

WELLHEAD PROTECTION AREAS

What is a Wellhead Protection Area?

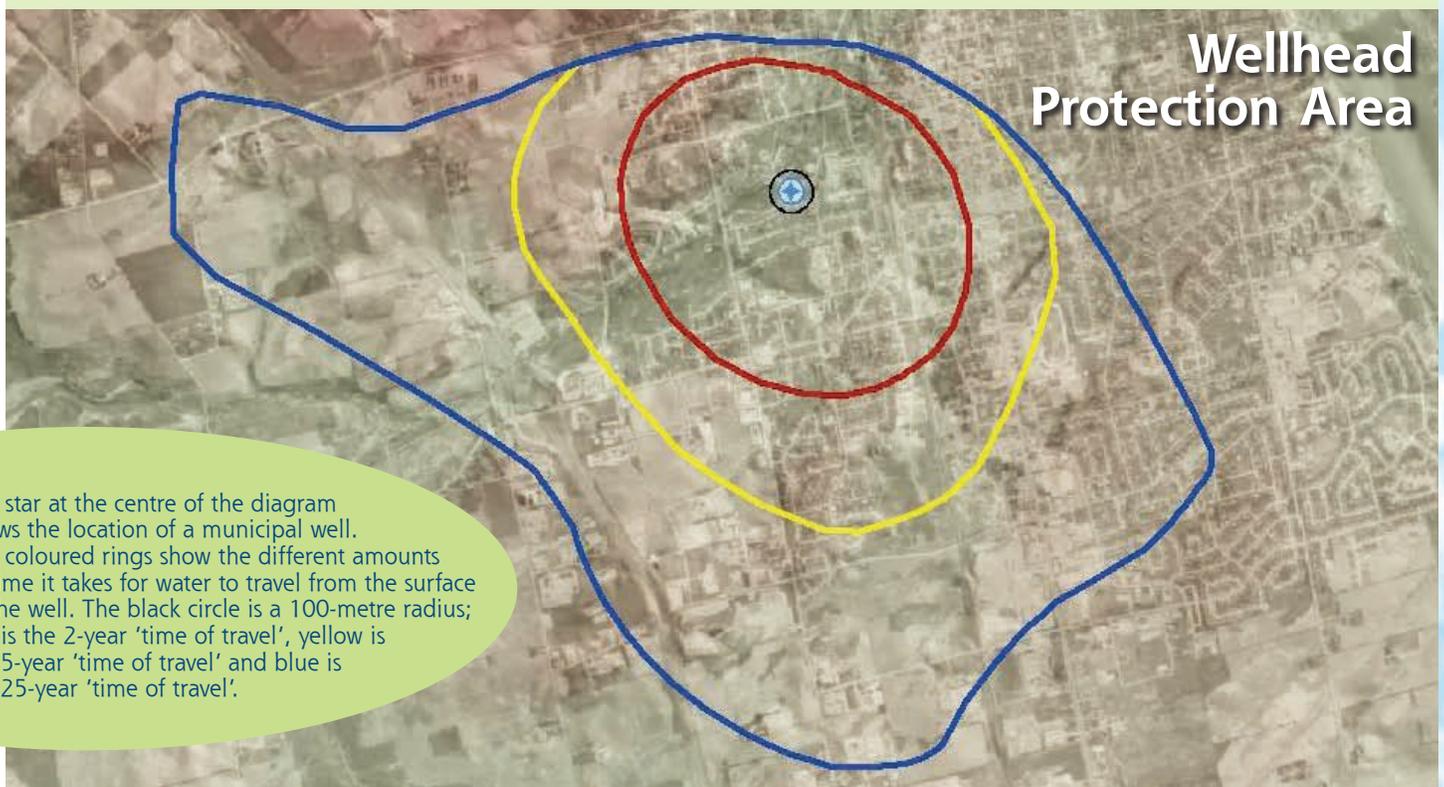
Many municipalities rely on wells to supply drinking water to its residents. Wells of all types, municipal and private, urban and rural, pump water from under the ground. This *groundwater* comes from rain or snow that seeps below ground and pools in cracks or spaces in the soil, sand and rock. These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the water table, rises and falls depending on the season, temperature, amount of rain or snow and the amount of water withdrawn from the aquifer.



More than 20% of Ontarians use groundwater to meet their daily water needs.

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.

The amount of land involved in a *wellhead protection area* is 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 itself and how much land around the wellhead should be protected.



The star at the centre of the diagram shows the location of a municipal well. The coloured rings show the different amounts of time it takes for water to travel from the surface to the well. The black circle is a 100-metre radius; red is the 2-year 'time of travel', yellow is the 5-year 'time of travel' and blue is the 25-year 'time of travel'.

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Why do Wellheads Need Protection ?

Pollutants can sometimes seep into the ground and contaminate the water in a well. *Wellhead protection* is a good way to prevent municipal drinking water from becoming polluted because it requires landowners to manage activities that could become potential sources of contamination in the area supplying water to a public well.

Much can be done to prevent groundwater contamination. Under the Clean Water Act, 2006, local Source Protection Committees

will develop plans for protecting municipal well water. They will look at potential sources of *groundwater* contamination in their area, rank them based on their potential to contaminate groundwater, and then determine the best method of managing existing and future land and water uses that pose a significant risk to drinking water. Protecting the area around a well, helps protect a healthy supply of water now and in the future.



What are Potential Sources of Contamination in Wellhead Protection Areas ?

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:

- Chemical storage
- Spreading of sewage treatment sludge
- Storage and spreading of road salt
- Animal feedlots
- Use and spilling of fertilizers and pesticides
- Accidental spills of hazardous materials
- Septic systems
- Underground storage tanks
- Underground pipelines or sewers
- Landfills
- Private and abandoned wells

What are the Benefits of Protecting Wellhead Areas ?

A very clear benefit of drinking water source protection in *wellhead protection areas* is protecting public health. In addition, preventing drinking water contamination in the first place costs a lot less than cleaning it up after it has been contaminated. There are a number of ways *wellhead protection* impacts our day-to-day lives and reduces the costs to maintain good water supplies:

- Not having to drill new wells when old ones become contaminated
- Avoiding the need to clean up contaminated groundwater
- Reducing the cost of water treatment
- Ensuring a long-term supply of clean water
- Ensuring a positive climate for economic growth



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What can You do to Protect Local Wellhead Areas ?

To find out if you live near a *wellhead protection area*, contact your local conservation authority. You can find out which conservation authority you live in at www.conservationontario.ca

Even if you don't live in or near a *wellhead protection area* it is important to take steps to protect groundwater. Everything is connected through the water cycle and it is important to remember everyone lives downstream. What you do today can affect local water quality. These are some of the things you can do to protect your groundwater from contamination:

1

Conserve water. Not only is conserving water helpful to maintaining a constant supply of drinking water, too little water in a source can mean contaminants are more concentrated and, therefore, may be above acceptable levels.

2

Be an avid recycler. Recycling paper products, glass, metals and plastics cuts down on pollution and also reduces the amount of water we use. Manufacturing recycled paper uses 58% less water than making paper from virgin wood pulp. Making glass from recycled materials cuts related air pollution 20% and water pollution 50%.

3

Dispose of hazardous waste properly. Take unused paints, cleaners, pesticides, and medical prescriptions to your local hazardous waste facility. Take used engine oil to recycling facilities. Use drop cloths or tarps when working with hazardous materials such as paints, driveway sealers or wood stain to prevent spills from leaking into the ground. If a spill occurs, clean it up with an absorbent material such as kitty litter or sawdust and scoop the contaminant into a container.

4

Use non-toxic products for cleaning and environmentally-friendly soaps, shampoos and personal care products. Remember that what you use in your house goes back down your drain.

5

Clean up pet waste which contains nutrients and pathogens that can run into storm sewers during a rain storm.

6

Prevent pollutants from entering into runoff by reducing or eliminating the use of pesticides, fertilizers, sidewalk salts and by not over-watering your lawn. If you run an agricultural operation and haven't already, consider developing and implementing a Nutrient Management Plan.

7

Take care when refueling gas tanks for cars, lawn mowers, chainsaws, weed trimmers, tractors or other machinery to avoid spilling fuel on the ground. Also take care when changing engine oil. One litre of gas or oil can contaminate a million litres of groundwater.

8

Take your car to commercial car washes designed to prevent pollutant runoff from entering storm sewers. Use commercial car washes that use water efficient sprays, reducing their water consumption.

9

Stay informed and get involved in your local source protection process. To find a Drinking Water Source Protection Planning Region or Area near you go to www.conservationontario.ca



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Some additional ways to protect water for those who live on rural properties include:

1

Keep your septic system in proper working order and empty the tank regularly.

2

Protect and maintain your private well. Wells provide pathways for contaminants to enter the groundwater. If you have a well, be sure it is sealed properly and if you own a well you no longer use, have it properly decommissioned by a licensed well technician. Test your well water regularly to ensure the water is safe to drink.

3

Manage animal waste on farms to prevent water contamination.

If you operate a farm, contact your local Ontario Soil and Crop Improvement Association (OSCIA) at www.ontariosoilcrop.org or your local conservation authority at www.conservationontario.ca for information about workshops you can take to assist you in developing an Environmental Farm Plan (EFP) for your farm business.

4

Manage livestock grazing. Overgrazing exposes soil and increases erosion.

5

Protect the vegetation along the banks of ponds, streams and lakes to help control erosion, provide food for aquatic life, and maintain cooler water temperatures necessary for some species of fish.

For More Information on Wellhead Protection Areas

Please contact your local Source Protection Region or Area:



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www.conservationontario.ca

For more information on the Source Protection Program, please visit the Ministry of the Environment's website:

www.ontario.ca/cleanwater

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