

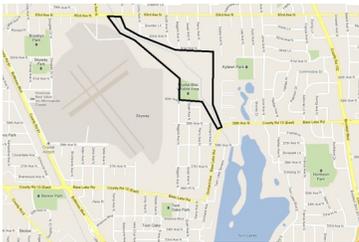


Watershed Management Commission

Wetland 639W Outlet Modification Project



Cities of Crystal, Brooklyn Center, Brooklyn Park, New Hope, Robbinsdale



Location: East of MAC Crystal Airport in Crystal, MN

The Shingle Creek Watershed Management Commission contributed \$142,500 to this project, and obtained a \$300,000 grant from the Minnesota Pollution Control Agency. The five cities funded the balance of the project.

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This 2011 project constructed a new outlet for a large flow-through wetland just upstream of Upper Twin Lake. This wetland has been found to be a significant source of nutrients to Upper Twin Lake - monitoring at the inlet and outlet found that phosphorus concentrations double as stormwater runoff flows through the wetland.

Wetlands are usually “sinks” for nutrients, meaning they reduce phosphorus in runoff. However, Wetland 639W is a source of nutrients. Data from extensive water quality and groundwater elevation monitoring and from an analysis of soil cores taken from various locations in the wetland shows that the particular soil chemistry in the wetland and repeated wetting and drying mineralizes the soil, causing it to release phosphorus when runoff flows across it.

The solution is keep more water in the wetland to limit periods of dryness. Before the project, stormwater from a 900+ acre tributary area flowed through and across the wetland and then discharged through a channel at CR 10 to the lake. This project constructed a new weir, or sheet piling wall, across the wetland to keep water in, and added a new overflow outlet and channel to the side of the wetland so high flows can drain out. Keeping the wetland wetter slows soil mineralization and limits phosphorus release. It also reduces the volume of water that discharges from the wetland into the lake. This project will reduce phosphorus to Upper Twin Lake by an estimated 300 pounds per year. To meet state lake water quality standards the amount, or load, of phosphorus to Upper Twin Lake must be reduced by approximately 800 pounds per year, and this project makes significant progress toward that reduction goal.