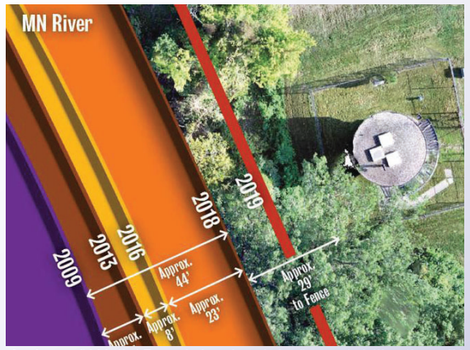
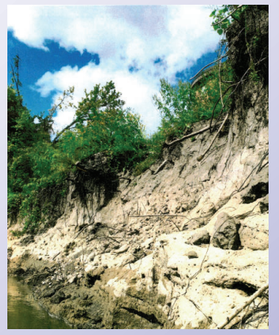
The Impact of Riverbank Erosion on Water Quality in Mankato

Valley Opportunities Riverbank Restoration Update

Thank you for supporting the Land of Memories Park riverbank stabilization project. As a result, Mankato's Well 15 (supplies 35 percent of the City's drinking water) and land that serves as the Mahkato Pow Wow grounds and is significant to Dakota Heritage are protected.



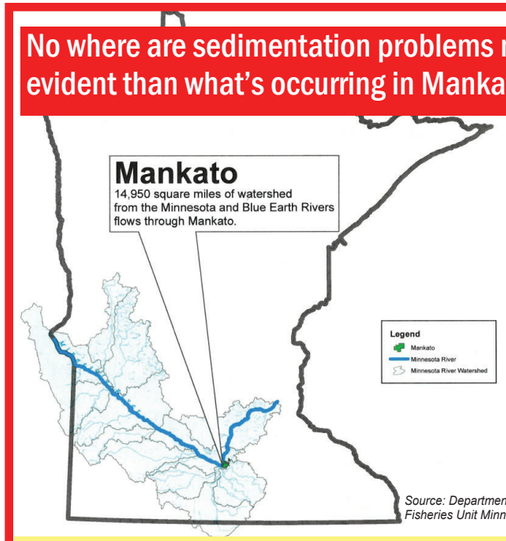


A view of Well 15 and riverbank before stabilization. Since 2009, the riverbank has eroded approximately 60 feet, and 15 feet of erosion occurred last year. One large event would have been disastrous.

Total project cost: $3.32 million

A view of Well 15 after riverbank stabilization.

No where are sedimentation problems more evident than what's occurring in Mankato, Minnesota.



- 74 percent of the sediment load going to the Mississippi River comes from the Minnesota River basin.
- Phosphorous often moves through the watershed because it's attached to sedimentation.

Source: Department of Natural Resources, Division of Fish and Wildlife Fisheries Unit Minnesota Department of Transportation

It's clear that:

- Higher volumes of precipitation are being seen.
- Rate, quantity and frequency of precipitation impacts the separation of rural and urban drainage. The moisture content of the soil results from excess precipitation, which creates saturated soils and leads to flooding.
- Water quality continues to deteriorate because of excessive sedimentation.
- Major regional assets are threatened.
- Ravine erosion will threaten private property and water quality.

To mitigate these issues, the severity of the impact needs to be eliminated. Approve these bonding requests and help protect the river, drinking water supply and regional assets.

Greater Mankato Water Quality Mitigation Demonstration Project

The quality of the Minnesota River watershed is at stake. The Greater Mankato Water Quality Mitigation Demonstration Project can immediately impact water quality and restore habitat for wildlife.

Develop point-nonpoint source total phosphorous trading program to:

- Reduce phosphorous discharged into the river.
- Determine additional needs for phosphorus reduction and reserve capacity.
- Identify feasible projects to further reduce total phosphorous.

An example of a wetland.

Restore and create wetland upstream of Monks Avenue to impact surface water through:

- Increased nitrate removal.
- Decreased sediment and phosphorous.
- Reduced erosion.
- Stored water on the landscape to reduce flooding.

Existing drainage patterns and agricultural land use provide an opportunity to restore wetland at the upstream area of the Indian Creek Watershed.

Drainage patterns and agricultural land.

Budgeted cost: $8.3 million Awarded $1.3 million
Funds yet needed: $7.5 million
50 percent state/50 percent local

What Can Help Address Riverbank Erosion and Improve Water Quality n Mankato

Stabilize Indian Creek Ravine Stream Bank

- Drainage from outside of the City causes severe ravine erosionm creates sedimentation problems in the Minnesota River basin and contribues to riverbank instability.
- Ravine bank stabilization will protect millions of dollars of property.
- Priorities include Indian Creek and Viking ravines where there are numerous slope failures.

An example of an eroding ravine.

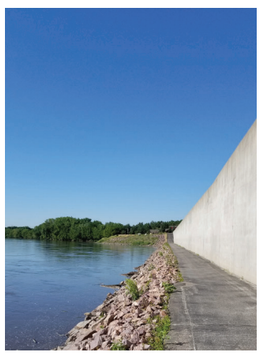
Budgeted cost: $5.5 million
50 percent state/50 percent local

Protect Mankato's Water Resource Recovery Facility

- The Water Resource Recovery Facility is a regional asset that provides wastewater and reclamation services to about 70,000 people in Mankato and the cities of North Mankato, Eagle Lake, Madison Lake and Skyline, South Bend Township and the Lake Washington Sanitation District.

Riverbank stabilization (along the yellow line) is critical to protecting Mankato's Water Resource Recovery Facility.

Budgeted cost: $7.75 million Awarded: $7.2 million
Funds y**et needed: $1 million due to unexpected environmental issues**
80 percent state/20 percent local



Examples of flooding along and on the Minnesota River Trail in Mankato. (Left) The river gets close to the Minnesota River Trail. (Right) The Minnesota River Trail is flooded over.

City of Mankato
Leading the way...

For more information contact :

City Manager
Susan MH Arntz
507-387-8695
sarntz@mankatomn.gov