Silver Lake attracts anglers to Joy Park in Maplewood, seen here, and to Silver Lake Park in North St. Paul. Both parks have fishing piers. Joy Park is the site of Maplewood's only public boat launch, and is known for spring ephemerals including bloodroot.
Contributed Photos

Water quality work in N. St. Paul, Maplewood, protects Silver Lake

CLEAN WATER LAND & LEGACY AMENDMENT

BWSR awarded a $199,000 Clean Water Fund grant to the Valley Branch Watershed District for the project in 2016.

Clean Water Fund project focuses on phosphorus reduction by treating stormwater before it reaches lake known for public boat launch, piers, swimming beach

MAPLEWOOD — Silver Lake, a popular Twin Cities fishing and swimming spot spanning the Maplewood-North St. Paul city line, will benefit from a Valley Branch Watershed District phosphorus reduction project designed to protect water quality.

Phosphorus feeds the algae that can turn lakes green.

Ten years of water-quality monitoring data showed Silver Lake was on the verge of becoming impaired. Phosphorus levels were increasing. Water clarity was decreasing.

The lake's shallow depth, existing water quality and its heavy recreational use made it a high priority for VBWD. Maplewood's only public boat launch is in Joy Park on the north shore. A swimming beach is among the attractions at North St. Paul's Silver Lake Park on the south shore.

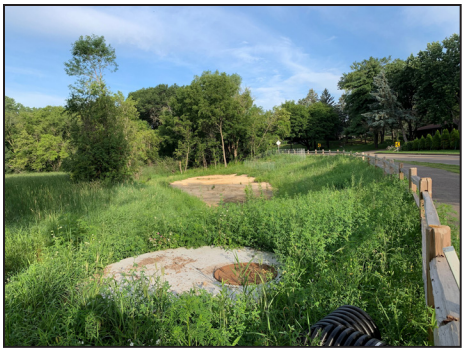
"If you want to be fishing in Maplewood, that's probably your go-to place," said Carole Gernes, Maplewood's natural resources coordinator. "The beach tends to be really clean. People pick up after themselves and seem to take pride in the fact that they've got one of the few beaches in that area."

Oak woods, spring ephemerals and migrating warblers are among the natural attractions.

The $370,000 project installed a spent lime filter adjacent to Joy Park, and restored a bio-retention basin in Silver Lake Park. It draws from a $199,000 Clean Water Fund grant the Minnesota Board of Water and Soil Resources awarded to the watershed district in 2016. Matching funds came from

BWSR

The Minnesota Board of Water and Soil Resources' mission: Improve & protect the state's water & soil resources, working in partnership with local organizations & private landowners. Website: www.bwsr.state.mn.us



A spent lime filter on the north side of Silver Lake, left, diverts stormwater to a basin and then to a wetland, treating the water before it enters the lake, removing dissolved phosphorus by binding it to calcium carbonate. On the south side of the lake, a restored bio-retention basin, middle and right, allows nutrients and the pollutants they carry to settle out. **Photo Credits:** Greg Williams, Barr Engineering

---

VBWD and the cities of Maplewood and North St. Paul.

Touch-up work finished in summer 2020. The 2021 season will be the first full year of post-construction monitoring.

"This project was really intended to reduce the nutrient loading to Silver Lake, because it is such a valued regional resource for multiple cities, in order to prevent the lake from becoming impaired," said Greg Williams, a Barr Engineering water resources engineer who managed the project for VBWD.

Williams said the VBWD set out to reduce phosphorus loading before it considered phosphorus reduction options such as an alum treatment. The grant-funded work will reduce phosphorus loading to the lake by an estimated 15 pounds per year. One pound of phosphorus can produce 500 pounds of algae.

The spent-lime filter diverts stormwater sewer flows to a basin and then to a wetland, treating the water before it enters the lake, removing dissolved phosphorus by binding it to calcium carbonate. About 40% of the lake's watershed drains through the site.

> **"This project was really intended to reduce the nutrient loading to Silver Lake, because it is such a valued regional resource for multiple cities, in order to prevent the lake from becoming impaired."**
>
> — Greg Williams,
> Barr Engineering water resources engineer

"It really concentrates the stormwater from the watershed and provides the opportunity to treat a lot of it in one location," Williams said.

Long overgrown with trees, the bio-retention basin had been improperly draining since at least 2013. The restored 200-by-40-foot depression allows nutrients and the pollutants it carries to settle out.

Pollinator-friendly native species planted at the site will improve habitat — a secondary project goal.

In Joy Park, educational signs fulfill another secondary goal.

Together, the practices treat runoff from about 240 acres — an area that contributes more than half of each growing season's phosphorus load to the lake, watershed modeling data show.

The project was held up for a time in fall 2018, when a heavy rain during nearby street reconstruction sent sediment into the bio-retention basin. The clean-out and subsequent evaluation determined the basin remained functional. Its estimated life is 20 years. After five years, maintenance responsibility for the basin will shift from the VBWD to the city of North St. Paul.

The spent lime filter has required adjustment to achieve optimal flow for maximum treatment.

In five years, Williams said he would like to see more improvements in the quality of treated stormwater entering the lake from the north, and a well-maintained, aesthetically appealing bio-retention basin in Silver Lake Park.

"A lot of these (projects) would not be completed without this source of funding," Williams said of the Clean Water Fund grant. "A lot of these projects are opportunities that either watershed management organizations, cities or other organizations are aware of, and are just kind of awaiting that funding in order to get it done."