



Capital Improvement Project



Apple Valley: Long Lake Park Iron-Enhanced Sand Filters

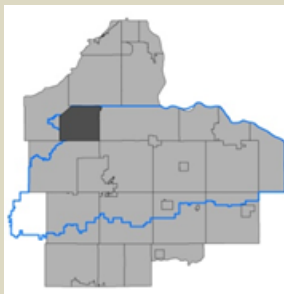
Park's New Filters Help to Improve the Lakes

Long and Farquar Lakes, both nutrient-impaired waters, receive too much phosphorus from the surrounding watershed. Two iron-enhanced sand filters within a City park allow for a portion of the phosphorus load to the lakes to be captured and treated, helping to improve water quality.

A project completed cooperatively by:

- Vermillion River Watershed Joint Powers Organization
- City of Apple Valley
- Dakota County Soil and Water Conservation District

Location



City of Apple Valley, MN within the Vermillion River Watershed.

A new and innovative method of removing phosphorus has been put to the test in Long Lake Park in the City of Apple Valley. Past land uses, combined with the watershed area draining to Long and Farquar Lakes, provides too much phosphorus for the lakes to assimilate. The large amount of phosphorus results in excessive algae in the lakes.

Iron-enhanced sand filters are a relatively new technology. The filters are proving to be effective at removing large amounts of phosphorus compared to other more commonly used practices. Traditional water quality practices have focused on treating particulate-bound phosphorus, which addresses only a portion of the total phosphorus load. Iron filings mixed with sand allow for the treatment of dissolved phosphorus and particulate-bound phosphorus.

The City of Apple Valley and the Vermillion River Watershed Joint Powers Organization (VRWJPO) identified the portion of the watershed draining to the lakes that was contributing a large amount of phosphorus to the lakes and developed a project that would address the issue. City park land was given up to construct the filters for the benefit of the lakes. Long Lake drains into Farquar Lake, and is the primary source of phosphorus in Farquar Lake. The project will help to reduce phosphorus loads in Long Lake, which will result in improved water quality for both lakes.



**CLEAN
WATER
LAND &
LEGACY
AMENDMENT**



Vermillion River Watershed Joint Powers Organization

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The Vermillion River is a vital natural resource that is important to public health and recreation, as well as to preserving unique wildlife habitats. It flows from New Market Township in Scott County, through residential and agricultural areas in central Dakota County, and cascades into a 100-foot ravine before it enters the Mississippi River near the Cities of Hastings and Red Wing, Minnesota. Throughout its journey, the river reflects urban and rural life within its 335-square-mile watershed.

A grant from the Clean Water Fund, one of four funds established by the Clean Water, Land & Legacy Amendment, supported this project. [Clean Water Stories](#) can be found on the Minnesota Board of Water and Soil Resources website.

Problem:

- ❑ Too much phosphorus is draining from the watershed area draining to Long and Farquar Lakes
- ❑ Excess phosphorus is leading to algae blooms and problematic water quality conditions for the lakes
- ❑ Long and Farquar Lakes are impaired, (they don't meet State and Federal water quality standards), which requires actions to address the pollutant source(s)

Actions:

- ❑ The City gave up a portion of its park land in order to accommodate a water quality improvement project
- ❑ Two iron-enhanced sand filter cells were constructed to remove particulate-bound and dissolved phosphorus from one the primary sources of phosphorus in the watershed draining to the lakes
- ❑ Native plants were established for visual appeal

Benefits:

- ❑ Reduces phosphorus load by 33 lbs./year
- ❑ Removes both particulate-bound and dissolved portions of the total phosphorus load to the lakes
- ❑ Reduction in phosphorus aids in meeting water quality standards and removing the lakes from the Environmental Protection Agency's 303d impaired waters list

Costs and contributions:

- ❑ Vermillion River Watershed: \$40,000 for construction
- ❑ Clean Water Fund: \$20,000 grant
- ❑ Dakota County Soil and Water Conservation District: Technical assistance and construction oversight
- ❑ City of Apple Valley: \$76,284 for construction, project design, and construction oversight. The City will also perform long-term maintenance.