

**MILWAUKEE WATER WORKS  
DEPARTMENT OF PUBLIC WORKS  
CITY OF MILWAUKEE**

**Feasibility Report for Water Service  
to  
Village of Elm Grove  
February 2006**

**Introduction**

Milwaukee Common Council adopted Resolution File No. 050847 on November 15, 2005 authorizing the Milwaukee Water Works to study and evaluate the request from the City of Wauwatosa regarding the provision of additional water to Wauwatosa for the purpose of providing that water to the Village of Elm Grove. This report has been prepared in accord with that resolution.

**Background**

The Village of Elm Grove is located just west of Wauwatosa in Waukesha County. (See Figure 1.) The Village shares a border with Wauwatosa on the east side, and is surrounded by Brookfield on the north, west, and south sides. The Village of Elm Grove is 100% within the Great Lakes Basin.

The Village has no public water supply system. Residents and businesses in the Village rely on private water systems. Water service in the Village is currently provided by a combination of individual private wells and community water systems within the Village that supply subdivisions. A water distribution system would have to be constructed to deliver potable water to customers and to provide fire protection in the community.

The Village of Elm Grove does not share a common municipal border with the City of Milwaukee. Due to the distance from Elm Grove to the City of Milwaukee and the Milwaukee Water Works infrastructure, it is not feasible to extend Water Works infrastructure to deliver water directly to Elm Grove.

The City of Wauwatosa is a wholesale customer of the Milwaukee Water Works and has water infrastructure in proximity to the Village of Elm Grove. The Village of Elm Grove requested of Wauwatosa that the Wauwatosa Water Utility extend its customer service area to include Elm Grove. The "Agreement Between The City Of Milwaukee And The City Of Wauwatosa For The Purchase Of Water At Wholesale" defines the area to be served with water as the municipal limits of the City of Wauwatosa and requires that no water may be resold outside that service area without the permission of Milwaukee. On September 6, 2005, the City of Wauwatosa passed resolution R-05-227 requesting that Milwaukee study the feasibility of providing water to Wauwatosa for further distribution to the Village of Elm Grove.

The Wauwatosa resolution specifically states that its Common Council would provide a separate resolution should it wish to proceed with the Elm Grove request. The Public Service Commission already has a tariff rate set for sale of Milwaukee water to Wauwatosa. Therefore, an amendment to Milwaukee's contract with Wauwatosa to include the Village of Elm Grove in the approved water service area is all that would be required from Milwaukee to permit Wauwatosa to provide water to Elm Grove.

# Milwaukee Water Works

Safe, Abundant Drinking Water.

# Service Area

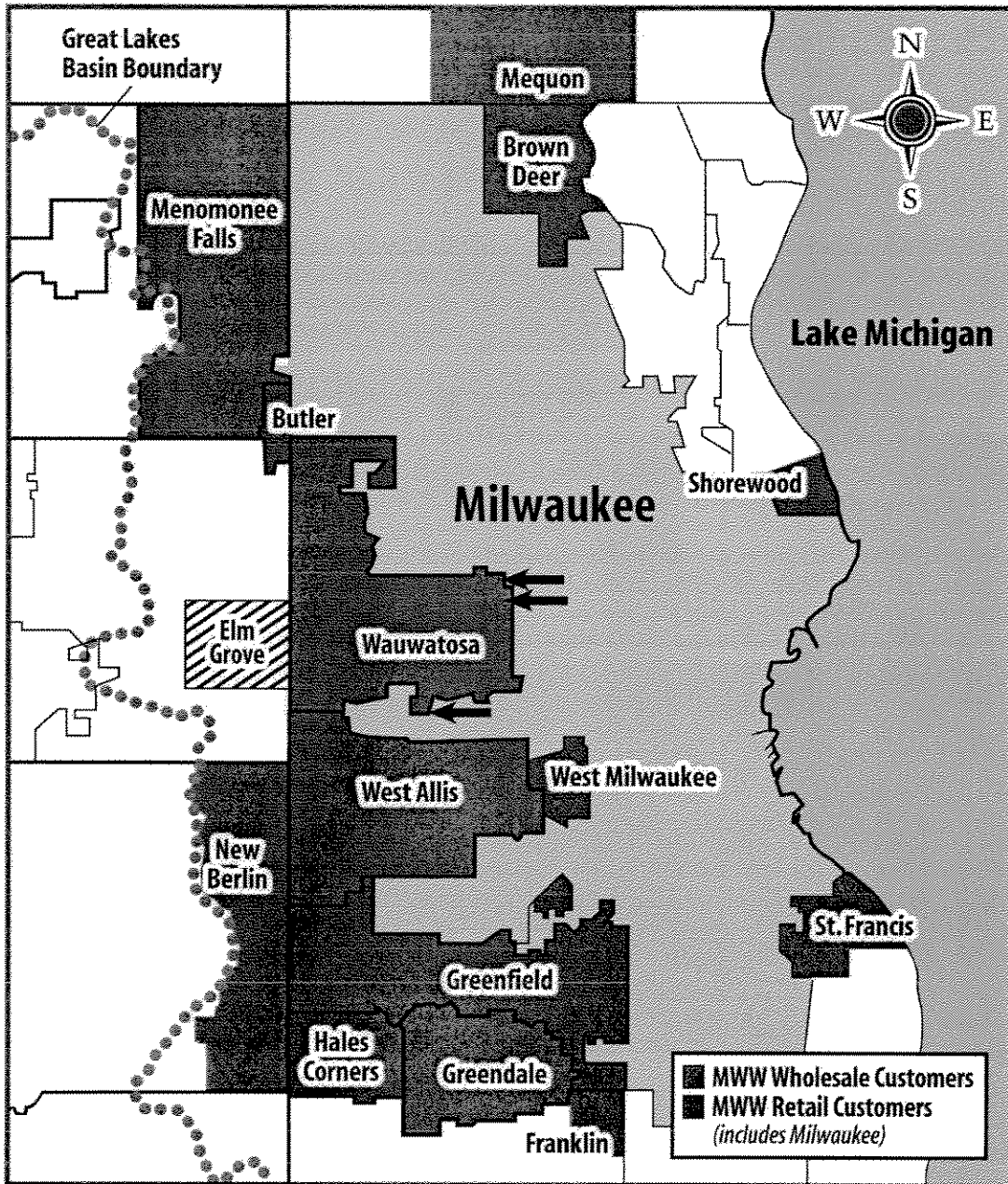


Figure 1. The Milwaukee Water Works service area, with the Village of Elm Grove indicated by the crosshatched area. The dotted line represents the Great Lakes Basin Boundary. The arrows indicate the locations of connection points where Milwaukee water is delivered to Wauwatosa.

### **Ability of Milwaukee Water Works to Supply Additional Water to Wauwatosa**

This analysis relates to the ability of the Milwaukee Water Works to provide to Wauwatosa the additional water required for that city to serve the Village of Elm Grove.

The Milwaukee Water Works has two water treatment plant facilities, the Linnwood Treatment Plant and the Howard Avenue Treatment Plant. The treated water is distributed from three major pumping stations and nine additional booster pumping stations to form six different pressure districts over the entire water service area. The largest pressure district is the Riverside Pressure District, which covers approximately 90 square miles and is fed from both treatment plants. Wauwatosa receives its water from three connection points in the Riverside Pressure District, as shown by the arrows in Figure 1.

The Linnwood and Howard Avenue Treatment Plants have treatment capacities of 275 and 105 million gallons per day (MGD), respectively. The combined treatment capacity is 380 MGD. The average daily pumpage in 2005 was 122 MGD. The maximum day pumpage experienced in 2005 was 186 MGD.

Based on the report, "Village Wide Water Supply System Plan," dated December 2000, the Village of Elm Grove projects an average day demand of 1.1 MGD, and a maximum day demand of 2.4 MGD when its system is fully constructed. As summarized in Table 1, the Milwaukee Water Works can readily accommodate this additional volume based on water treatment plant capacity. In addition, flow tests conducted in the distribution system near the three connection points for Wauwatosa confirm that the capability exists to supply sufficient flow and pressure at those points.

	<b>2005 Average Day Million Gallons Per Day (MGD)</b>	<b>2005 Maximum Day Million Gallons Per Day (MGD)</b>
<b>Milwaukee Water Works (including Wauwatosa)</b>	122	186
<b>Village of Elm Grove</b>	1.1	2.4
<b>Total</b>	123.1	188.4
<b>Milwaukee Plant Capacity</b>	380	380

**Table 1. Average and maximum day water use in the Milwaukee service area (including Wauwatosa), projected use for the Village of Elm Grove, and the capacity of the Milwaukee Water Purification Plants.**

In summary, the Milwaukee Water Works system is capable of supplying the City of Wauwatosa with the maximum amount of additional water requested by the Village of Elm Grove with no effect on existing customers.

### **Financial Impact on the Water Works**

Water eventually destined for the Village of Elm Grove would be sold by Milwaukee to Wauwatosa at the wholesale tariff rate set by the Public Service Commission, which is currently \$0.44 per hundred cubic feet (Ccf). The arrangement between the Wauwatosa Water Utility and the Village of Elm Grove would be subject to Public Service Commission regulations and tariffs. Based on 1.1 MGD at the current rate, the gross revenue to the Milwaukee Water Works is estimated to be \$236,000 per year.

There are no changes to the treatment plants or distribution system required to deliver the additional water to Wauwatosa. The incremental costs associated with treating and distributing the projected volume of water to Wauwatosa for delivery to Elm Grove are the cost of electricity to treat and pump the water and the cost of treatment chemicals added for the increased volume of water. This is estimated to be approximately \$50,000 annually. Thus, at the current rate of \$0.44 per Ccf, the net revenue is \$186,000 annually.

Although it will take some number of years for the full volume of water to be realized, selling additional water to Wauwatosa will help absorb some of the excess capacity within Milwaukee's system and will spread the operating and capital improvement costs across a larger customer base, to the benefit of Milwaukee rate payers.

### **Conclusion**

The Milwaukee Water Works has ample supply, treatment and distribution system capacity to serve the projected needs of the Village of Elm Grove through the City of Wauwatosa. As Elm Grove constructs its own water distribution system, this will have a gradual positive economic benefit for Milwaukee Water Works ratepayers.