

**City of Dayton, Water Department, Well Fields**

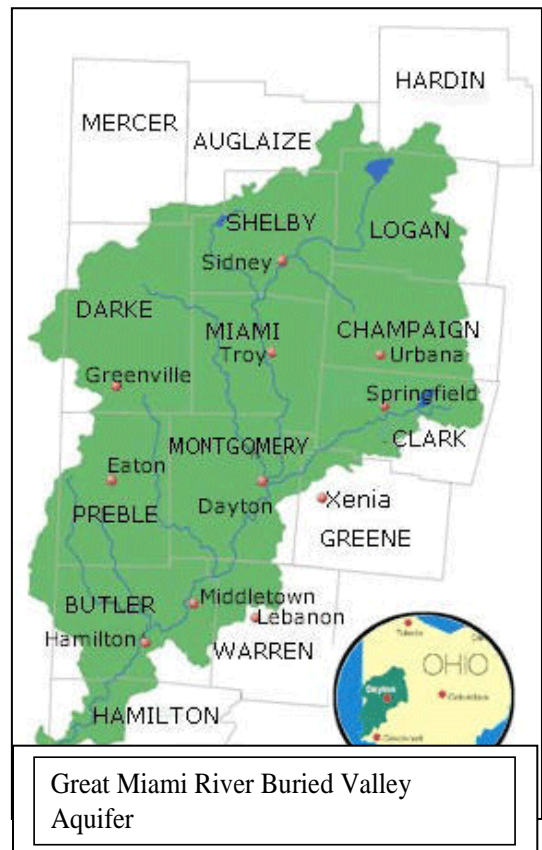


High quality and abundant water is the single most important resource in the world. The Great Miami River Buried Valley Aquifer provides fresh water in great abundance. It is one of the largest and most productive aquifer systems in the country.

An aquifer is an underground sand and gravel layer saturated with water. Water is stored in this vast underground reservoir. The Great Miami River Buried Valley Aquifer has sufficient water supply for many Southwestern Ohio communities.

Rainfall and thousands of miles of rivers and streams recharge this vast aquifer resource. These waterways recharge the groundwater supplies within the aquifer making the groundwater a truly “renewable” resource. The size of the aquifer is above a trillions gallons, making the area very drought resistant and a water source you can depend upon. This valued resource serves as the principal water source for an estimated 1.5 million people in southwest Ohio.

Our regional aquifer resource is protected with award winning source water protection programs and sole source aquifer designation by the U.S. Environmental Protection Agency.



Production Well



The City of Dayton Water Department treats and pumps drinking water to approximately 440,000 people in Montgomery County and beyond. Water is supplied to water treatment plants by two well fields, the Miami and the Mad River Well Fields. The Mad River Well Field and Miami Well Field pump groundwater from the Great Miami River Buried Valley Aquifer in the areas adjacent to the nearby river.

Between the Mad River and Miami Well Field, there are over 100 large capacity, gravel packed wells, making the City of Dayton one of the largest water systems in the country relying on ground water. These wells vary in depth according to the location of good water formations within the aquifer; resulting in fantastic capacities ranging from 1 to 4 million gallons per day (MGD).

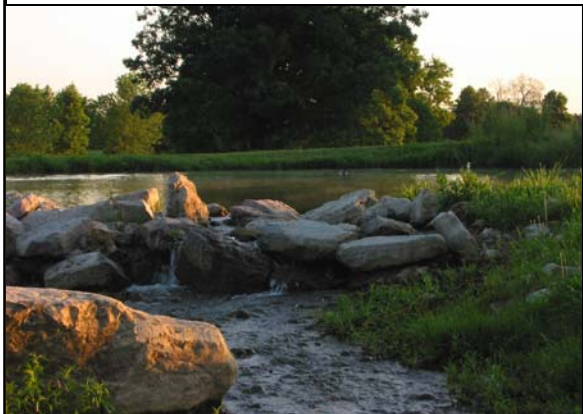
Whereas the area's rivers naturally recharge the underground water aquifer, the City of Dayton enhances this process with artificial recharge lagoons and ponds. From a series of excavated channels, the nearby rivers feed infiltration lagoons and ponds throughout the well field properties. The practice of artificial recharge is innovative and has been in place since the 1920's when the Mad River diversion dam was constructed.

Diversion Dam on the Mad River



The infiltration lagoons in the City's well field properties are dredged, packed with graded gravel, and filled with river water. The lagoons percolate water into the aquifer water table far below the ground's surface. Artificial recharge in the Mad and Miami River Well Field ensures a robust water supply even on hot, dry summer days with thirsty consumers and high water consumption.

Recharge Facilities





Where needed, packed air stripping tower systems are used to pre-treat water prior to the water treatment plants to ensure reliable, high quality water to our customers. Photograph to the right.

The Mad River Well Field and the Miami River Well Field supplies water to the City of Dayton's water treatment facilities. The Ottawa and Miami Water Treatment Plants have a rated capacity of 96 million gallons per day each.

Both water treatment plants use conventional lime (calcium oxide) softening processes. After softening, the water is fluoridated and disinfected. Rapid sand filtration is the final processing step in the water treatment process.

Billions of gallons of treated drinking water is pumped into the distribution system from the City's water treatment plants annually.

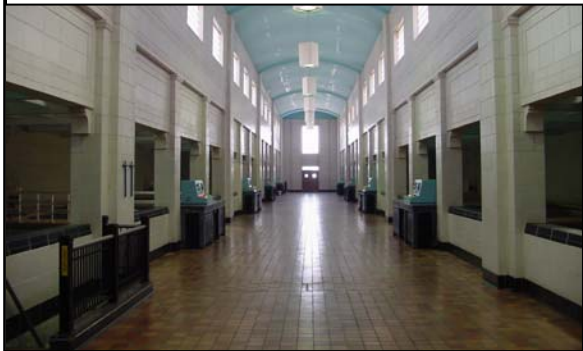
Air Stripper Facilities



Miami Water Treatment Plant



Water Treatment Plants: Ottawa and Miami



Approximately 750 miles of water mains serve customers inside the City of Dayton. The City of Dayton has treated water storage facilities throughout the region with a total capacity of 88 million gallons. The Water Department controls water flow through several large pumping stations. The City of Dayton's treated water is pumped to most of Montgomery County and some of Greene County.

Water Pumping Station



Distribution Storage Tank



To preserve the wonderful natural resource, the City of Dayton's Well Field Protection Program includes land use control zoning, ground water remediation and emergency preparedness. An early warning network of monitoring wells surrounds both well fields.

Monitoring wells and production wells are sampled and tested for water quality.



Monitoring well for quality

The City of Dayton's Source Water Protection Program is internationally recognized and was the first program approved by the Ohio Environmental Protection Agency. In 1998, the American Water Works Association presented its large system, Well Field Protection Program Award to the City of Dayton. Dayton has also been designated as a Groundwater Guardian community by the Groundwater Foundation.