



CTC Source Protection Committee Meeting #3/22

Chair: Vacant

Wednesday October 5, 2022

1:00 – 4:00 p.m.

Hybrid Meeting<sup>1</sup> (TEAMS and in-person)

Credit Valley Conservation Administration Office, Boardroom  
1255 Old Derry Road, Mississauga, ON

**LUNCH WILL NOT BE PROVIDED**

**AGENDA**

**Page Number**

1. **Call to Order and Roll Call**
2. **Election of Acting Chair**
3. **Review of Agenda**
4. **Disclosure of Conflict of Interest**
5. **Minutes of Previous Meetings**
6. **Chair's Remarks**
  - 6.1 Introduction of new Source Protection Committee members
  - 6.2 Introduction of new CTC Program Manager
7. **Updates**
  - 7.1 Update from the Ministry of Environment, Conservation and Parks Liaison Officer - Beth Forrest
  - 7.2 Update from Conservation Ontario Source Water Protection Lead – Debbie Balika
8. **Committee Business**
  - 8.1 Reports to Committee
    - a. CTC Program Update
      - New Committee members
      - Conservation Authorities Act update
      - Working Group updates
      - Implementation of 2021 Director's Technical Rules
      - O. Reg. 287/07 s.51 amendment
      - Upcoming changes to municipal water systems
      - Summary of 2022-2024 Work Plan

**3**

<sup>1</sup> CTC Source Protection Committee meetings are video recorded for the purpose of minute taking.



	• Upcoming meeting schedule and format	
	b. Endorsement of Proposed FUEL policy Amendments to the CTC Source Protection Plan	<b>74</b>
	c. Endorsement of Proposed Method for Assessment of Transport Pathways	<b>82</b>
8.2	Other Business	
<b>9.</b>	<b>Correspondence</b>	
9.1	Letter summarizing the CTC Source Protection Committee’s 2021 annual progress assessment on implementation of the CTC Source Protection Plan, with Annual Progress Report attached. March 23, 2022. From Doug Wright, CTC Source Protection Committee Chair to Tom Adams, Chair, Credit Valley Source Protection Authority.	<b>155</b>
9.2	Letter summarizing the CTC Source Protection Committee’s 2021 annual progress assessment on implementation of the CTC Source Protection Plan. March 23, 2022. From Doug Wright, CTC Source Protection Committee Chair to Jennifer Innis, Chair, Toronto and Region Source Protection Authority.	<b>166</b>
9.3	Letter summarizing the CTC Source Protection Committee’s 2021 annual progress assessment on implementation of the CTC Source Protection Plan. March 23, 2022. From Doug Wright, CTC Source Protection Committee Chair to Bob Chapman, Chair, Central Lake Ontario Source Protection Authority.	<b>169</b>
9.4	Email acknowledging receipt of 2021 annual progress report for the CTC Source Protection Region. May 2, 2022. To CTC Program Coordinator from J. Moulton, Manager, Source Protection Section – Conservation and Source Protection Programs Branch, Ministry of the Environment Conservation and Parks.	<b>172</b>
<b>10.</b>	<b>Next Meeting</b> Dec 7, 2022 (format TBC)	
<b>11.</b>	<b>Adjourn</b>	

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**TO:** Chair and Members of the Source Protection  
Committee Meeting #3/22

**DATE:** October 5, 2022

**FROM:** Behnam Doulatyari, Senior Manager, Watershed Plans and Source  
Water Protection

**RE:** CTC Program Update

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## **KEY ISSUE**

A CTC Source Protection Region program update.

## **RECOMMENDATION**

**THAT the CTC Source Protection Committee receive the staff report CTC Program Update for information.**

## **REPORT**

### New Committee Members

Throughout 2021 and continuing into 2022, CTC program staff have continued efforts to fill gaps in the membership of the CTC Source Protection Committee (SPC). New and re-appointed members are endorsed by the Credit Valley Source Protection Authority.

Program staff welcomed two new members to the CTC SPC in June 2022:

- Colin Evans, an economic sector representative for the aggregate industry, has over twenty years of experience, currently working with St Mary's Cement) as a director and environmental lead, and past environmental planning experience with Gartner Lee.
- Ryan Wheeler, an economic sector representative for the pipeline industry, with over twenty-five years of experience as a consultant leading emergency response planning for provincially and federally regulated pipeline companies in Ontario, and experience as an environmental officer with both Environment Canada and the Ministry of Environment, Conservation and Parks.

An updated list of SPC members is included as **Attachment A**.

Following these appointments, and recent resignation of Behnam Doulatyari there are two vacant public interest sector positions on the SPC: one allocated to environmental nongovernmental organizations, and the other to a citizen-at-large. Recruitment is ongoing for these positions.

### Conservation Authorities Act update

On August, 29, 2022, through new Orders-In-Council made pursuant to the

*Executive Council Act*, the Ministry of Natural Resources and Forestry (MNRF) has been designated as the Ministry responsible for administering the Conservation Authorities Act (CAA). This marks a shift back to MNRF after responsibility for the CAA was moved to the Ministry of the Environment, Conservation and Parks in 2019.

There is no change to the administration of the source protection program under the *Clean Water Act, 2006* (CWA); and it remains with the Ministry of Environment, Conservation and Parks.

#### Working Group updates

At SPC Meeting #2/22, an update on the status of the Amendment Working Group (AWG) and Implementation Working Group (IWG) was provided.

At that time, the CTC Source Protection Committee directed that staff establish a Terms of Reference to guide the work of the AWG. The AWG was formed so members of the SPC could work with source protection authority and municipal staff on recommendations for amendments to the source protection plan. Both working groups are chaired by a member of the CTC Source Protection Committee, providing a liaison and communication link between the working group and the SPC.

A Terms of Reference for the AWG has been drafted, and will be reviewed at the next meeting of the AWG, which is planned for early November 2022. The AWG Terms of Reference will then be brought to the Source Protection Committee for approval at a future meeting.

The Implementation Working Group (IWG) is a staff-level working group consisting of municipal and conservation authority staff. It acts as a forum for municipal and conservation authority staff to share information and discuss topics related to the Source Protection Plan and its implementation. A Terms of Reference was developed in concert with IWG members in May 2022 (see **Attachment B**).

#### Implementation of 2021 Director's Technical Rules

Following the release of the revised [Director's Technical Rules](#) (the Rules) in late 2021, CTC staff have been in discussion with municipalities on their implementation across the CTC. The Rules generally must be applied where new or changing technical work is completed for municipal drinking water supplies; while there is discretion to apply them to systems that aren't undergoing changes. However, on the ground implementation of the 2021 Rules, requires that the technical updates be incorporated within an approved assessment report and source protection plan.

As drinking water systems across CTC have undergone technical work when different versions of the Rules (e.g. 2009, 2013, 2017, 2021 versions) were in effect, staff have been confirming with municipalities that information on Technical Rules version and Ministry Drinking Water Threats Tables is properly documented and considered in future updates to CTC assessment reports and the Source Protection Plan.

To support this, staff are continuing discussions with municipal staff and will bring

suggested priority revisions to the CTC assessment reports and Source Protection Plan to the next Amendments Working Group (AWG) meeting.

### Section 51 Amendment

On May 20, 2022, updated versions of the 3 assessment reports and CTC Source Protection Plan were posted to ctcswp.ca. These amendments were made under section 51 of Ontario Regulation 287/07 under the *Clean Water Act, 2006*. Amendments under section 51 are minor in nature, and do not require formal consultation. There are notification requirements for affected implementing bodies and other interested parties upon publication.

The following s.51 amendments were completed:

- Update of the Credit Valley Assessment Report and CTC Source Protection Plan to remove references to Inglewood Well #2, which had been decommissioned by the Region of Peel. This included removal of associated wellhead protection area mapping and associated drinking water threats. CTC staff worked jointly with the Region of Peel on a mailout to affected property owners to indicate they are no longer located within a WHPA and accordingly that CTC Source Protection Plan policies no longer apply there.
- Update of the CTC Source Protection Plan and the three CTC assessment reports to correct minor errors and align with terminology from an update to the provincial Director's Technical Rules in 2017. This includes removal of vulnerability scoring of Significant Groundwater Recharge Areas (with no effect on policy applicability).

### Upcoming changes to municipal water systems

Under section 34 of the *Clean Water Act, 2006*, changes to drinking water systems need to be incorporated into approved assessment reports for the source protection plan policies to apply.

Updated timelines for anticipated amendments within the CTC region are presented in **Table 1**. Dependent on municipal needs, these upcoming amendments are anticipated to be grouped; and may include components identified as part the comprehensive review of the plan under section 36 of the *Clean Water Act, 2006*.

At the December 2023 SPC meeting, staff anticipate bringing forward an amendment to the Credit Valley and Toronto and Region Assessment Reports and the CTC Source Protection Plan under section 34 of the CWA. The contents of this amendment are undergoing discussion with municipal staff, and will be brought to the upcoming Amendments Working Group for confirmation on recommended updates. Anticipated amendments include:

- Updated WHPA mapping for Peel Region's Palgrave, Caledon East, Caledon Village systems
- Updated documentation to incorporate York Region's new Nobleton PW7 well
- New City of Toronto Island intake
- Some updates to Lake Ontario intake threats due to upcoming changes to the Ashbridges Bay WWTP outlet
- Policy amendments that have been endorsed by the CTC Source Protection

Committee over the last year:

- DNAP-1 and OS-1; transition policy, existing threats definition, timeline policies;
- Updated FUEL polices, pending Committee direction at the October 5, 2022 SPC Meeting (#3/22).

Early engagement with MECP will be initiated on the upcoming amendment in the coming weeks.

**Table 1. Anticipated timeline of upcoming amendments under *the Clean Water Act, 2006*.**

<b>Drinking Water System</b>	<b>Pre-Consultation</b>	<b>Public Consultation</b>	<b>Submission Date</b>
York Region (Nobleton replacement well PW7) (s. 34)	Early 2023	2023	2023
Peel Region (Palgrave, Caledon East, Caledon Village) (s. 34)	Early 2023	2023	2023
New Toronto Island intake (s. 34)	Early 2023*	2023*	2023*
Town of Erin (new Erin/Hillsburgh wells) (s. 34)	2023	2023	2023-2024
Town of Orangeville new water supply (s. 34)	2023	2023-2024	2023-2024
York Region/Stouffville well 3 ICA	2023-2024	2024	2024
Durham Region GW model update (Uxville) (s. 36)	2023-2024	2024	2024-2025
Halton Region GW model (Georgetown/Acton) (s. 36)	2023-2024	2024	2024-2025
Peel Region (potential Inglewood new supply)	To be confirmed	To be confirmed	To be confirmed
York Region (Nobleton new supply)	To be confirmed	To be confirmed	To be confirmed
Orangeville Tier 3 update	To be confirmed	To be confirmed	To be confirmed

\*Inclusion of Toronto Island intake within next s.34 amendment to be confirmed

Summary of 2022-2024 Work Plan

The approval of a 2-year workplan for the CTC Source Protection Region, was finalized on April 29, 2022 by the Ministry of the Environment, Conservation and Parks and Credit Valley Conservation, which acts as the lead Source Protection

Authority for the CTC Source Protection Region. The workplan covers the period of April 1, 2022 – March 31, 2024.

Key elements of the work plan include:

- providing administrative, technical and scientific support to the Source Protection Committee;
- preparation of section 34 amendments to the CTC Source Protection Plan and assessment reports to incorporate new and changing municipal water systems;
- ongoing work on the comprehensive review of the plan under section 36 of the Clean Water Act;
- maintaining and ensuring accessibility of source protection program data;
- monitoring and reporting on CTC Source Protection Plan implementation; and
- supporting municipalities on their implementation responsibilities

A redacted copy of the workplan is included as **Attachment C**

#### Upcoming Meeting Schedule and Format

Municipal Implementation Working Group: November 23, 2022

Amendments Working Group: Early November (TBC)

CTC Source Protection Committee:

- December 7, 2022 1-4 p.m.
- February 15, 2023 1-4 p.m.
- March 23, 2023 1-4 p.m.

Meetings of the CTC Source Protection Committee have historically been held in person at locations around the CTC Source Protection Region. However, due to the global COVID-19 pandemic SPC meetings have been held virtually since April of 2020 in response to health measures put in place by various levels of government, public health units, and Credit Valley Conservation.

In recent months, pandemic related public health measures have been gradually easing. In May 2022, Credit Valley Conservation (CVC), which acts as the lead Source Protection Authority for the CTC source Protection Region, shifted from virtual Board of Directors to “hybrid” meetings and has continued with that meeting format since. Further in July 2022, the CVC reopened its head office to the public. The October 2022 (#3/22) SPC was scheduled as a “hybrid” meeting to facilitate SPC member attendance including addressing possible health concerns. Further IT upgrades to the CVC boardroom to better accommodate virtual and hybrid meetings are planned for fall 2022.

Looking ahead to future SPC meetings, staff are seeking direction from the SPC on the preferred format for future meetings of the Source Protection Committee.

Options (subject to changes in public or CVC health measures) include:

- All SPC meetings held in-person
- All SPC meetings held virtually
- Fair weather meetings in-person while winter meetings held virtually
- All meetings organized as “hybrid” meeting where CTCSPC members can attend either in-person or virtually (more complex to organize and facilitate)

**Report prepared by:**

**Craig Jacques, Specialist, Watershed Plans and Source Water Protection,  
Credit Valley Conservation**

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Email: craig.jacques@cvc.ca**

**Date: September 28, 2022**

**Attachments: 3**

**ATTACHMENT A: List of Current CTC Source Protection Committee Members**

**ATTACHMENT B: Implementation Working Group Terms of Reference**

**ATTACHMENT C: 2022-24 CVC DWSP Transfer Payment Agreement**



## ATTACHMENT A: List of Current CTC Source Protection Committee Members

### CTC SOURCE PROTECTION COMMITTEE

Per Section 10 of [Ontario Regulation 288/07](#), this summary serves as the **Notice of CTC SPC Member Appointments**.

**Chair:** Appointed by Minister of the Environment, Conservation and Parks (Currently vacant)

<b>Municipal Representatives</b>	<b>Municipalities Represented</b>	<b>Date of Appointment</b>	<b>Appointment Expiry</b>
Liza Ballantyne	City of Toronto	January 21, 2022	January 21, 2027
Chris Gerrits	Dufferin & Simcoe municipalities	September 23, 2021	September 23, 2026
David Kentner	Halton & Wellington municipalities	June 21, 2019	June 20, 2024
Scott Lister	York municipalities	June 21, 2019	June 20, 2024
Elvis Oliveira	Peel municipalities	September 10, 2021	September 10, 2026
John Presta	Durham municipalities	June 21, 2019	June 20, 2024
Frank Quarisa	City of Toronto	June 21, 2019	June 20, 2024
<b>Economic Representatives</b>	<b>Sector</b>	<b>Date of Appointment</b>	<b>Appointment Expiry</b>
Dan Bunner	Chemical Sector	June 21, 2019	June 20, 2024
Colin Evans	Aggregate Sector	June 10, 2022	June 10, 2027
Louise Foster	Land Development Sector	June 21, 2019	June 20, 2024
Lee Gould	Road Salt Sector	September 23, 2021	September 23, 2026
Geoff Maltby	Agriculture Sector	September 23, 2021	September 23, 2026
Gary Mountain	Agriculture Sector	June 21, 2019	June 20, 2024
Ryan Wheeler	Petrochemical/Petroleum Sector	June 10, 2022	June 10, 2027
<b>Public Interest Representatives</b>	<b>Sector</b>	<b>Date of Appointment</b>	<b>Appointment Expiry</b>
Julie Abouchar	Citizen-At-Large	June 21, 2019	June 20, 2024
Ken Dion	Citizen-At-Large	September 10, 2021	September 10, 2026
Rosemary Keenan	ENGO	September 23, 2021	September 23, 2026
Jeff Light	Citizen-At-Large	September 10, 2021	September 10, 2026
Peter Miasek	Citizen-At-Large	June 21, 2019	June 20, 2024
VACANT	Citizen-At-Large	-	-
VACANT	ENGO	-	-

## ATTACHMENT B: Implementation Working Group Terms of Reference

Credit Valley – Toronto and Region – Central Lake Ontario Source  
Protection Region

# Implementation Working Group

Terms of Reference

May 2, 2022 (draft)

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## Background

- The Credit Valley – Toronto and Region – Central Lake Ontario (CTC) Source Protection Committee (SPC) prepared the CTC Source Protection Plan and Assessment Reports for all three Source Protection Areas in the CTC Source Protection Region, based on the Ministry of the Environment, Conservation and Parks-approved Terms of Reference.
- The Source Protection Plan (SPP) and Assessment Reports (AR) are approved and have been in effect since December 31, 2015. Since that time, the SPP and ARs have been periodically updated.
- An Implementation Working Group (IWG) of municipal and conservation authority staff has met at least annually since 2016 to support ongoing implementation of the CTC Source Protection Plan.

## Mandate

The mandate of the Implementation Working Group is to act as a forum for municipal and conservation authority staff to share information and discuss topics related to the Source Protection Plan and its implementation.

## Objectives

The objectives of the Implementation Working Group are to:

- Work in a collaborative and cooperative manner to further implementation of the CTC Source Protection Plan
- Facilitate the sharing of information and updates from the CTC Source Protection Committee, MECP, Conservation Ontario, and other working groups
- Engage in all topics relevant to plan implementation brought forward by participating members, including but not limited to annual reporting, case studies, policy interpretation, technical rules changes, and plan updates or amendments

## Membership

The Implementation Working Group is a distinct group with representation from municipalities and conservation authorities within the CTC Source Protection Region. It is recommended that each agency identify 2 lead staff members to participate in the working group. Additional staff from participating agencies may attend working group meetings as guests. The list of working group members is included in Appendix A.

From time to time, representatives from other Source Protection Regions, municipalities, provincial agencies, or external organizations (e.g., the Oak Ridges Moraine Groundwater Program) may participate in meetings of the IWG upon invitation.

## Chair

The IWG is chaired by a member of the CTC Source Protection Committee. The purpose of the chair is to act as a liaison and communication link between the working group and the SPC. The chair position and term will be reviewed together with the IWG Terms of Reference every three years, or as needed to reflect changing SPC membership.

The CTC Source Protection Chair is an ex-officio member of all Working Groups.

## Reporting

The IWG is a staff-level working group and reports to the CTC Source Protection Region Program Manager.

The Program Manager may include reports with information developed and/or discussed by the Implementation Working Group in the agendas of the CTC Amendments Working Group or the CTC Source Protection Committee. These summaries may include assessment of implementation challenges and solutions, the results of technical work or case studies, and information on plan updates or amendments.

## Working Group Meetings

- The IWG will meet on a regular basis until it is determined that the mandate has been completed. The need to continue the group will be evaluated on an annual basis.
- Frequency of meetings – 4-8 meetings annually, or at the call of the Program Manager. Depending on the agenda, meetings may be cancelled or postponed.
- Meetings will be up to 3 hours in duration and held during business hours (Monday-Friday, 9 am – 4:30 pm)
- Location and format of meetings – virtual meetings preferred with some face-to-face meetings at the CVC Head Office, 1255 Old Derry Road Mississauga, when appropriate.

- Agenda packages will be circulated to working group members a minimum of three (3) business days prior to a meeting, i.e. Friday, prior to the next Wednesday meeting
- Meeting notes will be written up and circulated to working group members with the agenda package of the next meeting

### Conflict Resolution

- Decisions will be made by consensus among the members present
- If no decision can be made by consensus, the minority opinions will be documented

### Review of Terms of Reference

The Implementation Working Group should review the Terms of Reference every three years. The IWG should seek support from the Source Protection Committee for any substantive amendments to the Terms of Reference.

## Appendix A: CTC Implementation Working Group Membership

<b>Member</b>	<b>Affiliation</b>
<b>Municipal Representatives</b>	
Scott Lister, Chair, Implementation Working Group (appointed 2022)	York Region
Maureen Bianchet	Region of Durham
Beata Golas	Region of Durham
Colin Hall	Region of Durham
Tavis Nimmo	Region of Durham
Joanna Miron	York Region
Bill Snodgrass	City of Toronto
Therese Estephan	Region of Peel
Stefan Herceg	Region of Peel
Erin Ihnat	Region of Peel
Daniel Banks	Halton Region
Jon Clark	Halton Region
Hayley Pankhurst	Halton Region
Kyle Davis	County of Wellington municipalities
Emily Vandermeulen	County of Wellington municipalities
Danielle Walker	County of Wellington municipalities
Ryan Post	NVCA (on behalf of the Town of Mono)
Stephanie Charity	RJ Burnside (on behalf of Township of East Garafraxa, Township of Amaranth)
Sean Quinlan	RJ Burnside (on behalf of Township of East Garafraxa, Township of Amaranth)
Dwight Smikle	RJ Burnside (on behalf of Township of East Garafraxa, Township of Amaranth)
Muriel Kim-Brisson	Blumetric (on behalf of Town of Orangeville)
Tiffany Svensson	Blumetric (on behalf of Town of Orangeville)
Brandon Ward	Town of Orangeville
<b>Conservation Authority Representatives</b>	
Behnam Doulatyari, CTC Program Manager	Credit Valley Conservation
Craig Jacques, CTC Program Coordinator	Credit Valley Conservation
Kerry Mulchansingh	Credit Valley Conservation
Hailey Ashworth	Credit Valley Conservation
Annie Li	Credit Valley Conservation
Parastoo Hosseini	Credit Valley Conservation
Daniela MacLeod	Toronto and Region Conservation Authority
Don Ford	Toronto and Region Conservation Authority
Kristina Anderson	Toronto and Region Conservation Authority
Daniel Pina	Toronto and Region Conservation Authority
Jeff Thompson	Toronto and Region Conservation Authority
Rod Wilmot	Central Lake Ontario Conservation Authority
Chris Jones	Central Lake Ontario Conservation Authority
Fred Carpio	Central Lake Ontario Conservation Authority
<b>Source Protection Committee</b>	
VACANT	CTC SPC Chair



**ATTACHMENT C: 2022-24 CVC DWSP Transfer Payment Agreement**

**ONTARIO TRANSFER PAYMENT AGREEMENT**

**TPON Case No.: 2021-11-1-1648544429**

**Other File No. DWSP 2022-24 CVC**

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**THE AGREEMENT** is effective as of April 1, 2022

**B E T W E E N:**

**HER MAJESTY THE QUEEN IN RIGHT OF ONTARIO as  
represented by the Minister of the Environment, Conservation  
and Parks**

(the “**Province**”)

**- and -**

**CREDIT VALLEY CONSERVATION AUTHORITY**

(the “**Recipient**”)

**CONSIDERATION**

In consideration of the mutual covenants and agreements contained in this Agreement and for other good and valuable consideration, the receipt and sufficiency of which are expressly acknowledged, the Province and the Recipient agree as follows:

**1.0 ENTIRE AGREEMENT**

**1.1** The Agreement, together with:

- Schedule “A” - General Terms and Conditions
  - Schedule “B” - Project Specific Information and Additional Provisions
  - Schedule “C” - Project
  - Schedule “D” - Budget
  - Schedule “E” - Payment Plan
  - Schedule “F” - Reports, and
- any amending agreement entered into as provided for in section 4.1,

constitutes the entire agreement between the Parties with respect to the subject

matter contained in the Agreement and supersedes all prior oral or written representations and agreements.

## **2.0 CONFLICT OR INCONSISTENCY**

**2.1 Conflict or Inconsistency.** In the event of a conflict or inconsistency between the Additional Provisions and the provisions in Schedule “A”, the following rules will apply:

- (a) the Parties will interpret any Additional Provisions in so far as possible, in a way that preserves the intention of the Parties as expressed in Schedule “A”; and
- (b) where it is not possible to interpret the Additional Provisions in a way that is consistent with the provisions in Schedule “A”, the Additional Provisions will prevail over the provisions in Schedule “A” to the extent of the inconsistency.

## **3.0 COUNTERPARTS**

**3.1** The Agreement may be executed in any number of counterparts, each of which will be deemed an original, but all of which together will constitute one and the same instrument.

## **4.0 AMENDING THE AGREEMENT**

**4.1** The Agreement may only be amended by a written agreement duly executed by the Parties.

## **5.0 ACKNOWLEDGEMENT**

**5.1** The Recipient acknowledges that:

- (a) by receiving Funds it may become subject to legislation applicable to organizations that receive funding from the Government of Ontario, including the *Broader Public Sector Accountability Act, 2010* (Ontario), the *Public Sector Salary Disclosure Act, 1996* (Ontario), and the *Auditor General Act* (Ontario);
- (b) Her Majesty the Queen in Right of Ontario has issued expenses, perquisites, and procurement directives and guidelines pursuant to the *Broader Public Sector Accountability Act, 2010* (Ontario);
- (c) the Funds are:
  - to assist the Recipient to carry out the Project and not to provide goods or services to the Province;



- (ii) funding for the purposes of the *Public Sector Salary Disclosure Act, 1996* (Ontario);
- (d) the Province is not responsible for carrying out the Project; and
- (e) the Province is bound by the *Freedom of Information and Protection of Privacy Act* (Ontario) and that any information provided to the Province in connection with the Project or otherwise in connection with the Agreement may be subject to disclosure in accordance with that Act.

The Parties have executed the Agreement on the dates set out below.

**HER MAJESTY THE QUEEN IN RIGHT OF ONTARIO  
as represented by the Minister of the Environment,  
Conservation and Parks**

April 29, 2022  
Date

  
Name: Chloe Stuart  
Title: Assistant Deputy Minister, Land and Water Division

**CREDIT VALLEY CONSERVATION AUTHORITY**

4/28/22  
Date

  
Name: Josh Campbell  
Title: Director, Planning & Development Services

I have authority to bind the Recipient.

4/28/22  
Date

  
Name: Quentin Hanchard  
Title: Chief Administrative Officer

I have authority to bind the Recipient.

**SCHEDULE “A”  
GENERAL TERMS AND CONDITIONS**

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**A1.0 INTERPRETATION AND DEFINITIONS**

A1.1 **Interpretation.** For the purposes of interpretation:

- (a) words in the singular include the plural and vice-versa;
- (b) words in one gender include all genders;
- (c) the headings do not form part of the Agreement; they are for reference only and will not affect the interpretation of the Agreement;
- (d) any reference to dollars or currency will be in Canadian dollars and currency; and
- (e) “include”, “includes” and “including” denote that the subsequent list is not exhaustive.

A1.2 **Definitions.** In the Agreement, the following terms will have the following meanings:

**“Additional Provisions”** means the terms and conditions set out in Schedule “B”.

**“Agreement”** means this agreement entered into between the Province and the Recipient, all of the schedules listed in section 1.1, and any amending agreement entered into pursuant to section 4.1.

**“Budget”** means the budget attached to the Agreement as Schedule “D”.

**“Business Day”** means any working day, Monday to Friday inclusive, excluding statutory and other holidays, namely: New Year’s Day; Family Day; Good Friday; Easter Monday; Victoria Day; Canada Day; Civic Holiday; Labour Day; Thanksgiving Day; Remembrance Day; Christmas Day; Boxing Day and any other day on which the Province has elected to be closed for business.

**“Effective Date”** means the date set out at the top of the Agreement.

**“Event of Default”** has the meaning ascribed to it in section A13.1.

**“Expiry Date”** means the expiry date set out in Schedule “B”.

**“Funding Year”** means:

- (a) in the case of the first Funding Year, the period commencing on the

Effective Date and ending on the following March 31; and

- (b) in the case of Funding Years subsequent to the first Funding Year, the period commencing on April 1 following the end of the previous Funding Year and ending on the following March 31.

**“Funds”** means the money the Province provides to the Recipient pursuant to the Agreement.

**“Indemnified Parties”** means Her Majesty the Queen in Right of Ontario, Her ministers, agents, appointees, and employees.

**“Maximum Funds”** means the maximum Funds set out in Schedule “B”.

**“Notice”** means any communication given or required to be given pursuant to the Agreement.

**“Notice Period”** means the period of time within which the Recipient is required to remedy an Event of Default pursuant to section A13.3(b), and includes any such period or periods of time by which the Province extends that time in accordance with section A13.4.

**“Parties”** means the Province and the Recipient.

**“Party”** means either the Province or the Recipient.

**“Project”** means the undertaking described in Schedule “C”.

**“Reports”** means the reports described in Schedule “F”.

## **A2.0 REPRESENTATIONS, WARRANTIES, AND COVENANTS**

**A2.1 General.** The Recipient represents, warrants, and covenants that:

- (a) it is, and will continue to be, a validly existing legal entity with full power to fulfill its obligations under the Agreement;
- (b) it has, and will continue to have, the experience and expertise necessary to carry out the Project;
- (c) it is in compliance with, and will continue to comply with, all federal and provincial laws and regulations, all municipal by-laws, and any other orders, rules, and by-laws related to any aspect of the Project, the Funds, or both; and
- (d) unless otherwise provided for in the Agreement, any information the Recipient provided to the Province in support of its request for funds

(including information relating to any eligibility requirements) was true and complete at the time the Recipient provided it and will continue to be true and complete.

**A2.2 Execution of Agreement.** The Recipient represents and warrants that it has:

- (a) the full power and authority to enter into the Agreement; and
- (b) taken all necessary actions to authorize the execution of the Agreement.

**A2.3 Governance.** The Recipient represents, warrants, and covenants that it has, will maintain in writing, and will follow:

- (a) a code of conduct and ethical responsibilities for all persons at all levels of the Recipient's organization;
- (b) procedures to enable the Recipient's ongoing effective functioning;
- (c) decision-making mechanisms for the Recipient;
- (d) procedures to enable the Recipient to manage Funds prudently and effectively;
- (e) procedures to enable the Recipient to complete the Project successfully;
- (f) procedures to enable the Recipient to identify risks to the completion of the Project and strategies to address the identified risks, all in a timely manner;
- (g) procedures to enable the preparation and submission of all Reports required pursuant to Article A7.0; and
- (h) procedures to enable the Recipient to address such other matters as the Recipient considers necessary to enable the Recipient to carry out its obligations under the Agreement.

**A2.4 Supporting Proof.** Upon the request of the Province, the Recipient will provide the Province with proof of the matters referred to in Article A2.0.

### **A3.0 TERM OF THE AGREEMENT**

**A3.1 Term.** The term of the Agreement will commence on the Effective Date and will expire on the Expiry Date unless terminated earlier pursuant to Article A11.0, Article A12.0, or Article A13.0.

#### **A4.0 FUNDS AND CARRYING OUT THE PROJECT**

##### **A4.1 Funds Provided.** The Province will:

- (a) provide the Recipient up to the Maximum Funds for the purpose of carrying out the Project;
- (b) provide the Funds to the Recipient in accordance with the payment plan attached to the Agreement as Schedule “E”; and
- (c) deposit the Funds into an account designated by the Recipient provided that the account:
  - (i) resides at a Canadian financial institution; and
  - (ii) is in the name of the Recipient.

##### **A4.2 Limitation on Payment of Funds.** Despite section A4.1:

- (a) the Province is not obligated to provide any Funds to the Recipient until the Recipient provides the certificates of insurance or other proof as the Province may request pursuant to section A10.2;
- (b) the Province is not obligated to provide instalments of Funds until it is satisfied with the progress of the Project;
- (c) the Province may adjust the amount of Funds it provides to the Recipient in any Funding Year based upon the Province’s assessment of the information the Recipient provides to the Province pursuant to section A7.1; or
- (d) if, pursuant to the *Financial Administration Act (Ontario)*, the Province does not receive the necessary appropriation from the Ontario Legislature for payment under the Agreement, the Province is not obligated to make any such payment, and, as a consequence, the Province may:
  - (i) reduce the amount of Funds and, in consultation with the Recipient, change the Project; or
  - (ii) terminate the Agreement pursuant to section A12.1.

##### **A4.3 Use of Funds and Carry Out the Project.** The Recipient will do all of the following:

- (a) carry out the Project in accordance with the Agreement;
- (b) use the Funds only for the purpose of carrying out the Project;

- (c) spend the Funds only in accordance with the Budget;
- (d) not use the Funds to cover any cost that has been or will be funded or reimbursed by one or more of any third party, ministry, agency, or organization of the Government of Ontario.

A4.4 **Interest Bearing Account.** If the Province provides Funds before the Recipient's immediate need for the Funds, the Recipient will place the Funds in an interest bearing account in the name of the Recipient at a Canadian financial institution.

A4.5 **Interest.** If the Recipient earns any interest on the Funds, the Province may:

- (a) deduct an amount equal to the interest from any further instalments of Funds; or
- (b) demand from the Recipient the payment of an amount equal to the interest.

A4.6 **Rebates, Credits, and Refunds.** The Province will calculate Funds based on the actual costs to the Recipient to carry out the Project, less any costs (including taxes) for which the Recipient has received, will receive, or is eligible to receive, a rebate, credit, or refund.

#### **A5.0 RECIPIENT'S ACQUISITION OF GOODS OR SERVICES, AND DISPOSAL OF ASSETS**

A5.1 **Acquisition.** If the Recipient acquires goods, services, or both with the Funds, it will:

- (a) do so through a process that promotes the best value for money; and
- (b) comply with the *Broader Public Sector Accountability Act, 2010* (Ontario), including any procurement directive issued thereunder, to the extent applicable.

A5.2 **Disposal.** The Recipient will not, without the Province's prior written consent, sell, lease, or otherwise dispose of any asset purchased or created with the Funds or for which Funds were provided, the cost of which exceeded the amount as provided for in Schedule "B" at the time of purchase.

#### **A6.0 CONFLICT OF INTEREST**

A6.1 **No Conflict of Interest.** The Recipient will carry out the Project and use the Funds without an actual, potential, or perceived conflict of interest.

A6.2 **Conflict of Interest Includes.** For the purposes of Article A6.0, a conflict of interest includes any circumstances where:

- (a) the Recipient; or
- (b) any person who has the capacity to influence the Recipient's decisions,

has outside commitments, relationships, or financial interests that could, or could be seen to, interfere with the Recipient's objective, unbiased, and impartial judgment relating to the Project, the use of the Funds, or both.

A6.3 **Disclosure to Province.** The Recipient will:

- (a) disclose to the Province, without delay, any situation that a reasonable person would interpret as an actual, potential, or perceived conflict of interest; and
- (b) comply with any terms and conditions that the Province may prescribe as a result of the disclosure.

## **A7.0 REPORTS, ACCOUNTING, AND REVIEW**

A7.1 **Preparation and Submission.** The Recipient will:

- (a) submit to the Province at the address referred to in section A17.1, all Reports in accordance with the timelines and content requirements as provided for in Schedule "F", or in a form as specified by the Province from time to time;
- (b) submit to the Province at the address referred to in section A17.1, any other reports as may be requested by the Province in accordance with the timelines and content requirements specified by the Province;
- (c) ensure that all Reports and other reports are completed to the satisfaction of the Province; and
- (d) ensure that all Reports and other reports are signed on behalf of the Recipient by an authorized signing officer.

A7.2 **Record Maintenance.** The Recipient will keep and maintain:

- (a) all financial records (including invoices) relating to the Funds or otherwise to the Project in a manner consistent with generally accepted accounting principles; and
- (b) all non-financial documents and records relating to the Funds or otherwise to the Project.

A7.3 **Inspection.** The Province, any authorized representative, or any independent auditor identified by the Province may, at the Province's expense, upon twenty-four hours' Notice to the Recipient and during normal business hours, enter upon the Recipient's premises to review the progress of the Project and the Recipient's allocation and expenditure of the Funds and, for these purposes, the Province, any authorized representative, or any independent auditor identified by the Province may take one or more of the following actions:

- (a) inspect and copy the records and documents referred to in section A7.2;
- (b) remove any copies made pursuant to section A7.3(a) from the Recipient's premises; and
- (c) conduct an audit or investigation of the Recipient in respect of the expenditure of the Funds, the Project, or both.

A7.4 **Disclosure.** To assist in respect of the rights provided for in section A7.3, the Recipient will disclose any information requested by the Province, any authorized representatives, or any independent auditor identified by the Province, and will do so in the form requested by the Province, any authorized representative, or any independent auditor identified by the Province, as the case may be.

A7.5 **No Control of Records.** No provision of the Agreement will be construed so as to give the Province any control whatsoever over the Recipient's records.

A7.6 **Auditor General.** The Province's rights under Article A7.0 are in addition to any rights provided to the Auditor General pursuant to section 9.1 of the *Auditor General Act* (Ontario).

## A8.0 COMMUNICATIONS REQUIREMENTS

A8.1 **Acknowledge Support.** Unless otherwise directed by the Province, the Recipient will:

- (a) acknowledge the support of the Province for the Project; and
- (b) ensure that the acknowledgement referred to in section A8.1(a) is in a form and manner as directed by the Province.

A8.2 **Publication.** The Recipient will indicate, in any of its Project-related publications, whether written, oral, or visual, that the views expressed in the publication are the views of the Recipient and do not necessarily reflect those of the Province.



## **A9.0 INDEMNITY**

A9.1 **Indemnification.** The Recipient will indemnify and hold harmless the Indemnified Parties from and against any and all liability, loss, costs, damages, and expenses (including legal, expert and consultant fees), causes of action, actions, claims, demands, lawsuits, or other proceedings, by whomever made, sustained, incurred, brought, or prosecuted, in any way arising out of or in connection with the Project or otherwise in connection with the Agreement, unless solely caused by the negligence or wilful misconduct of the Indemnified Parties.

## **A10.0 INSURANCE**

A10.1 **Recipient's Insurance.** The Recipient represents, warrants, and covenants that it has, and will maintain, at its own cost and expense, with insurers having a secure A.M. Best rating of B+ or greater, or the equivalent, all the necessary and appropriate insurance that a prudent person carrying out a project similar to the Project would maintain, including commercial general liability insurance on an occurrence basis for third party bodily injury, personal injury, and property damage, to an inclusive limit of not less than the amount provided for in Schedule "B" per occurrence. The insurance policy will include the following:

- (a) the Indemnified Parties as additional insureds with respect to liability arising in the course of performance of the Recipient's obligations under, or otherwise in connection with, the Agreement;
- (b) a cross-liability clause;
- (c) contractual liability coverage; and
- (d) a 30-day written notice of cancellation.

A10.2 **Proof of Insurance.** The Recipient will:

- (a) provide to the Province, either:
  - (i) certificates of insurance that confirm the insurance coverage as provided for in section A10.1; or
  - (ii) other proof that confirms the insurance coverage as provided for in section A10.1; and
- (b) upon the request of the Province, provide to the Province a copy of any insurance policy.

## **A11.0 TERMINATION ON NOTICE**

**A11.1 Termination on Notice.** The Province may terminate the Agreement at any time without liability, penalty, or costs upon giving at least 30 days' Notice to the Recipient.

**A11.2 Consequences of Termination on Notice by the Province.** If the Province terminates the Agreement pursuant to section A11.1, the Province may take one or more of the following actions:

- (a) cancel further instalments of Funds;
- (b) demand from the Recipient the payment of any Funds remaining in the possession or under the control of the Recipient; and
- (c) determine the reasonable costs for the Recipient to wind down the Project, and do either or both of the following:
  - (i) permit the Recipient to offset such costs against the amount the Recipient owes pursuant to section A11.2(b); and
  - (ii) subject to section A4.1(a), provide Funds to the Recipient to cover such costs.

## **A12.0 TERMINATION WHERE NO APPROPRIATION**

**A12.1 Termination Where No Appropriation.** If, as provided for in section A4.2(d), the Province does not receive the necessary appropriation from the Ontario Legislature for any payment the Province is to make pursuant to the Agreement, the Province may terminate the Agreement immediately without liability, penalty, or costs by giving Notice to the Recipient.

**A12.2 Consequences of Termination Where No Appropriation.** If the Province terminates the Agreement pursuant to section A12.1, the Province may take one or more of the following actions:

- (a) cancel further instalments of Funds;
- (b) demand from the Recipient the payment of any Funds remaining in the possession or under the control of the Recipient; and
- (c) determine the reasonable costs for the Recipient to wind down the Project and permit the Recipient to offset such costs against the amount owing pursuant to section A12.2(b).

**A12.3 No Additional Funds.** If, pursuant to section A12.2(c), the Province determines that the costs to wind down the Project exceed the Funds remaining in the possession or under the control of the Recipient, the Province will not

provide additional Funds to the Recipient.

### **A13.0 EVENT OF DEFAULT, CORRECTIVE ACTION, AND TERMINATION FOR DEFAULT**

**A13.1 Events of Default.** Each of the following events will constitute an Event of Default:

- (a) in the opinion of the Province, the Recipient breaches any representation, warranty, covenant, or other material term of the Agreement, including failing to do any of the following in accordance with the terms and conditions of the Agreement:
  - (i) carry out the Project;
  - (ii) use or spend Funds; or
  - (iii) provide, in accordance with section A7.1, Reports or such other reports as may have been requested pursuant to section A7.1(b);
- (b) the Recipient's operations, its financial condition, or its organizational structure, changes such that it no longer meets one or more of the eligibility requirements of the program under which the Province provides the Funds;
- (c) the Recipient makes an assignment, proposal, compromise, or arrangement for the benefit of creditors, or a creditor makes an application for an order adjudging the Recipient bankrupt, or applies for the appointment of a receiver; or
- (d) the Recipient ceases to operate.

**A13.2 Consequences of Events of Default and Corrective Action.** If an Event of Default occurs, the Province may, at any time, take one or more of the following actions:

- (a) initiate any action the Province considers necessary in order to facilitate the successful continuation or completion of the Project;
- (b) provide the Recipient with an opportunity to remedy the Event of Default;
- (c) suspend the payment of Funds for such period as the Province determines appropriate;
- (d) reduce the amount of the Funds;
- (e) cancel further instalments of Funds;

- (f) demand from the Recipient the payment of any Funds remaining in the possession or under the control of the Recipient;
- (g) demand from the Recipient the payment of an amount equal to any Funds the Recipient used, but did not use in accordance with the Agreement;
- (h) demand from the Recipient the payment of an amount equal to any Funds the Province provided to the Recipient; and
- (i) terminate the Agreement at any time, including immediately, without liability, penalty or costs to the Province upon giving Notice to the Recipient.

**A13.3 Opportunity to Remedy.** If, in accordance with section A13.2(b), the Province provides the Recipient with an opportunity to remedy the Event of Default, the Province will give Notice to the Recipient of:

- (a) the particulars of the Event of Default; and
- (b) the Notice Period.

**A13.4 Recipient not Remediating.** If the Province provided the Recipient with an opportunity to remedy the Event of Default pursuant to section A13.2(b), and:

- (a) the Recipient does not remedy the Event of Default within the Notice Period;
- (b) it becomes apparent to the Province that the Recipient cannot completely remedy the Event of Default within the Notice Period; or
- (c) the Recipient is not proceeding to remedy the Event of Default in a way that is satisfactory to the Province,

the Province may extend the Notice Period, or initiate any one or more of the actions provided for in sections A13.2(a), (c), (d), (e), (f), (g), (h), and (i).

**A13.5 When Termination Effective.** Termination under Article will take effect as provided for in the Notice.

## **A14.0 FUNDS AT THE END OF A FUNDING YEAR**

**A14.1 Funds at the End of a Funding Year.** Without limiting any rights of the Province under Article A13.0, if the Recipient has not spent all of the Funds allocated for the Funding Year as provided for in the Budget, the Province may take one or both of the following actions:

- (a) demand from the Recipient payment of the unspent Funds; and
- (b) adjust the amount of any further instalments of Funds accordingly.

#### **A15.0 FUNDS UPON EXPIRY**

A15.1 **Funds Upon Expiry.** The Recipient will, upon expiry of the Agreement, pay to the Province any Funds remaining in its possession or under its control.

#### **A16.0 DEBT DUE AND PAYMENT**

A16.1 **Payment of Overpayment.** If at any time the Province provides Funds in excess of the amount to which the Recipient is entitled under the Agreement, the Province may:

- (a) deduct an amount equal to the excess Funds from any further instalments of Funds; or
- (b) demand that the Recipient pay an amount equal to the excess Funds to the Province.

A16.2 **Debt Due.** If, pursuant to the Agreement:

- (a) the Province demands from the Recipient the payment of any Funds or an amount equal to any Funds; or
- (b) the Recipient owes any Funds or an amount equal to any Funds to the Province, whether or not the Province has demanded their payment,

such Funds or other amount will be deemed to be a debt due and owing to the Province by the Recipient, and the Recipient will pay the amount to the Province immediately, unless the Province directs otherwise.

A16.3 **Interest Rate.** The Province may charge the Recipient interest on any money owing by the Recipient at the then current interest rate charged by the Province of Ontario on accounts receivable.

A16.4 **Payment of Money to Province.** The Recipient will pay any money owing to the Province by cheque payable to the "Ontario Minister of Finance" and delivered to the Province as provided for in Schedule "B".

A16.5 **Fails to Pay.** Without limiting the application of section 43 of the *Financial Administration Act* (Ontario), if the Recipient fails to pay any amount owing under the Agreement, Her Majesty the Queen in Right of Ontario may deduct any unpaid amount from any money payable to the Recipient by Her Majesty the Queen in Right of Ontario.

## **A17.0 NOTICE**

A17.1 **Notice in Writing and Addressed.** Notice will be in writing and will be delivered by email, postage-prepaid mail, personal delivery, or fax, and will be addressed to the Province and the Recipient respectively as provided for Schedule “B”, or as either Party later designates to the other by Notice.

A17.2 **Notice Given.** Notice will be deemed to have been given:

- (a) in the case of postage-prepaid mail, five Business Days after the Notice is mailed; or
- (b) in the case of email, personal delivery, or fax, one Business Day after the Notice is delivered.

A17.3 **Postal Disruption.** Despite section A17.2(a), in the event of a postal disruption:

- (a) Notice by postage-prepaid mail will not be deemed to be given; and
- (b) the Party giving Notice will give Notice by email, personal delivery, or fax.

## **A18.0 CONSENT BY PROVINCE AND COMPLIANCE BY RECIPIENT**

A18.1 **Consent.** When the Province provides its consent pursuant to the Agreement, it may impose any terms and conditions on such consent and the Recipient will comply with such terms and conditions.

## **A19.0 SEVERABILITY OF PROVISIONS**

A19.1 **Invalidity or Unenforceability of Any Provision.** The invalidity or unenforceability of any provision of the Agreement will not affect the validity or enforceability of any other provision of the Agreement. Any invalid or unenforceable provision will be deemed to be severed.

## **A20.0 WAIVER**

A20.1 **Waiver Request.** Either Party may, in accordance with the Notice provision set out in Article A17.0, ask the other Party to waive an obligation under the Agreement.

A20.2 **Waiver Applies.** Any waiver a Party grants in response to a request made pursuant to section A20.1 will:

- (a) be valid only if the Party granting the waiver provides it in writing; and

(b) apply only to the specific obligation referred to in the waiver.

## **A21.0 INDEPENDENT PARTIES**

A21.1 **Parties Independent.** The Recipient is not an agent, joint venturer, partner, or employee of the Province, and the Recipient will not represent itself in any way that might be taken by a reasonable person to suggest that it is, or take any actions that could establish or imply such a relationship.

## **A22.0 ASSIGNMENT OF AGREEMENT OR FUNDS**

A22.1 **No Assignment.** The Recipient will not, without the prior written consent of the Province, assign any of its rights or obligations under the Agreement.

A22.2 **Agreement Binding.** All rights and obligations contained in the Agreement will extend to and be binding on the Parties' respective heirs, executors, administrators, successors, and permitted assigns.

## **A23.0 GOVERNING LAW**

A23.1 **Governing Law.** The Agreement and the rights, obligations, and relations of the Parties will be governed by and construed in accordance with the laws of the Province of Ontario and the applicable federal laws of Canada. Any actions or proceedings arising in connection with the Agreement will be conducted in the courts of Ontario, which will have exclusive jurisdiction over such proceedings.

## **A24.0 FURTHER ASSURANCES**

A24.1 **Agreement into Effect.** The Recipient will provide such further assurances as the Province may request from time to time with respect to any matter to which the Agreement pertains, and will otherwise do or cause to be done all acts or things necessary to implement and carry into effect the terms and conditions of the Agreement to their full extent.

## **A25.0 JOINT AND SEVERAL LIABILITY**

A25.1 **Joint and Several Liability.** Where the Recipient is comprised of more than one entity, all such entities will be jointly and severally liable to the Province for the fulfillment of the obligations of the Recipient under the Agreement.

## **A26.0 RIGHTS AND REMEDIES CUMULATIVE**

A26.1 **Rights and Remedies Cumulative.** The rights and remedies of the Province under the Agreement are cumulative and are in addition to, and not in substitution for, any of its rights and remedies provided by law or in equity.

## **A27.0 FAILURE TO COMPLY WITH OTHER AGREEMENTS**

A27.1 **Other Agreements.** If the Recipient:

- (a) has failed to comply with any term, condition, or obligation under any other agreement with Her Majesty the Queen in Right of Ontario or one of Her agencies (a “**Failure**”);
- (b) has been provided with notice of such Failure in accordance with the requirements of such other agreement;
- (c) has, if applicable, failed to rectify such Failure in accordance with the requirements of such other agreement; and
- (d) such Failure is continuing,

the Province may suspend the payment of Funds for such period as the Province determines appropriate.

## **A28.0 SURVIVAL**

A28.1 **Survival.** The following Articles and sections, and all applicable cross-referenced sections and schedules, will continue in full force and effect for a period of seven years from the date of expiry or termination of the Agreement: Article 1.0, Article 3.0, Article A1.0 and any other applicable definitions, section A2.1(a), sections A4.2(d), A4.5, section A5.2, section A7.1 (to the extent that the Recipient has not provided the Reports or other reports as may have been requested to the satisfaction of the Province), sections A7.2, A7.3, A7.4, A7.5, A7.6, Article A8.0, Article A9.0, section A11.2, sections A12.2, A12.3, sections A13.1, A13.2(d), (e), (f), (g) and (h), Article A15.0, Article A16.0, Article A17.0, Article A19.0, section A22.2, Article A23.0, Article A25.0, Article A26.0, Article A27.0 and Article A28.0.

**- END OF GENERAL TERMS AND CONDITIONS -**



**SCHEDULE "B"**  
**PROJECT SPECIFIC INFORMATION AND ADDITIONAL PROVISIONS**

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**Project Specific Information**

<b>Maximum Funds</b>	[REDACTED]
<b>Expiry Date</b>	90 days after the final report due date in Schedule "F"
<b>Amount for the purposes of section A5.2 (Disposal) of Schedule "A"</b>	[REDACTED]
<b>Insurance</b>	[REDACTED]
<b>Contact information for the purposes of Notice to the Province</b>	<p>Name: Ministry of the Environment, Conservation and Parks  Conservation and Source Protection Branch</p> <p>Address: 40 St. Clair Avenue West. 14<sup>th</sup> Floor, Toronto Ontario, M4V 1M2</p> <p>Attention: Saira Ilisinovic, Program Coordinator, Operations and Client Services</p> <p>Email: [REDACTED]</p> <p>Telephone: [REDACTED]</p>
<b>Contact information for the purposes of Notice to the Recipient</b>	<p>Name: Credit Valley Conservation Authority</p> <p>Address: 1255 Old Derry Road, Mississauga ON, L5N 6R4</p> <p>Attention: Janet Ivey</p> <p>Email: [REDACTED]</p> <p>Telephone: [REDACTED]</p>

<b>Contact information for the senior financial person in the Recipient organization (e.g., CFO, CAO) – to respond as required to requests from the Province related to the Agreement</b>	Name: Quentin Hanchard Position: Chief Administrative Officer Address: 1255 Old Derry Road, Mississauga ON, L5N 6R4 Email: [REDACTED] Telephone: [REDACTED]
<b>Recipient’s Canada Revenue Agency Business Number</b>	106992175
<b>Recipient’s TPON Registration ID</b>	52651

**Additional Provisions**

- B.1 [intentionally deleted to preserve numbering]
- B.2 The following subsection is added to section 5.1:
  - (f) the Funds are being provided to the Recipient in furtherance of a public purpose as determined by the Province.
- B.3 The following article is added following Article 5.0:

**6.0 EXECUTION AND TRANSMISSION**

- 6.1** Each of the signatories to this Agreement acknowledge that in providing their name on the applicable signature line in electronic form will constitute a signature for the purposes of the *Electronic Commerce Act, 2000, S.O. 2000, c. 17*, as amended.
- 6.2** The Agreement may be validly executed and delivered by means of transmission of signed facsimile or by email transmission of an electronically scanned original signature (such as in PDF file format).

- B.4 The following definitions are added to section A1.2 in alphabetical order:
  - “**Act**” means the *Clean Water Act, 2006, as amended*.
  - “**AODA**” means the *Accessibility for Ontarians with Disabilities Act, 2005, as amended*.

“**AR**” means an assessment report for the CTC that is required by the Act.

“**Best Practices**” means the online resource that provides information and tips to help ensure communities and landowners (e.g., farmers, cottagers, First Nations, etc.) not covered by source protection plans have the tools they need to protect their drinking water sources from contamination.

“**CA**” means an entity established by or under the *Conservation Authorities Act*, as amended or a predecessor of the *Conservation Authorities Act*.

“**CTC**” means the Credit Valley, Toronto and Region, Central Lake Ontario Source Protection Region which, pursuant to Ontario Regulation 284/07: Source Protection Areas and Regions, made under the Act, incorporates the Credit Valley, Toronto and Region, and Central Lake Ontario SPAs.

“**Director**” means the Director of the Conservation and Source Protection Branch of the Ministry.

“**Director’s Technical Rules**” means the rules established by the Director under the Act which set out requirements relating to risk assessments, risk management plans and any matter that is authorized or required to be included in an assessment report.

“**DNAPL**” means dense non-aqueous phase liquids that are denser than water and sink down into the ground, contaminating drinking water sources.

“**DWS**” means drinking water system and has the same meaning as in the *Safe Drinking Water Act, 2002, as amended*.

“**FTE**” means a full-time equivalent staff position, calculated by using the number of working hours that represents one full-time employee during a one-year period.

“**GIS**” means geographic information system, which is a system designed to capture, store, manipulate, analyze, manage, and present all types of geographically referenced data.

“**Implementing Bodies**” means persons or a public body as defined by the Act responsible for implementing source protection plan policies.

“**IPZ**” means intake protection zone, an area around a drinking water intake included in a source protection plan where contaminants from land activities can reach and pollute the drinking water supply.

“**Management Committee**” means the committee established to provide regional oversight on the Project activities covered under this Agreement and

may include membership from the SPA board within the CTC and key program staff.

**“MFIPPA”** means the *Municipal Freedom of Information and Protection of Privacy Act* (Ontario), as amended.

**“Minister”** means the Ontario Minister of the Environment, Conservation and Parks.

**“Ministry”** means the Ontario Ministry of the Environment, Conservation and Parks.

When “Ministry” and/or “Minister” are referred to in this Agreement, the reference is to the “Ministry” and/or “Minister” as the regulator.

**“Payment Plan”** means the payment plan attached to the Agreement as Schedule “E”.

**“SGRA”** means a significant groundwater recharge area which is a type of Vulnerable Area and refers to an area that recharges water to the underlying aquifer in accordance with the Director’s Technical Rules.

**“Source Protection Area”** means a drinking water source protection area as established under the Act.

**“SPA”** mean a source protection authority which has the same meaning as in the Act, namely a CA or other person or body that, under subsection 4 (2) or section 5 of the Act, is required to exercise and perform the powers and duties of a drinking water source protection authority under the Act, as set out in Ontario Regulation 284/07: Source Protection Areas and Regions, made under the Act.

**“SPC”** mean a committee established under section 7 of the Act for a SPA or SPR established (a) by subsection 4 (1) of the Act or (b) by Ontario Regulation 288/07: Source Protection Committees, made under the Act.

**“SPP”** mean the source protection plan for the CTC prepared under the Act, and includes the AR.

**“SPR”** mean a drinking water source protection region established by Ontario Regulation 288/07: Source Protection Committees, made under the Act

**“TPON”** means the Government of Ontario’s Transfer Payment Ontario system.

**“Tables of Drinking Water Threats”** means the Ministry publication titled "Table of Drinking Water Threats: Clean Water Act, 2006" dated December 12, 2008, as amended from time to time as set out in Part XII of these rules".

**“Transport Pathways”** means a condition of land resulting from human activity that increases the vulnerability of a raw water supply of a DWS.

**“Vulnerable Area”** means any of (a) a SGRA, (b) a highly vulnerable aquifer, (c) a surface water IPZ, or (d) a WHPA, and refers to areas where drinking water threats may pose a risk to drinking water sources.

**“WHPA”** means wellhead protection area, the land area around a drinking water well where contaminants from land activities can reach and pollute the well water supply.

B.5 The following subsection is added to section A2.1:

(e) it has and will continue to have for the term of the Agreement, adequate financial resources to cover normal operating expenses and be a going concern.

B.6 [intentionally deleted to preserve numbering]

B.7 The following section is added to Article A2.0:

**A2.5 TPON.** The Recipient represents, warrants, and covenants that:

- (a) it has completed its registration in the TPON; and
- (b) it will update its information in TPON as needed to maintain accuracy.

B.8 Subsection A4.1(b) is deleted and replaced by the following:

- (b) provide the Funds to the Recipient in accordance with the Payment Plan, each payment being conditional upon the corresponding criteria being met and subject to adjustment pursuant to the terms and conditions of the Agreement including section A4.9; and

B.9 [intentionally deleted to preserve numbering]

B.10 [intentionally deleted to preserve numbering]

B.11 [intentionally deleted to preserve numbering]

B.12 [intentionally deleted to preserve numbering]

B.13 Article A4.0 is amended by adding the following new sections:

**A4.7 Project Over Budget.** The Recipient acknowledges that should Project expenses exceed the amount of the Funds allocated in the Budget, the Province is not responsible for any additional funding and the Recipient undertakes to incur all further costs necessary to complete the Project.

- A4.8 **Administration of a Social, Health or Economic Program.** The Recipient acknowledges and agrees that the Funds being provided under this Agreement are for the purpose of the administration of social, health and/or economic programs and/or the provision of direct or indirect support to members of the public in connection with economic policy, and as such section 16 of the *Limitations Act, 2002* (Ontario) shall apply.
- A.4.9 **Intellectual Property.** The Province is not the owner of any intellectual property generated as a result of the Agreement.
- A4.10 **Cash Flow Management.** In order to more accurately reflect the Recipient's anticipated cash flow needs (as conveyed to the Province), the Province may delay or divide any instalment of the Funds set out in the Payment Plan. If the instalment amount is so delayed or divided by the Province, the Recipient may request another payment by providing Notice to the Province including a cash flow forecast until the next Report is due and confirmation of the amount of the Funds already spent to date. The Province may provide another payment based on the information so provided.
- A4.11 **Budget Flexibility.** Despite subsection A4.3(c), the Recipient may apply limited Budget flexibility as described in section D.2.1 of Schedule "D".
- B.14 Article A5.0 is amended by adding the following new section:
- A5.3 **Termination Provisions.** Further to section A5.1, if the Recipient acquires goods, services, or both, with the Funds, the Recipient will use best efforts to include in any associated agreement, a termination provision that enables the Recipient to wind down the Project in a reasonable manner at minimal cost.
- B.15 Article A7.0 is amended by adding the following new sections:
- A7.7 **Purpose of Receiving Reports.** For clarity, the Province receives Reports or other reports to confirm whether the Recipient is meeting the terms and conditions of the Agreement. The Province does not derive any advice, data or other benefit from such Reports or reports.
- A7.8 **Site Visits.** The Province or any authorized representative may, at the Province's expense, upon twenty-four hours' Notice to the Recipient, conduct one or more site visits during normal business hours to one or more locations where Project activities are taking place, to review the progress of the Project.

B.16 Subsection A8.1(a) is deleted and replaced by the following:

- (a) acknowledge the support of the Province for the Project using the statement “This project has received funding support from the Government of Ontario. Such support does not indicate endorsement by the Government of Ontario of the contents of this material.”;

B.17 Article A8.0 is further amended by adding the following new sections:

A8.3 **Open Data.** Subject to applicable laws, the Recipient gives its consent to the Province for the public release of any information provided under this Agreement including but not limited to the following information, whether in hard copy or in electronic form, on the internet or otherwise: Recipient name, Recipient contact information, Recipient address or general location, amount of Maximum Funds, amount of Funds, Project description, Project objectives/goals, Project location, Project results reported by the Recipient, Budget and any analysis, audit or evaluation reports relating to the Project or to the Agreement performed by either Party. However, the Province and the Recipient agree that such permission does not apply to the following: NIL.

A8.4 **Announcements.** The Recipient shall not publicly announce receiving the Funds or anything to do with the Agreement, including requesting the presence of the Minister of the Environment, Conservation and Parks at one or more Project events, until permitted by the Province.

A8.5 **Use of Ontario logo.** The Recipient may only use the Ontario logo by requesting and obtaining written approval from the Province. The placement of the logo on the Recipient’s materials will clearly identify the Government of Ontario as a funder, funding supporter or sponsor, and not as a partner or similar.

B.18 **Conjunctions.** Where any sections in this Agreement have been modified to add or delete an item from a list, the “and” or “or” conjunction used before the last item on the list shall be deemed to have been moved to the penultimate item on the modified list.

B.19 [intentionally deleted to preserve numbering]

B.20 Section A10.2 is deleted in its entirety and replaced with the following:

10.2 **Proof of Insurance.** The Recipient will:

- (a) provide to the Province, either:
  - (i) certificates of insurance that confirm the insurance coverage required by section A10.1; or

- (ii) other proof that confirms the insurance coverage required by section 10.1; and
- (b) in the event of an action, claim, demand, lawsuit, or other proceeding, and upon the Province's request, the Recipient will provide to the Province a copy of any of the Recipient's insurance policies that relate to the Project or otherwise to the Agreement, or both.

B.21 The following event is added to section A13.1:

- (e) the Recipient fails to respond to any inquiry of the Province pertaining to the *Public Sector Salary Disclosure Act, 1996* (Ontario).

B.22 The following consequence is added to section A13.2:

- (j) demand the repayment of an amount equal to, at the discretion of the Province, either the interest earned on the amount demanded under subsection (f), (g) or (h), or, in the event that the Recipient did not place the Funds in an interest bearing account in accordance with section A4.4, the interest imputed to be earned on such amount based on the then current interest rate charged by the Province of Ontario on accounts receivable, calculated from the date of the Event of Default;

B.23 Section A13.5 is deleted in its entirety and replaced with the following:

**A13.5 When Termination Effective.** Termination under Article A13.0 will take effect as provided for in the Notice.

B.24 The following subsections are added to section A16.1:

- (c) deduct from any further instalments of Funds an amount equal to, at the discretion of the Province, either the interest earned on the amount deducted under subsection (a) or, in the event that the Recipient did not place the Funds in an interest bearing account in accordance with section A4.4, the interest imputed to be earned on said amount based on the then current interest rate charged by the Province of Ontario on accounts receivable, calculated from the date of overpayment;
- (d) demand that the Recipient pay an amount to the Province equal to, at the discretion of the Province, either the interest earned on the amount deducted under subsection (b) or, in the event that the Recipient did not place the Funds in an interest bearing account in accordance with section A4.4, the interest imputed to be earned on said amount based on the then current interest rate charged by the Province of Ontario on accounts receivable, calculated from the date of overpayment;



- (e) deduct the amounts referred to in both subsection (a) and (c) from any further instalments of Funds; or
- (f) demand that the Recipient pay an amount equal to the amounts referred to in both subsection (b) and (d).

B.25 Article A17.0 is amended as follows:

- (a) Each of sections A17.1, A17.2 and A17.3 in Article A17.0 of Schedule “A” is amended by deleting the word “fax” wherever it appears.
- (b) A new section is added following Section A17.3 (Postal Disruption):

**A17.4 Notice by Telephone.** For clarity, Notice may not be given or received by telephone, despite the inclusion of a telephone number (if any) in the table in Schedule “B”.

B.26 The following sections are added to section A28.1, Survival, in chronological order: subsection A2.1(c), section A4.7, section A4.8, section A4.9, section A8.3, section A8.5, subsection A13.2(j), Article A29.0, Article A32.0 and Article A34.0.

B.27 The following new provisions are added following Article A28.0 (Survival)

### **A29.0 FIRST NATION AND MÉTIS CONSULTATION**

**A29.1 Notification.** The Recipient agrees to immediately notify the Province if any First Nation or Métis community raises any concerns about the Project having a potential impact on protected rights.

### **A30.0 ACCESSIBILITY**

**A30.1 Meetings and Events.** As the Funds are being provided to the Recipient for a public purpose and are public funds, in using the Funds for meetings, events or similar, the Recipient should consider the accessibility needs of attendees with disabilities, both in terms of physical access to the event/meeting space, as well as access to the event/meeting contents and proceedings. The Recipient will use best efforts to accommodate these needs.

**A30.2 Meetings and Events Examples.** For assistance with the Recipient’s commitment pursuant to section A30.1, examples of areas where accessibility should be considered include: refreshment and dietary arrangements; communications (e.g. alternate formats – large print, screen readers, Braille, audio format; assistive technologies); and venue selection.

A30.3 **Venues.** As the Funds are being provided to the Recipient for a public purpose and are public funds, in using the Funds for venues at which the public will be in attendance, the Recipient should consider the accessibility needs of attendees with disabilities when selecting a venue, both in terms of exterior and interior access. The Recipient will use best efforts to accommodate these needs.

A30.4 **Venue Examples.** For assistance with the Recipient's commitment pursuant to section A30.3, examples of areas where accessibility should be considered include: parking, sidewalks/paths of travel, accessible transit, entrances and lobbies, elevators, accessible washrooms, hallways and corridors, and meeting and conference rooms.

### **A31.0 ENVIRONMENTAL INITIATIVES**

A31.1 **Meetings.** As the Funds are being provided to the Recipient for a public purpose and are public funds, in using the Funds for meetings, the Recipient will use best efforts to hold virtual meetings instead of requiring attendees to travel to meetings in person.

A31.2 **Printing.** As the Funds are being provided to the Recipient for a public purpose and are public funds, in using the Funds for printing, the Recipient will use best efforts to:

- (a) minimize the need to print documents by scanning and e-mailing documents that might otherwise be printed;
- (b) print or copy double-sided and in black and white when printing or copying is necessary; and
- (c) purchase paper from environmentally responsible sources.

A31.3 **Environmentally Responsible Sources.** For assistance with the Recipient's commitments under subsection A31.2(c), environmentally responsible sources provide virgin bulk paper certified by third party verified forest certification systems such as Forest Stewardship Council, CSA Group or Sustainable Forest Initiative.

### **A32.0 PERSONAL INFORMATION and PARTICIPATION BY MINORS**

A32.1 **Permissions.** The Recipient represents, warrants and covenants that it has or will receive permission to disclose the personal information of all individuals whose personal information is disclosed in the Agreement or during the Project, Reports or other reports, and, in the case of minors, the legal guardian or parent has provided such permission on behalf of the minor.

A32.2 **Consent of Legal Guardian.** The Recipient acknowledges that it is the responsibility of the Recipient to obtain express written consent from the legal guardian of any minors who are involved in any way with the Project.

**A33.0** [intentionally deleted to preserve numbering]

#### **A34.0 FREEDOM OF INFORMATION AND PROTECTION OF PRIVACY**

A34.1 **MFIPPA.** The Province acknowledges that the Recipient is bound by MFIPPA and that any information provided to the Recipient in connection with the Project or otherwise in connection with the Agreement may be subject to disclosure in accordance with MFIPPA.

**- END OF ADDITIONAL PROVISIONS -**

## **SCHEDULE “C” PROJECT**

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### **C.1 BACKGROUND**

The Act, in force since 2007, is the legal foundation for a multi-stakeholder, collaborative, locally-driven science-based process to protect drinking water sources. It requires the establishment of assessment reports that identify activities on the landscape that pose the greatest risk to drinking water sources; these activities are prohibited or managed through local source protection plans.

The Act established 38 watershed-based Source Protection Areas. These 38 areas are grouped into 19 planning units comprised of a combination of stand-alone Source Protection Areas and SPRs. The 19 source protection areas and SPRs are each represented by a SPC, and each SPC is led by a Minister-appointed chair.

Through the leadership of the SPAs and SPCs, as of 2016 all 38 Source Protection Areas are covered by a source protection plan that is being implemented by municipalities and provincial ministries and agencies. Source protection plans are amended or updated from time to time to reflect local changes and to keep plans current. Progress on source protection plan implementation is reported annually to the Ministry and summarized in the Minister’s Annual Report on Drinking Water.

As the local watershed-level agencies, lead SPAs have an important leadership role for source protection under the Act. They are required to:

- establish and maintain the SPC,
- provide administrative, technical and scientific support to the SPC,
- carry out locally initiated amendments to the applicable assessment report and source protection plan such as for the inclusion of new or changing municipal residential DWSs,
- maintain and make accessible source protection program data to inform local decision-making,
- monitor source protection plan implementation,
- prepare an annual progress report for the Minister to report on local progress, and
- support municipalities in fulfilling their source protection plan implementation responsibilities, and undertake other functions related to their role including providing advice and technical services to municipal staff, businesses, landowners or other persons about the source protection plan and the overall drinking water source protection program.

### **C.1A DRINKING WATER SOURCE PROTECTION PROGRAM**

The 2022-24 Drinking Water Source Protection Program provides funding to support SPAs to continue to fulfill their responsibilities under the Act and play a coordinating role

in the updating of assessment reports and source protection plans as needed.

The Recipient is receiving funding support from this public interest program to lead and deliver the local source protection program for the CTC.

## **C.2 PROJECT OBJECTIVE**

The objective of the Project is to maintain an effective multi-faceted support framework for local source protection work in the CTC. This framework will include maintaining source protection expertise in the CTC to support source protection activities as prescribed under the Act, its regulations and rules for the CTC and the updating of the SPP as needed.

## **C.3 SCOPE OF PROJECT**

The Recipient will engage local and regional stakeholders, provide source protection expertise and coordinate local activities that support the implementation and updating of the SPP, and fulfill the monitoring and reporting requirements under the SPP for the CTC as necessary, as developed for the CTC under the Act.

### **C.3.1 The Recipient will maintain local governance and capacity to facilitate and coordinate source protection initiatives for the CTC, which will include:**

- a) Providing source protection program updates to the SPA board(s)
  - (i) 8 CTC SPA meetings (April 1, 2022 – March 31, 2023)
  - (ii) 8 CTC SPA meetings (April 1, 2023 – March 31, 2024)
- b) Hosting Management Committee meetings for the purposes of source protection program oversight, issues management, and SPP related approvals.
  - (i) 3 meetings (April 1, 2022 – March 31, 2023)
  - (ii) 3 meetings (April 1, 2023 – March 31, 2024)
- c) Updating the agreement between the CTC source protection authorities under section 6(3) of the Act.

### **C.3.2 The Recipient will provide maintenance and operation of the SPC for the CTC to guide the local planning process. This includes undertaking the following activities in accordance with Ontario Regulation 288/07: Source Protection Committees, made under the Act:**

- a) Hosting and facilitating 8 in-person or virtual meetings of the SPC.
  - (i) 4 meetings (April 1, 2022 – March 31, 2023)
  - (ii) 4 meetings (April 1, 2023 – March 31, 2024)
- b) Recruit new SPC members as required to maintain quorum by undertaking any necessary advertising, coordinating and reviewing applications, and providing orientation to new SPC members.

- c) Participate in Ministry-hosted SPC Chairs' meetings as scheduled when invited.

**C.3.3 The Recipient will monitor and report on SPP implementation progress within the CTC, in accordance with requirements set out in the Act, Ontario Regulation 287/07: General, made under the Act and Ministry guidance. This includes undertaking the following activities:**

- a) Providing guidance to local municipalities and Implementing Bodies to support them in meeting their responsibilities under monitoring policies and the Act's reporting requirements;
- b) Receiving and maintaining information related to the monitoring policy summaries from Implementing Bodies, including analyzing and interpreting the information received to report on implementation progress to local stakeholders.
- c) Coordinating the submission of annual reporting requirements for the CTC from Implementing Bodies, amalgamating information, and analyzing and interpreting the information received. This includes:
  - (i) Coordinating and amalgamating the submission of reporting on the establishment of section 58 risk management plans under the Act by municipalities.
- d) Analyzing the effectiveness of the SPP policies.
- e) Developing and posting publicly the annual progress report on the implementation of the SPP.
- f) Submitting the annual progress report to the Ministry, as per the requirements of the Act.

**C.3.4 The Recipient will retain records in accordance with legislative requirements. This includes, but is not limited to, undertaking the following activities:**

- a) Maintaining digital documentation, including geospatial GIS data, and backups of local source protection information used to produce the AR and SPP to comply with the requirements of the Act.
  - (i) Transferring historical CTC data to current platform.
- b) Ensuring CTC's AR, SPP, any amendments and annual progress reports are available on the internet.
- c) Maintaining the local CTC source protection website.
  - (i) Hiring a consultant to update website for AODA compliance.
- d) Ensuring all documents are compliant with AODA requirements.
  - (i) Reviewing and update ARs and SPP to comply with the AODA.
- e) Ensuring all data licensing agreements are current and in place.

**C.3.5 The Recipient will undertake amendments to the CTC's SPP under Section 51 of Ontario Regulation 287/07: General, made under the Act, for minor/administrative revisions.**

- a) Finalizing amendment for ARs and SPP to make changes based on updates to Director's Technical Rules and the decommissioning of Inglewood Well #2 in the

- Town of Caledon.
- b) When changes to the ARs and SPP under section 51 of the Act are made, the Recipient will advise the Ministry of said changes and ensure that any new or amended data including SPP policies and geospatial GIS data reflecting new or updated Vulnerable Area delineations are provided to the Ministry.

**C.3.6 The Recipient will issue confirmation notices, upon review of technical work, to municipal DWS owners under section 48 (1.1) of Ontario Regulation 287/07: General, made under the Act and follow protocols outlined in Ministry guidance for new and changing municipal residential DWSs. This includes work for the following DWSs pending the completion of technical work by municipalities:**

- a) City of Toronto – new Island water treatment plant intake in Lake Ontario.
- b) Peel Region – new Caledon East well #6 and potential change in pumping capacity of Palgrave well #4.
- c) York Region – Nobleton well replacement.
- d) Town of Orangeville – Pullen well.
- e) Town of Erin – new Erin and Hillsburgh wells.
- f) Peel Region – new Inglewood well.

**C.3.7 The Recipient will prepare locally initiated amendments to the CTC's ARs and SPP under section 34 of the Act and Ministry guidance to incorporate technical assessments when completed, by local municipalities, for any new or expanding municipal residential DWSs. This includes undertaking the following activities:**

- a) Initiating and completing a Section 34 Amendment #1 for the inclusion of City of Toronto Island intake.
- b) Initiating and completing a Section 34 Amendment #2 for the inclusion of WHPA updates for Palgrave, Caledon East and Caledon village wells in Peel Region.
- c) Initiating and completing a Section 34 Amendment #3 for the inclusion of the Nobleton replacement well in York Region.
- d) Initiating a Section 34 Amendment #4 for the inclusion of the new Erin and Hillsburgh wells in the Town of Erin.
- e) Initiating a Section 34 Amendment #5 for the inclusion of the Pullen well in the Town of Orangeville.
- f) Initiating a Section 34 Amendment #6 for the inclusion of the new Inglewood well in Peel Region if technical work is completed.
- g) Initiating a Section 34 Amendment #7 for the inclusion of a new issue contributing area (as defined under the Act) for York Region Stouffville well #3 if amendment is required upon assessment and completion of technical work.
- h) When changes to the AR and SPP under section 34 of the Act are submitted for Minister's approval, the Recipient will provide any new or amended information, geospatial GIS data reflecting new or updated Vulnerable Area delineations to the Ministry.

**C.3.8 The Recipient will review information it receives from CTC municipalities regarding a proposal to create or modify Transport Pathways in WHPAs or IPZs, or from municipalities or risk management officials as a result of field-verified knowledge, to determine if AR(s) or SPP(s) should be revised. This includes undertaking the following activities:**

- a) Reviewing the results of local pilot project with Credit Valley SPA municipalities.
- b) Engaging municipalities to determine the strategy for updating analyses for transport pathways for municipalities in Toronto and Region Source Protection Area.
- c) Updating the process for municipal reporting of proposals to create or modify transport pathways to CTC SPAs.

**C.3.9 The Recipient will undertake work to update the AR and SPP as directed by the Minister under section 36 of the Act to incorporate technical assessments of new or expanding systems not included under a section 34 amendment under the Act, if required.**

**C.3.10 The Recipient will undertake work to update the SPP under section 36 to ensure policies address where threats could be significant by updating mapping and text where information about land use, drainage or Transport Pathways is inaccurate and has an impact on current risk assessments or where activities could be a significant threat.**

**C.3.11 The Recipient will address challenges with SPP policies substantiated through annual progress reporting by reviewing options and developing recommendations for the CTC SPC to consider how to address the challenges, including new policy wording where applicable. This includes undertaking the following activities:**

- a) Continuing the review and update of agricultural source material SPP policies (ASM-2 and ASM-4).
- b) Continuing the review and update of SPP policies (FER-1 and Fer-2) prohibiting the application of commercial fertilizer.
- c) Reviewing and updating requirements under SPP policy LO-NGS-1.
- d) Assessing the need for developing SPP policies to require signage at vulnerable area boundaries and addressing transport pathways.
- e) Hosting and participating in 6 meetings of the amendments working group to assess and review proposed amendments to CTC SPP policies.
  - (i) 3 meetings (April 1, 2022 – March 31, 2023)
  - (ii) 3 meetings (April 1, 2023 – March 31, 2024)

**C.3.12 The Recipient will undertake consultation requirements related to AR and SPP updates by completing stakeholder and municipal engagement through the use of email, telephone and (in limited instances) in-person interactions (with appropriate COVID protective measures in place), on proposed changes. This includes undertaking the following activities for section 34 amendments and**



**requirements specified in the Minister's Order under section 36 of the Act:**

- a) Early engagement with the Ministry on draft AR and SPP updates in accordance with the Minister's Order under section 36 of the Act.
- b) Pre-consultation with the Ministry, municipalities, and Implementing Bodies.
- c) Public consultation, and Indigenous engagement and consultation where required, on completed Section 34 amendments for the ARs and SPP listed in Section C.3.7 of this Agreement. This may include public meetings, with appropriate COVID protection measures in place, newspaper advertisements, postings to the CTC website, and property notification letters where appropriate.

**C.3.13 The Recipient will undertake an assessment of the most recent amendments to the Director's Technical Rules to determine if amendments to the ARs and SPPs are needed to address local risks to sources of drinking water and if applicable undertake work pursuant to new amendments, including updates to Tables of Drinking Water Threats, only as directed by the Ministry. This includes undertaking the following activities:**

- a) Undertaking a detailed local assessment and workplan to prioritize and undertake work to update ARs and SPP.
- b) Depending on the results of the assessment undertake a case study update of impervious surfaces, managed lands, and livestock density, and review of implications for implementation of the SPP for salt and pathogen drinking water threats.

**C.3.14 The Recipient will provide advice and source protection program support to municipal staff to resolve issues with SPP policy implementation and identify whether updates to the AR and SPP are necessary to improve implementation or address water quality or quantity issues. This includes undertaking the following activities undertaking appropriate COVID protective measures as required:**

- a) Coordinating and facilitating meetings of the CTC municipal working group established to resolve issues and improve efficiencies associated with implementation of SPP policies and amendments and updates to the ARs and SPP.
  - (i) 4 meetings (April 1, 2022 – March 31, 2023)
  - (ii) 4 meetings (April 1, 2023 – March 31, 2024)
- b) Participating in Lake Ontario Collaborative Group meetings to provide source protection program input, advice and guidance as needed.

**C.3.15 Upon request, the Recipient will provide advice to source protection program stakeholders on the review of local applications / planning proposals / decisions in Vulnerable Areas to ensure CTC's SPP policies are considered where required.**

**C.3.16 The Recipient will provide source protection technical, policy and program advice to municipal residential DWS owners on requirements under the Act and**

**its regulations for water quality risk assessments on new and expanding drinking water wells and intakes. This includes undertaking the following activities:**

- a) Providing guidance to municipalities for DWSs listed in C.3.7.
- b) Supporting municipalities as they consider and begin to undertake work for:
  - (i) Durham Region groundwater model update.
  - (ii) Halton Region groundwater model update.
  - (iii) Orangeville Tier 3 water budget study.

**C.3.17 The Recipient will participate in, and coordinate review of technical proposals, legislation and guidance as related to drinking water source protection when requested.**

**C.3.18 The Recipient will keep municipal councils, councillors and staff within CTC informed of local source protection program progress and municipal obligations. This includes undertaking the following activities undertaking appropriate COVID protective measures as required:**

- a) Providing presentations to and meeting with municipal staff and councils as requested or required.

**C.3.19 The Recipient will maintain the local source protection program, including issues management and participation in, and organization of, local, regional and provincial meetings to advance local source protection programs. This includes undertaking the following activities:**

- a) Providing technical and issues support to the local SPC and SPC Chair.
- b) Participating in CTC, regional and provincial meetings and discussions that impact, inform or advance local source protection planning efforts.
- c) Monitoring local issues related to source protection planning, working to resolve them and keeping the Ministry informed where action may be recommended.

**C.3.20 The Recipient will provide advice and support to enable local uptake of the Best Practices for Source Protection for DWSs not included in the SPP. This may include any of the following activities:**

- a) Conduct research and analysis on local DWSs not included in approved source protection plans to identify vulnerable or at-risk systems that may benefit most from implementing the Best Practices and identify municipalities, communities, or system owners that may be interested in piloting the Best Practices.
- b) Undertake education and outreach to DWS owners to encourage the uptake of the Best Practices.
- c) Develop and/or use existing communication materials and social media campaigns (e.g., videos, announcements, information sheets, newsletters etc.) to promote the use of the Best Practices.
- d) Provide technical support and/or advice to DWS owners to help them understand/interpret and adapt the Best Practices to their local situation.

- e) Provide policy support and/or advice to DWS owners on potential policy approaches, outside of the Act, to address risks to drinking water sources (e.g., existing powers under other Provincial legislation).
- f) Engage the SPC to explore opportunities to support local uptake of the Best Practices.
- g) Develop and implement strategies for successful local implementation of the Best Practices.
- h) Encourage and assist DWS owners who implement the Best Practices in providing feedback to support continuous improvement of the Best Practices framework.

**C.3.21 The Recipient will support the CTC SPC in the preparation of updates to the AR and SPP under section 36 of the Act to address changes to water quality or quantity that would significantly alter current risk assessments or activities that could be a significant drinking water threat. This includes undertaking the following activities:**

- a) Provide support and guidance for York Region’s assessment of a potential issue contributing area (C.3.7(g)).

**C.3.22 The Recipient will support and coordinate with interested municipalities within the CTC and the SPC the collection of information needed to address climate change risks to drinking water sources as outlined in the Director’s Technical Rules.**

#### **C.4 TIMELINES**

The following are the timelines for the Project:

<b>Project Activity/Sub-activity</b>		<b>Start Date</b>	<b>End Date</b>
Maintenance of local governance and capacity to facilitate and coordinate sourceprotection initiatives for the CTC. (Section C.3.1)		1-Apr-22	31-Mar-24
Maintain the SPC for the CTC to guide the local planning process. (Section C.3.2)		1-Apr-22	31-Mar-24
Funding Year 1 – Anticipated Meeting Dates	Funding Year 2 – Anticipated Meeting Dates		
May 2022	May 2023		
August 2022	August 2023		
November 2022	November 2023		
February 2023	February 2024		
Monitoring and reporting on SPP implementation progress within the CTC in accordance with requirements set out in Act and Ontario Regulation		1-Apr-22	31-Mar-24

<b>Project Activity/Sub-activity</b>	<b>Start Date</b>	<b>End Date</b>
287/07: General made under the Act and Ministry guidance. (Section C.3.3)  Specifically, <ul style="list-style-type: none"> <li>• Submit annual progress report to Ministry in Funding Year 1.</li> <li>• Submit annual progress report to Ministry in Funding Year 2.</li> </ul>		Within timeframe specified by O.Reg. 287/07: General made under the Act or timeline extension approved by the Ministry
Undertake the tasks identified in sections C.3.4 to C.3.6 inclusive	1-Apr-22	31-Mar-24
Preparation of locally initiated Amendments under Section 34 of the Act (Section C.3.7)	1-Apr-22	31-Mar-24
Undertake the tasks identified in sections C.3.8 to C.3.22 inclusive	1-Apr-22	31-Mar-24

## C.5 PROJECT PARTICIPANTS

The Project will be undertaken by the following Project team members:

<b>Organization</b>	<b>Participant Name and Title</b>	<b>Role and responsibility of the participant/organization in the Project</b>
Recipient	CTC Program Manager 0.75 FTE 2022-2023 0.75 FTE 2023-2024	Management of all legislated activities. Day-to-day project management, issues management, staff coordination, budget reporting, communications and consultation, primary contact for stakeholders.
Recipient	CTC Program Coordinator 0.75 FTE 2022-2023 0.75 FTE 2023-2024	Support for all legislated activities and SPP amendments. Assist with day-to-day project management, issues management, staff coordination, budget reporting, communications and consultation, and stakeholder management.
Recipient	CTC/TRCA GIS Lead 0.25 FTE 2022-2023 0.30 FTE 2023-2024	Maintenance of CTC contribution to AR database, s. 34 Amendments. Assistance with s. 34 Amendments, provision of support and advice on the review of local applications and decisions in vulnerable areas
Recipient	CTC Communications 0.06 FTE 2022-2023	Support for maintenance of the CTC website, consultation requirements

	0.10 FTE 2023-2024	and assistance with preparation of annual report.
Recipient	CVSPA Issues Lead 0.04 FTE 2022-2023 0.04 FTE 2023-2024	Assist with day-day integration of source protection into Credit Valley SPA business, support for CTC SPC, support for s. 36 policy and implementation tasks.
Recipient	CVSPA Lead 0.10 FTE 2022-2023 0.10 FTE 2023-2024	Assist with day-day integration of source protection into Credit Valley SPA business, support for CTC SPC, Lead for s.34 Amendment at CVSPA. Provision of support and advice on the review of local applications and decisions in vulnerable areas.
Recipient	CVSPA Technical Support 0.40 FTE 2022-2023 0.40 FTE 2023-2024	Lead for drafting new text for Credit Valley Assessment Report to incorporate amendments, support for annual reporting, support for CTC SPC. Provision of support and advice on the review of local applications and decisions in vulnerable areas.
Recipient	CVSPA GIS Lead 0.20 FTE 2022-2023 0.20 FTE 2023-2024	Lead for S.34 mapping in Credit Valley SPA. Provision of support and advice on the review of local applications and decisions in vulnerable areas
Recipient	CVSPA Planning Support (junior) 0.10 FTE 2022-2023 0.10 FTE 2023-2024	Support for review of SPP policies per s. 36 work plan items. Provision of support and advice on the review of local applications and decisions in vulnerable areas.
Recipient	CVSPA Planning Support (senior) 0.05 FTE 2022-2023 0.05 FTE 2023-2024	Support for review of SPP policies per s. 36 work plan items. Provision of support and advice on the review of local applications and decisions in vulnerable areas.
Recipient	CVSPA Best Practices Outreach 0.20 FTE 2022-2023 0.23 FTE 2023-2024	Responsible for work under C.3.20.
Recipient	TRSPA Lead 0.10 FTE 2022-2023 0.10 FTE 2023-2024	Assist with day-day integration of source protection into Toronto and Region SPA business, support for CTC SPC, lead for s.34 at TRSPA.

		Provision of support and advice on the review of local applications and decisions in vulnerable areas.
Recipient	TRSPA Technical Support 0.40 FTE 2022-2023 0.40 FTE 2023-2024	Lead for updates for Toronto and Region Assessment Report to incorporate amendments and support for annual reporting. Provision of support and advice on the review of local applications and decisions in vulnerable areas.
Recipient	TRSPA Planning Support 0.20 FTE 2022-2023 0.20 FTE 2023-2024	Support for review of SPP policies per s. 36 work plan items. Provision of support and advice on the review of local applications and decisions in vulnerable areas.
Recipient	CLOSPA Lead 0.15 FTE 2022-2023 0.15 FTE 2023-2024	Lead for records retention and provision of mapping for Central Lake Ontario SPA. Provision of support and advice on the review of local applications and decisions in vulnerable areas.
Recipient	CLOSPA Technical Support 0.20 FTE 2022-2023 0.20 FTE 2023-2024	Lead for drafting new text for Central Lake Ontario Assessment Report to incorporate amendments and support for annual reporting.
Recipient	CLOSPA Planning Support 0.08 FTE 2022-2023 0.08 FTE 2023-2024	Support for review of SPP policies per s. 36 work plan items. Provision of support and advice on the review of local applications and decisions in vulnerable areas.
<b>Total FTE April 1, 2022-March 31, 2023</b>		<b>4.03</b>
<b>Total FTE April 1, 2023-March 31, 2024</b>		<b>4.15</b>

Should there be any changes to the above-noted Project team members, the Recipient will advise the Province forthwith. Changes include additions, replacements and vacancies.

**C.6 PERFORMANCE MEASURES AND TARGETS**

**C.6.1 Scope Obligations**

The following summarizes the goods, services or other outputs that the Recipient will be producing in undertaking the Recipient’s Project.

Description of Products	Number (per C.3)
CTC SPA meetings per section C.3.1.a	16

Management Committee meetings per section C.3.1.b	6
CTC SPC meetings per section C.3.2.a	8
CTC SPP Annual Report under the Act per section C.3.3	2
Confirmation notices to municipal DWS owners under section 48 (1.1) of Ontario Regulation 287/07 made under the Act per section C.3.6	TBD
Section 34 Amendment of the CTC SPPs under the Act per section C.3.7	7
Meetings of the amendments working group as per section C.3.11.e	6

### C.6.2 Targets to Measure Success

In carrying out the Project, the Recipient will use the following measures and aim to meet the following targets to measure its success in meeting the Project objective(s):

Objective(s)	Performance Measures	Performance Targets
To maintain an effective multi-faceted support framework for local source protection work	Recipient meets source protection program deadlines.	<ul style="list-style-type: none"> <li>Annual reporting requirements completed and submitted to the Ministry on time.</li> </ul>
	Recipient provides access to local source protection data.	<ul style="list-style-type: none"> <li>Recipient maintains / presents data that is current and accessible.</li> <li>Recipient provides all approved data to the Ministry in a form approved by the Director.</li> </ul>
	Recipient hosts meetings of the SPC and achieves quorum 100% of the time.	<ul style="list-style-type: none"> <li>Recipient maintains the membership of the SPC to enable quorum.</li> <li>Recipient hosts SPC meetings.</li> </ul>
	Recipient maintains and provides useful source protection information.	<ul style="list-style-type: none"> <li>Recipient provides information to local municipalities that support them in having an awareness of their role in drinking water source protection.</li> <li>Recipient informs Implementing Bodies identified in local</li> </ul>

Objective(s)	Performance Measures	Performance Targets
		SPP(s) of policy implementation obligations.
	Recipient is responsive to local source protection program issues.	<ul style="list-style-type: none"> <li>Recipient addresses SPP policy challenges through updates to the SPP.</li> </ul>
	Recipient provides timely source protection program information to stakeholders.	<ul style="list-style-type: none"> <li>Recipient updates SPPs to ensure all municipal residential DWSs that are online have been captured and included.</li> </ul>
	Recipient meets all legislative consultation requirements.	<ul style="list-style-type: none"> <li>Recipient consults and provides opportunities to comment to all municipalities impacted by proposed AR and SPP amendments and updates.</li> <li>100% of AR and SPP amendments/ updates are shared with the Ministry for early engagement comments.</li> </ul>

**- END OF PROJECT DESCRIPTION AND TIMELINES -**



**SCHEDULE “D”  
BUDGET**

**D.1 BUDGET TABLE**

**Column Legend**

A = B + C + D + E + F + G, where:

A = Project budget;

B = Amount from the Funds

C = Recipient contribution (confirmed)

D = Other cash contributions (confirmed)

E = Other in-kind contributions (confirmed)

F = Requested contributions (unconfirmed)

G = Balance to be secured

Project Expenditures	A <i>Project budget</i>	B Amount from the Funds	Other Contributions			F Requested	G Balance to be secured
			C Recipient	D Cash	E In-kind		
<b>STAFF</b>							
<b>Staffing (4.03 FTE) 1-Apr-22 to 31-Mar-23</b>							
CTC Program Manager (0.75 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████

Project Expenditures	A Project budget	B Amount from the Funds	Other Contributions				G Balance to be secured
			C Recipient	D Cash	E In-kind	F Requested	
CTC Program Coordinator (0.75 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CTC/TRCA GIS Lead (0.25 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CTC Communications (0.06 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CTC Issues Lead (0.04 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CVSPA Lead (0.10 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CVSPA Technical Support (0.40 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CVSPA GIS Lead (0.20 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CVSPA Planning Support (junior) (0.10 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CVSPA Planning Support (senior) (0.05 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CVSPA Best Practices Outreach (0.20 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
TRSPA Lead (0.10 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████

Project Expenditures	A Project budget	B Amount from the Funds	Other Contributions				G Balance to be secured
			C Recipient	D Cash	E In-kind	F Requested	
TRSPA Technical Support (0.40 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
TRSPA Planning Support (0.20 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CLOSPA Lead (0.15 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CLOSPA Technical Support (0.20 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CLOSPA Planning Support (0.08 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
<b>Staffing (4.15 FTE) 1-Apr-23 to 31-Mar-24</b>							
CTC Program Manager (0.75 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CTC Program Coordinator (0.75 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CTC/TRCA GIS Lead (0.30 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CTC Communications (0.10 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CTC Issues Lead (0.04 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████

Project Expenditures	A Project budget	B Amount from the Funds	Other Contributions				G Balance to be secured
			C Recipient	D Cash	E In-kind	F Requested	
CVSPA Lead (0.10 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CVSPA Technical Support (0.40 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CVSPA GIS Lead (0.20 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CVSPA Planning Support (junior) (0.10 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CVSPA Planning Support (senior) (0.05 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CVSPA Best Practices Outreach (0.23 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
TRSPA Lead (0.10 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
TRSPA Technical Support (0.40 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
TRSPA Planning Support (0.20 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CLOSPA Lead (0.15 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████
CLOSPA Technical Support (0.20 FTE)	██████████	██████████	██████████	██████████	██████████	██████████	██████████

Project Expenditures	A Project budget	B Amount from the Funds	Other Contributions				G Balance to be secured
			C Recipient	D Cash	E In-kind	F Requested	
CLOSPA Planning Support (0.08 FTE)							
<b>Sub-total</b>							
<b>SERVICES</b>							
SPC liability insurance							
Audit costs (F.5.6.j)							
Website maintenance							
Geocortex software							
Azure Cloud Hosting Service							
Advertising SPC recruitment							
Advertising S.34 amendments							
Advertising Best Practices							
<b>Sub-total</b>							
<b>CONSULTANTS</b>							
AODA compliance (C.3.4)							
<b>Sub-total</b>							
<b>TRAVEL AND HOSPITALITY</b>							

Project Expenditures	A <i>Project budget</i>	B Amount from the Funds	Other Contributions				G Balance to be secured
			C Recipient	D Cash	E In-kind	F Requested	
Staff transportation for activities described in C.3.1 and C.3.22	██████████	██████████	██████████	██████████	██████████	██████████	██████████
<b><i>Sub-total</i></b>	██████████	██████████	██████████	██████████	██████████	██████████	██████████
<b>OTHER</b>							
Administration/Support Services	██████████	██████████	██████████	██████████	██████████	██████████	██████████
Building/Rent	██████████	██████████	██████████	██████████	██████████	██████████	██████████
Office Equipment Rental and Services	██████████	██████████	██████████	██████████	██████████	██████████	██████████
Office Supplies	██████████	██████████	██████████	██████████	██████████	██████████	██████████

Project Expenditures	A Project budget	B Amount from the Funds	Other Contributions				G Balance to be secured
			C Recipient	D Cash	E In-kind	F Requested	
<p><b>SPC Per Diems</b></p> <p>April 1, 2022-Mar 31, 2023            SPC meetings: 13            members @\$200 per diem            x 4 meeting = \$10,400            SPC per diems other            meeting attendance @\$200            per diem = \$3800</p> <p>April 1, 2023-Mar 31, 2024            SPC meetings: 13            members @\$200 per diem            x 4 meeting = \$10,400            SPC per diems other            meeting attendance @\$200            per diem = \$3800</p>	██████████	██████████	██████████	██████████	██████████	██████████	██████████
<p>SPC member travel for            attendance at SPC and            other meetings</p>	██████████	██████████	██████████	██████████	██████████	██████████	██████████

Project Expenditures	A Project budget	B Amount from the Funds	Other Contributions				G Balance to be secured
			C Recipient	D Cash	E In-kind	F Requested	
Zoom for online meeting hosting	████████	████████	████████	████████	████████	████████	████████
Printing - meeting materials (SPC and amendments working group)	████████	████████	████████	████████	████████	████████	████████
Printing Best Practices outreach	████████	████████	████████	████████	████████	████████	████████
Filming/editing Best Practices outreach	████████	████████	████████	████████	████████	████████	████████
<b>Sub-total</b>	████████	████████	████████	████████	████████	████████	████████
<b>TOTALS</b>	████████	████████	████████	████████	████████	████████	████████



## D.2 NOTES TO BUDGET TABLE

### D.2.1 Budget Table Columns

- (a) **Total Project Amount.** In the event that the budget for the Project exceeds the total amount for column A by 10%, the Recipient will notify the Province forthwith.
- (b) **Standard Budget Flexibility.** The Recipient may move Funds between expense lines in column B, Amount from the Funds, in the Budget table in section D.1 without approval from the Province, except as limited below:
- (i) Funds in column B, Amount from the Funds, cannot be moved to any expense lines under the Budget category “Other” (if any);
  - (ii) The Recipient may not reduce the Funds allocated to any expense line by more than ten percent (10%) of its allocation as shown in the Budget table; and
  - (iii) The Recipient may not increase the Funds allocated to any expense line by more than twenty percent (20%) of its allocation as shown in the Budget table.
- (c) [intentionally deleted to preserve numbering]
- (d) [intentionally deleted to preserve numbering]
- (e) [intentionally deleted to preserve numbering]
- (f) [intentionally deleted to preserve numbering]
- (g) [intentionally deleted to preserve numbering]
- (h) **Acknowledgement.** The Province acknowledges that the Recipient may, in its sole discretion, reallocate the amounts in columns C, D, E and F, among the expense lines in the Budget table. The Recipient acknowledges that should such reallocations be made, the Province may reassess its contribution to the Project and take such actions as permitted in accordance with the Agreement.

### D.2.2 Expense Eligibility

The following Budget notes are intended to provide clarity to the Recipient on how the Funds may be spent.

- (a) **Ineligible costs** – For clarity, in addition to any other costs identified or described as ineligible in the Agreement, the following is a non-exhaustive list of costs for which the Province will not provide any Funds, unless explicitly stated otherwise in this Agreement:
- (i) **Fundraising** – any costs related to developing a business case, funding proposal or other activity with a similar aim;
  - (ii) **Lobbying** – any costs related to activities undertaken with the actual or perceived intention of lobbying;
  - (iii) **Non-Project costs** – any costs not directly related to the Project;
  - (iv) **Pre-Project costs** – any costs incurred prior to the Effective Date;
  - (v) **Purchase of equipment or capital items** – tangible property that has a lifespan longer than one year or the length of the Project, whichever is less, but does not include consumables or items with a value less than \$100;
  - (vi) **Overhead** – fixed or variable costs incurred by the Recipient regardless of the Project (e.g. mortgage, rent, insurance, hydro for the Recipient’s regular operations, except for staff);
  - (vii) **Honoraria** – amounts voluntarily paid by the Recipient for services or other contribution to the Project;
  - (viii) **Professional association dues** – any costs related to Project participants’ professional association dues/fees.
  - (ix) **Hospitality for meetings** – any hospitality costs associated with any meetings listed in Section C.3 of this Agreement.
  - (x) **Refundable expenses** – costs deemed ineligible in accordance with section A4.6 of Schedule “A”; and
  - (xi) Any costs which the Province informs the Recipient it considers, in its sole discretion, to be an inappropriate expenditure of public funds.
- (b) **Administration Expenses** (under “Other”) – Administration expenses are comprised of disbursements such as postage/courier charges, photocopying charges, office supplies, and financial institution service fees incurred in carrying out the Project. The Funds may not be used for avoidable financial institution service fees (e.g. NSF charges). For clarity, administration expenses do not include items such as salary and wages, rent, travel, accommodation and meal expenses, computers, legal fees, audit fees not attributable to program, engineering fees, and other professional fees. Notwithstanding anything contained

herein, the portion of administration expenses covered by the Funds shall not include: NIL

- (c) **Support Services** (incorporated into the Administration Expenses under “Other”) – Support services refer to the time spent by staff in human resources, finance, information technology, and communications departments providing administrative support that can be **reasonably attributable to the Project**. Project managers and key Project participants are not included in support services. Notwithstanding anything contained herein, the portion of support services covered by the Funds shall not include: N/A
- (d) **Consultants** – Consultant costs may include reasonable disbursements in addition to fees. However, the Funds may not be used for costs that would otherwise be ineligible or beyond the limits set by this Agreement (e.g. mileage limits) if they were directly incurred by the Recipient. In addition, the Funds may not be used for: N/A.
- (f) **Transportation** (under “Travel and Hospitality”) – Transportation refers to the provision of transportation for meetings or events to the Recipient’s staff or contractors or meeting/event attendees if specified in the Budget. The amount from the Funds used for transportation will be calculated according to the rates in the [Ontario Government’s Travel, Meal and Hospitality Expenses Directive](#) that is current as of the date that the expense is incurred. Transportation will be by the most practical and economical method; tickets (e.g. train, airplane) purchased must be for economy/coach class and when renting a vehicle, the Funds may only be used for a compact model or its equivalent unless approval for a different model is obtained from the Province prior to rental. **The Funds under this Budget line may not be used for:**
- transportation for meeting/event attendees when the distance to the meeting or event venue is **less than: N/A km.**
- (g) **Accommodation** (under “Travel and Hospitality”) – Accommodation refers to the provision of accommodation for meetings or events to the Recipient’s staff or contractors or other meeting/event attendees if specified in the Budget. Accommodation will be in a standard room; the Funds may not be used for hotel suites, executive floors or concierge levels. **The Funds under this Budget line may not be used for:**
- accommodation for the Recipient’s staff or contractors when the distance to the meeting or event venue is less than **100 km;**
  - accommodation for meeting/event attendees; or
  - penalties incurred for non-cancellation of guaranteed hotel reservations.
- (h) **Services** – Costs for services may include reasonable disbursements in addition to fees. However, the Funds may not be used for the following disbursements: N/A.

### **D.2.3 Pre-Agreement Procurements**

(a) [intentionally deleted to preserve numbering]

**- END OF BUDGET -**

**SCHEDULE “E”  
PAYMENT PLAN**

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**E.1 PAYMENT TABLE**

<b>CRITERIA</b>	<b>AMOUNT</b>
Following Province execution of Agreement evidencing approval of Recipient Project proposal	██████████
Following Province approval of first interim progress report and first financial progress report as set out in Schedule “F”	██████████
Following Province approval of second interim progress report and second financial progress report as set out in Schedule “F”	██████████
Following Province approval of draft final report as set out in Schedule “F”	██████████
<b>TOTAL</b>	██████████

**NOTE: The amounts above may be adjusted pursuant to the terms and conditions of the Agreement, including section A4.9 (as found in section B.13 of Schedule “B”).**

**- END OF PAYMENT PLAN -**

## SCHEDULE “F” REPORTS

### F.1 REPORT TABLE

Name of Report	Due Date
1. Additional Funding Report(s)	An on-going obligation of the Recipient following the Recipient’s receipt of notification that it will be receiving additional funding for the Project
2. Procurement Report(s)	Immediately following selection of preferred proponent if applicable
3. Interim Progress Report(s)	#1 – 11/30/2022 #2 – 06/30/2023
4. Financial Progress Report(s)	#1 - 11/30/2022 #2 - 06/30/2023 #3 - 11/30/2023
5. Draft Final Report	01/31/2024
6. Final Report	04/26/2024
7. Reports as specified from time to time	On a date or dates specified by the Province.

### F.2 REPORT DUE DATE

Except as noted below, if the due date of any Report falls on a non-Business Day, the due date is deemed to be the next Business Day.

For any Report due on March 31 in a year when March 31 is not on a Business Day, the due date of such report is deemed to be the Business Day immediately prior to March 31.

### F.3 REPORTING TEMPLATES

When reporting to the Province, the Recipient will use the templates provided by the Province (if any).

### F.4 SUPPORTING DOCUMENTATION

For clarity, the Province may request supporting documentation from the Recipient as part of the Reports submitted as described in this schedule.

## **F.5 REPORT DETAILS**

**F.5.1 Additional Funding Reports.** Additional Funding Reports will set out:

- g) an accounting of any other funding received or to be received by the Recipient if not already set out in the Agreement, including the identification of the funding organization, the amount and the specific aspect of the Project that the additional funding is supporting; and
- h) confirmation that there is no overlap of funding from the Province and from the other funding entities.

**F.5.2 Procurement Reports.** Procurement Reports will set out:

- d) a description of the procurement process followed by the Recipient to acquire goods or services required to perform the Project; and
- e) a justification for the selection of the preferred proponent which evidences value for money, including, if applicable, confirmation from the supplier that they are the sole supplier of the goods.

**F.5.3 Interim Progress Reports.** Interim Progress Reports will set out:

- (c) actions undertaken to the date of the report including key milestones achieved, with reference to specific paragraphs of section C.3 (Scope of Project) including the performance measures listed in section C.6.1;
- (d) progress achieved to date on the performance targets listed in section C.6.2 and how they relate to the objective(s)/desired outcomes of the Project identified in section C.2;
- (e) for any staff position covered in whole or in part by some or all of the Funds, confirmation of the time spent by the staff person on the Project;
- (f) any variances from the timelines, the reasons for such variances and the strategy used to correct the variances; and
- (g) a statement confirming the Recipient is in compliance with the terms and conditions of the Agreement except as disclosed in the interim progress report, signed by the Chief Operating Officer, the Board chair or equivalent.

**F.5.4 Financial Progress Reports.** Financial Progress Reports will set out:

- (c) an interim accounting of all Project expenditures to date (both as a whole and specifically from the Funds) signed by the Chief Financial Officer, the Board chair or equivalent, confirming actual Project expenditures and providing an explanation for any variances from the Budget;

- (d) identification of Funds reallocated in accordance with section A4.10 (as found in section B.13), including rationales for the reallocations;
- (e) an accounting of any other funding received by the Recipient, the identification of the funding organization, the amount and the specific aspect of the Project that the additional funding is supporting as well as a statement confirming that there is no overlap of funding from the Province and from any other organization; and
- (f) a high-level monthly spending forecast (e.g. total per month) for the remainder of the Project.

**F.5.5 Draft Final Report.** The Draft Final Report will:

- (a) include draft versions of all the information required for the Final Report as described in Section F.5.6.
- (b) include a risk assessment of potential changes in identified project savings.

**F.5.6 Final Report.** The Final Report will set out:

- (a) actions undertaken in carrying out the Project including key milestones achieved, with reference to specific paragraphs of section C.3 (Scope of Project) including the performance measures listed in section C.6.1;
- (b) a description of to what extent the performance targets listed in section C.6.2 were met;
- (c) a description of to what extent the Project objectives/desired outcomes as identified in section C.2 were met and set out lessons learned;
- (d) for any staff position covered in whole or in part by the some or all of the Funds, confirmation of the time spent by the staff person on the Project;
- (e) a final accounting of all Project expenditures (both as a whole and specifically from the Funds) signed by the Chief Financial Officer, the Board chair or equivalent, confirming actual Project expenditures and providing an explanation for any variances from the Budget;
- (f) an accounting of any unspent Funds and an explanation as to why there are remaining Funds;
- (g) an accounting of any interest earned in accordance with section A4.4;



- (h) identification of Funds reallocated in accordance with section A4.10 (as found in section B.13), including rationales for the reallocations;
- (i) a final accounting of the other funding received by the Recipient, the identification of the funding organization, the amount and the specific aspect of the Project that the additional funding supported as well as a statement confirming that there has been no overlap of funding from the Province and from any other organization;
- (j) audited segmented financial information for all project expenditures; and
- (k) a statement signed by the Chief Operating Officer, the Board chair or equivalent confirming Recipient compliance with the terms and conditions of the Agreement, except as disclosed in the final report.

F.5.6 **Other Reports.** The Province will specify the timing and content of any other Reports as may be necessary.

**- END OF REPORTING -**

**TO:** Chair and Members of the Source Protection Committee Meeting #3/22

**DATE:** October 5, 2022

**FROM:** Behnam Doulatyari, Senior Manager, Watershed Plans and Source Protection, Credit Valley Conservation

**RE:** Review of FUEL Policies of the CTC Source Protection Plan

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## **KEY ISSUE**

A proposal to amend the CTC Source Protection Plan policies for Fuel.

## **RECOMMENDATION**

**THAT the CTC Source Protection Committee receive the staff report Review of FUEL Policies of the CTC Source Protection Plan for information.**

**AND FURTHER THAT the CTC Source Protection Committee endorse amendment to FUEL policies consistent with the direction outlined in this staff report.**

**AND FURTHER THAT staff be directed to incorporate the new policy text as part of a forthcoming amendment to the CTC Source Protection Plan, under Section 34 of the Clean Water Act.**

## **REPORT**

### Background

The handling and storage of fuels is a prescribed drinking water threat under O. Reg. 287/07 under the *Clean Water Act, 2006*. Fuels include diesel, kerosene, and hydrocarbon fuel (e.g., gasoline). The main activities that pose a threat to drinking water sources includes the handling of liquid fuel in relation to its storage and the storage of fuel. The types of fuel storage facilities include:

- bulk plants or facilities where fuels are manufactured or refined
- permanent or mobile retail outlets
- marinas
- cardlocks/keylocks
- private outlets (e.g., public works yard, contractor yard)
- farms
- furnace oil tanks for home and business heating purposes

Most of these storage facilities are defined in O. Reg. 213/01 (Fuel Oil) or O. Reg. 217/01 (Liquid Fuels) which are made under the *Technical Standards and Safety Act, 2000* as regulated by the Technical Standards and Safety Authority (TSSA).

Facilities where fuel is manufactured or refined are not included in the TSSA Regulations because they are regulated under the *Environmental Protection Act, 1990* and *Ontario Water Resources Act, 1990*.

At the time of the development of the CTC Source Protection Plan, the provincial threats tables (2009) were summarized to describe where it was possible for prescribed threats to be significant threats to drinking water. The 2009 threats table summary indicated that significant drinking water threats associated with the handling and storage of fuel were possible in:

- IPZ-1, IPZ-2, IPZ-3 and WHPA-E, where VS = 10
- WHPA-A, WHPA-B, WHPA-C, WHPA-C1, and WHPA-D, where VS = 10

The provincial threats tables were clarified in 2013 to remove references to WHPA-E (VS = 10), which are not possible under the Director's Technical Rules. The FUEL policies in the CTC Plan (version 5) were amended under s. 51 of O. Reg. 287/07 on May 20, 2022, all references to WHPA-E (VS=10) were removed from both the significant threat summary tables and the text of the plan's policies. This had no policy implications because the WHPA-E (VS=10) did not exist.

The provincial threats tables were amended again in 2017 to correct the underlying calculations that determine where above grade handling and storage of fuel can be a drinking water threat within IPZs and WHPA-Es. As a result, significant threats are now also possible in IPZ-1, -2, -3 and WHPA-E, where VS = 9.

Within the CTC Source Protection Region, there are no IPZs with a vulnerability score in excess of 6 and therefore, the inclusion of significant threat circumstances for fuel in an IPZ with V=9 has no implications. However, there are three areas of WHPA-E where VS = 9 in Halton Region. These include one in Acton (the Davidson wells), and the other 2 in Georgetown (the Cedarvale wells). This may result in new significant drinking water threats and is currently being investigated by Halton Region SPA.

### Policy Review

The CTC Source Protection Plan (version 5) includes 4 policies on existing and future significant drinking water threats from the handling and storage of fuel variously directed to provincial agencies, the TSSA, municipalities, Risk Management Officials, and Source Protection Authorities. The Explanatory Document (version 5) describes the rationale for the policy approach.

All of the legally binding policies (except those with legal effect "K") include language indicating they apply where an activity is, or would be, a significant drinking water threat, and include a bulleted list of locations where/when a SDWT is possible, per the 2009/2013 provincial threats tables. However, the text of the policies does not include WHPA-E (VS = 9), potentially resulting in uncertainty in policy applicability and/or leaving a gap in policy applicability.

## Policy Alternatives and Discussion

The CTC Source Protection Committee chose to apply all the policies to manage fuel threats in all locations where the threats were significant. Therefore, it is recommended that the wording of the policies be revised to clarify that the policies also are applicable in a WHPA-E (VS = 9).

The Amendments Working Group (AWG) was engaged on May 30, 2022, and feedback was received through early July. AWG was requested to consider two options:

- Option 1: remove the bulleted list of vulnerable areas/scores, relying on the policy wording “where an activity is, or would be a significant threat” (or similar) to indicate where the policy applies.
- Option 2: include WHPA-E (VS = 9) in the bulleted list.

Both options would be made to policies FUEL-1, -2, -3, -4. The responses received were mixed, however, Halton Region expressed preference for Option 2 because having policies indicate exactly where they apply is helpful for clarity and engagement with landowners. Although option 1 would provide resilience to future changes in the provincial threats tables, this would be limited to the FUEL policies. Since Halton Region is the only area affected by this change, IWG supported this request.

## Summary and Next Steps

Pending endorsement of the policy amendments by the SPC, source protection authority staff will prepare edits to the CTC Source Protection Plan and Explanatory Document. This amendment is expected to be made at the time of the next amendment to the SPP under section 34 of the *Clean Water Act*.

### **Report prepared by:**

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**Date: October 05, 2022**

### **Attachments: 1**

**Attachment 1: Proposed track changes amendments to CTC Source Protection Plan definition of Existing Threat Activity and transition and timeline policies.**

**Attachment 1: Proposed track changes amendments to CTC Source Protection Plan definition of Existing Threat Activity and transition and timeline policies.**

## **10.9 FUEL**

### **Definition**

The handling and storage of fuels is a prescribed drinking water threat under O. Reg. 287/07 under the *Clean Water Act, 2006*. Fuels include diesel, kerosene, and hydrocarbon fuel (e.g., gasoline). The main activities that pose a threat to drinking water sources includes the handling of liquid fuel in relation to its storage and the storage of fuel. The types of fuel storage facilities include:

- bulk plants or facilities where fuels are manufactured or refined;
- permanent or mobile retail outlets;
- marinas;
- cardlocks/keylocks;
- private outlets (e.g., public works yard, contractor yard);
- farms; and
- furnace oil tanks for home and business heating purposes.

Most of these storage facilities are defined in O. Reg. 213/01 (Fuel Oil) or O. Reg. 217/01 (Liquid Fuels) which are made under the *Technical Standards and Safety Act, 2000* as regulated by the Technical Standards and Safety Authority (TSSA). Facilities where fuel is manufactured or refined are not included in the TSSA Regulations because they are regulated under the *Environmental Protection Act, 1990* and *Ontario Water Resources Act, 1990*.

### **Why is Fuel a Threat to Drinking Water Sources?**

A number of chemicals from the handling and storage of fuel could make their way into drinking water sources. The Ministry of the Environment, Conservation and Parks' *Tables of Drinking Water Threats (2009)* identifies the following sub-threat activities:

- The handling of fuel (see circumstances #112-191)
- The storage of fuel (see circumstances #1289-1408)

The Ministry of the Environment, Conservation and Parks' *Tables of Drinking Water Threats* identifies the following chemicals as potential concerns:

- Benzene, Toluene, Ethylbenzene and Xylene (referred to as BTEX)
- Petroleum hydrocarbons F1 to F4 (referred to as PHC)

BTEX compounds have strong odours and tastes, which generally discourages any accidental consumption of drinking water. However, benzene is a known carcinogen, and some research has suggested that ethylbenzene may be carcinogenic and produce birth defects. BTEX is a non-aqueous phase liquid that does not easily dissolve into water and persists in the environment. It can lead to contamination of groundwater over a long period of time and the BTEX contaminated water can travel over long distances. Petroleum hydrocarbons can cause an array of negative health effects to the reproductive, respiratory, immune, and nervous systems and can also harm the kidneys, liver, skin, eyes, and blood. PHCs may also affect the odour, taste, and appearance of water. The assessment of potential threats to drinking water sources from handling and storage of fuel is dependent on the location; the chemicals of concern in the fuel; whether it is stored above, below, or partially below grade; the type of facility where it is stored; and the quantity stored.

See **Table 10-11** for when and where the handling and/or storage of fuel may be a significant drinking water threat. Note: to determine if a specific activity is a significant drinking water threat consult the *Tables of Drinking Water Threats* for the specific circumstances that must be met for the activity to be a threat.

**Table 10-1: When/where fuel may be a significant drinking water threat (2009 Table of Drinking Water Threats)**

Prescribed Drinking Water Threat	Fuel Threat Sub-Category	Area and Vulnerability Score (VS)
The handling and storage of fuel	The handling of fuel	<ul style="list-style-type: none"> <li>● WHPA-A</li> <li>● <u>WHPA-B (VS = 10)</u></li> <li>● <u>WHPA-E (VS = 9)</u></li> </ul>
	The storage of fuel	<ul style="list-style-type: none"> <li>● WHPA-A</li> <li>● <u>WHPA-B (VS = 10)</u></li> <li>● <u>WHPA-E (VS = 9)</u></li> </ul>

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
FUEL-1	Handling and Storage of Fuel (Municipal Wellheads)	MECP	C	<p><b>Prescribed Instrument</b></p> <p>Where the handling and storage of fuel at a municipal wellhead is in an area where the activity is, or would be, a significant drinking water threat, drinking water licences under the <i>Safe Drinking Water Act</i> shall be reviewed or established to ensure appropriate terms and conditions are included so that the activity ceases to be, or does not become, a significant drinking water threat in any of the following areas:</p> <ul style="list-style-type: none"> <li>• WHPA-A (existing, future); or</li> <li>• <u>WHPA-B (VS = 10) (existing, future)</u></li> <li>• <u>WHPA-E (VS = 9) (existing, future)</u></li> </ul>	See Maps 1.1 - 1.21	<p>Future: Immediately (T-3)</p> <p>Existing: 3 years (T-1)</p>	GEN-3	MON-4
FUEL-2	Handling and Storage of Fuel (Aggregate Extraction Sites)	MNRF	C	<p><b>Prescribed Instrument</b></p> <p>1) The handling and storage of fuel at an aggregate extraction site shall be prohibited where the activity would be a significant drinking water threat in any of the following areas:</p> <ul style="list-style-type: none"> <li>• WHPA-A (future); or</li> <li>• <u>WHPA-B (VS = 10) (future)</u></li> <li>• <u>WHPA-E (VS = 9) (future)</u></li> </ul>	See Maps 1.1 - 1.21	<p>Future: Immediately (T-3)</p>	N/A	MON-4
				<p>2) Where the handling and storage of fuel at an aggregate extraction site is in an area where the activity is a significant drinking water threat, the license, site plan or permit that governs the activity shall be reviewed to ensure appropriate terms and conditions are included so that the activity ceases to be a significant drinking water threat in any of the following areas:</p> <ul style="list-style-type: none"> <li>• WHPA-A (existing); or</li> <li>• <u>WHPA-B (VS = 10) (existing)</u></li> <li>• <u>WHPA-E (VS = 9) (existing)</u></li> </ul>		<p>Existing: 3 years (T-1)</p>		

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
FUEL-3	Handling and Storage of Fuel  (Liquid Fuel and Fuel Oil in Non-Residential (includes ICI, Farm), Multi-unit Residential and Small Business in quantities ≥2500 litres above or below grade)	RMO	G	<p><b>Part IV, s.57, s.58</b></p> <p>Where the handling and storage of liquid fuel and fuel oil at non-residential properties, multi-unit residential properties or small businesses (in quantities ≥ 2500 litres above or below grade) is in an area where the activity is, or would be, a significant drinking water threat, the following actions shall be taken:</p> <p>1) The handling and storage of fuel is designated for the purpose of s.57 under the <i>Clean Water Act</i>, and is therefore prohibited where the threat would be significant in any of the following areas:</p> <ul style="list-style-type: none"> <li>• WHPA-A (future); or</li> <li>• <u>WHPA-B (VS = 10) (future)</u></li> <li>• <u>WHPA-E (VS = 9) (future)</u></li> </ul>	See Maps 1.1 - 1.21	Future: Immediately (T-5)	GEN-1	MON-2
			H	<p>2) The handling and storage of fuel is designated for the purpose of s.58 under the <i>Clean Water Act</i>, requiring risk management plans, where the threat is significant in any of the following areas:</p> <ul style="list-style-type: none"> <li>• WHPA-A (existing); or</li> <li>• <u>WHPA-B (VS = 10) (existing)</u></li> <li>• <u>WHPA-E (VS = 9) (existing)</u></li> </ul> <p>Without limiting other requirements, risk management plans shall incorporate appropriate provisions of Ontario Regulations 213/01 and 217/01 and their codes, best management practices and standards as amended from time to time to ensure the activity ceases to be a significant drinking water threat.</p>		Existing: 1 year/ 5 years (T-6)	GEN-1 GEN-2	MON-2
		SPA	E	<p>3) The Source Protection Authority shall:</p> <p>a) request inspection reports from the Technical Standards and Safety Authority (TSSA) on Private Fuel Outlets (PFOs) in areas where the handling and storage of fuel is a significant threat as requested by the SPA; and</p> <p>b) provide this information to the Risk Management Official to aid in prioritizing the development of the risk management plans for those that pose the greatest risk first; and</p> <p>c) provide to TSSA any data about leaks and other concerns observed, as they relate to TSSA's mandate to enforce O. Reg. 213/217 (as amended) and their corresponding codes, at PFOs from risk management officials or through SPA staff work that would support TSSA's enforcement of regulatory requirements for PFOs.</p>		Existing: 180 days (T-14)	N/A	MON-3



Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
FUEL-4	Handling and Storage of Fuel  (Liquid Fuel and Fuel Oil in Non-Residential (includes ICI, Farm), Multi-unit Residential, Residential, and Small Business)	Municipality	E	<p><b>Education and Outreach</b></p> <p>1) The municipality shall prepare and deliver education and outreach materials and programs to residences and small businesses where the handling and storage of liquid fuel and fuel oil is, or would be, a significant drinking water threat to advise the owner/tenant about the actions to take to ensure that the activity ceases to be, or does not become, a significant drinking water threat, in any of the following areas:</p> <ul style="list-style-type: none"> <li>• WHPA-A (existing, future); or</li> <li>• <u>WHPA-B (VS = 10) (existing, future)</u></li> <li>• <u>WHPA-E (VS = 9) (existing, future)</u></li> </ul> <p>Where appropriate education and outreach materials prepared by the Ministry of the Environment, Conservation and Parks, the Technical Standards and Safety Authority or other parties are available, the municipality shall deliver those materials.</p>	See Maps 1.1 - 1.21	Existing & Future: Implement within 2 years (T-10)	GEN-8	MON-1
		MECP TSSA	K	<p>2) The Ministry of the Environment, Conservation and Parks shall collaborate with the Technical Standards and Safety Authority (TSSA) and the Ministry of Government and Consumer Services to:</p> <p>a) provide education and outreach materials for delivery by local municipalities to residences and small businesses about how to prevent spills or leaks from contaminating water and what to do if a spill happens or is suspected;</p> <p>b) include source water safety information into current public education vehicles, such as TSSA’s website and seasonal brochures;</p> <p>c) work with fuel industry associations to facilitate distribution of educational materials to fuel suppliers; and</p> <p>d) provide colleges with source water awareness information that can be integrated into fuel technician training programs.</p>				MON-4
		MECP TSSA MGCS	K					MON-4

**TO:** Chair and Members of the Source Protection  
Committee Meeting #3/22

**DATE:** October 5, 2022

**FROM:** Behnam Doulatyari, Senior Manager, Watershed Plans and Source  
Protection, Credit Valley Conservation

**RE:** Endorsement of Method for Assessment of Transport Pathways

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## **KEY ISSUE**

Endorsement of a consistent method for municipal assessment of transport pathways affecting the vulnerability of wellhead protection areas.

## **RECOMMENDATION**

**THAT the CTC Source Protection Committee receive the staff report Endorsement of Method for Assessment of Transport Pathways for information.**

**AND FURTHER THAT the CTC Source Protection Committee endorse the pilot study method for assessing transport pathways as applicable for use across the CTC Source Protection Region.**

**AND FURTHER THAT staff be directed to provide the transport pathways assessment method to municipalities undertaking updates to wellhead protection areas.**

## **REPORT**

### Background

A transport pathway is a human-made or natural feature at or below the ground surface that can promote quicker travel of contaminants to drinking water wells or surface water intakes. Examples of transport pathways include:

- abandoned or improperly maintained wells
- pits and quarries that breach the protective soil and rock layers
- underground infrastructure such as storm sewers and sanitary sewers
- pipelines
- road ditches and other drainage systems

The provincial Director's Technical Rules (DTRs, 2021) do not prescribe a method for identifying transport pathways but do provide a framework which does allow for the vulnerability of a wellhead protection area (WHPA) or intake protection zone to be

increased because of the presence of a human-made transport pathway. Areas of low vulnerability can be adjusted to medium or high vulnerability, and areas of medium vulnerability can be adjusted to high vulnerability. The DTRs list the following factors to consider in determining whether and to what extent to adjust vulnerability:

- Hydrogeological conditions
- The type and design of any transport pathways
- The cumulative impact of any transport pathways
- The extent of any assumptions used in the assessment of the vulnerability of the groundwater

Preliminary transport pathways work in the CTC Source Protection Region (SPR) was undertaken by various consultants. The assumptions, data sources, and methods employed by consultants varied significantly across the region. To improve consistency and standardization, a transport pathway adjustment study was undertaken by the Central Lake Ontario Source Protection Authority for the CTC SPR and is documented in Appendix D to the Central Lake Ontario Source Protection Area assessment report (approved July 2015). The study noted data gaps, including lack of consistency of data on wells / boreholes among municipalities, and little to no information relating to linear infrastructure and geothermal installations.

When the CTC assessment reports were approved in 2015, only pits and quarries were included as transport pathways, and it was recognized that additional work needed to be done to identify and include other types of pathways. The work plan for update of the CTC Source Protection Plan under section 36 of the *Clean Water Act, 2006*, recommended updating transport pathways inventories and considering new policies for notifications when a new pathway is created.

#### Credit Valley Watershed – Transport Pathways Pilot Study

In 2019, Credit Valley Source Protection Authority (CVSPA) began a pilot study. The objectives of the study were to:

1. Review past CTC transport pathways work and recent (post-2017) transport pathway assessments for other source protection regions, with a focus on neighboring Lake Erie, Halton-Hamilton and Niagara Peninsula regions.
2. Develop a defensible and repeatable methodology for transport pathway assessments for WHPAs within the CTC SPR.
3. Apply the methodology in the CVSPA as a pilot study; and
4. Share the results of the pilot study (transport pathways and associated potential changes to WHPA vulnerability scoring) with municipalities and the CTC Source Protection Committee.

A draft methodology was developed and underwent several reviews by municipal and conservation authority staff between 2020 and 2021. The Amendments Working Group received a presentation on the pilot study on June 28, 2021, and preliminary study results were presented to the Implementation Working Group on July 14, 2021. A draft final pilot report, containing results, mapping of transport pathways and recommendations for adjusted vulnerabilities, was circulated for review by the

Implementation Working Group in February 2022. In April and May, final meetings were held with Risk Management Officials (RMOs) for municipalities within the Credit River watershed to discuss the pilot application of the method and review the results that were generated.

The pilot study report is appended as Attachment 2. The report describes a stepwise method for a desktop assessment of transport pathways related to the following features:

- Pits and quarries
- Landfills
- Stormwater management ponds
- Sanitary and storm sewers
- Water mains
- Sewage lagoons
- Geothermal systems

The pilot application of the method in the Credit River WHPAs drew on data from the Oak Ridges Moraine Groundwater Program database, which includes provincial Water Well Information System records and other data, as well as provincial mapping of pits and quarries, Enbridge pipeline mapping, and municipal infrastructure mapping.

Since the time that the previous transport pathways study was completed, the quality of the water well/borehole data has improved substantively due primarily to review and quality control work by the Oak Ridges Moraine Groundwater Program. Municipal linear infrastructure mapping has also improved and generally more comprehensive, although information on the depth of infrastructure remains a key gap. Efforts were made to secure mapping of geothermal systems, but ultimately the data was not of sufficient quality to support analysis.

It is recommended that the vulnerability rating in the buffer area around identified pathways be increased by one category (i.e., low to medium or medium to high) as a result of the presence of transport pathways. This in turn may result in an increase in vulnerability score. The results and recommendations of the study are summarized in the Tables 1 through 4 and detailed in the appended report.

Water System	Existing Vulnerability Rating	Vulnerability Score	WHPA Area (ha)	TP Area (ha)	Proposed Vulnerability Score change	Proposed Rating Change	Change of Area per new TPs (%) <sup>1</sup>
<b>Georgetown</b>	medium	4	660.9	19.09	4 to 6	high	3.0
<b>Hillsburgh</b>	medium	8	18.9	6.38	8 to 10	high	34.0
<b>Alton</b>	low	2 & 6 (B)	568.8	10.36	2 to 4; 6 to 8	medium	2.0
	medium	4, 6 & 8	33.2	5.78	4 to 6; 6 to 8 8 to 10	high	17.0
<b>Orangeville</b>	low	6 (B)	254.8	6.34	6 to 8	medium	2.0
	medium	8	224.8	1.33	8 to 10	high	1.0

**Table 1: Wells and Boreholes identified as Transport Pathways**

<sup>1</sup> For example, 3.0% of the Georgetown WHPA is recommended to be adjusted from a vulnerability score 4 to 6.

**Table 2: Active Pits and Quarries identified as Transport Pathways**

Water System	Existing Vulnerability Rating	Vulnerability Score	WHPA Area (ha)	TP Area (ha)	Proposed Vulnerability Score change	Proposed Rating Change	Change of Area per new TPs (%)
Alton	Low	2	502.5	29.4	2 to 4	medium	6.0
Hillsburgh	Low	2	150.5	54.6	2 to 4	medium	36.0
Georgetown	Medium	4	660.9	17.2	4 to 6	high	3.0
Mono	Medium	4 (D), 6 (C) & 8	102.4	5.3	4 to 6; 6 to 8; 8 to 10	high	5.0
Amaranth	Low	2,4,6	580.4 4	30.7	2 to 4; 4 to 6 6 to 8	med	5.3
Orangeville	Well 10 - Low	2	16.9	15.7	2 to 4	medium	93.0
	Well 6 - Low	2, 4 & 6	516.6	50.0	2 to 4; 4 to 6; 6 to 8	medium	10.0
	Well 7 - Low	2 & 4	415.9	34.8	2 to 4; 4 to 6;	medium	15.0
	Well 10 - Medium	4	24.4	12.7	4 to 6	high	53.0
Caledon Village	Low	2, 6	70.8	34.8	2 to 4; 4 to 6; 6 to 8	medium	50.0
	Medium	6 (C) & 8	34.9	3.4	6 to 8; 8 to 10	high	10.0

**Table 3: SWM Ponds identified as Transport Pathways**

Water System	Existing Vulnerability Rating	Vulnerability Score	WHPA Area (ha)	TP Area (ha)	Proposed Vulnerability Score change	Proposed Rating Change	Change of Area per new TPs (%)
Orangeville (Well 2a, 5, 6, 7 & 9 A, B, 10 & 11)	medium	8	578.3	9.1	8 to 10	high	2.0
Mono - Island Lake	Medium	6 (C) & 8	56.9	4.5	6 to 8; 8 to 10	high	8.0
	Low	4 & 6 (B)	43.2	0.8	4 to 6; 6 to 8	medium	2.0

**Table 4: Linear Features identified as Transport Pathways**

Water System	Existing Vulnerability Rating	Vulnerability Score	WHPA Area (ha)	TP Area (ha)	Proposed Vulnerability Score change	Proposed Rating Change	Change of Area per new TPs (%)
Orangeville Wells 2A,5,5A, 7, 9A & B	Low	6	363.3	3.3	6 to 8	medium	1.0
	Medium	8	126.8	0.5	8 to 10	high	0.40
Caledon Village	Low	2 & 6 (B)	31.7	0.8	4 to 6; 6 to 8	medium	3.0
	Medium	8	7.5	0.2	8 to 10	high	3.0

Municipal RMOs were generally supportive of the methodology proposed for transport pathways analysis.

The draft reporting of the transport pathways methodology underwent multiple review by municipal and conservation authority staff during 2020 and 2021. A final review of the pilot study was completed between February and May of 2022. During this review, the draft report was re-issued along with feedback tables, to member municipalities, neighboring SPRs and to the province. SPA/SPR staff also hosted meetings with municipalities between April 6 and May 2, 2022. Comments, opinions, and questions were offered through suggested edits inserted directly into the report, through the feedback forms, and at the meetings.

A record of the feedback returned is presented Attachment 1. In general, satisfaction was expressed with the overall analytical approach and with the results generated. The feedback centered primarily around the following areas:

- Reasonable set of criteria and assumptions applied in the analyses. The methodology appears to be robust, defensible and realistic to implement.
- Clarification on whether the methodology require provincial approval
- Suggestion and input on improving the flow and readability of the report;
- Willingness by municipalities to assess TPs when new SWP work is being done;
- Access to data & data sharing agreements;
- Flexibility in the methodology – ability to adapt/adjust to suit local conditions in other jurisdictions. For instance, where a municipality straddles the CTC SPA boundary, but alternate analytical method(s) or differing buffer sizes have been applied on the other side(s) of the boundary;
- Data sources - pipelines (other than Enbridge) and geothermal systems;
- Data availability– ability for CVC to share private data with municipalities
- SPP implications – there is a need to assess the impact of transport pathways on policy implementation i.e. where new SDWTs have been created due to change in vulnerability rating /scores; and
- Future Transport Pathways - protocol by which municipalities can notify the SPA when potential transport pathways may be introduced through development activity.

The methodology and criteria applied in this pilot are identical /comparable to those applied in surrounding jurisdictions. During the final review, Halton Region noted that although HHSPA applied similar criteria in their study, an alternate buffer setback distance (zone in which the vulnerability rating may be bumped up) was chosen for pathways pertaining to wells / boreholes and ask whether they could apply HHSPA's buffering criteria in Georgetown for consistency across the SPA boundary. Varying buffer sizes have been applied across the province and given the lack of specificity in the guidance, the setback distance has essentially been left to the respective source protection areas / regions to rationalize / decide upon.

In the past, the CTC SPC has traditionally opted towards conservatism / greater protection, so this preference influenced the selection of the buffer size. The MECP also weighed into this discussion by confirming that they do encourage the application of professional judgement, particularly where site-specific information may be available.

It must also be noted that Peel Region has already proceeded to apply the proposed methodology / criteria through technical studies recently completed (and submitted) for their water systems.

#### Updating Transport Pathways in the Assessment Reports

In consultation with municipalities, it was determined that the results of the pilot application of the transport pathways method in the Credit River WHPAs will not be used to amend vulnerability scoring of the WHPAs in the Credit River Assessment Report. Wellhead protection area mapping and vulnerability assessments for almost all municipal drinking water systems in the Credit Watershed will be updated in the coming 1-5 years as municipalities pursue new wells and/or update groundwater models. As a result, municipalities will include updated transport pathways analyses within their scope of technical work.

Pending Source Protection Committee endorsement, the methods described in the pilot study report will be recommended for municipal use in future updates to transport pathways analyses in the CTC SPR. This will ensure a consistent approach to transport pathways analysis across the region.

#### Next Steps

CTC staff will continue to support municipal update of transport pathways analyses and incorporate updated vulnerability assessments in the Credit Valley and Toronto and Region assessment reports as they become available.

The next phase of CTC transport pathways work will focus on developing a protocol to implement section 27(3) of Ontario Regulation 287/07, which requires municipalities to notify the SPA and SPC of any proposals to create new transport pathways within vulnerable areas.

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**Date: October 5, 2022**

**Attachments: 2**

**ATTACHMENT 1: Municipal Peer Review Comment Matrix**

**ATTACHMENT 2: Review of Transport Pathways in the Credit Valley Source  
Protection Area**



## ATTACHMENT 1: Municipal Peer Review Comment Matrix

Comment	Response
<p>We like the general study approach - reasonable set of criteria and assumptions applied. The methodology seems robust, defensible, and realistic to implement. The results do make sense with what is known to exist on the ground.</p>	<p>CTC – thank you</p>
<p>How does the study consider semi-confined aquifers?</p>	<p>CTC- conservative approach taken, so once the defining criteria were met, a transport pathway could potentially be identified to impact a municipal well in a semi-confined aquifer.</p>
<p>How do you deal with leaky aquitards above a bedrock supply aquifer when the potential transport pathway is greater than 3 m above the supply aquifer?</p>	<p>Where the depth criteria has not been met, the well / bh cluster was not considered a transport pathway.</p>
<p>Where supply wells are completed into a deep, confined aquifer, can municipalities document that fact and remove those wells from the TP analysis? This would help to optimize the use of funding towards where best utilized.</p>	<p>MECP – We do encourage the application of professional judgement in the analysis of transport pathways. Where site specific data is available and allows for a defensible interpretation, it is expected that such cases will be supported by ample justification along with requisite study /data references.</p>
<p>Is there an ability to adjust the methodology / criteria to suit local conditions in other jurisdictions, inclusive of edge-matching considerations? Ex. where a municipality straddle multiple SPRs - and differing criteria or buffer sizes applied elsewhere – can analytical methods other than used in this pilot, be applied in CTC jurisdiction? Thinking specifically about well / borehole review where a similar analytical methodology was used in HHSPR, but different setback buffer considered for vulnerability bump-ups.</p>	<p>CTC–The Technical Rules provide a framework for the review of transport pathways, but are not prescriptive on specific methodologies, criteria or buffers. Given this, the review of transport pathways is essentially based on professional judgement and justification. The methodology and criteria outlined in this pilot are identical /comparable to those applied in surrounding jurisdictions. What may differ is the size of the associated buffer zone in which the vulnerability score may be increased i.e. where new SDWTs may occur. Given the absence of provincial guidance, the size of the buffer is essentially left up to the respective SPAs /SPCs. The CTC SPC has traditionally opted on the side of conservatism / greater</p>

	protection in the past. The MECP does encourage the application of professional judgement in the review of TPs, particularly where site-specific information may be available (per response to question on confined aquifers).
Why assess transport pathway in WHPAs where an increased vulnerability rating /scoring will likely not result in the triggering of SDWTs? On the flip side, identified TPs could potentially increase the volume of planning reviews, trigger RMPs	CTC–The MECP does encourages the application of professional judgement, but please be aware that the Technical Rules do allow some latitude, where the vulnerability rating may be bumped up from low to high rating (per discretion of the SPC).
Assessment of transport pathways in new WHPAs – <ul style="list-style-type: none"> <li>• are municipalities open to undertaking such work?</li> <li>• where there are no planned WHPA updates – can CVC amend the AR per the results from this work?</li> </ul>	CTC municipalities – General concurrence on both points. Municipalizes agreed to do the work whenever new WHPA work is planned, subject to final approval of pilot study / work by SPC.
It would be helpful to have a second more concise document that pulls out the basics of the methodology for municipalities to access / implement.	CTC – This information in App B has been amended / clarified for this expressed purpose.
The figures in the report show the identified transport pathways superimposed on the vulnerability scoring, but does not convey the implications i.e. the “so what does this mean”? factor.	The figures have been changed to show the proposed changes to the vulnerability rating in the footprint of the identified transport pathway.
Are there approvals for which MECP is responsible for issuing certain types of geothermal systems (e.g. deep vertical systems)?	MECP – The approvals required are noted in the pilot report: “...deep vertical systems require an Environmental Compliance Approval (ECA) from MECP while the shallow systems require a building permit from local municipalities” <a href="https://www.ontario.ca/page/earth-energy-systems-ontario#section-2">https://www.ontario.ca/page/earth-energy-systems-ontario#section-2</a>
Did you look at sub-grade parking garages (ex. condo buildings etc) in your work? If not, do you know if they were considered by any of the SPAs in your SPC? Do you think they should be considered at all, especially, if they are constructed to code (with sub drains etc.)?	CTC – We did not look at sub-grade parking garages, as most municipalities were not able to provide requisite data. If constructed below a water table (considering seasonal gw fluctuations) code require they must be watertight structure so there is no chance to release contaminants into underlying aquifers. If they are above water table

	(consider seasonality) and have sump pumps, there is the potential for a gasoline oil spill etc. into the soil and percolate down to aquifer. So a screening exercise of above vs below water table would be a good idea for the consideration of such work.
Sewage lagoon data - where was data accessed on locations of sewage lagoon (municipal, industrial, etc.) sourced?	CTC – through our municipalities. Most were not able to provide such data, but town of Erin was able to confirm that there are no sewage lagoons in their jurisdiction.
Wells / Boreholes - per criteria of minimum of 6 wells in a cluster - how many of the wells / boreholes (per cluster) are required to meet the criteria (3m above municipal aquifer) for the cluster to satisfy the definition of a TP?	CTC – the analyses considered only locations where a minimum of 6 wells / boreholes existed and the 3m separation criterion was met by 6 or more wells / boreholes.
Did the study consider residential wells constructed after 1990 as transport pathways? If they weren't, may consider adding to the list of boreholes that were not considered as TPs.	CTC - per O. Reg. 903, 1990, all wells constructed after 1990 were omitted from the analyses. It was assumed that they were constructed to code.
How did CVC access data on pipeline locations i.e. where did you go, who did you contacts, and how challenging it was to obtain pipeline information? Did you need a data sharing agreement, and if so does it allow for you to share with a third party (i.e municipality)?	CTC – data requests were made by the lead SPA (TRSPA at the time), who then dispatched the datasets to the other CTC SPAs, but there was no attached metadata or DSA. SPAs were not permitted to share private datasets with municipalities.
Did CVC look at data on location of oil pipelines besides Enbridge Corp.? For example - Sun-Canadian Pipeline/Trans-Northern Pipeline.	CTC – Only Enbridge pipeline were considered. Federally regulated pipeline maps: <a href="https://neb-gis.maps.arcgis.com/apps/webappviewer/index.html?id=2d11fd4e6a7a4f4ba7fe6bdf51ae52de">https://neb-gis.maps.arcgis.com/apps/webappviewer/index.html?id=2d11fd4e6a7a4f4ba7fe6bdf51ae52de</a> . No other pipelines are close to CVC's WHPAs.

<p>Is there an approval process for the pilot methodology? Does the methodology need ministry approval? If so, do we need two versions for our current study in case the ministry does not approve?</p>	<p>Provincial approval not required. However, endorsement by the CTC SPC is required before a recommendation can be made for municipalities to adopt.</p>
<p>Are there any existing SPP policies across the province aimed at geothermal systems? For instance, would it be possible for MECP to share/notify this information with municipalities or SPAs?</p>	<p>MECP – There are existing policies in SPPs across the province that speak to transport pathways and a couple that name geothermal systems (e.g., Quinte, Mississippi-Rideau). Some examples of transport pathway policies are reporting and research type policies directed at the province.</p>
<p>SPP implications – there is a need to assess the impact of transport pathways on policy implementation i.e. where new SDWTs have been created due to change in vulnerability rating /scoring.</p>	<p>CTC &amp; municipalities– Agreed</p>
<p>What is the mechanism for municipalities to advise the SPA when potential TPs are being introduced /installed in WHPAs? LER recently developed a memo that will be used to record the evaluation of a potential transport pathway notice. This memo will be given to the municipality that submitted the TP notice and includes the decision on vulnerability scoring for the potential transport pathway.</p>	<p>CTC – The next phase of CTC will focus on protocol to implement S 27(3) O Reg 287/07, which requires municipalities to notify the SPA and SPC of any proposals to create new transport pathways within vulnerable areas.</p>

**Review of  
Transport  
Pathways in  
the Credit  
Valley  
Source  
Protection  
Area**

October 5, 2022

## Contents

Background .....	3
Objectives .....	4
Data Sources .....	4
3.1 Gaps and Limitations .....	6
Study Approach.....	7
4.1 Transport Pathways Inventory .....	8
4.1.1 Vertical Features.....	9
4.1.2 Linear Features.....	12
4.1.3 Excluded Features.....	14
4.2 Groundwater Vulnerability Assessment.....	14
Findings .....	18
5.1 Vertical Transport Pathways .....	21
5.2 Linear Transport Pathways .....	25
Next Steps .....	26
Bibliography .....	26
Appendix A: Data Sources.....	29
Appendix B: Transport Pathways GIS Methods .....	34
Vertical Infrastructure .....	34
Linear Infrastructure.....	38
Appendix D: Figures .....	42

## Background

A transport pathway is an anthropogenic (human-introduced) feature at or below ground surface that increases the vulnerability of drinking water supply sources. Such transport pathways circumvent the natural protection provided by overlying soil and rock confining layers, resulting in a greater risk of contamination of the aquifer complexes that provide municipal drinking water supplies. Transport pathways can be created through abandoned or improperly maintained wells, pits and quarries that breach the confining layer, underground infrastructure such as storm sewers and sanitary sewers, pipelines, road ditches, and other drainage systems.

Preliminary transport pathways work in the Central Lake Ontario, Toronto and Region, and Credit Valley (CTC) Source Protection Region (SPR) was undertaken by various consultants based on the Director's Technical Rules (v. 2009). The assumptions, data sources, and methods employed by consultants varied across the SPR. To improve consistency and standardization, a transport pathway adjustment study was undertaken by the Central Lake Ontario Source Protection Authority for the CTC SPR and is documented in Appendix D to the Central Lake Ontario Source Protection Area assessment report (approved July 2015).

While subsurface utilities, aggregate operations, and water wells were all considered in the transport pathways analysis for wellhead protection areas (WHPAs) in the Credit Valley Source Protection Area (CVSPA), only transport pathways resulting from aggregate pits and quarries resulted in adjustments to WHPA vulnerability scoring. Uncertainties associated with the water well database and unknown depth of municipal linear infrastructure limited the analysis. It was noted that improved access to data, improved data quality, and additional consultation would be needed for a more fulsome consideration of transport pathways.

Over the last decade, the coverage and accuracy of the water well and borehole database has been improved significantly, primarily through work completed by ORMGP and its partner agencies. This has allowed for refinement in location and depth of wells and boreholes.

Key improvements include:

- Significant quality assurance /quality control of WWIS datasets. This includes the filtering / correction of wells with low reliability codes;
- Updates to the spatial location in the database;
- Updates on information pertaining to the monitoring data and dates associated with each borehole;
- Improved digitization and modelling analyses undertaken through various studies and programs (including Source Water Protection);
- Modelling data has allowed for refinement in the Digital Elevation Model, and this has in turn, improved the accuracy and correction in well intake depths;

- Vast improvement in the coverage of the western portion of CVSPA through a recent agreement with Region of Halton for inclusion of datasets from municipal and monitoring systems; and
- Access and assimilation of datasets from private sources, such as consultant reports (hydrogeological studies undertaken as part of development proposals) etc.

When the assessment reports were approved in 2015 by the Ministry of the Environment, Conservation and Parks (MECP), it was recognized that there were information gaps pertaining to the identification of transport pathways, and updates may be considered in future amendments to the assessment reports. This report is the first phase of a two-part project that aims to first develop the methodology for transport pathway assessment within CTC SPR, and the policy implications of including new transport pathways within vulnerable areas.

## Objectives

The objectives of this study are to:

1. Review past CTC SPR work and more recent (post-2017) studies in other SPRs, with a focus on neighboring Lake Erie, Halton-Hamilton and Niagara Peninsula SPRs;
2. Develop a defensible and repeatable methodology for transport pathway assessments for WHPAs within the CTC SPR;
3. Apply the methodology in the CVSPA as a pilot study; and
4. Share the results of the pilot study (transport pathways and associated potential changes to WHPA vulnerability scoring) with municipalities and the CTC Source Protection Committee.

The recommendations presented in this report on transport pathways and vulnerability scoring adjustments are draft for discussion with municipal partners and based on currently available data. It should be noted that many of the municipalities within the Credit Valley Source Protection Area are in the process of updating WHPA mapping and vulnerability assessments for one or more of their water systems either currently underway or anticipated in the next few years. As a result, the shape and size of existing WHPAs may change and transport pathways will need to be re-assessed prior to any amendment of the Credit Valley Assessment Report.

## Data Sources

Key sources of data are described below and summarized in Table 1. A more detailed summary of data sources is included as Appendix A.

- **Oak Ridges Moraine Groundwater Program (ORMGP) database:** to identify water wells, geotechnical boreholes, oil and gas and geotechnical boreholes within the landscape covered by WHPAs. This database includes the Water Well Information System (WWIS) records but also contains records from



the Ministry of Transportation, Ontario Geologic Survey (OGS) and other agencies that have data covering the CTC area. Information accessed included well location; well construction; name of the owner; stratigraphy encountered during drilling including depths and soil / rock description; groundwater level depth and pumping test data; well construction details including total depth, well screen size and location, casing diameter, basic water quality data, well contractor name and license, etc. In addition, the datasets help with the identification of the aquifer layer associated with municipal well intakes. The most recent borehole datasets were made available in January 2021. The ORMGP team also provided invaluable support by identifying the location and interpreted depth of municipal aquifers, through the model files generated through municipal WHPA, Tier 2 and 3 water budget studies.

- **Ministry of Natural Resources and Forestry (MNR):** data on pits and quarries was acquired to determine whether these features have the potential to create transport pathways. Details such as excavation depth and maximum permit excavation depth, stratigraphy encountered, and water levels were examined, and in the case of previously identified transport pathways (related to pits/quarries), re-assessed.
- **Municipalities:** buried infrastructure such as large diameter pipes (i.e., trunk sewers, oil / gas oil pipelines) may form preferential pathways that could increase the vulnerability of aquifer units. Data on depth of these structures, size (diameter), and construction procedures were gathered to assess whether they constitute transport pathways.

Source data was provided by municipalities in the form of GIS files (polygon, polyline, and point), with attributes detailing the location of existing facilities and subsurface structures (see Appendix A).

- **Oil Pipelines:** data on the location of oil pipelines was provided by the Enbridge Corporation for previous work on the events-based modelling (IPZ-3 delineation), and permission was previously granted for the data to be used in analyses pertaining to Source Water Protection.

Table 1. Summary of data sources.

Feature	Orangeville	Peel	Halton Region	Mono	Wellington
<b>Pits and Quarries</b>	Downloaded from Ontario GeoHub	Downloaded from Ontario GeoHub	Downloaded from Ontario GeoHub	Downloaded from Ontario GeoHub	Downloaded from Ontario GeoHub
<b>Landfill</b>	x	✓	✓	No Active landfills	✓

<b>Stormwater Management Pond</b>	✓	✓	✓	✓	Not available in a GIS format
<b>Sanity Sewer</b>	✓	✓	✓	✓	No sanitary sewage system in Erin
<b>Storm Sewer</b>	✓	✓	✓	✓	Not available in a GIS format
<b>Water main</b>	✓	✓	✓	✓	Not available in a GIS format
<b>Sewage Lagoon</b>	x	x	x	x	No Sewage lagoon in Erin
<b>Geothermal Systems</b>	x	x	x	x	None in Erin

x-no data available; ✓ - data provided

### 3.1 Gaps and Limitations

The analysis was performed entirely as a desktop study. The best available data from internal sources as well as municipal and provincial partners were used in the identification of transport pathways. The analyses were limited by the following factors:

- The condition of the data and information sourced (accuracy, attributes, currency) were varied, depending on the location and source of the data;
- Development plans, well logs, and other engineering drawings were not readily available in digital format for all water systems. This limiting factor has remained largely unchanged since previous studies, though some improved datasets have become available mainly for the larger municipalities;
- Depth information (z coordinates) pertaining to linear infrastructure and deep excavations (other than pits and quarries) remains unavailable for most areas, therefore informed assumptions were made for this attribute.
- Information / metadata on location and depth of geothermal systems could not be accessed. An Environmental Compliance Approval (ECA) is required for geothermal systems under Ontario Regulation 98/12. However, despite an exhaustive search through member municipalities (lower and upper tier), ORMGP, and with Geohub (MECP), no data or potential sources could be identified. Our efforts towards the search and identification of geothermal systems in the CVSPA have been documented in Appendix A.

It is recognized that future refinements to the analysis will be made as additional data and resources become available, analytical methods evolve, and new potential transport pathways are identified.

## Study Approach

The Director's Technical Rules Part IV.1 (39 to 41) *Vulnerability Assessment and Delineation, Groundwater, (v. Dec. 2013 & Mar. 2017)* allows for an adjustment in vulnerability scoring for a municipal aquifer due to the presence of transport pathways:

Rule 39. Where the vulnerability of an area identified as low in accordance with rule 38 is increased because of the presence of a transport pathway that is anthropogenic in origin, the area shall be identified as an area of medium or high vulnerability, high corresponding to greater vulnerability.

Rule 40. Where the vulnerability of an area identified as medium in accordance with rule 38 is increased because of the presence of a transport pathway that is anthropogenic in origin, the area shall be identified as an area of high vulnerability.

Rule 41. When determining whether the vulnerability of an area is increased for the purpose of rules 39 and 40 and the degree of the increase, the following factors shall be considered:

- Hydrogeological conditions.
- The type and design of any transport pathways.
- The cumulative impact of any transport pathways.
- The extent of any assumptions used in the assessment of the vulnerability of the groundwater.

This study looked at various anthropogenic features, in keeping with the framework presented in the Director's Technical Rules.

The review of transport pathways was completed through the following steps:

1. Compile a pathways inventory – create a list of anthropogenic features within municipal WHPAs. This inventory includes vertical elements such as abandoned or improperly maintained wells, boreholes, geothermal systems, pits and quarries, and linear elements such as water mains, sanitary and storm sewer systems.
  - a. Collect data sets / metadata pertaining to the features from a variety of sources such as municipalities, the province (Ontario Geohub), Oak Ridges Moraine Groundwater Program, and private companies (e.g.,

Enbridge).

- b. Conduct a QA/QC exercise to assess the reliability of the data sets.
2. Identify transport pathways through a desktop GIS exercise to assess the actual / assumed depth of the features in relation to that of the top of the municipal aquifer / water table, taking into consideration the local geological environment associated with each municipal water system. The depth of municipal aquifers was interpreted using data from model files and reporting generated through Tier 2 and Tier 3 water budget studies. GIS methods are described in Appendix B; and
3. Conduct a preliminary review of potential adjustments to WHPA vulnerability ranking and scores.

This report was reviewed by members of the CTC Municipal Implementation Working Group, consisting of SPA and municipal staff, and reflects comments received in October 2020, February/March 2021, and July 2021.

#### 4.1 Transport Pathways Inventory

Various anthropogenic features on the landscape within the WHPAs of municipal wells were reviewed. The analyses were completed for the following municipal drinking water systems:

- Town of Orangeville - Orangeville water system
- Town of Mono water system – Cardinal Woods, Island Lake and Cole well fields
- Township of Amaranth – Pullen well
- Town of Erin water system – Erin, Hillsburgh and Bel-Erin well fields
- Halton Region – Georgetown water system - Cedarvale, Princess Anne and Lindsay Court well fields, and Acton water system - Prospect Park, Davidson and Fourth Line well fields
- Peel Region – Alton, Inglewood, Caledon Village and Cheltenham water systems

The potential pathways include both vertical elements and linear infrastructure, as presented in the following sections. A summary of GIS methodology is described in Appendix B.

The Technical Rules are not prescriptive on specific methods for the assessment of transport pathways, the analytical mechanism is open to professional judgement and justification. A literature review of transport pathways work completed by other SPRs/SPAs, revealed that the majority considered wells and boreholes, quarries and pits as the vertical transport pathways. SPRs in Southern Ontario completed the well /borehole analyses based either on individual wells, or using a cluster analysis, and

the literature review showed that various buffer size - 30m, 50m or 100m – were applied to administer vulnerability score increases. There there was a reasonably even split between those who applied the cluster approach and those who used individual wells.

The methodology implemented in this study is generally in line with the South Georgian Bay Lake Simcoe Source Protection Region (SGBLS SPR), Halton Hamilton Source Protection Region (HHSPR) and Lake Erie Source Protection Region (LESPR), with more conservative criteria applied to depth of wells and linear features, and buffer size for wells and boreholes. With respect to other vertical features, assumptions and buffering distance are consistent with those applied in other jurisdictions.

#### 4.1.1 Vertical Features

Table 2 describes the vertical features assessed in this study and provides details on the assessment criteria for each.

*Table 2: Criteria for transport pathways assessment of vertical features.*

Feature	General Criteria
Wells and Boreholes	<ul style="list-style-type: none"> <li>Well cluster analyses using methodology proposed by Silverman, 1986</li> <li>Buffer of 100m applied</li> <li>Depth to within 3 m of top of aquifer and /or water table.</li> </ul>
Quarries, Pits and Mines	<ul style="list-style-type: none"> <li>Where the feature intersecting WHPAs</li> <li>Extraction limit plus a 30 m buffer.</li> </ul>
Stormwater Management Ponds	<ul style="list-style-type: none"> <li>Unconfined aquifer, unlined or of unknown construction</li> <li>Application of a 15 m buffer around the feature.</li> </ul>
Landfills	<ul style="list-style-type: none"> <li>Unconfined aquifer, unlined or of unknown construction</li> <li>Application of a 30 m buffer around the feature.</li> </ul>
Geothermal Systems	<ul style="list-style-type: none"> <li>Similar depth criteria for wells / boreholes.</li> <li>Where site / attribute specific data is unavailable assumed depth of 5m for shallow systems and 20 m for deep systems.</li> </ul>

#### *Wells & Boreholes*

This category includes domestic wells, inferred domestic wells, existing cluster wells, existing single domestic wells, geotechnical boreholes, monitoring wells, geothermal wells, and petrochemical (oil and gas) wells. The following criteria were applied in the selection of wells and boreholes to consider as potential transport pathways:

- Older wells (pre-1990) - this criterion assumes that wells constructed after 1990 are likely constructed to a higher standard (given that the provincial regulation governing the proper construction of water wells was released in 1990: per O. Reg. 903, 1990) and are less likely to become a transport pathway.
- Well completion depth occurs to within 3 m of the top elevation of supply aquifer – this applies in both confined and unconfined conditions.
- Selection of a cluster of 6 or more boreholes and application of a 100m buffer or “area of influence” around the well.
- Screen out clusters within areas that are already scored as high vulnerability.

This well cluster approach used here was previously approved for the Credit Valley Assessment Report but was not included due to data quality challenges discussed in the introduction. The rationale for the method is that where the density of a potential transport pathway is greater the likelihood of a transport pathway connection may also be increased. Assessing individual wells is impractical, and single wells - particularly domestic wells- are less likely to have an impact given the diameter and pumping volume.

For assessing vulnerability score bump-ups, staff applied a 100m buffer consistent with delineation of a WHPA-A. The 100 m buffer is conservative and does produce larger areas for vulnerability bump-ups but also offers greater protection to municipal drinking water sources.

The following wells were not considered as potential transport pathways:

- Municipal, municipal sentry, conservation authority-managed, MTO and private monitoring wells. These wells are expected to be upgraded, inspected and maintained to meet O. Reg. 903, 1990. Also, municipal wells are regularly inspected by MECP Drinking Water Inspectors who monitor for compliance with O.Reg. 903. MECP inspections include active pumping well and monitoring wells;
- Properly decommissioned wells, as defined by O.Reg. 903;

### *Quarries & Pits*

A quarry or pit was considered a transport pathway if its extraction limit intersected a WHPA and a 30 m buffer was added. The buffer accounts for the impacts beyond the extraction limit, including fracturing of bedrock from blasting, slope stability, and transition zone (area between extraction limit and undisturbed bedrock or soil). The buffer limit was chosen based on the recommended setback distance from contamination in the Ontario Regulation 903. This distance has also been incorporated in the Ontario Building Code.

### *Mines*

A mine was considered a transport pathway if its extraction limit intersected a WHPA, and a 30 m buffer was added. The buffer accounts for the impacts beyond the extraction limit, including fracturing of bedrock from blasting, slope stability, and transition zone. The buffer limit is the same as that applied to quarries and pits and was adopted from setback criteria currently applied in the protection of sensitive environmental features, as described above.

### *Landfills*

A landfill was considered a transport pathway if its fill limit intersected a WHPA, and a 30 m buffer was added. The buffer accounts for the impacts beyond the fill limit, including slope stability and transition zone. The buffer limit was borrowed from separation criteria currently applied in the protection of sensitive environmental features, as referenced above in the quarries / pits and mines criteria.

It is recognized that more recently constructed landfills will be built to applicable codes and may include liners that prevent them from becoming transport pathways. Where relevant documentation exists, they were not considered as transport pathways

### *Constructed Ponds including Stormwater Management (SWM) Ponds*

A pond was considered a transport pathway if the pond intersected a WHPA plus a 15 m buffer, and met the following criteria:

- Within an unconfined aquifer
- Where unlined or of unknown construction

It is recognized that more recently constructed SWM ponds will be built to applicable codes and may include liners that prevent them from becoming transport pathways. Where this type of data is available, the potential for representing transport pathways can be assessed accordingly.

### *Sewage Lagoons*

Sewage lagoons were Considered transport pathways if they were located in / intersect a WHPA, and meet the following criteria:

- Within an unconfined aquifer, and
- Unlined or of unknown construction.

Sewage lagoons were not assessed in most other jurisdictions, but these assumptions and considerations are consistent with those applied in the neighbouring Halton-Hamilton and Lake Erie SPRs.

### *Geothermal Systems*

There are two main types of geothermal systems: deep vertical systems and shallow systems (which can either be vertical or horizontal). The deep vertical systems require an Environmental Compliance Approval (ECA) from MECP while the shallow systems require a building permit from local municipalities. The literature review revealed that these systems were not extensively studied across Southern Ontario. Given this, staff opted to apply the same assumptions and criteria used by the HHSRP

The following criteria were applied in the selection of geothermal systems as potential transport pathways:

- Completion depth occurs to within 3 m of the top elevation of supply aquifer – this applies in both confined and unconfined conditions.
- Screened out within areas that are already scored as high vulnerability (per Table 5).

#### 4.1.2 Linear Features

Linear features include municipal water mains, and storm and sanitary sewers and petroleum pipelines. During the previous CTC study, the main limiting factors in the review of linear pathways, was the non-uniformity in data coverage for the upper watershed, and lack of digitized data on location and buried depth of the pipes. The latter is crucial in being able to determine if these features intercept the aquifer/water table. Much of the information was available primarily through hard copy engineering reports stored primarily in municipal archives.

The overall availability of data has significantly improved, and more information is now available on spatial aspects of the features and improved quality of pipe dimensions. However, challenges with accurate assessment of buried depth of these features remains. A literature review was conducted to find out if other SPRs had access to better data quality, and where they did not, how they chose to assess horizontal pathways. Due to a similar limitation with their datasets, the vast majority opted not to include the analyses of linear features in their ARs.

Since 2017 however, few SPRs have opted to make informed assumptions regarding the depth of these features, and to assess accordingly. They also collaborated with their municipalities to ensure that there was agreement on the assumptions. In 2018, LESPR undertook a review of horizontal pathways by applying an assumption that “a linear infrastructure, deep excavation, and septic system becomes a transport pathway if it is located either below the water table or within 2 m of the top of aquifer”. An area of influence of 15 m was then delineated as a “buffer” around the



identified transport pathway, and within this area the vulnerability was reviewed. In 2021, the HHSPR also opted to adopt this approach.

A listing of the horizontal features assessed for each of the CVSPA's water systems is shown in Table 3.

*Table 3: Transport pathways review - Linear features.*

Feature	General Criteria
Water main	<ul style="list-style-type: none"> <li>Assumed depth – 5 m below ground</li> <li>Located in /intersect a WHPA</li> <li>Within an unconfined aquifer</li> <li>Within 3 m of top of municipal aquifer and /or water table</li> <li>15 m delineated as a “buffer” around the identified linear feature</li> </ul>
Sanitary Sewers	<ul style="list-style-type: none"> <li>Assumed depth – 5 m below ground</li> <li>Located in /intersect a WHPA</li> <li>Within an unconfined aquifer</li> <li>Within 3 m of top of municipal aquifer and /or water table</li> <li>15 m delineated as a “buffer” around the identified linear feature</li> </ul>
Storm Sewers	<ul style="list-style-type: none"> <li>Assumed depth – 5 m below ground</li> <li>Located in /intersect a WHPA</li> <li>Within an unconfined aquifer;</li> <li>Within 3 m of top of aquifer and /or water table</li> <li>15 m delineated as a “buffer” around the identified linear feature</li> </ul>
Oil Pipelines	Depth data received from Enbridge
Geothermal Systems	<ul style="list-style-type: none"> <li>Horizontal (closed loop) systems - assumed 5m depth, and completed in a manner consistent with HHSPR transport pathways study. Screened out within areas that are already scored as high vulnerability (per Table 5).</li> </ul>

The analysis also considered the average diameter of the feature where available, in conjunction with depth. The pipe diameter was selected to represent an excavation of at least 1m or more in diameter that would need to be filled with crushed material (i.e., gravel) that can act as a transport pathway. Pipe corridors can represent both lateral and vertical transport pathways. Pipelines are installed using trenched and trenchless techniques (drilling or boring). The trenches are typically shallow, less than 2m deep, but as a conservative measure, depths of up to 5m have been assumed for this study.

Backfill into the trenches is generally not compacted to 100% of native sediments but typically close. Groundwater movement through the trench or other excavations

is therefore possible. Current installation practice for water mains, storm and sanitary sewers requires trench collars to prevent flow along them. Where this data was accessed, it was determined that these features could be excluded as transport pathways.

#### 4.1.3 Excluded Features

The following types of infrastructure were excluded from the transport pathways analysis as they are covered under Shallow Works O. Reg. 903, 1990, which includes provisions to prevent them from becoming transport pathways.

1. A test hole or other infrastructure that is made to a depth of less than 3.0 m below ground surface is exempt from sections 36 to 50 of the Act and from the Regulations.
2. Boring and excavations (including construction envelopes), except if the boring or excavation depth is within 3 m of the top of the elevation of the supply aquifer.
3. Abandoned wells - not identified /represented in the ORGMP's database, so the analysis does not account for these features.
4. Decommissioned wells - the analyses assume that the database appropriately identifies older wells that have been appropriately decommissioned per provisions of O. Reg. 903, 1990;
5. Septic systems (communal/private) - assumed to be 2 m below ground surface. These systems are usually constructed at relatively shallow depth to avoid interactions with shallow groundwater and due to financial limitations.
6. Agricultural tile drains.
7. Communication infrastructure and gas mains - data was not accessible. The depth of these types of infrastructure is generally relatively shallow and assumed at 1 m. Therefore, it is highly likely that the watermains transport pathways areas of influence already identified in this report would capture the communications infrastructure and gas mains.
8. Natural water features (i.e., ponds and watercourses) - not considered as these features are already accounted for in the WHPA-E analyses.

## 4.2 Groundwater Vulnerability Assessment

Transport pathways circumvent the natural protection provided by overlying soil and rock confining layers, resulting in an increase in vulnerability and greater risk of contamination of the aquifer complexes that provide municipal drinking water supplies. The existence of such pathways can justify an increase the vulnerability ranking for these aquifers. The provisions of the technical rules allow for the adjustment in the area vulnerability - and possibly in the vulnerability score - due to the presence of a transport pathway. The vulnerability ranking can only be assessed as low, medium, or high, so if a vulnerable area already has a rank of "high", the vulnerability score cannot be increased due to the presence of transport pathways.

Vulnerability adjustments may be increased by one or more rank and is based on professional judgment. An adjustment in a vulnerability score within a WHPA could result in the identification of additional threats and the application of Source Protection Plan policies.

In the approved AR, the vulnerability assessment of municipal aquifers was assessed using methodologies prescribed through Technical Rule 37 (Part IV). In the CVSPA, the following methodologies were applied:

- (1) Intrinsic Susceptibility Index (ISI)
- (2) Aquifer Vulnerability Indices (AVI)
- (3) Surface to Well Advection Times (SWAT)

These methodologies were applied in the various municipalities of the CVSPA, as shown in Table 4.

*Table 4: Groundwater vulnerability assessment methods applied in CTC Vulnerable Areas.*

<b>Municipality</b>	<b>Water System</b>	<b>Vulnerability Assessment Method</b>
Dufferin Region – Towns of <i>Orangeville, Mono, Amaranth</i> Township	Orangeville Mono – Cardinal Woods, Island Lake, Coles Amaranth - Pullen well	Aquifer Vulnerability Index (AVI)
Wellington – <i>Town of Erin</i>	Erin – Erin, Hillsburgh, Bel-Erin	Intrinsic Susceptibility Index (ISI)
Halton Region – <i>Towns of Acton and Georgetown</i>	Acton – Prospect Park, Davidson, Fourth Line Georgetown – Cedarvale, Princess Anne, Lindsay Court	Surface to Well Advection Time (SWAT) (UZAT =0)
Peel Region – <i>Town of Caledon</i>	Alton, Inglewood, Caledon Village, Cheltenham	Surface to Well Advection Time (SWAT) (UZAT =0)

The ISI and AVI methods use the interpreted products of geological and numerical models to produce a numerical index which represents the relative vulnerability of an aquifer, based on the type and thickness of the soil above it. A full review of these methodologies is presented in Chapter 4 of the CVSPA AR.

If the layer above is thick and dense (e.g., clay or till), then the AVI score will be low whereas if the layer above is thin and or porous (e.g., Sand or gravel), then the AVI will be higher. This implies that confined aquifers are lower in vulnerability for the protective cover.

The ISI and AVI approaches are very similar, except the ISI also considers the static water level in the well and requires that the uppermost aquifer be at least partially saturated (MOE, 2006). This Vulnerability method is often used in the broader context where site specific WHPA information or models may not be available.

The SWAT method uses numerical models to assess time of travel through the unsaturated portion of subsurface (Unsaturated Zone Advection Time – UZAT) plus a time of travel from a water table, through the aquifer to a municipal well (Water Table to Well Advection Time – WWAT). A modified SWAT (UZAT + WWAT) was applied in several municipalities of the CTC, where a zero time-of-travel was approximated in the unsaturated zone (UZAT). This approach is more specific to the WHPA as the model is built to include local conditions.

Each method produces a numerical index which represents the relative vulnerability of an aquifer to sources of contamination at or near the surface, and through a translation process (prescribed through the technical rules) categorizes vulnerability as low, medium, or high in accordance with the Provincial guidance. The groundwater vulnerability is then converted into a vulnerability score (per Technical Rules 82 - 85) which provides the ultimate expression of the groundwater vulnerability

Per provisions of the Director’s Rules, all WHPA-A are given a vulnerability score of 10, without considering the geological setting. This is to be conservative given that this is the 100 m surrounding the municipal water supply well. The scoring within the WHPA B to D, based on the AVI, ISI and SWAT methodologies, are presented in Table 5.

*Table 5: Vulnerability scoring in Well Head Protection Areas*

WHPA Zone	Vulnerability Score by SWAT Methodology			Vulnerability Score by ISI & AVI Methodology		
	Low (>25 yrs)	Medium (5-25 yrs)	High (< 5 yrs)	Low (>80)	Medium (30-80)	High (<30)
Zone A	10	10	10	10	10	10
Zone B	6	8	10	6	8	10
Zone C	2	6	8	4	6	8
Zone D	2	4	6	2	4	6

Modifications in the vulnerability ranking / scoring within WHPAs may impact the threat enumeration and assessment presented in Chapter 5 of the CVSPA AR. Update of threat enumerations is outside the scope of this study but would need to be undertaken if the CVSPA AR were to be amended.

The potential for the creation of a transport pathway is dependent primarily upon the nature of the overburden removed, the depth of excavation, and the type of material that lies between the base of the excavation and the municipal aquifer. The analyses were undertaken by applying the basic procedure outlined in section 3, in conjunction with Technical Rule 41.

Per Technical Rule 41, the factors considered in the identification of transport pathways, evaluation of the applicable spatial footprint, and the magnitude of the potential vulnerability adjustment, include:

- Wellhead Protection Area (WHPA) - analyses completed for zones -A to -D, as

the intrinsic vulnerability / scoring is a partial product of the local geology and is influenced by the permeability and porosity of the geologic unit. Zone-E (WHPA -E) was not included since its vulnerability scoring already incorporates a direct hydrological connection between the surface catchment and the municipal aquifer.

The broader landscape outside of the WHPAs are also not considered in this work, as the primary focus of the provincial source water protection program is the protection of municipal drinking water supplies.

- Hydrogeological conditions - where municipal wells are screened in deeper aquifer systems, they are likely less vulnerable because of the protection provided by lower permeability materials that lie above them and serve to confine these systems (aquitards). This is the case in the CVSPA, where several municipal aquifers are protected from activities at the surface by low permeability deposits of varying thickness.
- The nature and design of transport pathways, i.e. the physical characteristics of the feature, must be considered to determine if it extends to the water table, breaches the protective / confining layers above the aquifer(s) of interest, or if it extends to within a certain depth of, or goes below, the water table.
- Cumulative impacts - where the density of potential transport pathways is greater, the likelihood of a transport pathway connection may also be increased. This is a concern when looking at the impact of a single well / borehole versus a cluster of wells in the same area. Single wells - particularly domestic wells - are less likely to have an impact given the smaller diameter and pumping volume. An assessment of individual wells is not practical given the resources it would require. It should be noted that the responsibility for private water well maintenance lies with the homeowner. Regulation 903 provides guidance for the protection and maintenance of privately-owned domestic wells. This analysis is focused on the potential impact of clusters of wells as pathways to the municipal supply rather than on the condition of each well.
- Finally, vulnerability score - in areas already mapped / identified as high aquifer vulnerability, transport pathways would provide no further risk to the water quality of the aquifer. Here, no additional modifier can be applied. Conversely, in areas where natural groundwater protection is reflected in a medium or low vulnerability classification, artificial pathways through (or partially through) the confining layers may increase the vulnerability to a medium (or high) classification.

## Findings

The findings of the study are summarized in Table 6, and additional detail and specifics on the review of each feature is presented in the sub-sections below. The recommendations presented in this report (transport pathways and vulnerability scoring adjustments) are draft for discussion with municipal partners and based on currently available data. It should be noted that many of the municipalities within the Credit Valley Source Protection Area have updates to WHPA mapping and vulnerability assessments for one or more of their water systems either currently underway or anticipated in the next few years. As a result, the shape and size of existing WHPAs may change and transport pathways re-assessed prior to any amendment of the Credit Valley Assessment Report.

**ATTACHMENT 2: Review of Transport Pathways in the Credit Valley Source Protection Area**

Table 6: Results - Summary of Transport Pathways in the CVSPA

Municipality		Wells		Vuln Method	Comments
Dufferin	Orangeville	12	2A, 5/5A, 7, 9A/9B, 6, 11, 8B, 8C, 12, 10	AVI	<ul style="list-style-type: none"> <li>Review of the ORGMP database identified a cluster of 7 wells as transport pathways.</li> <li>There are four aggregate operations identified within the WHPAs, located within the municipalities Amaranth, East Garafraxa and Caledon.</li> <li>SWM ponds - four locations were identified as transport pathways to municipal aquifers.</li> <li>Water mains at three locations were identified as potential risks to municipal aquifers; sanitary lines exist, but were not identified as transport pathways</li> <li>There are no mines, landfills, sewage lagoons or oil pipelines within the WHPAs.</li> </ul>
	Mono	8	Cardinal Woods (MW-1, MW-3, MW-4) Coles (1 & 2), Island Lake (PW-1, PW-2-06, TW-1)		<ul style="list-style-type: none"> <li>The aquifers used by the municipal supply wells are generally protected by an upper aquitard, so the risk posed by shallower features is low.</li> <li>Review of the ORGMP database identified 69 water wells within the WHPAs but none were classified as transport pathways.</li> <li>There were no aggregate operations identified within the WHPAs.</li> <li>SWM ponds - two locations at Island Lake were identified as potential risks to municipal aquifers.</li> <li>There are no mines, landfills, water mains, sewer lines, sewage lagoons, oil pipelines or sewer lines.</li> </ul>
	Amaranth	1	Pullen Well		<ul style="list-style-type: none"> <li>Review of the ORGMP database identified 9 water wells within the WHPAs but classified none as transport pathways.</li> <li>There were no aggregate operations identified within the WHPAs</li> <li>There are no mines, landfills SWM ponds, water mains, sewer lines, sewage lagoons, oil pipelines or sewer lines.</li> </ul>
Wellington	Erin	5	Erin Village (E7 & E8) Hillsburgh Village (H2 & H3) Bel Erin	ISI	<ul style="list-style-type: none"> <li>Review of the ORGMP database identified a cluster of 8 wells in Hillsburgh as transport pathways.</li> <li>There is one aggregate operation at Hillsburgh; A former landfill site was identified in Hillsburgh, but it has been closed for many years.</li> <li>There are no mines, water mains, sewer lines, sewage lagoons, oil pipelines or sewer lines.</li> </ul>
Halton	Acton	5	4th Line, Davidson (1 & 2), Prospect Park (1 & 2)	SWAT	<ul style="list-style-type: none"> <li>Review of the ORGMP database identified no well clusters as transport pathways.</li> <li>Water mains, SWM ponds and sewers lines exist, but were not identified as transport pathways.</li> <li>There are no mines, landfills, oil pipelines, or sewage lagoons.</li> </ul>
	Georgetown	7	Lindsay Court (9), Princess Anne (5 & 6), Cedarvale Park (1-A, 3-A, 4 & 4-A)		<ul style="list-style-type: none"> <li>Review of the ORGMP database identified 2 clusters of deep-water wells (greater than 20 m below the recorded static elevation) identified as transport pathways.</li> <li>There is one aggregate operation identified in the WHPA D.</li> <li>Water mains, SWM ponds and sewers lines exist, but were not identified as risks.</li> <li>There are no mines, landfills, oil pipelines, or sewage lagoons.</li> </ul>

Municipality		Wells		Vuln Method	Comments
Peel	Caledon	8	Alton (3 & 4), Caledon Village (3 & 4), Inglewood (2 & 3), Cheltenham (PW-1/PW-2)	SWAT	<ul style="list-style-type: none"> <li>Review of the ORGMP database identified clusters of 6 wells and 28 wells within WHPAs around Inglewood and Alton, respectively, as transport pathways.</li> <li>One aggregate operation identified at Alton, and another at Caledon Village. The latter was previously identified in the approved AR.</li> <li>A water main at one location was identified as a potential risk to municipal aquifers.</li> <li>SWM ponds and sewers lines exist but were not identified as transport pathways.</li> <li>There are no mines, landfills, oil pipelines, or sewage lagoons.</li> </ul>



## ATTACHMENT 2: Review of Transport Pathways in the Credit Valley Source Protection Area

### 5.1 Vertical Transport Pathways

#### *Wells and Boreholes*

Table 7 summarizes the results of the analyses of non-municipal wells / boreholes within WHPAs of CVSPA. The identified transport pathways are presented in Figures 1 through 4 in Appendix C.

*Table 7: Wells Identified as Transport Pathways*

<b>Water System</b>	<b>Well ID (WHPA)</b>	<b>Vulnerability Score</b>	<b>Well Cluster (100m radius)</b>	<b>Location of Pathway</b>	<b>Municipality</b>
Orangeville	6 & 11 (B)	6, 8	7 wells	Hilltop Crescent	Township of East Garafraxa
Alton	3 & 4 (B, C & D)	2, 4, 6, 8	28 wells	Queen Street West & Regional Road 136	Town of Caledon
Hillsburgh	H3 (B)	8	8 wells	Orangeville Street & Barker Street	Town of Erin
Georgetown	D	4	Two clusters of 7 & 16 wells	22nd Sideroad & Highway 7	Town of Halton Hills

It is recommended that the buffer area around these clusters receive an increase in the vulnerability rating by one category: low to medium or medium to high. This in turn results in an increase in vulnerability score. Where the rating is already high, no change is required. The vulnerability score changes pertaining to this transport pathway are summarized in Table 8.

Well clusters were not identified as transport pathways within the WHPAs of Amaranth, Mono, Acton, Erin, Bel-Erin, Caledon Village, and Cheltenham.

It is recommended that a field survey be completed within WHPA-A and if practical WHPA-B to identify unused / abandoned wells and/or wells which do not comply with current well construction requirements. Such wells ought to be properly decommissioned per provisions of O. Reg. 903, 1990.

Table 8: Recommended Vulnerability Updates – Well Clusters

Water System	Existing Vulnerability Rating	Vulnerability Score	WHPA Area (ha)	TP Area (ha)	Proposed Vulnerability Score change	Proposed Rating Change	Change of Area per new TPs (%) <sup>1</sup>
Georgetown	medium	4	660.9	19.09	4 to 6	high	3.0
Hillsburgh	medium	8	18.9	6.38	8 to 10	high	34.0
Alton	low	2 & 6 (B)	568.8	10.36	2 to 4; 6 to 8	medium	2.0
	medium	4, 6 & 8	33.2	5.78	4 to 6; 6 to 8 8 to 10	high	17.0
Orangeville	low	6 (B)	254.8	6.34	6 to 8	medium	2.0
	medium	8	224.8	1.33	8 to 10	high	1.0

<sup>1</sup> For example, 3.0% of the Georgetown WHPA is recommended to be adjusted from a vulnerability score 4 to 6.

### Quarries & Pits

The review of pits and quarries as transport pathways was completed on a site-specific basis. Nine (9) active pit and quarry operations have been identified as transport pathways and are listed in Table 9. Of these operations, 7 are in the upper watershed, while the other two occur in the middle watershed. The identified transport pathways are presented in **Figures 5** and **6**.

Most of the pits are Category 3 - Class A above water type. However, those in Alton, Caledon Village, and one in Orangeville, extend below the water table.

Table 9: Active Pits and Quarries identified as Transport Pathways

Water System	Well ID (WHPA)	Vulnerability Score	Location of Pathway	Municipality
Cardinal Woods	1,3,4 (B, C & D)	4, 6, 8	Hockley Road & Blind Line	Town of Mono
Amaranth	Pullen (B,C &D)	2,4	2nd Line WHS	Township of Amaranth
Orangeville	8B,8C,12, (B, C & D)	2, 4, 6	2nd Line WHS	Township of Amaranth
	2A,5,5A, 7, 9, 9A, B (D)	2	3rd Line WHS	Township of Amaranth
	6,11 (B, C & D)	2, 4, 6	A Line & Carriage Road	Township of East Garafraxa

	10 (D)	2, 4	Willoughby Road	Town of Caledon
Alton	3 & 4 (D)	2	Canadian Pacific Railway & Regional Road 136	Town of Caledon
Caledon Village	3 (B, C & D)	2, 4, 6, 8	South of Hwy 24, West of Troiless Street	Town of Caledon
Hillsburgh	H2, H3 (D)	2	County Road 24 & 27 Sideroad	Town of Erin
Georgetown	D	4	22nd Sideroad & Highway 7	Town of Halton Hills

It is recommended that the 30 m buffer area around these pits and quarries receive an increase in the vulnerability rating by one category: low to medium or medium to high. This in turn results in an increase in vulnerability score. Where the vulnerability rating is already high, no change is required. The vulnerability score changes pertaining to this transport pathway are summarized in Table 10.

Quarries and pits were not identified as transport pathways within the WHPAs of Amaranth, Acton, Erin, Bel-Erin, Inglewood, and Cheltenham.

*Table 10: Recommended Vulnerability Updates – Quarries and Pits*

Water System	Existing Vulnerability Rating	Vulnerability Score	WHP A Area (ha)	TP Area (ha)	Proposed Vulnerability Score change	Proposed Rating Change	Change of Area per new TPs (%)
<b>Alton</b>	Low	2	502.5	29.4	2 to 4	medium	6.0
<b>Hillsburgh</b>	Low	2	150.5	54.6	2 to 4	medium	36.0
<b>Georgetown</b>	Medium	4	660.9	17.2	4 to 6	high	3.0
<b>Mono</b>	Medium	4 (D), 6 (C) & 8	102.4	5.3	4 to 6; 6 to 8; 8 to 10	high	5.0
<b>Amaranth</b>	Low	2,4,6	580.4 4	30.7	2 to 4; 4 to 6 6 to 8	med	5.3
<b>Orangeville</b>	Well 10 - Low	2	16.9	15.7	2 to 4	medium	93.0
	Well 6 - Low	2, 4 & 6	516.6	50.0	2 to 4; 4 to 6; 6 to 8	medium	10.0
	Well 7 - Low	2 & 4	415.9	34.8	2 to 4; 4 to 6;	medium	15.0
	Well 10 - Medium	4	24.4	12.7	4 to 6	high	53.0
<b>Caledon Village</b>	Low	2, 6	70.8	34.8	2 to 4; 4 to 6; 6 to 8	medium	50.0

	Medium	6 (C) & 8	34.9	3.4	6 to 8; 8 to 10	high	10.0
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### Mines

There are no mines identified as transport pathways within CVSPA WHPAs.

### Landfills

There are no active landfills identified as transport pathways within CVSPA WHPAs.

### Stormwater Management (SWM) Ponds

Table 11 summarizes the results of the analysis of SWM ponds as transport pathways within CVSPA. In Orangeville, there are a total of 4 ponds at 4 locations in the WHPAs pertaining to wells 2a, 5, 6, 7, 8B, 8C, 9A, B, 10, and 11. In Mono, there are a total of six ponds at 2 locations in the WHPAs pertaining to the Island Lake water system in the Town of Mono. The identified transport pathways are presented in **Figures 7 and 8**.

Table 11: SWM Ponds identified as Transport Pathways

Water System	within WHPA	Vulnerability Score	Location	Municipality
Orangeville (Well 8B & 8C)	B	8	Blind Line	Town of Orangeville
Orangeville (Well 2a, 5, 7 & 9 A, B)	B	6 & 8	Highway 9, Canadian Pacific Railway	
Orangeville (Well 6 & 11)	B	8	Riddell Road,	
Orangeville (Well 10)	B	8	Marshall Crescent	
Mono -Island Lake	B, C	6, 8	1st Line EHS & Blue Heron Dr	Town of Mono
	C	4, 6	2nd Line EHS & Highway 9	

It is recommended that the 15 m buffer area around these ponds receive an increase in the vulnerability rating by one category: low to medium or medium to high. This in turn results in an increase in vulnerability score. Where the rating is already high,

no change is required. The vulnerability score changes pertaining to this transport pathway are summarized in Table 12.

SWM ponds were not identified as transport pathways within the water systems of the Township of Amaranth, Halton Region, Town of Erin, or of Peel Region.

Table 12: Recommended Vulnerability Updates – SWM Ponds

Water System	Existing Vulnerability Rating	Vulnerability Score	WHP A Area (ha)	TP Area (ha)	Proposed Vulnerability Score change	Proposed Rating Change	Change of Area per new TPs (%)
Orangeville	medium	8	578.3	9.1	8 to 10	high	2.0
Mono	Medium	6 (C) & 8	56.9	4.5	6 to 8; 8 to 10	high	8.0
	Low	4 & 6 (B)	43.2	0.8	4 to 6; 6 to 8	medium	2.0

### Sewage Lagoons

There are no lagoons identified as transport pathways within CVSPA WHPAs.

## 5.2 Linear Transport Pathways

Table 13 summarizes the results of the analysis of linear infrastructure within WHPAs of CVSPA. Water mains were the only identified linear (horizontal) transport pathway, as shown in **Figures 9** and **10**.

Table 13: Linear features identified as Transport Pathways

Water System	Well ID (WHPA)	Vulnerability Score	Feature	Location of Pathway	Municipality
Orangeville	2A,5,5A, 7, 9A & B	6, 8	Water Main	Passmore Ave, Highway 9 & Blind Line, Montgomery Boulevard & Redfern Street	Town of Orangeville
Caledon Village	CV 3 (B, C)	4, 6, 8	Water Main	Highway 10	Town of Caledon

It is recommended that the 15 m buffer area around these features receive an increase in the vulnerability rating by one category: low to medium or medium to

high. This in turn results in an increase in vulnerability score. Where the rating is already high, no change is required. The vulnerability score changes pertaining to this transport pathway are summarized in Table 14.

Linear features were not identified as transport pathways within the Township of Amaranth, Town of Mono, Halton Region, Town of Erin, or the WHPAs of the Alton, Inglewood or Cheltenham water systems in Peel Region.

*Table 14: Recommended Vulnerability Updates – Water Mains*

Water System	Existing Vulnerability Rating	Vulnerability Score	WHPA Area (ha)	TP Area (ha)	Proposed Vulnerability Score change	Proposed Rating Change	Change of Area per new TPs (%)
Orangeville	Low	6	363.3	3.3	6 to 8	medium	1.0
	Medium	8	126.8	0.5	8 to 10	high	0.40
Caledon Village	Low	2 & 6 (B)	31.7	0.8	4 to 6; 6 to 8	medium	3.0
	Medium	8	7.5	0.2	8 to 10	high	3.0

## Next Steps

The second phase of work will review of the need to establish policies and a notification protocol to complement Section 27(3) of Ontario Regulation 287/07, which requires municipalities to notify the SPA and SPC of any proposals to create new transport pathways within vulnerable areas.

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- Thames-Sydenham and Region, 2009: *Proposed Approach to Consideration of Transport Pathways in the Vulnerability Assessment of Groundwater Based Vulnerable Areas Version 2.0*
- South Georgian Bay-Lake Simcoe Source Protection Committee, 2010. *Proposed Assessment Report: South Georgian Bay-Lake Simcoe Source Protection Region*, Genivar
- Silverman, B. W., 1986, *Density Estimation for Statistics and Data Analysis*, New York, Chapman and Hall.
- WHI, 2005: *Municipal Groundwater Supply Vulnerability Pilot Study for Palgrave No. 4, Regional Municipality of Peel, Final Report, Waterloo Hydrogeologic Inc, (WHI)*



### Appendix A: Data Sources

Municipality	Source	GIS data	Data Sharing Agreement	Metadata
Orangeville	<a href="#">Orangeville Partner Hub</a>	 Sanitary_Network.zip  Storm_Network.zip  Storm_Network_Pond.zip  Water_Network_View-shp.zip	No	No

Municipality	Source	GIS data	Data Sharing Agreement	Metadata
<b>Halton Region</b>	Via email	<ul style="list-style-type: none"> <li>HaltonRegion</li> <li>ARIP184_Bedrock_Quarries_HH.shp</li> <li>Credit Valley.mxd</li> <li>HH_Boundary.shp</li> <li>Land_Fill_Site_HH.shp</li> <li>MNR_Pit_Quarry_HH.shp</li> <li>Sewer_Facility.shp</li> <li>SewerMain.shp</li> <li>STM_Catch_Basin.shp</li> <li>STM_Channel.shp</li> <li>STM_Driveway_Culverts.shp</li> <li>STM_Fitting.shp</li> <li>STM_Geometric_Net_Junctions.shp</li> <li>STM_InletOutlet_Structure.shp</li> <li>STM_Lateral.shp</li> <li>STM_Maintenance_Hole.shp</li> <li>STM_Monitoring_Location.shp</li> <li>STM_OGS.shp</li> <li>STM_Retention_Structure.shp</li> <li>STM_Roadway_Culvert.shp</li> <li>STM_Structure_Outline.shp</li> <li>STM_SWM_Pond.shp</li> <li>STM_SWMPond.shp</li> <li>STM_Virtual_Point.shp</li> <li>StormMain.shp</li> <li>VU_IMS_Streetview.shp</li> <li>WaterMain.shp</li> <li>WWTP_Boundaries_HH.shp</li> </ul>	Yes	Yes
<b>Region of Peel</b>	via email	<ul style="list-style-type: none"> <li>Aggregate_Properties_PltQueries_WHPA</li> <li>ClosedPrivatePublic_Landfills_WHPA</li> <li>StormWaterManagementPonds_WHPA</li> <li>Water_Wastewater_Storm_Main</li> </ul>	No	No, only available for SWM ponds
<b>Mono</b>	via ArcGIS Online	<ul style="list-style-type: none"> <li>Mono</li> <li>Catchbasin.shp</li> <li>CityWideLands.shp</li> <li>CityWideWatermain.shp</li> <li>DischargePoint.shp</li> <li>Sanitary.shp</li> <li>Storm_Ponds.shp</li> <li>Storm_Sewers.shp</li> </ul>	No	No
<b>Wellington</b>	via email	wcLandfills.shp	No	No
<b>Ontario GeoHub (LIO)</b>	download	Aggregate_Site_Authorized_-_Active	No	Yes

**Town of Orangeville:**

<b>Features</b>	<b>Receive/ Download Date</b>	<b>GIS Shapefile Name</b>
<b>Pits and Quarries</b>	Downloaded from Ontario GeoHub, Revision date: Mar 23, 2021	Aggregate_Site_Authorized_-_Active.shp
<b>Landfill</b>	---	---
<b>Stormwater Management Pond</b>	Received on Mar 17, 2021	Detention_Pond.shp
<b>Sanity Sewer</b>	Received on Mar 17, 2021	Sanitary_Network.shp
<b>Storm Sewer</b>	Received on Mar 17, 2021	Storm_Network.shp
<b>Water main</b>	Received on Mar 17, 2021	Water_Network_View.shp
<b>Sewage Lagoon</b>	---	---

**Halton Region:**

Features	Receive/ Download Date	GIS Shapefile Name
<b>Pits and Quarries</b>	Downloaded from Ontario GeoHub, Revision date: Mar 23, 2021	Aggregate_Site_Authorized_-_Active.shp
<b>Landfill</b>	Received on Feb 8, 2021	Land_Fill_Site_HH.shp
<b>Stormwater Management Pond</b>	Received on Feb 8, 2021	STM_SWM_Pond.shp
<b>Sanity Sewer</b>	Received on Feb 8, 2021	SewerMain.shp
<b>Storm Sewer</b>	Received on Feb 8, 2021	StormMain.shp
<b>Water main</b>	Received on Feb 8, 2021	WaterMain.shp
<b>Sewage Lagoon</b>	---	---

**Region of Peel:**

Features	Receive/ Download Date	GIS Shapefile Name
<b>Pits and Quarries</b>	Downloaded from Ontario GeoHub, Revision date: Mar 23, 2021 Received on Mar 2, 2021	Aggregate_Site_Authorized_-_Active.shp Aggregate_Properties_WHPA.shp
<b>Landfill</b>	Received on Mar 2, 2021	ClosedPrivatePublic_Landfills_WHPA.shp
<b>Stormwater Management Pond</b>	Received on Mar 2, 2021 Revision Data: Sep 9, 2015	StormWaterManagementPonds_WHPA.shp
<b>Sanity Sewer</b>	Received on Mar 2, 2021	SANITARY_SEWER.shp
<b>Storm Sewer</b>	Received on Mar 2, 2021	STORM_SEWER.shp
<b>Water main</b>	Received on Mar 2, 2021	WATER_MAIN.shp
<b>Sewage Lagoon</b>	---	---

**Town of Mono:**

Features	Receive/ Download Date	GIS Shapefile Name
<b>Pits and Quarries</b>	Downloaded from Ontario GeoHub, Revision date: Mar 23, 2021	Aggregate_Site_Authorized_-_Active.shp
<b>Landfill</b>	No Active landfills	---
<b>Stormwater Management Pond</b>	Received on Apr 1, 2021	Storm_Ponds.shp
<b>Sanity Sewer</b>	Received on Apr 1, 2021	Sanitary.shp
<b>Storm Sewer</b>	Received on Apr 1, 2021	Storm_Sewers.shp
<b>Water main</b>	Received on Apr 1, 2021	CityWideWatermain.shp
<b>Sewage Lagoon</b>	---	---

**Wellington County:**

Features	Receive/ Download Date	GIS Shapefile Name
<b>Pits and Quarries</b>	Downloaded from Ontario GeoHub, Revision date: Mar 23, 2021	Aggregate_Site_Authorized_-_Active.shp
<b>Landfill</b>	Received on Jun 7, 2021	wcLandfills.shp
<b>Stormwater Management Pond</b>	Not available in a GIS format	---
<b>Sanity Sewer</b>	No sanitary sewage system in Erin	---
<b>Storm Sewer</b>	Not available in a GIS format	---
<b>Water main</b>	Not available in a GIS format	---
<b>Sewage Lagoon</b>	No Sewage lagoon in Erin	---

## Appendix B: Transport Pathways GIS Methods

The Technical Rules provide a general framework for the review of transport pathways, but they are not prescriptive on specific considerations, methodologies, or buffers to be applied in the assessment of transport pathways.

In respect of this, the criteria and methodology documented through this pilot study is essentially open to interrogation, interpretation, and professional judgement. This is made clear in the report and in discussion with municipalities throughout the review process.

MECP concurs with the approach as proposed and encourages the application of professional judgement, particularly where site-specific information may be available (per review matrix /response to question on confined aquifers).

The following outlines a step-by-step outline of the methodology proposed for the identification of transport pathways in the CVSPA. It is intended merely as a guideline / reference resource for CTC municipalities, should they opt to pursue the assessment of transport pathways around their respective wellheads.

### Vertical Infrastructure

#### **A. Boreholes : Logs, mapping and GIS data accessed through municipal and ORGMP databases**

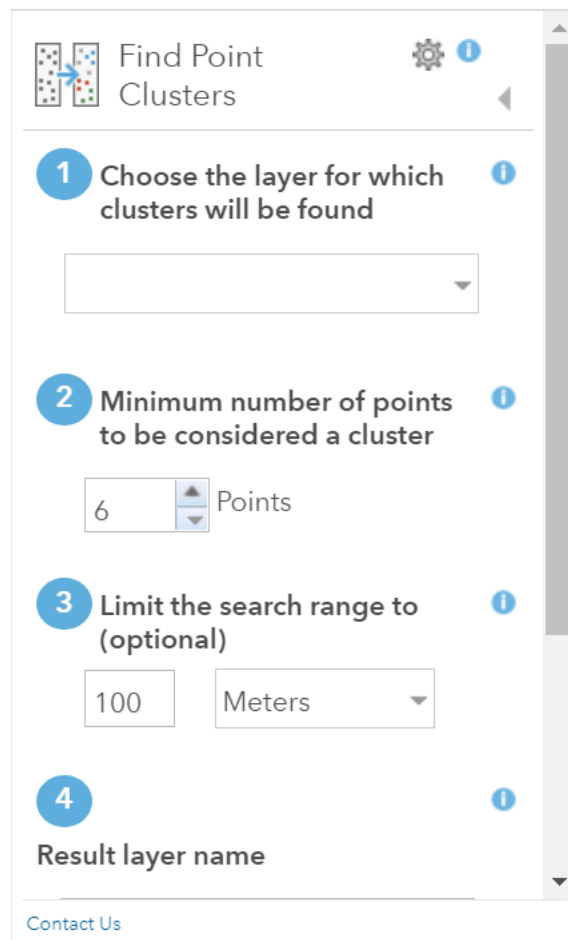
The following criteria were applied in the review of wells and boreholes:

- a) Screen out well / borehole clusters within areas that are already scored as high vulnerability.
- b) Select older well (pre-1990) - this criterion assumes that wells constructed after 1990 are likely constructed to a higher standard (per O. Reg. 903, 1990) and are less likely to become a transport pathway.
- c) Selection of a cluster of 6 or more boreholes and application of a 100m buffer using the Find Point Clusters tool in ArcGIS Enterprise (Or using ArcPro with the GeoAnalytics extension – ESRI software). The Find Point Clusters tool finds

clusters of point features within surrounding noise based on their spatial distribution:

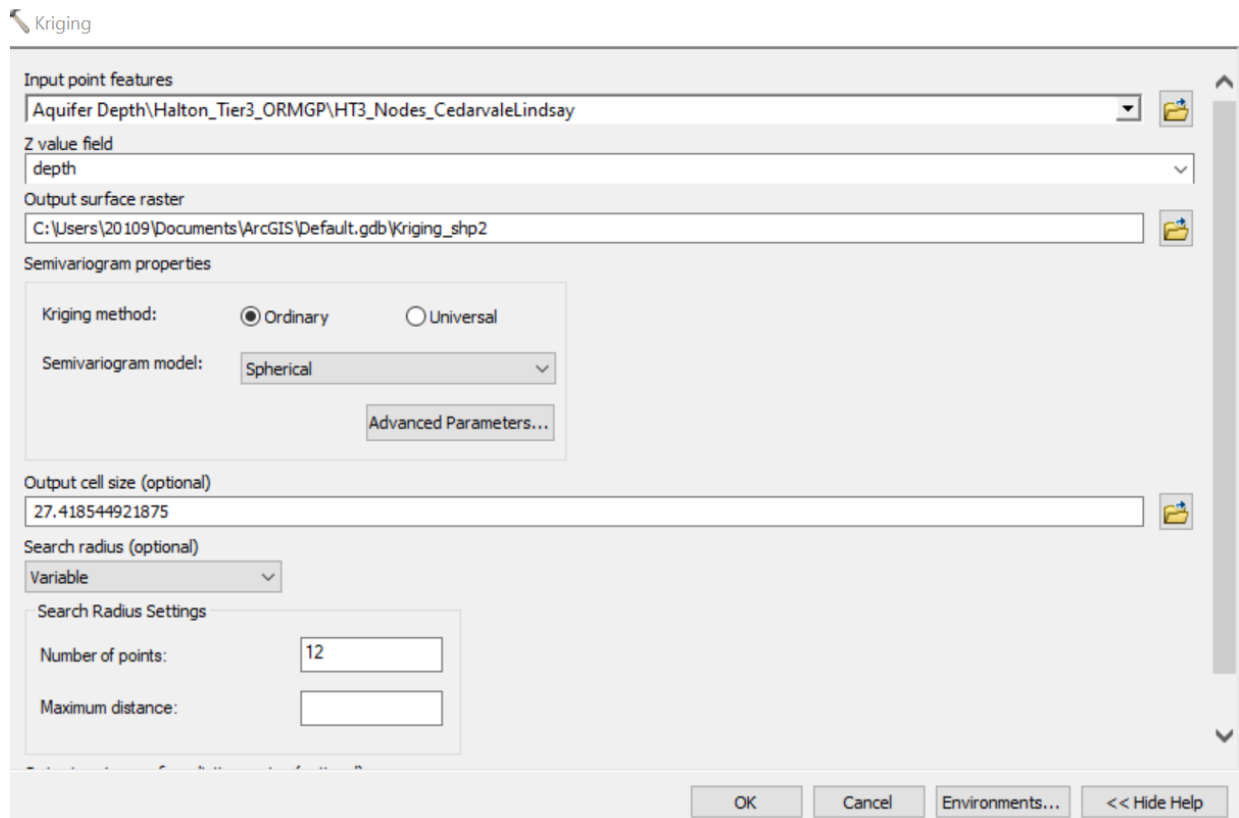


- Publish the boreholes layer to the ArcGIS Enterprise
- Open this feature class in Map Viewer
- Select Analysis > Analyze Patterns > Find Point Clusters:



This tool screens out clusters of 6 boreholes and more within 100m radius.

- d) Well completion depth occurs within 3 m of the upper elevation of supply aquifer. Numerical models from ORMGP were used to create a surface with the depth of aquifer info for WHPAs in CVSPA:
- The numerical models contain the top of model (ground surface elevation) followed by the bottoms of each subsequent layer, ordered downward. To calculate the depth of aquifer, subtract the aquifer elevation by ground surface elevation.
  - Use “Kriging” tool to create a raster surface with the depth as “Z value field” and “Output cell size” as 5m.



- Use the raster surface data (output from the Kriging tool) to compare the depth of boreholes clusters with the depth of aquifer in each WHPA to screen out boreholes that do not intersect with supply aquifers
- e) Apply a 100m buffer to the selected boreholes clusters.



**B) Pit and Quarries: Mapping and GIS data accessed through municipal and provincial databases**

- Intersect pit and quarries with WHPA A-D,
- Apply a 30 m buffer that accounts for the impacts beyond the extraction limit including fracturing of bedrock from blasting, slope stability, and transition zone.

**C) Mines: Mapping and GIS data accessed through municipal and provincial databases**

- Intersect landfills with WHPA A-D,
- Apply a 30 m buffer that accounts for the impacts beyond the extraction limit including fracturing of bedrock from blasting, slope stability, and transition zone.

**D) Landfills: Mapping and GIS data accessed through municipal and provincial databases**

- Intersect pit and quarries with WHPA A-D,
- Apply a 30 m buffer that accounts for the impacts beyond the extraction limit including fracturing of bedrock from blasting, slope stability, and transition zone.
- Not to be considered where design specs are available and indicate that landfills are lined

**E) Stormwater Management Ponds (SWM): Mapping and GIS data accessed through municipal databases**

- Intersect SWP ponds with WHPA A-D,
- Within an unconfined aquifer,
- Apply a 15 m buffer around the selected ponds.
- Not to be considered where design specs are available and indicate that ponds are lined

## F) Sewage Lagoons: Mapping and GIS data accessed through municipal databases

- Intersect lagoons with WHPA A-D,
- Lie within an unconfined aquifer,
- Apply a 15 m buffer around the selected lagoons.
- Not to be considered where design specs are available and indicate that lagoons are lined

## Linear Infrastructure

### A) Municipal water mains, storm, sanitary sewers, and oil pipelines: Mapping and GIS data accessed through municipal and private databases

These features are considered where the following conditions are met:

- Intersect with WHPA A-D,
- Lie within an unconfined aquifer,
- Occur within 3m of the top of a municipal aquifer – where depth data is not available, the assumptions listed in Table 1 are to be considered / applied:

**Table 1:** Assumption of Linear infrastructure depth in the CVSPA

Feature	Depth of Feature
Water Main	5 meters below ground surface. Consistent with criteria applied in Lake Erie SPR and Halton Hamilton SPR TP studies.
Sanitary Sewers	5 meters below ground surface. This is consistent with criterion applied in Lake Erie SPR and Halton Hamilton SPR TP studies.
Storm Sewers	5 meters below ground surface. This is consistent with Lake Erie SPR study; Halton Hamilton SPR assumed a depth of 2 m.
Oil Pipelines	Actual data received from Enbridge, no intersect with CVSPA WHPAs.

- Application of a 15 m buffer around the identified linear feature.

## Appendix C: Geothermal Systems

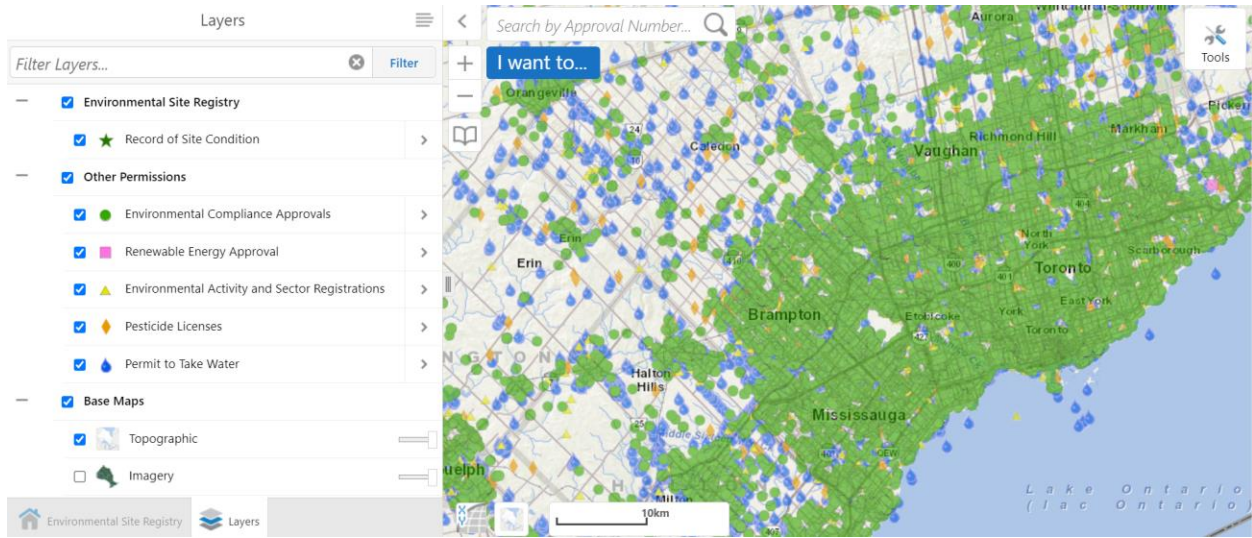
The Ministry of the Environment has increased regulation of geothermal (ground-sourced) heat pump installations, because of an urgent risk of releasing hazardous underground gases. Under the new regulation, anyone constructing new or altering, replacing, or extending existing vertical closed-loop geothermal systems that extend more than 5 meters below the ground must obtain an Environmental Compliance Approval (ECA) from the MOE. In addition, open-loop systems are regulated by the Wells Regulation (Regulation 903) and the Ontario Water Resources Act, therefore, there are two types of permits for these systems:

- an Environmental Compliance Approval – for discharges of wastewater from the system
- a Permit to Take Water – under the Ontario Water Resources Act

<https://www.ontario.ca/page/installing-vertical-closed-loop-ground-source-heat-pumps>

CVC has requested all the Environmental Compliance Approvals spatial dataset from the Ontario GeoHub (LIO) which contains the geothermal systems information. To view the dataset, please check the below app. Table 1 describes the information provided by LIO.

[https://www.lioapplications.lrc.gov.on.ca/Access\\_Environment/index.html?viewer=Access\\_Environment.AE&locale=en-CA](https://www.lioapplications.lrc.gov.on.ca/Access_Environment/index.html?viewer=Access_Environment.AE&locale=en-CA)



**Table 1.** Information on different types of permissions

Environmental Activity and Sector Registrations	Environmental Compliance Approvals	Pesticide Licenses	Permit to take water
EASR-Air Emissions	ECA-AIR	PEST-General Vendor	PTTW
EASR-Automotive Refinishing Facility	ECA-AIR, NOISE	PEST-Operator	
EASR-End-of-Life Vehicle Waste Disposal Sites	ECA-INDUSTRIAL SEWAGE WORKS	PEST-Limited Vendor	
EASR-Heating System	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
EASR-Solar Facility	ECA-SEWAGE, SEWAGE_MUNICIPAL		
EASR-Standby Power System	ECA-SEWAGE_MUNICIPAL		
EASR-Waste Management System	ECA-WASTE DISPOSAL SITES		
EASR-Water Taking - Construction Dewatering	ECA-WASTE MANAGEMENT SYSTEMS		
EASR-Water Taking - Highway Projects and Transit Projects			
EASR-Water Taking - Pumping Test			

The intersected spatial data of CVSPA Wellhead Protection Areas (WHPAs) and LIO's Environmental Compliance Approvals layers contains:

1. EASR-Air Emissions,
2. EASR-End-of-Life Vehicle Waste Disposal Sites,
3. EASR-Standby Power System,
4. EASR-Waste Management System,
5. EASR-Water Taking - Construction Dewatering,
6. ECA-AIR,
7. ECA-INDUSTRIAL SEWAGE WORKS,
8. ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS,
9. ECA-WASTE MANAGEMENT SYSTEMS,
10. PEST-Operator and PTTW

CVC has requested LIO to provide the metadata on all the information we have received. As of Dec 1<sup>st</sup>, 2021, CVC has not received any clarification on the listed permissions above. CVC has also reached out to upper and lower-tier municipalities to investigate the availability of geothermal systems. Table 2 has a summary of the findings.

**Table 2.** Availability of geothermal systems spatial dataset within upper and lower-tier municipalities jurisdiction

Upper Tier	Geothermal Systems	Lower Tier	Geothermal Systems
Region of Peel	No Spatial Dataset Available	Town of Caledon	No response
Halton Region	No Spatial Dataset Available	Town of Halton Hills	No Spatial Dataset Available
Wellington County	No geothermal systems	Town of Erin	No geothermal systems
Dufferin County	No Spatial Dataset Available	Town of Mono	No response
OakRidges Moraine GroundWater Program	No Spatial Dataset Available	Town of Orangeville	No response
		Township of Amaranth	No response
		Township of East Garafraxa	No response

# Appendix D: Figures

## ATTACHMENT 2: Review of Transport Pathways in the Credit Valley Source Protection Area

Figure 1: Transport Pathways related to wells and boreholes: East Garafraxa; recommended change in vulnerability rating – medium to high

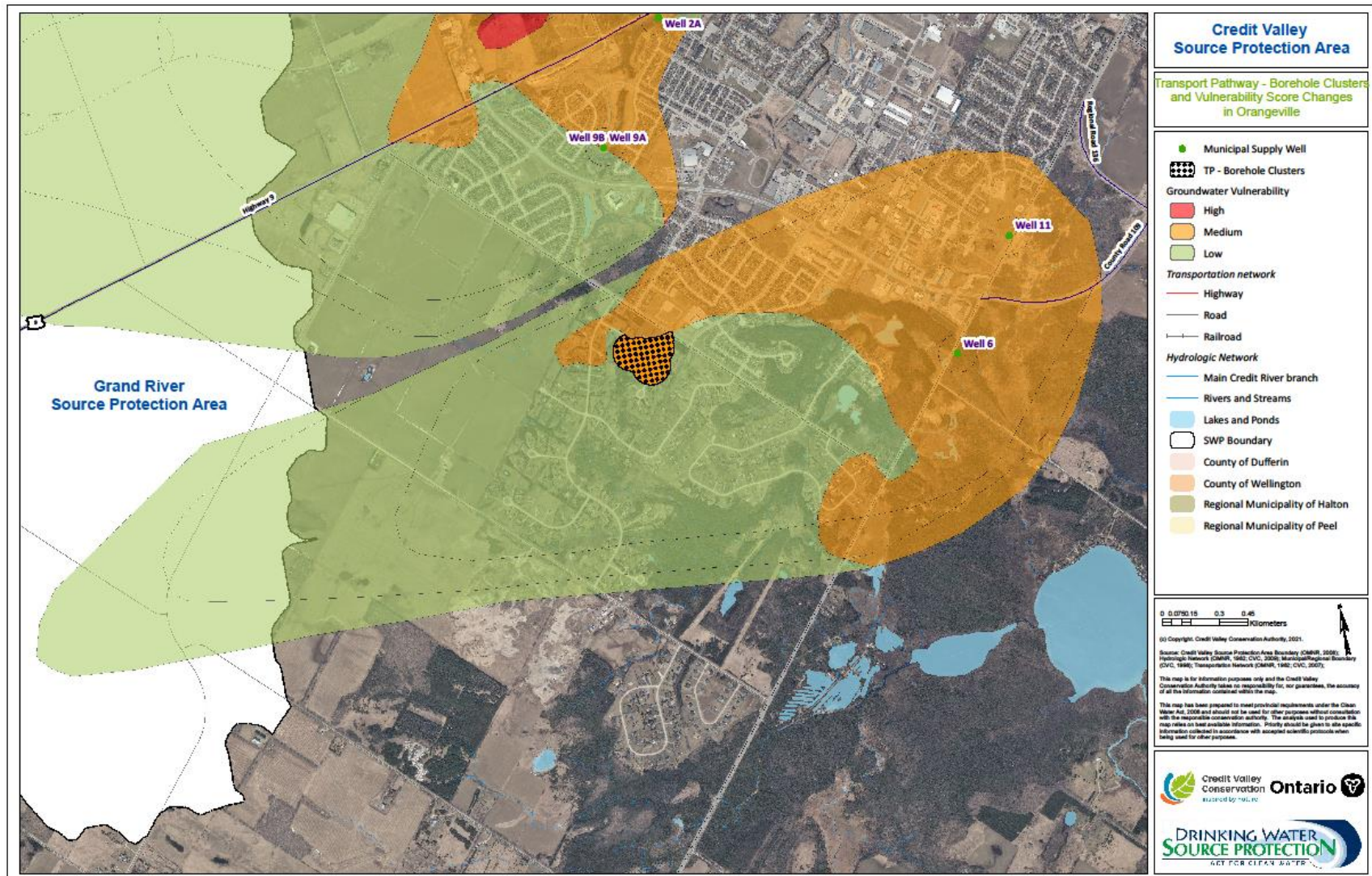


Figure 2: Transport Pathways related to wells and boreholes: East Garafraxa; recommended change in vulnerability rating – medium to high

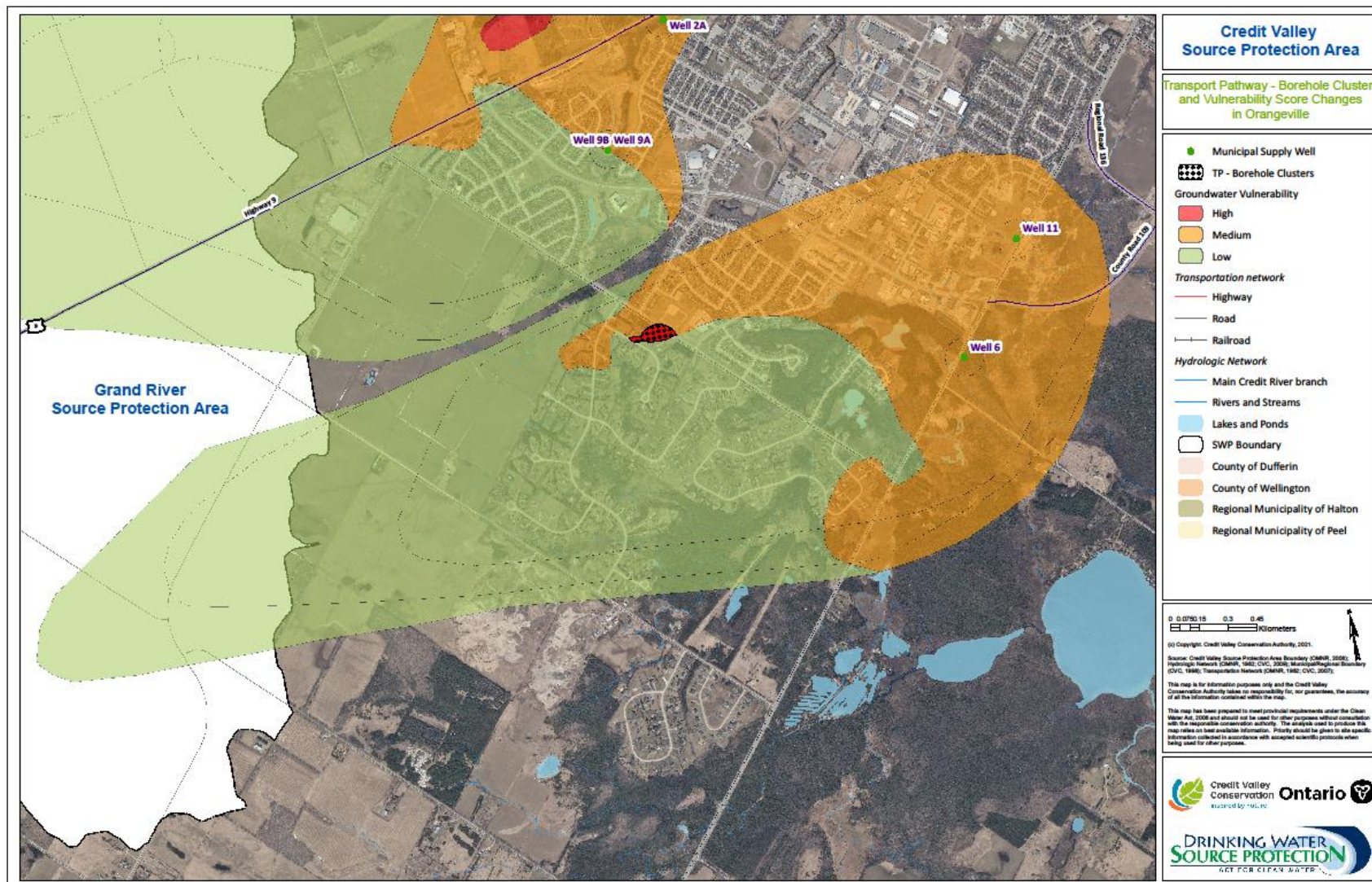




Figure 3: Transport Pathways related to wells and boreholes: Hillsburgh; recommended change in vulnerability rating – medium to high

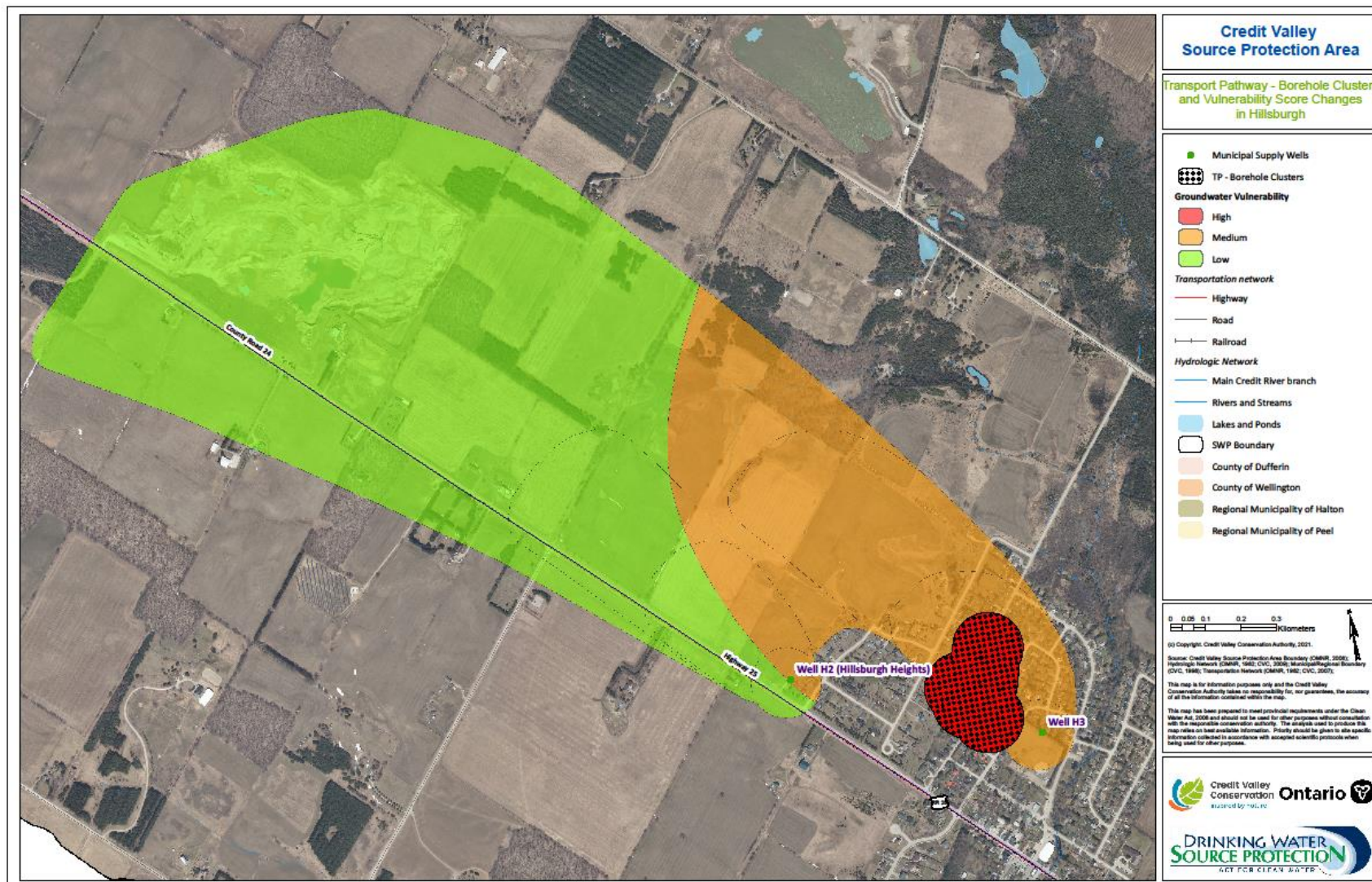


Figure 4: Transport Pathways related to wells and boreholes: Georgetown; recommended change in vulnerability rating – medium to high

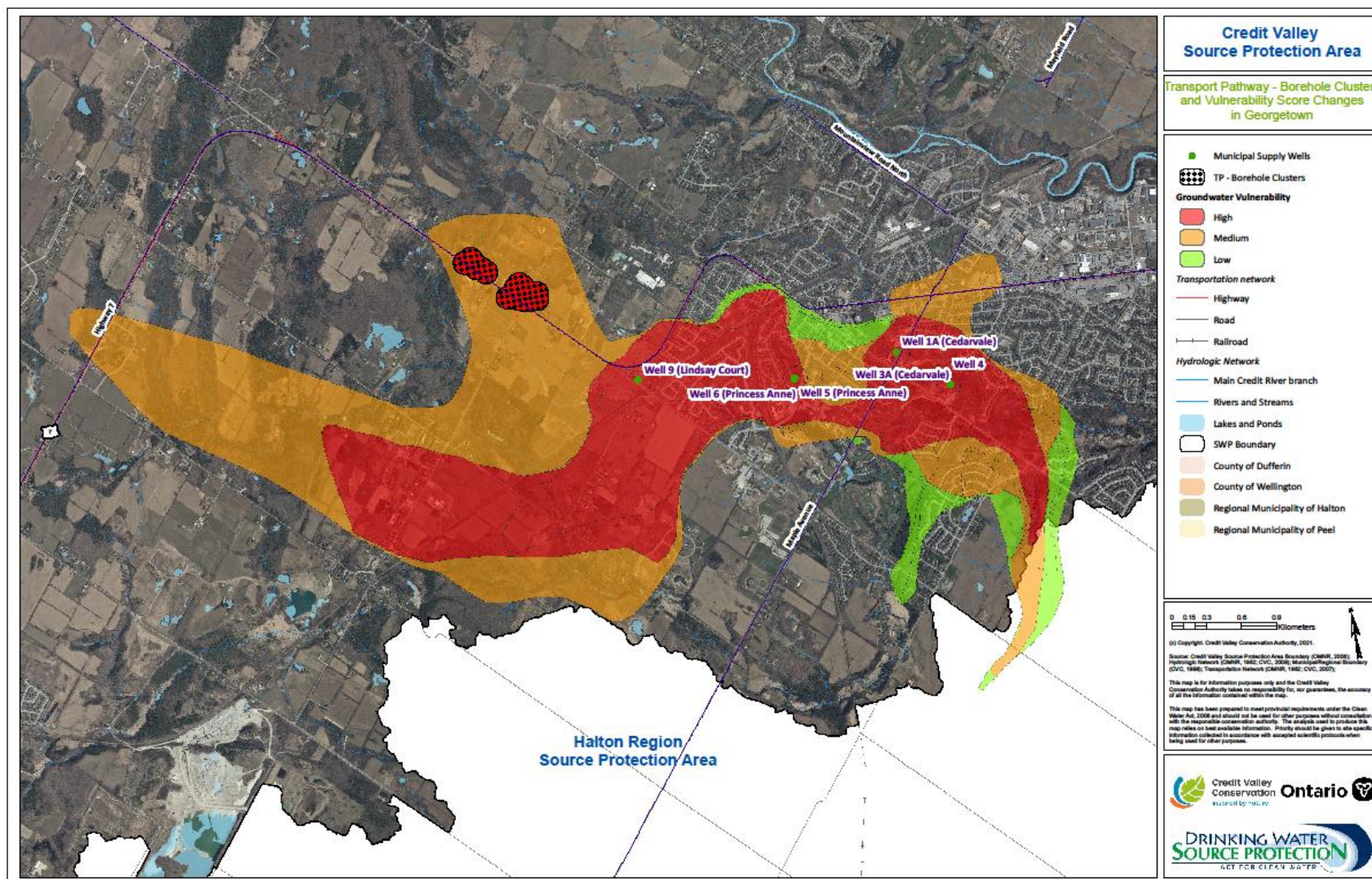


Figure 5: Transport Pathways related to wells and boreholes: Alton; recommended change in vulnerability rating – low to medium



Figure 6: Transport Pathways related to wells and boreholes: Alton; recommended change in vulnerability rating – medium to high

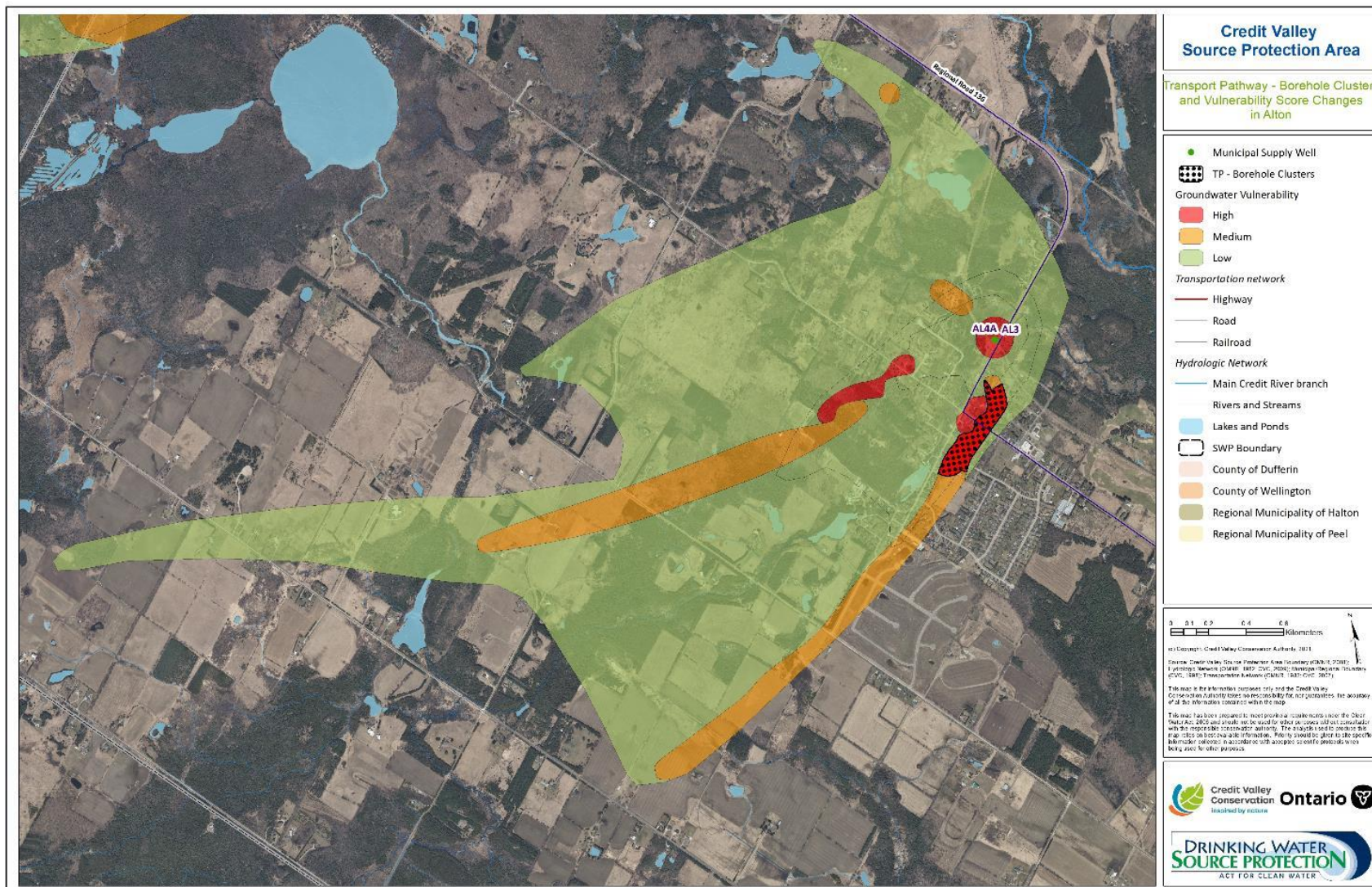


Figure 7: Transport Pathways related to aggregates: Mono; recommended change in vulnerability rating – medium to high

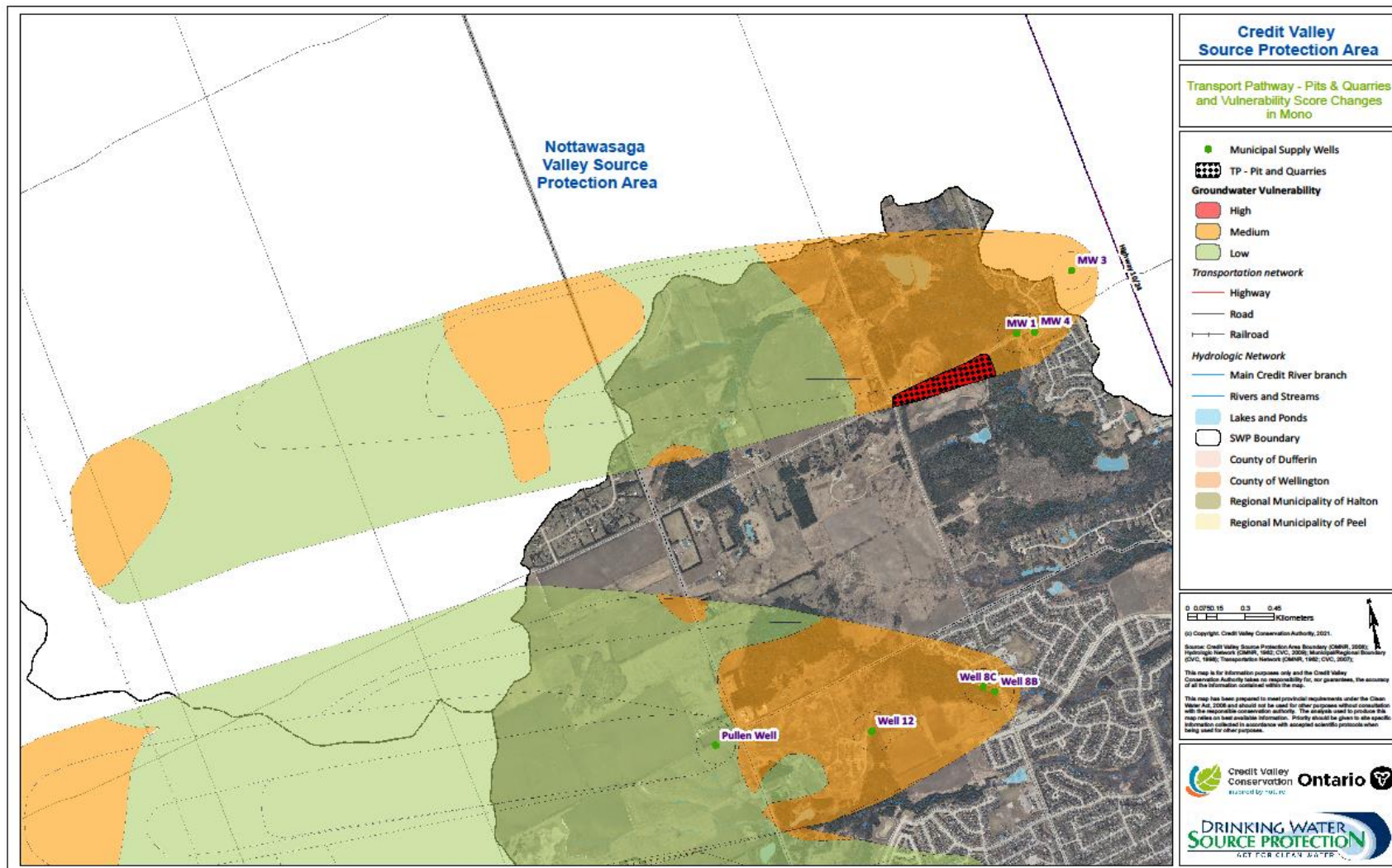


Figure 8: Transport Pathways related to aggregates: Amaranth & East Garafraxa; recommended change in vulnerability rating – low to medium

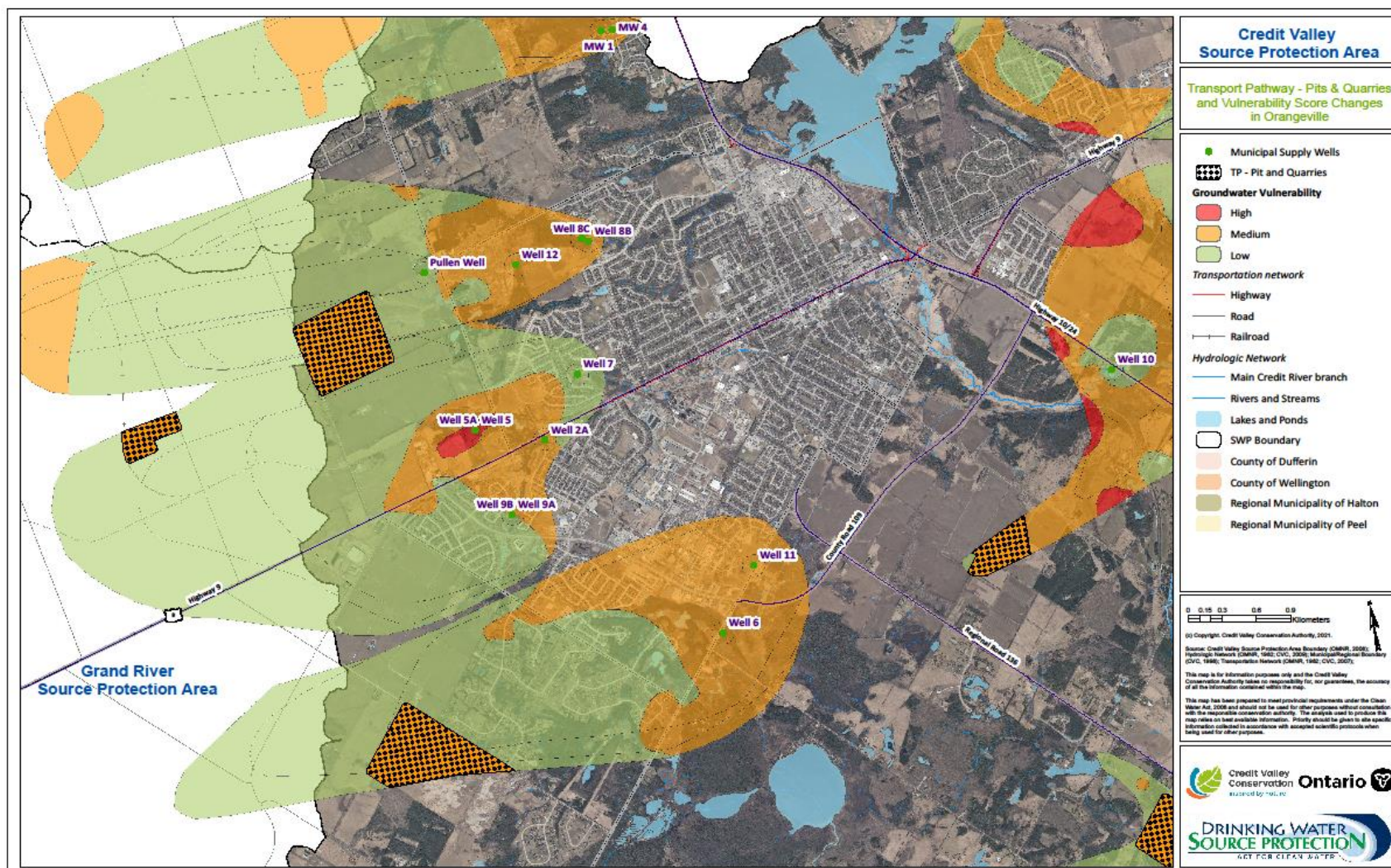


Figure 9: Transport Pathways related to aggregates: Alton; recommended change in vulnerability rating – medium to high

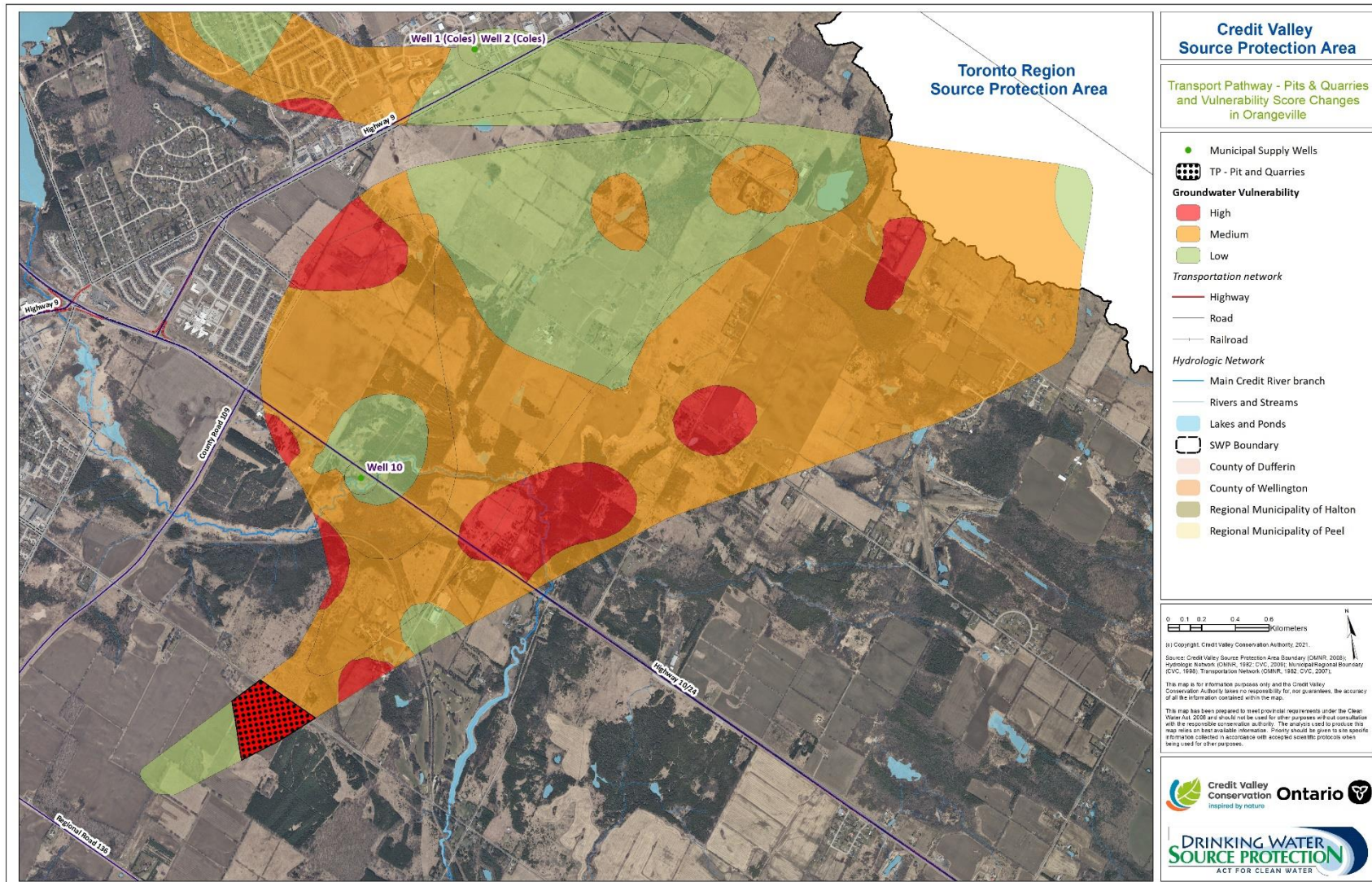


Figure 10: Transport Pathways related to aggregates: Alton; recommended change in vulnerability rating – low to medium

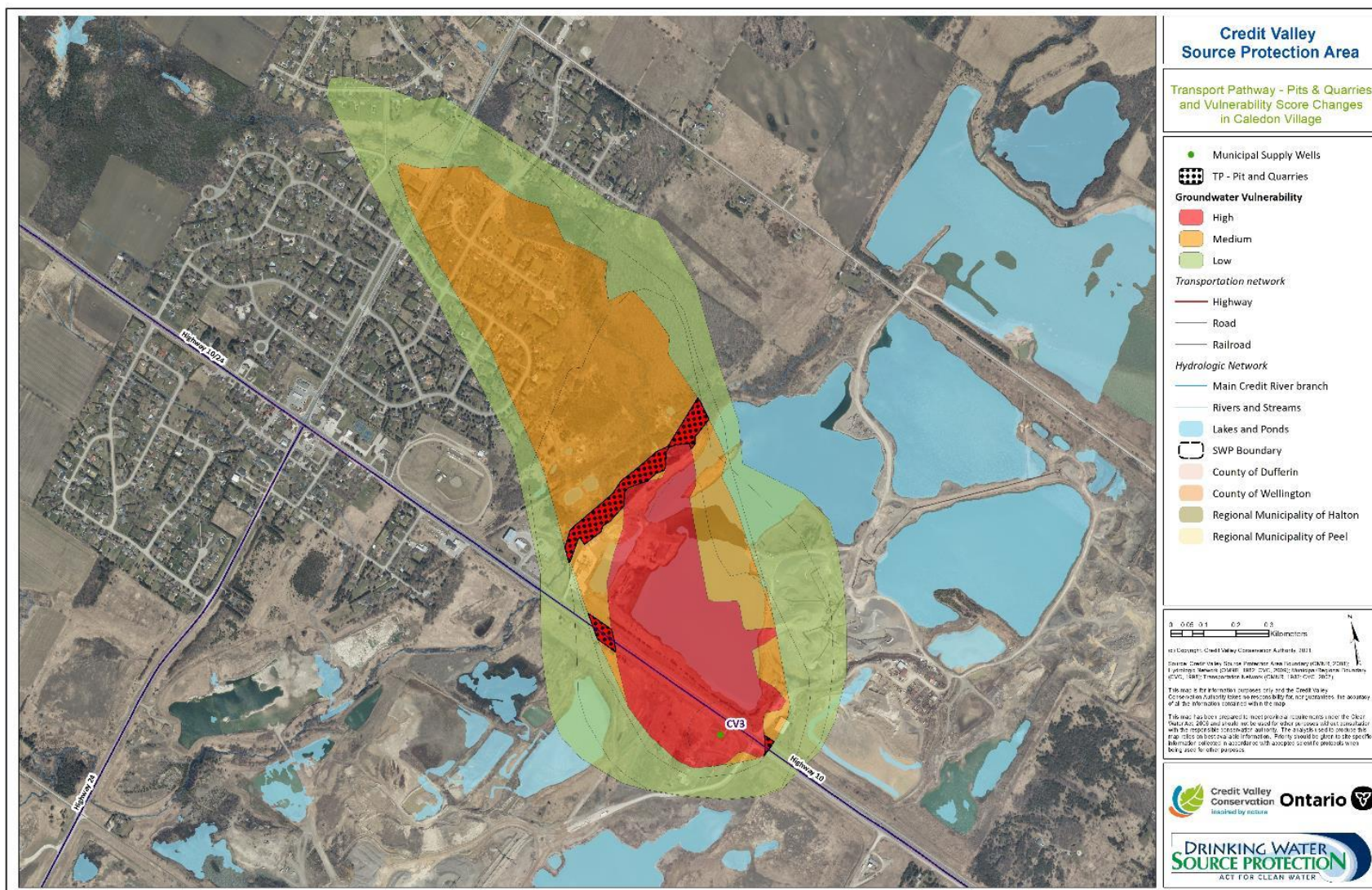






\* Peel Region recently re-delineated WHPA for CV 3, so this interpretation may subject to review

Figure 12: Transport Pathways related to aggregates: Caledon Village; recommended change in vulnerability rating – medium to high



\* Peel Region recently re-delineated WHPA for CV 3, so this interpretation may subject to review

Figure 13: Transport Pathways related to SWM Ponds: Mono; recommended change in vulnerability rating – low to medium



Figure 14: Transport Pathways related to SWM Ponds: Mono; recommended change in vulnerability rating – medium to high

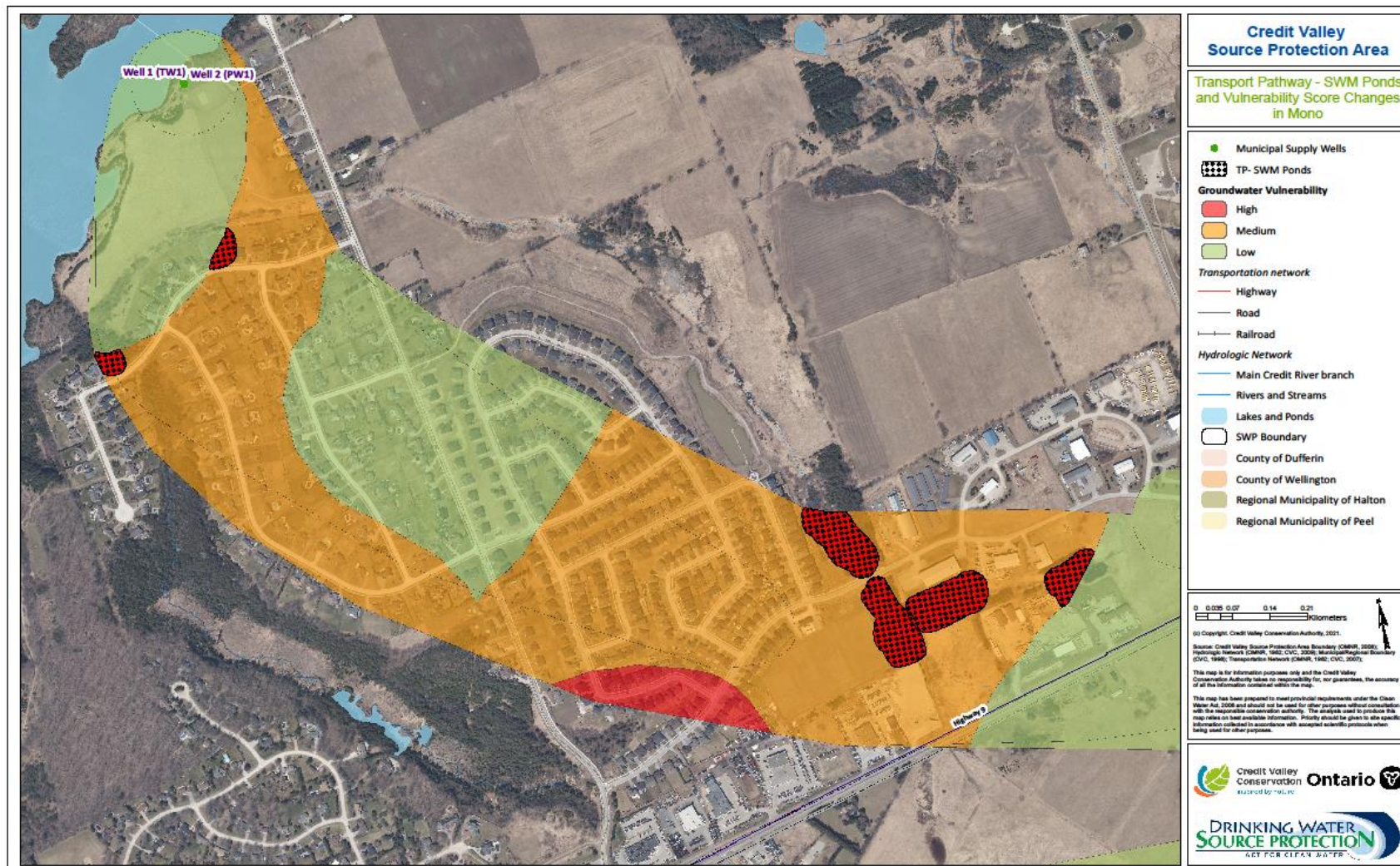


Figure 15: Transport Pathways related to SWM Ponds: Orangeville; recommended change in vulnerability rating – medium to high

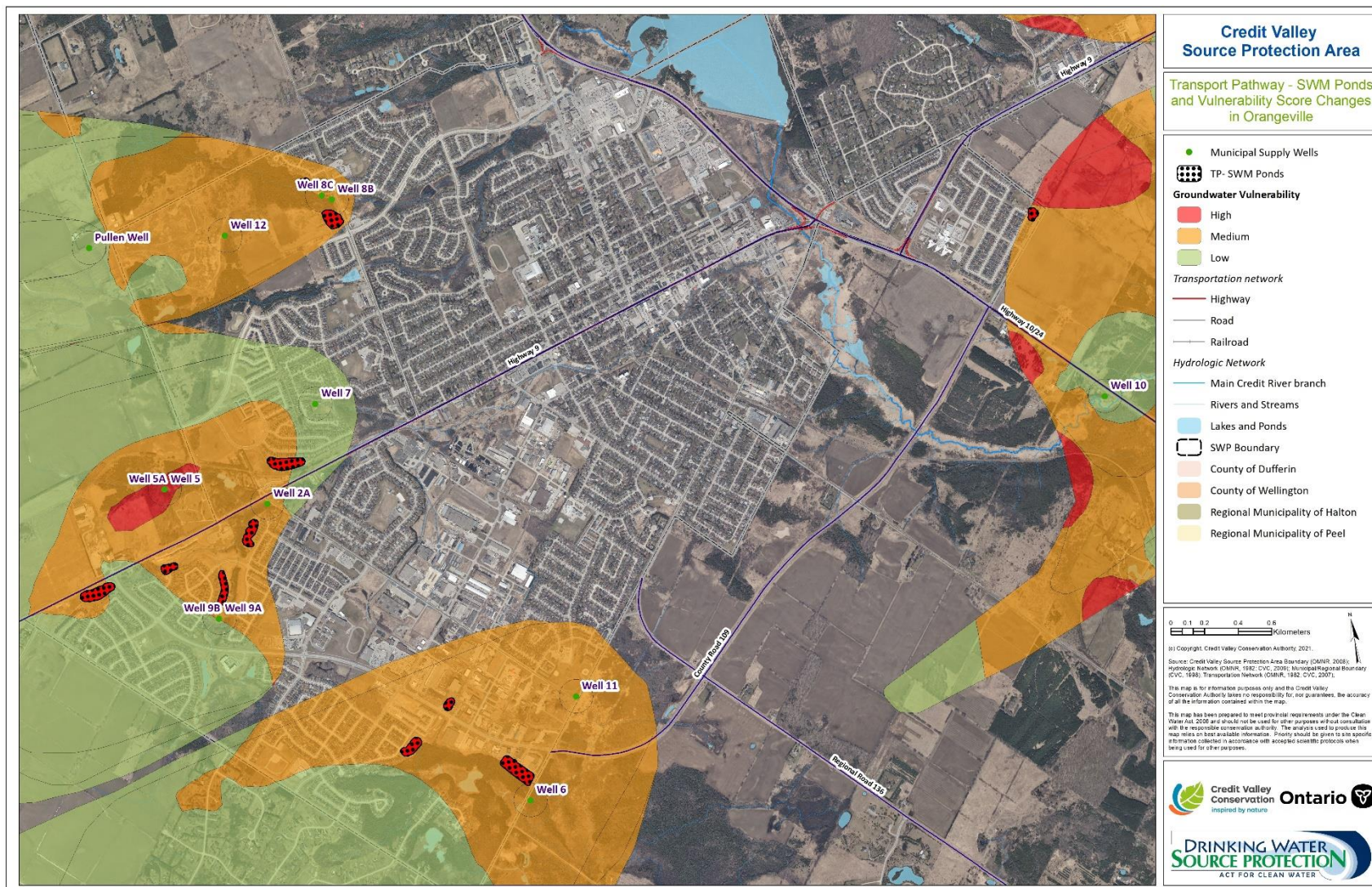


Figure 16: Transport Pathways related to Water Mains: Orangeville; recommended change in vulnerability rating – low to medium

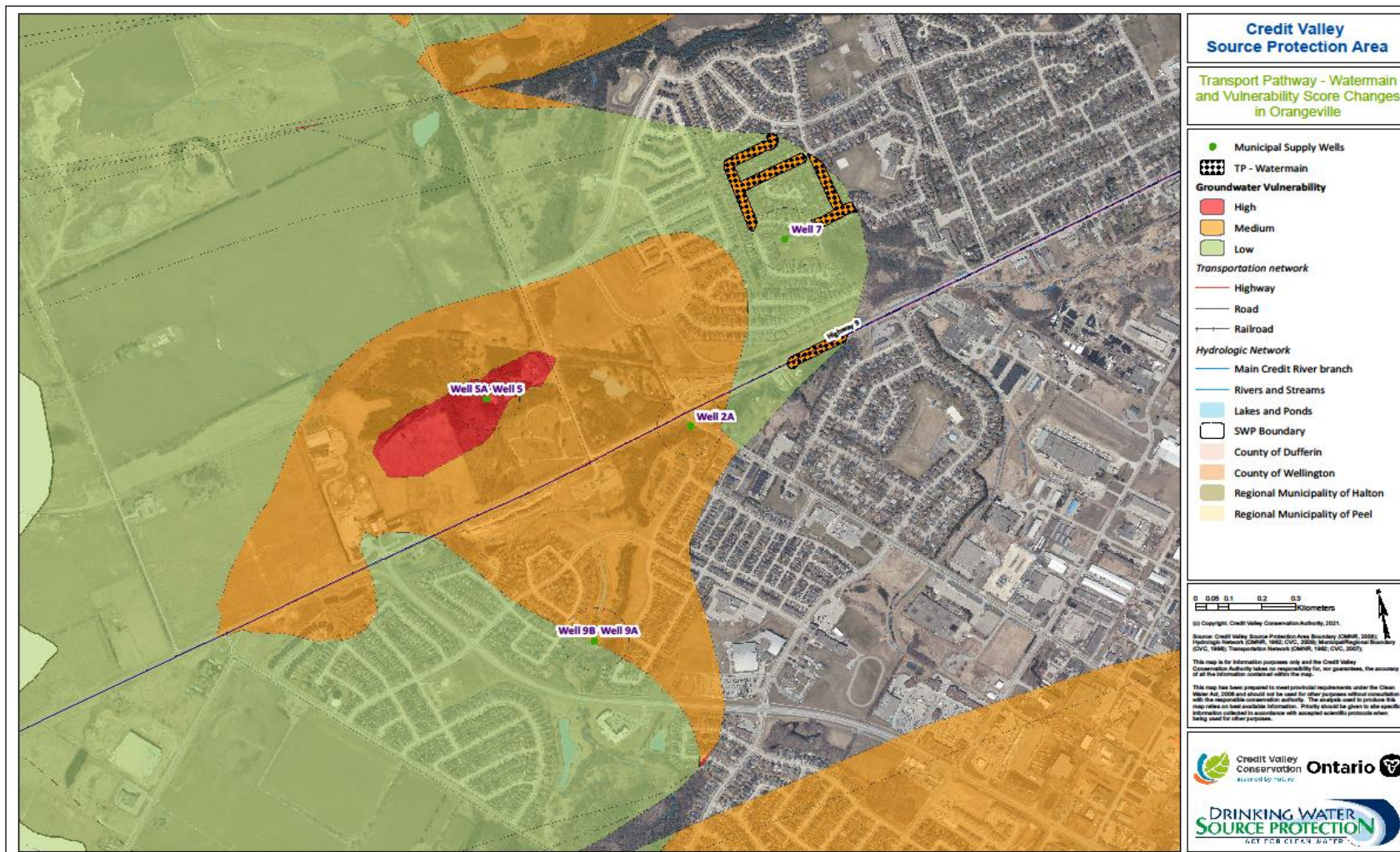


Figure 17: Transport Pathways related to Water Mains: Orangeville; recommended change in vulnerability rating – medium to high

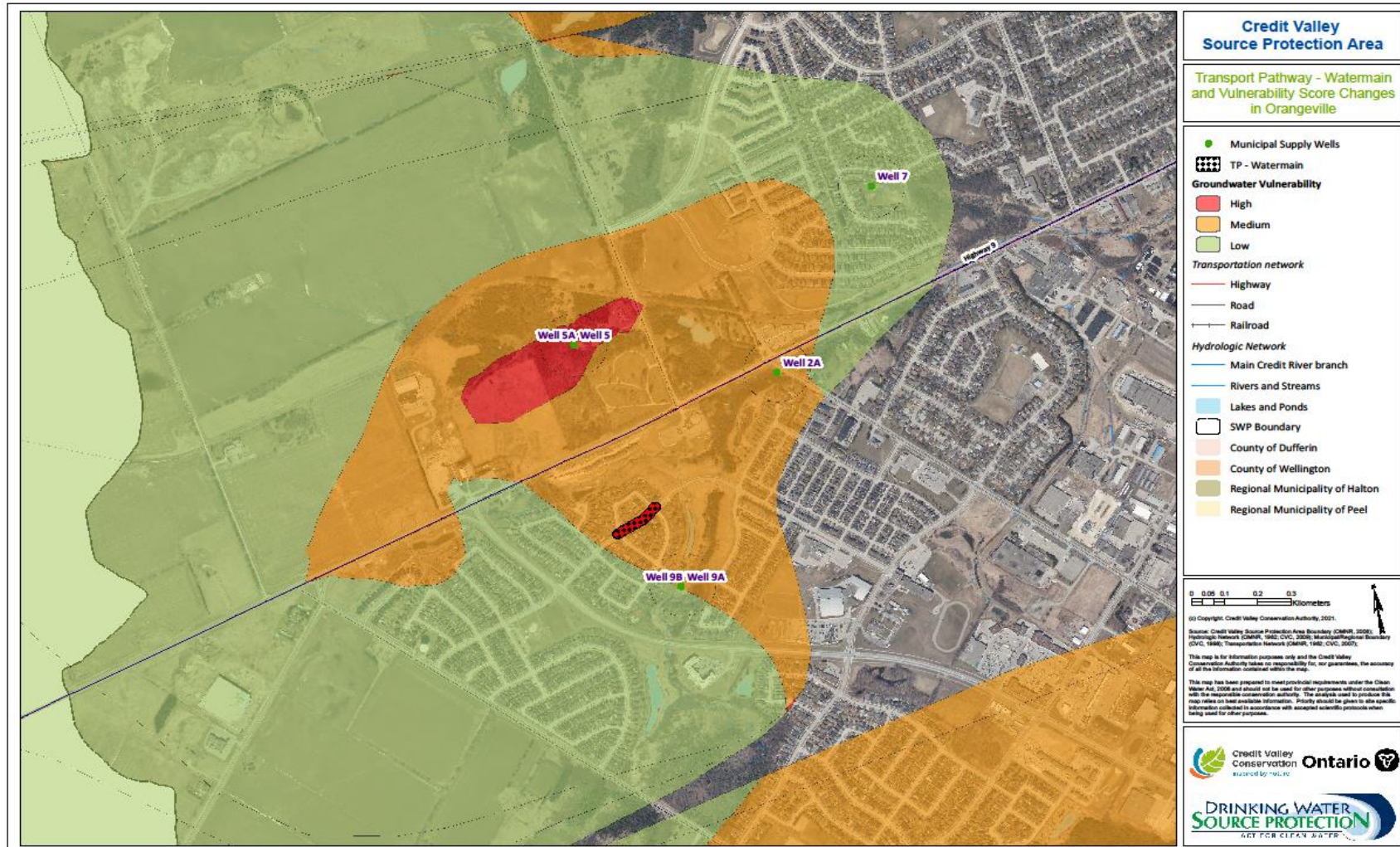
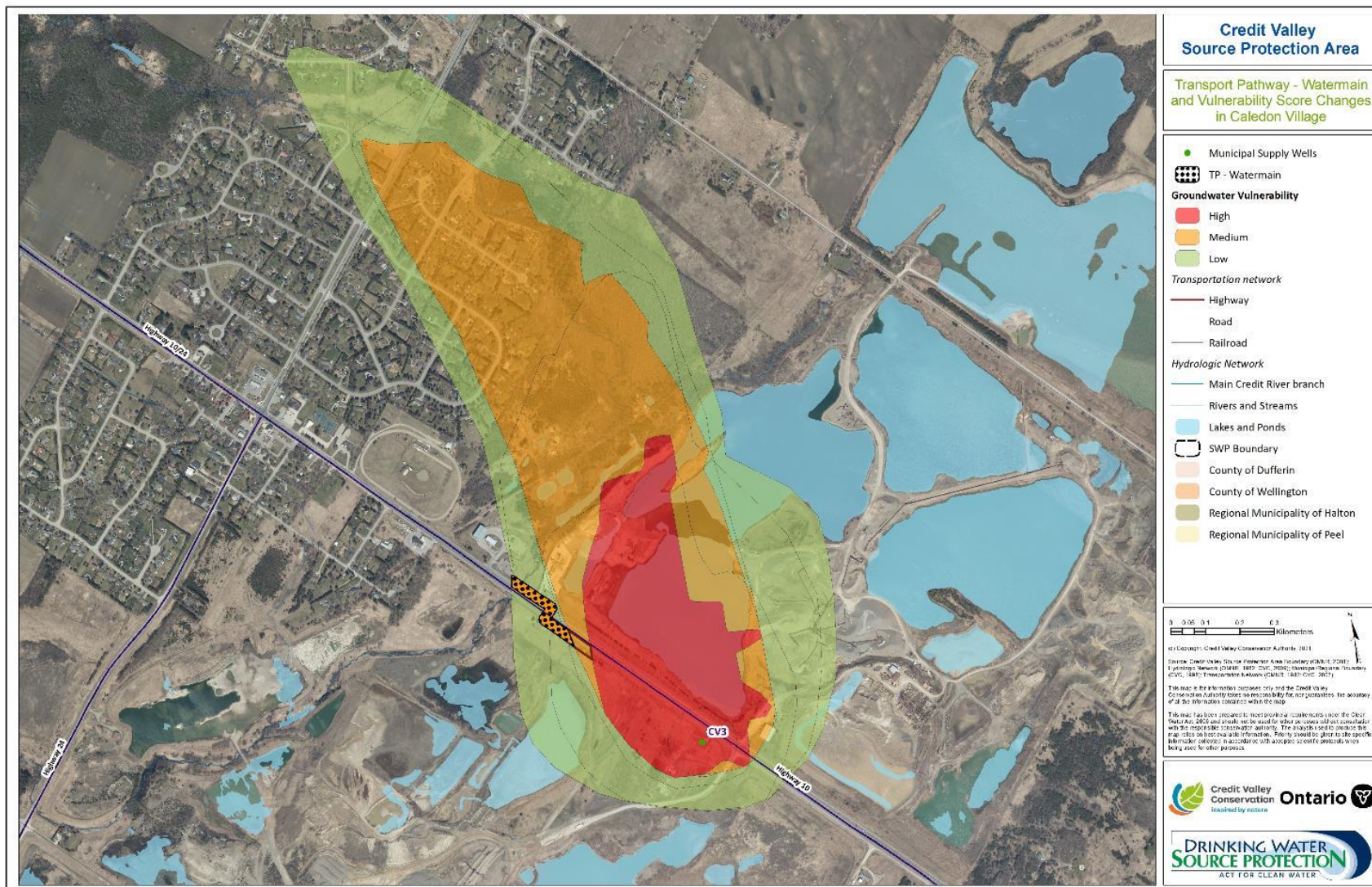


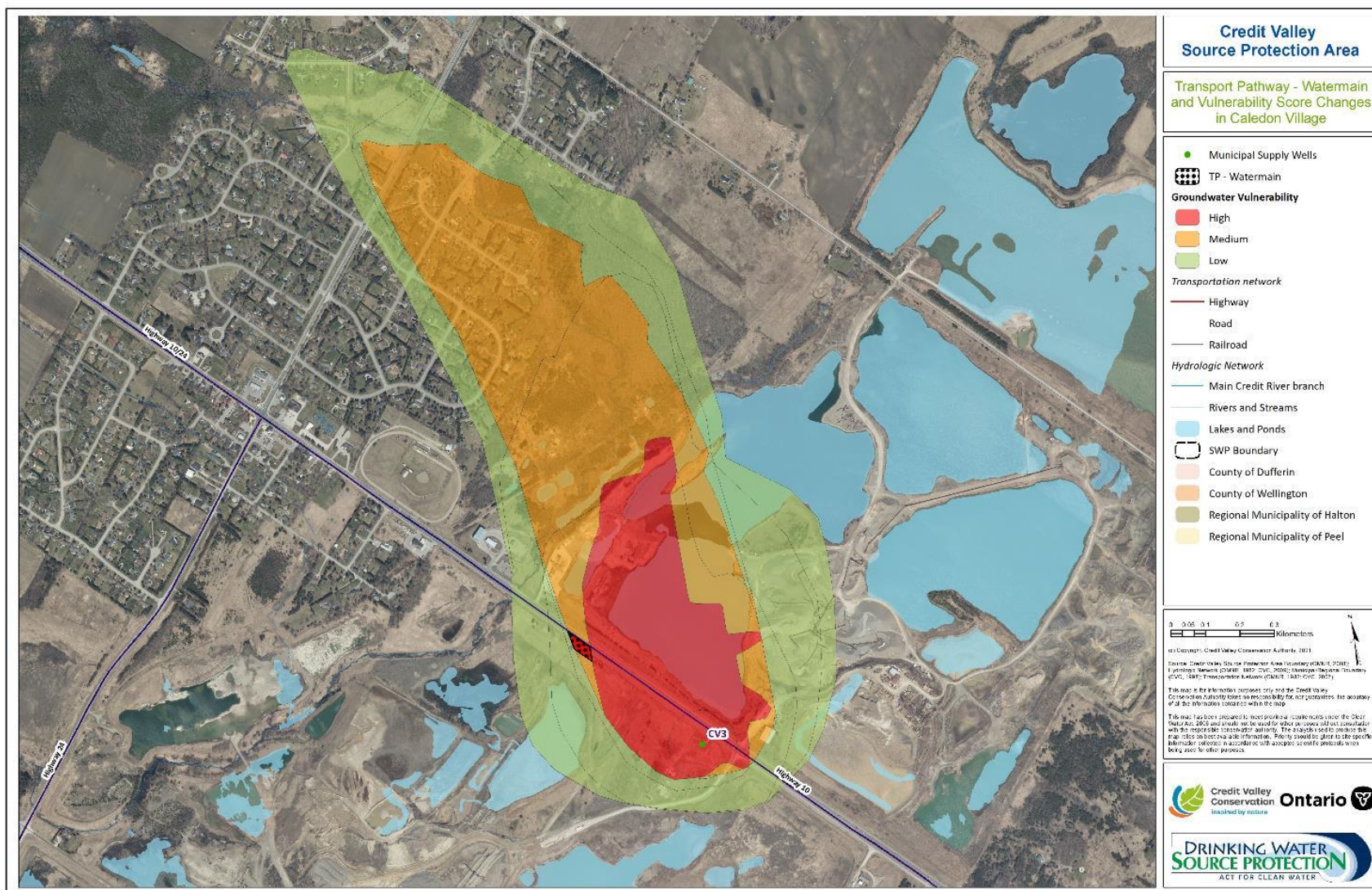
Figure 18: Transport Pathways related to Water Mains: Caledon Village; recommended change in vulnerability rating – low to medium





\* Peel Region recently re-delineated WHPA for CV 3, so this interpretation may subject to review

Figure 19: Transport Pathways related to Water Mains: Caledon Village; recommended change in vulnerability rating – medium to high



*\* Peel Region recently re-delineated WHPA for CV 3, so this interpretation may subject to review*

March 23, 2022

Tom Adams  
Chair, Credit Valley Source Protection Authority  
1255 Old Derry Road  
Mississauga, ON  
L5N 6R4

Dear Tom Adams:

The Credit Valley – Toronto and Region – Central Lake Ontario (CTC) Source Protection Plan has been in effect since December 31, 2015, having the primary objective of protecting current and future sources of drinking water from contamination and overuse.

In accordance with Ontario Regulation 287/07, the Credit Valley Source Protection Authority (CVSPA) is required to submit an annual progress report to the Ministry of the Environment, Conservation and Parks (MECP) by May 1, 2022. The fifth CTC annual progress report documents the status of policy implementation, progress in achieving the source protection plan objectives, and implementation efforts between January 1 and December 31, 2021 (see attached).

On March 22, 2022, the CTC Source Protection Committee (the Committee) reviewed the annual progress report and passed the following resolutions:

THAT the CTC Source Protection Committee receive the staff report Implementation of CTC Source Protection Plan (2021) – Annual Progress Report for information;

AND THAT in the opinion of the CTC Source Protection Committee, implementation of the Source Protection Plan has progressed well but is short of target in achieving the plan's objectives.

AND THAT CTC staff be directed to submit the CTC Source Protection Committee's comments on implementation progress to the Credit Valley, Toronto and Region, and Central Lake Ontario Source Protection Authorities for inclusion in the annual progress report.

At the time the Plan was made effective in 2015, over 10,000 significant drinking water threats were identified in the CTC Source Protection Region. Since then, field verification has reduced that number to 6,195 significant threats. At the end of the current reporting period, only 325 (about 5%) significant threats remain to be addressed. Additionally, 96% of legally binding policies that address significant drinking water threats are implemented. Thus, the Committee determined that implementation of the CTC Source Protection Plan is progressing well overall.

Notwithstanding, the Committee notes the continued limited progress in establishing risk management plans (RMPs) for existing significant drinking water threats. The Committee acknowledges that the COVID-19 pandemic constrained the ability of municipal risk management officials to engage property and business owners and conduct site visits over

the past two years. Nevertheless, while 150 RMPs have been established in the CTC Region, another 198 RMPs remain to be negotiated by the December 31, 2023 implementation deadline. It is therefore unlikely that all municipalities in the CTC Region will meet the 2023 implementation deadline.

The Committee will continue to work with source protection authority and municipal staff to review source protection plan policies requiring RMPs and seek ways to advance RMP completion.

The Committee noted as well that completion of septic system inspections also has been delayed by the pandemic. After limited progress in conducting inspections in 2020, inspections satisfactorily in 2021. However, 231 inspections (77% of the total required) remain to be completed in 2022, the final year of the 5-year inspection cycle.

The Committee draws attention to a final point. Under the source protection plan, municipalities monitor and report on raw water quality from wells in vulnerable areas with known drinking water issues. Trend analysis suggests increasing sodium and chloride concentrations for most of the municipal wells with identified issues in the drinking water systems for Orangeville and Georgetown.

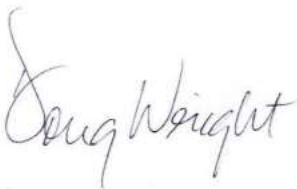
These reasons contributed to the Committee's conclusion that overall progress in achieving the Plan's objectives falls short of target. Continued monitoring and assessment of raw water quality is required to determine whether the policies in the plan are sufficient to prevent future drinking water issues.

Specific to the CVSPA jurisdiction, 322 significant drinking water threats remain to be addressed and 195 RMPs are needed by Dec. 31, 2023. About 150 of the remaining septic system inspections are within the CVSPA jurisdiction.

The CVSPA is now tasked with considering the annual progress report and submitting it to the MECP together with any comments the SPA wishes to make. Similarly, both Central Lake Ontario and Toronto and Region SPAs are reviewing the comments received from the CTC Source Protection Committee and will report their assessment of implementation status to the Ministry within the same timeframe.

If you have any questions regarding this letter, or the CTC Source Protection Plan 2021 Annual Progress Report, please contact Janet Ivey at 437-247-8078 or [janet.ivey@cvc.ca](mailto:janet.ivey@cvc.ca).

Sincerely,

A handwritten signature in cursive script that reads "Doug Wright".

Doug Wright  
Chair, CTC Source Protection Committee

Attachment A: Source Protection Annual Progress Report (2021)

## CTC Source Protection Region

Source Protection Committee



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Copy to:

Quentin Hanchard, Chief Administrative Officer, Credit Valley Conservation  
Janet Ivey, Chief Specialist, Watershed Plans and Source Water Protection, Credit Valley Conservation

# CTC Source Protection Region 2021 Annual Progress Report

## I. Introduction

Source protection plans are created under the *Clean Water Act, 2006*. This annual report summarizes the progress made by December 31, 2021 in implementing the source protection plan for municipal drinking water systems in the Credit Valley, Toronto and Region, and Central Lake Ontario (CTC) Source Protection Region.

Protecting the sources of our drinking water is the first step in a multi-barrier approach to safeguard the quality and quantity of our water supplies. The source protection plan is the culmination of extensive science-based assessment, research, consultation, and collaboration with local stakeholders and the provincial government. When policies in the plan are implemented it ensures that activities carried out near municipal wells and lake-based intakes will not pose significant risk to drinking water supplies.

We acknowledge and recognize the efforts made by municipalities, stakeholders and the CTC Source Protection Committee in the development and implementation of the Source Protection Plan.



## II. A message from your local Source Protection Committee

**P : Progressing Well/but Short of Target – The majority of the source plan policies have been implemented and/or are progressing; but some fall short of target.**

This is the fifth Annual Report on implementation of the CTC Source Protection Plan (Plan) since it took effect on December 31, 2015. All stakeholders responsible for Plan policy implementation reported on their progress in 2021.

Most of the legally binding policies (96%) that address significant drinking water threats are implemented in the CTC Region. All municipalities have established processes to ensure that land use planning decisions conform to the Plan.

At the time the Plan came into effect in 2015, over 10,000 significant drinking water threats were identified in the CTC Region. Since then, field verification has reduced that number to 6,195 significant threats. Only 325 existing significant drinking water threats remain to be addressed, of these 322 are within the Credit River Watershed. Since 95% of significant threats have been addressed, the CTC Source Protection Committee determined that implementation of the Plan is progressing well overall.

However, the Committee expressed concern that fewer than half of the required risk management plans (RMPs) had been established to address significant threats and noted that it is unlikely that all municipalities will achieve the 2023 deadline for completion of RMPs. The COVID-19 pandemic has constrained the ability of municipalities to engage property and business owners and conduct site visits and septic system inspections.

Further, water quality analysis suggests increasing sodium and chloride concentrations in the raw water from most of the municipal wells with identified issues in the drinking water systems for Orangeville and Georgetown.

As a result, the Committee concluded that implementation of the Plan is progressing well, but remains short of target.

The Committee will continue to work with source protection authority and municipal staff to review source protection plan policies requiring RMPs and identify ways to advance RMP completion.

### III. Our Watershed

To learn more, please read our assessment report(s) and source protection plan(s).

The CTC Source Protection Region contains over 25 large and small watersheds and spans over 3,800 km<sup>2</sup> of land, from the Oak Ridges Moraine in the north to Lake Ontario in the south. The region contains portions of the Niagara Escarpment, Oak Ridges Moraine, Greenbelt, Lake Ontario, and the most densely populated area of Canada. The CTC Source Protection Region includes 25 local municipalities and eight single tier, regional or county municipalities, 64 municipal supply wells, and 16 municipal surface water intakes in Lake Ontario. The region is complex and diverse in terms of geology, physiography, population, and development pressures. There are many, often conflicting, water uses including, drinking water supply, recreation, irrigation, agriculture, commercial and industrial uses, and ecosystem needs.

The Credit Valley Source Protection Area is formed by one main watercourse, the Credit River, and a number of smaller Lake Ontario tributaries. Nearly 1500 km of streams and creeks empty into the Credit River including Black Creek, Silver Creek, West Credit River, Shaw's Creek, East Credit River, Fletchers Creek, Caledon Creek, and several others. There are thirteen municipal water systems operating in the source protection area, two are surface water based – accessing Lake Ontario as the source; the remainder are groundwater-based. There are no municipal drinking water sources taking from the Credit River. About 1 million people make the Credit watershed their home.

The Toronto and Region Source Protection Area comprises numerous watersheds, plus their collective Lake Ontario waterfront shorelines, to incorporate portions of six upper-tier and 15 lower-tier municipalities. The nine major watersheds are Carruthers, Duffins, Etobicoke, Highland, Mimico, and Petticoat Creeks, and also the Don, Humber and Rouge Rivers. More than 5 million people live within the source protection area with the population expected to grow significantly in the years to come. There are ten municipal water systems operating in the source protection area, five are surface water based – accessing Lake Ontario as the source; the remainder are groundwater-based.

The Central Lake Ontario Source Protection Area is fully contained within the Regional Municipality of Durham. There are numerous watersheds within its boundaries, with the five major watersheds originating at the Oak Ridges Moraine. These major watersheds are Lynde, Oshawa, Farewell, Bowmanville, and Soper Creeks. There are no municipal wells within the source protection area; all municipal drinking water comes from Lake Ontario. There are three municipal drinking water systems: Whitby, Oshawa, and Bowmanville.



## IV. At a Glance: Progress on Source Protection Plan Implementation

### 1. Source Protection Plan Policies

P : Progressing Well/On Target

There are 129 policies in the CTC Source Protection Plan. The policies address: 21 types of threats prescribed in regulation and 2 types of local drinking water threats, other actions considered necessary to protect drinking water sources, and monitoring of implementation. Some policies are implemented by a single stakeholder, others by multiple stakeholders.

As of the end of 2021, most legally binding policies (96%) that address significant drinking water threats are implemented. Furthermore, about 95% of existing significant drinking water threats have been addressed (i.e., eliminated or managed).

### 2. Municipal Progress: Addressing Risks on the Ground

P : Progressing Well/On Target

Municipalities in our source protection region are required to review and update their Official Plans to ensure they conform with local source protection plans the next time they undertake an Official Plan review under the *Planning Act*. Municipalities in the CTC Source Protection Region are also amending their Official Plans as required to conform with the Growth Plan for the Greater Golden Horseshoe, 2020. The Growth Plan requires that all upper tier municipalities complete their review by summer 2022 and lower tier municipalities by summer 2023.

As of December 2021, 81% of municipalities within the CTC have completed or are in the process of completing their conformity exercise with the CTC Source Protection Plan.

### 3. Septic Inspections

S : Satisfactory

Within the CTC Region, 300 septic systems are expected to be inspected every 5 years to satisfy the requirements of the Ontario Building Code. In 2021, 64 inspections were completed, representing 21% of the total inspections required over the 5-year cycle.

Some municipal septic inspection programs were delayed in 2020 and 2021 because of the COVID-19 pandemic. Two hundred and thirty-one inspections (or 77%) remain to be completed by the end of 2022, the final year of the 5-year inspection cycle.

Of the systems inspected in 2021, 95% did not require any maintenance work, while 5% required minor maintenance. None required major maintenance.

## 4. Risk Management Plans

L : Limited progress (COVID-19 pandemic limited progress in 2021)

The CTC Source Protection Plan contains policies that require the development of Risk Management Plans (RMPs) to manage some drinking water threats.

Screening processes are in place at municipalities to ensure applications for future development are reviewed appropriately for potential threat activities and source protection policy application.

Overall, 150 RMPs are in place within the CTC. Eleven of these RMPs were established in 2021, with an additional 29 RMPs in the process of being completed as of the end of the year. As was the case in 2020, progress on RMPs was affected by pandemic related restrictions and challenges.

An estimated 205 RMPs remain to be negotiated to address existing significant threats, with 198 of these required to be in place by the end of 2023. As building relationships and negotiating RMPs with business and property owners is a time-consuming process, it is unlikely that all municipalities in the CTC Region will achieve the 2023 deadline for completion of RMPs.

There were 113 inspections carried out in 2021 by a Risk Management Inspector for prohibited or regulated activities; the most inspections completed in any year to date. There was 100% compliance with RMPs and prohibited activities that were inspected.

## 5. Provincial Progress: Addressing Risks on the Ground

P : Progressing Well/On Target

Ontario ministries review applications for new or amended provincial approvals (i.e., prescribed instruments, such as environmental compliance approvals under the *Environmental Protection Act*) where they have been identified as a tool in our plan to address activities that pose a significant risk to sources of drinking water. The Province has established Standard Operating Policies to ensure that approvals take into account the science generated through the Drinking Water Source Protection Program and policies in the plan. Where necessary, conditions are added to approvals to ensure that the activity does not pose a significant threat to sources of drinking water. The Ministries have reported 100% completion of previously issued provincial approvals in our source protection region.

Provincial ministries also consider source protection vulnerability when prioritizing sites for planned or proactive inspections. Ministry staff continue to receive training on the source protection program, their annual reporting requirements, and recent amendments to the Director's Technical Rules.

## 6. Source Protection Awareness and Change in Behaviour

Municipalities, conservation authorities and other implementing bodies within the CTC Source Protection Region work with landowners and business owners to help safeguard our sources of drinking water. All municipalities across the CTC have established education and outreach programs, which contribute to enhancing awareness of source water protection. Examples of 2021 efforts to build awareness include:

- Wellington County collaborated with a neighbouring municipality on a virtual Children's Water Festival in May, that drew participation from 178 schools.
- Peel Region and Credit Valley Conservation are using their Rural Water Quality Program to support implementation of agricultural Risk Management Plans.
- The City of Pickering produced two videos in 2021 about water resources protection as part of its Litter and Plastics Challenge: Every Piece Counts campaign.
- Peel Region supported landowners in the decommissioning of 35 unused private wells through their Private Well Abandonment Program in 2021, eliminating potential transport pathways for contaminants to reach aquifers.
- Peel Region initiated a Pilot Program for use of winter maintenance best management practices at the Region's municipal wells.
- York Region supplied spill kits to businesses in source protection vulnerable areas
- The Lake Ontario Collaborative Group partners (Peel, Toronto, Durham) continued to develop the Lake Ontario Hydrodynamic and Water Quality Forecasting System, including the addition of new monitoring stations and modelling solutions, as well as updating spills notification protocols.

## 7. Source Protection Plan Policies: Summary of Delays

The development of a Joint Municipal Water Supply Management Model (policy DEM-6) for several area municipalities within Dufferin County is nearing completion as 3 of 4 municipal councils passed resolutions to execute the agreement.

Provincewide, all Source Protection Plans were required to include policies to address significant drinking water threats. The CTC Source Protection Committee chose to also include policies to address moderate and low drinking water threats. These moderate and low drinking water threat policies relate to the application of road salt, the handling and storage of certain chemicals and provision of education and outreach materials. Since the implementation of these moderate and low threat policies (SAL-10, SAL-12, SAL-13, DNAP -3, OS -3, GEN-8) is non-legally binding, their implementation status varies across the source protection region.

## 8. Source Water Quality: Monitoring and Actions

Fourteen drinking water issues have been identified at wells in four drinking water systems in our Source Protection Region. For these drinking water systems, the Source Protection Plan requires that the municipality establish more frequent raw water quality monitoring to help further characterize concentrations and trends. All municipalities have monitoring and treatment systems in place to ensure that municipal drinking water meets the requirements under the *Safe Drinking Water Act, 2002*.

In the Orangeville Drinking Water System, five wells have been identified with chloride issues and three wells with sodium issues. While chloride concentrations in two of the wells continue to rise, levels in three of the wells appear to have stabilized over the last few years. Sodium concentrations in most of the affected wells are increasing.

In the Acton Drinking Water System, two wells have been identified with nitrate issues. Nitrate concentrations appear to be stable or increasing slightly.

In the Georgetown Drinking Water System, three wells have been identified with chloride issues and concentrations are increasing.

A pathogen issue was previously identified at 1 well in the Inglewood Drinking Water System. This well was decommissioned in 2021 and is no longer used as a source of drinking water.

Over time, monitoring will help determine if implementation of Plan polices and other actions are improving the raw water quality for these systems.

## 9. Science-based Assessment Reports: Work Plans

The Source Protection Committee is guiding a multi-year comprehensive review and update of the CTC Source Protection Plan and Assessment Reports under s.36 of the *Clean Water Act, 2006*.

## 10. More from the Watershed

To learn more about our source protection region, visit our website at <https://ctcswp.ca/>

March 23, 2022

Jennifer Innis  
Chair, Toronto and Region Source Protection Authority  
101 Exchange Avenue  
Vaughan, ON  
L4K 5R6

Dear Jennifer Innis:

The Credit Valley – Toronto and Region – Central Lake Ontario (CTC) Source Protection Plan has been in effect since December 31, 2015, having the primary objective of protecting current and future sources of drinking water from contamination and overuse.

In accordance with Ontario Regulation 287/07, the Toronto and Region Source Protection Authority (TRSPA) is required to submit an annual progress report to the Ministry of the Environment, Conservation and Parks (MECP) by May 1, 2022. The fifth CTC annual progress report documents the status of policy implementation, progress in achieving the source protection plan objectives, and implementation efforts between January 1 and December 31, 2021 (see attached).

On March 22, 2022, the CTC Source Protection Committee (the Committee) reviewed the annual progress report and passed the following resolutions:

THAT the CTC Source Protection Committee receive the staff report Implementation of CTC Source Protection Plan (2021) – Annual Progress Report for information;

AND THAT in the opinion of the CTC Source Protection Committee, implementation of the Source Protection Plan has progressed well but is short of target in achieving the plan’s objectives.

AND THAT CTC staff be directed to submit the CTC Source Protection Committee’s comments on implementation progress to the Credit Valley, Toronto and Region, and Central Lake Ontario Source Protection Authorities for inclusion in the annual progress report.

At the time the Plan was made effective in 2015, over 10,000 significant drinking water threats were identified in the CTC Source Protection Region. Since then, field verification has reduced that number to 6,195 significant threats. At the end of the current reporting period, only 325 (about 5%) significant threats remain to be addressed. Additionally, 96% of legally binding policies that address significant drinking water threats are implemented. Thus, the Committee determined that implementation of the CTC Source Protection Plan is progressing well overall.

Notwithstanding, the Committee notes the continued limited progress in establishing risk management plans (RMPs) for existing significant drinking water threats. The Committee acknowledges that the COVID-19 pandemic constrained the ability of municipal risk management officials to engage property and business owners and conduct site visits over

the past two years. Nevertheless, while 150 RMPs have been established in the CTC Region, another 198 RMPs remain to be negotiated by the December 31, 2023 implementation deadline. It is therefore unlikely that all municipalities in the CTC Region will meet the 2023 implementation deadline.

The Committee will continue to work with source protection authority and municipal staff to review source protection plan policies requiring RMPs and seek ways to advance RMP completion.

The Committee noted as well that completion of septic system inspections also has been delayed by the pandemic. After limited progress in conducting inspections in 2020, inspections satisfactorily in 2021. However, 231 inspections (77% of the total required) remain to be completed in 2022, the final year of the 5-year inspection cycle.

The Committee draws attention to a final point. Under the source protection plan, municipalities monitor and report on raw water quality from wells in vulnerable areas with known drinking water issues. Trend analysis suggests increasing sodium and chloride concentrations for most of the municipal wells with identified issues in the drinking water systems for Orangeville and Georgetown.

These reasons contributed to the Committee's conclusion that overall progress in achieving the Plan's objectives falls short of target. Continued monitoring and assessment of raw water quality is required to determine whether the policies in the plan are sufficient to prevent future drinking water issues.

Specific to the TRSPA jurisdiction, three significant drinking water threats remain to be addressed and three RMPs are needed. About 80 of the remaining septic system inspections are within the TRSPA jurisdiction.

The TRSPA is now tasked with considering the annual progress report and submitting it to the MECP together with any comments the SPA wishes to make. Similarly, both Central Lake Ontario and Credit Valley SPAs are reviewing the comments received from the CTC Source Protection Committee and will report their assessment of implementation status to the Ministry within the same timeframe.

If you have any questions regarding this letter, or the CTC Source Protection Plan 2021 Annual Progress Report, please contact Janet Ivey at 437-247-8078 or janet.ivey@cvc.ca.

Sincerely,

A handwritten signature in cursive script that reads "Doug Wright".

Doug Wright  
Chair, CTC Source Protection Committee

Attachment A: Source Protection Annual Progress Report (2021)

## CTC Source Protection Region

Source Protection Committee



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Copy to:

John MacKenzie, Chief Executive Officer, Toronto and Region Conservation Authority  
Janet Ivey, Chief Specialist, Watershed Plans and Source Water Protection, Credit Valley Conservation



March 23, 2022

Bob Chapman  
Chair, Central Lake Ontario Source Protection Authority  
100 Whiting Avenue  
Oshawa, ON  
L1H 3T3

Dear Bob Chapman:

The Credit Valley – Toronto and Region – Central Lake Ontario (CTC) Source Protection Plan has been in effect since December 31, 2015, having the primary objective of protecting current and future sources of drinking water from contamination and overuse.

In accordance with Ontario Regulation 287/07, the Central Lake Ontario Source Protection Authority (CLOSPA) is required to submit an annual progress report to the Ministry of the Environment, Conservation and Parks (MECP) by May 1, 2022. The fifth CTC annual progress report documents the status of policy implementation, progress in achieving the source protection plan objectives, and implementation efforts between January 1 and December 31, 2021 (see attached).

On March 22, 2022, the CTC Source Protection Committee (the Committee) reviewed the annual progress report and passed the following resolutions:

THAT the CTC Source Protection Committee receive the staff report Implementation of CTC Source Protection Plan (2021) – Annual Progress Report for information;

AND THAT in the opinion of the CTC Source Protection Committee, implementation of the Source Protection Plan has progressed well but is short of target in achieving the plan's objectives.

AND THAT CTC staff be directed to submit the CTC Source Protection Committee's comments on implementation progress to the Credit Valley, Toronto and Region, and Central Lake Ontario Source Protection Authorities for inclusion in the annual progress report.

At the time the Plan was made effective in 2015, over 10,000 significant drinking water threats were identified in the CTC Source Protection Region. Since then, field verification has reduced that number to 6,195 significant threats. At the end of the current reporting period, only 325 (about 5%) significant threats remain to be addressed. Additionally, 96% of legally binding policies that address significant drinking water threats are implemented. Thus, the Committee determined that implementation of the CTC Source Protection Plan is progressing well overall.

Notwithstanding, the Committee notes the continued limited progress in establishing risk management plans (RMPs) for existing significant drinking water threats. The Committee acknowledges that the COVID-19 pandemic constrained the ability of municipal risk management officials to engage property and business owners and conduct site visits over

the past two years. Nevertheless, while 150 RMPs have been established in the CTC Region, another 198 RMPs remain to be negotiated by the December 31, 2023 implementation deadline. It is therefore unlikely that all municipalities in the CTC Region will meet the 2023 implementation deadline.

The Committee will continue to work with source protection authority and municipal staff to review source protection plan policies requiring RMPs and seek ways to advance RMP completion.

The Committee noted as well that completion of septic system inspections also has been delayed by the pandemic. After limited progress in conducting inspections in 2020, inspections satisfactorily in 2021. However, 231 inspections (77% of the total required) remain to be completed in 2022, the final year of the 5-year inspection cycle.

The Committee draws attention to a final point. Under the source protection plan, municipalities monitor and report on raw water quality from wells in vulnerable areas with known drinking water issues. Trend analysis suggests increasing sodium and chloride concentrations for most of the municipal wells with identified issues in the drinking water systems for Orangeville and Georgetown.

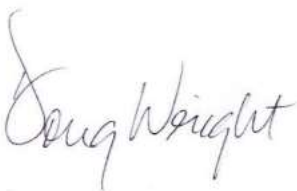
These reasons contributed to the Committee's conclusion that overall progress in achieving the Plan's objectives falls short of target. Continued monitoring and assessment of raw water quality is required to determine whether the policies in the plan are sufficient to prevent future drinking water issues.

The remaining significant drinking water threats to be addressed and RMPs required in CTC all fall within the Toronto and Region and Credit Valley Source Protection Authorities. There are no septic system inspections required within the CLOSPA jurisdiction.

The CLOSPA is now tasked with considering the annual progress report and submitting it to the MECP together with any comments the SPA wishes to make. Similarly, both Toronto and Region and Credit Valley SPAs are reviewing the comments received from the CTC Source Protection Committee and will report their assessment of implementation status to the Ministry within the same timeframe.

If you have any questions regarding this letter, or the CTC Source Protection Plan 2021 Annual Progress Report, please contact Janet Ivey at 437-247-8078 or [janet.ivey@cvc.ca](mailto:janet.ivey@cvc.ca).

Sincerely,

A handwritten signature in cursive script that reads "Doug Wright".

Doug Wright  
Chair, CTC Source Protection Committee

Attachment A: Source Protection Annual Progress Report (2021)

## CTC Source Protection Region

Source Protection Committee



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Copy to:

Chris Darling, Chief Administrative Officer, Central Lake Ontario Conservation Authority  
Janet Ivey, Chief Specialist, Watershed Plans and Source Water Protection, Credit Valley Conservation

## Jacques, Craig

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**From:** protection, source (MECP) <source.protection@ontario.ca>  
**Sent:** Monday, May 2, 2022 9:45 AM  
**To:** Jacques, Craig  
**Cc:** Ivey, Janet; Wilmot, Rod; Mulchansingh, Kerry; Don Ford; Moulton, Jennifer L. (MECP); Lavender, Wendy (MECP); Forrest, Beth; Halder, Michael (MECP)  
**Subject:** [External] RE: CTC Source Protection Region 2021 Annual Reporting Submission

You don't often get email from source.protection@ontario.ca. [Learn why this is important](#)

**[CAUTION]** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe. If in doubt contact help211@cvc.ca

This email is to acknowledge receipt of your 2021 annual progress report for the CTC source protection region received under Section 46 of the *Clean Water Act, 2006*.

The ministry appreciates your work in completing the annual progress report which provides valuable information on local source protection efforts.

As we review your submission, branch staff may contact you if additional information or clarification is necessary. In the interim, should you have any questions or comments on annual progress reporting, please contact Michael Halder, Program Analyst (Acting) at 437-230-2135 or [Michael.Halder@ontario.ca](mailto:Michael.Halder@ontario.ca). Please copy your Liaison Officer on any inquiries.

*Sent on behalf of*

**Jennifer Moulton** (she/her)  
(A) Manager, Source Protection Section  
Conservation and Source Protection Branch  
Ministry of the Environment, Conservation and Parks  
Cell: 519.860.7851  
[Jennifer.l.moulton@ontario.ca](mailto:Jennifer.l.moulton@ontario.ca)

---

**From:** Jacques, Craig <craig.jacques@cvc.ca>  
**Sent:** April 29, 2022 5:12 PM  
**To:** Halder, Michael (MECP) <Michael.Halder@ontario.ca>; Forrest, Elizabeth (MECP) <Elizabeth.Forrest@ontario.ca>  
**Cc:** Ivey, Janet <Janet.ivey@cvc.ca>; Wilmot, Rod <rwilmot@cloca.com>; Mulchansingh, Kerry <Kerry.Mulchansingh@cvc.ca>; Don Ford <Don.Ford@trca.ca>  
**Subject:** CTC Source Protection Region 2021 Annual Reporting Submission

**CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.**

Hi Michael:

On behalf of the CTC Source Protection Region, I am pleased to submit the 2021 CTC annual progress reporting results, along with supporting documentation from the CTC Source Protection Committee and the Credit Valley, Toronto Region and Central Lake Ontario Source Protection Authorities.

Please find attached:

1. Submission cover letters from each of the Credit Valley, Toronto Region and Central Lake Ontario Source Protection Authorities.
2. The 2021 CTC Annual Progress Report
3. The 2021 CTC Annual Progress Report-Supplemental Form
4. Copies of the letters sent by the CTC Source Protection Committee to each of the 3 Source Protection Authorities regarding its review of the Annual Progress Report.

Further, I would like to note that the CTC's annual reporting results for 2021 are now available to be downloaded via <https://ear.swpip.ca/>.

Regards,

I'm working remotely. The best way to reach me is by email, phone or Microsoft Teams. Please leave a message and I will respond as soon as I can.

**Craig Jacques** | he/him/his

Specialist, Watershed Plans and Source Water Protection | Credit Valley Conservation

905-670-1615 ext 551 | M: 647-929-6078

[craig.jacques@cvc.ca](mailto:craig.jacques@cvc.ca) | [cvc.ca](http://cvc.ca)



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