January 27, 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, February 13, 2020, at Edinburgh USA, 8700 Edinbrook Crossing, Brooklyn Park, MN. Lunch will be served at 12:00 noon and the meetings will convene concurrently at 12:45. Election of officers will occur at this meeting.

The Technical Advisory Committee (TAC) will meet at 11:00 a.m., prior to the regular meeting.

Please email me at judie@jass.biz to confirm whether you or your Alternate will be attending the regular meeting.

Your meal choices are:

_____ New York Strip Salad. Mixed baby greens, grilled asparagus, roasted tomatoes, gorgonzola and shallot vinaigrette dressing. Freshly Baked Breads. (All dressing will be served on the side)

_____ Tarragon Chicken Salad Sandwich. Kettle chips

_____ Grilled Salmon with Orange Fennel Sauce, parsnip potato puree, beet horseradish.

_____ I will be attending but DO NOT want a meal.

_____ I will not be attending the regular meeting.

We must make final reservations by 5:00 p.m., Thursday, February 6, 2020. Please make a reservation, even if you are not requesting a meal, so we can arrange for sufficient seating and meeting materials. Thank you.

Regards,

Judie A. Anderson
Administrator

cc:  Alternate Commissioners  Member Cites  Troy Gilchrist  TAC Members

Metropolitan Council  Wenck Associates

Z:\Shingle Creek\Meetings\Meetings 2020\02_Notice_Regular_TAC Meetings.docx
A combined regular meeting of the Shingle Creek and West Mississippi Watershed Management Commissions will be convened on Thursday, February 13, 2020, at 12:45 p.m. at Edinburgh USA, 8700 Edinbrook Crossing, Brooklyn Park, MN. Agenda items are available at http://www.shinglecreek.org/minutes--meeting-packets.html.

1. Call to Order.
   a. Roll Call.
2. Approve Agenda.*
3. Approve Minutes of Last Meeting.*
4. Election of Officers. Currently:
   a. Chair Andy Polzin, Gerry Butcher
   b. Vice Chair Wayne Sicora, David Vlasin
   c. Secretary Karen Jaeger, Karen Jaeger
   d. Treasurer Harold Peterson, Karen Jaeger
5. Project Reviews.
   a. WM2002-01 River Park Improvements, Brooklyn Park.*
   a. 2020 Shingle Creek Monitoring Plan.*
   b. 2020 West Mississippi Monitoring Plan.*
   1) 65th Avenue Outfall Monitoring.*
      a) Professional Services Agreement.*
   c. MTDs.*
   d. January 9, 2020 TAC Meeting Minutes* - information only.
8. Education and Public Outreach.
   b. Education and Outreach – update.**
   c. Salt Workshop.*
   d. Salt Symposium*
      1) Sponsorship.*
   e. Next WMWA meeting – 8:30 a.m., Tuesday, March 10, 2020, (tentatively at Plymouth City Hall).
9. Grant and Project Updates.
   a. Partnership Cost Share Project - Brooks Landing.**
   b. New Hope Cost Share Reimbursement Request.**
   c. Grant Updates - verbal.
   d. Project Updates - verbal.
10. Communications.
    a. Communications Log.*
11. Other Business.
MINUTES
Regular Meeting
January 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 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 12:45 p.m. on Thursday, January 9, 2020, at Edinburgh USA, 8700 Edinbrook Crossing, Brooklyn Park, MN.

Present for Shingle Creek were: David Vlasin, Brooklyn Center; Adam Quinn, Brooklyn Park; Burton Orred, Jr., Crystal; Karen Jaeger, Maple Grove; Bill Wills, New Hope; Harold E. Johnson, Osseo; Andy Polzin, Plymouth; Wayne Sicora, Robbinsdale; Ed Matthisen, Wenck Associates, Inc.; Troy Gilchrist, Kennedy & Graven; and Judie Anderson, JASS.

Not represented: Minneapolis.

Present for West Mississippi were: David Vlasin, Brooklyn Center; Steven Chesney, Brooklyn Park; Gerry Butcher, Champlin; Karen Jaeger, Maple Grove; Harold E. Johnson, Osseo; Ed Matthisen, Wenck Associates, Inc.; Troy Gilchrist, Kennedy & Graven; and Judie Anderson, JASS.

Also present were: Shelley Marsh and Andrew Hogg, Brooklyn Center; Mitch Robinson, Brooklyn Park; Todd Tuominen, Champlin; Mark Ray, Crystal; Derek Asche, Maple Grove; Shahram Missaghi, Minneapolis; Bob Grant and Megan Hedstrom, New Hope; Ben Scharenbroich and Amy Riegel, Plymouth; Richard McCoy and Marta Roser, Robbinsdale; and Kris Guentzel, Hennepin County Environment and Energy.

II. Agendas and Minutes.

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

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

Motion by Jaeger, second by Wills to approve the minutes of the December regular meeting.* Motion carried unanimously.

Motion by Butcher, second by Johnson to approve the minutes of the December regular meeting.* Motion carried unanimously.

III. Finances and Reports.

A. Motion by Johnson, second by Orred to approve the Shingle Creek January Treasurer's Report.* Motion carried unanimously.
Motion by Wills, second by Jaeger to approve the **Shingle Creek January claims.*** Claims totaling $30,1388.01 were **approved by roll call vote:** ayes –Vlasin, Quinn, Orred, Jaeger, Wills, Johnson, Polzin, and Sicora; nays – none; absent – Minneapolis.

**B.** Motion by Butcher, second by Chesney to approve the **West Mississippi January Treasurer’s Report.*** **Motion carried unanimously.**

Motion by Johnson, second by Chesney to approve the **West Mississippi December claims.*** Claims totaling $9,932.37 were **approved by roll call vote:** ayes – Vlasin, Chesney, Butcher, Jaeger, and Johnson; nays – none.

**IV. Open Forum.**

Kris Guentzel from the Hennepin County Department of Environment and Energy introduced himself to the members.

**V. Project Reviews.**

**WM2019-010 Mississippi Crossing, Champlin, revised January 3, 2020.*** Construction of an apartment complex on an 8.39-acre site located at East River Entry and East River Parkway. A complete application was received September 30, 2019, and approved by the Commission on November 14, 2019.

The proposed project consists of two phases. Phase 1 is the construction of an apartment complex with an associated driveway, sidewalk, plaza, and two underground stormwater infiltration systems. Phase 2 is the construction of additional driveway and parking areas. Stormwater management features are proposed as part of Phase 1 and are designed to handle stormwater from impervious area associated with both phases of the project.

The project was subsequently redesigned with substantial changes. The redesigned project includes an additional area that will serve as a parking lot, with an underground stormwater infiltration system beneath it. Final revised calculations were received December 21, 2019. Following development of both phases of the project, the site will be 65 percent impervious with 5.48 acres of impervious surface, an increase of 5.19 acres.

To comply with the Commission’s water quality treatment requirement, the site must provide ponding designed to NURP standards with dead storage volume equal to or greater than the volume of runoff from a 2.5” storm event, or BMPs providing a similar level of treatment, i.e., 85% TSS removal and 60% TP removal. For example, infiltrating 1.3 inches of runoff is considered sufficient to provide a similar level of treatment.

Runoff from the majority of the site (6.86 acres or 82% of the site, of which 45% is impervious) is proposed to be routed to an underground, 84-inch corrugated metal pipe infiltration system on the southeastern portion of the site adjacent to East River Parkway. This underground infiltration system has the capacity to infiltrate 1.3 inches of runoff. The MIDS calculation indicates the annual TSS and TP loads off the entire site are reduced by 93%, which exceeds Commission requirements. In addition, at each inlet to the underground infiltration systems, a 6-foot sump with SAFL Baffle provides pretreatment of stormwater before it enters the system. (All proposed SAFL Baffles provide more than 80% removal of suspended solids according to SHSAM calculations.) A small portion of the site (0.6 acres or 7% of the site, of which 35% is impervious) is proposed to be routed directly to storm sewer associated with East River Entry. However, a 4-foot sump is proposed for storm sewer draining this area to treat this stormwater before it leaves the site. The applicant meets Commission water quality treatment requirements.
Commission rules require that site runoff is limited to predevelopment rates for the 2-, 10-, and 100-year storm events. Runoff from the site is routed to an underground infiltration system, which limits runoff rates to predevelopment conditions in the 2-, 10-, and 100-year storm events. The applicant meets Commission rate control requirements.

Commission volume control rules require the site to infiltrate 1.0 inch of runoff from new impervious area within 48 hours. However, this site must infiltrate 1.3 inches of runoff to additionally meet water quality requirements. The new impervious area on this site is 5.19 acres, requiring infiltration of 0.56 acre-feet (24,394 CF) within 48 hours. The applicant proposes to construct an underground, 84-inch corrugated metal pipe infiltration system, which has the capacity to infiltrate more than the volume of runoff from a 1.3-inch rainfall within 48 hours. The applicant also proposes to construct a 66-inch corrugated metal pipe infiltration system, which provides additional treatment volume. The applicant meets Commission volume control requirements.

The erosion control plan includes a rock construction entrance, perimeter silt fence and inlet protection. 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 (DWSMA). The applicant meets Commission drinking water protection requirements.

A public hearing on the project was conducted on November 18, 2019 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 Champlin has not been provided. However, the applicant wrote in an email to Sarah Nalven of Wenck Associates on October 22, 2019, “The City and Owner have discussed this agreement, but nothing has been developed yet. They will keep you in the loop when this is developed to make sure the watershed has a copy of the draft.”

Motion by Butcher, second by Vlasin to advise the City of Champlin that project WM2019-010 as revised is approved with three conditions:

1. Provide a complete O&M agreement between the applicant and the City of Champlin for all stormwater facilities on the project site.
2. Demonstrate by double ring infiltrometer or witness test that the underground infiltration system can meet the design infiltration rate of 0.80 inches/hour.
3. Provide revised SHASM calculations to demonstrate that the sump in STM MH 20 is sized to manage runoff from the entire upstream contributing drainage area.

*Motion carried unanimously.*

VI. Watershed Management Plan.

In their January 3, 2020 memos* Wenck has listed suggested activities for the 2020 work plans. Most of these are ongoing activities, although some are rotating around the watershed. They are presented for discussion and revision as desired. Proposed 2020 Monitoring Plans will be presented to the Commissions at next month’s meeting.
A. Draft Shingle Creek 2020 Work Plan.*

1. Continue to implement TMDLs.
   a. Complete the 5-year performance review for the Bass and Shingle Creek Biotic and DO TMDL.
   b. Complete the third annual aquatic vegetation survey on Upper Twin Lake and provide aquatic invasive species treatment as necessary.
   c. Partner with the City of Plymouth to undertake the second alum treatments on Bass and Pomerleau Lakes; update the aquatic vegetation surveys; and provide aquatic invasive species treatment as necessary.
   d. In partnership with the City of Robbinsdale, begin implementing the Crystal Lake Management Plan, including carp removal, aquatic vegetation management, and alum treatment.
   e. Partner with the City of Minneapolis to finalize the subwatershed BMP assessment.
   f. If the CWF grant is funded, partner with the City of New Hope to implement the Meadow Lake Management Plan, including a lake drawdown in fall and winter 2020. [Word has been received that this project was not funded.]
   g. If the CWF grant is funded, partner with the Cities of Brooklyn Park and Brooklyn Center to undertake streambank improvements for Shingle Creek from Regent Avenue to Brooklyn Boulevard. [Again, word has been received that this project was not funded.]
   h. Partner with the City of Brooklyn Park to prepare a Feasibility Study for streambank improvements for Bass Creek from Cherokee Drive to I-694, and submit a grant application for partial funding.
   i. Prepare a Feasibility Study to extend the SRP Reduction filter along the length of the Wetland 639W overflow channel, and submit a grant application for partial funding.
   j. Continue to pursue grant funding for TMDL implementation projects.
   k. Expand the Directly Connected Untreated Areas geodatabase to include boundaries of the untreated areas directly connected to the lakes in the watershed. (Streams were completed in 2017.)
   l. Continue to identify, pursue grant funding for, and implement projects and programs addressing the bacterial impairment in Shingle Creek and the Mississippi River.
   m. Stay abreast of other regional and state TMDLs.

2. Partner with other organizations to increase reach and cost effectiveness.
   a. Participate in the West Metro Water Alliance joint education and outreach group.
   b. Continue to partner with the USGS to operate the Queen Avenue monitoring site.
   c. Partner with the USGS, DNR, and other interested parties to stay abreast of groundwater issues.

3. Continue ongoing administration and programming.
   a. Conduct routine Commission lake water quality monitoring and aquatic vegetation and fish surveys on Eagle and Pike Lakes and grant-funded monitoring on Bass, Pomerleau, and Crystal Lakes. (See figure in Staff’s memo for monitoring locations.)
   b. Conduct Commission routine flow and water quality monitoring at SC-0 and SC-3 on Shingle Creek and Bass Creek Park (BCP) on Bass Creek as well as two DO longitudinal studies as part of the Shingle and Bass Creeks Dissolved Oxygen (DO) and Biotic Integrity TMDL 5 Year Review.
c. Sponsor volunteer stream monitoring through RiverWatch and wetland monitoring through WHEP (Hennepin County).

d. Sponsor volunteer lake monitoring through CAMP (Met Council) on Upper, Middle, and Lower Twin, Ryan, Meadow, and Success Lakes.

e. Complete reviews of development and redevelopment projects as necessary.

f. Prepare an annual water quality report.

g. Solicit cost-share projects from member cities, to be funded from the Cost Share Fund and the annual $100,000 levy and the Partnership Cost Share Fund and the annual $50,000 levy.

h. Review feasibility studies for 2020 proposed capital projects, undertake Plan Amendments, hold public hearings, order projects and certify levies.

i. Prepare a 2021 annual budget and begin scoping the Fourth Generation Management Plan, which will be completed in 2022.

j. Invite three guest speakers to make lunchtime water resources presentations. (An individual to present on the topic of groundwater was suggested.)

k. Tour project sites in the watershed.

In addition to the activities enumerated above, it was recommended to update the project list previously provided to Hennepin County Commissioner Mike Opat (the “State of the Watershed”) and to add the flood mapping project to the list.

With these comments, motion by Orred, second by Willis to accept the draft 2020 Shingle Creek Work Plan. *Motion carried unanimously.*

B. Draft West Mississippi 2020 Work Plan.*

1. Continue to stay abreast of regional TMDLs.

   a. Continue to identify, pursue grant funding for, and implement projects and programs addressing the bacterial impairment in the Mississippi River.

   b. Stay abreast of other regional and state TMDLs.

   c. Identify boundaries of the untreated areas directly connected to the Mississippi River or other conveyances.

2. Partner with other organizations to increase reach and cost effectiveness.

   a. Participate in the West Metro Water Alliance joint education and outreach group.

   b. Partner with the USGS, DNR, and other interested parties to stay abreast of groundwater issues.

   c. Partner with the Mississippi Watershed Management Organization (WMWO) to undertake monitoring at the 65th Avenue outfall.

   d. Partner with a member city to complete a subwatershed BMP analysis.

3. Continue ongoing administration and programming.

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

   b. Sponsor volunteer stream monitoring through RiverWatch and wetland monitoring through WHEP (Hennepin County).
c. Complete reviews of development and redevelopment projects as necessary.
d. Prepare an annual water quality report.
e. Solicit cost-share projects from member cities, to be funded from the Cost Share Fund and the annual $50,000 levy.
f. Review feasibility studies for 2020 proposed capital projects, undertake Plan Amendments, hold public hearings, order projects and certify levies.
g. Prepare a 2021 annual budget and begin scoping the Fourth Generation Management Plan, which will be completed in 2022.
h. Invite three guest speakers to make lunchtime water resources presentations.
i. Tour project sites in the watershed.

Motion by Jaeger, second by Chesney to accept the draft 2020 West Mississippi Work Plan with the addition of the task to draft a cooperative agreement to monitor the 65th Avenue outfall (item 2.c.). Motion carried unanimously.

VII. Water Quality.

Minutes* of the November 14, 2019 TAC meeting were included in the meeting packet for information. The next TAC meeting is tentatively scheduled for 11:00 a.m., prior to the March 12, 2020 regular meeting.

VIII. Education and Public Outreach.

A. The West Metro Water Alliance (WMWA) met on Tuesday, December 10, 2019. (Their next meeting is scheduled for 8:30 a.m., Tuesday, January 14, 2020, at Plymouth City Hall. Please check for the location of the meeting room due to building remodeling.)

1. Watershed PREP and Education and Outreach Events. Educators have completed 2019 school visits, which were detailed in last month’s Staff memo. The educators are available to table at city and school events; contact Amy Juntunen at amy@jass.biz. The educators, working with local cable provider CCX Media, filmed one of their classroom presentations and are preparing a short promotional video for Watershed PREP for use both in marketing to schools in the four watersheds as well as informing other watersheds about the program.

2. Website/Social Media. The new WMWA Coordinator, Catherine Cesnik, is reviewing the WMWA website to refresh and update content. Cesnik has assumed the social media posting duties from the Armchair Gardener beginning January 1, 2020. She is compiling a list of city contacts and will be reaching out to them over the next few months to better understand how WMWA can be a resource. The WMWA steering committee particularly discussed the new education and outreach requirements in the draft NPDES (National Pollutant Discharge Elimination System) General Permit for MS4s (Municipal Separate Storm Sewer Systems).

3. The steering committee discussed options for submitting an application to Hennepin County and its AIS grants program for coordinated signage at boat launches. It was noted that the DNR standard AIS signs are generic, and signage that includes photos of AIS species of particular concern would be helpful. The group will contact Hennepin County staff to further explore options.
B. The Commissions provide Education and Outreach grants of up to $1,000 to educators and groups undertaking actions to (1) educate students or the public about watersheds, water quality, issues, and potential actions, and (2) implement demonstration projects that have an impact on water quality. Previous applicants have included lake associations, neighborhood groups, scouts, churches, and schools.

Included in the meeting packet is an E&O grant application* from the Victory Neighborhood Association. The Victory neighborhood is located in the very northwestern corner of Minneapolis and drains partly to Ryan Lake, partly to Crystal Lake, and partly directly to Shingle Creek. ViNA is applying for a Neighborhood Demonstration Grant from BWSR to enhance connected pollinator habitat across the neighborhood. The request is for $1,000 to help provide two workshops to Northside residents and provide technical assistance to applicants in the Victory Neighborhood to incorporate stormwater runoff BMPs into their pollinator plantings. ViNA had previously received an E&O grant to help fund three Rain Garden parties that resulted in the installation of 50 rain gardens. Staff recommends this application for approval. The costs of providing education and outreach, including this grant program, are split 50/50 between the Commissions, so the cost to each would be $500. This expense is included in the 2020 annual budget.

Motion by Orred, second by Vlasin the approve this grant application on behalf of the Shingle Creek Commission. Motion carried unanimously.

Motion by Johnson, second by Butcher the approve this grant application on behalf of the West Mississippi Commission. Motion carried unanimously. Judie, send agreement for signature

IX. Grant Opportunities and Updates.

A. Brooks Landing.* The City of Brooklyn Park has submitted a Partnership Cost Share Program application on behalf of Boisclair Corporation and Metro Blooms for improvements at Brooks Landing Senior Apartments. The various site improvements include replacing the parking lot, adding two raingardens to treat runoff from the parking lot and sidewalk, and adding amenities such as benches and landscaping. The cost share would be applied to the rain garden portion of the project. Similar to the Autumn Ridge project, Metro Blooms will provide outreach and stewardship opportunities for residents of the development. Included in the meeting packet are the application, existing and proposed conditions, and project budget.

Commission Staff internally discussed the cost-effectiveness of this proposal. The request is for $50,000 from the program. The estimated load reduction is 1.75 pounds of TP annually, or about $28,000/pound of TP removed. The proposed project is in the Directly Connected Impervious Area and is a priority for treatment retrofits. Staff’s maximum comfort level is about $10,000/pound unless there are other significant benefits. For comparison, Autumn Ridge Phase 1 removed about 6 pounds/year, and Phase 2 about 2.5 pounds/year. At the earlier Technical Advisory Committee meeting, Staff requested the TAC to discuss this subject in order to provide guidance and clarity for this and other potential applications. The TAC recommended to the Commission that this project be funded at $20,000.

Motion by Jaeger, second by Vlasin to approve funding of $20,000 for this project. Motion carried unanimously. The Commission also requested Staff to respond back with what the $42,560 portion of the request would include.

B. Bass Creek Stream Restoration Feasibility Study.* The Shingle Creek CIP includes a generic “Shingle or Bass Creek Stream Restoration” that is a placeholder for potential projects. Staff have been in conversation with the City of Brooklyn Park about the potential to restore Bass Creek from

Brooklyn Center • Brooklyn Park • Champlin • Crystal • Maple Grove • Minneapolis • New Hope • Osseo • Plymouth • Robbinsdale
Cherokee Drive to approximately the driveway into the Home Depot development. This reach flows through Bass Creek Park and is the site of the Commission’s BCP monitoring station. There is a trail along the west side of the stream.

Parts of the reach have relatively steep, wooded stream banks, other parts are fairly flat and open. The streambed is a stable sandy gravel, but the banks are incised and some tree removals and thinning are necessary. This reach is also the proposed location for the second filter for the SRP Reduction Project, as it is just downstream of the large flow-through Cherokee Wetland. Given what has already been learned as part of that project, Staff believe they can engineer an effective SRP reduction filter into the stream itself.

Similar to what was just done for the Connections II Stream Restoration Project, Staff propose to work with the City to perform field surveys and 30% design, then submit a grant application for the proposed project to the Clean Water Fund later this summer. They recommend that $10,000 from the Closed Projects Account be allocated to fund this work. The $10,000 would be “paid back” by including the cost of this Feasibility Study in the project cost that would be certified in the fall. At their meeting earlier today, the TAC recommended to the Commission approval of Staff’s proposal.

Motion by Orred, second by Quinn to approve Staff’s recommendation. Motion carried unanimously.

X. Communications.

January Communications Log.* No items required action.

XI. Other Business.

Election of Officers will occur at the February meeting. Please contact Anderson if you are willing to serve.

XII. Adjournment. There being no further business before the Commissions, the joint meeting was adjourned at 1:44 p.m.

Respectfully submitted,

[Signature]

Jodie A. Anderson
Recording Secretary
JAA:tim
WEST MISSISSIPPI WATERSHED MANAGEMENT COMMISSION

PROJECT REVIEW WM2020-001: River Park Improvement Project

Owner: City of Brooklyn Park
Address: 5200 85th Ave N
Brooklyn Park, MN 55443

Engineer: Bill Alms
Company: WSB
Address: 701 Xenia Ave S, Suite 300
Golden Valley, MN 55416
Phone: 763-231-4845
Email: balms@wsbeng.com

Purpose: Renovation of park facilities on 10.07 acres and creation of a stormwater treatment pond.

Location: 81st Ave N Brooklyn Park, MN 55444 (Figure 1).

Exhibits:
1. Project review application and project review fee of $2,200, dated 12/30/2020, received 01/31/2020.
2. Site plan, preliminary plat, grading (Figure 2), utility, erosion control, and landscaping plans dated 01/30/2020, received 01/31/2020.
3. HydroCAD model, dated 01/30/2020, received 01/31/2020.

Findings:
1. The proposed project is the redevelopment of River Park. The site is 10.07 acres. Following development, the site will be 56 percent impervious with 5.68 acres of impervious surface, an increase of 0.83 acres.

2. The complete project application was received on 01/31/2020. To comply with the 60-day review requirement, the Commission must approve or deny this project no later than the 03/12/2020 meeting. Sixty calendar-days expires on 03/31/2020.

2. To comply with the Commission’s water quality treatment requirement, the site must provide ponding designed to NURP standards with dead storage volume equal to or greater than the volume of runoff from a 2.5” storm event, or BMPs providing a similar level of treatment - 85% TSS removal and 60% TP removal. Infiltrating 1.3-inches of runoff, for example, is considered sufficient to provide a similar level of treatment. If a sump is used the MnDOT Road Sand particle size distribution is acceptable for 80% capture.

Runoff from the site is proposed to be routed to an existing stormwater pond on the north side of the park, a newly constructed stormwater pond on the southeast portion of the park, and a rain garden in the center of the south parking lot (Figure 2). Runoff from new trail construction in the southern portion of the park will be treated by a downgradient vegetated buffer. The applicant meets Commission water quality treatment requirements.
3. Commission rules require that site runoff is limited to predevelopment rates for the 2-, 10-, and 100-year storm events. Runoff from the site is routed to stormwater ponds, vegetated trail buffer, and a rain garden. The applicant meets Commission rate control requirements (Table 1).

<table>
<thead>
<tr>
<th>Drainage Area</th>
<th>2-year event Pre-</th>
<th>Post-</th>
<th>10-year event Pre-</th>
<th>Post-</th>
<th>100-year event Pre-</th>
<th>Post-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entire site</td>
<td>216.92</td>
<td>188.73</td>
<td>382.13</td>
<td>335.34</td>
<td>668.3</td>
<td>667.04</td>
</tr>
</tbody>
</table>

4. Commission rules require the site to infiltrate 1.0 inch of runoff from new impervious area within 48 hours. The new impervious area on this site is 0.83 acres, requiring infiltration of 0.07 acre-feet (3049 cubic feet) within 48 hours. The applicant proposes that new trail in the north part of the park will be treated by the adjacent existing stormwater wetland, and that new trail through the center of the park will be treated by over 40’ of down-gradient trail. The remaining runoff will be treated by a biofiltration basin in the south parking lot that has the capacity to infiltrate the rest of the required volume within 48 hours. The applicant meets Commission volume control requirements.

5. The erosion control plan includes two rock construction entrances, perimeter silt fence, sediment control log on sloped areas, silt fence along stormwater ponds, rip rap at inlets, and native seed specified on the pond and rain garden slopes. The applicant should include silt fence surrounding the newly constructed biofiltration basin in the south parking lot. Silt fence should be extended along the newly constructed stormwater pond at the south end of the park to completely surround the basin. Enclosing the new stormwater pond and raingarden will prevent sedimentation and compaction during vegetation establishment. The applicant should also move the rock construction entrance in the south park of the park further west along 81st Ave N to the intersection with Mississippi Ln. Doing so will ensure that sediment from the bituminous removal along 81st Avenue is properly controlled. The erosion control plan meets Commission requirements.

6. A Level 2 wetland delineation identified 3 wetlands on site that will be impacted by the project. Shingle Creek/West Mississippi Watershed Management Commission is the LGU for WCA administration in Brooklyn Park and has approved impacts to the wetlands. Wetland permitting is being handled separately from this application.

7. There are Public Waters adjacent to this site. The Mississippi River is a DNR Public Water bordering the east side of the park. It is impaired for total suspended solids and bacteria. The proposed project is not anticipated to negatively impact the river or its Aquatic Consumption/Aquatic Recreation status. The applicant meets Commission Public Waters requirements.

8. The park is within the FEMA 100-yr floodplain. The floodplain elevation is 821.4 ft. The new park structure on the south site of the park has a low-floor elevation of 822 ft, which is not at least two feet higher than the FEMA 100-yr floodplain; however, the city of Brooklyn Park has a floodplain ordinance (152.514) that permits this new construction.
WM 2020-001: River Park Improvement Project

because it is non-habitable and accessory to park uses. The project will result in a net increase in floodplain storage, mostly due to the construction of the stormwater treatment pond. Flood storage will increase by 1,712 CY. The applicant meets Commission floodplain requirements.

9. The site is not located in a Drinking Water Management Area (DWSMA). The applicant meets Commission drinking water protection requirements.

10. Several public meetings have been conducted for the project, beginning in 2017 and most recently on January 29, 2020. The applicant meets Commission public notice requirements.

11. An Operations & Maintenance (O&M) plan is not needed for this project because the park is owned and operated by the city of Brooklyn Park.

12. A Project Review Fee of 2,200 has been received.

Recommendation: Recommend approval subject to the following condition(s):

1. Extend silt fencing around the newly constructed raingarden and stormwater treatment pond. Move southern rock construction entrance to egress point.

Wenck Associates, Inc.
Engineers for the Commission

__________________________________________  _______________________
Ed Matthiesen, P.E. Date
WM 2020-001: River Park Improvement Project

Figure 1. Site location.
Figure 2. (a) North site grading plan and (b) south site grading plan.
WM 2020-001: River Park Improvement Project

b.
Technical Memo

To: Shingle Creek WMO Commissioners

From: Ed Matthiesen, P.E.
      Diane Spector
      Jeff Strom
      Katie Kemmitt

Date: February 6, 2020

Subject: 2020 Shingle Creek Monitoring Plan

Recommended Commission Action

Review and approve the 2020 monitoring plan.

Each year the Commission budgets and undertakes monitoring activities, including routine stream and lake monitoring and volunteer lake, stream, and wetland monitoring. Water quality and quantity monitoring on Shingle Creek and select lakes is performed by Wenck staff and the USGS and macroinvertebrate monitoring in Shingle Creek is performed by volunteers through the Hennepin County Environmental Services’ (HCES) RiverWatch program. Lake monitoring is performed by volunteers through the Met Council’s Citizen Assisted Lake Monitoring Program (CAMP). Wetland monitoring is conducted through HCES’s Wetland Health Program (WHEP).

The purpose of this memo is to present the proposed 2020 monitoring program. This proposal is consistent with the program set forth in the Third Generation Watershed Management Plan, which includes routine monitoring tasks, specific monitoring efforts to support Commission administered grants, and monitoring to evaluate progress toward the TMDLs every five years. Table 1 below shows the TMDL review schedule for Shingle Creek. This year the Commission will complete the 5-year biotic and DO TMDL review report for Shingle and Bass Creeks.

Table 1. Shingle Creek watershed TMDL approvals and review dates.

<table>
<thead>
<tr>
<th>TMDL</th>
<th>TMDL EPA Approval</th>
<th>Implementation Plan Approval</th>
<th>5-Year Progress Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shingle Creek Chloride</td>
<td>February 14, 2007</td>
<td>March 5, 2007</td>
<td>2014</td>
</tr>
<tr>
<td>Twin and Ryan Nutrients</td>
<td>November 9, 2007</td>
<td>November 13, 2007</td>
<td>2014</td>
</tr>
<tr>
<td>Crystal Nutrients</td>
<td>March 25, 2009</td>
<td>July 7, 2009</td>
<td>2016</td>
</tr>
<tr>
<td>Meadow Nutrients</td>
<td>March 23, 2010</td>
<td>June 14, 2010</td>
<td>2019</td>
</tr>
<tr>
<td>Cedar Island, Pike, and Eagle Nutrients</td>
<td>April 14, 2010</td>
<td>May 18, 2010</td>
<td>2018</td>
</tr>
<tr>
<td>Magda Nutrients</td>
<td>September 30, 2010</td>
<td>October 1, 2010</td>
<td>2019</td>
</tr>
</tbody>
</table>
The information set forth below explains the various monitoring programs, their purpose, and the proposed costs and funding.

<table>
<thead>
<tr>
<th>Activity</th>
<th>2020 Budget</th>
<th>2020 Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Routine Stream Monitoring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Routine Streamflow and Water Quality</td>
<td></td>
<td>$28,700</td>
</tr>
<tr>
<td>Monitoring Equipment</td>
<td>$35,000</td>
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</tr>
<tr>
<td>Planning</td>
<td></td>
<td>$4,800</td>
</tr>
<tr>
<td><strong>Routine Lake Monitoring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intensive Lake WQ Monitoring (Eagle, Pike)</td>
<td></td>
<td>$11,700</td>
</tr>
<tr>
<td>Aquatic Vegetation Surveys (Eagle, Pike)</td>
<td>$24,000</td>
<td>$7,900</td>
</tr>
<tr>
<td>Planning</td>
<td></td>
<td>$4,400</td>
</tr>
<tr>
<td><strong>Monitoring to Support Grant Projects</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bass and Pomerleau WQ Monitoring, CLP delineation</td>
<td>$19,000</td>
<td>$13,300</td>
</tr>
<tr>
<td>Bass and Pomerleau Sediment Coring</td>
<td>$41,000</td>
<td>$16,100</td>
</tr>
<tr>
<td>Twin Lake CLP delineation, Ryan Creek Carp Removal</td>
<td>$6,700</td>
<td>$3,100</td>
</tr>
<tr>
<td>Twin Lake Carp Aging Study</td>
<td></td>
<td>$8,600</td>
</tr>
<tr>
<td>Crystal Lake</td>
<td>N/A</td>
<td>$40,400</td>
</tr>
</tbody>
</table>

**ROUTINE STREAM MONITORING**

Routine Stream Flow and Water Quality Monitoring. The Commission has routinely monitored stream flow and water quality in Shingle Creek since 1996. Two locations, one downstream of Humboldt Avenue in Minneapolis (“SC-0,” see attached Figure 1 for all monitoring locations) and one upstream of Zane Avenue in Brooklyn Park (“SC-2”) have been monitored for water quantity and various water quality chemical parameters. In 2007, the monitoring location upstream of Zane Avenue was moved from upstream to just downstream of Brooklyn Boulevard in order to obtain a better stage-discharge relationship. This site is identified as SC-3 and SC-2 is no longer monitored. In 2015 Bass Creek (“BC-1” on Figure 1) was added as a third site to be routinely monitored for water quality and conductivity. The Bass Creek monitoring station has helped provide better information about water quality in Bass Creek, which is impaired for chloride and biota.

A fourth site at Queen Avenue in Minneapolis (“SC-1”) is monitored for flow by the US Geological Survey (USGS) as a part of its ongoing National Assessment of Water Quality (NAWQA). Chemical parameters are no longer routinely measured at the USGS site, except for continuous conductivity and temperature. That data are available on-line real-time at [waterdata.usgs.gov/mn/nwis/uv?05288705](http://waterdata.usgs.gov/mn/nwis/uv?05288705). The Commission also partners financially with the USGS in the operation of the Queen Avenue monitoring station.

To support our TMDL 5-year review of DO and biota in Bass and Shingle Creeks, we are proposing to conduct two dissolved oxygen longitudinal surveys at designated road crossings. Surveys will target a single high flow and a single low flow period in which recordings will occur before 9:00am and after 4:00pm on the same day.
A more detailed discussion and breakdown of the routine stream flow and water quality monitoring activities and costs is shown in Table 1 of Attachment 1.

**Monitoring Equipment.** In 2019, new deep-cycle batteries were purchased to power monitoring equipment (i.e., transducers and pumps). All equipment is in working order for 2020.

**Planning Budget.** The remaining $1,800 in the budget will be used to fund planning meetings and cover other tasks related to field season preparation.

**LAKE MONITORING**

**Intensive Lake TMDL Monitoring.** To track the effectiveness of BMP implementation in improving lake water quality, the Commission routinely performs intensive lake monitoring to supplement the volunteer surface monitoring. Because the Commission’s goals include achieving delisting of lakes that meet their TMDLs and water quality, the Third Generation monitoring plan includes more rigorous lake monitoring sufficient to demonstrate to the MPCA and EPA that conditions have improved. Attachment 2 shows the lake monitoring schedule from the Third Generation Plan, updated to reflect the actual monitoring completed.

For 2020, Eagle Lake and Pike Lake will be monitored twice monthly. The water quality data collected for Eagle and Pike will include surface and deep-water samples, water column temperature/DO profiles, and zooplankton and phytoplankton sampling. A more detailed discussion and breakdown of these routine monitoring activities and costs is shown in Table 1 of Attachment 2. Note that 2017 marked the point where we completed a full round of sampling for all lakes and the Commission is now on to round two of Intensive Lake monitoring to support the 5-Year TMDL Reviews.

**Aquatic Vegetation Surveys.** A component of the intensive monitoring is to obtain or update surveys of lake aquatic vegetation. As we have discussed with the Commission in the past, aquatic vegetation plays an important role in water quality and biotic integrity, and the vegetation community can change as water quality changes. For 2020 it is proposed that surveys for Eagle Lake and Pike Lake be updated in tandem with the intensive monitoring. A breakdown of this monitoring activity and costs is shown in Table 2 of Attachment 2.

**Fish Surveys.** MN DNR staff indicated that they plan to perform fish surveys on Eagle and Pike Lakes in 2021; therefore, we will not perform them this year and instead we propose to use that unallocated budget to support ongoing work on Upper Twin Lake managing the invasive carp population.

**MONITORING TO SUPPORT TWIN LAKE GRANT PROJECT**

The following monitoring tasks are built into ongoing grant projects. While not funded from the Commission’s general fund budget, they are presented here for completeness.

The Twin Lake Carp Management 319 grant project ended in 2019. This project included active management of SAV within the lakes for the first three years following initial internal management activity. The first carp removal occurred in the winter of 2018 and therefore, SAV management began in the spring of 2018 to treat curlyleaf pondweed (CLP). As part of the management, the Commission is required by the MN DNR to conduct annual AIS delineation of CLP for treatment purposes and conduct annual water quality sampling. In 2020, we will complete the third year of CLP delineations, done in
collaboration with the MN DNR. Water quality sampling requirements are not specified and do not need to follow the intensive monitoring schedule. Water quality sampling in Twin Lake will be done through the Metropolitan Council’s CAMP program in 2020. Because the Commission has indicated they would like to proceed with carp management in Twin Lake, we also propose to perform a carp age study that will allow for a better understanding of carp recruitment to Twin Lake and assist in future carp management planning.

Aquatic Vegetation Surveys. As part of the Twin Lake Carp project, CLP delineations will be conducted on Upper Twin Lake in 2020. The delineation will be conducted in April/May in collaboration with the MN DNR. A breakdown of this monitoring activity and costs is shown in Table 1 of Attachment 3.

Ryan Creek Carp Removal. Carp management under the Twin Lakes project will continue into the 2020 monitoring season starting with a spring removal event on Ryan Creek. Carp congregate in Ryan Creek in the spring. The congregation provides a good opportunity for a removal event. A breakdown of this monitoring activity and costs is shown in Table 1 of Attachment 3.

Carp Age Study. In addition to carp removal on Ryan Creek, we propose 4 separate removal events to harvest fish for an age study. The age study will consist of removing 200 carp total from the lake, removing their inner ear bones, and sending the bones to Carp Solutions for age processing. Understanding the age of carp in Twin Lake will help us better understand if there is sustained recruitment to the lake, which will inform the Commission’s future management decisions. A breakdown of this monitoring activity and costs is shown in Table 2 of Attachment 3. At this time there are insufficient funds remaining in the Twin Lake account to complete this work. The TAC will discuss funding options at its February 13 meeting.

MONITORING TO SUPPORT BASS AND POMERLEAU GRANT PROJECTS

The following monitoring tasks are built into ongoing grant projects. While not funded from the Commission’s general fund budget, they are presented here for completeness.

The Bass and Pomerleau Alum project is an ongoing management project aimed to address nutrient impairment. Alum was first applied in 2019 to the lakes and will be applied again in 2020 to further reduce phosphorus concentrations in the water.

Lake Monitoring. Regular water quality monitoring will be conducted on Bass and Pomerleau Lakes as part of monitoring the response to the Bass and Pomerleau Lake Alum Treatment Project. In 2020, Bass and Pomerleau Lakes will be monitored twice monthly, April-October. The water quality data collected for the lakes will include surface and deep-water samples, water column temperature/DO profiles, and zooplankton and phytoplankton sampling. A breakdown of this monitoring activity and costs is shown in Table 3 of Attachment 3.

Aquatic Vegetation Surveys. CLP delineations, assisted by the MN DNR, will be completed on each lake in Spring 2020. A breakdown of this monitoring activity and costs is shown in Table 3 of Attachment 3.

Sediment Coring. Sediment cores will be taken in Spring 2020 from both Bass and Pomerleau Lake and sent to UW-Stout for analysis. Data from sediment cores will be used to plan alum dosing amount for the 2020 application. A detailed discussing and breakdown of costs associated with sediment core retrieval and analysis is shown in Table 4 of Attachment 3.
MONITORING TO SUPPORT CRYSTAL LAKE GRANT PROJECT

The Crystal Lake Grant Project began in 2020. This project includes carp assessment and tracking, alum application, carp removal, SAV surveys, and water quality monitoring and intends to address Crystal Lake’s impairment for nutrients. The first year of this grant will be focused on collecting baseline fisheries, water quality, and vegetation data that will allow us to track changes to the lake as nutrient management occurs. Sediment cores will be collected in Winter/Spring 2020 to inform alum dosing work, and a carp aging study will be performed to better understand carp recruitment to Crystal Lake before carp management begins. A detailed breakdown of the proposed monitoring activity on Crystal Lake and their associated costs are shown in Table 5 of Attachment 3.

Lake Monitoring. Regular water quality monitoring will be conducted on Crystal Lake in 2020. Crystal Lake will be monitored twice monthly, April-October. The water quality data collected for the lake will include surface and deep-water samples, water column temperature/DO profiles, and zooplankton and phytoplankton sampling.

Aquatic Vegetation Surveys. A spring aquatic vegetation survey will be performed on Crystal Lake. Aquatic vegetation plays an important role in water quality and biotic integrity, and the vegetation community can change as water quality and invasive species presence changes.

Fish Surveys. Preceding invasive carp management on the lake, we suggest a general fisheries survey and carp age study in the first year of the project. The carp age study will follow the same protocol as described above in plans for the Twin Lakes Carp Project and includes carp ear bone removal for age analysis.

Sediment Coring. The Crystal Lake Grant Project will include alum treatment for excess phosphorus concentrations. The first year of the project must include sediment core collection and chemical analysis at UW-Stout to plan for alum dosing.

VOLUNTEER MONITORING

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

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

The Met Council charges $760 per lake to cover the cost of supplies for volunteers, analysis of samples, and the Regional Reports. The Commission owns seven equipment kits purchased in past years and will not have to purchase any more kits unless key equipment needs to be replaced.
Lakes are monitored on a rotating schedule. The larger lakes are monitored every other year while the smaller lakes are monitored every three years. It is assumed that when a lake undergoes the intensive sampling program, no CAMP monitoring will be performed that year. Lakes scheduled for 2020 volunteer lake monitoring are Twin, Ryan, Meadow, and Success. A breakdown of this monitoring activity and costs is shown in Table 2-6 of Attachment 2.

**Volunteer Stream Monitoring.** In previous years high school student volunteers conduct macroinvertebrate monitoring through Hennepin County Environmental Services’ RiverWatch Program at two locations on Shingle Creek (see Figure 1 for location). The Commission contracts with Hennepin County for this service at a cost of $1,000 per site. Hennepin County maintains an interactive online map showing locations throughout the county and stream grades going back to 1996: [hennepin.us/riverwatch](http://hennepin.us/riverwatch). Two sites were monitored in 2019: Shingle Creek near Park Center High School (year 24!) and Shingle Creek in Webber Park. The 2020 budget includes $1,000 to monitor one site.

**Volunteer Wetland Monitoring.** In 2007 the Commission began participating in Hennepin County Environmental Services’ Wetland Health Evaluation Program (WHEP), a volunteer monitoring program. Through this program, adult volunteers monitor vegetative diversity and macroinvertebrate communities. In 2019, there were no wetlands monitored in Shingle Creek. Hennepin County has an interactive online map showing WHEP locations throughout the County: [hennepin.us/your-government/get-involved/wetland-health-evaluation-program](http://hennepin.us/your-government/get-involved/wetland-health-evaluation-program). Two sites were monitored in 2019: Wetland 639W and a wetland in Brookdale Park in Brooklyn park. The 2020 budget includes $2,000 to monitor two wetlands. We recommend that staff work with the cities to identify sites for 2020.
Figure 1. Shingle Creek watershed monitoring locations.
Sites:
Routine (bi-monthly) and storm event monitoring of flow and water quality at the outlet (SC-0), Brooklyn Boulevard (SC-3), Bass Creek (BC-1) sites.

Constituents:
Lab analyses for the stream monitoring sites include total phosphorus, total dissolved phosphorus, soluble reactive phosphorus, total suspended solids, E. coli and chloride. Field measurements at all sites will include pH, dissolved oxygen, temperature, transparency tube, and conductivity.

Conduct two dissolved oxygen longitudinal assessments. Survey a high flow and low flow event. One survey will constitute assessment pre 9:00 AM and a post 4:00 PM readings at designated crossings.

Frequency:
Stream Routine: SC-0, SC-3 and the Bass Creek Outlet will be monitored once every two weeks from April 1 to October 31, 2020.
Storms: Target 6 storm composite samples throughout the monitoring season (April through October) at SC-0, SC-3, and BCP-1.
Winter: Target monthly chloride sampling November through March at USGS, SC-0, SC-3, and BCP-1.

Table 1-1. Activity and cost breakdown for Shingle Creek 2020 routine stream monitoring.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install/remove equipment</td>
<td>40</td>
<td>$3,800</td>
</tr>
<tr>
<td>Collect routine/storm samples and maintain equipment</td>
<td>135</td>
<td>$13,500</td>
</tr>
<tr>
<td>2 DO longitudinal surveys</td>
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<tr>
<td>Data entry/maintaining rating curves</td>
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<td>Project management</td>
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<tr>
<td>Analytical services (RMB Laboratories)</td>
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<tr>
<td>Misc. supplies, mileage and equipment</td>
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<td>$1,500</td>
</tr>
<tr>
<td>Planning</td>
<td></td>
<td>$4,800</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>$35,000</td>
</tr>
</tbody>
</table>
Sites:
Eagle Lake and Pike Lake

Intensive Monitoring Constituents:
Lab analyses include total phosphorus, soluble reactive phosphorus, total suspended solids, chlorophyll-a, zooplankton, and phytoplankton. Deep lake samples for Eagle and Pike Lake will include total phosphorus and soluble reactive phosphorus. Field measurements include dissolved oxygen, temperature, pH and conductivity water column profiles.

Intensive Monitoring Frequency:
The lakes will be sampled for water quality twice monthly from April to October or until fall turnover. Vegetation surveys will be conducted on both lakes in Spring and Fall. No fish surveys will be performed this year.

Table 2-1. Activity and cost breakdown for Eagle and Pike Lake intensive water quality monitoring.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collect bi-monthly samples</td>
<td>60</td>
<td>$5,600</td>
</tr>
<tr>
<td>Data entry and reporting</td>
<td>12</td>
<td>$1,100</td>
</tr>
<tr>
<td>Supplies, boat, equipment and mileage</td>
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<td>$1,300</td>
</tr>
<tr>
<td>Analytical (RMB Laboratories)</td>
<td></td>
<td>$3,700</td>
</tr>
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<td>TOTAL</td>
<td>72</td>
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Table 2-2. Activity and cost breakdown for aquatic vegetation surveys on Eagle and Pike Lake.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>May/June and August surveys</td>
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<tr>
<td>Data entry and upload</td>
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<td>$350</td>
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<tr>
<td>Mapping service</td>
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<td>$300</td>
</tr>
<tr>
<td>TOTAL</td>
<td>63</td>
<td>$7,900</td>
</tr>
</tbody>
</table>
Attachment 3
Monitoring to Support Grant Projects
January 2020

Sites:
Upper Twin Lake (CLP delineation, carp removal and age study); Bass and Pomerleau Lakes (intensive water quality monitoring, CLP delineations); Crystal Lake (SAV survey, water quality monitoring, carp age study, sediment cores)

Intensive Monitoring Constituents:
Lab analyses for Bass, Pomerleau, and Crystal Lakes monitoring will include surface samples of total phosphorus, soluble reactive phosphorus, total suspended solids, volatile suspended solids and chlorophyll-a. Deep water samples for all 3 lakes will include total phosphorus and soluble reactive phosphorus. Field measurements for each basin will include dissolved oxygen, temperature, pH and conductivity water column profiles

Intensive Monitoring Frequency:
Bass, Pomerleau, and Crystal Lakes will be sampled for water quality twice monthly from April through October 2020.

Table 3-1. Activity and cost breakdown for Twin Lakes Grant project CLP delineation and carp removal (grant funded).

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perform CLP delineations</td>
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<td>$700</td>
</tr>
<tr>
<td>Fish management permitting</td>
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<td>$800</td>
</tr>
<tr>
<td>Ryan Creek carp removal</td>
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<tr>
<td>Supplies, equipment, and mileage</td>
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<td>$100</td>
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<td>TOTAL</td>
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</table>

Table 3-2. Activity and cost breakdown for Twin Lakes Grant project carp age study (funding not identified).

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twin Lake carp removal for age study</td>
<td>50</td>
<td>$5,600</td>
</tr>
<tr>
<td>Carp aging laboratory costs</td>
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<td>$2,000</td>
</tr>
<tr>
<td>Supplies, equipment, and mileage</td>
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<td>$1,000</td>
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<tr>
<td>TOTAL</td>
<td>50</td>
<td>$8,600</td>
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</table>

Table 3-3. Activity and cost breakdown for Bass and Pomerleau Lakes water quality monitoring and CLP delineation (grant funded).

<table>
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<th>ACTIVITY</th>
<th>HOURS</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collect bi-monthly water samples</td>
<td>60</td>
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<tr>
<td>Data entry/field prep</td>
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<td>Perform CLP delineations</td>
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<td>Supplies, equipment, and mileage</td>
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<tr>
<td>TOTAL</td>
<td>84</td>
<td>$13,300</td>
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Table 3-4. Activity and cost breakdown for Bass and Pomerleau Lakes sediment coring (grant funded).

<table>
<thead>
<tr>
<th>ACTIVITY</th>
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<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collect cores</td>
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<tr>
<td>Supplies, equipment, and mileage</td>
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<td>$300</td>
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<tr>
<td>UW-Stout core analysis</td>
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<tr>
<td>TOTAL</td>
<td>18</td>
<td>$16,000</td>
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</table>

Table 3-5. Activity and cost breakdown for Crystal Lake water quality monitoring, fish surveying, sediment coring, and vegetation surveys (grant funded).

<table>
<thead>
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<th>ACTIVITY</th>
<th>HOURS</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water quality monitoring</td>
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<td></td>
</tr>
<tr>
<td>Collect bi-monthly water samples</td>
<td>40</td>
<td>$3,600</td>
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<tr>
<td>Lab Analytical (RMB Laboratories)</td>
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<td>$2,200</td>
</tr>
<tr>
<td>Fish Surveys</td>
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<td></td>
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<tr>
<td>Carp Permitting</td>
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<td>$1,300</td>
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<tr>
<td>Carp removal for age study</td>
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<tr>
<td>General fisheries survey</td>
<td>24</td>
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<tr>
<td>Electro-fishing supplies</td>
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<tr>
<td>Carp aging laboratory costs</td>
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<td>$2,000</td>
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<tr>
<td>Sediment coring</td>
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<tr>
<td>Collect cores</td>
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<td>Data entry/project management</td>
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<td>General supplies, equipment, mileage</td>
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<td>Lake</td>
<td>Water Quality Monitoring</td>
<td>Aquatic Vegetation Survey</td>
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<td>-----------------</td>
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<td>---------------------------</td>
</tr>
<tr>
<td>Bass</td>
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<tr>
<td>Eagle</td>
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</tr>
<tr>
<td>Pike</td>
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<tr>
<td>Twin Middle</td>
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<td>Ryan</td>
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<td>Schmidt</td>
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<tr>
<td>Crystal</td>
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<td>Pomerleau</td>
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<td>Twin Upper</td>
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<td></td>
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</tr>
</tbody>
</table>

*No additional sediment coring is anticipated after 2016.

- **g** Grant monitored
- **x** Volunteer monitored (CAMP)
- **c** Commission monitored
To: West Mississippi WMO Commissioners

From: Ed Matthiesen, P.E.
Diane Spector
Jeff Strom
Katie Kemmitt

Date: February 6, 2020

Subject: 2020 West Mississippi Monitoring Plan

Recommended Commission Action

Review and approve contracting with the MWMO to complete 65th Avenue outfall monitoring. Allocate up to $4,200 from reserves to fund additional cost. Review and approve the 2020 monitoring plan.

The West Mississippi Watershed Management Commission for many years did not routinely monitor water quality in the few streams that are present in the watershed. The Commission undertook stream and outfall monitoring in 1990-1992 and found that the water quality of runoff from the watershed was generally within ecoregion norms. Since much of the watershed was poised to develop under Commission rules regulating the quality and rate of runoff, the Commission elected to discontinue further monitoring. In 2010 and 2011 the Commission authorized a repeat of the 1990-1992 monitoring, to determine current conditions and evaluate whether the development rules were protective of downstream water quality.

The Third Generation Plan and subsequent budgets incorporated ongoing, routine monitoring for West Mississippi that includes monitoring flow and water quality at two sites per year on a rotating basis. In 2019 the Commission monitored the Environmental Preserve outlet and Mattson Brook after attempting to sample the 65th Avenue outfall and encountering logistical problems (Figure 1). Results of 2019 monitoring will be presented in the Annual Water Quality Report in April 2020.

Routine Monitoring. Figure 1 shows the West Mississippi outfall sites sampled in 2010-2011, and 2013-2019 (no monitoring was conducted in 2012). The 65th Avenue outfall and the Environmental Preserve outlet will be monitored in 2020 for flow and water quality using automatic samplers. Continuous flow will be monitored using pressure transducers, and water quality will be analyzed through field parameter measurements, periodic grab samples and storm composite sampling using ISCO automated samplers purchased by the Commission in 2010.

Due to continued difficulties accessing the 65th Avenue outfall in the past, we recommend moving the monitoring point to an upstream manhole and sub-contracting Mississippi Watershed Management Organization (MWMO) to perform the monitoring. MWMO has experience and equipment for doing stream monitoring in confined spaces like stormwater pipes and can perform the monitoring safely and efficiently. A draft agreement including a cost estimate from MWMO is attached and has been reviewed by the Commission’s attorney.
A detailed discussion and breakdown of these routine monitoring activities and costs is shown in Table 1 of Attachment 1. The 2020 budget for routine monitoring is $20,000; however, with the increased cost of performing in-manhole monitoring from MWMO, we expect the cost could be up to $24,200. We see a few options for 2020 monitoring: 1) proceed with the monitoring plan as presented even though it exceeds the 2020 budget, and allocate up to $4,200 from reserves to cover the overage; 2) choose another site other than the 65th Avenue outfall to monitor in tandem with the Environmental Preserve to stay within the 2020 budget; or 3) complete only the Environmental Preserve monitoring and continue to look into other options for future monitoring the 65th Avenue outfall, which will require increased time and resources from Wenck staff. Staff recommends option 1. One reason for this recommendation is that MnDOT and its contract engineers are in the early stages of redesigning the TH252/I-94 corridor, and any hydrologic data that is available is helpful to them in understanding the hydrology and hydraulics of the area.

**Volunteer Stream Monitoring.** In previous years high school student volunteers conduct macroinvertebrate monitoring through Hennepin County Environmental Services’ RiverWatch Program at one location in West Mississippi – Mattson Brook (see Figure 1 for location). The Commission contracts with Hennepin County for this service at a cost of $1,000 per site. Hennepin County maintains an interactive online map showing locations throughout the county and stream grades going back to 1996: hennepin.us/riverwatch. In the past few years Hennepin County has been finding it difficult to recruit a high school to monitor this site. Staff recommends that this budget be held in reserve in the event a team is found for 2020. We will consult with Hennepin County to see if the Commission should drop this site in future budgets.

**Volunteer Wetland Monitoring.** In 2007 the Commission began participating in Hennepin County Environmental Services’ Wetland Health Evaluation Program (WHEP), a volunteer monitoring program. Through this program, adult volunteers monitor vegetative diversity and macroinvertebrate communities. In 2019, the wetlands monitored were in the Environmental Preserve in Brooklyn Park (Figure 2) and Zane Sports Park in Brooklyn Park (Figure 3). Hennepin County also has an interactive online map showing WHEP locations throughout the County: hennepin.us/your-government/get-involved/wetland-health-evaluation-program. The 2020 budget includes $2,000 to monitor two wetlands. We recommend that staff work with the cities to identify sites for 2020.
Figure 1. West Mississippi watershed monitoring locations.
Figure 2. Monitored wetland in the Environmental Preserve in Brooklyn Park, across West River Road from the Coon Rapids Dam Regional Park.

Figure 3. Monitored wetlands at the Zane Sports Complex in Brooklyn Park north of 85th Avenue. Century channel runs through this corridor.
Attachment 1
Routine Monitoring Program
February 2020

Sites:
65th Avenue Outfall and the Environmental Preserve Outlet sampling locations

Constituents:
Lab analyses include total phosphorus, ortho-phosphorus, total suspended solids, and chloride. Field measurements include flow, pH, dissolved oxygen, temperature, and conductivity.

Frequency:
Routine: Target one field grab sample per month from April through October.
Storms: Target approximately one storm composite sample per month from April through October using ISCO automated samplers.

Table 1. Activity and cost breakdown for West Mississippi 2020 monitoring.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field season preparation</td>
<td>$1,100</td>
</tr>
<tr>
<td>Install equipment (beginning of season)</td>
<td>$1,100</td>
</tr>
<tr>
<td>Collect samples and maintain equipment</td>
<td>$3,900</td>
</tr>
<tr>
<td>Remove equipment (end of season)</td>
<td>$1,100</td>
</tr>
<tr>
<td>Maintain database and rating curves</td>
<td>$2,400</td>
</tr>
<tr>
<td>Analytical lab cost (RMB Laboratories)</td>
<td>$1,100</td>
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<tr>
<td>Mileage and equipment</td>
<td>$1,000</td>
</tr>
<tr>
<td>Contract with MWMO for 65th Avenue Outfall</td>
<td>$12,500</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$24,200</td>
</tr>
</tbody>
</table>
January 22, 2020

**Udai Singh**
**Brian Jastram**  
Mississippi Watershed Management Organization  
2522 Marshall St. NE  
Minneapolis, MN 55418-3329

RE: Monitoring Assistance Request – 65th Avenue Outfall

**Dear Mr. Singh and Mr. Jastram:**

The West Mississippi Watershed Management Commission (WMWMC) routinely measures flow and water quality at several stream and outfall sites throughout the West Mississippi Watershed. In 2020, the WMWMC plans to monitor two outfalls – one of which will be the outlet of the storm sewer trunk line that runs beneath 65th Avenue North in Brooklyn Center (referred to as the 65th Avenue Outfall). This site poses many challenges including: tailwater effects from the Mississippi River during high-flow conditions, limitation for storing and mounting equipment, steep slopes to access outfall pipe, and confined space requirements. It is our understanding that Mississippi River Watershed Management Organization (MWMO) has extensive experience dealing with these challenges and currently samples several other outfalls along this reach of the Mississippi River.

Below is detailed list of the monitoring activities the WMWMC has planned for the 65th Avenue Outfall site in 2020.

- **Flow monitoring**: continuously record stage/level and velocity (if possible) at a location upstream of pipe outlet to Mississippi River
- **Frequency:**
  - Target one field grab (non-event) sample per month from March through December
  - Target one storm event composite sample per month from March through December
- **Field parameters to be collected:**
  - General site conditions
  - Stage/level
  - Temperature
  - Conductivity
  - Dissolved Oxygen
  - pH
- **Laboratory water quality parameters to be sampled:**
  - Total phosphorus
  - Ortho-phosphorus
  - Total suspended solids
  - Chloride
  - *E. coli*
Wenck Associates, which provides engineering and technical services to the WMWMC, has had preliminary discussions with you regarding the 65th Avenue Outfall site and the 2020 monitoring activities. At your earliest convenience, WMWMC requests that the MWMO provide a cost estimate to perform the flow and water quality sampling activities detailed above in 2020. The cost estimate should include staff time for equipment installation and removal, equipment maintenance throughout the sampling season, equipment rental (if applicable), and laboratory costs. We would like to present your cost estimate to the Commissioners at the next WMWMC meeting on February 13.

Wenck Associates recently provided some information to MWMO staff that details the storm sewer network near the 65th Avenue Outfall site. However, if you have any questions, or need clarification, please do not hesitate to contact Jeff Strom at 763-252-6833 or Ed Matthiesen at 763-252-6851.

Sincerely,

Ed Matthiesen
WMWMC Engineer
PROFESSIONAL SERVICES AGREEMENT

THIS AGREEMENT is made by and between the West Mississippi Watershed Management Commission (“WMWMC”), and the Mississippi Watershed Management Organization (“MWMO”), a Minnesota joint powers organization, for stormwater monitoring services. The WMWMC and the MWMO may hereinafter be referred to individually as a “party” or collectively as the “parties.” The parties hereby agree as follows:

I. SCOPE OF AGREEMENT

The MWMO agrees to perform stormwater monitoring services for the WMWMC as described on Exhibit A, which is attached to and made a part of this Agreement.

II. COMPENSATION

The MWMO will be compensated at the intervals and at the rates stated in Exhibit A. The total compensation under this Agreement will not exceed $12,449.00. The MWMO shall submit itemized invoices for services rendered.

III. EXPENSE REIMBURSEMENT

Reimbursable expenses identified on Exhibit A will be paid upon submission of itemized invoice to the WMWMC. The WMWMC agrees to pay for reimbursable expenses, if reasonably and necessarily incurred. The parties agree that in no event shall reimbursable expenses be incurred without prior written approval from WMWMC. This sum, if any, is not included in the compensation set out in Paragraph II, Compensation.

IV. EFFECTIVE DATE AND TERMINATION DATE

This Agreement shall be in full force and effect from 3/1/2020 through 6/15/2021, unless otherwise extended by mutual agreement of the parties or is terminated earlier under Paragraph XVI, Cancellation, Default and Remedies.

V. SUBSTITUTIONS AND ASSIGNMENTS

Services by the MWMO will be performed by the following person(s):

Udai B. Singh, PhD, PE, Water Resources Director
Brian Jastram, BS, Monitoring and Instrumentation Specialist
Brittany Faust, BA, Water Resources Specialist
James Rudolph, BS, Environmental Specialist, and Hired interns.

Upon approval by the WMWMC, the MWMO may substitute other persons to perform the services. If substitution is permitted by the WMWMC, the MWMO shall furnish information to the WMWMC to allow proper review of the qualifications of the substituted person. No assignment of this Agreement shall be permitted without the written amendment signed by the WMWMC and the MWMO.

VI. CONTRACT ADMINISTRATION

All provisions of this Agreement shall be coordinated and administered by the people identified in Paragraph XVII.

VII. AMENDMENTS

No amendments may be made to this Agreement except in writing signed by both parties.

VIII. INDEPENDENT CONTRACTOR

The MWMO and its employees are not employees of the WMWMC. It is agreed that the MWMO and its employees will act as an independent contractor and acquire no rights to tenure, workers' compensation benefits, unemployment compensation benefits, medical and hospital benefits, sick and vacation leave, severance pay, pension benefits or other rights or benefits offered to employees of the WMWMC, its departments or agencies. The parties agree that the MWMO and its employees will not act as the agent, representative or employee of the WMWMC.

IX. INDEMNIFICATION

Each party shall be responsible for its own acts and omissions and the results thereof to the extent authorized by law. Each party agrees to defend, indemnify and hold the other harmless from any and all liability, claims, causes of action, judgments, damages, losses, costs, or expenses, including reasonable attorney's fees, resulting directly or indirectly from the party's negligent actions or inactions. The party seeking to be indemnified and defended shall provide timely notice to the other party when the claim is brought. The party undertaking the defense shall retain all rights and defenses available to the party.
indemnified and no immunities or limits on liability are hereby waived that are otherwise available to either party.

X. CONTRACTOR’S INSURANCE

Each party shall be responsible for maintaining its own liability insurance with limits at least matching the liability limits established in Minnesota Statutes, section 466.04 and, to the extent required by law, workers' compensation insurance for its own employees.

XI. DATA PRACTICES

The parties are required to comply with the Minnesota Government Data Practices Act and all other applicable state and federal laws relating to data privacy or confidentiality. Each party agrees to immediately report to the other party any requests from third parties for information relating to this Agreement. The parties agree to respond promptly to inquiries from the other party concerning data requests. Each party agrees to hold the other party, its officers, and employees harmless from any claims resulting from the unlawful disclosure or use of data protected under state and federal laws by the other party.

XII. COMPLIANCE WITH THE LAW

Each party agrees to comply with all applicable federal, state and local laws, rules, regulations, and ordinances applicable to the performance of its duties under this Agreement including, but not limited to, the laws relating to non-discrimination in hiring or labor practices.

XIII. AUDITS

The MWMO agrees that the WMWMC, the State Auditor or any of their duly authorized representatives, at any time during normal business hours and as often as they may reasonably deem necessary, shall have access to and the right to examine, audit, excerpt and transcribe any books, documents, papers, and records that are relevant and involve transactions relating to this Agreement for a period of at least 6 years.

XIV. APPLICABLE LAW
The law of the State of Minnesota shall govern all interpretations of this Agreement, and the appropriate venue and jurisdiction for any litigation that may arise under this Agreement will be in and under those courts located within the County of Hennepin, State of Minnesota, regardless of the place of business, residence or incorporation of the MWMO.

XV. CONFLICT AND PRIORITY

In the event that a material conflict is found between provisions in this Agreement, the MWMO's Proposal, if any, or the WMWMCO's Request for Proposals, if any, the provisions in the following rank order shall take precedence: 1) Exhibit A; 2) Agreement; 3) Proposal; and last 4) Request for Proposals.

XVI. CANCELLATION, DEFAULT AND REMEDIES

Either party may cancel this Agreement upon thirty (30) days written notice, except that if the MWMO fails to fulfill its obligations under this Agreement in a proper and timely manner, or otherwise violates the terms of this Agreement, the WMWMCO has the right to terminate this Agreement immediately, if the MWMO has not cured the default after receiving seven (7) days written notice of the default. The MWMO will be paid for services rendered prior to the effective date of termination.

XVII. NOTICES

Any notice or demand, authorized or required under this Agreement shall be in writing and shall be sent by certified mail to the other party as follows:

To the MWMO: Dr. Udai B. Singh (usingh@mwmo.org) or

Brian Jastram (bjastram@mwmo.org)

Mississippi Watershed Management Organization

2522 Marshall Street NE,

Minneapolis, MN 55418-3329

To The WMWMCO: Ed Matthiesen (ematthiesen@wenck.com), or

Jeff Storm (jstrom@wenck.com), or

Dian Spector (dspector@wenck.com)

WENCK

7500 Olson Memorial Highway Suite 300

Golden Valley, MN 55427

Professional Services Agreement
The parties being in Agreement, have caused this Agreement to be signed as follows:

[Signature page follows]
FOR THE MWMO:

By ___________________________
Its ___________________________
Date ___________________________

By ___________________________
Its ___________________________
Date ___________________________

FOR THE WMWMC:

By ___________________________
Its ___________________________
Date ___________________________

By ___________________________
Its ___________________________
Date ___________________________
Exhibit A

<table>
<thead>
<tr>
<th>SERVICE PROVIDER’S Name/Organization:</th>
<th>Federal EIN: 41-0544530</th>
</tr>
</thead>
<tbody>
<tr>
<td>MWMO</td>
<td></td>
</tr>
<tr>
<td>Mailing Address: 2522 Marshall ST NE</td>
<td>Telephone Number: 612-746-4970</td>
</tr>
<tr>
<td>Minneapolis, MN 55418</td>
<td></td>
</tr>
<tr>
<td><strong>Work Dates:</strong> March 1st, 2020 to June 15th, 2021</td>
<td>Email: <a href="mailto:bjastram@mwmo.org">bjastram@mwmo.org</a> Tel. 612-746-4985 <a href="mailto:usingh@mwmo.org">usingh@mwmo.org</a> Tel. 612-746-4980</td>
</tr>
</tbody>
</table>

**Background**

The West Mississippi Watershed Management Commission (WMWMC) routinely measures flow and water quality at several stream and outfall sites throughout the West Mississippi Watershed. In 2020, the WMWMC plans to monitor the outlet of the storm sewer trunk line that runs between 65th Avenue North in Brooklyn Center (referred to as the 65th Avenue Outfall). WMWMC would like to employ the services of the MWMO to monitor the stormwater quantity and water quality of the 65th Avenue Stormwater Outfall.

**Scope of Services**

MWMO staff will install a stormwater outfall monitoring station to measure the quantity and quality of stormwater flowing through the 65th Ave trunk line. Monitoring will begin in March, 2020 and continue through December 31st, 2020. Monitoring activities will be conducted as follows.

- **Flow monitoring**: continuously record stage/level and velocity (if possible) at a location upstream of pipe outlet to Mississippi River
- **Frequency**:
  - Target one field grab (non-event) sample per month from March through December
  - Target one storm event composite sample per month from March through December
- **Field parameters to be collected**:
  - General site conditions
  - Stage/level
  - Temperature
  - Conductivity
  - Dissolved Oxygen
  - pH
  - Transparency

- Laboratory water quality parameters to be sampled:
Budget
Water quality samples will be delivered to the Metropolitan Council Environmental Services Lab for analysis.

Table 1. Activity and cost breakdown for WMWMC 2020 Monitoring.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field season preparation</td>
<td>$1,496.00</td>
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<tr>
<td>Install equipment (beginning of season)</td>
<td>$2,864.00</td>
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<tr>
<td>Data Management and QA/QC</td>
<td>$1,152.00</td>
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<td>Collect samples</td>
<td>$1,633.50</td>
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<td>Equipment Maintenance</td>
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<td>Mileage – Expense</td>
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<td>Analytical lab cost (Metropolitan Environmental Lab)</td>
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<td>Equipment Rental</td>
<td>$500.00</td>
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<td>Remove Equipment (end of season)</td>
<td>$537.00</td>
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<tr>
<td>Admin - Invoicing</td>
<td>$280.00</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$12,449.00</strong></td>
</tr>
</tbody>
</table>

Deliverables
1. All stormwater quantity and quality data will be delivered by 6/15/2021.
2. A monitoring report will be provided outlining the monitoring activities that were conducted and summary analysis of the data collected.

Payment Schedule
The cost of stormwater monitoring activities may not exceed **$12,449.00**
A final itemized invoice must be submitted by the MWMO along with the stormwater quantity and quality data, no later than **June 15th 2021**. Payment will be made as soon as possible upon receiving the invoice and data.
Technical Memo

To: Shingle Creek/West Mississippi WMC TAC

From: Ed Matthiesen, P.E.
Diane Spector

Date: February 7, 2020

Subject: Ongoing Discussion of MTDs

There has been ongoing discussion between representatives of various WMOs and cities in the Metro and the MPCA regarding Manufactured Treatment Devices (MTDs). WMOs and cities would like the MPCA to establish design standards and allowable performance efficiencies in the Stormwater Manual similar to other BMPs so there is some uniformity of analysis when doing project and permit reviews.

This small group - led by Bassett, Nine Mile, Shingle, and Riley Purgatory Creeks and Ramsey-Washington requested that the MPCA “Cooperate with and support the implementation of the Water Environment Federation’s (WEF) Stormwater Testing and Evaluation of Products and Practices (STEPP) verification program, currently under development. We prefer this option because the STEPP verification program is already well along in its development, it will be a nationwide program, and we understand that MPCA staff are already engaged in the program. Once implemented, the STEPP verification program would validate MTD performance; it would be up to the states (e.g., the MPCA) to certify the MTDs.

Subsequently Mike Trojan at the MPCA held a wider listening session to hear from more entities about how MTDs are being used and how they are being credited. Attached are the notes from that meeting. Note that the Seth Brown who is called out is the STEPP coordinator at WEF. TAPE which is referenced is the Washington state Technology Assessment Protocol - Ecology program, which maintains a series of guidance documents.

This is presented for your information. If anyone is interested in being a part of any work group, you can contact Mike Trojan directly or us and we can forward that info. Otherwise we will simply keep up to date as to progress and will keep you apprised.
Email from Mike Trojan to the group at large:

Below are some notes from the meeting on manufactured treatment devices. I heard back from Seth Brown and his response is at the bottom.

Below are three things we need to do, but feel free to add/edit.

1. I can revise the letter of support for STEPP to reflect what we intend on doing. I think there is value in a letter coming from multiple organizations and will draft the letter based on that assumption. I’ll circulate the letter for review.
2. Arrange a time to meet with Seth Brown. I can check with him to see if the afternoon of March 12 works for him, since he’ll be at SAFL that morning. Maybe tentatively mark your calendars for that day. Since the SAFL folks typically go to lunch after the presentation, we’d probably meet at 2 PM, most likely here at the MPCA.
3. Form a workgroup – see item 6.b.ii below. I know it is short notice, but the group should meet prior to meeting with Seth. So please indicate in the next week if you are interested in being on the work group and I’ll then schedule a meeting for the last week of Feb or first week of March.

Thanks

Mike

Meeting Notes

1. How are MTDs being used
   a. Cap Region (CRWD) to meet WD goals; Contech Phosphosorb to reduce nutrient loading to L McCarron’s (MIDS); may use for TMDLs in the future
   b. Bassett Creek to meet 60% P reduction goal
   c. Middle St. Croix to meet MIDS
   d. Riley-Purg in areas where infiltration is not feasible

2. How are MTDs being credited
   a. Riley-Purg uses on-site monitoring, relying on manufacturer and TAPE information to develop the credit, then require monitoring of 2-year duration, grab samples of influent and effluent; only one entity has pushed back on monitoring; bypass is monitored; mirror Bassett Creek guidance
   b. Bassett Creek (BCWMO) – if TAPE testing shows > 50% reduction, may take the higher number; must have a General Use Determination; avoid monitoring due to inconsistencies and complications with field and lab data
   c. CRWD uses TAPE data and generates a local credit; assume 10% bypass, then takes the average of the data
   d. Particulate:dissolved P ratio is important. CRWD’s typical DP:PP ratio is 76% PP. MIDS is 55% PP - if a MTD gets no DP, then can’t meet 60% removal for TP.
   e. TAPE has little or no data on dissolved P removal

3. Locations where MTDs are being used
   a. BCWMO: 1-4 acre drainage with 70% impervious
   b. Middle St. Croix: 1 acre or less with 80-95% impervious
   c. Riley Purg: < 1 acre, often < 0.5 acre; 3 were downstream of another BMP
4. Maintenance
   a. TAPE does not specify a level of maintenance
   b. TAPE testing may differ from the manufacturers recommendation
   c. CRWD will eventually have maintenance requirements
   d. BCWMO defaults to the manufacturer but has maintenance agreements
   e. CRWD observed that tracking private maintenance is difficult
   f. Inspection and access are important considerations; since these devices do not have
drawdown, need to consider what is being inspected
   g. Can we get maintenance information from manufacturers at flagship sites?
h. We can also check with other entities that may have O&M information, such as Philadelphia
   i. Requiring submittals on O&M would be useful to begin gathering information on these
devices
   j. Riley-Purg noted that sometimes TAPE records show that MTD systems used for data
submission were maintained more frequently than mfc. recommended, e.g., replacing
cartridges/cleanouts every couple of weeks. This can make the effectiveness/safety of
mfc. rec’d O&M fuzzy, i.e., would the performance be significantly impacted if one were
to follow the exact mfc. guidelines. This is really what TAPE should be approving, but it’s
a “gap”
k. include maintenance schedules and protocol; perhaps survey or 3rd party contract
l. CRWD ties maintenance to 48 hour drawdown requirement
m. Riley-Purg requires annual inspections; mixed performance, with better performance
from public compared to private entities

5. Other notes
   a. Sometimes pretreatment is used, even when the device has pretreatment built in;
sumps, baffles, snout
   b. Randy check with cities
   c. CRWD has upstream storage for the devices
   d. Barr has done continuous P8 modeling using the 10 most recent years of data; bypass is
observed; SWMM would be preferred
   e. Detention would help decrease the amount of bypass; size detention to meet the water
quality volume (1.1 inches for MIDS); possibly also provide some rate control
   f. Develop a catalog of these practices, including maintenance records
   g. Pressure increasing to use more devices, mostly manufacturers, some applicants
   h. Instantaneous volume requirement in CSW permit is problematic for these flow-through
   treatment devices due to their very high flow rates

6. Next steps
   a. Letter of support for STEPP – single or joint letter?
b. Communicate with STEPP
   i. STEPP is interested in hearing from MN (see below)
   ii. Pull a work group together that includes consultants and manufacturer’s;
identify what MN wants, needs, what MN can provide in the way of support for
STEPP, what we are doing - provide this to the STEPP folks
   iii. Meet with Seth when he is in town for the SAFL lecture to get an update and
further discuss if the evaluation processes the watersheds are implementing in
the interim will have value for addressing any of STEPPs milestones for completing a nation wide program for these particular devices.

**Response from Seth Brown:**
This is a welcomed and wonderful update on the view of STEPP from MPCA and MN cities and watershed districts. I absolutely would love to meet with you and other stakeholders to discuss how STEPP could be valuable for MN. As you may already be aware, I am planning on making a presentation in MN as part of the SAFL seminar series on March 12 - happy to add a day on the front or back end of this trip to address you and your group. Any thoughts on some times/dates around that time?

Regarding your letter of support, I welcome this support. Please let me know if you have any questions regarding this support.

Many thanks for your interest in STEPP.
MINUTES
January 9, 2020

A meeting of the Technical Advisory Committee (TAC) of the Shingle Creek and West Mississippi Watershed Management Commissions was called to order by Chairman Richard McCoy at 11:10 a.m., Thursday, January 9, 2020, at Edinburgh USA, 8700 Edinbrook Crossing, Brooklyn Park, MN.

Present were: Andrew Hogg, Brooklyn Center; Mitch Robinson, Brooklyn Park; Mark Ray, Crystal; Derek Asche, Maple Grove; Shahram Missaghi, Minneapolis; Megan Hedstrom, New Hope; Ben Scharenbroich and Amy Riegel, Plymouth; Richard McCoy and Marta Roser, Robbinsdale; Ed Matthiesen, Wenck Associates, Inc.; and Judie Anderson, JASS. Not represented: Champlin and Osseo.

Also present: Steve Chesney, Brooklyn Park; Burt Orred, Jr., Crystal; Harold E. Johnson, Osseo; and Kris Guentzel, Hennepin County Environment and Energy.

I. Motion by Ray, second by Scharenbroich to approve the agenda.* Motion carried unanimously.

II. Motion by Ray, second by Scharenbroich to approve the minutes* of the November 14, 2019 meeting. Motion carried unanimously.

III. Cost Share Application – Brooks Landing.

A. The City of Brooklyn Park has submitted a Partnership Cost Share Program application* on behalf of Boisclair Corporation and Metro Blooms for improvements at Brooks Landing Senior Apartments. The various site improvements include replacing the parking lot, adding two raingardens to treat runoff from the parking lot and sidewalk, and adding some amenities such as benches and landscaping. The cost share would be applied to the rain garden portion of the project. Similar to the Autumn Ridge project, Metro Blooms will provide outreach and stewardship opportunities for residents of the development. Included in the meeting packet are the application, existing and proposed conditions, and project budget.

B. Staff internally discussed the cost-effectiveness of this proposal. The request is for $50,000 from the program. The estimated load reduction is 1.75 pounds of TP annually, or about $28,000 per pound of TP removed. The proposed project is in the Directly Connected Impervious Area and is a priority for treatment retrofits. Staff’s maximum comfort level is about $10,000/pound unless there are other significant benefits. For comparison, Autumn Ridge Phase 1 removed about 6 pounds/year, and Phase 2 about 2.5 pounds/year. Staff is requesting TAC discussion regarding this subject to provide guidance and clarity for this and other potential applications.

Following discussion, motion by Ray, second by Riegel to recommend to the Commission that this project be funded at $20,000. Motion carried unanimously.
IV. Bass Creek Stream Restoration Feasibility Study.*

The Shingle Creek CIP includes a generic “Shingle or Bass Creek Stream Restoration” that is a placeholder for potential projects. Staff have been in conversation with the City of Brooklyn Park about the potential to restore Bass Creek from Cherokee Drive to approximately the driveway into the Home Depot development. This reach flows through Bass Creek Park and is the site of the Commission’s BCP monitoring station. There is a trail along the west side of the stream.

Parts of the reach have relatively steep, wooded stream banks, other parts are fairly flat and open. The streambed is a stable sandy gravel, but the banks are incised and some tree removals and thinning are necessary. This reach is also the proposed location for the second filter for the SRP Reduction Project, as it is just downstream of the large flow-through Cherokee Wetland. Given what has already been learned as part of that project, Staff believe they can engineer an effective SRP reduction filter into the stream itself.

Similar to what was just done for the Connections II Stream Restoration Project, Staff propose to work with the City to perform field surveys and 30% design, then submit a grant application for the proposed project to the Clean Water Fund later this summer. They recommend that $10,000 from the Closed Projects Account be allocated to fund this work. The $10,000 would be “paid back” by including the cost of this Feasibility Study in the project cost that would be certified this fall.

Motion by Ray, second by Riegel to recommend to the Commission approval of Staff’s proposal as cited above. Motion carried unanimously.

V. NPDES Draft General Permit and Rules Comparison.

The draft NPDES General Permit* is on public review through January 11, 2020. Included in the meeting packet is a table showing the major requirements for post-construction stormwater management compared to the Commissions’ current Rules and Standards. While the MPCA may review the draft Permit based on comments received during the 60-Day Review Period, it is likely that many of the proposed requirements will be promulgated in the reissued General Permit later this year. This will require revisions to the Commission Rules as well as city ordinance revisions to meet those requirements.

A. Project Thresholds. The Commissions, since they first started undertaking project reviews in the mid-1980s, have used project size (usually defined as parcel or parcels under common development) as the threshold of applicability rather than disturbed area. When the NPDES general and construction permitting requirements were enacted, the Commissions retained the size threshold on the reasoning that it was easy to understand and implement. It also is an opportunity to encourage BMPs on small sites that disturb less than one acre. The proposed Permit does not require water quality treatment unless one acre or more of impervious area is created or fully reconstructed. Projects on small lots that do not meet the threshold would not be required to treat water quality volume.

B. Water Quality. The new requirements change the paradigm of water quality treatment, which previously was performance-focused and is moving toward an infiltration and volume management-focus. Applicants must first consider volume reduction practices for water quality and sediment basins or other non-infiltration BMPs may be considered only if infiltration is prohibited or not feasible. The Commissions’ rules are performance-based and allow for a wide range of potential BMPs.

C. Water Quality Volume. The proposed requirement would redefine the infiltration standard to compute the WQV off both the new impervious and the fully reconstructed impervious.
This may have a range of implications compared to the current Rules. For example, typically neighborhood street reconstruction projects don’t reach the threshold of increasing impervious by more than one acre. However, several years ago Crystal reconstructed streets and added sidewalks in a neighborhood near a school, adding more than one acre of new impervious. The Commission rules required infiltration from the volume off the new impervious. The new Permit would require 0.5” infiltration off the entire reconstructed/new area.

After discussion regarding the impact on the Commissions’ current Rules and Standards of a number of revisions in the new draft permit, Staff was directed to work up some language and respond to the MPCA by the January 11, 2020 deadline.

VI. Chloride Working Group.

Riegel provided a verbal update. She reported that the group did a survey of private applicators. The survey indicated that private applicators knew how to properly apply salt without over salting. The survey also indicated that the reason private applicators over apply salt is because their clients and their clients’ customers expect over-salting to feel that the parking lot is “safe.” This outcome shifted the direction that the working group wants to take on education in the future from targeting private applicators to targeting their clients.

VII. Other Business.

McCoy reported that the permit application to DNR for supplemental pumping from Crystal Lake to better control the water level in the lake has been given temporary approval. A longer term approval will be dependent upon the development of a permanent solution in conjunction with the Commission and adjacent cities making sure that there are no adverse impacts on other properties. The temporary permit is in effect until December 31, 2021.

VIII. Next Meeting.

The next Technical Advisory Committee meeting is tentatively scheduled for 11:00 a.m. Thursday, March 12, 2020, prior to the Commissions’ regular meeting.

The meeting was adjourned at 12:09 p.m.

Respectfully submitted,

Judie A. Anderson
Recording Secretary
The Shingle Creek and West Mississippi Watershed Management Commissions conducted education and public outreach activities in 2019 in fulfillment of their Third Generation Watershed Management Plan Watershed Education and Public Outreach Program goals.

EDUCATION AND PUBLIC OUTREACH PROGRAM GOALS

1. All members of the community become knowledgeable about the water resources in the watersheds and take positive action to protect and improve them.

2. All members of the community have a general understanding of watersheds and water resources and the organizations that manage them.

3. All members of the community have a general understanding of the Impaired Waters in the watersheds and take positive actions to implement TMDL requirements.

The Commissions identified the following general education and outreach strategies in the Third Generation Watershed Management Plan. More detailed educational goals by stakeholder groups may be found in Appendix E of that Plan.

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

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

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

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

Specific Activities to Reach Goals:
Watershed PREP is a program of the West Metro Water Alliance (WMWA), a consortium of four WMOs including the Shingle Creek and West Mississippi WMOs, and stands for Protection, Restoration, Education, and Prevention. 2019 was the sixth year of the program. Two persons with science education backgrounds serve as contract educators to be shared between the member WMOs. The focus of the program is two-fold - to present water resource-based classes to fourth grade students and to provide education and outreach to citizens, lake associations, civic organizations, youth groups, etc.

Fourth Grade Program. Three individual classes meeting State of Minnesota education standards have been developed. Lesson 1, *What is a Watershed and Why do we care?*, provides an overview of the watershed concept and is specific to each school’s watershed. It describes threats to the watershed. Lesson 2, *The Incredible Journey*, describes the movement and status of water as it travels through the water cycle. Lesson 3, *Stormwater Walk*, investigates movement of surface water on school grounds. The ultimate goal is to make this program available to all fourth graders in the four WMWA watersheds (Shingle Creek, West Mississippi, Bassett Creek, and Elm Creek), and to other schools as contracted. The program is offered to public, private, parochial, magnet and charter schools.

**Table 1. Watershed PREP Program participation growth.**

<table>
<thead>
<tr>
<th>Year</th>
<th># Classrooms</th>
<th># Students</th>
<th># and Type of Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lesson 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>63</td>
<td>1,679</td>
<td>13 in six districts; one charter school; one parochial school</td>
</tr>
<tr>
<td>2014</td>
<td>116</td>
<td>3,469</td>
<td>30 in seven districts; one magnet school; one parochial school</td>
</tr>
<tr>
<td>2015</td>
<td>122</td>
<td>3,183</td>
<td>36 in nine districts; two charter schools; five parochial schools</td>
</tr>
<tr>
<td>2016</td>
<td>107</td>
<td>2,850</td>
<td>29 in seven districts, one charter school, 5 parochial schools</td>
</tr>
<tr>
<td>2017</td>
<td>121</td>
<td>3,249</td>
<td>12 in seven districts, one charter school, one parochial school</td>
</tr>
<tr>
<td>2018</td>
<td>143</td>
<td>3,593</td>
<td>32 in seven districts, one charter school, 2 parochial schools</td>
</tr>
<tr>
<td>2019</td>
<td>103</td>
<td>2,681</td>
<td>27 in six districts, two magnet schools; one parochial school</td>
</tr>
<tr>
<td><strong>Lesson 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>14</td>
<td>390</td>
<td>Three in three districts; one charter school; one parochial school</td>
</tr>
<tr>
<td>2014</td>
<td>22</td>
<td>645</td>
<td>Five in three districts</td>
</tr>
<tr>
<td>2015</td>
<td>27</td>
<td>859</td>
<td>Six in five districts</td>
</tr>
<tr>
<td>2016</td>
<td>20</td>
<td>524</td>
<td>Five in three districts, one parochial school</td>
</tr>
<tr>
<td>2017</td>
<td>38</td>
<td>1,072</td>
<td>Seven in three districts, one parochial school</td>
</tr>
<tr>
<td>2018</td>
<td>69</td>
<td>1,755</td>
<td>16 in five districts, one parochial school</td>
</tr>
<tr>
<td>2019</td>
<td>58</td>
<td>1,516</td>
<td>16 in five districts, one magnet school</td>
</tr>
</tbody>
</table>
Table 2. 2019 schools and students participating in Lesson 1: What is a Watershed?

<table>
<thead>
<tr>
<th>Date</th>
<th>School</th>
<th>School District</th>
<th>City</th>
<th>Watershed</th>
<th>Classes</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/28</td>
<td>Hassan</td>
<td>Elk River</td>
<td>Rogers</td>
<td>Elm</td>
<td>4</td>
<td>119</td>
</tr>
<tr>
<td>2/21</td>
<td>Lakeview Elementary</td>
<td>Robbinsdale</td>
<td>Robinsdale</td>
<td>Shingle</td>
<td>3</td>
<td>62</td>
</tr>
<tr>
<td>3/25</td>
<td>Plymouth Creek</td>
<td>Wayzata</td>
<td>Plymouth</td>
<td>Bassett</td>
<td>4</td>
<td>110</td>
</tr>
<tr>
<td>3/27</td>
<td>Sunset Hill</td>
<td>Wayzata</td>
<td>Plymouth</td>
<td>Bassett</td>
<td>4</td>
<td>116</td>
</tr>
<tr>
<td>4/4</td>
<td>Neill Elementary</td>
<td>Robbinsdale</td>
<td>Crystal</td>
<td>Bassett</td>
<td>3</td>
<td>68</td>
</tr>
<tr>
<td>4/12</td>
<td>Gleason Lake</td>
<td>Wayzata</td>
<td>Plymouth</td>
<td>Minnehaha</td>
<td>4</td>
<td>92</td>
</tr>
<tr>
<td>4/30</td>
<td>Meadow Ridge Elementary</td>
<td>Wayzata</td>
<td>Plymouth</td>
<td>Elm</td>
<td>4</td>
<td>116</td>
</tr>
<tr>
<td>5/1</td>
<td>Meadow Ridge Elementary</td>
<td>Wayzata</td>
<td>Plymouth</td>
<td>Elm</td>
<td>2</td>
<td>58</td>
</tr>
<tr>
<td>5/3</td>
<td>Oakwood</td>
<td>Wayzata</td>
<td>Plymouth</td>
<td>Minnehaha</td>
<td>3</td>
<td>84</td>
</tr>
<tr>
<td>5/13&amp;15</td>
<td>Kimberly Lane</td>
<td>Wayzata</td>
<td>Plymouth</td>
<td>Bassett</td>
<td>6</td>
<td>145</td>
</tr>
<tr>
<td>5/14</td>
<td>Zachary Lane Elementary</td>
<td>Robbinsdale</td>
<td>Plymouth</td>
<td>Bassett</td>
<td>4</td>
<td>96</td>
</tr>
<tr>
<td>4/30</td>
<td>Northport Elementary</td>
<td>Robbinsdale</td>
<td>Brooklyn Ctr</td>
<td>Shingle</td>
<td>2</td>
<td>45</td>
</tr>
<tr>
<td>5/14</td>
<td>Forest Elementary</td>
<td>Robbinsdale</td>
<td>Crystal</td>
<td>Shingle</td>
<td>3</td>
<td>83</td>
</tr>
<tr>
<td>5/21&amp;22</td>
<td>Rush Creek</td>
<td>Osseo</td>
<td>Maple Grove</td>
<td>Elm</td>
<td>5</td>
<td>127</td>
</tr>
<tr>
<td>9/25</td>
<td>Noble Elementary</td>
<td>Robbinsdale</td>
<td>Golden Valley</td>
<td>Bassett</td>
<td>2</td>
<td>52</td>
</tr>
<tr>
<td>10/1</td>
<td>Rice Lake</td>
<td>Osseo</td>
<td>Maple Grove</td>
<td>Elm</td>
<td>3</td>
<td>73</td>
</tr>
<tr>
<td>10/3</td>
<td>Rice Lake</td>
<td>Osseo</td>
<td>Maple Grove</td>
<td>Elm</td>
<td>2</td>
<td>47</td>
</tr>
<tr>
<td>10/4</td>
<td>Rice Lake</td>
<td>Osseo</td>
<td>Maple Grove</td>
<td>Elm</td>
<td>2</td>
<td>46</td>
</tr>
<tr>
<td>10/9-10</td>
<td>Elm Creek Elementary</td>
<td>Osseo</td>
<td>Maple Grove</td>
<td>Elm</td>
<td>4</td>
<td>93</td>
</tr>
<tr>
<td>10/16/19</td>
<td>Monroe Elementary</td>
<td>Anoka-Henn</td>
<td>Brooklyn Park</td>
<td>W. Miss</td>
<td>4</td>
<td>112</td>
</tr>
<tr>
<td>10/23</td>
<td>FAIR Pilgrim Lane Magnet</td>
<td>Robbinsdale</td>
<td>Crystal</td>
<td>Shingle</td>
<td>1</td>
<td>24</td>
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<tr>
<td>10/24</td>
<td>SEA Magnet</td>
<td>Robbinsdale</td>
<td>Golden Valley</td>
<td>Bassett</td>
<td>3</td>
<td>84</td>
</tr>
<tr>
<td>10/30</td>
<td>Rogers</td>
<td>Elk River</td>
<td>Rogers</td>
<td>Elm</td>
<td>4</td>
<td>116</td>
</tr>
<tr>
<td>10/31</td>
<td>Palmer Lake</td>
<td>Osseo</td>
<td>Brooklyn Park</td>
<td>Shingle</td>
<td>3</td>
<td>70</td>
</tr>
<tr>
<td>11/4-5</td>
<td>Weaver Lake</td>
<td>Osseo</td>
<td>Maple Grove</td>
<td>Elm</td>
<td>4</td>
<td>118</td>
</tr>
<tr>
<td>11/11</td>
<td>Good Shepherd</td>
<td>Parochial</td>
<td>St. Louis Park</td>
<td>Bassett</td>
<td>2</td>
<td>33</td>
</tr>
<tr>
<td>11/15</td>
<td>Meadowbrook</td>
<td>Hopkins</td>
<td>Golden Valley</td>
<td>Bassett</td>
<td>2</td>
<td>55</td>
</tr>
<tr>
<td>11/19-20</td>
<td>Dayton</td>
<td>Anoka-Henn</td>
<td>Dayton</td>
<td>Elm</td>
<td>3</td>
<td>85</td>
</tr>
<tr>
<td>11/21-22</td>
<td>Oxbow Creek</td>
<td>Anoka-Henn</td>
<td>Champlin</td>
<td>W. Miss</td>
<td>7</td>
<td>191</td>
</tr>
<tr>
<td>11/25-26</td>
<td>Basswood</td>
<td>Osseo</td>
<td>Maple Grove</td>
<td>Elm</td>
<td>6</td>
<td>161</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>103</td>
<td>2,681</td>
</tr>
</tbody>
</table>
### Table 3. 2019 schools and students participating in Lesson 2: The Incredible Journey

<table>
<thead>
<tr>
<th>Date</th>
<th>School</th>
<th>School District</th>
<th>Watershed</th>
<th>Classes</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/27</td>
<td>Hassan</td>
<td>Elk River</td>
<td>Rogers</td>
<td>Elm</td>
<td>118</td>
</tr>
<tr>
<td>2/6</td>
<td>Lakeview Elementary</td>
<td>Robbinsdale</td>
<td>Robbinsdale</td>
<td>Shingle</td>
<td>61</td>
</tr>
<tr>
<td>4/3</td>
<td>Neill Elementary</td>
<td>Robbinsdale</td>
<td>Crystal</td>
<td>Bassett</td>
<td>68</td>
</tr>
<tr>
<td>4/23 &amp; 24</td>
<td>Rush Creek</td>
<td>Osseo</td>
<td>Maple Grove</td>
<td>Elm</td>
<td>127</td>
</tr>
<tr>
<td>29-Apr</td>
<td>Northport Elementary</td>
<td>Robbinsdale</td>
<td>Brooklyn Ctr</td>
<td>Shingle</td>
<td>46</td>
</tr>
<tr>
<td>5/7</td>
<td>Forest Elementary</td>
<td>Robbinsdale</td>
<td>Crystal</td>
<td>Shingle</td>
<td>3</td>
</tr>
<tr>
<td>9/30</td>
<td>Rice Lake</td>
<td>Osseo</td>
<td>Maple Grove</td>
<td>Elm</td>
<td>71</td>
</tr>
<tr>
<td>10/3</td>
<td>Rice Lake</td>
<td>Osseo</td>
<td>Maple Grove</td>
<td>Elm</td>
<td>47</td>
</tr>
<tr>
<td>10/7-8</td>
<td>Elm Creek</td>
<td>Osseo</td>
<td>Maple Grove</td>
<td>Elm</td>
<td>92</td>
</tr>
<tr>
<td>10/14-15</td>
<td>Basswood</td>
<td>Osseo</td>
<td>Maple Grove</td>
<td>Elm</td>
<td>175</td>
</tr>
<tr>
<td>10/22</td>
<td>Rogers</td>
<td>Elk River</td>
<td>Rogers</td>
<td>Elm</td>
<td>118</td>
</tr>
<tr>
<td>10/23</td>
<td>FAIR Pilgrim Lane Magnet</td>
<td>Robbinsdale</td>
<td>Crystal</td>
<td>Shingle</td>
<td>24</td>
</tr>
<tr>
<td>10/29</td>
<td>Palmer Lake</td>
<td>Osseo</td>
<td>Brooklyn Park</td>
<td>Shingle</td>
<td>68</td>
</tr>
<tr>
<td>11/6-7</td>
<td>Oxbow Creek</td>
<td>Anoka-Henn</td>
<td>Champlin</td>
<td>W. Miss</td>
<td>194</td>
</tr>
<tr>
<td>11/8</td>
<td>Meadowbrook</td>
<td>Hopkins</td>
<td>Golden Valley</td>
<td>Bassett</td>
<td>83</td>
</tr>
<tr>
<td>11/12</td>
<td>Meadowbrook</td>
<td>Hopkins</td>
<td>Golden Valley</td>
<td>Bassett</td>
<td>56</td>
</tr>
<tr>
<td>11/18-19</td>
<td>Dayton</td>
<td>Anoka-Henn</td>
<td>Dayton</td>
<td>Elm</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>58</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>1,516</strong></td>
</tr>
</tbody>
</table>

**Community Education and Outreach.** The PREP educators provided outreach at three community and school events. Because of the nature of these events, it is difficult to keep a tally of the number of contacts made and citizens engaged. Events are detailed in Table 4.

### Table 4. 2019 Watershed PREP community education and outreach participation

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Location</th>
<th>Watershed</th>
<th># of Attendees</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/27</td>
<td>Arbor Day Event</td>
<td>Maple Grove</td>
<td>EC/SC</td>
<td>62 children &quot;planted&quot; trees in the watershed</td>
</tr>
<tr>
<td>8/1</td>
<td>Plymouth Kids Fest</td>
<td>Plymouth</td>
<td>BC/EC/SC</td>
<td>4,000</td>
</tr>
<tr>
<td>11/12</td>
<td>Filmed Meadowbrook Program for video promotion</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Evaluation:**

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

**Program:** Distribute Educational Materials

**Audience:** Multiple

**Program Goals:**

a. Inform various stakeholders about the watershed organizations and their programs.

b. Provide useful information to a variety of stakeholders on priority topics.

c. Engage stakeholders and encourage positive, water-friendly behaviors.

**Educational Goals:**

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

Specific Activities to Reach Goals:

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

10 Things You Can Do
The Commissions partnered with WMWA to revise and refresh the popular brochure “10 Things You Can Do to protect Minnesota’s lakes, rivers, and streams.” New emphasis was placed on salting sparingly and on conserving water.

Press Releases and Newspaper Articles
The Commissions received news media coverage of some of its projects in 2019:
- After the Shingle Creek Commission announced receipt of a federal grant, local cable access CCX Media did a story on the Crystal Lake Management Plan.
- MPR News did a story on lake alum treatments that featured the Bass Lake project in the Shingle Creek watershed.
- The Commissions distributed a press release announcing the receipt of an award from the Environmental Initiative for the Biochar enhanced Filters project. The project and award were featured in Municipal Sewer and Water Magazine, a national trade journal. It was also featured on the blog of the Biochar Project, a nonprofit in Australia.

Web Site
The Commissions maintained a joint web site, shinglecreek.org, which includes information about the watersheds, the Commissions, and the water resources in the watersheds. In 2019 the site received over 3,105 visitors and over 9,900 pageviews. Most of the pageviews are to the meetings and project review pages, but there was significant traffic to the page dedicated to the biochar filters project (366 pageviews) and Twin Lake carp management page (305 pageviews).

Social Media. The Commission established a Facebook page in 2016. During 2019 there were 147 followers, 4,481 reaches and 7,492 impressions. A reach is logged when a timeline post is seen by an individual viewer, while impressions are the number of times a post was seen. Viewers were “engaged” 714 times. An engagement is a click to open a post, view a photo or video, make a comment, or click on a reaction emoji. Commission posts were “liked” 304 times, “shared” 53 times, 104 photos were opened and 14 comments were made.

Evaluation:
Evaluation measures are as noted above: number of brochures and handbooks distributed; number of website hits; social media engagement. The new website uses Google Analytics to better track page views and unique visitors. The 2019 website activity is shown on the last page of this report.

Program: Public Outreach

Audience: Residents, youth
Program Goals:
   a. Provide opportunities for people of all ages to participate in hands-on activities to protect and improve waters.
   b. Provide opportunities for people to learn about ways they can protect and improve waters.

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

Specific Activities to Reach Goals:
The *Pledge to Plant Campaign* was developed by Metro Blooms/Blue Thumb to encourage residents to replace impervious surface and turf grass with native plantings to benefit clean water by reducing project includes the additional benefit of creating habitat for pollinators. An agreement between Metro Blooms and the Shingle Creek Commission, as fiscal agent, to move the stormwater runoff.

Phase One of the project began with creation of a name, tag line and logo. The project was promoted in the Blue Thumb space at the State Fair where the public voted to name the campaign, *Pledge to Plant for Clean Water and Pollinators*.

Phase Two included a roll out of the Pledge campaign on the Metro Blooms and WMWA websites where citizens can enter the square footage of their new plantings, creation of a *Pledge to Plant* banner for events, and a social media campaign that began in 2016. The campaign was promoted at the State Fair and other area events.

At year-end 2018, over 630 people had submitted the Pledge online covering over 417 acres. The total includes a handful of larger prairie restoration projects but the median pledge covers 250 square feet. Most of the Pledges come from the metro area, but Pledges have been received from more than 20 states. The *Pledge to Plant* campaign was also promoted during the Watershed PREP classes and at events Educators attended in 2019. Pledges were not tallied in 2019.

Pledge campaign materials will be included in the 2020 Metro Bloom workshop handouts.

Rain Garden Workshops
The Commissions partnered with WMWA to sponsor three Rain Garden workshops through Metro Blooms in 2019. Metro Blooms is a non-profit organization whose mission is to promote and celebrate gardening, to beautify our communities and help heal and protect our environment. In 2019 Metro Blooms offered Creating Resilient Yard workshops providing an overview of Minnesota’s changing weather patterns and ways to mitigate the impact in your own yard. The presenters offered recommendations for individual properties and options for establishing mowable, native alternatives to “grass” turf, raingarden basics, and other resilient yard practices. Attendees also received one-on-one design assistance from landscape professionals and Master Gardeners. The locations and number of participants are shown in Table 5.

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>No. Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Champlin – Champlin City Hall</td>
<td>April 4</td>
<td>16</td>
</tr>
<tr>
<td>Crystal partnering w/Golden Valley, New Hope, Robbinsdale–Crystal Community Ctr</td>
<td>May 9</td>
<td>38</td>
</tr>
<tr>
<td>Plymouth – St Barnabas Church</td>
<td>May 2</td>
<td>37</td>
</tr>
</tbody>
</table>

Table 5. 2019 Rain garden workshop locations and participation.
Shingle Creek Cleanup
The 18th Annual Great Shingle Creek Cleanup was held the week of April 21-27, 2019. Each city sponsored its own cleanup, which could be a special event or simply a request that the existing Adopt-a-Park volunteers schedule their spring cleanup during that week.

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

Lakes. Volunteer lake monitoring is performed through the Met Council’s Citizen Assisted Lake Monitoring Program (CAMP). The Met Council provides the monitoring equipment and the laboratory work and data analysis while the Shingle Creek Commission staff recruit and train volunteers to perform sampling, collect the volunteers’ water quality samples, and get them to the Met Council. Only one lake, Meadow Lake in New Hope, was monitored by volunteers in 2019.

Streams. Routine stream macroinvertebrate monitoring in both watersheds is conducted by volunteers through Hennepin County’s River Watch program. This program was initiated in 1995 to provide hands-on environmental education for high school and college students, promote river stewardship, and obtain water quality information on the streams in Hennepin County. Hennepin County coordinates student and adult volunteers who use the River Watch protocols to collect physical, chemical, and biological data to help determine the health of streams in the watershed. Two sites on Shingle Creek were monitored in 2019 – the long-term (24 years) site next to Park Center High School in Brooklyn Park, monitored by students from Park Center High School; and a site at Webber Park Falls in Minneapolis, monitored by students from Avail Academy in Fridley.

Wetlands. Two sites in the Shingle Creek watershed and two sites in the West Mississippi watershed were monitored through the Hennepin County Environmental Services’ Wetland Health Evaluation Program (WHEP). WHEP uses trained adult volunteers to monitor and assess wetland plant and animal communities in order to score monitored wetlands on an Index of Biological Integrity for macroinvertebrates and vegetation. In 2019, BP-5 Brookdale Park in Brooklyn Park and CR-1 Wetland 639W in Crystal were monitored in the Shingle Creek watershed. The sites in the West Mississippi watershed were the BP-1 Environmental Preserve wetlands and BP-7 Zane Sports Park, both in Brooklyn Park.

Evaluation:
Evaluation of these programs is based on participation.

Program: Collaborative Efforts

Audience: Multiple

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

Educational Goals:
  a. All people have a general understanding of watersheds, water resources and the organizations that manage them.
  b. All people understand the connection between actions and water quality and water quantity.
Specific Activities to Reach Goals:

WMWA
The Commissions partner with the Bassett Creek WMO and the Elm Creek WMO and other interested parties as the West Metro Water Alliance (WMWA). Other participating parties have included the Freshwater Society, Hennepin County Environment and Energy, and Three Rivers Park District. The Mississippi WMO also participates but is not a formal member. Each member watershed organization contributes funds to WMWA, which sponsors programs such as Watershed PREP, standardized brochures and booklets, and the Planting for Clean Water Program. WMWA publishes an annual report on its activities.

The very popular 10 things you can do to protect Minnesota’s lakes, rivers, and streams brochure was revised and updated in 2019 and was printed at no cost to WMWA members by the Hennepin County Department of Environment and Energy. It is also available on the WMWA website.

Other Partnerships
The Commissions are also members of:

- WaterShed Partners, a coalition of agencies, educational institutions, WMOs, Watershed Districts, and Soil and Water Conservation Districts that coordinate water resources education and public outreach planning in the Metro area;
- BlueThumb, a consortium of agencies and vendors partnering to increase outreach and awareness; and
- NEMO (Nonpoint Education for Municipal Officials), a program that provides educational and skill-building programming to elected and appointed officials and community leaders to increase their knowledge of the connection of land use and management decisions to water quality and natural resources.

Evaluation:
No specific evaluation of this programing has been completed.

Program: Continuing Education

Audience: Commissioners, Technical Advisory Committee (TAC)

Program Goals:
- Effectively and efficiently manage the water resources in the watershed.
- Increase awareness and knowledge of broader water resources issues and trends.

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

Specific Activities to Reach Goals:
Staff Presentations
- 2018 Annual Water Quality Monitoring report findings
- Biochar- and Iron-Enhanced Sand Filter Project update and final report
- Twin Lake Carp Management Project update
- 2019 Lake and Stream Monitoring update
- SRP Reduction Project update and results
- FEMA Flood Modeling update
- FEMA Flood Modeling amendment
- Becker Park updates
- Bass and Pomerleau Alum Treatment preliminary results
- Connections II introduction
- River Park project introduction

Guest Speakers
Representatives from Metro Blooms presented Phase II of their proposed 5-year stormwater retrofit project for the Autumn Ridge Apartments in Brooklyn Park. The residents were seeking a second Shingle Creek Partnership Cost Share Grant to help fund the project. Representatives from Metro Blooms returned later in the year to present the progress achieved in Phase II.

Other
- The Commission made contributions to fund the annual Road Salt Symposium presented by Fortin Consulting and the Water Summit sponsored by the Freshwater Society.
- Shingle Creek Commission made application for an Environmental Initiative Award in the category, Environmental Innovation, that recognizes “a partnership working on the next environmental breakthrough.” The application was for the Biochar- and Iron-Enhanced Sand Filter project. The Commission received an Honorable Mention.
- Consideration of an Enhanced Street Sweeper as a capital project on the CIP.

Evaluation:
No specific evaluation of this programming has been completed
Users

3,105
% of Total: 100.00% (3,105)

Pageviews

Landing Page | Pageviews |
-------------|-----------|
/            | 6,044     |
/biochar-filters.html | 399     |
/twin-lake-carp-management.html | 387     |
/minutes-meeting-packets.html | 335     |
/staff.html | 288       |
/meetings.html | 231      |
/maps.html  | 222       |
/tac-meetings.html | 163      |
/tmdls.html | 124       |
/history.html | 110      |

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SMART SALTING LEVEL 1 MPCA CERTIFICATION COURSE FOR PARKING LOTS AND SIDEWALKS

WHO SHOULD COME

• Property owners and managers
• Private winter maintenance contractors
• Snowplow drivers
• Parking lot, sidewalk, & trail maintenance staff from counties, cities, park districts & school districts

ATTENDEES WILL RECEIVE a complimentary light breakfast and lunch and a Winter Maintenance for Parking lots and Sidewalks manual. Participants can take an optional test to earn the Minnesota Pollution Control Agency (MPCA) Level I Smart Salting Certification in winter maintenance. The certified individuals will be listed on the MPCA website.

Through presentations and class exercises, participants will learn how to integrate science and practical winter maintenance to minimize environmental impacts.

• Application rates of materials
• Equipment calibration
• Accounting for various weather Conditions
• Storing materials
• New maintenance methods
• De-icing and anti-icing
• Environmental effects

THE COURSE IS FREE, BUT SPACE IS LIMITED.
REGISTER TODAY!
BASSETTCREEKWMO.ORG

FRIDAY, MARCH 6TH 2020 (IN CASE OF A BIG SNOW, BACKUP DATE IS MARCH 13TH)
9:00 am – 2:30 pm at the Plymouth City Hall, 3400 Plymouth Blvd, Plymouth MN 55447

PRESENTED BY FORTIN CONSULTING WITH FUNDING FROM THE MPCA
SAVE THE DATE!

Salt Symposium

AUGUST 5, 2020
Medina, MN

A day of chloride research & innovation!

Winter Maintenance
The latest research and technology

New Alternative Sessions
Water softening, Fertilizers, Dust control, and more!

August 6 – FREE MPCA Smart Salting Certification Trainings

Register now at fortinconsulting.com/salt-symposium
Sponsorship Packages and Benefits

Platinum Sponsorship - $5,000 donation
- Prominent logo placement on the symposium program, slideshow, and web pages, your materials included in every conference packet, brief podium presentation time, five (5) complimentary attendee registrations, and access to a vendor table or reserved space at the resource tables located in the main room.

Gold Sponsorship - $2,500 donation
- Prominent logo placement in the symposium program, slideshow, and web pages, two (2) complimentary attendee registrations, and access to a vendor table or reserved space at the resource tables located in the main room.

Silver Sponsorship - $1,000 donation
- Logo placement in the symposium program, slideshow, and web pages, one (1) complimentary attendee registration, and reserved space provided at the resource tables located in the main room.

Bronze Sponsorship - $500 donation
- Listing as a Salt Symposium sponsor on the symposium program, slideshow, and web pages, and reserved space at the resource tables located in the main room.

Specialized Sponsorship - Contact us to start the conversation
- Consider sponsoring refreshments, out-of-town speakers, awards, MPCA Certified Smart Salting trainings, merchandise, and more! Contact Connie Fortin at 763-478-3606 or connie@fortinconsulting.com for details.

Promote your organization. Protect the water.
Sign-up for Salt Symposium Sponsorship

- Platinum Sponsorship - $5,000 donation
- Gold Sponsorship - $2,500 donation
- Silver Sponsorship - $1,000 donation
- Bronze Sponsorship - $500 donation
- Special Sponsorship - _______________________

Sponsorship Form

Contact Name: _________________________________ Date: ______________
Organization/Company: ____________________________________________________
Mailing Address: _________________________________________________________
City: _____________________ State: ___________ Zip code:_______________
Phone: ____________________ Email: ____________________________________

☐ Check included by mail ☐ Please send me an invoice

Checks made payable to: Fortin Consulting Inc.

Please send 1) this completed form and 2) your organization’s logo to:

fci@fortinconsulting.com

To send checks and forms by mail, address the materials to:
Fortin Consulting, Inc. 215 Hamel Rd, Hamel, MN 55340

Sponsorship dollars will be used to reduce registration costs and bring more people into the conversation.

This event assembles hundreds of professionals from numerous industries, each following the latest developments in salt use and management, road maintenance, agronomy, and more. Your donations help bring more people to the table.

Thank you!

fci@fortinconsulting.com 763-478-3606
So, for the Shingle Creek education and outreach annual report today I did a Google search for all the mentions of the Shingle Creek watershed.

One of the hits was a blog called “Biochar Project, spreading the word about biochar” (http://biocharproject.org/). This blog had picked up a press release we had sent out announcing that the SC Biochar and Iron Enhanced Sand Filters project was awarded an Honorable Mention from the Environmental Initiative.

I thought, oh great, didn’t get much local coverage but some random blog reported it. Who are these guys?

That’s “Charmaster Dolph” in the green shirt. Here’s their contact info.

Email
dolph@biocharproject.org

Snail Mail
Biochar Project
Po Box 3189
Physical Location
Nightcap Forest
Mebbin Plantation
2954 Kyogle Rd
Kunghur NSW 2484 Australia
[note: that’s about 100 miles south of Brisbane]

Phone
We don’t have a landline out in the forest. We have tried various ways to get phones going out here but it is not working out. Mobile phone works on top of the Hill of Abundance and in town but it is 0424670787

Skype
Skype works out in the forest. Our Skype id is BioCharProject.

Telepathy
Chant SRI sri Charanada over and over until I answer : )

We’re in good company.....

Diane Spector
Senior Water Resources Planner / Principal

dspector@wenck.com  D| 763.252.6880  C| 612.868.5515
7500 Olson Memorial Highway | Suite 300 | Golden Valley, MN 55427
<table>
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<th>To</th>
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