

EXECUTIVE SUMMARY

Why Should You Read this Document?

This *Draft Proposed Assessment Report: Toronto and Region Source Protection Area* (TRSPA) has been prepared for TRSPA (**Figure ES.1**) under the direction of the CTC Source Protection Region Source Protection Committee. It is a requirement of the *Clean Water Act, 2006* (CWA) and Ontario Regulation (O. Reg.) 287/07 as amended by O. Reg. 59/10. The *Draft Assessment Report: TRSPA* has been developed in accordance with the regulations, the *Technical Rules: Assessment Report* (MOE, 2009) and the Terms of Reference: TRSPA, as approved by the Minister of the Environment.

This draft of the proposed Assessment Report identifies the location and nature of potential risks to sources of municipal drinking water. These risks include activities that are adversely impacting, or could impact, drinking water quality or quantity from groundwater and/or surface water sources.

Source Protection Committees determine risks to drinking water sources by delineating and applying vulnerability scores to four types of vulnerable areas, where they exist, within each Source Protection Area, as discussed in the legislation. These four areas are

- intake protection zones (IPZs);
- highly vulnerable aquifers (HVAs);
- significant groundwater recharge areas (SGRAs); and
- wellhead protection areas (WHPAs).

Detailed information about how these vulnerable areas were delineated and scored can be found in **Chapter 4**. This report identifies and describes each of these types of vulnerable areas within the TRSPA, per the *Technical Rules* prescribed by the Ministry of the Environment for the preparation of assessment reports. Below are four maps showing the vulnerable areas for TRSPA. Descriptions, scoring, and documentation on the analyses performed to arrive at these delineations are all contained in the body of this report or in the referenced technical appendices.

The IPZ-1 and IPZ-2 map (**Figure ES.2**) indicates areas near a drinking water intake where a contaminant spill could reach the intake before a plant operator is able to respond. In TRSPA, there are ten municipal drinking water system intakes which are sourced from Lake Ontario. These intakes supply drinking water to over 3,250,000 people within the TRSPA. The IPZ-1 is based on drawing a 1 km radius around each intake. IPZ-2 is based on estimating the distance a contaminant might move in two hours along the water surface. This IPZ-2 is calculated from the water intake crib outwards under *ten-year storm wind conditions*. Further work is being completed for an amended Assessment Report that will delineate IPZ-3s based on if, and how far, a major contaminant release could travel from shore to each water intake. More details about this work can be found in **Chapter 4** of this report.

Ten-year storm wind conditions: The maximum sustained wind speed coming from a single direction likely to occur once every ten years.

The SGRA map (**Figure ES.3**) indicates areas where a high percentage of rain or snow seeps down into the ground and flows to an aquifer that is used for drinking water (including both municipal and other users). These areas are delineated in **Chapter 4** using the recharge results

from the water budget process described in **Chapter 3** of this report. Under the CWA, the CTC Source Protection Committee may choose to develop policies to protect SGRAs within TRSPA.

The HVA map (**Figure ES.4**) indicates areas where an aquifer has been determined to be highly vulnerable to surface contaminants. Extra caution should be taken when constructing wells in vulnerable aquifers. Water well construction standards are set out in O.Reg. 903 under the *Ontario Water Resource Act*. Under the CWA, the CTC Source Protection Committee may choose to develop policies to protect HVAs within TRSPA.

The WHPA map (**Figure ES.5**) indicates areas around municipal groundwater systems where certain activities are more likely to negatively impact a drinking water source. **Chapter 4** of this report provides detailed maps for each of the municipal groundwater systems within the TRSPA.

Figure 4.4: Caledon East WHPAs

Figure 4.5: Palgrave WHPAs

Figure 4.6: Nobleton WHPAs

Figure 4.7: Kleinburg WHPAs

Figure 4.8: King City WHPAs

Figure 4.9: Whitchurch-Stouffville WHPAs

Figure 4.10: Uxville WHPAs

The Source Protection Plan (SPP) will identify the actions required to reduce, manage, or eliminate current threats to municipal drinking water sources, as well as to prevent future threats. The SPP will also set out requirements for the regular monitoring and reporting on the implementation of the SPP. Public consultation will be an important part of developing the SPP. When the SPP is approved, the Minister of the Environment will set the date by which the SPP must be reviewed and updated, as necessary.

What Does All This Mean?

This Assessment Report describes the physical features and water resources within the Toronto and Region Source Protection Area (TRSPA) jurisdiction. Using approved provincial methodologies it delineates vulnerable areas and assesses specific activities on the landscape within these vulnerable areas as that could be drinking water threats. It should be noted that municipal drinking water supplies for the TRSPA jurisdiction come from both groundwater and surface water sources.

The analyses of the Watershed Characterization component in **Chapter 2** of this Assessment Report reveal Groundwater quality across the TRSPA is generally high, with naturally elevated iron, manganese, and hardness in the deeper groundwater. Surface water quality in the streams discharging into Lake Ontario shows some elevated chlorides and phosphorus levels as compared against ecosystem and aquatic life standards (Canadian Water Quality Guidelines). These contaminants are thought to be associated with the impact of urbanization within the TRSPA. The surface water in these streams is not used as a drinking water supply.

The water budget analysis in **Chapter 3** of this Assessment Report assesses potential water quantity stress in both surface water (not including Lake Ontario) and groundwater. Groundwater sources in TRSPA are used for drinking water supplies for both municipal and private wells, and to support ecosystem functions. The surface water in streams in the study area is important for supporting the ecosystem, and is also used for irrigation and other non-drinking-water purposes.

Based on the Tier 2 water budget analysis the TRSPA has determined that five subwatersheds were found to have moderate or significant groundwater stress levels and 17 subwatersheds

have moderate or significant surface water stress levels during summer months. Of these potentially stressed watersheds only two are associated with a municipal drinking water source and will be assessed at the Tier 3 level. The Tier 3 analysis will be released in an amended Assessment Report and is led by the York Region in partnership with TRCA and the Durham Region. All other catchments in the study area have low stress levels for both groundwater and surface water.

Chapter 4 assesses and scores vulnerability in all vulnerable areas in TRSPA (IPZs, HVAs, SGRAs and WHPAs). The IPZs for the study area (IPZ-1s and IPZ-2s) were all ranked as having low vulnerability. The results of the TRSPA HVA and SGRA vulnerability analyses reflect the presence of many shallow aquifers that are naturally vulnerable. WHPA delineation and scoring has been completed for every municipal groundwater system within the TRSPA, identifying areas where certain types of activities may pose drinking water threats.

In **Chapter 5**, vulnerability is considered together with provincial hazard scores outlined in the Table of Drinking Water Threats (*Technical Rules*, MOE, 2009) for the various activities and their associated chemicals and pathogens to determine a risk score. Using both the natural vulnerability and hazard scores, potential drinking water threats are ranked as significant, moderate, or low in each one of the vulnerable areas (IPZs, HVAs, SGRAs and WHPAs). Significant threats must be identified and located in the assessment report and addressed in the Source Protection Plan. If the activity is categorized as a moderate or low-level threat, the province requires only the identification of all of the circumstances that could pose a threat to drinking water by reference to the [Provincial Tables of Circumstances](http://www.ene.gov.on.ca/en/water/cleanwater/provincialTables.php) (<http://www.ene.gov.on.ca/en/water/cleanwater/provincialTables.php>). In the absence of field verification it should be noted that enumerated threats may not actually exist within the vulnerable areas discussed.

There are no significant drinking water quality threats related to surface water intakes and 494 significant drinking water quality threats related to groundwater systems in this Assessment Report. Additional work underway in the Tier 3 water budget and Lake Ontario IPZ-3 analyses may identify additional significant drinking water threats for the study area.

How Can People Be Involved?

The release of this Draft Assessment Report: TRSPA begins a 35-day public comment period that ends on October 20, 2010. This is your opportunity to provide advice and comment on the technical work being completed to support source protection planning with in TRSPA.

The Source Protection Committee will host 5 public meetings in TRSPA in September/October to provide more information, answer questions, and receive comment on this *Draft Proposed Assessment Report: TRSPA*. Details of these meetings can be found at www.ctcswp.ca.

You may make comments in writing until October 20, 2010` to:

sourcewater@trca.on.ca,

or by regular mail to:

Chair, CTC Source Protection Committee
c/o Toronto and Region Conservation Authority
5 Shoreham Drive
Downsview, ON M3N 1S4

or by fax to: 416-661-6898 - Attention Chair, CTC Source Protection Committee

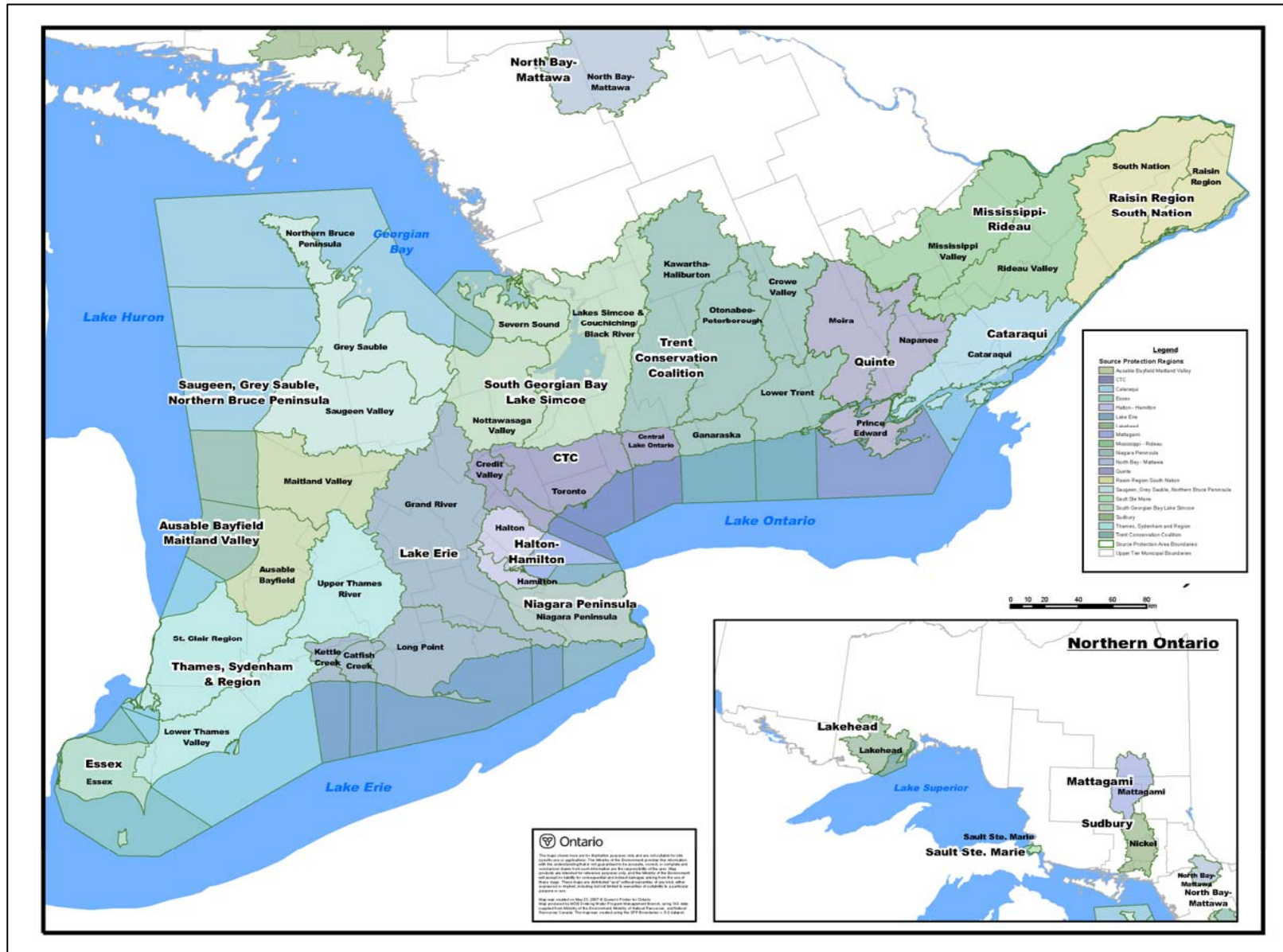


Figure ES.1: Source Protection Regions and Source Protection Areas in Ontario

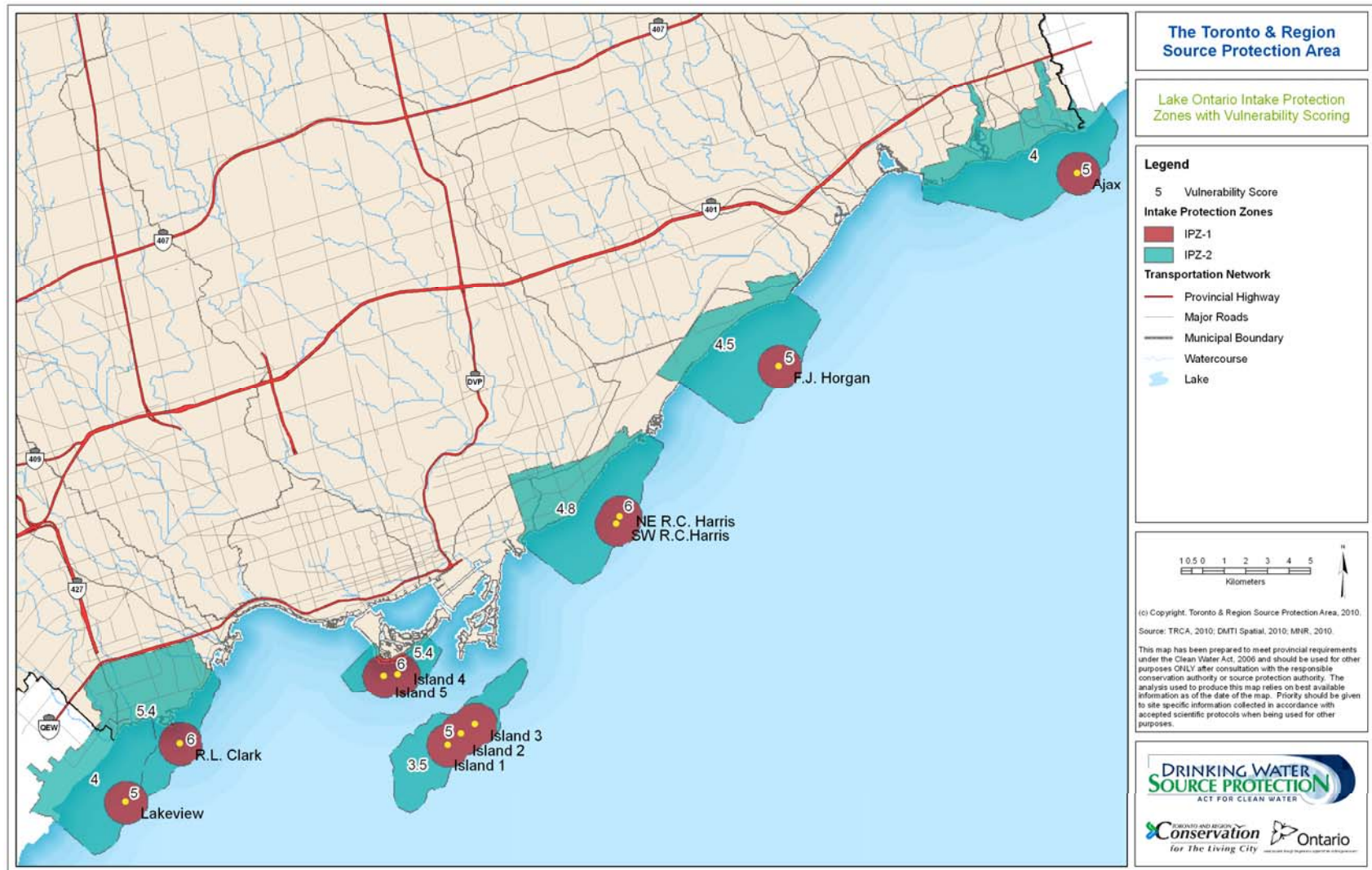


Figure ES.2: Intake Protection Zones Delineation 1 and 2 and Vulnerability Scoring

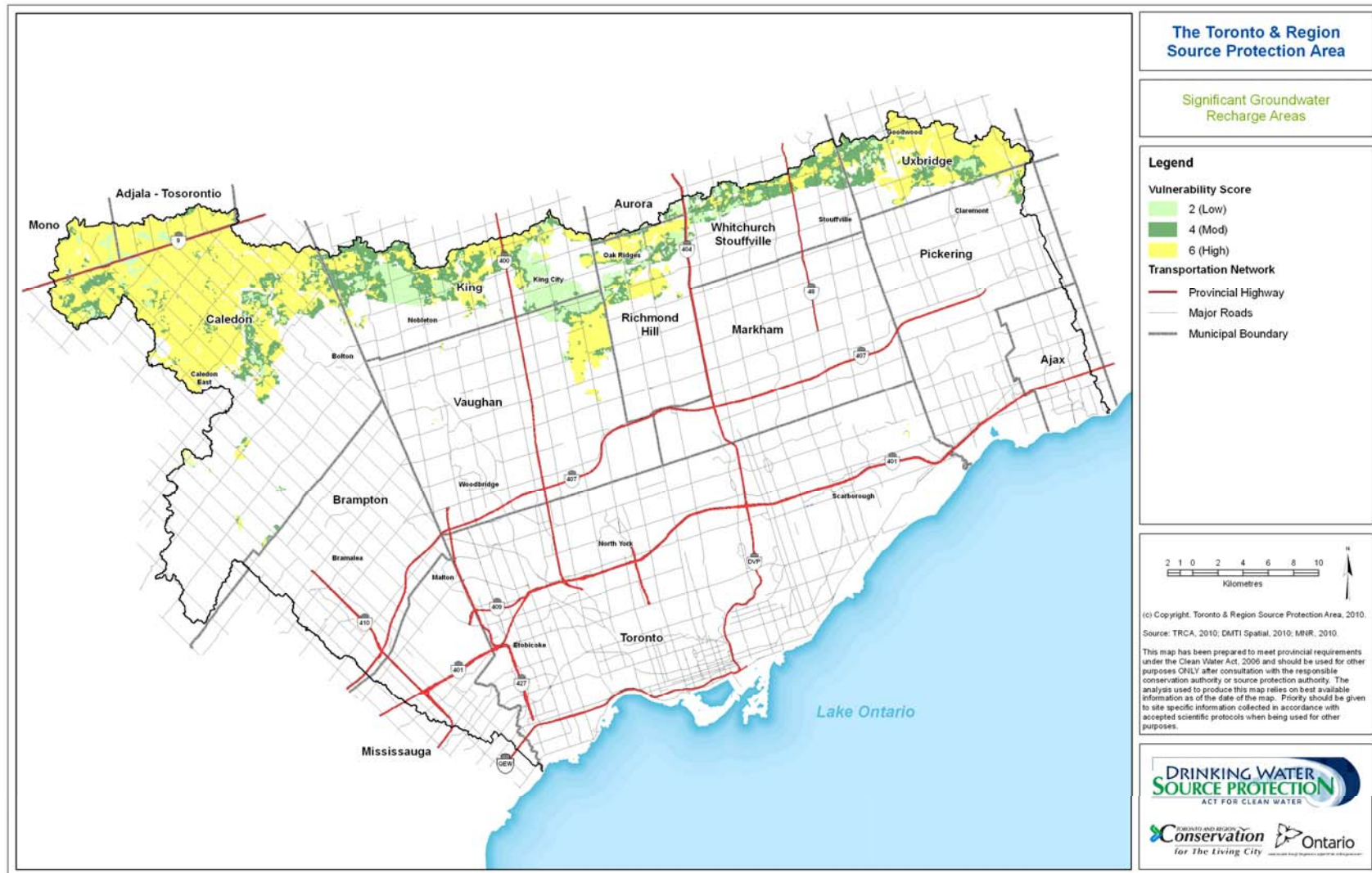


Figure ES.3: Significant Groundwater Recharge Areas (SGRAs) and Vulnerability Scores

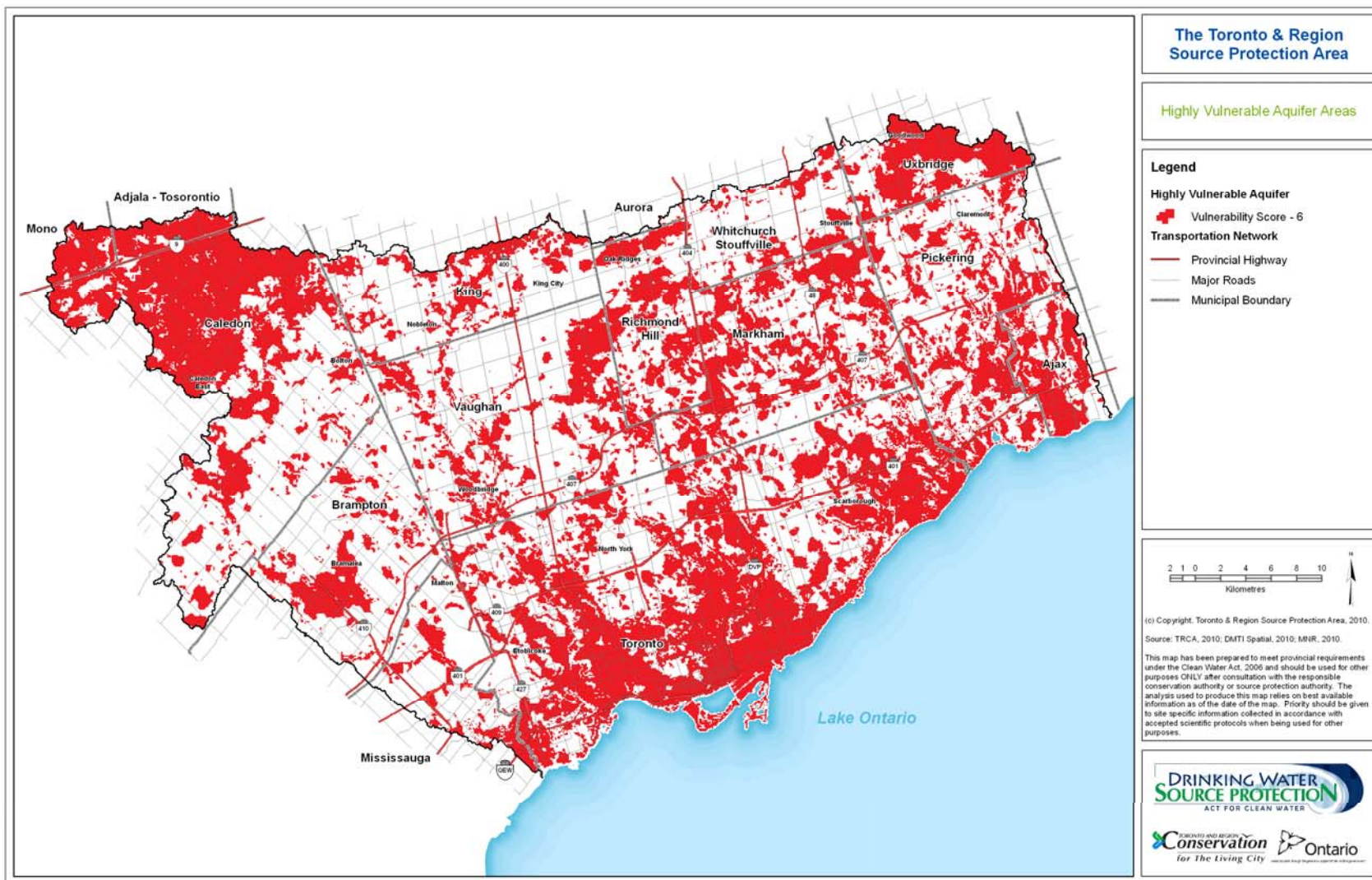


Figure ES.4: Highly Vulnerable Aquifers (HVAs) and Vulnerability Scores

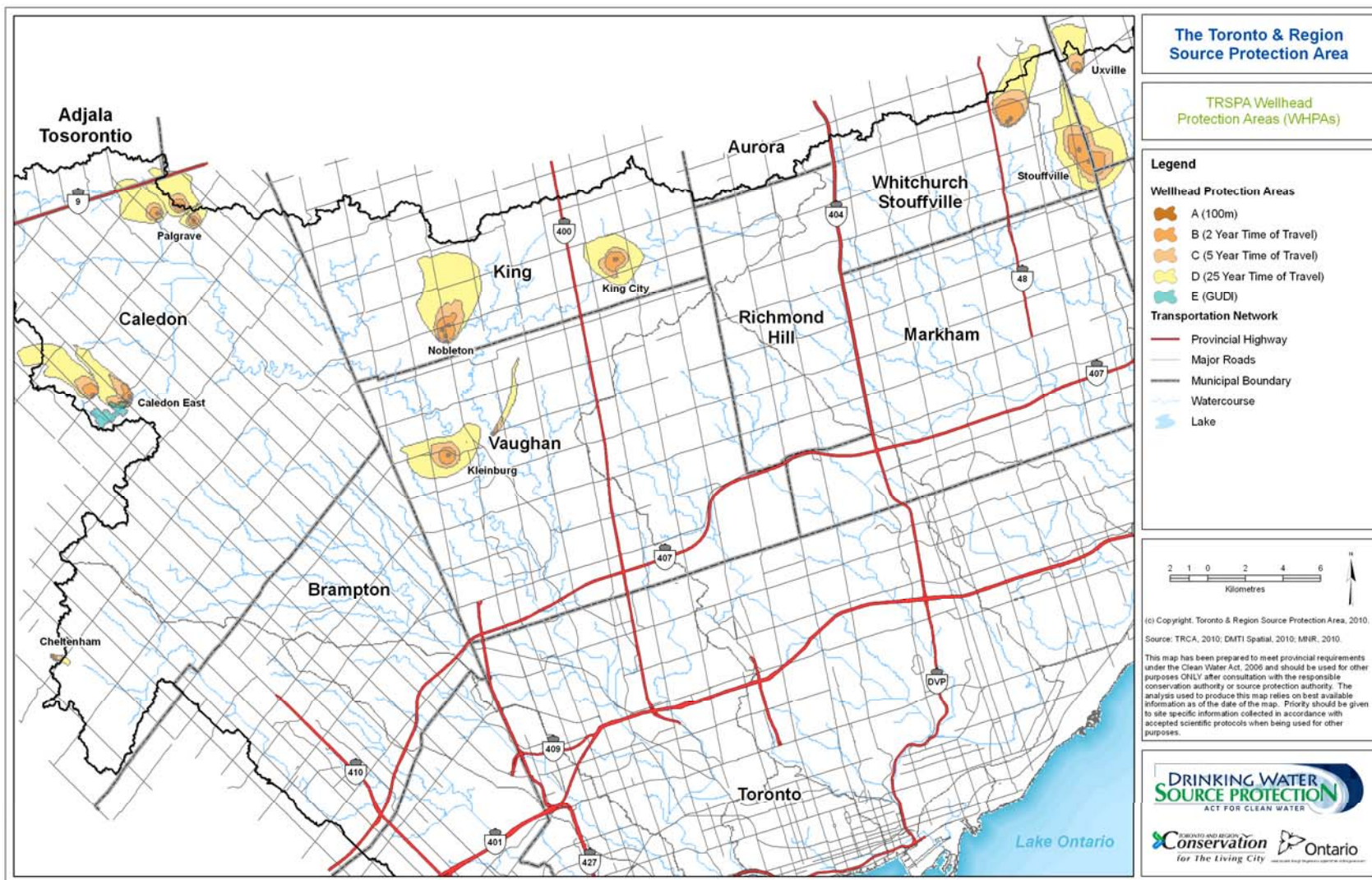


Figure ES.5: Wellhead Protection Areas (WHPAs)