Please note the meeting will be held at the Carver County Government Center on the 4th

# LOWER MINNESOTA RIVER WATERSHED DISTRICT

## Lower Minnesota River Watershed District

7:00 PM

Wednesday, October 24, 2018

Carver County Government Center

600 East Fourth Street, Chaska, MN 55318

| Agenda Item | Discussion |
|---|---|
| 1. Call to order | A. Roll Call |
| 2. Approval of agenda | |
| 3. Citizen Forum | *Citizens may address the Board of Managers about any item not contained on the regular agenda. A maximum of 15 minutes is allowed for the Forum. If the full 15 minutes are not needed for the Forum, the Board will continue with the agenda. The Board will take no official action on items discussed at the Forum, with the exception of referral to staff or a Board Committee for a recommendation to be brought back to the Board for discussion or action at a future meeting.* |
| 4. Consent Agenda | *All items listed under the consent agenda are considered to be routine by the Board of Managers and will be enacted by one motion and an affirmative vote of a majority of the members present. There will be no separate discussion of these items unless a Board Member or citizen request, in which event, the items will be removed from the consent agenda and considered as a separate item in its normal sequence on the agenda.*<br>A. Approve Minutes July 18, 2018, August 15, 2018 & September 17, 2018 Regular Meeting<br>B. Receive and file Financial Reports<br>C. Approval of Invoices for payment<br>i. Scott County SWCD - Q3 monitoring services<br>ii. Bruce Bergo - 2018 Cost Share Program<br>iii. US Bank Equipment Finance - October 2018 copier rental<br>iv. Rinke Noonan - July 2018 legal expenses<br>v. Star Tribune - Publication of August 26, 2018 public hearing notice<br>vi. Carver County Finance Department - Q3 accounting services<br>D. Metro-area Watershed Based Funding Grant Agreement<br>E. Lower Minnesota River Dredge Management Grant Agreement<br>F. Approval of replacement copier<br>G. Master Water Steward<br>H. Chimney Pines HOA 2018 Cost Share report<br>I. Bergo 2018 Cost Share report |
| 5. New Business/ | A. Presentation of *Sedimentation Accumulation in the Floodplain of the Lower* |

| | |
|---|---|
| Presentations | *Minnesota River Watershed* by Dr. Carrie Jennings<br>B. 2019 Cost Share Program |
| 6. Old Business | A. Dredge Management<br>i. Funding for dredge material management<br>ii. Vernon Avenue Dredge Material Management site<br>iii. Private Dredge Material Placement<br>B. Watershed Management Plan<br>C. 2019 Legislative Action<br>D. Education & Outreach - No update since last report<br>E. LMRWD Projects - No new information to report since last update<br>i. Eden Prairie Area #3 Stabilization<br>ii. Riley Creek Cooperative project/Lower Riley Creek restoration<br>iii. Seminary Fen ravine stabilization project<br>iv. East Chaska Creek (Carver County Watershed Based Funding)<br>v. Schroeder Acres Park (Scott County Watershed Based Funding)<br>vi. Shakopee Downtown BMO Retrofit (Scott County Watershed Based Funding)<br>vii. PLOC ( Prior Lake Outlet Channel) Restoration (Scott County Watershed Based Funding)<br>viii. Dakota County Fen Gap Analysis and Conceptual Model (Dakota County Watershed Based Funding)<br>ix. Hennepin County Chloride Project (Hennepin County Watershed Based Funding)<br>x. Vegetation Management Plan<br>xi. Sustainable Lake Management Plan - Trout Lakes<br>xii. Geomorphic Assessment of Trout Streams<br>F. Project Reviews<br>i. MN Valley State Trail - EAW (Environmental Assessment Worksheet)<br>ii. Hennepin County - CSAH 61 - Flying Cloud Drive<br>iii. MNDOT - I494/TH 5/TH 55 Mill & Overlay project<br>iv. MNDOT - I35W Bridge Replacement<br>v. MNDOT - I494 from TH169 to Minnesota River<br>vi. City of Shakopee - Amazon Fulfillment Center drainage<br>vii. City of Eagan - Stormwater Management Plan, Water Quality & Wetland Management and Comprehensive Plan<br>viii. City of Eden Prairie - Aspire Eden Prairie 2040 Draft Plan<br>ix. City of Lilydale - 2040 Draft Comprehensive Plan<br>x. MAC/LMRWD/MCWD boundary realignment<br>xi. Fort Snelling - Dominion Housing<br>xii. USACOE/USFWS - Bass Ponds, Marsh & Wetland<br>G. MPCA Soil Reference Values - No new information since last update |
| 7. Communications | A. Administrator Report |

| | |
|---|---|
| | B. President<br>C. Managers<br>D. Committees<br>E. Legal Counsel<br>F. Engineer |
| 8. Adjourn | Next meeting of the LMRWD Board of Managers is Monday, November 19, 2018 |

Upcoming meetings/Events

- Fresh water Society 50th Anniversary - Thursday, October 25, 2018, 6:00pm to 8:00pm Minnesota History Center, 345 West Kellogg Boulevard, St. Paul, MN
- BWSR Academy - October 29 to October 31, Breezy Point Conference Center
- 11th Minnesota River Congress - Thursday, November 8, 2018, 4:30pm to 9:00pm, Turner Hall, 102 South State Street, New Ulm
- Climate Adaption Conference - November 14, 2018, University of Minnesota, Continuing Education and Conference Center, 1890 Buford Avenue, St. Paul, MN
- Upper Mississippi Waterway Association - Thursday, November 15, 2018, 11:30am to 1:30pm, Lilydale Pool & Yacht Club
- MAWD 2018 Annual Conference - November 29 to December 1, 2018; Arrowwood Resort and Conference Center, Alexandria, MN
- USACE River Resource Forum - December 2018, US Fish & Wildlife Center, Bloomington, MN

For Information Only

- WCA Notices
  - City of Shakopee - Notice of Application - Canterbury Park 7th Addition
  - City of Shakopee - Notice of Decision - Canterbury Park 7th Addition
  - City of Eden Prairie - Notice of Decision - 9811 Flying Cloud Drive
- DNR Public Waters Work permits
  - None received
- DNR Water Appropriation permits
  - City of Shakopee - Northwest Asphalt, applicant, Project Name: Stagecoach, temporary construction dewatering, permit application #2018-3455: permit issued 10/4/2018
  - MNDOT - Permit 2018-3335 Issued - temporary Construction dewatering for construction of I-35W bridge replacement
  - City of Bloomington - Consolidated Construction, applicant, Project Name: Cambria, Bloomington, temporary construction dewatering, permit application #2018-3591: permit issued 10/19/2018
  - City of Savage - City of Savage, applicant, Project Name; City of Savage - 7369 Highway 13 Water and Sanitary Connections, temporary construction dewatering permit application #2018-3571, permit issued 10/17/2018

Future Manager Agenda Items list

- Report of water quality testing of Minnesota River from MPCA
- Report on Flying Cloud Landfill
- Record retention policy
- AIS Policy
- Riverbank stabilization policy

Future TAC Agenda Items List

- LMRWD monitoring plan

Lower Minnesota River Watershed District
General Fund Financial Report
Fiscal Year: January 1, 2018 through December 31, 2018
Meeting Date: October 24, 2018

(UNAUDITED)

Item 4.B.
LMRWD 10-24-18

| | | | | | |
|---|---|---|---|---|---|
| **BEGINNING BALANCE** | | **31-Aug-18** | | | **$ 1,228,914.22** |
| **ADD:** | | | | | |
| **General Fund Revenue:** | | | | | |
| | | | $ - | | |
| **Total Revenue and Transfers In** | | | | | **$ -** |
| DEDUCT: | | | | | |
| **Warrants:** | | | | | |
| 22764 | Scott County SWCD | Q3 Monitoring Service & TACS | $ 6,672.50 | | |
| 409699 | Bruce Bergo | Cost Share reimbursement | $ 2,338.48 | | |
| 409747 | US Bank Equipment Finance | October copier rental | $ 231.91 | | |
| 410041 | Rinke Noonan | July 2018 Legal Services | $ 1,496.00 | | |
| 410047 | Star Tribune | Publication of public hearing notice | $ 1,036.00 | | |
| JE | Carver County Finance | Q3 Accounting Services | $ 1,210.20 | | |
| **Total Warrants/Reductions** | | | | | **$ 12,985.09** |
| **ENDING BALANCE** | | **30-Sep-18** | | | **$ 1,215,929.13** |

Lower Minnesota River Watershed District
General Fund Financial Report
Fiscal Year: January 1, 2018 through December 31, 2018
Meeting Date: October 24, 2018

FY 2018

| EXPENDITURES | 2018 Budget | September Actual | YTD 2018 | Over (Under) Budget |
|---|---|---|---|---|
| **Administrative expenses** | $ 250,000.00 | $ 3,039.61 | $ 159,390.05 | $ (90,609.95) |
| **Cooperative Projects** | | | | |
| Gully Erosion Contingency Fund | $ - | $ - | $ - | $ - |
| Ravine Stabilization at Seminary Fen in Chaska | $ - | $ - | $ - | $ - |
| Eden Prairie Bank Stabilization Area #3 | $ - | $ - | $ - | $ - |
| Eagle Creek | $ - | $ - | $ - | $ - |
| USGS Sediment & Flow Monitoring | $ 18,500.00 | $ - | $ 8,500.00 | $ (10,000.00) |
| **509 Plan Budget** | | | | |
| *Resource Plan Implementation* | | | | |
| Sustainable Lakes Management Plan (Trout Lakes) | $ 50,000.00 | $ - | $ - | $ (50,000.00) |
| Geomorphic Assessments (Trout Streams) | $ 50,000.00 | $ - | $ - | $ (50,000.00) |
| Paleolimnology Study (Floodplain Lakes) | $ 50,000.00 | $ - | $ 37,200.00 | $ (12,800.00) |
| Fen Stewardship Program | $ 75,000.00 | $ - | $ - | $ (75,000.00) |
| District Boundary Modification | $ 10,000.00 | $ - | $ - | $ (10,000.00) |
| East Chaska Creek Treatment Wetland Project | $ 10,000.00 | $ - | $ - | $ (10,000.00) |
| Minnesota River Sediment Reduction Strategy | $ 25,000.00 | $ - | $ - | $ (25,000.00) |
| Seminary Fen - gap analysis | $ - | $ - | $ - | $ - |
| Data Assessments and Program Review | $ - | $ - | $ - | $ - |
| Dakota County groundwater modeiling | $ - | $ - | $ - | $ - |
| Riley Creek Cooperatice Project | $ 50,000.00 | $ - | $ 75,075.49 | $ 25,075.49 |
| Local Water Management Plan reviews | $ 12,000.00 | $ - | $ 6,384.13 | $ (5,615.87) |
| Project Reviews | $ 16,000.00 | $ - | $ 8,424.63 | $ (7,575.37) |
| *Monitoring* | $ 65,000.00 | $ 6,672.50 | $ 8,419.92 | $ (56,580.08) |
| *Monitoring Data Analysis* | | | | $ - |
| *Technical Assistance* | | | | $ - |
| *Watershed Management Plan* | | | | $ - |
| Plan Amendment | $ 50,000.00 | $ - | $ 61,148.60 | $ 11,148.60 |
| Vegetation Management Standard/Plan | $ - | $ - | $ - | $ - |
| *Public Education/CAC/Outreach Program* | $ 30,000.00 | $ - | $ 19,899.60 | $ (10,100.40) |
| *Cost Share Program* | $ 20,000.00 | $ 2,338.48 | $ 12,338.48 | $ (7,661.52) |
| Savage Fen/Dakota Ave. Ravine Stabilization Project | $ - | $ - | $ - | $ - |
| **Nine Foot Channel** | $ 50,000.00 | $ - | $ - | $ (50,000.00) |
| Dredge Site Improvements | $ 240,000.00 | $ 934.50 | $ 14,129.12 | $ (225,870.88) |
| Total: | $ 1,071,500.00 | $ 12,985.09 | $ 410,910.02 | |

Please note the meeting will be held in the County Board Room at the Carver County Government Center, 600 East 4th Street, Chaska, MN.

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

# Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, October 24, 2018

**Agenda Item**
**Item 4. D. Metro-area Watershed Based Funding Grant Agreement**

**Prepared By**
Linda Loomis, Administrator

**Summary**
The grant agreement for the Metro-area Watershed Based Funding is attached. The Board should make a motion to authorize execution of the agreement.

The projects being funded under this agreement follow:

| Project Name | County | Amount |
|---|---|---|
| East Chaska Creek Stabilization | Carver County | $25,472 |
| Targeted BMPs for Downtown Shakopee | Scott County | $25,000 |
| Prior Lake Outlet Channel Realignment/Wetland Restoration | Scott County | $71,570 |
| Schroeder Acres Park/Eagle Creek sub-watershed stormwater study | Scott County | $60,000 |
| **TOTAL** | | **$182,042** |

The Dakota County Fen project for $65,450 is covered under a grant agreement with the Dakota SWCD. BWSR was concerned that the project proposed by the LMRWD would not use all the money allocated to the District. BWSR wanted to be able to re-direct the funds to another project without going through a new process. Since the LMRWD did not have any back-up projects in Dakota County, BWSR thought the money should be included in the Dakota SWCD's grant agreement. The LMRWD will manage the project. The Dakota County SWCD will be responsible for reporting the project through the BWSR portal -elink.

There is another project in Scott County the spans the border between the LMRWD and the Scott WMO in the City of Shakopee. This project is a feasibility study to incorporate water quality functions in a regional stormwater facility for $20. Scott WMO will manage this project and the reporting. The project is therefore included under the grant agreement with Scott WMO.

Work Plans for each of the LMRWD projects are attached in addition to the Grant Agreement

**Attachments**
East Chaska Creek Stabilization work plan
Targeted BMPs for Downtown Shakopee work plan
Prior Lake Outlet Channel Realignment/Wetland Restoration
Schroeder Acres Park/Eagle Creek sub-watershed stormwater study
Dakota County Fen Gap Analysis work plan
FY 2019 State of Minnesota Board of Water and Soil Resources Watershed Based Funding Grants Program Gran Agreement

**Recommended Action**
Authorize execution of the Metro-area Watershed Based Funding Grant Agreement

Name: **East Chaska Creek Stabilization Project**

Description of Activity: The East Chaska Creek (Creek) Stabilization Project (Project) is located in the City of Chaska within the Lower Minnesota Watershed District. Previous studies recommend maintenance and several channel erosion countermeasures from Crosstown Blvd to approximately 600 feet downstream of Chaska Blvd. The Project consists of repairing the scour hole downstream of Crosstown Boulevard Bridge; installing streambank armoring, tore protection and a grade control structure. The extent of the project would be form

Workplan Activities

**Activity 1: Contract Management**
Activity Category: Administration/Coordination
Budget: $2,250 ($250 additional to be included in grant match activity)
LMRWD staff or consultant? Consultant
Hourly Rate if LMRWD staff: N/A
# of hours: N/A

Project Description: Manage contract between LMRWD and consultant for the completion of the Project.

Overall Measurable Outcome: Repair erosion, stabilize East Chaska Creek and reduce ### sediment deposited in Minnesota River via East Chaska Creek.
Year 1 Milestones: Execute contract including specific deliverables with consultant
Year 2 milestones: N/A
Year 3 Milestones: Closeout project and successful completion all of activities

**Activity 2: Feasibility Study**
Activity Category: Feasibility Study
Budget: $9,000 ($1,000 additional to be included in grant match activity)
LMRWD staff or consultant? Consultant
Hourly Rate if LMRWD staff: N/A
# of hours: N/A

Project Description: Since previous studies and field investigations were completed in 2015, the project area and proposed countermeasures will need to be validated.

Overall Measurable Outcome: comprehensive site review

Year 1 Milestones: complete feasibility study
Year 2 milestones: N/A
Year 3 Milestones: N/A

**Activity 3: Survey and engineering design**
Activity Category: engineering design
Budget: $14,222($10,788 additional to be included in grant match activity)
LMRWD staff or consultant? Consultant
Hourly Rate if LMRWD staff: N/A
# of hours: N/A

Project Description: Complete a topographic survey the Project reach to aid in the detailed engineering design of the Project. Prepare construction drawings and specifications necessary to competitively bid and construct the project.

Overall Measurable Outcome: Complete the survey and engineering design.
Year 1 Milestones: N/A
Year 2 milestones: Complete the survey and engineering design.
Year 3 Milestones: N/A

**Activity 4: East Chaska Creek Stabilization Project Construction and Construction Administration**
Activity Category: Construction and Construction Administration
Budget: $0 ($131,006) additional to be included in grant match activity)
LMRWD staff or consultant? Consultant
Hourly Rate if LMRWD staff: N/A
# of hours: N/A

Project Description:
Use the information from activities 2 and 3 to complete the required restoration of East Chaska Creek.

Overall Measurable Outcome: Stabilization of East Chaska Creek
Year 1 Milestones: N/A
Year 2 milestones: Construction and Construction Administration
Year 3 Milestones: N/A

**Activity: LMRWD East Chaska Creek Project**
Activity Category: Administration/Coordination
Budget: $25,472
LMRWD staff or consultant? Consultant
Hourly Rate if LMRWD staff: N/A
# of hours: N/A

Project Description: Grant match will come from LMRWD local funds. General breakdown of matching funds for specific activities is as follows:
Contract Management: $250
Feasibility Study: $1,000
Survey and engineering design: $10,778
Construction and construction administration: $131,006

Overall Measureable Outcome: Repair erosion, stabilize East Chaska Creek and reduce ### sediment deposited in Minnesota River via East Chaska Creek.
Year 1 Milestones: Execution contract including specific deliverables with consultant and completion of a feasibility study
Year 2 milestones: Completion of the survey and engineering design.
Year 3 Milestones: Construction, construction administration, project closeout after successful completion all of activities

Name: **Targeted BMP for Downtown Shakopee area**

Description of Activity:

This project would analyze current stormwater systems in Downtown Shakopee and identify opportunities to implement BMPs before stormwater is discharged into the Minnesota River.

Workplan Activities

1. Targeted BMP Study - Complete targeted BMP study that identifies opportunities in Downtown Shakopee to implement BMPs before stormwater is discharged into the Minnesota River.
    a. Budget: $27,500 (WBF - $25,000 and City of Shakopee match $2,500)
    b. Timeline: December 2018 – December 2019

**Activity: Targeted BMP for Downtown Shakopee area – Targeted BMP Study**
Activity Category: Planning and Assessment
Budget: $25,000($2,500 additional to be included in grant match activity)
City of Shakopee staff or consultant? Consultant
Hourly Rate if City of Shakopee staff: N/A
# of hours: N/A

Project Description: Complete targeted BMP study for Downtown Shakopee to identify opportunities to implement BMPs before stormwater is discharged into the Minnesota River. The Targeted BMP study will include identifying potential BMP opportunities, modeling for preliminary bmp sizing and check feasibility, modeling to estimate water quality benefits, life cycle cost estimates, a cost-benefit analysis, and summary report.

Overall Measurable Outcome: A summary report that includes potential/feasible BMP opportunities for Downtown Shakopee, outlines modeling effort, summarizes load reduction benefits and life cycle costs associated with the BMPs, and includes a cost-benefit analysis. The summary report should include figures and tables to help communicate the BMPs and their water quality benefit.
Year 1 Milestones: Complete targeted BMP study.
Year 2 milestones: N/A
Year 3 Milestones: N/A

**Activity: Targeted BMP for Downtown Shakopee area – Grant Match**
Activity Category: Administration/Coordination
Budget: $2,500

City of Shakopee staff or consultant? Consultant
Hourly Rate if City of Shakopee staff: N/A
# of hours: N/A

Project Description: Grant match will come from a cash match from the City of Shakopee. General breakdown of matching funds for specific activities is as follows:
Targeted BMP Study: $2,500

Overall Measurable Outcome: A targeted BMP study for Downtown Shakopee.
Year 1 Milestones: Complete targeted BMP study.
Year 2 milestones: N/A
Year 3 Milestones: N/A

Name: **Prior Lake Outlet Channel Realignment/Wetland Restoration**

Description of Activity:

This project includes a feasibility study to determine potential water quality benefits to Dean Lake that would result from restoration of the Prior Lake Outlet Channel including altering the alignment (creating meanders) and constructing a flow-through wetland complex to slow the flow of water. Funds will also be used towards the construction of identified activities/BMP's that will benefit water quality in Dean Lake and, subsequently, the Minnesota River downstream.

Workplan Activities

1. Feasibility Study - Complete feasibility study to evaluate the potential water quality benefits of the realignment/wetland restoration project.
    a. Budget: $22,000 (WBF - $20,000 and City of Shakopee match $2,000)
    b. Timeline: December 2018 – May 2019
2. Construction of Water Quality Improvement Activities – Specific implementation activities that will benefit water quality.
    a. Budget: $78,727 (WBF - $51,570 and City of Shakopee match $5,157)
    b. Timeline: May 2019 – December 2021

**Activity: Prior Lake Outlet Channel Realignment/Wetland Restoration - Feasibility Study**
Activity Category: Planning and Assessment
Budget: $20,000($2,000 additional to be included in grant match activity)
City of Shakopee staff or consultant? Consultant
Hourly Rate if City of Shakopee staff: N/A
# of hours: N/A

Project Description: Complete feasibility study to evaluate the potential water quality benefits of the realignment/wetland restoration project.

Overall Measurable Outcome: A report that evaluates the water quality benefits of the realignment/wetland restoration project. The feasibility study is to verify estimated load reductions of 30-50 lbs TP annually and 75,000-100,000 lbs TSS annually.
Year 1 Milestones: Complete feasibility study and verify load reduction estimates.
Year 2 milestones: N/A
Year 3 Milestones: N/A

**Activity: Prior Lake Outlet Channel Realignment/Wetland Restoration - Construction of Water Quality Improvement Activities**

Activity Category: Wetland Restoration/Creation

Budget: $51,570($5,157 additional to be included in grant match activity)

City of Shakopee staff or consultant? Consultant

Hourly Rate if City of Shakopee staff: N/A

# of hours: N/A

Project Description: Construction of specific implementation activities identified by the feasibility study to provide water quality benefit. It is estimated that this project, if supported by the feasibility report, could remove 30-50 lbs of TP annually and 75,000 to 100,000 lbs of TSS annually.

Overall Measurable Outcome: Construction of the implementation activities to achieve water quality benefit

Year 1 Milestones: Start construction.

Year 2 milestones: Complete construction.

Year 3 Milestones: N/A

**Activity: Prior Lake Outlet Channel Realignment/Wetland Restoration - Grant Match**

Activity Category: Administration/Coordination

Budget: $7,157

City of Shakopee staff or consultant? Consultant

Hourly Rate if City of Shakopee staff: N/A

# of hours: N/A

Project Description: Grant match will come from a cash match from the City of Shakopee. General breakdown of matching funds for specific activities is as follows:

Feasibility Study: $2,000

Construction of Water Quality Improvement Activities: $5,157

Overall Measurable Outcome: A feasibility study verifying water quality benefits and construction of implementation activities to achieve water quality benefit.

Year 1 Milestones: Complete feasibility study and start construction.

Year 2 milestones: Complete construction.

Year 3 Milestones: N/A

Schroeder Acres Park/Eagle Creek Sub-watershed Stormwater Study

Description of Activity: Schroeder Acers Park is located in the city of Savage within the LMRWD. The goal is to improve the overall health of Eagle Creek, a designated trout stream, by reducing bacteria, and nutrients, managing temperature, reducing volume, evaluate impacts of chlorides.

Workplan Activities

**Activity 1: Contract Management**

Activity Category: Administration/Coordination

Budget: $2,250 ($250 additional to be included in grant match activity)

LMRWD staff or consultant? Consultant

Hourly Rate if City/LMRWD staff: N/A

# of hours: N/A

Project Description: Manage contract between City of Savage/LMRWD and consultant for the completion of the Project.

Overall Measurable Outcome: Manage contract between LMRWD and consultant for the completion of the Project.

Year 1 Milestones: Execute contract including specific deliverables with consultant

Year 2 milestones: N/A

Year 3 Milestones: Closeout project and successful completion all of activities

**Activity 2: Feasibility Study**

Activity Category: Feasibility Study

Budget: $25,000 ($2,500 additional to be included in grant match activity)

LMRWD staff or consultant? Consultant

Hourly Rate if City/LMRWD staff: N/A

# of hours: N/A

Project Description: Conduct study to evaluate current conditions impacts to overall stream health, related to bacteria, nutrients, temperature and volume. The area is heavily industrialized and chloride use has not been evaluated. Study will help us to better define parameters to focus on.

Overall Measurable Outcome:  comprehensive site review

Year 1 Milestones:  Complete feasibility study

Year 2 milestones: N/A

Year 3 Milestones: N/A

**Activity 3: Conceptual engineering design**

Activity Category:  Conceptual engineering design

Budget: $32,750 ($3,275 additional to be included in grant match activity)

LMRWD staff or consultant?  Consultant

Hourly Rate if City/LMRWD staff: N/A

# of hours: N/A

Project Description:  Using information gathered in feasibility study to aid in the conceptual engineering design of the Project. Prepare construction drawings and specifications necessary to competitively bid and construct the project.

Overall Measurable Outcome: Complete Conceptual engineering design.

Year 1 Milestones:  N/A

Year 2 milestones:  Begin preliminary engineering design.

Year 3 Milestones: N/A

Name: **Dakota County Fen Study/ Management Plan**

Description of Activity:

Complete a gaps analysis in coordination with the Minnesota Department of Natural Resources (DNR) to assist in the protection of groundwater-dependent resources. End goal is to develop (along with the DNR) a management plan for all fens in the LMRWD. This project would assist the development of rules and a permitting program for activity in High Value Resource Areas identified in the LMRWD Watershed Management Plan Amendment.

Workplan Activities

1. Administrative Costs – Contract management
    a. Budget: $2,400 (WBF - $1,308 and LMRWD match $1,092)
    b. Timeline: October 2018 – December 2019
2. Gaps analysis – Complete a comprehensive review of available information on the fens within the District, specifically the fens in Dakota county. The review will consider information needed to complete task 2.
    a. Budget: $10,000 (WBF - $5,450 and LMRWD match $4,550)
    b. Timeline: October 2018 – December 2018
3. Conceptual site models – Complete site model for each fen research in task 1. Each CSM will present the a) topography and land use, b) geology, c) hydrogeology, d) geochemistry and e) sources and sinks of groundwater.
    a. Budget: $47,600 (WBF - $25,942 and LMRWD match $21,658)
    b. Timeline: January 2019 – June 2019
4. Fen management plan – Using the information gathered in tasks 1 and 2 to develop a sustainable management plan for each fen.
    a. Budget: $60,000 (WBF - $32,700 and LMRWD match $27,300)
    b. Timeline: June 2019 – December 2019

BOARD OF WATER AND SOIL RESOURCES

**FY 2019 STATE OF MINNESOTA**
**BOARD OF WATER and SOIL RESOURCES**
**WATERSHED BASED FUNDING GRANTS PROGRAM**
**GRANT AGREEMENT**

| | | | |
|---|---|---|---|
| **Vendor:** | 0000201935 | **VN#:** | |
| **PO#:** | 3000009659 | **Date Paid:** | |

This Grant Agreement is between the State of Minnesota, acting through its Board of Water and Soil Resources (Board) and **Lower Minnesota River WD, 10901 Riverview Road Eden Prairie Minnesota 55347** (Grantee).

| *This grant is for the following Grant Programs :* | | |
|---|---|---|
| P19-3264 | 2019 - Watershed Based Funding Metro (Lower Minnesota River WD) | $182,042 |

**Total Grant Awarded**: **$182,042**

**Recitals**

1. The Laws of Minnesota 2017, Chapter 91, Article 2, Section 7 (a), appropriated Clean Water Funds (CWF) to the Board for the FY 2019 Watershed-based Funding Pilot Program.
2. The Board adopted the Clean Water Fund Watershed-based Funding Pilot Program Policy and authorized the Watershed-based Funding Pilot Program Grants through Board Resolution 17-96.
3. The Board adopted Board Resolution 17-96 to allocate funds for the FY 2019 Watershed-based Funding Pilot Program.
4. The Grantee has submitted a BWSR approved work plan for this Program which is incorporated into this agreement by reference.
5. The Grantee represents that it is duly qualified and agrees to perform all services described in this grant agreement to the satisfaction of the State.
6. As a condition of the grant, Grantee agrees to minimize administration costs.

**Authorized Representative**

The State's Authorized Representative is Marcey Westrick, Clean Water Coordinator, BWSR, 520 Lafayette Road North, Saint Paul, MN 55155, 651-284-4153, or her successor, and has the responsibility to monitor the Grantee's performance and the authority to accept the services and performance provided under this Grant Agreement.

The Grantee's Authorized Representative is: **TITLE**
**ADDRESS**
**CITY**
**TELEPHONE NUMBER**

If the Grantee's Authorized Representative changes at any time during this Grant Agreement, the Grantee must immediately notify the Board.

**Grant Agreement**

**1. Term of Grant Agreement.**

1.1. ***Effective date***: The date the Board obtains all required signatures under Minn. Stat. § 16B.98, Subd.5. **The State's Authorized Representative will notify the Grantee when this grant agreement has been executed. The Grantee must not begin work under this grant agreement until it is executed.**

1.2. ***Expiration date*:** December 31, 2021, or until all obligations have been satisfactorily fulfilled, whichever comes first.

1.3. ***Survival of Terms:*** The following clauses survive the expiration or cancellation of this Agreement: 7. Liability; 8. State Audits; 9. Government Data Practices; 11. Publicity and Endorsement; 12. Governing Law, Jurisdiction, and Venue; 14. Data Disclosure; and 18. Intellectual Property Rights.

**2. Grantee's Duties.**

The Grantee will comply with required grants management policies and procedures set forth through Minn. Stat. § 16B.97, Subd. 4(a)(1).The Grantee is responsible for the specific duties for the Program as follows:

2.1. ***Implementation:*** The Grantee will implement their work plan, which is incorporated into this Agreement by reference.

2.2. ***Reporting***: All data and information provided in a Grantee's report shall be considered public.

2.2.1. The Grantee will submit an annual progress report to the Board by February 1 of each year on the status of program implementation by the Grantee. Information provided must conform to the requirements and formats set by the Board. All individual grants over $500,000 will also require a reporting of expenditures by June 30 of each year.

2.2.2. The Grantee will prominently display on its website the Clean Water Legacy Logo and a link to the Legislative Coordinating Commission website.

2.2.3. Final Progress Report: The Grantee will submit a final progress report to the Board by February 1, 2022 or within 30 days of completion of the project, whichever occurs sooner. Information provided must conform to the requirements and formats set by the Board.

2.3. ***Match:*** The Grantee will ensure any local match requirement will be provided as stated in Grantee's approved work plan.

**3. Time.** The Grantee must comply with all the time requirements described in this Grant Agreement. In the performance of this Grant Agreement, time is of the essence.

**4. Terms of Payment.**

4.1. Grant funds will be distributed in three installments: 1) The first payment of 50% will be distributed after the execution of the Grant Agreement. 2) The second payment of 40% will be distributed after the first payment of 50% has been expended and reporting requirements have been met. An eLINK Interim Financial Report that summarizes expenditures of the first 50% must be signed by the Grantee and approved by BWSR. Selected grantees may be required at this point to submit documentation of the expenditures reported on the Interim Financial Report for verification. 3) The third payment of 10% will be distributed after the grant has been fully expended and reporting requirements are met. The final, 10% payment must be requested within 30 days of the expiration date of the Grant Agreement. An eLINK Final Financial Report that summarizes final expenditures for the grant must be signed by the grantee and approved by BWSR.

4.2. All costs must be incurred within the grant period.

4.3. All incurred costs must be paid before the amount of unspent grant funds is determined. Unspent grant funds must be returned within 30 days of the expiration date of the Grant Agreement.

4.4. The obligation of the State under this Grant Agreement will not exceed the amount stated above.

4.5. This grant includes an advance payment of 50 percent of the grant's total amount. Advance payments allow the grantee to have adequate operating capital for start-up costs, ensure their financial commitment to landowners and contractors, and to better schedule work into the future.

**5. Conditions of Payment.** All services provided by the Grantee under this Grant Agreement must be performed to the State's satisfaction, as set forth in this Agreement and in the BWSR approved work plan for this program. Compliance will be determined at the sole discretion of the State's Authorized Representative and in accordance with all applicable federal, State, and local laws, policies, ordinances, rules, FY 2018 Clean Water Fund Competitive Grants Policy, and regulations. All Grantees must follow the Grants Administration Manual policy. Minnesota Statutes §103C.401 (2014) establishes BWSR's obligation to assure program compliance. If the noncompliance is severe, or if work under the grant agreement is found by BWSR to be unsatisfactory or performed in violation of federal, state, or local law, BWSR has the authority to require the repayment of grant funds, or an additional penalty. Penalties can be assessed at a rate up to 150% of the grant agreement.

**6. Assignment, Amendments, and Waiver.**

6.1. ***Assignment.*** The Grantee may neither assign nor transfer any rights or obligations under this Grant Agreement without the prior consent of the State and a fully executed Assignment Agreement, executed and approved by the same parties who executed and approved this Grant Agreement, or their successors in office.

6.2. ***Amendments.*** Any amendment to this Grant Agreement must be in writing and will not be effective until it has been executed and approved by the same parties who executed and approved the original Grant Agreement, or their successors in office. Amendments must be executed prior to the expiration of the original agreement or any amendments thereto.

6.3. ***Waiver.*** If the State fails to enforce any provision of this Grant Agreement, that failure does not waive the provision or its

right to enforce it.

**7. Liability.** The Grantee must indemnify, save, and hold the State, its agents, and employees harmless from any claims or causes of action, including attorney's fees incurred by the State, arising from the performance of this Grant Agreement by the Grantee or the Grantee's agents or employees. This clause will not be construed to bar any legal remedies the Grantee may have for the State's failure to fulfill its obligations under this Grant Agreement.

**8. State Audits.** Under Minn. Stat. § 16B.98, subd. 8, the Grantee's books, records, documents, and accounting procedures and practices of the Grantee or other party relevant to this Grant Agreement or transaction are subject to examination by the Board and/or the State Auditor or Legislative Auditor, as appropriate, for a minimum of six years from the end of this Grant Agreement, receipt and approval of all final reports, or the required period of time to satisfy all State and program retention requirements, whichever is later.

8.1. The books, records, documents, accounting procedures and practices of the Grantee and its designated local units of government and contractors relevant to this grant, may be examined at any time by the Board or Board's designee and are subject to verification. The Grantee or delegated local unit of government will maintain records relating to the receipt and expenditure of grant funds.

**9. Government Data Practices.** The Grantee and State must comply with the Minnesota Government Data Practices Act, Minn. Stat. Ch. 13, as it applies to all data provided by the State under this Agreement, and as it applies to all data created, collected, received, stored, used, maintained, or disseminated by the Grantee under this Grant Agreement. The civil remedies of Minn. Stat. § 13.08 apply to the release of the data referred to in this clause by either the Grantee or the State.

**10. Workers' Compensation.** The Grantee certifies that it is in compliance with Minn. Stat. § 176.181, subd. 2, pertaining to workers' compensation insurance coverage. The Grantee's employees and agents will not be considered State employees. Any claims that may arise under the Minnesota Workers' Compensation Act on behalf of these employees and any claims made by any third party as a consequence of any act or omission on the part of these employees are in no way the State's obligation or responsibility.

**11. Publicity and Endorsement**.

11.1. ***Publicity***. Any publicity regarding the subject matter of this Grant Agreement must identify the Board as the sponsoring agency. For purposes of this provision, publicity includes notices, informational pamphlets, press releases, research, reports, signs, and similar public notices prepared by or for the Grantee individually or jointly with others, or any subcontractors, with respect to the program, publications, or services provided resulting from this Grant Agreement.

11.2. ***Endorsement***. The Grantee must not claim that the State endorses its products or services.

**12. Governing Law, Jurisdiction, and Venue.** Minnesota law, without regard to its choice-of-law provisions, governs this Grant Agreement. Venue for all legal proceedings out of this Agreement, or its breach, must be in the appropriate State or federal court with competent jurisdiction in Ramsey County, Minnesota.

**13. Termination.**

13.1. The State may cancel this Grant Agreement at any time, with or without cause, upon 30 days' written notice to the Grantee. Upon termination, the Grantee will be entitled to payment, determined on a pro rata basis, for services satisfactorily performed.

13.2. In the event of a lawsuit, an appropriation from a Clean Water Fund is canceled to the extent that a court determines that the appropriation unconstitutionally substitutes for a traditional source of funding.

13.3. The State may immediately terminate this grant contract if the State finds that there has been a failure to comply with the provisions of this grant contract, that reasonable progress has not been made or that the purposes for which the funds were granted have not been or will not be fulfilled. The State may take action to protect the interests of the State of Minnesota, including the refusal to disburse additional funds and requiring the return of all or part of the funds already disbursed.

**14. Data Disclosure.** Under Minn. Stat. § 270C.65, Subd. 3, and other applicable law, the Grantee consents to disclosure of its social security number, federal employer tax identification number, and/or Minnesota tax identification number, already provided to the State, to federal and State tax agencies and State personnel involved in the payment of State obligations. These identification numbers may be used in the enforcement of federal and State tax laws which could result in action requiring the Grantee to file State tax returns and pay delinquent State tax liabilities, if any.

15. **Prevailing Wage.** It is the responsibility of the Grantee or contractor to pay prevailing wages for projects that include construction work of $25,000 or more, prevailing wage rules apply per Minn. Stat. §§177.41 through 177.44. All laborers and mechanics employed by grant recipients and subcontractors funded in whole or in part with these State funds shall be paid wages at rates not less than those prevailing on projects of a character similar in the locality. Bid requests must state the project is subject to prevailing wage.

16. **Municipal Contracting Law.** Per Minn. Stat. §471.345, grantees that are municipalities as defined in Subd. 1 of this statute must follow the Uniform Municipal Contracting Law. Supporting documentation of the bidding process utilized to contract services must be included in the Grantee's financial records, including support documentation justifying a single/sole source bid, if applicable.

17. **Constitutional Compliance.** It is the responsibility of the Grantee to comply with requirements of the Minnesota Constitution regarding use of Clean Water Funds to supplement traditional sources of funding.

18. **Signage.** It is the responsibility of the Grantee to comply with requirements for project signage as provided in Minnesota Laws 2010, Chapter 361, article 3, section 5 (b) for Clean Water Fund projects.

19. **Intellectual Property Rights.** The State owns all rights, title, and interest in all of the intellectual property rights, including copyrights, patents, trade secrets, trademarks, and service marks in the Works and Documents *created and paid for under this grant.* Works means all inventions, improvements, discoveries (whether or not patentable), databases, computer programs, reports, notes, studies, photographs, negatives, designs, drawings, specifications, materials, tapes, and disks conceived, reduced to practice, created or originated by the Grantee, its employees, agents, and subcontractors, either individually or jointly with others in the performance of this grant. Works includes "Documents." Documents are the originals of any databases, computer programs, reports, notes, studies, photographs, negatives, designs, drawings, specifications, materials, tapes, disks, or other materials, whether in tangible or electronic forms, prepared by the Grantee, its employees, agents, or subcontractors, in the performance of this grant. The Documents will be the exclusive property of the State and all such Documents must be immediately returned to the State by the Grantee upon completion or cancellation of this grant at the State's request. To the extent possible, those Works eligible for copyright protection under the United States Copyright Act will be deemed to be "works made for hire." The Grantee assigns all right, title, and interest it may have in the Works and the Documents to the State. The Grantee must, at the request of the State, execute all papers and perform all other acts necessary to transfer or record the State's ownership interest in the Works and Documents.

***IN WITNESS WHEREOF**, the parties have caused this Grant Agreement to be duly executed intending to be bound thereby.*

**Approved:**

| **Lower Minnesota River WD** | **Board of Water and Soil Resources** |
|---|---|
| **By:** _____ | **By:** _____ |
| ***(print)*** | |
| _____ | |
| ***(signature)*** | |
| **Title:** _____ | **Title:** _____ |
| **Date:** _____ | **Date:** _____ |

Please note the meeting will be held in the County Board Room at the Carver County Government Center, 600 East 4th Street, Chaska, MN.

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

# Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, October 24, 2018

**Agenda Item**
**Item 4. E. - Lower Minnesota River Dredge Management Grant Agreement**

**Prepared By**
Linda Loomis, Administrator

**Summary**
BWSR has prepared a grant agreement for the State bonding money the LMRWD received in the 2017 legislative session. The Board should authorize execution.

**Attachments**
FY 2018 and FY 2019 State of Minnesota Board of Water and Soil Resources/ Lower Minnesota River Dredge Management Grant Agreement

**Recommended Action**
Motion to authorize execution of Grant Agreement

BOARD OF WATER AND SOIL RESOURCES

# FY 2018 and FY 2019 STATE OF MINNESOTA
# BOARD OF WATER and SOIL RESOURCES
# LOWER MINNESOTA RIVER DREDGE MANAGEMENT
# GRANT AGREEMENT

| | | | |
|---|---|---|---|
| **Vendor:** | 0000201935 | **VN#:** | |
| **PO#:** | 3000009541 | **Date Paid:** | |

This grant agreement is between the State of Minnesota, acting through its Board of Water and Soil Resources (Board) and **Lower Minnesota River WD, 10901 Riverview Road Eden Prairie Minnesota 55347** .

| *This grant is for the following Grant Programs :* | | |
|---|---|---|
| P19-2574 | 2019 - Lower MN River Dredge Management (Lower Minnesota River WD) | $480,000 |

**Total Grant Awarded**: **$480,000**

**Recitals**

1. The Laws of Minnesota 2017, Regular Session, Chapter 93, Article 1, Section 4(l), appropriates funding to BWSR for a grant to the Lower Minnesota River Watershed District for dredge management on the lower Minnesota River.
2. The Board has adopted the Lower Minnesota River Watershed District Dredge Management Grant, Board Resolution #17-81 to authorize and allocate this grant.
3. The Grantee has submitted BWSR approved work plans for this grant, which is incorporated into this agreement.
4. The Grantee represents that it is duly qualified to receive this grant and agrees to perform all services described in this Grant Agreement to the satisfaction of the State.
5. The Grantee agrees to expend any required non-state match.
6. As a condition of the grant, Grantee agrees to minimize administration costs.

**Authorized Representative**

The State's Authorized Representative is Steve Christopher, Board Conservationist, BWSR, 520 Lafayette Road North, Saint Paul, MN 55155, 651-296-2633, or his successor, and has the responsibility to monitor the Grantee's performance and the authority to accept the services and performance provided under this Grant Agreement.

The Grantee's Authorized Representative is: **TITLE**
**ADDRESS**
**CITY**
**TELEPHONE NUMBER**

If the Grantee's Authorized Representative changes at any time during this Grant Agreement, the Grantee must immediately notify the Board.

**Grant Agreement**

**1. Term of Grant Agreement**

1.1. ***Effective date***: The date the Board obtains all required signatures under Minn. Stat. § 16B.98, Subd.5. **The State will notify the Grantee when this grant agreement has been executed. The Grantee must not begin work under this grant agreement until it is executed.**

1.2. ***Expiration date*:** December 31, 2020, or until all obligations have been satisfactorily fulfilled, whichever comes first.

1.3. ***Survival of Terms:*** The following clauses survive the expiration or cancellation of this Agreement: 7. Liability; 8. State Audits; 9. Government Data Practices; 11. Publicity and Endorsement; 12. Governing Law, Jurisdiction, and Venue; 14. Data Disclosure; and 18. Intellectual Property Rights.

**2. Grantee's Duties**

The Grantee will comply with required grants management policies and procedures set forth through Minn. Stat. § 16B.97,

Subd. 4(a)(1).The Grantee is responsible for the specific duties for the Program as follows:

2.1. ***General:*** The Grantee will provide administration and necessary support for the operations of the Lower Minnesota River Watershed District and the implementation of its business plan.

2.2. ***Reporting***: All data and information provided in a Grantee's report shall be considered public.

2.2.1. The Grantee will submit an annual progress report to the Board by February 1 of each year on the status of the Grantees' grant activities and expenditures. The Grantee will also provide an annual activity and expenditure report on their website. Information provided must conform to the requirements and formats set forth by the Board.

2.2.2. Final Progress Report: The Grantee will submit a final progress report to the Board by February 1, 2021, or within 30 days of expenditure of all grant funds, whichever occurs sooner. Information provided must conform to the requirements and formats set by the Board.

**3. Time**

The Grantee must comply with all the time requirements described in this Grant Agreement. In the performance of this Grant Agreement, time is of the essence.

**4. Terms of Payment**

4.1. All FY 2018 and FY 2019 Grant funds will be distributed in one installment promptly after the execution of the Grant Agreement.

4.2. All costs must be incurred within the grant period and all incurred costs must be paid before the amount of unspent grant funds is determined.

4.3. The obligation of the State under this Grant Agreement will not exceed the amount stated above.

**5. Conditions of Payment**

All services provided by the Grantee under this Grant Agreement must be performed to the State's satisfaction, as determined at the sole discretion of the State's Authorized Representative and in accordance with all applicable federal, state, and local laws, policies, ordinances, rules, and regulations. All Grantees must follow the Grants Administration manual policy, procedure, and guidance. Minnesota Statutes §103C.401 (2014) establishes BWSR's obligation to assure program compliance. If the noncompliance is severe, or if work under the grant agreement is found by BWSR to be unsatisfactory or performed in violation of federal, state, or local law, BWSR has the authority to require the repayment of grant funds, or an additional penalty. Penalties can be assessed at a rate up to 150% of the grant agreement.

**6. Assignment, Amendments, and Waiver**

6.1. ***Assignment.*** The Grantee may neither assign nor transfer any rights or obligations under this Grant Agreement without the prior consent of the State and a fully executed Assignment Agreement, executed and approved by the same parties who executed and approved this Grant Agreement, or their successors in office.

6.2. ***Amendments.*** Any amendment to this Grant Agreement must be in writing and will not be effective until it has been executed and approved by the same parties who executed and approved the original Grant Agreement, or their successors in office. Amendments must be executed prior to the expiration of the original agreement or any amendments thereto.

6.3. ***Waiver.*** If the State fails to enforce any provision of this Grant Agreement, that failure does not waive the provision or its right to enforce it.

**7. Liability**

The Grantee must indemnify, save, and hold the State, its agents, and employees harmless from any claims or causes of action, including attorney's fees incurred by the State, arising from the performance of this Grant Agreement by the Grantee or the Grantee's agents or employees. This clause will not be construed to bar any legal remedies the Grantee may have for the State's failure to fulfill its obligations under this Grant Agreement.

**8. State Audits**

Under Minn. Stat. § 16B.98, subd. 8, the Grantee's books, records, documents, and accounting procedures and practices of the Grantee or other party relevant to this Grant Agreement or transaction are subject to examination by the Board and/or the State Auditor or Legislative Auditor, as appropriate, for a minimum of six years from the end of this Grant Agreement, receipt and approval of all final reports, or the required period of time to satisfy all State and program retention requirements, whichever is later.

8.1. The books, records, documents, accounting procedures and practices of the Grantee and its designated local units of government and contractors relevant to this grant, may be examined at any time by the Board or Board's designee and are subject to verification. The Grantee or delegated local unit of government will maintain records relating to the receipt and expenditure of grant funds.

**9. Government Data Practices**

The Grantee and State must comply with the Minnesota Government Data Practices Act, Minn. Stat. Ch. 13, as it applies to all data provided by the State under this Agreement, and as it applies to all data created, collected, received, stored, used,

maintained, or disseminated by the Grantee under this Grant Agreement. The civil remedies of Minn. Stat. § 13.08 apply to the release of the data referred to in this clause by either the Grantee or the State.

**10. Workers' Compensation**

The Grantee certifies that it is in compliance with Minn. Stat. § 176.181, subd. 2, pertaining to workers' compensation insurance coverage. The Grantee's employees and agents will not be considered State employees. Any claims that may arise under the Minnesota Workers' Compensation Act on behalf of these employees and any claims made by any third party as a consequence of any act or omission on the part of these employees are in no way the State's obligation or responsibility.

**11. Governing Law, Jurisdiction, and Venue**

Minnesota law, without regard to its choice-of-law provisions, governs this Grant Agreement. Venue for all legal proceedings out of this Agreement, or its breach, must be in the appropriate State or federal court with competent jurisdiction in Ramsey County, Minnesota.

**12. Termination**

12.1. The State may cancel this Grant Agreement at any time, with or without cause, upon 30 days' written notice to the Grantee. Upon termination, the Grantee will be entitled to payment, determined on a pro rata basis, for services satisfactorily performed.

12.2. In the event of a lawsuit, an appropriation from a Clean Water Fund is canceled to the extent that a court determines that the appropriation unconstitutionally substitutes for a traditional source of funding.

12.3. The State may immediately terminate this grant contract if the State finds that there has been a failure to comply with the provisions of this grant contract, that reasonable progress has not been made or that the purposes for which the funds were granted have not been or will not be fulfilled. The State may take action to protect the interests of the State of Minnesota, including the refusal to disburse additional funds and requiring the return of all or part of the funds already disbursed.

**13. Data Disclosure**

Under Minn. Stat. § 270C.65, Subd. 3, and other applicable law, the Grantee consents to disclosure of its social security number, federal employer tax identification number, and/or Minnesota tax identification number, already provided to the State, to federal and State tax agencies and State personnel involved in the payment of State obligations. These identification numbers may be used in the enforcement of federal and State tax laws which could result in action requiring the Grantee to file State tax returns and pay delinquent State tax liabilities, if any.

**14. Prevailing Wage**

For projects that include construction work of $25,000 or more, prevailing wage laws apply and it is the responsibility of the Grantee or contractor follow the law per (Minn. Stat. §§177.41 through 177.44). Consequently, the bid request must state the project is subject to prevailing wage. These rules require that the wages of laborers and workers should be comparable to wages paid for similar work in the community as a whole.

**15. Municipal Contracting Law**

Per Minn. Stat. §471.345, grantees that are municipalities as defined in Subd. 1 of this statute must follow the Uniform Municipal Contracting Law. Supporting documentation of the bidding process utilized to contract services must be included in the Grantee's financial records, including support documentation justifying a single/sole source bid, if applicable.

***IN WITNESS WHEREOF**, the parties have caused this Grant Agreement to be duly executed intending to be bound thereby.*

**Approved:**

| **Lower Minnesota River WD** | **Board of Water and Soil Resources** |
|---|---|
| **By:** _____ | **By:** _____ |
| ***(print)*** | |
| _____ | |
| **(signature)** | |
| **Title:** _____ | **Title:** _____ |
| **Date:** _____ | **Date:** _____ |

Please note the meeting will be held in the County Board Room at the Carver County Government Center, 600 East 4th Street, Chaska, MN.

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

# Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, October 24, 2018

**Agenda Item**
**Item 4. F. - Approval of copier replacement**

**Prepared By**
Linda Loomis, Administrator

**Summary**
The lease on the copier expired at the end of 2017. I have received a quote for a five year lease on a new copier. The cost for the lease and maintenance will be less than the current machine and the per page cost is less. I anticipate there will be less need to use outside copying services with the new machine. It should also reduce the use of the desk top printer and thus the cost of toner for the desktop.

**Attachments**
Monthly cost comparison

**Recommended Action**
Motion to authorize five year lease for Rich MP C2004ex from Metro Sales, Inc.

METRO SALES INC.

Monthly Cost Comparison for
**Lower MN River Watershed District**
**19 September 2018**

## COST COMPARISON

| **Current Situation:** | **Ricoh MP C2051** |
|---|---|
| Monthly Lease: | $215.98 |
| Maintenance Agreement: | |
| 1000 B&W images @ .0199 | $20.00 |
| Color images @ .0948 | |
| **Total Monthly Expense:** | **$235.98/Month** |

| **Proposed Solution:** | **Ricoh MP C2004ex** |
|---|---|
| Monthly Lease: | $168.10 |
| Maintenance Agreement: | |
| 1000 B&W images @ $0.0167<br>Color images @ $0.0801 | $16.67 |
| **Total Monthly Expense:** | **$184.77/Month** |
| **Savings Per Month:** | **$51.21** |
| **Savings Per Year:** | **$614.52** |

## BENEFITS TO Lower MN River Watershed District

- Cost savings opportunity
  - Save $3072.60 over the copier term
- Brand new machine
  - Reliable & durable
  - Consistent high quality B&W and Color images
- Designed for fast-paced offices with heavy workloads
  - Big easy-to-use 10.1' Smart Operational Panel
  - Increase scanning speed and quantity (110 images per minute)
  - Increase in speed for first copy out (4.6 seconds)
- Metro Sales service and supply
  - 0-3 Hour Guarantee
  - Unlimited toner/parts/labor/service calls – all you pay for is the cost per copy above
- End Goal
  - Less down time, more up time
  - Less changing of toner with higher yield with Ricoh MP C307

Please note the meeting will be held in the County Board Room at the Carver County Government Center, 600 East 4th Street, Chaska, MN.

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

# Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, October 24, 2018

**Agenda Item**
**Item 4. G. - Master Water Steward**

**Prepared By**
Linda Loomis, Administrator

**Summary**
The Master Water Steward Program was developed by the Freshwater Society in 2013 to equip citizens with the knowledge and skills needed to help improve water quality at the grassroots level. The program certifies and supports community leaders to install pollution prevention projects that educate community members, reduce pollutants from stormwater runoff, and allow more water to soak into the ground before running into storm sewer systems. The program is a partnership between Freshwater and participating cities, watershed management organizations and non-profits.

Stewards are certified by participating in a broad training curriculum led by experts in the fields of hydrology, stormwater management, water policy, community-based social marketing, landscape assessment, and installation of clean water practices. They must complete a capstone project that captures rainfall and allows more water to soak into the ground, and lead a community outreach event. Stewards then become a point of knowledge and influence in their communities. Master Water Stewards volunteer their time for watershed districts and environmental groups, participating on city and local government boards, influencing policy, and changing the health of our waters.

A new training session began in October 2018 and two applicants to the program reside in the LMRWD. One of the applicants lives in Bloomington and the other lives in Savage. The 2018 LMRWD education budget includes funding for one Master Water Steward at $2,500. The Master Water Steward Program asked if the District would sponsor both applicants. Volunteer activities for the two applicants will be managed by Hennepin County and Scott Soil & Water Conservation District.

**Attachments**
No attachments

**Recommended Action**
Motion to authorize two Master Water Stewards

Please note the meeting will be held in the County Board Room at the Carver County Government Center, 600 East 4th Street, Chaska, MN.

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

# Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, October 24, 2018

**Agenda Item**
**Item 4. H. - Chimney Pines HOA 2018 Cost Share**

**Prepared By**
Linda Loomis, Administrator

**Summary**
The Chimney Pines Homeowners Association completed its project and has requested reimbursement. The final report is attached.

The Master Water Stewards will be touring this project and speaking with the organizer of this project, Judy Berglund, as part of their course.

**Attachments**
Chimney Pines Final Report

**Recommended Action**
No action recommended

# Chimney Pines Homeowners Association
# 2018 Cost Share

## Eden Prairie

Cost Share number 2018-CS-1


## Project Status | Complete

The Board of Managers approved this project at the March 2018 meeting. This is the third year of a four year project planned by the Chimney Pines Homeowners. Chimney Pines is a development that includes about 50 homes that surround a stormwater pond. The shore of the pond has become overgrown with invasive and other undesirable plant species.

The 2018 project was completed in September.

## Project Description

The first project was funded by the LMRWD in 2016 and the second in 2017. The homeowners hope to remove the invasive and other undesirable species and replant the entire shoreland around a regional storm water pond with native species that will filter storm water flowing overland to the pond and attract pollinators. A steep slope is located on the south end of the pond and is planted in mostly grass and crown vetch. The homeowners plan to replace this with native prairie that will improve water quality in the pond and reduce maintenance needs.

This phase of the project cleared invasive species from the north and east side of the pond.

I visited the site September 27th. While on site, I observed the previous two projects. The Homeowners have been maintaining the previous plantings, which are doing very well The homeowners say the water quality in the pond continues to improve, both in clarity and noticeably less algae growth. They have begun to have some problems with raccoons and are looking at ways to discourage them from digging in the newly planted areas.

They are planning to prepare for the final phase of the project by preparing the area this fall. They are planning to put down craft paper and cover the paper with leaves from the fall yard clean up.

Before

After

After

# Chimney Pines Homeowner's Association

## Pond Area Improvement Project Completion Narrative

Chimney Pines Homeowner's Association of Eden Prairie watershed grant project for section three (3) area around our run off retention pond was completed on September 25th, 2018.

We started this year's project in early May because much of this section is in heavy shade and needed to be planted before some plants became dormant. Because of Buckthorn and wild grapevine we needed to clear an area and refresh an access path with woodchips before work could begin. Much of the area that was covered by day lilies was dug out and replaced with native plants that will be much better at stabilizing the steep bank. We were able to again locate free woodchips for the path and stabilize the path with available limbs from trees that were trimmed in other parts of the Homeowner's Association area.

Much of this year's project was well underway in mid to late June. The work group invited the entire Chimney Pine's Association for an ice cream social on June 15th in order to share the progress in restoring the pond area with all association families. In addition, on June 20th, the Eden Prairie Chapter of Wild Ones met with our volunteers to tour and ask questions about our watershed project. We had very positive feedback during that meeting and tour.

We were able to get most of our plants from Glacial Ridge Growers. We purchased four native trees from Outback Nursery that we planted on parts of the steepest banks to hold soil from washing into the retention pond. We purchased a Swamp White Oak from Bachman's to also stabilize soil near the water's edge. A few plants were hard to find, so Cardinal Flower, Bottle Gentian, and White Turtlehead were purchased from other vendors.

Once leaves start to fall the entire area will be covered with leaf mulch to help retain moisture and control none-native plant growth.

The committee worked weekdays and weekends tirelessly to complete this phase of our project along with maintenance of past projects. Because of the dry weather in July, August, and September, many of the committee members have been faithfully watering new and existing plantings to keep everything healthy.

The actual costs of the project are as follows:

| | |
|---|---|
| Glacial Ridge Growers - plants | $ 830.60 |
| *delivery* | $ 50.00 |
| Outback Nursery - trees & plants | $ 454.79 |
| *shipping* | $ 80.00 |
| Wild Ones Prairies Edge | $ 24.00 |
| Bachman's Nursery – tree | $ 182.57 |
| Glacial Ridge Growers – plants | $ 125.80 |
| Glacial Ridge Growers – plants | $ 21.96 |
| Home Depot – lawn bags | $ 14.83 |
| Menard's – lawn bags | $ 7.27 |
| Subtotal: | $ 1,791.82 |
| Total Labor – 311 hours @ $18 per hour | $ 5,589.00 |
| **Total Project Cost** | **$ 7,380.82** |

Pictures of our work in progress and the finished project will be sent by email.

We thank the Lower Minnesota River Valley Watershed District for helping us complete this phase of our project and look forward to working with them in the future.

Spyglass Drive Pond Restoration
Volunteer Work Hours

| Name | House # | Date | Start Time | End Time | Total Hours |
|---|---|---|---|---|---|
| Judy Berglund | 10542 | 5/19/18 | 8:30 | 2:30 | 6 hr |
| Dean Cowdery | 10410 | 5/19/18 | 8:45 | 11:45 | 3 hr |
| Steve Berglund | 10542 | 5/19/18 | 9:00 | 2:00 | 5 hr |
| Thelma Buss | 10554 | 5/19/18 | 9:00 | 1:30 | 4½ |
| Mari Radermacher | 10560 | 5/19 | 9:10 | 1:15 | 4 hrs |
| Jim Oliver | 10548 | " " | " " | 12:00 | 8hr +5 wood chips Path |
| Lori Wannebo | 10528 | 5/19 | 9:10 | 1:30 | 4 hrs |
| Carol Maas | 10578 | 5/19 | 9:00 | 10:00 | 1 hr |
| Judy Berglund | 10542 | 5/20/18 | 1:30 | 6:30 | 5 hr |
| Thelma Buss | 10554 | 5/20/18 | 1:30 | 4:45 | 3hr 15 min |
| Carol Maas | 10578 | 5/20/18 | 1:30 | 3:00 | 1.5 |
| Kathryn Maas | 10578 | 5/20/18 | 1:30 | 3:00 | 1.5 |
| Linda Hanje | 10475 | 5/20/18 | 2:15 | 2:50 | 45 min |
| Judy Berglund | 10542 | 5/21/18 | 6:00 | 8:00 | 2 hrs |
| Judy Berglund | 10542 | 5/22/18 | 3:30 | 5:30 | 2 hrs |
| Thelma Buss | 10554 | 5/22/18 | 3:30 | 4:30 | 1 hr |
| Dean Cowdery | 10410 | 5/22/18 | 2:00 | 4:00 | 2 hr |
| Judy Berglund | 10542 | 5/23/18 | 1:00 | 4:30 | 3½ hr |
| Thelma Buss | 10554 | 5/23/18 | 1:00 | 4:30 | 3½ hr |
| Judy Cowdery | 10410 | 5/23/18 | 1:00 | 4:30 | 3½ hr |
| Dean Cowdery | 10410 | 5/28/18 | 9:30 | 12:00 | 2½ hrs |
| Thelma Buss | 10554 | 5/29/18 | 9:30 | 12:00 | 2½ Hrs |
| Judy Berglund | 10542 | 5/29/18 | 9:30 | 12 Noon | 2½ hr |
| STEVE BERGLUND | 10542 | 5/29/18 | 9:30 | 11:30 | 2 |
| Judy Berglund | 10542 | 5/31/18 | 3:00 | 4:00 | 1 |
| | 10554 | 5/31/18 | 3:00 | 4:00 | 1 |

76½ hours

Spyglass Drive Pond Restoration
Volunteer Work Hours

| Name | House # | Date | Start Time | End Time | Total Hours |
|---|---|---|---|---|---|
| Judy Berglund | 10542 | 6/2/18 | 8:00 | 1:00 | 5 hrs |
| Lori Wannebo | 10528 | 6/2/18 | 9:30 | 12:30 | 3 hr |
| Rajitha kundoor | 10416 | 6/2/18 | 9:30 | 10:30 | 1 hr |
| Saatvik kundoor | 10416 | 6/2/18 | 9:30 | 10:30 | 1 hr |
| Judy Cowdery | 10410 | 6/2/18 | 9:00 | 12:30 | 3½ hr |
| Carol Nider | 10578 | 6/2/18 | 9:45 | 10:45 | 1 hr |
| Thelma Buss | 10554 | 6/2/18 | 8:30 | 12:30 | 4 hr |
| Steve Berglund | 10542 | 6/2/18 | 9:00 | 12:30 | 3½ hr |
| Thelma Buss | 10410 | 6/3/18 | 1:30 | 4:30 | 3 hr |
| Judy Berglund | 10542 | 6/3/18 | 1:30 | 4:30 | 3 hr |
| Thelma Buss | 10410 | 6/4/18 | 1:00 | 2:00 | 1 hr |
| Judy Berglund | 10542 | 6/4/18 | 1:00 | 2:30 | 1½ hrs |
| Judy Berglund | 10542 | 6/5/18 | 1:00 | 4:00 | 3 hrs |
| STEVE BERGLUND | 10542 | 6/5/18 | 1:00 | 4:00 | 3 hrs |
| | 10548 | 6/5/18 | 1:00 | 4:00 | 3 hr |
| Dean Cowdery | 10412 | 6/5/18 | 1:00 | 4:00 | 3 hr |
| Judy Berglund | 10542 | 6/6/18 | 9:30 | 12 Noon | 2½ hrs |
| Rajitha Kundoor | 10416 | 6/6/18 | 9:30 | 11:30 | 2 hrs. |
| Judy Berglund | 10542 | 6/7/18 | 9:30 | 1:00 | 3½ |
| Judy Cowdery | 10410 | 6/7/18 | 9:30 | 11:30 | 2 |
| Rajitha Kundoor | 10416 | 6/7/18 | 9:45 | 11:45 | 2 |
| STEVE BERGLUND | 10542 | 6-7-18 | 11:00 | 12:00 | 1 |
| DEAN COWDERY | 10410 | 6/12/18 | 9:15 | 11:00 | 1:45 hrs |
| Judy Berglund | 10542 | 6/12/18 | 9:15 | 11:00 | 1.45 hr |
| Shruthi Kundoor | 10416 | 6/12/18 | 9:30 | 11:00 | 1.5 hours |
| Rajitha kundoor | 10416 | 6/12/18 | 9:30 | 11:00 | 1.5 hrs |

63 hours

Spyglass Drive Pond Restoration
Volunteer Work Hours

| Name | House # | Date | Start Time | End Time | Total Hours |
|---|---|---|---|---|---|
| Thelma Buss | 10554 | 6/12 | 9:30 | 11:00 | 1½ |
| Judy Berglund | 10542 | 6/12/18 | 1:00 | 4:00 | 3 hrs |
| ~~Judy Cowdery~~ | ~~10542~~ | ~~6/12/18~~ | ~~1:00~~ | ~~4:00~~ | ~~3 hrs~~ |
| Judy Cowdery | 10410 | 6/15/18 | 1:30 | 3:00 | 1½ |
| Steve Berglund | 10542 | 6-12-18 | 1:00 | 4:00 | 3 |
| Judy Berglund | 10542 | 6/13/18 | 12:30 | 3:00 | 1½ |
| DEAN COWDERY | 10410 | 6/21/18 | 5:30 | 7:00 | 1½ |
| Judy Berglund | 10542 | 6/27/18 | 8:30 | 5:30 | 9 hr |
| Judy Cowdery | 10410 | 6/27/18 | 9:30 | 11:00 | 1½ |
| Shruthi Kundoor | 10416 | 6/27/18 | 11:00 | 12:00 | 1 |
| Saatvik Kundoor | 10416 | 6/27/18 | 11:00 | 12:00 | 1 |
| Jackie Shepard | 10557 | 6/27/18 | 1:00 | 4:00 | 3 |
| Thelma Buss | 10554 | 6/27/18 | 1:00 | 4:30 | 3½ |
| Steve Berglund | 10542 | 6-27-18 | 2:00 | 4:00 | 2 |
| DEAN COWDERY | 10410 | 6/27/18 | 2:00 | 4:00 | 2 |
| Judy Berglund | 10542 | 7/2/18 | 9:00 | 11:30 | 2½ hr |
| [illegible] | 10540 | 7-2-18 | 9:00 | 10:00 | 1hr |
| STEVE BERGLUND | 10542 | 7-2-18 | 9:00 | 11:30 | 2½ |
| Dean Cowdery | 10410 | 7/4/18 | 9:00 | 12:00 | 3 |
| Judy Cowdery | 10410 | 7/4/18 | 9:00 | 10:00 | 1 |
| Judy Cowdery | 10410 | 7/5/18 | 2:00 | 4:00 | 2 |
| Judy Berglund | 10542 | 7/5/18 | 1:00 | 5:00 | 4 |
| Judy Berglund | 10542 | 7/6/18 | 9:30 | 5:30 | 8 |
| DEAN COWDERY | 10410 | 7/6/18 | 10:00 | 12:00 | 2 |
| Thelma Buss | 10554 | 7/6/18 | 9:30 | 12:15 | 2¾ |
| STEVE BERGLUND | 10542 | 7-6-18 | 11:30 | 5:30 | 6 |

69 3/4

Spyglass Drive Pond Restoration
Volunteer Work Hours

| Name | House # | Date | Start Time | End Time | Total Hours |
|---|---|---|---|---|---|
| [illegible] | 10548 | 7/15/18 | 1:30 | 2:30 | 1 hr |
| Judy Berglund | 10542 | 7/15/18 | 1:30 | 2:30 | 1 hr |
| Judy Berglund | 10542 | 7/16/18 | 2:30 | 4:30 | 2 |
| Judy Berglund | 10542 | 7/17/18 | 5:00 | 5:00 | 2 |
| Thelma Buss | 10554 | 7/17/18 | 1:00 | 3:30 | 2½ |
| Thelma Buss | 10554 | 7/18/18 | 2:00 | 4:30 | 2½ |
| Judy Berglund | 10542 | 7/18/18 | 1:30 | 5:30 | 4 hrs |
| [illegible] | 10548 | 7/21/18 | 2:00 | 4:30 | 2½ hr |
| Judy Berglund | 10542 | 7/22/18 | 1:30 | 4:30 | 3 hr |
| Judy Berglund | 10542 | 7/23/18 | 9:00 | 11:00 | 2 hr |
| Judy Berglund | 10542 | 7/23/18 | 2:00 | 3:00 | 1 hr |
| Judy Berglund | 10542 | 7/30/18 | 3:30 | 4:30 | 1 hr |
| DEAN Cowdery | 10410 | 8/3/18 | 1:30 | 2:30 | 1 hr |
| Judy Berglund | 10542 | 8/3/18 | 1:30 | 2:00 | 1 hr |
| [illegible] | 10548 | 8/5/18 | 1:00 | 2:00 | 1 hr |
| Judy Berglund | 10542 | 8/5/18 | 1:00 | 2:30 | 1½ hr |
| Steve Berglund | 10542 | 8/7/18 | 1:00 | 2:30 | 1½ hr |
| Judy Berglund | 10542 | 8/6/18 | 11:00 | 3:00 | 4 hrs |
| Judy Cowdery | 10410 | 8/6/18 | 11:00 | 12:30 | 1½ hr |
| Thelma Buss | 10554 | 8/6/18 | 10:30 | 2:30 | 4 hrs |
| Judy Berglund | 10542 | 8/8/18 | 1:00 | 2:00 | 1 hr |
| Steve Berglund | 10542 | 8/8/18 | 1:00 | 2:00 | 1 hr |
| Judy Berglund | 10542 | 8/12/18 | 1:00 | 3:00 | 2 hr |
| Judy Berglund | 10542 | 8/15/18 | 12:30 | 4:30 | 4 hr |
| Judy Berglund | 10542 | 9/12/18 | 12:30 | 4:00 | 3½ hrs |
| Judy Berglund | 10542 | 9/13/18 | 9:00 | 3:00 | 6 hrs |

57 hours

Spyglass Drive Pond Restoration
Volunteer Work Hours

| Name | House # | Date | Start Time | End Time | Total Hours |
|---|---|---|---|---|---|
| Thelma Buss | 10554 | 9/13 | 9:30 | 11:30 | 2 |
| [illegible] | 10410 | 9/13 | 12:30 | 3:30 | 3 hrs |
| Judy Berglund | 10542 | 9/15 | 9:30 | 12:00 | 2½ hrs |
| [illegible] | 10540 | " " | " " | 1:30 | 4 hrs |
| Judy Cowdery | 10910 | 9/14 | 12:30 | 2:30 | 2 |
| Dean Cowdery | 10410 | 9/14 | 5:00 | 7:00 | 2 |
| Judy Cowdery | 10910 | 9/15 | 9:30 | 11:30 | 2 |
| Dean Cowdery | 10410 | 9/15 | 9:30 | 11:30 | 2 |
| Judy Berglund | 10542 | 9/17 | 9:30 | 1:30 | 4 hr |
| Judy Berglund | 10542 | 9/21/18 | 10:00 | 12:30 | 2½ hr |
| Thelma Buss | 10554 | 9/21/18 | 9:30 | 12:30 | 3 |
| Judy Berglund | 10542 | 9/22/18 | 9:30 | 3:00 | 5½ hr |
| Dean Cowdery | 10410 | 9/22/18 | 9:30 | 10:30 | 1 |
| Judy Cowdery | 10910 | 9/22/18 | 12:00 | 3:00 | 3 |
| Thelma Buss | 10554 | 9/22/18 | 1:00 | 3:00 | 2 |
| Dean Cowdery | 10910 | 9/23/18 | 3:00 | 5:00 | 2 |
| Judy Berglund | 10542 | 9/23/18 | 2:00 | 4:00 | 2 |
| | | | | | |
| | | | | | |
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| | | | | | |
| | | | | | |
| | | | | | |

19½

25

44½ hrs

THE HOME DEPOT

**More saving.**
**More doing.**

13100 VALLEY VIEW ROAD
EDEN PRAIRIE, MN 55344, (952)949-0982

2812 00023 83354 08/08/18 11:40 AM
CASHIER DANA

085162490227 RECYCLE BAG <A>
30 GAL LAWN BAGS
7@1.97 13.79

| | |
|---|---|
| SUBTOTAL | 13.79 |
| SALES TAX | 1.04 |
| TOTAL | $14.83 |
| XXXXXXXXXXXX2998 VISA | USD$ 14.83 |
| AUTH CODE 09834D/8232363 | TA |
| AID A0000000031010 | Visa Credit |

2812 23 83354 08/08/2018 5026

RETURN POLICY DEFINITIONS

| | POLICY ID | DAYS | POLICY EXPIRES ON |
|---|---|---|---|
| A | 1 | 90 | 11/06/2018 |

**********
DID WE NAIL IT?

Take a short survey for a chance TO WIN
A $5,000 HOME DEPOT GIFT CARD

Opine en español

www.homedepot.com/survey

User ID: HLM 169809 167020
PASSWORD: 18408 166997

Entries must be completed within 14 days of purchase. Entrants must be 18 or older to enter. See complete rules on website. No purchase necessary.

Use Your BIG CARD 2% REBATE
MENARDS®

MENARDS-EDEN PRAIRIE
12600 Plaza Drive
Eden Prairie,MN 55344

KEEP YOUR RECEIPT
RETURN POLICY VARIES BY PRODUCT TYPE

Unless noted below allowable returns for items on this receipt will be in the form of an in store credit voucher if the return is done after 09/14/18

If you have questions regarding the charges on your receipt, please email us at:
EDNPfrontend@menards.com

Sale Transaction

PAPER LAWN & LEAF BAGS
6484947 4 @1.69 6.76

| | |
|---|---|
| TOTAL | 6.76 |
| TAX HENNEPIN-MN 7.525% | 0.51 |
| TOTAL SALE | 7.27 |
| Visa Credit 2998 | 7.27 |

Auth Code:00944D
Chip Inserted
a0000000031010
TC - 3f7bd28458522881

TOTAL NUMBER OF ITEMS = 4

GUEST COPY

The Cardholder acknowledges receipt of goods/services in the total amount shown hereon and agrees to pay the card issuer according to its current terms.

THIS IS YOUR CREDIT CARD SALES SLIP
PLEASE RETAIN FOR YOUR RECORDS.

THANK YOU, YOUR CASHIER, Kathryn

9560 07 1607 06/16/18 02:01PM 3268

Thank you for shopping at
Bachmans Lyndale
6010 Lyndale Ave S
Minneapolis MN 55419
(612) 861-7600

08/03/18 1:55PM DANDERSON 328 SALE

---

548104 1 EA $169.00 EA
OAK SWAMP WHITE #10 C $169.00

SUB-TOTAL:$ 169.00 TAX: $ 13.57
TOTAL: $ 182.57
BC AMT: $ 182.57

BK CARD#: XXXXXXXXXXXX2998
MID: 191020100886
AUTH: 00770D AMT: $ 182.57
Host reference #:63937101 Bat#

Authorizing Network: VISA

Chip Read
CARD TYPE:VISA EXPR: XXXX
AID : A0000000031010
TVR : 8080008000
IAD : 06010A03600000
TSI : 6800
ARC : 00
MODE : Issuer
CVM :
Name : Visa Credit
ATC :008B
AC : 57991CE037BA1F42
TxnID/ValCode: 255764

Bank card USD$ 182.57
Balance: .00

Total Items: 1

==>> JRNL#G39371/1 <<==
CUST NO:116969

THANK YOU JUDY BERGLUND
FOR YOUR PATRONAGE
CLUB CRD NO: 9529751960

MN MINNESOTA TAX 11.62
MPL MINNEAPOLIS TAX .85
HEN HENNEPIN CO TAX .25
HTR HENNEPIN TRANSI .85

glacial ridge GROWERS

**Order Date:** 4/26/2018
**Ship Date:** 5/17/2018

**Order #** 3938
**Customer #** 1963

25132 250th Ave, Glenwood, MN 56334-236
Phone: (320) 634-0136

## Bill To:

Chimney Pines Homeowners Assoc.
Judy Berglund
10542 Spyglass Drive
Eden Prairie, MN 55347
**Phone:** (952) 975-1960
**Cell:**
**Fax:**

## Ship To:

Chimney Pines Homeowners Assoc.
Judy Berglund
10542 Spyglass Drive
Eden Prairie, MN 55347
**P.O. #:**
**Comments:**

| Item | Quantity | Price | Item Total |
|---|---|---|---|
| **NATIVE WILDFLOWERS - SHADE (18-Count)** | | | |
| Aquilegia canadensis, Columbine (18-Count) | 2 | $28.95 | $57.90 |
| Arisaema triphyllum, Jack-in-the-Pulpit (18-Count) | 0 | $28.95 | $0.00 |
| Aster cordifolius, Heart-leaved Aster (18-Count) | 1 | $28.95 | $28.95 |
| Aster shortii, Short's Aster (18-Count) | 2 | $28.95 | $57.90 |
| Fragaria vesca, Wild Woodland Strawberry (18-Count) | 1 | $28.95 | $28.95 |
| Geranium maculatum, Wild Geranium (18-Count) | 3 | $28.95 | $86.85 |
| Mertensia virginica, Virginia Bluebells (18-Count) | 0 | $28.95 | $0.00 |
| Penstemon digitalis, Foxglove Beardtongue (18-Count) | 2 | $28.95 | $57.90 |
| Phlox divaricata, Wild Blue Phlox (18-Count) | 0 | $28.95 | $0.00 |
| Polemonium reptans, Jacob's Ladder (18-Count) | 0 | $28.95 | $0.00 |
| Solidago flexicaulis, Zig Zag Goldenrod (18-Count) | 3 | $28.95 | $86.85 |
| **NATIVE HARDY FERNS (18-Count)** | | | |
| Adiantum pedatum, Maidenhair Fern (18-Count) | 0 | $38.95 | $0.00 |
| Athyrium felix femina, Lady Fern (18-Count) | 0 | $38.95 | $0.00 |
| Matteuccia ostrich, Ostrich Fern (18-Count) | 2 | $38.95 | $77.90 |
| **NATIVE WILDFLOWERS - SUNNY (18-Count)** | | | |
| Allium stellatum, Prairie Onion (18-Count) | 1 | $28.95 | $28.95 |
| Anemone patens wolfgangiana, Pasque Flower (18-Count) | 2 | $28.95 | $57.90 |
| Asclepias tuberosa, Butterfly Weed (18-Count) | 1 | $28.95 | $28.95 |
| Callirhoe trianulata, Clustered Poppy Mallow (18-Count) | 0 | $28.95 | $0.00 |
| Castilleja coccinea, Indian Paintbrush (18-Count) | 1 | $28.95 | $28.95 |
| Dodecatheon meadia, Midland Shooting Star (18-Count) | 0 | $28.95 | $0.00 |
| Gaillardia aristata, Blanket Flower (18-Count) | 1 | $28.95 | $28.95 |
| Geum triflorum, Prairie Smoke (18-Count) | 2 | $28.95 | $57.90 |
| Liatris spicata, Marsh Blazing Star (18-Count) | 1 | $28.95 | $28.95 |
| Monarda punctata, Spotted Bee Balm (18-Count) | 1 | $28.95 | $28.95 |
| Phlox pilosa, Prairie Phlox (18-Count) | 1 | $28.95 | $28.95 |
| Ruellia humilis, Wild Petunia (18-Count) | 1 | $28.95 | $28.95 |

glacial ridge GROWERS

**Order Date:** 4/26/2018
**Ship Date:** 5/17/2018

**Order #** 3938
**Customer #** 1963

25132 250th Ave, Glenwood, MN 56334-236
Phone: (320) 634-0136

## Bill To:

Chimney Pines Homeowners Assoc.
Judy Berglund
10542 Spyglass Drive
Eden Prairie, MN 55347
**Phone:** (952) 975-1960
**Cell:**
**Fax:**

## Ship To:

Chimney Pines Homeowners Assoc.
Judy Berglund
10542 Spyglass Drive
Eden Prairie, MN 55347
**P.O. #:**
**Comments:**

| Item | Quantity | Price | Item Total |
|---|---|---|---|

## Please Pay from this Invoice - No Statement Following

**Payments Received**

| | |
|---|---|
| **Order Subtotal** | $830.60 |
| Early Order Discount | $0.00 |
| Other Discount | $0.00 |
| MN Sales Tax | $0.00 |
| Local Sales Tax | $0.00 |
| Delivery Charge | $50.00 |
| Fuel Surcharge | $0.00 |
| Other Charge | $0.00 |
| **Order Total** | $880.60 |
| **Balance Due** | $880.60 |

MN Dept of Ag Approved Plant Production/Bee and Butterfly Friendly

Wild Ones
NATIVE PLANTS. NATURAL LANDSCAPES
PRAIRIE EDGE
www.PrairieEdge.WildOnes.org

# Native Plant Order Form 2018

**Ordering Instructions:**
Form and payment due by **May 26, 2018**
Make check payable to: **Wild Ones Prairie Edge**

Pd Cash

Name Judy Berglund
Phone Number 952-975-1960

**Mail form and payment to:**
Wild Ones Plant Order
c/o Tammy Seemann
110307 Center Green Circle
Chaska, MN 55318

**Order Pick-Up**
Friday June 15th
from 3 pm to 6:30 pm
8956 Braxton Drive Eden
Prairie, MN 55347

| Native Plant 6 pack - 6 of same species | Sun Exposure | Soil Moisture | Height | Flower Color | Bloom Time | Price / Item | # of Items | Cost |
|---|---|---|---|---|---|---|---|---|
| Prairie Smoke (Geum triflorum) | Full Sun | Dry-Med | 6" | Pink | May-Jun | $ 12 | | |
| Meadow Blazingstar (Liatris liguilistylus) | Full Sun | Med-Moist | 3'-5' | Purple | Aug-Sep | $ 12 | | |
| Turtlehead (Chelone glabra) | Part Sun | Moist-Wet | 2'-3' | White | Summer | $ 12 | | |
| Butterfly Weed (Asclepias tuberosa) | Full Sun | Dry-Med | 2'-3' | Orange | Jun-Aug | $ 12 | | |
| Switch Grass (Panicum virgatum) | Full Sun | Dry-Moist | 4'-5' | n/a | n/a | $ 12 | | |
| Cardinal Flower (Lobelia cardinalis) | Full Sun - Partial | Moist-Wet | 2'-4' | Red | Jul-Sep | $ 12 | 2 | 24.00 |
| **ANY 6 PACK OF THE PLANTS OFFERED IN THE KITS** (details on reverse side) - List separately if needed | | | | | | $ 12 | | |
| **Plants in 4" containers** | | | | | | | | |
| Jack in the Pulpit- Arisaema triphyllum | Part sun - Full Shade | Med-Wet | 1' | Green | Apr-May | $6 | | |
| Pasque Flower (Anemone patens) | Full Sun | Dry | <12" | Purple | spring | $6 | | |
| Sensitive Fern (Onoclea sinsibilis) | Full to Part Sun | Med-Wet | 2'-3' | n/a | n/a | $6 | | |
| Solomon's Seal Polygonatum biflorum | Part sun - Full Shade | Med | 1'-3' | White | May-Jul | $6 | | |
| False Solomon's Seal Maianthemum racemosa | Part sun - Full Shade | Med | 1'-2' | White | May-Jun | $6 | | |
| Michigan Lily (Lilium michiganese) | Full to Part Sun | Moist | 3'-6' | Orange | Jun-Aug | $6 | | |
| Downy Yellow Violet (pubescens) | Part shade - Full Shade | Med-Moist | 6" | Yellow | Apr-Jun | $4 | | |
| Common Blue Violet (Viola sororia) | Full sun - Full Shade | Med-Moist | 4" | Blue | Apr-Jun | $4 | | |
| Wild Ginger (Asarum Canadense) | Part sun- Full Shade | Med | 1' | Red | May-Jun | $6 | | |
| Large Flowered Trillium Trillium grandiflorum | Part Sun-Full Shade | Med-Moist | 1' | White | Apr-May | $10 | | |
| Bellwort (Uvularia grandiflora) | Part sun- Full shade | Dry-Med | 1'-2' | Yellow | May-Jun | $7 | | |
| Round Lobed Hepatica Hepatica americana | Part Sun | Med | 3"-6" | Blue | Apr-May | $7 | | |
| **Native Shrubs in 4" or 1 Gallon containers** | | | | | | | | |
| Black Chokeberry Aronia melanocarpa- 4" | Full Sun-Part Shade | Dry-Moist | 3'-6' | White | May | $7 | | |
| Pagoda Dogwood Cornus alternifolia -4" | Sun-Shade | Med | 12'-25' | White | May-Jun | $7 | | |
| Smooth Rose (Rosa blanda) - 4" | Full Sun- Partial | Dry-Med | 3'-5' | Pink | Jun-Jul | $7 | | |
| Pussy Willow (Salix discolor) 1 gallon | Full Sun | Med-Wet | 10'-20' | | | $12 | | |
| Round leaved Dogwood Cornus rugosa 1 gallon | Full Sun-Partial | Med | 6'-10' | White | Jun-Jul | $12 | | |
| Red Osier Dogwood Cornus sericea 1 gallon | Full Sun-Partial | Med-Wet | 6'-10' | White | Jun-Jul | $12 | | |
| Ninebark Physocarpus opulifolius 1 gallon | Full Sun-Partial | Dry-Moist | 5'-10' | White | May-Jun | $12 | | |
| Juneberry Amelanchier alnifolia 1 gallon | Full Sun-Partial | Med | 6'-9' | White | April-May | $12 | | |
| American Hazelnut Corylus Americana 1 gallon | Full Sun-Partial | Dry-Moist | 6'-15' | obscure | Apr-May | $12 | | |
| **Prairie Kit (6 plants each of 6 species) see details on reverse side** | | | | | | $66 | | |
| **Rain Garden/Shoreline Kit (6 plants each of 6 species) see details on reverse side** | | | | | | $66 | | |
| **Woodland Edge Kit (6 plants each of 6 species) see details on reverse side** | | | | | | $66 | | |
| | | | | | | **TOTAL COST** | | 24.00 |

Printed: 6/21/2018 3:18:34 PM
Store: 1
Workstation: 7

# Sales Receipt #9518

6/21/2018
Cashier: Jen


**Customer Copy**

**Out Back Nursery, Inc.**
15280 110th Street So. Hastings MN 55033
Ph: (651) 438-2771 Fax: (651) 438-3816
www.outbacknursery.com

**Bill To:** Judy Berglund
Judy Chimney Pines Homeowner A

| Description 1 | Attribute | Size | Orig Price | Disc %Type | Qty | Price | Ext Price | Tax |
|---|---|---|---|---|---|---|---|---|
| White Turtlehead | | 01 | $9.95 | | 6 | $9.95 | $59.70 | T |
| Bottle Gentian | | 01 | $9.95 | | 6 | $9.95 | $59.70 | T |
| Redbud | 8-12',1.25"( | 15/20 | $160.45 | | 1 | $160.45 | $160.45 | T |
| Allegheny Serviceberry | 6-8' | 07 | $74.45 | | 1 | $74.45 | $74.45 | T |
| Pussy Willow | | 07 | $43.45 | | 1 | $43.45 | $43.45 | T |
| Common Witch Hazel | 15-18" | 02 | $21.45 | | 1 | $21.45 | $21.45 | T |

| | | |
|---|---|---|
| | Subtotal: | $419.20 |
| Tax | 7.13 % Tax: | + $35.59 |
| | Shipping: | + $80.00 |
| | **RECEIPT TOTAL:** | **$534.79** |

Credit Card: $534.79 XXXX2998 Visa
Reference # 2000001192
Expiry Date: XX/XX Auth=09670D
Entry: Swiped Merchant #***29618

**Signature** Judy Berglund
I agree to pay above amount according to card issuer agreement (merchant agreement if credit voucher).

**Total Deposit Taken: $0.00**
**Balance Outstanding: $0.00**

Lower MN Valley Watershed

From Sales Order #2022

PLEASE RETAIN FOR YOUR RECORDS
It is an honor and a privilege to serve you.

9518

glacial ridge GROWERS

**Order Date:** 9/14/2018
**Ship Date:** 9/15/2018

**Order #** 4331
**Customer #** 1963

25132 250th Ave, Glenwood, MN 56334-236
Phone: (320) 634-0136

## Bill To:

Chimney Pines Homeowners Assoc.
Judy Berglund
10542 Spyglass Drive
Eden Prairie, MN 55347
**Phone:** (952) 975-1960
**Cell:**
**Fax:**

## Ship To:

Chimney Pines Homeowners Assoc.
Judy Berglund
10542 Spyglass Drive
Eden Prairie, MN 55347
**P.O. #:**
**Comments:** pick-up FM

| Item | Quantity | Price | Item Total |
|---|---|---|---|
| **NATIVE WILDFLOWERS - SHADE (18-Count)** | | | |
| Polemonium reptans, Jacob's Ladder (18-Count) | 1 | $28.95 | $28.95 |
| **NATIVE HARDY FERNS (18-Count)** | | | |
| Adiantum pedatum, Maidenhair Fern (18-Count) | 1 | $38.95 | $38.95 |
| **NATIVE GRASSES, SEDGES and RUSHES - SHADE (18-Count)** | | | |
| Carex pensylvania, Common Oak Sedge (18-Count) | 2 | $28.95 | $57.90 |

## Please Pay from this Invoice - No Statement Following

**Payments Received**

| | |
|---|---|
| **Order Subtotal** | $125.80 |
| Early Order Discount | $0.00 |
| Other Discount | $0.00 |
| MN Sales Tax | $0.00 |
| Local Sales Tax | $0.00 |
| Delivery Charge | $0.00 |
| Fuel Surcharge | $0.00 |
| Other Charge | $0.00 |
| **Order Total** | $125.80 |
| **Balance Due** | $125.80 |

MN Dept of Ag Approved Plant Production/Bee and Butterfly Friendly

glacial ridge GROWERS

25132 250th Ave, Glenwood, MN 56334-236
Phone: (320) 634-0136

**Order Date:** 9/21/2018
**Ship Date:** 9/22/2018

**Order #** 4339
**Customer #** 1963

## Bill To:

Chimney Pines Homeowners Assoc.
Judy Berglund
10542 Spyglass Drive
Eden Prairie, MN 55347
**Phone:** (952) 975-1960
**Cell:**
**Fax:**

## Ship To:

Chimney Pines Homeowners Assoc.
Judy Berglund
10542 Spyglass Drive
Eden Prairie, MN 55347

**P.O. #:**
**Comments:** Pick-up FM Dean and Judy Cowdery

| Item | Quantity | Price | Item Total |
|---|---|---|---|
| **SHADY LADY PERENNIALS-18 COUNT (18-Count)** | | | |
| Polemonium caeruleum, Blue Pearl-18ct (18-Count) | 1 | $21.95 | $21.95 |

## Please Pay from this Invoice - No Statement Following

**Payments Received**

| | |
|---|---|
| **Order Subtotal** | $21.95 |
| Early Order Discount | $0.00 |
| Other Discount | $0.00 |
| MN Sales Tax | $0.00 |
| Local Sales Tax | $0.00 |
| Delivery Charge | $0.00 |
| Fuel Surcharge | $0.00 |
| Other Charge | $0.00 |
| **Order Total** | $21.95 |
| **Balance Due** | $21.95 |

MN Dept of Ag Approved Plant Production/Bee and Butterfly Friendly

Please note the meeting will be held in the County Board Room at the Carver County Government Center, 600 East 4th Street, Chaska, MN.

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

# Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, October 24, 2018

**Agenda Item**
**Item 4. I. - 2018 Cost Share - Bergo - 727 7th Street, Chaska**

**Prepared By**
Linda Loomis, Administrator

**Summary**
Please see the attached report.

**Attachments**
Bergo - 727 7th Street, Chaska 2018 Cost Share report

**Recommended Action**
No action recommended

# Bergo - 727 7th Street, Chaska, MN
# 2018 Cost Share

## Chaska

Cost Share number 2018-CS-2

## Project Status | Complete

The Board of Managers approved this project at the March 2018 meeting. pollinators.

The project was completed in June.

## Project Description

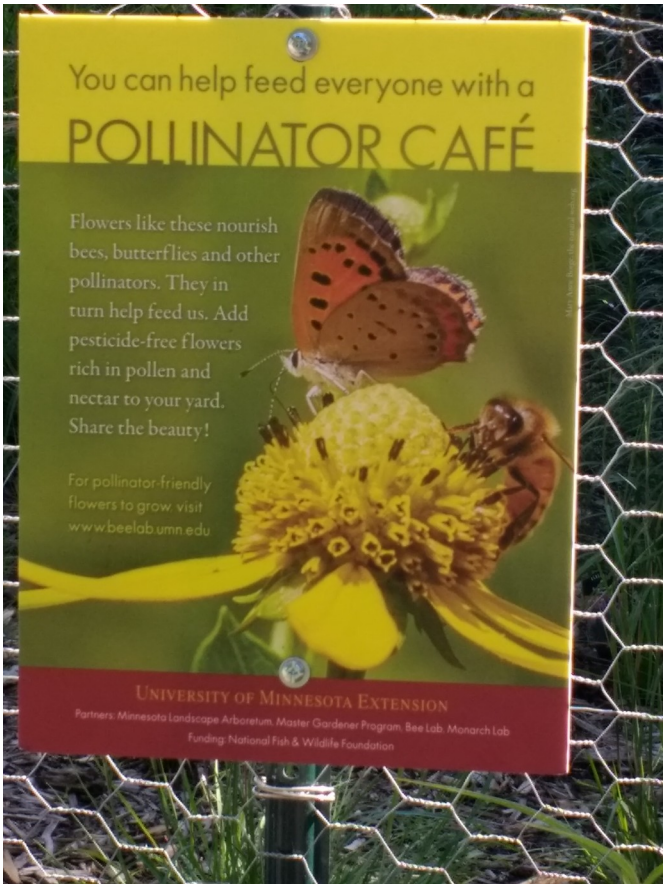
This project was to install a rain garden at a single family residential home in Chaska. The rain garden collects rain water from the home and a public trail that runs between the home and a pond. The home owner planted the rain garden with native plants that provide habitat and food for.

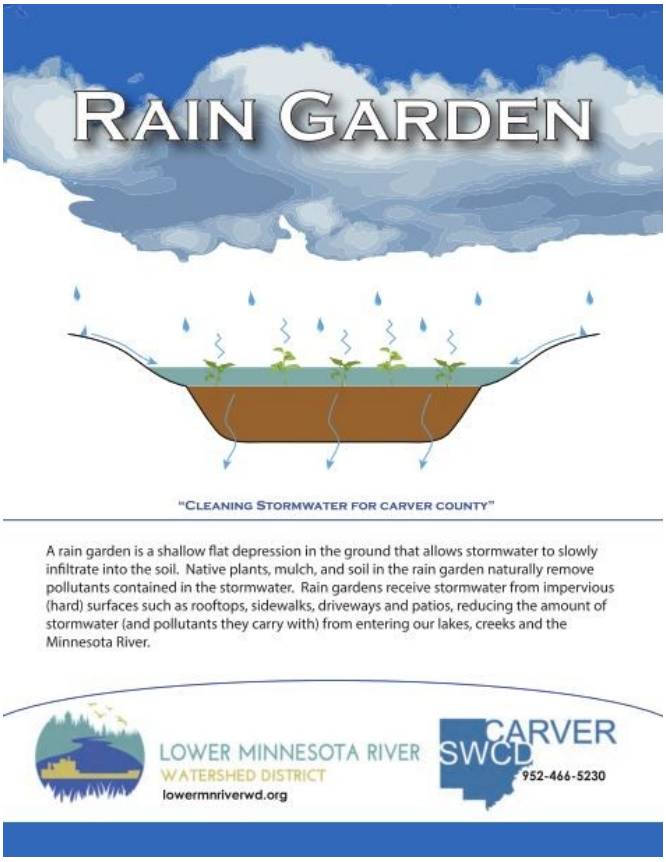
The homeowners retained the services of a landscape contractor to install the garden and used the services of the Carver County Soil & Water Conservation District to assist with the design. Fencing was included in the project because the homeowners have experienced problem with rabbits. The cost of the fencing was not included in the original application. The LMRWD authorized the installation of the fence. The fence was dug in so that the rabbits could not dig underneath.

I visited the site on August 30th and took some pictures which are attached. Carver SWCD took pictures in June after the project was completed. Those pictures are also attached.

The homeowner has said that many people stop and ask about the garden since it is on a public trail and asked if we would install a sign. The Carver SWCD designed a sign, a picture of which is included with the photos of the project.

The total cost of the project was $4,676.96. The original estimate of the cost of the project was $4,563.46. The grant request was for 50% of the cost or $2,281.73. The reimbursement made to the homeowner was $2,338.48.


You can help feed everyone with a
POLLINATOR CAFÉ
Flowers like these nourish bees, butterflies and other pollinators. They in turn help feed us. Add pesticide-free flowers rich in pollen and nectar to your yard. Share the beauty!
For pollinator-friendly flowers to grow visit www.beelab.umn.edu
UNIVERSITY OF MINNESOTA EXTENSION
Partners: Minnesota Landscape Arboretum, Master Gardener Program, Bee Lab, Monarch Lab
Funding: National Fish & Wildlife Foundation


RAIN GARDEN
"CLEANING STORMWATER FOR CARVER COUNTY"
A rain garden is a shallow flat depression in the ground that allows stormwater to slowly infiltrate into the soil. Native plants, mulch, and soil in the rain garden naturally remove pollutants contained in the stormwater. Rain gardens receive stormwater from impervious (hard) surfaces such as rooftops, sidewalks, driveways and patios, reducing the amount of stormwater (and pollutants they carry with) from entering our lakes, creeks and the Minnesota River.
LOWER MINNESOTA RIVER
WATERSHED DISTRICT
lowermnriverwd.org
CARVER
SWCD
952-466-5230

Please note the meeting will be held in the County Board Room at the Carver County Government Center, 600 East 4th Street, Chaska, MN.

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

# Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, October 24, 2018

**Agenda Item**
**Item 5. A. - Presentation of *Sedimentation Accumulation in the Flood Plain of the Lower Minnesota River Watershed***

**Prepared By**
Linda Loomis, Administrator

**Summary**
Dr. Carrie Jennings will be present to make a presentation and answer questions.

**Attachments**
*Sediment accumulation in the Flood Plain of the Lower Minnesota River Watershed*

**Recommended Action**
No action recommended

# Sediment Accumulation in the Floodplain of Lower Minnesota River Watershed

Carrie E. Jennings, P.G., PhD, Freshwater

Vania Stefanova, PhD, and Mark Shapley, PhD, Lac Core, University of Minnesota

FRESHWATER

LAC CORE LacCore.org National Lacustrine Core Facility

LOWER MINNESOTA RIVER WATERSHED DISTRICT

# Executive Summary

The main objective of this work was to provide a direct assessment of sediment accumulation in the floodplain of the Lower Minnesota River Watershed to better document how sedimentation in this reach has changed as a result of changes in flow and sediment supply in the post-settlement period. The method selected was to core floodplain lakes, analyze the fossil pollen and non-pollen palynomorphs (spores and charcoal) archived in the mud collected from the floor of the lake, and correlate the major ecological shifts as indicated by pollen assemblages to dated horizons in nearby lakes. The correlation method was chosen over directly dating the sediment as a cost-saving measure. Indications of land disturbance, cultivation, erosion and flooding helped further constrain the interpretations of the ages of horizons.

If all of the interpreted horizons are correct, and linear sedimentation rates accurately reflect the lake history, sedimentation rates were ~1 cm/year from 1860 to 1910, more than doubled reaching an average of 2.44cm/y from 1950 to 1993, and declined but remain 50% above the background rate at 1.4 cm/y from 1993 to 2018. However, dated profiles for many Minnesota lakes (Engstrom, 2007) suggests that both over- and underestimates of sedimentation rates are possible with the linear interpolation method used here to estimate post-1850 accumulation rates in Rice Lake. Comparison of the linear sedimentation rates to rates for two nearby lakes suggests Rice Lake rates are up to 44% greater. The cores taken for this project have been archived and could be dated at some future time to get more precise estimates of the change in sedimentation rate.

# Introduction

The Minnesota River occupies a deep and broad valley created by the drainage of glacial Lake Agassiz approximately 13,400 years ago (Clayton and Moran, 1982; Matsch, 1983). The tributaries to the Minnesota are still adjusting their gradients to this change and delivering sediment to the Minnesota River as they excavate their valleys (Gran et al., 2009). The Minnesota River does not have the capacity to carry away all of the sediment delivered to it by its tributaries and therefore the valley has been filling in since shortly after it was created (Wright, 1990). The rate of sediment accumulation varies spatially, with climate, and with other factors that affect watershed hydrology and the hydrologic cycle—e.g. ground cover and artificial drainage.

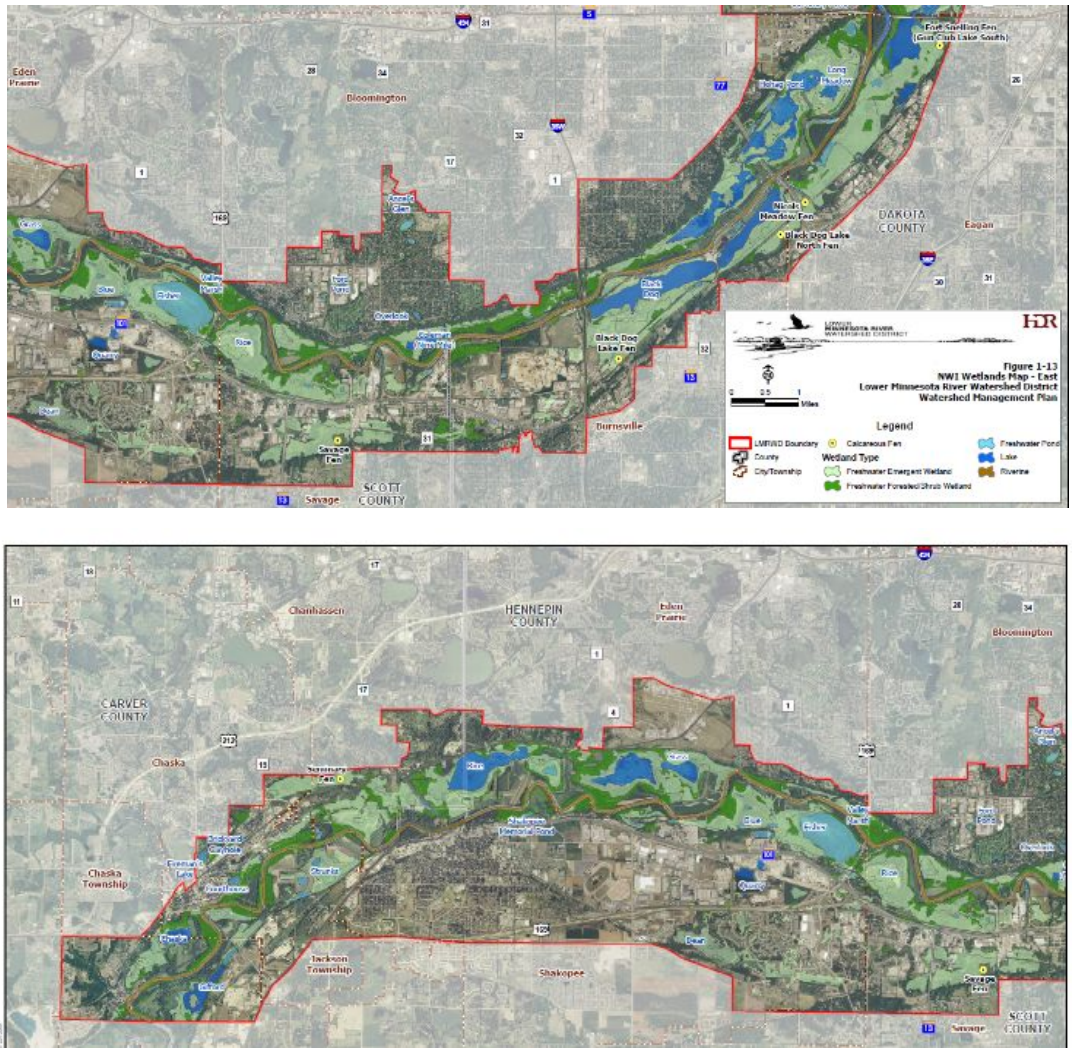
Changes in river flow have been documented by gauging efforts (Wilcock et al., 2009; Groeten et al., 2016). The intensification of agriculture and agricultural drainage have increased peak flows in rivers at certain times of the year, and changing rainfall patterns have also increased flows (Schottler et al., 2013). As a result, rivers have widened significantly, nick points on tributaries have retreated more rapidly, and meander migration rates have increased (Belmont et al., 2011). All of these changes have led to increased sediment delivery by the tributaries, erosion on the main-stem river, and greater in-channel sediment loads.

Lake Pepin, a riverine lake on the Mississippi River downstream of the confluence of the Minnesota, St. Croix and Mississippi rivers archives the combined record of changes in these three watersheds. It is filling in almost ten times faster than pre-settlement rates (Engstrom et al., 2009). High sediment-loading watersheds within the Minnesota River basin have been identified as the primary sources (e.g. Gran et al., 2009; Groeten et al., 2016) and estimates of the changes in run-off ratio in agricultural vs. non-agricultural watersheds modeled (Schottler et al., 2013).

The Minnesota is a net-depositional system with a significant fraction of the high sediment loads contributed by tributaries. The relatively unconfined valley allows flood waters to spread out broadly. The 14.7-mile-long reach of the Minnesota River between Chaska and Minneapolis is dredged for navigation through a collaborative arrangement between the Saint Paul District of the U.S. Army Corps of Engineers and the Lower Minnesota River Watershed District.

Of primary concern is how this reach been impacted by increases in flow and sediment load. That has not yet been fully quantified, however, gauging data and dredging history begin to tell the story of this altered river system. The perception is that in-channel sediment loads are greater resulting in greater volumes of dredged material and increased expense and difficulty of disposing of the dredge spoils.

**Figure 1. Lower Minnesota River Watershed District**



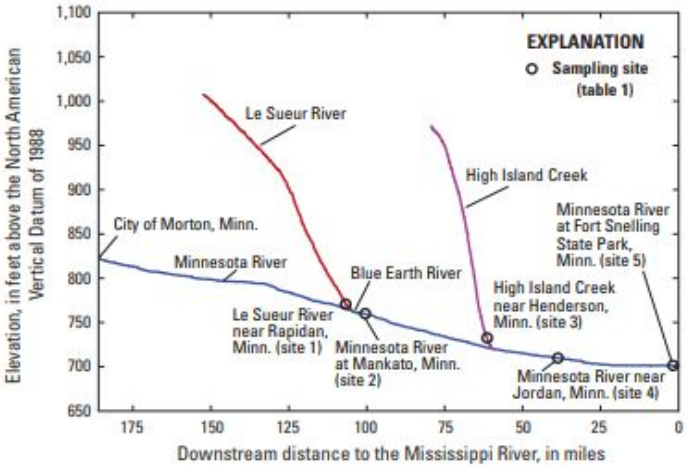



**Figure 2.** Stream gradients along the Minnesota River (from Morton to Fort Snelling State Park, Minnesota) and three tributaries (Le Sueur River, Blue Earth River, and High Island Creek).

# Study Area

The reach of the Minnesota River within the Lower Minnesota River Watershed District (Fig. 1) is wider than upstream reaches and has a lower gradient (Fig. 2). This change in valley slope and geometry leads to a slowing of the river and accumulation of sediment under natural conditions. For each of the four years analyzed in a recent USGS report, there

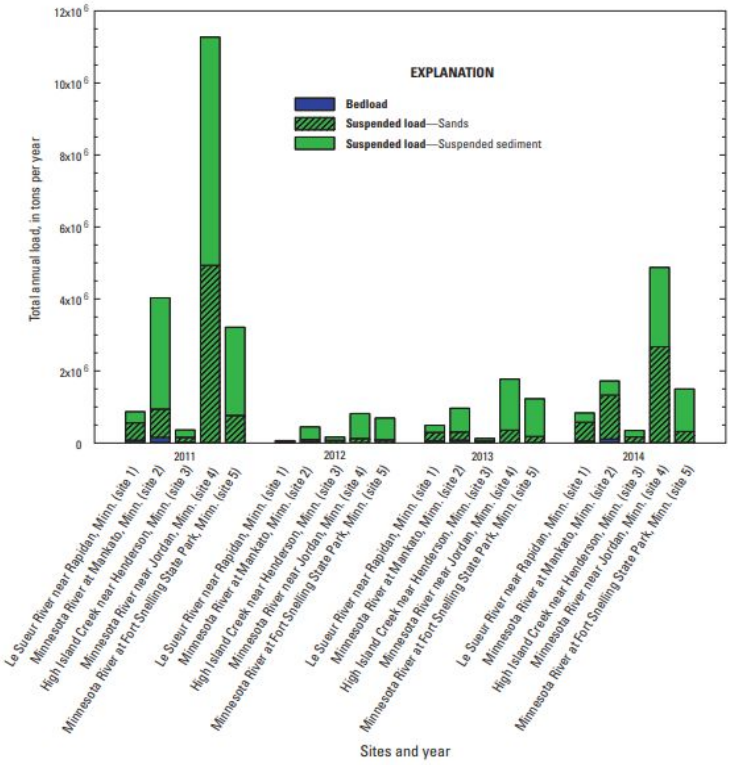



**Figure 12.** R-LOADEST loads at five sites in the lower Minnesota River Basin, calendar years 2011 through 2014.

**Figure 3 Sediment in the Lower Minnesota River Basin, 2011-2014.** Groeten et al., 2016

is more sediment coming into this reach than leaving it (Fig. 3., Groeten et al., 2016). On average, 200 tons of sediment per mile will accumulate in the channel, levees and floodplain.

**Figure 4. The volume of material in such a truck are distributed in each mile of the Lower Minnesota River on average each year.** *https://commons.wikimedia.org/wiki/File:200_Ton_Truck.JPG*

Exactly how the sediment is distributed across the width of the valley is not known. However, stable floodplain lakes that exist behind the natural levees are where the record of sedimentation events is archived. Lakes also archive airborne and river-transported pollen and plant macrofossils. These become fossils deposited with that sediment that can be linked to landscape and climate changes both locally and regionally and may be used to date changes in sediment accumulation.

## Vegetation

At the time of the Public Land Survey (1853-1856), Scott and Hennepin county's vegetation included upland deciduous forest, wetland, prairie, and oak openings and barrens (Figure 5a, Biological Report No. 89, MN DNR 2007). According to the Public Land Survey data, the majority of Hennepin County was heavily forested except for large swaths of prairie and oak openings or barrens mostly along the Minnesota River valley. There is a high probability that fire-dependent plant communities such as prairie and oak openings and barrens were managed locally with the use of fire by Native Americans. Early topographic maps show the distribution of wetlands and forest in 1901 (Figure 5b).

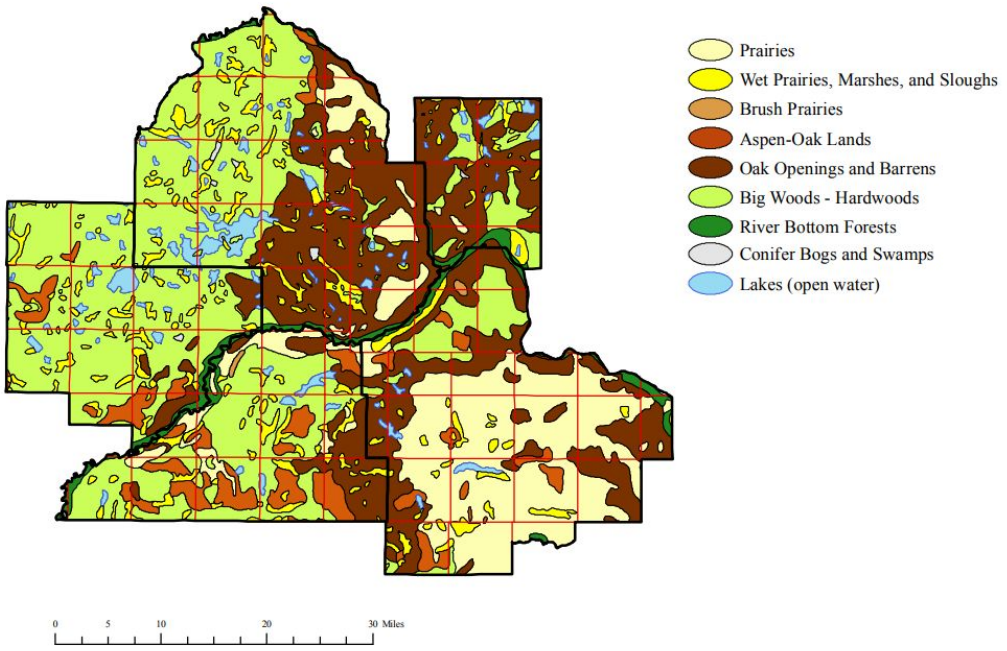



FIGURE 3

USGS Minneapolis 15 Minute Quadrangle Map (Circa 1901)

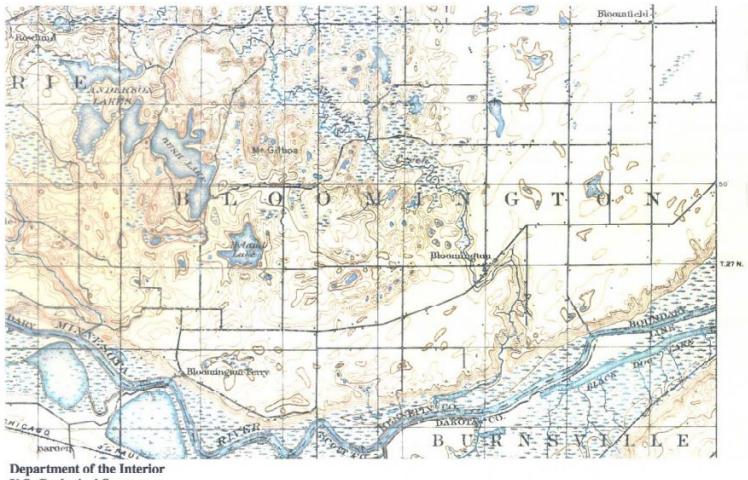



**Figure 5.(a) Native Vegetation**

**https://files.dnr.state.mn.us/eco/mcbs/maps/mnriver_map1.pdf (b) Wetland distribution from the USGS 1903 topographic map.**

Very little of the original vegetation remains. Modern floodplain lakes are surrounded by forests of silver maple subtype with a tall, open super-canopy of cottonwood above a continuous canopy of silver maple. Other trees that are found within the canopy include basswood, American elm, green ash, and peach-leaved willow. The flooded wetlands around the lakes are dominated by river bulrush, cattails, lake sedge, wild rice, burr reed, bluejoint grass, and rice cutgrass. Other common plants are broad-leaved arrowhead, water plantain, sweet flag, water parsnip, wild mint, and American water-horehound. Corn fields appear on the south side of the Minnesota River.

### Human history influences the landscape

The area has been home to Native Americans for over 12,000 years (Gibbon, 2012). Burial mounds in Memorial Park in Shakopee date back approximately 2,000 years. Locations of encampments and farming villages of Native Americans were documented and visited by early European explorers (e.g. Featherstonhaugh, 1847) and the archaeological record supports the utilization of freshwater resources and the relative stability of the lakeshores of floodplain lakes.

Shakopee, the closest town to Rice Lake, was designated as Scott County seat in 1853. In 1860 a railroad was built and the population reached 1,138, and then almost doubled between 1910 and 1912 reaching a population of 2,302. Other events in the settlement history of the region that might impact the sediment accumulating in the Minnesota River floodplain include a great fire in the Minnesota River valley in 1879; expansion of Minneapolis and suburban development throughout the early to mid 1900's; a major flood in 1965; the completion of Highway 169 in 1996; and protection of the Minnesota River Valley National Wildlife Refuge and associated restoration efforts.

## Methods

Lakes store histories of both local and distal land-use and climate change and combine a history of erosion, sedimentation, vegetation, fire (charcoal) as well as development in the area. The inorganic and organic sediment archived in a floodplain lake enters through its tributaries and

during flood events on the Minnesota River. Sediment can also be airborne. Changes in mineral properties are interpreted as a change in sediment source; changes in the amount of sediment accumulated over time can be interpreted as the result of erosion and flood events in the watershed. The duration of flooding may also impact sediment accumulation. Wind-blown pollen can be far-traveled or originate in immediate proximity to the lake; this is in part dependent on the type of pollen. For example, pine can be very far-traveled. Organics can also originate within the lake by the growth and death of organisms that inhabit it.

To get an absolute chronology of events would require a way to date the material that accumulated in the lake. However, it is also possible to use marker horizons of known age to date intervals in a lake core. To avoid the expense of procuring dates on the material in our cores, we compared the sediment and vegetation records of these lakes to well-dated records from 3 lakes in Hennepin and Carver counties (Fig. 6). This approach provides a comparative chronological scale to assess changes in the sedimentation rates in the floodplain lakes (Fig. 7).


**Figure 6. Location of Rice and Coleman lakes, and nearby, dated lakes, Mitchel and Round used for reference.**

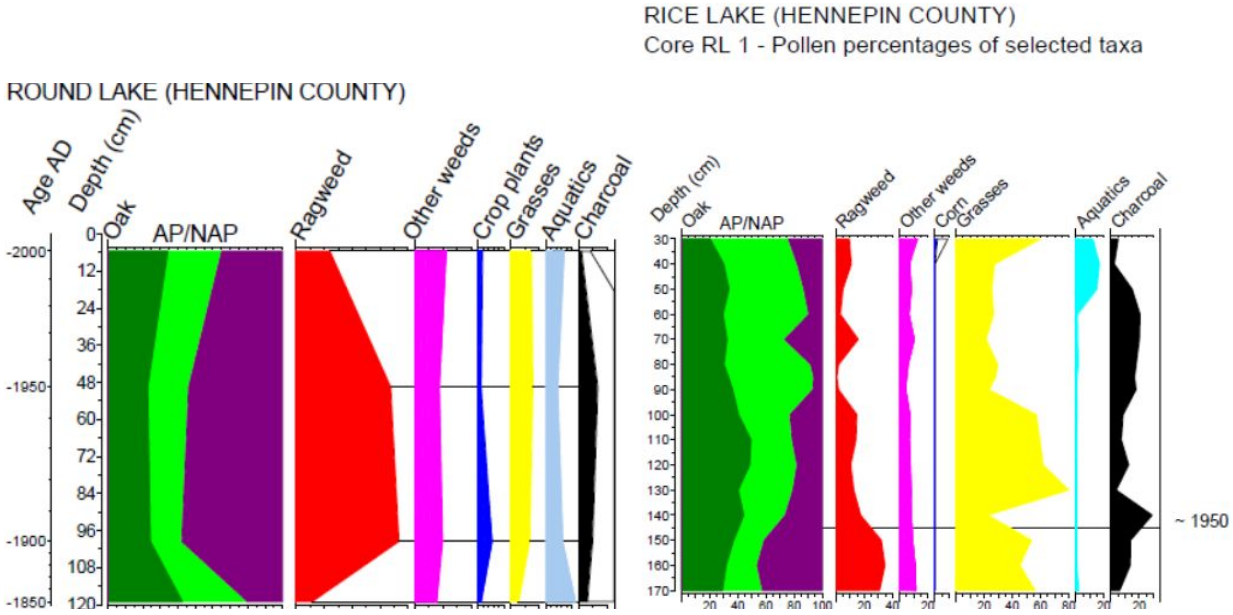



**Figure 7. Dated pollen accumulation records from lakes to be used for comparison. Lotus, Mitchell and Round have dated pollen stratigraphy and are close enough to Rice and Coleman lakes in the floodplain for correlation.**

# Fieldwork

Two lakes located in the floodplain of the Lower Minnesota, Rice and Coleman lakes, were selected to assess historic changes in sediment accumulation rates based on pollen-correlated core intervals. The lakes were selected after reviewing the available information on depth, ownership and access to the floodplain lakes in the lower Minnesota River valley and following site visits during late summer 2017. During the visits vegetation samples were also collected to assist with identification of plant micro-remains remains found in the core. Lake properties are summarized in Table 1.


**Figure 8a. Location of Coleman Lake behind a levee on the Minnesota River.**


**Figure 8b. Rice Lake core locations collected in the fall of 2017 (blue). One more deeper core was taking during January of 2018 (yellow).**

**Table 1. Summary of core characteristics and and lake morphometry.**

| Lake | Lake Surface Area (acres) | Max lake depth (cm) | Core | Lake depth (cm) | Core recovery (cm) | Hydrologic sources |
|---|---|---|---|---|---|---|
| **Coleman Lake** | 114 | 185? | | | | Nine Mile Creek, groundwater, Minnesota River overflow |
| | | | CL-1 | 160 | 151.5 | |
| | | | CL-2 | 165 | 117 | |
| | | | CL-3 | 184 | 114.5 | |
| | | | CL-4 | 174 | 113 | |
| | | | CL-5 | 159 | 110 | |
| | | | CL-6 | 170 | 82 | |
| | | | CL-7 | 185 | 102.5 | |
| **Rice Lake** | 517 | 91 | | | | Bluff Creek and intermittent surface drainage, groundwater, Minnesota River overflow |
| | | | RL-1 | 80 | 170 | |
| | | | RL-2 | 75 | 118 | |
| | | | RL-3 | 77 | 120 | |
| | | | RL-4 | 80 | 114.5 | |
| | | | RL-5 | 79 | 119 | |
| | | | RL-6 | 70 | 93.5 | |
| | | | RL-8B | ice to the bottom | 377.5 | |

Fourteen sediment cores were recovered along two transects in the studied lakes (Figure 8) in the fall of 2017 and February 2018. Cores were named and numbered in accordance with LacCore protocols, and are curated at the University of Minnesota facility.

## Laboratory work by LacCore, U of M

All cores were scanned every 5 mm for their physical properties (p-wave velocity, gamma-ray density and magnetic susceptibility) using a GEOTEK™ multi-sensor core logger. The cores were subsequently split, photographed and described by macroscopic structure and texture and by microscopic composition. Weighed subsamples were taken from regular intervals throughout the cores for loss-on-ignition (LOI) analysis to determine bulk density and dry weight percent of organic matter, carbonate minerals, and non-carbonate mineral matter. Sediment subsamples were heated at 105°C to determine dry density, then sequentially heated to 550°C and 1000°C to determine organic matter and carbonate mineral content from post-ignition weight loss, respectively. The bulk sediment measurements of magnetic susceptibility (MS) reflect the concentration of magnetizable mineral phases in the sediment, often viewed as reflecting the concentration of clastic mineral material and interpreted as a signal of erosional intensity on the sediment-contributing landscape.

In both lakes a reference core was chosen for detailed pollen analysis and for establishing a pollen stratigraphy. For these cores sediment samples for pollen analysis were taken every 10 cm, whereas for the rest of the cores only two samples from near-basal material were taken for correlation with the main core.

Pollen preparation follows the classical chemical method, including acetolysis (Faegri and Iversen, 1989). Pollen percentages are based on the pollen sum of arboreal pollen, including trees and shrubs (AP) and non-arboreal pollen (NAP), excluding spores of *Bryophyta* and *Pteridophyta* and pollen of aquatic plants. grass pollen was also excluded because of overrepresentation (over 100 pollen grains per sample). At least 200 to 300 terrestrial pollen

grains were identified to the lowest possible taxonomic level with keys of Reille (1992; 1998), Beug (2004), and the pollen reference collection at the University of Minnesota. Charcoal particles larger than 20 μm interpreted as an indicator of regional fires (Tinner and Hu, 2003) were also counted. Non-pollen palynomorphs were identified according to van Geel and others (1989). Both charcoal and non-pollen palynomorphs are presented as percentages of the main pollen sum. Analysis of the pollen data was done using the program *Tilia* 1.5.11 (Grimm 2011), which calculated percentages and created graphics.

# Results

Organic sedimentary material in cores collected in this setting may include algal matter produced within the lake itself, local vegetation from lake margins and the surrounding floodplain, and the organic component of sediment transported down the Minnesota River. Carbonate mineral sediment includes both a carbonate component of the Minnesota River sediment load derived from carbonate-bearing sedimentary rocks incorporated in the glacial sediment, and carbonate sediment produced through biochemical precipitation within the lakes. Non-carbonate mineral matter may include locally eroded silt and sand from the immediate watershed, but in this setting will be primarily derived from upstream erosion of glacial sediment in the watershed of the Minnesota River and its tributaries.

## Sediment in Coleman Lake

Silty carbonate mud and diatomaceous carbonate mud are the dominant sediment types represented in our core collection. The changes in sediment composition are more pronounced in the upper 30-40 cm of the cores. There the siliciclastic fraction increases from 40-60% to up to 85% and the magnetic susceptibility (MS) shows a distinct increase. The amount of carbonate mineral matter increases to 40% between 30 and 60 cm. The organic component remains low (10-15%) with the exception of core CL-6 where it has a maximum of 50% at 75 cm.
Well-defined maxima in magnetic susceptibility are observed between 100 and 120-130 cm in core CL-1,CL-2, CL-3 and CL-7 (Figure 9).

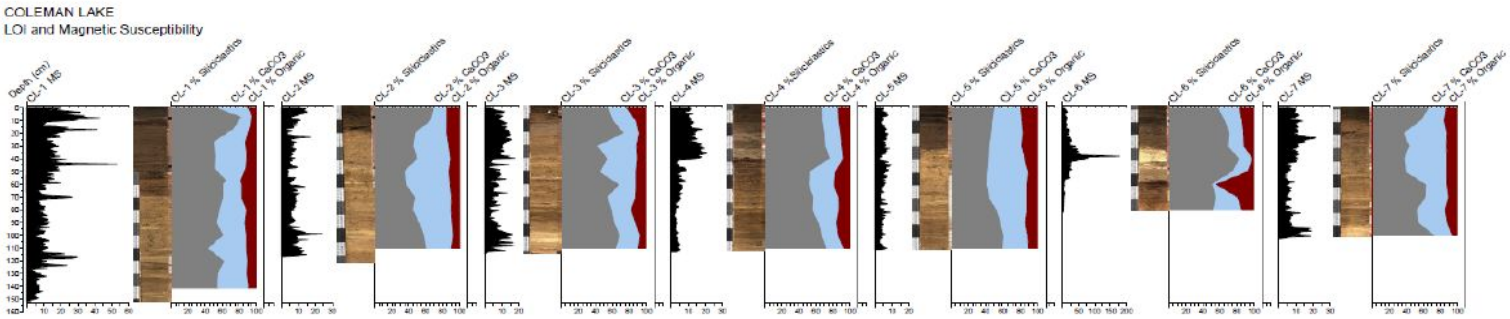



**Figure 9. Alignment of Coleman Lake cores with magnetic susceptibility, organic and inorganic carbon and images of core surface.**

## Sediment in Rice Lake

All sediment cores comprise alternating silty carbonate mud and diatomaceous carbonate mud with some silt. The siliciclastic material (50-80%) dominates the sediments from Rice Lake. The lowest siliciclastic percentages (up to 50%) are between 390 and 340 cm in core RL-8, where the highest carbonate percentages of up to 40% appear. The inorganic mineral component increases to as much as 80 % between 340 and 300 cm in core RL-8, accompanied by an increase in magnetic susceptibility values. Except for core RL-2, the inorganic mineral fraction decreases in the top 20-40 cm. This decrease is accompanied by an increase in carbonate minerals, and for cores RL -2 and RL-3 an increase in the organic fraction. All cores show high MS in the uppermost 30-35 cm (Figure 5).

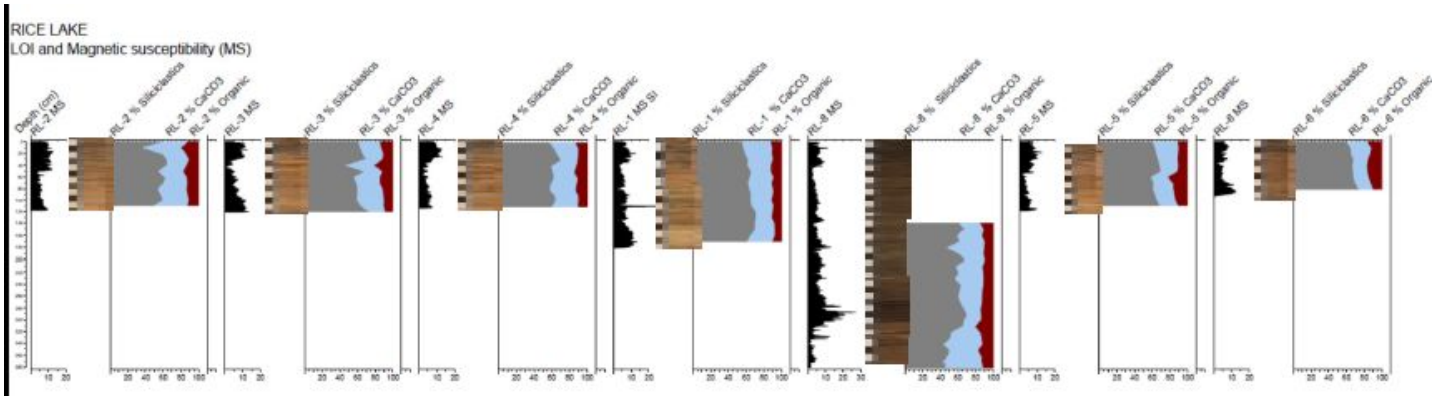


**Figure 10. Alignment of Rice Lake cores with records of magnetic susceptibility, organic and inorganic carbon and images of core surface.**

# Pollen

Representative cores from each lake are discussed in detail. Pollen zones that are statistically determined help frame the ecological history of the lake and region. Key pollen events can then be linked to dated pollen stratigraphy in nearby lakes for which there is chronological control.

## Pollen stratigraphy of Coleman Lake

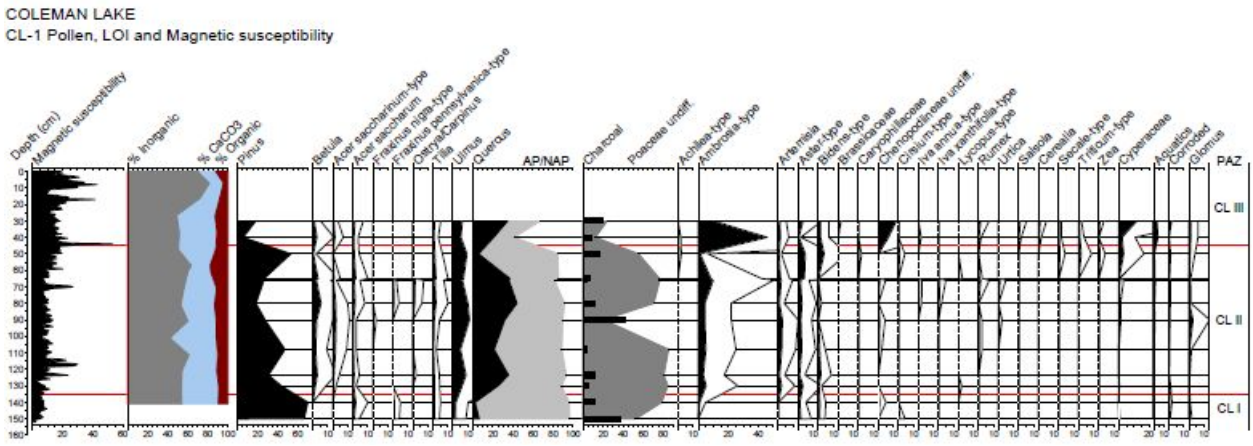



**Figure 11. CL-1, representative core from Coleman Lake with pollen counts and zones.**

The pollen stratigraphy of core CL-1 is represented with three pollen zones recognized by stratigraphically constrained cluster analysis in CONNISS (Grimm, 1987). Zone CL I is characterized by low taxonomic diversity as few pollen types were found: pine (*Pinus*) pollen up to 80%, grass (Poaceae) pollen (excluded from the pollen sum) up to 80%, and small amounts of oak (*Quercus*), elm (*Ulmus*), ragweed (*Ambrosia)*, wormwood (*Artemisia)* and aster (*Aster*-type). Microscopic charcoal, up to 40% in the lowermost pollen spectrum indicates fire activity in near the lake and involving either wetland vegetation dominated by grasses or more likely nearby prairie fires. The high percentage of pine pollen likely has a long-distance origin facilitated by the treeless vegetation around the lake. In Zone CL II oak and elm are dominant among the tree

species. The most distinct feature of Zone CL III is the high peak of *Ambrosia* pollen percentages, up 40% following a sharp decrease in *Quercus* (oak) values (from 40 to 10%).

## Pollen Stratigraphy of Rice Lake

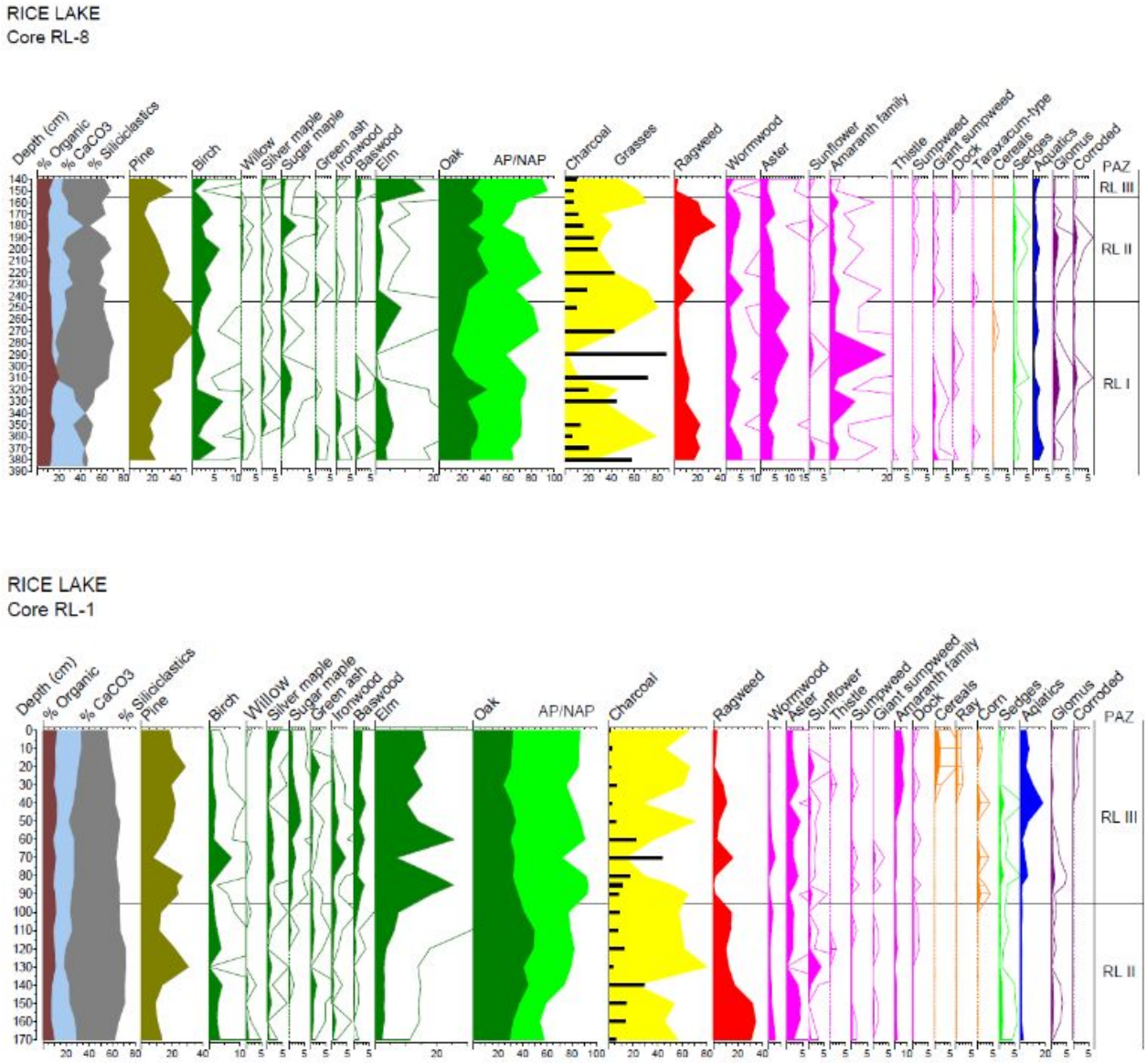



**Figure 12. Pollen diagrams from two cores in Rice Lake, RL-8 and RL-1.**

Three pollen zones are also recognized in Rice Lake by stratigraphically constrained cluster analysis in CONNISS (Grimm, 1991). Zone RL I (RL-8), dominated by grasses (up to 80%) and

prairie herb types (wormwood, aster species, sunflower and ragweed) reflects the regional pre-settlement wetland and prairie vegetation along with some oak openings registered with oak pollen (25-40%,), elm (up to 10%), sugar maple, silver maple, and birch. The high concentration of charcoal between 270 and 330 cm most probably indicates independent fires near the lake in the wetland and upland forests as shown in the decreased pollen percentages of grasses, oak and fire-sensitive elm and sugar maple. Corroded pollen grains and fungal spores of *Glomus* in the same interval point to increase erosion in the lake catchment. Amaranth species are pioneers and their spread on burned wetland areas is interpreted in this zone, where it reaches its maximum values. An increase in the amount of pine pollen above the charcoal interval indicates openings in the forest canopy facilitating pollen transport. The most characteristic feature for zone RL II (RL-8 and RL-1) is the rise in *Ambrosia* percentages by up to 40%, followed by an increase in the oak pollen from 30 to 50%. In zone RL III (RL-8 and RL-1) the most significant change is the increase in the elm pollen percentages, reaching as high as 30%.

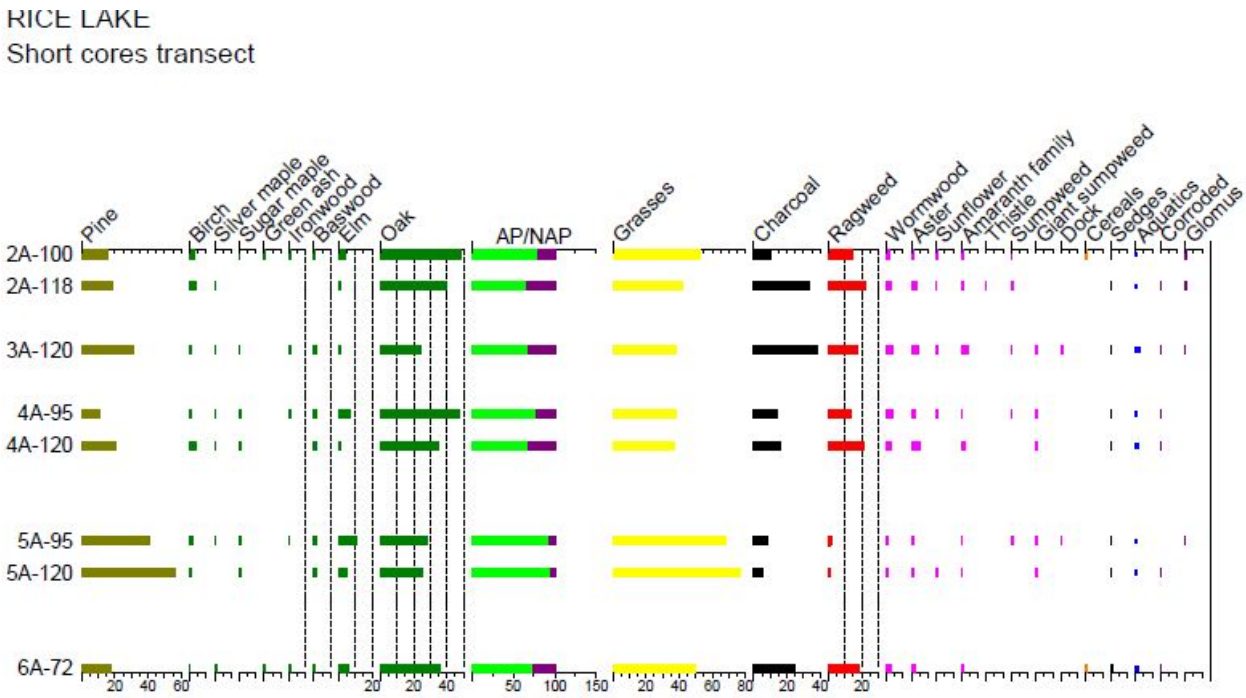


**Figure 13. Transect of short cores from Rice Lake and the pollen assemblage at the bottom of each core.**

The pollen spectra of the analyzed sediment samples at selected depths in the short cores show analogues with dominant pollen types similar to those at the same depths in core RL-1. This indicates similar sedimentation processes and rates in the different parts of the lakes.

# Discussion

The pre-settlement regional vegetation in the study area, reflected in zone RL I in the pollen diagram for core RL-8 from Rice Lake consisted of wetlands, prairies and oak openings. The high charcoal amount in pollen spectra in this zone indicates fires. This is an expected result given the literature documenting the extent of prairies and their fire dependence (Umbanhower, 2004). It is possible that some of the fires had anthropogenic origins because the area was occupied by Native Americans. The charcoal layer in the sediments shows high magnetic properties and an increase in the inorganic noncarbonate mineral component of the sediment as a result of soil erosion after the fires. The sediment of the post-settlement horizon has higher carbonate amounts and in this region that has been correlated to a greater percentage of cultivated acres in the surrounded lake catchment (Umbanhower et. al. 2011).

Almost all cores from Rice and Coleman lakes have distinct magnetic peaks in the top 30-40 cm that could reflect larger and more frequent flooding in the valley since 1993. The changes in the magnetic properties in the cores from Coleman Lake are more pronounced than those in Rice Lake but because of the lack of an absolute chronology and the unclear pollen stratigraphy of the main core CL-1 it is difficult to correlate them to particular flood events. The pollen stratigraphy for Coleman Lake most probably matches the vegetation changes in upper part of Zone RL II and Zone RL III of Rice Lake.

There is a discharge gauging station located on the Minnesota River upstream of the Highway 101 bridge near Jordan. Those records and the record of Highway 101 bridge closures due to

flooding help constrain when sediment-laden floodwaters might have inundated Rice Lake. The bridge was closed six times between 1993 and 2011 with closure times varying from several days to several weeks when water elevations exceeded 709.4' (Table 2, Fig. 14; SEH, 2011). Typically, the lakes in the floodplain that we studied are flooded during 10-year recurrence flood events.

**Table 1 – Days Highway 101 Crossing Closed During Flood Events 1965 - 2011**

| Flooding Event | [1] Highway 101 Days Closed |
|---|---|
| Spring 2011 | 43 |
| Fall 2010 | 16 |
| Spring 2010 | 27 |
| Spring 2001 | 29 |
| Spring 1997 | 18 |
| Summer 1993 | 27 |
| Spring 1969 | 17 |
| Spring 1965 | 15 |

[1] Data for 2010 and 2011 were obtained from MnDOT. Data for 1993, 1997 and 2001 were obtained from the *Trunk Highway 41 Draft Environmental Impact Statement (DEIS)*. Data for 1965-1969 were estimated from historic hydrograph plots and assuming the road is closed for three days beyond the date when the water level dropped below the closure elevation to conduct maintenance and restoration work.

**Table 2. Flood events that lead to the closing of Highway 101, near Rice Lake.**

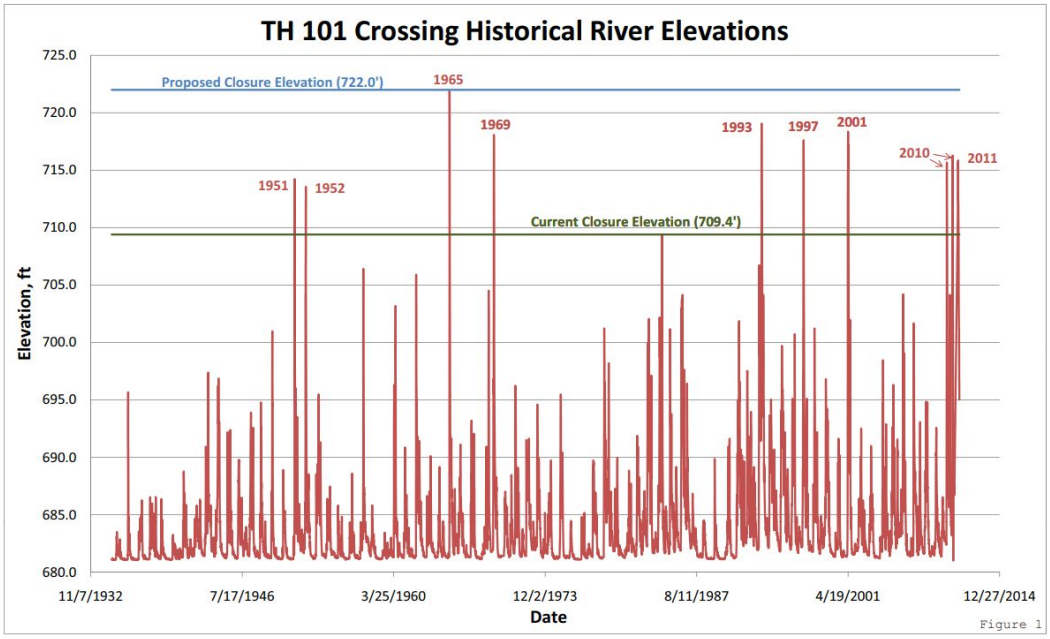



**Figure 14. Elevation of the river that results in Highway 101 closure shown in green.**

The variability in magnetic susceptibility in the upper portion of Core RLHC17-1A-1P-1 could be related to influx of magnetic grains carried in the river during these flood events.

## *Ambrosia* rise and sedimentation rates

The rise in *Ambrosia* pollen associated with the Euro-American settlement was dated at 1900 AD in Mitchell Lake (102 cm) and 1910 in Round Lake (98 cm). These lakes, located 3-4 miles away from Rice Lake are the closest studied and dated lakes, and are used here for biostratigraphical comparison (Fig. 15).

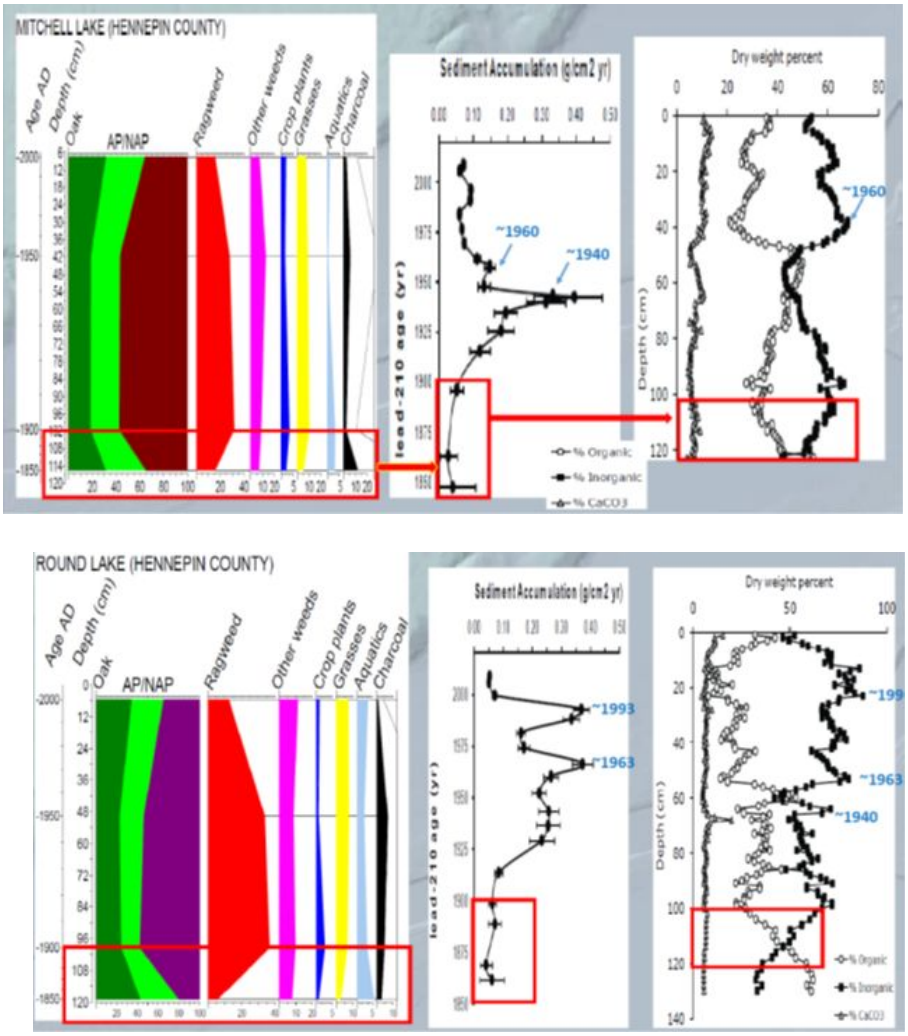



**Figure 15. Rise of Ambrosia (ragweed) in nearby (a) Mitchell Lake, and (b) Round Lake, Hennepin County**

The rise in *Ambrosia* in both lakes is preceded by an increase in the inorganic content of sediment, as well as a higher charcoal amount (Mitchell Lake) that appears up to 20 cm below the *Ambrosia* rise and it is dated to 1850 when the city of Eden Prairie, the closest populated

place, was established. The increase in the inorganic component of sediment most probably marks the settlement horizon whereas the *Ambrosia* rise reflects the time of intensified agriculture in the area about 50 years after the arrival of the first European settlers.

Similar increases in the inorganic component of the sediment occurring one to several centimeters below the *Ambrosia* rise was observed in cores from Crystal Bay, Lake Minnetonka. However, because of the uncertainty in the measurements of the $^{210}$Pb activity, the increased inorganic sediment component was accepted as a pre-settlement event (Murtchie, 1985). There are no other studies in the area where independent age control of the *Ambrosia* rise is provided through pollen analysis performed on $^{210}$Pb and $^{137}$Cs-dated cores.

In Rice Lake the *Ambrosia* rise occurs at 180 cm (core RL-8) and is accompanied by a peak in the magnetic susceptibility and in the carbonate mineral component. This is above the interval (230 and 190 cm) with higher charcoal concentration and additional indicators of erosion (fungal spores of *Glomus*, corroded pollen grains and very large individual carbonate grains and carbonate aggregates likely formed in soils). This points to intensification of human activity in the area. It is very possible that the settlement horizon in the lake registers at 230 cm and that this horizon correlates to 1850-1860 when the nearby town of Shakopee was established and the first railroad in the region was built. In this case the *Ambrosia* at 180 cm might reflect the farming development facilitated by improved transportation around 1910-1912 when the population in Shakopee almost doubled compared to 1860.

The decrease in *Ambrosia* pollen in Mitchell and Round lakes is dated at 1950 and in the Rice lake pollen diagrams it appears at 140 cm. The pronounced magnetic susceptibility peaks in the top 30-40 cm in all cores from Rice and Coleman lakes might be related to the floods events since 1993.

Taking all of these age interpretations at face value, a linear rate of modern sedimentation for these lakes in the floodplain of the Minnesota River was calculated. If the correlations are correct, sediment accumulation rates for the floodplain lakes are approximately:

- 1.0 cm/y from 1860 to 1910 (Background sedimentation rate)
- 1.0 cm/y from 1910 to 1950 (Rate may be low because of 1930s drought)
- 2.44cm/y from 1950 to 1993 (>2 times background; sediment stored during drought may be contributing to higher rates during this period)
- 1.4 cm/y from 1993 to 2018 (~50% higher than background)

However, $^{210}$Pb profiles for many lakes (Engstrom, 2007) suggests that both over- and underestimates of sedimentation rates are possible with this linear interpolation method used here to estimate post-1850 accumulation rates in Rice lake. Comparison of the linear sedimentation rates estimated for Mitchell (0.9cm/y) and Round (0.9cm/y) lakes with $^{210}$Pb-corrected sedimentation rates shows that the maximum dated sedimentation rates were 0.95cm/y around 1940 in Mitchell Lake and up to 1.3 cm/y in Round L around 1966. Both Mitchell Lake and Round Lake lie outside the Minnesota River floodplain, and therefore have been subject to changes in sediment mobilization and delivery occurring at the local watershed scale, but not to changes in transport through a major fluvial network such as the Minnesota River.

## Summary and Future Work

If all of the inferred time horizons are correct, sedimentation rates peaked at 2.44cm/y from 1950 to 1993 and have decreased to 1.4 cm/y from 1993 to 2018. This would mean that in the last 50 years the valley floor rose 120 cm. According to a recent tabulation (Table 3) (Smith et al., 2018), Chaska only has approximately 4.5 feet (137 cm) of freeboard on their levee. At current sedimentation rates, that will largely be gone within 50 years and this does not take into account the changes in recurrence interval and size of recent floods (Table 4) which may lead to more frequent inundation. There have been significant increases in flow and overbank flooding in the past three decades.

| River Gauge | DEM River Elevation(ft) | 5 Yr RI(ft) | 10 Yr RI(ft) | 25 Yr RI(ft) | 50 Yr RI(ft) | 100 Yr RI(ft) | Years on Record |
|---|---|---|---|---|---|---|---|
| Ortonville | 966 | 966.62 | 967.7 | 969.22 | 969.26 | 969.4 | 77 |
| Lac Qui Parle | 934 | 935.89 | 936.8 | 938.8 | 940 | 940.1 | 68 |
| Montevideo | 919 | 924.8 | 926.38 | 929 | 931 | 933 | 106 |
| Morton | 822 | 832.5 | 832.7 | 834 | 835 | 840 | 15 |
| Mankato | 760 | 768.12 | 772.47 | 775.25 | 777 | 778 | 112 |
| Henderson | 725 | 738.3 | 739.5 | 742 | 744 | 747 | 32 |
| Jordan | 695 | 715.9 | 721.81 | 723.5 | 723.65 | 725 | 78 |
| Savage | 687 | 711.6 | 714.6 | 717 | 720 | 724 | 46 |
| Fort Snelling | 687 | 706.7 | 709.76 | 711.5 | 720 | 723 | 9 |

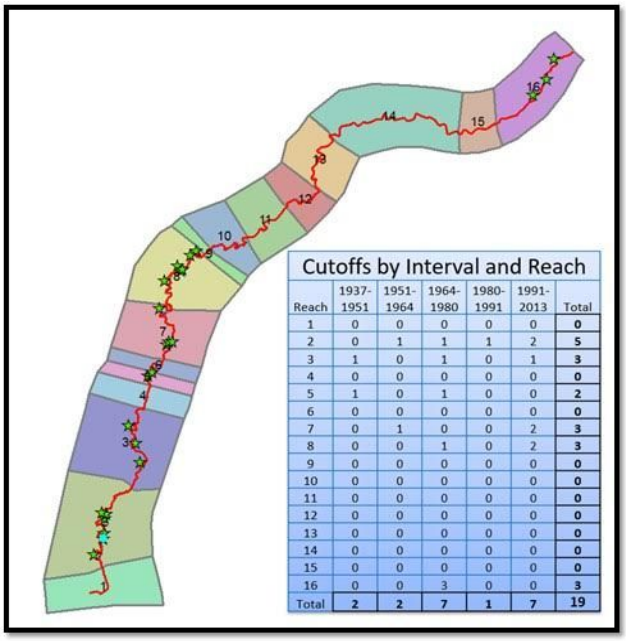
**Table 3. Height of five different recurrence intervals and the number of years that stream data was recorded, and elevation of the Minnesota River at each gauge station for the basin DEM. From Smith et al., 2018.**

| City | Elevation of Flood Control Structure | Design Flood Protection | Sources |
|---|---|---|---|
| Montevideo | 938 feet | 100-year flood + 3 feet | City of Montevideo, 2011 |
| Granite Falls | 912 feet | 100-year flood + 3 feet | USACE, 2016 |
| New Ulm | 814 feet | 100-year flood + 2 feet | USACE, 2016 |
| Mankato | 778.14-780.14 feet | 100-year flood | USACE, 2016 |
| Henderson | 745 feet to 743 feet | 170-year + 3 feet | USACE, 2016 |
| Chaska | 728.5 feet | 100-year | USACE, 2016 |
| Carver | 726.5 feet | 100-year | Mason, 2011 |

**Table 4. Elevation of flood levees along the Minnesota River and magnitude of flood they are designed to protect against. From Smith et al., 2018.**

Dating key horizons in the cores would confirm the interpretations of sedimentation rates. In particular, the assumption that magnetic susceptibility peaks indicate recent flood events, while logical, is a hypothesis that should and could be easily tested. The settlement and other anthropogenic disturbances that are interpreted from pollen, sediment and other aspects of the sediment stratigraphy could be dated to firm up the dates of those changes and refine the assumed linear interpolation method. Comparison of the linear sedimentation rates to $^{210}$Pb-based rates for two nearby lakes show rates in these floodplain lakes are up to 44% greater. The cores taken for this project have been archived and could be dated at some future time to get more precise estimates of the change in sedimentation rate. Sedimentation estimates would also be

more meaningful if converted via bulk density to mass accumulation rates (e.g. g/cm2/yr) rather than presented as linear accumulation rates.




A 3-year project conducted by the Water Resource Center, Minnesota State University, Mankato funded by DNR Fisheries to explore the construction of a carp barrier was released on July 1, 2018 and may have relevant information on recent changes to the river. Reaches were defined geomorphically to conduct both average- and reach-specific analysis (Libby et al., 2018). The Lower Minnesota River Watershed District is confined to reach 15 and 16.

**Figure 16. Numbered reaches defined geomorphically by Libby and others. 2018.**

Repeat bathymetric surveys of the Minnesota River were conducted for the three-year period of the study and reflect changes in the channel itself. Bathymetry was measured twice during the 3-year study. Sites near Jordan, Chaska, and Shakopee were surveyed in 2015 and 2016 and scouring and aggradation were highly variable. In general, long, straight reaches like the lower reaches of the river have little bathymetric variability. Scour pools are associated with the outside bends of meanders and deeper pools are on tighter bends (Belmont et al., 2018).

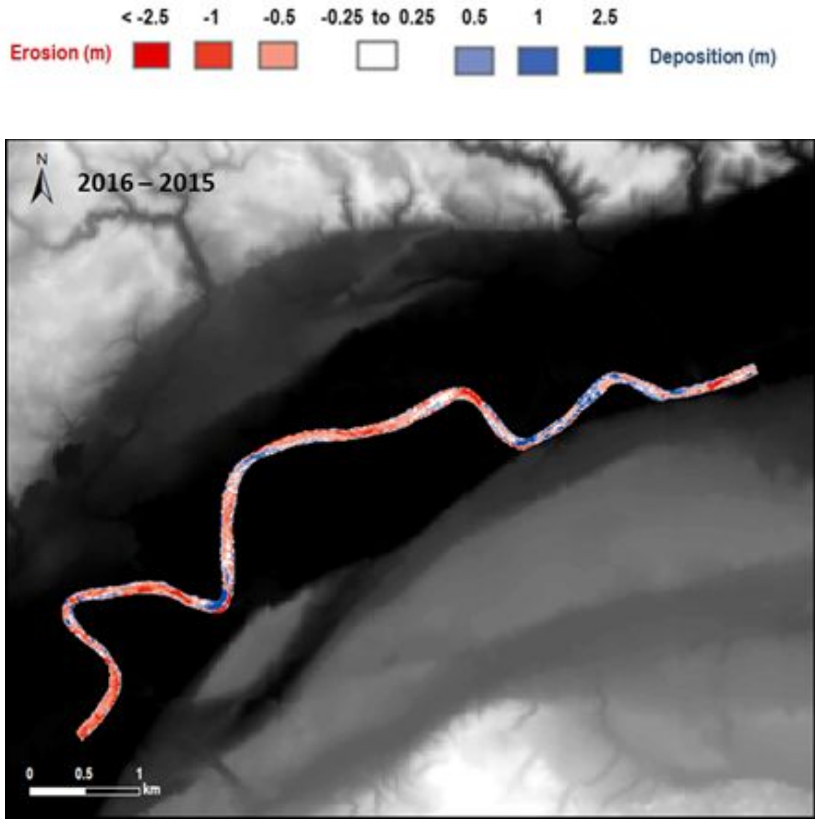



**Figure 17. DEM of difference at site I, Chaska, between 2015 and 2016. Erosion is red, deposition is blue, and change below a 25 cm minimum level of change is white, from Belmont et al., 2018.**

The reach between Chaska and Shakopee may have limited capacity for meander migration and channel-width adjustment. It has exhibited more extensive channel deepening over the study period compared to upstream reaches which the study authors interpret as erosion (Belmont et al., 2018). However this could reflect dredging activity. Although these changes were documented over a short interval of time, when combined with the longer observations of channel migration, they suggest relative stability of this reach of the river. Nonetheless, we know that reach from Jordan to the confluence is a sediment sink over longer periods (Groeten et al., 2016) and this is in part because of a flattening gradient. It would be best to extend the period of record and compare it with dredging before drawing too many conclusions.

**Table 5. Average Annual Channel Migration from Libby et al., 2018**

| Average Annual Channel Migration by Reach and Interval (m/yr) | | | | | | |
|---|---|---|---|---|---|---|
| Reach | 1937-1951 | 1951-1964 | 1964-1980 | 1980-1991 | 1991-2013 | Average |
| 1 | 1.07 | 1.46 | 0.61 | 0.45 | 0.24 | 0.76 |
| 2 | 1.05 | 1.37 | 1.41 | 1.21 | 1.39 | 1.29 |
| 3 | 0.98 | 0.81 | 1.00 | 0.93 | 0.79 | 0.90 |
| 4 | 0.35 | 0.69 | 0.61 | 0.89 | 0.18 | 0.54 |
| 5 | 1.53 | 1.98 | 2.43 | 1.36 | 2.01 | 1.86 |
| 6 | 0.55 | 0.63 | 0.74 | 0.68 | 0.69 | 0.66 |
| 7 | 0.89 | 1.14 | 0.86 | 1.33 | 1.51 | 1.15 |
| 8 | 1.28 | 1.13 | 1.26 | 1.57 | 1.75 | 1.40 |
| 9 | 0.41 | 0.31 | 0.53 | 0.11 | 0.19 | 0.31 |
| 10 | 0.84 | 0.74 | 0.78 | 0.90 | 1.27 | 0.90 |
| 11 | 0.66 | 0.33 | 0.76 | 1.10 | 0.39 | 0.65 |
| 12 | 1.03 | 1.15 | 1.32 | 1.08 | 1.41 | 1.20 |
| 13 | 0.39 | 0.56 | 0.44 | 0.48 | 0.48 | 0.47 |
| 14 | 0.26 | 0.38 | 0.58 | 0.49 | 0.27 | 0.40 |
| 15 | 0.78 | 0.37 | 0.54 | 0.69 | 0.23 | 0.52 |
| 16 | 0.40 | 0.63 | 0.83 | 1.39 | 0.16 | 0.68 |
| Average | 0.77 | 0.84 | 0.91 | 0.99 | 0.81 | 0.86 |

| 10th Percentile | Quartile 1 | Quartile 2 | Quartile 3 | 90th percentile |
|---|---|---|---|---|
| 0.27 | 0.48 | 0.78 | 1.20 | 1.45 |

| < 0.27 | >0.27 & <0.48 | >0.48 & <0.78 | >0.78 & <1.20 | >1.20 & <1.45 | >1.45 |
|---|---|---|---|---|---|

The lower slope is cited as one reason for less channel migration (Libby et al., 2018). Cutoffs upstream have shortened the length overall by 11 to 12 kilometers, thereby steepening the gradient for the Minnesota overall, but not in this reach (Figure 18).

**Figure 20. Reach 16 with migration locations(Red = 1937-1951, Orange = 1951-1964, Yellow = 1964-1980, Green = 1980-1991, Blue = 1991-2013) from Libby et al., 2018.**

Channel width has also increased more upstream than in the reach managed by the Lower Minnesota River Watershed District. Average channel width in reaches 15 and 16 increased by 38% and 26%, respectively (Figure 19, 20 and Table 6, Libby et al., 2018).

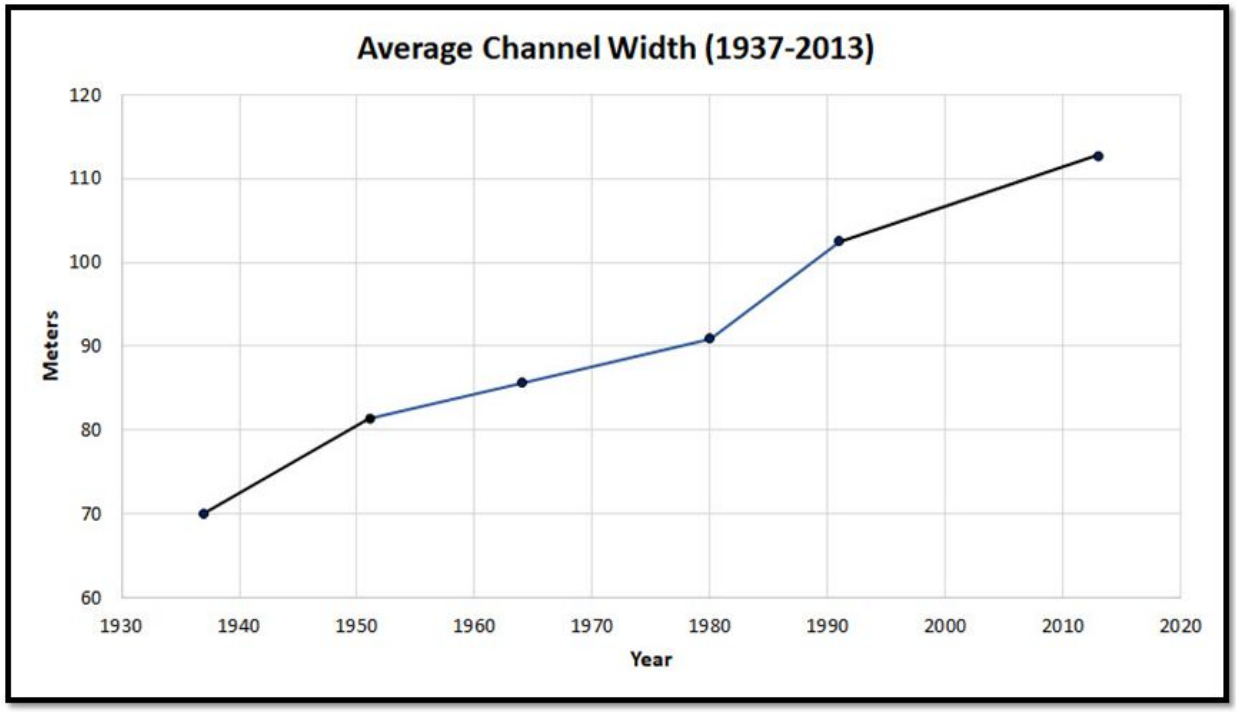



**Figure 18. Graphical results for channel width change for all years for the entire river.**

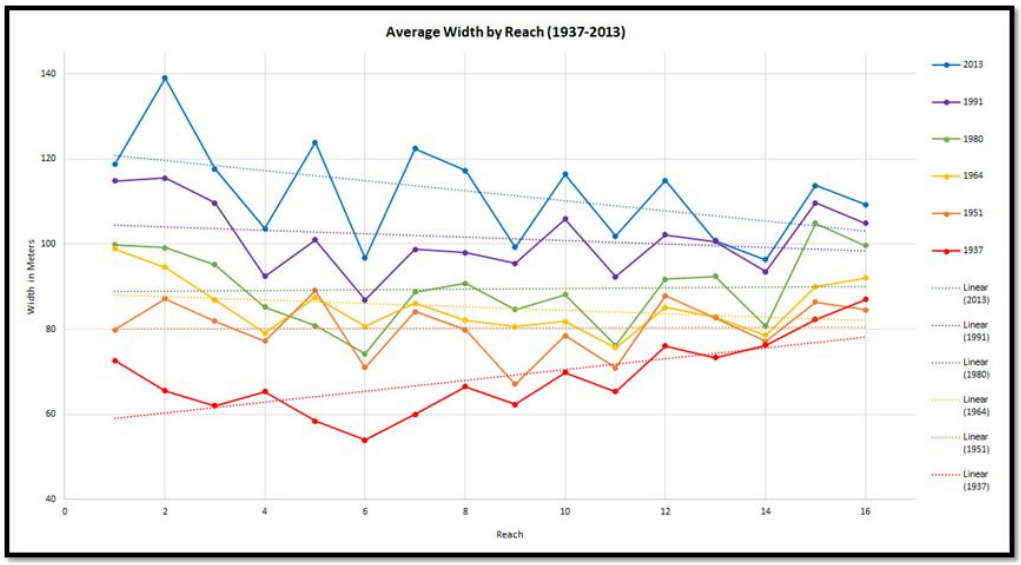



**Figure 19. Average channel width for all years by river reach, from Libby et al., 2018**

**Table 6. Average Channel Width by Reach and Interval**

| Average Channel Width by Reach and Interval (m/yr) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Reach | 1937 | 1951 | 1964 | 1980 | 1991 | 2013 | Average |
| 1 | 72.66 | 79.91 | 98.87 | 99.87 | 114.90 | 118.74 | 97.49 |
| 2 | 65.48 | 87.20 | 94.63 | 99.17 | 115.58 | 139.05 | 100.19 |
| 3 | 62.03 | 81.92 | 86.92 | 95.17 | 109.72 | 117.67 | 92.24 |
| 4 | 65.32 | 77.21 | 79.05 | 85.26 | 92.41 | 103.68 | 83.82 |
| 5 | 58.42 | 89.17 | 87.51 | 80.88 | 100.98 | 123.90 | 90.14 |
| 6 | 53.94 | 71.01 | 80.60 | 74.17 | 86.84 | 96.69 | 77.21 |
| 7 | 60.00 | 84.20 | 86.13 | 88.71 | 98.82 | 122.45 | 90.05 |
| 8 | 66.50 | 79.83 | 82.13 | 90.80 | 97.98 | 117.31 | 89.09 |
| 9 | 62.35 | 67.10 | 80.64 | 84.67 | 95.48 | 99.26 | 81.59 |
| 10 | 69.79 | 78.45 | 81.82 | 88.14 | 105.90 | 116.47 | 90.10 |
| 11 | 65.37 | 70.87 | 75.70 | 76.15 | 92.39 | 101.92 | 80.40 |
| 12 | 76.06 | 87.86 | 85.09 | 91.77 | 102.20 | 114.93 | 92.99 |
| 13 | 73.30 | 82.69 | 82.91 | 92.44 | 100.63 | 100.79 | 88.79 |
| 14 | 76.21 | 77.18 | 78.56 | 80.73 | 93.55 | 96.37 | 83.77 |
| 15 | 82.26 | 86.37 | 90.00 | 104.96 | 109.72 | 113.75 | 97.85 |
| 16 | 86.93 | 84.51 | 92.06 | 99.61 | 104.94 | 109.33 | 96.23 |
| Average | 70.05 | 81.45 | 85.65 | 90.89 | 102.54 | 112.84 | 89.50 |

| 10th Percentile | Quartile 1 | Quartile 2 | Quartile 3 | 90th Percentile |
|---|---|---|---|---|
| 66.92 | 78.68 | 87.36 | 99.81 | 114.91 |

| <66.92 | >66.92 & <78.68 | >78.68 & <87.36 | >87.36 & <99.81 | >99.81 & <114.91 | >114.91 |
|---|---|---|---|---|---|

In summary, the reach of the river managed by the Lower Minnesota River Watershed District is a net sediment sink with a low gradient and uniquely stable channel form and will continue to have an aggrading floodplain which will compromise flood protection in cities near the river within decades under current conditions. Next steps are:

- Firm up the sedimentation rates by dating stored core material. This will also make the work suitable for publication.
- Compare recent LiDAR topography, the MSU study and river cross-sections taken by the Corps of Engineers for the Chaska levee project and other floodplain modeling efforts to determine changes to inundation and flood risk to communities and structures in the LMRWD.
- Work with the Wildlife Refuge on adaptive management strategies for trail locations, road crossings, etc., in the face of increasing flows, flood levels, sediment and dredge volumes.
- Pursue upstream flow management in line with recommendations of the NCED group using the Management Option Simulation Tool (MOSM) in the Le Sueur watershed and similar approaches in other watersheds.

## Acknowledgements

Sediment cores were collected and loss-on-ignition analyses were completed by LacCore (National Lacustrine Core Repository), Department of Earth Sciences, University of Minnesota, Minneapolis (http://lrc.geo.umn.edu/corefac.htm).

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Please note the meeting will be held in the County Board Room at the Carver County Government Center, 600 East 4th Street, Chaska, MN.

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

# Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, October 24, 2018

**Agenda Item**
**Item 5. B. - 2019 Cost Share Program**

**Prepared By**
Linda Loomis, Administrator

**Summary**
The 2019 Cost Share Program Guidelines are attached. It is the same as the 2018 program, all that has changed are the dates and the program documents now reference the most recent Watershed Management Plan.

In 2018, the Board received and approved the following cost share projects:

| Cost Share Applicant | Amount requested | Total Funded | Project description | Status of Cost Share Project |
|---|---|---|---|---|
| Chimney Pines HOA Spyglass Drive, Eden Prairie | $2,270.74 | $1,791.82 | Remove exotic species around storm water pond and replace with native plants | Completed |
| Bergo 727 7th Street, Chaska | $2,281.73 | $2,338.48 | Construct rain garden | completed |
| City of Carver | $4,800.00 | Not yet funded | Assist with treatment of downtown stormwater | City has re-bid project |
| Schwartz 3100 Chelsea Court, Burnsville | $250 | Not yet funded | Construct rain garden | Managed by Dakota SWCD - will be billed to LMRWD by SWCD |
| Seidenfeld 3113 Chelsea Court, Burnsville | $250 | Not yet funded | Construct rain garden | Managed by Dakota SWCD - will be billed to LMRWD by SWCD |
| Glassen 1437 Valley Drive, Burnsville | $250 | Not yet funded | Construct rain garden | Managed by Dakota SWCD - will be billed to LMRWD by SWCD |
| Larson 10831 Quebec Avenue, Bloomington | $2,220 | Not yet funded | Install rain barrels and plant arborvitae trees | Rain barrels installation was approved but not trees. Home owner has not reapplied |
| **TOTAL:** | **$12,322.47** | **$4,130.30** | | |

The LMRWD includes $20,000 in its budget each year for the cost share program. Amounts funded since 2013 follow:

| Year | Number of applications | Amount of applications received | Amount Approved | Amount funded |
|---|---|---|---|---|
| 2013 | 2 | $21,237.76 | $1,237.76 | $1,237.76 |
| 2014 | 4 | $5,992.25 | $5,992.25 | $4,838.76 |
| 2015 | 1 | $5,000.00 | $5,000.00 | $0 |
| 2016 | 1 | $2,373.39 | $2,373.39 | $2773.39 |
| 2017 | 6 | $15,650.30 | $15,650.30 | $12,119.49 |
| 2018 | 7 | $12,322.47 | $9,802.47 | $9,680.30* |
| **TOTAL:** | **21** | **$62,576.17** | **$40,056.17** | **$30,649.70** |

*Assumes completion and funding of projects for which reimbursement has not yet been requested

**Attachments**
2019 Cost Share Program Guidelines

**Recommended Action**
Motion to approve 2019 Cost Share Program Guidelines

# Lower Minnesota River Watershed District

# 2019 Cost Share Incentive and Water Quality Restoration Program

## *Overview*

The Lower Minnesota River Watershed District ("LMRWD") values and supports efforts made by residents to help achieve the goals of the LMRWD. Through the Cost Share Incentive and Water Quality Restoration Program (the "Program"), the LMRWD hopes to engage citizens in community actions that protect local lakes, rivers, streams, wetlands and fens.

This Program implements Policy 2.2 of the LMRWD's Fourth Generation Watershed Management Plan (the "Plan"), which is to prevent further degradation of water quality and Strategy 2.2.3 which is to provide educational, technical and financial assistance to landowners; to implement projects that have water quality, water quantity, channel maintenance, trout stream, fen or wetland restoration or aquatic habitat benefit within the LMRWD; and to help achieve the goals of the Plan.

## *Purpose*

Cost Share provides funding assistance to public or private landowners within the LMRWD to carry out projects that support one or more of the following goals:

1. Improve, protect or restore water quality of lakes, rivers, streams, wetlands or fens.
2. Increase the capacity of the watershed to store water.
3. Reduce bluff, streambank, or main stem erosion.
4. Protect or restore groundwater resources.
5. Enhance navigation on the Minnesota River, excluding dredging projects.
6. Reduce the impact of invasive species on lakes, streams, rivers, wetlands or fens.
7. Preserve, protect or restore native plant and wildlife habitats with emphasis on lakes, streams, rivers, wetlands and fens.
8. Provide public education benefits and engage the public in stewardship.

## *Available Funds*

The LMRWD has allocated $20,000 for the Program in 2019. The minimum grant amount is $500. The maximum levels of cost share funding are: $2,500 or 50% of the cost of the project, whichever is less, per single family residential project, $7,500 per neighborhood, townhome, condominium or lake association project, and $20,000 per commercial/industrial or municipal project. The Board of Managers reserves the right to consider and award funding exceeding the stated maximums on a case by case basis. Cost share dollars are reimbursed upon submittal of a project report and paid receipts. Grant recipients are eligible to apply for one cost share grant per year.

## *Eligibility Within LMRWD*

- Residents
- Non-profit and religious organizations
- Local government units
- Public and private schools
- Businesses and corporations

## *Additional Eligibility Requirements*

- Project must be located within the LMRWD.
- Funding will not be awarded for work required as part of a permit requirement.
- Funding may be awarded toward the incremental cost of Best Management Practices (BMPs) that will provide water-quality treatment beyond permit requirements.

## *Eligible Expenses*

Applications must be submitted to and approved by the Board of Managers of the LMRWD before the project begins. Projects that are completed or in progress, prior to application, are not eligible for funding. If the final project costs are less than the amount approved for funding, the LMRWD's contribution will be limited to the percentage of total cost stated in the funding agreement. It is the primary intent of the program to reimburse for the design and implementation of the project. Aesthetic elements and other costs not directly related to the construction or implementation of the project will not be reimbursed. Labor and other in-kind contributions can be used for the required 50% match. Labor may be credited at $12.00 per hour. In-kind labor costs cannot exceed the cost of material of the project. Eligible BMPs could include:

- Buffer strips
- Rain gardens
- Shoreline, streambank, or riverbank restoration
- Pervious pavers and porous concrete or asphalt
- Unique solutions for soil erosion and sediment control practices
- Native habitat restoration with priority given to waterways, lakes, buffers and ponds
- Volume reduction and runoff treatment practices (Infiltration basins & trenches, cisterns, green roofs & bio-filtration systems)
- Other innovative stormwater runoff treatment or volume reduction management practices

Eligible studies/investigations could include:

- Water quality management and restoration
- Water quantity management and restoration
- Groundwater management and restoration
- Unique resource (fen, trout stream) management and restoration
- BMP feasibility and restoration

## *Application Submittal and Approval*

The LMRWD will accept new applications until April 15, 2019. If funds remain, applications will continue to be accepted until all funds are used. Applications can be downloaded from the LMRWD website. Completed applications can be submitted via e-mail or US mail and must include all information requested.

Applications will be reviewed by a selection committee consisting of the Administrator and one or more Managers of the LMRWD, which will make funding recommendations to the full Board of Managers.

Once available funding has been consumed, applications will no longer be reviewed and applicants will be informed of the situation. Applicants are required to submit a grant application that includes the following:

1. Signed and dated application form
2. Narrative of proposed project
3. Location map
4. Record of property ownership
5. Construction/installation site plan, designs and specifications
6. Estimate of water captured and pollution removed (if applicable)
7. Itemized budget
8. Contractor bid (if using)
9. Plant list (if applicable)
10. Accounting of in-kind contribution of labor and materials, if any

Applications can be sent via e-mail to: naiadconsulting@gmail.com

Applications can be sent via US Mail to:
Linda Loomis
Lower Minnesota River Watershed District
112 E. 5th Street #102
Chaska, MN 55318

## *Funding Agreement*

Each applicant selected is required to enter into a Cost Share Grant and Maintenance Agreement with the LMRWD defining the obligations of the applicant and the LMRWD. The amendment of any terms of the agreement will be by mutual written agreement signed by all parties to the original agreement.

The agreement includes, but is not limited to, such items as promoting and acknowledging LMRWD sponsorship, reporting, payment schedule, terms of the agreement and use of funds, cost overruns and cancellation. The agreement also allows the LMRWD access to the project area for evaluation and promotion of the project. The applicant is responsible for securing all permits necessary for the work.

For projects receiving $10,000 or more, the LMRWD may require an agreement for maintenance of the project up to ten (10) years.

## *Conformance to Plans*

The LMRWD will not reimburse costs expended for construction of a project that does not substantially conform to the approved plans, designs and/or specifications. The LMRWD will not reimburse costs expended for partial completion of a BMP. However, LMRWD staff will work in earnest with applicants to address unexpected conditions, changes in conditions or other eventualities that affect the construction or implementation of a BMP. If necessary a modification of the cost-share agreement will be presented to the Board of Managers for approval. The applicant must provide documentation to support the modification. Early communication with LMRWD staff is advised.

## *Submitted Information*

All information, including, but not limited to applications, conceptual designs, contractor bids, cost estimates, final designs and specifications, copies of permits and proof of expenditures is subject to disclosure to the public when submitted to the LMRWD, except where specifically protected as non-public by state law.

## *Reporting Requirements*

Within 30 days of completion of the project, the grant recipient must complete and submit a project summary report to the LMRWD using the work plan, timeline and budget submitted as part of the application. Grantees will be required to include original receipts of the expenses, digital or hard copy photos of events, and electronic copies of all education materials produced.

## *Maintenance Requirements*

Maintenance of the project is the responsibility of the grant recipient. Cost share recipients must commit to maintain their project for the duration of its "expected effective life" (see table below). The LMRWD encourages landowners to maintain projects in perpetuity; but the effective life period listed below is the minimum number of years that the LMRWD requires the grant recipient to maintain a project. The LMRWD will not provide cost share funding for restoration of a project, the loss of functionality of which, in the opinion of the LMRWD, was caused by the recipient or present landowner.

| BMP | Effective life (years) |
|---|---|
| **Wetland restoration** | 10 |
| **Filter strip/buffer (vegetative)**[1] | 5 |
| **Rain garden** | 5 |
| **Shoreline/streambank stabilization (vegetative)** | 5 |
| **Pervious hard surfaces (pavers, concrete, asphalt)** | 10 |
| **Infiltration basins (above and below ground)** | 10 |

[1]Only the minimum required upland buffer width is eligible for funding

## *For More information*

You can contact the Lower Minnesota River Watershed District with questions by e-mail to the LMRWD Administrator Linda Loomis at naiadconsulting@gmail.com or by telephone at 763-545-4659.

## *Evaluation Criteria*

The selection committee will determine the eligibility of an application based upon an established set of criteria using a scaled point system. Criteria considered include: Project Type, Project Location, Water Quality Improvement, Erosion Control, Commercial and Recreational Navigation, Public Outreach. An application must score at least 30 points to be considered eligible for the Cost Share Program.

Please keep the following in mind when developing your project and filling out your application:

***Project Type***

What type of project? **BMP (10 pts.):** **Study/investigation (5 pts.)**

***Project Location***

1. Is the project tributary to an MPCA-listed impaired water (excluding mercury), trout stream or fen?
   **YES, direct connection (10 pts.):** **YES, within subwatershed (5 pts.):** **NO (0 pts.)**
2. If NO, is the project tributary to a lake, stream, ditch, fen, or DNR-Protected Water Wetland?
   **YES, direct connection (10 pts.):** **YES, within subwatershed (5 pts.):** **NO (0 pts.)**

***Water Quality Improvement***

Improves and protects water quality through BMP implementation or potentially improves and protects water quality through investigation. **Score 0 – 10**

***Unique Resources Protection and Improvement***

Implements controls intended for protection of and/or improvements to fish and wildlife habitat and/or outdoor recreational opportunities of the LMRWD's Unique Resources, or for studies thereof. **Score 0 – 10**

***Surface Water Rate and Volume Control***

Implements controls intended for reduction and/or minimization of the rate and volume of water that drains off the property/study area; or studies thereof. **Score 0 – 10**

***Erosion Control***

Implements controls intended for minimization of erosion and/or sedimentation to downstream waters; or studies thereof. **Score 0 – 10**

***Commercial and Recreational Navigation***

Project or study enhances navigation on the Minnesota River. **Score 0 – 10**

***Public Outreach***

Based upon willingness of applicant to allow signage, tours and public site visits; public visibility of the site; diversity of practices; potential educational opportunities. **Score 0 – 10**

Please note the meeting will be held in the County Board Room at the Carver County Government Center, 600 East 4th Street, Chaska, MN.

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

# Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, October 24, 2018

**Agenda Item**
**Item 6. A. - Dredge Management**

**Prepared By**
Linda Loomis, Administrator

**Summary**

i. **Funding for dredge material management**

At the September, Board of Managers meeting, a hearing was held to establish the apportionment of a special assessment, should the Board determine that it wishes to assess benefitted properties for the cost of managing dredge material. The Board continued the hearing until its November 19th Board meeting and directed that staff arrange to meet with interested owners of benefitted properties before the continuation of the hearing.

The meeting with owners of benefitted properties was held October 16th. Approximately 23 people attended. LMRWD staff answered everyone's questions and explained the process and the options before the Board.

Staff agreed to work with government relation specialists from Cargill and CHS to develop a plan to address the issue of dredge material management with the State.

ii. **Vernon Avenue Dredge Material Management site**

Engineering work on the dredge site has been transferred from Burns & McDonnell to Barr Engineering. Burns & McDonnell became concerned that there may be a conflict of interest with the work they perform on behalf of the LMRWD and work they perform for other clients such as CHS. Barr performs work for the city of Savage and they have checked in with the City to see of the City saw any conflict with the work Barr performs for the city and the work they will be performing for the LMRWD with the dredge site. The City does not have any issue with Barr performing work for the LMRWD with respect to dredge material management.

Staff met with city staff from Savage. A report from that meeting is attached for the Board's information

Staff will be meeting with Barr Engineering and LS Marine to make sure all parties are on the same page.

Staff is reviewing the site management agreement with LS Marine, which has expired. Staff will be working with LS Marine to update the agreement for the Board's approval.

iii. **Private Dredge Material Placement**

Private slips have been dredged and material placed on the LMRWD. Invoices for placement of material are being prepared. They will be sent out before the end of October.

**Attachments**
Report from staff meeting with City of Savage

**Recommended Action**
No Action Recommended

# Memorandum

Young Environmental Consulting Group, LLC

**DATE:** October 16, 2018 *(Email transmittal)*

**TO:** Linda Loomis, Administrator

**FROM:** Della Schall Young, PMP, CPESC

**SUBJECT:** Dredge Site Reconfiguration Project
October 3, 2018: 10:30 a.m. to 11:30 a.m.
Savage City Hall, Community Development Room

## PRESENT

City of Savage representatives: Terri Dill, Jesse Carlson, and Seng Thongvanh

District representatives: Linda Loomis and Della Young

## PURPOSE

- To provide an overview of the Dredge Reconfiguration Capital Project
- To review conditional use permit (CUP) requirements
- To provide a general schedule of planned activities

## DISCUSSION ITEMS

- The District is moving forward with design, environmental studies, and financial analysis for the Dredge site.
    - Design: The District plans to reconfigure the site to meet flood control requirements and to decrease drying times for fine-clay material. The design will be constrained by avoiding wetland impacts and by the storage material elevation dictated by the no-rise hydraulic analysis. The existing draft no-rise based on the original configuration shows the railroad bridge as a constraint. The site operator has suggested a new configuration design for the site, which is being considered.
    - Environmental analysis: As part of the design and construction, the District will complete site wetland delineation and threatened and endangered species studies. The results of these studies will inform the configuration and locations of berms for materials containment.
    - Financial analysis: The District proposes modifications to the Lower Minnesota River Watershed District's Nine Foot Channel Permanent Disposal Sites Acquisition and Development Basic Water Management Project (Dredge Project). The proposed modification to the Dredge Project will revise and establish alternative funding mechanisms for the project and is intended to make the Dredge Project more sustainable in the long term and to

recognize the special benefit that the availability of barge traffic confers on properties adjacent to or with access to the river.

- District staff held a public hearing for the financial analysis on September 17. The public hearing was continued to allow additional discussions between District staff and commercial properties. A meeting with these stakeholders is planned for October 16, and the city is encouraged to attend.

- There is no real or perceived conflict of interest with Barr Engineering Co. assisting the District with the design, hydrology, hydraulics, and environmental analyses for the dredge site.

- CUP
  - The District has provided information to the City of Savage about materials removed and stored at the site. However, the District has not complied with the CUP, which requires monthly reporting.

**NEXT STEPS**

- District staff will provide data on dredge site materials removed and stored on site to the city monthly.
- District staff or representatives will contact appropriate city staff for guidance on wetland delineation and no-rise certification protocols.
- As part of the reconfigured site plan and no-rise, the District will provide corresponding storage volumes for the no-rise elevation(s).
- Flood material removal evaluation will be completed to determine on average how many truckloads of material will need to be removed in case of a flood. The evaluation must include disposal locations, readiness to receive materials, and effect of emergency management in the area.
- District staff will keep the city apprised of progress on the reconfiguration capital project and the financial analysis.

Please note the meeting will be held in the County Board Room at the Carver County Government Center, 600 East 4th Street, Chaska, MN.

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

# Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, October 24, 2018

**Agenda Item**
**Item 6. B. - Watershed Management Plan**

**Prepared By**
Linda Loomis, Administrator

**Summary**
The Board of Water & Soil Resource approved the LMRWD Comprehensive Watershed Management Plan. The LMRWD has 120 days to adopt the approved plan. Resolution 18-14 is attached adopting the approved plan.

Resolution 18-14 also directs for the distribution of the Plan to all stakeholders.

**Attachments**
Letter from BWSR dated September 26, 2018
BWSR Order approving Watershed Management Plan
Resolution 18-14 Adopting Updated Watershed Management Plan

**Recommended Action**
Motion to Adopt Resolution 18-14.

BOARD OF WATER AND SOIL RESOURCES

September 26, 2018

Lower Minnesota River Watershed District
C/o Linda Loomis, Administrator
112 E. 5th Street, #102
Chaska, Minnesota 55318

Dear Chair and Managers:

I am pleased to inform you that the Minnesota Board of Water and Soil Resources (Board) has approved the Lower Minnesota River Watershed District (LMRWD) revised Watershed Management Plan (Plan) at its regular meeting held on September 26, 2018. For your records, I have enclosed a copy of the signed Board Order that documents approval of the Plan. Please be advised that the LMRWD must adopt and implement the Plan within 120 days of the date of the Order, in accordance with MN Statutes 103B.231, Subd. 10.

The managers, staff, consultants, advisory committee members, and all others involved in the planning process are to be commended for developing a plan that clearly presents water management goals, actions, and priorities of the watershed. With continued implementation of your Plan, the protection and management of the water resources within the watershed will be greatly enhanced to the benefit of the residents. The Board looks forward to working with you as you implement this Plan and document its outcomes.

Please contact Steve Christopher of our staff at 651-249-7519, or at the central office address for further assistance in this matter.

Sincerely,

Gerald Van Amburg

Gerald Van Amburg
Chair

Enclosure

cc's on next page

Cc: Jeanne Daniels, DNR (via email)
Kate Drewry, DNR (via email)
Karen Voz, MDH (via email)
Jeff Berg, MDA (via email)
Judy Sventek, Met Council (via email)
Beth Neuendorf, MN DOT (via email)
Kevin Bigalke, BWSR (via email)
Steve Christopher, BWSR (via email)
File Copy

**Minnesota Board of Water and Soil Resources**
520 Lafayette Road North
Saint Paul, Minnesota 55155

| | |
|---|---|
| **In the Matter** of the review of the Watershed Management Plan for the Lower Minnesota River Watershed District, pursuant to Minnesota Statutes Section 103B.231, Subdivision 9. | **ORDER APPROVING A WATERSHED MANAGEMENT PLAN** |

**Whereas**, the Board of Managers of the Lower Minnesota River Watershed District (LMRWD) submitted a Watershed Management Plan (Plan) dated June 2018 to the Minnesota Board of Water and Soil Resources (Board) pursuant to Minnesota Statutes Section 103B.231, Subd. 9, and;

**Whereas**, the Board has completed its review of the Plan;

**Now Therefore**, the Board hereby makes the following Findings of Fact, Conclusions and Order:

## FINDINGS OF FACT

1. **LMRWD Establishment.** The Lower Minnesota River Watershed District (District) was originally petitioned for establishment in 1957 but was challenged and defeated in the courts. The District was later re-petitioned by the five counties of Carver, Dakota, Hennepin, Ramsey, and Scott and was established on March 23, 1960, by order of the Minnesota Water Resources Board under the authority of the Minnesota Watershed Act (Minnesota Statutes, Chapter 112). The District's original charter specified that it serve as the local sponsor to the U.S. Army Corps of Engineers for assisting in the maintenance of the Minnesota River nine-foot navigation channel. The first water resources management plan for the District was prepared and adopted in 1961. The second plan was then revised in accordance with the Metropolitan Surface Water Management Act of 1982 (Minnesota Statutes, Chapter 103B), and approved by the Board of Water and Soil Resources in September 1999. The most recent plan was approved in 2011 and amended in 2015.

2. **Authority of Plan.** The Metropolitan Surface Water Management Act requires the preparation of a watershed management plan for the subject watershed area which meets the requirements of Minnesota Statutes Sections 103B.201 to 103B.251.

3. **Nature of the Watershed.** The District is approximately 80 square miles in size and located in the five counties of Carver, Dakota, Hennepin, Ramsey, and Scott, which includes the bluffs on either side of the Minnesota River from Ft. Snelling at the confluence of the Minnesota and Mississippi Rivers, 32 miles upstream to the city of Carver. The land use in the watershed consists of a mix of single family residential, commercial, industrial, and agriculture. A large component in the central portion of this linear watershed is within the 100-year floodplain and the Minnesota Valley National Wildlife Refuge. Much of the MSP airport property is also located in the District. Development pressure within the watershed is projected to slightly increase in the municipalities south of the river through the life of this Plan. Water resources in the District include floodplain lakes, quarry lakes, creeks and streams including trout streams, springs, calcareous fens, and other wetlands. However, the headwaters to most of those resources originate outside of the District boundary. The following municipalities lie partially within the District: Bloomington, Burnsville, Carver, Chanhassen, Chaska, Chaska Township, Eagan, Eden Prairie, Lilydale, Jackson Township, Louisville

Township, Mendota, Mendota Heights, Savage, and Shakopee. The District is bound by four watersheds to the south: Prior Lake Spring Lake WD, Scott WMO, Black Dog WMO, and Gun Club WMO, and six watersheds to the north: Carver County WMO, Riley Purgatory Bluff Creek WD, Nine Mile Creek WD, Minnehaha Creek WD, Richfield Bloomington WMO, and Capitol Region WD.

4. **Plan Development and Review.** The District initiated the planning process for the 2018-2027 Plan in January of 2017. As required by MR 8410, a specific process was followed to identify and assess priority issues. Stakeholders were identified, notices were sent to municipal, regional, and state agencies to solicit input for the upcoming Plan. The District held four workshops in early 2017 covering the areas of major revision for the new Plan. Following the workshops, District staff met with each municipality for additional specific input on the proposed standards and to identify projects that they could co-sponsor.

   The Plan was submitted for formal 60-day review on July 10, 2017. The District received comments on the draft Plan and responded to Plan reviewers' comments in writing. A public hearing was held on October 25, 2017. Due to the volume and content of the comments, the District decided to delay moving forward with the 90-day draft and provide additional time to meet with stakeholders. The District held four additional stakeholders meetings jointly with member cities and concluded the public hearing on April 18, 2018. Modifications to the draft Plan were made and the final draft Plan with all required materials were submitted and officially received by the Board on July 2, 2018.

5. **Local Review.** The District distributed copies of the draft Plan to local units of government for their review pursuant to Minnesota Statutes Section 103B132, Subd. 7. Local written comments and edits were received from City of Bloomington, Bloomington Sustainability Commission, City of Burnsville, City of Carver, City of Chaska, City of Eden Prairie, City of Savage, City of Shakopee, Scott County, Upper Mississippi Waterway Association, Lotus Lake Conservation Alliance, Mitchell Lake Association, the United States Fish and Wildlife Service, and several citizens. The District responded to all comments.

6. **Metropolitan Council Review.** During the 60-day review, the Council noted concerns about the proposed standards, specifically on the Bluff and Steep Slope standards and suggested consistency of language with DNR. The District thanked the Council for its comments and made changes to the final draft.

7. **Department of Agriculture (MDA) Review.** MDA stated that they had no comments during the 60-day or 90-day final review periods.

8. **Department of Health (MDH) Review.** No comments were received during the 60-day or 90-day final review period.

9. **Department of Natural Resources (DNR) Review.** The DNR had numerous comments regarding the proposed standards including groundwater regulation and the new Bluff and Steep Slopes standard. The DNR also offered assistance on a number of initiatives included in the Plan. The District adequately responded to the comments and thanked the DNR for its cooperation.

10. **Pollution Control Agency (PCA) Review.** PCA participated in TAC meetings and provided feedback throughout the plan development process. During the 60-day review, PCA stated it had no additional comments.

11. **Department of Transportation (DOT) Review.** The DOT commented regarding the proposed standards. The District adequately addressed the comments.

12. **Board Review.** Board staff commended the District on a Plan and its increased role in water management since the most recent Plan adoption. Board staff also requested clarification/improved reporting for outcomes. District staff adequately responded to all comments.

13. **Plan Summary.** The Plan update focuses on several sections of the 2011 Plan rather than a full re-write. The sections amended are as follows:

    - Section 3, Goals, Policies and Management Strategies
    - Section 4, Implementation Program, which includes the District's Capital Improvement Program
    - Adding a new Appendix K, LMRWD Draft Standards
    - Other Sections of the plan have been revised to bring the Plan up to date

    The new Draft standards is the most significant revision to the Plan specifically the Steep Slopes Standard and Water Appropriations Standard. Both of these will address the High Value Resource Areas (HRVA). The HRVA has been identified by the District as portions of land or a watershed that contribute runoff to a trout water and/or fen.

    The Plan maintains the following nine goals:
    1. Organizational Management – To manage the different and changing roles of the District
    2. Surface Water Management – To protect, preserve, and restore surface water quality
    3. Groundwater Management – To protect and promote groundwater quantity and quality
    4. Unique Natural Resources Management – To protect and manage unique resources
    5. Wetland Management – To protect and preserve wetlands
    6. Floodplain and Flood Management - To manage floodplains and mitigate flooding
    7. Erosion and Sediment Control – To manage erosion and control sediment discharge
    8. Commercial and Recreational Navigation – To maintain and improve the Lower Minnesota River's navigation and recreational use
    9. Public Education and Outreach - To increase public participation and awareness of the Minnesota River and its unique natural resources

14. **Central Region Committee Meeting.** On September 6, 2018, the Board's Central Region Committee and staff met in St. Paul to review and discuss the final Plan. Those in attendance from the Board's committee were Jill Crafton, Jack Ditmore, Terry McDill, Duane Willenbring, Joel Larson and Joe Collins, chair. Board staff in attendance was Central Region Manager Kevin Bigalke. Lower Minnesota River Watershed District Administrator Linda Loomis and District Consultant Della Young provided highlights of the Plan and process. Board staff recommended approval of the Plan. After presentation and discussion, the committee unanimously voted to recommend the approval of the Plan to the full board.

**CONCLUSIONS**

1. All relevant substantive and procedural requirements of law and rule have been fulfilled.

2. The Board has proper jurisdiction in the matter of approving the Watershed Management Plan for the Lower Minnesota River Watershed District (District) pursuant to Minnesota Statutes Section 103B.231, Subd. 9.

3. The District's Watershed Management Plan, attached to this Order, defines the water and water-related problems within the District's boundaries, possible solutions thereto, and an implementation program through 2027.

4. The District's Watershed Management Plan will be effective September 26, 2018 through September 30, 2027.

5. The attached Plan is in conformance with the requirements of Minnesota Statutes Sections 103B.201 to 103B.251.

**ORDER**

The Board hereby approves the attached Lower Minnesota River Watershed District Watershed Management Plan dated June 2018.

Dated at Waite Park, Minnesota this 26th day of September 2018.

MINNESOTA BOARD OF WATER AND SOIL RESOURCES

BY: Gerald Van Amburg, Chair

Manager _____ introduced the following resolution and moved its adoption:

LOWER MINNESOTA RIVER WATERSHED DISTRICT

RESOLUTION 18-14

RESOLUTION ADOPTING UPDATED WATERSHED MANAGEMENT PLAN

WHEREAS, pursuant to Minnesota Statutes Chapters 103B and 103D, and Minnesota Rules §8410, the Lower Minnesota River Watershed District (LMRWD) has approved and adopted a comprehensive Watershed Management Plan ("Plan") dated 2011, amended 2015 and 2016; and

WHEREAS, Minnesota Statutes §103B.231 requires the Plan to be updated every 10 years; and

WHEREAS, the LMRWD identified a need to update its Plan ahead of the 10-year statutory requirement in order to align timing of the plan update with the timing of local plan updates by municipalities within the LMRWD and the timing of watershed management plan updates by adjacent watershed management organizations; and

WHEREAS, the LMRWD designed and facilitated a robust stakeholder engagement process to solicit and incorporate comments from the public, the LMRWD's technical advisory committee (TAC), and state agencies, to ensure the District met the engagement requirement for its plan update; and

WHEREAS, the LMRWD prepared a draft Plan update and submitted the draft Plan for 60-day review and comment according to Minnesota Statutes §103B.231, subd. 7; and

WHEREAS, the LMRWD responded to all received comments, and;

WHEREAS, the LMRWD held a public hearing on the Plan to discuss the Plan and receive additional comment, pursuant to Minnesota Statutes §103B.231, subd. 7(c); and

WHEREAS, the LMRWD has completed the Plan update and prepared a 90-day review and approval copy, dated June 2018, according to Minnesota Statutes §103B.231, subd. 9; and

WHEREAS, the Minnesota Board of Water and Soil Resources completed its review of the Lower Minnesota River Watershed District's Comprehensive Watershed Management Plan and all relevant substantive and procedural requirements of law and rule have been fulfilled; and

WHEREAS, the Minnesota Board of Water and Soil Resources approved the Lower Minnesota River Watershed District's Watershed Management Plan on September 26, 2018 pursuant to Minnesota Statutes §§103B.201 to 103B.251; and

WHEREAS, the LMRWD finds that the adoption of the Plan is in accordance with the requirement of law and in the best interests of the public.

NOW, THEREFORE, BE IT RESOLVED that the Lower Minnesota River Watershed District Board of Managers adopts the Watershed Management Plan in accordance with MN Statutes §103B.231, subd. 10, and directs the Secretary to transmit a copy of the Plan to the county board of each county affected by the watershed district, the commissioner of natural resources, the director of the division of ecological services and waters (DNR), the Metropolitan Council, the governing body of each municipality affected by the watershed district, and soil and water conservation districts affected by the watershed district; and

FURTHER, the Lower Minnesota River Watershed District Board of Managers authorizes implementation of the Capital Improvement Program contained in the plan and the development of rules, as necessary, to accomplish the purposes of the Watershed Management Plan, Statutes Chapters 103B and 103D and to implement the powers of the managers.

Adopted by the Board of Managers of the Lower Minnesota River Watershed District this 24th day of October, 2018

_____

Jesse Hartmann, President

ATTEST:

_____

David Raby, Secretary/Treasurer

Please note the meeting will be held in the County Board Room at the Carver County Government Center, 600 East 4th Street, Chaska, MN.

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

# Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, October 24, 2018

**Agenda Item**
**Item 6. C. - 2019 Legislative Action**

**Prepared By**
Linda Loomis, Administrator

**Summary**
Lisa Frenette will be at the October meeting to introduce herself to the board, since Managers have not had an opportunity to meet Lisa since she was retained by the District.

Lisa and I have had discussion about the 2019 Legislative agenda for the LMRWD. Managers have indicated in the past that State sharing in the cost of managing dredge material is an ongoing concern of the District. Another issue that the LMRWD should consider weighing in on at the state is the closure and clean-up of the Freeway.

The Board has also discussed supporting the Limited Liability for winter maintenance contractors, funding for the MN River Basin Data Center at Minnesota State University Mankato and state funding for the US Corp of Engineers Minnesota River Basin Integrated Watershed spin-off studies.

The Legislative Water Commission held a series of stakeholder meetings this summer and one of the topics covered keeping water on the land. We are not yet sure if any legislation will evolve around this, but the Board may want to support legislative action that would lead to better water management upstream in the MN River Basin.

The Minnesota River Congress will be meeting on November 8th in New Ulm and has appears to working toward more basin wide approach to managing the River. Topics for discussion at the Congress are as follows:

1. Sharing by the Minnesota River Congress of an example basin-wide strategy such as ravine to floodplain restoration from the current old growth wooded vegetation that has been established since European settlement to a more erosion resistant vegetation cover.

2. Small group discussion to identify a list of other basin-wide strategies that could be best implemented through a partnership process that includes basin-wide funding and planning with local implementation including local planning, design, and project completion.

Staff will be looking for direction from the Board, in order to draft a legislative agenda for the 2019 session.

**Attachments**
No attachments

**Recommended Action**
Provide direction to staff

Please note the meeting will be held in the County Board Room at the Carver County Government Center, 600 East 4th Street, Chaska, MN.

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

# Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, October 24, 2018

**Agenda Item**
**Item 6. E. - LMRWD Projects**

**Prepared By**
Linda Loomis, Administrator

**Summary**
Staff is beginning work on projects contained in the CIP (Capital Improvement Plan) that is in the Watershed Management Plan. Work plans for projects that have Clean Water Funds under the Metro-area Watershed Based Funding Pilot Program were shared with the Board in Item 4.D. - Metro-area Watershed Based Funding Grant Agreement of this meeting packet.

i. **Eden Prairie Area #3 Stabilization**
No new information since last update

ii. **Riley Creek Cooperative project/Lower Riley Creek restoration**
The Cooperative Agreement was executed after the September Board meeting and sent to the Riley/Purgatory/Bluff Creek Watershed District.

iii. **Seminary Fen ravine stabilization project**
The District is awaiting the final payment for this grant. Once payment has been received, payment will be made to the City of Chaska.

iv. **East Chaska Creek (Carver County Watershed Based Funding)**
The work plan for this project can be found with Item 4.D. of this agenda packet.

v. **Schroeder Acres Park (Scott County Watershed Based Funding)**
The work plan for this project can be found with Item 4.D. of this agenda packet.

vi. **Shakopee Downtown BMO Retrofit (Scott County Watershed Based Funding)**
The work plan for this project can be found with Item 4.D. of this agenda packet.

vii. **PLOC ( Prior Lake Outlet Channel) Restoration (Scott County Watershed Based Funding)**
The work plan for this project can be found with Item 4.D. of this agenda packet.

viii. **Dakota County Fen Gap Analysis and Conceptual Model (Dakota County Watershed Based Funding)**
The work plan for this project can be found with Item 4.D. of this agenda packet.

ix. **Hennepin County Chloride Project (Hennepin County Watershed Based Funding)**
Stakeholders from Hennepin County are meeting to prepare this work plan.

**x. Vegetation Management Plan**

Development of a vegetation management plan/standard for the District is identified in the District's Watershed Management Plan under Goal 7: Erosion and Sediment Control Policy 7.2: Adopt Vegetation Management Standard. Strategy 7.2.1 calls for the District to develop a Vegetation Management Standard/Plan. This strategy consists of the District undertaking an effort in partnership with the DNR, USFWS, BWSR, NRCS, and NGOs (e.g. Great River Greening), to develop a vegetation management standard/plan for unique natural resources within the District. Staff has developed a work plan for this task, which is attached.

This is a task that has been in the District's Plan for a number of years. $10,000 of the 2013 budget was allocated for this, and $15,000 was allocated each year in 2014, 2015 and 2016, for a total of $55,000.

**xi. Sustainable Lake Management Plan - Trout Lakes**

Sustainable lake management plans (SLMPs) will be developed for trout lakes in the District. These SLMPs will assess the following:

- Aquatic plant coverage and management
- Exotic species issues and management
- Shoreline condition and management
- Nutrient and temperature dynamics and management
- Stormwater runoff and groundwater contributions and management
- Roles and responsibilities for management
- Implementation schedule and plan
- Recreational opportunities (pier, public access, etc.…)

Staff has developed a work plan for this task, which is attached. $50,000 was allocated in the 2018 budget for this project.

**xii. Geomorphic Assessment of Trout Streams**

This is another program identified in the implementation plan of District's Watershed Management Plan. A work plan has been developed by staff and is attached. $50,000 was included in the 2018 budget for this project.

**Attachments**

Vegetation Management Plan/Standard work plan
Sustainable Lake Management Plan - Trout Lakes work plan
Geomorphic Assessment of Trout Streams work plan

**Recommended Action**

Motion to authorize all work plans - either separately or collectively

Lower Minnesota River Watershed District (LMRWD) Vegetation Management Plan (VMP) DRAFT Workplan

*Policy 7.2.1: Develop a Vegetation Management Standard/Plan*
*This strategy consists of the District undertaking an effort in partnership with the DNR, USFWS, BWSR, NRCS, and NGOs (e.g. Great River Greening), to develop a vegetation management standard/plan for unique natural resources within the District. This plan would be functional for all who live, work, and invest in the District.*

*While many of the cities and counties within the District has vegetation management standards, the standards are inconsistent. In addition, the District has not established vegetation management standards addressing practices such as vegetative cutting, clearing on bluffs, and steep slopes.*

Summary
*Outcome*: Vegetation Management Plan for the LMRWD

*Timeline for Completion of Project:* 2019

*Project Partners:* DNR, USFWS, BWSR, NRCS, University of Minnesota

*Audience/who is this plan intended for?* Residents of the LMRWD, resource professionals, land use planners

*Total Project Budget:* $50,000.00

Objective 1. Project Management
*Task 1*: Project plan development. Finalize the workplan; assign project tasks; determine if additional resources are needed; set dates for deliverables; generate Gantt.

*Task 2:* Contact potential project partners. Determine what role/tasks they will be asked to fulfill on the project (review of draft plan, meeting to discuss specific management practices, etc.). Reach out to the following list of partners: DNR, USFWS, BWSR, NRCS, and University of Minnesota

Determine best contact for each entity, interest/engagement level going forward, and relay estimated timeline for project (Ex: if reviewing plan draft, approx.. when that will be ready for their comments).

*Timeline for Completion*: ongoing

*Estimated Objective 1 Budget:* $2,500.00

Objective 2. Evaluate Existing Vegetation Management Plans
*Task 1:* Generate an inventory of all vegetation management plans in the LMRWD and surrounding area.

This will include 14 communities and 5 metro counties, not all will have a VMP. Check with other LGUs, local organizations, and state agencies to determine if they have generated a VMP for any of the unique natural resources.

*Task 2:* Evaluate existing VMPs. Compare plans for variances in technique, approaches, priorities, enforcement means and methods.

*Task 3:* Work with partners to gather their GIS data of the vegetation and invasive species. This will provide a graphic representation of what data is available within the District.

*Timeline for Completion:* 5-6 weeks

*Estimated Objective 2 Budget:* $27,500.00

Objective 3. Draft LMRWD Vegetation Management Plan

*Task:* Utilize information gathered from the unique natural resources inventory and evaluation of existing VMPs to draft the VMP for the LMRWD. **Ensure entire plan compliments the District Plan, no conflicting standards

Components of the VMP

- Vegetative cutting
- Clearing of vegetation on steep slopes and bluffs
- Cost-shares for perennial, native plant projects
- Native plant communities for wildlife
- Prescribed burning
- Invasive species removal
    - Appropriate/effective removal techniques, strategies, timing
    - Disposal of invasive species once removed
    - Maintenance
    - Integrated Pest Management (IPM) approach?
- Are detailed, site-specific VMPs needed for high value resources? – beyond the scope of this project
- When establishing a site, diversity species to ensure resilience
- Are there cultural/use considerations?
    - Height of plant species impacting views
    - Attracting/deterring wildlife (ex: geese prefer lawns to native grasses)
    - Educational?
        - Diversity of plants
        - Teaching about importance of pollinators, etc.
    - Level of maintenance required

*Timeline for Objective Completion:* 3 weeks

*Estimated Objective 3 Budget:* $15,000.00

Objective 4. Draft Review Process with Project Partners

*Task 1:* Circulate draft among project partners for written feedback. Set date for return comments.

*Timeline for Task 1 Completion:* 10 - 14 days

*Task 2:* Review feedback on draft LMRWD Vegetation Management Plan. Incorporate edits as needed.

*Timeline for Task 2 Completion:* 1 week

*Task 3:* Send final draft to project partners with incorporated edits to partners for final review. Set date for return comments.

*Timeline for Task 3 Completion:* 1 week

*Timeline for Objective 4 Completion:* 3-4 weeks

*Estimated Objective 4 Budget:* $4,000.00

Objective 5. Submit draft to LMRWD Board for Adoption

*Task:* Submit final draft of LMRWD Vegetation Management Plan to the LMRWD Board for approval and adoption. Upon approval/adoption, post plan on District's website.

*Timeline for Objective Completion:* NA

*Estimated Objective 5 Budget:* $1,000.00

Sustainable Lake Management Plans (SLMP) of Trout Lakes in the Lower Minnesota River Watershed District (LMRWD) DRAFT Workplan

*Sustainable lake management plans (SLMPs) will be developed for trout lakes in the District. These SLMPs will assess the following:*

- *Aquatic plant coverage and management*
- *Exotic species issues and management*
- *Shoreline condition and management*
- *Nutrient and temperature dynamics and management*
- *Stormwater runoff and groundwater contributions and management*
- *Roles and responsibilities for management*
- *Implementation schedule and plan*
- *Recreational opportunities (pier, public access, etc.)*

Summary

*Outcome:* SLMPs for all trout lakes in the LMRWD. Each plan will address the list of topics cited above.

*Timeline for Completion of Project:* 2020-2021

*Project Partners:* BWSR, DNR, MPCA

*Audience/who is this plan intended for:* Resource professionals, Land use planners

*Total Project Budget:* $50,000.00

Objective 1. Project Management

*Task 1*: Project plan development. Finalize the workplan; assign project tasks; determine if additional resources are needed; set dates for deliverables; generate Gantt.

*Task 2:* Contact potential project partners. Determine what role/tasks they will be asked to fulfill on the project (review of draft plan, etc.). Reach out to the following list of partners: BWSR, DNR, MPCA

Determine best contact for each entity, interest/engagement level going forward, and relay estimated timeline for project (Ex: if reviewing plan draft, approx.. when that will be ready for their comments).

*Timeline for Completion*: ongoing

*Estimated Objective 1 Budget:* $2,500.00

Objective 2. Gather and Review Data

*Task 1:* Determine what information currently exists on each trout lake. Work with project partners as needed to gather this information. This task will highlight any data gaps, and inform task 2.

Task 2: Gather additional information on each trout lake. This may require the completion of vegetation and fish surveys. The body of information assembled at the end of this objective should be sufficient to generate a thorough SLMP for each trout lake in the District.

*Timeline for Completion*: 5-6 weeks

*Estimated Objective 2 Budget:* $27,500.00

Objective 3. Drafting of LMRWD Trout Lake SLMPs

*Task:* Used research attained to draft SLMPs for each trout lake. Ensure consistency among the District's SLMPs by utilizing the same template.

The following outline is a general recommendation:

1. Acknowledgements
2. Introduction & Brief Background
3. Watershed Features
    a. History
    b. Soils
    c. Wetlands
    d. Minnesota River
    e. Non-trout Lakes
4. Trout Lake Features
    a. Shoreline Condition Inventory & Management
    b. Lake Depth
    c. Fish Survey
    d. Aquatic Vegetation Coverage & Management
    e. Exotic Species Issues & Management
    f. Nutrient & Temperature Dynamics and Management
    g. Stormwater Runoff & Groundwater Contributions and Management
    h. Recreational Opportunities
5. Goals for ____ Lake
    a. Goals/Objectives/Strategies
6. Implementation Schedule & Plan
    a. Roles and Responsibilities for Management

*Timeline for Completion*: 3 weeks

*Estimated Objective 3 Budget:* $15,000.00

Objective 4. Draft Review Process with Project Partners

*Task 1:* Circulate drafts among project partners for written feedback. Set date for return comments.

*Timeline for Task 1 Completion:* 10 - 14 days

*Task 2:* Review feedback on draft SLMPs. Incorporate edits as needed.

*Timeline for Task 2 Completion:* 1 week

*Task 3:* Send final draft to project partners with incorporated edits to partners for final review. Set date for return comments.

*Timeline for Task 3 Completion:* 1 week

*Timeline for Objective 4 Completion:* 3-4 weeks

*Estimated Objective 4 Budget:* $4,000.00

Objective 5. Submit draft to LMRWD Board for Adoption

*Task:* Submit final drafts of the Sustainable Lake Management Plans to the LMRWD Board for approval and adoption.

*Timeline for Objective Completion:* NA

*Estimated Objective 5 Budget:* $1,000.00

Lower Minnesota River Watershed District Geomorphic Assessment of Trout Streams DRAFT Workplan

*The geomorphic assessments will consider changes in trout stream alignment, confluence point(s), or geometry, and stream reaches upstream and downstream of the confluence point(s). Stream width-to-depth ratios, stream bed slope, meander pattern, and other bed features shall be modeled according to a stable reference reach. Reference reaches are nearby, hydrologically, and geomorphically-stable stream segments. A reference reach could be upstream or downstream, or in a nearby watershed. Assessment of the current and future discharge and sediment regimes shall be based on watershed conditions that are above stream or as close as possible to the stream.*

Summary

*Outcome*: Geomorphic Assessment of all Trout Streams in the LMRWD: Assumption Creek, Harnack Creek (Unnamed #1), Eagle Creek, Kennaley's Creek, Trout Stream #4 in Burnsville, Black Dog Creek, Unnamed Stream SW of Black Dog Lake North Fen, Unnamed Creek NE of Black Dog Lake Fen, Ike's Creek, unidentified creek S of Old Shakopee Rd E

*Timeline for Completion of Project:* 2018-2020

*Project Partners:* DNR, USFWS, MPCA, Trout Unlimited, City of Burnsville, City of Eagan, City of Bloomington, City of Savage, City of Shakopee, City of Chaska, City of Chanhassen, University of Minnesota, Dakota County, Carver County, Scott County, Hennepin County

*Audience/who is this plan intended for:* Resource professionals, Land use planners

*Total Project Budget:* $100,000.00

Objective 1. Project Management

*Task 1*: Project plan development. Finalize the workplan; assign project tasks; determine if additional resources are needed; set dates for deliverables; generate Gantt.

*Task 2:* Contact potential project partners. Determine what role/tasks they will be asked to fulfill on the project (review of draft report, supplying existing data on stream reaches, etc.). Reach out to the following list of partners: DNR, USFWS, MPCA, Trout Unlimited, City of Burnsville, City of Eagan, City of Bloomington, City of Savage, City of Shakopee, City of Chaska, City of Chanhassen, University of Minnesota, Dakota County, Carver County, Scott County, Hennepin County

Determine best contact for each entity, interest/engagement level going forward, and relay estimated timeline for project (Ex: if reviewing report draft, approx.. when that will be ready for their comments, etc.).

*Timeline for Completion*: ongoing

*Estimated Objective 1 Budget:* $5,000.00

Objective 2. Collect and Review Data

*Task 1:* Partner Kick-off Meeting. Review the proposed process and objectives with partners for their endorsement. Learn how their expertise and knowledge of the resource can lend itself to the project.

*Task 2:* Collect existing data/modeling on LMRWD all trout streams as outlined in the project scope. Determine gaps in the data that need to be supplemented to successfully complete a geomorphic assessment.

*Task 3:* Identify means/methods to address data gaps. Work with local partners to determine what support they can provide to avoid redundant efforts.

*Timeline for Completion:* 5-7 weeks

*Estimated Objective 2 Budget:* $10,000.00

Objective 3. Trout Stream Data Modeling

*Task:* Conduct geomorphic assessment on all trout streams in the LMRWD. For ease of assessment, trout streams within the District can be approached in the following five cluster groups: (1) Ike's Creek, (2) Seminary Fen area, (3) Savage Fen area, (4) Black Dog Fen/Nicols Meadow Fen area, and (5) Gun Club Lake Fen. Refer to the following direction provided by the LMRWD on the details of this assessment:

*The geomorphic assessments will consider changes in trout stream alignment, confluence point(s), or geometry, and stream reaches upstream and downstream of the confluence point(s). Stream width-to-depth ratios, stream bed slope, meander pattern, and other bed features shall be modeled according to a stable reference reach. Reference reaches are nearby, hydrologically, and geomorphically-stable stream segments. A reference reach could be upstream or downstream, or in a nearby watershed. Assessment of the current and future discharge and sediment regimes shall be based on watershed conditions that are above stream or as close as possible to the stream.*

*Subtask 1*. Phase 1: Remote Sensing. Gather data from topographic maps, aerial photos of the District, and any existing studies.

*Subtask 2.* Phase 2: Rapid Field Assessment. Collect field data, both measurements and observations, at the reach scale.

*Subtask 3.* Phase 3: Survey-level Field Assessment. Collect detailed field data at the sub-reach or river site scale. This should include quantitative measurements of the channel dimension, profile, pattern, and sediments present.

*Timeline for Completion:* 10 – 18 months

*Estimated Objective 3 Budget:* $65,000.00

Objective 4. Draft Report of Trout Stream Geomorphic Assessments

*Task:* Draft a report detailing the geomorphic assessment conducted and its findings.

*Timeline for Objective Completion:* 8 weeks

*Estimated Objective 4 Budget:* $15,000.00

Objective 5. Draft Review Process with Project Partners

*Task 1:* Circulate draft among project partners for written feedback. Set date for return comments.

*Timeline for Task 1 Completion:* 2 weeks

*Task 2:* Review feedback on draft of the Geomorphic Assessment of Trout Streams in the LMRWD. Incorporate edits as needed.

*Timeline for Task 2 Completion:* 2 weeks

*Task 3:* Send final draft to project partners with incorporated edits for final review. Set date for return comments.

*Timeline for Task 3 Completion:* 1 week

*Timeline for Objective 5 Completion:* 3-4 weeks

*Estimated Objective 5 Budget:* $4,000.00

Objective 6. Submit draft report to LMRWD Board

*Task:* Submit final Geomorphic Assessment of Trout Streams report to the LMRWD Board for approval and adoption. Upon approval/adoption, post plan on District's website.

*Timeline for Objective Completion:* NA

*Estimated Objective 6 Budget:* $1,000.00

Please note the meeting will be held in the County Board Room at the Carver County Government Center, 600 East 4th Street, Chaska, MN.

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

# Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, October 24, 2018

**Agenda Item**
**Item 6. F. - Project Reviews**

**Prepared By**
Linda Loomis, Administrator

**Summary**

i. **MN Valley State Trail - EAW (Environmental Assessment Worksheet)**
The DNR has been working on the preliminary design for this trail. Managers may remember that the District was asked to approve an increase in the flood elevation for the trail in order to avoid offsetting increases in velocity that would occur by designing the trail in a way that would not increase the flood elevation.

The DNR has now released the EAW for public comment. Prior to the release of the EAW to the public the DNR asked for input from the LMRWD. LMRWD staff reviewed the draft EAW and our comments, which were provided to the DNR prior to the release for public comments, are attached. Staff will follow up with the DNR to see how they intend to address LMRWD comments.

The EAW can be found by following this link:
http://www.dnr.state.mn.us/input/environmentalreview/mnvalley/index.html

ii. **Hennepin County - CSAH 61 - Flying Cloud Drive**
As was noted at the September Board of Managers meeting, the MPCA conducted an NPDES (National Pollutant Discharge Elimination System) inspection of this project in July. Several violations were noted. After the Board meeting LMRWD staff arranged to meet with the project managers from Hennepin County and the Contractor Ames Construction. LMRWD staff inspected the project on September 27th.

Heavy rain had fallen in the area a week prior to our visit. Staff found that the BMPs that were installed to prevent erosion during the construction were inadequate for the conditions. The degree of the bounce in the elevation of the Minnesota River was not addressed adequately and the highly erodible nature of the soils in the area was underestimated.

Staff has prepared a memo outlining the conditions that were observed and making recommendations for future observation of the project by the District.

iii. **MNDOT - I494/TH 5/TH 55 Mill & Overlay project**
This project will replace storm sewer on the I-494 Bridge (in past reports I mistakenly said the Mendota Bridge) between the Minnesota River and TH 13. Staff has been working with the design engineers. In the most recent communications they have two options they are considering. Staff has reviewed both options and prefers one over the other. Staff has communicated its preference to the engineers.

**iv. MNDOT - I35-W Bridge Replacement**

MNDOT was recently granted a temporary water appropriation permit to begin construction of the piers for the new I-35W Bridge. MNDOT is reducing the traffic lanes between 106thStreet and Cliff Road. The trail along the north bank will also be closed periodically throughout construction.

**v. MNDOT - I-494 from TH 169 to Minnesota River**

LMRWD was notified that preliminary design on this project is beginning. Staff is planning to attend a kick-off meeting on October 22nd. to discuss impacts to water resources.

**vi. City of Shakopee - Amazon Fulfillment Center drainage**

Staff has followed up with Three Rivers Park staff about this, but have not been able to connect.

**vii. City of Eagan Stormwater Management Plan, Water Quality & Wetland Management and Comprehensive Plan**

LMRWD staff has reviewed the referenced plans for the City Eagan and our comments are attached. Minnesota Statute requires that watershed management organizations approve local water plans. Staff is therefore recommending approval of the Eagan plan with the conditions noted. A resolution is attached for the Board to adopt.

**viii. City of Eden Prairie - Aspire Eden Prairie 2040 Draft Plan**

LMRWD staff has reviewed the above referenced plan for the City of Eden Prairie. Minnesota Statute requires that cities submit comprehensive plans to watershed management organizations for comment, but does not require them to approve the comp plan. However, elements of the local water plans are being incorporated into the comp plans, so staff is recommending that the Board approve those elements of the comp plan with the conditions noted in the comments submitted to the city. A resolution is attached for the Board to adopt.

**ix. City of Lilydale - 2040 Draft Comprehensive Plan**

LMRWD staff has reviewed the above referenced plan for the City of Lilydale. Staff is making a similar recommendation for the City of Lilydale as for Eden Prairie. A resolution is attached for the Board to adopt.

**x. MAC/LMRWD/MCWD boundary realignment**

Staff has followed up with MAC to determine the legal description of the desired boundary changes. Once MAC has determine the legal boundaries, the LMRWD will meet with Minnehaha Creek Watershed District to petition BWSR for the changes.

**xi. Fort Snelling - Dominion Housing**

This is a housing project that is being planned for Fort Snelling. LMRWD staff is planning to meet with the design engineers to discuss stormwater systems for the site.

**xii. USACOE/USFWS - Bass Ponds, Marsh & Wetland**

USFWS said they are still gathering information and do not have a timeline for this project yet.

**Attachments**

MN Valley State Trail EAW comments
Flying Cloud Drive report
LMRWD comments on City of Eagan Stormwater Management Plan, Water Quality & Wetland Management and Comprehensive Plan
Resolution 18-15 - APPROVING THE COMPREHENSIVE GUIDE PLAN UPDATE FOR THE CITY OF EAGAN
LMRWD comments on Aspire Eden Prairie 2040 draft plan
Resolution 18-16 - APPROVING ASPIRE EDEN PRAIRIE 2040 COMPREHENSIVE PLAN UPDATE
LMRWD comments on city of Lilydale 2040 Comprehensive Plan
Resolution 18-17 - CITY OF LILYDATE 2040 COMPREHENSIVE PLAN UPDATE

**Recommended Action**

Motion to approve LMRWD Staff recommendation for Flying Cloud Drive Inspections
Motion to adopt resolutions 18-15 through 18-17 - separately or collectively

Young Environmental Consulting Group, LLC

# Technical Memorandum

| | |
|---|---|
| **To:** | Linda Loomis, Administrator<br>Lower Minnesota River Watershed District |
| **From:** | Sarah Duke Middleton, Water Resources Scientist<br>Della Schall Young, PMP, CPESC |
| **Date:** | September 26, 2018 |
| **Re:** | Minnesota Valley State Trail, Bloomington Segment—Preliminary Environmental Assessment Worksheet |

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The Minnesota Valley State Trail, Bloomington Segment, preliminary environmental assessment worksheet (EAW) was reviewed as requested by the Lower Minnesota River Watershed District (District).

The Minnesota Department of Natural Resources (DNR) proposes to develop 13.5 miles of the Minnesota Valley State Trail from the Bloomington Ferry Bridge to the Minnesota Valley National Wildlife Refuge Visitor Center in the city of Bloomington. The proposed trail will be a 10-foot-wide paved, multiple-use, non-motorized recreational state trail with 2-foot gravel shoulders. The proposed project is in the Minnesota River floodplain and will generate a net increase of approximately 19 acres of impervious surface by converting approximately 2.3 acres of wetland, 11.7 acres of forest/wooded area, and 5 acres of grassland to trails. As a result, the following District standards are triggered: Erosion and Sediment Control, Stormwater Management, and Floodplain and Drainage Alteration standards. The District's Steep Slope, Shoreline and Streambank and Water Crossing standards are also triggered because of natural steep slopes along the trail's alignment and the proposed crossing at Nine Mile Creek. The proposed project does not cross the District's High Value Resources Area (HVRA) Overlay District.

Below are comments on how the EAW addresses or proposes to address the District's standards as presented in Appendix K of the Draft 2018 Watershed Management Plan.

<u>Erosion and Sediment Control Standard</u>

The proposed project will disturb more than an acre of land. The EAW references the DNR's intent to obtain a National Pollutant Discharge Elimination System (NPDES) General Construction Stormwater (CSW) permit. Compliance with the CSW permit would satisfy the District's general erosion and sediment control requirements, as they are equivalent.

**Comment:** **Provide proof of compliance with the NPDES CSW permit.**

Floodplain and Drainage Alteration

Before completing the EAW, the DNR provided the project's floodplain analysis to the District for review. The District reviewed and ultimately approved the analysis during its June 13, 2018, meeting.

**Comment:** **If significant changes are made to the proposed project, calculations must be updated, and a narrative must be sent to the District explaining how the project will maintain compliance with the Floodplain and Drainage Alteration Standard.**

Stormwater Management Standard

The proposed project will generate more than an acre of impervious surface. The EAW references the DNR's intent to obtain an NPDES CSW permit. Compliance with the CSW permit would satisfy the District's general stormwater management requirement, as they are equivalent.

**Comment:** **Provide proof of compliance with the NPDES CSW permit.**

Shoreline and Streambank Alternation Standard

This proposed project involves work beneath the ordinary high water level and includes the installation of riprap at the Nine Mile Creek bridge. The EAW states the DNR will design the bridge and support elements in accordance with the Minnesota Department of Transportation State Aid Geometric Design Standards and the DNR Public Waters Work Permit.

**Comment:** **Provide proof of compliance with the DNR Public Waters Work Permit.**

Steep Slope Standard

The proposed multiuse trail crosses into the city of Bloomington's Bluff Protection Overlay District as well as the District's Steep Slope Overlay District. The EAW indicates the project will comply with the city's Bluff Protection Overlay District, City Code §19.38. Although there are some differences between the District's and the city's slope protection standard, compliance with the city's requirements will suffice.

**Comment:** **Provide proof of compliance with the City of Bloomington's bluff protection requirements.**

Water Crossing Standard

The proposed project meets the threshold for this District standard and satisfies it through the adoption and implementation of the DNR Public Waters Work Permit.

**Comment:** **Provide proof of compliance with the DNR Public Waters Work Permit.**

**Final comment:** **As the DNR moves forward with finalizing the EAW and project plans, the District respectfully requests updates on any changes to the alignment and construction methods that would cause the project to significantly affect water and natural resources.**

# Memorandum

Young Environmental Consulting Group, LLC

**DATE:** October 16, 2018 *(Email transmittal)*

**TO:** Linda Loomis, Administrator

**FROM:** Della Schall Young, PMP, CPESC

**SUBJECT:** CSAH 61- Flying Cloud Drive: Construction Stormwater Inspection
September 27, 2018, 11:40 a.m.–1:25 p.m.
Project Construction Trailer: CSAH 61 and Hwy 61

**PRESENT**

Hennepin representatives: Daniel Allmaras, Nathan Bren (Ames-Contractor), Don (last name?), and Mark Wagner

Carver County: Greg (last name?)

District representatives: Linda Loomis and Della Schall Young

**PURPOSE**

- To meet with the County's project team to reiterate the District's concerns with not being included in critical discussions about project stormwater and wetland violations.
- To discuss erosion and sediment control challenges faced by the project team and proposed mitigations measures.
- To visit the project site and view erosion and sediment control best management practices.

**DISCUSSION ITEMS**

- The exclusion of the District for stormwater discussions was an oversight. Linda Loomis will be included on future stormwater and environmental email updates.
- District staff was encouraged to attend weekly meetings held Tuesdays at 10 a.m. at the field office (construction trailer) located about ¼ mile east of the roundabout intersection of CSAH 101 and 61 on the south side of the road.
- Discussed discharge points seen on the attached maps and visited sites associated with sheets 265, 266, and 267.
- The project team did not anticipate the amount or intensity of the rains nor the stage of the adjacent Minnesota River. They have already exhausted their erosion and sediment control budget for the project.
- The project team is waiting for recommended fixes to sediment discharge into a wetland owned by the U.S. Fish and Wildlife Service.

**RECOMMENDATIONS**

- District staff should complete biweekly site visits until the site is closed for the winter to make certain the project team has adequately buttoned down the site to keep sediment out of adjacent waterbodies. The site visits should start up again in the spring of 2019.
- The District administrator is encouraged to become a member of the technical evaluation panel (TEP) for the project. This will guarantee the District inclusion in discussions about compliance with stormwater and other environmental permits.
- District staff should attend weekly project meetings at least once per month.


Sheet 267
Sheet 269
Sheet 262
Sheet 271
Sheet 266
Sheet 265
Flying Cloud Dr
Flying Cloud Dr
Flying Cloud Dr
Lakota Ln
Great Plains Blvd
Western Motel
101
Rice Lake
Turnbull Rd
Dell Rd
Frontier Pl
Reeder Ridge
Eden Prairie Rd
Crabapple Ln
Indigo Dr
Prairie Bluff Conservation Area
Lions Tap

## LEGEND

- ENVIRONMENTALLY SENSITIVE AREA
- MS — SILT FENCE, TYPE MS
- SD — SILT FENCE, TYPE SD
- FLOTATION SILT CURTAIN TYPE MOVING WATER
- STORM DRAIN INLET PROTECTION
- CP — CULVERT END CONTROLS
- BR — SEDIMENT CONTROL LOG TYPE STRAW
- SEDIMENT CONTROL LOG TYPE BLANKET SYSTEM
- FILTER BERM TYPE 1 (COMPOST)
- FILTER BERM TYPE 3 (ROCK WEEPER)
- TEMPORARY DRAINAGE CONSTRUCTION (CURRENT STAGE)
- TEMPORARY DITCH
- RIPRAP
- SURFACE FLOW DIRECTION
- SB — SANDBAG BARRIER
- TEMPORARY SEDIMENT TRAP
- HYDRAULIC MULCH MATRIX
- RAPID STABILIZATION METHOD 3, AT 6 MGL/AC
- RAPID STABILIZATION METHOD 4
- PERMANENT TURF ESTABLISHMENT, SEE SHEET NO. 284 .
- EROSION CONTROL BLANKET CATEGORY 3N (WOOD FIBER, NATURAL NETTING)
- EROSION CONTROL BLANKET CATEGORY 4N
- TURF REINFORCEMENT MAT CATEGORY 2
- TURF REINFORCEMENT MAT CATEGORY 4
- PERMANENT CONSTRUCTION
- CONSTRUCTION UNDER TRAFFIC

SEE SURCHARGE PLANS FOR SURCHARGE AREAS

SCALE 0' 50' 100'

CONSTRUCTION LIMITS

℄ ERIE LANE

℄ CSAH 61

25 30 35

EC T03

OA T04

IA T21

SB

OA T22

AREAS OF ENVIRONMENTAL SENSITIVITY

RICE LAKE

AREAS OF ENVIRONMENTAL SENSITIVITY

## NOTES

SEE SHEET 260 FOR EROSION CONTROL GENERAL NOTES.

③ CONNECT TO EXISTING CULVERT OR STORM SEWER. PAID FOR AS CONNECT TO EXISTING PIPE DRAIN, SPEC. 2502.

Hennepin

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

HUGH ZENG, LICENSED PROFESSIONAL ENGINEER — 24333 — 02/01/2017

HZ UNITED, LLC

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| CAD BY: | MBA |
| CHECKED BY: | HZ |
| LAST REVISION: | |

**EROSION AND SEDIMENT CONTROL PLAN**

C.S.A.H. 61 / HENNEPIN COUNTY PROJECT 0904
S.A.P. 027-661-048/181-020-031 & S.A.P. 010-661-003/194-020-012
STAGE 1B

SHEET 265 / 297

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## LEGEND

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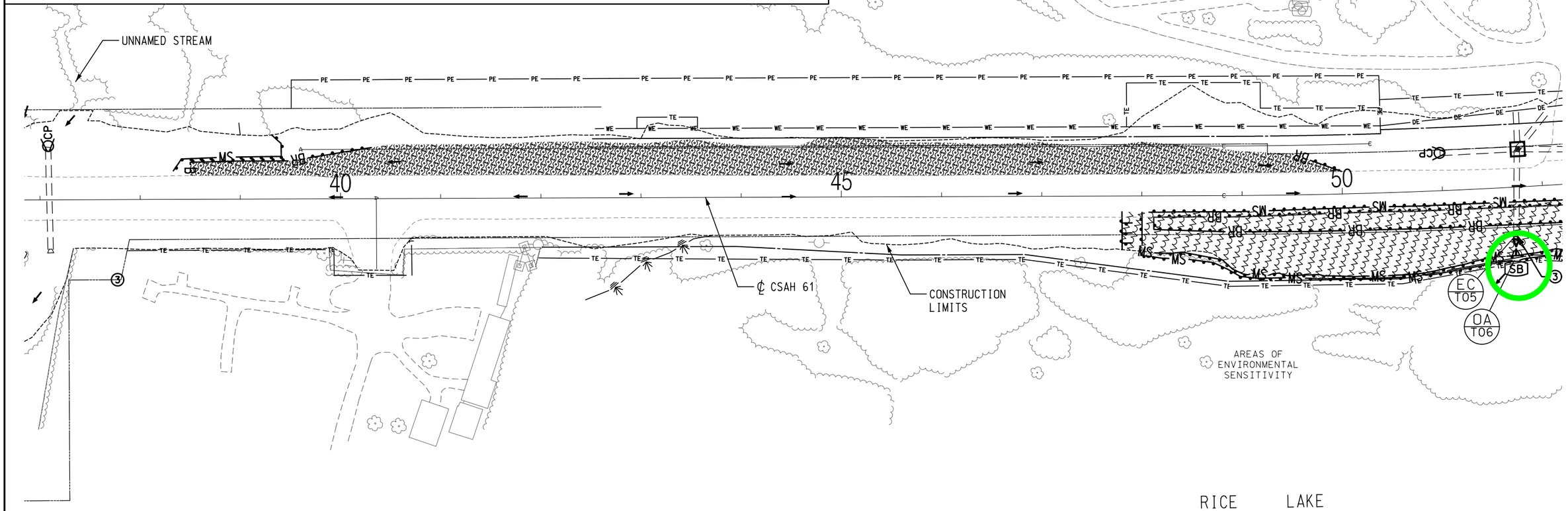
SEE SURCHARGE PLANS FOR SURCHARGE AREAS

SCALE 0' 50' 100'




NOTES

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**EROSION AND SEDIMENT CONTROL PLAN**

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S.A.P. 027-661-048/181-020-031 & S.A.P. 010-661-003/194-020-012
STAGE 1B

SHEET 266 / 297

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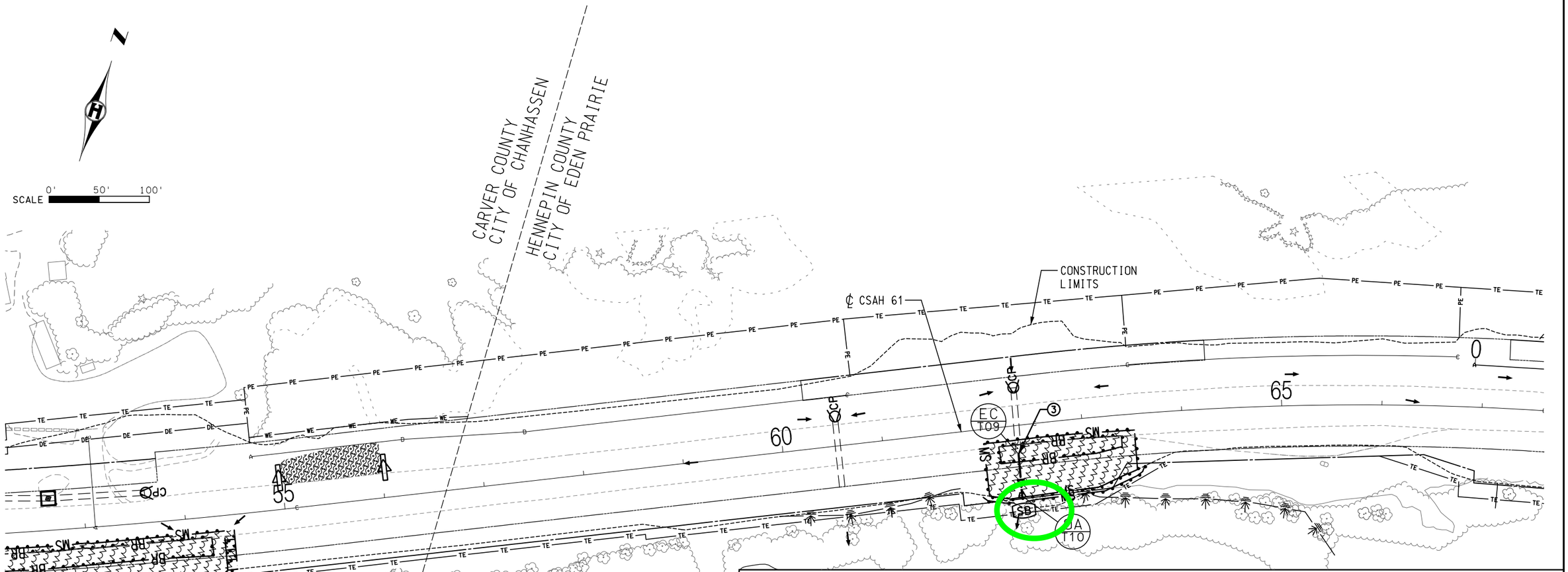


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SEE SURCHARGE PLANS FOR SURCHARGE AREAS

## NOTES

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HUGH ZENG, LICENSED PROFESSIONAL ENGINEER
HZ UNITED, LLC

24333 — 02/01/2017

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**EROSION AND SEDIMENT CONTROL PLAN**

C.S.A.H. 61 / HENNEPIN COUNTY PROJECT 0904
S.A.P. 027-661-048/181-020-031 & S.A.P. 010-661-003/194-020-012
STAGE 1B

SHEET 267 / 297

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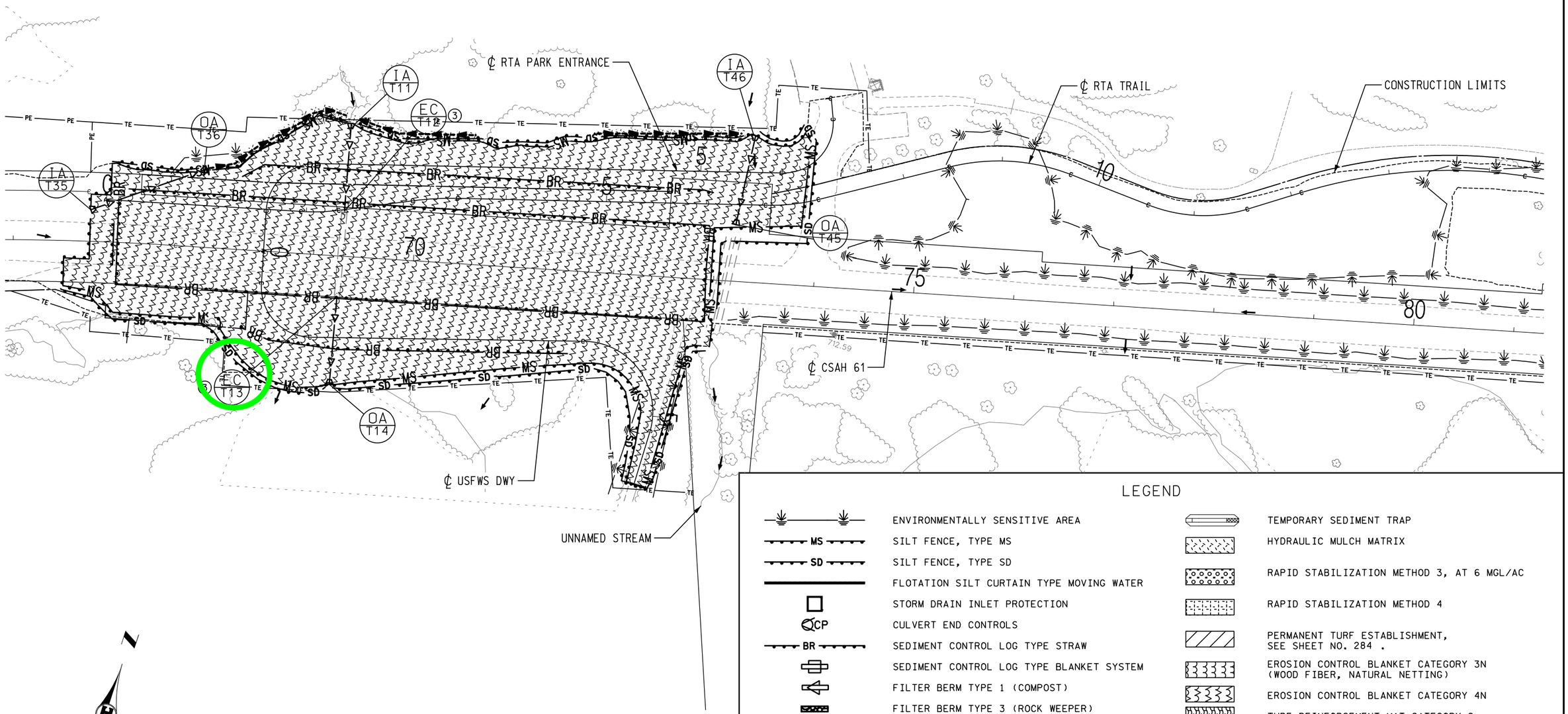


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SEE SURCHARGE PLANS FOR SURCHARGE AREAS

SCALE 0' 50' 100'

## NOTES

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HUGH ZENG, LICENSED PROFESSIONAL ENGINEER — 24333 — 02/01/2017

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**EROSION AND SEDIMENT CONTROL PLAN**

C.S.A.H. 61 / HENNEPIN COUNTY PROJECT 0904
S.A.P. 027-661-048/181-020-031 & S.A.P. 010-661-003/194-020-012
STAGE 2A (BRIDGE 27C01 SURCHARGE)

SHEET 271 / 297

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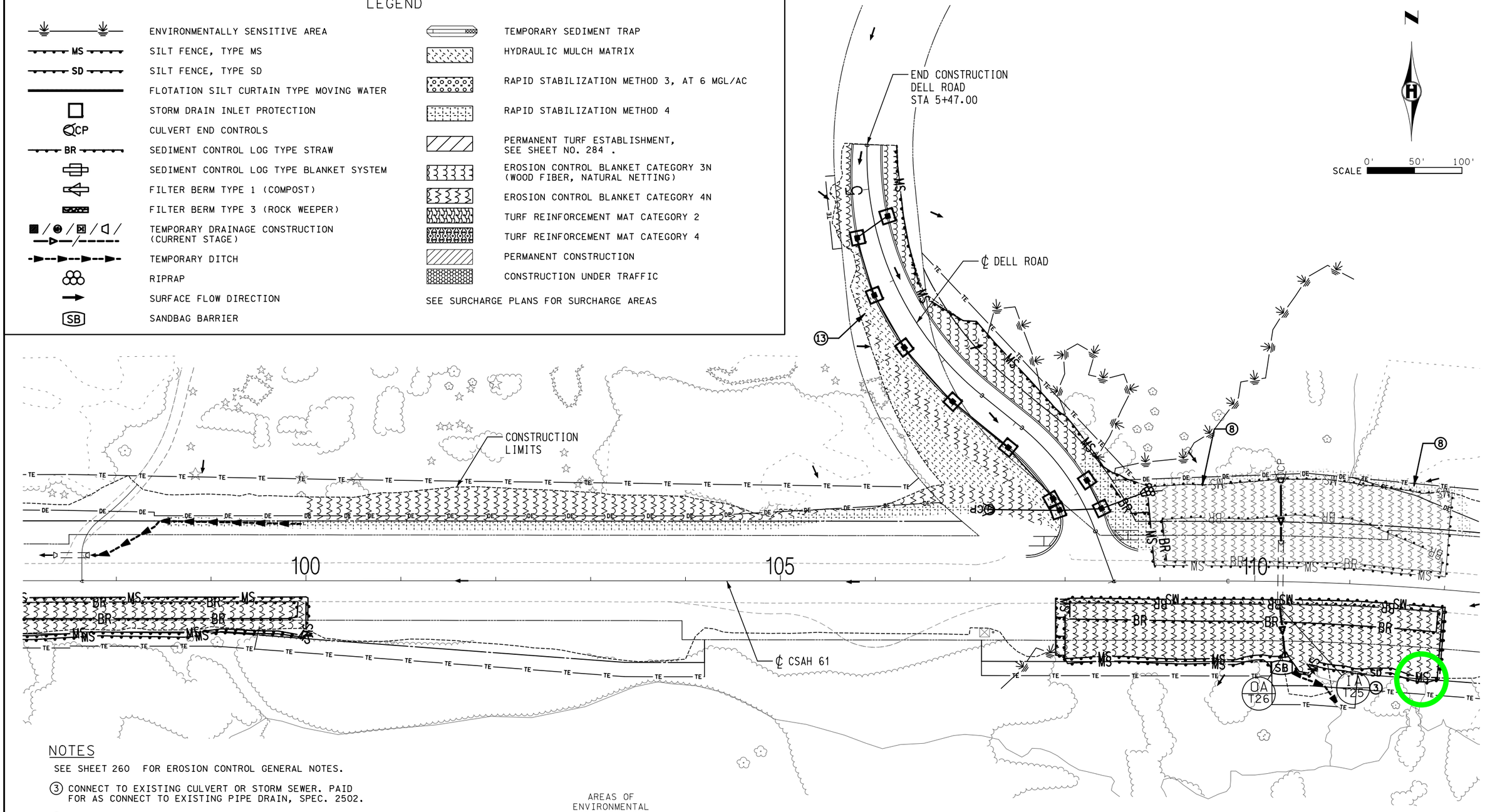
SEE SURCHARGE PLANS FOR SURCHARGE AREAS




## NOTES

SEE SHEET 260 FOR EROSION CONTROL GENERAL NOTES.

(3) CONNECT TO EXISTING CULVERT OR STORM SEWER. PAID FOR AS CONNECT TO EXISTING PIPE DRAIN, SPEC. 2502.

(8) STABILIZATION OF LAST 200 LINEAL FEET OF DRAINAGE DITCH MUST BE COMPLETED WITHIN 24 HOURS AFTER CONNECTING TO DRAINAGE DITCH.

(13) THIS PORTION OF CONSTRUCTION CAN BE MOVED TO STAGE 2 BASED ON CONTRACTOR OPERATIONS.

AREAS OF ENVIRONMENTAL SENSITIVITY

RICE LAKE

Hennepin

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

HUGH ZENG, LICENSED PROFESSIONAL ENGINEER — 24333 — 02/01/2017

HZ UNITED, LLC

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**EROSION AND SEDIMENT CONTROL PLAN**

C.S.A.H. 61 / HENNEPIN COUNTY PROJECT 0904
S.A.P. 027-661-048/181-020-031 & S.A.P. 010-661-003/194-020-012
STAGE 1B

SHEET 269 / 297

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## LEGEND

- ENVIRONMENTALLY SENSITIVE AREA
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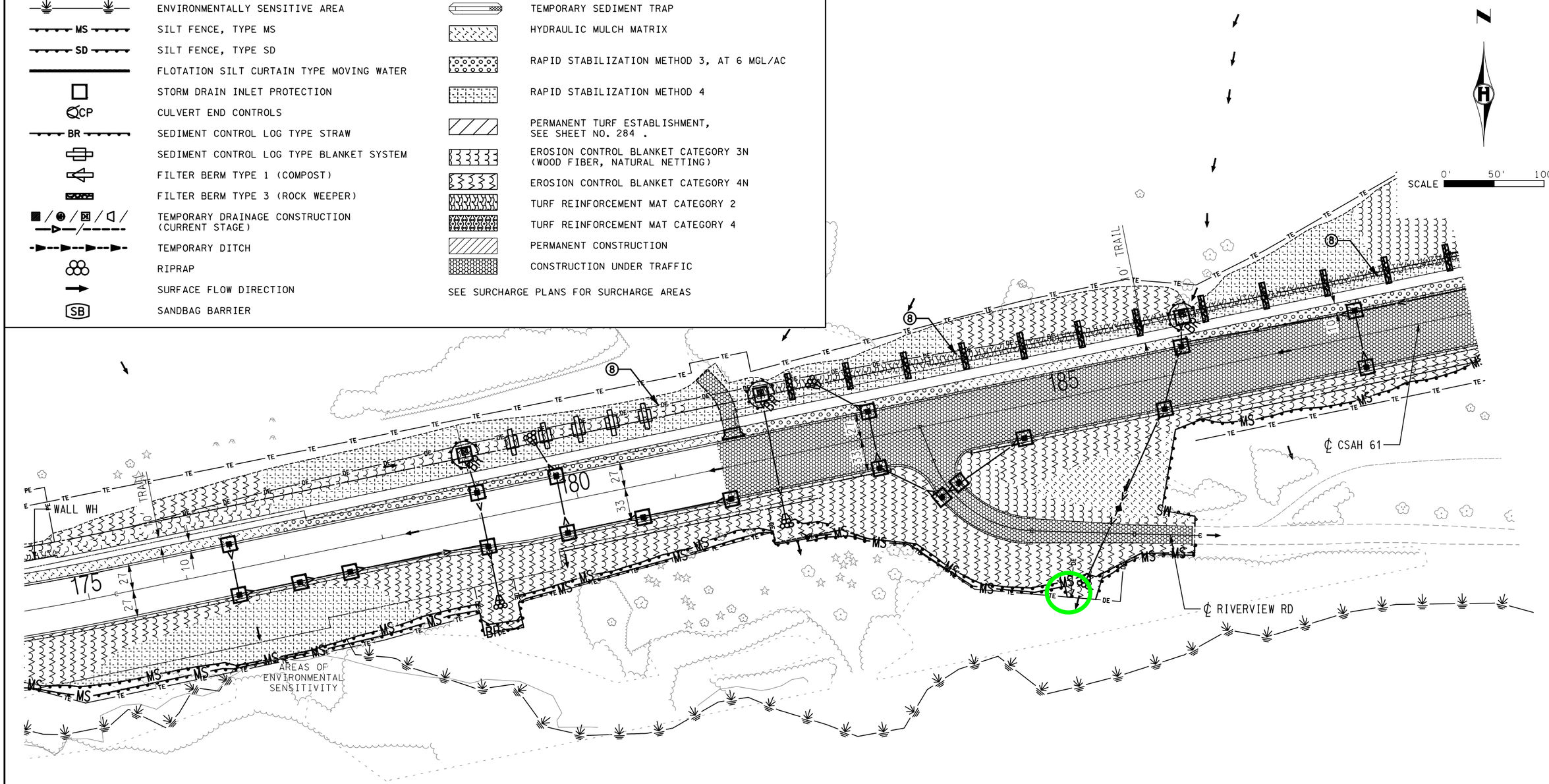
SEE SURCHARGE PLANS FOR SURCHARGE AREAS




### NOTES

SEE SHEET 260 FOR EROSION CONTROL GENERAL NOTES.

(8) STABILIZATION OF LAST 200 LINEAL FEET OF DRAINAGE DITCH MUST BE COMPLETED WITHIN 24 HOURS AFTER CONNECTING TO DRAINAGE DITCH.

Hennepin

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HUGH ZENG, LICENSED PROFESSIONAL ENGINEER — 24333 — 02/01/2017

HZ UNITED, LLC

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**EROSION AND SEDIMENT CONTROL PLAN**

**C.S.A.H. 61 / HENNEPIN COUNTY PROJECT 0904**
**S.A.P. 027-661-048/181-020-031 & S.A.P. 010-661-003/194-020-012**
**STAGE 1A**

**SHEET** 262 / 297

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Young Environmental Consulting Group, LLC

# Technical Memorandum

| | |
|---|---|
| **To:** | Linda Loomis, Administrator<br>Lower Minnesota River Watershed District |
| **From:** | Sarah Duke Middleton, Water Resources Scientist<br>Della Schall Young, PMP, CPESC |
| **Date:** | September 21, 2018 |
| **Re:** | City of Eagan—Stormwater Management Plan, Water Quality & Wetland Management, and Comprehensive Plan Review |

---

We have reviewed the City of Eagan's draft Stormwater Management Plan (SWMP), the Water Quality and Wetland Management Plan (WQWMP), and Chapters 6 and 10 of the Comprehensive Plan (CP) for consistency with the District's drafted 2018 Watershed Management Plan (Plan). Drafts of all three plans were made available at the same time, allowing us to review them in conjunction with one another. The City Code was also reviewed to assess consistency. These documents, in combination, detail the city's approach to surface water management and satisfy requirements for Local Surface Water Planning in accordance with Minn. Stats. §103B.235.

We recommend approval of the SWMP, WQWMP, and Chapters 6 and 10 of the CP, contingent on satisfactory responses to the following comments:

Erosion and Sediment Control Standard

General. The city's plans are in alignment with the District's standard for general land-disturbing activity affecting one or more acres. The WQWMP references the city's NPDES/MS4 and Construction Stormwater General Permit, its requirements, and implementation. The NPDES/MS4 and Permit meet the LMRWD's threshold.

High Value Resources Area (HVRA) Overlay District. Activity thresholds within the HVRA Overlay District, of which Eagan is a part, have more stringent requirements and are not addressed in the documents provided by the city.

Projects that result in land-disturbing activities in HVRA areas that involve the displacement or removal of 5,000 square feet or more of surface area or vegetation or the excavation of 50 cubic yards or more of earth must include erosion and sediment control plans and incorporate inspection and maintenance strategies. Requirements specific to HVRA must be incorporated in the city's official controls.

Floodplain and Drainage Alteration

The city's plans do not address the Floodplain and Drainage Alteration Policy outlined by the District; however, City Code §11.66 meets all criteria of the standard. Requirements prohibiting the alteration to or filling of land below the 100-year flood elevation of any wetland, public water, or landlocked subwatershed should be incorporated in the city's plans.

Stormwater Management Standard

General. The city's plans are in alignment with the District's standard threshold for general construction activities that develop, redevelop, or alter drainage, creating impervious areas greater than one acre. The WQWMP cites the city's participation in the NPDES MS4 General Permit program, and its development, implementation, and enforcement of a stormwater pollution prevention plan (SWPPP). The District's requirement for areas outside of HVRA overlay districts are met.

HVRA Overlay District. The HVRA Overlay District has a more stringent threshold for construction activity. This threshold pertains to activities that fall within the HVRA and develop, redevelop, or alter drainage to create new impervious areas greater than 10,000 square feet. The SWMP, WQWMP, and CP documents do not address the HVRA; however, City Code §4.34 meets the HVRA threshold.

Shoreline and Streambank Alternation Standard

Within the WQWMP, shorelines are mentioned related to cost share, aquatic vegetation management, and buffer retention. The CP also covers the regulation of shorelands and streambanks. It details shoreland protection and cites the shoreland zoning regulations in City Code §11.65, and it includes both a narrative and a map highlighting the Shoreland Overlay Districts within the city. The information presented adequately addresses the District's standard.

Steep Slope Standard

Within the SWMP, topography of the city is reviewed, and the range of land slope (5.4% to 80%) is highlighted. The WQWMP also cites steep slopes and features near the Nicols Meadow and Gun Club Lake South fens as part of their Outstanding Resources of Value section. However, neither the SWMP, WQWMP, nor the CP references specific steep slope policy. City Code §11.65, Shoreland Overlay District, fills this gap and satisfies the District's Steep Slope Standard.

Water Appropriations Standard

This standard applies to the HVRA Overlay District, and the temporary withdrawal of groundwater of more than 10,000 gallon of water per day, or 1,000,000 gallons per year. This is in accordance with the DNR Water Use Appropriations Permit. If the city refers applicants to the DNR and District, the District's requirements are met. Nevertheless, it should be confirmed that the city does refer applicants to the DNR for this permit, since none of the documents reviewed mention referrals.

Water Crossing Standard

This standard refers to crossing watercourses and policy prohibiting the use of beds and banks of streams/lakes for placement of roads, driveways, and utilities. We recognize that this requirement is

not within the jurisdiction of the city. If the city refers applicants to the DNR and District, the District's requirements are met. Nevertheless, it should be confirmed that the city does refer applicants to the DNR for this permit, since none of the documents reviewed mention referrals.

We commend the City of Eagan for its efforts to generate strong and inclusive water resource management plans. The District appreciates your participation in the plan amendment process as a member of the Technical Advisory Commission. By incorporating the recommendations outlined above, we believe the city planning and official controls will encompass all necessary components of effective surface and groundwater management.

As the city moves forward with the finalization of the Comprehensive Plan, the District respectfully requests to be kept informed of the development and implementation of capital improvement projects.

_____ introduced the following resolution and moved its adoption:

LOWER MINNESOTA RIVER WATERSHED DISTRICT

RESOLUTION 18-15

RESOLUTION APPROVING THE COMPREHENSIVE GUIDE PLAN UPDATE FOR THE CITY OF EAGAN

**WHEREAS**, Minnesota Statute Chapter 473.858 requires the Local government units to prepare a Comprehensive Plan and submit their proposed plans to adjacent governmental units, affected special districts lying in whole or in part within the metropolitan area, and affected school districts for review; and

**WHEREAS**, the Lower Minnesota River Watershed District ("LMRWD") is a special purpose unit of government, established in accordance with Minnesota Statutes Chapter 103D; and

**WHEREAS**, the City of Eagan (City) lies partially within the LMRWD and therefore must meet the requirements of the LMRWD Plan for those portions of the City lying within the LMRWD; and

**WHEREAS**, On December 14, 2011, the LMRWD adopted a Watershed Management Plan (LMRWD Plan) under Minnesota Statutes Section 103B.231, subdivision 10, which, as amended, details the existing physical environment, land use and development in the watershed and establishes as plan to manage water resources and regulate water resource use to improve water quality, prevent flooding and otherwise achieve goals of Minnesota Statutes Chapters 103B and 103D; and

**WHEREAS**, Minnesota Statutes Section 103B.235, Local Water Management Plans, requires that local government units having land use planning and regulatory responsibility for territory within the watershed shall prepare or cause to be prepared a local water management plan, capital improvement program and official controls as necessary to bring local water management into conformance with the LMRWD Plan. Local Plans must meet the requirements of the LMRWD Plan as well as the general requirement of Minnesota Statutes Section 103B.235 and Minnesota Rules Part 8410; and

**WHEREAS**, on June 7, 2018, the City prepared and submitted a draft Comprehensive Guide Plan Update (CGPU) which contains the city's Stormwater Management Plan (SWMP) and Water Quality & Wetland Management Plan (WQWMP) dated March 20, 2018; and

**WHEREAS**, Minnesota Statutes Section 103B.235, Subdivision 3 authorizes the LMRWD to review and approve local water management plans and to take other actions necessary to assure that the local plan is in conformance with the LMRWD's plan and standards set forth therein; and

**WHEREAS,** the LMRWD has reviewed Chapters 6 and 10 of the CGPU, the SWMP, and the WQWMP and hereby determines that the plans have been prepared in accordance with the requirements of Minnesota Statutes Section 103B.235 and Minnesota Rules Parts 840.0160 and 8410.0170, and contains the requirements for local plans.

**NOW, THEREFORE, BE IT RESOLVED** by the Board of Managers of the LMRWD that the Eagan draft CPGU, the SWMO and the WQWMP are hereby approved as consistent with the LMRWD Plan, subject to the following:

A. This approval is conditional upon the following:

1. High Value Resource Area (HVRA) Overlay District, Activity thresholds within the HVRA Overlay District are not addressed. Requirements specific to the HVRA must be incorporated into the city's official controls.
2. Floodplain and Drainage Alteration. Requirements prohibiting the alteration to or filling of land below the 100-year flood elevation of any wetland, public water or landlocked sub-watershed should be incorporated into the city's plans.

B. The Lower Minnesota River Watershed Restoration and Protection Strategies (WRAPS) and Total Maximum Daily Load (TMDL) studies are underway. The LMRWD recommends the CGPU, SWMP and WQWMP be updated to reflect the findings and recommendations of the WRAPS and TMDL studies once finalized.
C. In accordance with Minnesota Statutes Section 103B.235, Subdivision 4, the Eagan plan shall be adopted and implemented by the City within 120 days of this action, and the City shall amend its official controls accordingly within 180 days.
D. Pursuant to Minnesota Statutes Section 103B.235, Subdivision 5, and consistent with the LMRWD Plan, the City shall submit amendments to the local water management plan to the LMRWD for review and approval in accordance with State Statutes and Rules.
E. The LMRWD Board of Managers believes that regulation is most properly performed by the local governmental unit (LGU), provided that regulation by the LGU is consistent with the standards, goals and policies of the LMRWD Plan. The City of Eagan shall adopt official controls, to implement water management policies, standards and criteria, as stated in the CGPU, SWMP and WQWMP, at least as strict as those in the LMRWD Plan, as amended, on all projects within the boundaries of the LMRWD in the City of Eagan.
F. For properties within the City that are split between the LMRWD and any other watershed management organization, the most restrictive water management policies, standards and criteria will be implemented.

The Motion was seconded by _____ and adopted by the Board of Managers of the Lower Minnesota River Watershed District this 24th day of October, 2018.

_____
Jesse Hartmann, President

ATTEST:

_____
David Raby, Secretary

Young Environmental Consulting Group, LLC

# Technical Memorandum

**To:** Linda Loomis, Administrator

**From:** Tusha Devjani Barman, Environmental Engineering Intern
Della Schall Young, CPESC, PMP

**Date:** September 21, 2018

**Re:** Aspire Eden Prairie 2040 Draft Plan Review

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The Aspire Eden Prairie 2040 Draft Plan (AEP2040) was reviewed on behalf of the Lower Minnesota River Watershed District (District). The AEP2040 was compared to the District's Watershed Management Plan (Plan) to better understand how the District and the City of Eden Prairie (City) can work together to protect, preserve, and manage surface water resources and groundwater within the District.

The sections of the AEP2040 relevant to the District are in chapter 9, Water Resources and Infrastructure. The goals and objectives in chapter 9 are those of the city's Local Water Management Plan (LWMP), and this chapter is intended to describe the corresponding strategies to implement those goals and objectives related to surface water, wastewater, and water supply within the city.

Many of the goals and policies found in chapter 9 of the AEP2040 are similar to those found in the District's Plan, especially those related to the management of surface water resources. According to chapter 9 of the AEP2040, the city relies on chapter 11 of the Eden Prairie City Code Ordinance to implement the goals and policies related to stormwater management, floodplains, and wetlands. After the city's LWMP is approved and adopted, the city plans to review and update the existing ordinance to implement the goals and policies in the AEP2040. The following sections describe how the existing City ordinance compares to the District regulations on topics of shared concern to both entities.

## STORMWATER MANAGEMENT

Section 11.55 of the Eden Prairie City Code (Ordinance No. 28-2016) addresses stormwater management performance standards. According to the ordinance, for development plans with land disturbance of greater than or equal to one acre, including projects of less than one acre that are part of a larger common plan of development or sale, the following stormwater management practices must be followed:

1. Water Quality Control Standards:
    a. In case of new development, there must be no net increase from pre-project conditions based on annual average in total phosphorus (TP) or total suspended solids (TSS) annual load.
    b. In case of redevelopment, there must be decrease from pre-project conditions based on annual average in TP or TSS annual load.
2. Volume Control Standards
    a. Development resulting in the creation of impervious surfaces must retain a runoff volume equal to one-inch times the area of the proposed new impervious surfaces on-site.
    b. Pretreatment in the form of sump structure, vegetated filter strip, water quality inlet, or other sediment control method to settle particulates approved by the city will be provided for all infiltration areas.
3. The use of green infrastructure techniques and practices will be the preferred best management practices for accomplishing compliances with water quality and volume control standards.
4. Stormwater Facility Design Standards:
    a. All storm sewer system components, including inlets, outlets, catch basins, piping, and other structures designed to treat or convey stormwater, will be designed for a minimum 10-year frequency event using currently accepted rainfall data with the exception of storm sewer systems near critical topographic features such as steep slopes and bluffs, which will be designed for a 100-year frequency event with a designated overland emergency overflow.
    b. If stormwater facilities are required to include a stormwater pond, then the pond must be based on National Urban Runoff Program design criteria with a calculated water elevation for a 100-year frequency event.

The city's one-inch volume control requirement is more restrictive than the current District requirement of 0.5 inch, but it is in alignment with the District's proposed standard. The city does not have stormwater rate-control requirements. We suggest the city consider incorporating the District's proposed stormwater rate control requirement, which requires a match of pre- and post-construction conditions for the 1-year or 2-year, 10-year, and 100-year 24-hour events using Atlas14 nested distributions.

## FLOODPLAIN MANAGEMENT

Section 11.45 of Eden Prairie City Code Ordinance No. 24-2016 addresses floodplain management:

a. The use of floodway must not obstruct flood flows or cause any increase in flood elevations and must not involve structures, obstructions, or storage of materials or equipment.

b. A conditional use of floodway must not cause any increase in the stage of the 1 percent chance of regional flood or cause an increase in flood damages in the reach or reaches affected.

c. All structures, including accessory structures, in the flood fringe must be elevated on fill so that the lowest floor, as defined, is at or above the regulatory flood protection elevation.

d. The finished fill elevation for structures must be no lower than one foot below the regulatory flood protection elevation, and the fill must extend at the same elevation at least 15 feet beyond the outside limits of the structure.

The city's ordinance aligns with the District's Floodplain and Drainage Alteration Standard, which prohibits fill, structures, obstructions, or excavating in the floodway that may cause an increase in the 100-year stage elevation or damages in the reach. Fill and development are allowed in the flood fringe as long as it does not adversely affect the hydraulic capacity of the channel and adjoining floodplain.

## BLUFF MANAGEMENT

The City code ordinance defines a bluff as a topographic feature that is located in a shoreland area with an average slope of equal to or more than 18 percent over a distance of 50 feet. The grade of the slope from toe of the bluff to point 25 feet or more above the ordinary high water level averages 30 percent or greater. The bluff impact zone is the land located within 20 feet beyond the top of a bluff.

The Bluff Standards in the City's Code Ordinance No.14-2004 are as follows:

1. A grading and filling permit will be required for the movement of more than ten (10) cubic yards of material within steep slopes and shore and bluff impact zones.

2. The City Manager or designee will require soil erosion protection and must evaluate possible soil erosion impacts, soil protection, and development visibility from public waters before issuing a permit for construction of sewage treatment systems, roads, driveways, structures, or other improvements on steep slopes.

The District's proposed Steep Slopes Standard includes a Steep Slopes Overlay District that is based on slopes greater than 18 percent and doesn't restrict structure location in the overlay zone. The District standard does not explicitly prohibit intensive vegetation

clearing, though it is strongly discouraged. Land-disturbing activities that involve excavation of fifty (50) cubic yards or more in the Steep Slope Overlay District require a qualified professional or a professional engineer registered in the state of Minnesota to certify that the area for the proposed activity, structure, or use is suitable. This same requirement is also included in the proposed District water plan. So it is obvious that the City is following more strict regulations (land disturbance activities that include more than ten (10) cubic yards of materials within steep slope or bluff impact zone) than those in the existing and proposed District plan. To protect the buffer impact zone, the existing District water plan prohibits any kind of land disturbance activities in this zone, whereas the City approves landings and stairways in bluff impact zone. Also, the existing district plan has a minimum set back of fifty (50) feet from the top of the bluff if there is any sewage treatment system within the bluff zone. The City does not have any special setback for the sewage treatment system with respect to the top of the bluff, though it has a general setback for all major structures.

## POTENTIAL PROJECTS FOR PARTNERING WITH THE DISTRICT

- **Creek and River Stabilization and Improvement Projects:** Future bank stabilization, stormwater system improvements, or volume control projects identified in the Local Water Management Plan, stormwater system inventory, or future Total Maximum Daily Loads (TMDLs)

- **Water Quality Improvement Projects:** Water quality improvement projects such as those identified in the stormwater inventory and treatment effectiveness reports; projects could include pond dredging, infiltration enhancements, pond expansions, or other miscellaneous water quality improvement projects not currently identified

- **Road Improvement Projects:** For stormwater system improvements to meet NPDES and Watershed District requirements during road construction projects

## SUMMARY

The District commends the City for developing a thoughtful and thorough comprehensive Plan update. The City clearly takes pride in its efforts to conserve and protect natural resources. A comparison of the AEP2040 to the District Plan shows that the City and the District share several goals in their efforts to preserve and manage surface water resources and groundwater.

The following recommendations for inclusion in the AEP2040 and the Eden Prairie City Code are suggested to strengthen the City's plan and better align the AEP2040 and the District plan:

- In Section 11.55 of Eden Prairie City Code Ordinance No. 28-2016, include peak flow discharge rates from stormwater runoff for the 1-year or 2-year, 10-year, and

100-year 24-hour events using 14 Atlas 14 nested distributions conditions.

- In Section 11.45 of Eden Prairie City Code Ordinance No. 24-2016) include the lowest ground level of proposed structures at a minimum of 2 feet above the 100-year high water level of nearby surface waters or 1 foot above the emergency overflow elevation, whichever is greater.

The District looks forward to future partnerships with the City as we work to complete potential projects that meet our common goals of reducing pollutant and sediment entering the Minnesota River and protecting, preserving, and managing our shared surface water and groundwater resources.

_____ introduced the following resolution and moved its adoption:

LOWER MINNESOTA RIVER WATERSHED DISTRICT

RESOLUTION 18-16

RESOLUTION APPROVING ASPIRE EDEN PRAIRIE 2040 COMPREHENSIVE PLAN UPDATE
FOR THE CITY OF EDEN PRAIRIE

**WHEREAS**, Minnesota Statutes Chapter 473.858 requires the Local government units to prepare a Comprehensive Plan and submit their proposed plans to adjacent governmental units, affected special districts lying in whole or in part within the metropolitan area, and affected school districts for review; and

**WHEREAS**, the Lower Minnesota River Watershed District ("LMRWD") is a special purpose unit of government, established in accordance with Minnesota Statutes Chapter 103D; and

**WHEREAS**, the City of Eden Prairie (City) lies partially within the LMRWD and therefore must meet the requirements of the LMRWD Plan for those portions of the City lying within the LMRWD; and

**WHEREAS**, On December 14, 2011, the LMRWD adopted a Watershed Management Plan (LMRWD Plan) under Minnesota Statutes Section 103B.231, subdivision 10, which, as amended, details the existing physical environment, land use and development in the watershed and establishes as plan to manage water resources and regulate water resource use to improve water quality, prevent flooding and otherwise achieve goals of Minnesota Statutes Chapters 103B and 103D; and

**WHEREAS**, Minnesota Statutes Section 103B.235, Local Water Management Plans, requires that local government units having land use planning and regulatory responsibility for territory within the watershed shall prepare or cause to be prepared a local water management plan, capital improvement program and official controls as necessary to bring local water management into conformance with the LMRWD Plan. Local Plans must meet the requirements of the LMRWD Plan as well as the general requirement of Minnesota Statutes Section 103B.235 and Minnesota Rules Part 8410; and

**WHEREAS**, on May 30, 2018, the City prepared and submitted the Aspire Eden Prairie 2040 Draft Comprehensive Plan Update (AEP2040); and

**WHEREAS**, Minnesota Statutes Section 103B.235, Subdivision 3, authorizes the LMRWD to review and approve local water management plans and to take other actions necessary to assure that the local plan is in conformance with the LMRWD's plan and standards set forth therein. The sections of the AEP2040 relevant to the LMRWD are in Chapter 9, Water Resources and Infrastructure. The goals and objectives in Chapter 9 are those of the City's Local Water Management Plan (LWMP); and

**WHEREAS,** the LMRWD has reviewed AEP2040 and hereby determines that the plan has been prepared in accordance with the requirements of Minnesota Statutes Section 103B.235 and Minnesota Rules Parts 840.0160 and 8410.0170, and contains the requirements for local plans.

**NOW, THEREFORE, BE IT RESOLVED** by the Board of Managers of the LMRWD that the Aspire Eden Prairie 2040 Comprehensive Plan Update is hereby approved as consistent with the LMRWD Plan, subject to the following:

A. This approval is conditional upon the following:
    1. In Section 11.55 of Eden Prairie City Code Ordinance No.28-2016, include peak flow discharge rates from stormwater runoff for the 1-year, 2-year 10-year and 100-year 24 hour events using Atlas 14 nested distribution conditions.
    2. In Section 11.45 of Eden Prairie City Code Ordinance No. 24-2016 include the lowest ground level of proposed structures at a minimum of 2 feet above the 100-year high water level of nearby surface waters or 1 foot above the emergency overflow elevation, whichever is greater.
B. The Lower Minnesota River Watershed Restoration and Protection Strategies (WRAPS) and Total Maximum Daily Load (TMDL) studies are underway. The LMRWD recommends the LWMP be updated to reflect the findings and recommendations of the WRAPS and TMDL studies once finalized.
C. Pursuant to Minnesota Statutes Section 103B.235, Subdivision 5, and consistent with the LMRWD Plan, the City shall submit amendments to the LWMP to the LMRWD for review and approval in accordance with State Statutes and Rules.
D. The LMRWD Board of Managers believes that regulation is most properly performed by the local governmental unit (LGU), provided that regulation by the LGU is consistent with the goals and policies of the LMRWD Plan. The city of Eden Prairie shall adopt official controls, to implement water management policies, standards and criteria, as stated in the LWMP, at least as strict as those in the LMRWD Plan, as amended, on all projects within the boundaries of the LMRWD in the City of Eden Prairie.
E. For properties within the City that are split between the LMRWD and any other watershed management organization, the most restrictive water management policies, standards and criteria will be implemented.

The Motion was seconded by _____ and adopted by the Board of Managers of the Lower Minnesota River Watershed District this 24th day of October, 2018.

_____
Jesse Hartmann, President

ATTEST:

_____
David Raby, Secretary

Young Environmental Consulting Group, LLC

# Technical Memorandum

**To:** Linda Loomis, Administrator

**From:** Tusha Devjani Barman, Environmental Engineering Intern
Della Schall Young, CPESC, PMP

**Date:** September 21, 2018

**Re:** Lilydale 2040 Draft Plan Review

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The Lilydale 2040 Draft Plan (LD2040) was reviewed on behalf of the Lower Minnesota River Watershed District (District). The LD2040 was compared to the District's Watershed Management Plan (Plan) to better understand how the District and the City of Lilydale (City) can work together to maintain or improve the quality of surface waters and stormwater runoff within the District.

The sections of the LD2040 relevant to the District are in chapter 4, Water Resources; chapter 7, Goals and Policies; and chapter 8, Implementation. The goals and objectives in chapter 7 are those of the City's Local Water Management Plan (LWMP), and chapter 8 is intended to describe the corresponding strategies to implement those goals and objectives related to surface water and groundwater within the City.

The goals and policies found in chapter 7 of the LD2040 are similar to those found in the District's Plan, especially those related to the management of surface water resources. According to chapter 8 of the LD2040, the City relies on the zoning ordinance to implement the goals and policies related to shoreline, drainage routes, floodplains, wetlands, and bluffs. The following sections describe how the existing City ordinance compares to the District's regulations on topics of shared concern to both entities.

## STORMWATER MANAGEMENT

The City of Lilydale includes some requirements in sections 5.3 and 5.4 of the Surface Water Management Plan (SWMP) to improve the quality of stormwater runoff reaching the Minnesota River and Mississippi River. Improvement in stormwater quality means reduction in nonpoint source pollution carried in stormwater runoff, stormwater runoff volume, and amount of impervious surface in the developed parts of the City.

1. Water Quality Control Standards:

According to the City's SWMP, the implementation of Best Management Practices (BMPs) is required for new development or redevelopment projects to achieve removal rates consistent with LMRWMO, LMRWD, and National Pollutant Discharge Elimination System (NPDES) standards.

a. In case of new development, BMPs must achieve a minimum 50 percent removal of total phosphorus for runoff from the project site. There must be no net increase of total suspended solids (TSS) or total phosphorus (TP) loading to downstream water bodies.

b. In case of redevelopment, BMPs should result in net reductions of 80 percent for TSS and 50 percent for TP.

2. Volume Control Standards:

   The City strongly discourages the connection of impervious surfaces from new development and redevelopment.

3. Stormwater System Capacity Criteria:

   a. A conveyance system should handle 10-year flows without overtopping and should handle 100-year flows without damage.
   b. Ponds should be designed to accommodate 100-year volumes, with a minimum of one foot of freeboard to overflow.
   c. All structures and permanent improvements should be protected from failure or severe damage for 100-year frequency storms.
   d. A safe pathway for flows in excess of 100-year return frequency should be provided.

Because the City is in a unique setting at the bluffs of the Mississippi River, the City does not encourage infiltration of stormwater for groundwater recharge on top of the bluffs. Contrary to that, the District's current volume control requirement to infiltrate the volume of runoff is equal to a depth of 0.5-inch of runoff over the new impervious surfaces (more than 1-acre). The City has a stormwater rate control requirement that includes the peak stormwater runoff rates not exceeding the existing rate for the 1-year or 2-year, 10-year, and 100-year events. But, according to the proposed district water plan, stormwater runoff rates should be from 24-hour events using Atlas 14 nested distributions.

Section 5.3.2.7 and 5.3.2.8 of the City's SWMP include the following stormwater management prohibitions and restrictions, respectively:

1. The use of infiltration is prohibited in the following areas:

   a. Where industrial facilities are not authorized to infiltrate industrial stormwater under a NPDES or State Disposal System (SDS) Industrial

Stormwater Permit issued by the Minnesota Pollution Control Agency (MPCA)

b. Where vehicle fueling and maintenance occur

c. Where there is less than three (3) feet of separation from the bottom of the infiltration system to the elevation of seasonally saturated soils or the top of bedrock

d. Where there are high levels of contaminants in soil or groundwater that will be mobilized by the infiltrating stormwater

2. The use of infiltration techniques will be restricted in the following sites:

a. Where predominately hydrologic soil group D (clay) soils exist

b. Within 1,000 feet up-gradient or one hundred (100) feet down-gradient of active karst features

c. Within a Drinking Water Supply Management Area as defined in Minn. Rules 4720.5100, subp.13

d. Where soil infiltration rates exceed 8.3 inches per hour

The District standard includes similar restrictions on infiltration practices, with one exception. The District standard does not include items 2.b from the City's ordinance.

## FLOODPLAIN MANAGEMENT

Section 905.4 of the Lilydale City Ordinance addresses floodplain management:

a. Fill will be properly compacted, and slopes will be properly protected by the use of riprap, vegetative cover, or another acceptable method.

b. Any use that adversely affects the capacity of the channels or floodways is not permitted.

c. All structures, including accessory structures, shall be constructed on fill so that the basement floor, or first floor if there is no basement, is at or above the Regulatory Flood Protection Elevation defined.

d. The finished fill elevation must be no lower than one (1) foot below the Regulatory Flood Protection Elevation and will extend at such elevation at least fifteen (15) feet beyond the limits of the structure constructed thereon.

The District Floodplain Management Standard align with the City's ordinance that prohibits placing fill, structures, obstructions, or excavations in the floodway that will cause an increase in the 100-year stage elevation or cause an increase in flood damages in the reach. Fill and development is allowed in the flood fringe as long as it does not adversely affect the hydraulic capacity of the channel and adjoining floodplain. According to the District, the lowest ground level of proposed structures must be a minimum of 2 feet above the 100-year high water level of nearby surface waters or 1 foot above the emergency overflow elevation, whichever is greater, unless they have protection through flood proofing or by another approved construction technique. The City's ordinance should adopt the standard during fill and development in the floodplain.

## BLUFF AND SHORELAND MANAGEMENT

The City required to meet Mississippi River Critical Area (MRCCA) requirements for protecting the bluffs and the shoreland of the Mississippi River. MRCCA requirements are stricter than the District's current and proposed standards.

## POTENTIAL PROJECTS FOR PARTNERING WITH THE DISTRICT

- **Bank and Shoreline Stabilization Project:** Project includes initial and follow-up assessment of streambank and shoreland.

- **Street Sweeping Project:** Project includes street sweeping once annually, recording the annual number of times streets are brush swept, and documentation of any additional activities undertaken during the project.

# SUMMARY

The District commends the City for developing a thoughtful, thorough comprehensive Plan update. The City clearly takes pride in its efforts to conserve and protect natural resources. A comparison of the LD2040 to the District Plan shows that the City and the District share several goals in their efforts to preserve and manage surface water resources and groundwater.

The following recommendations for inclusion in the LD2040 and the Lilydale City Code are suggested to strengthen the City's plan and better align the LD2040 and the District plan:

- In Section 5.4.2 of the City's SWMP, include peak flow discharge rates from 24-hour events using Atlas 14 nested distributions.
- In Section 905.4 of the City of Lilydale Ordinance, include the lowest ground level of proposed structures at a minimum of 2 feet above the 100-year high water level of nearby surface waters or 1 foot above the emergency overflow elevation,

whichever is greater.

The District looks forward to future partnerships with the City as we work to complete potential projects that meet our common goals of reducing pollutant and sediment entering the Mississippi River and protecting, preserving, and managing our shared surface water and groundwater resources.

_____ introduced the following resolution and moved its adoption:

LOWER MINNESOTA RIVER WATERSHED DISTRICT

RESOLUTION 18-15

RESOLUTION APPROVING CITY OF LILYDATE 2040 COMPREHENSIVE PLAN UPDATE

**WHEREAS**, Minnesota Statute Chapter 473.858 requires the Local government units to prepare a Comprehensive Plan and submit their proposed plans to adjacent governmental units, affected special districts lying in whole or in part within the metropolitan area, and affected school districts for review; and

**WHEREAS**, the Lower Minnesota River Watershed District ("LMRWD") is a special purpose unit of government, established in accordance with Minnesota Statute Chapter 103D; and

**WHEREAS**, the City of Lilydale (City) lies partially within the LMRWD and therefore must meet the requirements of the LMRWD Plan for those portions of the City lying within the LMRWD; and

**WHEREAS**, On December 14, 2011, the LMRWD adopted a Watershed Management Plan (LMRWD Plan) under Minnesota Statutes Section 103B.231, subdivision 10, which, as amended, details the existing physical environment, land use and development in the watershed and establishes as plan to manage water resources and regulate water resource use to improve water quality, prevent flooding and otherwise achieve goals of Minnesota Statutes Chapters 103B and 103D; and

**WHEREAS**, Minnesota Statutes Section 103B.235, Local Water Management Plans, requires that local government units having land use planning and regulatory responsibility for territory within the watershed shall prepare or cause to be prepared a local water management plan, capital improvement program and official controls as necessary to bring local water management into conformance with the LMRWD Plan. Local Plans must meet the requirements of the LMRWD Plan as well as the general requirement of Minnesota Statutes Section 103B.235 and Minnesota Rules Part 8410; and

**WHEREAS**, on June 22, 2018, the City prepared and submitted the Lilydale 2040 Draft Comprehensive Plan (LD2040); and

**WHEREAS**, Minnesota Statutes Section 103B.235, Subdivision 3, authorizes the LMRWD to review and approve local water management plans and to take other actions necessary to assure that the local plan is in conformance with the LMRWD's plan and standards set forth therein. The sections of the LD2040 relevant to the LMRWD are in Chapter 4, Water Resources, Chapter 7, Goals and Policies and Chapter 8, Implementation. The goals and objectives in Chapter 7 are those of the City's Local Water Management Plan (LWMP) and Chapter 8 is intended to describe the corresponding strategies to implement those goals and objectives related to surface water and groundwater within the City; and

**WHEREAS,** the LMRWD has reviewed LD2040 and hereby determines that the plan has been prepared in accordance with the requirements of Minnesota Statutes Section 103B.235 and Minnesota Rules Parts 840.0160 and 8410.0170, and contains the requirements for local plans.

**NOW, THEREFORE, BE IT RESOLVED** by the Board of Managers of the LMRWD that LD2040is hereby approved as consistent with the LMRWD Plan, subject to the following:

A. In Section 5.4.2 of City's SWMP, include peak flow discharge rates from 24-hour events using Atlas 14 nested distribution.
B. In Section 905.4 of the Lilydale City Ordinance, include the lowest ground level of proposed structures at a minimum of 2 feet above the 100-year high water level of nearby surface waters or 1 foot above the emergency overflow elevation, whichever is greater.
C. The Lower Minnesota River Watershed Restoration and Protection Strategies (WRAPS) and Total Maximum Daily Load (TMDL) studies are underway. The LMRWD recommends the LWMP be updated to reflect the findings and recommendations of the WRAPS and TMDL studies once finalized.
D. Pursuant to Minnesota Statutes Section 103B.235, Subdivision 5, and consistent with the LMRWD Plan, the City shall submit amendments to its LWMP to the LMRWD for review and approval in accordance with State Statutes and Rules.
E. The LMRWD Board of Managers believes that regulation is most properly performed by the local governmental unit (LGU), provided that regulation by the LGU is consistent with the goals and policies of the LMRWD Plan. The City of Lilydale shall adopt official controls, to implement water management policies, standards and criteria, as stated in the LWMP, at least as strict as those in the LMRWD Plan, as amended, on all projects within the boundaries of the LMRWD in the City of Lilydale.
F. For properties within the City that are split between the LMRWD and any other watershed management organization, the most restrictive water management policies, standards and criteria will be implemented.

The Motion was seconded by _____ and adopted by the Board of Managers of the Lower Minnesota River Watershed District this 24th day of October, 2018.

_____
Jesse Hartmann, President

ATTEST:

_____
David Raby, Secretary