

August 3, 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. <u>http://www.shinqlecreek.org/minutes--meeting-</u> <u>packets.html</u> 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, August 10, 2023, 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 meet at 11:00, prior to the regular meeting.

Please make your meal choice from <u>all of the items</u> below and email me at <u>judie@jass.biz</u> to confirm your attendance and your meal selection by noon, Tuesday, August 8, 2023. Thank you.

Regards, Aduduson h di

Judie A. Anderson Administrator

cc: Alternate Commissioners Member Cites Stantec Consulting Services BWSR Z:\Shingle Creek\Meetings\Meetings 2023\08 Meeting Notice.docx Troy Gilchrist MPCA

TAC Members HCEE

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

Please also indicate: your cookie preference: Chocolate Chip or Oatmeal Raisin and your beverage preference: (W) Water (C) Coke (DC) Diet Coke (S) Sprite (N) None



A combined regular meeting of the Shingle Creek (SC) and West Mississippi (WM) Watershed Management Commissions will be convened Thursday, August 10, 2023, at 12:45 p.m. Agenda items are available at <u>http://www.shinglecreek.org/</u><u>minutes--meeting-packets.html</u>. Black typeface denotes SCWM items, blue denotes SC items, green denotes WM items.

A G E N D A | August 10, 2023

		1.	Call to Order.			
	SCWM		a. Roll Call.			
٧	SCWM		b. Approve Agenda.*			
٧	SCWM		c. Approve Minutes of Last Meeting.*			
		2.	Reports.			
٧	SCWM		 Treasurer's Reports and Claims** - voice votes. 			
	SCWM	3.	Open forum.			
		4.	Project Reviews.			
٧	SC		a. SC2023-07, Project Black Bear, Maple Grove.**			
		5.	Action Items.			
٧	SCWM		a. Call for Public Meeting – 2023 CIPs.*			
			1) Legal Notice.*			
٧	SC		b. Closed Projects Policy.*			
			1) Revised policy.*			
		6.	Water Quality.			
	SC		a. Gaulke SWA Update.*			
			1) BMP Prioritization.*			
	SCWM	7.	Education and Public Outreach – update.**			
			a. WMWA – next meeting September 12, 2023, at 8:30 a.m., via Zoom.			
		8.	Grant Opportunities.			
٧	SCWM		a. 2023 Clean Water Fund Grant Application – Eagle Lake SWA.*			
		9.	Communications.			
	SCWM		a. Communications Log.*			
	SCWM		b. Staff Report.*			
			1) Highway 252/I-94 EIS Review. 5) Eagle Lake SWA.			
			2) MN Stormwater Research Council Tour. 6) Gaulke Pond SWA.			
			3) County Action – Maximum Levy. 7) SC Brookdale Park Remeander.			
			4) Legal Boundary Update. 8) SC Trail Bank Stabilization/Fish Access	5.		
		10.	Other Business.			
	SCWM	11.	Adjournment. Z:\Shingle Creek\Meetings\Meetings 2023\08 Agenda Regular meeting .de	ж		
	* In mee	eting pa	acket or emailed 🛛 ** Supplemental email / Available at meeting 🔋 *** Previously transmitted 🛛 **** Available on website 🗸 Item requires action	* In meeting packet or emailed ** Supplemental email / Available at meeting *** Previously transmitted **** Available on website v I tem requires action		



REGULAR MEETING MINUTES | July 13, 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 12:46 p.m. on Thursday, July 12, 2023, at Plymouth Community Center, 14800 34th Avenue North, Plymouth, MN.

Present for Shingle Creek: David Mulla, Brooklyn Center; Alex Albrigtson Prasch, Brooklyn Park; Burt Orred, Jr., Crystal; Karen Jaeger, Maple Grove; Ray Schoch, Minneapolis; Bob Grant, New Hope; John Roach, Osseo; Andy Polzin, Plymouth; Diane Spector and Todd Shoemaker, Stantec; Sam Ketchum, Kennedy & Graven; and Judie Anderson, JASS. Not represented: Robbinsdale.

Present for West Mississippi: David Mulla, Brooklyn Center; Alex Albrigtson Prasch, Brooklyn Park; Gerry Butcher, Champlin; Karen Jaeger, Maple Grove; John Roach, Osseo; Diane Spector and Todd Shoemaker, Stantec; Sam Ketchum, Kennedy & Graven; and Judie Anderson, JASS.

Also present were: James Soltis, Brooklyn Center; Mitch Robinson, Brooklyn Park; Mark Ray, Crystal; Mark Lahtinen, Maple Grove; Nick Macklem, New Hope; James Kelly, Osseo; Owen Mischio, Plymouth; and Richard McCoy and Mike Sorenson, Robbinsdale.

II. AGENDAS AND MINUTES.

Motion by Schoch, second by Prasch to approve the Shingle Creek agenda.* Motion carried unanimously.

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

Motion by Schoch, second by Grant to approve the **minutes of the June 8, 2023, regular meeting.*** *Motion carried unanimously.*

Motion by Butcher, second by Mulla to approve the **minutes of the June 8, 2023, regular meeting.*** *Motion carried unanimously.*

III. FINANCES AND REPORTS.

A. Motion by Schoch, second by Orred to approve the Shingle Creek **July Treasurer's Report,* and claims** totaling \$72,661.61. Voting aye: Mulla, Prasch, Orred, Jaeger, Schoch, Grant, Roach, and Polzin; voting nay: none; absent: Robbinsdale.

B. Motion by Mulla, second by Butcher to approve the **West Mississippi July Treasurer's Report* and claims** totaling \$9,941.70. Voting aye: Mulla, Prasch, Butcher, Jaeger, and Roach; voting nay: none.

IV. OPEN FORUM.

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V. PROJECT REVIEW.

WM2023-03: Decatur Drive Apartments, Brooklyn Park.* Construction of two apartment buildings and associated parking on a 7.8-acre site located in the northeast quadrant of Jefferson Highway North and Decatur Drive North. Following development, the site will be 59 percent impervious with 4.61 acres of impervious surface, an increase of 4.61 acres. The complete project application was received on May 2, 2023. In an email to Todd Shoemaker on June 2, 2023, the applicant requested an additional 60 days for this project review. Stantec extended the review deadline to August 30, 2023.

Commission rules require the site to infiltrate 1.1 inches of runoff from new impervious and reconstructed impervious area within 48 hours. The new and reconstructed impervious area on this site is 4.61 acres, requiring infiltration of 18,414 cubic feet within 48 hours. The applicant proposes to construct three infiltration basins that have the capacity to infiltrate the required volume within 48 hours. The applicant meets Commission volume control requirements.

To comply with the Commission's water quality treatment requirement, the site must provide treatment so there is no net increase in TP or TSS from pre- to post-development land cover. Meeting the infiltration requirement is considered sufficient to provide a similar level of treatment. The applicant has satisfied the infiltration requirement and therefore meets Commission water quality treatment requirements.

Commission rules require that site runoff is limited to predevelopment rates for the 2-, 10-, and 100year, 24-hour, and 100-year, 10-day critical storm event. Runoff from the site is routed to three infiltration basins that discharge north to a MNDOT drainage ditch. The ditch runoff is captured by a MNDOT pond east of the site. The applicant meets Commission rate control requirements.

The erosion control plan includes a rock construction entrance, perimeter silt fence, silt fence surrounding infiltration basins, inlet protection, rip rap at inlets, erosion control blanket on basin slopes, and native seed specified on the pond slopes. The erosion control plan meets Commission requirements.

The National Wetlands Inventory does not identify any wetlands on site. The applicant meets Commission wetland requirements. There are no Public Waters on this site. The applicant meets Commission Public Waters requirements.

There is no FEMA-regulated floodplain on this site. The low floor elevations of the buildings (893') are at least two feet higher than the high-water elevation of the infiltration basins (886.12') according to Atlas 14 precipitation. The applicant meets Commission floodplain requirements.

The site is located in a Drinking Water Management Area but is outside of the Emergency Response Area. Therefore, infiltration is permitted, but infiltrated water must first filter through one foot of soil, the top four inches of which are amended topsoil, and the bottom 8 inches of which are tilled. The applicant proposes infiltration through 4 inches of media mix E (80/20 sand/compost mix) and 30 inches of clean washed sand. The applicant meets the Commission drinking water protection requirements.

A public hearing on the project was conducted on March 8, 2023, as part of Planning Commission and City Council review of this project, meeting Commission public notice requirements.

A draft Operations & Maintenance (O&M) agreement between the applicant and the City of Brooklyn Park was not provided.

Motion by Roach, second by Mulla to advise the City of Brooklyn Park that Project 2023-03 is approved with two conditions:

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1. Provision of a complete O&M agreement between the applicant and the City of Brooklyn Park for all stormwater facilities on the project site.

2. Demonstration by double ring infiltrometer or witness test that the site can meet the design infiltration rate of 0.8 inches/hour.

Motion carried unanimously.

VI. OLD BUSINESS.

VII. NEW BUSINESS.

A. Master Services Agreements.* After the Stantec acquisition of Wenck, staff worked with the Commission attorney to establish and execute a Professional Services Agreement. This agreement has been used since early 2021 for Stantec to execute Commission engineering, monitoring, and education programs. Stantec has since stopped using the Professional Services Agreement so, with the Commissions re-selection of Stantec as their Commission Engineer, it seemed appropriate to update the agreement.

Stantec requests the Commissions' approval of the Master Services Agreements (MSA) included in the meeting packet. It has been reviewed by the Commission attorney and is very similar to what is in place with other watershed districts. The Stantec 2023 hourly rates and expense costs are attached to the MSA ("Combo Rate Table"). No changes are proposed, as these were approved by the Commission earlier this year and will be updated annually as noted in the MSA.

Motion by Schoch, second by Grant to approve the Master Services Agreement with the Shingle Creek Commission. *Motion carried unanimously.*

Motion by Prasch, second by Butcher to approve the Master Services Agreement with the West Mississippi Commission. *Motion carried unanimously.*

B. Closed Project Account.* At the Commission's June 2023 meeting Staff reviewed the preliminary 2022 audit and the balances of various non-operating budget funds held by the Commission. It was noted that there were three outstanding capital improvement projects for which the Commission had levied funds which had not yet been disbursed to cities (Table 1). Brooklyn Park has subsequently submitted a reimbursement request for the River Park project, but as the Commission learned in May, Champlin declined the funding for the first two projects, and the Commission approved reassigning those funds to another related purpose.

Project	Amount Held
Champlin Mississippi Crossings Rain Garden	\$54,672
Champlin Mississippi Crossings Infiltration Vault	105,522
Brooklyn Park River Park	127,952
Account Balance YE 2022	\$288,146
To be reassigned (est)	\$160,194

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The Shingle Creek WMO established a Closed Projects Account in 2021, modeled on a similar account maintained by the Bassett Creek WMO. That account houses excess levy funds and is used to cover project overages, fund feasibility studies, or fund small projects. If there were adequate funds available another allowable use is to reduce the amount levied for future projects.

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West Mississippi has not until now had need to establish a Closed Projects account. Given the funding available from the Champlin project levies, Staff recommend that the Commission adopt a policy identical to Shingle Creek's, which establishes the account and the allowable uses for that funding. A draft policy is attached to Staff's July 7, 2023, memo. If approved, Staff also recommend that the levy funds unused by the City of Champlin be reassigned to this new account.

Motion by Butcher, second by Roach to adopt the **Closed Project Account Policy*** with a cumulative balance of \$200,000. *Motion carried unanimously.*

Motion by Butcher, second by Prasch to reassign the Champlin Mississippi Crossings Rain Garden and Champlin Mississippi Crossings Infiltration Vault funds from the Capital Improvement Project Restricted Account to the Closed Project Account. *Motion carried unanimously.*

C. River Park Reimbursement.* In 2019 the City of Brooklyn Park requested cost share participation from the Commission to help construct a new regional stormwater basin and other improvements in River Park in northeastern Brooklyn Park as part of a larger city project to upgrade the park facilities. The new pond was proposed to provide water quality treatment for about 250 acres of residential property that at the time drained untreated to the Mississippi River. The new pond was expected to provide about 50 pounds of TP removal and 31,260 pounds of sediment per year.

The project has been completed and the city has submitted a request for reimbursement. The original cost estimate was \$485,000, and the city initially requested 25% or \$121,250. The final cost for the participating parts of the project is \$547,356, and 25% is \$136,839. The Commission levied \$128,585 and collected \$127,952 after all expenses have been paid. Staff recommends the Commission reimburse Brooklyn Park with the \$127,952 in levy reserved for the project, and an additional \$8,887 from the newly established Closed Projects Account.

Motion by Prasch, second by Mulla to reimburse the City of Brooklyn Park as recommended in the preceding paragraph. *Motion carried unanimously.*

D. Mississippi Riverbank Stabilization Feasibility Study.* Stantec's July 3, 2023, Work Order authorizes Staff to study the extent of erosion along the western bank of the Mississippi River and identify potential stabilization methods and costs. There are three primary objectives of the study:

1. Update the *Mississippi River Stabilization Project Site Assessment* completed by Hennepin County in 2020;

- 2. Identify engineering and implementation alternatives; and
- **3.** Recommend an approach to proceed with one or more projects.

Background. For years, property owners along the Mississippi River have asked for the City of Brooklyn Park's support to partner on a more comprehensive and coordinated approach to address significant erosion issues along the river, including shoreline and tree loss due to high water, seeps, and ice damage, which result in sediment, nutrients and other pollutants directly entering the river from adjacent riverfronts. High water in the decade preceding 2021 had laterally eroded multiple feet of shoreline, threatening houses and other structures. In June 2020, the City and Hennepin County engaged over 55 property owners along the riverbank. The City received nearly 50 Letters of Intent granting permission for a site assessment and providing a good faith commitment to cost share work completed on their property.

County staff conducted site visits on these properties spanning the 5.8-mile riverfront in Brooklyn Park. The site visits surveyed and assessed existing erosion features, estimated the extent to which

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erosion has increased sediment and nutrient loading to the river, and identified the sources for this erosion. The *MRSP Site Assessment and Summary* document resulting from this field work classified and prioritized each property based on erosion severity and identified the properties west of Banfill Island as those exhibiting the most severe erosion which could most cost-effectively be addressed through a single restoration project. Without restoration, these banks would continue to erode at nearly a half-foot per year rate, further endangering buildings and properties, degrading habitat, and increasing sediment and nutrient load to the river. The assessment found that properties with the most concerning erosion were concentrated between the TH 610 bridge to the north and 85th Avenue to the south. This Feasibility Study will focus on that area.

Data Collection and Analysis. Includes desktop analysis and base-mapping; data collection and field assessment/evaluation; topographic survey of slope and near-bank bathymetry; soil borings; and structural analysis. Staff will attempt to determine the primary cause or causes of bank failures to understand bank failure dynamics and to develop a suite of appropriate stabilization techniques.

Staff will work with staffs of the City of Brooklyn Park and the County to meet with interested property owners at a public meeting and at a limited number of site visits to gather their observations and obtain their input and to understand their desires and expectations. They will then develop at least two general alternatives for consideration and a palette of stabilization techniques that would be appropriate based on individual site conditions.

Staff will prepare a Feasibility Study summarizing their methods, results, recommendations, and estimated costs of implementation. The initial Hennepin County report shows the parcels within the Study Area that volunteered for site assessments and the severity rating of riverbank erosion. These sites will be the focus of study, but it is understood that additional property owners may request to be added to this assessment.

Staff will assist the City and County in preparing for a public meeting to obtain input from landowners. If beneficial, they will assist with up to five (5) site evaluations to review conditions and assesses the suitability of proposed stabilization techniques.

Alternatives and Basis of Design Memo. Staff generate up to two (2) feasible, conceptual design alternatives, calculating estimated pollutant reduction and feasibility study level opinion of probable costs for each alternative. These alternative designs will address bank stabilization, erosion and sediment control practices, water control practices, infrastructure impacts, visual quality and 'fit' within the surrounding area. The conceptual design alternatives will be presented in a Basis of Design (BOD) memo.

30% Preliminary Design. Staff will select one or more components of the two alternatives to proceed with refining one (1) design alternative into 30% preliminary design plans and opinion of probable cost that incorporates anticipated construction limits, access, and easements. This final set of deliverables will be appropriate for grant funding applications.

Fee Estimate. The proposed Work Order estimated the cost to complete this work as \$60,000 and Staff recommend that the Commission fund the work from the BWSR Watershed-Based Implementation Funding (WBIF) grant proceeds.

Motion by Butcher, second by Roach to authorize Stantec to move forward with the feasibility study. *Motion carried unanimously.*

VIII. EDUCATION AND PUBLIC OUTREACH.

A. The West Metro Water Alliance (WMWA) will meet via Zoom at 8:30 a.m., August 8, 2023.

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B. The new conservation specialist, **Grace Barcelow**, is devising a six-month education and outreach plan and amassing appropriate resources.

IX. GRANT OPPORTUNITITES.

The Board of Water and Soil Resources (BWSR) opened the annual solicitation for Clean Water Fund Grants on June 29, 2023. Grant applications are due by August 24. The program is similar to the grant solicitation in past years with a few exceptions.

This \$8.5 million is funding from the ongoing Legacy Amendment and is one of the primary funding sources for surface water improvements in Minnesota. Up to 20% of that amount may be reserved by BWSR for focus on projects that protect or improve drinking water sources.

Projects must be identified in a watershed management plan that has been state approved and locally adopted or an approved total maximum daily load study (TMDL), Watershed Restoration and Protection Strategy (WRAPS), Groundwater Restoration and Protection Strategy (GRAPS), surface water intake plan, or well head protection plan. Unlike previous years, the required match has been reduced from **25%** to **10%**.

The Commission does have a few projects on its CIP for the next few years that cities might consider for application. The 2024 Shingle Creek and West Mississippi CIP in the Fourth Generation Watershed Plan contains a lake internal load improvement project for Eagle and Pike Lakes in Maple Grove. The project would be a good fit for Clean Water Funds and would be a holistic lake management project involving internal load treatment, aquatic vegetation management, and potential fisheries monitoring and/or management. Staff recommend submitting a proposal to BWSR for CWF.

Motion by Roach, second by Grant to authorize Staff to prepare an application for an Eagle Lake improvement project. *Motion carried unanimously.*

X. COMMUNICATIONS.

- **A.** June Communications Log.* No items required action.
- B. July Staff Report.*

1. Highways 252/94 EIS Review. No updates or meetings of the Highway 252/I-94 working group have taken place since the Commissions' comments were submitted during the public comment period for the Draft Scoping Decision Document (DSDD) in May. A virtual Policy Advisory Committee meeting is scheduled for Thursday July 27 from 9 to 10:30 a.m.; no advance registration is required, and the meeting link can be found here or on the MnDOT Highway 252/I-94 Environmental Review study website. The draft Environmental Impact Statement is currently scheduled to be released for public comment this fall 2023.

2. Meadow Lake. Meadow Lake received an alum treatment on May 16. Stantec completed one of two vegetation surveys on the lake this summer, and water quality on the lake is being monitored every two weeks by a CAMP lake monitoring volunteer.

3. Crystal Lake. Carp removals on Crystal Lake have been wrapped up for the season and nets were uninstalled. Stantec is waiting on final carp removal numbers from subconsultant WSB and will update the Commission in August.

4. Legal Boundary Update. Staff submitted the final list of parcels in the Shingle Creek and West Mississippi Watersheds to Hennepin County along with the updated boundary for the three adjacent

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watersheds of Bassett Creek, Elm Creek, and Mississippi WMO. Hennepin County is currently in the process of updating the taxing boundaries to reflect these changes.

5. Eagle Lake Subwatershed Assessment. Projects to address watershed loading were filtered down to the six that appear feasible based on recent site visits. We are completing estimates of phosphorus reduction and concept-level project costs to allow prioritization. The final set of potential projects will be prioritized based on water quality impact and cost and presented in August to select one project to move forward to the concept design stage. We are analyzing the results of the Eagle Lake and Pike Lake sediment core analysis to determine suitability for alum dosing. The early-season aquatic vegetation survey was completed in June for Eagle and Pike Lakes.

6. Gaulke Pond Subwatershed Assessment. Stantec has been working through the additional information provided by the City of New Hope on May 23, 2023 to identify additional opportunities within the City parks system that may provide volume reduction without impacting existing turf spaces. Two additional sites, Sunnyside Park and Fred Sims Park, have been reviewed and are being considered for underground volume reduction BMPs. Construction cost information is still being gathered and will be incorporated into the final recommendation memo and presented to the TAC and Board in August to select one project to move forward to the concept design stage.

7. Shingle Creek Brookdale Park Remeander. Stantec has developed one conceptual plan with concept level costs, which was presented to the Technical Advisory Committee (TAC) for feedback to aid in development of the final recommendations' memo and 30% preliminary drawings.

XI. OTHER BUSINESS.

There being no further business before the Commissions, the joint meeting was adjourned at 2:14 p.m.

Respectfully submitted,

I.d. ; Athduson

Judie A. Anderson Recording Secretary JAA:tim

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Stantec

Memo

To: Shingle C		Shingle Cre	eek/West Mississippi WMO Commissioners
From: Todd Sho Diane Spe		Todd Shoe Diane Spec	maker, P.E. ctor
Date	Date: August 4, 2		2023
Subject:		2023 Capit	al Improvement Program: Call for Public Hearing
Recommended Commission Acti		ed Action	Each Commission should call for a Public Hearing on September 14, 2023 to consider proposed projects and proposed levies.

The Commissions had previously established maximum proposed levies for the 2023 Capital Improvement Program (CIP). The next step in the process is to call for a public hearing on those projects and programs that you desire to move forward. There are two proposed capital projects for 2023 as well as the annual cost share and maintenance fund programs. Tables 1 and 2 show the proposed levies followed by short project summaries.

The final step in the CIP process will be to hold a public hearing on the proposed projects. This should occur at the Commissions' regular September 14, 2023 meeting. At that time the Commissions will formally order the projects and certify levies to Hennepin County.

Project	Total City/		Grant	Commission
	Estimated	Estimated Private		Share
Cost share (city projects)	\$200,000	\$100,000	0	\$100,000
Partnership cost share (private projects)	50,000	0	0	50,000
Maintenance fund	50,000	0	0	50,000
Pike Creek Stabilization	395,000	290,000	0	105,000
Bdale Park Natural Channel phase 1	625,000	0	0	625,000
Subtotal	\$1,320,000	\$390,000	\$0	\$930,000
5% additional for legal/admin costs				46,500
Subtotal				976,500
TOTAL LEVY (101% for uncollectable)				\$986,265

Table 1. Shingle Creek 2023 CIP Projects (2024 levy).

Table 1b. Levy by project.

Project	Total Levy
Cost share (city projects)	\$106,050
Partnership cost share (private projects)	\$53,025
Maintenance fund	\$53,025
Pike Creek Stabilization	111,350
Bdale Park Natural Channel phase 1	662,815
Total	\$986,265



Memo

Table 2. West Mississippi 2023 CIP Projects (2024 levy).

Project	Total Estimated	City/Private	Grant	Commission Share
Cost share (city projects)	\$100,000	\$50,000	0	\$50,000
Partnership Cost Share	100,000	0	0	100,000
Subtotal	\$200,000	\$50,000	\$ 0	\$150,000
5% additional for legal/admin costs				7,500
Subtotal				157,500
TOTAL LEVY (101% for uncollectable)				\$159,075

Table 2b. Levy by project.

Project	Total Levy
Cost share (city projects)	\$53,025
Partnership Cost Share	106,050
Total	\$159,075

Shingle Creek Projects

Cost Share Fund. This annual project provides cost sharing to retrofit voluntary BMPs on city property. The TAC developed policies and procedures to administer these funds and makes recommendations to the Commission on which projects should be funded. The annual levy is \$100,000, to be matched at least one-to-one by a member city or cities. Applications are open until funds are depleted.

Partnership Cost Share Fund. This annual project provides cost sharing to retrofit voluntary BMPs on private property. The TAC developed policies and procedures to administer these funds and makes recommendations to the Commission on which projects should be funded. The annual levy is \$50,000, and funding does not require a match. Applications are open year-round until the funds are depleted.

Maintenance Fund. This program makes funds available for nonstructural practices such as, but not limited to, rough fish management; invasive aquatic vegetation control; alum treatment touch-up; native aquatic vegetation translocation; and maintenance of Commission- installed projects for which a member City is not specifically responsible.

Pike Creek Stabilization. A joint project between the cities of Plymouth and Maple Grove would stabilize eroding streambank along Pike Creek near its discharge point into Pike Lake, and upstream of Hemlock Lane.

Brookdale Park Natural Channel Phase 1. This project would remeander about 5,000 feet of Shingle Creek between a drop structure in Brookdale Park and Xerxes Avenue to improve water quality, enhance habitat, and restore natural form and function. In addition, bank stabilization improvements would be made to about 2,000 feet of Shingle Creek between Xerxes Avenue and Palmer Lake. Levy funding will be phased over multiple years; this is phase 1.

West Mississippi Projects

Cost Share Fund. This annual project provides cost sharing to retrofit voluntary BMPs on city property. The TAC developed policies and procedures to administer these funds and makes recommendations to the Commission on which projects should be funded. The annual levy is \$50,000, to be matched at least one-to-one by a member city or cities. Applications are open until funds are depleted.





Partnership Cost Share Fund. This annual project provides cost sharing to retrofit voluntary BMPs on private property. The TAC developed policies and procedures to administer these funds and makes recommendations to the Commission on which projects should be funded. The annual levy is \$100,000, and funding does not require a match. Applications are open year-round until the funds are depleted.

Legal Notice

NOTICE OF PUBLIC HEARING SHINGLE CREEK and WEST MISSISSIPPI WATERSHED MANAGEMENT COMMISSIONS

TO WHOM IT MAY CONCERN:

Notice is hereby given that the Shingle Creek Watershed Management Commission (SCWMC) and the West Mississippi Watershed Management Commissions (WMWMC) will meet in the Plymouth Community Center, 14800 34th Avenue North, Plymouth, MN, on Thursday, September 14, 2022, at approximately 12:45 p.m., or as soon thereafter as the matter may be heard, for a public hearing on the following improvements:

Project 2023-01:	2023 Cost Share Projects		
Location:	Various locations in the Shingle Creek watershed		
Description:	Cost-share for member city small retrofit best management practices (BMPs)		
Cost:	Estimated project(s) cost is \$206,050, with \$100,000 borne by city(ies) in which		
project(s) is(are) located	I. The SCWMC proposes to fund \$106,050 by certifying this cost to Hennepin County		
for collection with the county ad valorem tax levy.			

Project 2023-02:	Partnership Cost Share (private projects)		
Location:	Various locations in the Shingle Creek watershed		
Description:	Cost-share for private property retrofit BMPs		
Cost:	Estimated project(s) cost is \$50,000. The SCWMC proposes to fund \$53,025 by		
certifying this cost to Hennepin County for collection with the county ad valorem tax levy.			

Project 2023-03:	Maintenance Fund
Location:	Various locations in the Shingle Creek watershed
Description:	Cost share for nonstructural practices and maintenance of Commission-installed
projects for which me	omber cities have not accepted maintenance.
Cost:	Estimated project(s) cost is \$50,000. The SCWMC proposes to fund \$53,025 by
certifying this cost to	Hennepin County for collection with the county ad valorem tax levy.

Project 2023-04:Pike Creek StabilizationLocation:cities of Plymouth and Maple GroveDescription:Stabilize eroding streambank along Pike Creek near its discharge point into Pike Lakeand upstream of Hemlock Lane.Estimated project cost is \$395,000 with \$290,000 borne by the two cities. The SCWMCproposes to fund \$111,350 by certifying this cost to Hennepin County for collection with the county ad valoremtax levy.

Project 2023-05:Brookdale Park Natural Channel Phase 1Location:Brooklyn ParkDescription:Remeander 5,000 feet of Shingle Creek between drop structure in Brookdale Park andXerxes Ave. to enhance habitat, restore natural form and function; also bank stabilization of 2,000 feet of creek

between Xerxes Ave. and Palmer Lake. Cost: Estimated cost is \$625,000. The SCWMC proposes to fund \$662,815 by certifying this cost to Hennepin County for collection with the county ad valorem tax levy.

Project 2023-06	Cost Share Projects
Location:	Various locations in the West Mississippi watershed
Description:	Cost-share for member city small retrofit best management practices (BMPs)
Cost:	Estimated project(s) cost is \$100,000, with \$50,000 borne by city(ies) in which
project(s) is(are) located	1. The WMWMC proposes to fund \$53,025 by certifying this cost to Hennepin County
for collection with the c	ounty ad valorem tax levy.

Project 2023-07:Partnership Cost Share (private projects)Location:Various locations in the West Mississippi watershedDescription:Estimated project(s) cost is \$100,000. The WMWMC proposes to fund \$106,050 bycertifying this cost to Hennepin County for collection with the county ad valorem tax levy.

The SCWMC and the WMWMC propose to proceed under the authority granted by MN Stat., Sec. 103B.251 to certify their share of the projects' cost to Hennepin County for payment by a tax levy on all taxable property located within their respective watersheds. The Shingle Creek watershed includes portions of the cities of Brooklyn Center, Brooklyn Park, Crystal, Maple Grove, Minneapolis, New Hope, Osseo, Plymouth, and Robbinsdale. The West Mississippi watershed includes portions of the cities of Brooklyn Center, Brooklyn Park, Champlin, Maple Grove, and Osseo. Maps of the watersheds are available at the respective city halls or at www.shinglecreek.org.

Persons who desire to be heard with reference to the proposed improvements will be heard at this meeting. Written comments may be submitted to R.A. Polzin, c/o JASS, 3235 Fernbrook Lane, Plymouth, MN 55447, or emailed to judie@jass.biz. Auxiliary aids for persons with handicaps are available upon request at least 7 days in advance. Please contact Judie Anderson at 763-553-1144 to make arrangements.

/s/ R.A. Polzin/Gerald Butcher, Chairs

By order of the Shingle Creek and West Mississippi Watershed Management Commissions

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Published weeks of August 28 and September 4, 2023, in the Osseo-Maple Grove Press.

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Stantec

Commission Action

Memo

То:	Shingle Creek WMO Commissioners		
From:	Todd Shoemaker PE Diane Spector		
Date:	August 4, 2023		
Subject:	Revise Closed Projects Account Policy		
Recommende	ed	BY motion approve revising the policy as noted.	

At your July meeting, the West Mississippi Commission adopted a Closed Projects Account Policy similar to Shingle Creek's with one exception. The Shingle Creek policy, which was adopted in 2012, included a provision to cap the maximum fund balance at \$100,000, whereas the West Mississippi Commission thought that balance was too low and adopted a target balance cap of \$200,000.

The Shingle Creek Commissioners present agreed that given the increase in the cost of completing projects since 2012, \$200,000 was reasonable and requested that this policy be brought back with such a revision to make it consistent with the West Mississippi policy.

Attached is a proposed revised policy. It makes two adjustments: it changes the \$100,000 cap to \$200,000 and replaces the word "will not" with "should not" in Section V: "Money <u>will should</u> not be accumulated to an amount in excess of \$200,000 unless a specific use for such funds has been identified." This clarifies that the cap is a guideline, not an absolute limit.

SHINGLE CREEK WATERSHED MANAGEMENT COMMISSION

CAPITAL IMPROVEMENT PROGRAM CLOSED PROJECT ACCOUNT POLICY

I. PURPOSE

The Commission's Capital Improvement Program (CIP) includes projects that are proposed to be funded by a County ad valorem tax levy on property in the watershed pursuant to Minn. Stat. §103B.251. Tax settlements from Hennepin County to the Commission for these projects are deposited in a construction account established for each such project. There will be times when tax settlements to the Commission exceed the costs incurred for CIP projects. The purpose of this policy is to establish procedures and guidelines for collection, accounting and use of these excess funds.

II. ESTABLISHMENT OF ACCOUNT

The Commission hereby establishes the CIP Closed Project Account (the "Account"). Upon completion of CIP projects funded in whole or in part by a County tax levy, reimbursement of Commission expenses and administrative charges, and final payment to the City with responsibility for construction of the project, the construction account for that project will be closed and remaining funds will be transferred to the Account. Interest earned on money in the Account will be credited to the Account.

III. USE OF THE CIP CLOSED PROJECT ACCOUNT

As a general guiding principle, the Account will be used for expenses incurred for other projects in the Commission's CIP that are proposed to be funded with a County tax levy. Such expenses include:

- A. The administrative and construction costs of CIP projects. Monies from the Account may be used to reduce or eliminate a tax levy for capital projects in the CIP by transferring monies to the construction accounts for those projects.
- B. Reimbursement to the Commission's General Fund of expenses or administrative fees incurred in connection with a project if the tax settlement for that project is not sufficient to cover such expenses.
- C. Reimbursement to cities that construct projects for administrative or construction costs if tax settlements received from the County are not sufficient to cover such costs. These costs might include cost overruns on projects, change orders, corrective follow-up work or repairs, or other unforeseen project costs.

IV. PROCEDURE FOR USE OF ACCOUNTS

The Account may be used for any lawful purpose upon a majority vote of the Commissioners present at any meeting at which a quorum of the Commission is present.

V. TARGET ACCOUNT BALANCE

The Commission does not intend to accumulate unreasonable balances in the Account. Because the Account could be used to fund projects in advance of receipt of tax settlement from the County, and because projects in the CIP could reasonably be expected to have total costs, or annual project costs, of approximately \$100,000, the Commission finds that an accumulation of up to \$100,000200,000 is reasonable. Money will-should not be accumulated to an amount in excess of \$100,000200,000 unless a specific use for such funds has been identified. The Account balances may be kept within this amount by expending funds for any of the purposes identified in this policy.

VI. PERIODIC REVIEW

Each year the Commission will consider the status of the Account prior to certification to Hennepin County of requests for tax levies for capital projects.

Date of adoption of policy:	June 14, 2012
Revised:	August 10,2023

Stantec

Memo

То:	Shingle Cre	Shingle Creek/West Mississippi WMO TAC and Commissioners		
From:	Katy Thom Todd Shoe	Katy Thompson, PE Todd Shoemaker, PE		
Date:	August 4, 2	August 4, 2023		
Subject:	Gaulke Po	Gaulke Pond Subwatershed Assessment Update		
Recommer Commissio	nded on Action	For information		

The Shingle Creek Watershed Management Commission (SCWMC) requested Stantec evaluate opportunities to reduce stormwater runoff volume to Gaulke Pond. As part of this effort, we have reviewed the available data, conducted a field reconnaissance visit, and conducted a desktop-based evaluation of potential sites within the Gaulke Pond subwatershed that could be retrofit to include a volume-reduction best management practice (BMP).

The attached memorandum summarizes the project background, watershed changes, opportunity locations and BMPs considered, and ranking of potential BMPs. Based on the ranking, Stantec will proceed with 30% design of Opportunity A2 – the larger of the two infiltration trenches identified on Colorado Avenue.

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To:	Shingle Creek Watershed Management Commission	From:	Katy Thompson, PE, CFM Rena Weis, EIT
			Todd Shoemaker, PE
			Stantec
Project/File:	227705751	Date:	August 4, 2023

The Shingle Creek Watershed Management Commission (SCWMC) requested Stantec evaluate opportunities to reduce stormwater runoff volume to the Gaulke Pond. As part of this effort, we have reviewed the available data, conducted a field reconnaissance visit, and conducted a desktop-based evaluation of potential sites within the Gaulke Pond subwatershed, that could be retrofit to include a volume-reduction best management practice (BMP). This document summarizes the project background, watershed changes, opportunity locations and BMPs considered, and preliminary results for discussion.

1 Background

The Gaulke Pond watershed is located within the cities of Crystal, New Hope, and Robbinsdale. The watershed roughly spans south to north, from 38th Avenue to 49th Avenue; and west to east, from Boone Avenue to Welcome Avenue (Figure 1). Gaulke Pond is the most downstream in a series of four ponds, including Hagemeister Pond, Brownwood Pond, and Memory Lane Pond, within the City of Crystal. Gaulke Pond collects runoff from 883 acres of residential, institutional, and commercial properties upstream and discharges via a pump system east into storm sewer, and ultimately Twin Lake.

As part of this project, we reviewed a substantial number of reports and sources regarding the Commission and cities of Crystal and New Hope's management of stormwater and floodplains. The goal was to develop a wholistic understanding of the watershed, its history, existing issues, and future work.

Reference: Gaulke Pond Subwatershed Assessment—BMP Prioritization



Figure 1. Gaulke Pond watershed and major features location map.

1.1 Watershed and Land Use Changes

Prior to European settlement, the Gaulke Pond watershed native vegetation consisted primarily of Oak Openings and Barrens and Prairie (Minnesota Department of Natural Resources, 2022), based the General Land Office (GLO) records from 1856, which show that the watershed was low-lying swamp, with pockets of prairie in the northeast portion of the watershed (Figure 2 (Minnesota Geospatial Information Office, 2011)).

Reference: Gaulke Pond Subwatershed Assessment—BMP Prioritization



Figure 2. Gaulke Pond watershed and major waterbodies overlaid on the 1856 GLO land survey map. Green boundary indicates prairie, while the gray represents swamps; none of the present-day Gaulke Pond features were mapped.

The United States Geological Survey (USGS) conducted the first topographic survey of the area in 1905, which shows construction of roadways, including the current 42nd Avenue, Winnetka Ave, and Douglas Drive (Figure 3). The swamp areas identified in 1856 no longer appear, but Brownwood Pond and Gaulke Pond are now clearly mapped, though much larger than their present-day footprints.

Using the 1902 quadrangle contours, the undeveloped watershed was roughly 735 acres versus 884 acres today. In addition, Gaulke Pond is mapped with a normal water elevation of approximately El. 890 and an overflow to the northeast, likely over a low point in 42nd Avenue, east of Douglas Road, around El. 895.





Figure 3. Gaulke Pond watershed and major waterbodies overlaid on the 1902 Anoka USGS quadrangle. Note the construction of present-day 42nd Avenue though the center of the watershed, as well as definition around Brownwood and Gaulke Ponds.

The first aerial photos were collected in 1937 and show the encroachment of urban development from the east, agricultural field across the majority of the watershed, and pockets of undisturbed oak woodlands, the largest remnant located to the southwest of Hagemeister Pond (Figure 4). Hagemeister Pond first appears in these photos, indicating that it is a constructed pond. The 1937 aerial photos also faintly show the agricultural ditches providing drainage for the present day Old Dutch Pond and northwest of Memory Lane Pond.



Figure 4. 1937 aerial photo of Gaulke Pond watershed and key waterbodies.

Nearly twenty years later, by 1956 (Figure 5), the east half of the watershed is intensively urban, development is encroaching on the remaining agricultural lands, and none of the native oak woodlands remain. Old Dutch Pond first appears in the aerial photos in 1952 and is clearly shown on both sides of the Canadian Pacific Railroad crossing by 1956, with a much larger footprint than today's pond. Construction of the Fair School to the east of Gaulke Pond shows the waterbody taking on its current location and shape. The USGS quadrangles from the early 1950s (Figure 6) highlight the hydraulic connections creating the Gaulke Pond chain, as well as a number of pocket wetlands in the west half of the watershed, indicating that the native soils in the New Hope area are poorly draining or the area is subject to high groundwater.



Figure 5. 1956 aerial photo of Gaulke Pond watershed and key waterbodies.



Figure 6. Gaulke Pond watershed and 1952 North Minneapolis and 1955 Osseo USGS quadrangle mapping

The USGS quadrangles also show how much urbanization and fill has occurred in the watershed, resulting in a larger watershed, with increased impervious surfaces that generate more rainfall runoff; fewer wetlands and open spaces to infiltrate rainfall; and reduced storage in the remaining ponds and wetlands to absorb the increased runoff.

1.2 Flooding

The highest recorded flood elevations in the chain occurred on April 11, 1965 from spring snowmelt. Because the system is land-locked, the long duration spring snowmelt events, such as the 1965 event, as well as intense summer rainstorms resulted in flooding (FEMA 2016). Since the extreme flooding in 1965, the City of Crystal installed a pumped outlet design at Gaulke Pond into its municipal storm sewer, which ultimately discharges into Lower Twin Lake. While this alleviated some flooding concerns, in discussions with the City of Crystal, the system can still get overloaded, especially during the 1987 "Superstorm" when flooding occurred within the City of Crystal at low points connected to the Gaulke Pond chain.

To address flood risk in the watershed and improve maintenance operations, the City of Crystal commissioned several studies, including the Gaulke Pond Discharge Rate Evaluation in 2019, the Central Core Stormwater Project expanded Gaulke Pond, installed a new pumping system, and lowered the normal water level in 2022. This project work increased the live storage within Gaulke Pond by 11.7 acre-feet (AF).

The Central Core Stormwater Project identified several potential deficiencies in the City of Crystal's storm sewer system, specifically undersized pipes that may be contributing to the surface flooding occurring in other parts of the watershed. It should be noted that this study evaluated the City of Crystal in detail but did not include the same level of detail upstream in the City of New Hope. While the focus was on the Gaulke Pond chain, it is possible that this approach did not account for the upstream storage and attenuation provided by the City of New Hope's infrastructure and existing stormwater ponds, such as Old Dutch Pond.

This study focuses on potential volume reduction practices as a way to reduce flooding in the Gaulke Pond chain. With a few exceptions, additional detention or increased pipe capacity alternatives were not considered as part of this project scope.

2 Opportunity Identification

After project kickoff, Stantec reviewed the available data and facilitated a project kickoff meeting with city staff from New Hope and Crystal to discuss the project objectives, data reviewed and needs, as well as previously identified issues or areas of concern within the Gaulke Pond watershed. During the meeting, initial screening criteria was discussed to identify potential BMP locations and types. The group determined that the sites would be selected as a potential opportunity location, if they met the following criteria:

- 1. City-owned land, including street right-of-way.
- 2. City priorities from previously identified flooding concerns and priority areas from the 2021 Central Core Stormwater Project, as well as upcoming street and utility projects.
- 3. Suitable soils for infiltration (i.e., hydrologic soil group A or B).

2.1 Public Land

Stantec completed a desktop review of the subwatershed in GIS to determine potential opportunity sites and areas to focus our efforts. Of the total 1,938 parcels within the Gaulke Pond subwatershed, 47 were public and quasi-public parcels, summarized in Table 1 and shown in Figure 7.

Table 1. Summary of public parcel ownership and areas in Gaulke Pond subwatershed.

Taxpayer Name	No. Parcels	Area (ac)
City of Crystal	21	42.5
City of New Hope	19	43.1
City of Robbinsdale	1	1.7
Hennepin County	1	3.0
Robbinsdale School District No. 281	5	68.7
TOTAL	47	159.0



Figure 7. Public parcels within the Gaulke Pond subwatershed.

Design with community in mind

2.2 City Priorities

The goal of this project is to find the most cost-effective BMP to provide maximum volume reduction benefits within the Gaulke Pond watershed. One way to minimize construction costs is to incorporate the BMP construction with an upcoming municipal project that will also require excavation and underground utility work, so that a single contractor can be hired to complete all of the proposed work. An added benefit is that this method can also reduce the disruption to residents and businesses to a single project, rather than multiple construction interruptions.

At the project kickoff meeting, the cities of Crystal and New Hope provided a list of upcoming municipal projects that would result in excavation and or replacement of existing utilities within the public right-of-way. Additionally, the cities ranked these projects for potential political backing and support from councils. The results are summarized in Table 2 and shown on Figure 8.

City	Site		Street or Utility Project
Priority	ID	Description	Construction Year
1	A1	Old Crystal Public Works parking lot	2024
2	A2	Colorado Avenue between 41 st and 42 nd Avenues	2025
3	A3	Colorado Avenue	2025
4	A4	Brunswick Avenue	2027
5	A5	42 nd Avenue and Canadian Pacific Bridge	-
6	A6	43 rd Avenue and Xenia Avenue	-
7	A7	Old Dutch Pond	-
8	A8	Nevada Avenue	-
9	A9	Fred Simms Park	-
10	A10	Brownwood Pond	-
11	A11	Hagemeister Pond	-

Table 2. City identified and ranked opportunities for the Gaulke Pond subwatershed BMPs



Figure 8. City-identified opportunity areas within Gaulke Pond watershed.

2.3 Suitable Soils

As the goal of this project is to reduce stormwater runoff, the most cost-effective method to do so is to increase infiltration of runoff; however, this can only be accomplished in areas with suitable soils and adequate separation to groundwater. Due to the development of the watershed, the standard soil data set, the Natural Resources Conservation Service (NRCS) only classifies the soils as "urban fill" and does not provide insight into the underlying soils' ability to infiltrate.

Due to the NRCS SSURGO dataset primarily indicating "urban fill" within the Gaulke watershed, a historic soil dataset was utilized to identify soil types and corresponding hydrologic soil groups (HSGs). The HSG indicates the soil's ability to infiltrate water, HSG A have the highest infiltration rates, while HSG D soils have the lowest. NRCS data was used to correspond historically present soil series with HSGs. Where NRCS data was not available, the Minnesota Pollution Control Agency (MPCA) Minnesota Stormwater Manual was used to supplement. Specifically, Hayden Loam was classified as HSG B, while Maumee Sandy Loam and Thurston Loamy Sand were classified as HSG A, shown in Figure 9.



Figure 9. Historic soils with HSG A (solid purple) or B (purple hatch) soils within Gaulke Pond watershed.

Design with community in mind

Anecdotal information from the cities, the historic soils data, and field observations indicate that the City of Crystal may have more suitable soils for infiltration BMPs than the City of New Hope; however, this should be confirmed as part of any final design.

Groundwater information was not readily available, so for initial site evaluation purposes, it has been assumed to be at the same elevation as the surface of neighboring waterbodies.

2.4 Screening Results

Using the information generated, opportunity areas were identified for further discussion with the cities. Stantec developed a suite of generalized BMP options for consideration and used this to assess potential BMPs for consideration at each of the opportunity sites. Stantec then met with city staff on April 21, 2023, to review each opportunity site, discuss potential for incorporating volume reduction BMPs, and any known existing site constraints that may affect implementing BMPs. The following sections summarize each site's existing conditions, site constraints, potential BMP, and if infiltration is feasible, the maximum volume infiltrated annually using the MPCA Minimal Impact Design Standards (MIDS) calculator. Figures for each of the opportunities considered are presented at the end of this document.

2.4.1 CITY OF CRYSTAL OLD PUBLIC WORKS

Opportunity ID: A1

<u>Existing conditions</u>: Public works storage parking lot, with 36-inch storm sewer beneath that conveys stormwater from the north to Gaulke Pond. As part of the recent Gaulke Pond improvements, a pre-treatment hydrodynamic separator was installed in the southwest portion of the parking lot (Figure 10). Underlying soils at this location are unknown, but historical soil data indicate potential HSG A.

<u>Site constraints</u>: The site is used for storage of city public works equipment and materials, which includes heavy trucks and machinery that result in large weight loads over the parking lot, which drives cover and material requirements for underground stormwater management facilities. Depth of a future stormwater facility at this location would be limited by the water levels in Gaulke Pond. Existing storm sewer depths may not allow for gravity diversions.

Potential BMP opportunities: Underground infiltration

Annual volume infiltrated: 115 AF

2.4.2 COLORADO AVENUE

Opportunity IDs: A2 and A3

<u>Existing conditions</u>: Existing residential street, bounded by the city's drinking water reservoir to the east and residential housing and a church to the west. The street drains north to south towards Gaulke Pond and is intercepted by storm sewer running along the east curb line (Figures 11 and 12).

<u>Site constraints</u>: Existing utilities, including maintaining adequate separation between water main and any proposed storm sewer, as well as separation from city's reservoir limit width of any potential BMP.

Additional constraints include basement elevations and existing storm sewer inverts, which will limit opportunities to divert water via gravity into a new BMP.

<u>Potential BMP opportunities</u>: Underground infiltration chamber or pipe gallery, perforated pipe underdrains, infiltration trenches within right-of-way.

Annual volume infiltrated: 20.6 AF (A2) and 16.3 AF (A3)

2.4.3 BRUNSWICK AVENUE LOW POINT

Opportunity ID: A4

<u>Existing conditions</u>: Low point on Brunswick Avenue is known to flood several feet deep, flooding cars parked in the street and the neighboring Brunswick United Methodist Church (Figure 13). This area also appears to have once served as the original overflow outlet for Gaulke Pond. Historic soils data indicate this area may be HSG A.

<u>Site constraints</u>: Underground utilities and limited public right-of-way dictate the maximum BMP footprint. Additional constraints include groundwater, low floor elevation of the Brunswick United Methodist Church, and existing storm sewer inverts, which will limit opportunities to divert water via gravity into a new BMP.

<u>Potential BMP opportunities</u>: Offsite BMP through a partnership with Brunswick United Methodist Church; underground infiltration gallery or chamber, perforated pipe underdrains, or infiltration trenches within right-of-way.

Annual volume infiltrated: 13.4 AF

2.4.4 42ND AVENUE LOW POINT

Opportunity ID: A5

<u>Existing conditions</u>: Low point on 42nd Avenue frequently floods and results in standing water at the low point under the Canadian Pacific Railway (CPR) bridge. Historic soils data indicate this area is predominately HSG D soils and not suitable for infiltration.

<u>Site constraints</u>: Underground utilities, including gas mains. Increased coordination due to multiple ownerships within the public right-of-way, including the CPR bridge pier, abutments and footings, as well as Hennepin County, as 42nd Avenue is also a County State Aid Highway (CSAH). Existing storm sewer inverts will limit opportunities to divert water via gravity into a new BMP and underlying soils are not conducive to infiltration.

Potential BMP opportunities: None identified, infiltration not feasible.

2.4.5 43RD AVENUE

Opportunity ID: A6

Existing conditions: Historic soils indicate HSG A soils, which were confirmed by city staff observations. The opportunity area is located along 43rd Avenue between Adair and Zane Avenues. A 27-inch storm sewer run from east to west and neighboring structures appear to have basements elevated above the existing inverts (Figure 14).

Site constraints: Limited right-of-way and existing utilities, unknown groundwater elevation.

<u>Potential BMP opportunities</u>: Underground infiltration chamber or pipe gallery, perforated pipe underdrains, infiltration trenches within right-of-way.

Annual volume infiltrated: 13.3 AF

2.4.6 OLD DUTCH POND

Opportunity ID: A7

Existing conditions: Heavily wooded, the site is bounded by Quebec Avenue and the CPR tracks (Figure 15). Standing water observed during April 2023 site visit and historic soils data indicate HSG D soils.

<u>Site constraints</u>: Public waters and wetland regulations, high groundwater elevations, and unsuitable soils for infiltration.

Potential BMP opportunities: None identified, infiltration not feasible.

2.4.7 NEVADA AVENUE

Opportunity ID: A8

<u>Existing conditions</u>: Previous studies identified this as an opportunity to reduce flooding in the Gaulke Chain in previous studies; however, upon further investigation, the placement of the existing sanitary sewer and water main within the right-of-way limit any infiltration practice to 10-feet in width (Figure 16).

<u>Site constraints</u>: Only a portion of the street has HSG B soils and unfortunately this is located more than 150-feet away from the nearest storm sewer.

Potential BMP opportunities: None identified, infiltration not feasible due to site constraints.

2.4.8 FRED SIMS PARK

Opportunity ID: A9

<u>Existing conditions</u>: A 27-inch storm sewer runs along 43rd Avenue, south boundary of Fred Sims Park in New Hope, starting at Nevada Avenue and discharges into Memory Lane Pond in Crystal (Figure 17). The soils in this area are HSG B and may be suitable for infiltration.

<u>Site constraints</u>: Existing stormwater pond and wetland in the northeast corner of the park indicate groundwater may be at El. 878 and neighboring basement elevations are estimated at El. 881, leaving no vertical distance for infiltration.

Potential BMP opportunities: None identified, infiltration not feasible due to site constraints.

2.4.9 BROWNWOOD PARK

Opportunity ID: A10

Existing conditions: Brownwood Park in the City of Crystal has a mixture of HSG A, B, and D soils. At the outfall of an 18-inch storm sewer, the soils appear to be HSG B. Public waters and wetland regulations apply to Brownwood Pond, but there appears to be enough area near the outfall to grade in a shallow infiltration basin (Figure 18).

<u>Site constraints</u>: Public waters and wetland regulations, as well as high groundwater and poor soils may limit infiltration potential.

Potential BMP opportunities: Surface infiltration basin at storm sewer outfall.

Annual Volume Infiltrated: 22.4 AF

2.4.10 HAGEMEISTER POND PRESERVE

Opportunity ID: A11

Existing conditions: Hagemeister Pond Preserve in the City of Crystal has some open space near the northwest corner of the park near an outfall for a 36-inch storm sewer (Figure 19). The historic soil data indicates the soils may be suitable for infiltration with HSG B and there is enough relief to provide separation from groundwater. Public waters and wetland regulations apply to Hagemeister Pond, but there appears to be enough area near the outfall to grade in a shallow infiltration basin.

<u>Site constraints</u>: Public waters and wetland regulations, as well as high groundwater and poor soils may limit infiltration potential. In addition, existing storm sewer inverts appear to be lower than the proposed grading, preventing gravity flow.

Potential BMP opportunities: None, infiltration not feasible due to site constraints.

2.4.11 CITY OF NEW HOPE PARKS

Because the soils in New Hope do not appear to be conducive to infiltration, Stantec discussed the possibility of using city park area to provide stormwater detention, to reduce flooding concerns downstream in the Gaulke Pond chain. The city representative was receptive to the idea, but further internal discussions with city staff indicated that the city highly values usable park space, limiting the feasibility of this option due to existing topography and adjacent water levels prohibiting the use of underground systems. In addition to reviewing Fred Sims Park, Sunnyside Park and Corner Park were evaluated, but found not to have

adequate separation from the assumed groundwater or large enough drainage areas to pursue conceptual designs further.

2.4.12 ADDITIONAL OPPORTUNITIES

The Robbinsdale Independent School District No. 281 and YMCA own a significant amount of land near Old Dutch Pond that could be used to increase stormwater storage and detention capacity. Further consideration is contingent on future discussions, led by the cities, with the landowners to determine interest before any partnership or designs are developed.

3 **BMP Evaluation**

Using the information and feedback provided by the cities, as well as the site constraints observed, conceptual BMP footprints and annual volume reductions, Stantec narrowed the potential BMPs down from fifteen to five feasible options and one option in need of more data to confirm its validity. The results are summarized in Table 3.

ID	Site Name	BMP Type	Drainage Area (ac)	Feasible?	Annual Volume Infiltrated (AF)
A1	Old Public Works	Underground Infiltration Vault	136	Underlying soils, depth to groundwater, and storm sewer inverts need to be confirmed	115
A2	Colorado Ave	Infiltration Trench	129	Yes	20.6
A3	Colorado Ave	Infiltration Trench	122	Yes	16.3
A4	Brunswick Ave	Infiltration Trench	50	Yes	13.4
A6	43 rd Ave	Infiltration Trench	38	Yes	13.3
A10	Brownwood	Infiltration Basin	33	Yes	22.4

Table 3. Summary of potential BMPs for consideration.

Using Water Research Foundation (WRF) lifecycle costs, Stantec the estimated conceptual-level capital cost for each of the feasible BMPs and ranked the by the cost to infiltrate a single acre-foot of stormwater runoff.

ID	Site Name	BMP Type	Capital Cost (\$)	Lifetime Maintenance Costs (30-years)	Lifetime Volume Infiltrated (AF)	Cost per Acre- Foot Infiltrated
A1	Old Public Works	Underground Infiltration Vault	\$3,273,010	\$24,570	3,450	\$956
A2	Colorado Ave	Infiltration Trench	\$130,326	\$36,855	618	\$271
A3	Colorado Ave	Infiltration Trench	\$99,349	\$36,855	489	\$279
A4	Brunswick Ave	Infiltration Trench	\$93,116	\$36,855	402	\$323
A6	43 rd Ave	Infiltration Trench	\$105,581	\$36,855	399	\$357
A10	Brownwood	Infiltration Basin	\$281,938	\$73,338	672	\$529

Table 4. Summary of potential BMPs for consideration.

The WRF whole-life analysis results indicate that the best option to reduce costs over the lifetime of the project would be A3: Colorado Avenue infiltration trench just south of 42nd Avenue.

4 Results and Next Steps

Based on the methodology, results and ranking presented above, Stantec will proceed with 30% design plans for the larger of the two underground infiltration trenches on Colorado Avenue (Opportunity A2). The next steps are to prepare the 30% design plans, update volume reduction calculations based on the design, update the cost estimate, and present the final 30% design to the Commission.



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Stantec

Memo

To: Shingle Creek/West Mississippi WMO TAC and Commissioners

From: Dendy Lofton, PhD, CLM Lisa Tilman

Date: August 2, 2023

Subject: Eagle Lake Subwatershed Assessment Update and Grant Application Approval

Recommended	For information and approval to submit Clean Water Fund grant application
Commission Action	To mornation and approval to submit clean water rund grant application

The goal of the Eagle Lake Subwatershed Assessment is to evaluate stormwater management and inlake management options to address excess phosphorus impacting Eagle Lake's water quality. In this project we're working to:

- 1. identify and prioritize potential stormwater management practices to reduce phosphorus and sediment loading in the Eagle Lake subwatershed, and
- 2. evaluate sediment phosphorus and aquatic vegetation within Eagle and Pike Lakes to determine appropriate in-lake treatment practices to reduce internal loading.

Based on the 5-year TMDL update in 2019, efforts to restore water quality in Eagle Lake will require improvements in loading from the watershed, from upstream lakes, and from in-lake sediments.

This memo summarizes internal phosphorus loads and potential load reductions for Eagle Lake and Pike Lake. Watershed load reductions and upstream load reductions to Eagle Lake will be discussed at a subsequent meeting.

Lake Management

In support of the Eagle Lake Subwatershed Assessment, sediment cores were collected from Eagle and Pike Lakes in summer 2023 to assess the spatial variability of phosphorus concentrations and release rates in both lakes. The results of the sediment analysis indicated that:

- The mass of phosphorus forms capable of diffusing from the sediments is high in multiple locations in both lakes.
- Sediment phosphorus release rates are high in both lakes from multiple locations
- Reduction in the rates of sediment phosphorus release from anoxic sediments needs is warranted as part of an overall strategy to satisfy TMDL requirements and meet water quality standards.

1

Design with community in mind

Z:\Shingle Creek\Scoping Documents\M-project update eagle swa.docx



Memo

The TMDLs specify that sediment phosphorus loads from Pike and Eagle lakes need to be reduced by approximately 57% and 22%, respectively. Additional load reductions are required from external sources in order to satisfy the overall TMDL requirements to meet water quality standards with the ultimate objective of delisting impairment status on both lakes.

Aluminum sulfate (alum) treatment is a widely implemented in-lake nutrient management technique that reduces internal anoxic sediment P release by up to 90%. Conservatively assuming a 75% reduction in internal sediment P release, alum treatments would reduce the internal phosphorus load from sediments in Pike and Eagle Lakes by approximately 143 lbs/yr and 164 lbs/yr, respectively. An estimated additional 28 lbs/yr and 164 lbs/yr reduction would be needed from external sources to Pike and Eagle Lakes, respectively, in order to meet the TMDL goals and attain water quality standards.

A significant portion of the total phosphorus loads in Pike and Eagle Lakes can be reduced through inlake alum treatments. However, this strategy alone will not meet the overall TMDL reduction goals, so additional reductions will be needed from other sources to improve water quality.

2



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

Date	From	То	SC	WM	Description
7/11/23	Amy Timm, MPCA	Katie Kemmitt Judie Anderson	х		Reminder to submit semi-annual report for Crystal Lake Management Plan
7/12/23	Eric Roerish, SRF	Todd Shoemaker	х		Request to provide latest Shingle Creek H&H model for use with the BLRT project.
7/17/23	Grace Barcelow, HCES	Diane Spector Katie Kemmitt	х	х	Request to meet and discuss Conservation Specialist's workplan and Watershed education goals.
7/18/23	Anja Wuolu, Sun Post	Katie Kemmitt	х	х	Phone call discussing recent lake management in the Watershed for a Sun Post article.
7/25/23	Mark Andersen, Sambatek	Todd Shoemaker	х		Opus Group submitted a complete project review application on July 6, 2023. The 60-day review deadline is September 4, 2023, which requires Commission action at the August 10, 2023 meeting. Staff reviewed the project and issued comments, but Opus Group's engineer is not able to address the comments before the August 10, 2023 meeting. Therefore, in an email to Todd Shoemaker on July 25, 2023, the applicant requested an additional 60 days for this project review. Stantec extended the review deadline to November 3, 2023.
7/27/23	Linnea Wier, City of Burnsville	Katie Kemmitt	х		Inquiring on success of Bass Lake Vegetation Improvements project
June – July 2023	Chuck Kendall, Christine Longe, Alex Boylan	Steven Schoff, MPCA	x		Residents surrounding Twin Lakes notified MPCA that work at the Joslyn project has led to sedimentation and reduced navigability between Upper and Middle Twin Lakes. MPCA staff responded, in part, "I visited the Site on June 28 and July 5 to get a better view of the situation near the channel at Twin Lake. I walked the edge of the remedial action area and the edge of the channel. I saw no evidence that sediment had washed into the channel from the Joslyn Remedial Project. Vegetation is growing along the edge and no sediment is with-in the plants." The city of Brooklyn Center, the MPCA, and Barr Engineering are all monitoring to ensure Twin Lakes are not impacted by the work at Joslyn
7/31/23	Todd Shoemaker	SC/WM TAC members	x	x	The Minnesota Plumbing Board has formed an Ad Hoc Committee to discuss the Department of Labor and Industry recent interpretation of plumbing code. Their first meeting is this Friday, August 4th at 9:30am. If you recall, Stantec staff summarized a new plumbing code interpretation by the Department of Labor and Industry at the April Commission and TAC meetings. The interpretation states that storm sewer surcharge is not allowed in the design event, and therefore, the Plumbing Board is requiring that any storm sewer inlets into a stormwater basin are set at or above the 100-year High Water Level. This interpretation has created widespread confusion and opposition by design engineers and municipalities alike.

1



Memo

То:	Shingle Cre	Shingle Creek/West Mississippi WMO Commissioners			
From:	Todd Shoe Diane Spea Katie Kemi	Todd Shoemaker, PE, CFM Diane Spector Katie Kemmitt			
Date:	August 4, 2	August 4, 2023			
Subject:	August 2023 Staff Report				
Recomment Commission	led Action	For discussion and information.			

General Updates

Highways 252/94 EIS Review

No updates or meetings of the Highway 252/I-94 working group since the Draft Scoping Decision Document (DSDD) since the Commissions' comments were submitted during the public comment period in May. The draft Environmental Impact Statement is currently scheduled to be released for public comment this fall 2023.

Minnesota Stormwater Research Council Tour

Stantec staff attended a tour of Minnesota Stormwater Research Council sites on July 20, 2023. Current research initiatives include:

- Stormwater reduction and pollutant sourcing from urban trees
- Understanding solids loading in Minnesota stormwater
- Iron enhanced sand filters performance and maintenance assessment
- Evaluation of high-volume stormwater filtration media effectiveness for removal of phosphorus and other pollutants, and
- Four sites for urban pond research.

Stantec is the lead investigator for one of the urban pond research studies. Recent studies have documented the prevalence of internal phosphorus loading from stormwater pond sediments. Therefore, this study aims to quantify export of phosphorus from different types of stormwater ponds and offer new pond design guidance to improve performance. The second part of this study is to determine if the harmful algal blooms (HABs) that originate within a stormwater pond can be exported to downstream waterbodies, and if cyanobacteria and cyanotoxins can survive after being discharged from the pond and traveling through the stormwater conveyance systems.

County Actions: Maximum Levy

The Public Works Committee of the Hennepin County Board reviewed and recommended that the full County Board approve the maximum levies proposed by each Commission. The County Board will act on those maximum levies on August 8, 2023.



Memo

Project Updates

Legal Boundary Update

Hennepin County expects to use the updated boundaries for taxes payable 2024 and will confirm when the process of updating the taxing boundaries is completed.

Eagle Lake Subwatershed Assessment

In-lake sediment evaluations are complete for Eagle and Pike Lakes and suggest a need for alum treatment in these lakes. For watershed load reductions, the set of potential projects prioritized based on water quality impact and cost will be presented in September to select one project to move forward to concept design.

Gaulke Pond Subwatershed Assessment

Stantec completed assessment and ranking of potential practices. Refer to Gaulke Pond agenda item and memo for more information and next steps.

Shingle Creek Brookdale Park Remeander

Stantec presented two (2) conceptual plans with concept level costs to the Technical Advisory Committee (TAC) in July for feedback. At that time, TAC recommended that City of Brooklyn Park review the concepts and respond with additional comments prior to progressing final recommendations. Stantec met with City of Brooklyn Park staff and discussed revisions based on City feedback and the potential to support City staff with a public engagement process to receive community feedback on the concepts.

Shingle Creek Trail Bank Stabilization and Fish Access Improvements

Stantec presented one (1) conceptual plan with concept level costs to the Technical Advisory Committee (TAC) in July for feedback. At that time, TAC recommended that City of Brooklyn Park review the concept and respond with comments prior to progressing final recommendations. Stantec met with City of Brooklyn Park staff and discussed revisions based on City feedback and the potential to support City staff with a public engagement process to receive community feedback on the concepts.