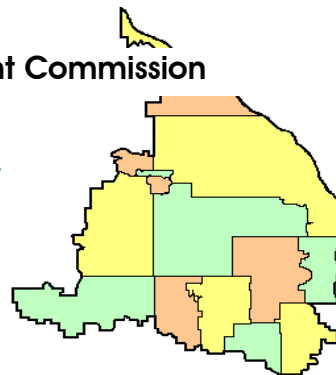


# Shingle Creek Watershed Management Commission



3235 Fernbrook Lane N • Plymouth, MN 55447  
 Tel: 763.553.1144 • Fax: 763.553.9326  
 Email: judie@jass.biz • Website: www.shinglecreek.org

August 6, 2020

Commissioners  
 Shingle Creek and West Mississippi  
 Watershed Management Commissions  
 Hennepin County, Minnesota

The agenda and meeting packet are available to all interested parties on the Commission's web site. The direct path is  
<http://www.shinglecreek.org/minutes--meeting-packets.html>

Dear Commissioners:

Regular meetings of the Shingle Creek and West Mississippi Watershed Management Commissions will be held **Thursday, August 13, 2020, at 12:45 p.m. This will be a virtual meeting.**

Until further notice, all meetings will be held online to reduce the spread of COVID-19. To join a meeting, click <https://zoom.us/j/834887565> or go to [www.zoom.us](http://www.zoom.us) and click **Join A Meeting**. The meeting ID is **834-887-565**.

If your computer is not equipped with audio capability, you need to dial into one of these numbers:

+1 929 205 6099 US (New York)	+1 312 626 6799 US (Chicago)
+1 669 900 6833 US (San Jose)	+1 346 248 7799 US (Houston)
+1 253 215 8782 US	+1 301 715 8592 US

Meetings remain open to the public via the instructions above.

Please email me at [judie@jass.biz](mailto:judie@jass.biz) to confirm whether you or your Alternate will be attending the regular meeting. Thank you.

Regards,

Judie A. Anderson  
 Administrator

cc: Alternate Commissioners      Member Cites      Troy Gilchrist      TAC Members  
 Metropolitan Council      Wenck Associates

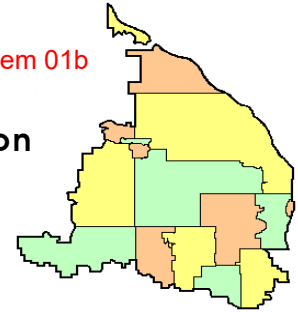
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# Watershed Management Commission



item 01b



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A combined regular meeting of the Shingle Creek (SC) and West Mississippi (WM) Watershed Management Commissions will be convened Thursday, August 13, 2020, 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.*

To join the meeting, click <https://zoom.us/j/834887565> or go to [www.zoom.us](http://www.zoom.us) and click Join A Meeting. **The meeting ID is 834-887-565.** If your computer is not equipped with audio capability, you need to dial into one of these numbers:

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| +1 669 900 6833 US (San Jose) | +1 346 248 7799 US (Houston) | +1 301 715 8592 US |

1. Call to Order.
  - SCWM a. Roll Call.
  - ✓ SCWM b. Approve Agenda.\*
  - ✓ SCWM c. Approve Minutes of Last Meeting.\*
2. Reports.
  - ✓ SC a. Treasurer's Report.\*\*
  - ✓ SC b. Approve Claims\*\* - voice vote.
  - SCWM c. Treasurer's Report.\*\*
  - ✓ WM d. Approve Claims\*\* - voice vote.
3. Open forum.
4. Project Reviews.
  - ✓ SC a. SC2020-007 Middle of the Boulevard, Brooklyn Center.\*\*
  - ✓ SC b. SC2020-008 MAC Crystal Airport Boardwalk, Crystal.\*\*
5. Watershed Management Plan.
  - ✓ SCWM a. 2020 Capital Improvement Program.\*
    - 1) Notice of Public Hearing.\*
6. Water Quality.
7. Grant Opportunities.\*
  - ✓ SC a. Meadow Lake Management Plan.\*\*
  - ✓ SC b. Connections II Stream Restoration.\*
  - ✓ SC c. Bass Creek Stream Restoration.\*
  - SCWM d. BWSR Watershed-Based Implementation Funding.\*\*
8. Education and Public Outreach.
  - SCWM a. Next WMWA meeting – 8:30 a.m., Tuesday, August 11, 2020. *Virtual meeting.*
9. Staff Report.\*\*
10. Communications.
  - SCWM a. Communications Log.\*
11. Other Business.
12. Adjournment.

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



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**MINUTES**  
**Regular Meeting**  
**July 9, 2020**

(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 virtual 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 12:51 p.m. on Thursday, July 9, 2020.

Present for Shingle Creek were: David Vlasin, Brooklyn Center; Steve Chesney, Brooklyn Park; Burton Orred, Jr., Crystal; Karen Jaeger, Maple Grove; Ray Schoch, Minneapolis; Bob Grant, New Hope; John Roach, Osseo; Andy Polzin, Plymouth; Wayne Sicora, Robbinsdale; Ed Matthiesen and Diane Spector, Wenck Associates, Inc.; Troy Gilchrist, Kennedy & Graven; and Amy Juntunen, JASS.

Present for West Mississippi were: David Vlasin, Brooklyn Center; Steve Chesney, Brooklyn Park; Gerry Butcher, Champlin; Karen Jaeger, Maple Grove; Harold E. Johnson, Osseo; Ed Matthiesen and Diane Spector, Wenck Associates, Inc.; Troy Gilchrist, Kennedy & Graven; and Amy Juntunen, JASS.

Also present were: Adam Quinn and Mitch Robinson, Brooklyn Park; Todd Touminen, Champlin; Mark Ray, Crystal; Derek Asche, Maple Grove; Liz Stout, Minneapolis; Megan Hedstrom, New Hope; Leah Gifford, Ben Scharenbroich and Amy Riegel, Plymouth; Richard McCoy and Marta Roser, Robbinsdale; and Stephen Mastey, Landscape Architecture, Inc.

**II. Agendas and Minutes.**

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

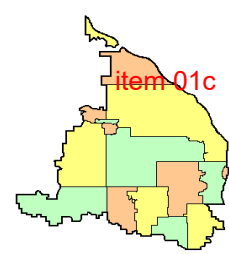
Motion by Johnson, second by Chesney to approve the **West Mississippi agenda**.\* *Motion carried unanimously.*

Motion by Jaeger, second by Schoch to approve the **minutes of the June 11, 2020 regular meeting**.\* *Motion carried unanimously.*

Motion by Butcher, second by Johnson to approve the **minutes of the June 11, 2020 regular meeting**.\* *Motion carried unanimously.*

**III. Finances and Reports.**

**A.** Motion by Schoch, second by Jaeger to approve the **Shingle Creek July Treasurer's Report**.\* *Motion carried unanimously.*



Motion by Jaeger, second by Schoch to approve the **Shingle Creek July claims.\*** Claims totaling \$55,329.51 were *approved by roll call vote: ayes – Vlasin, Chesney, Orred, Jaeger, Schoch, Grant, Roach, Polzin, and Sicora; nays – none.*

**B.** Motion by Butcher, second by Chesney to approve the **West Mississippi June Treasurer's Report.\*** *Motion carried unanimously.*

Motion by Johnson, second by Jaeger to approve the **West Mississippi July claims.\*** Claims totaling \$11,091.48 were *approved by roll call vote: ayes – Vlasin, Chesney, Butcher, Jaeger, and Johnson; nays – none.*

**IV. Open Forum.**

Johnson noted that an Osseo Councilmember/citizen stated that they didn't believe Osseo should belong to the watershed since they have no water bodies within city limits. Staff noted that all cities in the metro area are required to be part of a watershed organization for the management of stormwater.

**V. Project Reviews.**

**SC2020-006 BRT Metro Transit, Brooklyn Center.\*** Construction of a new bus rapid transit line along Route 5 from the Mall of America to the Brooklyn Center Transit Center. The sites that are within the Shingle Creek watershed total 0.56 acres. There will be no increase in impervious surface following development. A project review application was received June 4, 2020 without the project application fee.

Because there is no increase in impervious surface, the project is exempt from the Commission's stormwater requirements. The erosion control plan includes inlet protection within the construction and down-gradient areas, perimeter sediment control, sediment control log, and temporary geotextile covering for exposed soil. The erosion control plan meets Commission requirements.

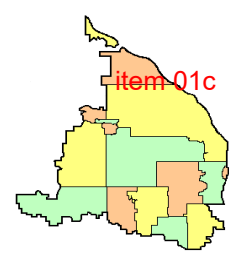
The National Wetlands Inventory does not identify any wetlands on site. The applicant meets Commission wetland requirements. There are no Public Waters on this site. The applicant meets Commission Public Waters requirements. There is no FEMA-regulated floodplain on this site. The applicant meets Commission floodplain requirements. The site is not located in a Drinking Water Management Area. The applicant meets Commission drinking water protection requirements.

Multiple public notices have been made for this project as part of Planning Commission and City Council review of this project, meeting Commission public notice requirements.

Motion by Sicora, second by Schoch to advise the City of Brooklyn Center that project SC2020-006 is approved contingent upon receipt of the project application fee. *Motion carried unanimously.*

**VI. Watershed Management Plan.**

**Crescent Cove Cost-Share Application.\*** Stephen Mastey, Landscape Architecture, Inc., has applied for a \$50,000 cost-share grant to create a play area at the Crescent Cove Children's Hospice Facility that is mostly within the 100-year floodplain and convert the adjacent existing non-native landscape to a diverse native plant community that creates an ecologically appropriate wetland buffer. Under a portion of the play area, additional storage beyond the watershed requirements will be created by using a Tire Derived Aggregate Infiltration System similar to the product used across the street at the Twin Lake North Townhomes Parking Lot Renovation Project. The proposed project design total is \$365,000. Of that, \$122,500 could have water quality improvement benefits attached to the overall improvement. Work is scheduled to begin in late summer of 2020 with completion projected for fall 2020 or early spring 2021.



The TAC reviewed this project and recommends approval of a cost-share grant. This grant does not require an easement, but does require a maintenance agreement with the City. Motion by Jaeger, second by Vlasin to approve the cost-share grant in the amount of \$50,000. *Motion carried unanimously.*

**VII. Water Quality.**

**A. Opportunity Grant Application – SRP Phase II.\*** Wenck has been evaluating three types of media (iron-enhanced sand [IES], a phosphorus sponge, and a proprietary product called Alcan) for removal of soluble reactive phosphorus (SRP) in the outlet channel at the 639W wetland in Crystal and Brooklyn Center. Studies have shown that this wetland has become a nutrient source and the largest single source of phosphorus to Upper Twin Lake. The pilot SRP reduction project has shown that the Alcan and IES achieved a consistent 70-90% reduction in SRP. The load reduction achieved by the pilot project was small since only a fraction of the water volume was treated. This proposed project includes a channel modification to scale up the pilot project to provide treatment to the discharge channel within a series of cells lined with filter media. Alcan would be used in the first cell to treat the runoff directly from the wetland while the less expensive IES would line downstream cells to act as a “polishing” filter. The entire project cost is \$110,000 and the Opportunity Grant request is for \$100,000 with the Commission to fund the remainder. The project cost includes design, construction, and monitoring over a two-year period.

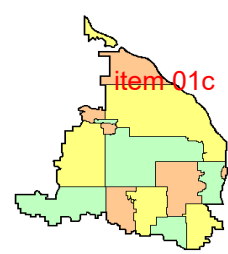
**B. Clean Water Fund (CWF) Grant Solicitations.\*** BWSR is accepting applications for projects and practices through mid-August. This year there is approximately \$12 million in grant funding available and there are usually \$60 million in applications submitted. All grants require a 25% match. In 2019, grant applications were submitted for the Meadow Lake Drawdown and the Connections II projects but were not funded. Staff recommends re-submitting both projects with minor revisions and developing a grant application for the Bass Creek Stabilization project. The estimated cost to prepare the three grant applications is \$5,000-\$6,000, which is within the annual budget for grant application development. Applications will be provided for review at the August Commission meeting. Motion by Schoch, second by Grant to authorize preparation of CWF grant applications for the Meadow Lake Alum Treatment and Vegetation Management, Connections II, and Bass Creek Stabilization projects. *Motion carried unanimously.*

**C. BWSR Watershed Based Implementation Funding (WBIF).\*** Staff have attended three meetings for the Twin Cities Mississippi West basin to review allocation of the \$800,000 in WBIF funds available for the major watershed area and selection of projects for the 2020-2022 biennium. The partnership has developed criteria for project evaluation based 70% on quantifiable water quality improvements and 30% on other benefits including community, education, underserved, etc. The partnership will discuss minimum/maximum grant request amounts and methods of distribution among the watershed organizations comprising the region. Staff requested Commission input on projects to be submitted for potential WBIF, recommending the Connections II and Meadow Lake Drawdown projects. The funding, once awarded, will be available July 1, 2020 through December 31, 2022. Motion by Jaeger, second by Schoch to approve submission of the Connections II and Meadow Lake Drawdown projects for WBIF funds. *Motion carried unanimously.*

**D. HUC 8 Update.** Staff are still reviewing hydraulic data and will make a presentation to the Commission at the August meeting.

**E. Filamentous Algae.** Staff has drafted a two-page informational flier on filamentous algae for the public. Once the flier has been reviewed it will be posted to the Commission’s website.

**VIII. Education and Public Outreach.**



The **West Metro Water Alliance (WMWA)** meeting scheduled for July 14, 2020 has been canceled. The next WMWA meeting will be held Tuesday, August 11, 2020 via Zoom.

**IX. Staff Report.\***

**A. Project Review Fees.** Staff are assessing information from adjacent WMOs and will present this information at the July 27, 2020 TAC meeting for further review.

**B. SRP Reduction Project.** Monitoring is showing lowered concentrations compared to last year, leading to the idea that the abundance of rain may have flushed the wetland out a bit. The media is showing good results for SRP removal. A floating boom has been installed to prevent floating material from entering the filter box and covering the media.

**C. Crystal Lake Management Plan.** Three sediment cores were taken, one from the deepest point and two from shallower areas. The core from the deepest part of the lake tests as very high while the cores from shallower areas tested about half as much or less, indicating that the phosphorus amounts are quite variable. Zooplankton and phytoplankton sampling has been done showing some blue-green algae in the lake. Staff are still awaiting the full species composition results. If the blue-green algae concentration is a concern, Staff will pass that information to City staff.

**D. Alum Treatment – Bass and Pomerleau.** The second round of dosing will occur this fall with the modification that the treatment will be lighter in the shallow areas as some experience indicates that this may prevent or reduce filamentous algae blooms in the spring. The curlyleaf pondweed treatment has been completed and follow-up core samples show the sediment release rate has been greatly reduced in both lakes.

**X. Communications.**

**A. June Communications Log.\*** No items required action.

**B. Minnesota Stormwater Seminar.\*** Spector was invited to participate in a panel discussion as part of the Minnesota Stormwater Series on the topic of pathogens in urban stormwater systems at the St. Anthony Falls Laboratory in June. The video recording can be found at <https://www.youtube.com/watch?v=9UFM4aWiQNC>. A written copy of questions and answers was included in the meeting packet.

**C.** Matthiesen and Bill Wills met with CCX Media on June 12 for a short interview regarding the **Meadow Lake drawdown project**.

**XI. Other Business.** Three Rivers Park District contacted Staff regarding use of a stormwater pond at the Eagle Lake Golf Course for irrigation purposes. They are expected to apply for a **cost-share grant** for a water reuse project.

**XII. Adjournment.** There being no further business before the Commissions, the joint meeting was adjourned at 2:42 p.m.

Respectfully submitted,

  
Amy Juntunen, Recording Secretary  
AAJ:tlm



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# Technical Memo

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

**From:** Ed Matthiesen, P.E.  
Diane Spector

**Date:** August 7, 2020

**Subject:** 2020 Capital Improvement Program and Feasibility Studies

## Recommended Commission Action

Receive feasibility studies for proposed 2020 capital projects and determine projects to proceed. Each Commission should call for a Public Hearing on September 10, 2020 to consider proposed projects and proposed levies.

The Commissioners had previously received Feasibility Studies or Reports for the projects proposed on the 2020 Capital Improvement Program (CIP). The next step in the process is to receive and discuss feasibility studies for the proposed projects and call for a public hearing on those projects that you desire to move forward. Tables 1 and 2 below show the projects under consideration and their funding followed by short project summaries.

**Table 1. Shingle Creek 2020 CIP Projects (2021 levy).**

Project	Total Estimated	City/ Private	Grant	Commission Share
Cost Share (city projects)	\$200,000	\$100,000	0	\$100,000
Connections II Stream Restoration	400,000	0	0	400,000
Plymouth Street Sweeper	350,000	275,000	0	75,000
Meadow Lake Management Plan	300,000	0	0	300,000
Bass Creek Restoration	400,000	0	0	400,000
Partnership Cost Share (private projects)	100,000	50,000	0	50,000
<b>Subtotal</b>	<b>\$1,750,000</b>	<b>\$425,000</b>	<b>\$0</b>	<b>\$1,325,000</b>
<b>5% additional for legal/admin costs</b>				<b>66,250</b>
<b>Subtotal</b>				<b>1,391,250</b>
<b>TOTAL LEVY (101% for uncollectable)</b>				<b>\$1,405,165</b>

**Table 1b. Levy by Project**

Project	Total Levy
Cost Share (city projects)	\$106,050
Connections II Stream Restoration	424,200
Plymouth Street Sweeper	79,540
Meadow Lake Management Plan	318,150
Bass Creek Restoration	424,200
Partnership Cost Share (private projects)	\$53,025
<b>Total</b>	<b>\$1,405,165</b>

**Table 2. West Mississippi 2019 CIP Projects (2020 levy).**

Project	Total Estimated	City/Private	Grant	Commission Share
Cost Share (city projects)	\$100,000	\$50,000	0	\$50,000
Miss Crossings Phase B Infiltration Vault	400,000	300,000	0	100,000
River Park Stormwater Improvements	485,000	363,750	0	121,250
<b>Subtotal</b>	<b>\$985,000</b>	<b>\$713,750</b>	<b>\$ 0</b>	<b>\$271,250</b>
<b>5% additional for legal/admin costs</b>				<b>13,560</b>
<b>Subtotal</b>				<b>284,810</b>
<b>TOTAL LEVY (101% for uncollectable)</b>				<b>\$287,660</b>

**Table 2b. Levy by project.**

Project	Total Estimated
Cost Share (city projects)	\$53,025
Miss Crossings Phase B Infiltration Vault	\$106,050
River Park Stormwater Improvements	128,585
<b>Total</b>	<b>\$287,660</b>

### Shingle Creek Projects

*Commission Fund for Retrofit Cost Share (City Projects).* This annual project provides cost sharing to retrofit smaller BMPs. The TAC developed policies and procedures to administer these funds and makes recommendations to the Commissions on which projects should be funded. Brooklyn Park, Brooklyn Center, Minneapolis, Crystal, Robbinsdale, and New Hope have all received matching funds for small voluntary BMP projects. 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. Potential cost-share projects for 2021 will be solicited in November-December 2020, but the program is open until all funds have been used.

*Priority BMP Retrofits (Private Partnership Projects).* The annual levy is \$50,000, and funding does not require a match. Potential cost-share projects are open year round until the funds are depleted.

*Connections II Stream Restoration.* This project in the cities of Brooklyn Park and Brooklyn Center will restore 1,750 linear feet of stream habitat in Shingle Creek and will reduce sediment and phosphorus pollution originating from this stretch of stream by 75-80%. Stream segments upstream and downstream of this reach have previously been improved. Completing this segment will result in an almost 2.5 mile long corridor of restored urban stream.

*Plymouth Street Sweeper.* The City of Plymouth intends to purchase a regenerative air street sweeper. to enhance its street sweeping program and increase the frequency of sweeping in the vicinity of impaired waters. Street sweeping is one of the most cost-effective best management practices for improving water quality and reducing pollutant loading to streams and lakes.

*Meadow Lake Management Plan.* This project in the City of New Hope will control invasive fish and plants and regenerate the native seedbank of the lake by completing a whole lake draw down. The project will also include the installation of some fish barriers, as well as education and outreach. Once the biology is restored, an alum treatment may be completed.



*Bass Creek Restoration.* This project will improve 1,500 linear feet of stream by restoring the natural shape of the channel, adding features like gravel riffles, thinning the tree canopy, and restoring understory stream buffer vegetation. This project will also reconnect the stream to its adjacent floodplain to ensure adequate conveyance of flood flows and install a flow through filter to remove phosphorus from water leaving the upstream wetland and entering Bass Creek. The project runs from Cherokee Dr N to I-94/694 in the City of Brooklyn Park.

### **West Mississippi Projects**

*Commission Fund for Retrofit Cost Share (City Projects).* Similar to Shingle Creek, this annual project provides cost sharing to retrofit smaller BMPs. No project applications have been received to date.

*Mississippi Crossings Phase B Infiltration Vault.* The City of Champlin will provide regional stormwater treatment for public and private redevelopment for the Mississippi Crossings at TH 169 and the Anoka-Champlin bridge. Runoff from the site will be directed toward a series of infiltration vaults under a common parking lot that serves a mixed residential-commercial development, senior housing complex, public park, amphitheater, public docks, and event center. Private developers on this site will pay a proportionate amount of the costs to construct these vaults. The Commission's share will contribute only to the portion needed to treat the public improvements to the site.

*River Park Stormwater Improvements.* The City of Brooklyn Park will incorporate a tiered, natural feeling stormwater pond into the planned improvements to River Park. The pond will treat 250 acres of runoff that currently discharges directly to the Mississippi River untreated. These improvements will remove an estimated 60% of total suspended sediments and 29% of phosphorus currently reaching the Mississippi River from this drainage area.

### **Staff Recommendation**

Receive the staff report and call for a public hearing on the proposed projects to be held on September 10, 2020. At that time the Commissions will also certify levies to Hennepin County, and authorize the execution of cooperative agreements with the lead cities to contract the ordered projects

## 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 on Thursday, September 10, 2020, 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 2020-01: 2020 Shingle 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. The SCWMC proposes to fund \$106,050 by certifying this cost to Hennepin County for collection with the county ad valorem tax levy.

#### Project 2020-02: Connections II Stream Restoration

Location: Brooklyn Park/Brooklyn Center

Description: Streambank stabilization, habitat enhancement, tree thinning, and buffer enhancement on Shingle Creek from 73rd/Regent to Brooklyn Boulevard.

Cost: Estimated project(s) cost is \$424,200. The SCWMC proposes to fund this project in its entirety by certifying this cost to Hennepin County for collection with the county ad valorem tax levy.

#### Project 2020-03: Plymouth Enhanced Street Sweeper

Location: Plymouth

Description: City will purchase an operative regenerative air street sweeper to expand its street sweeping program, which has been identified in six lake TMDLs as a cost-effective BMP for nutrient reduction.

Cost: Estimated project(s) cost is \$354,540, with \$275,000 borne by the City of Plymouth. The SCWMC proposes to fund \$79,540 by certifying this cost to Hennepin County for collection with the county ad valorem tax levy.

#### Project 2020-04: Meadow Lake Management Plan

Location: New Hope

Description: Lake drawdown, fish and aquatic vegetation management, and alum treatment on Meadow Lake to improve water quality and manage invasive species.

Cost: Estimated project(s) cost is \$318,150. The SCWMC proposes to fund this project in its entirety by certifying this cost to Hennepin County for collection with the county ad valorem tax levy.

#### Project 2020-05: Bass Creek Restoration

Location: Brooklyn Park

Description: Streambank stabilization, habitat enhancement, tree thinning, adding floodplain storage, and buffer enhancement on Bass Creek from Cherokee Drive to I-694.

Cost: Estimated project(s) cost is \$424,200. The SCWMC proposes to fund this project in its entirety by certifying this cost to Hennepin County for collection with the county ad valorem tax levy.

#### Project 2020-06: 2020 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 \$103,025, with \$50,000 borne by city(ies) in which project(s) is(are) located. The SCWMC proposes to fund \$53,025 by certifying this cost to Hennepin County for collection with the county ad valorem tax levy.

Project 2020-07: 2020 West Mississippi 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 \$103,025, with \$50,000 borne by city(ies) in which project(s) is(are) located. The WMWMC proposes to fund \$53,025 by certifying this cost to Hennepin County for collection with the county ad valorem tax levy.

Project 2020-08: Mississippi Crossings Phase B Infiltration Vault

Location: Champlin

Description: Provides treatment for trail and parking facilities through Mississippi River Trail redevelopment area, which currently discharges untreated into the Mississippi River.

Cost: Estimated project(s) cost is \$406,050, with \$300,000 borne by the City of Champlin. The WMWMC proposes to fund \$106,050 by certifying this cost to Hennepin County for collection with the county ad valorem tax levy.

Project 2020-09: River Park Stormwater Improvements

Location: Brooklyn Park

Description: Stormwater improvements to provide water quality treatment for 250 acres of mixed-use lands that currently discharge untreated into the Mississippi River, as well as provide improved habitat for animals and insects and education space for residents to learn about water quality.

Cost: Estimated project(s) cost is \$492,335, with \$363,750 borne by the City of Brooklyn Park. The WMWMC proposes to fund \$128,585 by certifying 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](http://www.shinglecreek.org).

To join this meeting, click <https://zoom.us/j/834887565> or go to [www.zoom.us](http://www.zoom.us) and click Join A Meeting. The meeting ID is 834-887-565. If your computer is not equipped with audio capability, you need to dial into one of these numbers: +1 929 205 6099 US (New York); +1 312 626 6799 US (Chicago); +1 669 900 6833 US (San Jose); +1 346 248 7799 US (Houston); +1 253 215 8782 US; or +1 301 715 8592 US. Meetings are open to the public via the instructions above.

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](mailto: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

###

Published between August 17 and August 31, 2020 in the Osseo-Maple Grove Press.

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# Technical Memo



Responsive partner.  
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**To:** Shingle Creek/West Mississippi WMO Commissioners

**From:** Ed Matthiesen, P.E.  
Diane Spector

**Date:** August 7, 2020

**Subject:** Clean Water Fund Grant Applications

<b>Recommended Commission Action</b>	Authorize submittal of the three proposed Clean Water Fund grant applications.
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Attached are two of the three proposed grant applications for the 2020 Clean Water Fund Projects and Practices grant program. The third, the revised Meadow Lake Management Plan application and feasibility study, is still in review and will be forwarded prior to the August 13 meeting.

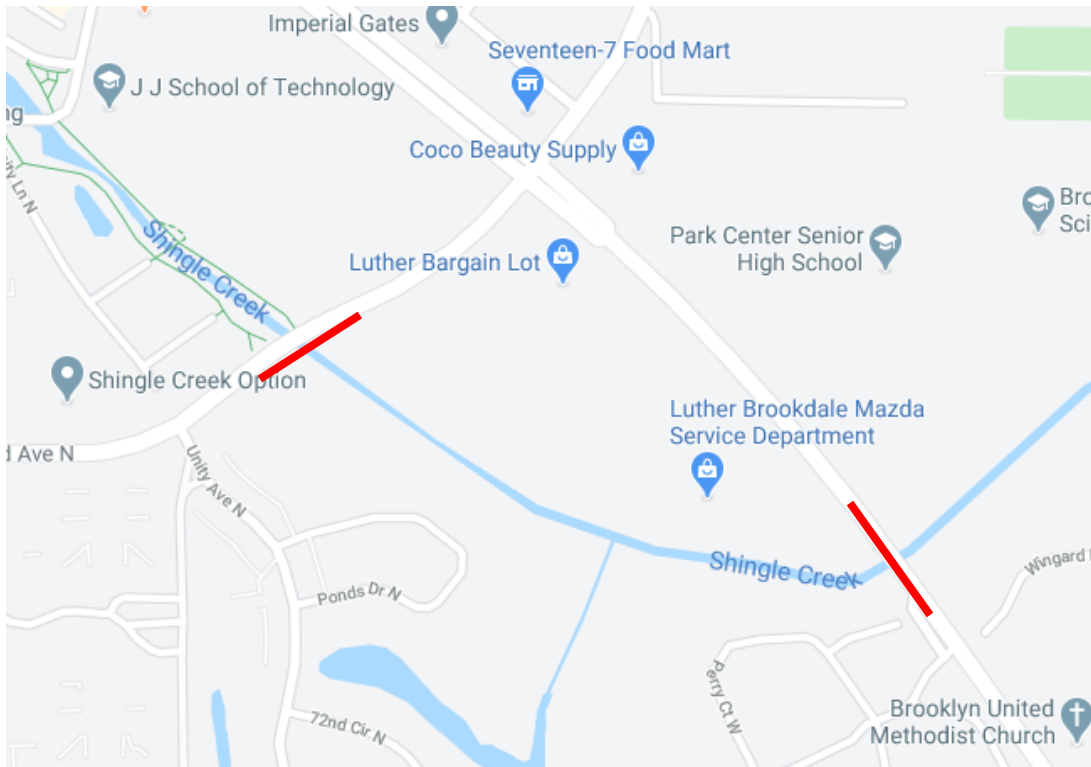
You will note that the two applications for the Shingle Creek Connections II project and for the Bass Creek Stabilization project, are very similar. The proposed improvements and expected outcomes are also very similar. Both projects include tree thinning, buffer planting, bank stabilization, and aeration structures such as rock vanes, cover boulders, and root wads. The purpose of the projects is to reduce erosion from the banks; enhance habitat for fish and macroinvertebrates; and maximize reaeration of the stream to raise the concentration of dissolved oxygen, which is currently a stressor to aquatic life. The tables below show the estimated cost of each project and the proposed grant and match. The match is proposed from the levy that will be certified this fall.

**Table 1. Connections II estimated cost and grant/match split.**

Construction (incl 15% contingency)	\$360,000
Design & construction services	40,000
Public outreach, admin & coord	10,000
TOTAL	\$410,000
Grant	\$328,000
Commission	72,000
TOTAL	\$410,000

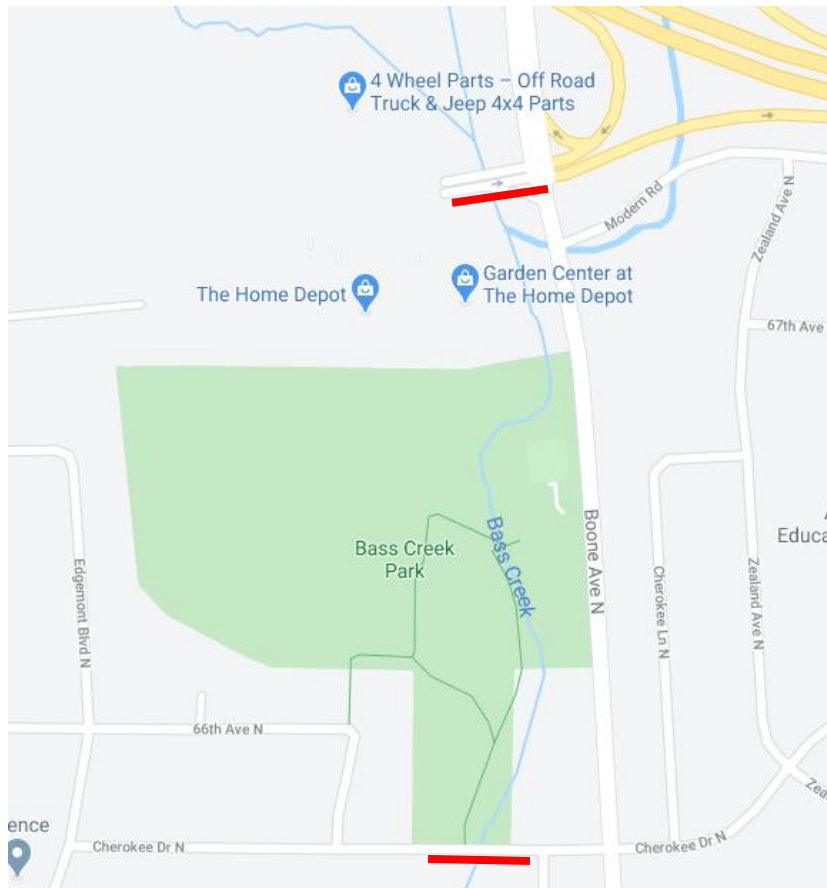
**Table 2. Bass Creek restoration estimated cost and grant/match split.**

Construction (incl 15% contingency)	\$381,800
Design & construction services	30,500
Public outreach, admin & coord	8,000
TOTAL	\$420,300
Grant	\$336,240
Commission	84,060
TOTAL	\$420,300



(Above)  
Connections II  
project location

(Right) Bass Creek  
Restoration project  
location



**2020 Clean Water Fund Projects and Practices Questions**

Shingle Creek Connections II

D R A F T

(Note: Each answer is limited to 2000 characters unless noted)

**Project Abstract:** *Succinctly describe what you are trying to achieve and how you intend to achieve those results, including the type and quantity of projects and/or practices included in the application budget and anticipated outcomes.*

The purpose of the Shingle Creek Connections II stream restoration project is to improve water quality and biotic integrity in Shingle Creek in the cities of Brooklyn Park and Brooklyn Center. Shingle Creek is an Impaired Water for low dissolved oxygen, excess E. coli, and an impaired macroinvertebrate community. Approximately 1,750 linear feet between Regent/Noble Avenues N and Brooklyn Boulevard will be improved by thinning trees, establishing native vegetation in the buffer and on the banks, repairing erosion, enhancing habitat, and introducing low-flow sinuosity and reaeration opportunities with rock vanes and root wads. Reaches upstream and downstream have been restored; this is a “missing link” segment that will result a continuous 2.5-mile corridor of urban stream restoration. The outcome will be enhanced habitat for aquatic and upland wildlife, improved water quality, and improved stream aeration.

**Proposed Measurable Outcomes:** *In 250 characters or less, state the proposed measurable outcomes of the project.*

- Reduce annual streambank soil loss from 26.8 to 6.3 tons/year and TP load from 5.4 to 1.3 lbs/year
- Increase reaeration to minimize time that DO concentration falls below 5 mg/L.
- Improve MSHA score from 39.7 (Poor) to at least 50 points (Fair)

*Does your organization have any active CWF competitive grants? If so, specify FY and percentage spent. Also, explain your organization's capacity (including available FTEs or contracted resources) to effectively implement additional Clean Water Fund grant dollars.*

FY2018 Bass and Pomerleau Lakes Internal Load Reduction – 65%. The second alum application will occur this fall, followed in the spring by final sediment cores and SAV management. The project will be complete by mid-2021.

FY2017 Minneapolis Subwatershed Assessment – 99%. The assessment is complete and has been reviewed, final virtual public input and review expected fall 2020.

The Commission’s technical services are provided by Wenck Associates, Inc, a consulting firm with over 275 FTEs, approximately 60 of whom provide water resources services. Staff are available to ensure the work is completed.

**Water Resource:** *Identify the water resource the application is targeting for water quality protection or restoration.*

Shingle Creek, 07010206-506, from Regent/73<sup>rd</sup> Avenues N to Brooklyn Boulevard in the cities of Brooklyn Park and Brooklyn Center in Hennepin County.

**2020 Clean Water Fund Projects and Practices Questions**

Shingle Creek Connections II

D R A F T

***Prioritization (Relationship to Plan): Question 1. (17 points): (A) Describe why the water resource was identified in the plan as a priority resource. For the proposed project, identify the specific water management plan reference by plan organization (if different from the applicant), plan title, section, and page number.***

The Commission's Third Generation Watershed Management Plan Implementation Plan established its number one priority for the period 2013-2022: "Work aggressively toward achieving TMDL lake and stream goals (p. 4-4)." Goal B.4. is to "Improve at least 30% of the length of Shingle Creek to meet Corridor Study and TMDL design standards (p. 4-6)." As of 2020, 3.09 miles, or 27% have been restored. Shingle Creek in this reach is Impaired for chloride, DO, *E. coli*, and macroinvertebrates and will likely be designated impaired for fish based on the recent MPCA Mississippi River-Twin Cities assessment. A Stressor ID and TMDL have been completed.

Initial assessment of stream physical and biotic conditions was completed in 2005 for the Shingle Creek Corridor Study. Additional work in 2009 and 2010 for the Shingle and Bass Creeks Stressor ID (pp. 2-1 to 2-7 and 3-9 to 3-22, see Reach 6) and Biota and DO TMDL determined that the probable cause of the biotic impairments on the two streams were a combination of low DO, altered habitat, and altered hydrology (p. 5-1). QUAL2K models were used to test various scenarios to determine which combination of improvements was most effective at achieving the state water quality standard, and where those improvements should be located and prioritized. The modeling concluded that narrowing the cross section of the stream to include a low-flow channel, reducing inputs of new SOD, and addition of reaeration should maintain DO concentrations above the 5 mg/L standard (TMDL p. 4-6).

Follow-up water quality and DO monitoring and fish and macroinvertebrate surveys and IBIs have found no improvement in biotic conditions in the stream, although there has been a statistically significant improvement in TP and TSS concentration. The proposed project is a priority to the Commission because Shingle Creek will not achieve its DO and Biotic goals without significant physical changes to the stream. It is also a priority because completing this reach will create a continuous 2.5 miles of restored urban stream corridor.

***Prioritization (Relationship to Plan): Question 1, continued: (B) In addition to the plan citation, provide a brief narrative description that explains whether this application fully or partially accomplishes the referenced activity.***

This application will fully accomplish the proposed restoration. Shingle Creek upstream and downstream of the site has been restored. Completing this reach will create a continuous 2.5 miles of restored urban stream corridor. The proposed plan includes tree thinning to reduce over shading and allow the restoration of a vegetated native buffer; stabilization of banks that are currently moderately to severely eroding and contributing excess sediment and embeddedness; installation of root wads from trees harvested on site to add habitat and aeration and to narrow the stream and restore some sinuosity; and creation of stabilized plunge pools at storm sewer outfalls to provide some deeper habitat. Streamflow which has been aerated by improvements in the upstream reach currently experiences a DO sag below the standard through this reach, and the proposed improvements are designed to maintain or improve DO concentration.

**2020 Clean Water Fund Projects and Practices Questions**

Shingle Creek Connections II

D R A F T

***Prioritization (Relationship to Plan): Question 1, continued: (C) Provide weblinks to all referenced plans.***Watershed Management Plan: <http://www.shinglecreek.org/management-plan.html>

Shingle and Bass Creeks Stressor ID Report:

<https://www.pca.state.mn.us/sites/default/files/wq-iw11-11n.pdf>

Shingle Creek Biota and Dissolved Oxygen TMDL and Implementation Plan:

<https://www.pca.state.mn.us/sites/default/files/wq-iw11-11e.pdf> ,<https://www.pca.state.mn.us/sites/default/files/wq-iw11-11c.pdf>Shingle Creek Corridor Study: <http://weebly->[file/5/7/7/6/57762663/final\\_2005\\_shingle\\_creek\\_corridor\\_report.pdf](http://weebly-file/5/7/7/6/57762663/final_2005_shingle_creek_corridor_report.pdf)***Prioritization (Relationship to Plan): Question 2. (3 points): (A) Describe how the resource of concern aligns with at least one of the statewide priorities referenced in the Nonpoint Priority Funding Plan (also referenced in the “Projects and Practices” section of the RFP).***

The project aligns with the statewide priority “Restore and protect water resources for public use and public health, including drinking water.” Shingle Creek is a wadable stream, and there are public parks upstream and downstream of this segment. Just downstream is Park Center High School, which has an outdoor classroom directly adjacent to the stream. The classroom is used for, among other things, hands-on aquatic ecology and water quality education. Restoring and enhancing the Connections II segment will improve water quality and enhance habitat, improving the learning experience for the students and the general public.

***(B) Describe the public benefits resulting from this proposal from both a local and state perspective.***

The public benefit is stabilized streambanks, a native vegetation buffer, enhanced habitat, improvements in reaeration to reduce periods of low dissolved oxygen, reduced sedimentation and nutrients to improve water quality, and an improved fish and macroinvertebrate community. The native buffer will include pollinator-benefitting species.

***Targeting: Question 3. (15 points): Describe the methods used to identify, inventory, and target the root cause (most critical pollution source(s) or threat(s)). Describe any related additional targeting efforts that will be completed prior to installing the projects or practices identified in this proposal.***

The 2005 Shingle Creek Corridor Study was a thorough assessment of physical and biological conditions in Shingle Creek and was used to inform the 2011 Bass and Shingle Creeks Biota and DO TMDL and the Stressor ID and Implementation Plan. The Rapid Bioassessment Protocol and the Stream Visual Assessment Protocol were used to assess stream conditions and the M-IBI to assess biotic conditions. This reach scored the worst of all reaches of Shingle Creek on the SVAP (score of 4.09, poor) and M-IBI (score 13.5, impairment threshold=54) and the second worst on the RBP (score of 83, marginal).

The Stressor ID repeated the RBP assessment with similar findings, and completed Rosgen Level II and Pfankuch Stability Analyses, to identify stream reaches at higher potential for instability. This reach was assessed as poor, at a higher risk. The Stressor ID concluded that altered hydrology was the primary



## 2020 Clean Water Fund Projects and Practices Questions

Shingle Creek Connections II

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cause of impairment, followed closely by low DO and lack of habitat. The DO TMDL concluded that the primary cause of low DO was excess sediment oxygen demand caused by an overwidened stream, and the legacy impacts of nutrient and sediment loading from the watershed and streambank erosion.

This stream segment was surveyed in 2018 and the MPCA's MSHA tool was used to evaluate stream conditions, scoring 39.7 or poor. The survey found that about 14% of the bank linear footage was experiencing severe erosion; 68% moderate erosion; and 18% slight erosion. This erosion is contributing an estimated 20.5 tons of sediment and 4.1 pounds of total phosphorus to the stream each year.

The degree of streambank degradation, altered channels, sediment deposition and aggradation, lack of quality habitat, and the lack of streambank vegetative protection led to the reach being designated as a high priority for restoration. Just prior to restoration the Connections II segment will be re-assessed using the MSHA and inverts collected to establish baseline conditions for comparison post restoration.

**Targeting: Question 4. (10 points):** *How does this proposal fit with complementary work that you and your partners are implementing to achieve the goal(s) for the priority water resource(s) of concern? Describe the comprehensive management approach to this water resource(s) with examples such as: other financial assistance or incentive programs, easements, regulatory enforcement, or community engagement activities that are directly or indirectly related to this proposal.*

The Commission's Third Generation Plan includes a goal to "Improve at least 30% of the length of Shingle Creek to meet Corridor Study and TMDL design standards." (p. 4-6) To date 3.09 miles, or 27% of the 11.15 miles have been restored. This project would complete another 0.33 miles, increasing the total to 3.42 miles, or 31%. More importantly, completing this segment will create a continuous 13,000 feet (almost 2.5 miles) of restored stream corridor. The stakeholders in the watershed have also focused on reducing pollutant loading to Shingle Creek, through installation of Best Management Practices (BMPs) as part of street, highway, and park projects; strengthened standards for development and redevelopment projects that require enhanced stormwater management; strict enforcement of erosion control standards; and enhanced street sweeping. The Commission has identified "directly connected untreated areas" throughout the watershed where stormwater is discharged into lakes and streams with no interim treatment from ponds, wetlands, or BMPs. These are areas of focus for enhanced sweeping and for siting new BMPs. The Commission's annual monitoring program has shown a statistically significant reduction in TP and TSS concentrations in Shingle Creek.

**Measurable Outcomes and Project Impact: Question 5. (10 points):** *(A) What is the primary pollutant(s) this application specifically addresses? (B) Has a pollutant reduction goal been set (via TMDL or other study) in relation to the pollutant(s) or the water resource that is the subject of this application? If so, please state that goal (as both an annual pollution reduction AND overall percentage reduction, not as an in-stream or in-lake concentration number). (C) If no pollutant reduction goal has been set, describe the water quality trends or risks associated with the water resource or other management goals that have been established. (D) For protection projects, indicate measurable outputs such as acres of protected land, number of potential contaminant sources removed or managed, etc.*

## 2020 Clean Water Fund Projects and Practices Questions

### Shingle Creek Connections II

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A) The primary pollutants addressed are DO and sediment, as well as the non-numerical TMDL parameter of habitat. B) The Shingle Creek DO TMDL requires a 99.3% reduction in sediment oxygen demand in this segment, primarily through reshaping the stream with a low-flow channel to reduce exposure to sediments and oxygen demand during periods of low-velocity, low-re-aeration flow. QUAL2K modeling for the DO TMDL established the desirable depth-width characteristics for each stream reach, which will be used in the final design of the channel shape. C) Although not a numeric pollutant, the biotic TMDL established restoration strategies to improve habitat, including rock vanes to provide aeration and varied substrate and to encourage the formation of deeper pools; root wads to introduce woody substrate, provide cover and refuge, and provide lurking areas for aquatic organisms; native streambank vegetation and installation of live stakes to stabilize streambanks and provide opportunities for overhanging vegetation; low-flow channels meandering through a planted point bar; native buffers to reduce runoff and provide upland habitat; and introduction of cobble and boulders to provide additional varied substrate. Most of these design elements are incorporated into the Connections II design.

***Measurable Outcomes and Project Impact: Question 6. (10 points): (A) What portion of the water quality goal will be achieved through this application? Where applicable, identify the annual reduction in pollutant(s) that will be achieved or avoided for the water resource if this project is completed.***

The new channel design coupled with other improvements should meet the entire sediment oxygen demand goal. QUAL2K modeling completed for the DO TMDL predicts that reconstructing the stream to the specified channel design, improving upstream DO aeration, and reducing new sediment oxygen demand will meet the required SOD reductions and increase minimum daily DO for Upper Shingle Creek so that it does not fall below the 5.0 mg/L standard. Previous stream restoration projects upstream significantly improved upstream reaeration by replacing a four-foot drop structure with a long rock cascade and by adding other reaeration structures. Design elements such as rock vanes, cover boulders, and enhanced roughness will help maintain or even increase dissolved oxygen levels rather than sag as it does now as the creek flows through this reach. Bank stabilization will prevent the introduction of new sediment oxygen demand by significantly reducing nutrients from erosion and mass wasting. The reaches upstream and downstream of this segment have been restored with enhanced habitat similar to what is proposed for Connections II. Because this is the “missing link” of restored stream segments, the proposed improvements will create a continuous corridor that will promote recolonization by fish and macroinvertebrates who find the current channel inhospitable.

***(B) Describe the effects this application will have on the root cause of the issue it will address (most critical pollution source(s) or threat(s)).***

Prior to the 1950s, Shingle Creek through this reach was a narrow, meandering prairie stream. A ditch project in the early 1960s straightened and widened the stream into a flat-bottomed, trapezoidal channel to provide for better flood flow conveyance as that area of Brooklyn Park converted from agriculture to suburb. The stream length was reduced, requiring a four-foot structure to manage the elevation drop. Currently during base flow conditions the overwide stream can be only a few inches deep, which exposes the sluggish flow to long periods of sediment oxygen demand. The flat, sandy-bottomed channel provides minimal reaeration opportunity. There is little to no natural habitat for fish or macroinvertebrates and other aquatic life. The drop structure was a barrier to fish and other wildlife

## 2020 Clean Water Fund Projects and Practices Questions

### Shingle Creek Connections II

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migration. A restoration project upstream of Connections II removed the drop structure and replaced it with a long rock cascade, eliminating the barrier and providing for substantial reaeration. That project also included bank stabilization and habitat creation. Connections at Shingle Creek, the project just downstream of Connections II, included channel reshaping, bank stabilization, and habitat restoration. The Connection II project includes similar design elements to promote reaeration, sustain DO concentrations, and reduce sediment oxygen demand. Stabilizing and restoring the streambanks and enhancing stream buffers will reduce sediment and nutrients delivered to the stream, which will improve water quality, reduce embeddedness, and improve clarity, allowing aquatic life and beneficial vegetation to thrive. Increased habitat complexity will support a wider variety of organisms. Completing this segment will result in an almost 2.5-mile-long corridor of restored urban stream.

***Measurable Outcomes and Project Impact: Question 7. (5 points):*** *If the project will have secondary benefits, specifically describe, (quantify if possible), those benefits. Examples: hydrologic benefits, climate resiliency, enhancement of aquatic and terrestrial wildlife species, groundwater protection, enhancement of pollinator populations, or protection of rare and/or native species.*

The project will include enhancements to the stream buffer, which currently is comprised of unmowed turf and field grass, invasive undergrowth, and excessive tree canopy. Thinning the trees to remove leaners and undercut trees and opening the canopy will allow a wider variety of slope stabilizing understory and pollinator-friendly forbs and grasses to thrive, which will create a more varied terrestrial habitat. Completion of the continuous 2.5-mile restored corridor will provide a protected natural passage for wildlife and organisms to move through the urban landscape. Currently the stream is mostly hidden behind a dense thicket of trees. Thinning the trees and planting the buffer and banks with native vegetation will create a more aesthetically pleasing public space.

***Cost Effectiveness and Feasibility: Question 8. (15 points):*** *(A) Describe why the proposed project(s) in this application are considered to be the most cost effective and feasible means to attain water quality improvement or protection benefits to achieve or maintain water quality goals. Has any analysis been conducted to help substantiate this determination? Discuss why alternative practices were not selected. Factors to consider include, but are not limited to: BMP effectiveness, timing, site feasibility, practicality, and public acceptance.*

The Commission has completed the restoration of 3.1 miles of Shingle Creek. Those projects and our 20 years of design experience have shown the proposed work to be cost effective and successful in bringing measurable water quality and habitat benefits while also being aesthetically acceptable. In addition to Shingle Creek work, the Commission's design team have completed several similar projects on Elm Creek, Rice Creek, and Plymouth Creek in the Metro; the Clearwater River, the Rum River, and several trout stream restorations in Minnesota, Iowa, and Montana with measurable water quality and aquatic life improvements.

***(B) If your application is proposing to use incentives above and beyond payments for practice costs, please describe rates, duration of payments and the rationale for the incentives' cost effectiveness. Note: For in-lake projects such as alum treatments or carp management, please refer to the feasibility study or***

**2020 Clean Water Fund Projects and Practices Questions**

Shingle Creek Connections II

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*series of studies that accompanies the grant application to assess alternatives and relative cost effectiveness. Please attach feasibility study to your application in eLINK.*

N/A

***Project Readiness: Question 9. (8 points):*** *What steps have been taken or are expected to ensure that project implementation can begin soon after the grant award? Describe general environmental review and permitting needs required by the project (list if needed). Also, describe any discussions with landowners, status of agreements/contracts, contingency plans, and other elements essential to project implementation.*

Survey work has been completed, and three design concepts have been developed to the 30% level. The Commission and cities have selected their preferred option, so final design work can proceed as soon the grant is awarded. The project will require a DNR Work in Public Waters permit and a FEMA No Rise Certificate assessment, both of which the Commission has successfully obtained on other stream restoration projects. The riparian property owners are aware of the upcoming project. The Commission will hold a public Open House for residents and riparian property owners prior to finalization of the plans.

***Project Readiness: Question 10. (2 points):*** *What activities, if any proposed, will accompany your project(s) that will communicate the need, benefits, and long-term impacts to your local community? This should go above and beyond the standard newsletters, signs and press releases.*

The cities of Brooklyn Park and Brooklyn Center are partners in this project. This project will be publicized on the Commission and cities' websites, and we will also work with CCX Media to provide ongoing, local cable-access TV coverage over the life of the project.

***Stream Restoration Projects Only (all other projects, please indicate "Not applicable"):*** *Stream restorations benefit from the expertise of diverse professional experience in fields like: geomorphology, hydrology, plant and animal ecology, construction site management, and engineering. What technical skills will be applied to this project and who is providing them?*

The project design team is led by Ed Matthiesen, PE, a civil engineer who has designed and provided construction oversight for over 60 stream restoration projects in Minnesota, Iowa, Montana, and North and South Dakota, including warm water and trout streams and streams in state and county parks; stabilization of gullies, ravines, ditches; and spot repairs. Ed has participated in stream assessment and restoration workshops from Dave Rosgen in Colorado. Also on the team are landscape architects that specialize in bio restoration and fisheries biologists and who have worked with Ed on other stream restoration projects.

***Stream Restoration Projects Only (all other projects, please indicate "Not applicable"):*** *Describe how your organization will provide financial assurance that operations and maintenance funds are available if needed.*

**2020 Clean Water Fund Projects and Practices Questions**

Shingle Creek Connections II

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The cities of Brooklyn Center and Brooklyn Park will take on ongoing responsibility for maintaining the channel, including providing vegetation management and restoration of any minor failures. Should a significant failure occur the Commission maintains a Closed Projects Account with funds to take on small restoration projects.

*The Constitutional Amendment requires that Amendment funding must not substitute traditional state funding. Briefly describe how this project will provide water quality benefits to the State of Minnesota without substituting existing funding.*

The grant funds will allow the Commission to use more bioengineering techniques and to increase the number of habitat features to create better habitat complexity.

**Project Cost and Funding**

Construction (incl 15% contingency)	\$360,000
Design & construction services	\$40,000
Public outreach, admin & coord	\$10,000
TOTAL	\$410,000
Grant	\$328,000
Commission	\$72,000
TOTAL	\$410,000

**2020 Clean Water Fund Projects and Practices Questions**

Bass Creek Restoration Project

D R A F T

(Note: Each answer is limited to 2000 characters unless noted)

**Project Abstract:** *Succinctly describe what you are trying to achieve and how you intend to achieve those results, including the type and quantity of projects and/or practices included in the application budget and anticipated outcomes.*

The purpose of the Bass Creek Restoration Project is to improve water quality and biotic integrity in Bass Creek in the City of Brooklyn Park. Bass Creek is an Impaired Water for excess chloride and an impaired fish community. Approximately 1,400 linear feet between Cherokee Drive N and I-94/694 will be improved by thinning trees, establishing native vegetation in the buffer and on the banks, enhancing habitat, and introducing low-flow sinuosity and reaeration opportunities with rock vanes and root wads. This reach of the stream flows through Bass Creek Park with an adjacent bicycle/pedestrian trail. The project will improve aesthetics and provide an opportunity for park user education about native habitat and stream ecology. The outcome will be enhanced habitat for aquatic and upland wildlife, improved water quality, and improved stream aeration.

**Proposed Measurable Outcomes:** *In 250 characters or less, state the proposed measurable outcomes of the project.*

- Reduce annual streambank soil loss from 39.3 to 10.2 tons/year and TP load from 7.9 to 2.0 lbs/year
- Increase reaeration to minimize time that DO concentration falls below 5 mg/L.
- Improve MSHA score from 42.4 (Poor) to at least 60 points (Fair to Good)

*Does your organization have any active CWF competitive grants? If so, specify FY and percentage spent. Also, explain your organization's capacity (including available FTEs or contracted resources) to effectively implement additional Clean Water Fund grant dollars.*

FY2018 Bass and Pomerleau Lakes Internal Load Reduction – 65%. The second alum application will occur this fall, followed in the spring by final sediment cores and SAV management. The project will be complete by mid-2021.

FY2017 Minneapolis Subwatershed Assessment – 99%. The assessment is complete and has been reviewed, final virtual public input and review expected fall 2020.

The Commission's technical services are provided by Wenck Associates, Inc, a consulting firm with over 275 FTEs, approximately 60 of whom provide water resources services. Staff are available to ensure the work is completed.

**Water Resource:** *Identify the water resource the application is targeting for water quality protection or restoration.*

Bass Creek, 07010206-784, from Cherokee Drive to just south of I-94/694 (to the Home Depot main entrance) in Brooklyn Park

**2020 Clean Water Fund Projects and Practices Questions**

Bass Creek Restoration Project

D R A F T

**Prioritization (Relationship to Plan): Question 1. (17 points): (A)** Describe why the water resource was identified in the plan as a priority resource. For the proposed project, identify the specific water management plan reference by plan organization (if different from the applicant), plan title, section, and page number.

The Commission's Third Generation Watershed Management Plan Executive Summary and Implementation Plan established as its number one priority for the period 2013-2022: "Work aggressively toward achieving TMDL lake and stream goals (p. 4-4)." Bass Creek in this reach is an Impaired Water for chloride and fish and is likely to be designated impaired for macroinvertebrates based on the most recent MPCA Mississippi River-Twin Cities assessment. A Stressor ID and TMDL have been completed.

Initial assessment of physical and biotic conditions was completed in 2007 for the Streams Corridor Study II (unpublished). Additional work in 2009 and 2010 for the Shingle and Bass Creeks Stressor ID (pp. 2-1 to 2-7 and 3-9 to 3-22) and Biota and DO TMDL found this reach condition to score Poor to Marginal, with overshadowed, eroded and cut banks; a mucky substrate with some gravel sand bars; and overall lack of habitat. The Stressor ID concluded that the probable cause of the biotic impairments on the two streams were a combination of low DO, altered habitat, and altered hydrology (p. 5-1).

QUAL2K models were used to test various scenarios to determine which combination of improvements was most effective at achieving the state water quality standard, and where those improvements should be located and prioritized. The modeling concluded that narrowing the cross section of the stream to include a low-flow channel, reducing inputs of new SOD, and addition of reaeration should maintain DO concentrations above the 5 mg/L standard (TMDL p. 4-6).

Follow-up water quality and DO monitoring and fish and macroinvertebrate surveys and IBIs has found no improvement in biotic conditions in the stream, although there has been a statistically significant improvement in TP concentration. The proposed improvements are a priority to the Commission because Bass Creek will not achieve its DO and Biotic goals without significant physical changes to the stream.

**Prioritization (Relationship to Plan): Question 1, continued: (B)** In addition to the plan citation, provide a brief narrative description that explains whether this application fully or partially accomplishes the referenced activity.

This application will fully accomplish the proposed restoration. The proposed plan includes tree thinning to reduce over shading and allow the restoration of a vegetated native buffer; an estimated 530 linear feet of coarse wood toe and 100 feet of rood wads for bank stabilization and habitat and to narrow the stream; two rock vane grade control structures to provide aeration and encourage the development of deeper pools; introduction of cover boulders for habitat and additional aeration; and creation of an adjacent floodplain storage area to allow to provide offline flood storage. This reach of Bass Creek flows through Brooklyn Park's Bass Creek Park, and there is a pedestrian/bicycle trail adjacent to the stream. This project is an opportunity to enhance the aesthetics of the stream, provide opportunities for the public to access the stream in a safe manner, and through interpretive signage learn about function of the various components of the stream restoration design. While not a TMDL implementation goal, this is

**2020 Clean Water Fund Projects and Practices Questions**

Bass Creek Restoration Project

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consistent with the Commission's general Education and Outreach goals program (watershed plan pp. 4-24 to 4-15).

**Prioritization (Relationship to Plan): Question 1, continued:** (C) Provide weblinks to all referenced plans.

Watershed Management Plan: <http://www.shinglecreek.org/management-plan.html>

Shingle and Bass Creeks Stressor ID Report:

<https://www.pca.state.mn.us/sites/default/files/wq-iw11-11n.pdf>

Shingle Creek Biota and Dissolved Oxygen TMDL and Implementation Plan:

<https://www.pca.state.mn.us/sites/default/files/wq-iw11-11e.pdf> ,

<https://www.pca.state.mn.us/sites/default/files/wq-iw11-11c.pdf>

**Prioritization (Relationship to Plan): Question 2. (3 points):** (A) Describe how the resource of concern aligns with at least one of the statewide priorities referenced in the Nonpoint Priority Funding Plan (also referenced in the "Projects and Practices" section of the RFP).

The project aligns with the statewide priority "Restore and protect water resources for public use and public health, including drinking water." Restoring and enhancing Bass Creek will improve water quality and enhance biotic integrity, as well as provide an opportunity to remove invasive species and enhance upland habitat for pollinators and other wildlife.

(B) Describe the public benefits resulting from this proposal from both a local and state perspective.

This reach of Bass Creek flows through Brooklyn Park's Bass Creek park, and there is a pedestrian/bicycle trail adjacent to the stream. This project is an opportunity to enhance the aesthetics of the stream, provide opportunities for the public to access the stream in a safe manner, and through interpretive signage educate about function of the various components of the stream restoration design. The public benefit is stabilized streambanks, a native vegetation buffer, enhanced habitat, improvements in reaeration to reduce periods of low dissolved oxygen, reduced sedimentation and nutrients to improve water quality, additional floodplain storage, and an improved fish and macroinvertebrate community. The native buffer will include pollinator-benefitting species.

**Targeting: Question 3. (15 points):** Describe the methods used to identify, inventory, and target the root cause (most critical pollution source(s) or threat(s)). Describe any related additional targeting efforts that will be completed prior to installing the projects or practices identified in this proposal.

The 2007 Stream Corridor Study Phase 2 was a thorough assessment of physical and biological conditions in several smaller streams in the Shingle Creek watershed including Bass Creek, and was used to inform the 2011 Bass and Shingle Creeks Biota and DO TMDL and the Stressor ID and Implementation Plan. The Rapid Bioassessment Protocol and the Steam Visual Assessment Protocol were used to assess stream conditions and the M-IBI to assess biotic conditions. This reach scored the worst of all reaches of Bass Creek on the SVAP (score of 3.55, poor) and M-IBI (score 13.5, impairment threshold=54) and well below average on the RBP (score of 71, poor).



## 2020 Clean Water Fund Projects and Practices Questions

Bass Creek Restoration Project

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The Stressor ID concluded that altered hydrology was the primary cause of impairment, followed closely by low DO and lack of habitat. The primary cause of low DO was excess sediment oxygen demand caused by an overwidened stream, and the legacy impacts of nutrient and sediment loading from the watershed and streambank erosion.

This stream segment was surveyed in 2020 and the MPCA's MSHA tool was used to evaluate stream conditions, scoring 42.4 or poor. The survey found that about 3% of the bank linear footage was experiencing severe erosion; 16% high erosion; and 38% moderate erosion. This erosion is contributing an estimated 39.3 tons of sediment and 7.9 pounds of total phosphorus to the stream each year.

The degree of streambank degradation, altered channels, sediment deposition and aggradation, lack of quality habitat, and the lack of streambank vegetative protection led to the reach being designated as a high priority for restoration. Just prior to restoration Bass Creek will be re-assessed using the MSHA and inverts collected to establish baseline conditions for comparison post restoration.

**Targeting: Question 4. (10 points):** *How does this proposal fit with complementary work that you and your partners are implementing to achieve the goal(s) for the priority water resource(s) of concern? Describe the comprehensive management approach to this water resource(s) with examples such as: other financial assistance or incentive programs, easements, regulatory enforcement, or community engagement activities that are directly or indirectly related to this proposal.*

The stakeholders in the watershed have focused on reducing pollutant loading to Bass Creek and other water resources through installation of Best Management Practices (BMPs) as part of street, highway, and park projects; strengthened standards for development and redevelopment projects that require enhanced stormwater management; strict enforcement of erosion control standards; and enhanced street sweeping. The Commission has identified "directly connected untreated areas" throughout the watershed where stormwater is discharged into lakes and streams with no interim treatment from ponds, wetlands, or BMPs. These are areas of focus for enhanced sweeping and for siting new BMPs. The Commission's annual monitoring program has shown a statistically significant reduction in TP concentrations in Bass Creek streamflow.

**Measurable Outcomes and Project Impact: Question 5. (10 points):** *(A) What is the primary pollutant(s) this application specifically addresses? (B) Has a pollutant reduction goal been set (via TMDL or other study) in relation to the pollutant(s) or the water resource that is the subject of this application? If so, please state that goal (as both an annual pollution reduction AND overall percentage reduction, not as an in-stream or in-lake concentration number). (C) If no pollutant reduction goal has been set, describe the water quality trends or risks associated with the water resource or other management goals that have been established. (D) For protection projects, indicate measurable outputs such as acres of protected land, number of potential contaminant sources removed or managed, etc.*

A) The primary pollutants addressed are DO and sediment, as well as the non-numerical TMDL parameter of habitat. B) Because Bass Creek is not designated as Impaired for DO, no numerical WLA were established for this reach. C) As the Stressor ID concluded that DO is a stressor to aquatic life, the same strategies to reduce in sediment oxygen demand apply in this segment, primarily through

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reshaping the stream with a low-flow channel to reduce exposure to sediments and oxygen demand during periods of low-velocity, low-re-aeration flow. Although not a numeric pollutant, the biotic TMDL established restoration strategies to improve habitat, including rock vanes to provide aeration and varied substrate and to encourage the formation of deeper pools; root wads to introduce woody substrate, provide cover and refuge, and provide lurking areas for aquatic organisms; native streambank vegetation and installation of live stakes to stabilize streambanks and provide opportunities for overhanging vegetation; low-flow channels meandering through a planted point bar; native buffers to reduce runoff and provide upland habitat; and introduction of cobble and boulders to provide additional varied substrate. Most of these design elements are incorporated into the proposed design.

**Measurable Outcomes and Project Impact: Question 6. (10 points):** (A) What portion of the water quality goal will be achieved through this application? Where applicable, identify the annual reduction in pollutant(s) that will be achieved or avoided for the water resource if this project is completed. (B) Describe the effects this application will have on the root cause of the issue it will address (most critical pollution source(s) or threat(s)).

A) The new channel design coupled with other improvements should reduce sediment oxygen demand sufficiently so that it does not fall below the 5.0 mg/L standard. B) Design elements such as rock vanes, cover boulders, and enhanced roughness will help maintain or even increase dissolved oxygen levels. Bank stabilization will prevent the introduction of new sediment oxygen demand by significantly reducing nutrients from erosion and mass wasting. The habitat improvements should promote recolonization by fish and macroinvertebrates who find the current channel inhospitable.

**Measurable Outcomes and Project Impact: Question 7. (5 points):** If the project will have secondary benefits, specifically describe, (quantify if possible), those benefits. Examples: hydrologic benefits, climate resiliency, enhancement of aquatic and terrestrial wildlife species, groundwater protection, enhancement of pollinator populations, or protection of rare and/or native species.

The project will include enhancements to the stream buffer, which currently is comprised of unmowed turf and field grass, invasive undergrowth, and excessive tree canopy. Thinning the trees to remove leaners and undercut trees and opening the canopy will allow a wider variety of slope stabilizing understory and pollinator-friendly forbs and grasses to thrive, which will create a more varied terrestrial habitat. The stream flows through a public park with an adjacent bicycle and pedestrian trail yet is mostly hidden behind a dense thicket of trees. Thinning the trees and planting the buffer and banks with native vegetation will create a more aesthetically pleasing public space. The terrain of the park provides opportunities to reconnect the stream to the floodplain and to incorporate some offline floodplain storage.

**Cost Effectiveness and Feasibility: Question 8. (15 points):** (A) Describe why the proposed project(s) in this application are considered to be the most cost effective and feasible means to attain water quality improvement or protection benefits to achieve or maintain water quality goals. Has any analysis been conducted to help substantiate this determination? Discuss why alternative practices were not selected. Factors to consider include, but are not limited to: BMP effectiveness, timing, site feasibility, practicality,

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*and public acceptance. (B) If your application is proposing to use incentives above and beyond payments for practice costs, please describe rates, duration of payments and the rationale for the incentives' cost effectiveness. Note: For in-lake projects such as alum treatments or carp management, please refer to the feasibility study or series of studies that accompanies the grant application to assess alternatives and relative cost effectiveness. Please attach feasibility study to your application in eLINK.*

The Commission has completed the restoration of 3.1 miles of Shingle Creek. Those projects and our 20 years of design experience have shown the proposed work to be cost effective and successful in bringing measurable water quality and habitat benefits while also being aesthetically acceptable. In addition to Shingle Creek work, the Commission's design team have completed several similar projects on Elm Creek, Rice Creek, and Plymouth Creek in the Metro; the Clearwater River, the Rum River, and several trout stream restorations in Minnesota, Iowa, and Montana with measurable water quality and aquatic life improvements.

***Project Readiness: Question 9. (8 points):*** *What steps have been taken or are expected to ensure that project implementation can begin soon after the grant award? Describe general environmental review and permitting needs required by the project (list if needed). Also, describe any discussions with landowners, status of agreements/contracts, contingency plans, and other elements essential to project implementation.*

Survey work has been completed, and plans have been developed to the 30% level. Final design work can proceed as soon the grant is awarded. The project will require a DNR Work in Public Waters permit and a FEMA No Rise Certificate assessment, both of which the Commission has successfully obtained on other stream restoration projects. The city is the only riparian property owner and is a partner in this project. The Commission will review the proposed plans with the City's Parks and Recreation Commission prior to finalization of the plans.

***Project Readiness: Question 10. (2 points):*** *What activities, if any proposed, will accompany your project(s) that will communicate the need, benefits, and long-term impacts to your local community? This should go above and beyond the standard newsletters, signs and press releases.*

The city of Brooklyn Park is a partner in this project. This project will be publicized on the Commission and city's websites, and we will also work with CCX Media to provide ongoing, local cable-access TV coverage over the life of the project.

***Stream Restoration Projects Only (all other projects, please indicate "Not applicable"):*** *Stream restorations benefit from the expertise of diverse professional experience in fields like: geomorphology, hydrology, plant and animal ecology, construction site management, and engineering. What technical skills will be applied to this project and who is providing them?*

The project design team is led by Ed Matthiesen, PE, a civil engineer who has designed and provided construction oversight for over 60 stream restoration projects in Minnesota, Iowa, Montana, and North and South Dakota, including warm water and trout streams and streams in state and county parks; stabilization of gullies, ravines, ditches; and spot repairs. Ed has participated in stream assessment and

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restoration workshops from Dave Rosgen in Colorado. Also on the team are landscape architects that specialize in bio restoration and fisheries biologists and who have worked with Ed on other stream restoration projects

***Stream Restoration Projects Only (all other projects, please indicate "Not applicable"):*** Describe how your organization will provide financial assurance that operations and maintenance funds are available if needed.

The City of Brooklyn Park will take on ongoing responsibility for maintaining the channel, including providing vegetation management and restoration of any minor failures. Should a significant failure occur the Commission maintains a Closed Projects Account with funds to take on small restoration projects.

*The Constitutional Amendment requires that Amendment funding must not substitute traditional state funding. Briefly describe how this project will provide water quality benefits to the State of Minnesota without substituting existing funding.*

The grant funds will allow the Commission to use more bioengineering techniques and to increase the number of habitat features to create better habitat complexity.

**Project Cost and Funding**

Construction (incl 15% contingency)	\$381,800
Design & construction services	30,500
Public outreach, admin & coord	8,000
TOTAL	\$420,300
Grant	336,240
Commission	84,060
TOTAL	\$420,300

**SHINGLE CREEK / WEST MISSISSIPPI WATERSHED MANAGEMENT COMMISSION  
MONTHLY COMMUNICATION LOG**

**June 2020**

<b>Date</b>	<b>From</b>	<b>To</b>	<b>SC</b>	<b>WM</b>	<b>Description</b>
7-20—2020	Sean Murphy @ Landform	Ed M.	X		Site redevelopment at Luther Automotive at Regent and Brooklyn Blvd
7-13-20	Marta Roser, Robbinsdale	Diane S	X		Passing along question from Lower Twin Lake resident inquiring about future carp management
7-13-20	Judie A	Ed M and Diane S	X		Passing along an email chain regarding an email sent by a resident to Three Rivers regarding the condition of the Twin Lake Narrows channel under the TH 100 bridge. Passed along to City of Robbinsdale as it is a navigation maintenance issue
7-14-20	Jonee Brigham, U of M	Rena Weiss, Wenck		X	Wenck staff had previously met on site at River Park with students participating in Water Journey summer camps through the U. Heads up that while this is not happening in 2020, they are thinking of recording a “virtual” tour.
7-15-2020	Michael Zajac	Ed M.	X		Infiltration basin concern near house purchase in New Hope
7-15-2020	Andrew Hogg @ Brooklyn Center	Ed M.	X		Car wash at Shingle Creek Crossing pollutant concerns
7-15-2020	Randy Greniger @ Park Construction	Ed M.	X		Flows at Highway 81 and Shingle Creek
7-15-20	Mark Ray, Crystal, and Karen Chandler, Barr	Diane S	X		Request for P8 model for the area around Gaulke Pond. Forwarded model built during development of the Twin Lakes TMDL
7-16-20	Kris Guentzel, HCEE	Diane S	X		Notice that the SRP Channel Project grant application was not selected for funding
7-18-20	Mark Ray, Crystal	Ed M	X		Question about regulations applying to a proposed in-ground pool in the floodplain next to Middle Twin Lake
7-20-2020	Roxy Robertson @ WSB	Ed M.		X	Wetland Conservation Act Notice of Application, 10805 French Lake Road, Champlin
7-20-2020	Rebecca Beduhn @ Three Rivers Park District	Ed M.	X		Project review question for wetland excavation at MAC wetland
7-20-2020	Brian Vlach @ Three Rivers Park District	Ed M.	X		Cost share application for Eagle Lake Golf Course water reuse
7-22-2020	Melissa White @ LHB	Ed M.	X	X	Project review call re: Hartkopf, Lakeland and Norwood parks in Brooklyn Park
7-24-2020	Ben Johnson @ Kimley-Horn	Ed M.		X	North Park Business Center building location revision
7-24-20	Marcel Westrick, BWSR	Diane S	X	X	Reschedule WBIF meeting
7-29-2020	Tim Ebert resident	Commission website	X		Responsibility for rock removal at Hwy 100 and Twin Lake channel
7-29-20	Judie Anderson	MPCA	X		Submittal of semiannual reports for SRP and Crystal Lake grant projects
7-31-2020	John Brand	Ed M.	X		Plymouth townhome association drainage assistance request