

TIER 3 WATER BUDGET AND LOCAL AREA RISK ASSESSMENT – GLOSSARY

Glossary Terms

1. **Aquifer:** An underground saturated permeable geological layer that is capable of holding water in sufficient quantities to serve as a source of groundwater supply.
2. **Consumptive Water Demand:** The net amount of water that is taken from a source and not returned locally to the same source in a reasonable time.
3. **Drinking Water Quantity Threat:** An existing or possible future activity that adversely affects or has the potential to adversely affect the quantity of any water that is or may be used as a source of drinking water.
4. **Gasport Formation:** A fractured, dolomite bedrock formation that is used for water supply in an extensive area of Southern Ontario. The Gasport Formation is the deep water supply aquifer for the City of Guelph, Guelph/Eramosa Township and a number of other municipalities. The Gasport Formation has recently been renamed, and is referred to as the Amabel Formation in older reports.
5. **Groundwater:** Subsurface water that occurs beneath the water table in fully saturated soils and geological formations.
6. **Groundwater Discharge:** The movement of groundwater from the subsurface to the surface into features such as lakes, streams, wetlands, and springs.
7. **Groundwater Recharge:** A hydrologic process where water moves downward from surface water to groundwater. Recharge is the primary method through which water enters an aquifer.
8. **Guelph Formation:** A fractured, dolomite bedrock formation that is used for water supply in an extensive area of Southern Ontario. The Guelph Formation is the shallow-most bedrock aquifer underlying the City of Guelph and parts of Guelph Eramosa Township.
9. **Hydrogeology:** The study of the movement and interactions of groundwater in geological materials.

10. **Hydrology:** The study of the movement and interactions of the waters on the earth's surface and its atmosphere.
11. **Local Area:** Area around a wellhead or surface water intake where increased municipal pumping and reductions in groundwater recharge due to land use development have the potential to cause water levels at the municipal wells and intake to fall below safe water level elevations. Can include one or more water quantity Wellhead Protection Area (WHPA-Q) or Intake Protection Zone (IPZ-Q).
12. **Recharge Reduction:** Activity on the landscape that reduces groundwater recharge and can impair the long-term viability of a water supply system.
13. **Risk Management Measures Evaluation Process (RMMEP):** The Risk Management Measures Evaluation Process is a technical study that uses the Tier 3 model to identify the water takings with the most significant impact on the municipal wells and identifies the most promising measures to reduce the risks to the municipal drinking water supply.
14. **Sub-watershed:** An area that is drained by an individual tributary into the main watercourse of a watershed.
15. **Surface Water:** Water that is present on the earth's surface and may occur as rivers, lakes, wetlands, ponds, etc.
16. **Tier 3 Model:** Computer model that incorporates the best available information about local geology, groundwater and surface water resources, precipitation, infiltration and water withdrawals to help evaluate the sustainability of the municipal water supplies.
17. **Tier 3 Water Budget and Local Area Risk Assessment:** A detailed scientific technical study aimed at assessing the water quantity risk to current and future municipal drinking water sources under a variety of scenarios, such as future increased municipal water needs due to growth and a prolonged drought.
18. **Vulnerable Area:** An area identified for the protection of municipal drinking water sources; can refer to wellhead protection area, surface water intake protection zone, a significant groundwater recharge area, or a highly vulnerable aquifer.
19. **Water Budget:** An accounting of the hydrologic cycle that quantifies the additions (e.g., precipitation infiltrating into the ground, runoff to streams and rivers, flow within and between the aquifers) and withdrawals (e.g., surface water and groundwater flowing out of the study area, water taking by municipalities and other users, and groundwater contributions to rivers) from a

study area. The groundwater and surface water systems are in balance when the water additions and withdrawals are approximately equal.

20. **Watershed:** The area of land where all of the water that is under it or drains off of it goes into the same place. Its boundaries are defined by ridges of high land.
21. **Water Supply System:** One or more surface water intakes and/or groundwater wells that pump water to supply a municipal water distribution system.
22. **Water Quantity Intake Protection Zone (IPZ-Q):** An area where the municipal drinking water systems could be affected by other existing, new or expanded water takings. The contiguous area of land and water immediately around a surface water intake that is defined to protect the source water for a municipal residential drinking water system, specifically the drainage area that contributes surface water to the intake and the area that provides recharge to aquifers that contribute groundwater discharge to the drainage area.
23. **Water Quantity Wellhead Protection Area (WHPA-Q):** An area where the municipal drinking water systems could be affected by other existing, new or expanded water takings. WHPA-Q is the drawdown from the municipal water supply wells when pumping plus the additional drawdown of other permitted water takings (residential, industrial, commercial, institutional, recreational, etc.) when pumping. It also includes any surface water drainage area that contributes a significant proportion of surface water to the wells and any area where a future reduction in recharge would have a measureable impact on the municipal wells.