

Risk Management Plans

City of Guelph

Land Water Sources – An International Conference on Source Water Protection

November 3, 2016

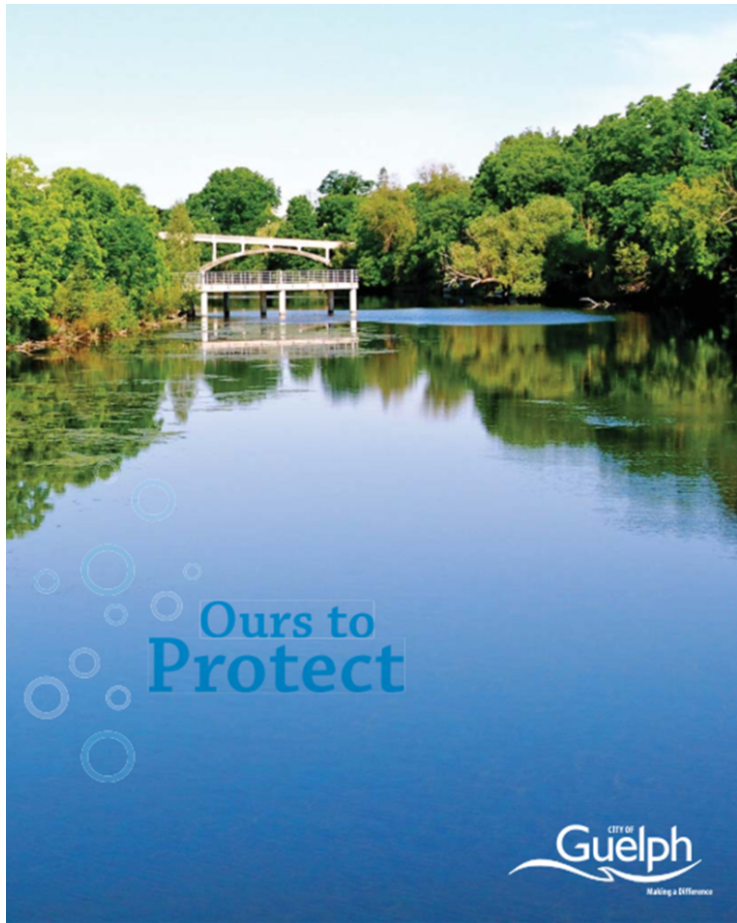
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Presentation Outline

- Overview of Ontario's Source Protection Program
- What makes Guelph unique?
- Program Challenges
- Solutions
- Concluding Remarks



“The first barrier to the contamination of drinking water involves protecting the sources of drinking water.”

- Justice Dennis O'Connor, Walkerton Inquiry 2002

Source Protection Timeline

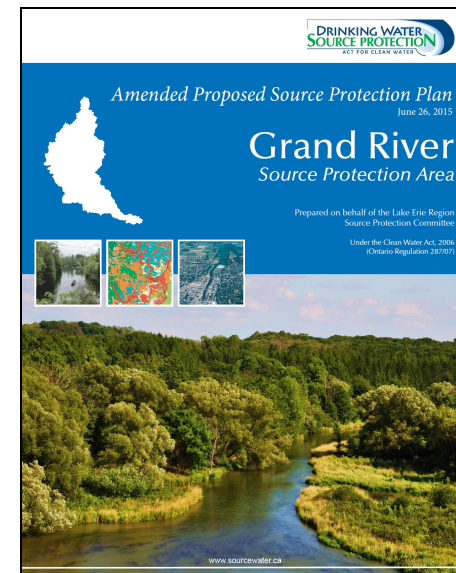
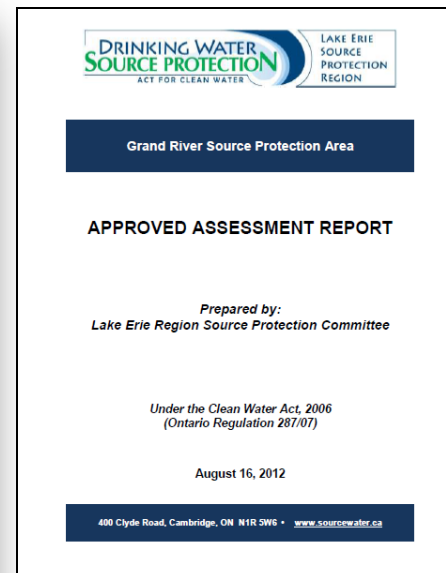
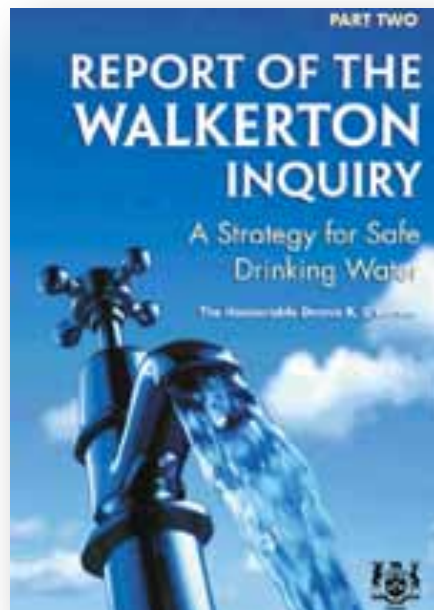
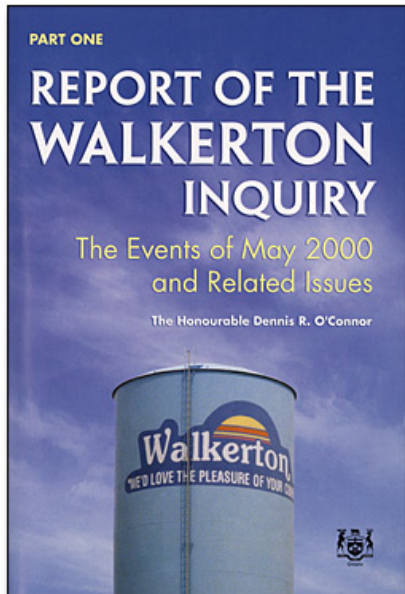
Walkerton
Tragedy
2000

O'Connor
Inquiry
2002

Clean Water
Act
2006

Source Protection
Program
2007-2015

Key Program Report Milestones/Deliverables:



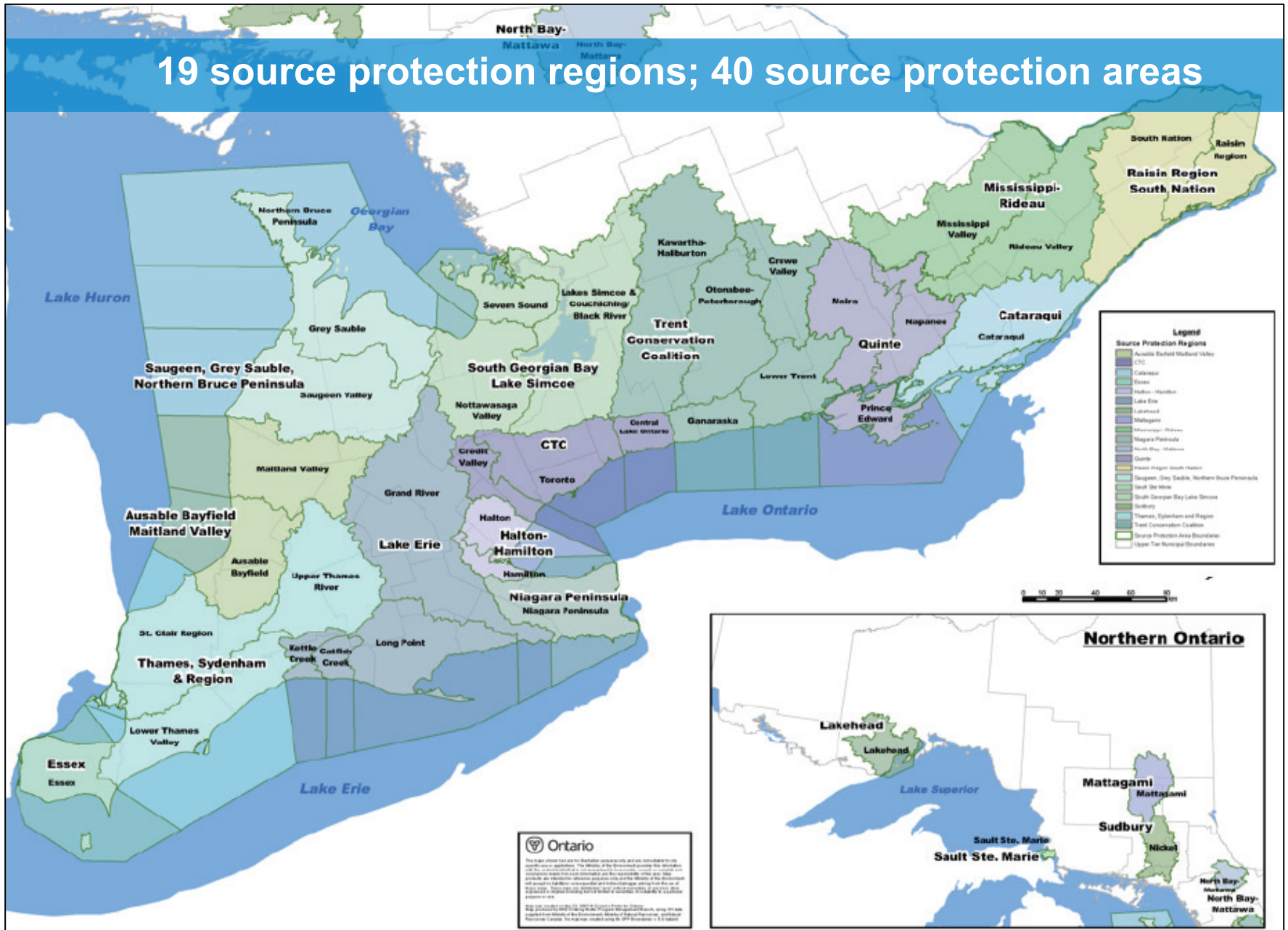
Source Protection in Ontario

- Focus on Drinking Water Sources
- Watershed Based
- Clean Water Act (2006)
- Prepare Assessment Reports
- Develop Source Protection Plans
- Implement Source Protection Plans

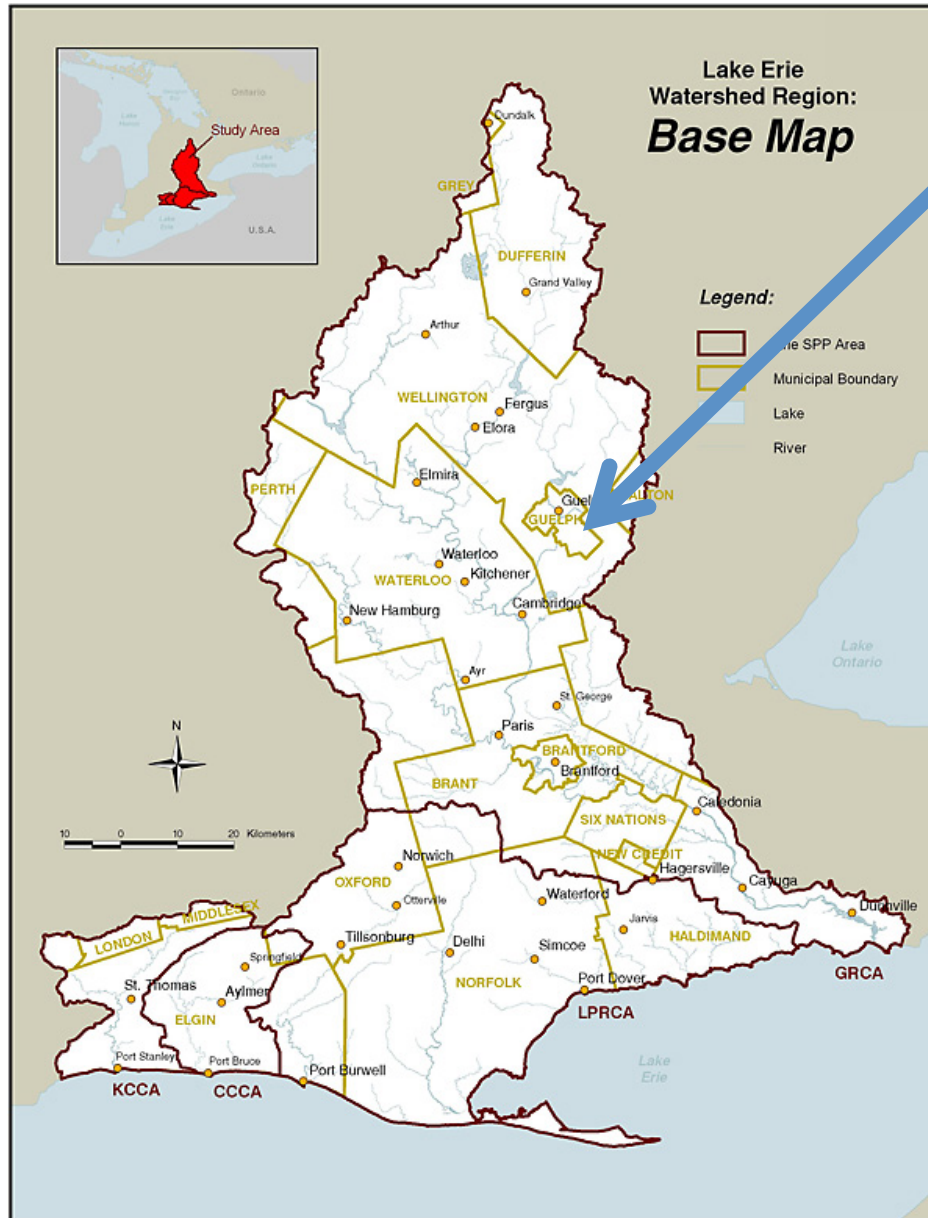


Source Protection Areas in Ontario

19 source protection regions; 40 source protection areas



The Lake Erie Source Protection Region



City of Guelph

Population: 126,000

The Lake Erie SPR includes four watershed – based Source Protection Areas:

- [Catfish Creek SPA](#)
- [Grand River SPA](#)
- [Kettle Creek SPA](#)
- [Long Point Region SPA](#)

- 52 municipalities
- Two First Nations
- 63 drinking water systems
- 900,000 people.

Source Protection Program Objective

Protect water quality and quantity for existing and future Municipal Drinking Water Systems

1. Identify vulnerable areas
2. Identify water quality and quantity issues
3. Identify threats and establish the level of risk
4. Develop policies to address significant risks
5. Implement Source Protection Plan



Drinking Water Threats as defined by Clean Water Act:

“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”

Sewage Treatment
Plants

Waste Disposal Sites

Fuel

Livestock Grazing

Pesticides/Fertilizers

Road Salt

De-icing of Aircraft

Storage of Snow

Organic Solvents

DNAPLs

Agricultural Source
Material (ASM)

Non-Agricultural
Source Material

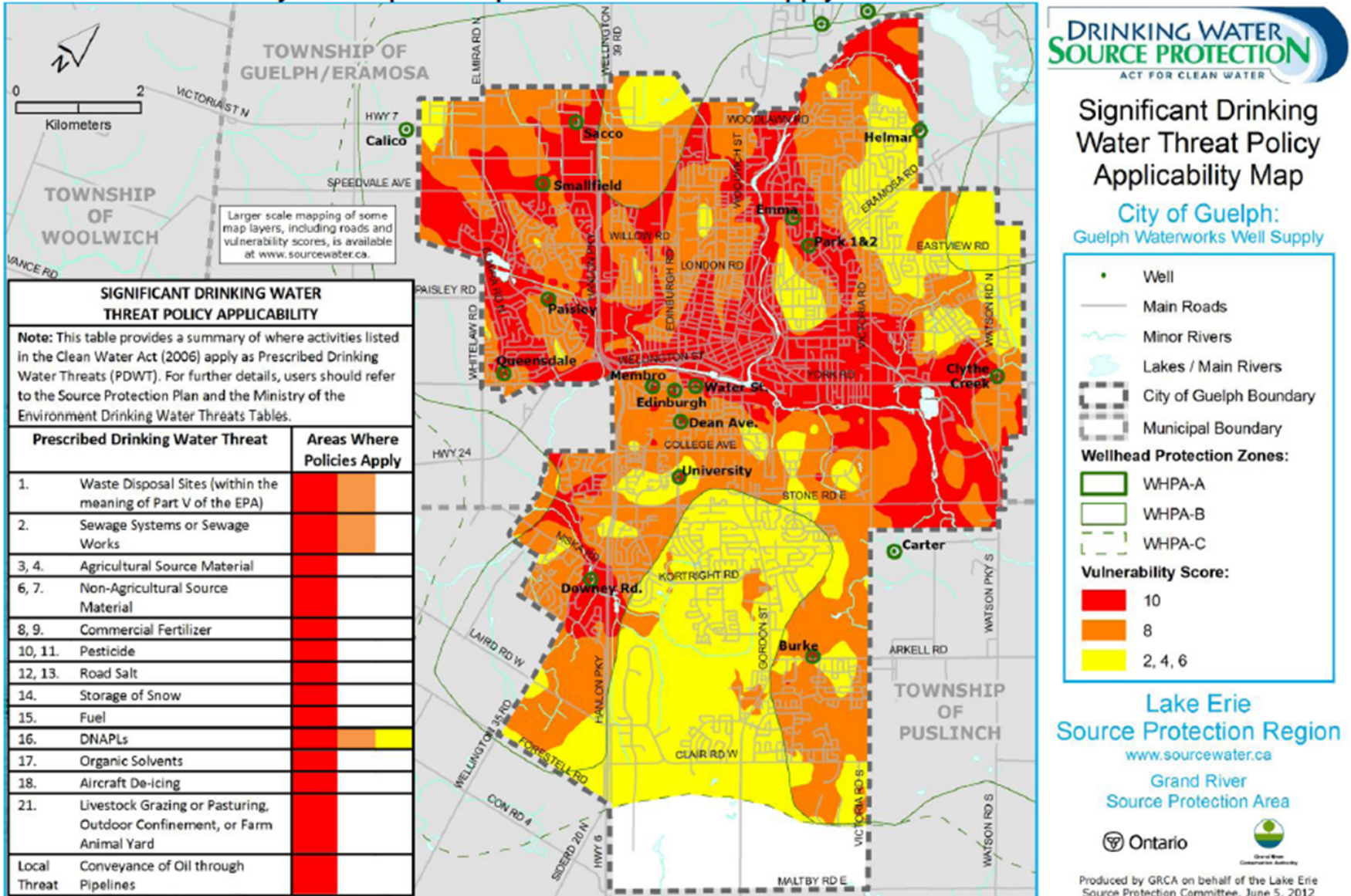
What makes Guelph Unique?

Factors

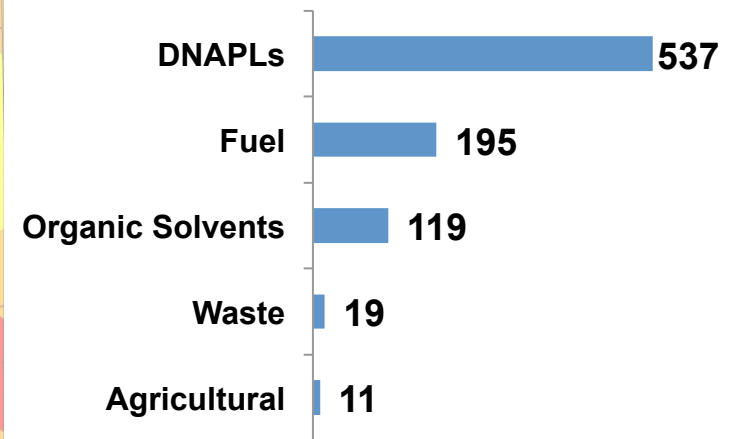
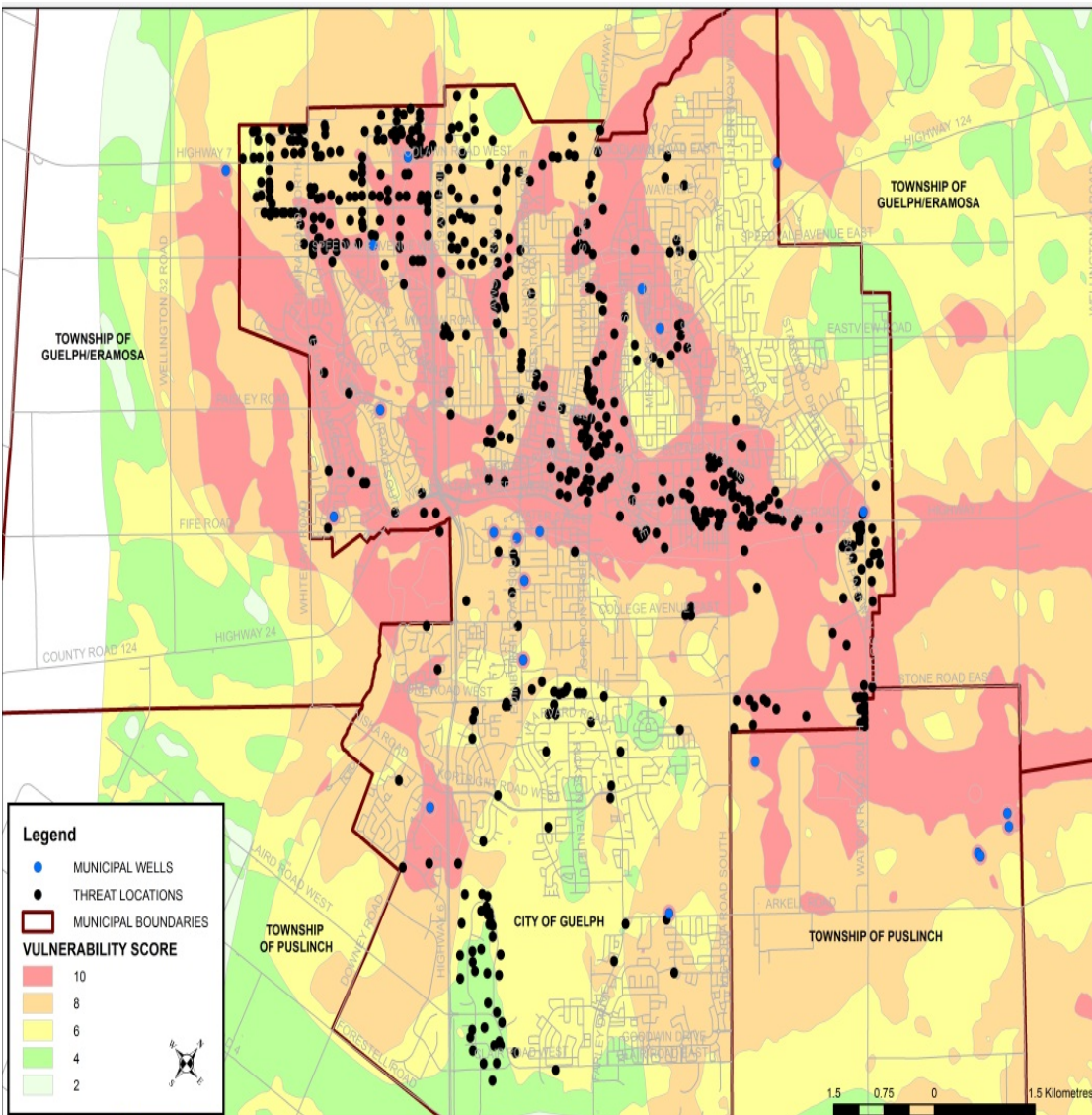
- Bedrock Aquifer
- Thin overburden = High Vulnerability Scores
- Multiple Municipal Wells throughout the City and in neighbouring Twps.
- Highly Urbanized Area
- Historical Contamination at several properties



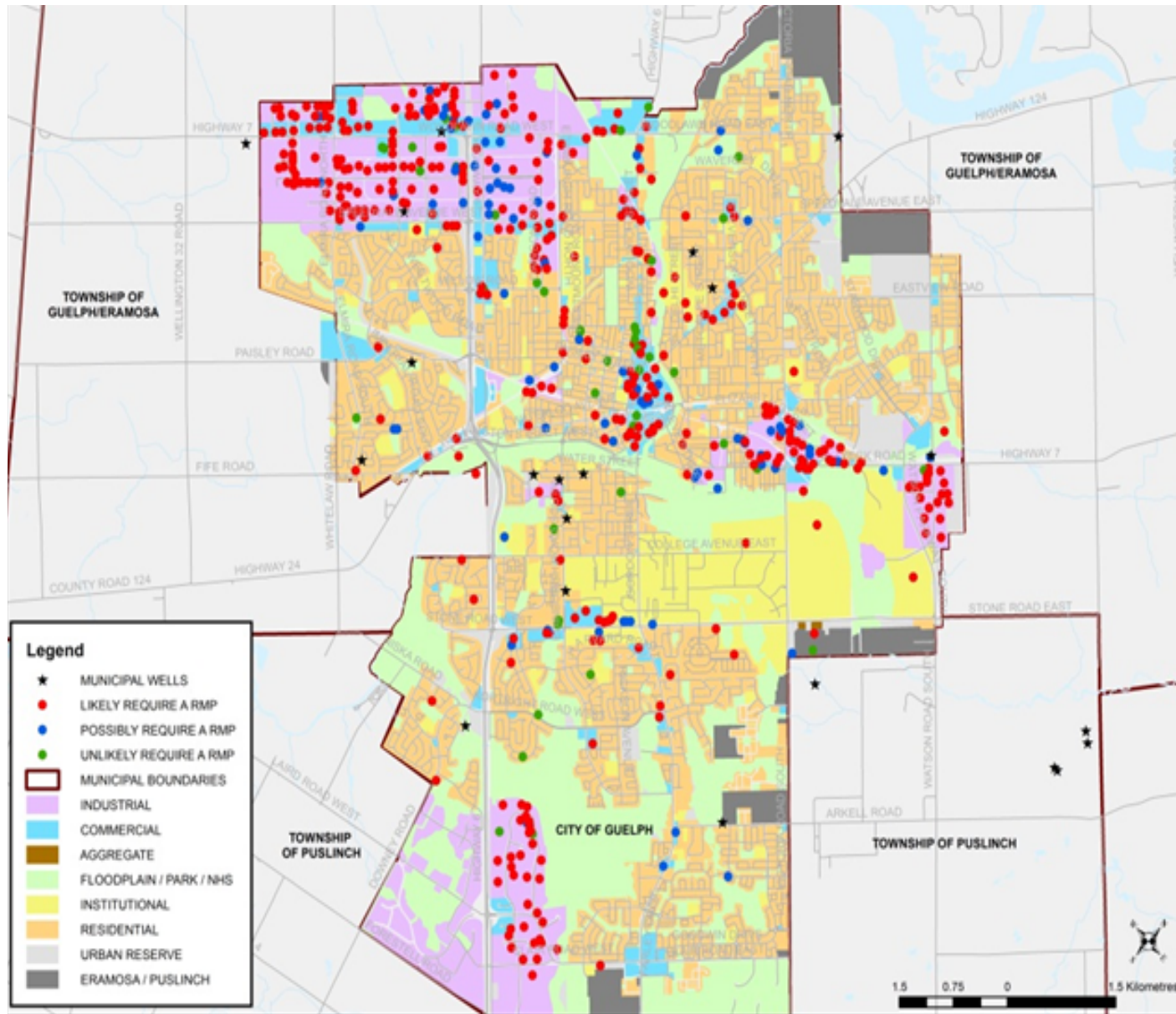
97% of City is in Vulnerable Area



Many Significant Threat Activities



Potential for many RMPs



Source Protection Program Policy Considerations

- Existing and proposed activities occurring on the property (e.g.: the handling and storage of fuel)
- Objective is to “manage” the threat so that the activity is no longer a “***significant drinking water threat***”
- Province allowed municipalities to either:
 - Prohibit the threat activity
 - Manage the threat activity through a variety of methods



Approach and Implications (1)

- More than 900 “significant drinking water threat activities” that need to be managed
- Prohibition of existing activities would have financial impact to existing and proposed businesses
- Prohibition limited to future activities (WHPA-A)



A look at our approach—
and why we're different →

Approach and Implications (2)

- Risk Management Plans and Education & Outreach approaches were the preferred options to manage existing activities
- Source Protection Program has a significant impact to the processes for obtaining Planning Approvals and Building Permits (Section 59)



A look at our approach —
and why we're different →

Implementation Challenges

- How do we ensure that Risk Management Plans are Consistent and Enforceable
- How do we meet Section 59 Requirements
- What measures are required for an activity to “Cease to be a Significant Threat”
- When is the Handling and Storage of DNAPL a Significant Threat Activity



Challenge – Consistency & Enforceability

- Potentially more than 600 RMPs required
- Decisions must be defensible
- Must clearly outline responsibilities & consequences
- RMP content must be able to be inspected and enforced.

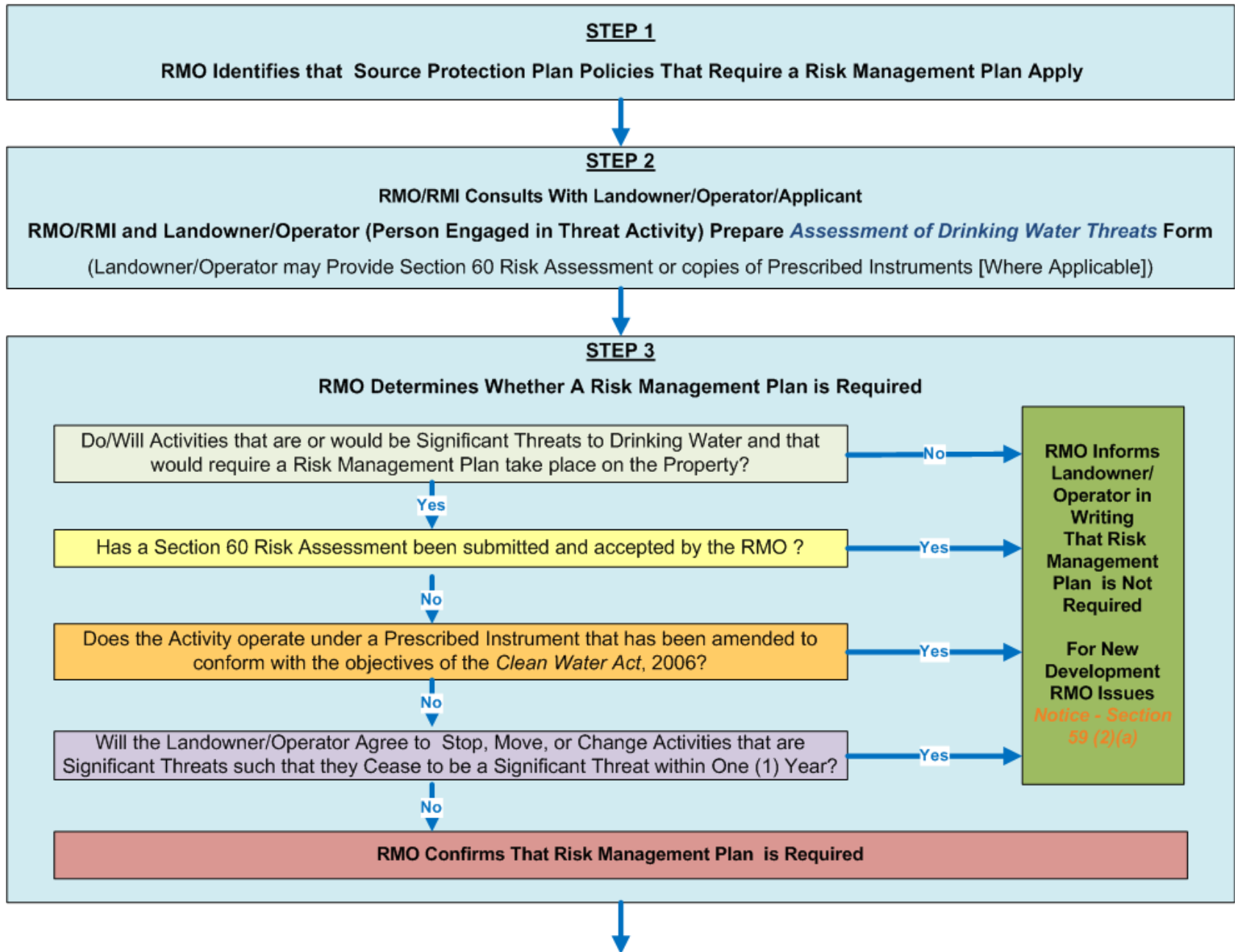


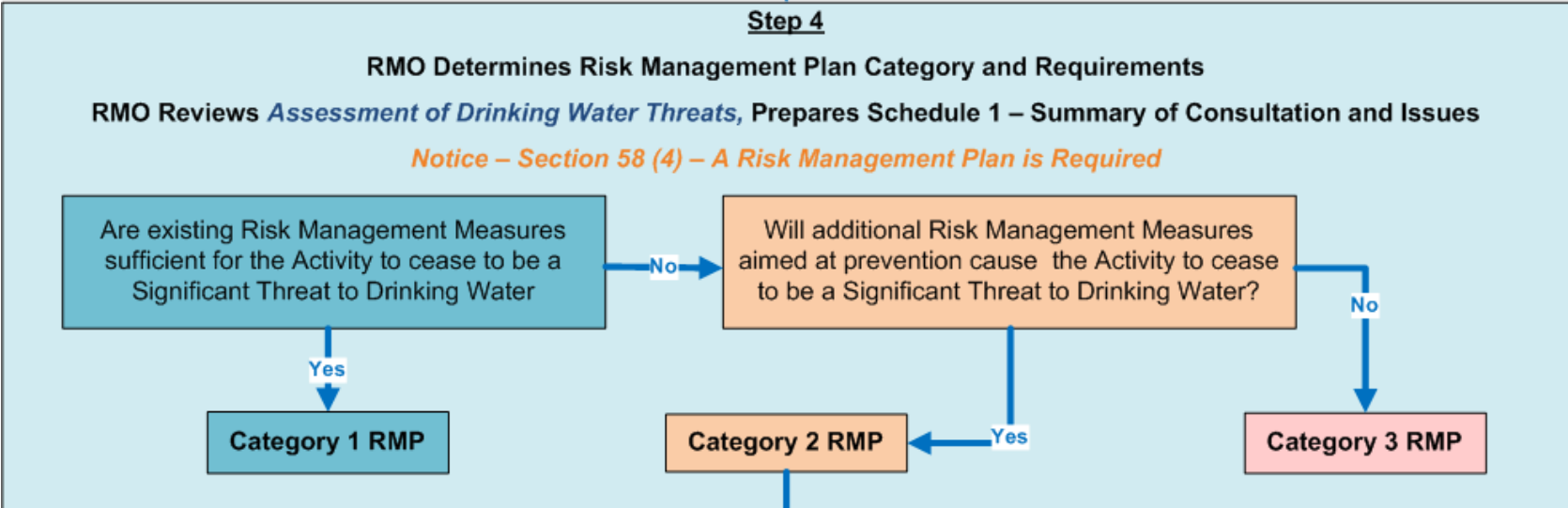
Solution – Consistency & Enforceability

- RMP Development Process
- RMP Template
- Parts 1 – 5 – responsibilities
- Schedules 1 – 7 - Existing/
Proposed Conditions and Actions
- Inspection Process and forms



Figure 2 - Risk Management Plan Development Process





STEP 5

RMO and Landowner/Operator Negotiate/Prepare/ Agree to Risk Management Plan (Iterative)

STEP 6

For Existing Activities: RMO Issues *Notice - Section 58(6) Agreement to Risk Management Plan*
For Applications for Planning Approval, Committee of Adjustment Approval, or Building Permits: RMO also issues *Notice - Section 59 (2)(b)*

STEP 7

Landowner/Operator Implements Risk Management Plan
RMO/RMI Conduct Inspections, Enforces Risk Management Plan, and Reports to Source Protection Authority

Challenge – Section 59

- RMO is required to confirm that building permit and development applications comply with Source Protection Plan policies
- Coordination with Planning Services, Building Services and Committee of Adjustments
- More than 90 % of applications need to be screened.

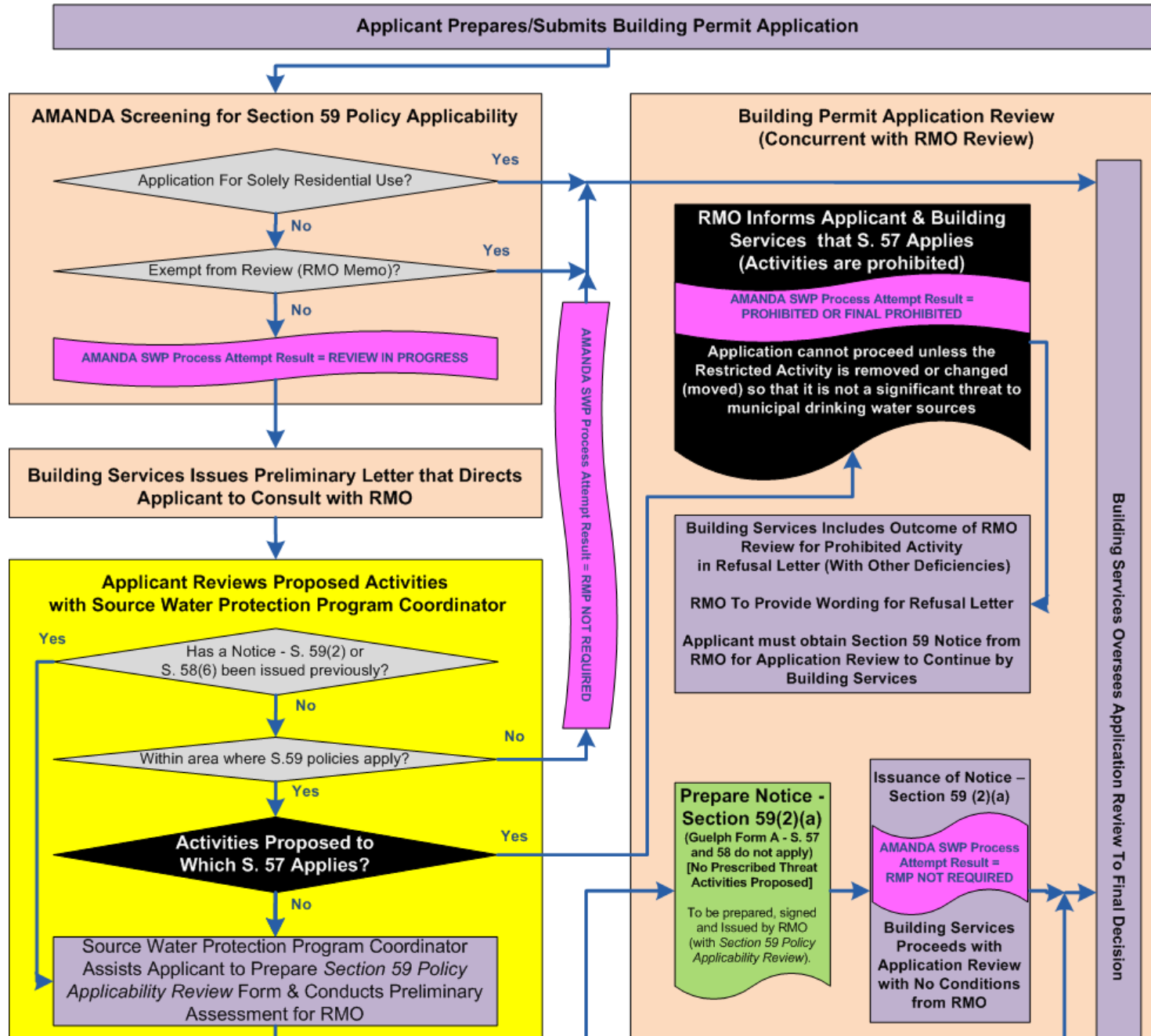


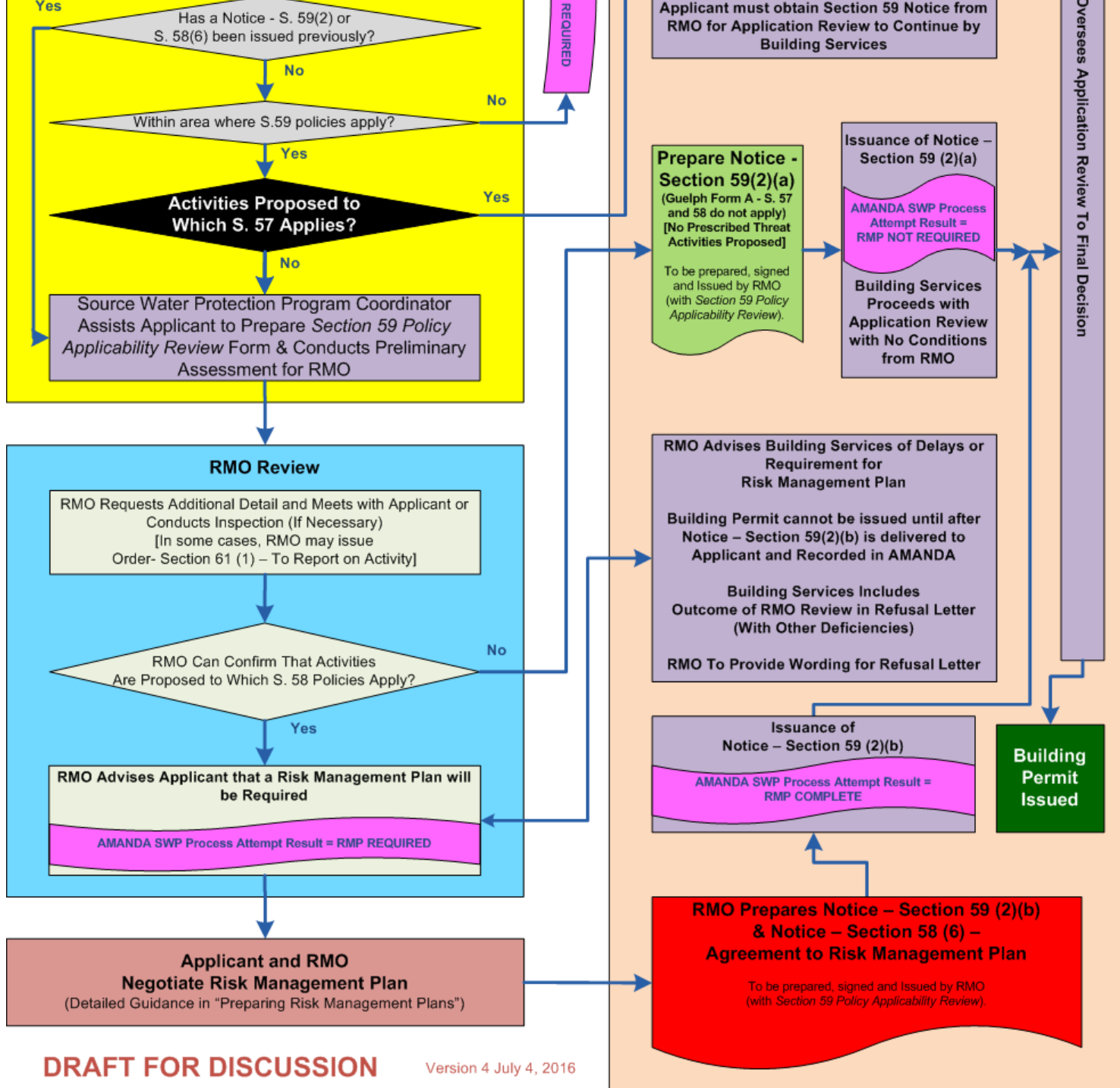
Solution – Section 59

- Developed coordinated review process for each Department
- Identified “screening” opportunities to reduce review process:
 - Residential, inert activities, etc.
- Created “Source Water Protection Program Coordinator” position



FIGURE 4.3 - SECTION 59 PROCESS BUILDING PERMIT APPLICATIONS





Section 59 Reviews

- Between July 1 and Sept 30, 2016:

Total Applications = 141



Challenge - Risk Management Measures

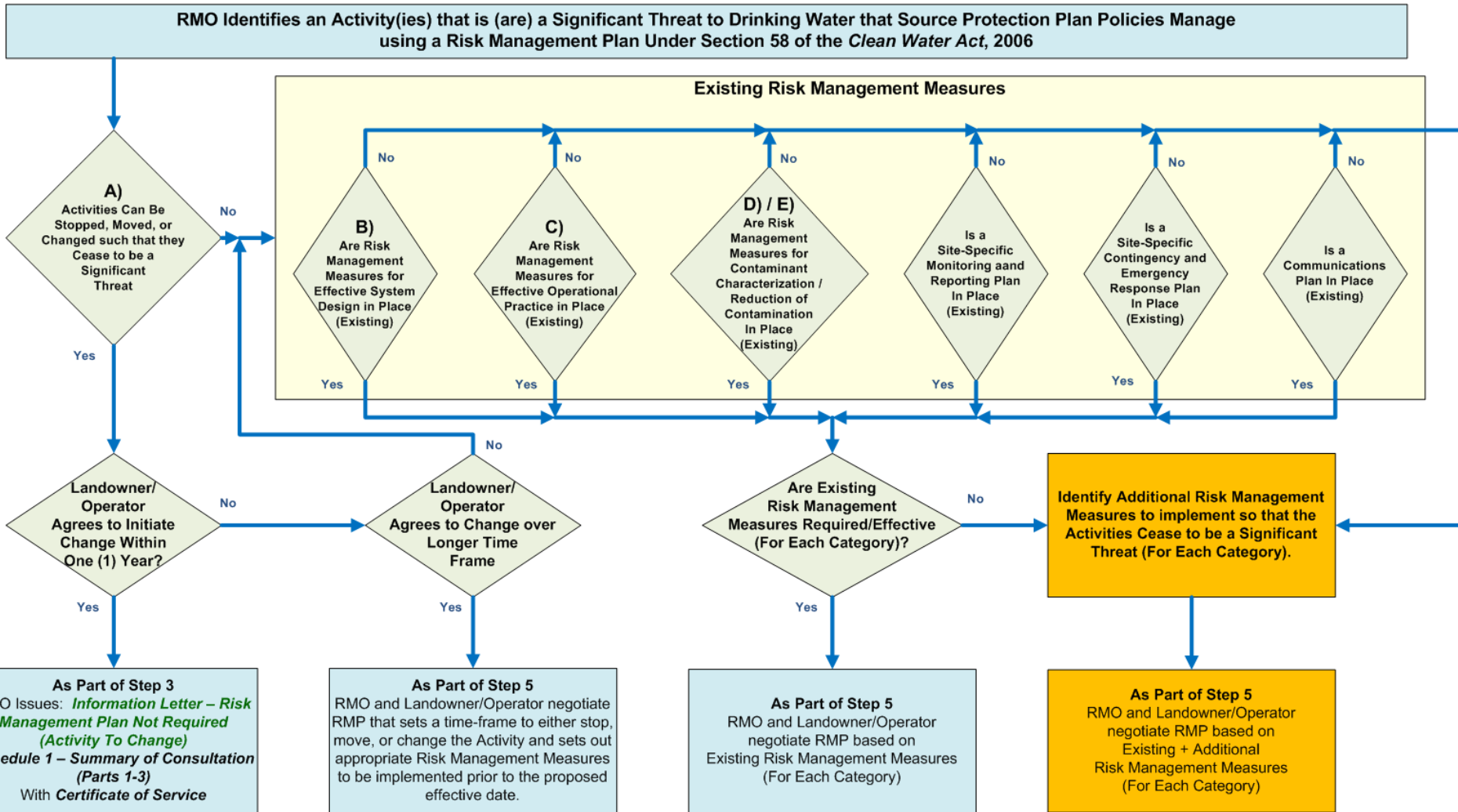
- Risk Management Measures Catalogue provided
- No MOECC Guidance on when an activity ceases to be a significant threat
- RMOs to use professional judgment in making decisions
- Decisions to be consistent/fair/defensible
- Opinion of RMO is to be enforced

Solution - Risk Management Measures

- Developed Decision-Making Process
- Priority given to stopping or moving activity
- Risk Management Measures to be employed from each “category” in the Risk Management Measures Catalogue

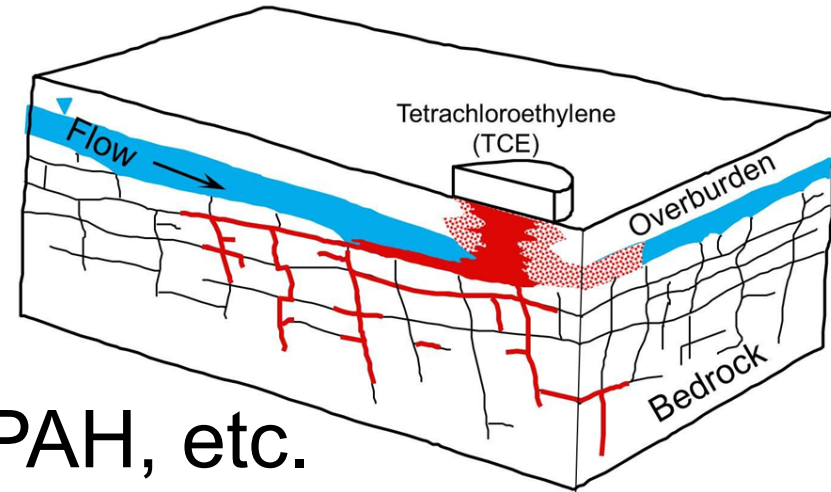


Figure 6.2 – Evaluation of Risk Management Measures



Challenge - DNAPLs

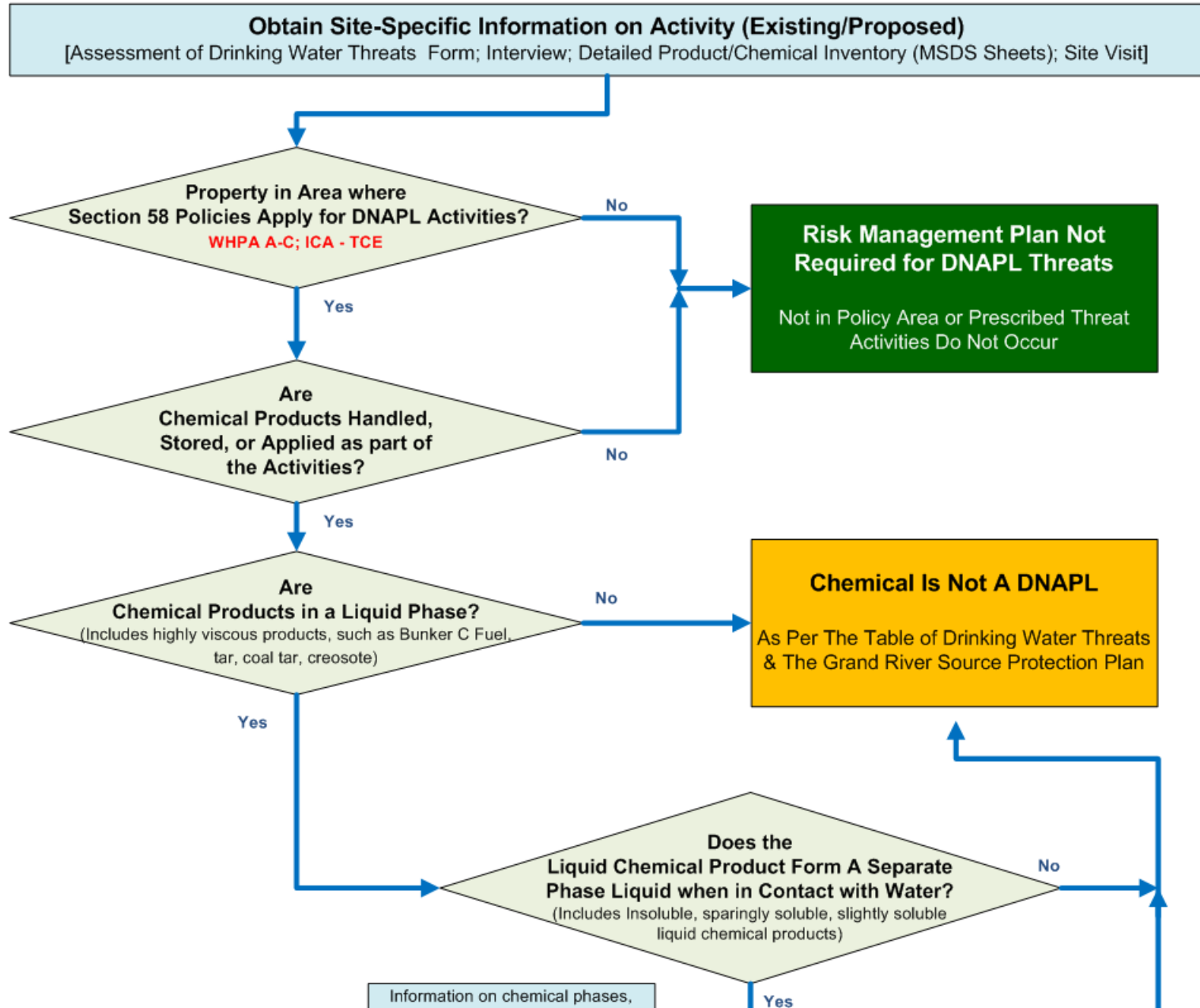
- Immiscible in water and denser than water
- Contain soluble constituents: PCE; TCE; PAH, etc.
- Table of Drinking Water Threats circumstances do not identify minimum volume
- By Policy a RMP is required where “Significant” – i.e. Inside WHPA C



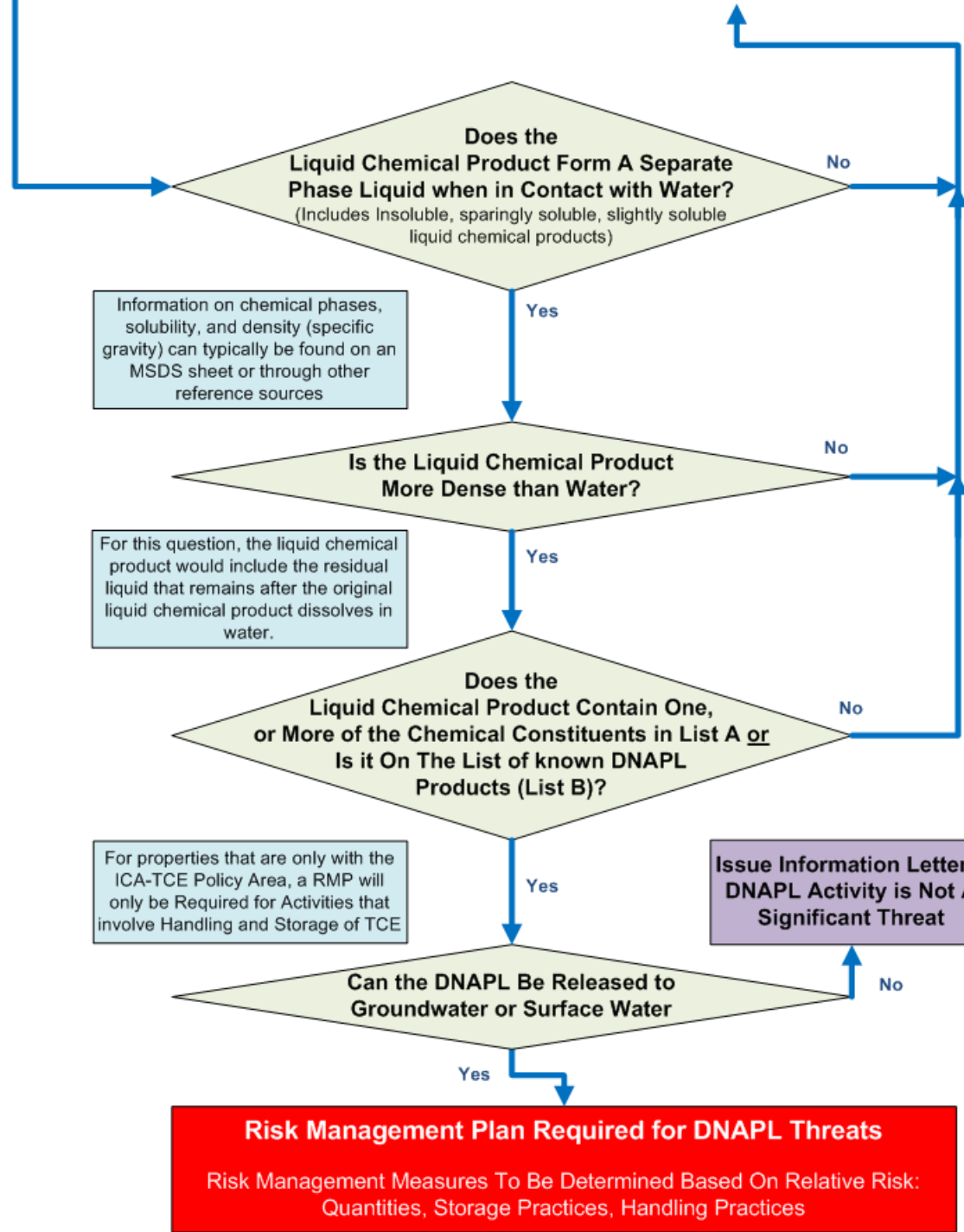
Solution - DNAPLs

- MOECC Clarifications
 - Circumstances allow RMO to make decision if the activity may result in the presence of <DNAPL Constituent Chemical> in groundwater or surface water
- Developed process to identify Activities that involve handling and storage of DNAPL
- Expected to greatly reduce the number of RMPs required.

Figure 6.1 – Identification of Activities Where SPP Policies for DNAPL Will Apply



Yes



Information on chemical phases, solubility, and density (specific gravity) can typically be found on an MSDS sheet or through other reference sources

For this question, the liquid chemical product would include the residual liquid that remains after the original liquid chemical product dissolves in water.

For properties that are only with the ICA-TCE Policy Area, a RMP will only be Required for Activities that involve Handling and Storage of TCE

Issue Information Letter – DNAPL Activity is Not A Significant Threat

Risk Management Plan Required for DNAPL Threats
Risk Management Measures To Be Determined Based On Relative Risk:
Quantities, Storage Practices, Handling Practices

Concluding Remarks

- City wanted a standardized Risk Management Plan protocol
- Consistent, fair and defensible approach
- Modular design to allow for a range in complexity
- Continuous improvement will occur



Thank You....

Questions???



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