Macomb Township Water System Master Plan Update and Reliability Study

Macomb Township, Michigan

The Township of Macomb entered into its first Water Supply Agreement in 1954 with the City of Mt. Clemens. As the Township's population and the level of development increased, the water system expanded in conjunction with many agreements between various parties, including the City of Mt. Clemens and the Detroit Water and Sewerage Department (DWSD). The Township's population is currently over 70,000 and population projections indicate that the Township population could reach over 111,000 by the year 2030. In an effort to evaluate the Macomb Township Water Supply System, the Michigan Department of Environmental Quality (MDEQ) required the Township to perform a Reliability Study of the Water Supply System.

Spalding DeDecker Associates, Inc. (SDA) has been Macomb Township's Engineering consultant since 1964 and has acted in all capacities as the Township's Engineering Department since that time. SDA analyzed the Macomb Township Water Supply System, hydraulics software WaterCADÆ Version 6.5 was used. For this analysis, SDA applied the Hazen-Williams methodology for determining flow resistance. Population data was developed from the Macomb Township's current Sanitary Trunk Sewer System Master Plan. Flow demands were based on "Merritt, Standard Handbook for Civil Engineers, McGraw-Hill, 1983." These demands were used to determine whether the system met the current Ten Standard States (GLUMRB 1990), which requires a minimum of 35 psi in the system at all points and 20 psi during periods of fire flow.

The system was analyzed for both the existing system with the current population and the ultimate system with the projected population. The hydraulic models indicated that although there were deficiencies in the existing system's ability to supply enough volume for adequate fire suppression, they were the result of "dead end" sections of watermain. The ultimate model projection confirmed that as new developments within the Township are constructed, the "dead end" sections would be eliminated to provide a closed "looped" system; the proposed system would also have adequate flow and pressure capabilities. Consequently, the MDEQ reviewed the system and rated it satisfactory and in compliance with current standards.

OWNER / CLIENT
Macomb Township

PROJECT START - END
October 2005 - Ongoing

SDA PROJECT NO.
MA05-029

SOFTWARE
WaterCAD