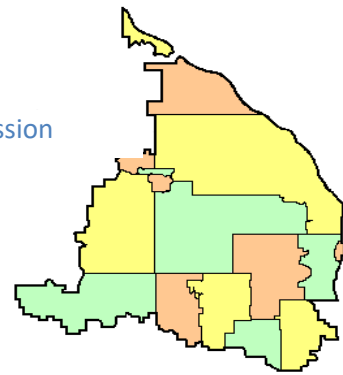




Watershed Management Commission



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

MINUTES Regular Meeting and Public Meeting October 10, 2019

(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 West Mississippi Chairman Gerry Butcher at 12:54 p.m. on Thursday, October 10, 2019, 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; Wayne Sicora, Robbinsdale; Ed Matthiesen, Wenck Associates, Inc.; Troy Gilchrist, Kennedy & Graven; and Judie Anderson, JASS.

Not represented: Minneapolis and Plymouth.

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 Matthiesen, Wenck Associates, Inc.; Troy Gilchrist, Kennedy & Graven; and Judie Anderson, JASS.

Also present were: Andrew Hogg, Brooklyn Center; Mitch Robinson and Alex Prasch, Brooklyn Park; Todd Tuominen, Champlin; Mark Ray, Crystal; Derek Asche, Maple Grove; Shahram Missaghi, Minneapolis; Bob Grant and Megan Hedstrom, New Hope; Amy Riegel, Plymouth; Richard McCoy and Marta Roser, Robbinsdale; and Stephen Mastey, Landscape Architecture, and Ann Gaash and Jeannie Myers, Twin Lake North Condominium Association.

II. Agendas and Minutes.

Motion by Johnson, second by Wills to approve the **Shingle Creek agenda**.* *Motion carried unanimously.*

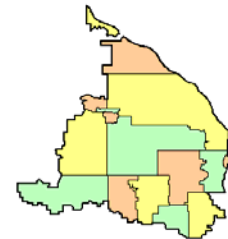
Motion by Chesney, second by Johnson to approve the **West Mississippi agenda**.* *Motion carried unanimously.*

Motion by Wills, second by Sicora to approve the **minutes of the September regular meeting and public hearing**.* *Motion carried unanimously.*

Motion by Johnson, second by Chesney to approve the **minutes of the September regular meeting and public hearing**.* *Motion carried unanimously.*

III. Finances and Reports.

A. Motion by Wills, second by Jaeger to approve the Shingle Creek **October Treasurer's Report**.* *Motion carried unanimously.*



Motion by Wills, second by Jaeger to approve the **Shingle Creek October claims.*** Claims totaling \$60,476.13 were *approved by roll call vote: ayes – Quinn, Orred, Jaeger, Wills, Johnson, and Sicora; nays – none; absent – Brooklyn Center, Minneapolis, and Plymouth.*

B. Motion by Chesney, second by Johnson to approve the West Mississippi October Treasurer's Report.* *Motion carried unanimously.*

Motion by Johnson, second by Chesney to approve the **West Mississippi October claims.*** Claims totaling \$14,281.52 were *approved by roll call vote: ayes – Chesney, Butcher, Jaeger, and Johnson; nays – none; absent – Brooklyn Center.*

[The regular meeting was suspended at 1:03 p.m. in order to conduct a public meeting.]

IV. Public Meeting.*

A. At their September 12, 2019 meetings the Commissions called for a public meeting for today to consider a Minor Plan Amendment (MPA), the third this year, that would add two projects to the CIP. The first is Brooklyn Park’s proposed River Park Stormwater Improvements project, to be added to the West Mississippi CIP. The second is Plymouth’s proposed Enhanced Street Sweeper, to be added to the Shingle Creek CIP. The Commissions have discussed each of these proposed improvements at previous meetings. Notice has been sent to the member cities, county, and reviewing agencies, and published as required by statute and the Plan.

The purpose of this public meeting is to discuss the proposed minor plan amendment and any comments received prior to or at this public meeting. After that discussion, each Commission will consider a resolution adopting the MPA contingent on County Board approval of the Minor Plan Amendment, which will be heard at a County Board hearing in November 2019.

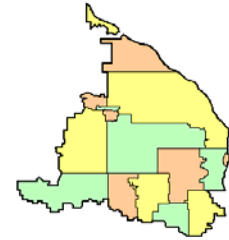
The proposed minor plan revision is shown below as additions (underlined) or deletions (~~strike-outs~~).

Table 4.5. Shingle Creek WMC Third Generation Plan Implementation Plan is hereby revised to add as follows:

Action	2018	2019	2020	2021	2022
<u>Plymouth Enhanced Street Sweeper</u>			<u>350,000</u>		
<u>-Commission Contribution</u>			<u>75,000</u>		
<u>-Local Contribution</u>			<u>275,000</u>		

Table 4.6. West Mississippi WMC Third Generation Plan Implementation Plan is hereby revised as follows:

Action	2018	2019	2020	2021	2022
<u>River Park Stormwater Improvements</u>			<u>485,000</u>		
<u>-Commission Contribution</u>			<u>121,250</u>		
<u>-Local Contribution</u>			<u>363,750</u>		



Appendix F, CIP Descriptions is hereby revised to add as follows:

[Plymouth Enhanced Street Sweeper](#)

[Plymouth will purchase and operate a regenerative air street sweeper to enhance its street sweeping program to four full city sweeps per year. Enhanced street sweeping has been identified in the Bass, Schmidt & Pomerleau TMDL, the Cedar Island, Pike and Eagle Lake TMDL and the Pike Lake Subwatershed Assessment as a cost effective BMP for nutrient reductions.](#)

[River Park Stormwater Improvements](#)

[Brooklyn Park's River Park Master Plan includes stormwater improvements that will provide water quality treatment for 250 acres of mixed use lands that currently discharge into the Mississippi River with no treatment. The stormwater improvements are also intended to provide an improved habitat for animals and insects and an educational space for the residents of the community to learn about water quality.](#)

B. Open public meeting. The public meeting was opened at 1:06 p.m.

1. The Metropolitan Council has responded that they have no comments and Hennepin County has reviewed and approved the amendment. No comments on the proposed amendment were received from either the member cities or the public. No one was present from the general public for this hearing.

2. Motion by Wills, second by Chesney to close the public meeting. *Motion carried unanimously.* The public hearing was closed at 1:07 p.m.

C. Commission Discussion.

Motion by Wills, second by Jaeger to adopt **Resolution 2019-04** Adopting a Minor Plan Amendment ...Revising the Capital Improvement Program.* *Motion carried unanimously.*

Motion by Chesney, second by Johnson to adopt **Resolution 2019-04** Adopting a Minor Plan Amendment ...Revising the Capital Improvement Program.* *Motion carried unanimously.*

[The regular meeting resumed at 1:09 p.m.]

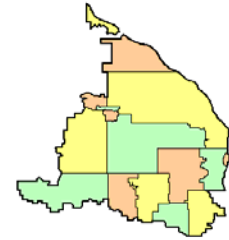
[Vlasin arrived 1:09 p.m.]

V. Open Forum.

VI. Project Reviews.

A. SC2019-006: Twin Lake North Parking Lot, Crystal.* Removal of entire parking lot, reconstruction of a smaller parking lot, and installation of water quality BMPs (i.e., rain garden and vegetated buffer) on a 4.34-acre site located at 4710 58th Avenue. Following development, the site will be 29 percent impervious with 1.26 acres of impervious surface, a decrease of 0.39 acres. A complete project review application was received on September 30, 2019.

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. However, because this project reduces impervious surface area, the project is not held to Commission water quality standards. Still, the applicant proposes to install 1) a rain garden with sediment traps for pretreatment and tire-derived aggregate (TDA) underneath for additional storage and 2) extensive vegetated buffer where the parking lot is currently located. These BMPs likely remove 85% TSS and 60% TP



from the site's runoff. 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 either to a rain garden or to vegetated buffer to reduce runoff rates. However, because this project reduces impervious surface area, the project is not held to Commission runoff rate standards. The applicant meets Commission rate control requirements.

Commission rules also require the site to infiltrate 1.0 inch of runoff from new impervious area within 48 hours. However, this project reduces impervious surface area (from 1.65 to 1.26 acres) and is, therefore, exempt from Commission volume standards. The applicant meets Commission volume control requirements.

The National Wetlands Inventory identifies approximately 0.95 acres of probable wetlands in the western portion of the parcel. The City of Crystal is LGU for Wetland Conservation Act (WCA) administration. Wetland buffers a minimum of 20 feet in width and averaging at least 30 feet in width are provided. The applicant meets Commission wetland requirements.

There is an unnamed DNR Public Water wetland on the western portion of the site. However, adequate wetland buffer is provided (see above) and the proposed project is not anticipated to negatively impact this wetland. The applicant meets Commission Public Waters requirements.

There is no FEMA-regulated floodplain on this site. However, there is a creek adjacent to the site that flows out of the MAC Crystal Wetland (Wetland 639) and into Upper Twin Lake and, although not FEMA-regulated, this creek has floodplain. Because the creek is hydraulically connected to Upper Twin Lake, the 100-year high water level for Upper Twin Lake, 855.5 ft., was assumed to be the 100-year high-water level for the creek. (A memo about this was sent from Wenck to the applicant on January 13, 2016.) Grading occurs below this 100-year high water level, but the net result of floodplain cut and fill is that this project creates 2,298 CF or about 85 CY of floodplain storage. In addition, the rain garden has an emergency overflow at 855.75, which is two feet below the low floor elevation of the building. The applicant meets Commission floodplain requirements.

An erosion control plan was submitted with the project review. It includes a rock construction entrance, a double row of straw wattle protecting the adjacent creek, inlet protection and native seed specified on the slope adjacent to the creek, meeting Commission requirements.

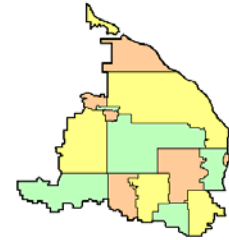
All residents who live within 300 feet of the project were notified through several Twin Lake North Homeowner Association Board meetings. The most recent Board meeting in which this information was presented was on March 21, 2019. The project meets Commission public notice requirements.

A draft Operations & Maintenance (O&M) agreement between the owner and the City of Crystal was provided.

Motion by Sicora, second by Orred to advise the City of Crystal that project review SC2019-006 is approved subject to:

1. Receipt of a complete O&M agreement between the owner and the City of Crystal for the rain garden.
2. Before installation, ensure the tire derived aggregate is inspected on site by City of Crystal staff for signs of pollutants.

Motion carried unanimously.



B. WM2019-008: North Park Business Center Building 3, Brooklyn Park.* Construction of a 204,000 SF building with parking on a 14.4-acre site located south of 109th Avenue North at Highway 169. The proposed project is part of a larger site called North Park Business Center that was approved in 2015 (WM 2015-005). Following development, the Building 3 site will be 73 percent impervious with 10.55 acres of impervious surface, an increase of 10.45 acres. A complete project review application was received on August 30, 2019.

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. 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 routed from the south and central portions of the site to an existing stormwater basin to the west which overflows to an infiltration basin on the southwest corner of the North Park Business Center master site. Runoff is pretreated via two sumps and a sediment forebay. Runoff from the northeast parking lot and the north side of the site is routed to a temporary basin to the north. In the future, the temporary basin will be constructed into a stormwater basin which overflows into an infiltration basin. The master site infiltrates all stormwater, (it does not even discharge in a 100-year back-to-back event) meeting 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 directed to a series of sediment ponds and infiltration basins that are a part of the North Park Business Center Master Plan. The sediment basins and infiltration basins were designed to contain the back-to-back 100-year event with no discharge off of the master site. The applicant meets Commission rate control requirements.

Commission rules also 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 10.45 acres, requiring infiltration of 0.87 acre-feet within 48 hours. The stormwater from the site flows to a stormwater basin that outlets into an infiltration basin that has the capacity to infiltrate the required volume within 48 hours. The applicant meets Commission volume control requirements.

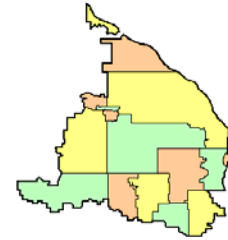
The erosion control plan includes a rock construction entrance, perimeter silt fence, silt fence surrounding detention ponds/infiltration basins, inlet protection, rip rap at inlets, slope checks, and native seed specified on the pond slopes. The erosion control plan meets Commission requirements.

The 2015 review of the master site noted no wetlands on site. The project meets Commission wetland requirements. There are no Public Waters on this site. The applicant meets Commission Public Waters requirements.

There is no FEMA-regulated floodplain on this site. The low floor elevations of the buildings are at least two feet higher than the high-water elevation of the detention ponds according to Atlas 14 precipitation. 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 for the project was conducted on March 13, 2019 as part of Planning Commission and City Council review of this project, meeting Commission public notice requirements.



An Operations & Maintenance (O&M) agreement between the applicant and the City of Brooklyn Park is in negotiation.

Motion by Chesney, second by Johnson to advise the City of Brooklyn Park that project review WM2019-008 is approved conditioned on receipt of a complete O&M agreement between the applicant and the City of Brooklyn Park for all stormwater facilities on the project site. *Motion carried unanimously.*

C. WM2019-009: Coon Rapids Dam Regional Park Phase II, Brooklyn Park.* The proposed project is the redevelopment of park facilities at Coon Rapids Dam Regional Park. The park is approximately 160 acres, 6.0 acres of which will be disturbed. Following redevelopment, the disturbed portion of the site will be 43 percent impervious with 2.6 acres of impervious surface, an increase of 1.6 acres. A complete project review application was received August 29, 2019.

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.

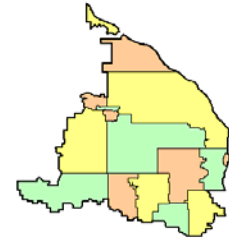
Runoff from the site is proposed to be routed to both a bioretention basin and vegetated trail buffer. The bioretention basin will receive runoff from the new river access road, and will include a Rain Guardian pretreatment chamber. The vegetated trail buffer will treat runoff from all trails. According to calculations with the Minimum Impacts Design (MIDs) calculator, together these practices remove 95% of TP and TSS. 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 a bioretention basin and to vegetated trail buffer, both of which slow runoff rate. The applicant meets Commission rate control requirements.

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 2.58 acres, requiring infiltration of 9,365 CF within 48 hours. Infiltration will be accomplished using both the bioretention basin and the vegetated trail buffer. New impervious area draining to the bioretention basin is 0.6 acres, requiring infiltration of 2,178 acres within 48 hours. The bioretention basin has the capacity to infiltrate this required volume within 48 hours. New impervious area draining from the trails to the vegetated trail buffer is 1.98 acres, requiring infiltration of 7,187 CF feet within 48 hours. The trails will have a 1:1 buffer or 1:4 buffer, depending on whether soils are HSG A or B, respectively, which will provide the required infiltration. The applicant meets Commission volume control requirements.

The erosion control plan includes a rock construction entrance, silt fence, sediment control log, erosion control blanket, flotation silt curtain, inlet protection, rip rap at bioretention basin inlets, and native seed specified in the bioretention basin by the Mississippi River. The erosion control plan meets Commission requirements.

There is one wetland on site. The Commission is LGU for WCA administration in Brooklyn Park. The delineation for this wetland was approved by the Commission in November 2018. The wetland will not be impacted during this project. Erosion and sediment controls will protect this wetland during construction and the drainage area contributing to the wetland will not be changed. Buffers a minimum of



20 feet in width and averaging 30 feet in width are provided. The applicant meets Commission wetland requirements.

The two Public Waters on this site are the existing wetland mentioned above and the Mississippi River. The proposed project is not anticipated to negatively impact either of these water bodies. The applicant meets Commission Public Waters requirements.

Trail is proposed to be reconstructed in the Mississippi River Zone AE Floodplain. However, there will be no net fill in the floodplain and no new impervious construction in the floodplain. Therefore, there will be no change in the base flood elevation, meeting the requirements of a no-rise certification. The applicant meets Commission floodplain requirements.

Several public meetings have been conducted for the project, beginning in November 2017 and most recently in February 2019. The applicant meets Commission public notice requirements.

An Operations & Maintenance (O&M) plan was provided.

Motion by Chesney, second by Vlasin to advise the City of Brooklyn Park that project review WM2019-009 is approved with no conditions. *Motion carried unanimously.*

VII. Watershed Management Plan. (see item IV, beginning on page 2)

VIII. Water Quality.

A. Partnership Cost Share Application.* The City of Crystal has received a Partnership Cost Share Application for improvements at the Twin Lake North Condominiums adjacent to Wetland 639W. A parking lot on site is partly within the floodplain and when Twin Creek and Upper Twin Lake are high, it can become inundated with water. (This project, Project Review SC2019-006, was approved by the Commission earlier in the meeting.)

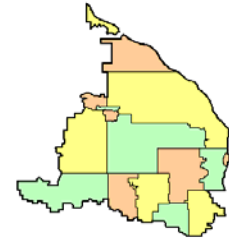
The proposed Parking Lot Relocation Project will move the existing parking lot out of the floodplain and restore the area with a diverse native plant community. The project is also reducing the amount of impervious on-site by .39 acres and treating runoff from the relocated parking lot. Currently, runoff from the parking lot drains untreated directly into Twin Creek.

The request is for \$43,510 to fund the proposed rain garden and TDA (tire-derived aggregate) Infiltration System, including rain garden plantings and native buffer to restore an area that once was a parking lot to a high quality water filtration system and pollinator habitat along Twin Creek. A 100-year event of 7.33 inches will be infiltrated on site.

Landscape architect Stephen Mastey was present to answer questions at the TAC meeting held earlier today. TAC members expressed concern that the outflow be monitored and that a water quality sampling plan be made a requirement of the grant.

The TAC approved the requested amount of \$43,510 subject to determination of the need for a water quality sampling plan and finalization of an Operations and Maintenance agreement meeting TAC approval. The Partnership Cost Share account currently has an unencumbered balance of just over \$100,000.

Motion by Sicora, second by Wills to approve this project subject to the same caveat. *Motion carried unanimously.*



B. The next **Technical Advisory Committee (TAC) meeting** is tentatively scheduled for 11:30 a.m., Thursday, November 14, 2019, prior to the regular meetings.

C. **Minutes*** of the September 12, 2019 TAC meeting are included in the meeting packet for information.

IX. Education and Public Outreach.* The West Metro Water Alliance (**WMWA**) met on Tuesday, October 8, 2019. Discussion centered around the following:

A. Watershed PREP and Education and Outreach Events. Educators are out in the schools providing their lessons. A reminder that the educators are available to table at city and school events, contact Amy Juntunen at amy@jass.biz. The educators are still researching options to make a short, 3-5 minute 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.

B. Website. The group will be reviewing the WMWA website to refresh and update content. Any input is appreciated. westmetrowateralliance.org/

C. Special Projects. At their meetings last month the member Commissions approved allocating the 2019 and 2020 Special Projects funding to a new contract coordinator position. The SCWM Commissions' attorney has drafted a professional services agreement between the Shingle Creek WMC acting as fiscal agent for WMWA and the coordinator, Catherine Cesnik. Approval will be recommended at the November meeting.

The WMWA steering committee members requested that Cesnik's initial focus be on contacting all the cities in the four watersheds to understand their education and outreach needs and gaps and how WMWA could be of assistance. These results will be used to update the WMWA Education and Outreach Plan (last updated in 2013) and establish a work plan for 2020.

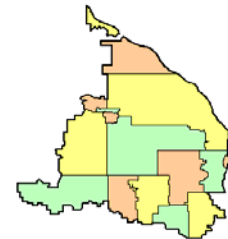
D. The steering committee also discussed the still-being-developed **Lawns to Legumes Program** bwsr.state.mn.us/lawns-legumes-program-your-yard-can-bee-change. BWSR received a \$900,000+ grant from the Environment and Natural Resources Trust Fund and plans to offer several subprograms, including grants to watersheds/cities/nonprofits for "demonstration neighborhoods;" how-to workshops across the state; and small grants to individual property owners. Funding will also be used to research and create technical resources. It was noted that this funding is exclusively about native plantings for habitat rather than for ancillary water quality/quantity benefits.

E. Members also discussed declining attendance at the **rain garden/resilient yards workshops** co-sponsored by WMWA and some of the cities in the watersheds, and whether a saturation point has been reached with residential rain gardens. Only about 100 people in the four watersheds attended the workshops in 2019, and follow up surveys by Metro Blooms suggest that only about 20-25% of attendees ended up implementing practices. The steering committee agreed to continue to discuss whether there was an opportunity to combine potential Lawns to Legumes workshops/grants with an additional focus on the concept of planting for clean water and resiliency.

F. The next **WMWA meeting** will be Tuesday, November 12, 2019 at Plymouth City Hall.

X. Grant Opportunities and Updates.

A. Twin Lake Carp Management Project.* The Section 319 grant funding the Twin Lake Carp Management Project expired on August 30, and work is now complete. Included in the meeting packet is



the project final report.* This project was intended to reduce the biomass of carp in the Twin and Ryan chain of lakes, limit future recruitment, and manage lake submersed aquatic vegetation (SAV) response to reduce internal phosphorus loads and increase water clarity. Project objectives were:

1. Assess the carp population and estimate current densities;
2. Track seasonal movement and migrations of carp within the chain of lakes;
3. Locate and evaluate carp overwintering, spawning and nursery habitats;
4. Implement controls to reduce recruitment and movement of carp into the system;
5. Reduce carp biomass in the system; and
6. Develop aquatic vegetation management response strategies.

Population estimates confirmed a large abundance of common carp and densities above critical impairment thresholds within the system. Radio telemetry tracking demonstrated high mobility of the carp populations among the lakes suggesting that carp are able to move easily among the lakes and into/out of the system during seasonal high water levels. Tracking also located over wintering habitats and aided in identifying potential spawning and nursery habitats.

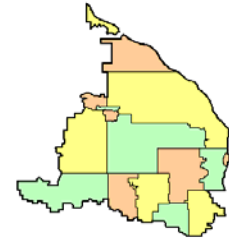
An estimated 14,450 pounds of carp were removed from the system, or about 44% of the overall removal goal, and about 15,000 pounds of black bullhead, another bottom-feeding fish. Permanent carp barriers were installed in two locations to prevent the fish from moving upstream from Shingle Creek into the lake system, and to prevent access to a nursery location in a wetland connected to Upper Twin Lake via a road culvert. Curly-leaf pondweed was treated in year one; year two density did not warrant treatment.

Water quality monitoring has not yet identified any significant improvement in water quality or clarity. However, shallow lakes such as Upper Twin typically exist in one of two conditions: a clear-water state and a turbid water state. These lakes can “flip” rapidly between these states when certain tipping points are achieved. As carp continue to be removed, that tipping point eventually will be met and the lake should flip to a clear water condition.

The table below shows the final project cost and the funding sources. Note that the final cost and match is not the same as what was reported in the final project report because some additional expenses occurred after August 30. The original amount granted was \$100,000, of which \$99,992.26 was

Total project cost	\$218,016.84
Total grant expenses	\$99,992.26
Total match (levy) expenses*	\$118,024.58
Total levy received	\$125,184.32
Total levy remaining*	\$7,159.74
Recommended retention*	\$7,159.74
Release to closed projects account	\$ 0
Reallocation from closed projects account*	\$6,051.95
Total available for future carp management*	\$13,211.69

*The final amount is pending audit.



expended and reimbursed (final reimbursement is pending). The Commission received levy funds of \$125,184.32, of which \$118,024.58 was expended (the final accounting is pending audit). There is an approximate balance of \$7,159.74.

Staff recommends retaining the full amount in the project account to fund ongoing carp removals and SAV maintenance. Staff also recommends that the Commission reallocate the approximate \$6,051.95 returned to the Closed Projects Account from the Biochar project to the carp management project to continue to fund these efforts.

Motion by Johnson, second by Wills to accept the report and authorize retaining the balance of levy funds in the project account and reallocate the unaudited balance from the Biochar project (approximately \$6,051.95) in the Closed Projects Account to this project per Staff's recommendation. *Motion carried unanimously.*

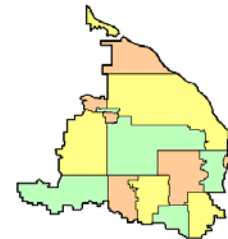
B. Biochar-Enhanced Sand Filters Project.* The Section 319 grant funding the Shingle Creek Biochar/Iron Enhanced Sand Filters Project expired on August 30, and work is now complete. The filter box at Webber Park Falls and the inserts from the catch basins in New Hope and Robbinsdale have been removed as has the monitoring instrumentation. The pond filter benches will remain in place.

Included in the meeting packet is the project final report. In summary, Staff found that the creek diversion filter box reduced *E. coli* concentration by an average 90%, the stormwater pond filter benches averaged 73% reduction, and the catch basin skimmer box filters averaged 81%. The filter box very reliably reduced TP concentrations, averaging 79% reduction. The pond filters were less reliable and lower efficiency (Champlin 40% and Crystal 61%), with some samples showing an increase in TP concentration in filtered outflow. There did not appear to be any pattern that might explain why these occasional increases were seen. At both catch basin sites, TP actually increased in filtered outflow in all samples but one.

Similar to TP performance, the filter box significantly reduced OP (dissolved P) by an average 83%. The pond filter benches performed slightly better than the TP results. The Crystal site averaged 77% OP reduction while the Champlin site averaged 52%. The Champlin site was frequently inundated for long periods of time. Previous research and observation have shown that iron-enhanced filters are better at capturing OP in stormwater when they are allowed to dry out between rain events. Similar to their TP performance, the catch basin filters very rarely reduced OP, and for most samples actually showed increased OP in filtered stormwater.

Staff also took samples of the pond filter media and had them tested for phosphorus sorption capacity. The Minneapolis Olson Pond media, which were never inundated, showed 0.27% saturation. The Crystal filter media showed 1.1% saturation and the Champlin pond 14.4% saturation. These results confirm that the iron-enhanced sand sorbs (binds) phosphorus over time, and the more the media is inundated with stormwater, the more phosphorus it sorbs. The results also suggest that these filters have a lot of binding capacity remaining—even the Champlin filter media, which has been inundated continuously, is only 14.4% saturated with phosphorus, meaning 85% of its phosphorus-binding sites remain.

The study results show that biochar has a very promising potential in removing *E. coli* from stormwater. The modification to the Minnesota iron-enhanced sand filter design not only reduced *E. coli* concentrations but also provided additional benefit in the form of phosphorus removal. However, the mechanism of *E. coli* removal by biochar is still unclear and the longevity of iron- and biochar-enhanced



sand filters in the field must still be determined. While the filters have been in place only a few years, Staff have not yet observed any significant reduction in effectiveness. They have also not observed any breakdown of the biochar during the winter-spring freeze-thaw cycles. These knowledge gaps should be investigated now that this study has determined the potential of biochar- and iron-enhanced sand filters in removing *E. coli* and phosphorus from stormwater.

All three types of field designs tested can be useful in different scenarios. A particularly useful application would be installing such filters to treat concentrated flow from a site with high bacterial contamination potential, such as runoff from a dog park, a location with excessive populations of waterfowl such as Canada geese, or a storm sewer outfall near a swimming beach.

The table below shows the final project cost and the funding sources. Again, the final cost and match is not the same as what was reported in the final project report because some additional expenses occurred after August 30. The original amount granted was \$199,375, of which \$197,160.28 was expended and reimbursed (final reimbursement is pending). The two Commissions received a total levy of \$296,252.91, of which \$285,200.95 was expended (the final accounting is pending audit). There is an approximate balance of \$11,051.96. Staff recommends retaining \$5,000 of that in the project account for any maintenance or other issues that come up with the pond filters, and designating the balance to be returned to the Closed Projects Account to be available for other projects.

Total project cost	\$482,361.23
Total grant expenses	\$197,160.28
Total match (levy) expenses*	\$285,200.95
Total levy received	\$296,252.91
Total levy remaining*	\$11,051.96
Recommended retention*	\$5,000.00
Release to closed projects account*	\$ 6,051.96

*The final amount is pending audit.

Motion by Sicora, second by Jaeger to accept the report and authorize retaining \$5,000 of levy funds in the project account and return of the unaudited balance (approximately \$6,051.95) to the Closed Projects Account. *Motion carried unanimously.*

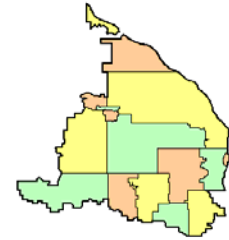
Motion by Johnson, second by Chesney to accept the report and authorize allocation of the remaining funds per above motion. *Motion carried unanimously.*

C. Included in the meeting packet was a flyer* describing the **Hennepin County Natural Resources Grants**. The **Good Steward** and **Opportunity** grants were defined.

D. **Clean Water Fund Grants.*** Staff's October 5, 2019 cover memo described the two CWF grant applications* submitted on behalf of the Commission.

1. The estimated cost of the **Meadow Lake Management Plan** is \$190,000. The grant request is \$152,000 and the Commission's share is \$38,000. The project is on the 2020 CIP for levy certification next year.

2. **Shingle Creek Connections II.** The estimated cost of this stream restoration project



is \$410,000. The grant request is for \$328,000 and the Commission's share is \$82,000. The project is also on the 2020 CIP for levy certification next year.

Anticipated date when the BWSR Board will authorize the grant awards is January 22, 2020.

3. Connections II Project Accounting.* Earlier this year Staff worked with the cities of Brooklyn Park and Brooklyn Center to conceptualize and prepare 30% plans and a cost estimate for the Shingle Creek Connections II project. The feasibility study and findings were used to prepare a Clean Water Fund grant application that was submitted to BWSR last month. This is similar to what was done for the Meadow Lake Feasibility Study. The Meadow Lake work was funded from the Closed Projects Account. That was not the case for the Connections II work, which was funded from the General Engineering budget.

Staff recommend that the Commission establish a project called the Connections II Feasibility Report project, funded from the Closed Projects Account. They further recommend that the Commission authorize the reallocation of \$9,392.44 of expense charged to General Engineering to that project. In 2020, when the project is ordered, the expense of the feasibility report will be included in the overall project cost, and will be included in the levy certified for the overall project, thus "reimbursing" the Closed Projects Account for this cost. As of 12/31/18, the Closed Projects Account had a balance of just under \$80,000. \$5,000 of that was expended on the preparation of the Meadow Lake Feasibility Study.

Motion by Jaeger, second by Wills to authorize the creation of a Connections II Feasibility Study project to be funded by the Closed Project Account, and authorize the reallocation of \$9,392.44 expended from the General Engineering budget line item to the new Feasibility Study project.
Motion carried unanimously.

XI. Communications.

October Communications Log.* No items required action.

XII. Other Business.

The terms of representatives from Champlin and Minneapolis expired January 31, 2019. Staff have not received updated appointments as of this date. The Commissioner position from the City of Minneapolis has become vacant and a new representatives must be appointed by that city.

XIII. Adjournment. There being no further business before the Commissions, the joint meeting was adjourned at 1:55 p.m.

Respectfully submitted,

A handwritten signature in black ink that reads "Judie A. Anderson". The signature is written in a cursive style.

Judie A. Anderson
Recording Secretary
JAA:tim