

System Name: Hanover WTP/Ruhl Lake Water Supply
Municipality: Town of Hanover
Drinking Water System Category: Large Municipal Residential

The Town of Hanover is located in Grey County and is entirely in the Saugeen Valley Source Protection Area. The Town serves as the retail and recreational hub for the Saugeen area. In 2011, the population was 14026, which was an increase of 18.2% from 2006. The area contains a large number of creeks, lakes and ponds. The Saugeen River runs through Hanover and is known for its recreational opportunities, such as canoeing and fishing.

The Town of Hanover currently operates three municipal water supply sources. The municipal supply system receives water from a small surface water source, Ruhl Lake, and two groundwater wells, Hanover No. 1 and Hanover No. 2. The Town operates a single water treatment plant. Raw water from the surface intake is treated separately from the raw groundwater, but the water is combined prior to distribution. One-third of the water supply comes from the lake and one-third from each of the wells, together supplying water to a population of approximately 6600 in the Town of Hanover. The Town of Hanover is unique because the wells are located in the Municipality of Brockton but serve the Town of Hanover. No new drinking water systems are planned.

The intake of Ruhl Lake, which has a total surface area of 2.63 ha, is classified as a Type D intake (other sources) under the *Clean Water Act*. Ruhl Lake proper is roughly circular in shape, approximately 10m maximum depth, with a total water volume of roughly 100,000m³. Under normal conditions, Ruhl Lake has only one major surface water tributary, a small, spring-fed creek (Spring Creek) that enters the northern portion of the lake. A former tributary to the lake, Burrell Creek, was diverted during development of the water system in the 1920's, and now parallels the west perimeter of the Lake. With the distance of only 30 metres to the west of the lake, it frequently discharges into Ruhl Lake, especially after precipitation events. Also, it is likely that Burrell Creek has a connection via groundwater flow into the lake. Burrell Creek is thus treated as a tributary to Ruhl Lake. Groundwater seepage and discharge are also thought to be major inputs to the lake, as indicated by water replenishment of the lake during dry periods.

Shortly after development of the lake as a water supply for the Town, a significant portion of the surrounding land (~90 acres) was purchased by the Town and re-forested, including the entire waterfront area of the lake. Remaining land use in the contributing drainage area is predominantly agricultural, with a mixture of cash crop and pasture agricultural systems. Hanover Well No. 1 is located northwest of Hanover, on the west side of Marl Lake, in close proximity to the Saugeen Municipal Airport. It was constructed in 1961 and has a depth of 33.6 metres. Hanover Well No. 2 is located southeast of Marl Lake. It was constructed in 1986 and has a depth of 55.5 metres. Both Hanover wells draw groundwater from a sand and gravel aquifer located above the bedrock. Well No. 1 studies have shown it to be GUDI and the water is treated accordingly. Hanover No. 2 is deeper and not designated a GUDI well, however much of the WHPA underlies Marl Lake.

WHPA – Wellhead Protection Area is the area around the wellhead or municipal well where land use activities have the greatest potential to affect the quality of water that flows into the well.



Pumphouse



Hanover Well

GUDI - Well water or groundwater under the direct influence of surface water (GUDI) refers to groundwater supply sources that are hydraulically connected to nearby surface waters, and are thus vulnerable to contamination by pathogens. The vulnerability to contamination means that well water sources that are determined to be GUDI require treatment equivalent to that required for surface water sources.