

Crosslake, partners protect water quality



Crow Wing County, SWCD's success protecting Big Trout Lake sparked similar stormwater projects within the Whitefish Chain



CROW WING COUNTY — The Clean Water Fund project that protects Big Trout Lake's cold-water fish habitat by treating pollution-carrying stormwater became a catalyst for similar water-quality work at two more sites along Crow Wing County Road 66.

From Manhattan Beach to the town of Crosslake, over the span of 4 miles the highway passes five lakes in the Whitefish Chain. The road pre-dates the sort of stormwater treatment that allows sediment — and the algae-feeding phosphorus it carries — to settle out before it's discharged.

"There wasn't a problem with the road. The problem was the storm sewer collection going directly to these high-quality water bodies," said



Hall

Assistant Crow Wing County Engineer Rob Hall. When the road was built, curb-and-gutter was installed where it was needed; so was the storm sewer. "You drained it to where water had always drained, which in this instance was the nearest lake."

The \$388,000 Big Trout Lake project installed pipes that channel stormwater runoff to three underground sediment collectors. It drew from a \$310,000 Clean Water Fund grant from the Minnesota Board of Water and Soil Resources (BWSR).

Work finished in 2018.

An Island Loon Lake retrofit replaced drainage that sent stormwater directly into the lake. The project involved Crow Wing SWCD and county, Crosslake, the Whitefish Area Property Owners Association and Crosslakers. It drew from BWSR Clean Water Funds.

Photos Courtesy of Crow Wing SWCD



Left: Inlets to underground sediment collectors lie just off Crow Wing County Road 66 at Big Trout Lake. **Middle:** Maintenance involves periodic sediment removal. **Right:** Crow Wing SWCD Manager Melissa Barrick and AmeriCorps intern Reece Boucher lend scale to a sediment collector.

The system treats runoff from 121 acres, keeping an estimated 40 pounds of phosphorus out of the lake each year. Once it enters the lake, each pound of phosphorus can produce up to 500 pounds of algae — which can affect water quality. Decomposing algae also reduces dissolved oxygen in the water.

Water clarity is affected by additional factors including invasive species, wave action, water temperature, precipitation and ice-out. Over the past four years, Big Trout Lake’s water clarity averaged 14.9 feet — an increase of 1.6 feet compared with the longtime average from 1992 through 2016.

Deep and cold, Big Trout Lake supports Crow Wing County’s only population of stocked lake trout. The county’s assessed value for Big Trout lakeshore lots and homes exceeds \$213 million.

The Whitefish Area Property Owners Association (WAPOA) board set a precedent when it agreed to pay 75% of the estimated \$1,500 annual routine maintenance cost to pump out the sediment collectors. Manhattan Beach will pay the balance.

Crow Wing County Highway Department staff reviewed the plans. The county owns the system and will handle any safety concerns that arise.

“This project is definitely a catalyst,” said Crow Wing Soil & Water Conservation District (SWCD) Manager Melissa Barrick.

“I think that Big Trout project really helped forge a stronger partnership. People saw what we did, and then citizens wanted to be involved. It corresponded really well with the city of Crosslake’s comprehensive plan,” Barrick said. “The combination of the citizens, the city and the county really helped to bring a larger perspective to that entire corridor.”

Hall met once a month for about five years with the Crosslake Water Quality Work Group, which is composed of county, city and community members. The aerial maps the county highway department created to clearly show the stormwater treatment system helped the group prioritize drainage projects, starting with Big Trout Lake.

One Crosslake stormwater treatment project finished in 2020. Another will coincide with a planned sanitary sewer expansion. Both received Clean Water Fund grants.

A \$608,000 targeted stormwater retrofit for Island Loon Lake addressed declining water clarity. With a \$475,000 Clean Water Fund grant awarded in 2019, the SWCD worked with the county highway department,

city of Crosslake, the WAPOA and the Crosslakers — a citizen-led group — to install three underground sediment collectors and a 13,500-square-foot basin to capture runoff. The work will reduce phosphorus-loading by an estimated 6 pounds per year. Because nutrient levels are low, small changes can dramatically affect the lake’s ecosystem and water clarity.

The system replaced drainage that sent stormwater directly into Island Loon Lake.

The county reviewed plans and contributed \$50,000. Crosslake bought the 2.59 acres where the pond was built and contributed more than \$75,000. The city is responsible for sediment collector clean-out and stormwater pond maintenance.

“We protect our waters, we protect our quality of life. The quality of our life goes down, our property values go down, people don’t want to recreate here,” said Crosslake Public Works Director Ted Strand.

Without the Clean Water Funds, Strand said the direct pipe to Loon Lake likely would have remained in place.

The second Crosslake project draws from a \$315,000 Clean Water Fund grant for runoff retrofits, awarded in 2020. Partners will contribute \$78,500 in matching funds.

That water-quality work will be coordinated with the city’s planned sanitary sewer expansion under County Road 66.

It will address the high ratio of impervious surfaces surrounding the lake. Working with five landowners, the SWCD will partner with the county highway department, the city, the WAPOA and the Crosslakers to build four stormwater retention basins that can store 15 acre-feet of water a year.

The project is being designed.

The planned sanitary sewer expansion will increase capacity from about 150,000 gallons per day to 175,000 gallons per day.

The highway department is working with the sanitary sewer project designer. The county will contribute \$37,500. The city bought a parcel, less than 1 acre, to install a stormwater pond.

“Between the water quality group and the city and the county, if they needed to find and budget for \$300,000 to \$400,000 each time one of these big improvements or mitigation projects is done, I don’t know if any of these would be done at this point,” Hall said. “The funding is the key. We can have all the great ideas and data we want, but you still need that bankroll to make these things happen.”