



NEW WATER TREATMENT FACILITY

ABOUT NORTHFIELD

The City of Northfield is located across approximately 8.5 square miles in Rice and Dakota counties. The City is home to more than 21,000 residents, numerous industries, a thriving downtown, and two nationally recognized colleges. The City of Northfield has provided quality drinking water since 1895 to the City of Northfield's residents and their connected communities. The City currently has five water supply wells and three water storage facilities. The existing water treatment consists of chemical disinfection, the addition of fluoride for dental health, and polyphosphate for sequestering iron and manganese.

WATER TREATMENT FACILITY PROJECT SUMMARY

Recently, the City engaged Bolton & Menk to undertake a comprehensive water system study. The primary purpose of the study was to review how to lower levels of manganese within the City's drinking water. The study also reviewed existing water supply, storage, and treatment. Specifically, the subsequent report aimed to provide a roadmap of how the City has provided safe drinking water to its customers and how it can continue to do so into the future.

The study confirmed **levels of manganese above the Environmental Protection Agency (EPA) secondary standards and Minnesota Department of Health's (MDH) safe level standards for infants**. Personal filtration units can mitigate these higher manganese levels, but some residents may not have the financial means to purchase these units for their homes. The study found **higher levels of hardness in raw and finished water**. The American Water Works Association (AWWA) classifies water with the concentration range of 80-120 mg/L as CaCO₃. Finished water in Northfield has been found to have a concentration of 320 mg/L as CaCO₃, which is classified as very hard. The City encourages the use of private water softeners. Still, these can be unattainable for some residents due to cost and can have costly impacts on the wastewater treatment plant if chloride discharge limits are implemented.

The possible **need for additional water storage** and **additional booster stations** were also identified as concerns in the study, with a projected population growth of around 25% over the next 20 years and 60% over the next 50 years. The study also identified the existing water treatment plant's **current space and logical constraints**, with limitations on space and equipment being located across five different locations.

The report identified three treatment options for a new facility: gravity filtration, lime and soda ash softening with filtration, and gravity filtration and reverse osmosis. Bolton & Menk analyzed the benefits and downsides of each option in detail. Three potential building sites were also identified and analyzed for feasibility, specifically regarding available land and its impact on residential areas.

The study **recommended constructing a new facility utilizing gravity filtration with the option of reverse osmosis**, which would **lower hardness under the EPA's secondary standards** and **lower manganese under the MDH guidance** in an area on the outskirts of the city limits with space for growth and minimal impact on existing residential communities.



TOTAL PROJECT COST	\$33,450,000
Requested Funds	\$XXXXX
Local Match Funds	\$XXXXX

The City of Northfield is submitting a request for funding for portions of a new water treatment facility. Funding will cover the preliminary and final design portion of the project.