

# ***Ontario's Approach to Drinking Water Source Protection***





## Cost of a Crisis - \$64.5 Million

|  |               |
|--|---------------|
| Other Gov't Agency Costs               | \$ 11,110,184 |
| OCWA & System Remediation              | \$ 9,222,215  |
| Inquiry Costs                          | \$ 9,000,000  |
| Household Costs                        | \$ 6,916,949  |
| Town Costs                             | \$ 6,548,523  |
| Health & Epidemiological Study Costs   | \$ 5,212,160  |
| Emergency Water Provision              | \$ 4,167,179  |
| Health Unit & HU Assistance            | \$ 3,150,000  |
| Local Business Losses (incl. Prod)     | \$ 2,694,435  |
| Long-term health                       | \$ 2,497,932  |
| Loss Property Values                   | \$ 1,106,136  |
| Legal - Private                        | \$ 1,000,000  |
| Samples, labs, reporting               | \$ 645,000    |
| Hospital Stays & Air Trans.& Opp. Cost | \$ 597,418    |
| Coroner Costs                          | \$ 559,824    |
| Physician Visits                       | \$ 99,239     |
|  | \$ 64,527,194 |





# What Happened In Walkerton?

A public inquiry found that nearly every protection measure failed.

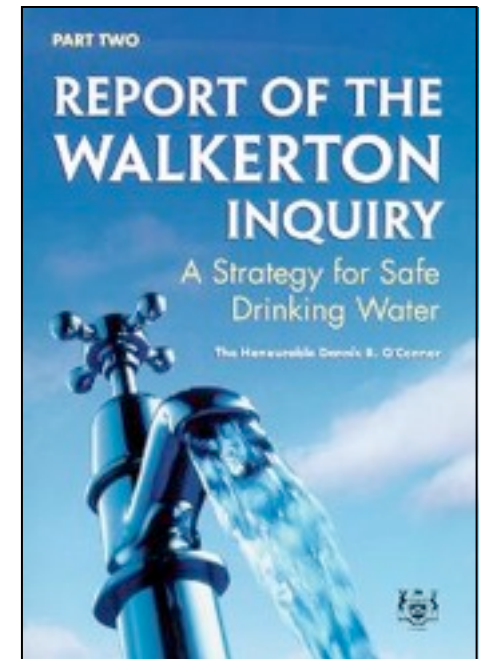
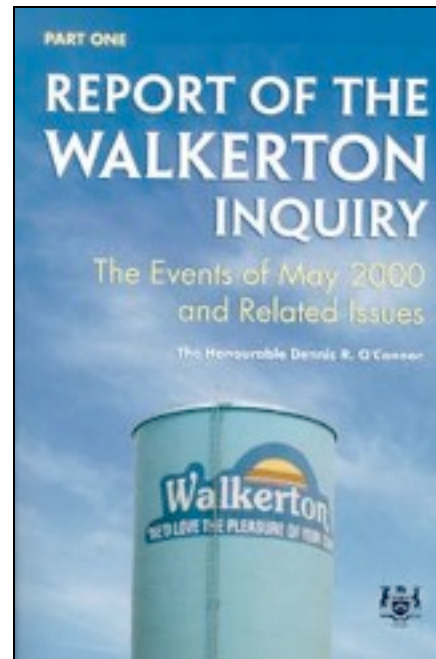
The Inquiry examined those failures and made 121 recommendations.

99 recommendations regarding:

- Approvals & Inspections
- Training & Certification
- Licensing & Accreditation
- Communication among Agencies

22 recommendations regarding:

- Watershed-based source protection



# A Need for Source Water Protection

## Prevention

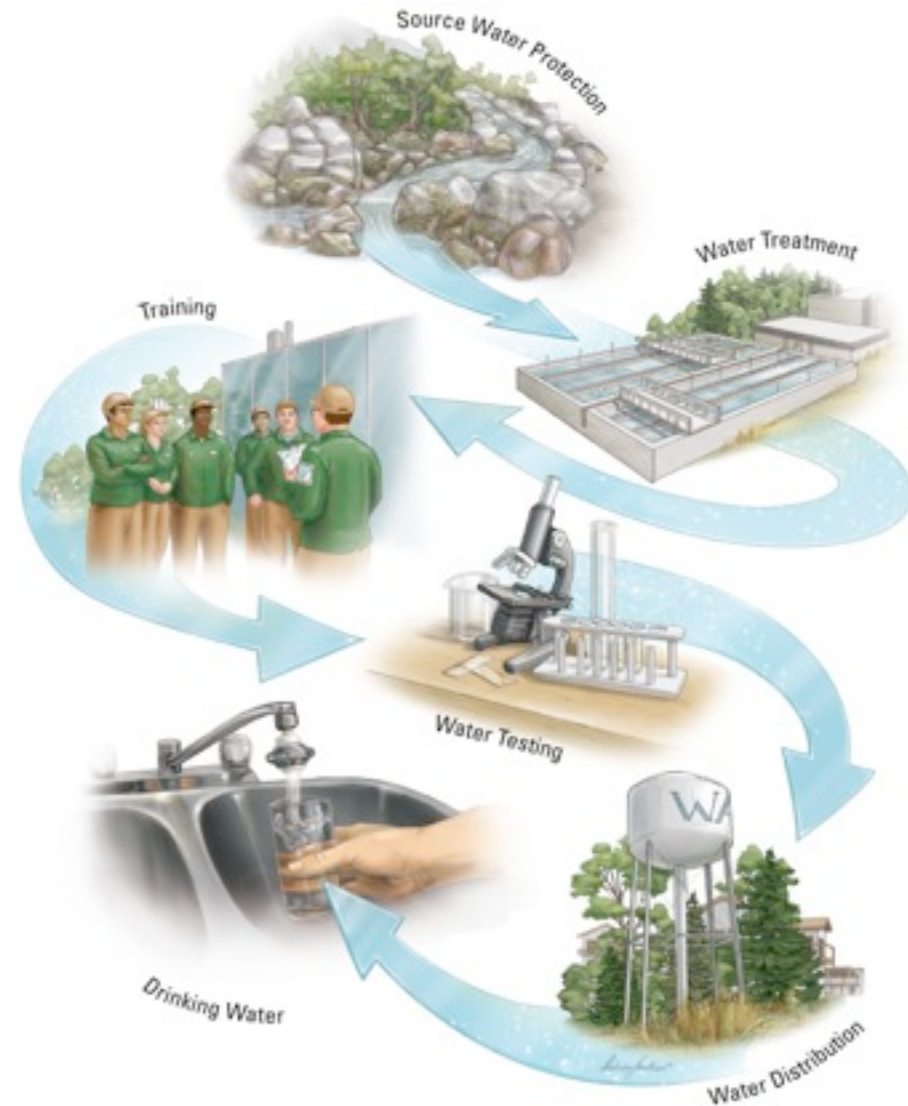
Steps should be taken to keep contaminants out of drinking water sources such as rivers, lakes and groundwater

## Part of a Multi-Barrier Approach

*“The best way to achieve a healthy public water supply is to put in place multiple barriers that keep water contaminants from reaching people”*

*“A degree of redundancy guards against the failure of any one barrier.”*

*Justice Dennis O'Connor*



# How is Ontario Protecting Source Water?

Ontario introduced the  
***Water Act*** in 2006:

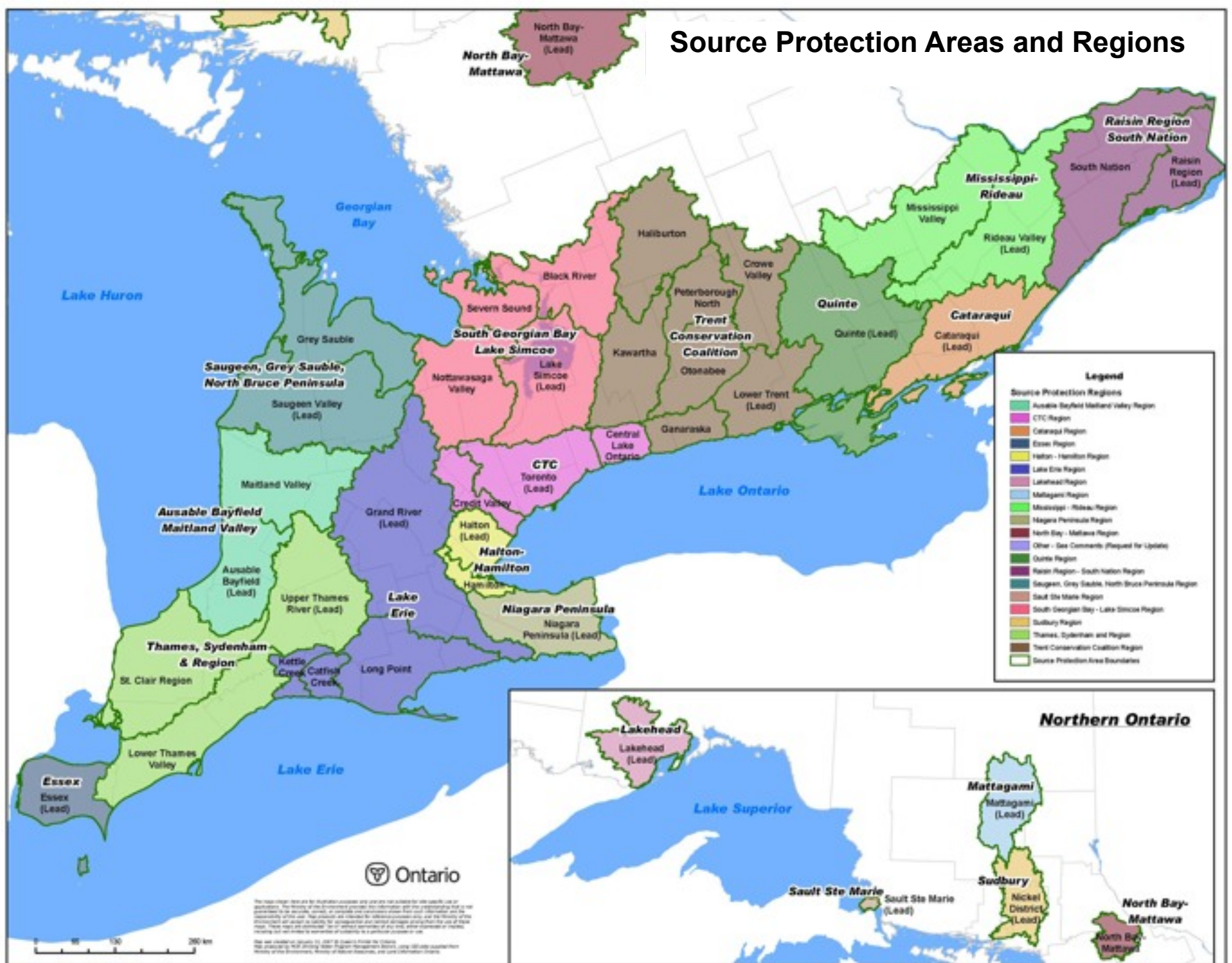
***Clean***

- Focus is protecting sources of **municipal drinking water**
- Approach is developing **Science-based** policies
- Decisions are made at the **watershed scale**



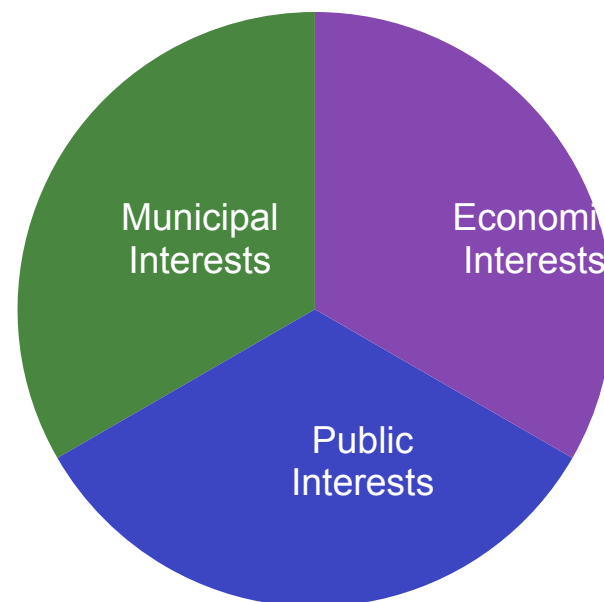


# Source Protection Areas and Regions

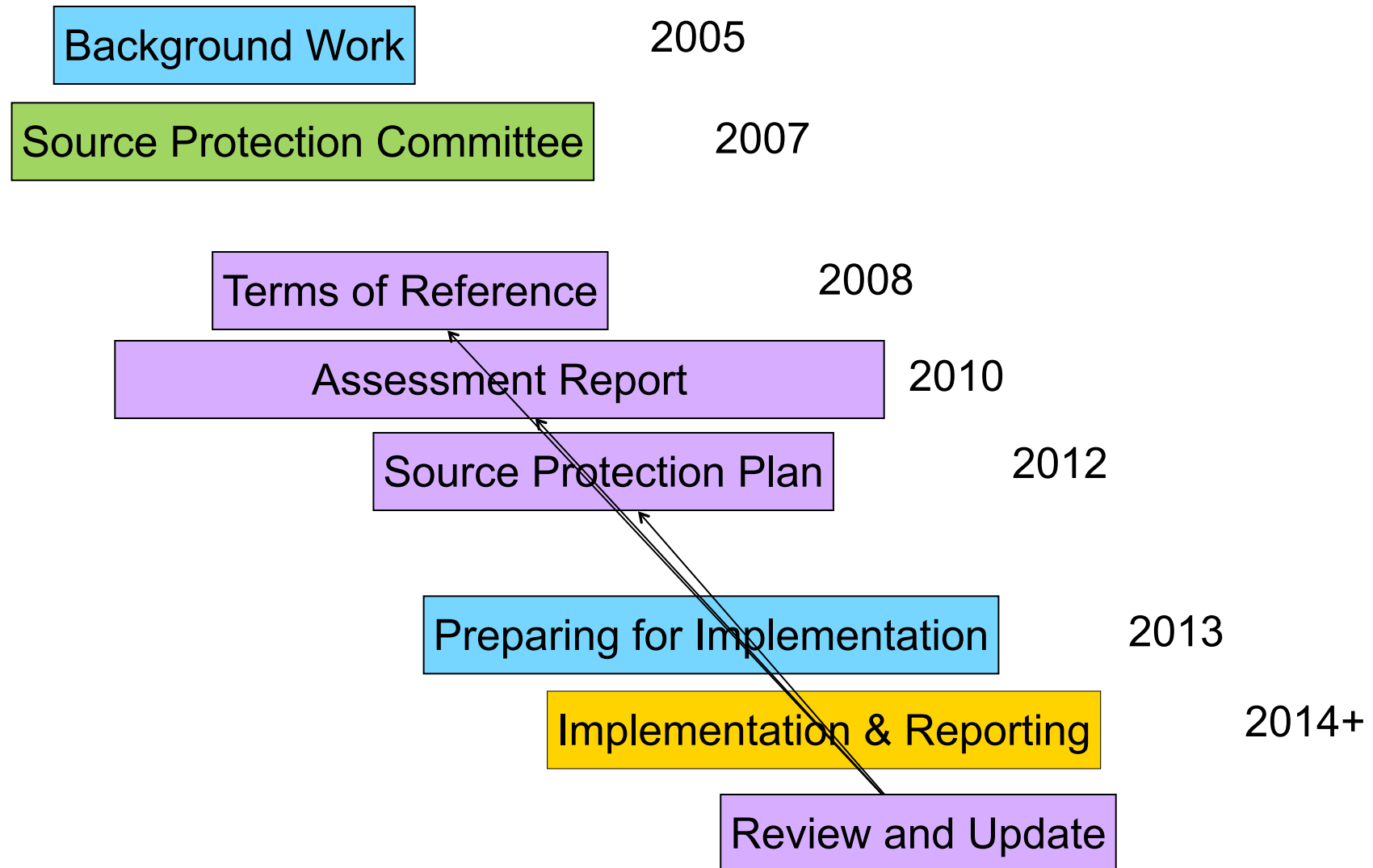


# Source Protection Committees

- **Chair**
- **1/3 Municipal Reps**  
Members of council and staff
- **1/3 Economic Sector Reps**  
Agriculture, industry, small business...
- **1/3 Public Interest Reps**  
First Nations, environment, public...
- **First Nations Rep**  
Only for regions that have First Nations reserves
- **3 Non-voting Liaison Members**  
Representing MOE, SPAs & Health Units



# The Process





# Workflow

approve

**Ministry of the Environment**

submit

**Source Protection Authority**

(Conservation Authority Board of Directors)

develop

**Source Protection Committee**

Legislation  
Guidance

Municipalities  
Other Implementing Bodies  
Sector / Industry Experts  
Neighbouring Regions

Affected Property Owners  
Affected Businesses  
Interested Groups  
General Public



# Ontario's Source Protection Process

## Assessment Report

### 1. Identify Vulnerable Areas (drinking water sources)

- Wellhead Protection Areas
- Intake Protection Zones
- Highly Vulnerable Aquifers
- Significant Groundwater Recharge Areas

*municipal drinking water*

*municipal drinking water*

*regional groundwater*

*regional groundwater*

## MOE

### 2. Identify Drinking Water Threats

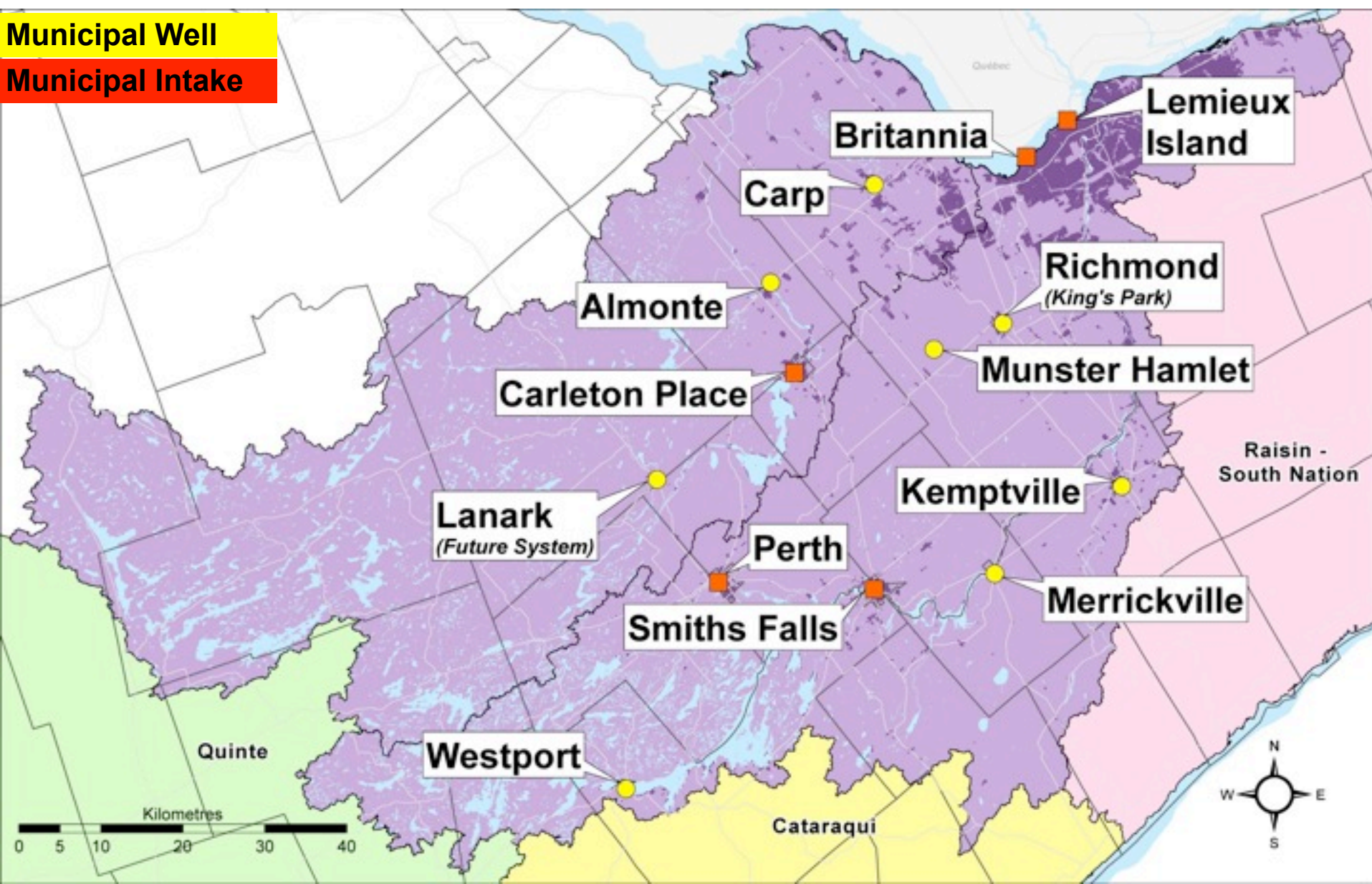
- 21 “prescribed drinking water threats”
- Also opportunity to add other threats locally

## Source Protection Plan

### 3. Address Drinking Water Threats

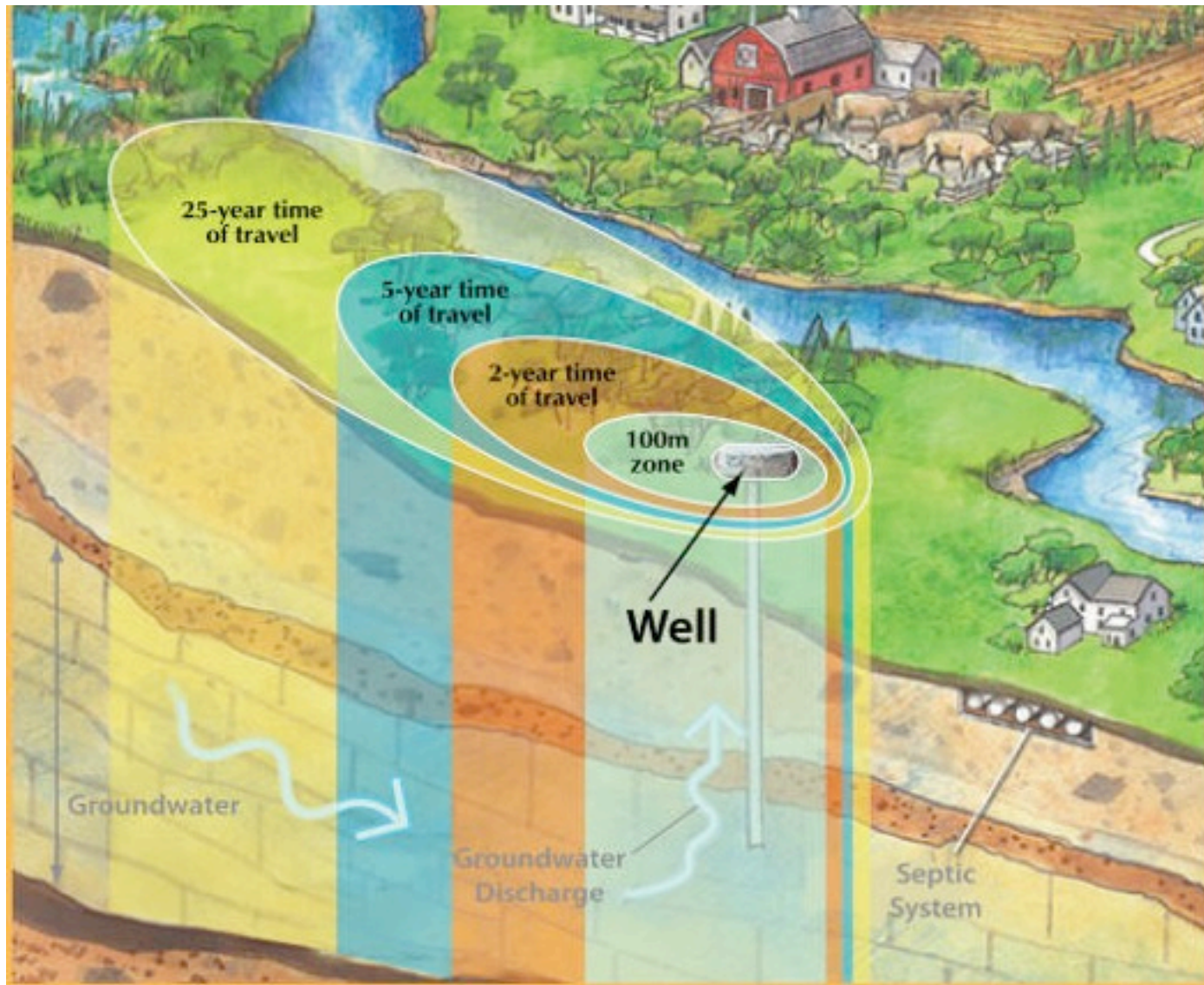
- Consider existing legislation and requirements
- Develop additional policies where necessary to *manage or prohibit*

# Municipal Drinking Water Systems in the Mississippi-Rideau

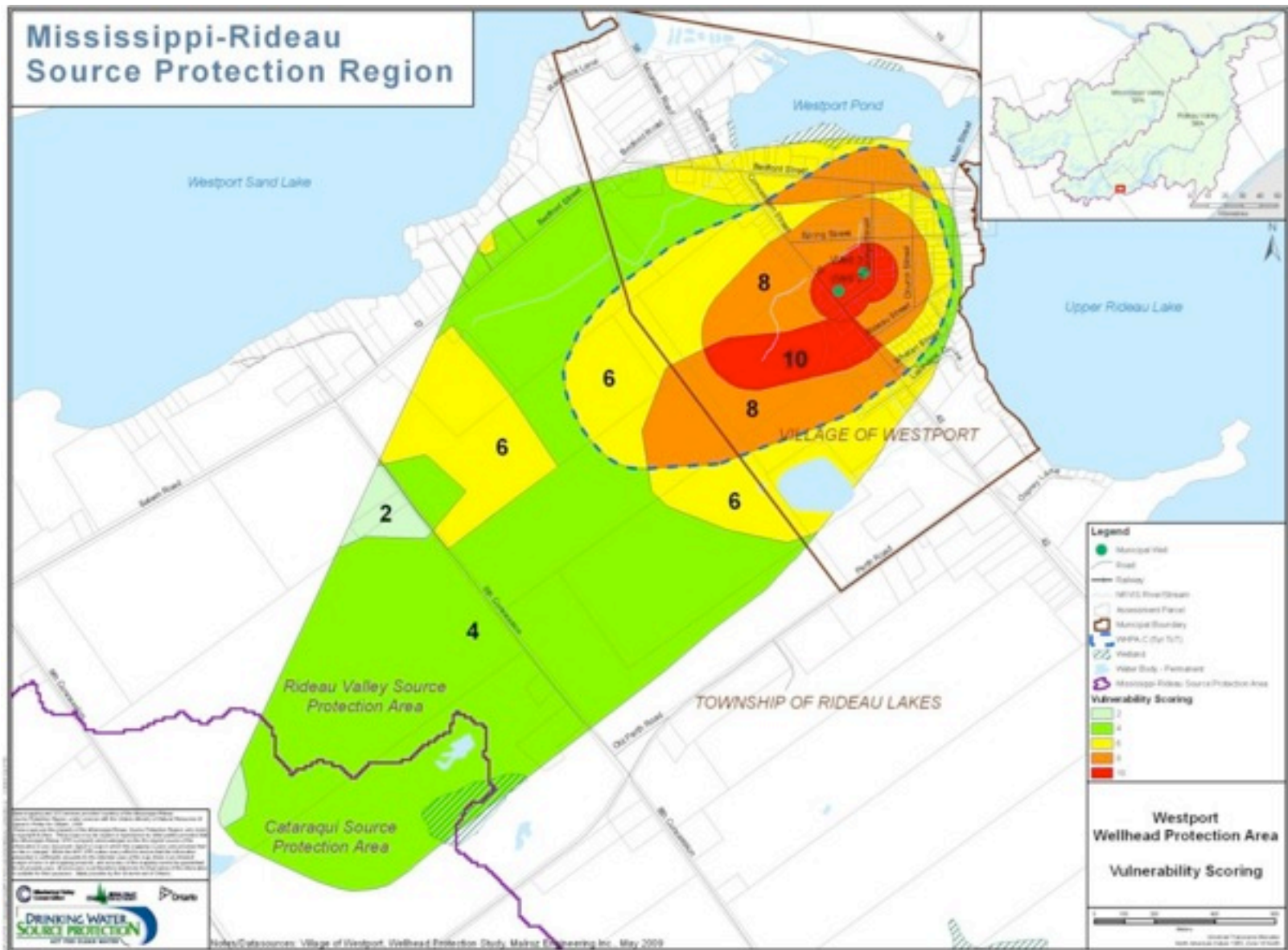




# Wellhead Protection Areas



# Westport Wellhead Protection Area



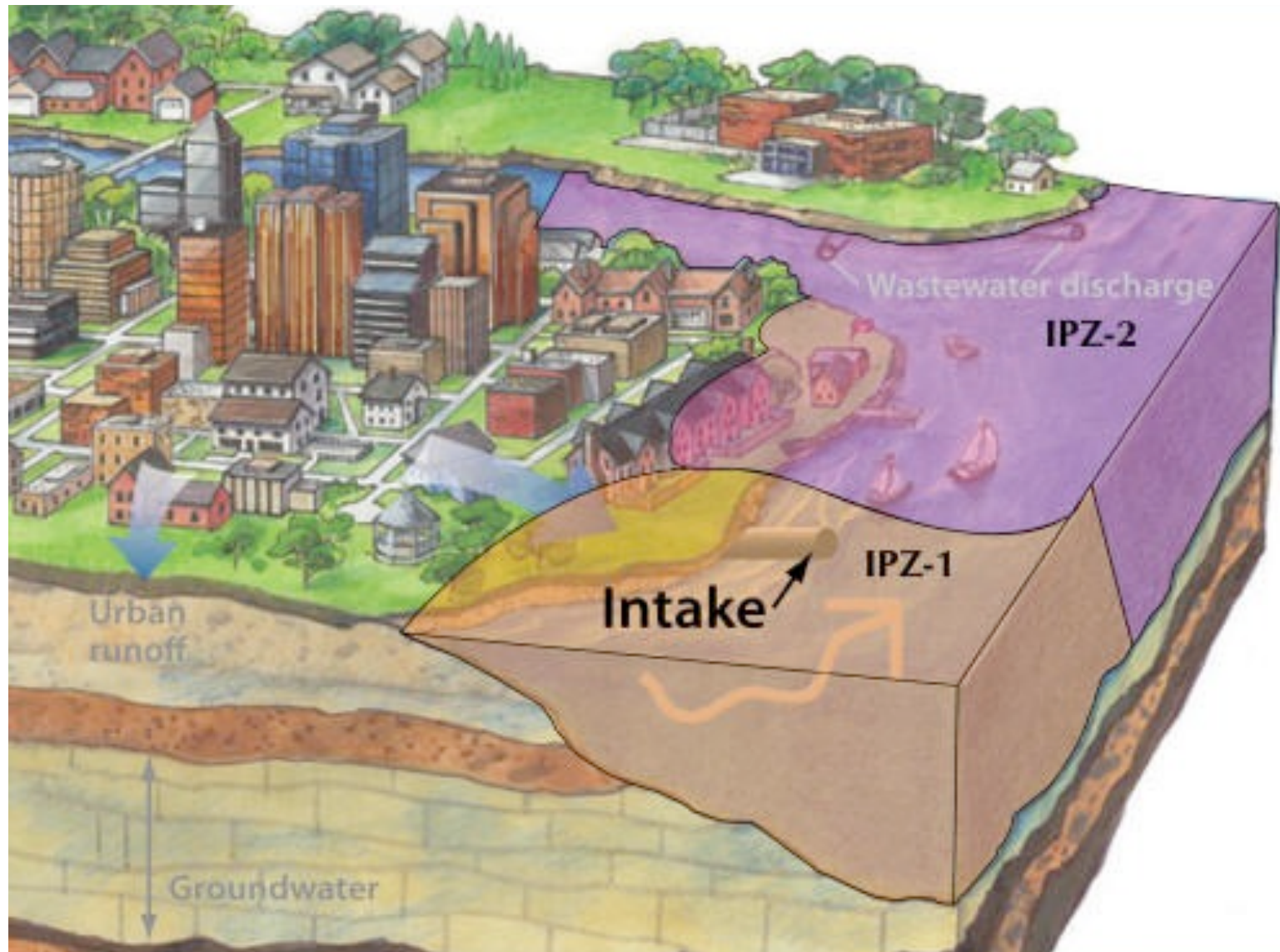
# MOE's Designated Significant Threats

| MOE Drinking Water Threat Categories    |  | Wellhead Protection Area          |   | Intake Protection Zone |   |         |
|---|--|-----------------------------------|---|------------------------|---|---------|
|   |  | 10                                | 8 | 10                     | 9 | 8.1 / 8 |
| Waste Disposal Site                     | (establishment, operation or maintenance)                        | ✓                                 | ✓ | ✓                      | ✓ | ✓       |
| Sewage System                           | (establishment, operation or maintenance)                        | ✓                                 | ✓ | ✓                      | ✓ | ✓       |
| Agricultural Source Material (ASM)      | (application, handling and storage)                              | ✓                                 |   | ✓                      | ✓ | ✓       |
| Non-Agricultural Source Material (NASM) | (application, handling and storage)                              | ✓                                 |   | ✓                      | ✓ | ✓       |
| Aquaculture                             |  |                                   |   |                        |   |         |
| Outdoor Livestock Areas                 | (grazing, pasturing, outdoor confinement area, farm-animal yard) | ✓                                 |   | ✓                      | ✓ | ✓       |
| Commercial Fertilizer                   | (application, handling and storage)                              | ✓                                 |   | ✓                      | ✓ |         |
| Pesticides                              | (application, handling and storage)                              | ✓                                 |   | ✓                      | ✓ | ✓       |
| Road Salt                               | (application, handling and storage)                              | ✓                                 |   | ✓                      | ✓ |         |
| Snow                                    | (storage)  | ✓                                 |   | ✓                      | ✓ |         |
| Fuel                                    | (handling and storage)   | ✓                                 |   | ✓                      |   |         |
| Dense Non-Aqueous Phase Liquid (DNAPL)  | (handling and storage)   | Anywhere in 5 year time of travel |   | ✓                      |   |         |
| Organic Solvent                         | (handling and storage)   | ✓                                 |   | ✓                      |   |         |
| De-icing of Aircraft                    | (management of runoff )  | ✓                                 |   | ✓                      | ✓ |         |

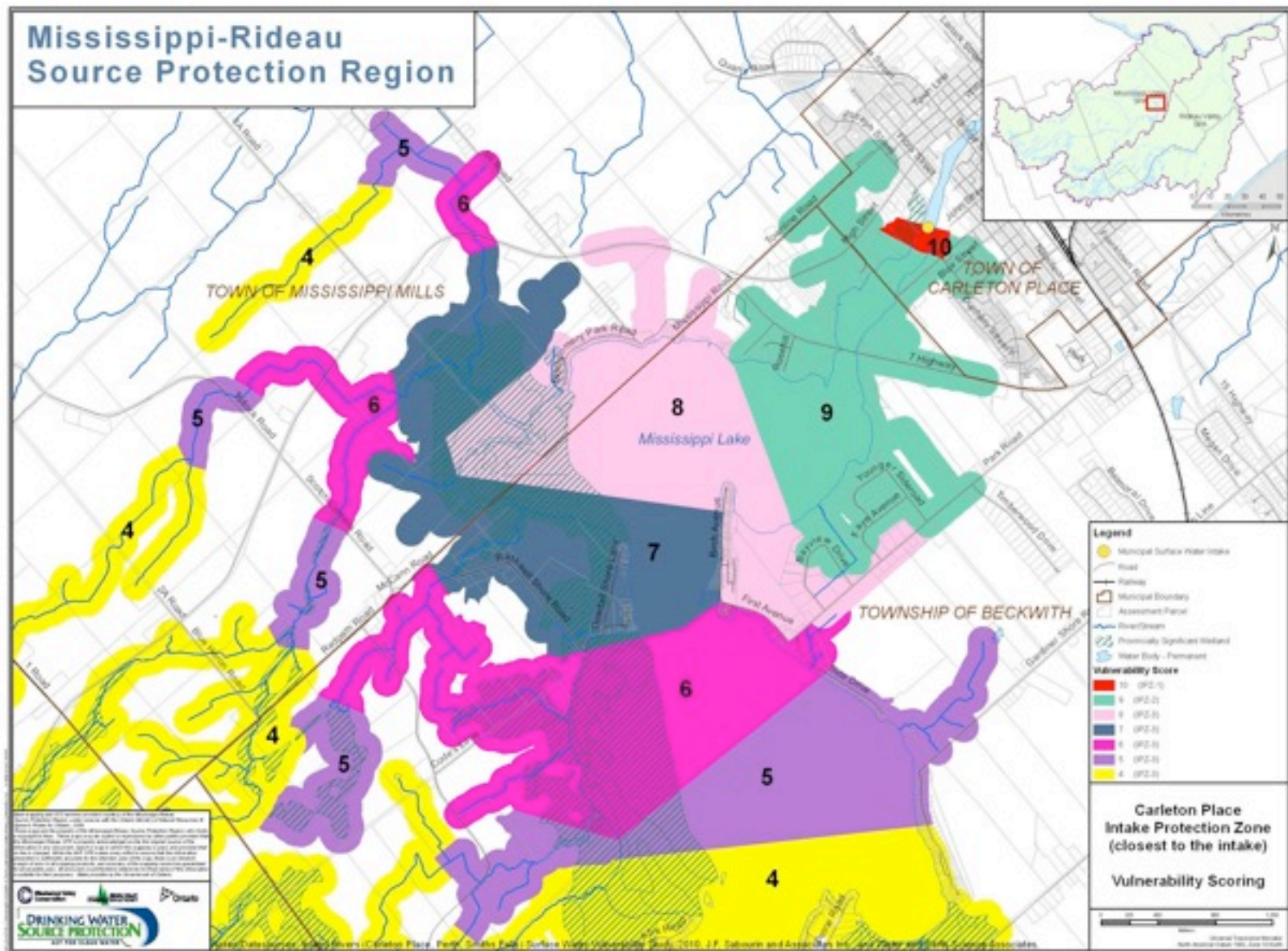
\*DNAPLs are chemicals that sink in water and have low solubility (e.g. trichloroethylene)



# Intake Protection Zone



# Carleton Place Intake Protection Zone





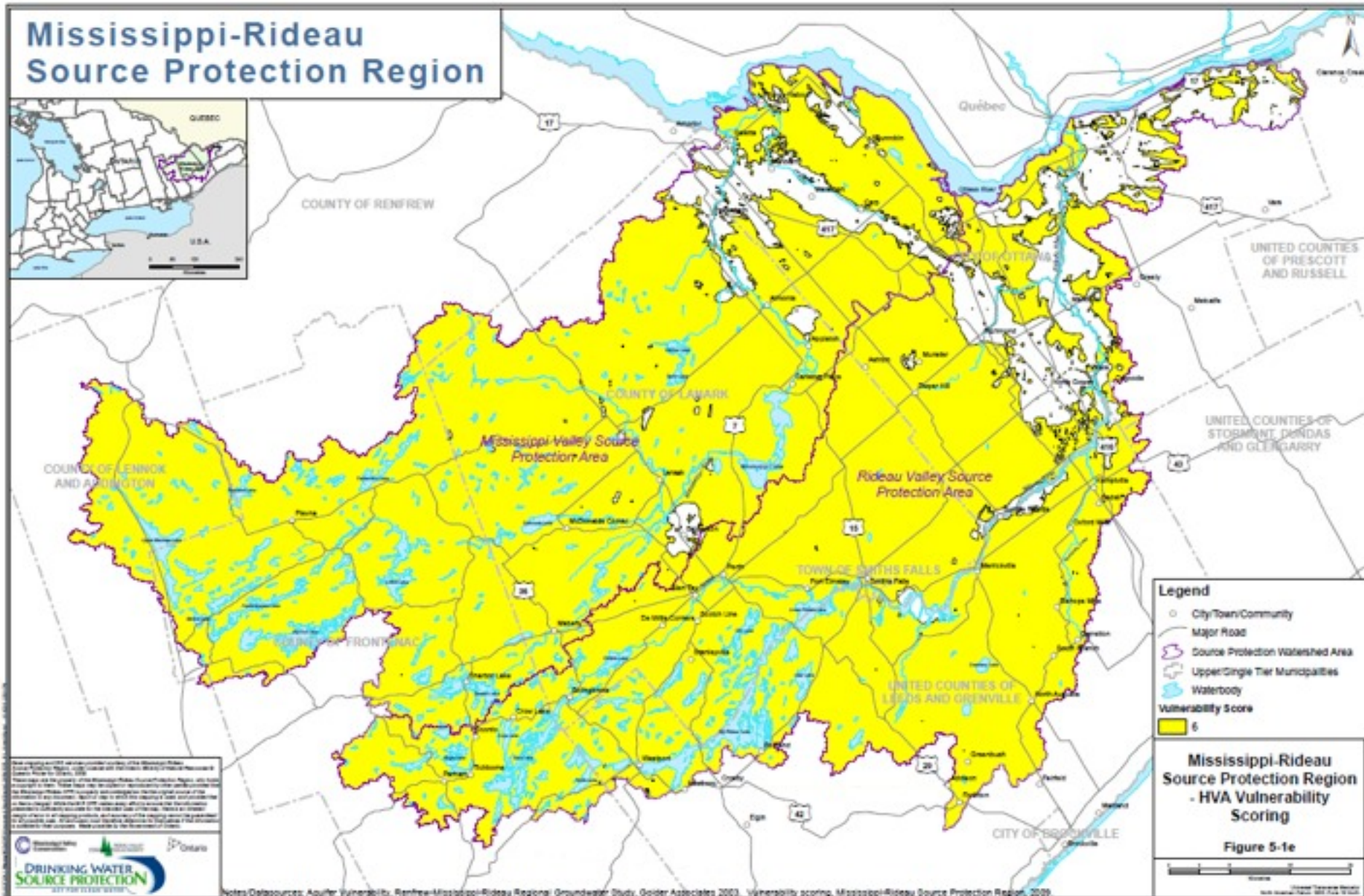
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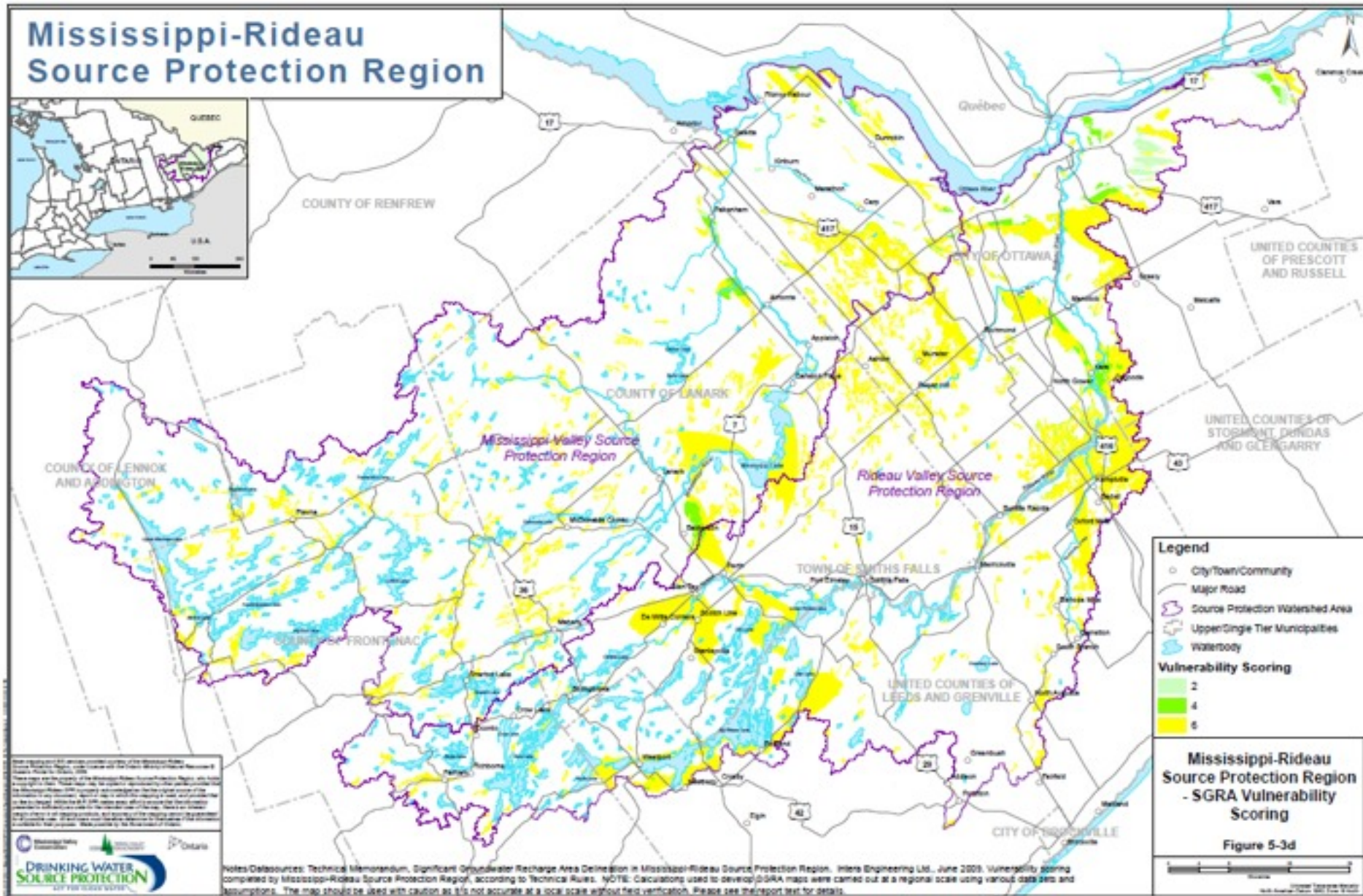


# Highly Vulnerable Aquifers





# Significant Groundwater Recharge Areas



# Policy Toolbox



| Policy Tool  | Address Significant Threats        | Address Moderate & Low Threats |
|--|------------------------------------|--------------------------------|
| Education & Outreach   | √<br>Municipality / CA must comply | √                              |
| Incentive Programs   | √<br>Municipality / CA must comply | √                              |
| Specify Action   | √<br>Municipality / CA must comply | √                              |
| Prescribed Instruments                                       | √<br>Must Conform                  | √<br>Must Have Regard          |
| Land Use Planning  | √<br>Must Conform                  | √<br>Must Have Regard          |
| Risk Management Plans<br>(under the <i>Clean Water Act</i> ) | √<br>Must Comply                   | <b>X</b>                       |
| Prohibition<br>(under the <i>Clean Water Act</i> )           | √<br>Must Comply                   | <b>X</b>                       |



# The Result...



# General Policy Approach Across Ontario

- Education – across the board for most threats
- Manage – generally all existing activities and some future activities
- Prohibit – some future activities

## Managing Activities:

- Rely on existing requirements where possible (business as usual)
- Add new requirements if necessary (inspection, change in practice)

## Prohibiting Future Activities:

- Those that are large scale, high risk or have little local impact

## Implementation:

- First choice – provincial prescribed instruments
- Second choice – other existing tools or programs
- Third choice – Risk Management Official tools

# Mississippi-Rideau Example

## WHPA Scored 10

### Prohibit (future):

- Waste disposal sites
- Sewage works such as industrial effluent, combined sewers and sewage treatment plants
- Snow dumps and road salt storage
- DNAPLs and organic solvents
- Fuel storage at licensed facilities such as at gas stations
- Commercial (non-farm) pesticide and fertilizer storage
- Aircraft de-icing

### Manage:

- On-site sewage systems  
(mandatory inspections)
- Sanitary sewers  
(regular inspections and maintenance)
- Road salt application  
(Management Plans / Smart Salt Practices)
- DNAPLs, organic solvents, fuel stored at private outlets, commercial fertilizer, ASM, NASM, outdoor livestock areas  
(Risk Management Plans)



## WHPA Scored 8

### Prohibit (future):

- Waste disposal sites
- Sewage works: industrial effluent, combined sewers and sewage treatment plants
- DNAPLs

### Manage:

- Existing DNAPLs (Risk Management Plan)

## WHPA - C

### Prohibit (future):

- DNAPLs

### Manage:

- Existing DNAPLs (Risk Management Plan)



# The Impact...

## Source Protection Plan Policies:

### Only apply in small areas

- Less than 1.5% of our region

### Only affect a few activities

- 200 fuel, 55 agriculture, 12 chemical, 2 septic

### Only prohibit or contain requirements when necessary

- Many activities are already adequately managed
-

# Next Steps

## Source Protection Plan Approval:

- Plans were submitted to the MOE in August, 2012
- Approval is expected in 2013
- Implementation is expected to begin in early 2014

## Preparing for Implementation:

- Getting municipalities and others ready to implement policies
  - Getting property owners and businesses ready for implementation
-

# Lessons Learned

## Funding:

- This program was well funded by the province
  - Program Funding (for conservation authorities and municipalities)
  - Stewardship Funding (for property owners and businesses)
  - Now discussing implementation funding

## Consultation:

- Every step of the process involved extensive consultation with all parties
- This led to better results and was essential in building support for the policies

## Provincial Direction – Local Decisions:

- Provincial direction provided consistency (but sometimes too rigid or too flexible)
- Watershed-scale produced effective, practical and cost-effective policies

## Scope:

- Current focus is protecting sources of municipal drinking water in CA watersheds
  - Other sources could be protected (private wells and intakes, non-CA areas)
-



# More Information:

## Mississippi-Rideau:

1147

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## MOE:

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## Conservation Ontario:

[www.conservation-ontario.on.ca](http://www.conservation-ontario.on.ca)

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