

April 6, 2023

Commissioners **and**
Technical Advisory Committee Members
Shingle Creek and West Mississippi
Watershed Management Commissions
Hennepin County, Minnesota

*The agenda and meeting packets are available on
the Commission's web site.*

<http://www.shinglecreek.org/minutes--meeting-packets.html> **and**

<http://www.shinglecreek.org/tac-meetings.html>

Dear Commissioners and Members:

Regular meetings of the Shingle Creek and West Mississippi Watershed Management Commissions will be held Thursday, April 13, 2023, in the **Birch** Room at Plymouth Community Center, 14800 34th Avenue North, Plymouth, MN.

Lunch will be served at 12:00 noon and the meetings will convene concurrently at 12:45.

The Technical Advisory Committee (TAC) will convene at **11:00**, prior to the regular meeting.

Please make your meal choice from the items below and email me at judie@jass.biz to confirm your attendance and your meal selection by **noon, Tuesday, April 11, 2023**. Thank you.

Regards,

Judie A. Anderson
Administrator

cc: Alternate Commissioners Member Cites Troy Gilchrist TAC Members
Stantec Consulting Services BWSR MPCA HCEE

Z:\Shingle Creek\Meetings\Meetings 2023\04_Notice_Regular Meetings.docx

Order your deli sandwich box lunch. Sandwiches come with lettuce, tomato and mayo. As an alternative you may specify your sandwich with **wheat bread or as an **unwich** (lettuce wrapped).**

- | | |
|--|--------------------------------|
| 1 Pepe – Ham and cheese | 2 Big John – Roast beef |
| 3 Totally Tuna – Tuna salad and cucumber | 4 Turkey Tom – Turkey |
| 5 Vito – salami, capocollo, cheese, onion, oil and vinegar, oregano-basil (no mayo) | |
| 6 The Veggie – double cheese, avocado spread, cucumber | |
| 14 Bootlegger Club – Roast beef and turkey | |

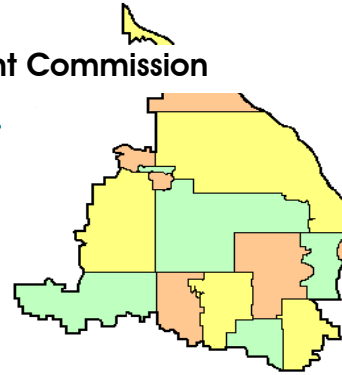
A combined regular meeting of the Shingle Creek (SC) and West Mississippi (WM) Watershed Management Commissions will be convened Thursday, April 13, 2023, at 12:45 p.m. Agenda items are available at <http://www.shinglecreek.org/minutes--meeting-packets.html>. *Black typeface denotes SCWM items, blue denotes SC items, green denotes WM items.*

A G E N D A | April 13, 2023

1. Call to Order.
 - SCWM a. Roll Call.
 - ✓ SCWM b. Approve Agenda.*
 - ✓ SCWM c. Approve Minutes of Last Meeting.*
2. Reports.
 - ✓ SCWM a. Treasurer’s Reports and Claims** - voice votes.
3. Open forum.
4. Action Items.
 - a. Project Reviews.
 - ✓ SC 1) SC2022-04 Arbor Lakes Phase III, Maple Grove.*
 - ✓ SC 2) SC2023-01 Crystal Airport Service Roads and Taxiway, Crystal.*
 - SCWM 3) DLI Code Interpretation.*
 - ✓ SCWM b. Preliminary CIP.
5. Water Quality.
 - ✓ SCWM a. 2022 Annual Water Quality Report.
6. Grant Opportunities.
7. Education and Public Outreach.
 - ✓ SCWM a. 2022 NPDES Report.*
 - ✓ SC b. 2022 WMWA Annual Report.*
 - ✓ SCWM c. 2022 Annual Reports.*
 - d. WMWA – next meeting May 9, 2023, at 8:30 a.m., via Zoom.
8. Communications.
 - SCWM a. Communications Log.*
 - SCWM b. Staff Report.*
 - 1) Fourth Generation Plan.*
 - 2) Meadow Lake Drawdown.
 - 3) 252/94 Project.
 - 4) Legal Boundary Update.
 - 5) Eagle Lake SWA.
 - 6) Gaulke Pond SWA.
 - 7) Shingle Creek Brookdale Park Remeander.
 - 8) SC Trail Bank Stabilization and Fish Access.
 - SCWM c. Twin Cities Watershed Assessment and Trends Update – MPCA.*
 - SC d. Metropolitan Council Lake Water Quality Summary.*
 - SCWM e. Letter of Support - Pollution of Surface Waters Study.*
 - SCWM f. Letter to Support Reauthorization of ENRTF Lottery Dedication.*
 - SC g. Notice Minneapolis Zoning Code and Land Subdivision Text and Map Revisions.*
9. Other Business.
- SCWM 10. Adjournment.

Z:\Shingle Creek\Meetings\Meetings 2023\04 Agenda Regular meeting .docx

* In meeting packet or emailed ** Supplemental email / Available at meeting ***Previously transmitted **** Available on website ✓ Item requires action



**REGULAR MEETING
MINUTES | March 9, 2023**

(Action by the SCWMC appears in blue, by the WMWMC in green and shared information in black.
*indicates items included in the meeting packet.)

I. A joint meeting of the Shingle Creek Watershed Management Commission and the West Mississippi Watershed Management Commission was called to order by Shingle Creek Chairman Andy Polzin at 12:48 p.m. on Thursday, March 9, 2023, at Plymouth Community Center, 14800 34th Avenue North, Plymouth, MN.

Present for Shingle Creek were: David Vlasin, Brooklyn Center; Alex Prasch, Brooklyn Park; Burt Orred, Jr., Crystal; Karen Jaeger, Maple Grove; Bob Grant, New Hope; John Roach, Osseo; Andy Polzin, Plymouth; Wayne Sicora, Robbinsdale; Ed Matthiesen and Katie Kemmitt, Stantec; Troy Gilchrist, Kennedy & Graven; and Judie Anderson, JASS.

Not represented: Minneapolis.

Present for West Mississippi were: David Vlasin, Brooklyn Center; Alex Prasch, Brooklyn Park; Gerry Butcher, Champlin; Karen Jaeger, Maple Grove; John Roach, Osseo; Ed Matthiesen and Katie Kemmitt, Stantec; Troy Gilchrist, Kennedy & Graven; and Judie Anderson, JASS.

Also present were: Mitch Robinson and Greg Spoden, Brooklyn Park; Derek Asche, Maple Grove; Katie Kowalczyk, Minneapolis; James Kelly, Osseo; Amy Riegel, Plymouth; and Wendy Scherer, Richard McCoy and Mike Sorensen, Robbinsdale.

II. **Agendas and Minutes.**

Motion by Roach, second by Orred to approve the **Shingle Creek agenda**.* *Motion carried unanimously.*

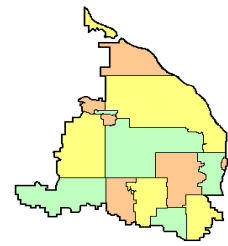
Motion by Butcher, second by Prasch to approve the **West Mississippi agenda**.* *Motion carried unanimously.*

Motion by Roach, second by Orred to approve the **minutes of the February 9, 2023, regular meeting and public hearing**.* *Motion carried unanimously.*

Motion by Prasch, second by Jaeger to approve the **minutes of the February 9, 2023, regular meeting and public hearing**.* *Motion carried unanimously.*

III. **Finances and Reports.**

A. Motion by Orred, second by Grant to approve the Shingle Creek **March Treasurer's Report* and claims** totaling \$45,062.91. Voting aye: Vlasin, Prasch, Orred, Jaeger, Grant, Roach, Polzin, and Sicora; voting nay: none; absent: Minneapolis.



B. Motion by Butcher, second by Roach to approve the **West Mississippi March Treasurer's Report* and claims** totaling \$20,617.65. Voting aye: Vlasin, Prasch, Butcher, Jaeger, and Roach; voting nay: none.

A show of hands indicated that the Commissioners did not receive copies of the Treasurer's Reports, which were emailed on March 8. Staff will re-email them following this meeting.

IV. Open Forum.

A. One of the major items on the Commission's 2023 work plan is creation of a Chloride Management Plan – as well as the development and implementation of additional education and outreach actions regarding the proper use of chloride in the watershed. While this is a very wide-ranging topic, the Hennepin County Chloride Initiative (HCCI) recently rolled out its **LOW SALT NO SALT campaign**, including some education and outreach programming specific to homeowner's associations and faith-based communities.

Riegel, who helped to develop the LOW SALT NO SALT programming, provided an overview of the program and answered Commissioner/TAC member questions. She also distributed sample handouts developed for the program. More information about the program and access to other materials can be found at the new LOW SALT NO SALT website [Low Salt No Salt Minnesota \(rpbcwd.org\)](http://LowSaltNoSaltMinnesota.org).

B. Roach, in response to the City of Osseo's query, asked how the city's levy will be affected by the proposed boundary changes. Staff responded that the boundary change would likely have minimal impact on the city's levy. Individual watersheds will both gain and lose parcels, and the net impact on area or net tax capacity will probably be close to a wash. We won't know for sure until the process is completed and the County recalculates the new net tax capacities based on the revised boundaries.

V. Project Reviews.

A. The Shingle Creek and West Mississippi "Project Review Application" form includes an **authorization section** that states the application "must be completed by City before review can proceed." This requirement stems from the Commission's *Rules and Standards* Rule B.1 and B.2, which state:

Rule B.1: "...All project review applications must be authorized by the municipality where the proposed project is located."

Rule B.2: "Project review applications shall be submitted on forms provided by the Commission."

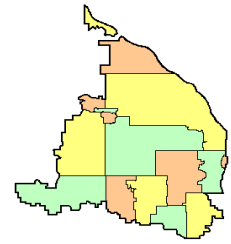
The purposes of these requirements are twofold:

1. The Commissions are not entities with permitting authority. They are simply conducting a review on behalf of and at the request of the cities. A City authorization initiates that request.

2. Site plans often go through several iterations as a development evolves and as the applicant gets feedback from various city departments and the Planning Commission. This requirement ensures the city has checked the submittal to ensure it reflects all those City comments and is, in essence, "final."

A recent applicant asserted that the Commission does not have jurisdiction to require that the applicant obtain City authorization because the applicant is a public entity. Therefore, Staff requests direction from the Commission on how this requirement may apply to public entities like the Metropolitan Airports Commission (MAC), Hennepin County, MnDOT, Metropolitan Council, and Three Rivers Park District.

Following discussion among Commissioners, TAC members present, the Commissions' attorney, and technical Staff, it was a consensus that the existing approach should be maintained.



Motion by Roach, second by Grant to maintain the current requirements. *Motion carried unanimously.*

Motion by Butcher, second by Jaeger to maintain the current requirements. *Motion carried unanimously.*

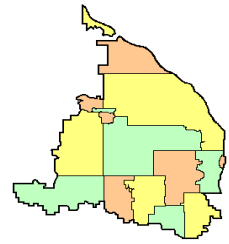
B. Chloride Management Plan. Despite the existing chloride TMDL and improvements in watershed stakeholder understanding of chloride pollution, the Shingle Creek and West Mississippi Commissions continue to have issues with chloride pollution. The Commissioners have expressed concern over chloride use at new developments and have been increasingly recommending Chloride Management Plans with watershed approval of project reviews; however, they acknowledge that there is often a disconnect between project applicants, project owners, and building maintenance staff and this may not be the most effective way to get people to use less salt. There is concern that a property chloride management plan will not actually get implemented if written and submitted through this process, as the project submitter and the property maintenance staff are often a few degrees removed. Following discussion at the Commissions' November 2022 meeting, consensus was reached that the Commissions should focus on salt use education and outreach instead. The 2023 Work Plan contains an activity to develop a chloride management plan for the watershed that includes an education and outreach component.

Goal 3. Educate and engage all stakeholders in the watersheds on surface water issues and opportunities.

- a. Participate in the West Metro Water Alliance joint education and outreach group.*
- b. Partner with Hennepin County and other local watersheds to fund a shared Education and Outreach Coordinator.*
- c. Develop a Chloride Management Plan for the watershed.*

The purpose of Staff's March 2, 2023, memo* is to initiate a discussion among the Commissioners on what a chloride management plan for the Commissions should look like. Included in the memo is a draft matrix to start the discussion of how the Commissions want to approach a chloride management plan, including what messages should be conveyed to various stakeholders, who is responsible for relaying those messages, and what existing resources can be used. Ahead of this meeting, Commissioners were asked to review the draft matrix and come ready to discuss. The matrix was filled out interactively at the meeting. Using a comprehensive set of potential messages and actions, in April the Commissioners will refine the matrix actions that are measurable and achievable in the next few years.

Stakeholder	Message	Responsible Communicator	Resources for Communicator/Stakeholder
General public		Watershed E&O Coordinator, City staff	
Property Owners (single-family homes, HOAs, etc.)		City staff	Low Salt No Salt website Train the Trainer workshops
Property Managers		City staff	Low Salt No Salt website Train the Trainer workshops
City Maintenance Staff		City staff	Smart Salting Training
Developers/Redevelopers	Optimize site design for low salt use	Project review staff (Stantec); Commissions	??
Architects, Designers			
TRPD, Universities			
End-Users			Training, free and convenient



Concurrently, the Hennepin County Chloride Initiative has been working on a campaign called Low Salt No Salt for local government unit (LGU) staff to communicate chloride issues and management strategies to the community. The campaign targets property managers, communities of faith, and homeowners associations. The Low Salt No Salt campaign is now live and resources are available on the website at <https://rpbcwd.org/low-salt-no-salt>. (Also see item IV.A., above.)

The website hosts a toolbox for LGUs to use to start conversations about chloride use with the community, including videos, presentations, conversation starter ideas, pledge forms, and more. The website also has model winter maintenance contracts for properties and links to other resources such as Smart Salting Training and water quality data.

VI. Water Quality.

2023 Maintenance Fund Activities.* In 2022 the Commission approved a new Maintenance Fund intended to maintain, repair, or replace Commission-led projects to continue providing water quality benefits. Projects considered for Commission funding under the Maintenance Fund are described in the Commission's Maintenance Funding Guidelines, evaluated by the TAC, and recommended to the Commission for approval. The proposed activities and their costs are described below and in the table on page 5.

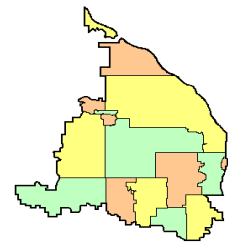
A. Crystal Lake Carp Management. The Crystal Lake Management Plan is ongoing, and the federal 319 grant that funded the project ends in August 2023. WSB completed two summers of carp removals in 2021 and 2022. An updated population estimate at the end of 2022 estimates 5,666 additional carp need to be removed from the lake to meet water quality goals. The Commission has exhausted carp management funds from the 319 grant but there is value in additional carp removals to bring the lake closer to a healthy amount of carp to support the longevity of water quality improvements made from past carp removals and alum treatments. The additional carp management proposed for Maintenance Fund funding includes:

1. Planning and project management
2. Daily (5x/week) carp baiting for the duration of removals
3. Assistance with 3-4 removal events
4. Contract with WSB for carp removal permitting, equipment installation, removals, and disposal (Scope of Work and contract below)

B. Bass Lake Curly-leaf Pondweed (CLP) Management. Bass Lake has been treated with diquat herbicide for three consecutive years for a curly-leaf pondweed (CLP) infestation. CLP is persistent and often requires up to 7 years of treatment per DNR recommendation. Bass Lake requires additional CLP management in 2023. This additional year of Bass Lake CLP management includes:

1. Curly-leaf pondweed delineation and mapping
2. Herbicide treatment permitting and coordination
3. Contract with herbicide applicator and application oversight.

The cost of the herbicide treatment will depend on the applicator, the delineated area of CLP growth, and the unit price of diquat herbicide, which is market-dependent. The expected cost of the herbicide application including applicator fees and materials is \$10,000. Stantec will coordinate a request for quote following the delineation. This applicator cost estimate of \$10,000 is Staff's best estimate based on past experience and estimated 2023 herbicide unit prices. The window between when the delineation area is approved by the DNR and when the optimal treatment window occurs is narrow, thus Stantec recommends the Commission provides authorization for application to proceed immediately after obtaining the quote. The



contract will be reviewed by the Commission's attorney before application and brought to the following meeting for ratification. If the applicator fees are substantially more than estimated, Stantec will contact the Chair and get his decision and approval to proceed.

Staff recommends proceeding as follows:

1. Approve activities for a third year of carp removals in Crystal Lake, including the third contract with WSB consultants.
2. Approve activities for treatment of CLP in Bass Lake. Authorize applicator to proceed immediately following receipt of the quote, pending any unexpected costs and contract review by the Commission's attorney.

Proposed 2023 Maintenance Fund Activities.

Activity	Labor Hrs.	Labor \$	Expenses	TOTAL
Crystal Lake Carp Management				
Planning & Project Management	8	\$1,136	--	\$1,136
Baiting	40	\$4,160	\$393	\$4,553
Assistance with Removal Events	24	\$2,496	--	\$2,574
Contract with WSB	--	--	\$17,084	\$17,084
	75	\$7,792	\$17,556	\$25,347
Bass Lake CLP Management				
Delineation and Mapping	22	\$2,622	\$110	\$2,732
Permitting and Oversight	8	\$940	\$10	\$950
Contract with applicator	--	--	\$10,000*	\$10,000
	60	\$3,562	\$10,120	\$13,682
TOTAL				\$39,029

*This is an estimate based on previous year's treatments and the predicted unit cost of herbicide.

Motion by Roach, second by Orred to approve the Crystal Lake and Bass Lake maintenance activities, including the WSB Professional Services Agreement,* as proposed. *Motion carried unanimously.*

VII. Grant Opportunities.

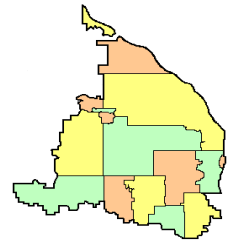
Kemmitt reported that the Commission has not been informed of the status of its application for a **MPCA Planning Grant for Stormwater, Wastewater, and Community Resilience**.

[The Commission received word on March 15, 2023, that its application was not funded. The MPCA reported that this was an extremely competitive pool of high-quality proposals. They received 28 applications asking for approximately \$1.3 million, more than three times the amount available for funding projects.]

VIII. Education and Public Outreach.

A. Smart Salting Legislation.* Included in the meeting packet was a letter from various watershed organizations addressed to members of the Minnesota House and Senate urging their support of the Smart Salting Bill so that it can become law in the 2023 legislative session. The Commissions are signatories to the letter.

B. Hennepin County has completed its internal personnel work to finalize a job description for the **Education and Outreach Coordinator** that will be shared by Hennepin County and the West Metro Water Alliance (WMWA). They expect to have that position posted and recruitment to occur in the first few weeks of April with a goal of having someone on board perhaps in time for Earth Day on April 22.



The Shingle Creek Commission is the Fiscal Agent for WMWA, collecting and disbursing funds and paying consultants and contractors such as the classroom educator. In the development of the plan for the shared coordinator, in addition to dedicating a portion of the Watershed-Based Implementation Funding (WBIF) grant from the Board of Water and Soil Resources (BWSR) to fund this position and activities, the four WMOs that are formally part of WMWA agreed to reallocate their annual Special Project funds to support this new position. Included in the meeting packet is the **Cooperative Agreement*** between the County and the Commission.

Motion by Orred, second by Prasch to approve the agreement and authorize the Chair to sign it on behalf of the Commission pending any revisions made by the Commission's attorney. *Motion carried unanimously.*

- C. The **West Metro Water Alliance (WMWA)** will meet via Zoom at 8:30 a.m., March 14, 2023.

IX. Communications.

A. March Staff Report.*

1. **Fourth Generation Management Plan.** The Fourth Generation Management Plan Final Draft has been submitted to the Board of Soil and Water Resources for approval. The Plan will go to the Central Region Committee on April 6 and then to full Board for approval on April 26. The Commissions should plan to adopt the plan at their May meeting.

2. **252/94 project.** Per Commission direction at the February meeting, Staff facilitated formation of a subgroup to track and review the Highway 252/I-94 EIS progress. The SC/WM 252/94 EIS Review Subgroup held virtual meetings on February 21 and 28, 2023. Invitees included David Vlasin, David Mulla, Ray Schoch, Alex Prasch, Mitch Robinson, Liz Stout, Liz Heyman, and Stantec staff. Future meetings will be scheduled on an as-needed basis.

MnDOT hosted Cooperating and Participating Agency Meeting #8 on February 23, 2023. Project updates included:

- a. MnDOT discussed the draft scoping document informal agency review process
- b. Comments received from approximately 2/3 of invited agencies
- c. Cataloging comments and preparing responses
- d. Responses to be distributed prior to public comment period
- e. Likely to provide all comments and responses to all agencies

MnDOT available to meet 1:1 after issuing responses

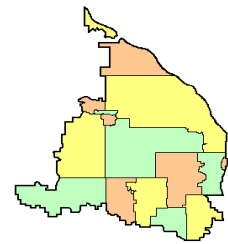
Equity and Health Assessment:

- f. Report 1: baseline conditions completed spring 2022
- g. Report 2: priorities completed summer 2022
- h. Report 3: in progress; health and equity review of the draft scoping document

project alternatives

Next steps:

- i. Public comment period: March 21 – May 18, 2023



- j. Present to City Council
 - a. Brooklyn Park: March 27
 - b. Brooklyn Center: April 10
- k. Policy Advisory Committee: March 23 (virtual)
- l. Pop-ups: March 27, April 3, April 10
- m. Open house: April 18 (in-person), April 27 (virtual)
- n. Meeting #9: summer 2023

Next subgroup meeting:

- o. March: review of MnDOT responses, potential 1:1 meeting with MnDOT Tuesday, March 28, 2 p.m.

3. Project Updates.

a. **Legal Boundary Update.** The boundary update has already received concurrence from the three neighboring watersheds. We are now asking for approval of the boundary change from all member cities with a goal of concurrence received by the end of March. The following cities provided specifics on their schedules so far:

- 1) Brooklyn Center added the boundary update to their Feb 27th agenda.
- 2) Plymouth added the boundary update to their March 14th agenda.
- 3) Osseo added the boundary update to their March 13th agenda.

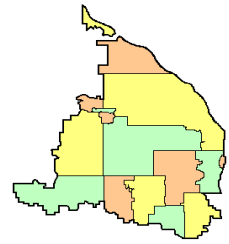
After Staff receive concurrence from all municipalities, they will notify BWSR and file the new boundary with Hennepin County. Hennepin County requires notification of boundary changes for special taxing districts by July 1st.

4. **Bass Lake Alum Treatment U of M Study.** Several faculty at the U of M led by Ray Newman are collaborating on a study through the USGS to evaluate the impact of lake alum treatments on aquatic vegetation. One of their study lakes is Bass Lake, and we have been providing them with our data pre- and post-alum treatment. We recently met with their team to coordinate monitoring and modeling activities for 2023. There is a social science component to this as well, so some team members may be reaching out to Plymouth City staff and Bass Lake Association members to collect their observations. [The United States Geological Survey Water Resources Research Act Program: Grant Details for Project 2021MN003AIS \(usgs.gov\)](#)

B. **February Communications Log.*** No items required action.

C. Included in the meeting packet was information regarding the reauthorization of the **Minnesota Lottery dedication to the Environment and Natural Resources Trust Fund.*** The ENRTF is requesting the Commission's support in asking the State Legislature to put this funding source back on the ballot as a constitutional amendment in 2024 which, in part, would reauthorize the use of net lottery funds for the ENRTF until the year 2050. Since its first appropriation in 1991, the ENRTF has provided over \$900 million in stable long-term funding for innovative projects in natural resource management.

Motion by Orred, second by Roach to authorize Staff to draft a letter of support for the chair's signature. *Motion carried, Prasch abstaining.*



Motion by Roach, second by Jaeger to authorize Staff to draft a letter of support for the chair's signature. *Motion carried, Prash abstaining.*

X. Other Business.

A. Pollution of Surface Waters from Chloride to Groundwater. The University of Minnesota is proposing to study how chloride from street salting ends up polluting our lakes and streams all year around. John Gulliver is the project manager. Funding is being requested from the Legislative-Citizen Commission on Minnesota Resources (LCCMR) and the project will extend from 2024-2027. Motion by Grant, second by Vlasin to write a letter in support of this project. *Motion carried unanimously.* Polzin volunteered to write the letter.

B. Adjournment. There being no further business before the Commissions, the joint meeting was adjourned at 2:17 p.m.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Judie A. Anderson".

Judie A. Anderson

Recording Secretary

JAA:tim

Z:\Shingle Creek\Meetings\Meetings 2023\March 9, 2023 meeting minutes.docx

SHINGLE CREEK WATERSHED MANAGEMENT COMMISSION

PROJECT REVIEW SC2022-04: ARBOR LAKES PHASE III

Owner: Joe Bergman
Company: Endeavor Development
Address: 200 Southdale Center Suite 190

Engineer: Dan Sjoblom, PE
Company: Alliant Engineering Inc.
Address: 733 Marquette Ave S Suite 700 Minneapolis, MN 55402-2340

Phone: 952-334-1316
Email: dsjoblom@alliant-inc.com

Purpose: Construction of 5 industrial buildings and 2 private streets on 61.07 acres.

Location: 10400-10500 Fountains Dr, Maple Grove, MN 55369 (Figure 1).

Exhibits:

1. Project review application and project review fee of \$2500, dated April 27, 2022, received April 28, 2022.
2. Site plan, preliminary plat, grading (Figure 2), utility, erosion control, and landscaping plans dated 3/01/2023, received 3/02/2023.
3. Stormwater Management Hydrologic and Hydraulic Study, by Alliant Engineering Inc., dated 3/01/2023, received 3/02/2023.

Findings:

1. The total area of Phase 3 is 61.07 acres. The applicant proposes to develop approximately the northern half of Phase 3 (33.07 acres) and rough grade the approximate southern half and northeast corner (28 acres) for future development. Therefore, the Commission stormwater requirements only apply to the northern half ("interim condition") at this time (Figure 2). The northern half of the site will be 100 percent impervious with 33.07 acres of impervious surface, an increase of 33.07 acres. The southern half and northeast corner will be subject to a future project review where the southern pond may be enlarged to serve the full site.
2. Endeavor Development submitted a complete project review application on 4/28/22. The 60-day review deadline was on 6/27/22, which required Commission action at the 6/9/22 meeting. In an email to Todd Shoemaker on May 26, 2022, the applicant acknowledged some site changes were still occurring, and therefore, requested an additional 60 days for this project review. Staff extended the review deadline to 8/26/22. Endeavor submitted a second extension request on August 5, 2022. Staff extended the review deadline to 10/27/22, which required Commission action at the 10/13/22 meeting. Endeavor submitted a third extension request on 10/27/22. Staff extended the review deadline to 12/24/22, which required Commission action at the 12/8/22 meeting. Endeavor submitted a fourth extension request on 12/20/22. Staff extended the review deadline to 2/22/23, which required Commission action at the 2/8/22 meeting. Endeavor submitted a fifth extension request on 2/21/2023. Staff extended the review deadline to 4/23/23, which requires Commission action at the 4/13/23 meeting.

SC2022-04: Arbor Lakes Phase III

3. To comply with the Commission's water quality treatment requirement, the site must provide ponding designed to NURP standards with dead storage volume equal to or greater than the volume of runoff from a 2.5" storm event, or BMPs providing a similar level of treatment - 85% TSS removal and 60% TP removal.

The applicant proposes to use an off-site stormwater pond, SPP-65, owned by the City of Maple Grove to treat 11.86 acres of impervious on the site. City staff reports the off-site pond can accommodate this area.

The remaining 23.68 acres of impervious requires 300,100 ft³ for the 2.5" rainfall event. The proposed pond provides a dead storage volume of 397,415 ft³. The applicant meets Commission water quality requirements.

4. Commission rules require that site runoff is limited to predevelopment rates for the 2-, 10-, and 100-year storm events. Runoff from the site is proposed to be controlled by SPP-65 regional pond and the onsite NURP pond that discharges to the northeast. The applicant (does not) meet(s) Commission rate control requirements (Table 1).

Table 1. Runoff from site (cfs).

Drainage Area	2-year event		10-year event		100-year event		100-year 10-day event	
	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Fountains Drive	0.75	0.6	3.7	2.3	14.5	7.8	36.6	17.1
East Offsite	2.9	2.8	17.2	4.9	55.1	16.9	94.6	26.0
Zachary Lane*	0.15	35.9	0.91	47	3.6	92.6	8.6	92.6

*Rate control provided by downstream SPP-65 regional pond.

5. Commission rules require the site to infiltrate 1.0 inch of runoff from new impervious area within 48 hours. The site is located within the Maple Grove Gravel Mining Area (GMA, Figure 1). In 2010, the Commission reviewed and approved a plan by the City of Maple Grove to obtain infiltration credits for this new development by constructing biofiltration basins adjacent to four existing regional stormwater ponds. Stormwater from areas that developed prior to the infiltration rule is directed to these basins. The Commission agreed that these new infiltration basins are adequate to provide regional infiltration for the 553 acres of undeveloped area (SC2010-04). The subject project is located within that area and therefore meets Commission volume control treatment requirements. This has been verified with City staff.
6. The erosion control plan includes a rock construction entrance, perimeter silt fence/biolog, silt fence surrounding detention ponds/infiltration basins, inlet protection, rip rap at inlets, native seed is specified on the pond slopes, and slope checks. The erosion control plan meets Commission requirements.
7. The National Wetlands Inventory identifies one wetland on the site, but no wetland characteristics currently exist on the site. The City of Maple

SC2022-04: Arbor Lakes Phase III

Grove is the LGU for WCA administration. The applicant meets Commission wetland requirements.

8. There are no Public Waters on this site. The applicant meets Commission Public Waters requirements.
9. There is no FEMA-regulated floodplain on this site. The low floor elevations of the buildings (920') are at least two feet higher than the high-water elevation of the detention pond (910.79') according to Atlas 14 precipitation. The applicant meets Commission floodplain requirements.
10. The site is located in a Drinking Water Source Management Area (DWSMA). Therefore, infiltration is permitted, but infiltrated water must first filter through 1 foot of soil, the top four inches of which are amended topsoil, and the bottom 8 inches of which are tilled. Infiltration is occurring offsite. The applicant meets Commission drinking water protection requirements.
11. City staff reports that a public hearing for this site was held on May 4th, 2022. The applicant meets Commission public notice requirements.
12. A draft Operations & Maintenance (O&M) agreement between the applicant and the City of Maple Grove was not provided.
13. A Project Review Fee of \$2500 has been received.

Recommendation: Approve subject to the following conditions:

1. Provide a complete O&M agreement between the applicant and the City of Maple Grove for all stormwater facilities on the project site.

Stantec, Inc.
Engineers for the Commission

Todd Shoemaker, P.E.

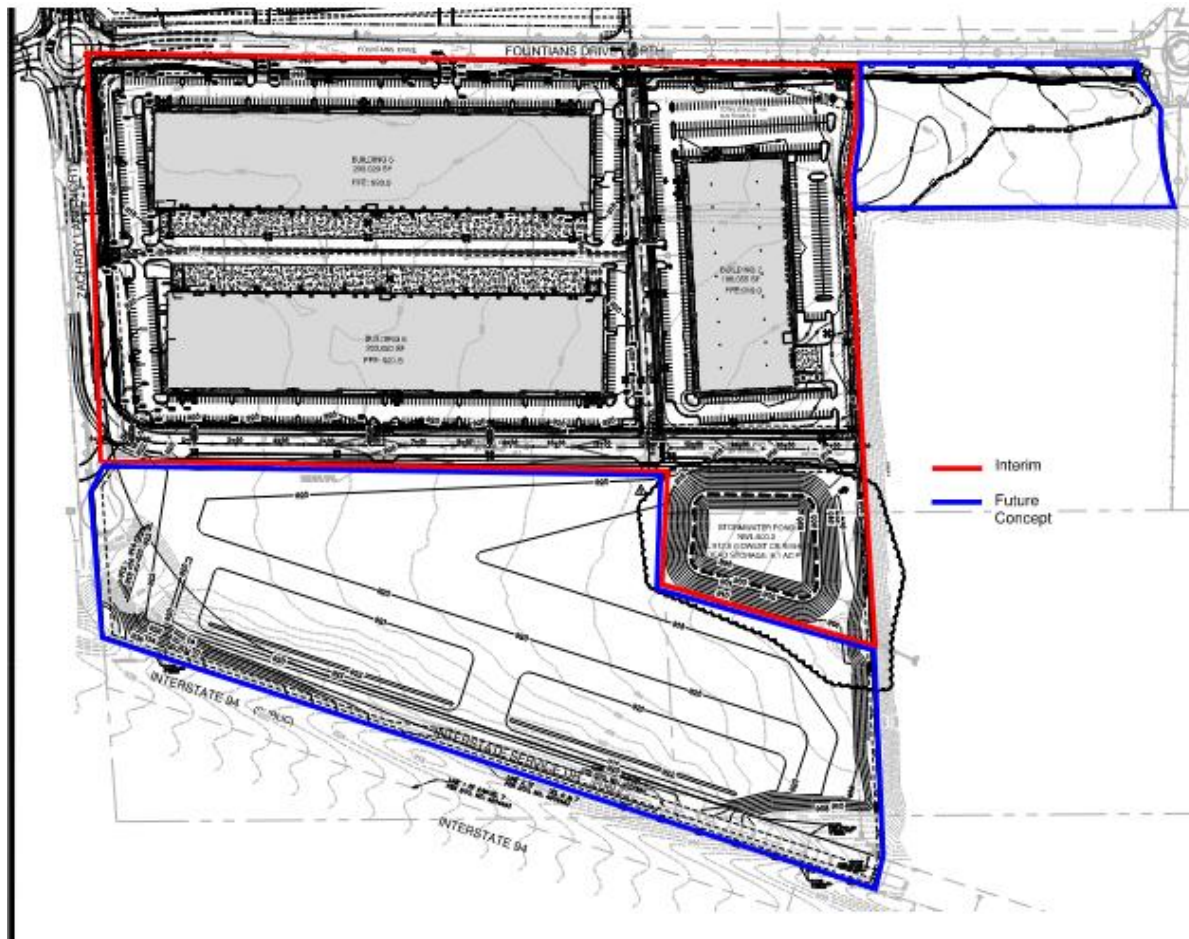
04/5/2023

Figure 1. Site location map.



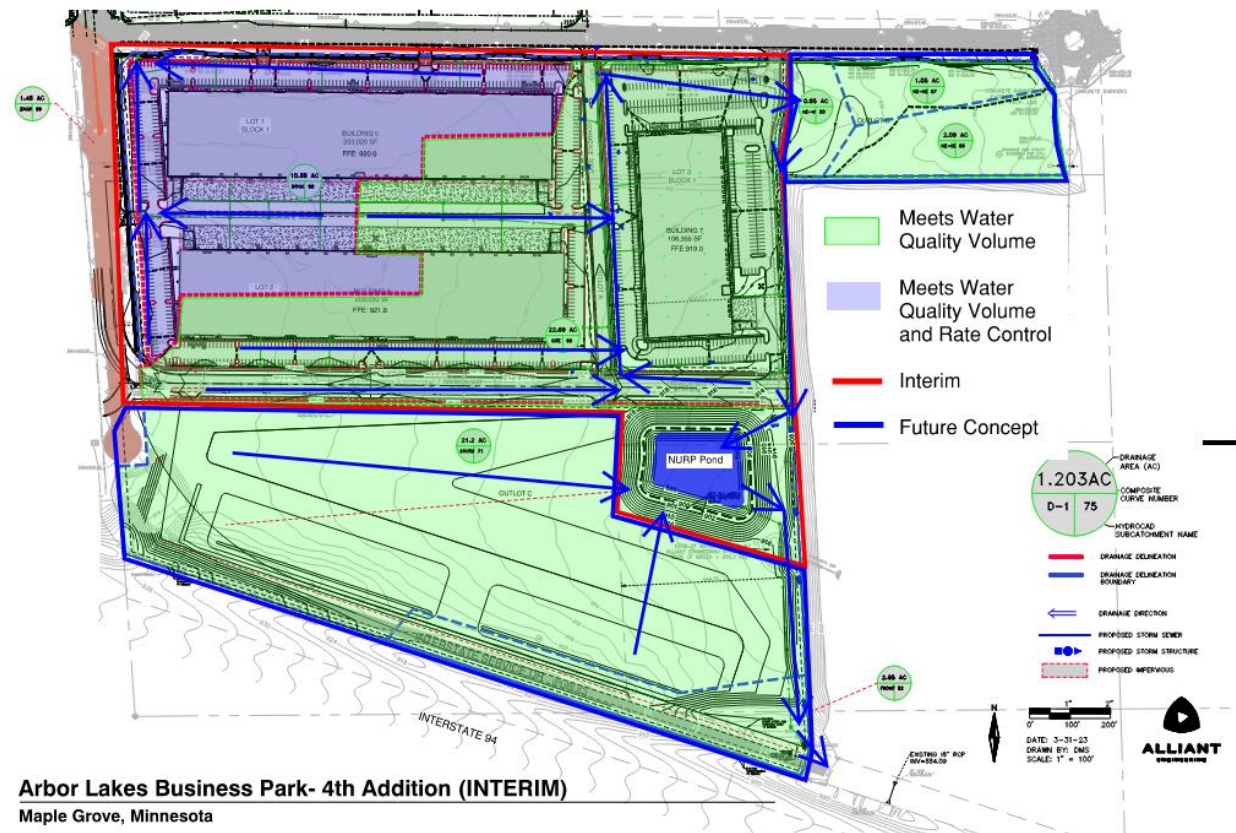
SC2022-04: Arbor Lakes Phase III

Figure 2. Site grading plan.



SC2022-04: Arbor Lakes Phase III

Figure 3. Interim drainage plan.



SHINGLE CREEK WATERSHED MANAGEMENT COMMISSION**PROJECT REVIEW SC2023-01:** Crystal Airport

Owner: Patrick Mosites
Company: Metropolitan Airport Commission
Address: 6040 S 28th Ave, Minneapolis, MN 55450

Engineer: Chloe Gloeckner
Company: Short Elliot Hendrickson (SEH)
Address: 353 Vadnais Center Dr, St. Paul, MN 55110

Phone: 763-350-9589
Email: cgloeckner@sehinc.com

Purpose: Construction of two service roads and reconstruction of a taxiway on 4.07 acres.

Location: 5800 Crystal Airport Rd, Minneapolis, MN 55429 (Figure 1).

Exhibits:

1. Project review application and project review fee, dated 3/31/23, received 4/4/23.
2. Site plan, preliminary plat, drainage and grading (Figures 2 and 3), utility, erosion control, and landscaping plans, dated 2/13/23, received 4/4/23.
3. Hydrologic calculations, by SEH, dated 3/20/23, received 4/4/23.

Findings:

1. The proposed linear project is the construction of two service roads and reconstruction of one taxiway. The parcel is 326 acres. Following development, the site will be 29 percent impervious with 96 acres of impervious surface, an increase of 1.88 acres.
2. The complete project application was received on 4/4/2023. To comply with the 60-day review requirement, the Commission must approve or deny this project no later than the 5/13/2023 meeting. Sixty calendar-days expires on 6/3/2023.
3. Commission rules require linear projects to infiltrate the larger of one-inch times the new impervious surface or one-half inch times the sum of the new and fully reconstructed impervious surface within 48 hours [The Metropolitan Airport Commission (MAC) requires drawdown within 24-hours.] The new impervious area is 1.88 acres, which requires 6,824 cubic feet of volume. The new and fully reconstructed impervious is 3.03 acres, which requires 5,499 cubic feet. Therefore, the required water quality volume is 6,824 cubic feet.

Two proposed basins, one in the north (51P) and one in southwest (43P), are proposed to treat the required water quality volume. Table 1 lists the required and provided volumes. The applicant meets Commission volume control requirements.

Table 1. Proposed volume retention through infiltration (ft³)

Volume Retention Required (ft³)	BMP	Volume Retention Provided (ft³)	1.1-inch Runoff (ft³)	2.5-inch Runoff (ft³)
6,824	North Basin	5,724	2,088	4,746
	Southwest Basin	22,439	34,869	79,249
	Total	27,185		

4. To comply with the Commission's water quality treatment requirement, there must not be an increase in TP or TSS from pre- to post-development land cover. Satisfying the infiltration requirement can meet this standard.

The applicant has satisfied the infiltration requirement and therefore meets Commission water quality treatment requirements.

5. Commission rules require that site runoff is limited to predevelopment rates for the 2-, 10-, and 100-year, 24-hour, and 100-year, 10-day critical storm events. Runoff from the site is routed through a series of infiltration basins. In the north, Basin 51P is routed to Basin 19P, and in the southwest, Basin 43P is routed to 41P. The applicant meets Commission rate control requirements.

Table 2. Runoff from site (cfs).

Drainage Area	2-year event		10-year event		100-year event		100-year event 10-day event	
	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
19P	12.9	12.9	19.0	19.0	185.3	185.0	17.9	17.9
41P	6.3	6.0	10.2	10.0	64.3	61.7	9.2	8.9

6. The erosion control plan includes rock construction entrances, inlet protection, rip rap at inlets, slope checks, include perimeter silt fence/biolog, and silt fence surrounding infiltration basins. The erosion control plan meets Commission requirements.
7. The National Wetlands Inventory identifies one probable wetland in the southcentral portion of the site and the larger Wetland 639W to the east. The City of Crystal is the LGU for WCA administration. Wetland buffers a minimum of 20 feet in width and averaging 30 feet in width are provided. The applicant meets Commission wetland requirements.
8. Wetland 639W is a Public Waters Wetland located on the northeast side of the site. The proposed work will not adversely impact or alter Wetland 639W. The applicant meets Commission Public Waters requirements.
9. The Shingle Creek PCSWMM model shows the floodplain for Wetland 639W is 958.9'. No new buildings are being proposed and existing structures have a low floor of 968' or greater according to MNDNR LiDAR. The applicant meets Commission floodplain requirements.

SC2023-01: Crystal Airport

10. The site is not located in a Drinking Water Supply Management Area (DWSMA). The applicant meets Commission drinking water protection requirements.
11. The MAC prepared a Long-Term Comprehensive Plan for improvements at the Crystal Airport. This plan initiated a joint Federal Environmental Assessment / State Environmental Assessment Worksheet to study the environmental effects of the proposed improvements. As part of that process, the MAC hosted a public information meeting on October 30, 2018 at the Crystal Community Center. The proposed work was outlined in the Long-Term Comprehensive Plan. Commission public notice requirements have been met.
12. An Operations & Maintenance (O&M) agreement was provided.
13. A Project Review Fee of \$2500 has been received.

Recommendation: Approve subject to the following condition:

1. Demonstrate by double ring infiltrometer or witness test that the site can meet the design infiltration rate of 1.5 inches/hour for the northern basin (53P) and southwest basin (41P).

Stantec Inc.
Engineers for the Commission

Todd Shoemaker, P.E.

4/5/2023

SC2023-01: Crystal Airport

Figure 1. Location map (red areas indicate new/reconstructed impervious)



Figure 2. Drainage Plan

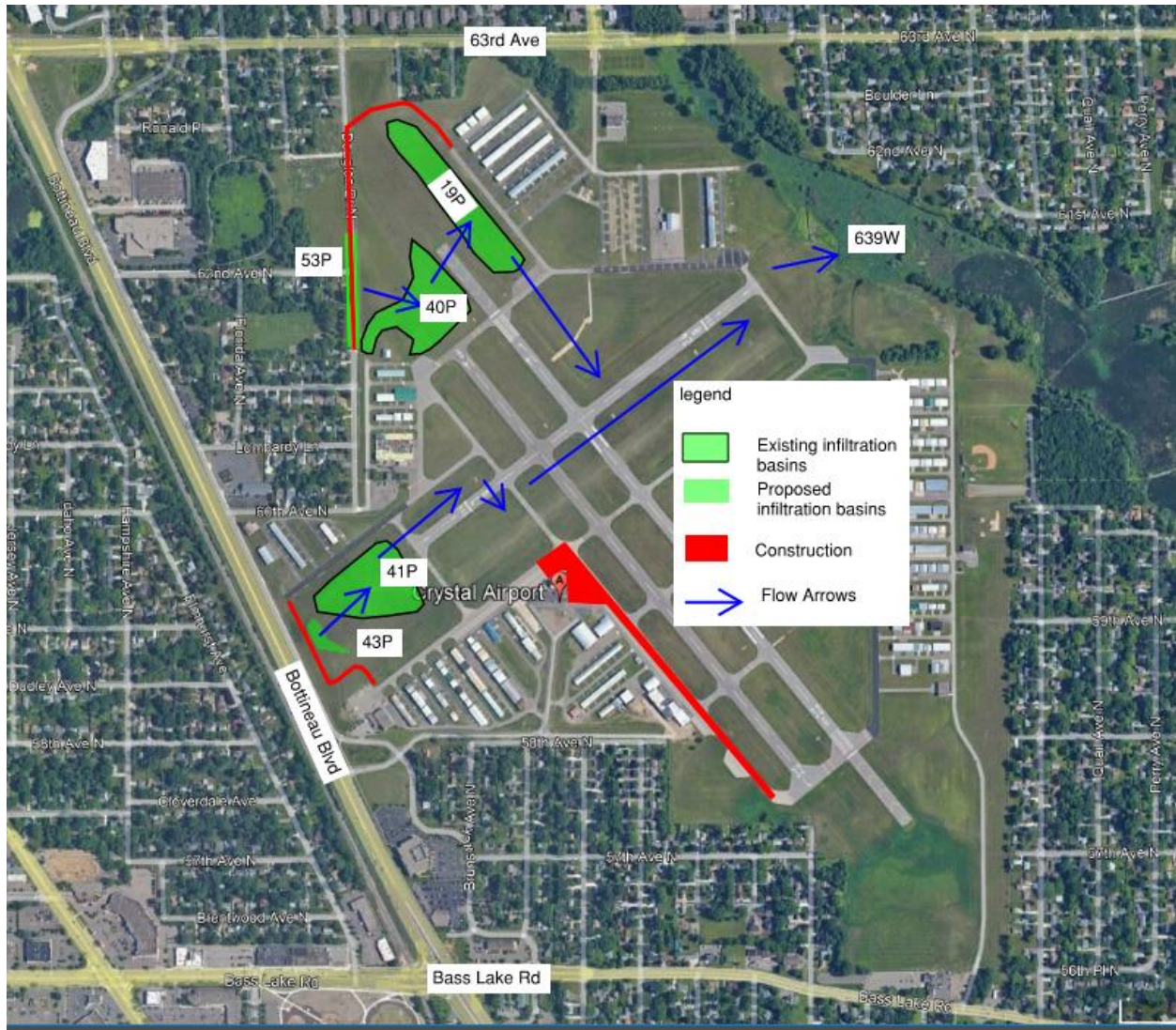
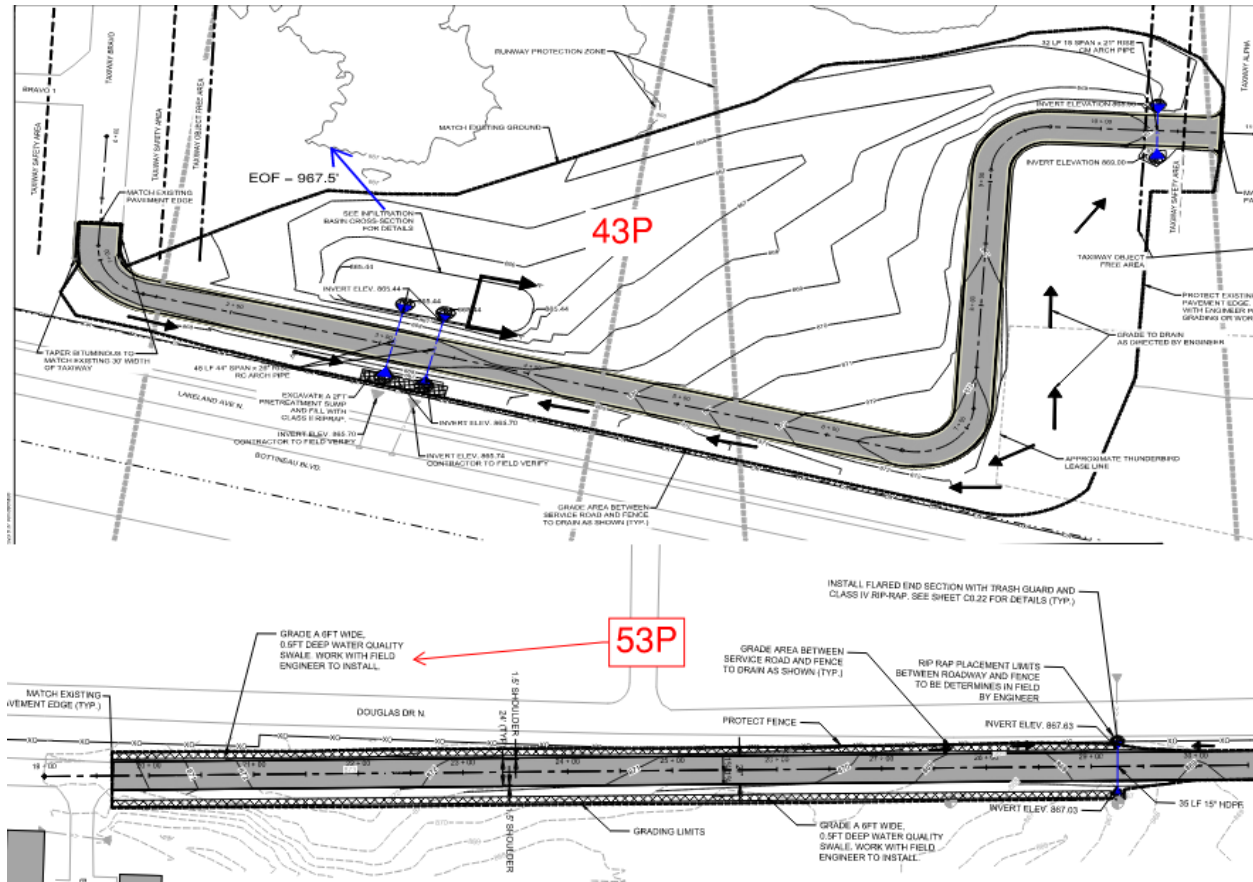
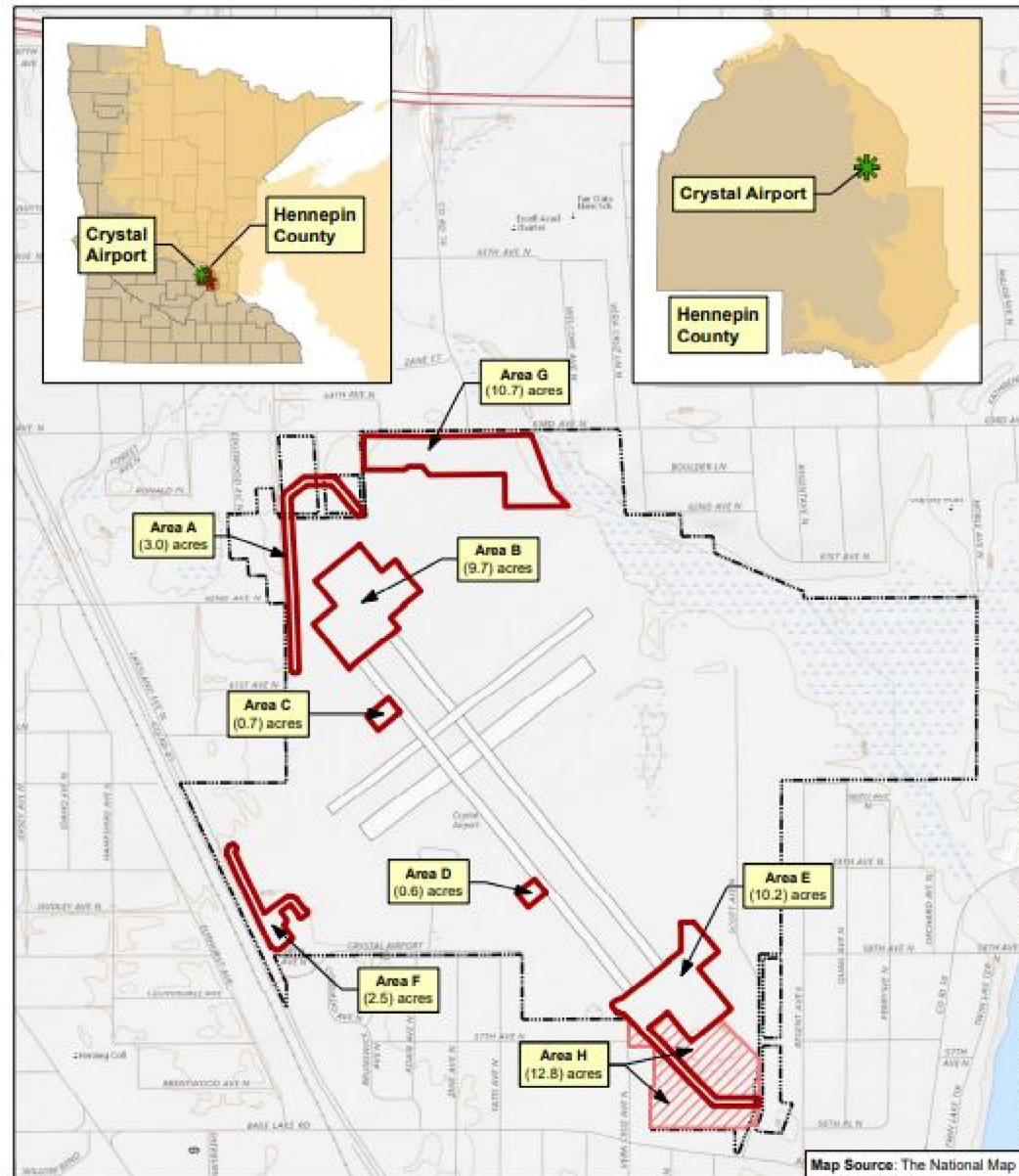


Figure 3. Basin grading plans





Project Location and Topography

CRYSTAL AIRPORT
Proposed Airfield Improvements



Project Information

T118N, R21W, Section 4 and
T119N, R21W, Section 33
Cities of Brooklyn Park, Brooklyn
Center, and Crystal
Hennepin County, MN
LRR subregion: K
USACE Regional Supplement, NC/NE
Area of Interest = 50.1 acres
Field work: June 4 - 5 and Sept. 24 - 26, 2018

To: Shingle Creek/West Mississippi WMO Commissioners and TAC members

From: Todd Shoemaker

Date: April 5, 2023

Subject: DLI Code Interpretation

Recommended Commission Action	For review and information.
--	-----------------------------

Stantec staff recently learned of a new interpretation of the plumbing code by the Minnesota Department of Labor and Industry (DLI, Attachment A). This interpretation allows DLI to regulate storm sewer design in communities where plumbing plan review agreements are not in place (Attachment B). The interpretation will likely impact public and private projects statewide.

CODE INTERPRETATION

As stated in Attachment A, the new interpretation “does not allow storm sewers to be surcharged” because of the following analysis:

Analysis: The Plumbing Code states that “[n]o fitting, fixture and piping connection, appliance, device, or method of installation that obstructs or retards the flow of water, wastes, sewage, or air in the drainage or venting systems . . . shall be used unless it is indicated as acceptable in this code or is approved in accordance with Section 301.2 of this code.” The Board determined that this provision prohibits storm sewers from being surcharged.

DLI defines a “drainage system” to include *all the piping within public or private premises that conveys sewage, rainwater, or other liquid wastes to a legal point of disposal, but does not include the mains of a public sewer system or a public sewage treatment or disposal plant.*

To our knowledge, there was no change in the State or Uniform Plumbing Code – only this new interpretation. Further, there does not seem to be a predominance of flooding problems on new construction sites because of undersized or storm sewer obstructed by downstream high water. Engineers commonly design the hydraulic grade line for the 10-year storm to not surcharge structures; modeling programs analyze tailwater from the ponds to understand the impact of surcharge; and overland emergency overflows are commonly set one foot for more below the first-floor elevation to minimize or eliminate any chance of building impact. As reviewers for the Commissions, our engineers review overflow routes to ensure that runoff will continue to the downstream basin if/when surcharging from storm sewer occurs. We also review high water level computations to ensure adequate freeboard exists to adjacent structures.

RAMIFICATIONS

Storm sewer is often designed to convey the 10-year, 24-hour storm event (approximately 4.2 inches in the Twin Cities) without surcharging. The DLI interpretation does not define the design storm event, thereby allowing the DLI reviewer to potentially choose an arbitrary design event for each project.

Under this new interpretation, Stantec notes the DLI has required the invert of all storm sewer within a site to be above the 100-year high water level of the on-site pond. This will require additional fill on the site to elevate parking lots and buildings, and, in turn, may then cause the building to be elevated higher than allowed by city ordinance above the adjacent street.

Another ramification is a greater potential for erosion or more significant erosion protection between the storm sewer outlet and the pond normal water level. Following the current design practice, designers usually locate the storm sewer outlet at or just above the pond normal water level, which enables the water in the pond to provide some energy dissipation along with riprap.

NEXT STEPS

Stantec staff participate in the American Council of Engineering Companies (ACEC), City Engineers Association of Minnesota (CEAM), the American Public Works Association (APWA, Minnesota Chapter), Minnesota Watersheds (formerly Minnesota Association of Watershed Districts), and the Minnesota Cities Stormwater Coalition (MCSC). These groups are aware of the new interpretation and are considering formal responses to DLI.

ATTACHMENT A

Plumbing Board
c/o Department of Labor and Industry
443 Lafayette Road North
St. Paul, MN 55155-4344
dli.ccldboard@state.mn.us

NOTICE OF FINAL INTERPRETATION

On February 10, 2023 the Minnesota Plumbing Board issued a Final Interpretation, which is printed below, pursuant to Minnesota Statutes §§ 326B.435, subd. 2(a)(4), and 326B.127, subd. 5.

Any person aggrieved by this Final Interpretation may appeal it within 30 days of its issuance in accordance with Minnesota Statutes chapter 14.

Questions may be directed to Brittany Wysokinski, telephone number: 651-284-5295, email: brittany.wysokinski@state.mn.us.

FINAL INTERPRETATION

Inquiry:	PB0159
Subject:	Storm drainage surcharge
Code Reference:	2020 Minnesota Plumbing Code: 2018 Uniform Plumbing Code (UPC) sections 310.5 and 206, as incorporated in the Minnesota Plumbing Code by Minnesota Rules, part 4714.0050.
Submitted by:	Joel Maier BKBM Engineers 6120 Earle Brown Dr., Suite 700, Minneapolis, MN 55430
Approved by:	Minnesota Plumbing Board, by Richard Becker, P.E., Chair
Date Received:	January 13, 2023
Issue Date:	February 10, 2023

Question: Are storm sewers outside of the building footprint allowed to be surcharged?

Answer: No, the Plumbing Code does not allow storm sewers to be surcharged.

Analysis: The Plumbing Code states that “[n]o fitting, fixture and piping connection, appliance, device, or method of installation that obstructs or retards the flow of water, wastes, sewage, or air in the drainage or venting systems . . . shall be used unless it is indicated as acceptable in this code or is approved in accordance with Section 301.2 of this code.” The Board determined that this provision prohibits storm sewers from being surcharged.

Commentary: This request for interpretation was considered at the special meeting of the Board on February 10, 2023. All parties had an opportunity to be heard. As required by Minnesota

Statutes, section 326B.127, subd. 5, the Minnesota Plumbing Board will consider this final interpretation for adoption as part of the Minnesota Plumbing Code

Date: February 23, 2023



Richard Becker, P.E., Chair
Minnesota Plumbing Board

ATTACHMENT B



Construction Codes and Licensing
Plumbing Plan Review and Inspection
443 Lafayette Road N., St. Paul, MN 55155-4343
Phone: (651) 284-5063 Fax: (651) 284-5746
Plan review status message: (651) 284-5043
www.dli.mn.gov

Plumbing Plan Review Agreements as of December 27, 2022

Municipalities that have established a formal agreement with the State of Minnesota and cities of the First Class, such as; Minneapolis, Saint Paul, Duluth and Rochester, are the only cities authorized to perform plumbing plan review in lieu of a review by the Department of Labor and Industry (DLI).

Municipalities that are authorized to perform plumbing plan reviews as outlined in this document:

Bayport	Coon Rapids	Hamburg	Metropolitan	Northfield	Silver Lake
Blaine	Duluth *	Hampton	Airports Commission	Nowthen	Spring Park
Bloomington	Eagan	Lakeville	Minneapolis *	Orono	St. Cloud
Brainerd	Eden Prairie	Lester Prairie	Minnetonka	Plato	St. Louis Park
Brooklyn Park	Edina	Mankato	Moorhead	Plymouth	St. Paul *
Burnsville	Fridley	Maple Grove	Mound	Richfield	Watertown
Chanhassen	Glencoe	Maple Lake	North St. Paul	Rochester *	Winsted
Columbus	Golden Valley				

These agreements pertain to plan review only and do not apply to inspection responsibilities. All agreements are subject to review and can be altered if deemed necessary to assure compliance with the Plumbing Code.

Cities with Formal Agreements with DLI:

Plumbing plans may be submitted directly to those cities, except for the following as defined in [Minnesota Statutes, Section 326B.43, subdivision 2\(n\)](#):

- **State-Licensed Facility:** Hospitals, nursing homes, supervised living facilities, free-standing outpatient surgical centers, correctional facilities, boarding care homes, or residential hospices and similar facilities must be submitted to DLI;
- **Public Buildings:** Buildings owned and paid-for by the state or a state agency regardless of cost, and school district building projects or charter school building projects regardless of cost must be submitted to DLI; and
- **Projects of a special nature:** Dialysis facilities and other special projects for which a department plan review is requested by either the municipality or the state, must be submitted to DLI.

Cities of the First Class*:

Plumbing plans may be submitted directly to Cities of First Class, except for the following as defined in [Minnesota Rules, part 1300.0215, subp. 6](#):

- **State-Licensed Facility:** Hospitals, nursing homes, supervised living facilities, free-standing outpatient surgical centers, boarding care homes, or residential hospices and similar facilities must be submitted to DLI; and
- **State-Owned buildings:** Correctional facilities, State Colleges and University (MNSCU), State Agencies (DNR, MNDOT, etc), and other state-owned buildings must be submitted to DLI.

This form can be obtained in alternative formats by calling the Department of Labor and Industry at:
1-800-342-5354

To: Shingle Creek/West Mississippi WMO Commissioners
Shingle Creek/West Mississippi WMO TAC

From: Todd Shoemaker PE
Diane Spector
Katie Kemmitt

Date: April 6, 2023

Subject: 2023 Preliminary CIP

**Recommended
Commission Action**

Request input from the member cities by April 28 on any proposed revisions to the CIP.

The Commissions each revised their Capital Improvement Programs (CIP) as part of the Fourth Generation Watershed Management Plan. Table 1 sets forth the Shingle Creek CIP for capital projects, and Table 2 for West Mississippi. Table 1 has some significant projects for consideration, but Table 2 is very minimal as there just hasn't been much activity in that watershed.

The purpose of this discussion is to review the CIP and request input from the cities for additions or revisions. The CIP typically is reviewed each year and amended as necessary to add, delete, or amend projects as opportunities arise, priorities change, or costs are re-evaluated. The Commissions can move projects between years, delete a project, or update the cost estimates without needing to undergo any plan amendment process. However, if the updated cost of any project increases more than 25%, or if a City requests adding a new project to the CIP, that requires a Minor Plan Amendment. That process requires notifying various agencies and the member cities of the proposed amendment, allowing them 30 days to comment, and then considering and adopting the amendment at the following public meeting.

If any proposed revisions are requested, then the Commissions would at your May meeting initiate the Minor Plan Amendment and then consider adopting the amended CIP at your June meeting. For projects to be ordered in 2023 for levies in 2024, you will call for a public hearing in August, and hold the public hearing in September.

Table 1. Shingle Creek Fourth Generation Plan CIP.

CAPITAL IMPROVEMENT PROGRAM	2023	2024	2025	2026	2027	2028+	Comments
City Cost Share Program	200,000	200,000	200,000	200,000	200,000	1,000,000	
Commission Contribution	100,000	100,000	100,000	100,000	100,000	500,000	
Local Contribution	100,000	100,000	100,000	100,000	100,000	500,000	
Partnership Cost-Share Program	100,000	100,000	100,000	100,000	100,000	500,000	
Commission Contribution	50,000	50,000	50,000	50,000	50,000	250,000	
Local Contribution	50,000	50,000	50,000	50,000	50,000	250,000	
Maintenance Fund	50,000	50,000	50,000	50,000	50,000	250,000	
Commission Contribution	50,000	50,000	50,000	50,000	50,000	250,000	
Local Contribution	-	-	-	-	-	0	
STREAM PROJECTS							
<i>Shingle Creek Brookdale Park Natural Channel</i>	1,250,000					0	
Commission Contribution	1,250,000					0	
Local Contribution	-					0	
<i>Bass Creek TH 169 to 63rd Avenue</i>		500,000				0	
Commission Contribution		500,000				0	
Local Contribution		-				0	
<i>Minneapolis Shingle Creek Stream Restoration</i>		400,000			300,000	0	
Commission Contribution		400,000			300,000	0	
Local Contribution		-			-	0	
<i>Shingle or Bass Creek Restoration Project</i>						400,000	
Commission Contribution						400,000	
Local Contribution						0	
LAKE PROJECTS							
<i>Pike Creek Stabilization-Ply/MG</i>	395,000					0	
Commission Contribution	105,000					0	
Local Contribution	290,000					0	
<i>Lake Internal Load Project-Eagle/Pike</i>		170,000				0	
Commission Contribution		170,000				0	
Local Contribution		0				0	
<i>Lake Internal Load Project-Cedar Island</i>						200,000	
Commission Contribution						200,000	
Local Contribution						0	

CAPITAL IMPROVEMENT PROGRAM	2023	2024	2025	2026	2027	2028+	Comments
<i>Wetland 639W Weir Wall Enhancement -Twin</i>			100,000			0	
Commission Contribution			100,000			0	
Local Contribution			0			0	
<i>Lake Internal Load Project-Twin</i>						200,000	
Commission Contribution						200,000	
Local Contribution						0	
STORMWATER BMPs							
<i>Maple Grove Pond P57</i>		648,000				0	
Commission Contribution		162,000				0	
Local Contribution		486,000				0	
<i>Mpls Flood Area 5 Water Quality Projects</i>			6,000,000			0	
Commission Contribution			250,000			0	
Local Contribution			5,750,000			0	
<i>Maple Grove Pond P33</i>				574,000		0	
Commission Contribution				143,500		0	
Local Contribution				430,500		0	
<i>Maple Grove Pond P55</i>						855,000	
Commission Contribution						213,800	
Local Contribution						641,200	
						0	
TOTAL PROJECT COST	1,995,000	2,068,000	6,450,000	924,000	650,000	3,405,000	
TOTAL COMMISSION SHARE	1,555,000	1,432,000	550,000	343,500	500,000	2,013,800	
TOTAL CITY SHARE	440,000	636,000	5,900,000	580,500	150,000	1,391,200	

Table 2. West Mississippi Fourth Generation Plan CIP.

CAPITAL IMPROVEMENT PROGRAM	2023	2024	2025	2026	2027	2028+	Comments
City Cost Share Program	200,000	200,000	200,000	200,000	200,000	1,000,000	
Commission Contribution	100,000	100,000	100,000	100,000	100,000	500,000	
Local Contribution	100,000	100,000	100,000	100,000	100,000	500,000	
Partnership Cost-Share Program	100,000	100,000	100,000	100,000	100,000	500,000	
Commission Contribution	50,000	50,000	50,000	50,000	50,000	250,000	
Local Contribution	50,000	50,000	50,000	50,000	50,000	250,000	
PROJECTS							
<i>Champlin Woods Trail Rain Gardens</i>	180,000					0	
Commission Contribution	45,000					0	
Local Contribution	135,000					0	
New Project							
Commission Contribution							
Local Contribution							
New Project							
Commission Contribution							
Local Contribution							
TOTAL PROJECT COST	480,000	300,000	300,000	300,000	300,000	1,500,000	
TOTAL COMMISSION SHARE	195,000	150,000	150,000	150,000	150,000	750,000	
TOTAL CITY SHARE	285,000	150,000	150,000	150,000	150,000	750,000	

To: Shingle Creek/West Mississippi WMO Commissioners

From: Katie Kemmitt
Ali Stone
Diane Spector

Date: April 7, 2023

Subject: 2022 Annual Water Quality Report

**Recommended
Commission Action**

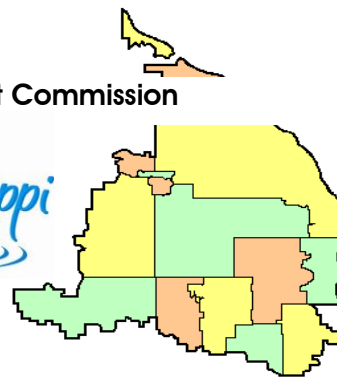
For review and information.

Below is a link to the 2022 Annual Water Quality report. Ali Stone will attend the April 13, 2023 meeting to present the findings. The full report and technical appendices are available at shinglecreek.org/water-quality.html.

2022 was another dry year (as was 2020 and 2021), with 26.0 inches of precipitation for the year compared to the historic (1992-2020) average of 33.5 inches. Storm events in August pushed that month well above average precipitation, but it could not make up for the other dry months. The dry year contributed to low volume of runoff and a reduction in pollutant load to Shingle and West Mississippi streams. Typically, total phosphorus (TP) and total suspended solids (TSS) values are below state standards except during storm events, when wash-off from the watershed increases those concentrations above the standards. Winter chloride concentrations remain high in Shingle Creek.

Lake conditions (water quality, plankton, vegetation) were monitored in four lakes in the watershed. Schmidt Lake and Lake Magda were sampled as part of the ongoing lake monitoring program. Crystal and Meadow Lakes were monitored as part of ongoing grant projects. Schmidt and Magda Lake both had good water quality in 2022, with seasonal averages meeting the State impairment standards for TP, chlorophyll-a, and clarity (measured as Secchi depth). Meadow Lake had very high TP concentrations and poor water clarity, especially towards the end of the summer. Crystal Lake had poor water quality with very high chlorophyll-a concentrations and poor water clarity, though the first alum treatment had significantly reduced phosphorus release rates from sediment as shown by sediment cores taken in 2022.

The Water Quality Report provides summary information for each of the water resources within the three management units of Shingle Creek and for West Mississippi as a whole. More detailed information as well as historical and trend data is presented in the appendices.



National Pollutant Discharge Elimination System (NPDES) Phase II Education and Public Outreach Program 2022 Annual Report

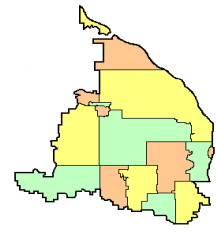
The Shingle Creek and West Mississippi Watershed Management Commissions conducted education and public outreach activities in 2022 in fulfillment of their Third Generation Watershed Management Plan Watershed Education and Public Outreach Program goals. Since 2020, many of these activities have been modified to meet in-person guidelines, were conducted virtually, or were curtailed altogether, due to the COVID-19 pandemic.

EDUCATION AND PUBLIC OUTREACH PROGRAM GOALS

1. All members of the community become knowledgeable about the water resources in the watersheds and take positive action to protect and improve them.
2. All members of the community have a general understanding of watersheds and water resources and the organizations that manage them.
3. All members of the community have a general understanding of the Impaired Waters in the watersheds and take positive actions to implement TMDL requirements.

The Commissions began development of their Fourth Generation Watershed Management Plan in the fall of 2021, and are currently in the final stages of reviewing and finalizing the draft plan. This report is in response to the following general education and outreach strategies identified by the Commissioners in their Third Generation Watershed Management Plan. More detailed educational goals by stakeholder groups may be found in Appendix E of the Third Generation Plan.

- Maintain an active Education and Outreach Committee (EPOC) with representatives from all member cities to advise the Commissions and to assist in program development and implementation
- Participate in the West Metro Water Alliance (WMWA) to promote interagency cooperation and collaboration, pool resources to undertake activities in a cost-effective manner, and promote consistency of messages
- Use the Commissions', member cities', and educational partners' websites and newsletters, and local newspapers and cable TV to share useful information to stakeholders on ways to improve water quality
- Prominently display the Commissions' logos on information and outreach items, project and interpretive signs, and other locations to increase visibility
- Provide opportunities for the public to learn about and participate in water quality activities
- Provide cost-share funding to assist in the installation of small BMPs and demonstration projects
- Educate elected and appointed officials and other decision-makers
- Enhance education opportunities for youth
- Each year review and modify or develop and prioritize education and outreach activities and strategies for the coming biennium



PROGRAM: WATERSHED PREP (PROTECTION, RESTORATION, EDUCATION, AND PREVENTION)

Audience: Fourth grade students, educators, families, the general public

Program Goals:

- a. Engage elementary students in hands-on learning about the water cycle and how the built environment influences stormwater runoff and downstream water quality.
- b. Provide general watershed and water quality education to citizens, lake associations, other civic organizations, youth groups, etc.

Educational Goals:

- a. Have a general understanding of watersheds, water resources and the organizations that manage them.
- b. Understand the connection between actions and water quality and water quantity.

Specific Activities to Reach Goals:

Watershed PREP is a program of the West Metro Water Alliance (WMWA), a consortium of four WMOs including the Shingle Creek and West Mississippi WMOs, and stands for **Protection, Restoration, Education, and Prevention**. 2022 marked the eleventh year of the program (the tenth year of actual classroom participation). An individual with a science education background serves as a contract educator to be shared between the member WMOs. (Her contract has been extended through August of 2023.) The focus of the program is two-fold - to present water resource-based classes to fourth grade students and to provide education and outreach to citizens, lake associations, civic organizations, youth groups, etc.

Fourth Grade Program. Three individual classes meeting State of Minnesota education standards have been developed. **Lesson 1, *What is a Watershed and Why do we care?***, provides an overview of the watershed concept and is specific to each school's watershed. It describes threats to the watershed. **Lesson 2, *The Incredible Journey***, describes the movement and status of water as it travels through the water cycle. **Lesson 3, *Stormwater Walk***, investigates movement of surface water on school grounds.

Pilot classes on native plants were also provided at 17 classrooms in three schools in 2022. Classroom Lesson #1 has been converted into a virtual, on-line learning experience. The lesson is posted to the WMWA website and to YouTube where it is available to educators, students, for home school or classroom viewing, and the general public. A link to the video has also been sent out to the teachers the educators have worked with in the classroom. It can be viewed at westmetrowateralliance.org/. The video has had 222 views as of December 31, 2022. The ultimate goal is to make this program available to all fourth graders in the four WMWA watersheds (Shingle Creek, West Mississippi, Bassett Creek, and Elm Creek), and to other schools as contracted. The program is offered to public, private, parochial, magnet and charter schools.

Community Education and Outreach. The PREP educator provides outreach at community and school events. Because of the nature of these events, it is usually difficult to keep a tally of the number of contacts made and citizens engaged. WMWA tabled at four outreach events – two in Plymouth and one each in Maple Grove and Robbinsdale - with a total reach of 760 people.

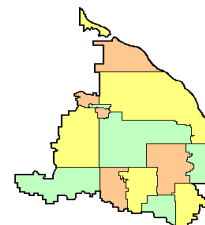


Table 1. Watershed PREP Program participation.

Year	# Classrooms	# Students	# and Type of Schools
Lesson 1			
2013	63	1,679	13 in six districts; one charter school; one parochial school
2014	116	3,469	30 in seven districts; one magnet school; one parochial school
2015	122	3,183	36 in nine districts; two charter schools; five parochial schools
2016	107	2,850	29 in seven districts, one charter school, 5 parochial schools
2017	121	3,249	12 in seven districts, one charter school, one parochial school
2018	143	3,593	32 in seven districts, one charter school, 2 parochial schools
2019	103	2,681	27 in six districts, two magnet schools; one parochial school
2020*	20	572	6 in four districts, two magnet schools
2021*	4	80	4 in one district
2022*	51	1,551	11 in 6 districts
Lesson 2			
2013	14	390	Three in three districts; one charter school; one parochial school
2014	22	645	Five in three districts
2015	27	859	Six in five districts
2016	20	524	Five in three districts, one parochial school
2017	38	1,072	Seven in three districts, one parochial school
2018	69	1,755	16 in five districts, one parochial school
2019	58	1,516	16 in five districts, one magnet school
2020*	7	172	2 in two districts
2021*			This lesson was not taught in 2021
2022*	55	1,557	10 in 6 districts, one immersion school

* Watershed PREP classes were limited by the constraints of the COVID-19 pandemic. In some cases, classes were conducted virtually.

Other Classes

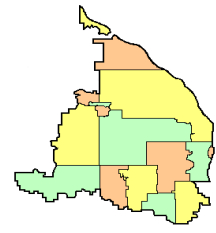
Date	School	District	City	Watershed	Classes	Students
6/1/2022	Woodland Elementary	Osseo	Brooklyn Park	W Miss	4	100
6/2022	Summer school (??)				3	74
11/16-18/2022	Robbinsdale MS	Robbinsdale	Robbinsdale	Bassett	10	242
				Totals	17	416

Events

Date	Event	Location		Watershed		Attendees
4/23/2022	Discover Plymouth	Plymouth		BC/EC/SC		160
5/7/2022	Arbor Day	Maple Grove		EC/SC		150
8/4/2022	Kids Fest	Plymouth		BC/EC/SC		400
9/25/2022	Elim Church	Robbinsdale		BC/SC		50
					Total	760

Evaluation:

The success of the Fourth Grade Program is evaluated by surveying students and teachers about the quality of the program, the learning that was observed, and the performance of the educators. Much of the feedback occurs during and right after the presentations in spontaneous comments.



PROGRAM: DISTRIBUTE EDUCATIONAL MATERIALS

Audience: Multiple

Program Goals:

- a. Inform various stakeholders about the watershed organizations and their programs.
- b. Provide useful information to a variety of stakeholders on priority topics.
- c. Engage stakeholders and encourage positive, water-friendly behaviors.

Educational Goals:

- a. Property owners maintain properties and best management practices (BMPs) to protect water resources.
- b. Property owners adopt practices that protect water resources.
- c. Stakeholders support and engage in protection and restoration efforts.

Specific Activities to Reach Goals:

Maintain Your Property the Watershed Friendly Way

This handbook is targeted to small businesses, multi-family housing properties, and common ownership communities such as homeowners' associations. It contains tips for specifying and hiring turf and snow maintenance contractors and includes checklists for BMP inspections. Electronic copies have been provided to Shingle Creek and West Mississippi cities for their use and to be displayed on their websites. The handbook also appears on the WMWA website. Print copies are available for distribution.

10 Things You Can Do

The very popular *10 things you can do to protect Minnesota's lakes, rivers, and streams* brochure was revised and updated in 2019 and was printed at no cost to WMWA members by the Hennepin County Department of Environment and Energy. New emphasis was placed on salting sparingly and on conserving water. The brochure can also be downloaded from the WMWA website.

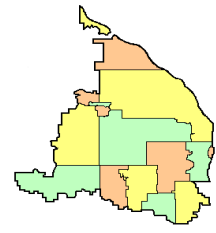
Roots Displays

In 2020 WMWA partnered with other groups to design and commission fabrication of a new, lighter-weight version of a popular interactive display highlighting native plants, comparing their long roots to the shorter-rooted turf grasses. The new displays are available for use by members and partners at educational and promotional events.

Press Releases and Newspaper Articles

Northwest Community Television currently provides services as CCX Media. CCX Media provides a Connected Community Experience for the northwest Hennepin County suburbs, offering daily televised news, and coverage of city council meetings, local events, and high school sports.

- Meadow Lake Almost Full Again After Winter Drawdown - CCX Media
- Metro briefs: Carp harvest aims to clean up Robbinsdale's Crystal Lake (startribune.com)
- Brook Gardens: Clean Water + Livability – Environmental Initiative Awards (environmental-initiative-awards.org)



Flyers

WMWA worked with the cities in the four watersheds to create or update informational flyers on three topics that are the focus of education and outreach in the 2022 General Stormwater Permit: pet waste and chloride management, and proper use and maintenance of water softeners.

Web Site

The Commissions maintained a joint web site, shinglecreek.org, which includes information about the watersheds, the Commissions, and the water resources in the watersheds. In 2022, the website had 2,509 unique visitors for a total of 5,916 page views. The most common landing page was the home page, followed by the Commission and TAC meeting materials pages and the project review pages. While the website is used mainly to access meeting and application materials, it is a good forum for sharing specific project information and gets decent traffic on other more general interest pages.

Social Media

The Commission established a Facebook page in 2016. In 2022 the Facebook page had a total of 183 likes 212 followers. In 2022 there were 57 posts resulting in 522 engagements.

Evaluation:

Evaluation measures are as noted above: number of brochures and handbooks distributed; number of website hits; social media engagement. The website uses Google Analytics to better track page views and unique visitors.

PROGRAM: PUBLIC OUTREACH

Audience: Residents, youth

Program Goals:

- a. Provide opportunities for people of all ages to participate in hands-on activities to protect and improve waters.
- b. Provide opportunities for people to learn about ways they can protect and improve waters.

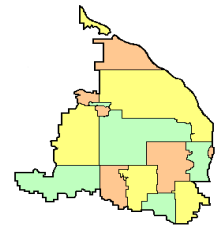
Educational Goals:

- a. Maintain their properties and best management practices (BMPs) to protect water resources.
- b. Adopt practices that protect water resources.
- c. Support and engage in protection and restoration efforts.
- d. Participate in volunteer activities.

Specific Activities to Reach Goals:

The *Pledge to Plant Campaign* was developed by Metro Blooms/Blue Thumb to encourage residents to replace impervious surface and turf grass with native plantings to benefit clean water by reducing stormwater runoff. The project includes the additional benefit of creating habitat for pollinators. In past years, the project was promoted in the Blue Thumb space at the State Fair where the public voted to name the campaign, *Pledge to Plant for Clean Water and Pollinators*.

Phase two of the project included a roll out of the Pledge campaign on the Metro Blooms and WMWA websites where citizens entered the square footage of their new plantings, creation of a *Pledge to Plant* banner to be displayed at events, and a social media campaign that began in 2016. COVID-19 limited in-person engagement, cancelling most area events in 2022.



At December 31, 2018, over 630 people had submitted the Pledge online covering over 417 acres. The total includes a handful of larger prairie restoration projects; the median pledge covers 250 square feet. Most of the Pledges came from the metro area, but Pledges have been received from more than 20 states. The *Pledge to Plant* campaign was also promoted during the Watershed PREP classes. Pledges were not tallied in the past four years.

Rain Garden Workshops

The Commissions partnered with WMWA to sponsor workshops through Metro Blooms. Metro Blooms is a non-profit organization whose mission is to promote and celebrate gardening, to beautify our communities and help heal and protect our environment.

Since the start of the pandemic, all workshops have been held virtually. In 2022 workshops were conducted in Plymouth on April 14 with 40 participants; on April 26 in Champlin with 15 registrants; in Minneapolis on May 3 with 40 participants; and in Crystal on May 19 with 35 registrants.

Since the pandemic precluded holding in-person workshops, a new Blue Thumb training program has been implemented to teach participants skills in inspecting and caring for raingardens and other green infrastructure, all within a framework of eco-friendly landscaping practices. People who take part in the full session will receive a Sustainable Landcare Certificate. Participants in the program first receive Stormwater Basics, learning about watersheds and how water travels in our urban environment. They also learn how raingardens are built, how they work, and how to inspect them to ensure they function properly. An important part of the program is weedy plant identification and vegetation management (a major culprit of dysfunctional raingardens) to avoid the need for chemical use, when possible.

Lawns to Legumes

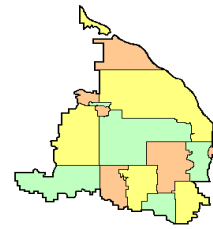
“Lawns to Legumes,” a program for residents to seed their lawns with a bee lawn mix, targeting habitat for endangered species, is a collaboration between Blue Thumb and the Minnesota Board of Water and Soil Resources (BWSR), providing cost-share funding and other resources to help Minnesota residents establish pollinator habitat in their yards. The Commissions support this program with membership in Blue Thumb and links to their website. Funding is provided by the Environment and Natural Resources Trust Fund (ENRTF) and is targeted in priority areas to benefit the Rusty patched bumblebee and other at-risk species.

NPDES Permit Requirements

Continuing as members of the West Metro Water Alliance (WMWA), along with the Bassett Creek and Elm Creek WMOs, to develop materials in response to the new NPDES Permit Requirements, concentrating on educational content regarding pet waste, chlorides/salt, and illicit discharge. In 2022 WMWA and its member WMOs partnered with Hennepin County and the Richfield-Bloomington WMO to develop a shared education and outreach coordinator position funded by Watershed-Based Implementation Funding (WBIF) and WMWA special projects budget. This two-year limited duration position will focus on engaging with various stakeholder groups in the five watersheds on clean water and chloride management issues. WMWA also drafted a long-term vision for the organization to help transition from a part-time to a full-time coordinator.

Hennepin County Chloride Initiative (HCCI)

Eleven WMOs in Hennepin County previously elected to set aside 10 percent (\$101,800) of the BWSR Watershed-Based Funding from the 2018 Pilot Program specifically for joint, countywide chloride



reduction initiatives. With about half of the grant funds remaining, HCCI extended the grant period through 2022 to continue work on the initiatives and maximize the grant funding.

Research was previously completed by HCCI and the U of M. This survey-based research identified that salting practices on private and commercial property are primarily driven by client demand and liability concerns, not a lack of knowledge from the winter maintenance contractor. For more information, you can read the full report at [https://rpbcd.org/application/files/9416/6196/2339/HCCI - Chloride Barriers Report Feb 2020.pdf](https://rpbcd.org/application/files/9416/6196/2339/HCCI_-_Chloride_Barriers_Report_Feb_2020.pdf) This research found that clients are mainly the ones driving the demand for oversalting. With the remaining grant funding, HCCI developed an outreach campaign framework and a toolbox of resources to help engage with property managers, HOA boards, and faith-based communities.

HCCI hired a marketing consultant who developed the *Low Salt, No Salt Minnesota* campaign in 2022. This outreach campaign is targeted toward homeowner associations, property managers, and communities of faith. These groups are accessible and tend to make decisions about winter maintenance for large areas including hiring of contractors. To better understand attitudes and other factors that affect willingness to adopt best salting practices, a series of market-research interviews were conducted with these groups. This research helped identify key messages about reducing chloride that best resonated with these groups. You can review the full market research report at [https://rpbcd.org/application/files/2316/5948/3817/HCCI Research Report Draft 02 28 22.pdf](https://rpbcd.org/application/files/2316/5948/3817/HCCI_Research_Report_Draft_02_28_22.pdf) for more details.

HCCI and the marketing firm worked together to develop a brand and design materials. The “*Low Salt, No Salt Minnesota*” campaign was developed to clear a path to safety, savings, and sustainability. The primary goal of the effort was to provide a toolbox of materials that local units of government (LGUs) may use during conversations with local residents and businesses about best practices related to winter maintenance. The toolbox materials include three videos, facilitator guide, PowerPoint presentation, recruitment letter, FAQ handout, winter maintenance plan templates, and a pledge form. All these resources are intended for LGUs to use and customize to fit their own local program and outreach efforts. The toolbox is located on the new Lot Salt No Salt website. <https://rpbcd.org/low-salt-no-salt>

With the completion of this work, the HCCI grant funds are now expended, but there is interest from many HCCI participants in continuing collaboration in some format moving forward.

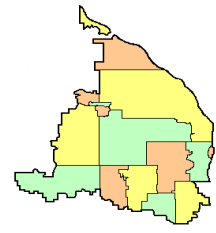
Shingle Creek Cleanup

The 22nd Annual Great Shingle Creek Cleanup was scheduled to be held during Earth Week, April 18-22, 2022. Each city sponsors its own cleanup. While most cities cancelled the event in 2022, others held abbreviated versions to limit in-person contact.

Volunteer Monitoring

The Commissions provide opportunities for high school students and adults to gain hands-on experience monitoring lakes, streams, and wetlands.

Lakes. Volunteer lake monitoring is performed through the Met Council’s Citizen Assisted Lake Monitoring Program (CAMP). The Met Council provides the monitoring equipment and the laboratory work and data analysis while the Shingle Creek Commission staff recruit and train volunteers to perform sampling, collect the volunteers’ water quality samples, and get them to the Met Council. Bass Lake and the three basins of Twin Lake were monitored by volunteers in 2022.



Streams. Routine stream macroinvertebrate monitoring in both watersheds is conducted by volunteers through Hennepin County's RiverWatch program. This program was initiated in 1995 to provide hands-on environmental education for high school and college students, promote river stewardship, and obtain water quality information on the streams in Hennepin County. Hennepin County coordinates student and adult volunteers who use the RiverWatch protocols to collect physical, chemical, and biological data to help determine the health of streams in the watershed. No sites on Shingle Creek were monitored as part of RiverWatch in 2022.

Wetlands. In past years, sites in the Shingle Creek and West Mississippi watersheds were monitored through the Hennepin County Environmental Services' Wetland Health Evaluation Program (WHEP). WHEP uses trained adult volunteers to monitor and assess wetland plant and animal communities in order to score monitored wetlands on an Index of Biological Integrity for macro-invertebrates and vegetation. This program has been discontinued and, thus, no sites were monitored in 2022.

Evaluation:

Evaluation of these programs is based on participation.

Program: Collaborative Efforts

Audience: Multiple

Program Goals:

- a. Promote interagency cooperation and collaboration, pool resources to undertake activities in a cost-effective manner, and promote consistency of messages.
- b. Share information and ideas with other partners.

Educational Goals:

- a. All people have a general understanding of watersheds, water resources and the organizations that manage them.
- b. All people understand the connection between actions and water quality and water quantity.

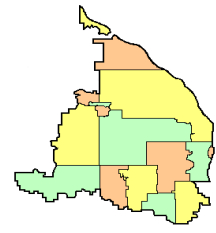
Specific Activities to Reach Goals:

WMWA

The Commissions partner with the Bassett Creek WMO and the Elm Creek WMO and other interested parties as the West Metro Water Alliance (WMWA). Other participating parties have included other WMOs, Hennepin County Environment and Energy, and cities outside the four-watershed area. Each member watershed organization contributes funds to WMWA, which sponsors programs such as Watershed PREP, standardized brochures and booklets, and the *Planting for Clean Water Program*. WMWA publishes an annual report on its activities.

Other Partnerships

The Commissions are also members of:



WaterShed Partners, a coalition of agencies, educational institutions, WMOs, Watershed Districts, and Soil and Water Conservation Districts that coordinate water resources education and public outreach planning in the Metro area; and

Blue Thumb, a consortium of agencies and vendors partnering to increase outreach and awareness

Evaluation:

No specific evaluation of this programing has been completed.

Program: Continuing Education

Audience: Commissioners, Technical Advisory Committee (TAC)

Program Goals:

- a. Effectively and efficiently manage the water resources in the watershed.
- b. Increase awareness and knowledge of broader water resources issues and trends.

Educational Goals:

- a. Commissioners and TAC understand watershed management, water quality and quantity conditions and issues in the watershed, regulatory requirements and the current standards and practices.
- b. Commissioners and TAC aware of broader water management issues and trends in Minnesota and elsewhere.

Specific Activities to Reach Goals:

Staff Presentations

All of the Staff presentations were project-related, none were for “Commissioner education.”

Guest Speakers

In February, Laura Scholl, Metro Blooms, Project Manager for the **Brooks Gardens Apartments** and Townhomes Community in Brooklyn Park, and her team presented a visual tour of the community. Together with the residents, they have created 4,282 square feet of new habitat and annually capture 1.17 million gallons of runoff, 2,000 lbs. of solids and 4.5 lbs. of total phosphorus. The Shingle Creek Commission provided \$30,000 cost-share funding for the \$86,107 project. At the April meeting, the Commission learned that the Brook Gardens project was awarded the Local Sustainability Impact award from the Environmental Initiative.

In July, James Fallon, Data Chief, Minnesota portion of Upper Midwest Water Science Center of the U.S. Geological Survey (USGS), presented an **update on USGS activities in Shingle Creek** and nearby watersheds. Links to the new USGS National Water Dashboard interactive map, <https://dashboard.waterdata.usgs.gov/app/nwd/en/?aoi=default> allow viewers to access *real-time* water data from over 13,500 stations nationwide.

Evaluation:

No specific evaluation of this programming has been completed.



WEST METRO WATER ALLIANCE

2022 ANNUAL REPORT

BACKGROUND

In 2006 the Shingle Creek and West Mississippi Watershed Management Commission's Education and Public Outreach Committee (EPOC) invited the Education Committee of the Bassett Creek Watershed Management Commission to partner in developing joint education and outreach activities. Since that time this voluntary partnership has grown to include the Elm Creek Watershed Management Commission, the Three Rivers Park District, Hennepin County Department of Environment and Energy, and the Freshwater Society. The WMOs are designated as "members," the latter three organizations as "partners."

This alliance, the West Metro Water Alliance (WMWA), grew from a recognition that the individual organizations have many common education and public outreach goals and messages that could be more efficiently and effectively addressed and delivered collaboratively and on a wider scale.

MEETINGS

WMWA meets monthly, as needed, on the second Tuesday, virtually via Zoom. Member representatives include Laura Jester, Bassett Creek WMC Administrator; Doug Baines, Commissioner, Elm Creek WMC; Nico Cantarero, Stantec, Dayton, Elm Creek WMC; Mike Sorenson, Robbinsdale, Bassett Creek and Shingle Creek WMCs, and Ben Scharenbroich and Amy Riegel, Plymouth, Shingle Creek, Bassett Creek and Elm Creek WMCs. Other attendees include Jessica Sahu Teli, Watershed PREP Educator; Diane Spector, Stantec/Wenck Associates, serves as technical support for WMWA, and Amy Juntunen, JASS, serves as administrative support. In 2022 twelve meetings were held. All WMWA member Commissioners and city staff are welcome to attend meetings.

THE WMWA PROGRAM

Goals of the WMWA program are to:

- Inform the public about the watershed organizations and their programs.
- Provide useful information to the public on priority topics.
- Engage the public and encourage positive, water-friendly behaviors.
- Help member cities meet MS4 permit requirements regarding education.

Five informational pieces have been developed by WMWA to support these goals. The *10 Things You Can Do* Brochure targets the general public. The brochure is distributed at all venues where the Commissions or member cities have a presence and also in the Watershed PREP classrooms. It is also available on the websites of the WMO member cities. In 2019 the *10 Things* brochure was updated and reprinted in partnership with Hennepin County.

The *Maintain Your Property the Watershed Friendly Way* handbook targets small businesses, multi-family housing properties, and common interest communities such as homeowners' associations. It contains tips for specifying and hiring turf and snow maintenance contractors, and includes checklists for BMP inspections.

The *Residential Snow and Ice Care* brochure is an educational piece designed to inform citizens of the chloride pollution problem and ways to reduce salt use. The *Commercial Snow and Ice* brochure is designed to inform HOAs, property managers and commercial applicators of the chloride pollution problem and ways to reduce salt use.

In 2021 WMWA began development of three new flyers to address MS4 permit education needs on the topics of Pet Waste, Water Softener Chlorides, and Deicer Chlorides. These flyers were completed in 2022 and provided to member cities for distribution and addition to website/social media.

All of the flyers can also be found on our website at <http://www.westmetrowateralliance.org/flyers-and-newsletters.html>.

WATERSHED PREP AND COMMUNITY EVENTS

Watershed PREP is a program of WMWA and stands for Protection, Restoration, Education, and Prevention. 2022 was the tenth year of the program. One contract educators is shared between the member watersheds. The focus of the program is two-fold - to present water resource-based classes to fourth grade students and to provide education and outreach to citizens, lake associations, other civic organizations, youth groups, etc. Goals of the program are 1) to have audiences gain a general understanding of watersheds, water resources and the organizations that manage them, and 2) to have audiences understand the connection between actions and water quality and water quantity. The ultimate goal is to make this program available to all fourth graders in the four WMWA watersheds and to other schools as contracted.

Fourth Grade Program. Three individual lessons meeting State education standards have been developed. **Lesson 1, What is a Watershed and Why do We Care?**, provides an overview of the watershed concept and is specific to each school's watershed. It describes threats to the watershed. **Lesson 2, Water Cycle - More than 2-dimensional!**, describes the movement and status of water as it travels through the water cycle. **Lesson 3, Stormwater Walk**, investigates movement of surface water on school grounds.



In 2022, 51 classroom presentations of Lesson 1 and 55 classrooms presentations of Lesson 2 were given.

Pilot classes on native plants were provided at 17 classrooms in three schools in 2022.

WMWA tabled at four outreach events with a total reach of 760 people, two in Plymouth and one each in Maple Grove and Robbinsdale.

UPDATED WORK PLAN

In 2021 the WMWA Work Plan was updated to reflect current practices. The updated Work Plan included the following major revisions:

1. Added an equity statement affirming the group's commitment to environmental justice for all and outreach to historically underrepresented groups.
2. Revised the general educational goals for non-single family property owners and managers to focus solely on providing information and guidance on appropriate BMPs.
3. Removed educational goals for developers as cities were seen as being the most appropriate points of contact with these stakeholders.
4. Removed educational goals for training city staff, as those are the responsibility of the cities.

5. Removed educational goals for agricultural property owners and operators as Hennepin County staff have taken on that role acting as the County Soil and Water Conservation District.
6. Added a key educational goal for all the stakeholders to “understand the relationship between climate and water quality and water quantity.”
7. Revised the plan to replace references to the Hennepin County website with the WMWA website.
8. Eliminated Measuring and Monitoring Public Awareness as a major task. One of WMWA’s first activities was sponsoring a professional opinion poll in the four watersheds regarding knowledge and behaviors. WMWA does not expect to repeat that poll due to cost but will build measuring and evaluating into individual activities.
9. Strengthened the Communication and Information Sharing activity to incorporate the website and social media.
10. Eliminated the Develop and Coordinate Regional or Countywide Activities task. Early on WMWA had sponsored a series of workshops for broader participation but found it to be an inefficient use of time and resources. The group will focus on spreading information about existing activities sponsored by other groups.

WMWA’s 2022 and 2023 budgets reflect these activities and were approved by the members on March 9, 2021 and March 8, 2022, respectively. The budgets are included in this report as *Appendix C*.

SPECIAL PROJECT

In November 2020, Minnesota Pollution Control Agency approved the new 2020 MS4 general permit. WMWA member cities must apply for the new permit by April 15, 2021. Included in the new permit are several education requirements.

The 2022 Special Project was dedicated to helping member cities meet the new MS4 permit education requirements. In 2021 WMWA Special Project funds were approved for the creation of three one-page flyers to address pet waste, deicing chlorides, and water softener chlorides, as well as associated landing pages with further information on the WMWA website. Participating members created the content and hired Taurus Moon Graphic Design to complete the flyer design. The three flyers were completed in early 2022 and are available on the WMWA website at <http://www.westmetrowateralliance.org/flyers-and-newsletters.html>.

In 2022 the Special Project was dedicated to overruns in the Watershed PREP budget as necessary and to pursue hiring a part-time Outreach Coordinator jointly with Hennepin County.

WMWA OUTREACH COORDINATOR

In the fourth quarter of 2019, members re-evaluated spending on the current Special Project. Looking forward to the needs of 2020 and the future, members voted to use Special Project funding for 2020 to hire a WMWA Coordinator on a contract basis because members did not have enough time to dedicate to upcoming projects. An applicant was hired for the position beginning January 1, 2020. Due to difficulties with COVID, the applicant was unable to start and the position never moved forward.

In April 2022, WMWA members worked with the member watersheds, Hennepin County and the Board of Soil and Water Resources to secure Watershed-Based Implementation Funding (WBIF) grant dollars to pilot a two-year full-time Outreach Coordinator position shared jointly with 50% of time spent on WMWA and Richfield-Bloomington WMO outreach, and 50% on Hennepin County outreach. Meetings from April through December refined the vision and scope for this position.

RESILIENT YARD WORKSHOPS

Due to COVID in prior years, Metro Blooms created an online webinar format of the workshop. WMWA did not sponsor workshops in 2022, though they are available to member cities through Metro Blooms directly.

WINTER MAINTENANCE TRAINING

In 2022, Winter Maintenance Training workshops were hosted via webinar by Plymouth on October 27 for the road applicator training and November 5 for the parking lot and sidewalk training, with about 60 attendees at each training. Attendees learned how to adjust the use of salt de-icing products to be effective without overuse

WMWA WEBSITE

The WMWA website www.westmetrowateralliance.org serves as a repository for documents and information for access by member cities and citizens, lists local events WMWA is participating in and/or otherwise promoting, stores Watershed PREP information for schools.

The website had 689 unique visitors engaged in 937 individual users with an average of 1.46 pages viewed per session for a total of 1,069 sessions with 1,560 page views on the website in 2022. The website metrics can be found in Appendix B

The most visited pages were: Native Plants, Home, About Us, What You Can Do, Contact Us, Watershed PREP Class, Flyers and Newsletters, and The Water Cycle.

2022 MARKETING ACTIVITY

In May 2016 WMWA created a social media campaign for the Pledge to Plant campaign and WMWA in general on Facebook and Twitter. As of December 31, 2020, the WMWA Twitter page had been discontinued. As of December 31, 2022 the Facebook page had 183 likes with 8 new followers in 2022. For the period January 1 - December 31, 2022, the Facebook page had 57 posts resulting in 522 engagements and 48 visits to the WMWA Facebook Page..

To learn more about WMWA, contact:

*Diane Spector, Stantec, 763.252-6880, diane.spector@stantec.com
or Amy Juntunen, JASS, 763.553.1144, amy@jass.biz*

APPENDIX

APPENDIX A – WATERSHED PREP / EDUCATOR ACTIVITY

Table 1. 2022 schools and students participating in Watershed PREP classes?

2022 School Visits

Lesson 1: What is a Watershed and Why do we Care?

Date	School	School District	City	Watershed	Classes	Students
3/2-3/3	Elm Creek Elementary	Osseo	Maple Grove	Elm	8	160
4/6-4/7	Forest Elementary	Robbinsdale	Crystal	Shingle	4	120
4/28	Woodland Elementary	Osseo	Brooklyn Park	W. Miss	4	100
5/4/2023	Rush Creek	Osseo	Maple Grove	Elm	4	120
5/9	Basswood	Osseo	Maple Grove	Elm	5	127
5/11	Weaver Lake	Osseo	Maple Grove	Elm	4	98
5/12	Kimberly Lane	Wayzata	Plymouth	Bassett	3	64
5/16	FAIR Pilgrim Lane	Robbinsdale	Crystal	Shingle	3	64
5/17	Meadowbrook	Hopkins	Golden Valley	Bassett	4	122
5/19	Zachary Lane Elem	Robbinsdale	Plymouth	Bassett	3	61
10/4	Noble Elementary	Robbinsdale	Golden Valley	Bassett	2	44
10/27-28	Meadowbrook	Hopkins	Golden Valley	Bassett	5	125
11/9	Rogers	Elk River	Rogers	Elm	4	112
11/21	Dayton	Anoka-Hennepin	Dayton	Elm	4	105
11/28	Sonnesyn Elementary	Robbinsdale	New Hope	Shingle	2	37
11/30	Monroe Elementary	Anoka-Hennepin	Brooklyn Park	W. Miss	4	92
Total					51	1551

Lesson 2: The Incredible Journey

Date	School	School District	City	Watershed	Classes	Students
4/7	Forest Elementary	Robbinsdale	Crystal	Shingle	1	30
4/29	Woodland Elementary	Osseo	Brooklyn Park	W. Miss	4	100
5/10	Basswood	Osseo	Maple Grove	Elm	5	127
5/13	Kimberly Lane	Wayzata	Plymouth	Bassett	3	64
5/18	Rush Creek	Osseo	Maple Grove	Elm	4	120
5/20	Zachary Lane Elem	Robbinsdale	Plymouth	Bassett	3	61
5/24	Forest Elementary	Robbinsdale	Crystal	Shingle	3	90
5/25	Meadowbrook	Hopkins	Golden Valley	Bassett	4	122
5/26	FAIR Pilgrim Lane	Robbinsdale	Crystal	Shingle	3	64
10/6	Noble Elementary	Robbinsdale	Golden Valley	Bassett	2	44
10/13	Weaver Lake	Osseo	Maple Grove	Elm	4	88
10/17	SEA	Robbinsdale	Golden Valley	Bassett	3	76
10/31-11/1	Spanish Immersion		St. Louis Pk	Bassett	4	137
11/10	Rogers	Elk River	Rogers	Elm	4	112
11/22	Dayton	Anoka-Hennepin	Dayton	Elm	4	105
12/1	Monroe Elementary	Anoka-Hennepin	Brooklyn Park	W. Miss	4	92
12/14-15	Meadowbrook	Hopkins	Golden Valley	Bassett	5	125
Total					55	1557

APPENDIX A – WATERSHED PREP / EDUCATOR ACTIVITY

Other Classes

6/1/22	Woodland Elementary	Osseo	Brooklyn Park	W. Miss	4	100
	Native Plants - Pilot					
6/22	Summer School-Rush Creek	Osseo	Maple Grove	Elm	3	74
	ecoscape/native plants/roots					
11/16-18	Robbinsdale MS	Robbinsdale	Robbinsdale	Bassett	10	242
	Water Cycle & Adapted PREP class					

Total 17 416

Events

Date	Event	Location	Watershed	# of Attendees
4/23	Discover Plymouth	Plymouth	BC/EC/SC	160
5/7	MG Arbor Day	Maple Grove	EC/SC	150
8/4	Plymouth Kids Fest	Plymouth	BC/EC/SC	400
9/25	Elim Church	Robbinsdale	BC/SC	50
Total				760

Watershed PREP

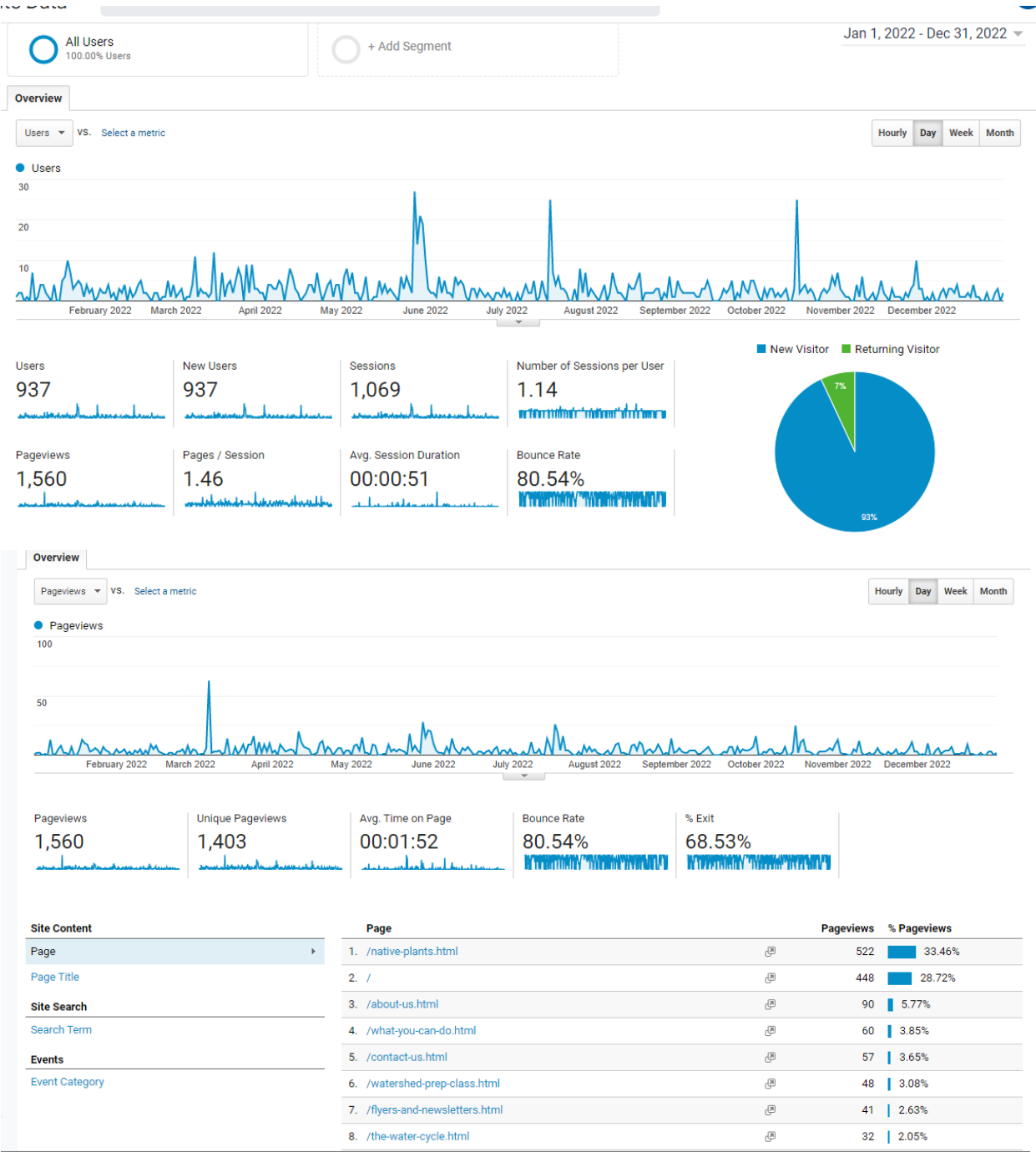
Lesson 1: What is a Watershed and Why Do We Care?

Lesson 2: Project WET, The Incredible Journey

<u>Year</u>	<u>Lesson 1 Classes</u>	<u>Lesson 1 Students</u>	<u>Lesson 2 Classes</u>	<u>Lesson 2 Students</u>
<u>2013</u>	<u>35</u>	<u>870</u>	<u>9</u>	<u>230</u>
<u>2014</u>	<u>73</u>	<u>1875</u>	<u>5</u>	<u>160</u>
<u>2015</u>	<u>118</u>	<u>3106</u>	<u>27</u>	<u>859</u>
<u>2016</u>	<u>107</u>	<u>2850</u>	<u>20</u>	<u>524</u>
<u>2017</u>	<u>125</u>	<u>3358</u>	<u>38</u>	<u>1072</u>
2018	143	3593	69	1755
2019	103	2681	58	1516
2020	20	572	10	256
2021	4	80	0	0
2022	51	1551	55	1557
Total	779	20,536	291	7,929

APPENDIX B – WEBSITE/SOCIAL MEDIA ACTIVITY

Facebook likes grew in 2022 to a total of 183 likes and 212 followers. In 2022 there were 57 posts resulting in 522 engagements.



APPENDIX C – BUDGET

	2020	2021				2022				2023
	Balance	Budget	Revenue	Expense	Balance	Budget	Revenue	Expense	Balance	Budget
Admin/Tech Services Routine tasks, website, social media, meetings, etc	\$4,754	\$12,000	\$12,000	\$9,299	\$7,455	\$12,000	\$12,000	\$8,162	\$11,293	\$12,000
Special Projects	\$10,717	8,000	4,000	0	14,717	16,000	8,000	2,278	20,440	16,000
Watershed Prep	\$9,750	16,000	4,000	315	13,435	8,000	8,000	20,459	976	8,000
TOTAL	\$	\$36,000	\$20,000	\$9,614	\$35,607	\$36,000	\$28,000	\$30,899	\$32,708	\$36,000

DRAFT



**Shingle Creek
Watershed Management Commission
2022 Annual Activity Report**

Table of Contents

Annual Activity Report	1
The Commission	1
Consultants.....	1
Meetings	1
Watershed Management Plan	1
Local Plans	2
Status of 2022 Work Plan	2
Capital Projects, Cost Share Projects	2
Grants	3
Partnering with Other Organizations.....	4
Administration and Programming	5
Fourth Generation Plan	6
Consultant Services Selection	7
2022 Water Monitoring	7
Stream Monitoring.....	8
Lake Monitoring.....	8
Wetland Monitoring	8
Finances.....	9
2023 Work Plan	10
Goals	10
Continue ongoing administration and programming	11
2023 Water Monitoring	12
Grant Projects	13
Volunteer Monitoring	14

Appendices

- 1 Commissioners, TAC Members and Staff
- 2 Amendments to Watershed Plan
- 3 Local Plans
- 4 Shingle Creek Monitoring Sites
- 5 Project Reviews
- 6 Financials

This report was prepared for the
Shingle Creek Watershed Management Commission
by JASS

Questions regarding this report should be directed to
JASS, 763.553.1144 or judie@jass.biz.

We gratefully acknowledge the assistance of
Diane Spector and Katie Kemmitt, Stantec Consulting Services

Cover photograph:
Crystal Lake Management Plan – Carp Removal Project
Jordan Wein, WSB Engineering

2022 ANNUAL ACTIVITY REPORT

This annual report has been prepared by the Shingle Creek Watershed Management Commission in accordance with the annual reporting requirements of Minnesota Rules Chapter 8410.0150, Subps. 2 and 3. It summarizes the activities undertaken by the Commission during calendar year 2022.

THE COMMISSION

The Shingle Creek Watershed Management Commission is governed by a nine-member board comprised of representatives from each member city who are appointed for terms of three years. The nine member cities are Brooklyn Center, Brooklyn Park, Crystal, Maple Grove, Minneapolis, New Hope, Osseo, Plymouth and Robbinsdale. Commissioners who served in 2022 are shown in *Appendix 1*. Also shown there are members of the Technical Advisory Committee (TAC) who represent the member cities.

CONSULTANTS

The Commission has no employees. The names of the consultants currently retained by the Commission are also listed in *Appendix 1*.

MEETINGS

The Commission meets monthly at 12:45 p.m. on the second Thursday of the month. The meetings are open to the public. Meeting notices, agendas and approved minutes are posted on the Commission's website, www.shinglecreek.org.

In 2022, due to the COVID-19 pandemic, the January, February, and March Commission meetings were held virtually on www.zoom.us. The April, May, June, and July meetings were held in the Community Room, Crystal City Hall, 4141 Douglas Drive, Crystal, Minnesota. The August and subsequent meetings took place in the Plymouth Community Center, 14800 34th Avenue North, Plymouth, Minnesota.

WATERSHED MANAGEMENT PLAN

In 2013 the Shingle Creek and West Mississippi Watershed Management Commissions adopted their joint 2013-2022 Third Generation Watershed Management Plan. The Plan, approved by the Board of Water and Soil Resources (BWSR) on March 27, 2013, is the culmination of a two-year planning effort by the two Commissions, the cities that are members of these Joint Powers Organizations,

state agencies, and the public. The Plan sets forth goals and strategies that will guide water resources management activities in the two watersheds over the coming decade. Over the years the Commission, either individually or together with the West Mississippi Commission, has adopted a number of amendments to the Plan. They are described briefly in *Appendix 2*. In 2022, the Commissions began the process of developing their Fourth Generation Plan. It is anticipated that they will complete the Plan and it will be approved by BWSR early in the year 2023.

LOCAL PLANS

Revisions to Minnesota Rules 8410 adopted in 2015 include significant changes in the timing of local water plan revisions. Found under Rule 8410.0105 sub-paragraph 9 and 8410.0160 subparagraph 6. Local plan requirements are summarized in *Appendix 3*.

STATUS OF 2022 WORK PLAN

The Third Generation Watershed Management Plan states that the Shingle Creek and West Mississippi Watershed Management Commissions will annually review progress toward their Third Generation goals and that this evaluation will become part of the Annual Activity Report. The purpose of the annual review is two-fold: to determine progress towards the goals and to be sure the Commission stays on track to reach them. The annual review also provides an opportunity to discuss whether the goals and actions in the Plan still make sense or if they should be considered for modification or enhancement, perhaps to add new priorities.

The Shingle Creek Watershed Management Commission established its 2022 Work Plan at its January 13, 2022, meeting. Most of the activities of the Commission are ongoing, although some rotate around the watershed.

Capital Projects, Cost-Share Projects

- ✓ Continued to work on the 5-year performance review for the Bass and Shingle Creek Biotic and DO TMDL.
- ✓ Worked with the City of Plymouth to complete aquatic vegetation surveys on Bass Lake and provide aquatic invasive species treatment as necessary. Completed a grant-funded aquatic vegetation translocation project to test ways of increasing plant diversity in Bass Lake.
- ✓ Continued to partner with the City of Robbinsdale to implement the Crystal Lake Management Plan, including carp removal, aquatic vegetation management, and alum treatment.
- ✓ Following a drawdown in the winter 2021-2022, continued to work with the City of New Hope to implement the Meadow Lake Management Plan, including potential additional vegetation and fish management and preparation for an alum treatment.

- ✓ Continued to partner with the cities of Brooklyn Park and Brooklyn Center to undertake Connections II streambank improvements for Shingle Creek from Regent Avenue to Brooklyn Boulevard.



Pike Creek Channel Stabilization

- ✓ Continued to partner with the City of Brooklyn Park to undertake Bass Creek Park streambank improvements from Cherokee Drive to I-694.
- ✓ Executed a Clean Water Fund Grant with BWSR and a cooperative agreement with the City of Plymouth for the Palmer Creek Estates channel stabilization project. Project is expected to be constructed in winter 2022-2023.
- ✓ By Minor Plan Amendment created a new Capital Projects Maintenance Fund intended to support the completion of ongoing activities needed to continue the benefits achieved by capital projects.
- ✓ Shingle Creek had previously awarded a Partnership Cost Share grant to the City of Brooklyn Park and Metro Blooms for water quality and sustainable landscaping site improvements at the Brooks Gardens Apartments near Shingle Creek. In 2022, that work was awarded a Local Sustainability Impact award by the Minnesota Environmental Initiative.
- ✓ Continued to seek permission from MAC to partner with the City of Crystal to extend the SRP Reduction filter along the Wetland 639W overflow channel.

Grants

- ✓ Prepared an application to the MPCA to complete a Flood Resiliency and Mapping study in 2023.
- ✓ Met four times with the Shingle Creek and West Mississippi Watershed Based Implementation Funding (WBIF) Convene Groups to identify and select funding priorities for their \$95,501 and \$75,000 2022 WBIF awards. As part of that work, the four WMOs in WMWA plus the

Richfield-Bloomington WMO agreed to pool some of their WBIF resources to fund a shared Education and Outreach Coordinator with Hennepin County.

- ✓ In 2018, the eleven WMOs in Hennepin County elected to pool 10% of their WBIF grants to fund the Hennepin County Chloride Initiative (HCCI), recognizing that properly managing chloride use was a common water quality issue. The group continued to explore various management topics and approaches, culminating in the development of a professional marketing campaign called “Low Salt No Salt Minnesota,” which will be rolled out in 2023 by each of the WMOs and many cities.

Partner with other organizations to increase reach and cost-effectiveness

- ✓ Participated in the West Metro Water Alliance (WMWA) joint education and outreach group. Due to the pandemic, Watershed PREP (Protection, Restoration, Education, and Prevention) classes were cancelled or conducted virtually. Classes resumed in the fall of 2022 with 1551 students in 51 classrooms. A video of the Watershed PREP class is available for home school or classroom viewing at <http://www.westmetrowateralliance.org/>.

In 2022 WMWA and its member WMOs partnered with Hennepin County and the Richfield-Bloomington WMO to develop a shared education and outreach coordinator position funded by Watershed-Based Implementation Funding (WBIF) and the WMWA special projects budget. This two-year limited duration position will focus on engaging with various stakeholder groups in the five watersheds on clean water and chloride management issues. WMWA also drafted a long-term vision for the organization to help transition from a part-time to a full-time coordinator.

- ✓ Sponsored volunteer lake monitoring through CAMP (Met Council) on Bass Lake and the three basins of Twin Lake
- ✓ Continued to partner with the USGS to operate the Queen Avenue monitoring site. (See *Appendix 4* for the location of the Shingle Creek monitoring sites.)
- ✓ Partnered with the USGS, DNR, and other interested parties to stay abreast of groundwater issues.
- ✓ Continued the HUC study in partnership with the DNR. The updated flood mapping is still working through the DNR/FEMA process.
- ✓ Completed reviews of six development projects; conducted compliance review of a 2017 project. (*Appendix 5*)
- ✓ Prepared an annual water quality report. The 2022 report was accepted by the Commission on March 10, 2022.
- ✓ Solicited cost-share projects from member cities funded from the Cost Share Fund and the annual \$100,000 levy and the Partnership Cost Share Fund and the annual \$50,000 levy.

In November the Commission approved a cost share request of \$50,000 from the City of Minneapolis for its 46th Avenue Outfall Project. The proposed improvements would replace a failed and eroded outlet to Shingle Creek and incorporate green infrastructure to manage and convey runoff to the creek rather than traditional pipes. The approval was contingent on inclusion of design changes recommended by the Commission's technical staff and concurrence by the Technical Advisory Committee (TAC).

At their December 8, 2022, meeting, the Commission approved a Partnership Cost-Share request from Metro Blooms in the amount of \$49,992.67 for improvements at Highland Gables Apartments in Brooklyn Park. The proposed improvements include two rain gardens and a playground constructed out of natural products. The approval was contingent on inclusion of recommendations by the Commission's technical staff and concurrence by the TAC.

- ✓ On May 12, 2022, the Commissioners approved the first of two minor Plan Amendments. This amendment would revise Appendix C of the Plan, the Rules and Standards, to 1) make the rules consistent with the most recent Minnesota General Stormwater Permit; and 2) make other various housekeeping revisions to the Rules.

On July 14, 2022, a second Minor Plan Amendment was approved which would revise the Shingle Creek CIP to add a new project – "Project Maintenance Fund." This would create a segregated fund similar to the Cost Share programs that would be funded by an annual levy and would be used for nonstructural and maintenance activities to improve or maintain water quality.

On September 8, 2022, a public hearing was called wherein five capital projects were approved – three in the Shingle Creek watershed and two in the West Mississippi watershed. The three in Shingle Creek included the City Cost Share BMPs (\$200,000, levy \$106,050), the Shingle Creek Partnership Cost Share Project (\$50,000, levy \$53,025), and the Maintenance Fund Project (\$50,000, levy \$53,025)

Continue ongoing administration and programming

- ✓ Conducted routine Commission lake water quality monitoring and aquatic vegetation and fish surveys on Magda and Ryan Lakes and grant funded monitoring on Crystal and Meadow Lakes.
- ✓ Conducted Commission routine flow and water quality monitoring at SC-0 and SC-3 on Shingle Creek and Bass Creek Park (BCP) on Bass Creek as well as two DO longitudinal studies as part of the Shingle and Bass Creeks Dissolved Oxygen (DO) and Biotic Integrity TMDL 5 Year Review.
- ✓ Sponsored volunteer lake monitoring through CAMP (Met Council) on Bass Lake and the three basins of Twin Lake.
- ✓ Did not sponsor volunteer stream monitoring through RiverWatch in 2022.

- ✓ Wetland monitoring through WHEP (Hennepin County) was discontinued.
- ✓ Prepared a 2023 annual budget. At its May 12, 2022, meeting, the Shingle Creek Watershed Management Commission adopted a \$385,250 operating budget for calendar year 2023. Assessments to the member cities total \$370,000, a 1.8% increase over 2022 assessments.
- ✓ Invited three guest speakers to make lunchtime water resources presentations:
 - January 13, 2022 - Dr. Kenneth Blumenfeld, Senior Climatologist with the Minnesota State Climate Office and an Adjunct Assistant Professor at the University of Minnesota, discussed how the Commissions can plan for changing precipitation.
 - February 10, 2022 – A team from Metro Blooms presented a visual tour of the Brooks Gardens Apartments and Townhomes Community in Brooklyn Park. As a result of their work with the residents, together they have created 4,282 square feet of new habitat and annually capture 1.17 million gallons of runoff, 2,000 lbs. of solids and 4.5 lbs. of total phosphorus. Planting continued in 2022. The Commission provided \$30,000 cost-share funding for the \$86,107 project.
 - July 14, 2022 - James Fallon, Data Chief, Minnesota portion of Upper Midwest Water Science Center of the U.S. Geological Survey, gave an update on USGS activities in Shingle Creek and nearby watersheds. The new USGS National Water Dashboard interactive map allows viewers to access real-time water data from over 13,500 stations nationwide.
- ✓ Due to continuing concerns regarding group activities during the Covid-19 pandemic, tours of the watershed were not conducted in 2022.

Fourth Generation Plan

The Shingle Creek and West Mississippi Watershed Management Commissions spent considerable time developing their joint Fourth Generation Plan, completing a draft that was made available for informal review and then starting the formal review period, which spanned November 2022 to January 2023. Aside from preparing the actual plan document and the 10-Year Implementation Plan, the Commissions:

- ✓ Participated in a joint Equity in Watershed Management workshop with the Bassett Creek WMO to talk about strategies for enhanced inclusion and equity in our work as stewards of natural and water resources in the watersheds. The workshop included presentations by County, Metro Blooms, and Mississippi WMO staff, personal reflections on Environmental Justice work by the Executive Director of a nonprofit that serves diverse and underrepresented communities, as well as small group discussions and reflections.
- ✓ Undertook a major update to both the legal and hydrologic boundaries between the watersheds and neighboring Elm Creek, Bassett Creek, and Mississippi WMOs.

- ✓ Refreshed the website and added an interactive Story Map providing users map-based links to water quality, natural resource, and project data..

CONSULTANT SERVICES SELECTION

Every two years, a solicitation of interest proposals for technical, legal and administrative services is published in the *State Register*. Solicitations were published in the November 8, 2022, edition of the *State Register*. Commissioners will consider the responses at their January 11, 2023, meeting.

2022 WATER MONITORING

Minnesota Administrative Rule 8410.0100 Subp.5 requires watershed management organizations to conduct monitoring programs “capable of producing accurate data to the extent necessary to determine whether the water quality and quantity goals of the organization are being achieved.”

The Shingle Creek and West Mississippi Watershed Management Commissions (WMCs) annually monitor water quality in the lakes, streams, and outfalls of the watersheds. The Commissions’ technical staff obtain the stream and some lake water quality, fisheries, and vegetation data while volunteers collect lake water quality and stream macroinvertebrate data.

Together the Commissions have established monitoring objectives to guide their monitoring programs. The following objectives have been established for stream, outfall, and lake monitoring in both watersheds:

To quantify the current status of streams/outfalls and lakes (Shingle Creek only) throughout the watershed in comparison to state water quality standards established for nutrients, turbidity, chloride, bacteria, and other parameters currently regulated by the State.

To quantify changes, over time, of trends in stream and lake water quality in the watersheds.

To quantify the effectiveness of implemented BMPs throughout the watersheds for the protection of water quality.

Surface water quality in the watersheds is typical of urban lakes and streams in the Twin Cities metropolitan area. Agriculture, followed by urban development, has changed drainage patterns, increased pollutants to the waters, and reduced habitat for aquatic and terrestrial life. Neither Shingle Creek nor Bass Creek meet state water quality standards for chloride, bacteria, and dissolved oxygen, and both have severely impacted fish and macroinvertebrate communities. Thirteen of the 16 lakes were originally listed as Impaired Waters of the State due to their high concentrations of phosphorus.

TMDLs and Implementation Plans have been approved for all the Impaired Waters and the Commission and member cities have been actively implementing improvements. Ryan, Lower Twin and Schmidt lakes have subsequently been delisted, or removed, from the Impaired Waters list due

to improved water quality. Bass and Pomerleau lakes now meet the standards and the MPCA is recommending removal. Long-term stream monitoring shows a clear improvement in suspended sediment and nutrient concentrations in both Shingle and Bass Creeks, a result of ongoing efforts to stabilize streambanks, increase the frequency of street sweeping, enhance erosion control on construction sites, and install Best Management Practices (BMPs) to treat stormwater before it is discharged into the streams. However, chloride concentrations in the streams, mostly from road salt applied in the winter for snow and ice control, continue to be high.

2022 monitoring activities in the two watersheds included stream and outfall monitoring and lake monitoring. Each monitoring effort is described later in this section.

Stream Monitoring

In 2022 three sites along Bass/Shingle Creek were monitored biweekly April-October: the outlet in Minneapolis (SC-0); mid-watershed in Brooklyn Park (SC-3); and in Bass Creek (BCP) in the upper watershed. (Longitudinal studies did not occur in 2022.) Winter chloride was sampled monthly from November to March at the three locations and at the USGS gauge site located near the outlet of Shingle Creek. Real-time data from that site is available through the USGS website: <http://waterdata.usgs.gov/mn/nwis/uv?05288705>.

Due to the COVID 19 pandemic volunteer stream macroinvertebrate monitoring, conducted through the Hennepin County RiverWatch program, did not occur in 2022.

Lake Monitoring

Routine water quality monitoring in Schmidt and Magda lakes was conducted biweekly in 2022. Aquatic vegetation surveys were also conducted on those lakes, once in late spring and once in late summer. Grant-funded monitoring also occurred on Crystal and Meadow Lakes.

Thirteen of the sixteen lakes in Shingle Creek are periodically monitored for water quality by volunteers through the Citizen Assisted Monitoring program (CAMP). Volunteers in the program monitor their lake every other week from mid-April to mid-October. They measure surface water temperature, Secchi depth, and collect surface water samples that are analyzed by the Metropolitan Council for Total Phosphorus (TP), Total Kjeldahl Nitrogen (TKN), and chlorophyll-a. In 2022, Bass Lake and the three basins of Twin Lake were monitored through CAMP.

Water quality monitoring in the lakes has helped our understanding of changes in lake health following management activities.

Wetland Monitoring

The Wetland Health Evaluation Program (WHEP) is administered by Hennepin County. The County has discontinued this program and no wetland monitoring through WHEP occurred in 2022.

The 2022 *Water Quality Monitoring Report* provides more detail on the Commission's stream and lake monitoring activities. The report will be forwarded to the Board of Water and Soil Resources as a companion to this report and will also be made available on the Commissions' website, www.shinglecreek.org.

FINANCES

The Commission's Joint Powers Agreement provides that each member city contributes toward the annual operating budget based 50% on the area located within the watershed boundary and 50% on the tax capacity of all property within the watershed. The 2022 cost allocations to the members are shown as part of the 2022 Operating Budget found in *Appendix 6*.

Of the \$388,590 operating budget approved by the Commission for 2022 revenue consisting of \$20,000 in application fees and reimbursements, and \$5,000 in interest income resulted in assessments to members totaling \$363,590.

The 2021 Audit Report, which was prepared by Johnson & Company, Ltd., Certified Public Accountants, may be viewed on the Commission's website, www.shinglecreek.org. The 2022 Audit Report will be posted there after June 30, 2023.

The Commission follows Rule 54 of the Government Accounting Standard Board (GASB) to report Fund Balances. The fund balance classifications include:

- *Nonspendable* – amounts that are not in a spendable form. The Commission does not have any items that fit this category.
- *Restricted* – amounts constrained to specific purposes by their providers. One example would be ad valorem levy funds received from the County for capital improvements projects. The unused portion of these funds must be set aside in a restricted account for similar projects. Another example would be BWSR Legacy Grant proceeds where the funds are received prior to the onset of a project and where any unused portion must be returned to the grantor.
- *Committed* – amounts constrained to specific purposes by the Commission itself. An example would be residual funds carried over from one year to the next for Studies, Project Identification and Subwatershed Assessments.
- *Assigned* – amounts the Commission intends to use for specific purposes. Most line items in the Commission's Operating Budget fall under this category.
- *Unassigned* – amounts that are available for any purpose. These amounts are reported only in the general fund.

Amounts paid by the Commission per the Commission's 2021 Annual Audit are:

General Engineering	105,990
General Administration	111,629
Education	23,645
Programs	107,147
Projects	206,859
Capital Projects	<u>204,263</u>
Total	\$759,533

General engineering work includes review of local plans, review of development/redevelopment projects, tracking grant opportunities, attendance at meetings and other technical services.

General administration includes support to technical staff, attendance at meetings, insurance premiums, bookkeeping and annual audit, legal counsel, and other non-engineering services.

2023 WORK PLAN

The following are the adopted activities for the 2023 Work Plan, organized by Goal Areas identified in the Fourth Generation Plan and as general, routine Commission business. There are routine, ongoing activities as well as some Commission-funded construction projects expected. These activities were approved at the Commission's January 12, 2023, meeting with the addition of a goal to develop a process to add a diversity and equity evaluation to projects undertaken by the Commission.

GOAL 1. Protect, maintain, and improve the water quality and ecological integrity of the water and natural resources within the watersheds and the downstream receiving waters.

- § Complete the 5-year performance review for the Bass and Shingle Creek Biotic and DO TMDL.
- § Complete an aquatic vegetation survey on Bass Lake to assess success of vegetation transplants.
- § Partner with the City of Robbinsdale to complete the Crystal Lake Management Plan, including final sediment cores, and curly-leaf pondweed monitoring and potential treatment.
- § Partner with the City of New Hope to implement the Meadow Lake Management Plan, including potential additional vegetation and fish management and preparation for an alum treatment.
- § Partner with the City of Brooklyn Park and Three Rivers Park District to undertake feasibility assessment for stream restoration on Shingle Creek from the end point of the Connections project in Brookdale Park to just downstream of Xerxes Avenue.
- § Continue to partner with the USGS to operate the Queen Avenue monitoring site.
- § Stay abreast of other regional and state TMDLs.
- § Complete the Gaulke Pond and Eagle Lake subwatershed assessments
- § Use funding from the new Project Maintenance Fund to upkeep past project improvements.

GOAL 2. Reduce stormwater runoff rates and volumes to limit flood risk, protect conveyance systems, protect surficial groundwater, and reduce or mitigate impacts that have already occurred.

- § Complete reviews of development and redevelopment projects as necessary.

GOAL 3. Educate and engage all stakeholders in the watersheds on surface water issues and opportunities.

- § Participate in the West Metro Water Alliance joint education and outreach group.
- § Partner with Hennepin County and other local watersheds to fund a shared Education and Outreach Coordinator.
- § Develop a Chloride Management Plan for the watershed.

GOAL 4. Anticipate and proactively work to withstand adverse impacts from changing environmental and climate conditions.

- § Apply for a Climate Resiliency Grant to model future precipitation scenarios and, if awarded, begin work.

Continue ongoing administration and programming.

- § Conduct routine Commission lake water quality monitoring and aquatic vegetation and fish surveys on Upper and Middle Twin Lakes and grant funded aquatic vegetation monitoring on Crystal and Meadow Lakes.
- § Conduct Commission routine flow and water quality monitoring at SC-0 and SC-3 on Shingle Creek and Bass Creek Park (BCP) on Bass Creek as well as two DO longitudinal studies as part of the Shingle and Bass Creeks Dissolved Oxygen (DO) and Biotic Integrity TMDL 5 Year Review.
- § If available in 2023, sponsor volunteer stream monitoring through RiverWatch.
- § Sponsor volunteer lake monitoring through CAMP (Met Council) on Meadow, Ryan and Lower Twin lakes.
- § Prepare an annual water quality report.
- § Solicit cost-share projects from member cities funded from the Cost Share Fund and the annual \$100,000 levy and the Partnership Cost Share Fund and the annual \$50,000 levy.
- § Review feasibility studies for 2023 proposed capital projects, undertake Plan Amendments, hold public hearings, order projects and certify levies.
- § Prepare a 2024 annual budget.
- § Finalize and adopt the Fourth Generation Management Plan.
- § Invite three guest speakers to make lunchtime water resources presentations.
- § Complete the legal watershed boundary update.
- § Tour project sites in the watershed.

2023 WATER MONITORING

Each year the Commission budgets and undertakes monitoring activities, including routine stream and lake monitoring and volunteer lake, stream, and wetland monitoring. Water quality and quantity monitoring on Shingle Creek and select lakes is performed by Stantec staff and the USGS and macroinvertebrate monitoring in Shingle Creek is performed by volunteers through the Hennepin County Environmental Services' (HCES) RiverWatch program. Lake monitoring is performed by volunteers through the Met Council's Citizen Assisted Lake Monitoring Program (CAMP). The activities outlined below are consistent with the soon-to-be adopted Fourth Generation Management Plan, which includes routine monitoring tasks, specific monitoring efforts to support Commission administered grants, and monitoring to evaluate progress toward the TMDLs. In 2023 the Commission will complete the 5-year biotic and DO TMDL review report for Shingle and Bass Creeks. Lakes have been prioritized by tiers and, under the Fourth Generation Plan, the TMDLs will be reviewed systematically by priority.

Tier 1 – Impaired lakes with management actions planned. These lakes are priority lakes for intensive monitoring under the Fourth Generation Plan. Intensive monitoring will be used to evaluate lakes for management projects.

Tier 2 - Impaired lakes with previous management or none planned. The lakes are second priority for intensive lake monitoring under this Plan, as they are impaired.

Tier 3 – Delisted lakes. These lakes are third priority and will be monitored primarily through the CAMP program unless declines in water quality are detected.

Review of Shingle and Bass Creek TMDLs will also be prioritized based on the impaired status of the streams.

2023 Monitoring Program

§ **Routine Stream Flow and Water Quality Monitoring.** The Commission has routinely monitored stream flow and water quality in Shingle Creek since 1996. Two locations, one downstream of Humboldt Avenue in Minneapolis (SC-0) and one upstream of Zane Avenue in Brooklyn Park (SC-2) have been monitored for water quantity and various water quality chemical parameters. In 2007, SC-2 was moved from upstream to just downstream of Brooklyn Boulevard in order to obtain a better stage-discharge relationship. This site is identified as SC-3 and SC-2 is no longer monitored.

In 2015 Bass Creek (BCP) was added as a third site to be routinely monitored for water quality and conductivity. The Bass Creek monitoring station has helped provide better information about water quality in Bass Creek, which is impaired for chloride and biota.

A fourth site at Queen Avenue in Minneapolis (SC-1/USGS) is monitored for flow by the US Geological Survey (USGS) as a part of its ongoing National Assessment of Water Quality

(NAWQA). Chemical parameters are no longer routinely measured at the USGS site, except for continuous conductivity and temperature. That data are available on-line in real-time at [SHINGLE CREEK AT QUEEN AVE IN MINNEAPOLIS, MN - USGS Water Data for the Nation](#). The Commission also partners financially with the USGS in the operation of the Queen Avenue monitoring station.

- § **Intensive Lake TMDL Monitoring.** To track the effectiveness of BMP implementation in improving lake water quality, the Commission routinely performs intensive lake monitoring to supplement the volunteer surface monitoring. Because the Commission's goals include achieving delisting of lakes that meet their TMDLs and water quality, the Fourth Generation monitoring plan continues more rigorous lake monitoring sufficient to demonstrate to the MPCA and EPA that conditions have improved.
- § **Water Quality Monitoring.** For 2023, Upper and Middle Twin Lakes will be monitored biweekly. The water quality data collected for the lakes will include surface and deep-water samples, water column temperature/DO profiles, and zooplankton and phytoplankton sampling.
- § **Aquatic Vegetation Surveys.** A component of the intensive monitoring is to obtain or update surveys of lake aquatic vegetation. As we have discussed with the Commission in the past, aquatic vegetation plays an important role in water quality and biotic integrity, and the vegetation community can change as water quality changes. For 2023, surveys for Upper and Middle Twin will be updated in tandem with the intensive monitoring.
- § **Fish Surveys.** A carp population assessment will be completed for Upper and Middle Twin in 2023 to guide future carp management.

Grant Projects

The following monitoring tasks are built into ongoing grant projects.

- § **Bass Lake Alum Treatment.** A full curly-leaf pondweed (CLP) delineation will be done on Bass Lake in Spring 2023. CLP is a persistent invasive species in Bass Lake and has been treated with herbicide annually since 2020. Bass Lake will likely be treated with herbicide for CLP abundance in 2023. The delineation will cost approximately \$4,400 and will be paid from remaining Bass and Pomerleau Lakes Alum Treatment grant funds.
- § **Bass Lake Vegetation Improvement.** This project aimed to increase aquatic plant diversity in Bass Lake by transplanting desirable species from Big Carnelian to Bass Lake. After two transplant events in 2022, the final part of the grant project will be doing a late-summer point-intercept SAV survey on Bass Lake to assess plant diversity. This survey will cost approximately \$3,700 and will be paid from grant funds.
- § **The Crystal Lake Management Plan** began in 2020. This project includes carp assessment and tracking, alum applications, carp removal, SAV surveys, and water quality monitoring and

intends to address Crystal Lake's impairment for nutrients. The grant expires in August 2023. The final summer of this grant will be focused on collecting final sediment core data and assessing the aquatic vegetation community.

Aquatic Vegetation Surveys. Crystal Lake has received two alum treatments, with the most recent one occurring in September 2022. It is not uncommon for an increase in water clarity as a result of alum treatments to spur aquatic vegetation growth. Crystal Lake only has two previously observed aquatic plant species: waterlily and curly-leaf pondweed (CLP), both in extremely low abundance. To ensure that CLP does not take over the lake as a result of increased clarity, a visual survey of CLP abundance will be done in early Spring 2023. If necessary, CLP will be treated with herbicide. The visual survey will cost approximately \$1,500 and will be paid from grant funds.

Sediment Coring. In 2023 a follow-up round of sediment cores will be collected from Crystal Lake to assess success of the two alum treatments that were applied in Fall 2021 and 2022 in reducing internal phosphorus loading to the lake. The labor and laboratory expenses for collecting and processing sediment cores are approximately \$14,600 and will be paid from grant funds.

- § **The Meadow Lake Drawdown project** began in Fall 2021. The project includes adaptive management to control the fathead minnow and CLP populations in the lake and address the nutrient impairment. The second summer season of this project will include a Spring CLP delineation and potential treatment, and two vegetation surveys. The lake water quality will be monitored by a CAMP volunteer. The CLP and vegetation monitoring will cost \$7,700 and will be paid from grant funds.

Volunteer Monitoring

Lakes. The Shingle Creek Commission has participated in the Met Council's "Citizen Assisted Lake Monitoring Program" (CAMP) since 1993. This program trains volunteers to take surface water samples and make water quality observations from late spring to early fall, using standardized reporting techniques and forms. The CAMP program has been the Commission's primary means of obtaining ongoing lake water quality data. This program is also an NPDES Education and Outreach BMP.

CAMP was initiated by the Met Council to supplement the water quality monitoring performed by Met Council staff and to increase the Commission's knowledge of water quality of area lakes. Volunteers monitor the lakes every other week from mid-April to mid-October. They measure surface water temperature and Secchi depth, and collect surface water samples that are analyzed by the Met Council for total phosphorous, total Kjeldahl nitrogen, and chlorophyll-a. The volunteers also judge the appearance of the lake, its odor, and its suitability for recreation.

Lakes are monitored on a rotating schedule. The larger lakes are monitored every other year while the smaller lakes are monitored every three years. It is assumed that when a lake undergoes the intensive sampling program, no CAMP monitoring will be performed that year. Lakes scheduled for 2023 volunteer lake monitoring are Meadow Lake, Ryan Lake, and Lower Twin Lake. grades going back to 1996

Streams. In previous years high school student volunteers conducted macroinvertebrate monitoring through Hennepin County Environmental Services' RiverWatch Program at two locations on Shingle Creek. The County maintains an interactive online map showing locations throughout the county and stream: hennepin.us/riverwatch.

Have a question about this report? Need more information?

Want to know how to get involved?

Contact us: drop us an email, give us a call, we're happy to help:

<http://www.shinglecreek.org/contact-us.html>

APPENDICES

2022 Commissioners

Representing	Name	Address	Telephone	Email	Term Expires Jan 31
Brooklyn Center	David Vlasin		651.792.7972	David.vlasin@rwmwd.org	2024
Brooklyn Park	Alex Prasch	6548 Georgia Avenue N Brooklyn Park, MN 55428	763.226.4711	alexa.prasch@gmail.com	2024
Crystal	Burton Orred, Jr. Treasurer	6700 60th Avenue North Crystal, MN 55428	763.533.7808	burtssquirts@gmail.com	2024
Maple Grove	Karen Jaeger Secretary	8459 Rice Lake Road Maple Grove, MN 55369	763.420.3838	jaeger324@comcast.net	2025
Minneapolis	Ray Schoch	5146 Russell Avenue North Minneapolis, MN 55430	612.529.4954	rayeschoch@gmail.com	2025
New Hope	Bill Wills	6149 Gettysburg Avenue N New Hope, MN 55428	763.531.0788	wjw9416@msn.com	2025
Osseo	John Roach	12-Sixth Street NE #113 Osseo, MN 55369	763.315.4258	johnbp60@gmail.com	2023
Plymouth	Andy Polzin Chair	18605 29th Avenue North Plymouth, MN 55447	612.998.4920	rapolzin@msn.com	2023
Robbinsdale	Wayne Sicora Vice Chair	3706 Abbott Avenue North Robbinsdale, MN 55422	763.522.8165	wayne.sicora@erm.com	2023

2022 Technical Advisory Committee

Representing	Name	Address	Telephone	Email
Brooklyn Center	Andrew Hogg	6301 Shingle Creek Parkway Brooklyn Center, MN 55430	763.569.3327	ahogg@ci.brooklyn-center.mn.us
Brooklyn Park	Mitchell Robinson	5200 85th Avenue North Brooklyn Park, MN 55443	763.493.8291	mittchell.robinson@brooklynpark.org
Crystal	Mark Ray	4141 Douglas Drive Crystal, MN 55422	763.531.1160	mark.ray@ci.crystalmn.gov
Maple Grove	Derek Asche	12800 Arbor Lakes Parkway Maple Grove, MN 55313	763.494.6354	dasche@ci.maple-grove.mn.us
Minneapolis	Elizabeth Stout	City of Lakes Building #300, 309 Second Avenue South Minneapolis, MN 55401	612.673.5284	Elizabeth.Stout@minneapolismn.gov
New Hope	Nick Macklem	5500 International Parkway New Hope, MN 55428	763.592.6765	nmacklem@newhopemn.gov
Osseo	Nick Waldbillig	415 Central Avenue Osseo MN 55369	763-425-5741	nwaldbillig@ci.osseo.mn.us
Plymouth	Ben Scharenbroich	3400 Plymouth Boulevard Plymouth, MN 55447	763.509.5527	bscharenbroich@plymouthmn.gov
Robbinsdale	Richard McCoy	4100 Lakeview Avenue North Robbinsdale, MN 55422	763.531.1260	rmccoy@ci.robbinsdale.mn.us

2022 Shingle Creek Commission Staff

Name	Address	Telephone	Email
Technical			
Ed Matthiesen	Wenck Associates, Inc.	763.252.6851	edward.matthiesen@stantec.com
Diane Spector	7500 Highway 55 Ste 300	763.252.6880	diane.spector@stantec.com
Todd Shoemaker	Golden Valley, MN 55427	651.294.4585	todd.shoemaker@stantec.com
Katie L. Kemmitt		763.252.6879	katie.kemmitt@stantec.com
Legal			
Troy Gilchrist	Kennedy & Graven, 470 Pillsbury Center Minneapolis, MN 55402	612.337.9214	tgilchrist@kennedy-graven.com
Administrative			
Judie Anderson	JASS	763.553.1144	<u>judie@jass.biz</u>
Amy Juntunen	3235 Fernbrook Lane		amy@jass.biz
Beverly Love	Plymouth, MN 55447		beverly@jass.biz

AMENDMENTS TO THE JOINT WATERSHED MANAGEMENT PLAN

In 2013 the Shingle Creek and West Mississippi Watershed Management Commissions adopted their joint *2013-2022 Third Generation Watershed Management Plan*. The Plan sets forth goals and strategies that will guide water resources management activities in the two watersheds over the coming decade. Over the years the Commission, either individually or together with the Shingle Creek Commission, has adopted a number of amendments to the Plan. They are described below:

In 2013 the Commissions adopted a minor amendment to the Plan which revised the Commissions' Rules and Standards to adopt the new National Oceanic and Atmospheric Administration (NOAA) Atlas 14 precipitation frequency standards, replacing the outdated Weather Bureau Technical Paper 40 (TP-40) standards.

In 2014 the Commissions adopted a second minor amendment to the Plan. It revises the estimated cost and provides more description and detail about one proposed Shingle Creek project in the Commissions' Capital Improvement Program (CIP).

In December 2014 the Commissions adopted a major amendment to the Plan which added five projects to the Commissions' CIP - three pond retrofits in the Shingle Creek watershed and Priority BMP Retrofits in both watersheds.

On May 14, 2015, the Commissions adopted a minor Plan amendment to 1) increase the annual levy for city cost-share projects from \$50,000 to \$100,000, 2) increase the (Shingle Creek) Commission cost share for lake internal load projects from 25% to 100%; and 3) specify that the potential 2015 lake internal load project (in the Shingle Creek watershed) would be the proposed Twin Lake Carp Tracking and Removal project.

On November 12, 2015, the Commissions amended their joint *Third Generation Watershed Management Plan* to adopt a revision to the plan amendment process to conform to 2015 revisions to MN Rules 8410. In part, the revisions will allow the Commission to modify the CIP with only minimal need for plan amendments.

On June 9, 2016, the Commissions adopted a minor amendment to the Plan which amended the Shingle Creek 2016 CIP to include: 1) an annual levy for city cost-share projects of \$200,000 with Commission cost-share of \$100,000; 2) Iron and Biochar-Enhanced Sand Filter Retrofits of \$210,000 with Commission cost-share at 100%; and 3) Partnership cost share (private projects) of \$100,00, with Commission cost-share of \$50,000; and further amended the West Mississippi 2016 CIP to include: 1) an annual levy for city cost-share projects of \$50,000 with Commission cost-share at 100%; and 2) Iron and Biochar-Enhanced Sand Filter Retrofits of \$80,000 with Commission cost-share at 100%.

On May 11, 2017, the Commissions adopted a seventh minor amendment to their joint Plan. In Shingle Creek a second phase to the Reaeration Project was added to the CIP at

AMENDMENTS TO THE JOINT WATERSHED MANAGEMENT PLAN, *cont'd.*

a project cost/Commission contribution of \$145,000; and specificity of description was added to the Palmer Creek Estates Bass Creek Stream Restoration. Three other projects were moved to future years. In West Mississippi the 2017 CIP was revised to move three projects to future years.

On May 10, 2018, the Commissions adopted a minor amendment which amended the Shingle Creek CIP to substitute the Bass and Pomerleau Lakes Alum Treatment Project for the generic Lake Internal Load Project in 2018 and added the SRP Reduction Project to the CIP, also in 2018. Two other projects were moved to future years. No revisions were made to the West Mississippi CIP.

On May 9, 2019, the Commission adopted the first of four new amendments to the Plan. The first amendment revised the CIP to add specificity to a project and to revise certain cost-share policies. The second, adopted August 8, 2019, revised the CIP to reschedule and add specificity to a project and to adopt a cost-share policy for capital improvements.

The third amendment, adopted September 12, 2019, ordered four improvements, designating the members responsible for construction and certifying them for ad valorem levy. One improvement, City Cost Share Best Management Practices (BMP) Projects (\$53,025.00), was located in the West Mississippi watershed. On October 10, 2019, the Plan was amended to add the River Park Storm Improvement project to the West Mississippi 2020 CIP.

The joint Plan was not amended in 2020.

On May 13, 2021, the Commissions adopted a minor amendment to the Plan which amended the Shingle Creek CIP to increase the cost of the existing Palmer Lake Estates Bass Creek Restoration Project from \$450,000 to \$600,000 and the Commission share to 100% of the project cost and to add "Channel Modification with SRP Filter Phase 2," the second phase of a project to install a media filter in a wetland outlet channel to reduce phosphorus to Upper Twin Lake. Cost: \$125,000. One project was added to the West Mississippi CIP: "Partnership Cost Share Projects." This program shares in the cost of Best Management Practices (BMPs) partnership projects with private landowners. Cost: \$100,000.

On May 12, 2022, the Commissions adopted a minor amendment to revise Appendix C of the Plan, Rules and Standards, to (1) make the rules consistent with the most recent Minnesota General Stormwater Permit; and (2) make other various housekeeping revisions to the Rules.

On July 14, 2022, the Shingle Creek Commission adopted a minor amendment to add to Appendix F, CIP Descriptions: "Maintenance Fund, A new project maintenance program funded by county levy to undertake nonstructural water quality improvements such as lake aquatic vegetation and rough fish management."

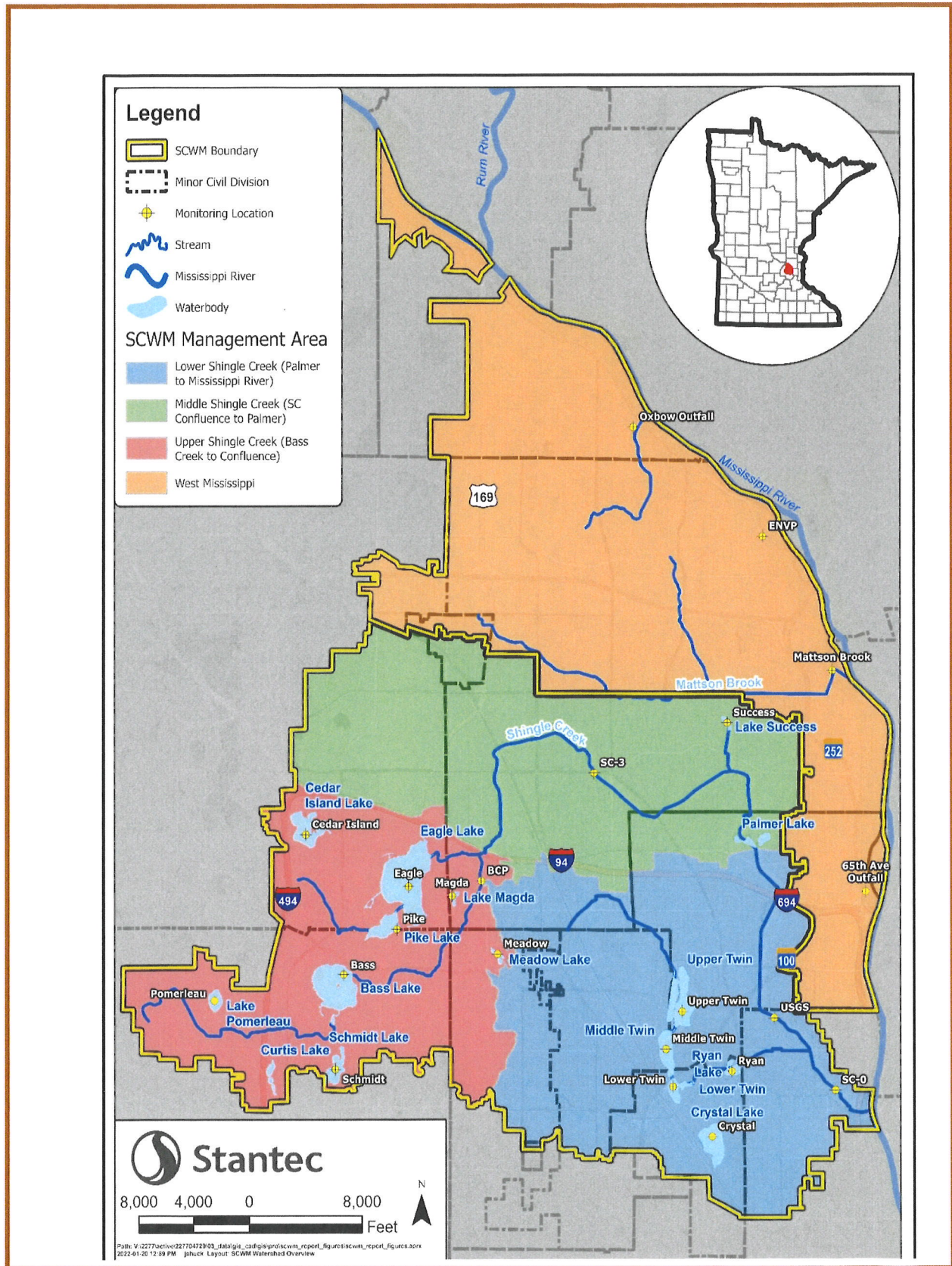
Local Plan Requirements

Local water plans must be prepared by metropolitan cities and towns (municipalities) and a local water plan must become part of the local comprehensive plan for a municipality.

- Under the amended rule, local water plans must be revised essentially once every ten years in alignment with the local comprehensive plan schedule.
- A municipality has two years before its local comprehensive plan is due to adopt its local water plan.
- Prior to adoption, a municipality must prepare its local water plan, distribute it for comment, and have it approved by the organization with jurisdiction in the municipality.
- Local water plans may be updated more frequently by a municipality at its discretion.

At a minimum, cities in their Local Plans are required to do the following:

1. Update the existing and proposed physical environment and land use. Information from previous plans that has not changed may be referenced and summarized but does not have to be repeated. Local Plans may adopt relevant sections of the Commission's Watershed Management Plan (WMP) Section 2.0 Inventory and Condition Assessment by reference unless the member city has more recent information.
2. Update the existing and proposed hydrology and provide subwatershed, storm rain gage system, and installed BMP figures and Shapefiles.
3. Explain how the goals and policies and rules and standards established in the WMP will be implemented at the local level.
4. Show how the member city will take action to achieve the load reductions and other actions identified in and agreed to in TMDL Implementation Plans, including identifying known upcoming projects, including street reconstruction projects, that will provide opportunities to include load and volume reduction BMPs.
5. Explain how the City will implement the City Review project review requirements of the revised Rules and Standards.
6. Update existing or potential water resource related problems and identify nonstructural, programmatic, and structural solutions, including those program elements detailed in Minnesota Rules 8410.0100, Subp. 1-6.
7. Summarize the estimated cost of implementation.
8. Set forth an implementation program including a description of adoption or amendment of official controls and local policies necessary to implement the Rules and Standards; programs; policies; and a capital improvement plan.



2022 Project Reviews

Number	Project	City	WCA LGU	Project Description	Impervious Area	Approved
SC2022-01	5308 Perry Avenue House Construction	Crystal	Comm	Construction of home on 1.32 acre site.	Following development, site will be 8% impervious with 0.10 acres of impervious, an increase of 0.10 acres.	13-Jan-22
SC2022-02	Nathan Lane Business Center	Plymouth	City	Redevelopment of property with 90,000 SF office/warehouse building and associated parking on approx. 6-acre site.	Following development site will be 78% impervious, with 4.7 acres impervious surface, an increase of 2.0 acres.	14-Apr-22
SC2022-03	Arbor Lakes Phase II, Building B	Maple Grove	City	Construction of new building, associated parking, and loading docs on 11.2 acres.	Following development site will be 87% impervious, with 9.7 acres impervious surface, an increase of 9.7 acres.	10-Mar-22
SC2022-04	Arbor Lakes Phase III	Maple Grove	City	No review.		
SC2022-05	North 100 Business Park	Brooklyn Center	Comm	Redevelopment of Sear Stores into two-building commercial park on 17.4 acres.	Following development site will be 75% impervious with 12.9 acres of impervious, a decrease of 3.0 acres.	11-Aug-22
SC2022-06	Opportunity Site	Brooklyn Center	Comm	Redevelopment of approx. 16 acres into residential, entrepreneurial spaces and event center within a larger 68-acre redevelopment area.	Following development -the site will be 80 percent impervious with 12.8 acres of impervious surface, a decrease of 1.4 acres.	8-Dec-22
SC2022-07	St. Therese Senior Living Facility	New Hope	City	Renovation of independent living facility and surrounding green space on 11.3 acre site.	Following development site will be 6.3% impervious with 7.1 acres of impervious, an increase of 0.6 acres.	8-Sep-22
SC2017-03	Joslyn Superfund Site	Brooklyn Center	Comm	Technical Memorandum – Project Final Design Modifications. Commission Staff determined that the updated design meets Commission standards. No action required by the Commission.		8-Sep-22

Shingle Creek Watershed Management Commission
2021-2022 Operating Budgets

		Approved 2021 Budget	Approved 2022 Budget
REVENUE			
1	Application Fees	\$20,000	\$20,000
2	Member Assessments	363,590	363,590
3	Blue Line Extension	0	0
4	Interest	20,000	5,000
	TOTAL REVENUE	\$403,590	\$388,590
EXPENSES			
	ADMINISTRATION		
5	Administrative Services	\$71,000	\$71,000
6	Engineering Support	17,000	17,000
7	Project Reviews/WCA	1,500	1,500
	Subtotal	\$89,500	\$89,500
	ENGINEERING		
9	Engineering Services	75,000	75,000
10	Grant Application Writing	11,000	12,000
11	Project Reviews/WCA	44,000	43,000
13	TMDL 5 Year Reviews	10,000	5,000
	Subtotal	\$140,000	\$135,000
	LEGAL		
14	Legal Services	\$5,500	\$5,500
	MISCELLANEOUS		
15	Bookkeeping	7,000	8,000
16	Audit	6,500	6,500
17	Insurance & Bonding	3,100	3,200
18	Meeting Expense	5,000	5,000
	Subtotal	\$21,600	\$22,700
	PROGRAMS		
	Monitoring		
19	Stream Monitoring	36,000	35,000
20	Stream Monitoring-USGS	4,200	4,200
21	Commission Lake Monitoring	24,000	28,000
22	Citizen Assisted Lake Monitoring	3,800	4,800
23	Vol Wetland Monitoring	2,000	2,000
24	Vol Stream Monitoring	1,000	1,000
25	Annual Monitoring Report	16,000	16,000
	Subtotal	\$87,000	\$91,000

Shingle Creek Watershed Management Commission
2021-2022 Operating Budgets

		Approved 2021 Budget	Approved 2022 Budget
	<i>Water Quality Education</i>		
26	Education Program	15,000	16, 500
27	Education Grants	500	0
28	WMWA Admin/Tech: SC Share	5,000	5,000
29	WMWA Impl Activities: SC Share	2,000	2,000
30	Rain Garden Workshops: SC Share	2,000	0
31	WMWA Educators: SC Share	4,500	4,500
	Subtotal	\$29,000	\$28,000
	MANAGEMENT PLANS		
32	3 rd Gen Plan/Plan Amendments	0	1,000
33	Subwatershed BMP Assessment	10,000	0
	Subtotal	\$10,000	\$1,000
	PROJECTS		
34	Contribution to 4 th Generation Plan	0	0
35	To/(From) Reserves	20,990	15,890
	Subtotal	\$20,990	\$15,890
	TOTAL OPERATING EXPENSE	\$403,590	\$388,590

Shingle Creek Watershed Management Commission

Member Assessments – 2021 - 2022

2021 Community	Acreage	2020 Tax Capacity	Cost Allocation		Cost Based		Total Cost	
			Based on Area		on Tax Capacity			
			%age	Dollars	%age	Dollars	%age	Dollars
Brooklyn	3,720	19,082,171	13.07%	23,762.382	10.55%	19,174.501	11.81%	42,936.88
Brooklyn Park	7,080	41,288,026	24.88%	45,225.179	22.82%	41,487.799	23.85%	86,712.99
Crystal	2,480	13,455,117	8.71%	15,841.588	7.44%	13,520.220	8.08%	29,361.81
Maple Grove	5,020	35,903,298	17.64%	32,066.441	19.84%	36,077.017	18.74%	68,143.46
Minneapolis	1,950	12,300,200	6.85%	12,456.087	6.80%	12,359.715	6.83%	24,815.80
New Hope	2,070	16,231,998	7.27%	13,222.616	8.97%	16,310.537	8.12%	29,533.15
Osseo	300	2,201,981	1.05%	1,916.321	1.22%	2,212.635	1.14%	4,128.96
Plymouth	4,380	30,147,065	15.39%	27,978.289	16.66%	30,292.932	16.03%	58,271.22
Robbinsdale	1,460	10,309,759	5.13%	9,326.096	5.70%	10,359.643	5.41%	19,685.74
Total	28,460	180,919,615	100%	181,795	100%	181,795	100%	363,590

2022 Community	Acreage	2021 Tax Capacity	Cost Allocation		Cost Based		Total Cost	
			Based on Area		on Tax Capacity			
			%age	Dollars	%age	Dollars	%age	Dollars
Brooklyn Center	3,720	20,453,640	13.07%	23,762.382	10.58%	19,230.292	11.82%	42,992.67
Brooklyn Park	7,080	44,158,668	24.88%	45,225.179	22.84%	41,517.503	23.86%	86,742.68
Crystal	2,480	14,200,096	8.71%	15,841.588	7.34%	13,350.777	8.03%	29,192.37
Maple Grove	5,020	38,788,473	17.64%	32,066.441	20.06%	36,468.504	18.85%	68,534.94
Minneapolis	1,950	13,204,556	6.85%	12,456.087	6.83%	12,414.781	6.84%	24,870.87
New Hope	2,070	17,617,989	7.27%	13,222.616	9.11%	16,564.243	8.19%	29,786.86
Osseo	300	2,345,474	1.05%	1,916.321	1.21%	2,205.189	1.13%	4,121.51
Plymouth	4,380	31,478,480	15.39%	27,978.289	16.28%	29,595.727	15.83%	57,574.02
Robbinsdale	1,460	11,112,638	5.13%	9,326.096	5.75%	10,447.982	5.44%	19,774.08
Total	28,460	193,360,014	100%	181,795	100%	181,795	100%	363,590

DRAFT



WEST MISSISSIPPI WATERSHED MANAGEMENT COMMISSION

2022 ANNUAL ACTIVITY REPORT

Table of Contents

Annual Activity Report.....	1
The Commission	1
Consultants	1
Meetings	1
Watershed Management Plan.....	1
Local Plans	2
2022 Work Plan in Review	3
Water Monitoring.....	6
Consultant Services Selection	8
Financials	8
Projected 2023 Work Plan	10

Appendices

- 1 Commissioners, Technical Advisory Committee and Staff
- 2 Third Generation Watershed Management Plan Amendments
- 3 2022 Project Reviews
- 4 Financials

This report was prepared for the
West Mississippi Watershed Management Commission
by JASS

Questions regarding this report should be directed to
JASS, 763.553.1144 or judie@jass.biz

We gratefully acknowledge the assistance of
Diane Spector, Katie Kemmitt, Ali Stone, Todd Shoemaker, Lucas Clapp
Stantec Consulting Services

Cover photograph:
Mississippi Crossings, Champlin

Completed in fall 2022, Mississippi Crossings is a regional attraction for residents to interact with the river. The development is a city owned facility that includes an event center, outdoor performance area, splash pad, playground, and dog run. In 2024 a privately owned restaurant will be added.

Courtesy of Heather Nelson

ANNUAL ACTIVITY REPORT

This annual report has been prepared by the West Mississippi Watershed Management Commission in accordance with the annual reporting requirements of Minnesota Rules Chapter 8410.0150, Subps. 2 and 3. It summarizes the activities undertaken during calendar year 2022.

THE COMMISSION

The West Mississippi Watershed Management Commission is governed by a five-member board comprised of representatives from each member city who are appointed for terms of three years. The five member cities are Brooklyn Center, Brooklyn Park, Champlin, Maple Grove, and Osseo. Commissioners who served in 2022 are shown in *Appendix 1*. Also shown there are the members of the Technical Advisory Committee (TAC) from each city.

CONSULTANTS

The Commission has no employees. The names of the consultants currently retained by the Commission are also listed in *Appendix 1*.

MEETINGS

The Commission meets monthly at 12:45 p.m. on the second Thursday of the month. The meetings are open to the public. Meeting notices, agendas and approved minutes are posted on the Commission's website, www.shinglecreek.org.

Due to the COVID-19 pandemic, in 2022 the January, February and March Commission meetings were held virtually on www.zoom.us. The April, May, June, and July meetings were held in the Community Room, Crystal City Hall, 4141 Douglas Drive, Crystal, Minnesota. The August and subsequent meetings took place in the Plymouth Community Center, 14800 34th Avenue North, Plymouth, Minnesota.

WATERSHED MANAGEMENT PLAN

In 2013 the Shingle Creek and West Mississippi Watershed Management Commissions adopted their joint 2013-2022 Third Generation Watershed Management Plan. The Plan, approved by the Board of Water and Soil Resources (BWSR) on March 27, 2013, is the culmination of a nearly two-year planning effort by the two Commissions, the cities that are members of these joint powers organizations, state agencies, and the public. The Plan sets forth goals and strategies

that will guide water resources management activities in the two watersheds over the coming decade. Over the years the Commission, either individually or together with the Shingle Creek Watershed Management Commission, has adopted a number of amendments to the Plan. They are described in *Appendix 2*.

LOCAL PLANS

Revisions to Minnesota Rules 8410 adopted in 2015 included significant changes in the timing of local water plan revisions. Per 8410.0105 subp. 9 and 8410.0160 subp. 6:

- Local water plans must be prepared by metropolitan cities and towns (municipalities) and a local water plan must become part of the local comprehensive plan for a municipality.
- Under the amended rule, local water plans must be revised essentially once every ten years in alignment with the local comprehensive plan schedule.
- A municipality has two years before its local comprehensive plan is due to adopt its local water plan.
- Prior to adoption, a municipality must prepare its local water plan, distribute it for comment, and have it approved by the organization with jurisdiction in the municipality.
- Local water plans may be updated more frequently by a municipality at its discretion.

At a minimum, Local Plans are required to:

- Update the existing and proposed physical environment and land use. Information from previous plans that has not changed may be referenced and summarized but does not have to be repeated. Local Plans may adopt relevant sections of the Commission's Watershed Management Plan (WMP) Section 2.0 Inventory and Condition Assessment by reference unless the member city has more recent information.
- Update the existing and proposed hydrology and provide subwatershed, storm drainage system, and installed BMP figures and Shapefiles.
- Explain how the goals and policies and rules and standards established in the WMP will be implemented at the local level.
- Show how the member city will achieve the load reductions and other actions identified in and agreed to in TMDL Implementation Plans, including identifying known upcoming projects, including street reconstruction projects, that will provide opportunities to include load and volume reduction BMPs.
- Explain how the City will implement the project review requirements of the revised Rules and Standards.

- Update existing or potential water resource related problems and identify nonstructural, programmatic, and structural solutions, including those program elements detailed in MN Rules 8410.0100, Subp. 1-6.
- Summarize the estimated cost of implementation.
- Set forth an implementation program including a description of adoption or amendment of official controls and local policies necessary to implement the Rules and Standards, programs, policies, and a capital improvement plan.

2022 WORK PLAN IN REVIEW

The joint Third Generation Watershed Management Plan states that the Shingle Creek and West Mississippi Commissions will annually review progress toward their Third Generation goals and that this evaluation will become part of the Annual Activity Report.

The purpose of the annual review is twofold -- to determine progress towards the goals and to be sure the Commissions stay on track to reach them. The annual review is also an opportunity to discuss whether the goals and actions in the Plan still make sense or if they should be considered for modification or enhancement, perhaps to add new priorities. Ideally, this annual review is also an opportunity to start thinking about the following year's work plan.

At their January 14, 2022, meeting the West Mississippi Watershed Management Commission identified the following activities for inclusion in their 2022 Work Plan. Most are ongoing, although some activities rotate around the watershed. Some highlights of the past year include:

➤ **Continue to stay abreast of regional and state TMDLs.**

- Continued to identify, pursue grant funding for, and implement projects and programs addressing the bacterial impairment in the Mississippi River.
- Identify boundaries of the untreated areas directly connected to the Mississippi River or other conveyances. *No action was taken on this in 2022.*

➤ **Partner with other organizations to increase reach and cost effectiveness.**

- Participated in the West Metro Water Alliance (WMWA) joint education and outreach group. Continue its successful Watershed PREP classes. Due to the pandemic, Watershed PREP (Protection, Restoration, Education, and Prevention) classes were cancelled or conducted virtually. Classes resumed in the fall of 2022 with 1551 students in 51 classes. A video of the Watershed PREP class is available for home school or classroom viewing at <http://www.westmetrowateralliance.org/>.

In 2022 WMWA and its member WMOs (Bassett Creek, Elm Creek, Shingle Creek, and West

Mississippi) partnered with Hennepin County and the Richfield-Bloomington WMO to develop a shared education and outreach coordinator position funded by Watershed-Based Implementation Funding (WBIF) and the WMWA special projects budget. This two-year limited duration position will focus on engaging with various stakeholder groups in the five watersheds on clean water and chloride management issues. WMWA also drafted a long-term vision for the organization to help transition from a part-time to a full-time coordinator.

- Partner with the USGS, DNR, and other interested parties to stay abreast of groundwater issues. *No action was taken on this in 2022.*
- Partner with a member city to complete a subwatershed BMP analysis. *No action was taken on this in 2022.*
- Partnered with the Mississippi Watershed Management Organization (MWMO) to perform the monitoring at the 65th Avenue outfall. *The Commission contracted with MWMO to complete this monitoring in 2022.*

➤ **Continue ongoing administration and programming.**

- Sponsor volunteer stream monitoring through RiverWatch and wetland monitoring through WHEP (Hennepin County). *No RiverWatch monitoring was completed in 2022 and the County has discontinued the WHEP program.*
- Completed reviews of development and redevelopment projects as necessary. *Seven projects were reviewed by the Commission in 2022. They are described in more detail in Appendix 3. No variances were requested for these projects. The Commission does not have a permit program.*
- Prepared an annual water quality report. *The 2022 Annual Water Quality Report will be presented and accepted at the Commission's April 13, 2023, meeting and will be submitted as a companion to the Commission's 2022 Annual Activity Report, submitted to the Board of Water and Soil Resources, April 30, 2023.*
- Solicit cost-share projects from member cities funded from the Cost Share Fund and the annual \$50,000 levy. *No projects were promoted in 2022. Last year, the Commission approved \$35,422 of Watershed-Based Funding for the City of Brooklyn Park's River Park Stormwater Improvements Project. The WBIF funds were allocated to the cost share program. In 2022 the City of Brooklyn Park and Hennepin County submitted a Clean Water Fund grant application for the construction phase of the Mississippi Riverbank Stabilization Project. The application was not selected for funding.*

In December 2022, the Commission was awarded \$55,000 in 2023 WBIF Clean Water Funds for the Mississippi Riverbank Stabilization Project. Funds are available through December 31, 2025. This is the latest round of WBIF. It is for project design so that design is completed when construction funding is found.

- **Participated in the Hennepin County Chloride Initiative (HCCI).** *In 2018, the eleven WMOs in Hennepin County elected to pool 10% of their WBIF grants to fund the Hennepin County Chloride Initiative (HCCI), recognizing that properly managing chloride use was a common water quality issue. The group continued to explore various management topics and approaches, culminating in the development of a professional marketing campaign called "Low Salt No Salt Minnesota," which will be rolled out in 2023 by each of the WMOs and many cities.*
- **Undertook Plan Amendments, held public hearings, ordered projects and certify levies.** *On May 12, 2022, the Commissioners approved a minor Plan Amendment which would revise Appendix C of the Plan, the Rules and Standards, to 1) make the rules consistent with the most recent Minnesota General Stormwater Permit; and 2) make other various housekeeping revisions to the Rules.*

On September 8, 2022, a public hearing was called wherein five capital projects were approved – three in the Shingle Creek watershed and two in the West Mississippi watershed. The two in the West Mississippi watershed included the City Cost Share BMPs (\$50,000, levy \$53,025) and the West Mississippi Partnership Cost Share Project (\$200,000, levy \$106,050).
- **Prepared a 2023 annual budget and begin scoping the Fourth Generation Plan, which will be completed in 2023.** *The Commission approved its 2023 operating budget at its May 12, 2022, meeting and is in the amount of \$176,300. The 2023 budget provides for an assessment of \$156,200, no increase over the 2022 assessment. (Appendix 4)*
- **Hosted a Convene Meeting for the 2022 Watershed-Based Funding awarded to the West Mississippi Partnership.** *Met four times with the Shingle Creek and West Mississippi Watershed Based Implementation Funding (WBIF) Convene Groups to identify and select funding priorities for their \$95,501 and \$75,000 2022 WBIF awards. As part of that work, the four WMOs in WMWA plus the Richfield-Bloomington WMO agreed to pool some of their WBIF resources to fund a shared Education and Outreach Coordinator with Hennepin County. The West Mississippi Convene Group allocated \$20,000 to the Coordinator and \$55,000 to the Mississippi Riverbank Stabilization project.*
- **Completed the Fourth Generation Management Plan and submitted it for public and BWSR review.** *The Shingle Creek and West Mississippi Watershed Management Commissions spent considerable time developing their joint Fourth Generation Plan, completing a draft that was made available for informal review, and begin the formal review period which spanned November 2022 to January 2023. Aside from preparing the actual plan document and the 10-Year Implementation Plan, the Commissions:*

Participated in a joint Equity in Watershed Management workshop with the Bassett Creek WMO to talk about strategies for enhanced inclusion and equity in our work as

stewards of natural and water resources in the watersheds. The workshop included presentations by County, Metro Blooms, and Mississippi WMO staff, personal reflections on Environmental Justice work by the Executive Director of a nonprofit that serves diverse and underrepresented communities, as well as small group discussions and reflections.

Undertook a major update to both the legal and hydrologic boundaries between the watersheds and neighboring Elm Creek, Bassett Creek, and Mississippi WMOs.

Refreshed the website and added an interactive Story Map providing users map-based links to water quality, natural resource, and project data.

- **Invited three guest speakers to make lunchtime water resources presentations.**

January 13, 2022 - Dr. Kenneth Blumenfeld, Senior Climatologist with the Minnesota State Climate Office and an Adjunct Assistant Professor at the University of Minnesota, discussed how the Commissions can plan for changing precipitation.

February 10, 2022 - A team from Metro Blooms presented a visual tour of the Brooks Gardens Apartments and Townhomes Community in Brooklyn Park, in the Shingle Creek watershed. As a result of their work with the residents, together they have created 4,282 square feet of new habitat and annually capture 1.17 million gallons of runoff, 2,000 lbs. of solids and 4.5 lbs. of total phosphorus. Planting continued in 2022. The Commission provided \$30,000 in cost-share funding for the \$86,107 project.

July 14, 2022 - James Fallon, Data Chief, Minnesota portion of Upper Midwest Water Science Center of the U.S. Geological Survey, gave an update on USGS activities in Shingle Creek and nearby watersheds. The new USGS National Water Dashboard interactive map allows viewers to access real-time water data from over 13,500 stations nationwide.

- **Tour project sites in the watershed.** *Due to COVID-19 and the need for social distancing, no tours were conducted in 2022.*

WATER MONITORING

The West Mississippi watershed is comprised of 25 square miles of 25% high impervious urban development and 38% low-moderate impervious urban development, with 18.3 miles of stream. There are still approximately 1,000 acres of agricultural land still in production within the city of Brooklyn Park in the western portion of the watershed. Most of the developed land in the watershed is single-family residential. Due to soil conditions within the watershed, there are no lakes and very few wetlands.

One of the defining characteristics of the West Mississippi watershed is its sandy, well-draining soils. Much of the watershed is located within the Anoka Sand Plain and, therefore, approximately 88% of the management unit contains type A, A/D, or B soils.

Surface water quality in the watershed is typical of urban streams in the Twin Cities metropolitan area. Agriculture followed by urban development have changed drainage patterns, increased pollutants to the waters, and reduced habitat for aquatic and terrestrial life. Diagnostic and feasibility studies completed between 2007 and 2011 have identified actions that can be taken in the watershed to help improve water quality.

Minnesota Administrative Rule 8410.0100 Subp.5 requires watershed management organizations to conduct monitoring programs *capable of producing accurate data to the extent necessary to determine whether the water quality and quantity goals of the organization are being achieved.*

Together, the Commissions have established monitoring objectives to guide their monitoring programs:

- To quantify the current status of streams/outfalls and lakes throughout the watersheds in comparison to state water quality standards established for nutrients, turbidity, chloride, bacteria, and other parameters currently regulated by the State.
- To quantify changes over time, or trends, in stream and lake water quality in the Shingle Creek and West Mississippi watersheds.
- To quantify the effectiveness of implemented BMPs throughout the watersheds for the protection of water quality.



Mattson Brook, Brooklyn Park

There are four major outfalls in the West Mississippi watershed:

- Located in Champlin, the **Oxbow storm sewer outfall** consists of a series of storm sewer pipes that drain approximately 1,167 acres of land in Champlin and Maple Grove.
- **Mattson Brook**, shown on the previous page, is a small surface channel/stream that drains most of central Brooklyn Park (approximately 3,500 acres) and includes a tributary, Edinbrook/Century Channel.
- The **Environmental Preserve** is another small stream located in Brooklyn Park. This stream drains approximately 2,160 acres upstream of Brooklyn Park's Environmental Preserve and outlets to a small wetland in the Coon Rapids Dam Regional Park.
- **The 65th Avenue outfall** is the outlet of the storm sewer trunk line that runs beneath 65th Avenue North in Brooklyn Center.

Data has been collected from West Mississippi river outfalls since 2010, monitoring water quality and flow at two of the four outfall monitoring sites every year. Stream monitoring efforts consist of continuous flow measurements and water quality samples. Four main water quality parameters are sampled at each of the outfall monitoring stations – TSS, TP, bacteria (E. coli), and chloride. *Flow at the 65th Avenue Outfall was monitored in 2022.*

In past years, high school volunteers coordinated by Hennepin County Environment and Energy (HCEE) have performed macroinvertebrate monitoring at a site on Mattson Brook through the River Watch program. *The program was not conducted in 2022.*

In the past, HCEE has also coordinated wetland monitoring by adult volunteers through WHEP (Wetland Health Evaluation Program). *The County has discontinued its sponsorship of WHEP and the program was not conducted in 2022.*

The Shingle Creek and West Mississippi Watershed Management Commissions (WMCs) annually monitor water quality in the lakes, streams, and outfalls of the watersheds. A joint *Water Quality Report* summarizing current and historic conditions in the watersheds has been published annually since 1998. *The 2022 report is found on the Shingle Creek/West Mississippi website at www.shinglecreek.org and will be made an addendum to this report.*

CONSULTANT SERVICES SELECTION

Every two years, a solicitation of interest proposals for technical, legal and administrative services is published in the *State Register*. Solicitations were published in the November 8, 2022, edition of the *State Register*. Commissioners will consider the responses at their January 11, 2023, meeting.

FINANCIALS

The Commission's Joint Powers Agreement provides that each member city contributes toward

the annual operating budget based 50% on the area located within the watershed boundary and 50% on the tax capacity of all property within the watershed. The 2022 cost allocations to the members are shown as part of the Operating Budget found in *Appendix 4*.

Of the \$181,700 operating budget approved by the Commission for 2022, income of \$18,000 was projected as proceeds from application fees and reimbursements and \$2,500 as interest income, resulting in assessments to the members totaling \$156,200. \$5,000 was taken from Reserves.

The West Mississippi Watershed Management Commission maintains a checking account at US Bank for current expenses and rolls uncommitted monies to its account in the 4M Fund, the Minnesota Municipal Money Market Fund. Amounts paid by the Commission per the 2021 Audit are categorized as General Engineering, General Administration, Education, Programs, Projects, or Capital Projects, and are shown below.

General engineering	\$ 48,115
General administration	\$ 54,068
Education	\$ 19,030
Programs	\$ 19,576
Projects and Management Plans	<u>\$ 35,643</u>
Total	\$176,432

General engineering work includes review of local plans, review of development/ redevelopment projects, tracking grant opportunities, attendance at meetings and other technical services. General administration includes support to technical staff, attendance at meetings, insurance premiums, annual audit, legal counsel, and other non-engineering services.

Per MN Rules, Chapter 8410, the Commission's annual audit is due 180 days after the end of the fiscal year; or June 30. Prepared by Johnson & Company, Ltd., Certified Public Accountants, the 2021 Audit Report, is available on the Commission's website, www.shinglecreek.org

The Commission follows Rule 54 of the Government Accounting Standard Board (GASB) to report Fund Balances. The fund balance classifications include:

- > *Nonspendable* – amounts that are not in a spendable form. The Commission does not have any items that fit this category.
- > *Restricted* – amounts constrained to specific purposes by their providers. One example would be ad valorem levy funds received from the County for capital improvement projects. The unused portion of these funds must be set aside in a restricted account for similar projects. Another example would be BWSR Legacy Grant proceeds where the funds are received prior to the onset of a project and where any unused portion must be returned to the grantor.
- > *Committed* – amounts constrained to specific purposes by the Commission itself. An example would be residual funds carried over from one year to the next for Studies, Project Identification and Subwatershed Assessments.

- > *Assigned* – amounts the Commission intends to use for specific purposes. Most line items in the Commission’s Operating Budget fall under this category.
- > *Unassigned* – amounts that are available for any purpose. These amounts are reported only in the general fund.

PROJECTED 2023 WORK PLAN

At their January 12, 2023, meeting the West Mississippi Watershed Management Commission identified the following activities for inclusion in their 2023 Work Plan. Most are ongoing activities, although some rotate around the watershed.

GOAL 1. Protect, maintain, and improve the water quality and ecological integrity of the water and natural resources within the watersheds and the downstream receiving waters.

- Continue to identify, pursue grant funding for, and implement projects and programs addressing the bacterial impairment in the Mississippi River.
- Stay abreast of other regional and state TMDLs.
- Identify boundaries of the untreated areas directly connected to the Mississippi River or other conveyances.
- Partner with the MWMO to undertake monitoring at the 65th Avenue outfall.
- Execute cooperative agreement with Brooklyn Park for the Mississippi River stabilization project.
- Partner with a member city to complete a subwatershed BMP analysis.

GOAL 2. Reduce stormwater runoff rates and volumes to limit flood risk, protect conveyance systems, protect surficial groundwater, and reduce or mitigate impacts that have already occurred.

- Complete reviews of development and redevelopment projects as necessary.

GOAL 3. Educate and engage all stakeholders in the watersheds on surface water issues and opportunities.

- Participate in the West Metro Water Alliance joint education and outreach group.
- Partner with Hennepin County and other local watersheds to fund a shared Education and Outreach Coordinator.
- Develop a Chloride Management Plan for the watershed.

Continue ongoing administration and programming.

- Undertake routine flow and water quality at two outfalls into the Mississippi River.

- If available, sponsor volunteer stream monitoring through RiverWatch.
 - Prepare an annual water quality report.
 - Solicit cost-share projects from member cities funded from the Cost Share Fund and the annual \$50,000 levy.
 - Review feasibility studies for 2023 proposed capital projects, undertake Plan Amendments, hold public hearings, order projects, and certify levies.
 - Prepare a 2024 annual budget.
 - Complete the Fourth Generation Management Plan and submit for public and BWSR review.
 - Invite three guest speakers to make lunchtime water resources presentations.
 - Tour project sites in the watershed.
-

Have a question about this report? Need more information? Want to know how to get involved?

Contact us: drop us an email, give us a call, we're happy to help:

<http://www.shinglecreek.org/contact-us.html>

APPENDICES

2022 West Mississippi Commissioners and Technical Advisory Committee

Representing	Name	Address	Telephone	Email	Term Expires
Commissioners					
Brooklyn Center	David Vlasin Vice Chair		651.792.7972	david.vlasin@rwmwd.org	2024
Brooklyn Park	Alex Pransch	6548 Georgia Avenue N Brooklyn Park, MN 55428	763.226.4711	alex.pransch@gmail.com	2024
Champlin	Gerry Butcher Chair	11467 Preserve Lane N Champlin, MN 55316	763.557.1451	JG_Butcher@yahoo.com	2025
Maple Grove	Karen Jaeger Sec./Treasurer	8459 Rice Lake Road Maple Grove, MN 55369	763.420.3838	jaeger324@comcast.net	2025
Osseo	Harold E. Johnson	12-Sixth Street NE Osseo, MN 55369	763.424.3707	HJohnson@ci.osseo.mn.us	2023
Technical Advisory Committee					
Brooklyn Center	Andrew Hogg	City of Brooklyn Center 6301 Shingle Creek Pkwy Brooklyn Center, MN 55430	763.569.3327	ahogg@ci.brooklyn-center.mn.us	
Brooklyn Park	Mitchell Robinson	City of Brooklyn Park 5200 85th Avenue North Brooklyn Park, MN 55443	763.493.8291	Mitchell.Robinson@brooklynpark.org	
Champlin	Heather Nelson	City of Champlin 11955 Champlin Drive Champlin, MN 55316	763.923.7120	hnelson@ci.champlin.mn.us	
Maple Grove	Derek Asche	City of Maple Grove 12800 Arbor Lakes Pkwy Maple Grove, MN 55313	763.494.6354	dasche@maplegrovemn.gov	
Osseo	Nick Waldbillig	City of Osseo 415 Central Avenue Osseo MN 55369	763.425.5741	nwaldbillig@ci.osseo.mn.us	

2022 West Mississippi Commission Staff

Name	Address	Telephone	Email
Technical			
Ed Matthiesen	Wenck Associates, Inc.	763.252.6851	edward.matthiesen@stantec.com
Diane Spector	(now Stantec Consulting Services.)	763.252.6880	diane.spector@stantec.com
Todd Shoemaker	7500 Highway 55 Ste 300	651.294.4585	todd.shoemaker@stantec.com
Katie L. Kemmitt	Golden Valley, MN 55427	763.252.6879	Katie.kemmitt@stantec.com
Legal			
Troy Gilchrist	Kennedy & Graven, 470 Pillsbury Center Minneapolis, MN 55402	612.337.9214	tgilchrist@kennedy-graven.com
Administrative			
Judie Anderson	JASS	763.553.1144	judie@jass.biz
Amy Juntunen	3235 Fernbrook Lane		amy@jass.biz
Beverly Love	Plymouth, MN 55447		beverly@jass.biz

AMENDMENTS TO THE JOINT WATERSHED MANAGEMENT PLAN

In 2013 the Shingle Creek and West Mississippi Watershed Management Commissions adopted their joint *2013-2022 Third Generation Watershed Management Plan*. The Plan sets forth goals and strategies that will guide water resources management activities in the two watersheds over the coming decade. Over the years the Commission, either individually or together with the Shingle Creek Commission, has adopted a number of amendments to the Plan. They are described below:

In 2013 the Commissions adopted a minor amendment to the Plan which revised the Commissions' Rules and Standards to adopt the new National Oceanic and Atmospheric Administration (NOAA) Atlas 14 precipitation frequency standards, replacing the outdated Weather Bureau Technical Paper 40 (TP-40) standards.

In 2014 the Commissions adopted a second minor amendment to the Plan. It revises the estimated cost and provides more description and detail about one proposed Shingle Creek project in the Commissions' Capital Improvement Program (CIP).

In December 2014 the Commissions adopted a major amendment to the Plan which added five projects to the Commissions' CIP - three pond retrofits in the Shingle Creek watershed and Priority BMP Retrofits in both watersheds.

On May 14, 2015, the Commissions adopted a minor Plan amendment to 1) increase the annual levy for city cost-share projects from \$50,000 to \$100,000, 2) increase the (Shingle Creek) Commission cost share for lake internal load projects from 25% to 100%; and 3) specify that the potential 2015 lake internal load project (in the Shingle Creek watershed) would be the proposed Twin Lake Carp Tracking and Removal project.

On November 12, 2015, the Commissions amended their joint *Third Generation Watershed Management Plan* to adopt a revision to the plan amendment process to conform to 2015 revisions to MN Rules 8410. In part, the revisions will allow the Commission to modify the CIP with only minimal need for plan amendments.

On June 9, 2016, the Commissions adopted a minor amendment to the Plan which amended the Shingle Creek 2016 CIP to include: 1) an annual levy for city cost-share projects of \$200,000 with Commission cost-share of \$100,000; 2) Iron and Biochar-Enhanced Sand Filter Retrofits of \$210,000 with Commission cost-share at 100%; and 3) Partnership cost share (private projects) of \$100,00, with Commission cost-share of \$50,000; and further amended the West Mississippi 2016 CIP to include: 1) an annual levy for city cost-share projects of \$50,000 with Commission cost-share at 100%; and 2) Iron and Biochar-Enhanced Sand Filter Retrofits of \$80,000 with Commission cost-share at 100%.

On May 11, 2017, the Commissions adopted a seventh minor amendment to their joint Plan. In Shingle Creek a second phase to the Reaeration Project was added to the CIP at a project cost/Commission contribution of \$145,000; and specificity of description was added to the Shingle/Bass Creek project, now known as the Palmer Creek Estates Bass Creek Stream Restoration. Three other projects were moved to future years. In West Mississippi the 2017 CIP was revised to move three projects to future years.

AMENDMENTS TO THE JOINT WATERSHED MANAGEMENT PLAN, *cont'd.*

On May 10, 2018, the Commissions adopted a minor amendment to the Plan which amended the Shingle Creek CIP to substitute the Bass and Pomerleau Lakes Alum Treatment Project for the generic Lake Internal Load Project in 2018 and added the SRP Reduction Project to the CIP, also in 2018. Two other projects were moved to future years. No revisions were made to the West Mississippi CIP.

On May 9, 2019, the Commission adopted the first of four new amendments to the Plan. The first amendment revised the CIP to add specificity to a project and to revise certain cost-share policies.

The second, adopted August 8, 2019, revised the CIP to reschedule and add specificity to a project and to adopt a cost-share policy for capital improvements.

The third amendment, adopted September 12, 2019, ordered four improvements, designating the members responsible for construction and certifying them for ad valorem levy. One improvement, City Cost Share Best Management Practices (BMP) Projects (\$53,025.00), was located in the West Mississippi watershed.

On October 10, 2019, the Plan was amended to add one West Mississippi project – River Park Storm Approvements - to its 2020 CIP.

The joint Plan was not amended in 2020.

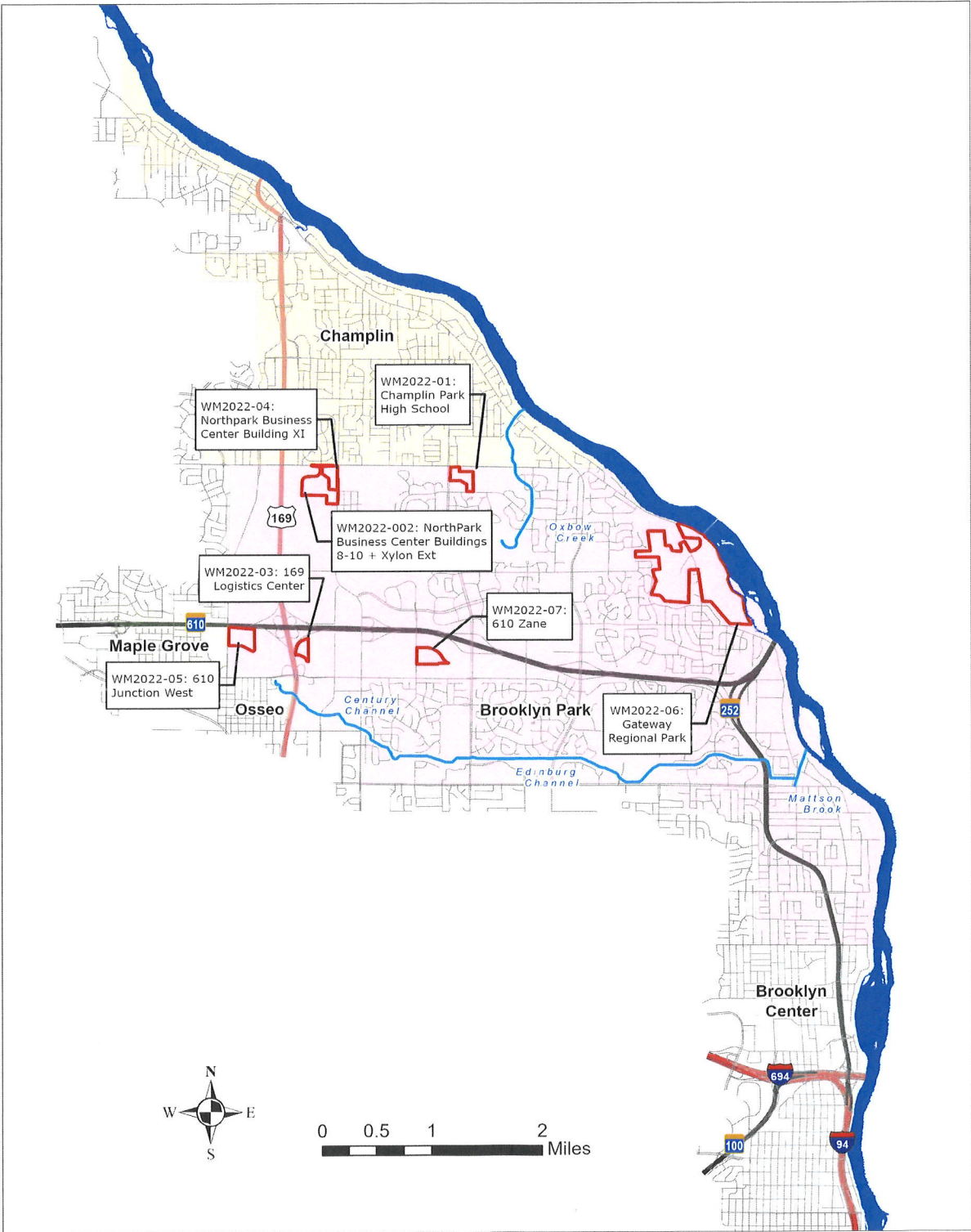
On May 13, 2021, the Commissions adopted a minor amendment to the Plan which amended the West Mississippi CIP to add “Partnership Cost Share Projects.” This program shares in the cost of Best Management Practices (BMPs) partnership projects with private landowners. Cost: \$100,000. The Shingle Creek CIP was amended to increase the cost of the existing Palmer Lake Estates Bass Creek Restoration Project from \$450,000 to \$600,000 and the Commission share to 100% of the project cost and to add “Channel Modification with SRP Filter Phase 2.” This is the second phase of a project to install a media filter in a wetland outlet channel to reduce phosphorus to Upper Twin Lake. Cost: \$125,000.

On May 12, 2022, the Commissions adopted a minor amendment to revise Appendix C of the Plan, Rules and Standards, to (1) make the rules consistent with the most recent Minnesota General Stormwater Permit; and (2) make other various housekeeping revisions to the Rules.

On July 14, 2022, the Shingle Creek Commission adopted a minor amendment to add to Appendix F, CIP Descriptions: “Maintenance Fund, A new project maintenance program funded by county levy to undertake nonstructural water quality improvements such as lake aquatic vegetation and rough fish management.”

2022 Project Reviews						
Number	Project	Community	WCA LGU	Project Description	Impervious Area	Approved
2022-001	Champlin Park High School	Champlin	Comm	Construction of new artificial turf athletic field, new baseball field, trails, associated amenities	Will disturb approx. 6.2 acres of 75-acre site. Following development site will be approx. 36% impervious, an increase of 0.19 acres.	10-Feb-22
2022-002	NorthPark Business Center Buildings 8-10 and Xylon Extension	Brooklyn Park	Comm	Construction of three office-warehouse buildings and new city street on approx. 34 acres.	Following development site will be 76% impervious with 26 acres impervious surface, an increase of 26 acres.	14-Apr-22
2022-003	169 Logistics Center	Brooklyn Park	Comm	Construction of two industrial buildings with parking lots on 10.8 acres of undeveloped land.	Following development site will be 71% impervious, an increase of 7.7 acres.	11-Aug-22
2022-004	NorthPark Business Center Building 4	Brooklyn Park	Comm	Construction of office-warehouse building and associated parking on 16.3 acres.	Following development site will be 80% impervious with 13.1 acres of impervious surface - increase of 13.1 acres	8-Sep-22
2022-005	610 Junction West	Brooklyn Park	Comm	Construction of two industrial buildings and parking lot on 17.22 acres.	Following development site will be 85% impervious with 14.6 acres of impervious surface, an increase of 14.6 acres.	13-Oct-22
2022-006	Gateway Regional Park	Brooklyn Park	Comm	Construction of visitors center, sidewalks, trails and parking lots on 160 acres.	Following development site will be 4% impervious with 6.8 acres of impervious surface, an increase of 4.4 acres	9-Feb-23
2022-007	610 Zane Third Addition (Speculative Industrial Buildings)	Brooklyn Park	Comm	Construction of two industrial buildings and parking on 19.7 acres.	Following development site will be 62% impervious with 13.61 acres of impervious surface, an increase of 13.6 acres	9-Feb-23

2022 Project Reviews



West Mississippi 2021 - 2022 Operating Budgets

		2021 Budget	2022 Budget
REVENUE			
	Application Fees	\$18,000	\$18,000
	Member Assessments	153,600	156,200
	Blue Line Extension	0	0
	Interest	7,000	2,500
	Miscellaneous Income	0	0
	Reserve	0	5,000
	Subtotal	\$178,600	\$181,700
EXPENSES			
	ADMINISTRATION		
	Administrative Services	\$30,000	\$32,000
	Engineering Support	5,000	4,000
	Project Reviews/WCA	1,500	1,500
	Blue Line Extension	0	0
	Subtotal	\$36,500	\$37,500
	ENGINEERING		
	Engineering Services	31,500	33,500
	Grant Application Writing	1,000	500
	Project Reviews/WCA	30,000	30,000
	Blue Line Extension	0	0
	Subtotal	\$62,500	\$64,000
	LEGAL		
	Legal Services	4,000	4,500
	Subtotal	\$5,000	\$4,500
	MISCELLANEOUS		
	Bookkeeping	3,000	3,300
	Audit	5,500	5,000
	Insurance & Bonding	2,800	3,100
	Meeting Expense	2,700	2,700
	Subtotal	\$14,000	\$14,100

West Mississippi 2021 - 2022 Operating Budgets, *contd.*

		2021 Budget	2022 Budget
EXPENSES. <i>contd.</i>			
	MONITORING		
	Volunteer Stream Monitoring	\$ 0	\$ 0
	Volunteer Wetland Monitoring	2,000	2,000
	Outfall and Stream Monitoring	22,600	22,600
	Annual Monitoring Report	8,000	8,000
	<i>Subtotal</i>	<i>\$32,600</i>	<i>\$32,600</i>
	EDUCATION		
	Education Program	15,000	16,500
	Raingarden Workshops	2,000	0
	WMWA Implementation Activities	11,500	11,500
	Education Grants	500	0
	<i>\$29,000</i>	<i>\$29,000</i>	<i>\$28,000</i>
	MANAGEMENT PLANS		
	Third Gen Plan/Amendments	0	1,000
	Subwatershed BMP Assessments	0	0
	<i>Subtotal</i>	<i>\$0</i>	<i>\$1,000</i>
	Contribution to 4th Gen Plan	0	0
	To (from) Reserves	0	0
TOTAL OPERATING EXPENSE		\$178,600	\$181,700

West Mississippi Watershed Management Commission

2021-2022 Member Assessments

2021	2020 Tax Capacity		Cost Allocation		Cost Based		Total Cost	
Community	Acreage		Based on Area		on Tax Capacity			
			%age	Dollars	%age	Dollars	%age	Dollars
Brooklyn Center	1,660	9,158,330	10.46%	8,033	10.92%	8,387	10.69%	16,420
Brooklyn Park	9,880	49,614,398	62.26%	47,813	59.16%	45,436	60.71%	93,248
Champlin	3,620	20,767,803	22.81%	17,518	24.76%	19,019	23.79%	36,537
Maple Grove	530	2,911,603	3.34%	2,565	3.47%	2,666	3.41%	5,231
Osseo	180	1,410,734	1.13%	870	1.68%	1,292	1.41%	2,163
Totals	15,870	83,862,868	100.00%	76,800	100.00%	76,800	100.00%	153,600

2022	2021 Tax Capacity		Cost Allocation		Cost Based		Total Cost	
Community	Acreage		Based on Area		on Tax Capacity			
			%age	Dollars	%age	Dollars	%age	Dollars
Brooklyn Center	1,660	9,968,236	10.46%	8,160	11.10%	8,666	10.78%	16,835
Brooklyn Park	9,880	53,164,616	62.26%	48,633	59.18%	46,220	60.72%	94,843
Champlin	3,620	21,941,714	22.81%	17,815	24.42%	19,076	23.62%	36,891
Maple Grove	530	3,264,297	3.34%	2,608	3.63%	2,838	3.49%	5,446
Osseo	180	1,495,320	1.13%	885	1.66%	1,300	1.40%	2,185
Totals	15,870	89,834,183	100.00%	78,100	100.00%	78,100	100.00%	156,200



SHINGLE CREEK / WEST MISSISSIPPI WATERSHED MANAGEMENT COMMISSION
MONTHLY COMMUNICATION LOG
April 2023

Date	From	To	SC	WM	Description
3/22/23	Stephanie Lindquist	Diane Spector, Katie Kemmitt, Mike Sorenson (Robbinsdale)	X		Meeting at Robbinsdale City Hall to discuss Stephanie's Minnesota Art for Water Steward project. Discussed various public engagement opportunities in the Watershed related to Crystal Lake and Shingle Creek.
3/23/23	Katy Thompson; Rena Weis	Nick Macklem (New Hope); Mark Ray (Crystal); Ben Perkley (Crystal)	X		Gaulke Pond SWA kickoff meeting agenda.
3/24/23	Todd Shoemaker	Ahmed Omer, City of Brooklyn Center	X		Review SC/WM comments on Hwy 252/94 draft scoping document.
3/24/23	Katy Thompson; Rena Weis	Nick Macklem (New Hope); Mark Ray (Crystal); Ben Perkley (Crystal)	X		Gaulke Pond SWA GIS data request.
3/29/23	Sarah Harding	Todd S, Nick P (DNR), Mitchel R (Brooklyn Park), Danny M (TRPD)	X		Emails to setup on-site kickoff meetings and field walk assessments, for week of April 10 th) for Brookdale Park Shingle Creek Remeander and Trail Bank Stabilization/Fish Access projects
3/29/23	Katy Thompson; Rena Weis	Nick Macklem (New Hope); Mark Ray (Crystal); Ben Perkley (Crystal)	X		Gaulke Pond SWA kickoff meeting draft summary for review.
3/30/23	Paul Strong and Tim Olson (Bolton and Menk)	Lucas Clapp Todd Shoemaker	X	X	Discussion about Brooklyn Center Linear project interpretation and allowable treatment practices.
3/31/23	Katy Thompson	Wes Saunders- Pearce	X	X	Hwy 252/94 draft scoping document review.
3/31/23	Katy Thompson	Nick Macklem (New Hope); Mark Ray (Crystal); Ben Perkley (Crystal)	X		Gaulke Pond SWA kickoff meeting summary revisions and progress meeting scheduling.
3/31/23	Katy Thompson	Ray Schoch	X	X	Hwy 252/94 draft scoping document review and subgroup coordination.



SHINGLE CREEK / WEST MISSISSIPPI WATERSHED MANAGEMENT COMMISSION
MONTHLY COMMUNICATION LOG
April 2023

Date	From	To	SC	WM	Description
4/3/23	Katy Thompson	Nick Macklem (New Hope); Mark Ray (Crystal); Ben Perkley (Crystal)	X		Gaulke Pond SWA progress meeting invite.
4/3/23	Anna Varney, Federal Highway Administration	Katy Thompson	X	X	Hwy 252/94 draft scoping document comments.
4/4/23	Katie Kemmitt, Diane Spector	DNR, Mike Sorenson (Robbinsdale), WSB Associates	X	X	Virtual meeting to discuss carp and fisheries management on Crystal Lake beyond 2023.
4/5/23	DNR	Katie Kemmitt, Kurt Krautmann	X		Attended virtual FileMaker Workshop for MnDNR partners.
4/5/23	Steve Christopher	Diane Spector, Judie Anderson, Katie Kemmitt	X	X	BWSR Central Region Committee Meeting: presentation of the Shingle Creek and West Mississippi Fourth Generation Watershed Management Plan.
4/4/23	Lucas Clapp	Mitchell Robinson		X	Virtual meeting to review the findings for WMWMC2023-02 Tessman Ridge Apartments. Review with City because Stantec was the design engineer.
4/4/23	Mitch Robinson, City of Brooklyn Park	Katy Thompson	X	X	Hwy 252/94 draft scoping document comments.
4/5/23	Mitch Robinson, City of Brooklyn Park	Katy Thompson, Todd Shoemaker	X	X	Hwy 252/94 draft scoping document comments.

To: Shingle Creek/West Mississippi WMO Commissioners

From: Diane Spector
Katie Kemmitt
Todd Shoemaker, PE, CFM

Date: April 5, 2023

Subject: April 2023 Staff Report

**Recommended
Commission Action**

For discussion and information.

General Updates*Fourth Generation Management Plan.*

The Fourth Generation Management Plan Final Draft has been submitted to the Board of Soil and Water Resources for approval. Diane Spector and Katie Kemmitt presented the Plan to the Central Region Committee on April 6th. The Plan will go to the full Board for approval on April 26th. The Commissions should plan to adopt the plan at their May meeting.

Meadow Lake Drawdown

The City of New Hope issued a Request for Quotes in March for the alum treatment on Meadow Lake. They received one quote which is expected to be approved by City Council on April 10th. Following Council approval, Stantec will schedule the treatment with the applicator for late April or May. Stantec is also coordinating herbicide treatments of curly-leaf pondweed in the lake. Staff will conduct a delineation in April and request quotes from local applicators. Herbicide treatment should occur in late April or early May.

252/94 project.

The SC/WM 252/94 EIS Review Subgroup held virtual meetings on March 21 and April 4, 2023. Invitees included David Vlasin, David Mulla, Ray Schoch, Alex Prasch, Mitch Robinson, Liz Stout, Liz Heyman, and Stantec staff. Future meetings will be scheduled on an as-needed basis.

MnDOT released the draft scoping document for public comment on March 21, 2023. Public meetings since release of the document include the Policy Advisory Committee on March 23 and presentations to the Brooklyn Park (March 27) and Brooklyn Center (April 10, planned) City Councils. Upcoming public meetings include April 18 (in-person) and April 27 (virtual).

The next subgroup meeting is scheduled for April 25. For that meeting, the subgroup directed Stantec to evaluate 1) how many Twin Cities highways bisect Emergency Response Areas (ERAs) and 2) potential criteria for MnDOT to use when evaluating vulnerability of a spill in the ERA.

Project Updates

Legal Boundary Update

The boundary update already received concurrence from the three neighboring watersheds. We are now asking for approval of the boundary change from all member cities with a goal of concurrence received by the end of March.

The following Cities provided a copy of the approved concurrence resolution:

- City of Champlin
- City of Osseo
- City of Plymouth
- City of New Hope
- City of Robbinsdale

Approvals are in process for the remainder of the cities. After we receive concurrence from all municipalities, we will notify BWSR and then file the new boundary with Hennepin County. Hennepin County requires notification of boundary changes for special taxing districts by July 1st.

Eagle Lake Subwatershed Assessment

The Eagle Lake Subwatershed Assessment will identify and prioritize potential stormwater management practices in the direct subwatershed to Eagle Lake and evaluate in-lake sediments and aquatic vegetation in Eagle and Pike Lakes. Staff hosted a kickoff meeting with Maple Grove and Plymouth staff on April 22. We are currently evaluating existing conditions and brainstorming sites for potential projects. The next steps will be to work with the municipalities to further evaluate potential project sites. In-lake evaluations will begin after ice out.

Gaulke Pond Subwatershed Assessment

The Gaulke Pond Subwatershed Assessment will identify and prioritize potential stormwater volume reduction practices in the Gaulke Pond Watershed. Staff held an internal project kickoff meeting on March 13th and a data review meeting with staff from Crystal and New Hope on March 24th. Priority areas were identified and refined with city staff for potential stormwater volume reduction practices. The group will meet again for a field visit on April 21st to the opportunity sites to document existing site conditions and discuss next steps.

Shingle Creek Brookdale Park Remeander

The Shingle Creek Brookdale Park Remeander study includes field assessment, topographic survey, soil sediment data collection, and development of concept alternatives, a basis of design memo, and preliminary plans of the selected alternative. The project kickoff meeting and field assessment with the Stantec team and staff from Brooklyn Park and Minnesota Department of Natural Resources will occur on April 12th. We are currently reviewing existing modelling data and base mapping. The next steps will be to perform topographic survey and gather field sediment samples from the existing ponding areas and evaluate conceptual alternatives; this work will begin after ice out.

Shingle Creek Trail Bank Stabilization and Fish Access Improvements

The Shingle Creek Regional Trail Bank Stabilization and Fish Access Improvements study includes field assessment, topographic survey, and development of concept alternatives, a basis of design memo, and preliminary plans of the selected alternative. The project kickoff meeting and field assessment with the Stantec team and staff from Brooklyn Park and Three Rivers Park District will occur on April 12th. We are currently reviewing existing modelling data and base mapping. The next steps will be to perform topographic survey and evaluate conceptual alternatives; this work will begin after ice out.

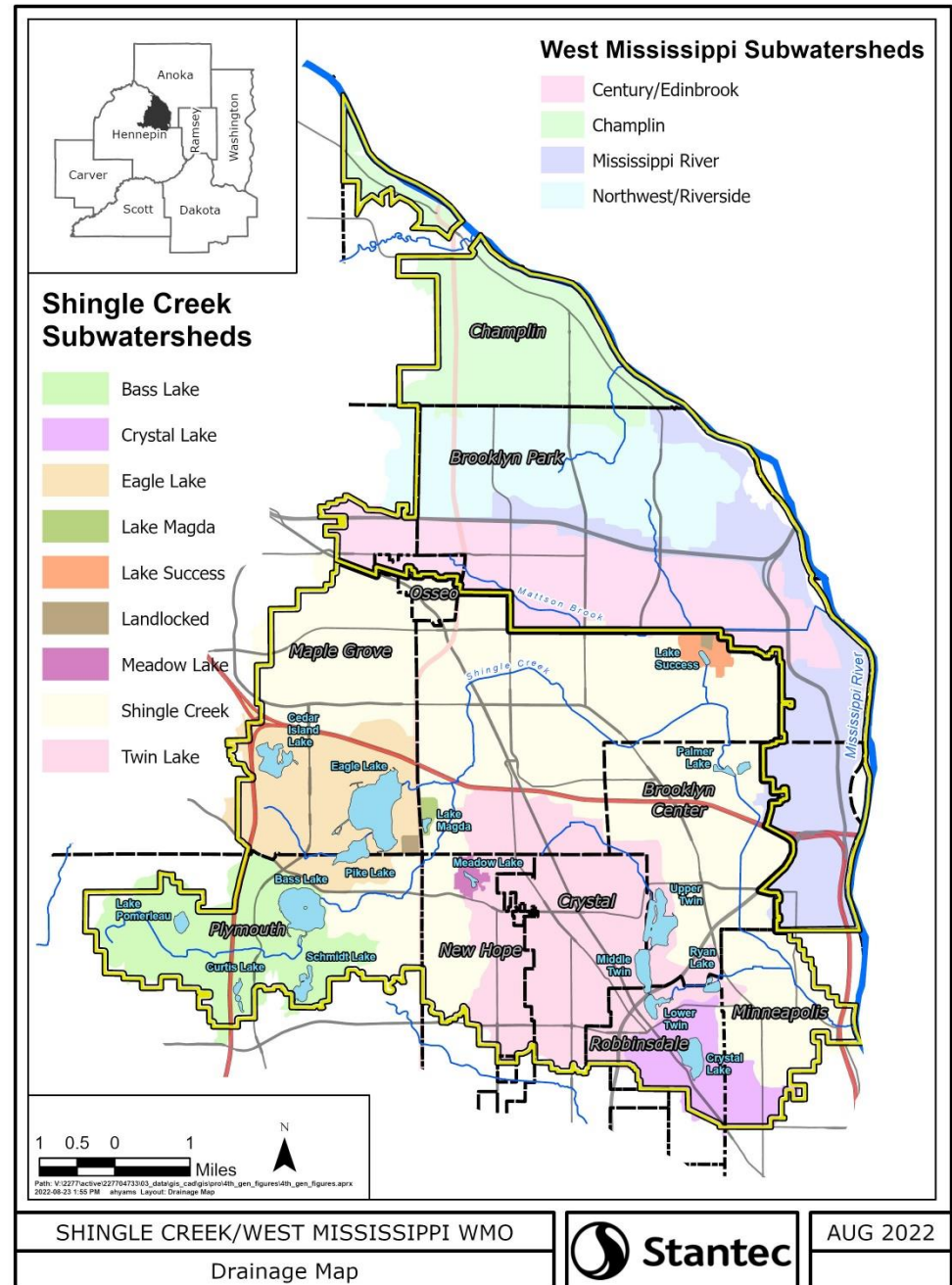


BWSR Central Region
Committee Meeting
April 6, 2023

Shingle Creek and West Mississippi Fourth Generation Watershed Management Plan

The Watersheds

- Urban setting
- 10 cities
- 16 lakes
 - 13 originally listed for nutrient impairments
 - 5 since delisted
- Streams
 - Bass Creek
 - Shingle Creek
 - Eagle Creek
 - Mattson Brook



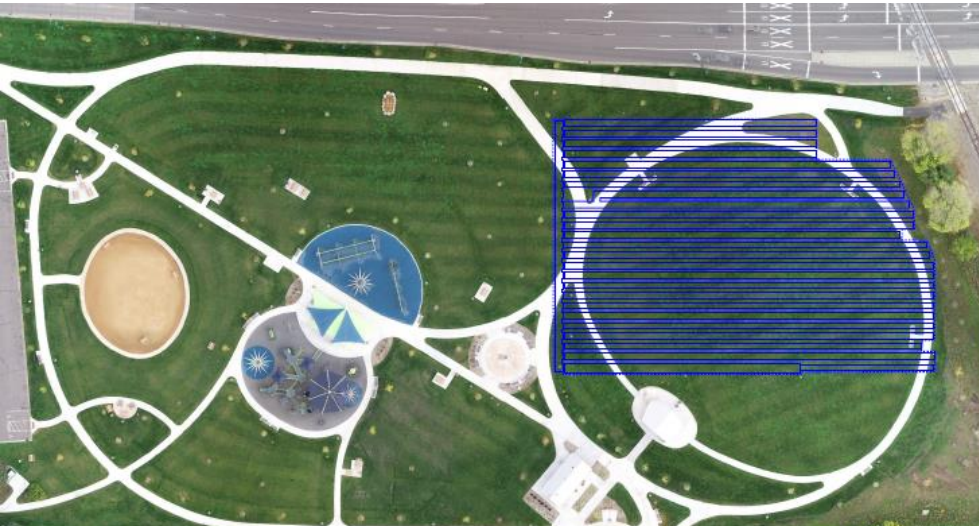
Ongoing Activities

- *Regulatory program:* review 15-20 development projects per year, serve as WCA LGU for 5 of the 10 cities
- *Monitoring program:* robust lake and stream annual monitoring, partnerships with USGS and MWMO
- *Education and outreach:* partner with 4 WMOs on joint programming through West Metro Water Alliance
- *Special studies:* TMDL progress reviews, subwatershed assessments, research projects
- *Cost share projects:* 11 city projects and 6 private projects with \$700,000 in Commission contribution
- *Capital projects:* 15 projects completed with \$3.5 million in Commission contribution and \$3.4 million in grants

Previous Plan Accomplishments

- 2nd Generation Plan (2004-2013) focused on completing diagnostic studies and TMDLs for 13 lake and four stream impairments
- 3rd Generation Plan focused on TMDL implementation
 - Expanded CIP and cost-share funding to leverage watershed, stream restoration, and lake internal load projects
 - Achieved delisting of three lakes; two more will be delisted in 2024
 - Measurable reduction in TP and TSS concentrations in Shingle Creek
 - Expanded outreach to youth- reached over 20,000 4th graders - and diverse communities

Becker Park Stormwater Infrastructure



- Identified as a project in a subwatershed assessment
- Included construction of an underground infiltration system
- Project won ACEC 2021 People's Choice Award
- Partnership with City of Crystal



Shingle Creek Stream Restoration - Connections



- Partnership between Brooklyn Park, Brooklyn Center, and Shingle Creek WMC
- \$200k Clean Water Land and Legacy Amendment funds
- Stream restoration included fish ladder, stabilized streambanks, increased fish habitat
- Brooklyn Park filled in missing trail segment along restoration reach

Bass & Pomerleau Alum Treatments

- Watershed's first alum treatments on Bass and Pomerleau Lakes
- Bass and Pomerleau are scheduled to be delisted in 2024
- Led to additional work on Bass Lake – vegetation transplants and UMN study



Commission Priorities for Fourth Generation Plan

1. Addressing chloride pollution
2. Outreach & education
3. Delisting waters
4. Climate vulnerability
5. Feasibility studies through project implementation
6. Continuing to make progress
7. Partnerships with lake associations
8. Commissioner education
9. More subwatershed assessments

Fourth Generation Plan Priorities

1. Chloride
2. Outreach & education
3. Delisting waters
4. Climate vulnerability
5. Feasibility studies through project implementation
6. Continuing to make progress
7. Partnerships with lake assns.
8. Commissioner education
9. More subwatershed assessments to identify BMP implementation areas



- 1. Achieve lake and stream goals.**
- 2. Stimulate implementation.**
- 3. Engage and educate.**
- 4. Develop climate resiliency and sustainability.**



Shingle Creek and
West Mississippi
Watershed
Management
Commissions

Fourth Generation
Watershed
Management Plan

February 14, 2023



Prepared by:
Stantec Consulting Services, Inc.
One Carlson Parkway, Suite 100
Plymouth, MN 55447

Plan Highlights

- Consideration of changing climate and precipitation patterns
- Development of a watershed Chloride Management Education & Outreach Plan
- Addition of a 'Project Maintenance Fund' - \$50k/year
- Updated Rules & Standards
- Focus on equity and diversity
- New CIP program with subwatershed assessments, internal load projects, etc.
- Prioritized lake monitoring

Mississippi River – Twin Cities Watershed

Upper Mississippi River Basin

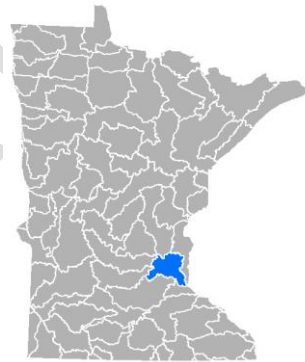


Key Characteristics

The Mississippi River – Twin Cities Watershed occupies an area of approximately 1,007 square miles in east central Minnesota and is drained by several streams and rivers that flow directly into the [Mississippi River](#) through the Twin Cities area. The rivers, lakes, and streams in this metropolitan area provide important ecosystem services and excellent recreational opportunities for more than 1.9 million residents as well as millions of annual visitors. The watershed contains Minnesota's largest two cities Minneapolis and St. Paul and is comprised of six counties as well as numerous watershed districts and management organizations.

Water monitoring is essential to determine whether lakes and streams meet water quality standards designed to ensure that waters are fishable and swimmable. The Minnesota Pollution Control Agency (MPCA), Minnesota Department of Natural Resources (MNDNR), and local partners conduct an intensive analysis of major lakes and streams in each of the state's 80 major watersheds every 10 years to detect changes in water quality. Water monitoring in this watershed is truly a collaboration between state agencies, watershed districts, watershed management organizations, and Met Council Environmental Services. The 10-year long effort produced the most complete picture of watershed condition in the state, including water quality and biological data on hundreds of lakes, rivers, and streams. The wealth of data collected and analyzed in the 2010 effort to assess the condition of water quality in the Mississippi River – Twin Cities Watershed provided a baseline for comparison with extensive chemical and biological sampling conducted in 2020 and 2021. In both cycles of monitoring, scientists examined levels of chemical pollutants, bacteria, and water clarity, as well as the biological condition of two aquatic communities (fish and aquatic macroinvertebrates) to determine if waters are healthy or in need of restoration. A comparison between the two sampling efforts provides a powerful mechanism for determining if water quality is improving or declining. Assessment using fish surveys in lakes was first utilized in 2013, therefore, this is the first cycle of monitoring within this watershed where scientists have examined the biological condition of fish communities in lakes. Partners use this information to develop or refine protection strategies for waters that are healthy and prioritize restoration plans for waters that are degraded or impaired.

Figure 1: Minnesota's 80 major river drainages. Mississippi River – Twin Cities Watershed is highlighted in blue.



Changes in water quality

To detect any changes in water quality, this recurring exam looks at fish and macroinvertebrate communities as well as water chemistry. Scientists use a tool called the Index of Biological Integrity (IBI) to assess the health of biological communities in lakes, rivers, streams, and wetlands. High IBI scores indicate a healthy aquatic community, which can only be attained when water quality, habitat, and hydrology are minimally disturbed by human activities.

Over the past decade, scientists observed some positive changes in water quality in the Mississippi River – Twin Cities Watershed. Several lakes with previous nutrient impairments have been restored to swimmable quality and will be removed from the state’s Impaired Waters List (IWL). Stream fish communities show an overall improvement between the sampling that occurred in 2010 and 2021, but few stream sections have improved enough to propose a removal from the IWL. Changes to fish communities in lakes cannot be compared, since there had not been any assessable fish community surveys for the previous assessment cycle. The baseline for lake fish communities will be set during this 2020 cycle. Compared to 2010 results, average IBI scores for macroinvertebrates (i.e. small animals that can be seen with the naked eye and have no backbone such as aquatic insects, crayfish, and snails) remained virtually unchanged in 2020 across the watershed. Continued problems identified in some streams include elevated bacteria levels, low dissolved oxygen levels, high chloride levels, and increased land use development.

The most recent monitoring efforts indicate that restoration efforts and land management best practices have helped improve water quality in several water bodies throughout the watershed, while other waters show evidence of declining water quality:

- Twenty-five lakes have been approved for nutrient delistings since 2012, with a handful of others close to a restored status.
- 5 new lakes are being listed for new nutrient impairments (Rebecca, Lost, Thies, Academy Pond, and Fish Lake (in Woodbury), and 16 others are vulnerable to impairment of aquatic recreation.
- For the 168 lakes with long-term monitoring data, nearly 40% are improving in water clarity suggesting water quality is also improving over time, and another 58% are showing no change.
- Increasing chloride concentrations are potentially threatening aquatic life cycles in 8 newly impaired lakes, a nearly 33% increase in chloride impairments from the previous round of chloride assessments in 2013.
- Stream water clarity is improving in 17 stream segments within the watershed.
- Across the watershed, stream IBI scores for fish improved by an average of nearly 8 points while there is no significant change for macroinvertebrate community condition compared to 2010 monitoring results.

Commented [CA(1): Should add context to this point

Highlights of monitoring

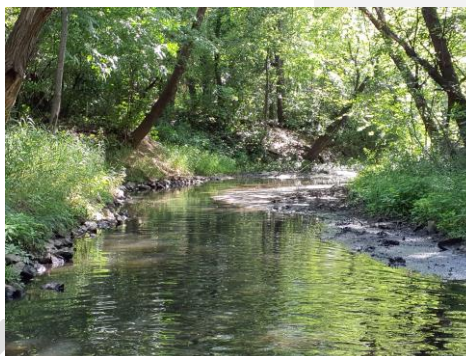
- The commitment local government units have shown toward monitoring water quality is exemplified by dozens of complete 10-year chemistry datasets.
- The watershed at large has one of the highest participation rates of the MPCA's Volunteer Monitoring Program.
- Twenty-four lakes including Tanners, Phalen, Crystal, Wirth, Johanna, McCarrons, Harriet, Bde Maka Ska, and Medicine are monitored every fall as part of a long-term chloride study to track increasing concentrations around the metro area.
- White Bear Lake and Lake Minnetonka have two of the highest fish IBI scores within the Mississippi River – Twin Cities Watershed. This is likely, in part, due to the complexity of habitat for hosting a higher diversity of fish species.
- A total of 50 fish species were collected in 39 lakes during the watershed monitoring period. Of these, one species is considered threatened (Pugnose shiner), and one is a species of concern (Least darter). Both species are State Species of Greatest Conservation Need that rely on high quality vegetated habitat.
- A total of 40 fish species were collected in 30 stream segments during the watershed monitoring period. Of these species, 20% are considered sensitive and 35% are considered tolerant.



Fish species sampled by DNR and PCA biologists as part of lake and stream IBI surveys. From left to right, muskellunge and hybrid sunfish.

Success stories

- Twenty-five lakes have been removed from the impaired waters list since lakes were assessed following the 2010 monitoring. These delistings have been the result of both in lake and on land watershed management practices.
- Sand Creek – This stream flowing into Coon Creek has undergone an intense restoration and re-meandering project led by the Coon Creek Watershed District. Although this stream segment is still considered impaired for both fish and macroinvertebrates, the sampling was conducted shortly after the restoration work was completed and future monitoring will better reflect the work that has been done. Perched culverts continue to limit connectivity and migration on many streams in the watershed including Sand Creek but future work to remove these barriers is currently planned. Additional information can be found [here](#).



An extensive habitat improvement project has been completed on Sand Creek helping to improve the creek's water quality along with fish and bug populations.

Watershed assessment results

The MPCA and local partners monitored water quality conditions in the Mississippi River – Twin Cities Watershed between 2010 and 2021 for the 2022 surface water assessment process. The data used to assess the condition of Minnesota waterbodies focus on whether or not they are meeting water quality standards for aquatic life, recreation, and consumption. This was accomplished by comparing individual measurements of parameters such as total suspended solids (TSS), dissolved oxygen, and IBI scores to established water quality standards. The primary outcome of these assessments is to ultimately determine which waters are healthy and in need of protection or are polluted and require restoration.

Streams and rivers

Fish and macroinvertebrate communities are a direct measure of aquatic life in rivers and streams. Between the 2010 and 2021 cycles of biological monitoring in the Mississippi River – Twin Cities Watershed, the MPCA adopted new rules to assess aquatic life in channelized streams and ditches. This new framework, Tiered Aquatic Life Use ([TALU](#)), allowed channelized streams in the watershed—not assessed in 2010—to be assessed against reasonable aquatic life goals if they were legally altered prior to the advent of the Clean Water Act and currently demonstrate habitat-limiting conditions for fish or macroinvertebrate communities. Streams with these characteristics are classified as modified aquatic life, which have lower biological condition expectations than general aquatic life use streams. This framework also allowed the designation of streams that exhibit exceptional aquatic communities or a much higher quality than would be expected for supporting general aquatic life use goals. None of the stream reaches in the Mississippi River – Twin Cities watershed meet the standards for exceptional aquatic life use potential.

Biological communities in streams as a whole have either improved or remained similar over the last 10 years while human population and development within the watershed has increased. Overall, about 20% of the stream reaches assessed in the Mississippi River – Twin Cities Watershed support both healthy fish and macroinvertebrate communities (Full Support). The remaining 80% of stream reaches exhibit impairments to either or both communities. Four new stream sections were found to have impaired macroinvertebrate communities in 2020, bringing the total number of macroinvertebrate impairments in the watershed to 26. There was one new stream section that was found to have an impaired fish community in 2021. This brings the total number of stream sections impaired for fish to 19. Aquatic life was determined to be fully supported on two new sections of stream in 2020, increasing the total for the watershed to 11.

The most recent assessments also resulted in 22 new stream segments added to the IWL for chemical pollutants. The most common pollutants in the Mississippi River – Twin Cities Watershed are chloride, E. coli bacteria, dissolved oxygen, and total suspended solids (The MPCA's first watershed assessment in 2012 yielded 46 stream segments impaired for the same conventional pollutants). Given the robust monitoring datasets coupled with large amounts of developed land in this predominantly urban landscape, the high percentage of impaired waters is not surprising. Chloride is often high in area streams in the springtime and is difficult to manage, given the balance between public road safety and protecting water quality; the MPCA and many local partners have developed a [chloride management plan](#). Work outlined local watershed restoration and protection plans are actively underway throughout the watershed. A specific example includes improving trends in stream clarity for 17 stream segments within the watershed, including several sites on Rice Creek. This is likely influenced by several water quality improvement projects within the Rice Creek Watershed.

Lakes

More than 200 lakes had assessable datasets collected within the previous 10 years and many of those data covered the entire 10-year assessment window, a feat not often accomplished anywhere in the state. Twenty-five lakes have been delisted since the 2012 assessment cycle with most being part of nutrient reduction TMDLs and work by local partners. Ninety-five lakes are fully supporting recreational uses, whereas 67 are listed as impaired and 16 other lakes are nearly impaired, while 2 lakes are barely impaired.

High percentages of watershed disturbance and shoreline development are likely culprits of historical stressors to lake water quality, as well as fish communities. In areas where development has reached its maximum potential, water quality trends have mostly stabilized or started to improve following implementation of TMDL management plans.

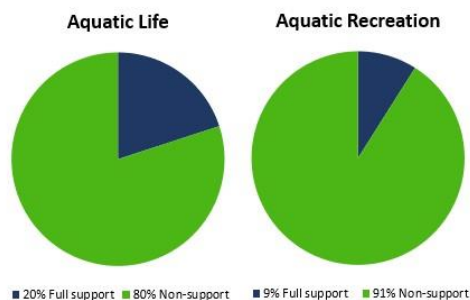


Figure 2: Watershed assessment results for aquatic life use and aquatic recreation support in streams.

New to this assessment cycle are aquatic life assessments based on fish communities in lakes. The combination of a biological assemblage plus the same chemical parameters that were analyzed in previous assessments provides a broader basis for examining water quality and its impacts to aquatic life. Several lakes with new aquatic life use impairments due to stressed fish populations also exhibit improved water quality and are approved to have their aquatic recreation impairments for excess nutrients removed. Fish communities may respond slowly to these improvements or may be adversely impacted by other stressors such as habitat loss, aquatic invasive species, and shoreline alterations.

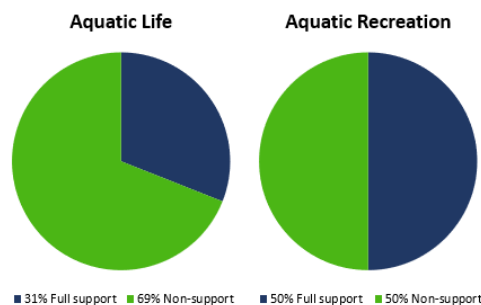


Figure 3: Watershed assessment results for aquatic life use and aquatic recreation support in lakes.

Aquatic life assessments based on fish IBI data were completed for 35 lakes in the Mississippi River-Twin Cities Watershed, while four lakes sampled were not assessable. Approximately 31% of assessed lakes were fully supporting for aquatic life uses, while around half were found to have impaired fish communities. Three lakes were considered vulnerable to future impairment (i.e., Piersons, Weaver, and Phalen). Stressors that are likely influencing these fish communities include excess nutrient inputs from urban land uses, degraded and/or overly developed shorelines, and contamination from chloride and other pollutants.

Trends

A key objective of the 2020 and 2021 monitoring effort was to evaluate whether water quality has changed since 2010 (Figure 8). If water quality has improved, it is important to understand to what extent strategy development, planning, and implementation, based on the initial work and combined with actions that were already underway, may be responsible for those improvements. It is equally important to understand if water quality does not appear to be changing or is declining. Either way, the knowledge will help inform future planning and monitoring activities.

Trends in four different aspects of water quality were analyzed to provide as robust a picture as possible of what is happening in the Mississippi River – Twin Cities Watershed:

- 1) Streamflow, sediment (total suspended solids), total phosphorus (TP), and nitrogen (nitrate)
- 2) Biological communities
- 3) Clarity of lakes
- 4) Climate

Streamflow and pollutant concentrations

While much of the content in this report focuses on the lakes and streams within the Mississippi River – Twin Cities Watershed, this watershed also has the Mississippi River itself entering on the northwest side and exiting on the southeast side. In the next few years, a “large river” report on the Mississippi River will be published. However, since this watershed contributes to and influences the Mississippi River, a brief discussion of flow and pollutant trends are included here.

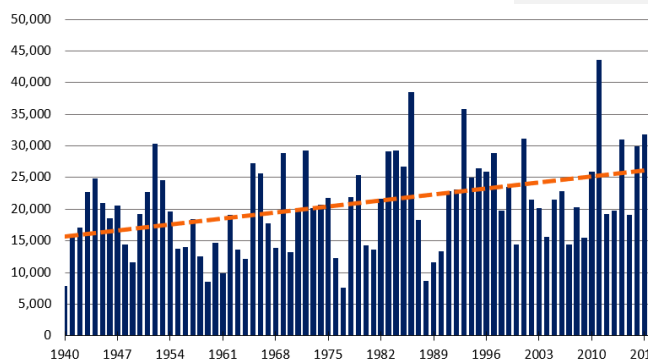


Figure 4: Average annual stream flow at the Mississippi River at Prescott, WI (USGS 05344500)

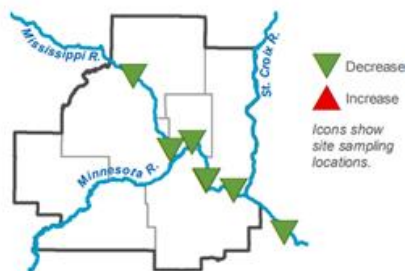
Figure 4 displays the increase of the average annual stream flow over 75 years at the Mississippi River at Prescott, WI (USGS 05344500). This long-term gage is located just outside of the Mississippi River-Twin Cities HUC-8 watershed boundary and after the Minnesota and St. Croix Rivers enter. Stream flow is a measure of the volume of water. As shown, there is great variability between years, but overall, the amount of water has increased over time. This is a result of many factors including increased precipitation and additional drainage from nonpoint sources. The increasing trend is also seen at the long-term USGS gage sites on the northern edge of the Mississippi River-Twin Cities watershed.

Metropolitan Council’s Environmental Services (MCES) has led efforts to understand the water quality dynamics and trends with data originating back to 1976. A recent report (*Regional Assessment of River Water Quality in the Twin Cities Metropolitan Area 1976-2015: Minnesota, Mississippi, St. Croix Rivers*) discusses the status of the river locations in the 7-county metro area by MCES and can be found here: <https://metro council.org/river-assessment>.

Figure 5 summarizes the trends well. Sediment, phosphorus and bacteria have all decreased mainly due to efforts of businesses, homeowners, wastewater treatment facilities, farmers, and cities. Unfortunately, nitrogen and chloride are both on the rise. Nitrogen increases are related to fertilizer application (urban and rural), livestock, and wastewater discharges. Chloride is primarily used as a deicer, synthetic fertilizer, and in water softeners. More recent data and analysis indicate nitrogen trends continue to increase at most sites. The Minnesota River at Fort Snelling is the exception for nitrogen which has shown a decreasing trend. This may be related to lag time as the Minnesota River near Jordan has an increasing trend. Newer data for phosphorus continues to show declining trends at most sites with the Rum River at Anoka showing no statistical trend for phosphorus (MPCA, 2020).

From a statewide perspective, nitrate, phosphorus, and suspended sediment flow weighted mean concentrations (FWMC) for stations monitoring by the Watershed Pollutant Loading Monitoring Network (WPLMN) show moderate values for all three parameters in the Mississippi River-Twin Cities watershed. Figure 6 displays total phosphorus (TP) and highlights the transition zone between the higher water quality in northern Minnesota with the degraded quality in southern Minnesota which is also seen in the other parameters. More information can be found at: <https://www.pca.state.mn.us/air-water-land-climate/watershed-pollutant-load-monitoring>

Sediment, Phosphorus, and Bacteria



Nitrogen and Chloride



Figure 5: Pollutant trends, METC, 2018.

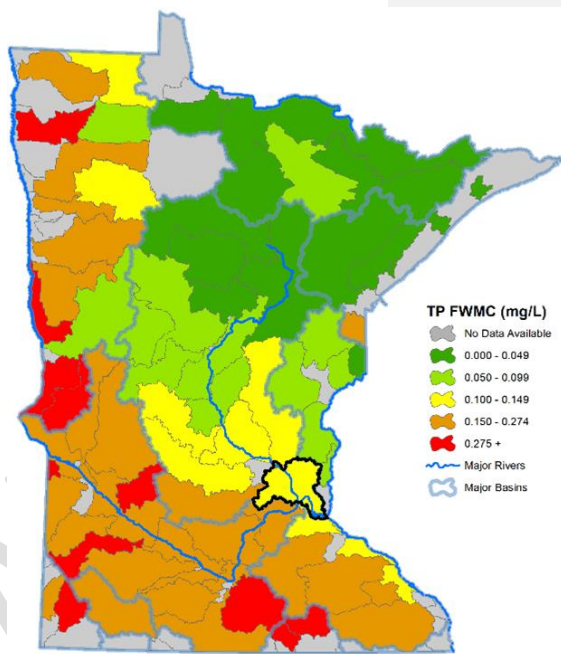


Figure 6: Phosphorus FWMC, 2007-2019

Biological Communities

Fish and macroinvertebrate IBI scores were used to evaluate if biological condition of the watershed's rivers and streams has changed between time periods. Independent statistical tests, comparing data collected between 2010 and 2020/2021 were conducted on each community with 22 sites included in the macroinvertebrate analysis and 20 sites in the fish analysis. The average macroinvertebrate IBI score for the Mississippi River – Twin Cities Watershed increased by 2.4 points between 2010 and 2020, which does not represent a statistically significant change in biological condition. Fish IBI scores across the watershed increased by 7.6 points which represents a statistically significant increase in biological condition for the watershed. A similar change analysis was not completed for lakes because comparable fish community data had not been collected during the first time period. However, several sensitive fish species with historical records in certain lakes have not been found in the most recent sampling events. Some of these fish species include least darters and rock bass.

Context for the change analysis results is provided by a characterization of the conditions under which biological monitoring occurred in 2010 and 2020/2021. In 2010, the Mississippi River – Twin Cities Watershed experienced normal to high water levels during the May through September time period. In 2021, the watershed experienced low water levels and drought conditions during a large portion of the same sampling period (Figure 8). Low water levels during the 2021 sampling season could have worked to concentrate fish populations in the reaches that were sampled. Drought conditions in 2021 effectively ended fish monitoring at the end of July compared to a full sampling period which usually ends in September.

Clarity of lakes

Water transparency is typically a good indicator of overall lake water quality. As water clarity increases, there is a greater likelihood that water quality standards are being met. There are 168 lakes with some level of transparency data in this watershed, thanks in large part to volunteer monitoring programs at work. Of those lakes, 70 have enough data to estimate a long-term change in clarity. An improving trend was noted in 60 lakes, while only 10 show a decline (only 1 of those 10 currently has a nutrient impairment listing). Many of the high-use recreational lakes had improving water clarity trends (Bde Maka Ska, Wirth, Minnetonka, Phalen, White Bear). Watershed management or lake restoration projects, such as in lake alum treatments, or in some cases zebra mussel infestations all affect water clarity.

Climate

The Mississippi River – Twin Cities Watershed now receives on average 2.4 additional inches of rain above the historical annual average (1895-2018). Furthermore, climate scientists suggest that precipitation events are becoming more intense. In addition, the average annual temperature in the watershed has increased by about 1.3 degrees with winter temperatures increasing by 2.7 degrees over the same time period. Increased rainfall and temperature can worsen existing water quality problems. More precipitation and reduced snow cover can increase soil erosion, pollutant runoff, and streamflow. Increased streamflow in turn can lead to stream channel erosion and degraded habitat for fish and other aquatic life. Longer growing seasons with higher temperatures can lead to more algal blooms. These changes will complicate efforts to protect and restore the watershed. [DNR climate summary for the Mississippi River – Twin Cities Watershed.](#)

In 2010, the Mississippi River – Twin Cities watershed experienced above normal rainfall (+4.4 in) and was abnormally hot (+1.1 °F) during the May to September time period. The watershed had

near normal precipitation (-1.5 in) and temperature (+0.8 °F) in 2020 over the May to September time period. Additionally, in 2021 when fish were monitored in rivers and streams, the watershed experienced a severe rainfall deficit (-5.1 in) with extremely warm temperatures (+3.9 °F) during the summer months. Overall, comparing the relatively higher water levels present in 2010 to the near normal conditions in 2020 means there is a moderate likelihood that any observed changes in stream macroinvertebrate condition at either the watershed or individual site scale are partially due to differences in climatic conditions between the two periods. In contrast, there is a high likelihood, given the drastically different precipitation amounts and temperatures between 2010 and 2021 (Figure 8), that any observed changes in stream fish community condition are partially due to these observed climatic differences.

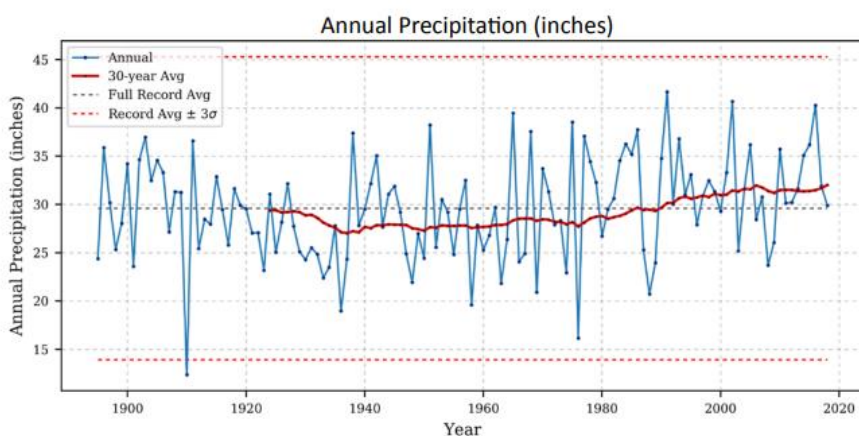


Figure 7: Average annual precipitation for the Mississippi River – Twin Cities Watershed (1895-2018).

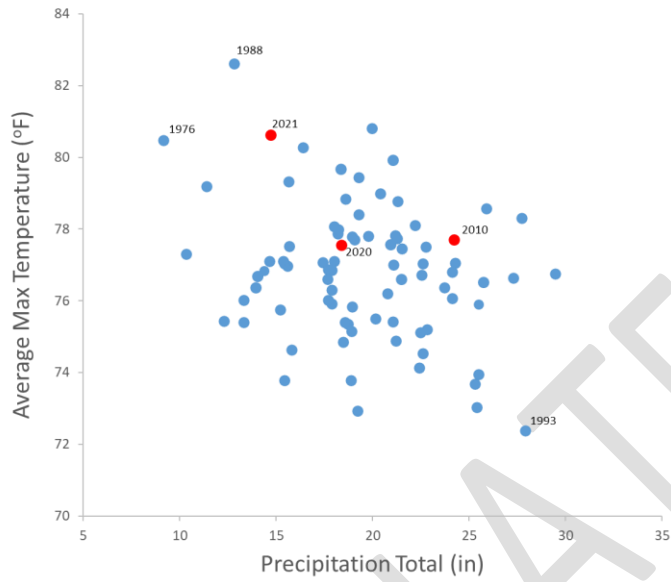


Figure 8: Characterization of air temperature and rainfall conditions for May-September period across the historical record (1938 – 2021) of climate data for the Mississippi River – Twin Cities watershed. IWM years highlighted in red.

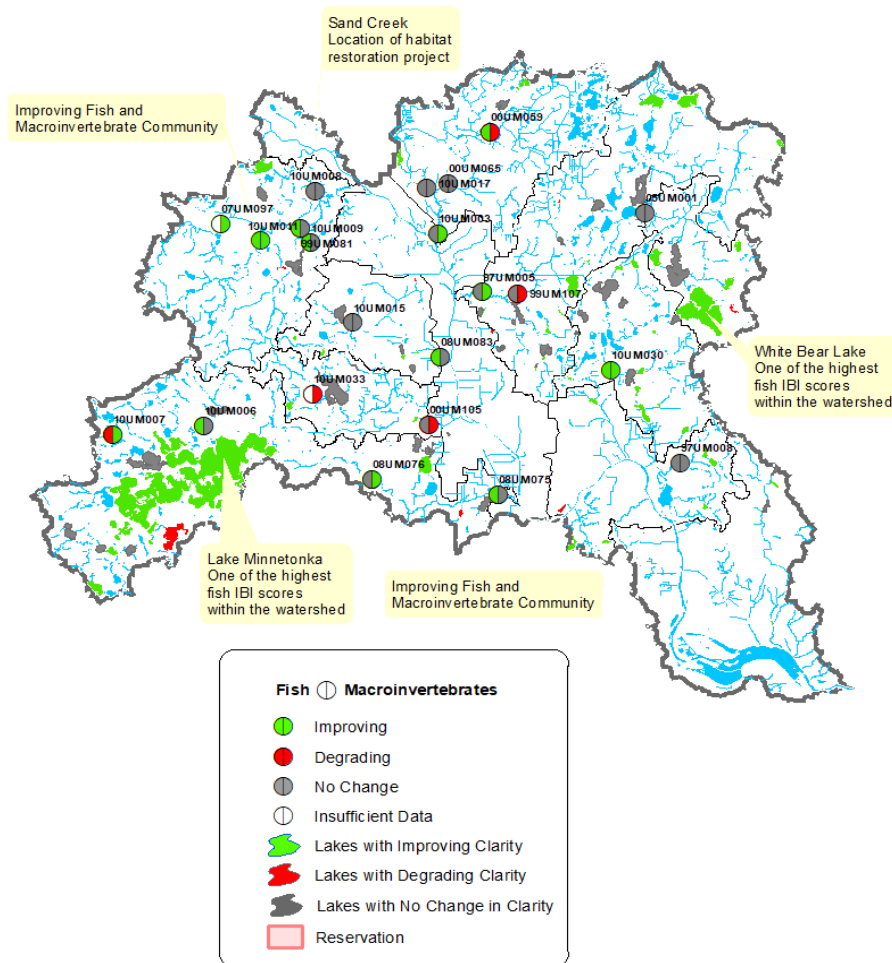


Figure 9: Changes in water quality in the Mississippi River – Twin Cities Watershed.

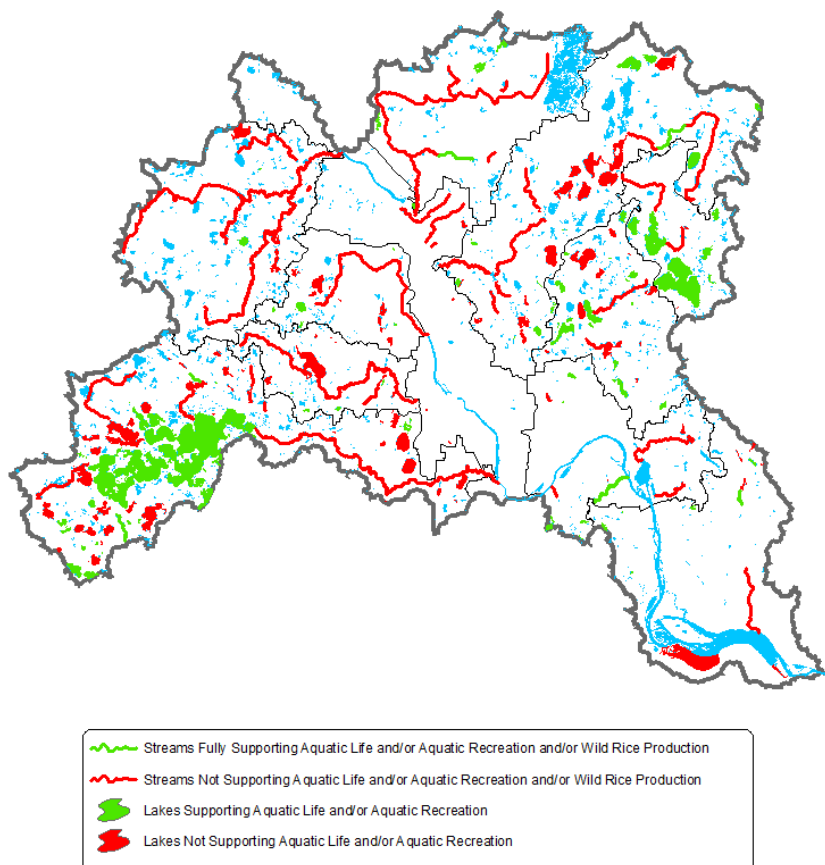


Figure 10: Aquatic life use and recreational use support/non-support in streams and lakes in the Mississippi River – Twin Cities Watershed.

For more information

This study of the Mississippi River – Twin Cities Watershed was conducted as part of [Minnesota's Watershed Approach](#) to restoring and protecting water quality. Efforts to monitor, assess, study, and restore impaired waters, and to protect healthy waters are funded by Minnesota's Clean Water, Land, and Legacy Amendment. Stressor identification for new impairments and updates to the Watershed Restoration and Protection Strategy follow the completion of monitoring and assessment. This approach allows for efficient and effective use of public resources in addressing water quality challenges across the state. The data and assessments produced by this study can inform local efforts to restore and protect waters in the Mississippi River – Twin Cities Watershed. For more information, go to the [MPCA Mississippi River – Twin Cities](#) webpage, or search for "Mississippi River – Twin Cities" on the [MPCA website](#). For more specific assessment data, go to the Tableau workbook: <https://public.tableau.com/app/profile/mpca.data.services/viz/WaterQualityAssessmentResultsDataViewer/HomePage>.

Contact

Andrew Ching
Minnesota Pollution Control Agency
andrew.ching@state.mn.us
651-757-2630



2022

Lake Water Quality Summary

Lakes add to the quality of life and economic stability of the region

INTRODUCTION

WHY WE MONITOR

METHODS

RESULTS

2022 LAKE GRADES

INTRODUCTION

The Twin Cities Metropolitan Area (TCMA) is fortunate to have a large number of lakes. These lakes are important recreational, aesthetic, and ecological resources that add considerably to the quality of life and economic stability of the region. Protecting the water quality of our lakes is a significant citizen concern.

Many state and local agencies have a role in managing and monitoring lake water quality. The Metropolitan Council operates the most extensive lake monitoring program in the region, and has been monitoring metro area lakes since 1980. During the 1980s, the Council typically monitored about 10 to 30 lakes per year.

In 1993, the Council initiated the Citizen-Assisted Monitoring Program (CAMP) to help expand coverage of lake monitoring in the metro area and to provide information to support local water management efforts. This highly successful program collects data on the lakes each year through the efforts of trained, dedicated volunteers and their local sponsors. 2022 was the 30th year of the Council's volunteer program, with 107 citizen volunteers participating in the CAMP. The volunteers were sponsored by local partners, including 12 cities, 14 watershed management organizations and watershed districts, 1 county, and 1 conservation district.



Through the dedicated efforts of the volunteers and local partners, a total of 170 lake-sites on 159 lakes were monitored in 2022 through the CAMP. Metropolitan Council staff monitored an additional 8 lake-sites on 6 lakes. In total, Council staff and CAMP volunteers and sponsors monitored 178 lake sites on 165 lakes in 2022, including 4 lakes and 5 lake sites that were newly added to the Council's lake monitoring program. Since 1980, the Council's lake monitoring program has monitored 453 lake-sites on 410 lakes.

WHY WE MONITOR

The Metropolitan Council is charged with creating a comprehensive regional development guide that minimizes the adverse impacts of growth, including adverse impacts on the environment. The monitoring data collected by the Council, its partners, and citizen volunteers are used to identify pollution problems, support regional planning efforts, and meet federal and state regulations. This Lake Water Quality Summary provides an annual synoptic assessment of the water quality of many of the metro area's lakes. Also, the Council monitors several rivers and streams in the metropolitan area and prepares reports on data collected by those programs.



390 Robert Street North
Saint Paul, MN 55101
Main: 651.602.1000
TTY: 651.291.0904
Public Information: 651.602.1500
public.info@metc.state.mn.us
metro council.org



Most of the lake monitoring efforts focus on the assessment of eutrophication, which is the process of nutrient enrichment. Eutrophication increases the biological productivity of a lake by enhancing the growth of algae and other plants. Human activities in the watersheds of lakes (for example, nonpoint sources) increase the delivery of nutrients to lakes beyond what occurs naturally. This acceleration of nutrient enrichment by humans is called cultural eutrophication. During cultural eutrophication, the population of algae increases and water clarity decreases. A variety of other problems may develop, including increases in nuisance algal blooms, odor problems, decreased desirability for recreation, decreased dissolved oxygen, fish kills, changes in the structure of fish and invertebrate communities toward low-oxygen tolerant species, and reductions in biodiversity. Furthermore, eutrophic lakes can develop blooms of toxic blue-green algae (cyanobacteria), which can be a serious health concern for humans and animals (domesticated and wild). Cultural eutrophication is one of the leading water quality concerns facing the region.

METHODS

Lakes monitored by Council staff and volunteers are typically sampled at two-week intervals from mid-April through mid-October. Most lakes are sampled at one station located over the deepest spot in the lake. Field measurements taken during each monitoring event typically include temperature and water clarity (measured with a Secchi disk). In addition, surface water samples are collected for lab analyses, which include total phosphorus (TP), total Kjeldahl nitrogen (TKN), and chlorophyll-a (Chl-a). The routine chemical analyses are performed at the Metropolitan Council Environmental Services laboratory following U.S. EPA-approved methods.

Each lake is assigned a lake grade using an A-through-F grading system as originally developed by Council staff in 1989. The objective of the lake grade system is to provide a tool for assessing lakes on a regional basis. The grading system allows comparisons of lake water quality across the metro area, yet is understandable to the public and nontechnical audiences. The grading system uses percentile ranges of the summertime (May-September) average values for three water quality indicators: total phosphorus, chlorophyll-a, and Secchi depth. Total phosphorus is a key nutrient measure; chlorophyll-a is a measure of algal abundance; and Secchi depth is a measure of water clarity. The lake's water quality grade is calculated as the average grade for the three individual parameter grades. Only lakes with a sufficient quantity of data are assigned a lake grade.



RESULTS

In 2022, 47% of the lake sites received a grade of “A” or “B”, meaning that they had relatively good water quality. Another 28% of lake sites received a water quality grade of “C”. The remaining 25% of lake sites received a water quality grade of “D” or “F”, meaning that they had relatively poor water quality. Similar to that of past years, there was no distinct pattern within the TCMA as to where lakes with specific water quality are located.

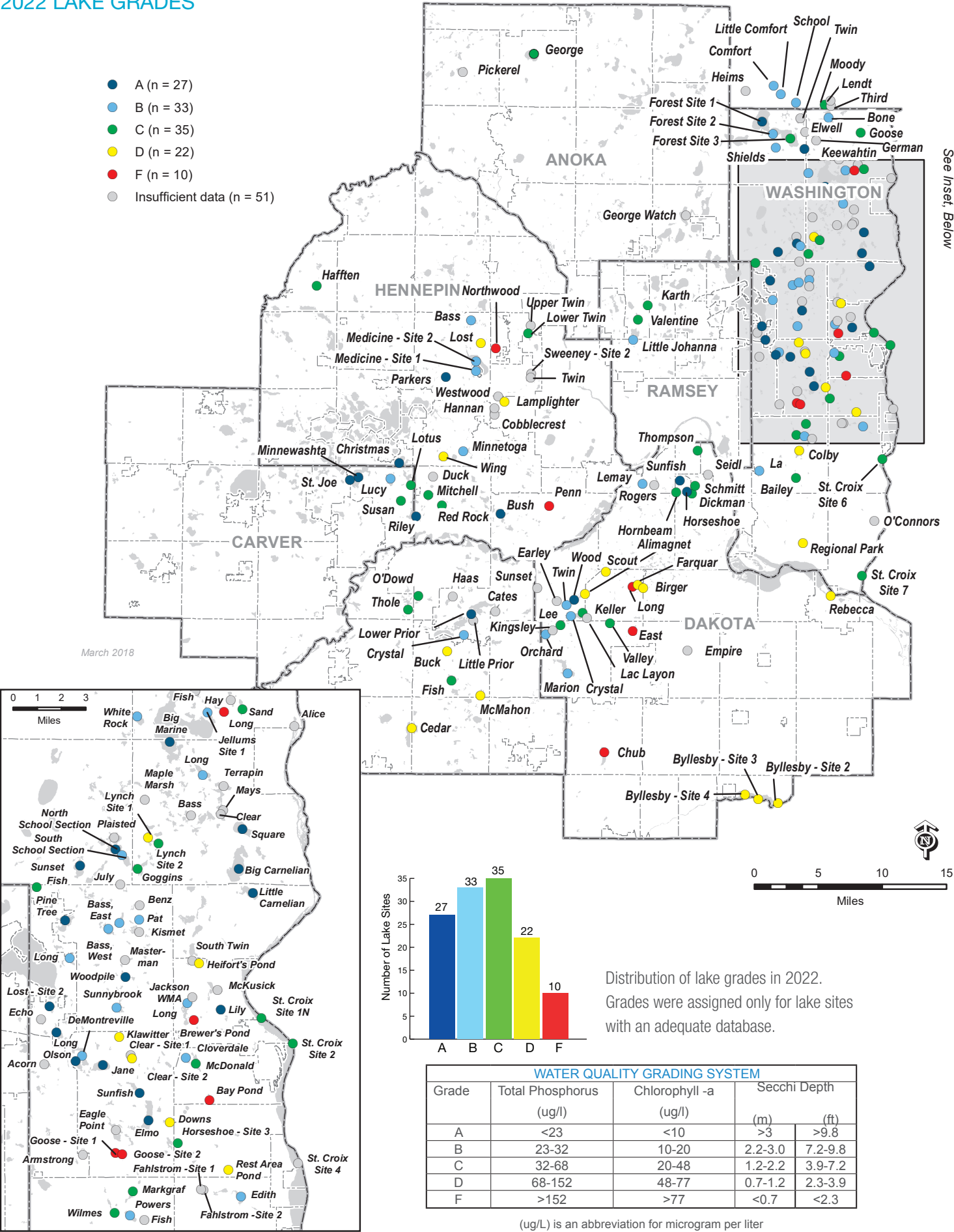
As noted in the 2021 Lake Water Quality Summary Report, the 2021 lake grade distribution showed a shift towards higher grades (A's and B's) as compared to previous years. The reason for the shift remains unclear, but for an analysis and discussion of the shift refer to the Metropolitan Council's 2021 Study of the Water Quality of 167 Metropolitan Area Lakes. For 2022, the lake grade distribution showed a return to a similar pattern typically observed in years prior to 2021, with C grades being the dominant grade, the number of A grades less than B grades, and the number of D grades greater than the F grades. The Annual Lake Water Quality Summary Report, in addition to other lake, stream, and river reports can be accessed online at:

<https://eims.metc.state.mn.us/Documents>

All of the Council's lake, stream, and river monitoring data can be accessed online using the Council's Environmental Information Management System at:

<https://eims.metc.state.mn.us>

2022 LAKE GRADES



www.shinglecreek.org

March 20, 2023

Legislative-Citizen Commission on Minnesota Resources
100 Rev. Dr. Martin Luther King Jr. Boulevard
State Office Building, Room 65
St. Paul, MN 55155

From: Andy Polzin, Chair, Shingle Creek Watershed Management Commission
rapolzin@msn.com | 612-998-4920 (mobile)

Re: Support for the 2024 proposal, "Pollution of Surface Waters from Chloride in Groundwater"

The University of Minnesota is proposing to study how chloride from street salting ends up polluting our lakes and streams all year around. The Shingle Creek Watershed Management Commission supports their effort because we have an all-season challenge with chloride in our lakes and streams coming from groundwater and need to know how to deal with it. This project will be the first step.

Shingle and Bass Creeks are impaired due to chloride concentrations and Shingle Creek has an approved TMDL implementation plan (2007). There is also a long-term USGS monitoring station on Shingle Creek at Queen Avenue near the border of Minneapolis and Brooklyn Center. This monitoring site represents drainage from approximately 31 square miles (70% of the watershed). The Shingle Creek WMC and USGS have collected continuous flow, chloride concentration, and continuous conductivity at this location since 1996. It was this monitoring that led to the 1998 discovery and designation of the chloride impairment in Shingle Creek, the first of what are now 54 so-designated waters in Minnesota. Based on this monitoring, we and the USGS believe chloride has made its way to shallow groundwater and is being discharged to Shingle Creek as baseflow during low-flow events and late in the summer/fall season. Increasing baseflow concentrations are a contributing stressor to the biotic impairments in Shingle Creek.

The Shingle Creek Watershed Management Commission fully supports this proposed research. Due to the Chloride TMDL, we have a vested interest in learning all we can about the groundwater/surface water nexus and finding options for addressing these sources.

We would like to be considered for inclusion in the study. We believe Shingle Creek meets the selection criteria to be one of the three study areas, and we have technical experts who could participate on the TAC.

If you have any questions or need additional information, please contact me at the email or phone numbers above.

Sincerely,



R. A. (Andy) Polzin, Chair
RAP:jaa
Att: Proposal
CC: John Gulliver, University of Minnesota (via Email)

Z:\Shingle Creek\Chloride\L_support LCCMR.docx



Environment and Natural Resources Trust Fund

2024 Request for Proposal

General Information

Proposal ID: 2024-255

Proposal Title: Road Salt Pollution of Surface Waters from Groundwater

Project Manager Information

Name: John Gulliver

Organization: U of MN - College of Science and Engineering

Office Telephone: (651) 202-0786

Email: gulli003@umn.edu

Project Basic Information

Project Summary: We propose identifying hot spots of groundwater chloride pollution of surface waters due to excessive road salt use, which is a long term source increasing chloride impairment of surface waters.

Funds Requested: \$689,000

Proposed Project Completion: June 30, 2027

LCCMR Funding Category: Methods to Protect, Restore, and Enhance Land, Water, and Habitat (F)

Project Location

What is the best scale for describing where your work will take place?

Statewide

What is the best scale to describe the area impacted by your work?

Statewide

When will the work impact occur?

During the Project and In the Future

Narrative

Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.

Chloride-based road salts, placed onto roads and parking lots during winter, are plowed to the side and infiltrate to shallow groundwater. In fact, seventy eight percent of chloride from road salts enter shallow groundwater in the Twin Cities metropolitan area, with a similar percentage in other Minnesota urban areas. This project will investigate groundwater pollution of rivers and streams by chloride. It will identify the sources, assess the risk, determine hot spots, and thus provide tools to guide actions to improve the water quality of our lakes and streams. Most surface water regulations do not consider groundwater as a pollution source for surface water, but a 2020 court case in Hawaii, has changed that. The pollution of surface water by groundwater is therefore an important research topic. Chloride from road salt is a highly-mobile chemical that is not adsorbed by soil and passes through the groundwater into our lakes and streams. We have reached toxic levels of chloride in streams during summer and fall (see support letter from Shingle Creek Watershed Management Organization), indicating that shallow groundwater transport to surface waters is degrading the aquatic ecosystem in urban areas.

What is your proposed solution to the problem or opportunity discussed above? Introduce us to the work you are seeking funding to do. You will be asked to expand on this proposed solution in Activities & Milestones.

This proposal is about finding solutions to the chloride groundwater-to-surface water pollution caused by excessive use of road salt. Groundwater resources are affected in different degrees by chloride leached with recharge water. First, the amount of leaching depends on the type of soil at the ground surface. For instance, clays will leach less than sands. Second, the amount of groundwater discharging to surface waters varies depending on the aquifer conditions and the connection to the surface water. Third, aquifers are complex, multilayered geological features and deeper aquifers are less likely to be impacted by chloride than shallow aquifers. So the fraction of discharge to surface waters that occurs from the different aquifer layers will affect the amount of chloride that enters the surface waters with the discharging groundwater. The combination of all of these considerations requires research to determine where chloride groundwater pollution of surface water is more likely and less likely, so that it is possible to focus source reduction on the the potential hot spots within the State.

What are the specific project outcomes as they relate to the public purpose of protection, conservation, preservation, and enhancement of the state's natural resources?

Chloride from road salt is a powerful pollutant of our lakes and rivers, directly impacting aquatic species. This project will identify how groundwater exacerbates the chloride contamination of surface water; this source of surface water contamination is largely ignored for current surface water pollution management. The result will clarify the potential connections between groundwater and surface water, where this interaction is most likely to occur, allow us to suggest ways of minimizing this source of contamination to surface waters, and allow us to respond to the new legal regulation of groundwater resources that are substantially connected to surface waters.

Activities and Milestones

Activity 1: Project Management and Quality Assurance

Activity Budget: \$38,000

Activity Description:

Project management will include initiating agreements, tracking deliverables, preparing invoices, and reporting to the LCCMR. Our team will develop a Technical Advisory Committee (TAC) which will meet every six months while the project team will meet internally every two weeks. The TAC will advise the project team on technical issues and concerns throughout the project. The TAC will be comprised of one to two representatives from state entities (e.g., Minnesota Pollution Control Agency (MPCA), Minnesota Department of Natural Resources (DNR) and one to two local public entities (cities or watershed districts).

A Quality Assurance Project Plan (QAPP) will be created before any field activity starts. The plan will list the sites to be investigated, the number of surface and groundwater sites, the type of data that will be needed, how often data are collected, maintenance protocols, how data will be managed, and lastly how data will be analyzed. The research team will develop the QAPP from an approved template for monitoring studies. We will use accessible river site and groundwater wells to sample for surface and groundwater. We will follow the general guidelines of prior groundwater sampling protocols and analyze the samples ourselves or identify a qualified local laboratory for the study.

Activity Milestones:

Description	Approximate Completion Date
1. Invitations for TAC accepted	September 30, 2024
2. QAPP completed	September 30, 2024

Activity 2: Groundwater Monitoring Studies

Activity Budget: \$300,000

Activity Description:

We propose studying up to three areas with different connectivity between surface and groundwater. We will use available groundwater atlases and work closely with state hydrogeologists to identify the study areas. The monitoring sites will be selected in consultation with our TAC and the availability of prior groundwater models. The groundwater sites will be: 1) downgradient from pollutant sources, 2) upgradient from surface water sites, and 3) accessible. The surface water sites will be: 1) downgradient from groundwater sites, 2) accessible from river or bridge, and 3) safe to sample.

Each site will have up to three monitoring wells and a surface water station. The aquifer material will be characterized for particle size. We will use a combination of automated sensors and monthly sampling for water quality over two years. Conductivity and water depth will be measured to provide a continuous record. Monthly grab samples will be collected from the wells and river and, in combination with continuous data, used to calibrate and verify the groundwater pollutant transport model. Samples will be analyzed for chloride and oxygen and hydrogen isotopes.

Activity Milestones:

Description	Approximate Completion Date
1. Study sites selected	October 31, 2024
2. Well drilling complete	November 30, 2024
3. Sampling completed (year 1)	November 30, 2025
4. Sampling completed (year 2)	June 30, 2026
5. Summary report on data collection	January 31, 2027

Activity 3: Modeling and Analysis of Groundwater Pollution of Surface Waters

Activity Budget: \$351,000

Activity Description:

Numerical models that quantify the groundwater pollution of surface waters will be developed for the selected field sites. Existing data sets will be collected and compiled, and data gaps will be identified which will guide field data collections. Several locations in the southeast karst region, and the north-central sandplains region are currently under detailed study supported by LCCMR, MDH, and the Anishinaabe Agriculture Institute. The research sites at these locations are good candidates for the proposed research. Groundwater flow models either have been or are currently being developed and calibrated for these sites. A surface water model component will be coupled to these groundwater flow models to provide integrated models that quantify the flow connectivity between surface water and groundwater. These integrated models will be used to simulate transport of chloride from road salt in the groundwater and to quantify the groundwater contribution of chloride pollution of surface waters.

Activity Milestones:

Description	Approximate Completion Date
1. Data compilation and identification of data gaps	December 31, 2024
2. Develop and implement surface water - groundwater integrated flow model	December 31, 2025
3. Develop and implement surface water - groundwater integrated chloride transport model	June 30, 2026
4. Identify road salt hot spots in Minnesota with integrated chloride transport model	April 30, 2027

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Dr. Nigel Pickering	Geosyntec Consultants	Nigel Pickering will be a Co-PI for this project and the Project Manager for all the Geosyntec tasks. He will manage the overall field project (activity 2), schedule, and budget. He will help pick suitable groundwater monitoring sites, prepare the collected water quality data and interact with the modeling team.	Yes
David Richardson	Geosyntec Consultants	David Richardson will be a Co-PI and Senior Engineer for this project. He will help pick suitable groundwater monitoring sites, oversee the well drilling and groundwater monitoring, and analyze the collected water quality data.	Yes
Dr. Peter T. Weiss	Valparaiso University	Peter Weiss is a Visiting Professor at the St. Anthony Falls Laboratory, University of Minnesota, every summer. He will be involved in Activities 2 and 3, Field studies and application of these results in the computational model.	Yes
Brooke Asleson	Minnesota Pollution Control Agency	Brooke Asleson will advise on field sites and modeling efforts; collaboration and communication between the research community and state and local government units to improve understanding and outreach; and outreach to practitioners and the local community.	No

Long-Term Implementation and Funding

Describe how the results will be implemented and how any ongoing effort will be funded. If not already addressed as part of the project, how will findings, results, and products developed be implemented after project completion? If additional work is needed, how will this work be funded?

The proposed project will find hot spots of chloride pollution stemming from groundwater flow into surface waters. Follow-on research on mitigating these hot spots will require additional funding. Aside from the LCCMR, there are many potential in-state sources that can fund the mitigation of groundwater to surface water chloride pollution, such as the Minnesota Department of Transportation, the Local Road Research board, the Minnesota Stormwater Research Council and the Minnesota Pollution Control Agency.

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Reduce Chlorides in Minnesota Waters by Evaluating Road-Salt Alternatives and Pavement Innovations	M.L. 2018, Chp. 214, Art. 4, Sec. 2, Subd. 04c	\$400,000

Project Manager and Organization Qualifications

Project Manager Name: John Gulliver

Job Title: Professor Emeritus

Provide description of the project manager's qualifications to manage the proposed project.

John Gulliver is a professor emeritus in the Department of Civil, Environmental and Geo- Engineering, performing his research at the St. Anthony Falls Laboratory. He has successfully managed 109 research projects, including 9 projects for the LCCMR. He is continuing research into the future because it is his advocacy. Much of his research, in conjunction with other faculty, involves the development of new technology for stormwater treatment and assessment of field performance of stormwater treatment practices. His most recent research projects include the retention of metals by bioretention media, the infiltration rates of various stormwater treatment practices, the impact of various types of impervious areas on runoff, and the impact of climate change on stormwater infrastructure. He is a co-author of the book, *Optimizing Stormwater Treatment Practices: A Handbook of Assessment and Maintenance*, published by Springer.

Professor Gulliver is active in outreach to the community, including workshops, the monthly Stormwater Seminar Series and publication of the practitioner-oriented newsletter, Stormwater Updates.

Organization: U of MN - College of Science and Engineering

Organization Description:

The St. Anthony Falls Laboratory (SAFL), an interdisciplinary fluids research and educational facility of the College of Science and Engineering at the University of Minnesota. SAFLs research is focused at the intersection of fluid dynamics with major societal challenges in energy, environment and health. SAFL integrates experiments in the laboratory and field with advanced computational tools and theory to obtain innovative, science-based solutions to real-world fluid-flow problems. SAFL serves as a resource for departments across the Twin Cities campus, the statewide University system, and the broader research community. The connections and collaborations reach across the country and all over the world, and SAFL partners with local, state and federal agencies; private consulting firms; businesses of many kinds; technical associations; and other educational institutions to expand knowledge and solve problems.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
John Gulliver,		PI and project manager; will be in charge of overall project management and tasks required to complete activities			8.3%	0.12		\$24,022
John Nieber		Co-PI, Supervision of one graduate research assistant who will be utilizing a large-scale groundwater flow model			36.8%	0.12		\$21,220
Peter Kang		Co-PI, Supervision of one graduate research assistant who will be modeling detailed flow and transport of chloride			36.8%	0.12		\$18,080
2 Graduate Research Assistants		One GRA will be modeling flow and transport around particles and the other GRA will be modeling flow and transport at a larger scale.			48%	3		\$327,087
Undergraduate Research Assistants		Help in field monitoring			0%	0.6		\$13,610
Civil Service/Ben Erickson-Shop staff		Help with field research			32%	0.24		\$22,749
							Sub Total	\$426,768
Contracts and Services								
Geosyntec Consultants	Sub award	Groundwater and surface water sampling and analysis and a portion of project management, including: Well installation (9), \$49500, Water quality sondes (6), \$19800, Instrument enclosures (3), \$3300, Travel (4800 mi), \$3036, WQ analyses (302 PO4/NO3/Cl), \$24948, and Grain size analysis (9 samples), \$19800.				1.14		\$237,056
Dr. Peter T. Weiss	Professional or Technical Service Contract	Dr. Weiss will be involved in all portions of the project, from field monitoring to verification of groundwater flow modeling.				0.36		\$21,882
							Sub Total	\$258,938

Equipment, Tools, and Supplies								
							Sub Total	-
Capital Expenditures								
							Sub Total	-
Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								
	Conference Registration Miles/ Meals/ Lodging	2 people	Registration for the Minnesota Water Resources Conference					\$550
	Miles/ Meals/ Lodging	49 trips of 100 miles at \$0.56/mile	Travel to groundwater monitoring sites					\$2,744
							Sub Total	\$3,294
Travel Outside Minnesota								
							Sub Total	-
Printing and Publication								
							Sub Total	-
Other Expenses								
							Sub Total	-
							Grand Total	\$689,000

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
---------------	---------------------	-------------	--

Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
State				
			State Sub Total	-
Non-State				
			Non State Sub Total	-
			Funds Total	-

Attachments

Required Attachments

Visual Component

File: [75929f1f-60c.pdf](#)

Alternate Text for Visual Component

Left-truck distributing salt brine. Middle truck plowing snow. Right-map of chloride impairments in the TCMA...

Optional Attachments

Support Letter or Other

Title	File
Support from the Shingle Creek Water Management Organization	9249064f-a76.docx
Audited Financials - Geosyntec	4a934785-46d.pdf
Geosyntec Letter	5c5e75d7-53c.pdf
Dr. Peter Weiss Letter of Commitment	1cfef182-060.docx
1101653 LOC-Authorization from the U of M	9d53af87-26c.doc

Administrative Use

Does your project include restoration or acquisition of land rights?

No

Does your project have potential for royalties, copyrights, patents, or sale of products and assets?

No

Do you understand and acknowledge IP and revenue-return and sharing requirements in 116P.10?

N/A

Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF?

N/A

Does your project include original, hypothesis-driven research?

Yes

Does the organization have a fiscal agent for this project?

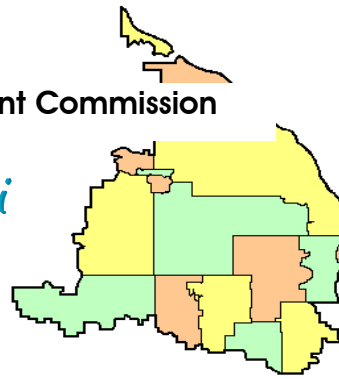
Yes, Sponsored Projects Administration

Does your project include the design, construction, or renovation of a building, trail, campground, or other capital asset costing \$10,000 or more?

No

Do you propose using an appropriation from the Environment and Natural Resources Trust Fund to conduct a project that provides children's services, as defined in Minnesota Statutes section 299C.61 Subd.7?

No



March 13, 2023

Members of the Minnesota State Legislature
St. Paul, Minnesota

The Shingle Creek Watershed Management Commission and the West Mississippi Watershed Management Commission ask that Minnesotans be given the opportunity to reauthorize the dedication of state lottery proceeds to the Environment and Natural Resources Trust Fund through a constitutional amendment, allowing voters to pass on a tradition of conservation to the next generation.

In 1988, Minnesota voters overwhelmingly passed constitutional amendments to establish a state lottery and to create the Environment and Natural Resources Trust Fund (ENRTF), a permanent trust with principal funding provided by a portion of net lottery proceeds. Proving popular with Minnesotans, the ENRTF has been reapproved by two additional constitutional amendments. In 1990, 75.31% of voters upgraded the use of lottery proceeds from a statutory dedication to a constitutional dedication expiring in 2001. And in 1998, 73.95% of voters extended this dedication until 2025. Today, support for the ENRTF remains strong, with 73% of survey respondents favoring the rededication of lottery proceeds to the Trust Fund.

For over three decades, the ENRTF has offered a stable, long-term funding source for unique, innovative projects conducted by local and Tribal governments, non-profit and community organizations, colleges and universities, and federal and state agencies. Using funding recommendations from the Legislative-Citizen Commission on Minnesota Resources (LCCMR), the Legislature has appropriated over \$900 million from the Trust Fund for the protection, conservation, preservation, and enhancement of the state's air, water, land, fish, wildlife, and other natural resources. This crucial investment has protected ecosystems, aided local communities, promoted outdoor recreation, improved health outcomes, pursued environmental equity, bolstered agricultural resiliency, and supported strong businesses and good-paying jobs across the state.

We believe Minnesotans deserve the opportunity to vote to renew the constitutional dedication of lottery proceeds to the ENRTF until 2050; while also restoring the Fund's original 50% apportionment of net proceeds and improving the LCCMR. The ENRTF will play a critical role in addressing emerging challenges to our natural resources. It's vital that we extend this funding for the years to come. We have a rare chance to continue a tradition of stewardship in Minnesota and to improve and extend the effective use of our state lottery proceeds.

We respectfully urge the Legislature to support placing the constitutional rededication of lottery proceeds to the Environment Natural Resources Trust Fund on the ballot in 2024, allowing Minnesotans to ensure the stable protection of our environment for the next generation.

Sincerely,

R.A. (Andy) Polzin, Chair
Shingle Creek Watershed Management Commission
Z:\Shingle Creek\Communications\2023\L_lottery reauthorization.docx

Gerald E. Butcher, Chair
West Mississippi Watershed Management Commission

April 3, 2023

ALL Neighborhood Groups

NOTICE OF A PUBLIC HEARING

ZONING CODE AND LAND SUBDIVISION TEXT AND MAP AMENDMENTS:

Amending Title 20 of the Minneapolis Code of Ordinances related to the Zoning Code, as follows:

1. Replacing Chapter 520 Introductory Provisions with General Provisions.
2. Repealing Chapter 521 Zoning Districts and Maps Generally.
3. Replacing Chapter 525 Administration and Enforcement with Administration and Procedures.
4. Repealing Chapter 527 Planned Unit Development.
5. Repealing Chapter 529 Interim Ordinances.
6. Replacing Chapter 530 Site Plan Review with Zoning Districts.
7. Repealing Chapter 531 Nonconforming Uses and Structures.
8. Replacing Chapter 535 Regulations of General Applicability with Overlay Districts.
9. Repealing Chapter 536 Specific Development Standards.
10. Repealing Chapter 537 Accessory Uses and Structures.
11. Adding a new Chapter 540 Built Form Overlay Districts.
12. Repealing Chapter 541 Off-Street Parking, Loading, and Mobility.
13. Repealing Chapter 543 On-Premises Signs.
14. Repealing Chapter 544 Off-Premise Signs and Billboards.
15. Adding a new Chapter 545 Use Regulations.
16. Repealing Chapter 546 Residence Districts.
17. Repealing Chapter 547 Office Residence Districts.
18. Repealing Chapter 548 Commercial Districts.
19. Repealing Chapter 549 Downtown Districts.
20. Replacing 550 Industrial Districts with Development Standards.
21. Repealing Chapter 551 Overlay Districts.
22. Repealing Chapter 552 Built Form Overlay Districts.
23. Adding a new Chapter 555 Off-Street Parking, Loading, and Mobility.
24. Adding a new Chapter 560 Signs.
25. Adding a new Chapter 565 Definitions.

Amending Title 22 of the Minneapolis Code of Ordinances as follows:

Chapter 598 Land Subdivision Regulations.

The purpose of the amendment is to implement the land use policies of Minneapolis 2040, including repealing all existing chapters within the Zoning Code, establishing new zoning chapters and zoning districts, and replacing citywide primary and overlay district maps accordingly.

The City Planning Commission will meet on **Monday, April 24, 2023, at 4:30 p.m., in Room 317 City Hall, 350 S 5th St, Minneapolis, MN.** Interested parties are invited to attend and be heard. Planning Department staff will issue a recommendation to the Planning Commission. After hearing from the public, the Planning Commission will make a determination based on required legal findings of fact. Please visit www.lims.minneapolismn.gov/IndependentBodies/IndependentBodiesMeetings/CPC for the agenda with staff reports (web page will be updated by the end of the day Wednesday prior to the meeting date).

If you have questions about this Amendment, please contact the City staff persons listed below.
If you would like to submit comments, you may make them verbally at the meeting or submit them in writing or email to:

Janelle Widmeier, Principal Planner, 612-673-3156, janelle.widmeier@minneapolismn.gov
Joe Bernard, Planning Project Manager, 612-673-2422, joseph.bernard@minneapolismn.gov
Jason Wittenberg, Planning Manager, 612-673-2297, jason.wittenberg@minneapolismn.gov
Andrew Frenz, Principal Planner, 612-673-3790, andrew.frenz@minneapolismn.gov

Community Planning & Economic Development
Land Use Design & Preservation – Code Development
505 4th Avenue South, #320
Minneapolis MN 55415

For reasonable accommodations or alternative formats please contact **612-673-2216**. People who are deaf or hard of hearing can use a relay service to call 311 at 612-673-3000. TTY users call 612-263-6850.

Para asistencia, llame al 612-673-2700 - Rau kev pab 612-673-2800 - Hadii aad Caawimaad u baahantahay 612-673-3500.