

Enhancing water quality, quality of life



St. Paul Parks and Recreation, Capitol Region Watershed District work at Trout Brook Nature Sanctuary treats stormwater before it reaches the Mississippi River, draws people and critters to enhanced habitat on the site of a former rail yard



St. Paul's 42-acre Trout Brook Nature Sanctuary gets about 150,000 visitors a year.

Photo Credit: HR Green Inc.

ST. PAUL — A Clean Water Fund project at Trout Brook Nature Sanctuary that re-created more than a half-mile of a stream buried and channeled into a stormwater pipe 140 years ago is improving water quality, creating habitat and contributing to quality of life in the heart of the city.

The 0.58-mile segment of Trout Brook is the longest segment of natural stream in St. Paul.

“The sanctuary really is this green spine in a highly urbanized area of St. Paul,” said Alice Messer, St. Paul parks’ design and construction manager. “You walk into it, and you just feel the disconnect from the urban life. It’s this beautiful, restored landscape that used to be a rail yard.”

“From an open stream channel, you’re gaining water-quality benefits, habitat benefits and quality-of-life benefits that don’t exist in a tunnel underground.”



— Bob Fossum, Capitol Region Watershed District

Bordered by a rail line to the east and an auto salvage yard to the north, 42-acre Trout Brook Nature Sanctuary parallels Interstate Highway 35 East,

FUNDING: In addition to the \$695,000 Clean Water Fund grant from BWSR, the project received \$550,000 more in Legacy Amendment funding from the Parks & Trails Fund. The Capitol Region Watershed District contributed \$330,000. City of St. Paul contributions were \$200,000 from the capital improvement plan and \$50,000 from public works’ sewer fund.



Left: Native plants border a stormwater pond. **Right:** The re-created stream flows through the sanctuary in St. Paul. **Photo Credits:** Sara Rubenstein for Capitol Region Watershed District. **Middle:** The project, which finished in February 2020, required pumping water from a stormwater sewer interceptor on one side of the railroad tracks under the active rail line to the stream on the other side. **Photo Credit:** City of St. Paul

less than 2 miles from the State Capitol. Industrial pollution led the U.S. Environmental Protection Agency to designate the area as a brownfield site 20 years ago.

Today, the stream attracts dragonflies, amphibians and birds. Native plants thrive. Visitors have seen wild turkeys and deer on the property.

A \$695,000 Clean Water Fund grant the Minnesota Board of Water and Soil Resources (BWSR) awarded to the city of St. Paul in 2015 made the \$1.83 million stream re-creation possible. Capitol Region Watershed District staff spearheaded feasibility studies. St. Paul Parks and Recreation staff led design and construction.

A lift station pumps water from a stormwater sewer interceptor on one side of the railroad tracks under the active rail line to the re-created stream on the other side. It maintains water levels during dry periods and allows more water to be treated. Runoff from an adjacent residential neighborhood is captured and treated by three iron-enhanced sand filters to remove sediment

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— Alice Messer,
St. Paul Parks and Recreation



and the pollution it carries before the water flows to the re-created stream and ultimately to the Mississippi River.

The many utilities at the site complicated construction, which halted for a time while a sewer line was repaired. Work finished in February 2020.

Treating the water will reduce annual phosphorus-loading by an estimated 96 pounds, nitrogen by 960 pounds and sediment by 16 tons.

“When water is flowing through a tunnel underground, whatever pollutant is in there — whether it’s sediment or phosphorus or anything else — it can’t go anywhere. It’s flowing all the way to the river,” said Bob Fossum, monitoring research and maintenance division manager at Capitol Region Watershed District.

“When you move the water up and put it into a stream channel, some of it will still get to the river. But there’s a ton of opportunity for the sediment to settle out and become part of the stream channel, for phosphorus to be consumed and used by plants and other biota within the system. So you have a chance in a natural stream channel that that stuff can be held, retained, consumed, processed, utilized — like in the natural world.”

A water-quality performance report is expected by late 2021.

Fossum said the iron-enhanced sand filters are working well. The bigger surprise was how soon wildlife responded.

“That really came back much more quickly than I was expecting. There’s turkey and deer and all sorts of birds. Tadpoles and frogs are quite prevalent. A good

amount of dragonflies — some of which haven’t been seen in St. Paul in ... recent history,” Fossum said.

Trout Brook Nature Sanctuary attracts about 150,000 visitors a year. Open water is a big draw.

“It truly becomes this great park amenity where (visitors) can cross the stream, they can touch it,” Messer said. “I think the resource (benefit) is having moving water within the nature sanctuary. I think it adds to the quality of life. I think it adds to wildlife. I think it adds to the native plant community.”

The Clean Water Fund project is one element of park developments that have brought access to the Gateway State Trail, native plantings, ponds and art installations. Additional trail connections are planned for this summer.

“I don’t think we would have been able to do it without the Clean Water Funds,” Messer said of the re-created stream. Trout Brook Nature Sanctuary is one of seven regional parks in St. Paul that receive a combined total of about \$2.5 million in annual funding.