



2023

ANNUAL REPORT



LOWER MINNESOTA RIVER
WATERSHED DISTRICT

GREETINGS

The Lower Minnesota River Watershed District (LMRWD) is an area in the south metro that spans parts of Carver, Dakota, Hennepin, Ramsey, and Scott counties. Amid growing communities, you can find rare and unique resources, including trout streams, calcareous fens (calcium-rich wetlands), and river bluffs, surrounding the focal point of the LMRWD: the Minnesota River. The LMRWD works to protect and improve these natural resources, while educating the public about their importance.



2023 HIGHLIGHTS



New Funding to Stabilize Area 3

The LMRWD is leading a large-scale bank stabilization project along the Minnesota River in Eden Prairie, Minnesota. The steep slopes along this area of the river are eroding quickly, and action is needed to protect both the river and bluff properties. The project was awarded \$2.75 million in legislative funding, which will be matched by LMRWD funds. Hennepin County also awarded a grant to advance this work.



Minnesota River Management

From flood protection to sediment removal, the Minnesota River is at the heart of our work. The LMRWD works to remove and manage sediment from the Minnesota River. In 2023, the LMRWD began improvements to its dredge facility and continued communication with partners across Minnesota River basin to lower the sediment reaching the river.



Building Community Around Watershed Management

The LMRWD has been strategically working internally and with partners to spread its mission. The LMRWD continued to build LMRWD Board of Managers capacity, coordinate with local stakeholders on grants, and evaluate the efficiency of the local governmental unit permit program.

To protect valuable water and natural resources, the LMRWD needs continued support from our watershed community as well as upstream partners who can have a positive impact on the health of the Minnesota River. You can find ways to get involved with the LMRWD as a volunteer or through recreation on local waterways, trails, and parks. Learning more about the resources in your backyard is the first step to protecting and appreciating them.

**IN PARTNERSHIP,
LINDA LOOMIS, ADMINISTRATOR**

A. BOARD OF MANAGERS

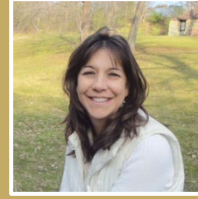
The Board of Managers oversees the direction of watershed management, bringing representation from each county within the LMRWD. The Citizen Advisory Committee (CAC) is a voluntary advisory group appointed by the Board to engage citizens in community actions. The election of officers was held at the October Board of Managers meeting.



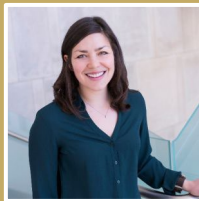
Jesse Hartmann
President (Jan–Nov)
Scott County
Term Expired:
12/20/2023



Joseph Barisonzi
President (Nov–Dec)
Hennepin County
Term Expires:
2/28/2027



Theresa Kuplic
Vice President
Dakota County
Term Expires:
2/28/2024



Lauren Salvato
Secretary
Carver County
Term Expires:
2/28/2026



Laura Amundson
Treasurer
Hennepin County
Term Expires:
2/28/2024

Thank you, Manager Hartmann!

At the end of 2023, the LMRWD said goodbye to Manager Jesse Hartmann, who retired from his long-time service to the Board. Throughout his nearly eight years on the Board, Jesse successfully held several roles, including Vice President (2016–2018), President (2018–2023), and Manager (2023). He provided leadership for watershed management at a critical time for the LMRWD. Learn more about his work on [our website](#).



The Board of Manager meets on the third Wednesday of every month at the Carver County Government Center. The public is welcome to attend meetings. Learn more at <https://lowermnriverwd.org/meetings>.

CITIZEN ADVISORY COMMITTEE

The CAC is a voluntary advisory group appointed by the Board to engage citizens in community actions. In 2023, the CAC grew to six members who engage in learning activities and volunteer at community events such as farmers markets to spread the LMRWD’s mission.



Left to Right: Judy Berglund (President), Greg Genz (Secretary), Thomas Hartle, Kevin Kedrowski (Vice President), Lee Peterson, Patty Thomsen

TECHNICAL ADVISORY COMMITTEE

Partner Organization	
SWCDs	
Carver Soil and Water Conservation District	View Website
Dakota Soil and Water Conservation District	View Website
Scott Soil and Water Conservation District	View Website
Counties	
Carver County	View Website
Dakota County	View Website
Hennepin County	View Website
Scott County	View Website
Cities	
City of Bloomington	View Website
City of Burnsville	View Website
City of Carver	View Website
City of Chanhassen	View Website
City of Chaska	View Website
City of Eagan	View Website
City of Eden Prairie	View Website
City of Lilydale	View Website
City of Mendota	View Website
City of Mendota Heights	View Website
City of Savage	View Website
City of Shakopee	View Website

Partner Organization	
Park District	
Three Rivers Park District	View Website
Tribal Government	
Shakopee Mdewankanton Sioux Community	View Website
State Agencies	
Metropolitan Airports Commission (MAC)	View Website
Minnesota Board of Water and Soil Resources (BWSR)	View Website
Metropolitan Council Environmental Services	View Website
Minnesota Department of Natural Resources (MnDNR)	View Website
Minnesota Department of Transportation (MnDOT)	View Website
Minnesota Pollution Control Agency (MPCA)	View Website
Federal Agencies	
US Army Corps of Engineers (USACE)	View Website
US Fish & Wildlife Service	View Website



The Technical Advisory Committee (TAC) supports the LMRWD in specific areas of expertise across jurisdictional boundaries. Engineers and water resource coordinators from each organization are typically appointed to participate on the LMRWD TAC during their tenure.

STAFF AND CONSULTANTS



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B. CONTACT PERSON



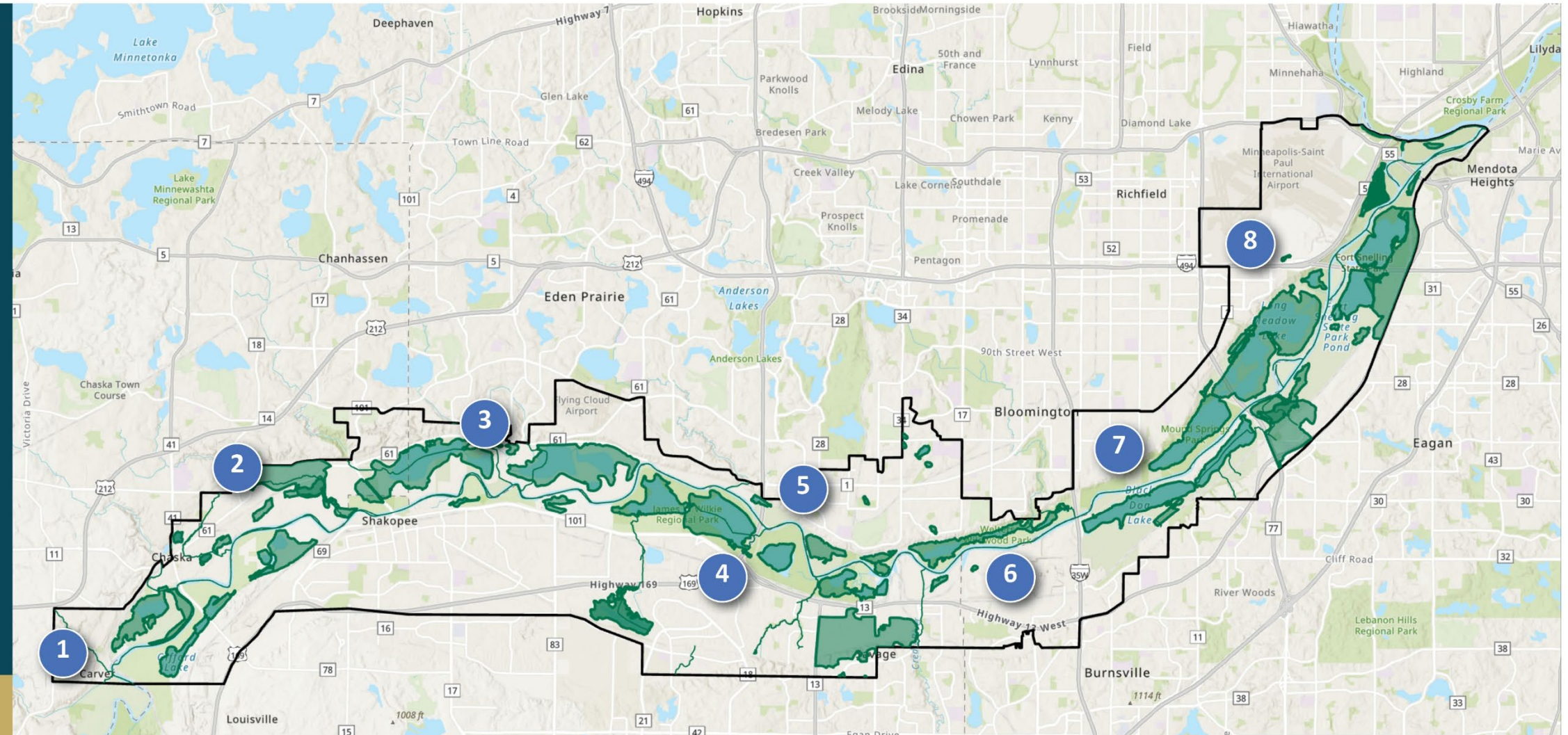
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C. PREVIOUS YEAR WORK PLAN SUMMARY

LMRWD AND PARTNER PROJECTS

In 2023, the LMRWD led a variety of projects throughout the watershed to provide ongoing flood control, stream and riverbank repairs, channel maintenance to ensure navigation on the Minnesota River, and protection for unique resources. The LMRWD also worked to address emerging threats such as chloride pollution.

The LMRWD was awarded \$2.75 million in state funding to construct bank stabilization solutions at Area 3 in Eden Prairie. Because the site is posing an immediate threat to river water quality and protection of bluffs, the LMRWD worked to obtain funding and finalize construction plans.



PROJECTS



1 Spring Creek Site Stabilization



3 Area 3 Minnesota Riverbank and Bluff Stabilization Project



5 Vernon Avenue Dredge Material Management Site



7 Gully Inventory and Condition Assessment - Phase 3



2 Fen Stewardship Plans



4 Nine-Foot Channel Maintenance



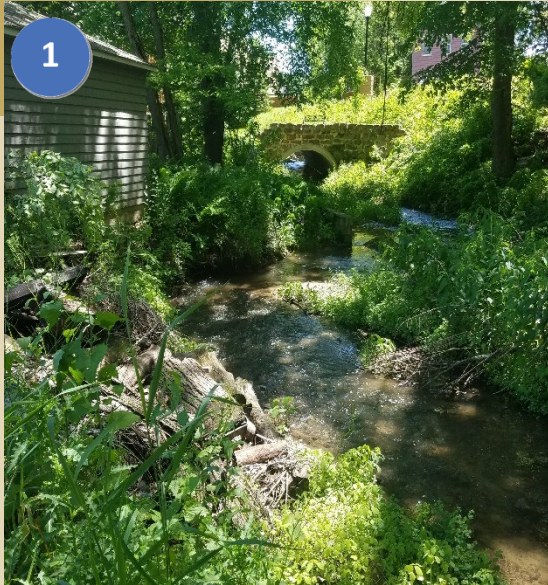
6 Floodplain Modeling Project



8 Hennepin County Chloride Project

Learn more about the projects starting on page 5.

1



Spring Creek Site Stabilization

In 2022, the LMRWD began investigating erosion along Spring Creek after residents reached out regarding impacts to private property at three sites along the creek in Carver, Minnesota. In 2023, two of the sites were advanced for bank stabilization practices, which were designed to the 60 percent level. The LMRWD submitted a wetland delineation to the US Army Corps of Engineers. These improvements are scheduled to be constructed in the winter of 2024–25.

The LMRWD studied the third site further but determined that a project was not needed because of low erosion potential. The LMRWD will continue to work on providing a steep slopes management plan for the homeowner of this site.



Did you know? The Minneapolis–Saint Paul International Airport is within the LMRWD. The watershed district regularly partners with the Metropolitan Airports Commission (MAC) to manage water at the airport. In 2023, the MAC adjusted its boundaries to better align with the hydrological zones.

Water Resources Restoration Fund



The LMRWD uses a Water Resources Restoration Fund to partner with neighboring cities and to support projects with goals and objectives that are in alignment with the District.

The fund was used in 2023 for the City of Carver’s Levee Improvements, Lewis Street Improvements in the City of Shakopee, and Seminary Fen Ravine C-2 in Chaska. These partnerships are critical to maximizing resources to make a larger impact on solutions. Thank you to our project partners in 2023!

2



Fen Stewardship Plans

Calcareous fens are wetlands fed by groundwater that are home to rare calcium-rich plants. They are a unique resource within the LMRWD.

To continuously manage and protect this rare resource, the LMRWD has led an ongoing partnership with the Minnesota Department of Natural Resources (MnDNR) and the Metropolitan Council to develop management plans to protect, preserve, and possibly restore calcareous fens within LMRWD.

Fen management plans have been developed for the following:

- Gun Club Lake Fen
- Nicols Meadow Fen
- Savage Fen
- Seminary Fen

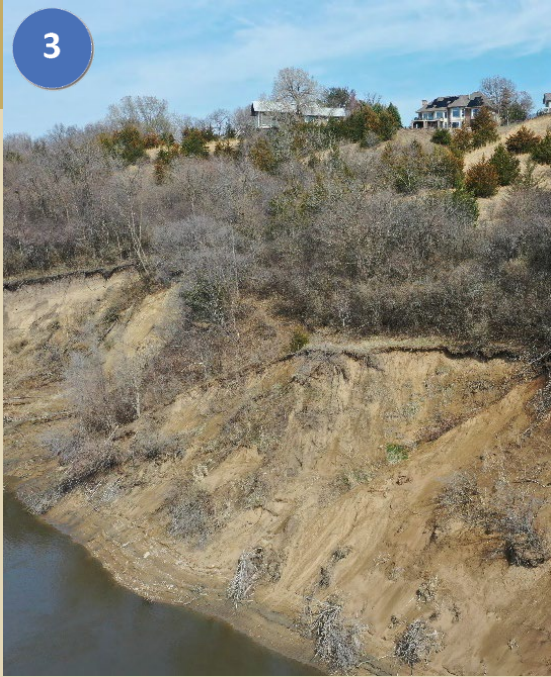
Since the “Fens Sustainability Gaps Analysis for Carver, Dakota, and Scott Counties, Minnesota” report was published in 2020, additional findings on fen hydrogeology were produced by the LMRWD and added to the drafted management plans. The management plans prescribe ongoing assessments and strategies to ensure these unique wetlands are protected from potential impacts, including land use and climate change. The plans document the unique interaction of groundwater and its recharge rate to feed the fens.

The plans were finalized at the end of 2023 and presented to the LMRWD Board of Managers for adoption. Through careful stewardship, these spaces can be preserved for generations to come.



As a sensitive resource, it is better for the public to interact with the fens in a limited way. Some protected sites can be viewed from trails but avoid walking through fens and potentially disrupting flora and fauna. Volunteers are often needed to remove invasive species, such as buckthorn, and these events are led by a seasoned guide. Follow the LMRWD on Facebook, Instagram, and X to learn more about volunteer opportunities.

3



Area 3 Minnesota Riverbank and Bluff Stabilization Project

The LMRWD is home to many areas with steep slopes along the Minnesota River. Within Area 3 in the City of Eden Prairie, there is large-scale erosion occurring at the intersection of a sharp bend in the Minnesota River and steep riverbank slopes.

The eroding bluff spans 700 feet of riverfront land, which is the width of two football fields. At 60 feet high, the steep slope is comparable to a six-story building and is actively eroding at an estimated rate of three feet per year. This issue is contributing to the excessive erosion and sediment concerns of the Minnesota River. In 2021, after 10 years of collecting monitoring data, the LMRWD and partners moved forward with a design to stabilize the riverbank and prevent future erosion of the bluff toe and further sediment and nutrient loading to the river. During project development, the team discovered that a local stormwater pond had direct impacts to the stability of Area 3.



Legend

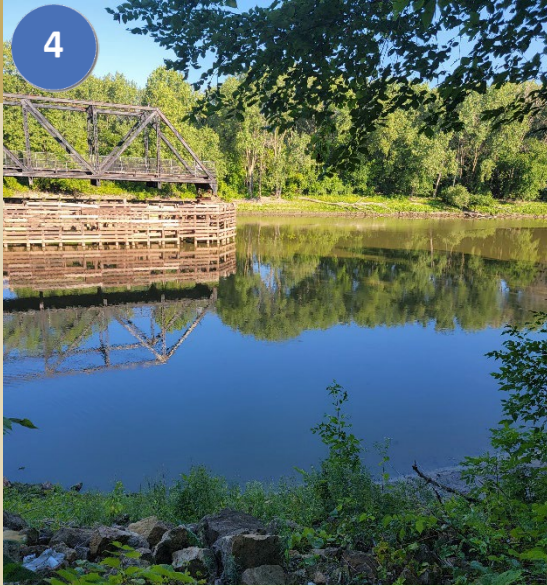
- Project Area
- ~ Public Watercourses
- Township & Range
- Section

The technical team completed cultural resource and threatened and endangered species reviews and a wetland delineation. A Natural Heritage review by the MnDNR and land acquisition processes are still underway. Final engineering and construction is scheduled for 2024. The project progressed in 2023, with 60 percent plans developed. Funding was secured for the approximately \$5.5 million dollar project from the Minnesota State Legislature and Hennepin County. Completing this key project will address the immediate need to stabilize steep slopes, providing protection for river water quality and bluff property.



In 2023, the LMRWD continued to collaborate with the Lower Minnesota River East One Watershed, One Plan process, finding areas of opportunity for overlapping resource management and protection. Staff attended meetings for plan development, and the Board of Managers provided comments focused on the health of the Minnesota River.

4



Nine-Foot Channel Maintenance

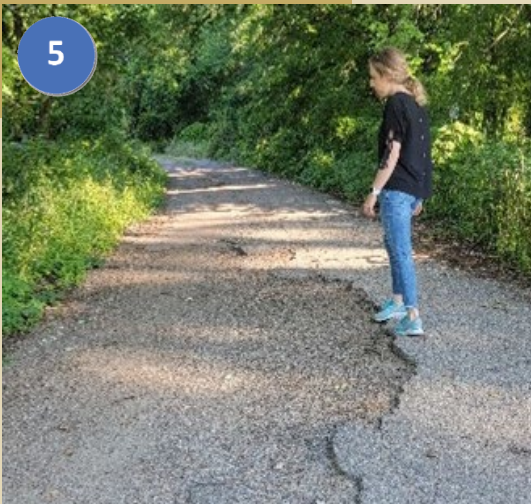
The LMRWD continues to work with the USACE on maintenance of the navigation channel by following the USACE Dredged Material Management Plan for reaches of the Minnesota River upstream of the I-35W Bridge.

The LMRWD also works with local industry to temporarily store material dredged from private barge slips. The dredge site is an important component of successfully maintaining the channel of the Minnesota River, making it a working river that is key to local and national industry.



Did you know? The LMRWD is unlike other state water management organizations. It was formed in 1960 to provide local participation to the USACE in the construction and maintenance of a nine-foot navigation channel in the Minnesota River. Because of this partnership, more than two million tons of goods are transported between ports on the Minnesota River to ports along the Mississippi River and the Gulf of Mexico.

5



Vernon Avenue Dredge Material Management Site

The LMRWD is responsible for disposing of material dredged from the Minnesota River by USACE. This dredge disposal site is located at River Mile Post 14.2 (RMP 14.2) in Savage, Minnesota, and accessed by Vernon Avenue. Field assessments showed Vernon Avenue was in disrepair and required maintenance.

The LMRWD led an important project to improve Vernon Avenue, ensuring safe and effective access to the dredge management site. Plans to rehabilitate the road and a nearby culvert were completed, and the project is on track to be bid for construction in 2024. The project involved coordination with the Union Pacific Railroad to allow access and work within the railroad right-of-way.



Floodplain Modeling Project

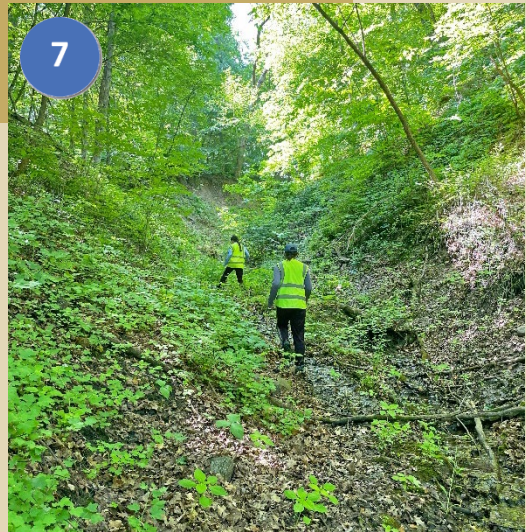
State agencies and the LMRWD developed the existing floodplain model in 2002. Since this time, there has been a significant change in the water surface elevation, and the LMRWD leadership questioned the model’s effectiveness as a decision-making tool and its use for resource management. In 2022 the LMRWD oversaw a process to compare the efficiency of the model with the updated District rules. The LMRWD determined that the floodplain model needed to be updated, a process that is currently underway.



Hennepin County Chloride Project

Chloride pollution is a growing concern for water managers. A small amount of salt used for winter ice management can have a big impact, and it’s now known that just 1 teaspoon of salt can permanently pollute 5 gallons of water. The LMRWD has worked with the Hennepin County Chloride Initiative, the Low Salt, No Salt Minnesota program, to build community capacity that maintains winter safety while reducing salt use. Learn more about this ongoing issue and how you can help on the [LMRWD website](#).

**This project received Watershed-based Implementation Funding from BWSR*



Gully Inventory and Condition Assessment—Phase 3

With the Minnesota River as the focal point, the LMRWD has spent multiple years examining issues of the river’s complex natural system. A gully is a ravine that is formed by water moving across a bluff area, creating areas along the Minnesota River that are actively eroding and contributing more sediment to the river.

The LMRWD began the gully inventory and condition assessment in 2020, leading two initial phases to track gully conditions along the river. In 2023, Phase 3 of the project work was implemented to assess gullies deemed “high” and “very high” priority in the earlier phases. These sites are understood to pose a continued risk to river water quality and are being further investigated for restoration.

The LMRWD ranked each gully quantitatively based on restoration need using factors such as erosion potential, proximity to natural resources, and the potential for site contamination. The next stage of the project will use 2023 fieldwork results and recommendations to inform restoration feasibility studies for four gullies that are contributing the most sediment to the Minnesota River. By compiling site data for more than 300 gullies, the LMRWD can actively manage and improve these sites over time.

ONGOING PROGRAM WORK



Individual Permit Program

The LMRWD operates an individual permit program for new development occurring within the watershed district. The regulation is not designed to add more permit requirements but to perform specific checks related to LMRWD-specific interests such as steep slopes, high-value resource areas (e.g., project areas near fens), and floodplain alteration. The LMRWD permit team works collaboratively with permittees to ensure a seamless process. To learn more about permitting, see page 30.



Municipal Permit Program

The LMRWD issues municipal permits to partner cities within the watershed district, which allows them to issue permits and manage actions as the primary permitting authority. In 2023, the LMRWD led a municipal permit program audit to ensure that city regulations are working in parallel with the LMRWD rules and standards. The results of the audits identified areas of excellence and opportunities for enhancements, while highlighting the existing working relationships of many partners, see page 29.



Monitoring Program

The LMRWD collaborates with local partners at soil and water conservation districts to obtain current monitoring data. The watershed district is home to many urban lakes, rivers and streams, calcareous fens, and trout waters. Water quality monitoring helps provide data and trends that inform management strategies and protection and improvement of valuable waterbodies. To learn more about monitoring in the LMRWD, see page 17.



Education and Outreach Program

An important component of our work is educating residents and businesses about the challenges faced and the opportunities to enjoy the rare resources that make the LMRWD so unique. The Education and Outreach (E&O) Program uses many outreach components, including cost-share grants, signage, media channels, and special events to engage the public and partners in resource protection. To learn more about E&O activities completed in 2023, see page 23.

D. WORK PLAN AND BUDGET

The LMRWD continues its work on programs and projects defined in the Watershed Management Plan.

Administrative and Managerial Funds	2023 Cost
<p>Administrative Services This fund is used for staffing, conferences, coordination with stakeholders, nine-foot channel navigation, and advisory committee coordination.</p>	\$250,000
Program Funds	
<p>Cost-Share Incentives and Water Quality Restoration Program The LMRWD will have funding available for community members to implement water resources projects and guide educational activities.</p>	\$20,000
<p>Dredge Management The LMRWD oversees the operations and management of the dredge management site on the Minnesota River.</p>	\$240,000
<p>Education and Outreach Program The LMRWD will continue to lead activities that engage and inform the community in watershed management.</p>	\$85,000
<p>Fen Stewardship Program The LMRWD is developing specific management strategies for continued protection and preservation of these valued resources.</p>	\$75,000
<p>Gully Inventory and Assessment Program The LMRWD leads ongoing inventory and assessment of more than 300 gullies throughout the watershed district.</p>	\$90,500
<p>Monitoring Program The monitoring program will continue to track progress toward water quality goals through a detailed data assessment.</p>	\$75,000
<p>Permit Program The permit program ensures new development complies with the watershed management plan and LMRWD rules.</p>	\$50,000
<p>Water Resources Restoration Fund The LMRWD provides project funds to partners completing work within the LMRWD with a shared benefit toward watershed management goals.</p>	\$100,000
Capital Improvement Project Funds	
<p>Minnesota River Floodplain Modeling The LMRWD determined that the hydrologic and hydraulic modeling commonly used to regulate development in the floodplain and evaluate Rule C permits is out of date. The initial capital investment of updating the model will be followed by annual updates.</p>	\$75,000
<p>Spring Creek Site Stabilization The LMRWD studied three sites for bank stabilization measures, with two advancing to the design stage. Vegetation management (e.g., removal of invasives, native plantings), will be explored with the property owners.</p>	\$90,000
<p>Minnesota River Study Area 3–Bluff Stabilization Project To address riverbank erosion, the LMRWD is leading a large-scale design and construction of stabilization practices for Area 3 project in Eden Prairie, Minnesota. The project continued with the design, permitting, and funding and land acquisitions.</p>	\$133,830

E. PROGRESS ON GOALS

The LMRWD has defined nine goals within its Watershed Management Plan. Each annual work plan includes programs and projects that are prioritized to advance progress on each of these goals.

PROTECT, IMPROVE, MAINTAIN

District Goals

- 

1
Organizational Management
- 

2
Surface Water Management
- 

3
Groundwater Management
- 

4
Unique Natural Resources Management
- 

5
Wetland Management
- 

6
Floodplain and Flood Management
- 

7
Erosion and Sediment Control
- 

8
Commercial and Recreational Navigation
- 

9
Public Education and Outreach

Goal	Strategies	Short-Term Metric	Long-Term Metric	2023 Progress to Goal
Goal 1: Organizational Management	<ul style="list-style-type: none"> • Cooperate with local, state, and federal government; other agencies; and nongovernment organizations on issues affecting the District’s resources. • Provide public information services. • Perform periodic assessments and program reviews. 	<ul style="list-style-type: none"> ✓ Completion of scheduled activities ✓ Annual local government units (LGU) audits ✓ Number of dollars from other agencies and property owners 	<ul style="list-style-type: none"> ✓ Formation of a Minnesota River Basin Commission ✓ Legislative funding support 	<ul style="list-style-type: none"> ✓ Continued collaboration with partners on water and natural resources projects ✓ Hosted municipal/ LGU coordination meetings ✓ Managed legislative funds for dredge material management
Goal 2: Surface Water Management	<ul style="list-style-type: none"> • Provide strategic resource evaluation and management. • Develop a High-Value Resources Area overlay district. • Create watershed management standards. • Promote disconnected stormwater management and low-impact development. • Develop a cost-share incentive program. • Lead water quality restoration programs. • Modify and continue the monitoring program. • Complete detailed data assessments. • Coordinate with other agencies and water quality programs. • Develop steep slopes standard. • Develop a vegetation management standard/plan. 	<ul style="list-style-type: none"> ✓ Number and types of projects completed as part of the cost-share incentive program and water quality restoration programs ✓ Number of targeted studies and projects completed 	<ul style="list-style-type: none"> ✓ Positive trends in water quality parameters identified for monitoring efforts 	<ul style="list-style-type: none"> ✓ Continued surface water management programs ✓ Continued monitoring program ✓ Continued water quality cost-share incentive program

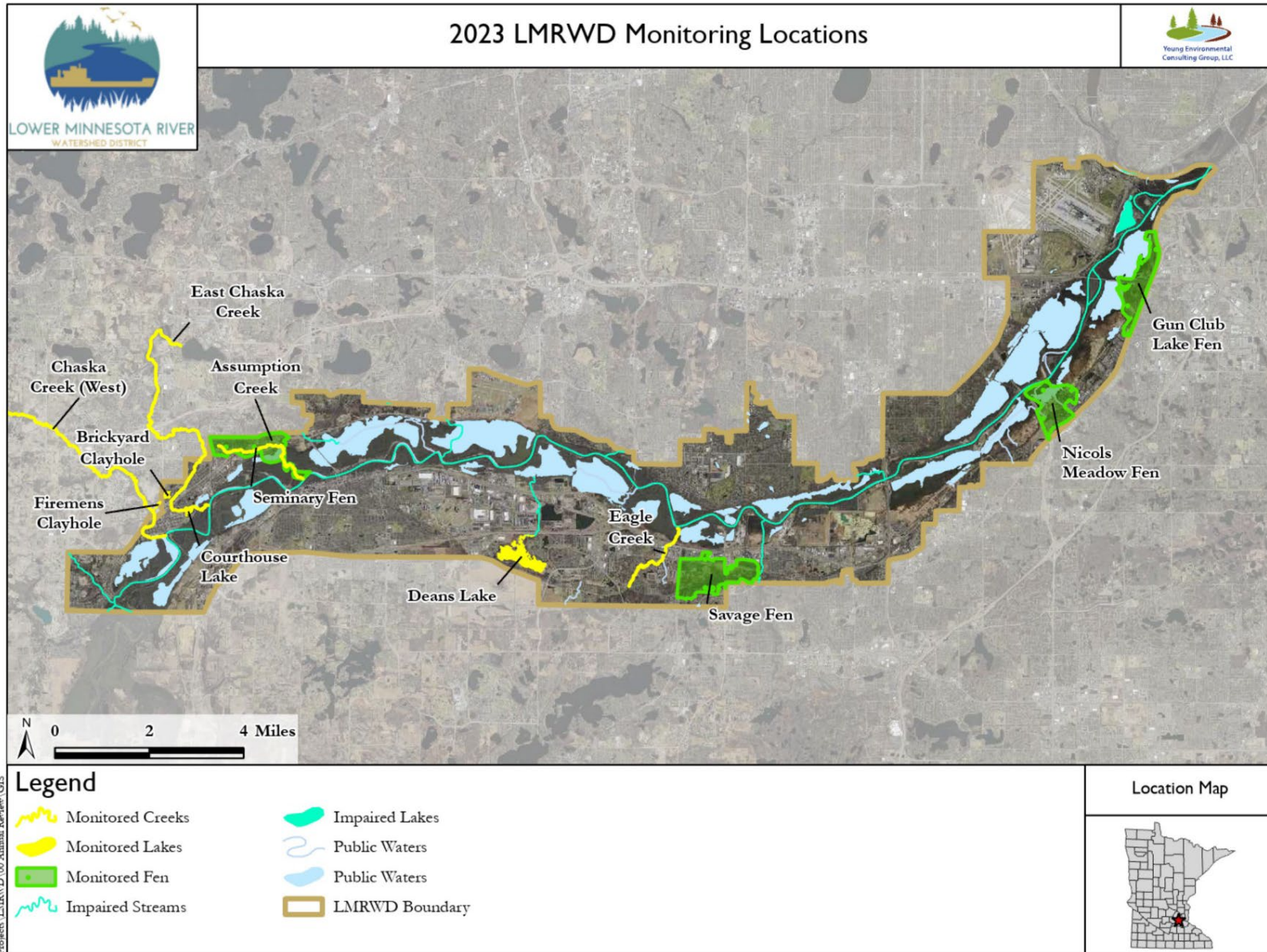
Goal	Strategies	Short-Term Metric	Long-Term Metric	2023 Progress to Goal
Goal 3: Groundwater Management	<ul style="list-style-type: none"> • Provide strategic resource evaluation and management. • Modify and continue the monitoring program. • Support wellhead protection efforts. • Develop infiltration standard. • Promote conservation and wise use of groundwater. • Monitor groundwater. • Perform regional modeling. 	<ul style="list-style-type: none"> ✓ Number of targeted studies and projects completed 	<ul style="list-style-type: none"> ✓ Positive trends in water quality parameters identified for monitoring efforts 	<ul style="list-style-type: none"> ✓ Continued monitoring lakes, streams, and fens
Goal 4: Unique Natural Resources Management	<ul style="list-style-type: none"> • Provide strategic resource evaluation and management. • Modify and continue the monitoring program. • Acquire and manage data. • Provide technical assistance. • Provide educational opportunities. • Develop a mechanism for identifying and acquiring high-value conservation easements. • Encourage wildlife connectivity projects that achieve multiple goals, such as water quality improvements and fen and steep slopes protection. • Develop a vegetation management standard/plan. 	<ul style="list-style-type: none"> ✓ Number of targeted studies and projects completed ✓ Development and completion of the Fen Stewardship Plan ✓ Development of groundwater model for fen management 	<ul style="list-style-type: none"> ✓ Number and acreage of unique natural resources protected, restored, or enhanced ✓ Acquisition of high-valued easements ✓ Sustained protection of the fens and trout waters 	<ul style="list-style-type: none"> ✓ Drafted and adopted Fen Management Plans for five sites ✓ Further studied gullies throughout the watershed district ✓ Created website content to showcase recreational opportunities at natural resource sites
Goal 5: Wetland Management	<ul style="list-style-type: none"> • Provide strategic resource evaluation/management. • Develop a mechanism for identifying and acquiring high value conservation easements. 	<ul style="list-style-type: none"> ✓ Completion of scheduled activities 	<ul style="list-style-type: none"> ✓ Number and acreage of wetlands protected, restored, or enhanced 	<ul style="list-style-type: none"> ✓ Continued support to LGU partners regarding WCA ✓ Drafted and adopted Fen Management Plans for five sites

Goal	Strategies	Short-Term Metric	Long-Term Metric	2023 Progress to Goal
	<ul style="list-style-type: none"> • Delegate Wetland Conservation Act (WCA) to LGUs. • Require LGUs to conduct wetland inventories and complete wetland management plans. • Review WCA notices as received. • Develop a wetland standard. • Develop a vegetation management standard/plan. 			
Goal 6: Floodplain and Flood Management	<ul style="list-style-type: none"> • Develop floodplain and drainage alteration standard. • Develop infiltration and peak flow standards. • Manage localized flooding. • Adopt infiltration and peak flow standards. 	<ul style="list-style-type: none"> ✓ Completion of scheduled activities 	<ul style="list-style-type: none"> ✓ Number of structures damaged and value of flood damages ✓ Preservation of floodplain resources 	<ul style="list-style-type: none"> ✓ Completed the <i>Lower Minnesota River Floodplain Model Feasibility Study</i> ✓ Began developing updated Minnesota River Floodplain Model
Goal 7: Erosion and Sediment Control	<ul style="list-style-type: none"> • Develop watershed management standards. • Develop steep slopes standard. • Support the National Pollutant Discharge Elimination System general permit. • Develop erosion and sediment control standard. • Develop a vegetation management standard/plan. • Provide streambank and mainstem erosion assessment. • Continue gully erosion repair. • Promote and encourage shoreland protection. 	<ul style="list-style-type: none"> ✓ Completion of scheduled activities ✓ Reduction in streambank and ravine bank and slope failures 	<ul style="list-style-type: none"> ✓ Positive trends in water quality ✓ Protection and preservation of Minnesota River Bluff 	<ul style="list-style-type: none"> ✓ Continued to manage steep slopes through the permit program and projects such as Area 3 Bank Stabilization ✓ Finalized third gully inventory and condition assessment ✓ Led work at Spring Creek sites in Carver, Minnesota, to address bank erosion

Goal	Strategies	Short-Term Metric	Long-Term Metric	2023 Progress to Goal
	<ul style="list-style-type: none"> • Develop a shoreline and streambank standard. 			
Goal 8: Commercial and Recreational Navigation	<ul style="list-style-type: none"> • Promote safety education. • Manage existing Cargill East River (MN – 14.2 RMP) dredge material site. • Create a beneficial use plan for dredge materials. • Develop a funding structure to ensure proper maintenance and improvement along the river. 	<ul style="list-style-type: none"> ✓ Completion of scheduled activities ✓ Number of targeted studies and projects completed 	<ul style="list-style-type: none"> ✓ Secure regular congressional and state legislative funding for the nine-foot channel 	<ul style="list-style-type: none"> ✓ Continued to manage dredged material at the Cargill East River site to maintain a nine-foot navigation channel ✓ Explored options for sale of dredged materials.
Goal 9: Public Education and Outreach	<ul style="list-style-type: none"> • Provide public information services. • Provide educational opportunities. • Promote safety education. • Maintain Citizen Advisory Committee. • Develop an outreach program. • Engage volunteers. • Provide opportunity for public input. • Produce scientific studies and work products. • Promote a variety of education programs. • Use multiple outlets to distribute information. 	<ul style="list-style-type: none"> ✓ Number and types of sponsored events ✓ Number of participants at events ✓ Number of articles, press releases, and pamphlets developed and printed ✓ Number of volunteers 	<ul style="list-style-type: none"> ✓ Same as short-term metrics 	<ul style="list-style-type: none"> ✓ Attended local engagement events to promote awareness of the LMRWD ✓ Grew involvement in the educator mini-grant program, connecting teachers with resources ✓ Continued to maintain CAC ✓ Maintained website and social media presence ✓ Led public relations and media outreach to expand knowledge of the LMRWD work ✓ Developed custom signage to share resource information with the public

F. SUMMARY OF SIGNIFICANT TRENDS IN MONITORING DATA

The LMRWD continues to monitor data at locations across the watershed. Data are collected on creeks, lakes, and fens.



IMPAIRED WATERS

Several streams, parts of streams, and lakes are listed in the Minnesota Pollution Control Agency's 2023 list of impaired waters. The impairments are being addressed with total maximum daily load plans that are designed to reduce or eliminate the impairments.

Waterbody	Affected Use	Pollutant or Stressor
Rivers		
Minnesota River	<ul style="list-style-type: none"> • Aquatic recreation, aquatic life, fish consumption 	<ul style="list-style-type: none"> • Sediment, nutrients, fecal coliform, dissolved oxygen, mercury in fish tissue, mercury in the water column, PCB in fish tissue
Lakes		
Snelling Lake	<ul style="list-style-type: none"> • Fish consumption 	<ul style="list-style-type: none"> • Mercury in fish tissue
Creeks		
Assumption Creek	<ul style="list-style-type: none"> • Aquatic life 	<ul style="list-style-type: none"> • Fish bioassessments
Bluff Creek	<ul style="list-style-type: none"> • Aquatic life 	<ul style="list-style-type: none"> • Sediment, fish bioassessments
Carver Creek	<ul style="list-style-type: none"> • Aquatic life, aquatic recreation 	<ul style="list-style-type: none"> • Sediment, nutrients, fecal coliform, fish bioassessments, benthic macroinvertebrates bioassessments
East Chaska Creek	<ul style="list-style-type: none"> • Aquatic life, aquatic recreation 	<ul style="list-style-type: none"> • Sediment, fecal coliform, chloride, fish bioassessments
West Chaska Creek	<ul style="list-style-type: none"> • Aquatic recreation 	<ul style="list-style-type: none"> • Fecal coliform
Credit River	<ul style="list-style-type: none"> • Aquatic life, aquatic recreation 	<ul style="list-style-type: none"> • Chloride, E. coli, fish bioassessments
Eagle Creek	<ul style="list-style-type: none"> • Aquatic recreation 	<ul style="list-style-type: none"> • E. coli
Nine Mile Creek	<ul style="list-style-type: none"> • Aquatic life, aquatic recreation 	<ul style="list-style-type: none"> • Chloride, E. coli, fish bioassessments, benthic macroinvertebrates bioassessments
Purgatory Creek	<ul style="list-style-type: none"> • Aquatic life, aquatic recreation 	<ul style="list-style-type: none"> • E. coli, benthic macroinvertebrates bioassessments
Prior Lake Outlet Channel	<ul style="list-style-type: none"> • Aquatic life 	<ul style="list-style-type: none"> • Fish bioassessments, benthic macroinvertebrates bioassessments
Riley Creek	<ul style="list-style-type: none"> • Aquatic life, aquatic recreation 	<ul style="list-style-type: none"> • Sediment, E. coli, fish bioassessments
Sand Creek	<ul style="list-style-type: none"> • Aquatic life, aquatic recreation 	<ul style="list-style-type: none"> • Chloride, sediment, nutrients, E. coli, fish bioassessments, benthic macroinvertebrates bioassessments
Spring Creek	<ul style="list-style-type: none"> • Aquatic recreation 	<ul style="list-style-type: none"> • Fecal coliform

TRENDS AND IMPROVEMENTS



Trend analysis is a technique applied to data collected over a defined time period to assess whether the quality or health of the resource assessed is getting better or worse. Trend analysis can also be applied to water level for assessing long-term groundwater supply for fens. Different organizations collect and report samples and data on behalf of the LMRWD. Each may use different methods to assess trends, but they are generally reported as being statistically significant or not based on a p-value. The p-value refers to the likelihood that the data vary from our hypothesis, which is typically defined as “no change” in water quality or

water level. If the p-value is less than 0.05, it is a scientifically accepted way of describing that the data pattern would be highly unlikely if there was no trend, which indicates significance.

Understanding the Trends

The trends shown below were qualified using p-values to indicate their statistical significance, **indicated by symbols in the second column**. **Red text** indicates an unwanted trend and **green text** indicates a positive change. Trend analysis improves as more water quality or water level data are collected and the period of record to analyze for change becomes larger. The LMRWD will continue to collaborate with partners to collect valuable water monitoring data for the water resources within its boundaries. Accurate trends are essential to long-term planning of the management of water resources.

Waterbody and Description of Trends	Water Quality Trends
	* Indicates trend is supported by statistical significance ♠ Indicates trend is not supported by statistical significance ^ Statistical significance is not available for the data
Brickyard Lake	
Brickyard Lake is showing signs of improving water quality with decreased phosphorus concentrations; however, these trends were not statistically significant. In contrast, the Chlorophyll-a concentration (a measure of algal abundance) is trending upward with statistical significance even though the water transparency is also significantly improving.	<ul style="list-style-type: none"> ● Improving Water Transparency* ● Decreasing Phosphorus Concentrations♠ ● Increasing Chlorophyll-a*
Courthouse Lake	
All Clayhole Lakes (Courthouse, Brickyard, and Fireman’s) are showing a statistically significant trend of improving water transparency.	<ul style="list-style-type: none"> ● Improving Water Transparency* ● Increasing Phosphorus Concentrations♠ ● Increasing Chlorophyll-a♠
Fireman’s Lake	
Fireman’s Lake is seeing decreased levels of phosphorus, but the data is not significant. The water transparency is improving through reduction of Chlorophyll-a.	<ul style="list-style-type: none"> ● Improving Water Transparency* ● Decreasing Phosphorus Concentrations♠ ● Decreasing Chlorophyll-a*
East Chaska Creek	
East Chaska Creek showed a statistically significant trend of decreasing phosphorus concentrations in the past 10 years. There are signs of improvement with decreasing sediment transport, but they are not statistically significant.	<ul style="list-style-type: none"> ● Decreasing Phosphorus Concentrations* ● Decreasing Sediment Transport♠

Waterbody and Description of Trends	Water Quality Trends
	<ul style="list-style-type: none"> * Indicates trend is supported by statistical significance 👉 Indicates trend is not supported by statistical significance ^ Statistical significance is not available for the data
West Chaska Creek	
West Chaska Creek shows a significant trend of decreasing nitrate concentrations for the past 10 years. There are signs of improvement with decreasing sediment transport, but they are not statistically significant.	<ul style="list-style-type: none"> • Decreasing Nitrate Concentrations* • Decreasing Sediment Transport[👉]
Eagle Creek	
In 2023, Eagle Creek sediment concentrations were above the state standard, which can be attributed to several factors. While there were decreases in sediment concentrations, the data is not significant. Long-term trend analysis shows that Eagle Creek had a significant trend of decreasing total phosphorus concentrations. The creek is also facing a challenge of increasing chloride concentrations but there is no definable trend in nitrogen concentrations.	<ul style="list-style-type: none"> Increasing Chloride Concentration[^] Decreasing Sediment Transport[👉] Decreasing Phosphorus Concentrations* Unclear Trend in Nitrogen Concentrations[👉]
Bluff Creek, Riley Creek, Purgatory Creek, and East Chaska Creek	
LMRWD creeks are also showing increasing chloride concentrations but have not reached an impairment status.	<ul style="list-style-type: none"> • Increasing Chloride Concentration[^]
Gun Club Lake Fen	
Groundwater levels associated with fens produced mixed results as the LMRWD works to restore and protect these wetland resources. Analysis indicates a statistically significant short-term (2016–2023) increase in groundwater levels for the Gun Club Lake Fen complex.	<ul style="list-style-type: none"> • Increasing Groundwater Levels*
Nichols Meadow Fen	
A statistically significant decreasing trend in groundwater levels for the same period was documented in 2 of 13 monitoring wells in nearby Nichols Meadow Fen. Most groundwater monitoring wells show no clear trend in water level data.	<ul style="list-style-type: none"> • Decreasing Groundwater Levels*
Savage Fen	
Savage Fen had mixed trends in groundwater levels with the two deep wells having increased their observed levels over the past 10 years, but all 10 shallow wells show decreased water levels over a 10-year average.	<ul style="list-style-type: none"> • Mixed Trends in Groundwater Levels[^]
Seminary Fen	
There were no noticeable trends in groundwater levels for Seminary Fen from 2016 to 2023, the period of record available. The groundwater level data from Savage and Seminary Fens were not tested for statistical significance.	<ul style="list-style-type: none"> • No Trend in Groundwater Levels[^]

G. ANNUAL COMMUNICATION

In addition to ongoing communication from the LMRWD to constituents through website updates and public meetings, the annual report serves as a formal communication tool. The annual report provides a snapshot of ongoing projects, goal progress, and day-to-day activities. Please join us in watershed management by visiting our website.



Please join us in watershed management!



- Find volunteer opportunities at lowermnr.org/volunteer
- Follow LMRWD on Facebook, Instagram, and X at [@lowerminn](https://twitter.com/lowerminn)





LMRWD AT A GLANCE

PEOPLE

The District is managed by the Board of Managers with input from the CAC, TAC, staff, and consultants. Learn more on pages 1–3.

WATER QUALITY

The LMRWD carefully monitors water quality data to understand trends and mitigate impaired waters. Learn more on page 17.

PROJECTS

The LMRWD completes projects to control erosion, manage stormwater, protect river corridors, and much more. Learn more on page 4.

EDUCATION/ OUTREACH

The LMRWD oversees a robust education and outreach program to engage the public in unique resources and promote a community approach to water management. See page 23.

WORK PLAN

A comprehensive work plan guides the LMRWD’s day-to-day work. The work plan is based on the watershed management plan and its goals. See the 2023 work plan on page 11.

REGULATORY

The LMRWD collaborates with neighboring cities on local water plans while overseeing a comprehensive regulatory program. Learn more about these efforts beginning on page 29.

GOALS

The LMRWD goals focus on protecting unique natural resources in an area of the Twin Cities metro that continues to develop. Learn more about District goals and progress on page 12.

FINANCIAL

The LMRWD is funded by contributing counties and other governmental resources and grants. To better understand the watershed budget and revenue, view the [Implementation Plan](#).

EDUCATION AND OUTREACH

The LMRWD leads a dynamic education and outreach program to work with the community. Here are a few of the tools the LMRWD uses to reach out to stakeholders throughout the year.



Citizen Advisory Committee

The LMRWD maintains an advisory committee of citizen volunteers who participate to raise awareness about the LMRWD while educating themselves and others about a wide range of water and natural resources topics and best practices. The CAC also creates outreach materials. In 2023, the group created a seasonal newsletter, a Minnesota River video, and a collection of chloride information.

In 2023, the CAC met monthly with topics and tours that included fishing the Minnesota River and wastewater treatment. The group has also been learning about salt reduction and best practices for pollinator gardens (shown left). The CAC members also volunteer at community events where they can speak to the public directly.

Thank you to our wonderful volunteer CAC members!



Are you looking for a meaningful volunteer experience to work collaboratively on resource protection? Apply to participate on the LMRWD Citizen Advisory Committee.



Schools Engagement

The LMRWD has expanded its impact with school-age students by providing a mini-grant program. The program provides up to 10 grants per school year, each up to \$500, to help cover the cost of materials and programming that focus on water resources. If you are an educator interested in the grants, learn more on [the website](#).

In 2023, the LMRWD awarded grants to the following recipients:

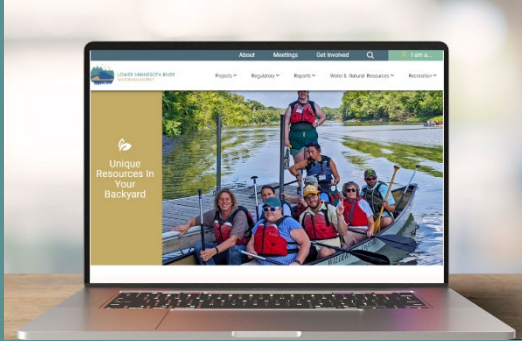
- Nicollet Middle School Green Team (\$500)
- Pilot Knob STEM Magnet School (\$300)
- Chaska High School (\$500)
- Redtail Ridge Elementary School (\$500)

The LMRWD also worked with Burnsville High School to develop curriculum for water sampling.

Thank you to the invested educators who participated!

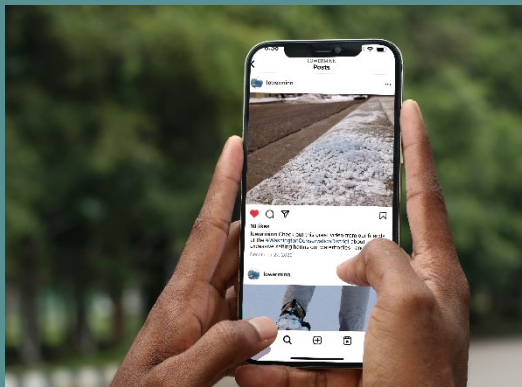
Sharing the LMRWD Story

In 2023, the LMRWD used many strategies to engage with the community within the watershed district as well as upstream and neighboring communities.



Website

In 2023, the LMRWD updated its website to better serve the community. It developed new content to highlight volunteer opportunities, recreational activities throughout the LMRWD, and focus on all of the resources unique to the area. The website also improved the user experience for partners applying for permits and includes more interactive visuals. Check out the [updated website](#), and see what's new!



Social Media

The LMRWD continued to maintain its presence on social media with frequent postings to Facebook, Instagram, and X. Popular topics include best practice, LMRWD news and events, and recreational guides.

Follow along to join the conversation by searching “**LowerMinn**” on your favorite channel.



Media Releases

The LMRWD worked with local publications to share newsworthy stories and raise awareness about the District's work toward many large-scale goals. The LMRWD obtained press coverage to recognize the service of Manager Hartmann. In addition, the Board President Joseph Barisonzi authored a *Star Tribune* opinion piece outlining the need for a basinwide approach to improve the Minnesota River's health.



Interpretive and Resource Signage

The LMRWD connects directly with audiences at resources of all kinds through interpretive and resource signage. Signs not only create awareness about high-value resources but also engage the public in protection through beautiful custom artwork and helpful, easy-to-understand reference facts. In 2023, the LMRWD created signs for Courthouse and Quarry Lakes, and Riley Creek, with several others in development.

Outreach Events

The LMRWD expanded its participation in outreach events, exploring new ways to spread the mission and work of the organization. The Board led a special-purpose workshop in July 2023 to plan effective messaging. The CAC planned and staffed tables at a number of conservation-themed events.



Steps to Use Less Salt



1

Shovel

Local Tabling Events

The CAC staffed events across the watershed to spark conversations on water quality and natural resources. In 2023, the LMRWD had a presence at the following events:

- Everything Spring Expo: Eden Prairie
- Arbor Day Walk & Green Fair: Eden Prairie
- Burnsville Native Plant Market
- Eagan Market Fest
- Chaska Farmers Market
- Bloomington Farmers Market
- Buzz Fest: Bloomington

These events provide the opportunity to interact with residents one on one, sharing helpful resources such as handouts on cost-share grants and clean water practices. The LMRWD is excited to continue connecting to the public with future events following the success of 2023.

Upstream County Fair Events

The LMRWD supported the Friends of the Minnesota River Valley and the Izaak Walton League in attending 10 county fairs in upstream communities of the Minnesota River. The goal of these events was to build relationships and a shared connection and ownership in protecting and enjoying the Minnesota River. The Izaak Walton League Green Crew youth employees staffed these important events.

2023 Salt Symposium Sponsorship

As part of ongoing efforts to raise awareness about chloride pollution, the LMRWD sponsored the 2023 Salt Symposium, held virtually on August 1–2. As a Bronze Level Sponsor, the LMRWD helped ensure the event, filled with local and international experts, was successfully executed. To learn more about the Salt Symposium and future events, [click here](#).

Outreach Events (Continued)



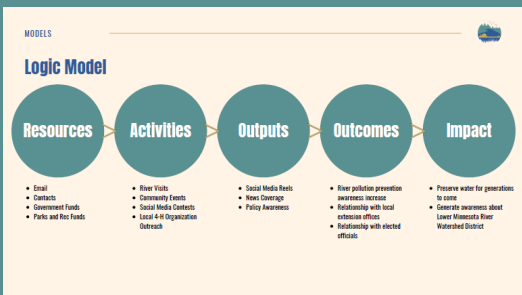
Metro Children's Water Festival Sponsorship

The LMRWD continued its support for and participation in the Metro Children's Water Festival, a unique and vibrant event with tailored educational content for fourth-grade students in the Twin Cities. The LMRWD provided more than \$1,500 in funding for six buses and sponsored an educational booth, where Manager Lauren Salvato prepared a presentation to educate students. Learn more about this great event on [the organization's website](#). Photo Credit: Metro Children's Water Festival.



River Watch Program Sponsorship

The LMRWD partnered with Friends of the Minnesota Valley by providing \$20,000 in funding for the River Watch Program. The program engages students who live in the Minnesota River Basin to maintain data collection equipment and collect water quality samples from areas throughout the river basin. The program achieves a win-win by obtaining more up-to-date monitoring data and inspiring the next generation of science leaders. Learn more about River Watch [online](#). Photo Credit: Friends of the Minnesota Valley.



Texas A&M Public Relations Project

A group of students at Texas A&M University studied the Lower Minnesota River Watershed as part of a project to create a public relations campaign. The group used data from the LMRWD to create a public engagement plan to increase awareness about the Minnesota River. The final recommendations included target audiences, barriers to success, campaign strategies, and draft content.



Scott County Water Education Partnership

The LMRWD supports Scott County as it brings conservation to the classroom within the watershed district. The Scott Soil and Water Conservation District offers educational programming and brings free classroom visits to all schools within the County. Learn more about the program at scottswcd.org/education



Cost-Share Incentive and Water Quality Restoration Grant Program

The LMRWD provides a program for residents, businesses, neighborhoods, and communities to apply for matching funds for projects intended to improve water quality and provide public education. This program requires a 50 percent match. Projects completed or awarded in 2023 included the following:

- Appletree Condominiums, Bloomington, Minnesota: Completed slope stabilization (\$7,500)
- Neighbors Nurturing Nature Project, Bloomington, Minnesota: Completing habitat improvement (\$7,445)
- DaGiau Family, Bloomington, Minnesota: Completing a rain garden (\$2,500)
- Cartwright Family, Bloomington, Minnesota: Completed a rain garden (\$2,500)
- Scarborough Townhomes, Bloomington, Minnesota: Led a pond surround restoration (\$7,500)
- Boykin Family, Carver, Minnesota: Completing a rain garden (\$1,390)

To learn more about cost-share opportunities and apply, visit the [LMRWD website](#).



H. SOLICITATION FOR CONSULTANT PROPOSALS

In accordance with Minnesota Statute 103B.227 Subd. 5. “a watershed management organization shall at least every two years solicit interest proposals for legal, professional, or technical consultant services before retaining the services of an attorney or consultant or extending an annual services agreement.”

In 2023, the LMRWD was in the middle of the two-year solicitation period and did not advertise a request for proposal.

Consultant Pool

The LMRWD continues to work with an engineering pool that provides professional services. These companies include Barr Engineering Company; Bolton & Menk, Inc.; EOR Inc.; ISG Inc.; Windsor Engineers; WSB; Ultieg Engineers; HR Green; and IMO Consulting Group.



 Consultant Opportunities are advertised at <https://lowermnriverwd.org/news/requests-proposals>



I. LOCAL WATER PLAN ADOPTION

2010

MENDOTA

In April 2010, water management is contained in Mendota's Comprehensive Plan.

2011

SAVAGE

In June 2011, the City began updating its Local Surface Water Management Plan.

2013

LILYDALE

Lilydale's Dec. 2013 plan adopted a resolution in 2018, conditionally approving the Local Surface Water Management Plan.

2015

MSP & FLYING CLOUD AIRPORTS

In May 2015, both airports revised their stormwater pollution prevention plans (SWPPPs).

2017

BURNSVILLE

In November 2017, Burnsville adopted its Local Surface Water Management Plan.

2018

CHANHASSEN

In January 2018, Chanhassen adopted its Local Surface Water Management Plan.

BLOOMINGTON

- ▶ In June 2018, Bloomington adopted its Local Surface Water Management Plan.

MENDOTA HEIGHTS

- ▶ In July 2018, Mendota Heights adopted its Local Surface Water Management Plan.

CHASKA

- ▶ In November 2018, Chaska adopted its Local Surface Water Management Plan.

CARVER

- ▶ In December 2018, Carver adopted its Local Surface Water Management Plan.

2019

EAGAN

In January 2019, Eagan adopted its Local Surface Water Management Plan.

SHAKOPEE

- ▶ In November 2019, Shakopee adopted its Local Surface Water Management Plan.

2020

EDEN PRAIRIE

In December 2020, Eden Prairie adopted its Local Surface Water Management Plan.

In 2023, the LMRWD adopted revisions to the surface water management plans for the cities of Lilydale and Chaska.

The timeline to the left shows local water plan adoption over the past decade of water management and collaboration.



J. STATUS OF LOCALLY ADOPTED ORDINANCES

The LMRWD first adopted rules in 2020, which were amended in October 2022. Local governments that wish to obtain a municipal permit must highlight how they intend to implement and enforce rules through official controls (i.e., ordinances). In 2022, municipal permits were approved for six local government units (LGUs) within the watershed district with one conditional approval. In 2023, the City of Burnsville moved from conditional approval to full approval, with the stipulation that it does not have permitting authority in the floodplain.

In 2023, the LMRWD adopted the City of Lilydale’s updated Surface Water Management Plan. The City of Lilydale also adopted a revised ordinance for stormwater management and illicit discharges.

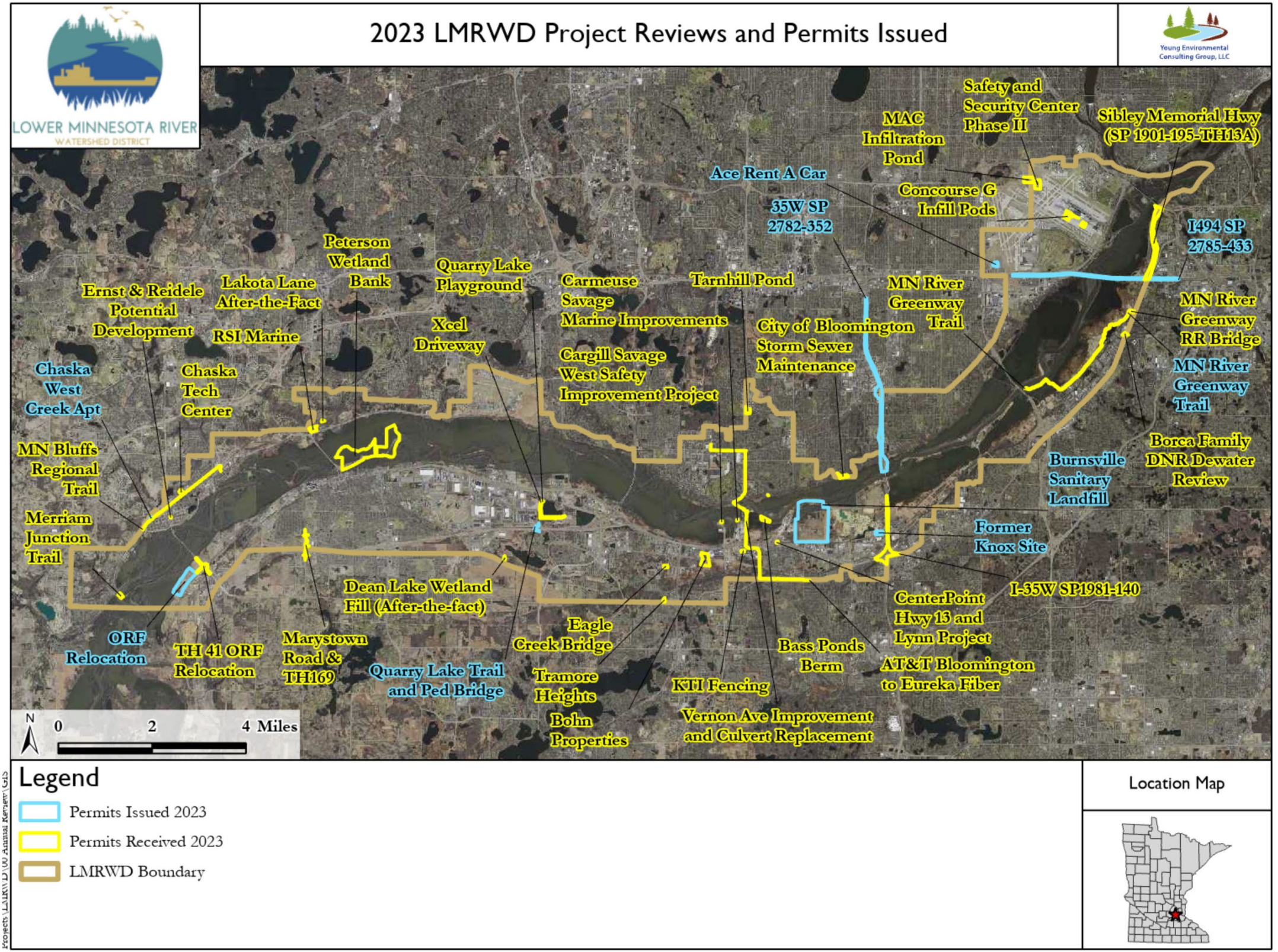
Municipal permit holders are shown below, with ongoing coordination planned for 2023 with communities not listed. We appreciate collaborating with our local partners to strengthen our watershed’s protection of natural resources.

Date	City	Ordinance	Status
2020	City of Egan	Municipal LGU Permit	Approved
2020	City of Mendota Heights	Municipal LGU Permit	Approved
2020	City of Bloomington	Municipal LGU Permit	Approved, does not include permitting authority for Rule C – Floodplain and Drainage Alteration
2021	City of Carver	Municipal LGU Permit	Approved, does not include permitting authority for Rule C – Floodplain and Drainage Alteration
2021	City of Shakopee	Municipal LGU Permit	Approved, does not include permitting authority for Rule C – Floodplain and Drainage Alteration
2022-2023	City of Burnsville	Municipal LGU Permit	Conditionally Approved (2022), Approved, does not include permitting authority for Rule C – Floodplain and Drainage Alteration (2023)
2023	City of Lilydale	Municipal LGU Permit	Approved



K. SUMMARY OF PERMITS/VARIANCES

The LMRWD continues to oversee a permitting program to ensure that new development in the community complies with watershed district rules. In 2023, the District reviewed and approved permits and led an inspection program to oversee projects as needed. No variances were issued.



Projects: LMRWD 100 Annual Report 2023



LOWER MINNESOTA RIVER
WATERSHED DISTRICT



lowermnriverwd.org