

Pioneer-Sarah Creek Water Management Commission



Three Rivers' Baker Park ravine work aids Lake Independence water quality



The project taps a \$416,000 Clean Water Fund grant from BWSR.

A project finishing up this spring in Three Rivers Park District's Baker Park Reserve is designed to improve the water quality of Lake Independence. One of Hennepin County's most heavily used lakes, it is impaired for excessive nutrients.

A 2014 subwatershed analysis identified channel erosion in a ravine leading to the lake as a top sediment and phosphorus

contributor. It carried an estimated 277 pounds of phosphorus and 300 tons of sediment — the equivalent of 23 dump truck loads — to Lake Independence annually. Phosphorus feeds the algae that can turn lakes green.

"The lake has always had severe algal blooms," said Brian Vlach, senior water resources manager for Three Rivers Park District.



Baker



Bauerly



Vlach



Top: By late May, the re-sloped ravine stabilization in Baker Park Reserve was greening up. Seven species of wildflowers and nine grasses were planted in the dirt covering rock riprap and topped by an erosion control blanket. **Photo Credit:** Wenck Associates
Right: Eric Stay of Minnesota Native Landscapes ran the excavator on Dec. 19, 2019. The project aims to reduce phosphorus-loading to nutrient-impaired Lake Independence by 134 pounds a year at a cost of \$130 per pound. **Photo Credit:** Ann Wessel, BWSR



“The lake is pea-green through portions of the summer due to algal blooms,” Vlach said.

The \$520,000 Pioneer-Sarah Creek Watershed Management Commission ravine stabilization, which came in \$34,000 under budget, will accomplish an estimated 15% of the phosphorus reduction needed to meet Minnesota Pollution Control Agency water-quality standards.

Despite the algae, 832-acre Lake Independence remains a primary attraction in the metro park that saw well over a half-million visitors in 2018. The WMC deemed Lake Independence a high-priority sentinel lake, based partly on its high visibility and recreational use.

“The reduction of phosphorus in Lake Independence will clearly lead towards improved water quality and most notably water clarity,” said

Joe Baker, chairman of the Pioneer-Sarah Creek WMC.

The stabilization is a first step to reduce external phosphorus loading. To accomplish its long-term goal of increasing the lake’s clarity to 8 to 12 feet, the WMC is considering a future alum treatment to address internal phosphorus loading.

Lake Independence attracted more than 27,100 swimmers to the park’s two beaches, launched nearly 15,600 boaters from its public access and drew more than 3,400 anglers to its shore in 2018, the most recent year for which Metropolitan Council data are available.

“It has been a very good fishing lake,” Vlach said. A community of fish houses pops up during the winter. Anglers target crappies in early spring, walleye in the summer, and muskies well into the fall.



The Minnesota Board of Water and Soil Resources’ mission is to improve and protect Minnesota’s water and soil resources by working in partnership with local organizations and private landowners.
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“It’s been a good muskie fishery in the past. There’s some big muskies in there. A lot of people have had success,” Vlach said.

A technical adviser to the WMC, Three Rivers coordinated the project. Minnesota Native Landscapes of Otsego was the contractor. Wenck Associates of Maple

Landscape architect Seth Bossart, left, of Wenck Associates, discussed the Baker Park Reserve ravine stabilization with project foreman Nate Bauerly of Minnesota Native Landscapes. At bottom left is one of the rock grade-control structures installed in the main channel and two tributaries.

Photo Credit: Ann Wessel, BWSR

Plain handled project design and construction administration.

Work was made possible by a \$416,000 Clean Water Fund grant from the Minnesota Board of Water and Soil Resources. A \$59,500 Hennepin County Opportunity Grant from the county’s Environment and Energy Department, plus \$44,500 cost-share among the WMC, park district, Lake Independence Citizens Association and the cities of Independence and Medina covered the balance.

“Clean Water Funds by all

means enable a project like this,” Baker said “The cities of Independence, Medina and a small part of Maple Plain as the cities of benefit just really would not have the funds for that. We’ve had great support from BWSR as well as Hennepin County and Three Rivers Park District to ultimately pull the funding together.”

Construction finished in mid-February.

Touch-up seeding is planned in a few spots, and the park district will plant shrubs to discourage people from entering the ravine. But little evidence of construction remained this spring, as native wildflowers and grasses emerged from erosion control blankets covering the dirt-topped structures and re-sloped banks.

“The site looks very good,” Seth Bossert, a landscape architect and project inspector with Wenck, said after a late-May visit. “We had good germination rates of the seed. It was probably 4 to 6 inches tall, so it’s starting to look more emerald-colored.”

Native plants — seven species of wildflowers and nine grasses — were planted in the dirt covering rock riprap and topped by an erosion control blanket. In mid-December, the



The project will curb how much phosphorus enters Lake Independence by about 15% of the reduction needed to meet Minnesota Pollution Control Agency water-quality standards. **Photo Credit:** Wenck Associates

Minnesota Native Landscapes crew was installing riprap and re-sloping the ravine’s banks, moving downstream toward the lake. Newly constructed rock cross-vanes, which serve as grade-control structures, stood out against the snow.

The project was designed so park visitors won’t see a trace of construction.

Originally slated for the previous winter, the 2,200-foot channel stabilization was delayed in order to obtain a U.S. Army Corps of Engineers permit, required because of the project’s scope. Vlach said the delay resulted in more lead time and therefore lower bids.

Pending BWSR approval, the projected surplus could be used to fund smaller

projects within the 7,632-acre watershed. Those might include native plantings in Baker Park rain gardens, Lake Independence shoreline restorations, a carp barrier on the Ardmore Channel or erosion control projects elsewhere in the watershed.

The grant expires in December 2020.

The Hennepin County Environment and Energy Department is developing other cost-share and locally funded projects within the watershed. Department staff provide technical assistance and support to Pioneer-Sarah Creek WMC, operate a grant program, and conduct landowner outreach.

“We want to be able to demonstrate that we

can deliver projects and there’s a lot of interest from landowners in this area,” said Karen Galles, Land and Water Unit supervisor.

This season, staff is developing a project to stabilize and curb ice-related erosion affecting 65 feet of a 400-foot Lake Independence shoreline property. Two more projects affecting Lake Independence could be installed next year.

Conversations with landowners about potential conservation projects continue.

Nearly 500 private landowners’ properties drain directly to Lake Independence or to Lake Ardmore, which are connected by a channel. About half are lakeshore or suburban; half are rural residential or agricultural.

“The two staff added thanks to capacity funds have been the first boots-on-the-ground landowner assistance staff that (Hennepin County) has had in many years,” Galles said of the rural conservationists hired within the past three years.

Three Rivers’ continued water-quality monitoring and a re-evaluation of the TMDL will help to determine where in the watershed to focus next.



From left: Bluestem grass was used in the erosion control blanket. After a Dec. 19, 2019, construction meeting, a group from Wenck Associates, contractor Minnesota Native Landscapes, the Pioneer-Sarah Creek Watershed Management Commission, the park district and BWSR toured the site. Devan Maruska of Minnesota Native Landscapes staked an erosion control blanket. The ravine stabilization involved 1,800 feet in the main channel, plus 400 feet in two tributary ravines. **Photo Credits:** Ann Wessel, BWSR