

Belleville's Drinking Water Source - System Summary

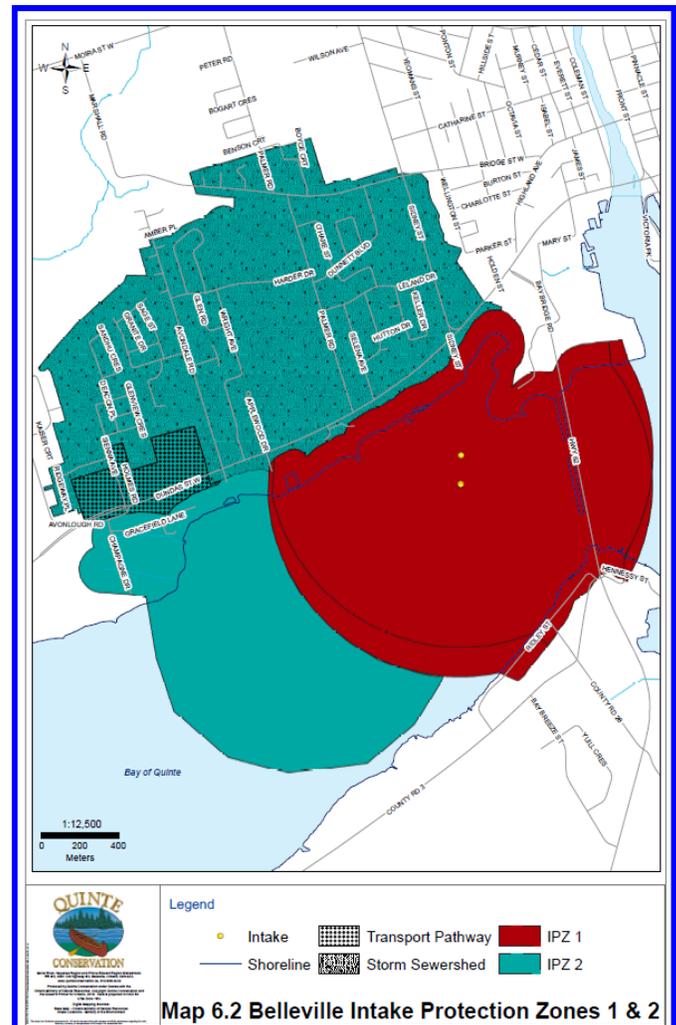
Drinking Water From the Bay of Quinte

The Bay of Quinte is the source of drinking water for the City of Belleville. The City of Belleville has a population approaching 50,000 residents, of which 40,000 are connected to municipal water. The Gerry O'Connor water treatment plant, located at the end of Sidney Street, takes water from the Bay of Quinte by one of two intake pipes. In addition to serving the City of Belleville, there are 400 residential customers in Prince Edward County (Rossmore and Fenwood Gardens) that receive their drinking water from the Gerry O'Connor plant. The plant was upgraded in 2001 and has reserve capacity for anticipated growth of 20 years.

Vulnerable Areas

Through the science of the Assessment Report (available at www.quintesourcewater.ca), maps were created showing which areas near the water intake pipes are most vulnerable to pollution and contamination. These areas are the Intake Protection Zones or IPZs. Three IPZs are identified; each with different levels of vulnerability or concern:

- **IPZ 1** is the zone closest to the intake. This is the area of highest concern because contaminants entering this zone can reach the intake quickly with little or no dilution.
- **IPZ 2** is a secondary protection zone. It is calculated based on how far water can travel during a two-hour time period. The contributing area to IPZ 2 was determined by considering water flow, wind and transport pathways. **This zone was amended in 2019 to include newly developed land that falls within the two-hour time of travel.**
- **IPZ 3** is the total area of drainage that contributes to the intake. The Bay of Quinte upstream or west of the intake, and that contributing watershed, make up the IPZ 3. However, the intake at Bayside in Quinte West just west of the Belleville Intake is being studied by the Trent Conservation Coalition Source Protection Region, so for this study the IPZ 3 stops where the Trent Conservation Coalition study begins. (See map on reverse.) This avoids duplication of work and associated costs.



Vulnerability Scores

Vulnerability scores quantify how vulnerable the drinking water source is to contamination. Scores are calculated based on the characteristics of the intake and IPZs around the intake, taking into account how contaminants might move through them. An area with a higher vulnerability score is more likely to allow contaminants from that area to reach the drinking water intake. The vulnerability score of the highest concern is 10. The vulnerability scores for the Belleville Main Intake are: **IPZ 1 = 9, IPZ 2 = 8.1, IPZ 3 = 7.2.**

Drinking Water Issues

Drinking water issues are chemicals or bacteria in the untreated water that exceed allowable values. The raw water quality data that represent conditions at the Belleville Main Intake was screened to identify issues in the source water of the Bay of Quinte which may contribute to degraded water quality. Using a 4-step screening process it was confirmed that no issues in the raw water exist. The blue-green algae toxin Microcystin-LR was identified as a concern meriting further study.

Drinking Water Threats

Two significant threats to the drinking water source were identified: one activity based and the other as a result of an existing condition. Activity-based threats within the IPZs were evaluated. These threats are based on the categories prescribed by the Ministry of the Environment and Climate Change. Threats were inventoried by field observations, air photos and satellite images, existing databases and landowner contact. These threats were then ranked as significant, moderate or low.

There was one activity-based significant threat found in the IPZ1 and none identified in the IPZ2. The identified activity based significant threat type in IPZ1 is the:

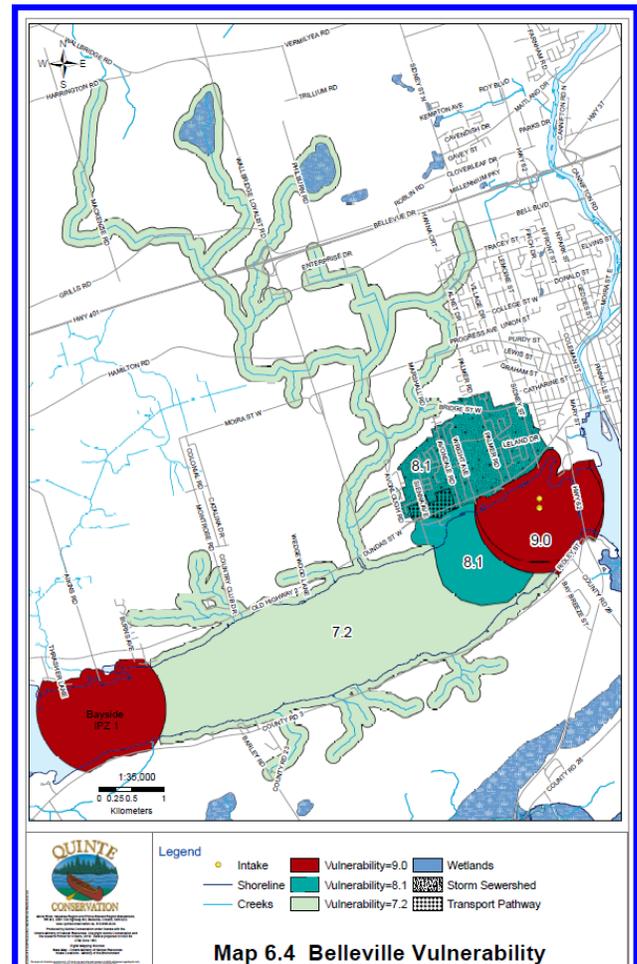
- establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.

The amendment of the intake protection zone two in 2019 did not result in the creation of any new significant drinking water threats.

Conditions are past land use activities that have resulted in contamination that could affect our drinking water sources. A review of land use conditions in the Belleville IPZs identified the closed Zwicks Island Landfill as a significant condition-based threat in IPZ 1. Moderate and low threats are shown in tables in the Assessment Report.



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Source Protection Plan

The Approved Quinte Region Source Protection Plan includes policies, developed by the Source Protection Committee in consultation with the local community. The 63 policies in the plan address the drinking water threats identified in the science-based Assessment Report. The Assessment Report, identified the vulnerable areas surrounding the 11 municipal drinking water sources in the Quinte Region and ranked the threats as significant, moderate or low.

The source protection planning process is governed by the *Clean Water Act, 2006* and directed and funded by the Ontario Ministry of the Environment, Conservation and Parks. The Quinte Region Source Protection Plan came into effect January 1, 2015. **The effective date for policies within the amended IPZ 2 is September 16, 2019.**

For more information, including the complete Assessment Report and the Source Protection Plan, visit:

www.quintesourcewater.ca