Shingle Creek Watershed Management Commission
West Mississippi Watershed Management Commission

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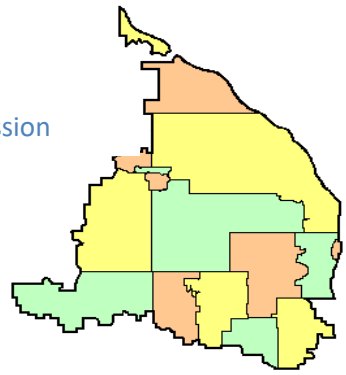


MINUTES
Regular and Public Meetings
August 8, 2019

(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 Shingle Creek Chairman Andy Polzin at 12:47 p.m. on Thursday, August 8, 2019, at Edinburgh, USA, 8700 Edinbrook Crossing, Brooklyn Park, MN.

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

Not represented: Minneapolis and New Hope.

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: Mitch Robinson and Alex Prasch, Brooklyn Park; Todd Tuominen, Champlin; Randy Bergstrom and Mark Ray, Crystal; Derek Asche, Maple Grove; Megan Hedstrom and Jodi Taitt, New Hope; Ben Scharenbroich, Amy Riegel, and Alex Larson, Plymouth; and Richard McCoy and Marta Roser, Robbinsdale.

II. Agendas and Minutes.

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

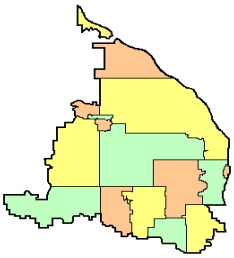
Motion by Butcher, second by Chesney to approve the **West Mississippi agenda.*** *Motion carried unanimously.*

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

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

III. Finances and Reports.

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



Motion by Orred, second by Chesney to approve the **Shingle Creek August claims.*** Claims totaling $485,962.81 were *approved by roll call vote:* ayes – Vlasin, Chesney, Orred, Jaeger, Johnson, Polzin, and Sicora; nays – none; absent – Minneapolis and New Hope.

B. Motion by Butcher, second by Jaeger to approve the **West Mississippi August Treasurer's Report.*** *Motion carried unanimously*.

Motion by Johnson, second by Jaeger to approve the **West Mississippi August claims.*** Claims totaling $16,319.85 were *approved by roll call vote:* ayes – Vlasin, Chesney, Butcher, Jaeger, and Johnson; nays – none.

[The regular meeting was suspended at 12:51 p.m. in order to conduct a public meeting.]

IV. Public Meeting. The Shingle Creek and West Mississippi Third Generation Watershed Management Plan and Capital Improvement Programs (CIP) are proposed for a Minor Plan Amendment (MPA).* The Plan would be revised to adopt the CIP cost sharing policy to include funding nonstructural Best Management Practices.

The Commissions initiated an MPA on July 11, 2019. Notice* was 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 a public meeting. After that discussion, each Commission may 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 **Cost Share Policy for Capital Improvements*** is a new document, but much of the proposed policy is already in place in memos and guidance documents. This is the first time those operating policies have been gathered into a formal policy. What is new is most of the second paragraph under Capital Improvements which deals with the eligibility of structural and nonstructural activities, and the effectiveness of monitoring requirements in the guidelines section. The proposed Minor Plan amendment would modify the plan to state that the Commissions will implement the CIP using the Cost Share Policy.

The revision also specifies that the 2022 generic Lake Internal Load project on the CIP will be the Meadow Lake Management Plan and reschedules it to 2020.

A. Open public meeting. The public meeting was opened at 1:01 p.m.

1. The proposed minor plan amendment is included in the notice. BWSR has responded that they have no comments and Hennepin County has reviewed and approved the proposed amendment.

2. No comments on the proposed amendment were received from either the member cities or the public. No one was present from the general public.

3. The public meeting was closed at 1:02 p.m.

B. Commission Discussion.

C. Recommended Commission Action.

The Commissions should each adopt the Cost Share Policy and respective resolution adopting the proposed amendment.

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Motion by Orred, second by Jaeger to adopt the Cost Share Policy. *Motion carried unanimously, Vlasin voting nay.*

Motion by Chesney, second by Jaeger to adopt the Cost Share policy. *Motion carried unanimously, Vlasin voting nay.*

Motion by Chesney, second by Sicora to adopt **Resolution 2019-02** Adopting a Minor Plan Amendment Revising the Cost Share Policy and the Capital Improvement Program.* *Motion carried unanimously.*

Motion by Johnson, second by Chesney to adopt **Resolution 2019-02** Adopting a Minor Plan Amendment Revising the Cost Share Policy and the Capital Improvement Program.* *Motion carried unanimously.*

[The regular meeting was reconvened at 1:03 p.m.]

V. Open Forum.

Scharenbroich introduced Amy Riegel. She will be working as a Senior Engineering Technician for the City of Plymouth.

VI. Project Review.

SC2019-010 Local Union 292 Corp. Office, 6700 West Broadway Avenue, Brooklyn Park. Construction of an office building with associated parking, storm sewer system, infiltration basin, and utilities on 4.35 acres. Following development, the site will be 72% impervious with 3.12 acres of impervious surface, an increase of ~3.12 acres. A complete project review application was received June 17, 2019.

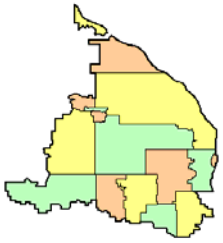
To comply with the Commission's water quality treatment requirement, the site must provide ponding designed to NURP standards with dead storage volume equal to or greater than the volume of runoff from a 2.5" storm event, or BMPs providing a similar level of treatment - 85% TSS removal and 60% TP removal. 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 an infiltration basin on the east side of the property that has the capacity to infiltrate 1.3 inches of rainfall off new impervious surface (13,252 CF). 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. The site does not discharge under existing conditions, even during a 100-year back-to-back rainfall event. Therefore, the site was designed to have a landlocked infiltration basin that also does not discharge during a 100-year back-to-back rainfall event. 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 2.8 acres, requiring infiltration of 13,352 CF within 48 hours. The applicant proposes to route runoff to an infiltration basin that has the capacity to infiltrate the required volume within 48 hours. The applicant meets Commission volume control requirements.

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



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

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

A public hearing on the project was conducted on June 19, 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 Brooklyn Park was provided.

Motion by Chesney, second by Vlasin to advise the City of Brooklyn Park that Project 2019-010 is approved with the following conditions:

1. Provide a completed O&M agreement between the applicant and the City of Brooklyn Park for all stormwater facilities on the project site. (A draft agreement was provided with this application.)

2. Demonstrate by double ring infiltrometer or witness test that the site can meet the design infiltration rate of 0.45 inches/hour post construction.

Motion carried unanimously.

VII. Watershed Management Plan -

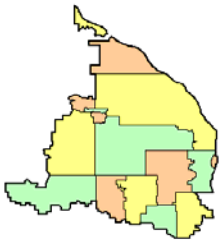
A. Earlier this year the Commissions undertook a Minor Plan Amendment to revise the Capital Improvement Program (CIP) for 2019 to specify that the 2020 lake internal load project would be the Crystal Lake Management Plan. The next step in the CIP process is to receive and discuss feasibility studies for the proposed projects and call for a public hearing on those projects that the Commissions desire to move forward. Feasibility summaries for the proposed capital projects are included in Staff's August 2, 2019 memo.*

B. 2019 CIP Projects.*

Shingle Creek 2019 CIP Projects (2020 levy).

Project	Total Estimated	City/ Private	Grant	Commission Share	Total Levy
Cost share (city projects)	$200,000	$100,000	0	$100,000	$106,050
Crystal Lake Management Plan*	$370,506	$0	0*	$370,506	$392,915
Partnership cost share (private projects)	$100,000	$50,000	0	$50,000	$53,025
Subtotal	**$670,506**	**$150,000**	**$ 0**	**$520,500**	
5% additional for legal/admin costs				**26,025**	
Subtotal				**546,525**	
TOTAL LEVY (101% for uncollectable)				**$551,990**	

*The Commission has preliminarily been awarded a $216,066 Section 319 grant from the MPCA, which is currently being processed for final approval at the EPA.



West Mississippi 2019 CIP Projects (2020 levy).

Project	Total Estimated	City/ Private	Grant	Commission Share	Total Levy
Cost share (city projects)	$100,000	$50,000	0	$50,000	$53,025
Subtotal	**$100,000**	**$50,000**	**$ 0**	**$50,000**	
5% additional for legal/admin costs				**2,500**	
Subtotal				**52,500**	
TOTAL LEVY (101% for uncollectable)				**$53,025**	

C. Crystal Lake Management Plan Feasibility and Cost Estimate.*

The purpose of the proposed Crystal Lake Management Plan Project is to improve the water quality and ecological integrity of Crystal Lake, to restore beneficial uses, and to progress the lake toward achieving the state water quality standard for TP. As the largest lake in the city of Robbinsdale and with significant adjacent park acreage and a public access, it is a popular destination for water recreation and fishing. The proposed project takes a whole-lake management approach.

The first component of the project is a lake alum treatment to seal the sediments and reduce the need and frequency of withdrawing from the hypolimnion. To maximize the effectiveness of the alum treatment, it would be performed in two doses. Initial sediment cores would be used to compute the effective dose, and water column DO measurements would be used to identify the anoxic zone and the limits of alum treatment. One-half the recommended dose would be applied the first year and additional sediment cores taken and evaluated. Based on the initial results, dosing for the second treatment may be adjusted. Following the second treatment, a final set of sediment cores would be used to confirm the effectiveness of the treatment at reducing the sediment release rate. *Costs*: Grant – $161,984; Commission - $100,200; Total - $262,184.

The second component is carp harvesting to reduce the population to a level well below the impairment threshold. An initial carp assessment was completed in September 2018 and concluded that the carp biomass was just above the critical impairment threshold. The relatively small size of the carp suggests that carp issues in the lake are likely to worsen as the carp grow and reproduce. Prior to the alum treatment, the carp population assessment would be repeated and RTF tags placed in a sample of the fish for radio-tracking to determine their overwintering locations. Based on an initial carp assessment, approximately 3,500-4,000 kg of carp will need to be removed from the lake to reduce the population density below the 100 kg/ha density threshold. The Commission will work with a commercial fisherman to harvest carp and other undesirable rough fish. *Costs*: Grant – $24,214; Commission - $28,000; Total - $52,214.

Submersed Aquatic Vegetation (SAV) Management. Following alum treatment and carp removal, the project objective is to restore a healthy native aquatic vegetation community by treating invasive plants as water quality improves and take any necessary management steps to keep the lake healthy and native. Previously completed aquatic vegetation surveys showed an extreme lack of

submersed aquatic vegetation, with few native pondweed species common in healthy shallow and deep lakes throughout Minnesota. *Costs*: Grant – $19,740; Commission - $26,240; Total - $45,980.

Semiannual reports will be completed and submitted to MPCA during the Grant term. A final report will be submitted to MPCA within 30 days from the end of the Grant. The final report will set forth dosing calculations and document treatment applied; detail monitoring data collected pre- and post-project; provide results of the before and after population carp assessment, record biomass removed from the lake; and document SAV treatment. Best Management Practices will be reported each year they are implemented to the Statewide eLINK data system. Invoices will be submitted to MPCA at least quarterly. Methods and findings will be compiled into a final technical report that will be submitted as part of the Final Report for this grant. *Costs*: Grant – $10,128; Commission - $0; Total - $10,218.

Total Project Costs: Grant – $216,066; Commission - $154,440; Total - $380,506.

As water clarity improves post alum treatment and carp removal, a positive vegetative response would be anticipated. Exactly what that would look like is unknown at this time. A desirable outcome would be one in which a diverse community of native vegetation becomes established, out-competing aquatic invasive species (AIS) but remaining below nuisance levels. However, because AIS have been observed in the lake during plant surveys and anecdotal evidence suggests these species used to be at nuisance levels along the northwest shore, the possibility exists that AIS may try to reestablish, requiring active management. The Commission will monitor submersed aquatic vegetation for invasive aquatic plants and manage those by using spot treatments.

D. Motion by Vlasin, second by Sicora to receive the Staff Report and call for a public hearing on the proposed projects for September 12, 2019, during the regular meeting of the Commission. *Motion carried unanimously.*

Motion by Chesney, second by Butcher to call for a public hearing on the proposed project for September 12, 2019, during the regular meeting of the Commission. *Motion carried unanimously.*

VIII. Water Quality.

A. Verification and Certification of Stormwater MTDs.* Included in the meeting packet was a copy of a letter from the Bassett Creek Watershed Management Commission (BCWMC) dated July 26, 2019, addressed to Mike Trojan, Minnesota Pollution Control Agency (MPCA). The letter, to which the signatures from the Administrators from BCWMC, Nine Mile Creek WD, Ramsey-Washington Metro WD, and Riley Purgatory Bluff Creek WD and the Chairs of the Shingle Creek and West Mississippi WMOs were affixed, requests the MPCA to (1) cooperate with and support the implementation of the Water Environment Federation's (WEF) Stormwater Testing and Evaluation of Products and Practices (STEPP) verification program or (2) develop its own statewide program for evaluating and certifying stormwater MTDs, and, in either scenario, include verified/certified MTDs in the Minnesota Stormwater Manual if appropriate.

Motion by Sicora, second by Vlasin to ratify Chairman Polzin's signature to this letter. *Motion carried unanimously.*

Motion by Butcher, second by Johnson to ratify Chairman Butcher's signature to this letter. *Motion carried unanimously.*

B. The next **Technical Advisory Committee (TAC) meeting** is tentatively scheduled for 8:30 a.m., Thursday, August 22, 2019, at Crystal City Hall. The July 25, 2019 TAC meeting minutes* are included in the meeting packet for informational purposes.

IX. Education and Public Outreach.*

A. The Freshwater Society is seeking sponsorship for its upcoming **19th Annual Road Salt Symposium,*** Thursday, October 24, 2019, in Vadnais Heights. This is the second symposium to be held in 2019 after a decision was made to move the event from winter to fall. The Commissions each sponsored the February 7, 2019 symposium with $500. It was agreed by consensus not to sponsor the October symposium.

B. The **next WMWA meeting** is scheduled for 8:30 a.m., Tuesday, August 13, 2019, at Plymouth City Hall.

X. Grant Opportunities and Updates.

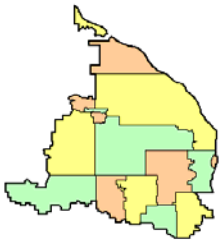
A. Meadow Lake Management Plan Feasibility and Cost Estimate. (Staff memo dated August 7, 2019*) Meadow Lake is a shallow eutrophic lake located in New Hope that discharges through storm sewer to Bass Creek, a tributary of Shingle Creek. In 2002 the Minnesota Pollution Control Agency (MPCA) listed the lake as impaired for excess nutrients. In 2010, Wenck completed a TMDL and Implementation Plan to assess nutrient loading concerns and provide strategies to reduce excess nutrient loading.

In 2019 the Commission completed a TMDL Five-Year Review, summarizing progress to date and updating the nutrient budgets and targets using more recent and complete monitoring data. The updated modeling shows that Meadow Lake requires an 82% reduction in TP, from both watershed and internal loading. An estimated 42 of the of the required 62 pound watershed reduction per year has been achieved through BMPs and street sweeping. Analysis of sediment cores suggests internal loading from sediment is on the high end, exceeding 75 percent of all lakes in the Commission's database.

The 2016 vegetation surveys for Meadow Lake showed low species diversity (four species observed) and a high abundance of curly-leaf pondweed (CLP). Only two fish species were observed during a 2017 assessment and the population was dominated by fathead minnow. In high densities, fathead minnow can have significant water quality impacts by feeding on zooplankton, through secretion, and sediment resuspension. It is highly likely that efforts to eradicate the fish would have positive impacts on water quality and the vegetation community. Water quality is variable but typically exceeds the standards for most of the growing season.

The TMDL 5-Year Review concluded with updated Implementation Plan activities for the coming 5-10 years to reduce both watershed and internal loading to Meadow Lake. Those activities are identified in Staff's memo. Since significant progress has been made in reducing watershed load, it is appropriate at this time to start to manage the internal load. The memo assesses the feasibility of one or more temporary drawdowns to reduce CLP and fathead minnows and restore the biotic integrity of the lake, followed by an aluminum sulfate (alum) treatment to reduce internal phosphorus loading, and the estimated project costs and longevity of the actions.

Data collection in the form of water quality monitoring, aquatic vegetation surveys, fish surveys, and sediment chemistry are described in the memo as are a number of management options,



including chemical treatments such as alum. Alum treatments have progressed significantly in the last decade and scientists and practitioners have found that they are more effective and successful if they are completed in multiple doses over two or more years. Initial, interim, and final sediment cores are taken and release rates measured to confirm and adjust dosing if necessary and to determine when the desired release rate has been achieved.

As proposed, the Meadow Lake Management Plan would be comprised of two phases: Phase 1 would be focused on reestablishing a balanced biology by removing the fathead minnow population and limiting recolonization, reducing curly-leaf pondweed to non-nuisance levels, and restoration of a healthy native aquatic vegetation community through a series of temporary drawdowns. Phase 2 would be focused on reducing phosphorus loading from the sediments. Annual monitoring would be conducted and would guide adaptive management until the desired outcome is achieved.

During Year 1 (spring 2020 to spring 2021, if a grant is awarded) a fall-winter drawdown will be conducted to consolidate sediments, eliminate fathead minnows and prevent recolonization, and reduce curly-leaf pondweed growth.

During Years 2-3-4 (beginning spring 2021) the impact of the drawdown will be evaluated and chemical treatment of curly-leaf pondweed and/or fish done as necessary.

During Years 4-5-6, alum will be applied in two doses one or two years apart. Between the doses sediment cores will be taken to verify second dose application rates.

The estimated costs for each phase of the project are shown in the memo. Total estimated costs are shown below:

Task #	Task	Tot Hrs	Staff Costs	Const. Costs	Lab Costs	Expense	TOTAL Cost
1	Project Coordination	64	$12,360	$0	$0	$0	$12,360
2	Construction						
	Drawdown	40	$8,160	$50,000	$0	$0	$58,160
	SAV Treatment	24	$4,896	$6,000	$0	$500	$11,396
	Alum Treatment	36	$7,560	$70,000	$0	$500	$78,060
	Fish Barriers	12	$2,448	$15,000	$0	$0	$17,448
	Fish Treatment	24	$3,076	$5,000	$0	$500	$8,576
3	Monitoring						
	Water Quality	258	$30,897	$0	$16,740	$6,300	$53,937
	Fish Surveys and Permits	172	$20,806	$0	$0	$1,500	$22,306
	SAV Surveys and Permits	216	$13,500	$0	$0	$5,700	$19,200
	Sediment Coring	76	$8,805	$0	$10,000	$1,500	$20,305
4	Report	66	$8,124	$0	$0	$0	$8,124
5	Meetings	96	$16,688	$0	$0	$0	$16,688
6	Grant Reporting	12	$1,728	$0	$0	$0	$1,728
					Subtotal		**$328,288**
					Contingency 10%		$32,830
					TOTAL		$361,118

The City of New Hope has reduced the watershed load to Meadow Lake through BMPs and enhanced street sweeping. Updated nutrient budgets and TMDL calculations suggest that Meadow Lake requires an estimated 93% internal load reduction. Phase 1 is estimated to reduce TP loading by 20-25 pounds per year, which is the modeled residual load and is approximately one-third the reduction required by the TMDL. More importantly, it is expected that the outcome of Phase 1 will be dramatically reduced chl-a concentrations and improved clarity. In Phase 2, alum treatments have reduced internal load by 90-99% on other Minnesota lakes. Sedimentation scenarios estimate a useful life of 17 years if no additional watershed load reductions are completed, and 59 years if the watershed load reduction targets are met. A 90% reduction in sediment load is 86 pounds.

Assuming the model residual load is reduced 20-25 pounds by the drawdown and fish and CLP control, and the alum treatment successfully reduces sediment loading by the estimated 86 pounds, achieving the updated internal load reduction of 110 pounds P/year is feasible. The cost of undertaking the proposed actions, excluding monitoring and administration is approximately $125,000 for Phase 1 and $120,000 for Phase 2, or about $1,318 per pound TP.

Motion by Orred, second by Chesney directing Staff to proceed with a BWSR Clean Water Fund Competitive Grant application for this project. *Motion carried unanimously.* The application is due September 9, 2019, and will be prepared using Closed Project funds. Included in the meeting packet was a preliminary draft of the proposed CWF grant application.*

B. Shingle Creek Restoration – Regent/73rd Avenue to Brooklyn Boulevard. (Staff memo dated August 2, 2019*) Restoration of this reach of Shingle Creek is on the Commission's CIP for 2020. This is the segment between the restoration project done in conjunction with the Village Creek North development and the more recent Connections project on the east side of Brooklyn Boulevard and is the last significant non-wetland reach of Shingle Creek to be completed outside of the MPRB segments in Minneapolis.

Shingle Creek is an impaired water for excess chloride and *E. coli*, low DO, and biotic integrity (macroinvertebrates). The primary aquatic life stressors are altered habitat, altered flow, low DO, loss of connectedness, and chloride. Contributors to the low DO impairment include the over-widened, flat-bottomed channel that reduces natural reaeration and results in excess sediment oxygen demand. The origin of that sediment oxygen demand is the sediment and nutrients transported to the stream from the watershed and from erosion of the streambanks. These restoration projects are identified in the TMDL Implementation Plan, and focus on stabilizing streambanks, adding some roughness and aeration to the streambed, enhancing habitat, and adding or enhancing native buffers in the stream corridor.

In consultation with the cities of Brooklyn Center and Brooklyn Park, Staff have developed 30% conceptual plans for the restoration of this segment. They anticipate that the nature of the work will be very similar to the other reaches that have been completed; however, there are some segments of the reach that are experiencing severe erosion that will require more stabilization.

Staff have prepared a report for the cities setting forth conditions and conceptual plans. Three concepts were considered, including lining the stream with boulder toe; using native vegetation to restore and stabilize the streambanks; and using some riprap and root wads to slightly re-meander the stream within its existing valley. Because these improvements address impairments to the stream, this

project would fall under the Commissions' revised cost share policy whereby the Commission would fund the cost of Load Allocation reduction projects 100%. This project is currently on the CIP in 2020 for $400,000. The estimated project cost of the estimated 1,730 LF of stream at the 30% design level, including a 15% contingency, is about $360,000. When design and monitoring are added Staff estimate a total project cost of $400,000.

Since the proposed project would address the DO and biotic impairments, Staff recommend that a Clean Water Fund grant application be submitted for this project. With a project cost of $400,000, the grant request would be $320,000 and the Commission's match would be $80,000.

Motion by Jaeger, second by Chesney to approve Staff's recommendation. *Motion carried unanimously.*

C. Ryan Lake Creek Assessment and Hydrologic and Hydraulic Monitoring. (Staff draft memo dated July 22, 2019*) Staff's memo summarizes the stream assessment and hydraulic modeling of Ryan Lake Creek from its outlet at Lower Twin Lake in the City of Robbinsdale to its outfall at Shingle Creek in Minneapolis. The stream assessment was completed through a survey and walkdown of the channel system. The hydrologic and hydraulic modeling was completed with PC-SWMM using a combination of existing hydrology, existing storm sewer inputs from the City of Minneapolis, and survey data from the stream assessment to model the open channel hydraulics.

To assess Ryan Lake Creek, Wenck surveyed the creek bottom, cross-sections, and hydraulic structure invert. The creek was surveyed from its outlet at Lower Twin Lake to where the creek enters the City of Minneapolis storm sewer near the intersection of 49th and Sheridan Avenues. To assess the condition of the storm sewer along 49th Avenue, the City of Minneapolis provided sewer televising data. Wenck also surveyed and assessed the outfall of Ryan Lake Creek at its confluence with Shingle Creek. Ryan Lake Creek is approximately 8,800 LF feet from Lower Twin Lake to the confluence with Shingle Creek with approximately the last 3,400 LF traveling through storm sewer under 49th Avenue. The creek was split into 16 reaches at hydraulic breaks (road crossings) or where channel geometry changed. Each reach and its condition are summarized in Staff's memo.

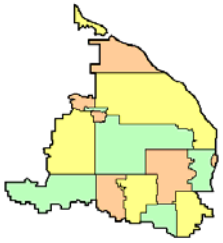
Although no areas of washout or excessive erosion were seen during the field investigation, the following reaches and areas were highlighted as being degraded or restricting flow:

1. Reach 1: At the outlet of Lower Twin Lake, excessive cattail growth that may restrict flow. However, the hydraulic restriction in this section is currently the downstream weir at France Avenue (Reach 3).

2. Reach 4-5: The channel through these reaches is not well-defined and has some excessive cattail build-up due to excessive inundation, likely due to the lack of hydraulic grade between France Avenue and Ryan Lake and the hydraulic restrictions in Reaches 6-8, directly upstream of Ryan Lake.

3. Reach 6: A downed tree and fallen limbs and branches in Reach 6 restrict flow and create excessive inundation in reaches 4-5.

4. Reach 7: Backyard debris and a chain link fence in this reach restrict flow to Ryan Lake.



5. Reach 8: Downed trees, limbs, and various debris restrict flow in this reach where the channel is not well-defined.

6. Reach 9: The outlet of Ryan Lake has some excessive cattail growth between the open water and the 54-inch RCP outlet. There is also a chain link fence with a floating silt curtain that is restricting flow.

The flow restrictions and channel conditions outlined above, except for the floating silt curtain, were included in an existing conditions hydrologic and hydraulic model. The channel widening, restrictions, and excessive vegetation were incorporated into the model with surveyed cross-sections and increased Manning's roughness values.

A summary of the existing conditions model and a discussion of the modeling results and recommended next steps, including developing an O&M Pumping plan for Crystal Lake that addresses pumping during Ryan Lake high water level conditions and channel clean-out, are outlined in the memo.

Motion by Vlasin, second by Sicora directing Staff to work with the affected cities to develop a BWSR Clean Water Fund Competitive Grant application for this project. *Motion carried unanimously*.

[Butcher departed 1:54 p.m.; Johnson departed 2:11p.m.]

XI. Communications.

July 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 Brooklyn Park has become vacant and a new representative must be appointed by that city.

XIII. Adjournment. There being no further business before the Commissions, the joint meeting was adjourned at 2:16 p.m.

Respectfully submitted,

Judie A. Anderson
Recording Secretary
JAA:tim

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