community roundtables, local stakeholders raised concerns about the potential impact of many of these activities on their drinking water (e.g., marinas and large industry adjacent to surface water intakes).

The Source Protection Committee believes that it is appropriate to ensure that these activities are managed properly such that source water is protected if they are permitted in the future. These activities will be managed using prescribed instruments where applicable.

The Ministry of the Environment indicated during pre-consultation that it does consider the potential impact to the environment when issuing approvals under the *Environmental Protection*

Act and the *Ontario Water Resources Act*. However, the Ministry of the Environment commented on the proposed plan that existing environmental compliance approvals will only be proactively revised to incorporate source water protection risk management measures where significant drinking water threats are concerned. Policy 6.2.18-HR has been revised accordingly.

The Ministry of the Environment also noted that, it will review options for how it can more directly identify the source protection information available for a specific approval application and transparently demonstrate how the information would be incorporated into its decision-making.

As with proposed policy 6.2.11-CW, policy 6.2.12-HR was also revised to remove particular waste drinking water threats (i.e. storage of hazardous and liquid industrial wastes and storage of hazardous wastes described in clause p, q, r, s, t, or u of the definition of hazardous waste as defined by O. Reg. 347 (General – Waste Management) since they are exempt from environmental compliance approvals.

The agriculture-related policies were also supported by the Ministry of Agriculture, Food and Rural Affairs during pre-consultation.

Policy 6.2.16-HR was revised to no longer apply to the renewal and replacement of existing sanitary sewers based on comments received from Utilities Kingston. In Utilities Kingston's opinion, the renewal and replacement of existing sewers will inherently improve groundwater protection.

Transport Pathways

The creation of new transport pathways and the modification of existing transport pathways may change the delineation and vulnerability score of a wellhead protection area. Additional landowners and business owners may become subject to source protection policies as a result of this change.

Subsection 27(3) of Ontario Regulation 287/07 (General) requires municipalities to notify the Cataraqui Source Protection Authority and the Cataraqui Source Protection Committee of any proposals to engage in an activity within a wellhead protection area or intake protection zone that may result in the creation of a new transport pathway or the modification of an existing transport pathway.

The Cataraqui Region Conservation Authority receives applications for similar proposals under Ontario Regulation 148/06 in which the municipality may not have involvement. The intent of this policy is to fill this gap.

There were no comments received about this policy during the consultation process.

9.3 Review of Regulation 903

Policy Number	Topic
6.2.27-NB	Regulation 903 – inspections
6.2.28-NB	Regulation 903 – decommissioning

Properly constructed wells are critical to protecting aquifers from contamination.

The Water Well Sustainability in Ontario, Expert Panel Report (January 30, 2006) that was prepared for the Ontario Ministry of the Environment Sustainable Water Well Initiative communicated that:

- There has been a decline in recent years in the number of inspection staff at the Ministry of the Environment (MOE) to support enforcement and compliance with regulations. There have been no well inspection positions at MOE since 1998. There is one experienced staff member within the branch to handle all incidents related to apparent non-compliance with the regulations, such as licensing violations and issues of substandard construction; and
- Observations made during the Healthy Futures upgrade and decommissioning program audits indicate that lack of enforcement can lead to poor construction practices. Recently upgraded wells or decommissioned wells were observed for adherence to best practices. Best practices were used in 59 of 396 (15 per cent) of well upgrades and 61 of 102 (60 per cent) decommissions. Many contractors who did not adhere to best practices offered lower prices to the client, making the use of poor practitioners favorable to clients.

The Watershed Based Source Protection: Implementation Committee Report to the Minister of the Environment (November 2004) includes the following recommendation:

- Construction of new private wells should be field verified and existing legislation (Regulation 903 under the *Ontario Water Resources Act*) strictly enforced in highly vulnerable areas to ensure they do not become conduits of contamination for the aquifer.
- Permits should be required to construct new wells (this is current practice in Ontario), and those permits should be made conditional on the proper decommissioning of any abandoned wells or wells to be abandoned on the property.

It is necessary to inspect wells during construction since aspects like the annular seal and seating into bedrock are no longer visible when construction is complete.

And finally, the Western Cataraqui Region Groundwater Study (Trow Consulting, 2007) noted that there are about 1,800 unused wells recorded in the Ontario Ministry of the Environment Water Well Records Database, the majority of which are not properly decommissioned. The study also stated that the actual number of unused wells is anticipated to be higher.

The Ministry of the Environment commented on a version of policy 6.2.27-NB during preconsultation and informed the Source Protection Committee of the Ministry's current enforcement strategy as well as an inspection pilot program to audit wells during construction. This input resulted in a revised policy that account for the current strategy and intends to build on the pilot program.

Further comments were provided by the Ministry of the Environment (MOE) on the proposed version of this policy via the Director's letter. It was communicated that six other source protection committees included differing policies in proposed plans about enhancements to the wells program. MOE provided suggested policy wording in an effort to harmonize well program policies to allow for a provincially consistent approach. The Source Protection Committee used the provincially supplied wording, but modified it to ensure that aspects important to the Committee were included such as following through with any changes found to be needed based on the program analysis.

The proposed policy included details about well inspections that is generalized in the final version. The intent of the component of the policy about, "increased MOE field presence with well contractors" was for MOE to attend various sites during different stages of well drilling and abandonment to determine if Regulation 903 – Wells requirements are being properly implemented. If any problems are found, it is expected that MOE will work with the well contractor to resolve any deficiencies so that drinking water sources are protected.

Policy 6.2.28-NB was revised to apply to the wellhead protection areas based on pre-consultation comments received from the Ministry of the Environment that clarified that the *Clean Water Act* does not permit the Source Protection Plan to include policies about transport pathways in the highly vulnerable aquifers and significant groundwater recharge areas.

During consultation, the Ministry recommended that this policy be included in a companion letter to the Ministry instead of in the Plan. The Source Protection Committee continues to promote this policy as an appropriate action to protect municipal sources of drinking water as well as the highly vulnerable aquifers and significant groundwater recharge areas.

9.4 Land Purchasing Strategies

The land in WHPA-A is closest to the supply well and therefore it is most important to ensure that any activities on the land surface do not cause contamination to the underlying aquifer. The City of Kingston, Township of Leeds and the Thousand Islands and the United Counties of

Leeds and Grenville own a portion of land in their respective WHPA-A; however, there may be opportunities to purchase additional lands in the Cana and Lansdowne WHPA-A over time. Direct municipal control over these lands should prevent or manage all of the prescribed drinking water threats, and prevent the establishment of transport pathways.

The strategy may be affordable to prepare, however, there could be significant cost to the municipality to acquire land in WHPA-A.

During the pre-consultation process, the City of Kingston indicated that it has no major concerns with this policy provided that the intent is to acquire vacant lands only. The policy does not specify what considerations must or should be included in the strategy such that each municipality is free to develop its own purchasing criteria.

Staff of the United Counties of Leeds and Grenville suggested that a land purchasing strategy should be considered, but also that a policy prohibiting the development or redevelopment of certain uses in a restricted area may be more acceptable. This is consistent with policies within the wellhead protection area that prohibit the establishment of activities that would be significant drinking water threats.

The policies (6.3.1-CW and 6.4.1-CW) were revised to incorporate the development of a set of criteria for securing those parcels of land deemed necessary to prevent the occurrence of all significant drinking water threats, as requested by the City of Kingston during the consultation process. The reference to a set of criteria makes the policy more complete and provides more direction to the municipality. The implementation timeline was also changed from six months to one year based on comments received from the Township of Leeds and the Thousand Islands.

9.5 Addressing Significant Threats Using Part IV of the Act

The *Clean Water Act* requires that policies be developed for all significant drinking water threats identified in the Assessment Report (June 2011) in order to ensure that source protection committees capture all land-based activities that are or would be significant drinking water threats. The Source Protection Committee considered whether a given significant drinking water threat can be managed, or whether it should be prohibited now and/or in the future. Existing significant threats will be managed, and those activities that would be significant threats if they were to occur in the future are prohibited.

In the Cataraqui Source Protection Area, detailed analyses and site verification were performed for the wellhead protection areas where significant drinking water threats can occur based on their vulnerability scores to determine what activities and land uses have the potential to occur now and in the future.

Policy Number	Topic
6.3.2-CW to 6.3.3-CW, 6.3.4-CW	Risk management plans in Cana WHPA
6.3.5-CW to 6.3.7-CW	Prohibitions in Cana WHPA
6.3.8-CW	Restricted land uses in Cana WHPA
6.4.2-CW to 6.4.5-CW	Risk management plans in Lansdowne WHPA
6.4.6-CW to 6.4.8-CW	Prohibitions in Lansdowne WHPA
6.4.9-CW	Restricted land uses in Lansdowne WHPA
6.5.1-CW to 6.5.4-CW	Risk management plans in Miller Manor WHPA
6.5.5-CW to 6.5.7-CW	Prohibitions in Miller Manor WHPA
6.5.8-CW	Restricted land uses in Miller Manor WHPA

Risk Management Plans

Risk management plans under Part IV of the *Clean Water Act* are used to address existing activities that are significant drinking water threats, and that are not already regulated through a different means such as a municipal by-law or a prescribed instrument. Risk management plans will also be used to manage future activities in some situations.

The majority of risk management plans for existing activities would address the handling and storage of fuel associated with home heating oil. The balance of the risk management plans would address the handling and storage of fuel for private use in vehicles and equipment (e.g., at a farm or public works yard) as well as agriculture related drinking water threats, in the event that the relevant activities are not already regulated through different means such as municipal by-laws and Ontario Regulation 267/03 (General).

The Handling and Storage of Fuel

The Source Protection Committee chose to use the risk management tool to address existing circumstances involving the handling and storage of fuel because there are no regulatory mechanisms that are appropriate to prohibit or manage this activity, and it is the opinion of the Committee that the threat can be adequately managed. The Committee also did not want to create undue hardship for residents and businesses in the wellhead protection areas by prohibiting existing uses.

Currently fuel oil tanks, including those for home heating, are only required to be inspected by the fuel oil distributor once every ten years. Oil storage tanks have been found to leak in a much shorter time frame. Some, but not all, fuel oil distributors are requiring more frequent inspections. The Fuel Oil Burning Code requires the owner of the equipment to have it maintained at least once every year; however, this does not consistently occur since many homeowners are not aware of this requirement.

Risk management plans for home heating oil would require, at minimum, annual inspections by a certified Fuel Oil Burning Appliance Technician, confirmation of the repair and/or replacement of any defective equipment to the satisfaction of the certified Technician, and the implementation of best management practices as appropriate such as the installation of leak detection and spill containment equipment.

The Tables of Drinking Water Threats (Ministry of the Environment, 2009a) specify that below grade fuel storage is a significant drinking water threat, and that above grade storage is a moderate or low threat. However, industry knowledge indicates that outdoor, above grade liquid fuel storage tanks are more likely to leak due to temperature changes, corrosion resulting from condensation, and physical damage due to falling objects. Therefore the risk management plans will not encourage the relocation of below grade storage tanks (i.e., in a basement) to be outside and above grade.

Complementing this policy, policies 4.4.2-CW and 4.4.3-NB (local education and outreach initiatives) will serve to provide landowners with information about how to reduce the potential for leaks and spills from liquid fuel storage regardless of the risk classification in the Tables of Drinking Water Threats.

There are existing fuel pumps at the municipal building in the Lansdowne Wellhead Protection Area that are identified as a significant drinking water threat. In order to ensure that proper maintenance and spill prevention measures are in place a risk management plan is required for the storage and handling of the fuel. Since the fuel pumps are not open to the public they are considered a private fuel outlet and as such are not subject to any inspection requirements through the existing legislation.

The City of Kingston suggested during pre-consultation that risk management plans for fuel should be overseen by the Technical Standards and Safety Authority (TSSA) rather than by the municipality. Also during pre-consultation, TSSA confirmed that the role of risk management official would be outside its current legislated authority, as given by the Ministry of Consumer Services. The TSSA generally does not have the authority to refuse approvals or authorizations where equipment is in compliance with applicable codes and standards. In addition, the *Clean Water Act* has no legal authority over TSSA, which means that the TSSA cannot be bound to change its current role and responsibilities.

Municipalities that do not have the resources to have their own risk management officials to implement the policies made under Part IV of the *Clean Water Act* may enter into agreements to:

- a) Share joint enforcement within their municipalities;
- b) Transfer the enforcement responsibility to another municipality;
- c) Transfer the enforcement responsibility to a board of health, planning board or source protection authority; or
- d) Transfer the enforcement responsibility to the Crown for agreed upon activities.

This is a topic for which affected municipalities will need to discuss options for implementation in order to be prepared to implement the Source Protection Plan.

Complementing the requirement for risk management plans, policies 4.7.5-NB and 4.7.6-NB encourage the Ministry of Consumer Services and the Technical Standards and Safety Authority to review the existing provincial regulations and codes that govern the fuel storage to determine if any other measures are needed to better protect sources of drinking water. The regulations and Codes were enacted in 2001 and a measurement of their effectiveness is not known. A review of the Codes is needed to more effectively protect sources of drinking water. The Ministry of Consumer Services indicated during pre-consultation that it would engage TSSA on the topic of inspection frequency by fuel suppliers. Additional comments were received during consultation.

Agricultural Nutrient-related Activities

The Source Protection Committee chose to use the risk management tool to address existing circumstances involving the following activities where they are not already regulated through municipal by-laws or Ontario Regulation 267/03 (General) under the *Nutrient Management Act*

- the application to land and storage of agricultural source material
- the use of land as livestock grazing or pasturing land, an outdoor confinement area or farm-animal yard.

It is the opinion of the Committee that these threats can be adequately managed. It also did not want to create undue hardship to farmers and businesses in the wellhead protection areas. This approach is consistent with public opinion in the Lansdowne Wellhead Protection Area that current agricultural uses at the Lansdowne Agricultural Fairgrounds must be allowed to continue and that stewardship is already taking place to protect the Lansdowne wells.

It is the opinion of the Ministry that farming operations with significant drinking water threats that are not phased in under the *Nutrient Management Act* (NMA) can have risk management plans that utilize NMA standards and management practices, and offered existing educational material that could be used by the risk management official to negotiate the plans.

The Existing Handling and Storage of DNAPLs and Organic Solvents

Following the consultation process, the Source Protection Committee added a risk management plan policy to address any existing situations involving the handling and storage of dense non-aqueous phase liquids (DNAPLs) and organic solvents that may not have been accounted for in the Assessment Report. Previously, the Plan only contained policies to address the future handling and storage of these types of chemicals.

The Existing and Future Temporary Storage of Small Quantities of Waste

Following provincial review of the proposed Plan additional risk management plan policies were added to address a Ministry of the Environment comment. The policies require that risk management plans be used to manage existing and future storage of hazardous waste at waste disposal sites and storage of wastes at waste disposal sites as described in clauses (p), (q), (r), (s), (t) or (u) of the definition of hazardous in Ontario Regulation 347 (General – Waste Management), as amended.

In most cases, waste disposal sites are regulated directly by the Ministry of the Environment via environmental compliance approvals; however, the short-term storage of some wastes where they are generated is exempt. This means that another method of managing these drinking water threats is necessary.

The intent of this policy is to ensure proper storage of subject the wastes at businesses and facilities that by their nature necessitate this activity (e.g., waste oil at an auto repair shop, liquid waste from a hospital, waste chemicals from photo finishing). It is not intended to be applied to infrequent events such as the cleanup of an accidental spill of waste oil during a do-it-yourself oil change at a private residence.

Prohibitions

It was determined that many of the activities associated with prescribed drinking water threats that must be addressed in the Plan are not feasible in the wellhead protection areas based on the land uses permitted by the municipalities, local development patterns, and the physical characteristics of the areas.

As indicated previously, those activities that would be significant threats if they were to occur in the future are prohibited. Prohibition under section 57 of the *Clean Water Act* is used for those activities that are not waste or sewage-related, and that do not require approval under a prescribed instrument (e.g., environmental compliance approval).

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The intent of the prohibition policies is to protect municipal sources of drinking water from contamination that could result from specific threat activities if they were permitted or if appropriate risk management measures are not put in place. These policies would be effective and appropriate to address the significant threats associated with the identified activities. Activities that could become established in the future are prohibited where the Source Protection Committee is of the opinion that the risk to source water associated with the activity is unacceptable (e.g., gas station in WHPA-A and WHPA-B). The Committee recognizes that there could be an economic impact on particular landowners in these vulnerable areas. However, these policies will benefit not only those residents who obtain their drinking water from the municipal sources, but all of the residents and businesses in the community that draw their drinking water from the same aquifers.

During the pre-consultation process, the Ministry of the Environment supported the use of complementary land use planning policies and prescribed instrument policies to prohibit significant drinking water threats. The Ministry raised concerns about the policies prohibiting the Director from issuing approvals, and recommended that the policies use more direct language that prohibits the activity. This recommendation was incorporated into the policies to the extent possible.

Many of the activities that were prohibited using land use planning in the draft Source Protection Plan are now prohibited using section 57 of the Act; notable exceptions include those that relate to waste and sewage where an environmental compliance approval applies. This approach was chosen to alleviate concerns raised by some municipalities during the pre-consultation and consultation processes about prohibiting entire land uses instead of just the activity that is a significant threat, whether or not certain activities line up with land uses, and federal jurisdiction related to airports.

The activities of interest in the Wellhead Protection Areas relate to the application, storage and management of agricultural source material, commercial fertilizer and pesticides, and the handling and storage of various chemicals.

Generally speaking the future land application and storage of any material listed as a significant drinking water threat are prohibited in WHPA-A and the storage of the materials is prohibited in WHPA-B.

The Source Protection Committee believes that it is unacceptable to apply to land and store large volumes of contaminants in close proximity to the supply wells due to the short time of travel and the thin overlying protective soil layer. In all three locations the aquifer is made of fractured bedrock.

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- Cana Wellhead Protection Area: variable soil depths with some areas having between zero and five metres (Golder Associates, 2009a)
- Lansdowne Wellhead Protection Area: soil depths are between zero and three metres (two metres in the vicinity of the supply wells); both wells have cascading water and casings that are not up to current Ontario Regulation 903 standards (Geofirma Engineering Ltd., 2011)
- Miller Manor Wellhead Protection Area: variable soil depths with some areas having between zero and ten metres (Golder Associates, 2009b). There is 4.8 m of soil at the well and zero metres south of the well.

Thin soil and fractured bedrock means that contaminants can move quickly from the surface to the underlying aquifer, which is the source of drinking water for these communities.

The Committee's reasons are supported by Part Two of the Walkerton Inquiry (O'Connor, 2002b) which noted that although the primary, if not only, source of contamination was manure application in April of 2000, the manure handling, spreading and storage practices were consistent with what are considered best management practices by the Ontario Ministry of Agriculture and Rural Affairs and the farmer cannot be faulted. Although the *Nutrient Management Act* has since been enacted to address setbacks to wells from manure storages and spreading, the regulation does not apply to farms that have yet to be phased in (i.e. farms that generate less than five nutrient units and pastures).

During the pre-consultation process, the Ministry of Agriculture, Food and Rural Affairs indicated that it is supportive of prohibiting agricultural activities (with the exception of pasturing and grazing) in WHPA-A since this is consistent with the requirements under the *Nutrient Management Act*. It is the Ministry's opinion that grazing and pasturing can be managed in these zones using nutrient management practices where the soil depth is greater than 30 cm and where the livestock density is < 1 NU/acre. The Ministry also suggested that agricultural activities can be managed outside of WHPA-A. Similar comments were received during the consultation phase, although the Ministry did concur that there may be situations where prohibition would be warranted (e.g., where there are no agricultural operations and no farmland because the predominant land use is residential). These comments have been considered; however, based on local soil and bedrock characteristics, municipal well conditions, and findings from the Walkerton Inquiry the proposed policies have not been changed.

In terms of the handling and storage of chemicals, the Committee took into consideration that dense non-aqueous phase liquids (DNAPLs) and organic solvents have a high solubility to toxicity ratio and are extremely difficult and sometimes impossible to remediate once an aquifer is contaminated. In addition, it is known that petroleum loss at fuel outlets via spills and leaks is

a common occurrence. One litre of fuel can contaminate one million litres of groundwater (Pollution Probe, 2004).

Restricted Land Uses

The restricted land use policies are made under section 59 of the *Clean Water Act*. This tool is used to flag specific land uses in a given area that are or may be associated with the activities that are prohibited under section 57 of the *Clean Water Act* or that require a risk management plan under section 58 of the *Clean Water Act*. Before making an application under the *Planning Act* or the Ontario Building Code, the proponent would need to receive confirmation from the risk management official that (a) the proposed activity is not prohibited nor requires a risk management plan, or (b) a risk management plan is required, in which case they would need to negotiate and agree to a plan.

Explanatory text was added to the Source Protection Plan to address comments received about the restricted land use policies during the pre-consultation and consultation processes, which were attributed to confusion about the terminology (restricted land use means something different under the *Planning Act*), and a misunderstanding of the *Clean Water Act*.

Proposed restricted land use policies were revised to be inclusive of all drinking water threats listed in related Part IV prohibition and risk management plan policies. The Source Protection Authority plans to work with affected municipalities to develop local screening criteria and maps to streamline application of section restricted land use policies.

9.6 Cana WHPA Specific Policies

Municipalities have a variety of responsibilities related to their operations that directly involve activities that are a threat to drinking water. The Source Protection Plan includes policies that direct the City of Kingston and Utilities Kingston to take action on activities that are significant drinking water threats, and encourages them to also consider other activities around the Cana well that are moderate or low threats.

Policy Number	Topic
6.3.9-CW, 6.3.10-NB	Sewer lateral education and outreach
6.3.11-CW	Wastewater treatment facility standard operating procedures
6.3.12-NB	Local drainage

Sewer Lateral Education and Outreach

According to Utilities Kingston, the sanitary sewer laterals in the Cana Wellhead Protection Area are experiencing an inflow/infiltration of water rather than a loss of sewage to the groundwater. Therefore, the Source Protection Committee determined that an education and outreach program was sufficient to address the risk to source water posed by the sanitary sewer laterals. Sewer laterals are the privately-owned pipes that take sanitary waste from a building to the municipally-owned sanitary sewer.

During the pre-consultation process, Utilities Kingston expressed concern that the sewer laterals are located on private property and that the landowners would need to pay for the cost of any repairs to these sewer lines. The private ownership of the laterals was another reason why the Source Protection Committee revised the policy from a previous version that required the Utility to work with landowners to identify any cracks or misalignments of the pipes and repair them as required.

Wastewater Treatment Facility Standard Operating Procedures

A 2009 assessment by J.L. Richards of the Cana wastewater treatment facility concluded that it was in poor condition. A Municipal Class Environmental Assessment is currently underway to determine the fate of the facility. Drinking water source protection is a topic considered through the Class EA. Policy 6.2.13-CW will ensure that source water protection is considered as part of the required upgrade or replacement of the Cana Sewage Treatment Plant that is located in Cana WHPA-A.

“Sanitary sewers and related pipes” for Cana and Lansdowne wellhead protection areas were added to proposed policy 6.2.13-CW since this was a gap noted by the Ministry of the Environment. Note that this drinking water threat for Miller Manor Wellhead Protection Area is addressed by policy 6.2.14-CW.

The Ministry of the Environment Communal Sewage Report (December 18, 2008) raised concerns about the proximity of the facility’s sewage tanks to the supply well (75 metres), the age of the main tank (more than 30 years old), and that this tank has not been tested for actual or potential leaks.

Policy 6.3.11-CW will ensure that the existing Standard Operating Procedure for this facility is implemented, and that corrective actions will be prioritized and undertaken if problems are observed. The Source Protection Committee chose this approach in consideration for the concerns raised by Utilities Kingston about the alternative, which is to amend the facility’s certificate of approval when it is subject to an ongoing Environmental Assessment.

Local Drainage

There is a ditch located approximately 20 metres south of the Cana Well Supply in WHPA-A, which was identified as a potential transport pathway in the Assessment Report. Cattails grow in the ditch and debris becomes trapped, reducing the ability of the ditch to transmit water freely over time. Blockages in the ditch cause localized ponding so that the surface water has a greater opportunity to soak into the ground and potentially impact the relatively shallow Cana Supply Well and aquifer instead of quickly flowing out of WHPA-A as it would if the ditch was not blocked. The Source Protection Committee believes that it is justifiable to incorporate visual inspection of the swale for blockages that could cause flooding into Utilities Kingston’s routine checks that are dictated by the Standard Operating Procedure to ensure the positive flow of water through this existing ditch is maintained.

9.7 Lansdowne WHPA Specific Policies

Municipalities have a variety of responsibilities related to their operations that directly involve activities that are a threat to drinking water. The Source Protection Plan includes policies that direct the Township of Leeds and the Thousand Islands to take action on activities that are significant drinking water threats, and encourages them to also consider other activities around the Lansdowne wells that are moderate or low threats.

Policy Number	Topic
6.4.10-CW	Sewer evaluation procedures
6.4.11-NB	Lagoon monitoring plan
6.4.12-NB	Local drainage
6.4.13-NB	Maintenance yard water quality monitoring
6.4.14-CW	By-law 06-056

Sewer Evaluation Procedures

The sanitary sewer network that serves the village of Lansdowne is affected by inflow and infiltration of water percolating from the ground surface. It is also possible that the cracks and misalignments of the sewer pipes are allowing sewage to exfiltrate (i.e., leak out) into the surrounding groundwater.

Although the Township of Leeds and the Thousand Islands has applied for funding to address this issue under the Ontario Small Waterworks Assistance Program, the Ministry of Municipal Affairs and Housing noted that the Township has no guarantee that its application for this

funding will be approved or that this funding program will continue in perpetuity, and that the program awards one time payments. The Ministry raised concerns about financial capacity and resources of the Township to fulfill the obligation imposed by this policy.

The policy was revised to reflect the comments received during the consultation process from the Ontario Clean Water Agency (OCWA), through the Township of Leeds and the Thousand Islands. OCWA indicated that the sewers were evaluated using CCTA cameras in 1997 and 2007. Given the relatively new age of the Lansdowne sewers, what they are made of, and the results of past evaluations, inspections more frequent than every ten years would result in unnecessary work and cost to the community, in OCWA's opinion. OCWA has implemented similar camera inspection procedures in other small communities that it serves. It was noted that the sewer system is flushed and visually inspected annually.

Lagoon Monitoring Plan

The Lansdowne Sewage Lagoons are located in WHPA-C and WHPA-D, and while the Source Protection Committee is not aware of a monitoring program to identify any sewage leaks to the subsurface, it believes it is important to ensure the underlying aquifer is protected from any potential leaks. There were no comments received about this policy during the pre-consultation and consultation processes.

Local Drainage

The drainage ditch located approximately 15 metres from Lansdowne Supply Well #2 was identified as a transport pathway in the Assessment Report (June 2011). Drainage is poor in the vicinity of the supply wells, especially around Well #2. The wells are identified as potentially GUDI; consequently wellhead protection area 'E' has been delineated around each of the wells. Note that the wells experience cascading water below well casings that are shorter than specified in Regulation 903 (Wells). Therefore, it is important to ensure that surface water does not collect near the wells. The implementation timeline was changed to three years based on comments received from the Township of Leeds and the Thousand Islands during consultation.

Maintenance Yard Water Quality Monitoring

The municipal road salt storage building that is located in Lansdowne WHPA-B is ranked as a low drinking water threat. According to Township staff the following best management practices are currently implemented at the facility:

- Salt deliveries are made during dry, calm weather whereby salt and sand are dumped outside, and mixed and delivered into the storage building using a conveyor

- All salt storage is in an enclosed building
- Road maintenance vehicles back up to the storage building doors to be loaded
- Loading areas are cleaned up after each storm event.

Public concern about the location of the road salt storage building and its potential impact on the groundwater was raised at the community roundtable in Lansdowne. The participants suggested that:

1. The salt storage should be relocated.
2. There should be more frequent and comprehensive reporting about road salt use and management.
3. The 1990 municipal by-law that was enacted to ensure that fuel, manure and road salt would not be stored in the area in order to protect the Lansdowne supply wells, no longer appears in municipal planning documents.

The water quality monitoring program recommended in this policy is an appropriate first step to determine if the current best management practices are sufficient to protect the underlying aquifer.

The explanatory text for this policy was revised based on comments received from the Township during consultation.

By-law 06-056

Township of Leeds and the Thousand Islands By-law 06-056 regulates manure management in Lansdowne WHPA-A and WHPA-B. The Source Protection Committee believes that this by-law is appropriate and effective to manage the existing activities involving the storage of agricultural source material, which is a significant drinking water threat in WHPA-A and WHPA-B. Some of the policy wording was revised based on comments received from the Ministry of the Environment during consultation.

9.8 Miller Manor WHPA Specific Policy

The Miller Manor Apartments Supply Well is located 12 metres from County Road 2, while the Regulation 903 (Wells) requires a minimum 15 metre separation distance between drilled wells and sources of contamination. Although a Ministry of the Environment guidance document, *Water Supply Wells - Requirements and Best Management Practices* (Ministry of the Environment, 2009b), does not specifically include road salting areas (i.e., roads) in the

definition of “sources of contamination” it does consider road salt storage and sodium is known to migrate from both storages and roads to impact groundwater sources. Sodium concentrations in the raw well water at Miller Manor exceed the 20 mg/L concentration identified as a health objective in the Ontario Drinking Water Standards.

The Source Protection Committee believes an effective mitigation measure to reduce the impact of road salt on the supply well would be for the road authority to inspect the road side ditch in the vicinity of the Miller Manor well and address any grading or culvert placement that may be causing water to pool. This action will reduce the infiltration of runoff and therefore road salt inputs to the groundwater. There were no comments received on policy 6.5.9-NB during the pre-consultation and consultation processes.

10.0 Reasons for Chapter 7 Policies (Intake Protection Zones)

10.1 On-site Sewage System Maintenance

Policy Number	Topic
7.2.1-NB	Maintenance inspection program and complementary education and outreach

The Ontario Building Code requires on-going maintenance of every on-site sewage system (e.g., septic system) and the remediation of unsafe or failing systems. It is the responsibility of Principal Authorities (e.g., municipalities or health units) to enforce the Building Code. Owners/operators are responsible for septic system maintenance.

In addition, the *Building Code Act, 1992* and the Building Code require mandatory maintenance inspections in vulnerable areas where these systems are identified as significant threats to a source of drinking water (e.g., wellhead protection areas A and B). The purpose of the mandatory inspection program is to confirm that on-site sewage systems are functioning properly and to require the remediation of failed and improperly functioning systems so that they do not release untreated sewage to groundwater and surface water. The Act and Code contain provisions that allow the Principal Authority to establish maintenance inspection programs in other parts of the municipality.

The Source Protection Plan encourages the municipalities for the Sydenham, Brockville and James W. King Intake Protection Zones to establish discretionary on-site sewage system

maintenance inspection programs for these areas. The discharge from on-site sewage systems is or would be a moderate drinking water threat in these intake protection zones.

An education and outreach program is important to the successful implementation of any program. Therefore the on-site sewage system maintenance inspection programs described above must be complemented with an awareness campaign to assist landowners to understand the proper operation and maintenance of their on-site sewage systems, and to inform them of the benefits of well-maintained systems. The two policies included in the proposed plan are now combined to present both the inspection program and the related education component. A reporting component was also added to be consistent with its wellhead protection area counterpart. A further revision was made to the proposed policy so that only consideration of discretionary program establishment is to be completed by October 6, 2016 instead of program implementation. This change allows principal authorities to focus on the mandatory programs before taking on additional work.

KFL&A Public Health and the Leeds, Grenville, Lanark and District Health Unit indicated during pre-consultation that they should likely coordinate the inspection programs with municipalities since the health units are generally involved with existing septic maintenance inspection programs. They also indicated that they should be involved in developing the corresponding educational material.

During the consultation process, KFL&A Public Health indicated that it currently has limited funds for programs enhancements, and that it may be advantageous to pursue a regional funding model with start-up funds from the provincial level.

The Township of Elizabethtown-Kitley raised concerns about the financial and other resources that would result from septic system pump outs, the cost of these pump outs (every 3-5 years), the amount of raw sewage to be disposed of due to these tanks being emptied more regularly (as a result of maintenance inspections) that would increase the required treatment at wastewater treatment facilities or lagoons.

10.2 Land Use Planning and Development

Policy Number	Topic
7.2.2-CW to 7.2.3-CW	Municipal approvals under the <i>Planning Act</i>
7.2.4-HR to 7.2.5-CW	
7.2.6-CW, 7.2.7-NB	Municipal reporting

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Policy Number	Topic
7.2.9-CW	Provincial approvals for waste disposal sites
7.2.10-HR	
7.2.11-CW, 7.2.12-HR	Provincial approvals for sewage works
7.2.13-CW, 7.2.14-NB	Provincial reporting
7.2.15-NB	barge spill response
7.2.16-NB	industry spill response
7.2.17-CW, 7.2.18-HR	NASM plans
7.2.19-CW, 7.2.20-HR	Nutrient management
7.2.21-CW, 7.2.22-NB	Provincial reporting
7.2.23-NB	Caged aquaculture
7.2.24-NB	Transport pathways in IPZ

Significant Drinking Water Threats

The *Clean Water Act* requires that policies be developed for all significant drinking water threats identified in the Assessment Report (June 2011) in order to ensure that source protection committees capture all land-based activities that are or would be significant drinking water threats. In some cases the Plan only includes policies addressing future drinking water threats. This is because the Source Protection Committee is confident particular drinking water threats do not occur. The Source Protection Committee considered whether a given significant drinking water threat can be managed, or whether it should be prohibited now and/or in the future. Existing significant threats will be managed, and those activities that would be significant threats if they were to occur in the future are prohibited.

In the Cataraqui Source Protection Area, detailed analyses and site verification were performed for the intake protection zones where significant drinking water threats can occur based on their vulnerability scores to determine what activities and land uses have the potential to occur now and in the future.

Land use planning tools are used to prohibit waste and sewage-related activities that cannot be addressed through prohibition under section 57 of the *Clean Water Act*. New waste and sewage-related activities are generally not permitted in the Intake Protection Zones by their respective municipalities.

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In relation to Ministry of the Environment comments revisions were made remove particular waste drinking water threats from proposed land use planning policy 7.2.2-CW and to add additional circumstances to fill gaps as follows:

- the storage of hazardous and liquid industrial wastes was removed
- land farming of petroleum refining waste, land filling of hazardous waste, land filling of municipal waste and land filling of solid non-hazardous waste were added

The Ministry noted that the storage of hazardous and liquid industrial drinking water threat waste category includes the temporary storage of small quantities of certain wastes where they are generated and that land use planning may be too general to address the drinking water threats as intended (i.e. the prohibition of a photofinishing shop versus a traditional waste disposal site). Risk management plans are now used to manage this drinking water threat.

The Ministry also noted that some specific waste drinking water threat categories were not included in any policy even for areas where they are significant drinking water threats. The reason for not including these threats in the proposed policy is because they do not currently exist, local planning requirements, existing uses and development patterns mean that their establishment is not feasible. However, the *Clean Water Act* requires that every significant drinking water threat be addressed so policies were revised accordingly.

The changes described above were also made to proposed policy 7.2.9-CW since the Ministry of the Environment commented that the storage of hazardous and liquid industrial waste, as included in the Ministry of the Environment Tables of Drinking Water Threats is exempt from environmental compliance approvals and the identified gaps also apply.

The Ministry of the Environment noted other gaps in proposed policy to address significant drinking water threats where the Source Protection Committee has found that policy is not needed:

- The “discharge of untreated stormwater from a stormwater retention pond” drinking water threat was not included in intake protection zones with a vulnerability score of 9 and wellhead protection areas with a score of ten because the specific circumstances (i.e. drainage area and predominant land use) are not met.
- The “application of pesticide to land” drinking water threat was not included in Cana and Miller Manor wellhead protection area B where the vulnerability score is ten or the intake protection zones where the vulnerability score is 9 because the specific circumstances (minimum area) aren’t met for all but the Sydenham Intake Protection Zone where a policy has been added.

Policy 7.3.3-CW now includes the Part IV prohibition of particular pesticide application in intake protection zone 1. It must be noted that the land where the prohibition applies is owned by

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the municipality and it has been confirmed that the applicable pesticides are not used. In fact, the only time pesticide (Roundup Weather Max: potassium salt of glyphosphate) is used is to control wild parsnip in accordance with MOE guidance.

Other identified gaps in proposed policy necessitated revision or additions.

An additional gap related to snow storage on at least 1 ha of land was communicated by the Ministry. Additions were made to Part IV prohibition policies, 7.3.3-CW, 7.4.3-CW and 7.5.3-CW, where this activity does not occur.

Finally, an additional education policy, 7.4.6-CW, was added to address existing significant agricultural activities in the Brockville Intake Protection Zone. The Source Protection Committee determined that education was appropriate to address this significant drinking water threat because the portions of the land parcels included in the intake protection zone currently do not support agriculture, nor are they suitable. The intent of the policy is to make the landowners aware of the intake protection zone and provide information about best management practices to reduce negative impacts of the subject agricultural activities on the source water.

Prescribed instruments are used to prohibit activities that are significant drinking water threats wherever possible (e.g., section 10 of Ontario Regulation 267/03 (General) with respect to nutrient management strategies to address the application and storage of agricultural source material).

During the pre-consultation process, the Ministry of the Environment supported the use of complementary land use planning policies and prescribed instrument policies to prohibit significant drinking water threats. The Ministry raised concerns about the policies prohibiting the Director from issuing approvals, and recommended that the policies use more direct language that prohibits the activity. This recommendation was incorporated into the policies to the extent possible.

The Ministry also indicated during pre-consultation that it will consider how to implement reporting that would meet the requirements for the monitoring policies of all of the source protection plans in Ontario to streamline implementation.

All proposed policies regarding provincial reporting have been revised to reflect Ministry of the Environment comments requesting that required or recommended reporting is in-line with provincial plans and capabilities. It was suggested that policies about reporting be more outcome based and that detailed requirements be presented instead as recommendations. The changes have been made with the expectation that provincial ministries will report in a manner that is straight-forward and that includes information needed to adequately gauge compliance and effectiveness of the source protection plan.

In order to reduce regulatory duplication, prescribed instruments are used to manage existing activities that are significant drinking water threats in circumstances where the activity requires an approval related to legislation included in the *Clean Water Act* (as opposed to risk management plans under section 58 of the Act).

The Township of South Frontenac was supportive of these policies. The City of Kingston Legal Department confirmed that there may be circumstances under which activities can be regulated by municipalities under the *Planning Act*.

Agriculture Nutrient-related Activities

Prescribed instruments are used to manage existing activities that are significant drinking water threats in circumstances where the activity requires an approval related to legislation included in the *Clean Water Act*.

This policy will ensure that source water protection is considered in the nutrient management strategies and/or plans for existing farms where the application and/or storage of agricultural source material occur. These policies were supported by the Ministry of Agriculture, Food and Rural Affairs during pre-consultation.

During the pre-consultation process, the Ministry of Agriculture, Food and Rural Affairs indicated that it is supportive of prohibiting agricultural activities in IPZ 1 since this is consistent with the requirements under the *Nutrient Management Act*. The Ministry suggested that agricultural activities can be managed outside IPZ 2. Similar comments were received during the consultation phase, although the Ministry did concur that there may be situations where prohibition would be warranted (e.g., where there are no agricultural operations and no farmland because the predominant land use is residential).

Moderate and Low Drinking Water Threats

Moderate and low drinking water threats will be managed in the intake protection zones where the activity is a common occurrence, or 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. Minimum thresholds are associated with these threats in most cases (e.g., handling and storage of more than 2,500 litres of liquid fuel).

The activities listed in the policies may be moderate or low drinking water threats in the specified intake protection zones. They are generally associated with permitted land uses in these areas. At the community roundtables, local stakeholders raised concerns about the potential impact of many of these activities on their drinking water (e.g., marinas and large industry adjacent to surface water intakes).

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The Source Protection Committee believes that it is appropriate to ensure that these activities are managed properly such that source water is protected if they are permitted in the future. These activities will be managed using municipal land use planning tools or through prescribed instruments where applicable.

During the pre-consultation process, the Ministry of Municipal Affairs and Housing was supportive of the policies that required disclosure reports as part of a complete application under the *Planning Act*. The Township of South Frontenac was also supportive of these policies. Loyalist Township noted that these policies can easily be incorporated into its planning approvals process. The City of Kingston Legal Department confirmed that there may be circumstances under which activities can be regulated by municipalities under the *Planning Act*.

During the consultation process, a number of municipalities raised concerns about using the *Planning Act* to regulate activities instead of land uses, and about the logistics of requiring disclosure reports. The policies (7.2.4-HR and 7.2.5-HR) were revised to specify the intent, which is that municipalities consider the impact of development on groundwater quality, rather than specifying how to do it. There are various ways by which municipalities can meet the intent of this policy (e.g., by requiring upfront disclosure of activities, site plan control, development agreements, and/or conditional zoning (once enabled by the Province)).

During consultation, the City of Kingston and Township of Leeds and the Thousand Islands suggested that there were inconsistencies between the timelines listed in Appendix C (now Appendix D), particularly the requirements for an immediate implementation timeline. The policies in question had two timelines that did not translate well into Appendix C. The reporting policy was revised so that it only references notices of decisions for applications. The official plan amendment for significant threat policies is required by section 40 of the *Clean Water Act*, and the Source Protection Authority will find out about it through Planning Act notification requirements to the Cataraqui Region Conservation Authority.

During the pre-consultation process, the Ministry of the Environment indicated that it does consider the potential impact to the environment when issuing approvals under the *Environmental Protection Act* and the *Ontario Water Resources Act*. It was further noted that work will be done to review options for how to more directly identify the source protection information available for a specific approval application and transparently demonstrate how the information would be incorporated into its decision-making. However, the Ministry of the Environment commented on the proposed plan that existing environmental compliance approvals will only be proactively revised to incorporate source water protection risk management measures where significant drinking water threats are concerned. Proposed policy 7.2.12-HR was removed from the Plan and 7.2.15-HR was revised accordingly.

As with proposed policy 7.2.9-CW, policy 7.2.10-HR was also revised to remove the storage of hazardous and liquid industrial wastes and storage of hazardous wastes described in clause p, q, r, s, t, or u of the definition of hazardous waste as defined by O. Reg. 347 (General – Waste Management) since it is exempt from environmental compliance approvals.

Similar to policy 6.2.16-HR, Utilities Kingston did not support the application of policy 7.2.14-HR to the renewal and replacement of existing combined sewers. The policy was not revised, since it is the opinion of the Source Protection Committee that the implications of combined sewers, which directly contribute to sources of drinking water, should be considered by the Ministry of the Environment as part of its approval process.

The Ministry of the Environment provided a supplementary comment on proposed policy 7.2.12-HR suggesting removal of combined sewers from the policy since it is not current practice to issue instruments for new or amendments to existing combined sewers under the Guide to Applying for an Environmental Compliance Approval (2011). The guide was reviewed and consideration was given to this comment. It was decided to maintain, “combined sewers” in the policy since the Guide appears to sometimes accommodate extension in some situations and the community highlighted this drinking water threat as an important source protection topic.

Policies 7.2.19-CW and 7.2.20-HR will ensure that source water protection is considered in the nutrient management strategies and/or plans for existing farms where the application and/or storage of agricultural source material occur. These policies were supported by the Ministry of Agriculture, Food and Rural Affairs during the pre-consultation process.

Policy 7.2.25-NB relates to licensing under Ontario Regulation 664/98, which is not a prescribed instrument under the *Clean Water Act*, however, it is the most appropriate method of addressing the drinking water threat associated with caged aquaculture. The Ministry of Natural Resources did not raise concerns about the original wording of this policy during pre-consultation.

Industry Emergency and Spill Response

A discharge or spill, including the transportation of certain substances, which is a local threat, can negatively impact drinking water sources. It is important that agencies that respond to these situations have up-to-date information and procedures that would help improve local response to a spill.

Hauled sewage from the islands and waterfront properties along the St. Lawrence River is transported over the Brockville and James W. King (Gananoque) intakes and through the associated Intake Protection Zones to local marinas or private docks for road transport. This activity also occurs in the Sydenham Intake Protection Zone. As such this activity is a risk to these drinking water sources. The Ministry of the Environment acknowledged policy 7.2.15-NB

during pre-consultation and indicated that it would consider it further as the Source Protection Plan is developed.

There are a number of industries in or near the intake protection zones on Lake Ontario that discharge treated water into this vast source of drinking water. Industry is commended for the protection programs that have been implemented to protect water quality, and is encouraged to continue this work. The intent of policy 7.2.16-NB is to ensure that these industries, as well as the agencies that respond to these situations, have up-to-date information and procedures that would help improve local response to a spill.

During the consultation process, the Ministry recommended that policies about prescribed instruments should refer to the concept of managing the threat with the prescribed instrument, instead of including detailed terms and conditions. The policies were revised accordingly.

Transport Pathways

The creation of new transport pathways and the modification of existing transport pathways may change the delineation and vulnerability score of an intake protection zone. Additional landowners and business owners may become subject to source protection policies as a result of this change.

Subsection 27(3) of Ontario Regulation 287/07 (General) requires municipalities to notify the Cataraqui Source Protection Authority and the Cataraqui Source Protection Committee of any proposals to engage in an activity within an intake protection zone that may result in the creation of a new transport pathway or the modification of an existing transport pathway.

The Cataraqui Region Conservation Authority receives applications for similar proposals under Ontario Regulation 148/06 in which the municipality may not have involvement. The intent of this policy is to fill this gap.

There were no comments received about this policy during the consultation process.

10.3 Stormwater Management Retrofits

Stormwater means runoff from rainwater, roofs, snowmelt and the ground surface. This water picks up pollutants such as sand, oil, fertilizer and bacteria as it flows over the ground and carries them to streams and lakes. This runoff can pose a moderate threat to drinking water that has a surface water source.

Only a small portion of stormwater from established urban areas is treated or adequately managed, meaning that it flows directly from the streets and gutters into local waterbodies.

There are ways to control this runoff in order to avoid flooding and erosion in watercourses, allow for groundwater recharge, provide sediment control, limit nutrient and bacteria loading and reduce the impact of changes on the aquatic environment. The Source Protection Committee recognizes that it is costly to retrofit existing structures to provide stormwater management, and encourages the development of local strategies to effectively address this drinking water threat over the long term as the need arises.

Loyalist Township suggested that the infrastructure should be updated upon failure, in conjunction with other projects or based on age. It is current practice in the Township to require all new developments to treat stormwater runoff. This is also the practice of other municipalities in the Cataraqui Source Protection Area.

10.4 Addressing Significant Threats Using Part IV of the Act

The *Clean Water Act* requires that policies be developed for all significant drinking water threats identified in the Assessment Report (June 2011) in order to ensure that source protection committees capture all land-based activities that are or would be significant drinking water threats. The Source Protection Committee considered whether a given significant drinking water threat can be managed, or whether it should be prohibited now and/or in the future. Existing significant threats will be managed, and those activities that would be significant threats if they were to occur in the future are prohibited.

In the Cataraqui Source Protection Area, detailed analyses and site verification were performed for the intake protection zones where significant drinking water threats can occur based on their vulnerability scores to determine what activities and land uses have the potential to occur now and in the future.

Policy Number	Topic
7.3.1-CW, 7.3.2-CW	Risk management plans in Sydenham IPZ
7.3.3-CW	Prohibitions in Sydenham IPZ
7.3.4-CW	Restricted land uses in Sydenham IPZ
7.4.1-CW, 7.4.2-CW	Risk management plans in Brockville IPZ
7.4.3-CW to 7.4.43-CW	Prohibitions in Brockville IPZ
7.4.5-CW	Restricted land uses in Brockville IPZ
7.5.1-CW, 7.5.2-CW	Risk management plans in James W. King IPZ
7.5.3-CW	Prohibitions in James W. King IPZ

7.5.4-CW	Restricted land uses in James W. King IPZ
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Risk Management Plans

Risk management plans under Part IV of the *Clean Water Act* are used to address existing activities that are significant drinking water threats, and that are not already regulated through a different means such as a municipal by-law or a prescribed instrument.

The majority of risk management plans for existing activities in the intake protection zones would address agriculture and golf course related drinking water threats, in the event that the relevant activities are not already regulated through different means such as municipal by-laws and Ontario Regulation 267/03 (General).

Agriculture Nutrient-related Activities

The Source Protection Committee chose to use the risk management tool to address existing circumstances involving the following activities where they are not already regulated through Ontario Regulation 267/03(General) under the *Nutrient Management Act*

- the application and storage of agricultural source material
- use of land as livestock grazing or pasturing land, an outdoor confinement area or farm-animal yard.

It is the opinion of the Committee that these threats can be adequately managed. It also did not want to create undue hardship to farmers and businesses in the intake protection zones. This approach is consistent with opinions raised at the Sydenham community roundtable. This approach was supported by the Ministry of Agriculture, Food and Rural Affairs.

Pesticide-related Activities

Risk management plans will also be used to manage the application of pesticides (specifically MCPA) to land areas greater than ten hectares. Ontario Regulation 63/09 (Ontario's Cosmetic Pesticides Ban) requires golf courses to be fully accredited by the IPM Council of Canada in order to continue using Class 9 pesticides (including MCPA) in their maintenance operations. The risk management plan may recognize existing pesticide management plans. There were no comments received related to this policy during the pre-consultation and consultation processes.

The Existing and Future Temporary Storage of Small Quantities of Waste

Following provincial review of the proposed Plan additional risk management plan policies were added to address a Ministry of the Environment comment. The policies require that risk

management plans be used to manage existing and future storage of hazardous waste at waste disposal sites.

In most cases, waste disposal sites are regulated directly by the Ministry of the Environment via environmental compliance approvals; however, the short-term storage of some wastes where they are generated is exempt. This means that another method of managing these drinking water threats is necessary.

The intent of this policy is to ensure proper storage of subject the wastes at businesses and facilities that by their nature necessitate this activity (e.g., waste oil at an auto repair shop, liquid waste from a hospital, waste chemicals from photo finishing). It is not intended to be applied to infrequent events such as the cleanup of an accidental spill of waste oil during a do-it-yourself oil change at a private residence.

Prohibitions

It was determined that the activities associated with prescribed drinking water threats that must be addressed in the Plan are not feasible in these vulnerable areas based on the land uses permitted by the municipalities, local development patterns, and the physical characteristics of the areas.

As indicated previously, those activities that would be significant threats if they were to occur in the future are prohibited.

Prohibition under section 57 of the *Clean Water Act* is used for those activities that are not waste or sewage-related, and that do not require approval under a prescribed instrument (e.g., environmental compliance approval).

The intent of the prohibition policies is to protect municipal sources of drinking water from contamination that could result from specific threat activities if they were permitted or if appropriate risk management measures are not put in place. These policies would be effective and appropriate to address the significant threats associated with the identified activities. Activities that could become established in the future are prohibited where the Source Protection Committee is of the opinion that the risk to source water associated with the activity is unacceptable. The Committee does not anticipate that there would be an economic impact on any particular landowners in these vulnerable areas.

During the pre-consultation process, the Ministry of the Environment supported the use of complementary land use planning policies and prescribed instrument policies to prohibit significant drinking water threats. The Ministry raised concerns about the policies prohibiting the Director from issuing approvals, and recommended that the policies use more direct language

that prohibits the activity. This recommendation was incorporated into the policies to the extent possible.

Activities that were prohibited using land use planning in the draft Source Protection Plan are now prohibited using section 57 of the Act, with the exception of those that relate to waste and sewage where an environmental compliance approval applies. This approach was chosen to alleviate concerns raised by some municipalities during the pre-consultation and consultation processes about prohibiting entire land uses instead of just the activity that is a significant threat, whether or not certain activities line up with land uses, and federal jurisdiction related to airports.

Restricted Land Uses

The restricted land use policies are made under section 59 of the *Clean Water Act*. This tool is used to flag specific land uses in a given area that are or may be associated with the activities that are prohibited under section 57 of the *Clean Water Act* or that require a risk management plan under section 58 of the *Clean Water Act*. Before making an application under the *Planning Act* or the Ontario Building Code, the proponent would need to receive confirmation from the risk management official that (a) the proposed activity is not prohibited nor requires a risk management plan, or (b) a risk management plan is required, in which case they would need to negotiate and agree to a plan.

Explanatory text was added to the Source Protection Plan to address comments received about the restricted land use policies during the pre-consultation and consultation processes, which were attributed to confusion about the terminology (restricted land use means something different under the *Planning Act*), and a misunderstanding of the *Clean Water Act*.

Proposed restricted land use policies were revised to be inclusive of all drinking water threats listed in related Part IV prohibition and risk management plan policies. The Source Protection Authority plans to work with affected municipalities to develop local screening criteria and maps to streamline application of section restricted land use policies.

10.5 Sydenham IPZ Specific Policies

Municipalities have a variety of responsibilities related to their operations that directly involve activities that are a threat to drinking water. The Source Protection Plan includes policies that direct the Township of South Frontenac to take action on activities that are significant drinking water threats, and encourages them to also consider other activities around the Sydenham intake that are moderate or low threats.

Policy Number	Topic
7.3.5-HR	Stormwater management
7.3.6-NB	Fertilizer-free buffer zone
7.3.7-CW	Lakeshore capacity assessment

Stormwater Management

Stormwater means runoff from rainwater, roofs, snowmelt and the ground surface. This water picks up pollutants such as sand, oil, fertilizer and bacteria as it flows over the ground and carries them to streams and lakes. This runoff can pose a moderate threat to drinking water that has a surface water source.

In the Sydenham Intake Protection Zone, it would be appropriate to encourage the Township to require “enhanced protection” (i.e., 80% suspended solids removal) through stormwater management due to the characteristics of the receiving waterbody in Sydenham.

There were no comments specific to policy 7.3.5-HR received during the pre-consultation and consultation processes.

Fertilizer-Free Buffer Zone

There are three municipal sports fields adjacent to the water treatment plant in Sydenham IPZ-1, on which commercial fertilizer may be applied. Runoff containing fertilizer can pose a moderate threat to Sydenham’s drinking water. Too much fertilizer (phosphorus in particular) can result in eutrophication and algae blooms which lead to bad-tasting and bad-smelling water.

It is a best practice to maintain a buffer between sports fields and nearby waterbodies so that runoff from the fields is managed before it reaches the waterbody. There will be a cost to Township to prepare a plan and ensure that its private contractors follow it, but action may pay for itself in reduced fertilizer cost.

The Township suggested during consultation that this policy should also include herbicide-free and pesticide-free provisions as well; however, the application of pesticides is prohibited under the *Pesticides Act* (Cosmetic Pesticides Ban).

Lakeshore Capacity Assessment

There are many activities that occur around Sydenham Lake that have the potential to affect its water quality. Discharge from septic systems poses a moderate threat to Sydenham’s drinking water. Runoff from agricultural activities can pose a significant threat.

A lakeshore capacity assessment can provide the Township of South Frontenac with an accurate and quantitative linkage between the level of shoreline development and the level of phosphorus in the lake. It can be used to predict the impacts of development on water quality.

Implementation of the results of an assessment requires collaboration between various stakeholders including the municipality and residents.

This policy has its origin from the community roundtable held in Sydenham in 2011. The lakeshore capacity assessment would require a significant financial and possibly staffing investment on the part of the Township of South Frontenac, as acknowledged in its pre-consultation and consultation comments. The project would likely qualify for funding programs such as those offered by the Trillium Foundation.

10.6 Point Pleasant and Kingston Central IPZ Specific Policies

Policy Number	Topic
7.6.1-NB	Sewage infrastructure
7.6.2-NB	Wolfe Island Ferry spill response

Sewage Infrastructure

The City of Kingston has an adopted pollution control plan and a sewage infrastructure master plan which contain numerous recommendations that would help protect the quality of Kingston’s source of drinking water. The goals of the Sewage Infrastructure Master Plan for the City of Kingston Urban Area (September 2010) include virtual elimination of combined sewer overflows, maximizing the effectiveness of the existing sewer system, providing adequate capacity for growth, prioritizing projects, and providing information to stakeholders. The continued implementation of the master plan would be effective and appropriate for protecting the City’s source of drinking water from the risk associated with discharge from combined sewers. There were no comments about this policy received during the pre-consultation and consultation processes.

Wolfe Island Ferry Spill Response

A discharge or spill, including the transportation of certain substances which is a local threat, can be a significant, moderate or low threat depending on the vulnerable area and circumstance. It is

important that agencies that respond to these situations have up-to-date information and procedures that would help improve local response to a spill.

The Ministry of Transportation acknowledged this policy during pre-consultation, and later suggested revised wording for the policy. The Ministry confirmed that its Shipboard Oil Pollution Emergency Plan was prepared in accordance with the Canadian Pollutant Discharge Reporting Regulations, and is reviewed and updated as required. It suggested a precautionary approach whereby the Ministry will automatically contact the water treatment plants in the event of a spill, regardless of where the spill is located in proximity to the Point Pleasant and Kingston Central Intake Protection Zones. The policy was revised based on these comments.

10.7 Bath IPZ Specific Policies

Policy Number	Topic
7.7.1-HR	Stormwater management
7.7.2-NB	Improvements for local transport pathways and watercourses

Stormwater Management

Stormwater means runoff from rainwater, roofs, snowmelt and the ground surface. This water picks up pollutants such as sand, oil, fertilizer and bacteria as it flows over the ground and carries them to streams and lakes. This runoff can pose a moderate threat to drinking water that has a surface water source.

In the Bath Intake Protection Zone, it would be appropriate to encourage the Township to require “enhanced protection” (i.e., 80% suspended solids removal) through stormwater management due to the existing concerns about sedimentation at the intake.

Loyalist Township indicated during consultation that it is current practice in the Township to require all new developments to treat stormwater runoff.

Improvements for Local Transport Pathways and Watercourses

A number of landowners in the Bath Intake Protection Zone have implemented site-specific management practices to reduce the risk to drinking water that is associated with the activities undertaken on their properties.

Although it is not possible to have significant drinking water threats, as defined in the *Clean Water Act*, in the Bath Intake Protection Zone, Loyalist Township is encouraged to work with property owners in the IPZ to continue to manage or to better manage the risk associated with

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existing activities to better protect the community's source of drinking water. These activities include the application, handling and storage of agricultural source material, non-agricultural source material, commercial fertilizer and pesticides; the outdoor confinement of livestock; and waste disposal sites.

Township staff had raised this concern because high water turbidity during and following storm events is a critical threat to the Township's ability to provide sufficient safe drinking water to residents and other users serviced by the Bath Water Treatment Plant. During the pre-consultation process, Loyalist Township observed that it may be difficult to complete the activities identified in these policies, and that their success would be dependent on the cooperation of property owners. During consultation, they recognized that some residents and business owners took issue with this policy through the discussions held at the March 2012 open house meeting in Bath. The staff suggested that it is important to determine the cause of increased turbidity in the plant's raw water source, and that they are open to discussion with stakeholders regarding the implementation of this policy.

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