

# What is a Wellhead Protection Area?

2025

## Groundwater Wells for Municipal Drinking Water

Many municipalities rely on wells to supply drinking water to their residents. Wells of all types, municipal and private, urban and rural, pump water from under the ground. This groundwater comes from rain or snow that seeps below ground and pools in cracks or spaces in the soil, sand and rock. These underground sources of water are known as aquifers. The level of groundwater, or the water table, rises and falls depending on the season, temperature, amount of rain or snow and the amount of water withdrawn from the aquifer.

## Wellhead Protection Areas (WHPA)

The Technical Rules under the *Clean Water Act, 2006* specify how to determine Wellhead Protection Areas.

A wellhead is simply the physical structure of the well above ground. A wellhead protection area is the area around the wellhead where land use activities have the potential to affect the quality of water that flows into the well.

Wellhead Protection Area are determined by a variety of factors such as the way the land rises or falls, the amount of water being pumped, the type of aquifer, the type of soil surrounding the well, and the direction and speed that groundwater travels. All of these factors help to determine how long it takes water to move underground to the well. Once this is determined, 4 levels of Wellhead Protections Areas (WHPA A to D) are mapped based on the following criteria:

WHPA-A is a 100 metre radius around the wellhead.

WHPA-B is an area where water and any pollution that may be present can reach the well within 2 years.

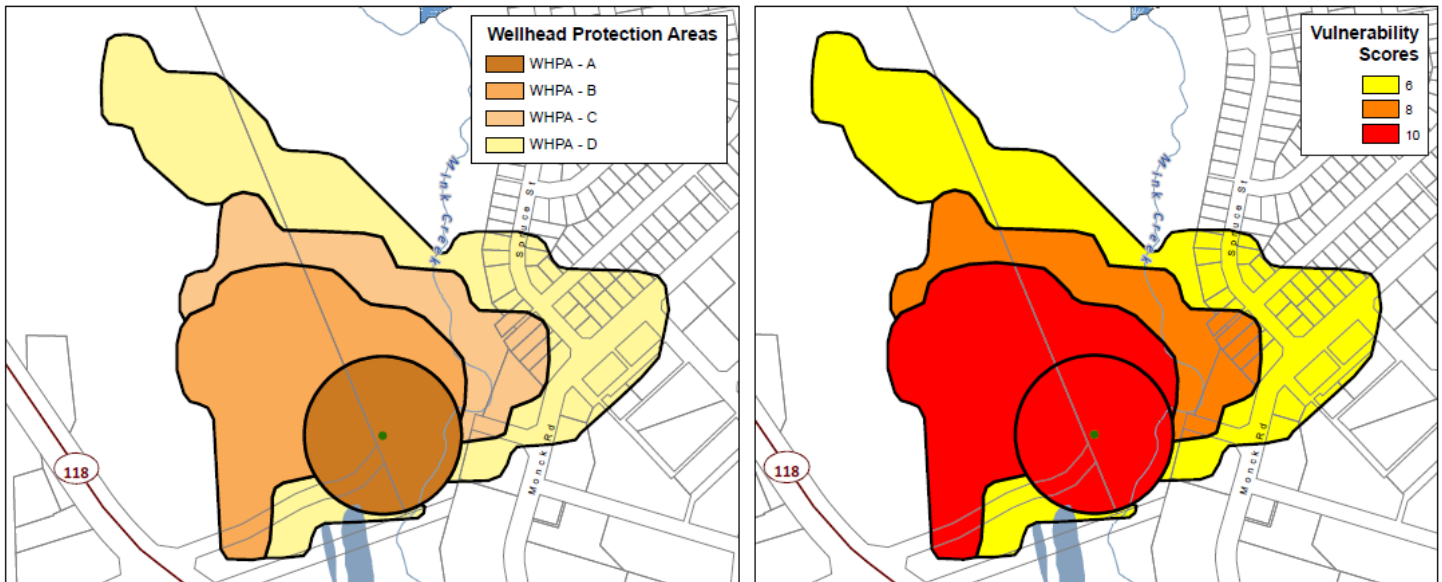
WHPA-C is an area where water and any pollution that may be present can reach the well within 2 to 5 years.

WHPA-D is an area where water and any pollution that may be present can reach the well within 5 to 25 years.

## Determining threats in Wellhead Protection Areas

Once Wellhead Protection Areas have been delineated, vulnerability scores are assigned within the zones based on the depth of the well and the characteristics of the soil and rock above the aquifer. Thin, porous soils will mean a higher vulnerability score because this provides less protection to the aquifer. WHPA -A always has a default score of 10 (the highest score) because it is so close to the well. Once the vulnerability scores are established, the Technical Rules are used to determine which activities are considered drinking water threats.

## Well Protection Area Mapping – WHPAs and Vulnerability Scores



Examples of Wellhead Protection Area Mapping and Vulnerability Scores

### Managing Threats in Wellhead Protection Areas.

Every activity that has been determined to be a significant drinking water threat must be managed by policies in the Source Protection Plan. These policies range from providing Education and Outreach to the people engaged in the activity to prohibition of the activity in the worst-case scenario. Prohibition in the Source Protection Plan only applies to future activities. For example, if someone is proposing to put a gas station in a WHPA-A, that would be prohibited. A more common approach is to require risk management plans to mitigate the threats of the activity. A risk management plan is negotiated between the person engaged in the activity and the Risk Management Official and it contains required best management practices to manage the threat.

### Activities That Could be Threats to a Well

Pollutants from a variety of activities on the land can seep into the ground and move toward a well. Examples of activities that could negatively affect groundwater if not managed properly include but are not limited to:

- Chemical Storage
- Septic Systems
- Handling and Storage of Fuel
- Agricultural Activities including feedlots, manure, fertilizer and pesticides.

For more information about the Clean Water Act or drinking water source protection:

Visit our website at [www.trentsourceprotection.on.ca](http://www.trentsourceprotection.on.ca)

Lower Trent Conservation, at (613) 394-3915 ext. 246 or [info@trentsourceprotection.on.ca](mailto:info@trentsourceprotection.on.ca)