



TERMS OF REFERENCE
for the
Mississippi Valley Source Protection Area

Prepared by:
Mississippi-Rideau Source Protection Region
Source Protection Committee

Approved by Ontario's Minister of the Environment
February 5, 2009

Important Note:

This is one of two Terms of Reference for the Mississippi-Rideau Source Protection Region. This document covers the Mississippi Valley watershed (or Mississippi Valley Source Protection Area) and a separate Terms of Reference covers the Rideau Valley watershed (or Rideau Valley Source Protection Area).

These two documents are identical except for the following sections:

- Executive Summary
- Section 3.1 – Mississippi Valley Source Protection Area
- Section 3.2 – Municipalities in the Mississippi Valley Source Protection Area
- Section 4.0 – Drinking Water Systems Included in the Terms of Reference
- Section 6.0 – Work Plan and Budget for Assessment Report
- Section 9.1 – Summary of Financial Statistics
- Section 9.2 – Estimated Costs for Assessment Report Tasks by Fiscal Year

This document was prepared in accordance with Ontario Regulation 287/07 and Provincial Guidance.

Public Consultation:**On Proposed Terms of Reference**

Municipalities and the public were invited to comment on proposed Terms of Reference. Comments received in writing by September 5, 2008 were considered by Ontario's Minister of the Environment when reviewing and approving the proposed Terms of Reference.

On Draft Terms of Reference

Municipalities and the public were invited to comment on draft Terms of Reference. Comments received in writing by June 20, 2008, or at the public open houses listed below, were considered by the Source Protection Committee when preparing the proposed Terms of Reference.

Public open houses on draft Terms of Reference:

Almonte Old Town Hall – June 3
Perth Town Hall – June 4
Carp Fairgrounds – June 9
Smiths Falls Legion – June 10
Urban Ottawa (Michele Heights Community Centre) - June 11

Merrickville Community Centre – June 12
Richmond Fairgrounds – June 16
Carleton Place Town Hall – June 17
Kemptville, Municipal Centre – June 18
Westport Senior's Hall – June 19

For more information please contact:

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Executive Summary

The *Clean Water Act* requires municipalities, conservation authorities and watershed residents to work together to protect sources of drinking water, primarily sources of municipal drinking water. This will be achieved through Source Protection Plans, which will be written locally, approved by the Minister of the Environment and implemented by municipalities, Ministry of the Environment and/or Conservation Authorities.

This document lays out how a Source Protection Plan will be developed for the Mississippi Valley watershed.

It is a two step process: (1) produce an Assessment Report, (2) develop a Source Protection Plan.

Assessment Report – a technical document identifying vulnerable areas and risks to drinking water

- 16 major tasks have been identified to complete the Assessment Report. These tasks are outlined in Table 5 and are contained in the following five categories:
 - Overall Project Management (including staffing and the Source Protection Committee);
 - Communications, Information Management and Public Consultation;
 - Watershed Characterization and Water Budget studies;
 - Groundwater and Surface Water Vulnerability studies; and
 - Threats, Issues and Water Quality Risk Assessment studies.
- Tasks will be managed by Conservation Authority staff on behalf of the 15 local municipalities
- Studies will focus on four municipal drinking water systems:
 - Almonte and Carp, which are groundwater-based;
 - Carleton Place, which is surface water-based; and
 - Village of Lanark (planned future system), which will be groundwater-based.
- Estimated cost for the Assessment Report - \$2,876,570
- Estimated completion date - December 31, 2009

Source Protection Plan – a policy document outlining land use policies and strategies to address risks to drinking water

- 7 major tasks have been identified to complete the Source Protection Plan. These tasks are outlined in Table 6 and are contained in the following four categories:
 - Overall Project Management (including staffing and the Source Protection Committee);
 - Communications, Information Management and Public Consultation;
 - Developing Policies to Address and Monitor Drinking Water Risks; and
 - Establishing Timelines to Implement Policies.
- At this time Conservation Authority staff are prepared to manage tasks, however, municipalities may decide to lead some tasks once they receive further guidance from the province on Source Protection Plans.
- Plan policies will focus on addressing risks around the four municipal drinking water systems
- Estimated cost for the Source Protection Plan - \$1,221,000
- Estimated timeline - begin January 2010, completion by August 20, 2012

While separate Terms of Reference have been developed for the Rideau Valley watershed, a financial summary was prepared for the whole Mississippi-Rideau Source Protection Region:

- Mississippi Valley (Assessment Report + Source Protection Plan) - \$4,097,570
- Rideau Valley (Assessment Report + Source Protection Plan) - \$5,076,553
- Total - \$9,174,123

Other Key Issues Discussed in the Terms of Reference Include:

- Funding for Implementation (Section 2.2)
- Municipal and Public Participation in the Source Protection Planning Process (Section 2.6)
- Financial Assistance for Affected Property Owners (Section 2.7)
- Inclusion of Private Wells, Intakes and Non-Municipal Systems (Section 4.2)

Note: As the Ministry of the Environment provides additional regulations and guidance on Assessment Reports and Source Protection Plans, Terms of Reference may require amendment.

The Source Protection Committee can amend Terms of Reference at any time by submitting a revised version to the Minister of the Environment for approval, subject to the same municipal and public consultation requirements.

1.0 Introduction

The *Clean Water Act, 2006* is a new piece of Provincial legislation that came into effect in 2007. It requires communities to protect current and future sources of municipal drinking water (e.g. lakes, rivers and groundwater aquifers that supply drinking water systems) from overuse and contamination. There are many other pieces of legislation that protect drinking water through testing, treatment and distribution requirements, the *Clean Water Act* is intended to add another layer of protection by protecting the source of drinking water.

Under the Act sources of drinking water will be protected by developing:

- Technical **Assessment Reports** that will identify vulnerable areas and risks to drinking water; and
- **Source Protection Plans** containing land use planning policies and risk reduction strategies.

This Terms of Reference document outlines how an Assessment Report and Source Protection Plan will be produced for the Mississippi Valley watershed (a separate Terms of Reference has been prepared for the Rideau Valley watershed). A **Glossary** is provided at the end of the document.

The **Terms of Reference** is simply a **work plan and budget** identifying:

- The drinking water systems being included in the source protection planning process;
- A list of technical studies and tasks required to identify vulnerable areas and risks to drinking water in these areas (Assessment Report);
- A list of tasks required to develop land use planning policies, risk reduction strategies, and monitoring activities to address risks in vulnerable areas (Source Protection Plan);
- Consultation efforts with municipalities, interested groups and the public on the development and results of the technical and planning documents;
- A list of matters affecting neighbouring watersheds that need to be worked on together;
- Who will coordinate the technical and planning tasks (municipalities, conservation authority staff or a partnership between the two); and
- Cost estimates and a schedule for completing all required tasks.

The **Mississippi-Rideau Source Protection Committee** has adopted the following **Mission Statement** to guide their source protection work:

The objective of the Mississippi-Rideau Source Protection Committee, in partnership with local communities and provincial authorities, is to develop plans and policies to protect the quality and quantity of sources of municipal drinking water within our region. The Mississippi-Rideau Source Protection Committee, in collaboration with Conservation Authorities and other Source Protection Committees, will gather science-based technical knowledge on which informed consensus-based decisions can be made. We will strive to propose policies in an open and consultative manner that are effective, economical and appropriate 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.

As the Ministry of the Environment provides additional regulations and guidance on Assessment Reports and Source Protection Plans, Terms of Reference may require amendment.

The Source Protection Committee can amend Terms of Reference at any time by submitting a revised version to the Minister of the Environment for approval, subject to the same municipal and public consultation requirements.

2.0 Background

2.1 Legislation & Timing

The *Clean Water Act, 2006* is part of the Provincial Government's response to the Walkerton tragedy of 2000. The Act will produce watershed-based source protection plans that rely on science to identify risks to drinking water. The scientific research underway to support these plans employs the precautionary principle.

- *Clean Water Act* and its first 5 regulations came into effect July 2007.
 - These regulations defined Timelines and Source Protection Areas and Regions and provided rules for developing Source Protection Committees and Terms of Reference.
- Source Protection Committee was appointed October 2007.
- **Terms of Reference** must be submitted to the Province for approval by October 20, 2008.
- **Assessment Reports** must be submitted to the Province for approval within one year of Terms of Reference being approved (approximately December 31, 2009).
- **Source Protection Plans** must be submitted to the Province for approval by August 20, 2012.

In 2005 the Ministry of the Environment began funding Conservation Authorities in advance of the *Clean Water Act* to:

- begin some of the necessary background technical reports that would be used in the Assessment Report; and
- begin communications activities to raise peoples awareness and knowledge about impending source protection legislation.

There are still additional regulations to be developed under the *Clean Water Act*, most notably regulations on Assessment Reports and Source Protection Plans. The Province posts all draft regulations on the Environmental Bill of Rights Registry for public consultation.

2.2 Funding

The Provincial Government has committed to pay 100% of the costs to develop Assessment Reports and Source Protection Plans to protect sources of municipal drinking water. This covers both work plans presented in this Terms of Reference. It should be noted that many municipalities have generously contributed a lot of staff time in support of local source protection planning work and these costs are not reflected in the work plans or budgets in this document.

To-date the Province has not committed funding to pay for:

- The inclusion of "other" drinking water systems in the source protection planning process by municipal councils (see section 4.2 for details); or

- Implementing source protection plans, which could be a municipal, MOE and/or conservation authority responsibility (all can be assigned implementation tasks in Source Protection Plans).

Provincial guidance is currently being developed on what “other” systems can be included in this planning process and what the cost implications could be if a municipal council chooses to include some.

Implementation costs cannot be estimated until it is determined how many local drinking water risks there are and what types of policies will be used to address them (policy development is not scheduled to begin until 2010). The Mississippi-Rideau Source Protection Region has repeatedly told MOE that municipalities are very concerned about potential implementation costs they may incur and our region will continue to raise this issue at the provincial level on behalf of our local municipalities.

2.3 Watershed Scope

The *Clean Water Act* has organized the source protection program using watershed boundaries rather than municipal boundaries. This is appropriate when trying to protect drinking water sources because "upstream" threats can easily be located in other municipalities.

Using watershed boundaries the Act established two new geographical terms for the purposes of source protection work:

1. **Source Protection Areas** – individual watersheds subject to the *Clean Water Act*
 - the Act requires that an Assessment Report and Source Protection Plan be prepared for each source protection area.
2. **Source Protection Regions** – two or more watersheds partnered together to jointly administer source protection
 - the creation of Regions allows resources to be shared resulting in financial and administrative savings.

The local result of the Act was the creation of the **Mississippi-Rideau Source Protection Region**, which is the Mississippi Valley Source Protection Area and Rideau Valley Source Protection Area paired together to jointly deliver a source protection program.

2.4 Governance

The *Clean Water Act* created two governance bodies for the purposes of source protection work:

1. **Source Protection Committees**
 - There is one Committee for each Source Protection Region
 - The Committee is made up of local stakeholders representing a wide range of watershed interests
 - The Committee is responsible for overseeing the development of Assessment Reports and Source Protection Plans and ensuring effective municipal and public consultation throughout the process

- **Source Protection Authorities**

- There is one Authority for each Source Protection Area
- The Authority is made up of the existing Conservation Authority Board of Directors
- The Authority is responsible for forming a Source Protection Committee, overseeing the source protection program budget and staff and ensuring that the Committee develops Assessment Reports and Source Protection Plans on time and in accordance with all legislative requirements

The local result of the Act was the creation of the **Mississippi-Rideau Source Protection Committee**. This is a 16 member committee made up of a Chair (appointed by the Minister of the Environment) and 15 local members (jointly appointed by the Mississippi Valley and Rideau Valley Source Protection Authorities). The members represent municipalities, agriculture, small business, aggregates, golf courses, environmental groups, First Nations and general public.

The **Mississippi Valley Source Protection Authority** and **Rideau Valley Source Protection Authority** oversee a small team of conservation authority staff working full-time on source protection planning for both watersheds. These staff takes direction from a Management Committee consisting of senior staff from both Conservation Authorities as well as the Source Protection Committee Chair.

2.5 Protecting Non-Municipal Source Water

The priority of the Act is to protect water sources supplying municipal residential drinking water systems (the large municipal systems that serve towns, villages and cities). These systems must be studied in the Assessment Report and protected in Source Protection Plans.

The Act does allow other types of drinking water systems to be included in the source protection planning process, more details are provided in Section 4.2.

2.6 Municipal and Public Participation

The Mississippi-Rideau Source Protection Committee adopted a **Public Engagement Strategy** in February 2008. This strategy outlines all the ways in which the Mississippi-Rideau region works to ensure effective municipal and public participation in local source protection planning. This strategy is available on our website or by calling the office (see contact information on inside cover).

Municipalities are key partners in source protection planning:

- They own and/or operate the municipal residential drinking water systems which are the focus of this Act;

- They can chose to lead the technical studies or policy development required in their municipality;
- Their councils can include other drinking water systems in the source protection process;
- They could be responsible for implementing parts of source protection plans once they are approved; and
- Source Protection Plans could trigger changes to municipal Official Plans and/or Zoning By-laws.

To date local municipalities have been very involved in the source protection process. They work closely with conservation staff on data collection, technical studies and communications initiatives. Most notably, many municipal staff or representatives sit on one or more of our technical working groups with conservation authority staff to oversee the various technical studies currently underway.

Public participation is also very important throughout the process and will result in better Source Protection Plans. Interested individuals and groups are always strongly encouraged to get involved in the process.

- Between 2005 and 2007 Conservation Authority staff undertook an aggressive public awareness campaign to educate people about the then proposed *Clean Water Act* and its source protection planning process. This campaign involved over 80 presentations to different groups, regular press releases, a variety of articles, updates and a new website. These efforts continue today.
- Both the Source Protection Committee and Conservation Authority staff are committed to timely and transparent sharing of information with interested individuals and the public.
- The Source Protection Committee and Conservation Authorities are committed to soliciting and including relevant local and traditional knowledge from First Nations, various interest groups and the general public.
- The Source Protection Committee and Conservation Authority staff are also committed to ensuring real and effective public consultation on draft reports, studies and plans. All draft technical studies and source protection plans will go through public consultation which will involve public meetings about the document(s) and a formal comment period giving individuals and groups a chance to submit feedback and suggestions for consideration by the Committee.
- Source Protection Committee meetings are open to the public (agendas and minutes are posted on our website at www.mrsourcewater.ca) and people can join a mailing list to receive regular source protection information (e.g. press releases, consultation opportunities, quarterly newsletters).
- Staff are also always available to answer questions or give presentations to interested groups.

2.7 Financial Assistance for Affected Property Owners

While the *Clean Water Act* does not allow compensation to be paid to affected property owners, it has entrenched in law a financial assistance program called the *Ontario Drinking Water Stewardship Program*. This program currently has funding until 2011 to provide grants to undertake early actions close to municipal drinking water systems in advance of approved source protection plans. The Act however, states that the intention of this program is also to *provide* financial assistance

to persons whose activities or properties are affected by the Act. The Mississippi-Rideau Source Protection Committee has been and will continue to pressure the province to fund this program beyond 2011 in order to provide necessary financial assistance to property owners affected by new policies and risk reduction strategies that may result from approved source protection plans.

2.8 Ottawa River Water Budget Study

The largest municipal drinking water system in the Mississippi-Rideau Source Protection Region is in the City of Ottawa. The Britannia Water Purification Plant and the Lemieux Island Water Purification Plant are both located along the Ottawa River within the urban area of Ottawa and together provide water for approximately 700,000 people. The provincial guidance for water budget studies considers the Ottawa River to be an inter-provincial waterway and the necessary technical requirements have yet to be determined. All water budget studies discussed in this Terms of Reference (Section 6.0) exclude the Ottawa River and are focused on the Mississippi Valley and Rideau Valley watersheds. The Mississippi-Rideau Source Protection Committee is currently exploring this issue with the province.

3.0 The Mississippi-Rideau Source Protection Region

The Mississippi-Rideau Source Protection Region was created under the *Clean Water Act* and is made up of the jurisdictional area of the Mississippi Valley Conservation and Rideau Valley Conservation Authorities. This means it encompasses all the land that drains into either the Mississippi River (Mississippi watershed) or the Rideau River (Rideau watershed). This region is located in Eastern Ontario and stretches northeast from Westport and Plevna all the way to the Ottawa River.

The Mississippi-Rideau Source Protection Region is nearly 8,600 square kilometres. It has many large tributaries which flow east and north into the Mississippi and Rideau Rivers, both of which empty into the Ottawa River. The region has 31 municipalities and a resident population of about 865,000 people. Approximately 84% of the population (or 730,000 people) are on municipal water while the remaining 16% (or 135,000 people) rely on private wells or surface water intakes. There are a total of 12 municipal drinking water systems – 7 groundwater and 5 surface water. The groundwater systems serve: Almonte, Carp, Kemptville, Merrickville, Munster Hamlet, Richmond (King's Park) and Westport. The surface water systems serve: Carleton Place, Perth, Smiths Falls and urban Ottawa (2 systems). There is also one planned system for the Village of Lanark which will be a groundwater system.

A map of the Mississippi-Rideau Source Protection Region can be found on page 17.

The Mississippi-Rideau Source Protection Region is also part of the larger Ottawa River watershed. This watershed measures approximately 146,000 square kilometers, 34% of which is in Ontario and the rest is in Quebec. Our region makes up about 6% of the Ottawa River watershed. Under the *Clean Water Act* the Mississippi-Rideau Source Protection Committee can only develop source protection policies within the Mississippi and Rideau watersheds.

A map of the Ottawa River watershed can be found on page 18.

3.1 The Mississippi Valley Source Protection Area

The Mississippi Valley Source Protection Area is defined by the Mississippi Valley watershed boundary and is approximately 4,352 square kilometres. It contains 3 municipal drinking water systems: Almonte and Carp (groundwater) and Carleton Place (surface water). It also contains a new planned groundwater system for the Village of Lanark.

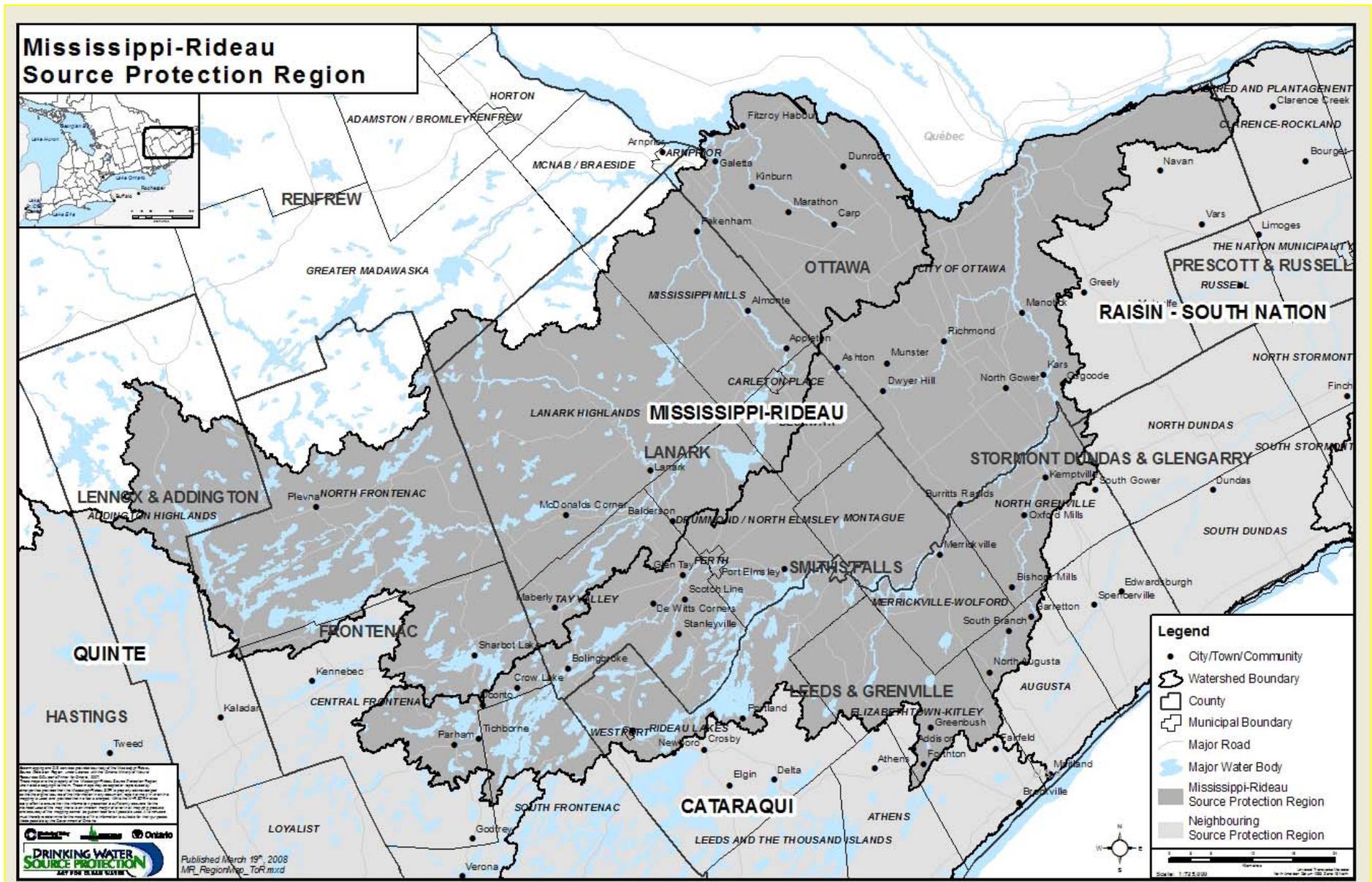
A map of the Mississippi Valley Source Protection Area can be found on page 19.

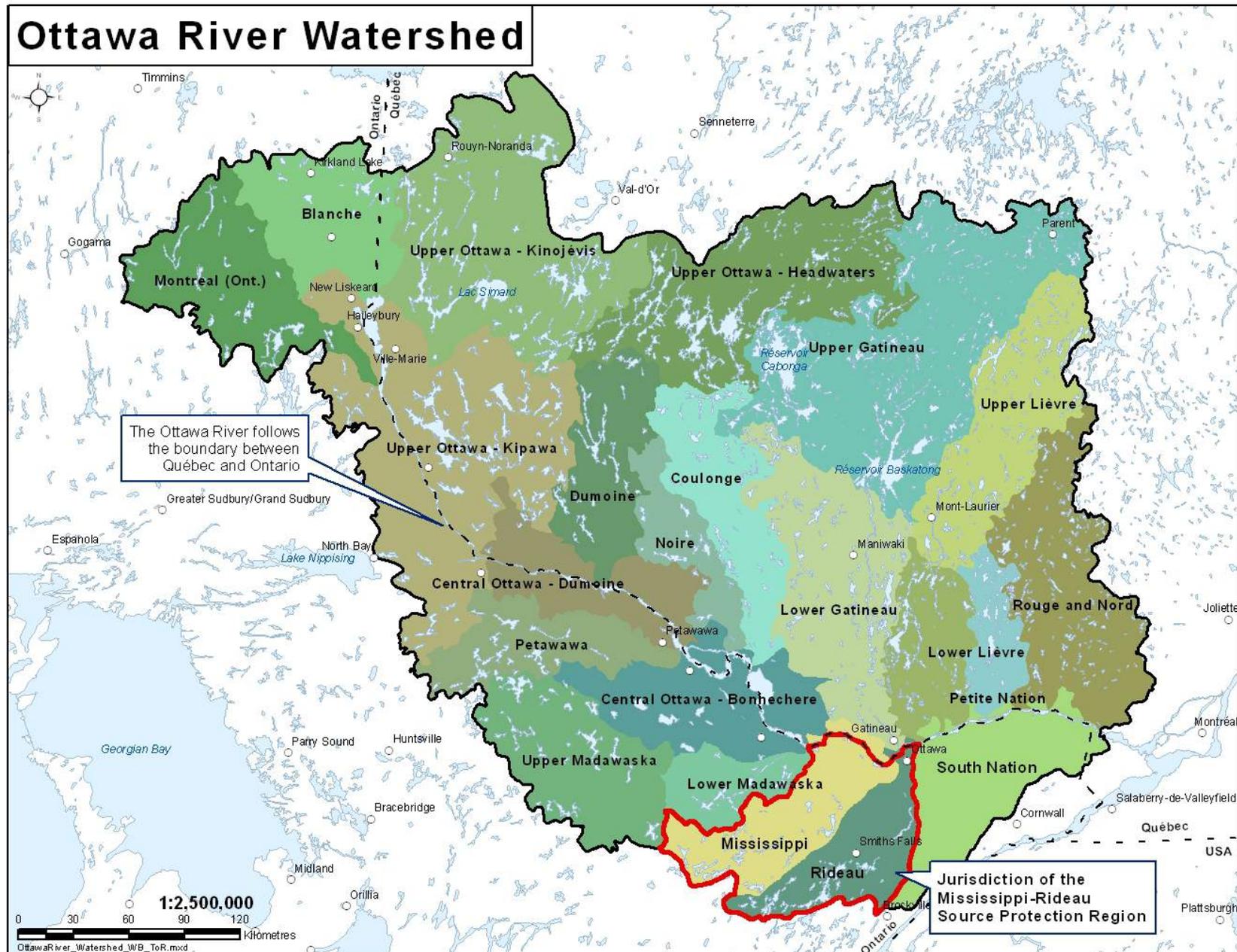
3.2 Municipalities in the Mississippi Valley Source Protection Area

There are a total of 15 municipalities located partially or entirely in the Mississippi Valley Source Protection Area. Below is a complete list of these municipalities, which can be seen on the map on page 19.

Table 1 – Municipalities located in the Mississippi Valley Source Protection Area

Upper / Single Tier	Lower Tier
Frontenac, County of	Central Frontenac Township
	North Frontenac Township
Lanark County	Beckwith Township
	Carleton Place, Town of
	Drummond/North Elmsley, Township of
	Lanark Highlands, Township of
	Mississippi Mills, Town of
Lennox & Addington, County of	Addington Highlands, Township of
Ottawa, City of	
Renfrew, County of	Greater Madawaska, Township of





4.0 Drinking Water Systems Included in the Terms of Reference

4.1 Municipal Residential Drinking Water Systems

(1) Existing Municipal Residential Drinking Water Systems

The *Clean Water Act* requires that all existing municipal residential drinking water systems be included in the source protection planning process. The following table provides information on existing municipal residential systems in the Mississippi Valley Source Protection Area. There are a total of three such systems: one surface water system (Carleton Place) and two groundwater systems (Almonte and Carp).

Table 2 – Existing Municipal Residential Drinking Water Systems in the Mississippi Valley Source Protection Area

Drinking Water System Name	Source Water Type (surface or ground)	Number of Surface Water Intakes	Drinking Water System Number	Owner	Operating Authority
Carleton Place Water Treatment Plant	Surface Water	1	210000372	The Corporation of the Town of Carleton Place	Ontario Clean Water Agency
Comments					
<ul style="list-style-type: none"> • This system serves the Town of Carleton Place • The plant was constructed in 1914 • It receives its water from the Mississippi River • The system serves a population of 9,453 people (in 2006) 					
Drinking Water System Name	Source Water Type (surface or ground)	Number of Groundwater Wells	Drinking Water System Number	Owner	Operating Authority
Mississippi Mills Well Supply	Groundwater	5	200001290	The Corporation of the Town of Mississippi Mills	Ontario Clean Water Agency
Comments					
<ul style="list-style-type: none"> • This system serves Almonte • The groundwater supply wells were established between 1948 and 1991 • The system serves a population of 4,659 people (in 2006) 					

Drinking Water System Name	Source Water Type (surface or ground)	Number of Groundwater Wells	Drinking Water System Number	Owner	Operating Authority
Carp Well Supply	Groundwater	2	210002272	City of Ottawa	City of Ottawa
Comments					
<ul style="list-style-type: none">• This system serves the Village of Carp• The groundwater supply wells were established between 1986 and 1994• The system serves a population of 1,434 people (in 2005)					

(2) Planned Municipal Residential Drinking Water Systems

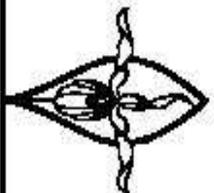
The *Clean Water Act* requires that all planned municipal residential drinking water systems be included in the source protection planning process. The following table provides information on planned municipal residential systems in the Mississippi Valley Source Protection Area. There is a total of one such system, a future groundwater system in the Village of Lanark.

Table 3 – Planned Municipal Residential Drinking Water Systems in the Mississippi Valley Source Protection Area

Drinking Water System Name	Source Water Type (surface or ground)	Number of Groundwater Wells	Drinking Water System Number	Owner	Operating Authority
Village of Lanark	Groundwater	n/a	n/a	n/a	n/a
Comments					
<ul style="list-style-type: none"> • This planned system will serve the village of Lanark • It is in the final stages of the environmental assessment process (as of April 2008 a Phase 4 Environmental Study Report had been submitted to the Ministry of the Environment and other agencies for comment and final approval). • Phases 1 through 3 of the Environmental Study identified a ground water source as the preferred servicing alternative and it was confirmed through a series of hydrogeological studies. At the completion of Phase 3, there were no outstanding questions or comments that needed to be addressed with respect to potable water. • The Council of Lanark Highlands passed a council resolution (attached on next page) requesting that their planned system be included in the source protection planning process with full funding from the province. 					

(3) Exempted Municipal Residential Drinking Water Systems

The *Clean Water Act* allows municipal residential drinking water systems that will be partially or entirely taken off-line within the next five years to be fully or partially exempted from the source protection planning process. Municipalities have been asked to identify any such systems through a council resolution. To-date no municipal systems have been exempted in the Mississippi Valley Source Protection Area.



The Corporation of
THE TOWNSHIP OF LANARK HIGHLANDS

Planned System for Source Protection Planning

Motion #2008-04-108

Moved by B Horlin

Seconded by T Lalonde

WHEREAS the Township of Lanark Highlands is in the final stages of completing a Municipal Class EA process for a new groundwater-based municipal drinking water system for the Village of Lanark;

AND WHEREAS the Mississippi-Rideau Source Protection Committee is now in the process of preparing the Terms of Reference document for Source Protection Planning; **AND WHEREAS** the province will provide full funding to complete the necessary source protection technical and planning studies for the Village of Lanark planned groundwater-based municipal drinking water system.;

THEREFORE BE IT RESOLVED THAT the Council of Lanark Highlands affirms that the Village of Lanark groundwater-based municipal drinking water system be included as a planned system for source protection planning and that all necessary technical and planning studies be undertaken with full funding from the province. **CARRIED**

Certified true copy, April 15 2008

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4.2 Other Drinking Water Systems

(1) Other Systems Included by Municipal Councils

The *Clean Water Act* allows municipal councils to pass resolutions requiring "other" types of drinking water systems to be included in source protection planning. These other systems include: (a) clusters of six or more private wells and intakes, and (b) those systems that supply public and private facilities such as schools, community centres and trailer parks. In the Mississippi-Rideau Source Protection Region there are many clusters of private wells and intakes that could potentially be included. There are also approximately 600 public and private facilities designated under the *Safe Drinking Water Act, 2002* that could be included. **Appendix 1** provides a summary of these facilities. To-date no municipal council resolutions have been passed in the Mississippi Valley Source Protection Area to include any such systems in source protection planning.

The Ministry of the Environment is currently developing guidance for municipalities about what systems they could consider including and what the potential implications could be for municipalities (e.g. financial costs, legal liability). The Ministry has strongly advised municipalities to wait until they have received this guidance before making a decision. Terms of Reference can be amended at any time to include new systems subject to the same municipal and public consultation requirements.

(2) Other Systems Included by the Minister of the Environment

The *Clean Water Act* also allows the Minister of the Environment to include "other" types of drinking water systems (as defined above in section 1) in the source protection planning process. To date the Minister has not included any other systems in the Mississippi Valley Source Protection Area.

(3) Other Systems Included by First Nations Band Councils

The *Clean Water Act* allows First Nations band councils to pass a resolution requiring non-municipal drinking water systems serving reserves to be included in the source protection planning process. There are currently no reserves, as defined under the Federal *Indian Act*, in the Mississippi Valley Source Protection Area.

5.0 Matters Affecting Neighbouring Source Protection Committees

The map on page 17 shows that the Mississippi-Rideau Source Protection Region is bordered by:

- the Cataraqui Source Protection Area (to the south);
- the Quinte Source Protection Region (to the west); and
- the Raisin-South Nation Source Protection Region (to the east).

The following list, developed in cooperation with our neighbouring regions, is a list of matters that the four Eastern Ontario Source Protection Committees are committed to working together on throughout the source protection planning process.

(1) Shared Municipalities

Several of the municipalities in the Mississippi-Rideau region extend into adjacent source protection areas/regions. It is important that neighbouring Source Protection Committees always think in terms of whole municipalities by continuing to work together to coordinate their communications initiatives, information management, technical assessment work and source protection planning work within these shared municipalities.

(2) Coordinated Approach to Developing Source Protection Plan Policies

Eastern Ontario Source Protection Committees must work with one another (and others across Ontario) to develop consistent Source Protection Plan policies as much as possible. They will work together to assess the costs and benefits of various policy alternatives for addressing a risk and they will share draft policies in an effort to develop clearer more consistent Source Protection Plans. Consistency among plans will make it easier for shared municipalities that fall into more than one source protection area/region to implement plans across their whole municipality.

(3) Information Management

Neighbouring Source Protection Committees in Eastern Ontario will look at how source protection information is being organized and stored by those municipalities and source protection authorities who are undertaking assessment and planning work. They will assess how this information will be shared with others in the community and develop shared protocols that will ensure easy sharing and comparison of information across watershed boundaries.

(4) Regional Groundwater Flow, Significant Groundwater Recharge Areas, and Vulnerability Mapping

Neighbouring source protection committees will discuss technical findings and policy recommendations regarding groundwater to determine if groundwater resources in Eastern Ontario flow between watersheds. If they do then the protection of one aquifer will be of common interest to two or more source protection committees. Significant groundwater recharge areas are being identified as part of the Assessment Reports in each source protection area. It will be helpful to compare mapping of these features across watershed boundaries to eliminate discrepancies or document a rationale for their existence. Since much of the groundwater in the Mississippi-Rideau is considered highly vulnerable to

contamination from the surface, Source Protection Committees in Eastern Ontario (who share this condition) will look at how such aquifers are delineated and protected.

(5) Coordinated Approach to Technical Studies on the Ottawa River

The Mississippi-Rideau Source Protection Region shares the Ottawa River as a source of drinking water with municipalities in the Raisin-South Nation Source Protection Region and the Province of Quebec. Both source protection regions are working together with regards to technical studies taking place on the Ottawa River as well as developing an Ontario-Quebec dialogue to discuss source protection.

(6) Sharing of Information with Agencies Responsible for Emergency Response on the Ottawa River

The entire Mississippi-Rideau region drains into the Ottawa River upstream of the Raisin-South Nation Source Protection Region. Therefore, contamination spills in the Mississippi-Rideau could pose a risk to municipalities who draw their drinking water from the Ottawa River downstream in the Raisin-South Nation region. These two Source Protection Committees will transfer their technical knowledge about surface water vulnerability studies to municipalities and other authorities who are responsible for emergency response.

6.0 Work Plan and Budget for Assessment Report

A total of 16 tasks have been identified to produce an Assessment Report for the Mississippi Valley watershed. Some of these tasks are unique to the Mississippi watershed (M9-M11, M13, M14 and M16) while many are common to the Rideau Valley watershed (M1-M8, M12 and M15, also identified as tasks R1-R8, R12 and R16 in the Terms of Reference for the Rideau Valley Source Protection Area). The costs of the common tasks are split evenly between the two watersheds.

(1) Summary of Work Plan for Assessment Report

Table 4 provides a summary of the major tasks involved in preparing an Assessment Report for the Mississippi Valley Source Protection Area. Each major task applies to either the entire Mississippi Valley Source Protection Area (the whole watershed) or a particular area within the watershed (e.g. around a municipal drinking water system). The geographical scope of each task is identified in the last column of the table.

Table 4 – Summary of Work Plan for Assessment Report in the Mississippi Valley Source Protection Area

General Task Description	Task #	Task Name	Geographic Area of Task
Overall Assessment Report Preparation	M1	Program Management, Staffing and Source Protection Committee	Mississippi Valley Watershed
	M2	Communications	
	M3	Information Management	
	M4	Public Consultation on the draft Assessment Report	
Watershed Characterization	M5	Watershed Characterization Study	

General Task Description	Task #	Task Name	Geographic Area of Task
Water Budget	M6	Conceptual Water Budget Study	Mississippi Valley Watershed
	M7	Tier 1 Water Budget Analysis and Stress Assessment Study	
	M8	Tier 2 Water Budget Analysis and Stress Assessment Study	Areas around selected municipal systems based on results of Tier 1 water budget
Groundwater Vulnerability	M9	Almonte Groundwater Vulnerability Study	Area around Almonte's municipal wells
	M10	Carp Groundwater Vulnerability Study	Area around Carp's municipal wells
	M11	Village of Lanark Groundwater Vulnerability Study	Area around Village of Lanark's future municipal wells
	M12	Aquifer Vulnerability Study	Mississippi Valley Watershed
Surface Water Vulnerability	M13	Carleton Place Surface Water Vulnerability Study	Area around and upstream of the Carleton Place municipal intake

General Task Description	Task #	Task Name	Geographic Area of Task
Threats, Issues and Water Quality Risk Assessment	M14	Threats Inventory, Issues Evaluation and Tier 1 Water Quality Risk Assessment Study – Wellhead Protection Areas and Intake Protection Zones	Area around the municipal drinking water systems looked at under the vulnerability studies
	M15	Threats Inventory, Issues Evaluation and Tier 1 Water Quality Risk Assessment Study for Highly Vulnerable Aquifers and Significant Groundwater Recharge Areas	Areas defined as Highly Vulnerable Aquifers and Significant Groundwater Recharge Areas in the Mississippi Valley Watershed
	M16	Tier 2 Water Quality Risk Assessment Study for Wellhead Protection Areas and Intake Protection Zones	Select areas around the municipal drinking water systems looked at under the vulnerability studies

(2) Detailed Work Plan for Assessment Report

Table 5 provides a more detailed work plan for the Assessment Report. It includes a description of each major task listed in the summary above as well as identification of task lead, timeline, geographic area and estimated cost.

All Assessment Report tasks in the Mississippi Valley Source Protection Area are being *led* by source water staff from the Mississippi Valley and Rideau Valley Conservation Authorities (CA staff). Many of the tasks are also being *completed* by CA staff, including some technical studies. All of this staff time is captured under task M1.

Some Assessment Report tasks were started back in 2005 when the Ministry of the Environment began funding conservation authorities to start some of the necessary background technical reports in advance of the *Clean Water Act* and regulations. Since 2005 Assessment Report tasks have been done in accordance with guidance modules issued by the Ministry of the Environment. These modules can be found on the Ministry's website at <http://www.ene.gov.on.ca/en/water/cleanwater/cwa-guidance.php>. The Ministry is currently developing an Assessment Report regulation, Director's rules and guidance that will replace these modules. Until the Regulation, rules and guidance

is approved, none of the Assessment Report tasks can be finalized as minor changes may need to be undertaken to be in compliance with final requirements.

Estimated costs include actual costs incurred to date (since 2005) as well as estimated costs for future work. All costs shown are for the Mississippi Valley Source Protection Area only. There is a summary of costs for the entire Mississippi-Rideau Source Protection Region in section 9.4.

Table 5 – Detailed Work Plan for Assessment Report in the Mississippi Valley Source Protection Area

Task #	Task Description	Geographic Area	Assigned Lead	Estimated Timeline	Estimated Cost
M1	<p>Program Management, Staffing and Source Protection Committee</p> <ul style="list-style-type: none"> Overall source protection program functions to complete an Assessment Report (staffing, overhead, administration, management support and training) Operate and support the source protection committee. <p>The cost shown here includes a significant amount of staff time that was used to complete technical study components of the Assessment Report in-house rather than hiring consultants.</p>	Mississippi Valley watershed	CA staff	Jan 1, 2005 to Dec 31, 2009	\$1,695,179
M2	<p>Communications</p> <ul style="list-style-type: none"> Raise public awareness about the Assessment Report process and the work being done locally Engage municipalities, interested and affected groups and the general public in the preparation process. 	Mississippi Valley watershed	CA staff	Apr 1, 2005 to Dec 31, 2009	\$71,747
M3	<p>Information Management</p> <ul style="list-style-type: none"> Overall management and coordination of data, data sharing agreements, standards, mapping, software and maintenance. 	Mississippi Valley watershed	CA staff	Apr 1, 2005 to Dec 31, 2009	\$84,577
M4	<p>Public Consultation on the Draft Assessment Report</p> <ul style="list-style-type: none"> Coordinate and facilitate effective public consultation on draft Assessment Report (in compliance with all legislative requirements and timelines). 	Mississippi Valley watershed	CA staff	Jan 1, 2009 to Dec 31, 2009	\$35,000

Task #	Task Description	Geographic Area	Assigned Lead	Estimated Timeline	Estimated Cost
M5	<p>Watershed Characterization Study</p> <ul style="list-style-type: none"> Identify and describe subwatersheds in the source protection area and compile existing information on watershed characteristics (such as water quality, surficial geology, rainfall patterns, etc), vulnerable areas, threats, issues and concerns. <p>Most of the cost for this task is captured in task M1 as CA staff are preparing the Watershed Characterization Report. The cost shown here is for assistance from engineering consultants and peer review.</p>	Mississippi Valley watershed	CA staff	Apr 1, 2005 To Dec 31, 2009	\$39,368
M6	<p>Conceptual Water Budget Study</p> <ul style="list-style-type: none"> Describe the overall flow system dynamics in the source protection area, taking into consideration surface water and groundwater features, land cover, human-made structures and water takings. <p>Most of the cost for this task is captured in task M1 because CA staff prepared the Conceptual Water Budget Report. The cost shown here is for assistance from engineering consultants and peer review.</p>	Mississippi Valley watershed	CA staff	Apr 1, 2005 to Dec 31, 2009	\$209,364
M7	<p>Tier 1 Water Budget Analysis and Stress Assessment Study</p> <ul style="list-style-type: none"> Conduct a more detailed water budget (monthly-subwatershed scale), building on the Conceptual Water Budget Report. Undertake a stress assessment Map significant groundwater recharge areas. <p>This study is being done by engineering consultants with assistance from CA staff. CA staff time is captured under task M1, the cost shown here is for engineering consultants and peer review</p>	Mississippi Valley watershed	CA staff	Mar 31, 2007 to Dec 31, 2009	\$157,816

Task #	Task Description	Geographic Area	Assigned Lead	Estimated Timeline	Estimated Cost
M8	<p>Tier 2 Water Budget Analysis and Stress Assessment Study</p> <ul style="list-style-type: none"> The results of the tier 1 water budget analysis and stress assessment will dictate whether or not a tier 2 water budget analysis and stress assessment is necessary for the Mississippi Valley Source Protection Area. Tier 2 would also refine the mapping of significant groundwater recharge areas. <p>If a Tier 2 study is required a detailed scope of work will be prepared. The cost shown here is only an estimate and may not be required at all (the cost is for engineering consultants who would do the study).</p>	Areas around select municipal systems based on results of Tier 1 water budget	CA staff	Oct 1, 2008 to Dec 31, 2009	\$37,500
M9	<p>Almonte Groundwater Vulnerability Study</p> <ul style="list-style-type: none"> Map the location of the vulnerable areas around the Almonte municipal drinking water system (a wellhead protection study was already completed in 2003 so this study updated it in 2007/2008) Determine vulnerability scores within these areas. <p>This study is being done by engineering consultants and managed by CA staff. CA staff time is captured under task M1, the cost shown here is for the engineering consultants and peer review.</p>	Area around Almonte municipal wells	CA staff	Sept 1, 2006 to Dec 31, 2009	\$25,175
M10	<p>Carp Groundwater Vulnerability Study</p> <ul style="list-style-type: none"> Map the location of the vulnerable areas around the Carp municipal drinking water system (a wellhead protection study was already completed in 2003 so this study updated it in 2007/2008) Determine vulnerability scores within these areas. <p>This study is being done by engineering consultants and managed by CA staff. CA staff time is captured under task M1, the cost shown here is for the engineering consultants and peer review.</p>	Area around Carp municipal wells	CA staff	Jun 1, 2007 to Dec 31, 2009	\$13,965

Task #	Task Description	Geographic Area	Assigned Lead	Estimated Timeline	Estimated Cost
M11	<p>Village of Lanark Groundwater Vulnerability Study</p> <ul style="list-style-type: none"> Map the location of the vulnerable areas around the planned Village of Lanark municipal drinking water system Determine vulnerability scores within these areas. <p>This study will be done by engineering consultants and managed by CA staff. CA staff time is captured under task M1, the cost shown here is for the engineering consultants and peer review.</p>	Area around Village of Lanark future municipal wells	CA staff	Jun 1, 2008 to Dec 31, 2009	\$113,500
M12	<p>Aquifer Vulnerability Study</p> <ul style="list-style-type: none"> Map where groundwater aquifers are highly vulnerable to surface contamination Determine vulnerability scores within these areas. A regional groundwater study was undertaken in 2003 and is currently being reviewed. <p>The cost shown here is for engineering consultants to review the original study and determine if it is sufficient or needs to be revised.</p>	Mississippi Valley Watershed	CA staff	Jan 1, 2007 to Dec 31, 2009	\$9,095
M13	<p>Carleton Place Surface Water Vulnerability Study</p> <ul style="list-style-type: none"> Map the location of the vulnerable areas around and upstream of the Carleton Place municipal drinking water system Determine vulnerability scores within these areas. <p>This study is being done by engineering consultants and managed by CA staff. CA staff time is captured under task M1, the cost shown here is for aerial photography, the engineering consultants and peer review.</p>	Area around and upstream of Carleton Place municipal intake	CA staff	Mar 31, 2006 to Dec 31, 2009	\$91,985

Task #	Task Description	Geographic Area	Assigned Lead	Estimated Timeline	Estimated Cost
M14	<p>Threats Inventory, Issues Evaluation and Tier 1 Water Quality Risk Assessment Study – inside Wellhead Protection Areas and Intake Protection Zones</p> <p>Inside wellhead protection areas and intake protection zones:</p> <ul style="list-style-type: none"> • Inventory potential sources of contamination (threats) and identify known water quality issues. • Calculate the water quality risk posed by these threats and issues, do an uncertainty analysis, and identify any significant, moderate, low, and negligible drinking water risks. • Determine the origin of known water quality issues (issues evaluation) and analyze the uncertainty of the risk assessment. <p>This study is being done by engineering consultants and managed by CA staff. CA staff time is captured under task M1, the cost shown here is for the engineering consultants.</p>	Area around the municipal drinking water systems listed under the vulnerability studies	CA staff	Apr 1, 2007 to Dec 31, 2009	\$202,300
M15	<p>Threats Inventory, Issues Evaluation and Tier 1 Water Quality Risk Assessment Study – in Highly Vulnerable Aquifers and Significant Groundwater Recharge Areas</p> <p>Inside highly vulnerable aquifers and significant groundwater recharge areas:</p> <ul style="list-style-type: none"> • Inventory potential sources of contamination (threats) and identify known water quality issues. • Determine the origin of known water quality issues (issues evaluation). <p>This study is being done entirely by CA staff, therefore no cost is shown here because CA staff time is captured under task M1.</p>	Areas defined as Highly Vulnerable Aquifers and Significant Groundwater Recharge Areas	CA staff	Oct 1, 2007 to Dec 31, 2009	\$0

Task #	Task Description	Geographic Area	Assigned Lead	Estimated Timeline	Estimated Cost
M16	<p>Tier 2 Water Quality Risk Assessment Study – in Wellhead Protection Areas and Intake Protection Zones</p> <ul style="list-style-type: none"> Where required, conduct follow-up work to confirm significant drinking water threats identified in the Tier 1 Water Quality Risk Assessment. <p>A detailed scope of work will be prepared for this task once task M14 (Tier 1) is complete.</p>	<p>Select area around the municipal drinking water systems listed under the vulnerability studies</p>	<p>CA staff</p>	<p>Mar 31, 2009 to Dec 31, 2010</p>	<p>\$90,000</p>

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7.0 Work Plan and Budget for Source Protection Plan

Table 6 provides a detailed work plan for the Source Protection Plan. It includes a description of each major task, as well as the identification of task lead, timeline, geographic area and estimated cost. At this time a common set of seven tasks have been developed to produce source protection plans for the Mississippi Valley and Rideau Valley watersheds. Therefore, tasks MR1 through MR7 are repeated in the Rideau Valley Source Protection Area Terms of Reference, all costs are split evenly between the two watersheds.

There are still many unknowns about how Source Protection Plans will be prepared and what they will contain. The Ministry of the Environment is developing a Source Protection Plan Regulation, Director's Rules and guidance which will provide these necessary details. At this time the Mississippi-Rideau Source Protection Committee is shown as the lead for all Source Protection Plan tasks. The *Clean Water Act* allows municipal councils to pass a resolution to undertake source protection plan tasks within their municipality. To date no such resolutions have been received from the municipalities in the Mississippi Valley Source Protection Area, however, it is understood that municipalities are waiting to see the Regulation, rules and guidance from the Ministry before making this decision. Terms of Reference can be amended at any time to change a task lead subject to the same municipal and public consultation requirements.

Once further details are available from the Ministry this work plan can be refined. For now all tasks are identified as watershed wide tasks. Future guidance could specify that some tasks only be undertaken within specific areas of a source protection area (e.g. wellhead protection areas or highly vulnerable aquifers).

Estimated costs were determined using the assumption that developing a Source Protection Plan will require the same level of effort as developing an Assessment Report. Slight cost adjustments (e.g. cost of living increase) were taken into consideration. It is also assumed that Source Protection Plans will be drafted by Source Protection Committees, Working Groups and Conservation Authority staff (CA staff) unless municipalities opt to lead tasks in their municipality. All staff and Committee costs are captured under task MR1.

All costs shown are for the Mississippi Valley Source Protection Area only. There is a summary of costs for the entire Mississippi-Rideau Source Protection Region in section 9.4.

Table 6 – Detailed Work Plan for Source Protection Plan in the Mississippi Valley Source Protection Area

Task #	Task Description	Geographic Area	Assigned Lead	Estimated Timeline	Estimated Cost
MR1	<p>Program Management, Staffing and Source Protection Committee</p> <ul style="list-style-type: none"> Overall operation of the source protection program to complete a Source Protection Plan (staffing, overhead, administration, management support and training) Operation of the Source Protection Committee. <p>The cost shown here includes a significant amount of CA staff time and Committee costs as it is anticipated that the Source Protection Plan will be drafted primarily by the Committee and CA staff.</p>	Mississippi Valley watershed	Source Protection Committee	Jan 1, 2010 to Aug 20, 2012	\$1,062,500
MR2	<p>Communications</p> <ul style="list-style-type: none"> Raise public awareness about the Source Protection Plan process and the work being done locally Engage municipalities, interested and affected groups and the general public in the preparation process. 	Mississippi Valley watershed	Source Protection Committee	Jan 1, 2010 to Aug 20, 2012	\$77,500
MR3	<p>Information Management</p> <ul style="list-style-type: none"> Overall management and coordination of data, data sharing agreements, standards, mapping, software and maintenance. 	Mississippi Valley watershed	Source Protection Committee	Jan 1, 2010 to Aug 20, 2012	\$36,000
MR4	<p>Public Consultation on the Draft Source Protection Plan</p> <ul style="list-style-type: none"> Coordinate and facilitate effective public consultation on the draft Source Protection Plan in conformity with all legislative requirements and timelines. 	Mississippi Valley watershed	Source Protection Committee	Jan 1, 2010 to Aug 20, 2012	\$45,000

MR5	<p>Develop Policies to Address Risks to Drinking Water</p> <ul style="list-style-type: none"> • Develop policies to address issues and threats that pose a risk to drinking water • Determine who is responsible for implementing these policies • Identify and assess the environmental, social and financial costs and benefits of implementing these policies <p>No cost is shown for this task because it is anticipated that all work will be done by the Committee and CA staff. All staff and committee costs are captured under task M1.</p>	Mississippi Valley watershed	Source Protection Committee	Jan 1, 2010 to Jan 1, 2012	\$0
Task #	Task Description	Geographic Area	Assigned Lead	Estimated Timeline	Estimated Cost
MR6	<p>Develop Policies to Monitor Risks to Drinking Water</p> <ul style="list-style-type: none"> • Develop policies to monitor issues and threats that pose a risk to drinking water. • Determine who is responsible for implementing these policies. <p>No cost is shown for this task because it is anticipated that all work will be done by the Committee and CA staff. All staff and committee costs are captured under task M1.</p>	Mississippi Valley watershed	Source Protection Committee	Jan 1, 2010 to Jan 1, 2012	\$0
MR7	<p>Establish Timelines for Implementing Plan Policies</p> <ul style="list-style-type: none"> • Establish realistic timelines for implementing policies taking into consideration the policies developed, key players affected, capacity for implementation, nature of the risk, natural, social, and economic considerations, and local community interests/needs. <p>No cost is shown for this task because it is anticipated that all work will be done by the Committee and CA staff. All staff and committee costs are captured under task M1.</p>	Mississippi Valley watershed	Source Protection Committee	Jan 1, 2010 to Jan 1, 2012	\$0

9.0 Financial Summary

9.1 Summary of Financial Statistics

Table 7 is a summary of the costs to produce an Assessment Report and Source Protection Plan for the Mississippi Valley Source Protection Area. These estimated costs include costs already incurred as well as estimated costs for future work. These costs are for the Mississippi Valley Source Protection Area only.

Table 7 – Summary of Estimated Costs for the Mississippi Valley Source Protection Area

Task	Estimated Cost
Assessment Report	\$2,876,570
Source Protection Plan	\$1,221,000
TOTAL	\$4,097,570

9.2 Estimated Costs for Assessment Report Tasks by Fiscal Year

Table 8 breaks down all actual and estimated costs for the Assessment Report tasks by fiscal year (April 1 to March 31). Actual costs that have already been incurred are shown in **bold**. These costs are for the Mississippi Valley Source Protection Area only.

Table 8 – Estimated Costs for Assessment Report Tasks by Fiscal Year for the Mississippi Valley Source Protection Area

Task #	Task Name	Actual Costs				Planned Costs				TOTALS
		Fiscal Year 04/05	Fiscal Year 05/06	Fiscal Year 06/07	Fiscal Year 07/08	Fiscal Year 08/09	Fiscal Year 09/10	Fiscal Year 10/11	Fiscal Year 11/12	
M1	Program Management, Staffing and Source Protection Committee	\$0	\$297,865	\$301,671	\$295,644	\$392,500	\$407,500	\$0	\$0	\$1,695,179
M2	Communications	\$0	\$2,177	\$4,469	\$7,601	\$37,500	\$20,000	\$0	\$0	\$71,747
M3	Information Management	\$0	\$40,289	\$8,437	\$11,851	\$12,000	\$12,000	\$0	\$0	\$84,577

Task #	Task Name	Actual Costs				Planned Costs				TOTALS
		Fiscal Year 04/05	Fiscal Year 05/06	Fiscal Year 06/07	Fiscal Year 07/08	Fiscal Year 08/09	Fiscal Year 09/10	Fiscal Year 10/11	Fiscal Year 11/12	
M4	Public Consultation on the Draft Assessment Report	\$0	\$0	\$0	\$0	\$17,500	\$17,500	\$0	\$0	\$35,000
M5	Watershed Characterization Study	\$0	\$0	\$20,948	\$18,420	\$0	\$0	\$0	\$0	\$39,368
M6	Conceptual Water Budget Study	\$0	\$104,353	\$97,512	\$0	\$7,500	\$0	\$0	\$0	\$209,364
M7	Tier 1 Water Budget Analysis and Stress Assessment Study	\$0	\$0	\$5,309	\$152,508	\$0	\$0	\$0	\$0	\$157,816
M8	Tier 2 Water Budget Analysis and Stress Assessment Study	\$0	\$0	\$0	\$0	\$37,500	\$0	\$0	\$0	\$37,500
M9	Almonte Groundwater Vulnerability Study.	\$0	\$15,000	\$0	\$6,675	\$3,500	\$0	\$0	\$0	\$25,175
M10	Carp Groundwater Vulnerability Study	\$0	\$0	\$0	\$11,820	\$2,145	\$0	\$0	\$0	\$13,965
M11	Village of Lanark Groundwater Vulnerability Study	\$0	\$0	\$0	\$0	\$113,500	\$0	\$0	\$0	\$113,500
M12	Aquifer Vulnerability Study	\$0	\$0	\$0	\$9,095	\$0	\$0	\$0	\$0	\$9,095
M13	Carleton Place Surface Water Vulnerability Study	\$0	\$51,315	\$0	\$27,635	\$13,035	\$0	\$0	\$0	\$91,985
M14	Threats Inventory, Issues Evaluation and Tier 1 Water Quality Risk Assessment Study – inside Wellhead Protection Areas and Intake Protection Zones	\$0	\$0	\$0	\$178,300	\$15,000	\$9,000	\$0	\$0	\$202,300

Task #	Task Name	Actual Costs				Planned Costs				TOTALS
		Fiscal Year 04/05	Fiscal Year 05/06	Fiscal Year 06/07	Fiscal Year 07/08	Fiscal Year 08/09	Fiscal Year 09/10	Fiscal Year 10/11	Fiscal Year 11/12	
M15	Threats Inventory, Issues Evaluation and Tier 1 Water Quality Risk Assessment Study – in Highly Vulnerable Aquifers and Significant Groundwater Recharge Areas	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
M16	Tier 2 Water Quality Risk Assessment Study – in Wellhead Protection Areas and Intake Protection Zones	\$0	\$0	\$0	\$0	\$0	\$90,000	\$0	\$0	\$90,000
	Fiscal Year Total	\$0	\$510,999	\$438,345	\$719,547	\$651,680	\$556,000	\$0	\$0	\$2,876,570

9.3 Estimated Costs for Source Protection Plan Tasks by Fiscal Year

Table 9 breaks down all actual and estimated costs for the Source Protection Plan tasks by fiscal year. Actual costs which have already been incurred are shown in **bold**. These costs are for the Mississippi Valley Source Protection Area only.

Table 9 – Estimated Costs for Source Protection Plan Tasks by Fiscal Year for the Mississippi Valley Source Protection Area

Task #	Task Name	Actual Costs				Planned Costs					TOTALS
		Fiscal Year 04/05	Fiscal Year 05/06	Fiscal Year 06/07	Fiscal Year 07/08	Fiscal Year 08/09	Fiscal Year 09/10	Fiscal Year 10/11	Fiscal Year 11/12	Fiscal Year 12/13 (up to Aug 2012 only)	
MR1	Program Management, Staffing and Source Protection Committee	\$0	\$0	\$0	\$0	\$0	\$0	\$425,000	\$425,000	\$212,500	\$1,062,500
MR2	Communications	\$0	\$0	\$0	\$0	\$0	\$0	\$20,000	\$37,500	\$20,000	\$77,500
MR3	Information Management	\$0	\$0	\$0	\$0	\$0	\$0	\$12,000	\$12,000	\$12,000	\$36,000
MR4	Public Consultation on the Draft Source Protection Plan	\$0	\$0	\$0	\$0	\$0	\$0	\$17,500	\$17,500	\$10,000	\$45,000
MR5	Develop Policies to Address Risks to Drinking Water	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
MR6	Develop Policies to Monitor Risks to Drinking Water	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
MR7	Establish Timelines for Implementing Plan Policies	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Fiscal Year Total	\$0	\$0	\$0	\$0	\$0	\$0	\$474,500	\$492,000	\$254,500	\$1,221,000

9.4 Summary of Financial Totals for Mississippi-Rideau Source Protection Region

Table 10 summarizes the total costs for producing an Assessment Report and a Source Protection Plan for each of the Source Protection Areas in the Mississippi-Rideau Source Protection Region. These cost estimates include funds already expended as well as estimated costs for future work.

As noted in the introduction, detailed information about the Rideau Valley Source Protection Area is provided in a separate Terms of Reference. The following summary is provided so people can fully understand the estimated costs for the entire Mississippi-Rideau Source Protection Region.

Table 10 – Summary of Estimated Costs for the Mississippi-Rideau Source Protection Region

Source Protection Areas	Estimated Costs		
	Assessment Report	Source Protection Plan	Assessment Report + Source Protection Plan
Mississippi Valley	\$2,876,570	\$1,221,000	\$4,097,570
Rideau Valley	\$3,855,553	\$1,221,000	\$5,076,553
Totals	\$6,732,123	\$2,442,000	\$9,174,123

Glossary

[Note: the abridged definitions in this glossary have been prepared to assist readers of this Terms of Reference document. For additional definitions, please refer to provincial legislation, regulations, and technical standards].

Assessment report means a technical document that is prepared by a source protection committee under Section 15 of the Clean Water Act, 2006 (and a forthcoming regulation) to record its knowledge of a source protection area, and to rank *risks* to *drinking water* within that area. Each report is approved by the Ontario Ministry of the Environment.

Aquifer means a water bearing formation that is capable of transmitting water in sufficient quantities to serve as a source of water supply.

Aquifer vulnerability study is a study to define the location and extent of *highly vulnerable aquifers*.

Conceptual water budget study means a written description of the overall flow system dynamics for each *watershed* in the *source protection area* taking into consideration surface water and groundwater features, land cover (e.g. proportion of urban vs rural uses), human-made structures (e.g. dams, channel diversions, water crossings), and water takings.

Drinking water means (a) water intended for human consumption or (b) water that is required by an Act, regulation, order, municipal by-law or other document issued under the authority of an Act, (i) to be potable, or (ii) to meet or exceed the requirements of the prescribed drinking water quality standards.

Drinking water issue is a substantiated (through scientific means) condition relating to the quality of water that interferes or is anticipated to soon interfere with the use of a drinking water source.

Drinking water system means a system of works, excluding plumbing, that is established for the purpose of providing users of the system with *drinking water* and that includes, (a) any thing used for the collection, production, treatment, storage, supply or distribution of water, (b) any thing related to the management of residue from the treatment process or the management of the discharge of a substance into the natural environment from the treatment system, and (c) a well or intake that serves as the source or entry point of raw water supply for the system.

Drinking water threat means an activity or condition that adversely affects or has the potential to adversely affect the quality or quantity of any water that is or may be used as a source of *drinking water*.

Groundwater means subsurface water that occurs beneath the water table in soils and geological formations that are fully saturated.

Groundwater Vulnerability Study is a study to define the *wellhead protection area* surrounding one or more water wells.

Highly vulnerable aquifer means an area where (a) water is conveyed through the ground and (b) pollutants on the surface could readily enter the groundwater and contaminate it.

Intake protection zone means the area of land and water that contributes *source water* to a *drinking water system* intake within a specified period of time (for example, two hours) and that is a priority for protection from contamination.

Precautionary Principle says that the absence of scientific certainty about a risk should not bar the taking of precautionary measures. It addresses situations in which the risk cannot be estimated with any reliability and in which uncertainty prevails regarding the relationship, if any, between cause and supposed effect (Source: Science-based Decision-making for Protecting Ontario's Drinking Water Resources: A Threats Assessment Framework, Technical Experts Committee Report to the Minister of the Environment, November 2004).

Risk means the likelihood of a drinking water threat (a) rendering a drinking water source impaired, unusable or unsustainable, or (b) compromising the effectiveness of a drinking water treatment process, resulting in the potential for adverse human health effects.

Significant groundwater recharge area means an area in which (a) there is a high volume of water moving from the surface into the ground and (b) groundwater serves either as *source water* or the water that supplies a coldwater ecosystem such as a brook trout stream.

Source protection means a program of education, stewardship, planning, infrastructure, and regulation activities that together serve to help prevent the contamination or overuse of *source water*.

Source protection area means those lands and waters that have been defined under Ontario Regulation 284/07 as the "study area" for an *assessment report* and a *source protection plan* under the Clean Water Act, 2006.

Source protection authority means a conservation authority or other person or body that is required to exercise powers and duties under the Clean Water Act, 2006. The Cataraqui Source Protection Authority is composed of the 17 members of the Cataraqui Region Conservation Authority plus one additional member from the Township of Frontenac Islands.

Source protection committee means a group of individuals who have been appointed under the Clean Water Act, 2006 by a *source protection authority* to coordinate *source protection* activities for a *source protection area*.

Source protection plan means a document that is prepared by a *source protection committee* under Section 22 of the Clean Water Act, 2006 (and a forthcoming regulation) to direct *source protection* activities in a *source protection area*. Each plan is approved by the Ontario Ministry of the Environment.

Source protection region means two or more *source protection areas* that have been grouped together under Ontario Regulation 284/07.

Source water means untreated water that is found in groundwater aquifers and surface water lakes and rivers that is used to supply a *drinking water system*.

Surface water means water that is present on the earth's surface and may occur as rivers, lakes, wetlands, ponds, etc.

Surface water vulnerability study is a study to define the *intake protection zone* surrounding one or more intakes.

Threats Inventory, Issues Evaluation and Tier 1 Water Quality Risk Assessment study is a preliminary examination of *drinking water threats, issues and risks*.

Tier 1, 2 and 3 water budget and stress assessment study means numerical analysis at the *watershed/subwatershed* level (for Tier 1 and 2) or local areas level (for Tier 3) considering existing and anticipated amounts of water use within the *watershed*, as well as quantitative flow between the groundwater and surface water systems.

Tier 2 Water Quality Risk Assessment study is an advanced examination of a *drinking water threat* through more detailed information, interviews and perhaps when warranted, additional monitoring, modeling or studies.

Vulnerable area means (a) a *significant groundwater recharge area*, (b) a *highly vulnerable aquifer*, (c) a *surface water intake protection zone*, or (d) a *wellhead protection area*.

Watershed means the area of land that contributes water to a lake, river, or stream.

Watershed characterization study is a general description of the *watersheds*, communities, *source water*, *drinking water systems*, patterns of water use, and *drinking water* problems within a given *source protection area*.

Watershed Stewardship means caring for water, land, air and biodiversity on a watershed basis, while recognizing that everything is connected in a watershed and is effected by natural as well as human activities

Well means a hole made in the ground to locate or to obtain *groundwater* from an *aquifer*.

Wellhead protection area means the surface and subsurface area surrounding a *well* that supplies a *drinking water system*, through which contaminants are reasonably likely to move so as to eventually reach the well.

Appendix 1

Communal Wells and Designated Facilities in the Mississippi-Rideau Source Protection Region

Municipality	Facility Type					
	Non-Municipal Seasonal Residential Supply (NMSRS)	Non-Municipal Year-Round Residential Supply (NMYRRS)	Large Non-Municipal Non-Residential Supply (LNMNRS)	Small Non-Municipal Non-Residential Supply (SNMNRS)	Large Municipal Non-Residential Supply (LMNRS)	Non-Municipal Seasonal Residential Supply (NMSRS)
Addington Highlands	2			12		2
Athens				4		1
Augusta						
Beckwith	1	2		2		1
Carleton Place				3		
Central Frontenac	2		1	22		1
Clarence-Rockland	2	3		5		
Drummond/North Elmsley	1	2		8		
Edwardsburgh - Cardinal	1			9	1	4
Elizabethtown-Kitley			1	13		14
Greater Madawaska	3	2	1	19		3.0
Lanark Highlands	3	2		12		10
Merrickville-Wolford				3		1
Mississippi Mills	2	2		11		5
Montague	1	1		4		2
North Dundas		1		12		7
North Frontenac	4		2	6		1
North Grenville		1		10		
Ottawa Amalgamated	4	16	3	128	1	49
Perth						
Rideau Lakes	6	4		29	1	17
Smiths Falls				3		
South Frontenac	11	3		23	1	13
Tay Valley	4		2	22		
Westport				1		
Total	47	39	10	361	4	131