

Board Tour 2017: Kandiyohi County, Middle Fork Crow River Watershed District, and Grass Lake Restoration

October Snapshots 2017



Figure Board Tour Stop. For a full summary of our board tour check out our [YouTube page](#).

Each year the Board of Water and Soil Resources (BWSR) gathers local, state and federal agency staff for a board tour to highlight successful conservation projects in a region of Minnesota. The tour provides staff and board members an invaluable opportunity to experience Minnesota's local conservation delivery system in action.

BWSR Executive Director John Jaschke describes the importance perfectly. "Attendees get to view the projects they approve on paper up close. It's a powerful opportunity because you can touch these projects, meet and learn from local conservation advocates, and witness how conservation practices and partnerships have a direct impact on Minnesota's waterways."

This year the BWSR board toured southwest Minnesota and projects in Kandiyohi County and the Middle Fork Crow River Watershed District. The work focused on clean water and wetland restoration. One of the highlights of the tour was Grass Lake, a prairie wetland located in southeast Willmar. After years of planning this project is underway.

Before its drainage, Grass Lake, a shallow prairie lake, was approximately 1,200 acres in size and up to 4 to 5 feet in depth. The western edge of the former lakebed extends into what is now the developed southeastern part of Willmar. The area of the lakebed planned for restoration is privately owned and is located to the south and east of the Highway 23/71 bypass which runs along the southeast edge of the city.

Grass Lake and its contributing drainage areas are located at the upper end of the South Fork of the Crow River watershed. Downstream of Grass Lake is a chain of lakes including Lake Wakanda, Little Kandiyohi Lake, Big Kandiyohi Lake, and Lake Lillian, all of which are listed as impaired waters of the state.

A primary concern when considering the project was how to protect the private and public properties surrounding the lakebed from adverse flood impacts. This is challenging as certain areas of the city use and benefit from the same ditch system draining Grass Lake.

Much of this area of the city is actually part of the former lakebed and will be lower in elevation than the planned water surface of the downstream restored lake. In addition, the grade on the upper part of the ditch system is quite flat. Any modifications of this ditch system have great potential to adversely impact ditch capacity, as well as flood levels within the city.

Incremental restoration of portions of the lakebed including tile blocks, removal of lift stations, interim restoration of some wetland areas, and establishment of prairie grasses and forbs on adjoining upland buffer areas has been on-going since of the first conservation easements were obtained, in 1989.

In 2017, construction work continues on three additional phases of the project. This includes the reroute of the Branch 3 ditch system, the reroute of the CD23A main ditch, and construction of a number of embankments along the west and south edges of the lakebed. Included with the embankments is an armoring system on the front slope to address potential issues resulting from wave action and muskrat burrowing. The total construction cost for these three phases of work is projected to be about \$1.5 Million.



Sheet pile weir at outlet of Peach Creek diversion sediment pond

Final steps to complete the restoration will include construction of the primary and secondary outlets for the lake, additional embankments to complete the impoundment and protect adjoining non-easement lands, and miscellaneous cleanup work including grading and filling certain reaches of open ditch systems within the lakebed. The cost to complete these remaining tasks is estimated to be about \$800,000.

There's a lot to be excited about with the Grass Lake restoration given the numerous benefits for the surrounding area. These benefits include a reduction in flooding downstream of the chain of lakes and in the southeastern portion of Willmar, reduced future maintenance costs for the ditch system and improved water quality. The water quality benefits from the project are anticipated to yield a potential 91% reduction of sediment outputs and a 59% reduction in phosphorous for the 12 square mile drainage area of the restored lakebed. The additional recreational opportunities for hunting and bird watching are likely to benefit local businesses as well.

Tom Wenzel, Senior Water Resources Engineer for BWSR, summed it up best, "This is a significant and complex restoration project. It represents a lot of hard work and coordination by many people and it is nice to finally see an end in sight for its completion."