Update: Source Protection Planning
Overview: Mississippi-Rideau Source Protection Plan

Presented to the Ontario Eastern Municipalities Conference 2014

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Presentation Outline

- Source Protection Basics

  Principles, Process, Scope
- The Science: Assessment Reports

  Delineation of Vulnerable Areas
- Considering the Science
- Source Protection Plans

  Policies, scope and application, implementation tools, Part IV of the CWA
- MOECC Review and Approval
- Implementation
- Example: Niagara Peninsula Source Protection Plan
- Discussion, Contacts, Resources

Source Protection Basics

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The purpose of the
Clean Water Act
is to protect
existing and future
sources of drinking water

Principles of Source Protection

- Prevention: safeguarding drinking water for the health of our communities
- Watershed/Subwatershed: basic unit for source protection planning
- Multi-barrier: source protection is the first barrier in the drinking water safety net and focuses on preventing contaminants from entering the drinking water system
- Shared responsibility: locally driven, collaborative planning process in partnership with multiple stakeholders

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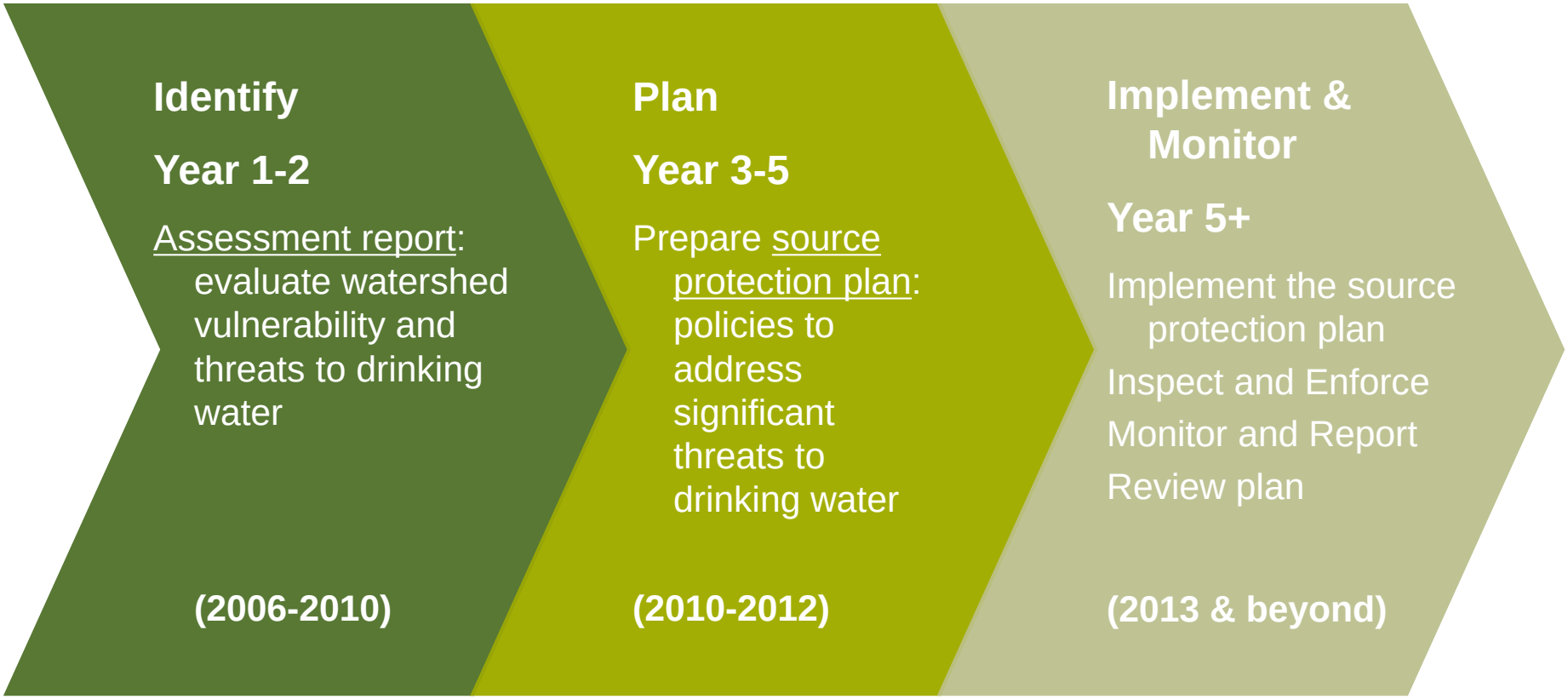
Source Protection Process



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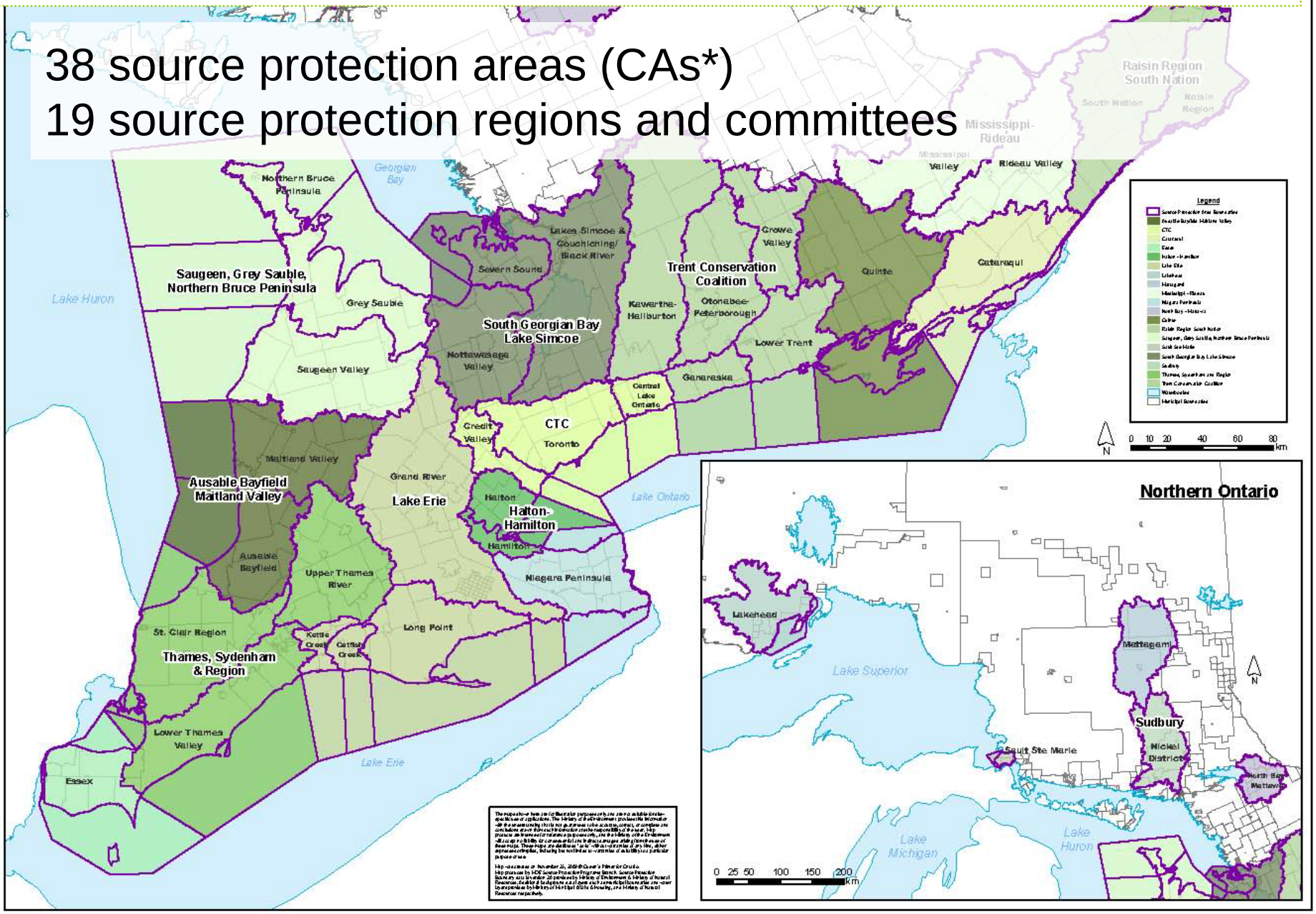
Scope: Source Protection Areas and Regions

38 source protection areas (CAs*)
19 source protection regions and committees



Source Protection Committees

Source Protection Committee

- multi-stakeholder committee, 1/3 municipal representation
- Carries out localised decision making to protect drinking water sources

support

Source Protection Authority (Conservation Authority)

- appoints the source protection committee
- provides administrative and technical support to the committee

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The Science: Assessment Reports

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The Science Behind Source Protection

- Includes both existing and future municipal drinking water supplies
- Prepared in accordance with provincial standards
  - Clean Water Act and regulations
  - Director's Technical Rules
  - Local terms of reference
- Reviewed and approved by Director, MOE
- Assessment reports can not be appealed (OMB, ERT)

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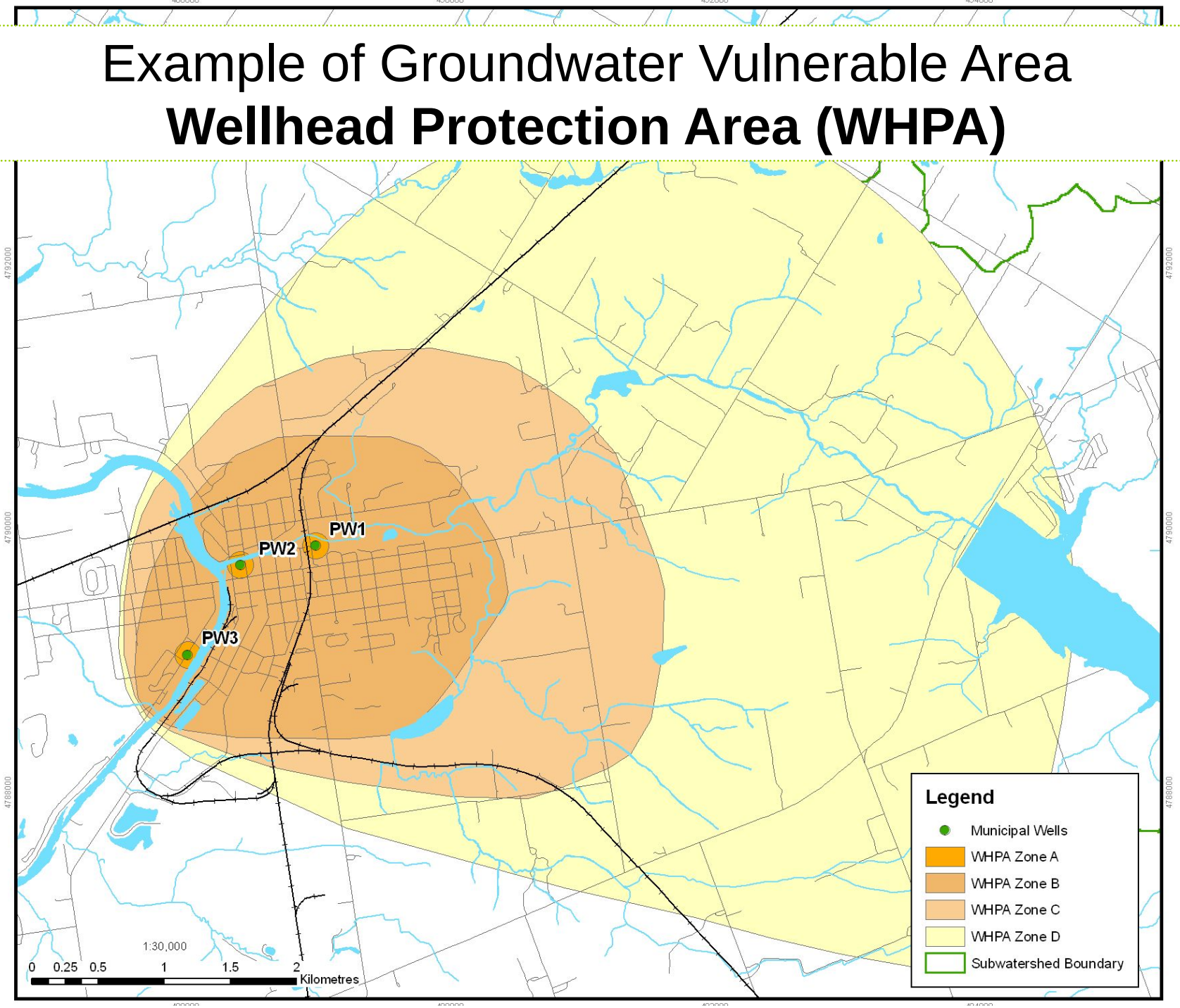
Components of Assessment Reports

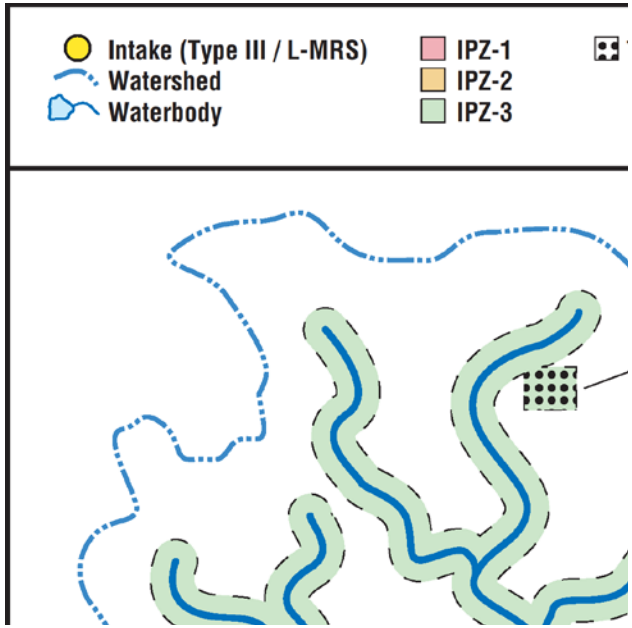
- Technical components of the Assessment Report:
  1. Watershed Characterization
  2. Groundwater Vulnerability Analysis
  3. Surface Water Vulnerability Analysis
  4. Issues Evaluation and Threats Assessment
  5. Water Budget/Water Quantity Risk Assessment

- Includes mapping of vulnerable areas:
  (designated vulnerable areas for PPS, 2014)
  - **wellhead protection areas (WHPA)**
  - **surface water intake protection zones (IPZ)**
  - highly vulnerable aquifers (HVA)
  - significant recharge areas (SGRA)

Example of Groundwater Vulnerable Area
Wellhead Protection Area (WHPA)



Example of Surface Water **Intake Protection Zone (IPZ)**
Type C Intakes: Rivers



Highly Vulnerable Aquifers & Significant Groundwater Recharge Areas

- Technical Rules: threats in HVAs & SGRAs can only score as moderate or low in assessment reports
- SP Plans can include policies to address moderate and low threats, but are not mandatory

- Municipalities can protect municipal and private wells through land use planning by protecting HVAs & SGRAs

Provincial Policy Statement & “Vulnerable Areas”

Section 2.2 of Provincial Policy Statement recognizes "designated vulnerable areas" for the protection of drinking water.

e) implementing necessary restrictions on *development* and *site alteration* to:

1. protect all municipal drinking water supplies and *designated vulnerable areas*; and
2. protect, improve or restore *vulnerable* surface and ground water, *sensitive surface water features* and *sensitive ground water features*, and their *hydrologic functions*;

Therefore, municipalities **can protect vulnerable areas for drinking water before source protection plans are approved**.

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Source Protection Plans

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Source Protection Plan Policies

- A source protection plan must contain a policy for **every area where an activity could be a *significant drinking water threat* as identified in an assessment report**
- The policy must meet the objectives in Section 22(2) and (6) of Clean Water Act:
  - A source protection plan shall, in accordance with the regulations, set out the following:

    (2) Policies intended to achieve the following objectives for every area identified in the assessment report as an area where an activity is or would be a significant drinking water threat:

    i. Ensuring that the activity never becomes a significant drinking water threat.

    ii. Ensuring that, if the activity is being engaged in, the activity ceases to be a significant drinking water threat.

Prescribed Drinking Water Threats

1 – **waste** disposal

2 – **sewage**

Agriculture

3 – application of ASM
4 – storage of ASM
5 – management of ASM

6 – application of NASM
7 – handling and storage of NASM

8 – application of commercial fertilizer
9 – handling and storage of commercial fertilizer

10 – application of pesticide
11 – handling and storage of pesticide

21 – livestock grazing

Clean Water Act (General Reg. 287/07)

12 – application of **road salt**
13 – handling and storage of **road salt**

14 – storage of **snow**

Industrial

15 – handling and storage of **fuel**

16 – handling and storage of **DNAPL**

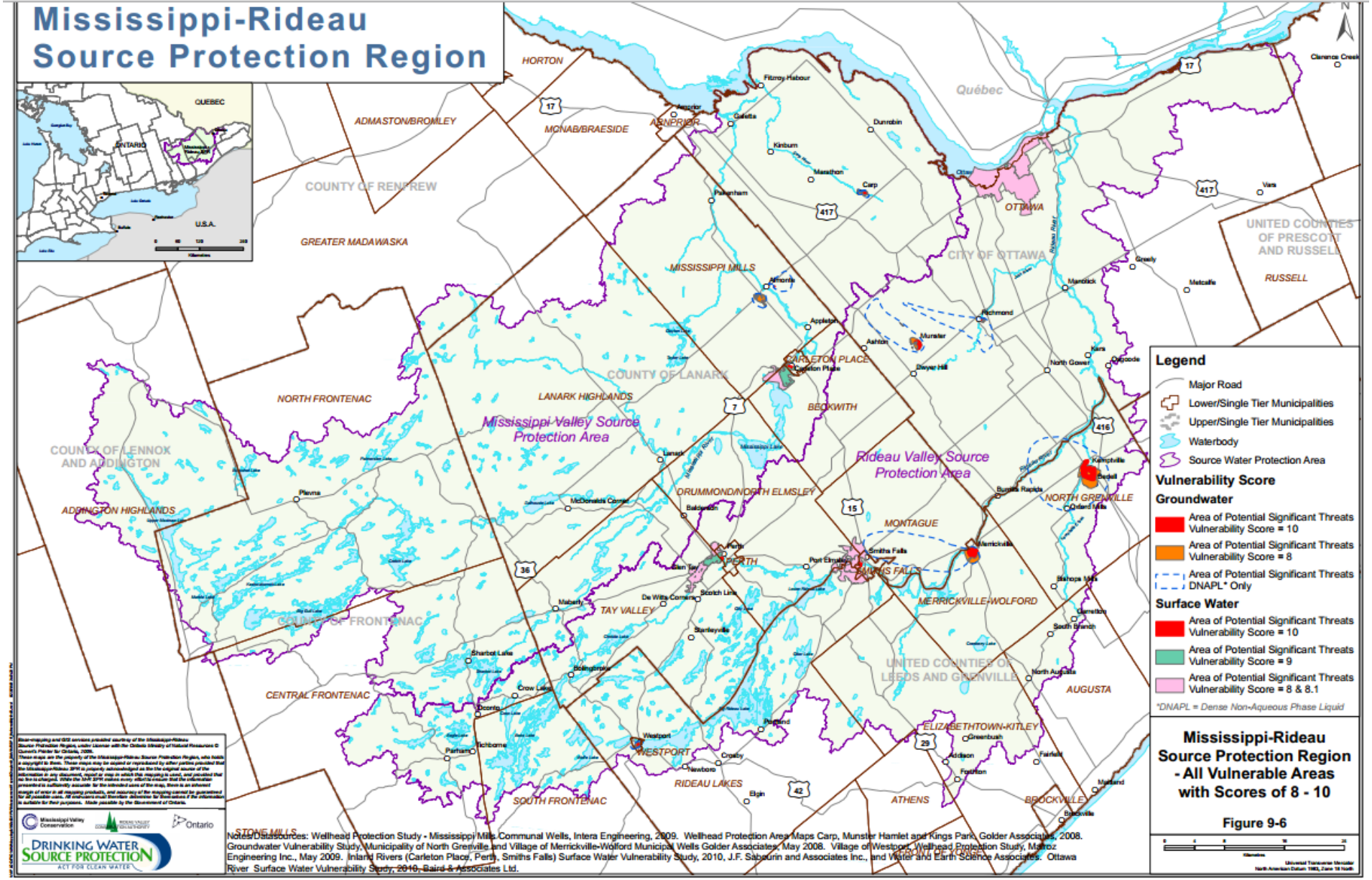
17 – handling and storage of an **organic solvent**

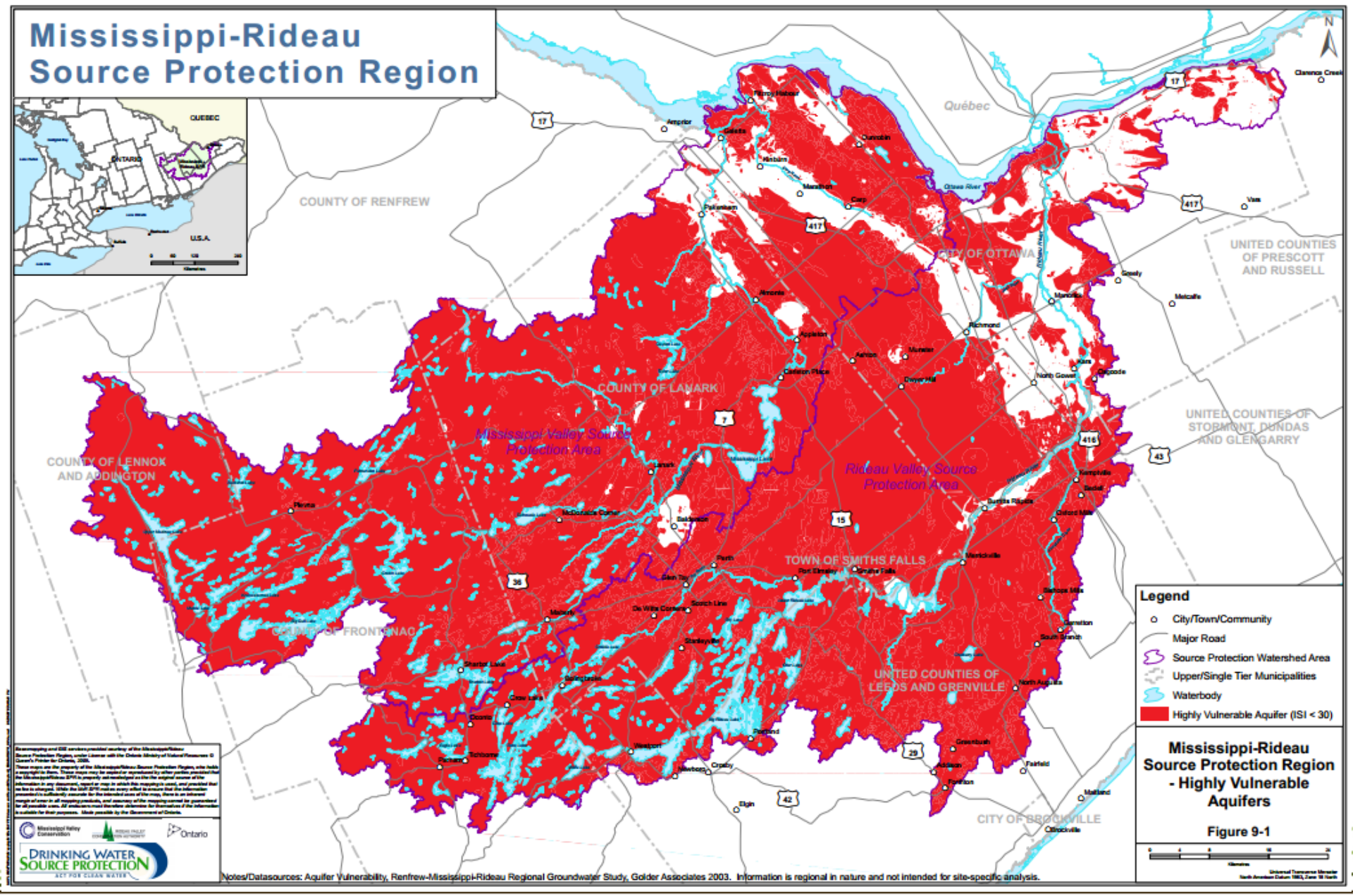
18 – chemicals used in the de-icing of aircraft

Water Quantity

19 – consumptive water taking

20 – activity that reduces the recharge of an aquifer


Mississippi-Rideau Source Protection Region
Legend
Major Road
Lower/Single Tier Municipalities
Upper/Single Tier Municipalities
Waterbody
Source Water Protection Area
Vulnerability Score
Groundwater
Area of Potential Significant Threats Vulnerability Score = 10
Area of Potential Significant Threats Vulnerability Score = 8
Area of Potential Significant Threats DNAPL* Only
Surface Water
Area of Potential Significant Threats Vulnerability Score = 10
Area of Potential Significant Threats Vulnerability Score = 9
Area of Potential Significant Threats Vulnerability Score = 8 & 8.1
*DNAPL = Dense Non-Aqueous Phase Liquid
Mississippi-Rideau Source Protection Region - All Vulnerable Areas with Scores of 8 - 10
Figure 9-6
Mississippi Valley Conservation
Ontario
DRINKING WATER SOURCE PROTECTION
ACT FOR CLEAN WATER
Notes/Datasources: Wellhead Protection Study - Mississippi Mills Communal Wells, Intera Engineering, 2009. Wellhead Protection Area Maps Carp, Munster Hamlet and Kings Park, Golder Associates, 2008. Groundwater Vulnerability Study, Municipality of North Grenville and Village of Merrickville-Wolford Municipal Wells Golder Associates, May 2008. Village of Westport, Wellhead Protection Study, Matrioz Engineering Inc., May 2009. Inland Rivers (Carleton Place, Perth, Smiths Falls) Surface Water Vulnerability Study, 2010, J.F. Sabourin and Associates Inc., and Water and Earth Science Associates. Ottawa River Surface Water Vulnerability Study, 2010, Baird & Associates Ltd.


Mississippi-Rideau
Source Protection Region
QUEBEC
ONTARIO
U.S.A.
Québec
COUNTY OF RENFREW
COUNTY OF LANARK
COUNTY OF LENNOX AND ADDINGTON
COUNTY OF FRONTENAC
CITY OF OTTAWA
UNITED COUNTIES OF PRESCOTT AND RUSSELL
UNITED COUNTIES OF STORMONT, DUNDAS AND GLENGARRY
UNITED COUNTIES OF LEEDS AND GRENVILLE
TOWN OF SMITHS FALLS
CITY OF BROCKVILLE
Mississippi Valley Source Protection Area
Rideau Valley Source Protection Area
Legend
City/Town/Community
Major Road
Source Protection Watershed Area
Upper/Single Tier Municipalities
Waterbody
Highly Vulnerable Aquifer (ISI < 30)
Mississippi-Rideau Source Protection Region - Highly Vulnerable Aquifers
Figure 9-1
DRINKING WATER SOURCE PROTECTION
Ontario
Notes/Datasources: Aquifer Vulnerability, Renfrew-Mississippi-Rideau Regional Groundwater Study, Golder Associates 2003. Information is regional in nature and not intended for site-specific analysis.

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Range of Policy Approaches/Tools

The Clean Water Act and regulations authorize a spectrum of approaches / tools to implement policies to address threats to source water:

- **Education and Outreach**
- **Incentive Programs**
- **Planning Approaches (e.g. Official Plan, Zoning, Site Plan Control)**
- Provincial Instruments
- **S. 58 Risk Management Plans**
- **S. 57 Prohibition**
- **S. 59 Restricted Land Uses***

Enabled through regulation

- **Other** (including relying on other existing legislative authority previously granted to the implementing body (Municipal Act) or section 38 obligations of Clean Water Act)

**Note: not the same meaning as under the Planning Act.*

CWA Part IV Tools

All of the **new** authorities under Part IV* of the Clean Water Act address ***a gap*** where significant threats cannot be addressed by existing planning tools or regulatory instruments (referred to as Part IV powers)

- **S. 57 Prohibition**
- **S. 59 Restricted Land Use** (*not the same meaning as under the Planning Act)*
- **S. 58 Risk Management Plans**

***Part IV authorities are independent tools enabled by a source protection plan (municipality does not have to amend OP/zoning or enact a by-law to authorize)*

s. 59 Restricted Land Uses

- Risk Management Official (RMO) and Risk Management Inspector (RMI) administer Part IV of CWA
- **Municipality** with authority over water distribution and treatment is the default body for implementation and enforcement of Part IV
- Source protection plans will have s. 59 policies to complement s. 57 (prohibition) and s. 58 (risk management plan) policies

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s. 59 Restricted Land Uses, cont'd

- Process for "flagging" activities before they are established and become a drinking water threat
- Triggered by: development applications and building permits
- Applies to specific named land uses where activities need to be screened
- Land uses not specifically named would be exempt from the application of s. 59

Restricted Land Use Process

Step 1

Proponent applies for development approval or building permit

Clerk checks s. 59 policy:

If the proposal is in a vulnerable area

List of land uses subject to s. 57 or s. 58

Step 2

RMO consults source protection plan to see whether the proposed application includes an activity that:

1. Is prohibited (s. 57)?
2. Requires an RMP (s. 58)?

Step 3

Prohibited: Activity does not proceed

RMO provides notice to proceed

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Land Use Planning / Source Protection

Planning Act

Restrictions on uses, buildings and structures

Addresses future development

Tied to land and stays on title

Tools include OP, zoning, site plan control, DPS

Planning decisions must consider all available information, including CWA science

Clean Water Act

Restrictions on activities

Addresses existing and future threats

Tied to carrying out activities

Some policies may be implemented through Planning Act

Restrictions and prohibitions may apply outside of Planning Act tools

CWA S. 59 *Restricted Land Uses* – planning applications used to "flag" threats

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MOECC Review and Approval

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Minister's Decision Options (s. 29)

- Approve the Plan, or
- Send the Plan back with directions to amend the plan in accordance with the directions of the Minister, and resubmit the plan

- On resubmission, the Minister may
  - Approve the amended plan, or
  - Approve the amended plan with additional amendments

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Plan Reviews

- 22 unique plan submissions *(all plans have been submitted)*:
  - 18 committees submitted a plan that is either entirely the same across their region (17 of 18 SPCs) or has a couple different policies for different parts of their region (TCC)
  - 1 committee (L Erie) submitted 4 unique plans, one for each of their 4 source protection areas and which were developed with municipal leadership, as opposed to the SPC leading policy development.

Plan Approvals

- 4 Plans are approved:
  - Lakehead Source Protection Area (Thunder Bay)
    Effective January 1, 2014
  - Mattagami Source Protection Area (Timmins)
    Effective October 1, 2014
  - Niagara Peninsula Source Protection Area
    Effective October 1, 2014
  - Missippi-Rideau Source Protection Region
    Effective January 1, 2015

Implementation

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Preparing for Implementation

- As plans are approved, we are working to ensure that partners are prepared to implement policies at the local level when plans take effect
- Implementing bodies include:
  - Municipalities
    - planning, risk management officials, septic inspections, education & outreach, etc
  - Provincial Ministries
    - environmental approvals for waste & sewage, nutrient management, education & outreach, etc
  - Conservation Authorities
    - education & outreach, septic inspections, etc
  - Local Organizations (public health units, others)
  - Federal Authorities (*Feds are not legally bound*)

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Municipal Implementation

- Local leadership continues to play a key role in protecting drinking water sources across Ontario
- Source protection plans are collaborative, use watersheds as planning unit, are locally driven and based in science
- Significant progress has been made in source protection and Ontario remains committed to helping ensure that plans address the needs of the local community and can be implemented effectively.

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Source Protection in Municipal Planning

- **Assessment Reports**
  - Land use planning decisions must consider the protection of drinking water sources to be **consistent with the PPS**
  - Scientific information can be used to **inform** decision-making

- **Source Protection Plans** *(after effective date)*
  - Decisions under Planning Act or Condominium Act
  - Official Plans
  - Zoning by-laws

  Must **conform with** significant drinking water threat policies, and **have regard to** other policies

  - Municipal actions (public works, undertakings, or by-laws)

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Support for Municipal Implementation

Conservation Authorities/Source Protection Authorities

- Lead in ensuring their Municipalities are prepared to implement – largely focussed on Part IV to date but also on Land Use Planning, E & O and Other Policies

Funding

- $13.5 million for the Source Protection Municipal Implementation Fund, launched November 1, 2013 to help small, rural municipalities
- 189 municipalities are eligible for grants ranging from $18,000 to $100,000, with Additional collaboration incentive of up to $15,000

MOE support

- Scientific and technical
- Education and outreach

Monitoring Policies

- Each source protection plan policy also has reporting requirements to monitor the implementation of policies
- Locally developed policies with variation in wording and requirements
- Results will inform the ministry's annual reporting and eventual plan review

Example: Mississippi-Rideau Source Protection Plan

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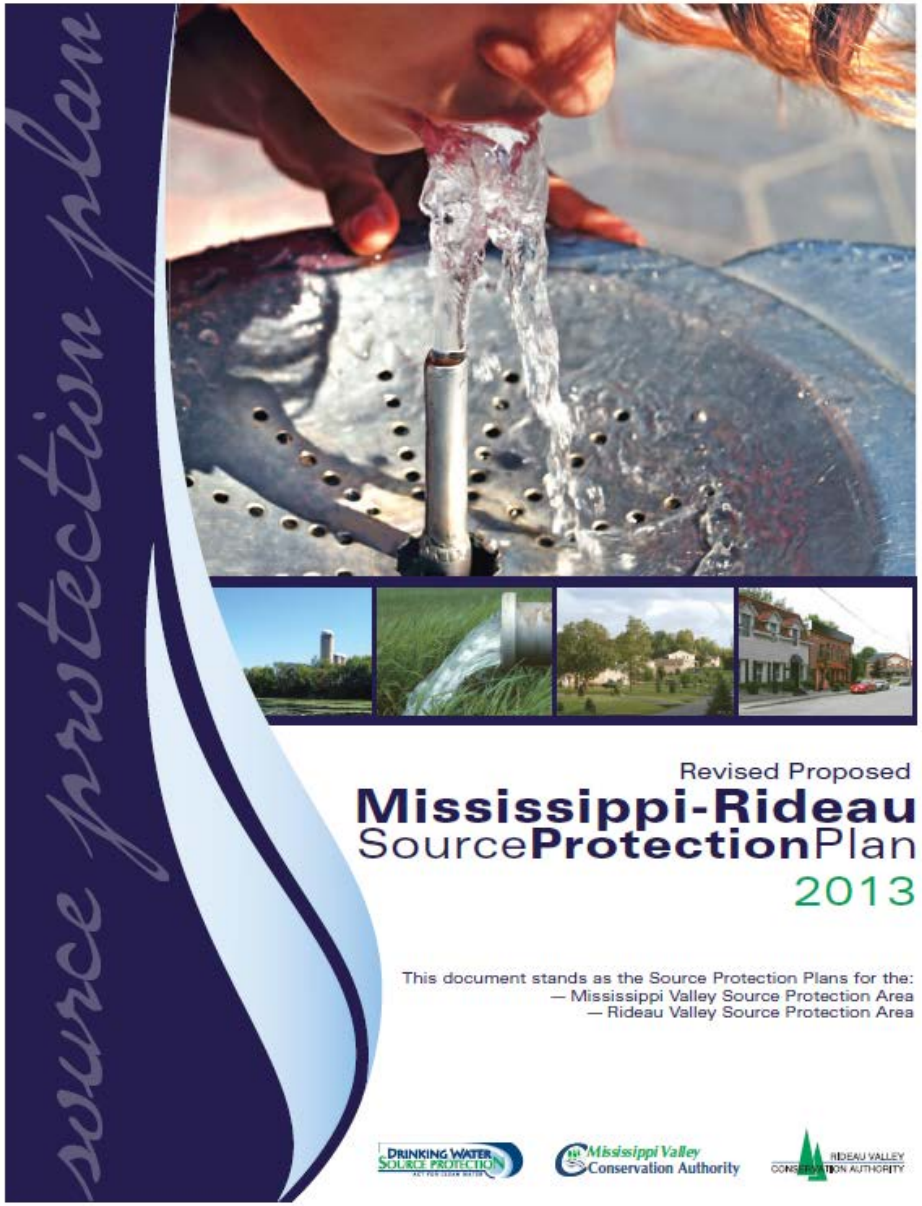
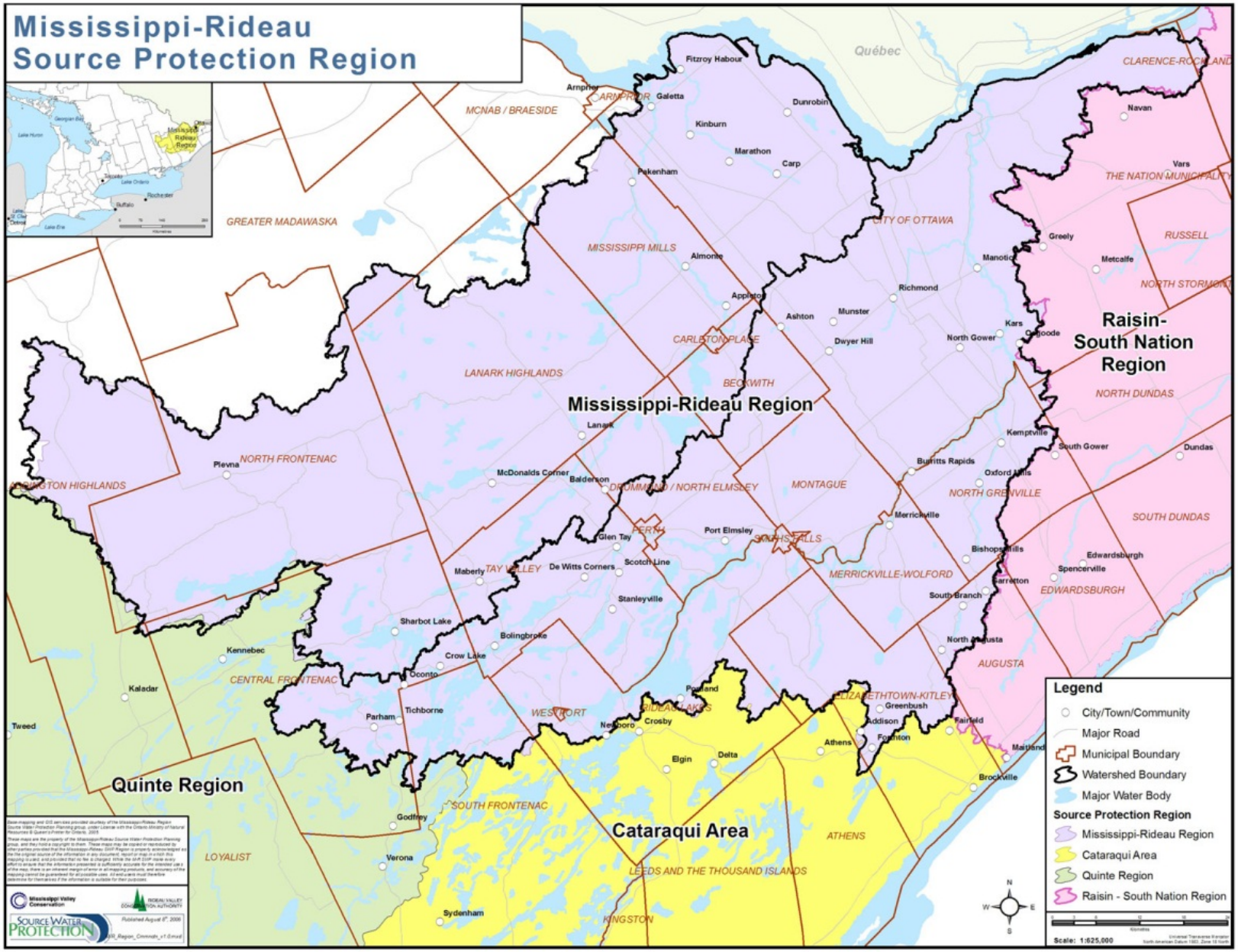


www.mrsourcewater.com

Mississippi-Rideau Plan: Region



Mississippi-Rideau Plan: Overview

- Education Everywhere
- Significant Threats
  - In general, future activities that pose a high risk (e.g., DNAPLs) or could be located outside a vulnerable area (e.g., gas station) are prohibited
  - All other future activities and all existing activities are managed
- Moderate and Low Threats
  - Protection of drinking water to be considered when locating waste disposal sites, applying road salt, and locating aquaculture facilities.
- Other policies for
  - Transport pathways (wells, pits and quarries, and earth energy systems, a.k.a. preferential pathways)
  - Transportation corridors (roadways and recreational waterways)

Mississippi-Rideau: Policies

3.9 Agricultural Source Material (ASM)

Background

Agricultural source material (ASM) is material produced on a farm and applied to land, usually as a fertilizer. The most common example is manure. Before being applied, ASM may be stored in a variety of ways including above or below grade, temporary field storage or longer term lagoon storage.

Storage of agricultural source material

The improper storage or application of ASM can contaminate surface water or groundwater with nitrogen, phosphorus or pathogens. Pathogens, such as *E. coli*, are microscopic organisms capable of causing serious infections or infectious disease in humans.

Given the potential for ASM to contaminate drinking water sources, the *Clean Water Act* designated the following activities as prescribed drinking water threats:

- The application of agricultural source material
- The storage of agricultural source material

As required by the *Clean Water Act*, this Plan includes policies to address these activities where they are considered a significant threat to sources of municipal drinking water.

Policy Intent

The policies are intended to ensure that the storage and land application of ASM, in areas where it is considered a significant threat, is undertaken in a way that provides effective protection of municipal drinking water sources. This can be accomplished through the establishment of Risk Management Plans which provide an opportunity for discussion, flexibility and agreement regarding suitable best management practices while providing the assurance that these practices will be implemented if they are not already in place.

KEY CONCEPT ...

Agricultural Source Material (ASM) is material produced on a farm and applied to land to improve the growth of crops and for soil conditioning. ASM may include:

- Manure and bedding material
- Runoff from farm-animal yards and manure storages
- Wash water such as milking centre waste
- Anaerobic digestion output where at least 50 percent of the anaerobic digestion material were on-farm and does not contain sewage (anaerobic digestion is the process by which organic materials in an enclosed vessel are broken down by micro-organisms in the absence of oxygen; the process produces a liquid effluent called anaerobic digest output or digestate)

The policies recognize that some ASM activities are already regulated by the Ontario Ministry of Agriculture, Food and Rural Affairs under the *Nutrient Management Act*. For farms that already have Nutrient Management Strategies or Nutrient Management Plans in place that address the application and storage of ASM, a Risk Management Plan is not required. The policies also recognize that some ASM users pose a lower risk to drinking water and mandatory requirements would be unreasonable. Small, non-intensive farms, and other small users like gardeners, are exempt from requiring Risk Management Plans. Instead best management practices will be promoted through education policy EDU-1-LB outlined in Section 4.

In the Mississippi-Rideau region (as of 2012) it is estimated that there are 52 properties where ASM is applied or stored that may require a Risk Management Plan.

KEY CONCEPT ...

A **nutrient unit** (NU) is a unit of measurement developed to standardize the nutrients generated by different sizes and types of livestock. One nutrient unit represents the number of animals required to produce 43 kg of nitrogen or 55 kg of phosphorus annually. For example, 5 NUs equals 40 dairy goats, 3.5 large frame dairy cows or one medium frame horse.

Significant threat circumstances ...

The application or storage of any amount of ASM is considered a significant drinking water threat in:

- Wellhead Protection Areas with a vulnerability score of 10
- Intake Protection Zones with a vulnerability score of 8 to 10

The reason any amount of ASM is considered a significant threat in these areas is because it poses a pathogen threat. Since pathogens can cause serious health problems, no minimum quantity of material is specified. Rather any amount is considered a significant threat within a certain proximity to a municipal drinking water source.

POLICIES

Policy: ASM-1-LB-PI-MC

Agricultural Source Material — Prescribed Instrument

Where the land application or storage of agricultural source material (existing and/or future) that is or would be a significant drinking water threat as described in Appendix B is governed by a Prescribed Instrument (Nutrient Management Strategy or Plan developed under General Regulation 267/03 of the *Nutrient Management Act*), this activity shall continue to be managed through these existing requirements. The existing regulatory requirements administered by the Ontario Ministry of Agriculture, Food and Rural Affairs and the corresponding compliance program enforced by the MOE already manage this activity so that it is not a significant threat to drinking water.

Policy: ASM-2-LB-S58

Agricultural Source Material — Risk Management Plan

The existing or future land application or storage of agricultural source material is designated for the purpose of Section 58 of the *Clean Water Act*, requiring a Risk Management Plan in areas where the threat is or would be significant as described in Appendix B. The Risk Management Plans for existing activities shall be established within three years from the date the Source Protection Plan takes effect. This policy does not apply to:

- Small, non-intensive farms where the number of farm animals is not sufficient to generate five or more nutrient units of manure annually and the concentration is less than one nutrient unit per acre of cropland
- Activities that are governed by Nutrient Management Strategies or Nutrient Management Plans developed under the *Nutrient Management Act*
- Residential use of ASM such as bagged manure applied to gardens

Implementing bodies should see Section 5 for corresponding monitoring policies which could contain reporting requirements.

Mississippi-Rideau: Appendices

Appendix A - Legal Effect Provisions

Part III of the *Clean Water Act* gives Source Protection Plans their legal effect. This appendix contains the lists of policies identified for each legal effect provision of Part III. The purpose of each list is to ensure that the appropriate provisions of Part III of the *Clean Water Act* are applied to a policy, as set out in subsection 34(1) to (3) of Ontario Regulation 287/07.

List A

Significant threat policies that affect decisions under the Planning Act and Condominium Act, 1998

Clause 39(1)(a), subsections 39(2),(4) and (6), and sections 40 and 42 of the *Clean Water Act*, 2006 apply to the following policies:

WASTE-3-LB-PI/PA-MC	ADMIN-2-LB
SEW-9-LB-PI/PA-MC	ADMIN-3-LB
SEW-15-LB-PI/PA-MC	ADMIN-4-LB
ADMIN-1-LB	ADMIN-5-LB

List B

Moderate and low threat policies that affect decisions under the Planning Act and Condominium Act, 1998

Subsection 39(1)(b) of the *Clean Water Act*, 2006 applies to the following policies:

No Applicable Policies

Questions?

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Contacts

Source Protection Programs Branch, MOECC

- Angelune Des Lauriers, Liaison Officer
  (905) 521-7705
- Mary Wooding, Liaison Officer
  (613) 548-6912
- Tammy Chung, Land Use Planner
  (416) 314-0593

Local Conservation Authority

Ontario

Resources

Clean Water Act & regulations

www.e-laws.gov.on.ca

Conservation Ontario

Implementation Resource Guide

For municipalities and conservation authorities

www.conservation-ontario.on.ca

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Appendix A - Consultation Requirements - Plan

- **Notice of Plan preparation** (s. 19 of O. Reg. 287/07)
  - Fall 2010 - Winter 2011
- **Pre-consultation** (s. 37 for policies affecting planning decisions, s. 38 for those affecting municipal business, s. 39 for Part IV tools)
  - Winter - spring 2011
- **Draft plan** (s. 41)
  - Fall 2011 - spring 2012
- **Proposed Plan** (s. 42)
  - Late spring 2012, No changes are made
  - Submitted with all comments and any municipal resolutions received (s. 25 of the act)
- ***Submission to Minister, August 20, 2012***

Appendix B - Source Protection Prescribed Instruments

MOE Issued Instruments:

- Environmental Compliance Approval (ECA)
  - **Waste disposal sites (EPA)**
  - **Waste management systems (EPA)**
  - **Organic soil conditioning sites (EPA)**
  - **Sewage works (OWRA)**
- Permits to Take Water (OWRA)
- Pesticide Permits (Pesticides Act)
- **Drinking Water Works Permit and Licence (SDWA)**
- Renewable Energy Approval (EPA)

** Instruments prescribed per O. Reg. 287/07*

MNR Issued instruments (MTO):

- Aggregate licences, permits and wayside permits and site plans (ARA)

OMAFRA Issued Instruments

- Nutrient Management Strategies and Plans (NMA)
- Non-Agricultural Source Material Plans (NMA)

Appendix C

When is an Activity a Significant Threat?

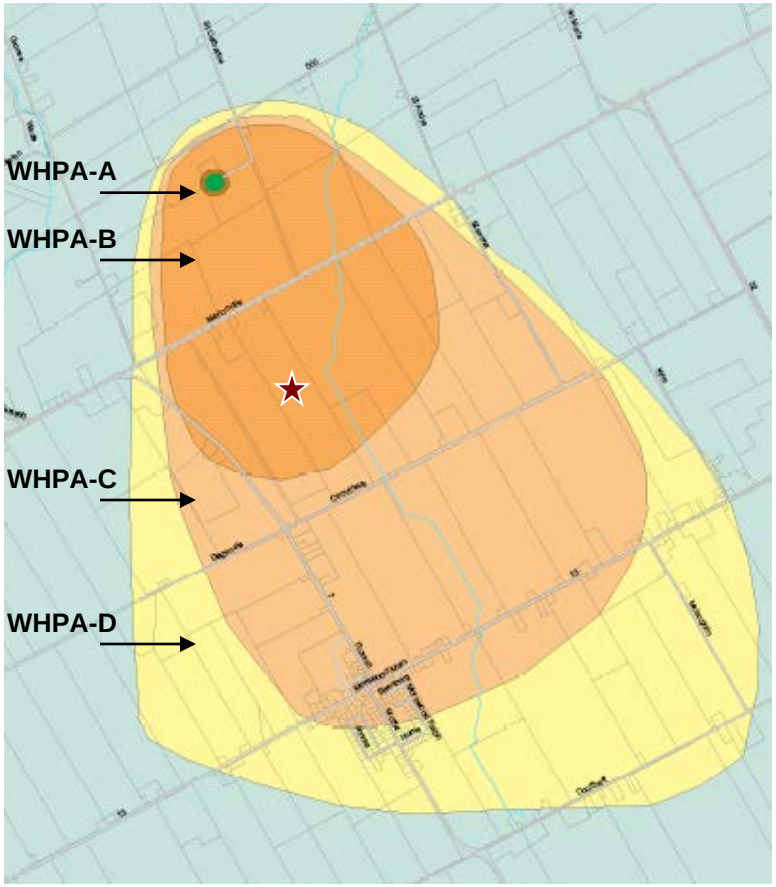
Step 1 – What is a threat?

- Q: If I spread manure in my field, is this a threat to drinking water?
- A: This activity is considered a drinking water threat (prescribed threat #3 in O.Reg. 287/07 “Application of Agricultural Source Material to land” as our example) because:
  - “the application may result in the presence of nitrogen, phosphorus, and/or pathogens in groundwater or surface water”

Why is this activity a threat to drinking water?

- **Nitrogen** -> found in water as Nitrates and Nitrites groundwater and surface water
- **Phosphorus** -> not toxic by itself, but affects surface water by promoting algal blooms which affect the quality of drinking water
- **Pathogens**
  - Bacteria (e.g. E.Coli)
  - Protozoa (e.g. giardiasis -> “Beaver Fever”)
  - Viruses (e.g. Hepatitis A)

Step 2 – Where is the activity?



- Q: Is my field in a vulnerable area?
- A: Consult the maps in the local assessment report

- I'm in WHPA-B

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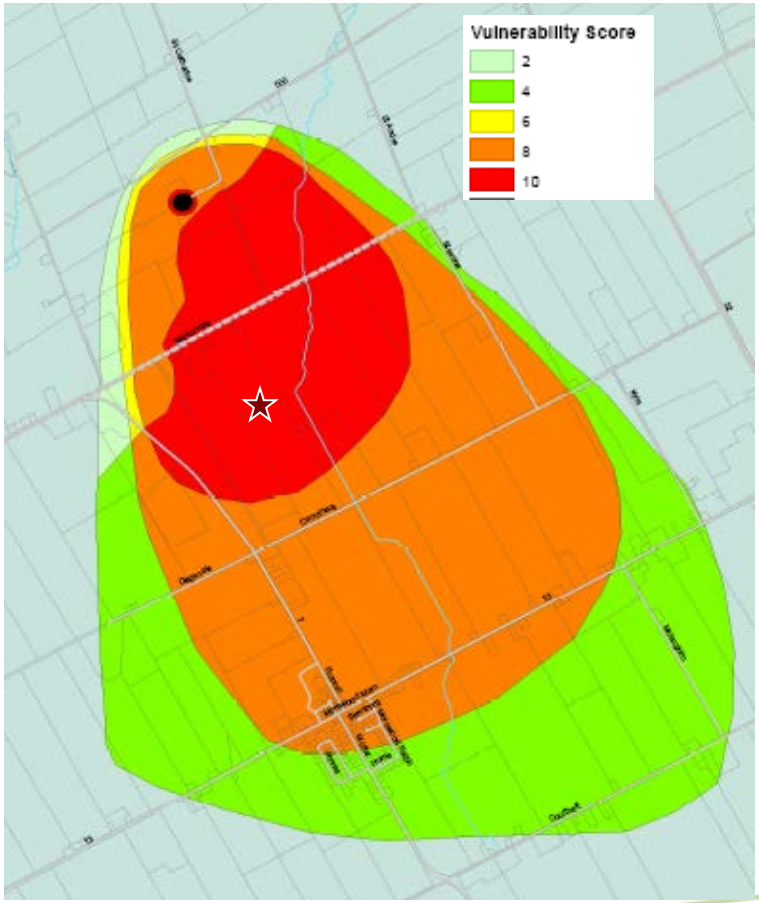
Step 3 – What is the vulnerability?

- Q: I'm in WHPA-B, what does that mean?
- A: Consult the local assessment report to determine the vulnerability score

- The vulnerability score is 10



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Step 4 - What are the Circumstances?

- Q: What makes my activity a threat in this area?
- A: Under the CWA, activities become threats in certain circumstances. These are listed in a table or shown on a map in the local assessment report.

Step 4 – circumstances, cont'd

Table 5.4.4: Applicable Provincial Tables of Circumstances for Chemical Threats, Embrun/Marionville

Vulnerable Area	Vulnerability Score	Provincial Circumstance Table Number (Table Name)		
		Significant	Moderate	Low
WHPA-A	10	1 (CW10S)	3 (CW10M)	6 (CW10L)
WHPA-B	10	1 (CW10S)	3 (CW10M)	6 (CW10L)
WHPA-B	8	2 (CW8S)	4 (CW8M)	7 (CW8L)
WHPA-C	8	2 (CW8S)	4 (CW8M)	7 (CW8L)
WHPA-C	6	*Below threshold*	5 (CW6M)	8 (CW6L)
WHPA-D	4, 2	*Below threshold*	*Below threshold*	*Below threshold*

Table 5.4.5: Applicable Provincial Tables of Circumstances for Pathogen Threats, Embrun/Marionville

Vulnerable Area	Vulnerability Score	Provincial Circumstance Table Number (Table Name)		
		Significant	Moderate	Low
WHPA-A	10	12 (PW10S)	13 (PW10M)	*None*
WHPA-B	10	12 (PW10S)	13 (PW10M)	*None*
WHPA-B	8	*None*	14 (PW8M)	15 (PW8L)
WHPA-C	All Scores	*Pathogens are not considered a threat within WHPA-C and WHPA-D*		
WHPA-D	All Scores			

Table 5.4.6: Applicable Provincial Tables of Circumstances for DNAPL Threats, Embrun/Marionville

Vulnerable Area	Vulnerability Score	Provincial Circumstance Table Number (Table Name)		
		Significant	Moderate	Low
WHPA-A	All Scores	9 (DWAS)	*None*	*None*
WHPA-B	All Scores	9 (DWAS)	*None*	*None*
WHPA-C	All Scores	9 (DWAS)	*None*	*None*
WHPA-D	4, 2	*Below threshold*	*Below threshold*	*Below threshold*

- The table in the local assessment report indicates that for WHPA-B, where the vulnerability score is 10, an activity may be considered a significant threat under circumstances CW10S, PW10S, and DWAS

Ontario

Step 4 – circumstances, cont'd

Next, consult the provincial table of circumstances, look up circumstance CW10S (table 1):

PROVINCIAL TABLE 1 (CW10S): Chemicals in a WHPA with a vulnerability score of 10 where threats are significant

Ontario

The application of agricultural source material to land.

Ref #	Circumstances	Chemical
5	1.The agricultural source material is applied to land located in a vulnerable area, where the managed land map shows a managed land percentage for the applicable area that is less than 40% and the livestock density map shows a livestock density for the applicable area that is sufficient to annually apply agricultural source material at a rate that is more than 1.0 nutrient units per acre.	Nitrogen
11	1.The agricultural source material is applied to land located in a vulnerable area, where the managed land map shows a managed land percentage for the applicable area that is at least 40%, but not more than 80% and the livestock density map shows a livestock density for the applicable area that is sufficient to annually apply agricultural source material at a rate that is more than 1.0 nutrient units per acre.	Nitrogen
13	1.The agricultural source material is applied to land located in a vulnerable area, where the managed land map shows a managed land percentage for the applicable area that is more than 80% and the livestock density map shows a livestock density for the applicable area that is sufficient to annually apply agricultural source material at a rate that is than 0.5 nutrient units per acre.	Nitrogen
15	1.The agricultural source material is applied to land located in a vulnerable area, where the managed land map shows a managed land percentage for the applicable area that is more than 80% and the livestock density map shows a livestock density for the applicable area that is sufficient to annually apply agricultural source material at a rate that is at least 0.5 nutrient units per acre but not more than 1.0 nutrient unit per acre.	Nitrogen
17	1.The agricultural source material is applied to land located in a vulnerable area, where the managed land map shows a managed land percentage for the applicable area that is more than 80% and the livestock density map shows a livestock density for the applicable area that is sufficient to annually apply agricultural source material at a rate that is more than 1.0 nutrient units per acre.	Nitrogen

The application of commercial fertilizer to land

- ***Ref# 5*** *The agricultural source material is applied to land located in a vulnerable area, where the managed land map shows a managed land percentage for the applicable area that is less than 40% and the livestock density map shows a livestock density for the applicable area that is sufficient to annually apply agricultural source material at a rate that is more than 1.0 nutrient units per acre.* ***Chemical of Concern: Nitrogen***

Ontario

Step 4 – circumstances, cont'd

- Next, to determine whether ref #5 from the table of circumstances applies to your activity, consult the Managed Land Percentage and Livestock Density maps or tables in the local assessment report.

Vulnerable Area	Total Area (ha)	Agricultural Managed Land (ha)	Non-Agricultural Managed Land (ha)	Total Managed Land (ha)	Percent Managed Land
WHPA-A	3.5	3.5	0	3.5	100 %
WHPA-B	446	383	0	383	87 %
WHPA-C	799	660	0	660	83 %

Vulnerability Score	Livestock Density of Agricultural Managed Land by Vulnerable Area (NU/acre)			
	WHPA-A	WHPA-B	WHPA-C	WHPA-D
10	0.18	0.18		
8		0.18	0.18	
6			0.18	0.18

Ontario

Step 4 – circumstances, cont'd

- To be considered a "significant threat," the activity must also satisfy circumstance reference #13

Ref #13
The agricultural source material is applied to land located in a vulnerable area, where the managed land map shows a managed land percentage for the applicable area that is more than 80% and the livestock density map shows a livestock density for the applicable area that is sufficient to annually apply agricultural source material at a rate that is less than 0.5 nutrient units per acre.
Chemical of Concern: Nitrogen

Step 4 – circumstances, cont'd

- Next, look up circumstance PW10S (table 12)
-

Circumstance 1944, and 1971 work as a "catch-all". Regardless of Livestock Density or Managed Land Mapping, the application of ASM could result in pathogens entering the source water for any WHPA-A/B (score of 10)

PROVINCIAL TABLE 12 (PW10S): Pathogens in WHPA A, B with a vulnerability of 10 where threats are significant Ontario

Ref #	Prescribed Threat	ThreatSubcategory	Circumstances
1944	The application of agricultural source material to land.	Application Of Agricultural Source Material (ASM) To Land	1. Agricultural source material is applied to land in any quantity. 2. The application may result in the presence of one or more pathogens in groundwater or surface water.
1945	The use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm-animal yard. O. Reg. 385/08, s. 3.	Management Or Handling Of Agricultural Source Material - Agricultural Source Material (ASM) Generation	1. The use of land as livestock grazing or pasturing land for one or more animals. 2. The land use may result in the presence of one or more pathogens in groundwater or surface water.
1971	The application of non-agricultural source material to land.	Application Of Non-Agricultural Source Material (NASM) To Land (Including Treated Septage)	1. The application of any quantity of non-agricultural source material that contains materials from a meat plant or sewage works. 2. The application may result in the presence of one or more pathogens in groundwater or surface water.

Ontario

What does it all mean?

- The activity (e.g. application of ASM to land) may be a significant threat to drinking water in parts of the vulnerable areas.
- A source protection plan must include a policy for each significant threat
  - Source protection plan policies for significant threats will apply in these areas, to activities that meet the circumstances:

WHPA-A	10						
WHPA-B	10	8	6				
WHPA-C	8	6	2				
WHPA-D	6	4	2				
WHPA-E	7.2						
IPZ-1	10	9	8	7			
IPZ-2	9	8	7.2	6.4	6.3	5.6	4.9
IPZ-3	7	3	1				