

The Greensville Municipal Well Supply

The municipal drinking water system for Greensville is included in the Halton-Hamilton Drinking Water Source Protection program under the Ontario *Clean Water Act, 2006*.

Source protection is the first step toward safeguarding our drinking water, followed by adequate treatment, safe distribution and regular testing. Protecting sources of drinking water – whether groundwater or the lake – eases the strain on costly treatment processes and reduces the need to find alternate sources.

The Greensville municipal system is owned and operated by the City of Hamilton. It is the only municipal well-based system that exists in the Hamilton Region Source Protection Area. The system uses one well – FDG01 – to extract groundwater to service 36 homes. The well was constructed in 1972 and upgraded with the installation of a liner and adequate seal at surface. The well extends to a depth of 12.2 metres and taps into a bedrock aquifer. A backup well - FDG02 - is being commissioned.

Drinking water quality to preserve and protect

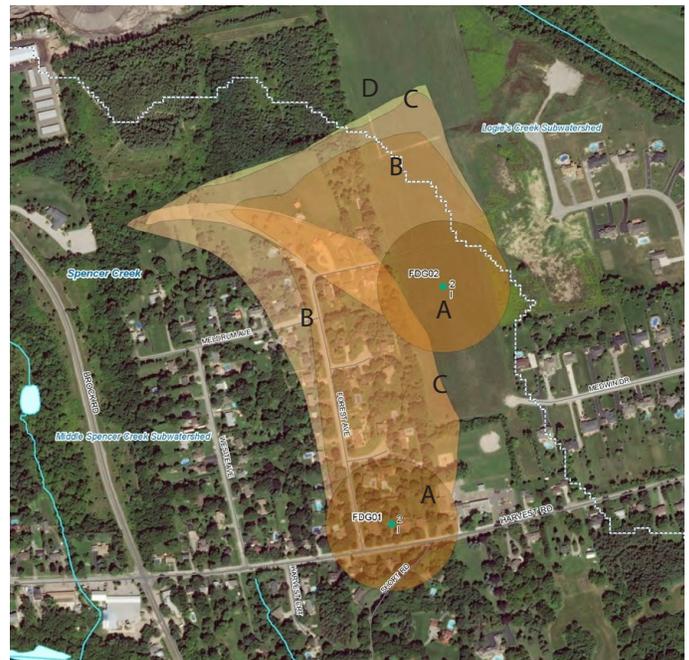
A wellhead protection area (WHPA) is the surface area under which water flows through an aquifer to a pumping well. WHPAs are mapped to identify the areas to be protected. Existing and potential activities that could contaminate the groundwater supplying municipal wells have been listed.

A calibrated groundwater flow model is considered the best science-based method for identifying wellhead protection areas and determining the vulnerability of the area to contamination from activities. A groundwater flow model was used to assess the Greensville municipal well supply.

The level of risk to the water quality at a well reflects the time it takes for a contaminant to travel to the well and the time for authorities to react.

The wellhead protection areas for the Greensville wells are divided into the following parts:

- WHPA-A – an area of 100 metre radius around the wellhead
- WHPA-B – the zone through which it takes groundwater up to 2 years to reach the well
- WHPA-C – the zone through which it takes groundwater 2 to 5 years to reach the well
- WHPA-D – the zone through which it takes groundwater 5 to 25 years to reach the well



Based on the results of groundwater and treated water analyses between 1999 and 2009, as measured at the Greensville well supply, no drinking water issues were identified. However, nitrate, sodium and chloride concentrations are higher than typical concentrations measured in the bedrock groundwater, and will be monitored. The quality of the source water is good and the treated water meets the provincial standards.

The Greensville municipal well system water source is at risk from the use of septic systems. This includes one large system used by the Greensville Community Centre/School and 36 private systems.

Drinking water quantity conservation is critical

The City of Hamilton holds a Permit To Take Water (PTTW) that allows the taking of up to 197 cubic metres per day from well FDG01. The operators manage the water taking to maintain a sustainable supply at much less than the permitted rate.

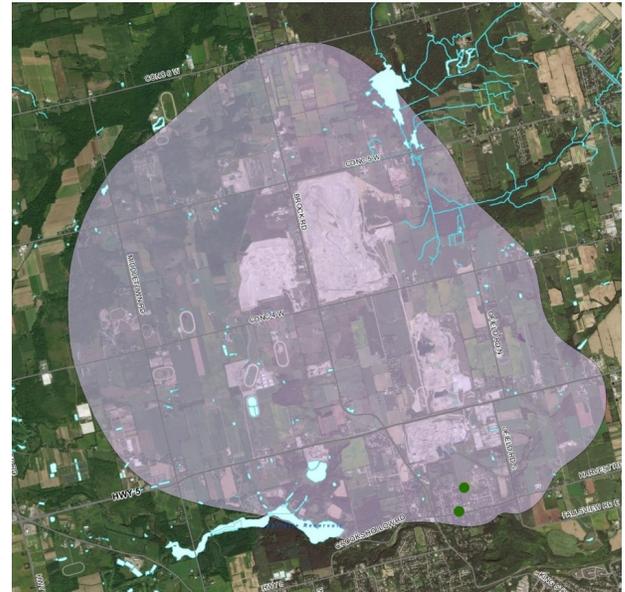
The Greensville municipal wells are located in the Middle Spencer Creek subwatershed, part of the Spencer Creek watershed that drains to Cootes Paradise. Surface water and groundwater stress assessments, completed for the year 2007, compared the supply and the demand on water resources. Users of water in the subwatershed include municipal, domestic, commercial, agriculture, aggregate operations, golf courses, food processing, a school and churches. Based on the assessments completed, the surface and groundwater needs within the Middle Spencer Creek subwatershed place stresses on the resources. Surface water stresses can be managed as long as conservation is practiced by all.

Studies were completed to assess the stresses on groundwater. A focused assessment of the sustainability of the Greensville municipal well system was completed in 2017 to include the backup well.

The water budget and water quantity risk assessment study shows that the Greensville municipal water system is under low risk of impacts to the quantity of water available for use. A number of scenarios were modelled to predict the system's ability to provide sufficient water supply for existing and allocated water demands for current and future land use conditions during both average climate and drought. No actions are required in low risk situations.

The water quantity protection area is large due to the cumulative impacts from all water users in the area, including quarry dewatering and other well users, from all rock formations.

The City of Hamilton does not anticipate growth in the number of users of the Greensville municipal well system. Therefore, the mapped protection areas will reasonably represent the protection areas into the future.



For more information about Drinking Water Source Protection in the Halton-Hamilton Region, please visit our website www.protectingwater.ca. The site contains a wealth of information including advice about how you can provide feedback, ask questions, and become involved in the Halton-Hamilton Source Protection program. We encourage you to do so. You may also call us at 905-336.1158 ext. 2237 or reach us by email at sourceprotection@hrca.on.ca

