



Bassett Creek Watershed Management Commission

Regular Meeting
Thursday September 20, 2018
8:30 – 11:00 a.m.

Council Conference Room, Golden Valley City Hall, Golden Valley, MN

AGENDA

1. CALL TO ORDER and ROLL CALL

- 2. CITIZEN FORUM ON NON-AGENDA ITEMS** - *Citizens may address the Commission about any item not contained on the regular agenda. A maximum of 15 minutes is allowed for the Forum. If the full 15 minutes are not needed for the Forum, the Commission will continue with the agenda. The Commission will take no official action on items discussed at the Forum, with the exception of referral to staff or a Commissions Committee for a recommendation to be brought back to the Commission for discussion/action.*

3. APPROVAL OF AGENDA

4. CONSENT AGENDA

- A. Approval of Minutes – August 16, 2018 Commission Meeting
- B. Acceptance of September 2018 Financial Report
- C. Approval of Payment of Invoices
 - i. Keystone Waters, LLC – August 2018 Administrative Services
 - ii. Keystone Waters, LLC – August 2018 Printing Expenses
 - iii. Barr Engineering – August 2018 Engineering Services
 - iv. Triple D Espresso – August 2018 Meeting Refreshments
 - v. Wenck – August 2018 WOMP Monitoring
 - vi. Lawn Chair Gardener – August 2018 Administrative and Education Services
 - vii. Kennedy Graven – July 2018 Legal Services
 - viii. Finance and Commerce – Public Hearing Notice
 - ix. HDR – Website Hosting and Assistance
- D. Approval of Blue Line Light Rail Transit Floodplain Mitigation Project
- E. Approval to Reimburse Commissioner Scanlan for Conference Registrations
- F. Approval to Send Administrator Jester to Water Resources Conference
- G. Approval of Grant Agreement for BWSR's Watershed Based Funding Grant Program

5. BUSINESS

- A. Review Draft Feasibility Study for Crane Lake Improvement Project via Ridgedale Drive (CL-3) (30 minutes)
- B. Consider Approval of Additional Carp Survey Work in Schaper Pond (20 minutes)
- C. Review Results of Comparative Analysis of Linear Projects: Water Quality Treatment Outcomes (30 minutes)
- D. Consider Approval of Resolution Approving Golden Valley Surface Water Management Plan (15 minutes)
- E. Consider Approval of Northwood Lake Improvement Project (NL-1) Final Report (15 minutes)

6. COMMUNICATIONS (15 minutes)

- A. Administrator's Report
 - i. Smart Salt Certification Course
 - ii. Workshop for Lake Groups: Options for Organizing
 - iii. Hennepin County Chloride Consortium
 - iv. Metro Blooms Event: Mapping Resilient Cities
 - v. [Three Rivers Park District Survey](#)
 - vi. Reminder of WEDNESDAY November 14th Commission Meeting
- B. Chair
- C. Commissioners
 - i. Report on Golden Valley Arts & Music Festival
 - ii. Certificate of Appreciation for Derek Asche
- D. TAC Members
- E. Committees
 - i. Education Committee
- F. Legal Counsel
- G. Engineer
 - i. Tunnel Inspection Update

7. INFORMATION ONLY (Information online only)

- A. Administrative Calendar
- B. CIP Project Updates <http://www.bassettcreekwmo.org/projects>
- C. Grant Tracking Summary and Spreadsheet
- D. Sun Sailor Article: AMLAC Requests Plymouth Boat Ramp Closure to Reduce AIS Spreading
- E. Sun Sailor BCWMC Column: Water Cycle Leak – Solution in Education
- F. [Zebra Mussel Educational Video Produced by Commission](#)
- G. WCA Notices of Decision, Plymouth
- H. WCA Notice of Decision, Winnetka Pond Dredging Project

8. ADJOURNMENT

Upcoming Meetings & Events

- Smart Salt Certification Training: September 26th, 8:30 a.m. – 1:30 p.m., Crystal Community Center
- Bassett Creek Watershed Management Commission Meeting: October 18th, 8:30 a.m., Golden Valley City Hall



Bassett Creek Watershed Management Commission

AGENDA MEMO

Date: September 12, 2018

To: BCWMC Commissioners

From: Laura Jester, Administrator

RE: Background Information for 9/20/18 BCWMC Meeting

1. **CALL TO ORDER and ROLL CALL**
2. **CITIZEN FORUM ON NON-AGENDA ITEMS**
3. **APPROVAL OF AGENDA – ACTION ITEM with attachment**
4. **CONSENT AGENDA**
 - A. Approval of Minutes – August 16, 2018 Commission Meeting- **ACTION ITEM with attachment**
 - B. Acceptance of September 2018 Financial Report - **ACTION ITEM with attachment**
 - C. Approval of Payment of Invoices - **ACTION ITEM with attachments (online)** – *I reviewed the following invoices and recommend approval of payment.*
 - i. Keystone Waters, LLC – August 2018 Administrative Services
 - ii. Keystone Waters, LLC – August 2018 Printing Expenses
 - iii. Barr Engineering – August 2018 Engineering Services
 - iv. Triple D Espresso – August 2018 Meeting Refreshments
 - v. Wenck – August 2018 WOMP Monitoring
 - vi. Lawn Chair Gardener – August 2018 Administrative and Education Services
 - vii. Kennedy Graven – July 2018 Legal Services
 - viii. Finance and Commerce – Public Hearing Notice
 - ix. HDR – Website Hosting and Assistance
 - D. Approval of Blue Line Light Rail Transit Floodplain Mitigation Project – **ACTION ITEM with attachment** – *This project is proposed as the first phase of early construction components in preparation for the overall METRO Blue Line Light Rail Transit (LRT) extension project. The proposed force main relocation & floodplain mitigation project is located in the Bassett Creek Main Stem subwatershed and includes the relocation of an existing MCES force main and excavation to create compensatory floodplain storage for future floodplain fill, which is proposed as part of the overall METRO Blue Line LRT extension project. The proposed project results in 3.91 acres of disturbance (grading) and results in 0.48 acres of reconstructed impervious surfaces. Staff recommends conditional approval as outlined in the memo.*
 - E. Approval to Reimburse Commissioner Scanlan for Conference Registrations – **ACTION ITEM with attachment** – *At the meeting in March the Commission approved the 2018 Education work plan and budget including funding for Commission training and conference registrations. Commissioner Scanlan is requesting reimbursement of \$250 for “early bird” registration to the Water Resources Conference and \$44.28 for the AIS Research and Management Showcase. Staff recommends approval.*
 - F. Approval to Send Administrator Jester to Water Resources Conference – **ACTION ITEM no attachment** – *The Commission Engineer and I are scheduled to present “A Watershed’s Role in AIS: From Committee Concepts to Rapid Response” at the [Water Resources Conference](#) on October 17th. (Abstract is attached in online meeting packet.) I am requesting \$175 for one day “early bird” registration and attendance for up to 8 hours.*

- G. Approval of Grant Agreement for BWSR's Watershed Based Funding Grant Program – ACTION ITEM with attachment – *The BCWMC was awarded \$68,573 through the Watershed Based Funding program (Clean Water Funds) from the MN Board of Water and Soil Resources for the DeCola Ponds B & C Improvement Project. Staff recommends approval of the attached grant agreement. I will begin developing a work plan for the project in the coming days.*

5. BUSINESS

- A. Review Draft Feasibility Study for Crane Lake Improvement Project via Ridgedale Drive (CL-3) (30 minutes) – DISCUSSION ITEM with attachments – *In August the Commission formerly adopted a Watershed Plan amendment that [revised the CIP to include in 2020](#) the “Crane Lake Improvement Project via Ridgedale Drive Project.” As I’ve reported before, this project is ahead of the Commission’s normal CIP schedule in order to stay in line with the reconstruction of Ridgedale Drive happening concurrently. The City of Minnetonka’s consultant, WSB Inc., developed feasibility level concepts for stormwater improvement for the Commission’s review and consideration. The Commission Engineer reviewed the draft feasibility study and offers comments in the attached memo. City staff and WSB staff will present the draft feasibility study at this meeting.*
- B. Consider Approval of Additional Carp Survey Work in Schaper Pond (20 minutes) – ACTION ITEM with attachment – *At their meeting in May the Commission approved [additional water monitoring and survey work in Schaper Pond](#) to better understand the pond after construction of the Schaper Pond Diversion Project. A survey of carp in the pond indicates a large and successfully reproducing population that is likely significantly impacting water quality by stirring up bottom sediments. The Commission Engineer recommends a more intensive survey of the carp to determine how and where they are traveling and what management actions might be needed to control their population. Please see the attached memo.*
- C. Review Results of Comparative Analysis of Linear Projects: Water Quality Treatment Outcomes (30 minutes) – DISCUSSION ITEM with attachment – *At the meeting in May 2017 the Commission significantly revised the BCWMC requirements for water quality treatment of linear projects like roads, railways, and trails. At that meeting the Commission also directed staff to further analyze the impacts of the revised requirements and bring information back to the Commission. The Commission Engineers compared the water treatment outcomes for the 11 linear projects reviewed since the change in the requirements with previous and current standards. Please see the attached memo with results.*
- D. Consider Approval of Resolution Approving Golden Valley Surface Water Management Plan (15 minutes) – ACTION ITEM with attachments (surface water management plan and response to comments document are online) – *At the meeting in June the Commission approved the submittal of comments on the Golden Valley Surface Water Management Plan (SWMP). The city revised the plan according to the Commission’s comments and the plan is consistent with the Bassett Creek Watershed Management Plan and requirements. Staff recommends approval of the attached resolution approving Golden Valley’s SWMP.*
- E. Consider Approval of Northwood Lake Improvement Project (NL-1) Final Report (15 minutes) – ACTION ITEM with attachment – *The final touches to the Northwood Lake Improvement Project were completed earlier this year with the installation of the education sign and all final grant reports have been submitted. Staff with the City of New Hope will present the final project report. Staff recommends approval of the report that will officially close out this project.*

6. COMMUNICATIONS (15 minutes)

- A. Administrator's Report - **attached in packet**
 - i. Smart Salt Certification Course
 - ii. Workshop for Lake Groups: Options for Organizing
 - iii. Hennepin County Chloride Consortium
 - iv. Metro Blooms Event: Mapping Resilient Cities
 - v. [Three Rivers Park District Survey](#)
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Bassett Creek Watershed Management Commission

DRAFT Minutes of Regular Meeting
Thursday, August 16, 2018
8:30 a.m.
Golden Valley City Hall, Golden Valley MN

1. CALL TO ORDER and ROLL CALL

On Thursday, August 16, 2018 at 8:33 a.m. in the Council Conference Room at Golden Valley City Hall (7800 Golden Valley Rd.), Chair de Lambert opened the meeting of the Bassett Creek Watershed Management Commission (BCWMC), but there was not a quorum. Administrator Jester began meeting by giving an overview of agenda item 6C until Commissioner Scanlan arrived. At 8:40 a quorum was achieved, and the meeting was called to order.

Commissioners and city staff present:

| City | Commissioner | Alternate Commissioner | Technical Advisory Committee Members (City Staff) |
|------------------------------|--|------------------------|---|
| Crystal | <i>Vacant Position</i> | <i>Vacant Position</i> | <i>Absent</i> |
| Golden Valley | Stacy Harwell | Jane McDonald Black | Jeff Oliver, Eric Eckman |
| Medicine Lake | <i>Absent</i> | Gary Holter* | <i>Absent</i> |
| Minneapolis | <i>Absent</i> | <i>Vacant Position</i> | <i>Absent</i> |
| Minnetonka | <i>Absent</i> | <i>Absent</i> | <i>Absent</i> |
| New Hope | <i>Absent</i> | Pat Crough | Megan Albert |
| Plymouth | Jim Prom | John Byrnes | Derek Asche |
| Robbinsdale | Michael Scanlan | <i>Absent</i> | Marta Roser, Richard McCoy |
| St. Louis Park | Jim de Lambert | Patrick Noon | Erick Francis |
| Administrator | Laura Jester, Keystone Waters | | |
| Engineer | Karen Chandler, Barr Engineering | | |
| Recorder | Dawn Pape, Lawn Chair Gardener Creative Services | | |
| Legal Counsel | Troy Gilchrist, Kennedy & Graven | | |
| Presenters/ Guests/Public | Michelle Kimble, Barr Engineering; Greg Wilson, Barr Engineering | | |

*Arrived after business started

2. CITIZEN FORUM ON NON-AGENDA ITEMS

None.

3. APPROVAL OF AGENDA

MOTION: Commissioner Harwell moved to approve the agenda. Commissioner Prom seconded the motion. Upon a vote, the motion carried 5-0. [Cities of Crystal, Medicine Lake, Minneapolis, and Minnetonka absent from the vote.]

Agenda items were taken out of order due to not having a quorum at the beginning of the meeting.

4. CONSENT AGENDA

The following items were approved as part of the consent agenda: July 2018 commission meeting minutes, August 2018 financial report, payment of invoices, approval to adopt minor amendment to 2015 Bassett Creek Watershed Management Plan

The general and construction account balances reported in the February 2018 Financial Report are as follows:

| | |
|---|------------------------|
| Checking Account Balance | \$ 611,156.37 |
| TOTAL GENERAL FUND BALANCE | \$ 611,156.37 |
| TOTAL CASH & INVESTMENTS ON-HAND (7/11/18) | \$ 3,201,129.12 |
| CIP Projects Levied – Budget Remaining | (\$4,041,205.36) |
| Closed Projects Remaining Balance | (\$ 840,076.24) |
| 2012-2016 Anticipated Tax Levy Revenue | \$ 4,537.93 |
| 2017 Anticipated Tax Levy Revenue | \$ 3,895.88 |
| Anticipated Closed Project Balance | (\$831,642.43) |

MOTION: Commissioner Prom moved to approve the consent agenda. Commissioner Harwell seconded the motion. Upon a vote, the motion carried 5-0. [Cities of Crystal, Medicine Lake, Minneapolis, and Minnetonka absent from the vote.]

6. BUSINESS**C. Presentation on Sweeney Lake Aeration Study Results**

Administrator Jester gave an overview of the lake's water quality and stratification process. Greg Wilson, from Barr Engineering, presented the Sweeney Lake Aeration Study results with a detailed PowerPoint presentation. Engineer Wilson reported that the aeration of the lake during the summer months does not eliminate anoxia at the bottom of the lake, so phosphorus continues to be released and available for algal growth.

[Alt. Commissioner Holter arrives.]

Engineer Wilson reported that without aeration, there is much less total phosphorus in the upper layers of the lake. He showed the results of 3-D modeling that was used to look at the total phosphorus, dissolved oxygen, and algal growth throughout the lake and over time. Engineer Wilson described that 2017 data were not used in the model because it

was a perfectly average year, and that data from 2008 and 2014 were used to calibrate the model for dry and wet years, respectively.

Engineer Wilson showed a time lapse movie of the 3-D model and how the total phosphorus moved in the water column. He described how an alum treatment works and why it would improve water quality in Sweeney Lake. In his conclusion, he made three points:

1. Internal loading is a very important source of phosphorus in Sweeney Lake
2. Turning off the aeration system would likely drop the phosphorus concentration by 10—30% in the upper layers of the lake
3. An in-lake alum treatment would help meet water quality goals. After treatments are done, using the aeration system again would be an option.

Engineer Wilson recommended that aerators be turned off during summer months until an alum treatment can be implemented.

Chair de Lambert asked what the BCWMC should do now. Administrator Jester explained that the Commission might want to consider an alum treatment for a future CIP project. Engineer Wilson commented that alum treatments are significant projects and would cost approximately \$400,000-500,000 in Sweeney Lake. Administrator Jester also reported that this same presentation was given to a group of 23 lake residents on August 1st. She noted that the meeting included great small group and large group discussions about the health and status of the lake now and over the years. She noted the residents agreed it probably doesn't make sense to keep the aerators on in the summer and that they should continue to converse about how and when to implement an alum treatment.

Alt. Commissioner McDonald Black asked about the cost per pound of phosphorus removal for alum treatment and Engineer Wilson replied that it is generally the most economical project on a cost per pound removal basis.

A discussion of phosphorus sources ensued. Engineer Wilson pointed out that the Total Maximum Daily Load Study performed in 2011 assigned an almost even split between internal and external phosphorus loads. Commission Engineer Chandler added that the watershed best management practices (BMPs) already put in place over the last several years have helped reduce the external loading and she noted there is definitely less phosphorus from Schaper Pond coming into the lake now.

Commissioner Scanlan asked about education and outreach to the residents regarding actions they can take to reduce external phosphorus loads. TAC member, Eric Eckman, replied that there is a robust educational effort in that area.

Administrator Jester noted it may be difficult to get State grants for an alum treatment because the public access on Sweeney is limited to a canoe launch. Commissioner Prom noted that Bass Lake in his community received State grant funds for an alum treatment and that the lake doesn't have public boat access, only a public pier. Administrator Jester indicated she would follow up with BWSR on the likelihood of receiving grant funds for such a project on Sweeney.

5. PUBLIC HEARING

At 9:17 Chair de Lambert opened the public hearing to receive comments on proposed 2019 CIP Projects: DeCola Ponds B & C Improvement Project (BC-2,3,8) and Westwood Lake Water Quality Improvement Project (WST-2). There were no members from the public present and no questions or comments from Commissioners. The hearing was closed at 9:18 a.m.

6. BUSINESS

A. Consider Approval of Resolution 18-05 Ordering 2019 improvements

- i. Ordering 2019 improvements
- ii. Making Findings Pursuant to Minnesota Statutes Section 103B.251
- iii. Certifying Costs to Hennepin County

- iv. Approving Agreement with City of Golden Valley for Construction of DeCola Ponds B & C Improvement Project (BC-2,3,8)
- v. Approving Agreement with City of St. Louis Park for Construction of Westwood Lake Water Quality Improvement Project (WST-2)

Administrator Jester noted the various actions the resolution covers (as noted above) and gave a brief overview of the recommended 2019 final tax levy which is the same as the maximum levy submitted to Hennepin County earlier in the year. She also noted that the agreements with the cities had been reviewed by the Commission Counsel Gilchrist and city attorneys and appropriately revised.

MOTION: Commissioner Scanlan moved to approve Resolution 18-05. Commissioner Harwell seconded the motion. Upon a vote, the motion carried 5-1. [Cities of Crystal, Minneapolis, and Minnetonka absent from the vote. City of Plymouth voted against the motion. Commissioner Prom noted that he was opposed to the Westwood Lake Project.]

B. Consider Approval of 90% Design Plans for Westwood Lake Improvement Project (WST-2)

Michelle Kimble, from Barr Engineering, reviewed the 90% designs for the Westwood Lake. She noted there were no major changes from the 50% plans, aside from more detail to the components and the educational pieces. She reported on the five key components:

1. Pumps, storm sewer, and structures. The storm sewer and structures will store stormwater runoff from a majority of the building roof and the surrounding areas on the north side of the building. Solar- and hand-powered pumps, located on a patio, will be used to pump the water from the underground storage to the upstream end of the constructed stream. The pump patio will also include a large sign describing the hydrologic cycle, how the system mimics the cycle, and how this connects to everyday life.

A rain gauge and manhole will be installed near the pump patio to show how much water is in the underground storage. Staff will be able to measure, or have children measure, the amount of rainfall in the rain gauge on a daily basis, and equate that to how full the storage pipes are. Staff can also create curriculum about the hydrologic cycle, and illustrate concepts like infiltration and evaporation with the system.

2. Intermittent stream and small lined ponds. The runoff and pumped water will flow through a series of lined ponds, stream sections, and trench drains at three locations.

3. Bog. A bog will be created near the building, adjacent to the lower pool. The bog is a modification from the feasibility study, but it furthers the BCWMC goals of increasing water quality treatment and providing educational opportunities, as well as unique habitat. The water source for the bog will be the solar pump that will pump water from the underground storage to the bog. Educational signage will be included at the east end of the bog, and nature center staff plan to build a curriculum around bogs to teach children more about the habitat.

4. Access points. The stream will have several access points for people to explore. Access will be achieved through stone steps leading from sidewalks to the bottom of the stream.

5. System overflow. When the underground storage and above ground sand filter area are full, water will overflow into a biofiltration basin to the west. If the biofiltration basin is full, water will overtop the trail to the west and flow into Turtle Pond or down to Westwood Lake.

Chair de Lambert asked about a sign dedicated to the watershed. Administrator Jester noted there is \$11,000 left in the CIP budget that can be used to design and fabricate a sign. She recommended engaging the Education Committee to

help develop the content and graphics for the sign. Commissioner Harwell asked if BCWMC logo will be on the signs. Engineer Kimble confirmed that would be the case. Commissioner Harwell also asked if an educational sign about chlorides could be developed. Engineer Kimble noted that it would make sense to include that messaging near the porous portion of the parking lot and that she would discuss that with nature center staff.

MOTION: Commissioner Scanlan moved to approve the 90% Design Plans for Westwood Lake Improvement Project (WST-2). Alt. Commissioner Holter seconded the motion. Upon a vote, the motion carried 5-1. [Cities of Crystal, Minneapolis, and Minnetonka absent from the vote, City of Plymouth voted against the motion.]

D. Review Status of 2018 Operating Budget

Administrator Jester walked through the over-budget items including the Sweeney Lake Aeration Study. She reminded commissioners that the study was inadvertently left out of the 2018 budget and was therefore already at a deficit of \$20,760. Administrator Jester reported that in addition to the budget deficit for this study, the study ended up costing much more to complete than originally estimated. Engineer Chandler provided explanations for the over-budget Sweeney Lake Aeration Study work, noting that the modeling was intense and faster than their budget tracking. She noted that a new model was used that took extra time to learn and troubleshoot; the model had bugs and Barr had to pay the model developer to help fix the bugs. She explained that she typically brings situations like these to clients' attention earlier, and apologized for it not happening for this project. Engineer Chandler said that in June it was realized that there would be problem, but she didn't know the extent of the problem until later in July, so it was difficult to bring the additional costs to the Commission any sooner. She also noted that there was unanticipated civic engagement work that included developing a complex PowerPoint presentation for a public meeting, a longer fact sheet, and more engagement and questions from residents. Engineer Chandler reported that Barr Engineering was covering \$4,700 of the budget overage. It was noted that the City of Golden Valley offered to pay \$5,000 toward the civic engagement tasks, which brings the total over-budget amount to \$39,260.

Commissioner Harwell commented that she can appreciate the complexity of the model which resulted in a quality product.

Administrator Jester noted that the Commission had several options moving forward including paying the Commission Engineer for the total over-budget amount (less city and Barr contributions), not paying any of the over-budget amount because the proposal for the work was considered a "not to exceed" amount, or some combination of the two. She recommended that the Commission pay the entire over-budget amount because it was real work that was performed on behalf of the Commission.

MOTION: Alt. Commissioner Crough moved to pay the budget amount (less Golden Valley and Barr Engineering contributions) to Barr Engineering. Alt. Commissioner Holter seconded the motion.

Discussion: Commissioner Prom suggested that Golden Valley pay half of the over-budget amount. TAC member Jeff Oliver indicated the city didn't have funds to pay half.

Upon a vote, the motion carried 6-0. [Cities of Crystal, Minneapolis, and Minnetonka absent from the vote.]

There was further discussion after the vote about whether a policy was needed regarding paying for work when it goes over budget. Chair de Lambert replied that he didn't think a policy is needed for isolated incidences like this. Commissioner Prom said he thought that was fair.

Administrator Jester walked the Commission through the second part of the budget issues noting several areas that are or are expected to be over budget by the end of the fiscal year including non-fee/preliminary reviews, and municipal plan reviews. She also noted areas that are expected to be under budget by the end of the year. She reported that overall, she expects the total 2018 Operating Budget to be approximately \$48,700 over budget and that amount would come from the fund balance. She noted the resulting fund balance would still be within the accounting guidance to remain at approximately 50% of annual operating costs. She recommended that the Commission acknowledge the situation and monitor future activities and expenditures closely.

MOTION: Commissioner Scanlan moved to address the budget situation monthly. Commissioner Prom seconded the motion.

Discussion: Alt. Commissioner Byrnes noted that the budget should be better balanced when developing the 2020 budget. Alt. Commissioner McDonald Black noted that the Operating Budget has been relying on use of the fund balance for years and that will need to end in 2020.

Upon a vote, the motion carried 6-0. [Cities of Crystal, Minneapolis, and Minnetonka absent from the vote.]

E. Consider Approval of 2019 Operating Budget

Administrator Jester recommended approval of the budget as proposed in May. TAC member Derek Asche added that he appreciated keeping the assessment under a 3% increase.

MOTION: Commissioner Harwell moved to approve the 2019 operating budget as presented. Commissioner Prom seconded the motion. Upon a vote, the motion carried 6-0. [Cities of Crystal, Minneapolis, and Minnetonka absent from the vote.]

7. COMMUNICATIONS

A. Administrator's Report – Administrator Jester noted her written report in the meeting packet. She also reminded commissioners about the September 15th Golden Valley Arts and Music Festival, noting she was looking for volunteers for the BCWMC table. Commissioner Scanlan volunteered. She further noted the following:

- i. Master Water Stewards Recruitment – Looking for people interested in becoming a Master Water Steward. Informational meetings are coming up.
- ii. Update on Smart Salt Certification Course – Cities were asked to help recruit participants.
- iii. Update on Water Resources Conference Abstract Submittal – An abstract for a presentation on the BCWMC AIS Rapid Response Plan was accepted.

B. Chair

Nothing to report

C. Commissioners

- i. Scanlan thanked staff for their hard work. Crough (unofficially) seconded it.

D. TAC Members

Nothing to report

E. Committees

- i. CIP Prioritization Committee met

F. Legal Counsel

Nothing to report. Thanked Administrator for drafting documents to make his time more efficient.

G. Engineer

- i. AIS in Medicine Lake: Starry stonewort has been found in Medicine Lake, approximately 14 acres in and around the boat launch in French Regional Park. Three Rivers Park District is working with the MnDNR on treatments through the rest of the summer and the launch inspections have increased.
- ii. Zebra mussels are reproducing in Medicine Lake according to an MnDNR scuba survey. Barr would like to have a discussion with TRPD and MnDNR about treatment and control.
- iii. Schaper Pond survey indicates huge number of carp; a more formal report and recommendations will come to a future meeting.

8. INFORMATION ONLY (Information online only)

- A. Administrative Calendar
- B. CIP Project Updates Chart <http://www.bassettcreekwmo.org/projects>
- C. Grant Tracking Summary and Spreadsheet
- D. Final Grant Report: Clean Water Fund, Northwood Lake Improvement Project
- E. Interim Grant Report: Met Council Stormwater Harrison Neighborhood Project
- F. WCA Notices of Application and Decision, Plymouth

9. ADJOURNMENT

The meeting adjourned at 10:28 a.m.

Signature/Title

Date

Signature/Title

Date

Bassett Creek Watershed Management Commission General Account
General Fund (Administration) Financial Report

Fiscal Year: February 1, 2018 through January 31, 2019

MEETING DATE: September 20, 2018

Item 4B.
BCWMC 9-20-18

(UNAUDITED)

| | | |
|----------------------------------|---------------------------------------|-------------------|
| BEGINNING BALANCE | 7-Aug-18 | 611,156.37 |
| ADD: | | |
| General Fund Revenue: | | |
| Interest less Bank Fees | 67.89 | |
| Henn County | AIS Prevention Grant | 18,281.90 |
| Met Council | SG-05827 Metro Blooms Grant | 1,540.53 |
| Met Council | MT LRT Grant | 1,985.00 |
| Permits: | | |
| WSB & Associates | BCWMC 2018-22 | 1,500.00 |
| City of St Louis Park | BCWMC 2018-23 | 1,500.00 |
| Reimbursed Construction Costs | 7,298.65 | |
| | Total Revenue and Transfers In | 32,173.97 |
| DEDUCT: | | |
| Checks: | | |
| 3111 Barr Engineering | August Engineering | 54,598.23 |
| 3112 Kennedy & Graven | July Legal | 1,930.30 |
| 3113 Keystone Waters LLC | August Administrator | 4,014.82 |
| 3114 Lawn Chair Gardener | August Admin Serv/Edu | 2,058.22 |
| 3115 Triple D Espresso | August Meeting | 111.75 |
| 3116 Wenck Associates | August WOMP | 1,683.15 |
| 3117 Finance & Commerce | PH Notice | 98.08 |
| 3118 HDR Engineering Inc | Webstie services | 221.53 |
| 3119 Michael Scanlan | Registrations | 294.28 |
| | Total Checks/Deductions | 65,010.36 |
| Outstanding from previous month: | | |
| 3109 Triple D Espresso | August Meeting | 111.75 |
| ENDING BALANCE | 7-Aug-18 | 578,319.98 |

Bassett Creek Watershed Management Commission General Account
General Fund (Administration) Financial Report
Fiscal Year: February 1, 2018 through January 31, 2019
MEETING DATE: September 20, 2018

(UNAUDITED)

| | 2018 /2019 BUDGET | CURRENT MONTH | YTD 2018 /2019 | BALANCE |
|---|----------------------|------------------|-------------------|-------------------|
| <u>OTHER GENERAL FUND REVENUE</u> | | | | |
| ASSESSMENTS TO CITIES | 515,000 | 0.00 | 515,050.00 | (50.00) |
| PROJECT REVIEW FEES | 55,000 | 3,000.00 | 37,000.00 | 18,000.00 |
| WOMP REIMBURSEMENT | 5,000 | 0.00 | 4,500.00 | 500.00 |
| METROPOLITAN COUNCIL - LRT | | 1,985.00 | 6,881.45 | |
| METRO BLOOMS - MET COUNCIL GRANT | | 1,540.53 | 38,081.77 | |
| HENNEPIN COUNTY GRANT | | 18,281.90 | 18,281.90 | |
| TRANSFERS FROM LONG TERM FUND & CIP | 75,000 | 0.00 | 0.00 | 75,000.00 |
| REVENUE TOTAL | 650,000 | 24,807.43 | 619,795.12 | 93,450.00 |
| <u>EXPENDITURES</u> | | | | |
| ENGINEERING & MONITORING | | | | |
| TECHNICAL SERVICES | 125,000 | 7,482.00 | 78,340.92 | 46,659.08 |
| DEV/PROJECT REVIEWS | 75,000 | 3,146.47 | 34,080.41 | 40,919.59 |
| NON-FEE/PRELIM REVIEWS | 10,000 | 1,118.00 | 15,269.95 | (5,269.95) |
| COMMISSION AND TAC MEETINGS | 12,000 | 490.00 | 5,925.79 | 6,074.21 |
| SURVEYS & STUDIES | 12,000 | 0.00 | 0.00 | 12,000.00 |
| WATER QUALITY/MONITORING | 80,700 | 31,396.09 | 85,533.71 | (4,833.71) |
| WATER QUANTITY | 6,300 | 904.78 | 3,854.70 | 2,445.30 |
| WATERSHED INSPECTIONS - EROSION CONTROL | 1,000 | 0.00 | 0.00 | 1,000.00 |
| ANNUAL FLOOD CONTROL INSPECTIONS | 48,000 | 342.00 | 2,663.50 | 45,336.50 |
| REVIEW MUNICIPAL PLANS | 8,000 | 357.50 | 9,559.70 | (1,559.70) |
| WOMP | 20,500 | 2,289.23 | 11,917.96 | 8,582.04 |
| XP-SWMM MODEL UPDATES/REVIEWS | 10,000 | 0.00 | 8,918.00 | 1,082.00 |
| APM / AIS WORK | 32,000 | 322.00 | 24,304.24 | 7,695.76 |
| ENGINEERING & MONITORING TOTAL | 440,500 | 47,848.07 | 280,368.88 | 160,131.12 |
| ADMINISTRATION | | | | |
| ADMINISTRATOR | 67,200 | 3,920.00 | 37,765.00 | 29,435.00 |
| LEGAL COSTS | 17,000 | 1,930.30 | 7,502.30 | 9,497.70 |
| AUDIT, INSURANCE & BONDING | 15,500 | 0.00 | 17,648.00 | (2,148.00) |
| FINANCIAL MANAGEMENT | 3,200 | 0.00 | 0.00 | 3,200.00 |
| MEETING EXPENSES | 1,600 | 111.75 | 847.62 | 752.38 |
| ADMINISTRATIVE SERVICES | 15,000 | 1,970.73 | 8,994.18 | 6,005.82 |
| ADMINISTRATION TOTAL | 119,500 | 7,932.78 | 72,757.10 | 46,742.90 |
| OUTREACH & EDUCATION | | | | |
| PUBLICATIONS/ANNUAL REPORT | 1,500 | 0.00 | 937.00 | 563.00 |
| WEBSITE | 4,200 | 221.53 | 221.53 | 3,978.47 |
| PUBLIC COMMUNICATIONS | 2,500 | 98.08 | 499.28 | 2,000.72 |
| EDUCATION AND PUBLIC OUTREACH | 22,000 | 1,611.25 | 15,050.29 | 6,949.71 |
| WATERSHED EDUCATION PARTNERSHIPS | 13,850 | 0.00 | 3,850.00 | 10,000.00 |
| OUTREACH & EDUCATION TOTAL | 44,050 | 1,930.86 | 20,558.10 | 23,491.90 |
| MAINTENANCE FUNDS | | | | |
| EROSION/SEDIMENT (CHANNEL MAINT) | 25,000 | 0.00 | 0.00 | 25,000.00 |
| LONG TERM MAINTENANCE (moved to CF) | 25,000 | 0.00 | 0.00 | 25,000.00 |
| MAINTENANCE FUNDS TOTAL | 50,000 | 0.00 | 0.00 | 50,000.00 |
| TMDL WORK | | | | |
| TMDL IMPLEMENTATION REPORTING | 10,000 | 0.00 | 4,668.00 | 5,332.00 |
| TMDL WORK TOTAL | 10,000 | 0.00 | 4,668.00 | 5,332.00 |
| TOTAL EXPENSES | 664,050 | 57,711.71 | 378,352.08 | 285,697.92 |

| | | | |
|--|---|----------------------------|----------------------------|
| Cash Balance 8/8/18 | | | |
| Cash | | 685,306.89 | |
| Transfer to purchase investments | | | |
| | Total Cash | | 685,306.89 |
| Investments: | | | |
| Minnesota Municipal Money Market (4M Fund) | | 2,500,000.00 | |
| Dividends-prior months | | 15,822.23 | |
| Dividends-Current | | 3,650.36 | |
| | Total Investments | | <u>2,519,472.59</u> |
| | Total Cash & Investments | | 3,204,779.48 |
| Add: | | | |
| Interest Revenue (Bank Charges) | | 194.51 | |
| | Total Revenue | | 194.51 |
| Less: | | | |
| CIP Projects Levied - Current Expenses - TABLE A | | (2,292.26) | |
| Proposed & Future CIP Projects to Be Levied - Current Expenses - TABLE B | | <u>(5,006.39)</u> | |
| | Total Current Expenses | | (7,298.65) |
| | Total Cash & Investments On Hand | 09/12/18 | <u><u>3,197,675.34</u></u> |
| Total Cash & Investments On Hand | | 3,197,675.34 | |
| CIP Projects Levied - Budget Remaining - TABLE A | | <u>(4,038,913.10)</u> | |
| Closed Projects Remaining Balance | | (841,237.76) | |
| 2012 - 2016 Anticipated Tax Levy Revenue - TABLE C | | <u>4,537.93</u> | |
| 2017 Anticipated Tax Levy Revenue - TABLE C | | <u>3,895.88</u> | |
| Anticipated Closed Project Balance | | <u>(832,803.95)</u> | |
| Proposed & Future CIP Project Amount to be Levied - TABLE B | | <u>1,436,000.00</u> | |

| TABLE A - CIP PROJECTS LEVIED | | | | | | | |
|---|-----------|------------------|------------------|---------------------|----------------------------|---------------------|----------------------|
| | | Approved Budget | Current Expenses | 2018 YTD Expenses | INCEPTION To Date Expenses | Remaining Budget | Grant Funds Received |
| Lakeview Park Pond (ML-8) (2013) | | 196,000 | 0.00 | 0.00 | 11,589.50 | 184,410.50 | |
| Four Seasons Mall Area Water Quality Proj (NL-2) | | 990,000 | 0.00 | 0.00 | 162,907.34 | 827,092.66 | |
| 2014 | | | | | | | |
| Schaper Pond Enhance Feasibility/Project (SL-1)(SL-3) | | 612,000 | 2,292.26 | 12,264.69 | 361,926.09 | 250,073.91 | |
| Briarwood / Dawnview Nature Area (BC-7) | | 250,000 | 0.00 | 0.00 | 250,000.00 | 0.00 | |
| Twin Lake Alum Treatment Project (TW-2) | | 163,000 | 0.00 | 0.00 | 91,037.82 | 71,962.18 | |
| 2015 | | | | | | | |
| Main Stem 10th to Duluth (CR2015) | | 1,503,000 | 0.00 | 0.00 | 1,003,746.24 | 499,253.76 | |
| 2016 | | | | | | | |
| Honeywell Pond Expansion (BC-4) ¹ | | 810,930 | 0.00 | 725,298.17 | 750,605.17 | 60,324.83 | |
| Northwood Lake Pond (NL-1) ² | | 822,140 | | | | | |
| Budget Amendment | | <u>611,600</u> | | | | | |
| | | 1,433,740 | 0.00 | 2,000.00 | 1,447,143.38 | (13,403.38) | 670,000 |
| 2017 | | | | | | | |
| Main Stem Cedar Lk Rd-Dupont (2017CR-M) | 2017 Levy | 400,000 | | | | | |
| | 2018 Levy | 664,472 | | | | | |
| | | 1,064,472 | 0.00 | 0.00 | 126,376.39 | 938,095.61 | |
| Plymouth Creek Restoration (2017 CR-P) | 2017 Levy | 580,930 | | | | | |
| | 2018 Levy | 282,643 | | | | | |
| | | 863,573 | 0.00 | 422,683.49 | 581,400.72 | 282,172.28 | 200,000 |
| 2018 | | | | | | | |
| Bassett Creek Park & Winnetka Ponds Dredging (BCP-2) | | 1,000,000 | 0.00 | 0.00 | 61,069.25 | 938,930.75 | |
| | | <u>8,886,715</u> | <u>2,292.26</u> | <u>1,162,246.35</u> | <u>4,847,801.90</u> | <u>4,038,913.10</u> | |

TABLE B - PROPOSED & FUTURE CIP PROJECTS TO BE LEVIED

| | Approved Budget - To Be Levied | Current Expenses | 2018 YTD Expenses | INCEPTION To Date Expenses | Remaining Budget |
|--|--------------------------------------|---------------------|----------------------|-------------------------------|---------------------|
| 2019 | | | | | |
| Decola Ponds B&C Improvement(BC-2,BC-3,BC-8) | 1,031,500 | 0.00 | 41,003.40 | 85,512.56 | 945,987.44 |
| Westwood Lake Water Quality Improvement Project(Feasibility) | 404,500 | 463.50 | 33,981.50 | 36,491.70 | 368,008.30 |
| 2019 Project Totals | 1,436,000 | 463.50 | 74,984.90 | 122,004.26 | 1,313,995.74 |
| 2020 | | | | | |
| Bryn Mawr Meadows (BC-5) | 0 | 512.50 | 44,226.24 | 75,468.56 | (75,468.56) |
| Jevne Park Stormwater Mgmt Feasibility (ML-21) | 0 | 2,932.54 | 2,932.54 | 2,932.54 | (2,932.54) |
| Crane Lake Improvement Proj (CL-3) | 0 | 1,097.85 | 1,097.85 | 1,097.85 | (1,097.85) |
| 2020 Project Totals | 0 | 4,542.89 | 48,256.63 | 79,498.95 | (79,498.95) |
| Total Proposed & Future CIP Projects to be Levied | 1,436,000 | 5,006.39 | 123,241.53 | 201,503.21 | 1,234,496.79 |

BCWMC Construction Account

Fiscal Year: February 1, 2018 through January 31, 2019

August 2018 Financial Report

(UNAUDITED)

TABLE C - TAX LEVY REVENUES

| | County Levy | Abatements / Adjustments | Adjusted Levy | Current Received | Year to Date Received | Inception to Date Received | Balance to be Collected | BCWMO Levy |
|---------------|--------------|-----------------------------|---------------|---------------------|--------------------------|-------------------------------|----------------------------|--------------|
| 2018 Tax Levy | 947,115.00 | | 947,115.00 | 0.00 | 719,469.72 | 719,469.72 | 227,645.28 | 947,115.00 |
| 2017 Tax Levy | 1,303,600.00 | (10,691.48) | 1,292,908.52 | 0.00 | (2,124.76) | 1,289,012.64 | 3,895.88 | 1,303,600.00 |
| 2016 Tax Levy | 1,222,000.00 | (9,526.79) | 1,212,473.21 | 0.00 | (1,622.13) | 1,209,593.43 | 2,879.78 | 1,222,000.00 |
| 2015 Tax Levy | 1,000,000.00 | 32.19 | 1,000,032.19 | 0.00 | 258.90 | 999,190.60 | 841.59 | 1,000,000.00 |
| 2014 Tax Levy | 895,000.00 | (8,533.75) | 886,466.25 | 0.00 | 133.88 | 885,770.40 | 695.85 | 895,000.00 |
| 2013 Tax Levy | 986,000.00 | (10,510.52) | 975,489.48 | 0.00 | 412.43 | 975,368.77 | 120.71 | 986,000.00 |
| | | | | 0.00 | | | 8,433.81 | |

OTHER PROJECTS:

| | Approved Budget | Current Expenses / (Revenue) | 2018 YTD Expenses / (Revenue) | INCEPTION To Date Expenses / (Revenue) | Remaining Budget |
|---|--------------------|------------------------------------|-------------------------------------|--|---------------------|
| TMDL Studies | | | | | |
| TMDL Studies | 135,000.00 | 0.00 | 0.00 | 107,765.15 | 27,234.85 |
| TOTAL TMDL Studies | 135,000.00 | 0.00 | 0.00 | 107,765.15 | 27,234.85 |
| Flood Control Long-Term | | | | | |
| Flood Control Long-Term Maintenance | 690,573.00 | 0.00 | 4,879.00 | 325,621.41 | |
| Less: State of MN - DNR Grants | | 0.00 | (4,542.00) | (97,542.00) | |
| | 690,573.00 | 0.00 | 337.00 | 228,079.41 | 462,493.59 |
| Annual Flood Control Projects: | | | | | |
| Flood Control Emergency Maintenance | 500,000.00 | 0.00 | 0.00 | 0.00 | 500,000.00 |
| Annual Water Quality | | | | | |
| Channel Maintenance Fund | 375,000.00 | 0.00 | 73,461.65 | 255,619.60 | 119,380.40 |
| Metro Blooms Harrison Neighborhood CWF Grant Project | | | | | |
| BWSR Grant | 134,595.00 | 0.00 | 0.00 | 8,396.89 | 126,198.11 |
| | | | | (67,298.00) | (67,298.00) |
| | 134,595.00 | 0.00 | 0.00 | (58,901.11) | |
| Total Other Projects | 1,835,168.00 | 0.00 | 73,798.65 | 465,265.05 | 1,168,008.95 |

Bassett Creek Construction Project Details

9/12/2018

| | CIP Projects Levied | | | | | | | | | | | |
|------------------------------------|----------------------|---------------------------|---|--|--|---|---|---------------------------------|----------------------------|--|-----------------------------------|---|
| | Total | 2013 | 2013 | 2014 | 2014 | 2014 | 2015 | 2016 | 2016 | 2017 | 2017 | 2018 |
| | CIP Projects Levied | Lakeview Park Pond (ML-8) | Four Seasons Mall Area Water Quality Project (NL-2) | Schaper Pond Enhancement Feasibility / Project (SL-1) (SL-3) | Briarwood / Dawnview Water Quality Improve Proj (BC-7) | Twin Lake In-Lake Alum Treatment Project (TW-2) | Main Stem - 10th Ave to Duluth (CR2015) | Honeywell Pond Expansion (BC-4) | Northwood Lake Pond (NL-1) | Main Stem-Cedar Lk Rd to Dupont (CR-M) | Plymouth Creek Restoration (CR-P) | Bassett Cr Pk & Winnetka Ponds Dredging (BCP-2) |
| Original Budget Added to Budget | 8,275,115 611,600 | 196,000 | 990,000 | 612,000 | 250,000 | 163,000 | 1,503,000 | 810,930 | 822,140 611,600 | 1,064,472 | 863,573 | 1,000,000 |
| Expenditures: | | | | | | | | | | | | |
| Feb 2004 - Jan 2014 | 269,971.68 | 11,589.50 | 101,635.49 | 89,594.90 | 19,598.09 | 23,793.65 | 11,179.35 | 7,461.95 | 5,118.75 | 42,671.88 | 49,412.13 | |
| Feb 2015-Jan 2016 | 313,510.98 | | 25,866.35 | | | 432.00 | 93,862.65 | 6,442.53 | 94,823.44 | | | |
| Feb 2016-Jan 2017 | 2,835,773.05 | | 14,350.00 | 213,668.55 | 230,401.91 | 66,812.17 | 841,405.15 | 11,402.52 | 1,338,331.79 | 71,889.91 | 16,192.00 | 31,319.05 |
| Feb 2017-Jan 2018 | 266,299.84 | | 21,055.50 | 46,397.95 | | | 57,299.09 | | 6,869.40 | 11,814.60 | 93,113.10 | 29,750.20 |
| Feb 2018-Jan 2019 | 1,162,246.35 | | | 12,264.69 | | | | 725,298.17 | 2,000.00 | | 422,683.49 | |
| Total Expenditures: | 4,847,801.90 | 11,589.50 | 162,907.34 | 361,926.09 | 250,000.00 | 91,037.82 | 1,003,746.24 | 750,605.17 | 1,447,143.38 | 126,376.39 | 581,400.72 | 61,069.25 |
| Project Balance | 4,038,913.10 | 184,410.50 | 827,092.66 | 250,073.91 | | 71,962.18 | 499,253.76 | 60,324.83 | (13,403.38) | 938,095.61 | 282,172.28 | 938,930.75 |
| | Total | 2013 | 2013 | 2014 | 2014 | 2014 | 2015 | 2016 | 2016 | 2017 | 2017 | 2018 |
| | CIP Projects Levied | Lakeview Park Pond (ML-8) | Four Seasons Mall Area Water Quality Project (NL-2) | Schaper Pond Enhancement Feasibility / Project (SL-1) (SL-3) | Briarwood / Dawnview Water Quality Improve Proj (BC-7) | Twin Lake In-Lake Alum Treatment Project (TW-2) | Main Stem - 10th Ave to Duluth (CR2015) | Honeywell Pond Expansion (BC-4) | Northwood Lake Pond (NL-1) | Main Stem-Cedar Lk Rd to Dupont (CR-M) | Plymouth Creek Restoration (CR-P) | Bassett Cr Pk & Winnetka Ponds Dredging (BCP-2) |
| Project Totals By Vendor | | | | | | | | | | | | |
| Barr Engineering | 532,061.62 | 6,338.95 | 64,076.04 | 133,914.14 | 13,089.74 | 15,712.00 | 15,825.00 | 13,157.98 | 17,966.00 | 111,939.39 | 78,973.13 | 61,069.25 |
| Kennedy & Graven | 11,961.70 | 1,200.55 | 2,471.95 | 993.40 | 1,038.35 | 1,058.65 | 2,223.75 | 796.00 | 1,701.45 | 318.40 | 159.20 | |
| City of Golden Valley | 1,471,580.12 | | | 213,668.55 | 230,401.91 | 66,812.17 | 960,697.49 | | | | | |
| City of Minneapolis | | | | | | | | | | | | |
| City of Plymouth | 570,027.74 | | 75,759.35 | | | | | | | | 494,268.39 | |
| City of New Hope | 1,413,267.55 | | | | | | | | 1,413,267.55 | | | |
| City of Crystal | | | | | | | | | | | | |
| MPCA | 2,500.00 | | | | | | | | | 2,500.00 | | |
| Blue Water Science | 3,900.00 | | | | | 3,900.00 | | | | | | |
| Misc | | | | | | | | | | | | |
| 2.5% Admin Transfer | 115,205.00 | 4,050.00 | 20,600.00 | 13,350.00 | 5,470.00 | 3,555.00 | 25,000.00 | 11,353.02 | 12,208.38 | 11,618.60 | 8,000.00 | |
| Transfer to General Fund | | | | | | | | | | | | |
| Total Expenditures | 4,120,503.73 | 11,589.50 | 162,907.34 | 361,926.09 | 250,000.00 | 91,037.82 | 1,003,746.24 | 25,307.00 | 1,445,143.38 | 126,376.39 | 581,400.72 | 61,069.25 |
| | Total | 2013 | 2013 | 2014 | 2014 | 2014 | 2015 | 2016 | 2016 | 2017 | 2017 | 2018 |
| | CIP Projects Levied | Lakeview Park Pond (ML-8) | Four Seasons Mall Area Water Quality Project (NL-2) | Schaper Pond Enhancement Feasibility / Project (SL-1) (SL-3) | Briarwood / Dawnview Water Quality Improve Proj (BC-7) | Twin Lake In-Lake Alum Treatment Project (TW-2) | Main Stem - 10th Ave to Duluth (CR2015) | Honeywell Pond Expansion (BC-4) | Northwood Lake Pond (NL-1) | Main Stem-Cedar Lk Rd to Dupont (CR-M) | Plymouth Creek Restoration (CR-P) | Bassett Cr Pk & Winnetka Ponds Dredging (BCP-2) |
| Levy/Grant Details | | | | | | | | | | | | |
| 2010 - 2014 Levies | 1,881,000 | 162,000 | 824,000 | 534,000 | 218,800 | 142,200 | | | | | | |
| 2014/2015 Levy | 1,000,000 | | | | | | 1,000,000 | | | | | |
| 2015-2016 Levy | 1,222,000 | | | | | | | 810,930 | 411,070 | | | |
| 2016-2017 Levy | 1,303,600 | | | | | | | | 322,670 | 580,930 | 400,000 | |
| 2017-2018 Levy | 947,115 | | | | | | | | | 282,643 | 664,472 | |
| Construction Fund Balance | 703,000 | 34,000 | 166,000 | | | | 503,000 | | 470,000 | | | |
| BWSR Grant- BCWMO | 470,000 | | | | | | | | | | | |
| DNR Grants-LT Maint | | | | | | | | | | | | |
| Total Levy/Grants | 7,526,715 | 196,000 | 990,000 | 534,000 | 218,800 | 142,200 | 1,503,000 | 810,930 | 1,203,740 | 863,573 | 1,064,472 | |
| BWSR Grants Received | | | | | | | | | 670,000 | | 200,000 | |
| MPCA Grant-CWP (Total \$300,000) | | | | | | | | | 75,000.00 | | | |
| | | | | | | | | | 19,932.80 | | | |

Bassett Creek Construction Project Details

| Proposed & Future CIP Projects (to be Levied) | | | | | | | Other Projects | | | | | | | |
|---|--|---|--|--------------------------------|--------------------------------------|--------------------------------------|----------------------|--|------------------------|--|---|---|--------------------------|--|
| | Total | 2019 | 2019 | 2020 | 2020 | 2020 | DNR Grant From GF | Total | | Flood Control Emergency Maint | Flood Control Long- Term Maint | Channel Maint | Totals - All Projects | |
| | Proposed & Future CIP Projects (to be Levied) | DeCola Ponds B&C Improve (BC- 2,BC-3,BC-8) | Westwood Lake Water Quality (Feasibility) | Bryn Mawr Meadows (BC 5) | Jevne Park Feasibility (ML-21) | Crane Lake Improve Proj (CL-3) | | Other Projects | TMDL Studies | | | | | |
| Original Budget Added to Budget | 1,436,000 | 1,031,500 | 404,500 | | | | | 1,278,373.00 (250,000.00) 97,542.00 422,200.00 | 105,000.00 | 500,000.00 | 748,373.00 (250,000.00) 97,542.00 192,200.00 | 175,000.00 | | 10,989,488.00 361,600.00 97,542.00 422,200.00 |
| Expenditures: | 5,282.80 | | | 5,282.80 | | | | 30,000.00 | | | 97,542.00 192,200.00 | 200,000.00 | | |
| Feb 2004 - Jan 2014 | | | | | | | | | | | | 520,680.71 | | |
| Feb 2015-Jan 2016 | | | | | | | | | | | | 450,868.52 | | |
| Feb 2016-Jan 2017 | | | | | | | | | | | | 2,987,843.79 | | |
| Feb 2017-Jan 2018 | 72,978.88 | 44,509.16 | 2,510.20 | 25,959.52 | | | | | | 43,195.48 110,580.19 152,070.74 14,896.00 4,879.00 | 94,465.60 26,777.35 | 415,089.72 | | |
| Feb 2018-Jan 2019 | 123,241.53 | 41,003.40 | 33,981.50 | 44,226.24 | 2,932.54 | 1,097.85 | 78,340.65 | | | | 60,915.00 73,461.65 | 1,363,828.53 | | |
| Total Expenditures: | 201,503.21 | 85,512.56 | 36,491.70 | 75,468.56 | 2,932.54 | 1,097.85 | 689,006.16 | 107,765.15 | | 325,621.41 | 255,619.60 | 5,738,311.27 | | |
| Project Balance | 1,234,496.79 | 945,987.44 | 368,008.30 | (75,468.56) | (2,932.54) | (1,097.85) | 1,109,108.84 | 27,234.85 | 500,000.00 | 462,493.59 | 119,380.40 | 6,382,518.73 | | |
| | | | | | | | | | | | | | | |
| | Total | 2019 | 2019 | 2020 | 2020 | 2020 | DNR Grant From GF | Total | | Flood Control Emergency Maint | Flood Control Long- Term Maint | Channel Maint | Totals - All Projects | |
| | Proposed & Future CIP Projects (to be Levied) | DeCola Ponds B&C Improve (BC- 2,BC-3,BC-8) | Westwood Lake Water Quality (Feasibility) | Bryn Mawr Meadows (BC 5) | Jevne Park Feasibility (ML-21) | Crane Lake Improve Proj (CL-3) | | Other Projects | TMDL Studies | | | | | |
| Project Totals By Vendor | 201,503.21 | 85,512.56 | 36,491.70 | 75,468.56 | 2,932.54 | 1,097.85 | | 392,818.50 2,648.25 55,287.50 38,823.35 100,209.15 | 104,888.70 1,164.30 | | 287,929.80 1,099.35 | 384.60 55,287.50 38,823.35 100,209.15 29,240.00 | | 1,126,383.33 14,609.95 1,526,867.62 38,823.35 670,236.89 1,413,267.55 |
| Barr Engineering Kennedy & Graven City of Golden Valley City of Minneapolis City of Plymouth City of New Hope City of Crystal MPCA Blue Water Science | | | | | | | | | | | | | | 2,500.00 3,900.00 |
| Misc 2.5% Admin Transfer Transfer to General Fund | | | | | | | 5,704.41 | 1,712.15 | | 3,992.26 | | 5,704.41 115,205.00 32,600.00 | | |
| Total Expenditures | 201,503.21 | 85,512.56 | 36,491.70 | 75,468.56 | 2,932.54 | 1,097.85 | 32,600.00 | 657,331.16 | 107,765.15 | | 32,600.00 | 223,944.60 | 4,950,098.10 | |
| | | | | | | | | | | | | | | |
| | Total | 2019 | 2019 | 2020 | 2020 | 2020 | 2010-2017 2017/18 | Total | | Flood Control Emergency Maint | Flood Control Long- Term Maint | Channel Maint | Totals - All Projects | |
| | Proposed & Future CIP Projects (to be Levied) | DeCola Ponds B&C Improve (BC- 2,BC-3,BC-8) | Westwood Lake Water Quality (Feasibility) | Bryn Mawr Meadows (BC 5) | Jevne Park Feasibility (ML-21) | Crane Lake Improve Proj (CL-3) | | Other Projects | TMDL Studies | | | | | |
| Levy/Grant Details | | | | | | | | 42,200.00 | 30,000 | | 175,000 17,200 | 175,000 25,000 | | 1,881,000 1,042,200 |
| 2010 -2014 Levies | | | | | | | | | | | | | | |
| 2014/2015 Levy | | | | | | | | | | | | | | |
| 2015-2016 Levy | | | | | | | | | | | | | | |
| 2016-2017 Levy | | | | | | | | | | | | | | |
| 2017-2018 Levy | | | | | | | | | | | | | | |
| Construction Fund Balance | | | | | | | | | | | | 703,000 | | |
| BWSR Grant- BCWMO | | | | | | | | | | | | 470,000 | | |
| DNR Grants-LT Maint | | | | | | | 93,000.00 | | | 93,000 | | | | |
| Total Levy/Grants | | | | | | | 515,200.00 | 30,000 | | 285,200 | 200,000 | 4,096,200 | | |

Memorandum

To: Bassett Creek Watershed Management Commission
From: Barr Engineering Co.
Subject: Item 4D – Force Main Relocation & Floodplain Mitigation Project for the Overall METRO Blue Line Light Rail Transit (LRT) Extension Project – Minneapolis and Golden Valley, MN
BCWMC September 20, 2018 Meeting Agenda
Date: September 12, 2018
Project: 23270051 2018 3003

4D Force Main Relocation & Floodplain Mitigation Project for the Overall METRO Blue Line Light Rail Transit (LRT) Extension Project – Minneapolis and Golden Valley, MN BCWMC 2018-24

Summary:

Proposed Work: Force main relocation & floodplain mitigation for the overall Blue Line Light Rail Transit (LRT) extension project

Basis for Review at Commission Meeting: Work in the floodplain

Impervious Surface Area: No change

Recommendation: Conditional Approval

General Background & Comments

The above referenced force main relocation & floodplain mitigation project is proposed as the first phase of early construction components in preparation for the overall METRO Blue Line Light Rail Transit (LRT) extension project or Bottineau LRT extension project. The proposed force main relocation & floodplain mitigation project is located in the Bassett Creek Main Stem subwatershed, within Theodore Wirth Park, along Trunk Highway 55 (TH 55) and the Canadian Pacific railroad in Minneapolis and Golden Valley, MN. The proposed project includes the relocation of an existing Metropolitan Council Environmental Services (MCES) force main and excavation to create compensatory floodplain storage for future floodplain fill, which is proposed as part of the overall METRO Blue Line LRT extension project. The proposed force main relocation and floodplain mitigation project results in 3.91 acres of disturbance (grading) and does not create any net new impervious surfaces, but results in 0.48 acres of reconstructed impervious surfaces.

Floodplain

The proposed force main relocation & floodplain mitigation project and the overall METRO Blue Line LRT extension project include work in the Bassett Creek floodplain. The August 2017 BCWMC Requirements for Improvements and Development Proposals (Requirements) document states that projects within the floodplain must maintain no net loss in floodplain storage and no increase in flood level at any point along the trunk system (managed to at least a precision of 0.00 feet). The floodplain elevation of Bassett Creek at the force main relocation & floodplain mitigation site varies from 826.5 to 826.6 feet NAVD88.

The overall METRO Blue Line LRT extension project is anticipated to result in a total of 16,103 cubic yards of floodplain fill by expanding the embankment of the existing railroad corridor between TH 55 and Theodore Wirth Parkway. Mitigation for this proposed floodplain fill will be provided in four locations:

| Location | Volume, CY |
|---|------------|
| 1. Around the Plymouth Avenue Bridge | 3,049 |
| 2. In the stormwater management basin at Plymouth Ave | 1,759 |
| 3. Expanded ditch at Hennepin County Forfeited Property | 1,371 |
| 4. Floodplain Mitigation Site | 10,005 |
| Total Mitigation Proposed | 16,184 |

The force main relocation & floodplain mitigation project will create 10,005 cubic yards of compensatory floodplain storage upstream of TH 55. An additional 6,179 cubic yards of compensatory floodplain storage will be provided as part of the overall METRO Blue Line LRT extension project or other phases of early construction components, to be reviewed under a future submittal. The overall METRO Blue Line LRT extension project will provide a final, net, 81-cubic-yard increase in floodplain storage, relative to existing conditions. Because the overall METRO Blue Line LRT extension project will occur after the force main relocation & floodplain mitigation project, there will be 10,005 cubic yards of additional floodplain storage in the interim.

The force main relocation & floodplain mitigation project narrative notes that the floodplain mitigation site was previously used as a railroad maintenance facility. During soil exploration, the site was found to contain construction debris and lead. A METRO Blue Line LRT consultant prepared a Response Action Plan (RAP) (approved by the Minnesota Pollution Control Agency) that defines parameters of removal and handling of the material, and how the area will be capped with 2 feet of clean soil in the final condition. The project narrative further notes that the lead was not found in groundwater samples and appears to be stable in its current, undisturbed condition.

As part of the project, measures will be taken to mitigate the risk of contaminated materials migrating from the site. All excavated materials will be tested and treated for lead contamination at a location above the 10-year water surface elevation. As part of this process, the material will be placed on and covered with poly plastic sheeting, and surrounded by super duty silt fence. The material will be stockpiled for 3-5 days or until the tested material is stable and ready for disposal at a certified landfill.

Additionally, the contractor will be required to assemble a proposed staging plan for approval by the METRO Blue Line LRT prior to commencing construction. This is intended to ensure that at no time will the contractor decrease the floodplain volume during construction.

Finally, a METRO Blue Line LRT consultant will develop a flood response plan that defines trigger points for the contractor to perform pre-established actions; the trigger points will be based on high Bassett Creek water elevations and the likelihood that the water elevations will rise (i.e. a storm is forecast). This flood response plan will not alleviate the contractor from the impacts of other unpredicted events, but is one measure being employed to protect against potential site inundation impacts.

Wetlands

The proposed force main relocation & floodplain mitigation project appears to involve work in or adjacent to wetlands. The City of Minneapolis and the City of Golden Valley are the local government units (LGUs)

responsible for administering the Wetland Conservation Act, therefore BCWMC wetland review is not required.

Stormwater Management

The proposed force main relocation & floodplain mitigation project does not create one or more acres of net new or fully reconstructed impervious surfaces and therefore does not trigger the BCWMC requirements for rate control.

Water Quality Management

The proposed force main relocation & floodplain mitigation project does not create one or more acres of net new or fully reconstructed impervious surfaces and therefore does not trigger the BCWMC requirements for water quality.

Erosion and Sediment Control

The proposed force main relocation & floodplain mitigation project involves more than 200 cubic yards of cut or fill and/or more than 10,000 square feet of land disturbance, therefore the proposed project must meet the BCWMC erosion and sediment control requirements. Proposed temporary erosion and sediment control features include silt fence, sediment control logs, poly plastic sheeting coverings on stockpiles, and rock construction entrances. Permanent erosion and sediment control features include stabilization with seed, mulch, disc anchoring, erosion control blankets, and sod.

Recommendation

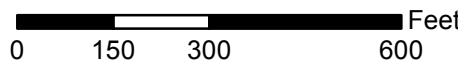
Conditional approval based on the following comments:

1. The overall METRO Blue Line LRT extension project and other early construction components must be submitted to the BCWMC for approval under a separate application.

Barr Footer: ArcGIS 10.6, 2018-09-12 08:04 File: I:\Client\BassettCreek\gis\maps\Permits\Maps-2018\2018-24.mxd User: EMA



- Project Location
- Municipality
- Bassett Creek
- WMC Boundary
- Major Subwatershed



BCWMC #2018-24
FORCEMAIN RELOCATION &
FLOODPLAIN MITIGATION
Golden Valley &
Minneapolis, MN
LOCATION MAP

Transaction Receipt

Welcome Christine Scanlan Logout



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Registration Information

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1. Two Day Registration (Michael Scanlan)

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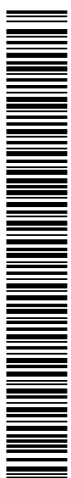
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Event

2018 Minnesota Aquatic Invasive Species Research and Management Showcase

Date+Time

Wednesday, September 12,
2018 from 8:00 AM to 5:00 PM
(CDT)

Location

Continuing Education and
Conference Center
1890 Buford Avenue
Saint Paul, MN 55108

Name

Michael
Scanlan

Payment Status

Eventbrite
Completed

Order Info

Order #818486337. Ordered by Michael Scanlan on September 4, 2018 5:07 PM

Type

Presentations + lunch \$44.28



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FY 2019 STATE OF MINNESOTA
BOARD OF WATER and SOIL RESOURCES
WATERSHED BASED FUNDING GRANTS PROGRAM
GRANT AGREEMENT

| | | | |
|----------------|------------|-------------------|--|
| Vendor: | 0000265343 | VN#: | |
| PO#: | 3000009639 | Date Paid: | |

This Grant Agreement is between the State of Minnesota, acting through its Board of Water and Soil Resources (Board) and **Bassett Creek WMC, c/o 16145 Hillcrest Ln Eden Prairie Minnesota 55346** (Grantee).

| <i>This grant is for the following Grant Programs :</i> | | |
|---|--|----------|
| P19-3255 | 2019 - Watershed Based Funding Metro (Bassett Creek WMC) | \$68,573 |
| Total Grant Awarded: \$68,573 | | |

Recitals

1. The Laws of Minnesota 2017, Chapter 91, Article 2, Section 7 (a), appropriated Clean Water Funds (CWF) to the Board for the FY 2019 Watershed-based Funding Pilot Program.
2. The Board adopted the Clean Water Fund Watershed-based Funding Pilot Program Policy and authorized the Watershed-based Funding Pilot Program Grants through Board Resolution 17-96.
3. The Board adopted Board Resolution 17-96 to allocate funds for the FY 2019 Watershed-based Funding Pilot Program.
4. The Grantee has submitted a BWSR approved work plan for this Program which is incorporated into this agreement by reference.
5. The Grantee represents that it is duly qualified and agrees to perform all services described in this grant agreement to the satisfaction of the State.
6. As a condition of the grant, Grantee agrees to minimize administration costs.

Authorized Representative

The State's Authorized Representative is Marcey Westrick, Clean Water Coordinator, BWSR, 520 Lafayette Road North, Saint Paul, MN 55155, 651-284-4153, or her successor, and has the responsibility to monitor the Grantee's performance and the authority to accept the services and performance provided under this Grant Agreement.

The Grantee's Authorized Representative is: **Laura Jester, Administrator**
16145 Hillcrest Lane
Eden Prairie
(952) 270-1990

If the Grantee's Authorized Representative changes at any time during this Grant Agreement, the Grantee must immediately notify the Board.

Grant Agreement

1. Term of Grant Agreement.

- 1.1. **Effective date:** The date the Board obtains all required signatures under Minn. Stat. § 16B.98, Subd.5. **The State's Authorized Representative will notify the Grantee when this grant agreement has been executed. The Grantee must not begin work under this grant agreement until it is executed.**
- 1.2. **Expiration date:** December 31, 2021, or until all obligations have been satisfactorily fulfilled, whichever comes first.
- 1.3. **Survival of Terms:** The following clauses survive the expiration or cancellation of this Agreement: 7. Liability; 8. State Audits; 9. Government Data Practices; 11. Publicity and Endorsement; 12. Governing Law, Jurisdiction, and Venue; 14. Data Disclosure; and 18. Intellectual Property Rights.

2. Grantee's Duties.

The Grantee will comply with required grants management policies and procedures set forth through Minn. Stat. § 16B.97, Subd. 4(a)(1). The Grantee is responsible for the specific duties for the Program as follows:

- 2.1. **Implementation:** The Grantee will implement their work plan, which is incorporated into this Agreement by reference.
- 2.2. **Reporting:** All data and information provided in a Grantee's report shall be considered public.
 - 2.2.1. The Grantee will submit an annual progress report to the Board by February 1 of each year on the status of program implementation by the Grantee. Information provided must conform to the requirements and formats set by the Board. All individual grants over \$500,000 will also require a reporting of expenditures by June 30 of each year.
 - 2.2.2. The Grantee will prominently display on its website the Clean Water Legacy Logo and a link to the Legislative Coordinating Commission website.
 - 2.2.3. Final Progress Report: The Grantee will submit a final progress report to the Board by February 1, 2022 or within 30 days of completion of the project, whichever occurs sooner. Information provided must conform to the requirements and formats set by the Board.
- 2.3. **Match:** The Grantee will ensure any local match requirement will be provided as stated in Grantee's approved work plan.

3. Time.

The Grantee must comply with all the time requirements described in this Grant Agreement. In the performance of this Grant Agreement, time is of the essence.

4. Terms of Payment.

- 4.1. Grant funds will be distributed in three installments: 1) The first payment of 50% will be distributed after the execution of the Grant Agreement. 2) The second payment of 40% will be distributed after the first payment of 50% has been expended and reporting requirements have been met. An eLINK Interim Financial Report that summarizes expenditures of the first 50% must be signed by the Grantee and approved by BWSR. Selected grantees may be required at this point to submit documentation of the expenditures reported on the Interim Financial Report for verification. 3) The third payment of 10% will be distributed after the grant has been fully expended and reporting requirements are met. The final, 10% payment must be requested within 30 days of the expiration date of the Grant Agreement. An eLINK Final Financial Report that summarizes final expenditures for the grant must be signed by the grantee and approved by BWSR.
- 4.2. All costs must be incurred within the grant period.
- 4.3. All incurred costs must be paid before the amount of unspent grant funds is determined. Unspent grant funds must be returned within 30 days of the expiration date of the Grant Agreement.
- 4.4. The obligation of the State under this Grant Agreement will not exceed the amount stated above.
- 4.5. This grant includes an advance payment of 50 percent of the grant's total amount. Advance payments allow the grantee to have adequate operating capital for start-up costs, ensure their financial commitment to landowners and contractors, and to better schedule work into the future.

5. Conditions of Payment.

All services provided by the Grantee under this Grant Agreement must be performed to the State's satisfaction, as set forth in this Agreement and in the BWSR approved work plan for this program. Compliance will be determined at the sole discretion of the State's Authorized Representative and in accordance with all applicable federal, State, and local laws, policies, ordinances, rules, FY 2018 Clean Water Fund Competitive Grants Policy, and regulations. All Grantees must follow the Grants Administration Manual policy. Minnesota Statutes §103C.401 (2014) establishes BWSR's obligation to assure program compliance. If the noncompliance is severe, or if work under the grant agreement is found by BWSR to be unsatisfactory or performed in violation of federal, state, or local law, BWSR has the authority to require the repayment of grant funds, or an additional penalty. Penalties can be assessed at a rate up to 150% of the grant agreement.

6. Assignment, Amendments, and Waiver.

- 6.1. **Assignment.** The Grantee may neither assign nor transfer any rights or obligations under this Grant Agreement without the prior consent of the State and a fully executed Assignment Agreement, executed and approved by the same parties who executed and approved this Grant Agreement, or their successors in office.
- 6.2. **Amendments.** Any amendment to this Grant Agreement must be in writing and will not be effective until it has been executed and approved by the same parties who executed and approved the original Grant Agreement, or their successors in office. Amendments must be executed prior to the expiration of the original agreement or any amendments thereto.

- 6.3. **Waiver.** If the State fails to enforce any provision of this Grant Agreement, that failure does not waive the provision or its right to enforce it.
7. **Liability.** The Grantee must indemnify, save, and hold the State, its agents, and employees harmless from any claims or causes of action, including attorney's fees incurred by the State, arising from the performance of this Grant Agreement by the Grantee or the Grantee's agents or employees. This clause will not be construed to bar any legal remedies the Grantee may have for the State's failure to fulfill its obligations under this Grant Agreement.
8. **State Audits.** Under Minn. Stat. § 16B.98, subd. 8, the Grantee's books, records, documents, and accounting procedures and practices of the Grantee or other party relevant to this Grant Agreement or transaction are subject to examination by the Board and/or the State Auditor or Legislative Auditor, as appropriate, for a minimum of six years from the end of this Grant Agreement, receipt and approval of all final reports, or the required period of time to satisfy all State and program retention requirements, whichever is later.
- 8.1. The books, records, documents, accounting procedures and practices of the Grantee and its designated local units of government and contractors relevant to this grant, may be examined at any time by the Board or Board's designee and are subject to verification. The Grantee or delegated local unit of government will maintain records relating to the receipt and expenditure of grant funds.
9. **Government Data Practices.** The Grantee and State must comply with the Minnesota Government Data Practices Act, Minn. Stat. Ch. 13, as it applies to all data provided by the State under this Agreement, and as it applies to all data created, collected, received, stored, used, maintained, or disseminated by the Grantee under this Grant Agreement. The civil remedies of Minn. Stat. § 13.08 apply to the release of the data referred to in this clause by either the Grantee or the State.
10. **Workers' Compensation.** The Grantee certifies that it is in compliance with Minn. Stat. § 176.181, subd. 2, pertaining to workers' compensation insurance coverage. The Grantee's employees and agents will not be considered State employees. Any claims that may arise under the Minnesota Workers' Compensation Act on behalf of these employees and any claims made by any third party as a consequence of any act or omission on the part of these employees are in no way the State's obligation or responsibility.
11. **Publicity and Endorsement.**
- 11.1. **Publicity.** Any publicity regarding the subject matter of this Grant Agreement must identify the Board as the sponsoring agency. For purposes of this provision, publicity includes notices, informational pamphlets, press releases, research, reports, signs, and similar public notices prepared by or for the Grantee individually or jointly with others, or any subcontractors, with respect to the program, publications, or services provided resulting from this Grant Agreement.
- 11.2. **Endorsement.** The Grantee must not claim that the State endorses its products or services.
12. **Governing Law, Jurisdiction, and Venue.** Minnesota law, without regard to its choice-of-law provisions, governs this Grant Agreement. Venue for all legal proceedings out of this Agreement, or its breach, must be in the appropriate State or federal court with competent jurisdiction in Ramsey County, Minnesota.
13. **Termination.**
- 13.1. The State may cancel this Grant Agreement at any time, with or without cause, upon 30 days' written notice to the Grantee. Upon termination, the Grantee will be entitled to payment, determined on a pro rata basis, for services satisfactorily performed.
- 13.2. In the event of a lawsuit, an appropriation from a Clean Water Fund is canceled to the extent that a court determines that the appropriation unconstitutionally substitutes for a traditional source of funding.
- 13.3. The State may immediately terminate this grant contract if the State finds that there has been a failure to comply with the provisions of this grant contract, that reasonable progress has not been made or that the purposes for which the funds were granted have not been or will not be fulfilled. The State may take action to protect the interests of the State of Minnesota, including the refusal to disburse additional funds and requiring the return of all or part of the funds already disbursed.
14. **Data Disclosure.** Under Minn. Stat. § 270C.65, Subd. 3, and other applicable law, the Grantee consents to disclosure of its social security number, federal employer tax identification number, and/or Minnesota tax identification number, already provided to the State, to federal and State tax agencies and State personnel involved in the payment of State obligations. These identification numbers may be used in the enforcement of federal and State tax laws which could result in action requiring the Grantee to file State tax returns and pay delinquent State tax liabilities, if any.

- 15. Prevailing Wage.** It is the responsibility of the Grantee or contractor to pay prevailing wages for projects that include construction work of \$25,000 or more, prevailing wage rules apply per Minn. Stat. §§177.41 through 177.44. All laborers and mechanics employed by grant recipients and subcontractors funded in whole or in part with these State funds shall be paid wages at rates not less than those prevailing on projects of a character similar in the locality. Bid requests must state the project is subject to prevailing wage.
- 16. Municipal Contracting Law.** Per Minn. Stat. §471.345, grantees that are municipalities as defined in Subd. 1 of this statute must follow the Uniform Municipal Contracting Law. Supporting documentation of the bidding process utilized to contract services must be included in the Grantee's financial records, including support documentation justifying a single/sole source bid, if applicable.
- 17. Constitutional Compliance.** It is the responsibility of the Grantee to comply with requirements of the Minnesota Constitution regarding use of Clean Water Funds to supplement traditional sources of funding.
- 18. Signage.** It is the responsibility of the Grantee to comply with requirements for project signage as provided in Minnesota Laws 2010, Chapter 361, article 3, section 5 (b) for Clean Water Fund projects.
- 19. Intellectual Property Rights.** The State owns all rights, title, and interest in all of the intellectual property rights, including copyrights, patents, trade secrets, trademarks, and service marks in the Works and Documents *created and paid for under this grant*. Works means all inventions, improvements, discoveries (whether or not patentable), databases, computer programs, reports, notes, studies, photographs, negatives, designs, drawings, specifications, materials, tapes, and disks conceived, reduced to practice, created or originated by the Grantee, its employees, agents, and subcontractors, either individually or jointly with others in the performance of this grant. Works includes "Documents." Documents are the originals of any databases, computer programs, reports, notes, studies, photographs, negatives, designs, drawings, specifications, materials, tapes, disks, or other materials, whether in tangible or electronic forms, prepared by the Grantee, its employees, agents, or subcontractors, in the performance of this grant. The Documents will be the exclusive property of the State and all such Documents must be immediately returned to the State by the Grantee upon completion or cancellation of this grant at the State's request. To the extent possible, those Works eligible for copyright protection under the United States Copyright Act will be deemed to be "works made for hire." The Grantee assigns all right, title, and interest it may have in the Works and the Documents to the State. The Grantee must, at the request of the State, execute all papers and perform all other acts necessary to transfer or record the State's ownership interest in the Works and Documents.

IN WITNESS WHEREOF, the parties have caused this Grant Agreement to be duly executed intending to be bound thereby.

Approved:

Bassett Creek WMC

Board of Water and Soil Resources

By: _____
(print)

By: _____

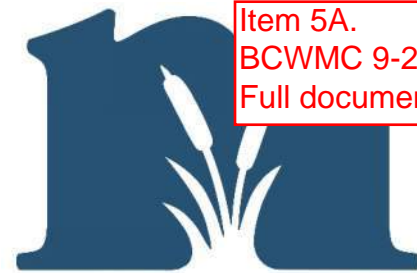
(signature)

Title: _____

Title: _____

Date: _____

Date: _____



Item 5A.
BCWMC 9-20-18
Full document online

CITY OF
MINNETONKA

STORMWATER MANAGEMENT FEASIBILITY ANALYSIS

2019 RIDGEDALE DRIVE RECONSTRUCTION AND CRANE LAKE IMPROVEMENT PROJECT (BCWMC CIP #CL-3)

HENNEPIN COUNTY | MINNETONKA | MINNESOTA

AUGUST 13, 2018
Updated September 10, 2018

Prepared for:
City of Minnetonka
14600 Minnetonka Boulevard
Minnetonka MN 55345

WSB PROJECT NO. 010557-000



STORMWATER MANAGEMENT FEASIBILITY

STORMWATER MANAGEMENT FEASIBILITY ANALYSIS FOR 2019 RIDGEDALE DRIVE RECONSTRUCTION AND CRANE LAKE IMPROVEMENT PROJECT (BCWMC CIP #CL-3)

Completed for

City of Minnetonka and Bassett Creek Watershed District

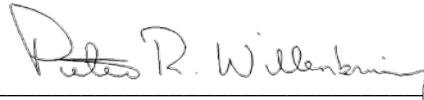
August 13, 2018, updated September 10, 2018

Prepared By:

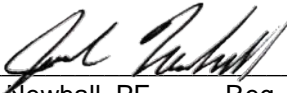


CERTIFICATION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.



Peter R. Willenbring, PE Reg. No. 15998



Jacob Newhall, PE Reg. No. 49170

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FIGURES

Figure 1 – Ridgedale Drive Improvements (Layout)
Figure 2 – Stormwater Management Features
Figure 3 – Subwatershed Map
Figure 4 – Pipe Rehabilitation Option

Appendix A – Soil Information

I. INTRODUCTION AND PURPOSE

This document has been prepared to identify, and evaluate the need for and feasibility of implementing various stormwater management improvements that the City of Minnetonka could undertake as part of the 2019 Ridgedale Drive Reconstruction Project to best manage or improve stormwater quality in Crane Lake, as well as address storage, flooding, or rate control concerns that are present within the Ridgedale Drive right-of-way or the watersheds upstream or downstream of the conveyance system that is present within this right-of-way.

Sections III and IV are focused on only providing information directly related to evaluating/addressing stormwater conveyance, storage, and flooding problems that could/should be addressed as part of the Ridgedale Drive improvement project, which are not related to Crane Lake but were included in this report to provide the City of Minnetonka with direction on the design for these concerns as they complete the design for the roadway. This section of the report will be of more limited interest to the Board of Managers of the Bassett Creek Watershed.

Sections V and VI focus on improvement options that are specifically and directly related to Crane Lake water quality, and **Section VII-C** provides recommendations related to these options.

II. BACKGROUND

The Ridgedale Drive Reconstruction Project, anticipated to be constructed in 2019, consists of the reconstruction and reconfiguration of Ridgedale Drive from its intersection with Plymouth Road on the southwest corner of the Ridgedale shopping center, then east and north to its intersection with I-394 on the northeast side of the shopping center (**Figure 1**).

The current preferred alternative will change the roadway from an undivided multiple lane section to a single lane section with a landscape median and replace major intersections with roundabouts. This design will also reduce the amount of impervious surface over the project area by approximately two acres.

The project area is almost entirely within the Bassett Creek watershed and governed by stormwater rules promulgated by the Bassett Creek Watershed Management Commission (BCWMC). For linear reconstruction projects in this area that have a net reduction in impervious surface area, which is the case for this project, the Bassett Creek Watershed as well as City of Minnetonka rules do not require any additional stormwater management features or improvements be integrated into the design. However, the incorporation of best reasonable stormwater treatment technologies is encouraged if it is reasonable and practical to do so by these agencies and is desired by the owners of this project.

A review of soil information for the area indicate native soils are primarily organic, have a saturated water condition typically within a few feet of the surface, and low infiltration potential. These conditions limit use of some BMP options that otherwise might be considered on a similar project. Information on soils in the area are included in **Appendix A**.

A review of existing water quality data for the lake indicated the average total phosphorus concentration in the lake from 1972 to 2016 was .088 mg/l, chlorophyll a was .025 mg/l, and secchi depth transparency was one meter. More detailed information on the water quality of the lake can be found in the 2017 report on Crane Lake prepared by Barr Engineering for the Bassett Creek Watershed Management Commission.

A review of existing water quality concerns in the watershed also indicate chloride concentrations close to or slightly exceed the 230 mg/l chronic threshold level for impairment have been observed in Crane lake, immediately downstream from the outlet of the storm sewer that directs runoff from the south side of the Ridgedale shopping center parking lot. Based on samples collected in July 2018 the chloride concentration of stormwater runoff present in Ridgedale Pond, which is immediately upstream of Crane Lake was 450 mg/l.

As part of the analysis of existing conditions related to conveyance system capacity and stormwater quality, as well as the development of the options for drainage system improvements provided within this document, we have completed new or reviewed and updated existing hydrologic and water quality models for the area and completed additional analyses to evaluate the feasibility and cost vs benefit of options identified. The results of this study on the need for conveyance system capacity improvements and additional water quality BMPs are provided in the following sections of this document.

V. WATER QUALITY TREATMENT PROVIDED BY EXISTING SYSTEM

Runoff from the Ridgedale shopping center parking lot, is directed to Ridgedale pond, or a pond on the northeast side of the shopping center where physical and biological processes provide treatment for the runoff. Runoff from areas along Ridgedale Drive downstream of this area direct runoff into small pretreatment ponds adjacent to a downstream lake/wetland referred to as Crane Lake.

Information on the ability of Ridgedale Pond as well as the pond on the northeast side of the shopping center to treat stormwater from the watershed areas that direct runoff to the ponds was previously analyzed and provided in a report entitled *Crane Lake Water Quality and Sub-Watershed Assessment*. This report was prepared by Barr Engineering for the Bassett Creek Watershed Management Commission and dated June 2017. This report/study also included the development of a P8 water quality model for the area and information from this model was used in our evaluation of alternatives.

In addition to using the above information, an inspection and survey was completed for Ridgedale pond reflecting it has an average depth of approximately 5 feet, and approximately 20 acre-feet of dead-pool storage is available in the pond to enhance treatment. This information was consistent with that included in the P8 model that was previously completed.

The P8 water quality analysis of the watershed and pond completed by the Bassett Creek Watershed Management Commission predicts the pond in its existing condition removes approximately 94% of the Total suspended solids (TSS) and 72% of the total phosphorus (TP) directed to it from its' surrounding watershed.

Monitoring data for Crane Lake completed by the Bassett Creek Watershed also indicated the in-lake Chloride concentration for the Basin was typically above 200 mg/l, and periodically exceeded the chronic threshold value for impairment of 230 mg/l. This has been identified as a significant concern by the Watershed. Based on a sample of water collected in early July 2018, Ridgedale pond was observed to have in-basin chloride concentrations of 450 mg/l. Under existing conditions, limited if any removal of chlorides is projected to be provided by the removal mechanisms present in the pond due to the soluble nature of this pollutant.

A. WATER QUALITY TREATMENT REQUIRED TO MEET CURRENT STANDARDS

No additional treatment is required for this project as the amount of impervious surface will be reduced as part of this project; however, providing additional treatment is encouraged if it is reasonable and practical to do so and desired by the owner of the project.

VI. OPTIONS FOR STORMWATER TREATMENT: CRANE LAKE IMPROVEMENT PROJECT BCWMC CIP #CL-3.

Multiple treatment options are available that have the potential to improve the quality of water currently discharged downstream from the shopping center into Crane Lake. A listing of these options along with the cost and benefits related to these improvements is provided below:

1) DREDGE RIDGEDALE POND TO ADDRESS FUTURE MAINTENANCE NEEDS AND IMPROVE POLLUTANT REMOVAL EFFICIENCY.

Ridgedale Pond could be dredged to a greater depth to provide enhanced dead pool storage and potentially better treatment, and or slightly expanded to increase storage to offset loss of storage should the parking lot elevation be raised to reduce flood depths in parking lot.

Based on a review of the results of a P8 model analysis for this pond that was completed by Barr Engineering and a sediment depth survey that was completed by WSB, except for the area in the immediate vicinity of the parking lot pipe outfall into the basin, the depth throughout the pond is 5 to 6 feet deep, and only sediment removal near the pipe outfall is currently needed. P8 model simulations completed by Barr Engineering indicate that removal efficiencies for this basin exceed 90% for TSS and 70% for TP. These removal efficiencies are on the high end of the range of removal efficiencies for treatment ponds. Because this basin is already performing at very high removal efficiencies and does not require maintenance except for removal of a sediment delta, this project will not significantly increase the annual removal of TSS or TP from water being treated by this pond.

Should removal of the sediment delta be desired, based on removing 1,000 CY of material at \$40 CY, and using a 30% engineering, legal, administrative and contingency factor of approximately 30%, the cost to complete this work is estimated at \$50,000.

2) MODIFY RIDGEDALE POND OUTLET TO PROVIDE LOW FLOW DRAWDOWN/ ENHANCED TREATMENT IN-BETWEEN RAINFALL EVENTS.

This option would modify the Ridgedale Pond outlet to provide enhanced skimming and low flow drawdown treatment of stormwater during non-rainfall event conditions. This low flow enhanced treatment would be provided by directed runoff thru canister treatment cells, iron sand, or other tertiary treatment filtering mechanisms.

The system could be designed to direct runoff to these tertiary treatment filters in one of two ways. The first would be to modify the outlet to impound additional water, create a low flow gravity drawdown diversion, and direct this additional impounded water the tertiary treatment system.

The second related option would be like the first option, except instead of impounding additional water to create a gravity drawdown system, a low capacity pump (solar, electric or hybrid powered) would be installed that would allow for further drawdown of the pond and provide low flow treatment of stormwater stored in the pond in-between events. This option would also have the potential to increase live and dead pool storage in the pond between rainfall events, thereby potentially reducing the high-water level of the pond, and increasing treatment times for runoff directed to the pond.

Based on the added benefits related to the second option (providing a system that can provide more live pool storage between storms), concerns related to more flooding occurring if we impound more water between storms in the pond to allow for a gravity drawdown that

was needed in the first option, and the second option's ability to make use of more locations for tertiary treatment, the second option was selected for more detailed evaluation.

Based on an estimated cost for construction of a lift station/pump/controls and force main at \$100,000, the cost of iron sand or canister system at \$150,000, and 30% for indirect costs, it is estimated the capital cost for implementation of this option would be approximately \$300,000 plus the cost for periodic replacement of filter media, which is estimated at an additional \$250,000 over the 30-year life expectancy for the project.

Because this option could not handle treatment of runoff during heavy rainfall events, it was estimated that enhanced treatment would only provide such treatment for approximately 50% of the annual runoff passing thru the treatment pond. This enhanced treatment would be estimated to increase the removal efficiency for TSS from approximately 94 to 97% and for TP from 72% to 90%. This would correspond to an increase in annual TSS removal from 38,400 to 39,000 lbs. (600 lbs.), and increase annual TP removal from 112 to 125 lbs. (13 lbs.)

Based on a 30-year life cycle cost of approximately \$18,000/year, this BMP would remove TP at a cost of \$1,384/pound.

As part of the development of public amenity related components of this project, if desired, the treated runoff from this BMP could potentially be integrated into those elements of the design if the components might include incorporation of a water feature such as an open channel stream, pond, waterfall, etc. This feature could also be further developed into a public education experience on how stormwater runoff is managed and lakes are protected.

3) REUSE STORMWATER FROM RIDGEDALE POND FOR IRRIGATION.

This option involves reuse of stormwater from the Ridgedale Pond for irrigation of proposed new vegetated median to be constructed as part of Ridgedale Drive improvements, or other selected areas. It is however understood that this option would only be feasible if chloride levels in water taken from this pond are low enough to not harm vegetation.

Based on testing of chloride concentrations in this basin in July 2018, the chloride concentration in the pond was determined to be 450 mg/l. Although this concentration is not high enough to immediately impact vegetation, higher concentrations are likely present in March through June, and prolonged exposure of vegetation to irrigation water having chloride concentrations that were observed in July testing, has the potential to cause future problems.

Furthermore, because the area to be irrigated will be limited to medians and other areas in right of way, the cost per acre to set up a stormwater reuse system in this location will be very high.

For the above reasons, we would not recommend implementation of this BMP as part of this project.

4) INSTALL STORMWATER TREATMENT BMPS IN RIDGEDALE SHOPPING CENTER PARKING LOT UPSTREAM OF RIDGEDALE POND OR EAST POND.

This option would involve installation of stormwater storage, iron sand filters, rain-gardens or other treatment cells on or under surface of the Ridgedale parking lot in areas upstream of the two treatment ponds that are in place on the northeast or south sides of the shopping center. It is anticipated installation of any of the above improvements would typically result in

the removal of 80 to 90 % of the TSS and 40 to 60% of the TP from the raw previously untreated stormwater discharged from the parking lot. The cost for installation of these treatment cells would range from \$100,000 to \$250,000.

Although, the above option is a cost-effective option to provide treatment, P8 modeling for the areas that currently direct runoff to Ridgedale Pond or the east pond indicates that these ponds are already treating runoff from these areas equal to or in excess of the removal efficiencies noted above. As a result, installation of redundant treatment upstream systems upstream of these ponds will provide limited additional removal or benefits to downstream water bodies over that provided by the existing ponds, and installation of this type of BMP is not deemed cost effective and is not recommended in these areas for TP or TSS removal.

5) INSTALL STORMWATER RUNOFF BMP'S TO PROVIDE TREATMENT SYSTEMS FOR RUNOFF NOT CURRENTLY RECEIVING TREATMENT PRIOR TO DISCHARGE TO CRANE LAKE.

This option involves providing enhanced treatment for runoff from the Ridgedale Road right-of-way, and upland areas that are not currently receiving significant treatment prior to discharge to Crane Lake. A 13.4-acre area has been identified southeast of the shopping center that is not receiving a high level of treatment. An investigation into options for treatment in this area observed that use of an area on the east side of the parking lot located north of the hotel adjacent to Crane Lake would be ideal for this purpose.

Provided the City of Minnetonka can obtain the right to use this property for this purpose, the construction of a surface pond, or underground treatment system could be feasible in this area.

If an underground treatment area was constructed capable of providing dead pool storage for the first .5 inches of runoff from this area, it is estimated, at a cost of \$10 cubic foot, the cost for constructing this type of BMP, including 30% for indirect costs, is estimated at 300,000.

Based on an untreated influent loading for TSS of 400 pounds/acre and for TP of 1.5 pounds/acre, with the BMP option described above, removal efficiencies for TSS and TP based on this design are estimated at 80% for TSS and 50% for TP. Based on this estimate, these BMPs would provide annual TSS/TP removal per acre of 320 pounds per acre TSS and from 0.75 pounds of TP per acre.

Based on a construction cost of \$300,000, additional indirect costs of 30%, and annual maintenance costs of \$5,000 per year, the life cycle cost for this improvement is estimated at \$18,000 per year.

Based on the above, the cost per pound of TSS and TP removed is estimated at \$4.20 per pound for TSS and \$1,030 pounds for TP removed.

As part of the development of public amenity related components of this project, if desired, the treated runoff from this BMP could potentially be integrated into those elements of the design if the components might include incorporation of a water feature such as an open channel stream, pond, waterfall, etc. This feature could also be further developed into a public education experience on how stormwater runoff is managed and lakes are protected.

6) PERIODICALLY DOSE STORMWATER PONDS WITH ALUM TO IMPROVE WATER QUALITY AND REDUCE RATE OF INTERNAL SEDIMENT NUTRIENT RELEASE.

This project would involve periodic application of liquid aluminum sulfate to the ponds either by titrating the coagulant into the pond based on flow rates, or periodically batch treat the basins based on rainfall and or results of water quality sampling in the basin.

The treatment would be primarily used to improve the ponds ability to remove soluble phosphorus prior to discharge of this treated water to Crane Lake.

Based on a literature review, phosphorus removal exceeding 90% of pretreatment concentrations can be achieved provided it is properly applied and the system is properly maintained.

If it is assumed that the P8 model prepared by Barr Engineering is accurate, which indicates the ponds are removing approximately 72% of the phosphorus directed to them. This approach has the potential to increase this removal to in excess of 90%. However, for estimation purposes, because some events may not be able to be treated with optional dosing and mixing conditions, we would suggest a typical removal of 85% of TP be used. Using these estimates, the treatment would increase the removal percentage from 72 to 85%, and increase the annual removal predicted by this model by 20 pounds of TP annually.

Jar testing will be required to accurately estimate alum dosage rates and the corresponding cost for annual treatment; however, a cost estimate has been developed based on typical alum with polymer dosage rates applied by others in similar applications.

Based on annually treating 13 inches of runoff from the site, which would be typical for the non-winter months, approximately 100 acre-feet of runoff would need to be treated each season. Based on using a dosage rate of 0.1 ml/liter, approximately 400 gallons of reagent would be needed. Using \$15 per gallon cost, reagent costs are estimated at \$6,000 annually. It is also estimated that the lease cost to operate, monitor, and maintain equipment needed to facilitate this application would be approximately \$12,000 annually, and coupled with \$30% indirect costs would result in an annualized cost of \$25,000 per year to operate.

Based on a 30-year application period, and an estimated annualized treatment cost of \$25,000/year for phosphorus removal, this would correspond to a cost of approximately \$1,250 /pound of TP removed.

7) DIVERT HIGH CHLORIDE SNOW-MELT WATER TO REVERSE OSMOSIS TREATMENT SYSTEM

This option involves construction of Snow melt diversion system that would route winter and spring low flow runoff with high chloride concentrations to an underground storage tank or to Ridgedale pond, and then pump it into a reverse osmosis treatment system. Treated water with low chloride concentrations would then be discharged into Crane Lake. The system would also require the discharge of backwash effluent to the sanitary sewer, which would need to be approved by MCES.

The reverse osmosis system would include installation of a wet well and submersible pump that would direct high chloride runoff diverted to the system to two skid mounted treatment systems constructed in series. The first skid would house the manifold, filtration and controls for filtering the water before it reaches the RO. This skid would also be housed in an

enclosure would also have insulation and the appropriate heaters to assure the filtration units wouldn't freeze.

The second skid would house the RO in an enclosure which would have insulation and appropriate heaters to assure the unit would not freeze. It would have appropriate lighting and vents. All controls to operate the RO will be installed in the enclosure with the RO.

Based on current available information on influent quality, the filtration skid would need to include 2 x 25 micron filters and 2 x 5 micron filters. This could change if future water sampling completed during the design process reveals contaminant levels significantly different than those estimated as part of this feasibility analysis.

The filters and RO system would be connected to the sanitary sewer system to allow for the disposal of back-wash water. The proposed reverse osmosis system is estimated to treat water at a rate of 50 GPM, and at that rate, would produce between 30 and 40 GPM clean water that would be discharged to Crane Lake, and 10 to 20 GPM of backflush water that would need to be discharged to the sanitary sewer. The system would reduce concentrations of chloride in snow melt runoff from over 1000 mg/l to less than 10 mg/l.

We anticipate this system would only be operated continuously during times when salt is being applied to melt snow and ice, snow is melting, and or during times when light rainfall is washing off previous applied salt. Based on a review of monthly average precipitation data for the area, between December and April, approximately 6.3 inches of precipitation falls in the form of rain and snow, and about 3 inches of runoff is generated from impervious surfaces in this area during this time.

For the area, directly tributary to Ridgedale Pond, this would correspond to a runoff volume of 24 acre-ft. If this runoff was not allowed to be directed to Crane lake, either thru diversion or treatment, it is anticipated that over 75% of the chloride loading currently being directed to Crane lake from the Ridgedale pond watershed could be eliminated.

The cost to furnish and install the RO and pump station is estimated to range from \$350,000 to \$450,000. If an additional tank is installed to capture the water from the parking lot, this could increase the cost by an additional \$150,000, resulting in a total project cost with contingency estimated to range from \$500,000 to \$600,000.

The cost to operate the system will also include costs for power, discharge of effluent to sanitary sewer, labor and materials needed to facilitate on-going operation and maintenance, and monitoring. Based on information developed by others in the operation of similar systems, the total cost for construction and operation of this type of system typically runs between 6 and 7 cents per gallon of water treated, plus the cost for disposal of backwash effluent to the sanitary sewer. If the system was operated at 50 gallons per minute for 4 months (December 15 to April 15) this would correspond to approximately 24 acre-ft. of snow melt water being treated. This represents approximately 20% of the total volume of runoff from the site annually. The annualized cost for this treatment is estimated to range from \$50,000 to \$70,000.

For water treated by this system, it is anticipated this project could increase the annual removal efficiency for TSS from 94 to 98%, TP from 72 to 95%, and from 0% to 95% for chloride removal. This would correspond to an increased removal of 300 lbs. of TSS, 6 lbs. of TP, and 49,000Lb of Chlorides (Chloride removal based on an estimated average flow weighted mean concentration of chloride in untreated water of 750 mg/l.)

8) DIVERT HIGH CHLORIDE SNOW-MELT RUNOFF TO SANITARY SEWER

This option involves construction of Snow melt diversion system similar to that described for the RO filter option, but instead of directing the snow melt water to the RO system and discharging 20 to 40 percent of this water in the form of backwash effluent to the sanitary sewer, all the winter and spring low flow runoff with high chloride concentrations would be routed directly to the sanitary sewer, eliminating the need for the RO system. Conventional storm water treatment would be provided prior to discharge of this snow melt water to the sanitary sewer.

This system would consist of installing a pump or gravity low flow outlet from a collection/pretreatment tank or Ridgedale pond and direct this runoff to the sanitary sewer, when chloride concentrations in the pond exceed designated allowable discharge concentrations. Concentrations of chlorides could be monitored using conductivity as a surrogate indicator to ensure only snow melt runoff with unacceptably high concentrations of chlorides would be diverted to the sanitary system.

It is anticipated that similar to the RO system, the diversion would have an average capacity of 50 gallons per minute (0.1 CFS). This system would provide reductions in pollutant concentrations like the RO system, but would not require installation of the system. The system would now not include the cost for construction and operation of the RO system, but would have increased costs for disposal to the sanitary sewer.

The capital cost to install a pretreatment system for this runoff, as well as needed pumps/valves, and monitoring equipment is estimated at \$150,000, and the cost to discharge 24 ac-ft. of snow melt water to the sanitary sewer is estimated at \$32,000 based on a treatment cost of \$4 per 1000 gallons.

Based on the above estimates, the annual cost for this BMP which would include costs to construct, operate and pay treatment fees to MCES each year, is estimated at \$45,000, using a 25-year life expectancy. Based on using this estimated annualized treatment cost, which is 25% less than the RO option, the cost per pound removed for TSS, TP and Chlorides would be \$150/ lb., \$7500/lb. and \$0.94/lb. respectively for these three pollutants.

Although implementation of this option may require significant permitting effort, the approach is innovative and could be applied in other areas with similar runoff concerns. Furthermore, given the only other pragmatic option for Chloride management is to reduce use of salt for deicing, development of this option in areas where reducing salt use to the extent needed cannot be accomplished, may be the only way to address the Chloride impairments of many of our Water Resources.

VII. RECOMMENDED IMPROVEMENT OPTIONS

A. PIPE CAPACITY/ FLOODING ISSUES

To address Pipe Capacity/ flooding issues, the most cost-effective approach to address this issue is to increase elevation of parking lot or change use of parking lot in those locations to accommodate periodic inundation. **(Conveyance System Improvement Option 2)**

The analysis further indicated that since pond high water elevations will only back up into parking lot to a depth that would cause damage for events that exceed a 25-year return frequency, and should inundation occur, water will only be present for up to 3 hours, further capacity increases to the pond outlet to address this issue may not be warranted.

B. STORM SEWER PIPE DETERIORATION

To address pipe deterioration concerns, given that the pipe is structurally sound and has at least 50 years of service life remaining without replacement, it is recommended that the City implement actions needed to address deficiencies outlined in maintenance report. **(Conveyance System Improvement Option 5)** This would involve addressing observed scouring in selected areas by lining, paving invert, and or performing maintenance needed to address other deficiencies identified in inspection report. This option will not defer action to repair known deficiencies to a later date.

C. STORMWATER TREATMENT TO REDUCE THE SUSPENDED SOLIDS AND PHOSPHORUS LOADING TO CRANE LAKE.

(See Table 1)

- 1) **Implement BMPs to treat runoff that now is directed to Crane Lake untreated.** Our investigation revealed that approximately 13 acres are now directing runoff to Crane Lake without benefit of treatment, and some form of treatment should be provided for this runoff if possible. As part of this project, this could be accomplished by building a pond or underground treatment system in the south-east part of the study area, either in the shopping center or east side of hotel parking lot adjacent to Crane Lake. **(Stormwater treatment Option 5)**

Coarse sedimentation and skimming designs would provide the most cost-effective removal of these pollutants but would also provide lower removal percentages. Could also consider higher cost per pound/ higher removal percentage design options in these locations as well, depending on the size and location of property that could be secured for this purpose.

As part of the development of public amenity related components of this project, if desired, the treated runoff from this BMP could potentially be integrated into those elements of the design if the components might include incorporation of a water feature such as an open channel stream, pond, waterfall, etc. This feature could also be further developed into a public education experience on how stormwater runoff is managed and lakes are protected.

- 2) **Implement Alum enhancement modification to Ridgedale pond and or East pond to increase removal of soluble phosphorus and other pollutants.** This option, which would involve either periodically dosing, or regularly titrating a flocculation reagent into the pond based on flow, was found to be one of the more cost-effective options for reducing downstream nutrient loads to Crane Lake. **(Stormwater Treatment Option 6)**

3) Move ahead with further evaluation and permitting of innovative high chloride snowmelt diversion project (Stormwater treatment Option 8)

If chloride impairment of Crane Lake is significant concern, and the City or other project partners wish to work toward implementation of this option, a more refined plan and formal request to MCES to allow controlled discharge of high chloride melt water to Sanitary Sewer during the winter months should be submitted on behalf of the project partners to allow for a formal evaluation of the use of the MCES system for this purpose.

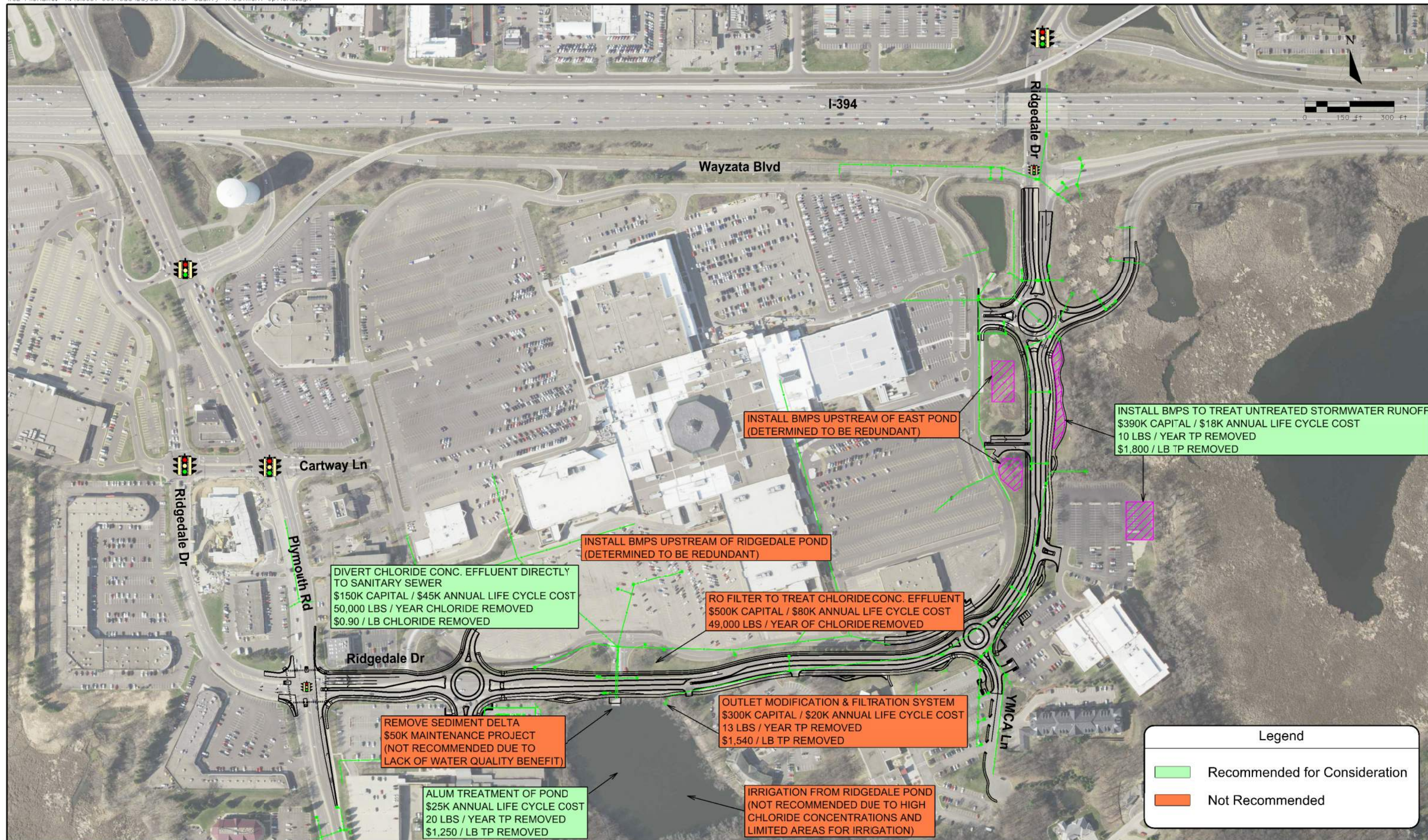
A preliminary submittal this concept has been reviewed by MCEs at a staff level, and additional discussions with MCES will need to be held to fully define if and to what extent the sanitary sewer system in this area can be utilized for this purpose.

Should MCES allow this discharge to the sewer, the capital cost associated with implementation of improvements to facilitate this snowmelt diversion is preliminarily anticipated to range from \$100,000 to \$150,000 but could change depending on permit conditions, along with annual costs for discharge of snow melt water anticipated to range from \$20,000 to \$35,000 annually.

Table 1: Features, Costs, and Benefits of Recommend Options

See refined table in Commission Engineer memo

| Recommended Options | | Watershed Area (ac) | Pollutants Addressed | Raw Loading (lb/yr) ¹ | Existing % Removal | Proposed % Removal | Pollutant Removal (per year) | Total Project Capital Cost | Annualized 30-year Life Cycle Cost | Cost / lb of Pollutant Removed | Notes |
|---------------------|---|---------------------|----------------------|----------------------------------|--------------------|--------------------|------------------------------|----------------------------|------------------------------------|--------------------------------|---|
| Option 1 | Construct pond or underground treatment system in hotel parking lot (CL-417B) | 13.4 | TSS | 5360 | 0 | 80 | 320 lb/ac 4300 lbs | \$390,000.00 | \$18,000.00/year ⁴ | TSS: \$4.20/lb | 1. Existing information from <i>Crane Lake - Water Quality and Subwatershed Assessment</i> dated June 2017. 2. This option will treat 24 ac-ft per year, which assumes 3-inches of snowmelt runoff volume for the winter months based on monthly average precipitation data. 3. Limited capital costs as this is a lease option. 4. Assumes \$5,000 maintenance cost per year during 30-year life cycle 5. Assumes \$32,000 in MCES treatment charges and \$8,000 maintenance per year. |
| | | | TP | 20.1 | 0 | 50 | 0.75 lb/ac 10.0 lbs | | | TP: \$1,800.00/lb | |
| Option 2 | Implement Alum enhancement in Ridgedale Pond (CL-410) | 97.9 | TP | 149.2 | 72 | 85 | 0.20 lb/ac 20 lbs | N/A ³ | \$25,000.00/year | TP: \$1,250/lb | |
| Option 3 | Monitor and divert chloride concentrated snowmelt effluent from mall parking lot to sanitary sewer ² | 97.9 | TSS | 40,077 | 94 | 100 | 36.9 lb/ac 3610 lbs | \$150,000.00 | \$45,000.00/year ⁵ | TSS: \$12.50/lb | |
| | | | TP | 149.2 | 72 | 100 | 0.43 lb/ac 41.8 lbs | | | TP: \$1,080.00/lb | |
| | | | Chloride | 52,600 | 0 | 95 | 50,000 lb | | | Cl: \$0.90/lb | |



Memorandum

To: Bassett Creek Watershed Management Commission
From: Barr Engineering Co.
Subject: Item 5A – Review Draft Feasibility Study for Crane Lake Improvement Project via Ridgedale Drive (CIP #CL-3) – Minnetonka, MN
BCWMC September 20, 2018 Meeting Agenda
Date: September 12, 2018
Project: 23270051 2018 640

5A Review Draft Feasibility Study for Crane Lake Improvement Project via Ridgedale Drive (CIP #CL-3) – Minnetonka, MN

Summary:

Proposed Work: Crane Lake Improvement Project (CIP #CL-3) as part of Ridgedale Drive Reconstruction

Basis for Review at Commission Meeting: Draft CIP Project Feasibility Study Review

Recommendation: Request additional information for the recommended BMPs, and request that the feasibility study be resubmitted to BCWMC for review and approval at a later meeting.

Background

The Bassett Creek Watershed Management Commission's (BCWMC) 2015-2025 Watershed Management Plan (Plan) addresses the need to improve the quality of stormwater runoff reaching the Mississippi River by reducing nonpoint source pollution, protecting and enhancing fish and wildlife habitat, reducing stormwater runoff volume to improve water quality, and taking into account aesthetics and recreational opportunities within the watershed. The Plan's 10-year Capital Improvement Program (CIP, Table 5-3 in the Plan, as amended) includes a project for retention of impervious area drainage in the Ridgedale Center area. The BCWMC approved the 5-year (working) CIP at their April 19, 2018 meeting, which included implementation of the Crane Lake Improvement Project (CIP #CL-3), as part of the Ridgedale Drive reconstruction project, in 2020. If approved, CIP #CL-3 will be funded by the BCWMC's ad valorem levy (via Hennepin County).

In accordance with the BCWMC Plan and Joint Powers Agreement, the City of Minnetonka prepared and provided a draft feasibility study to the BCWMC Engineer for review. The following is a summary of the draft feasibility study and the BCWMC Engineer's recommended revisions for the draft feasibility study.

Feasibility Study Summary

The City of Minnetonka's draft *Stormwater Management Feasibility Analysis* (WSB, August 13, 2018; updated September 10, 2018) examines the feasibility of several water quality improvement alternatives

for the pond south of Ridgedale Center and Ridgedale Drive (Ridgedale Pond), the pond to the northeast of Ridgedale Center (northeast pond), and runoff from Ridgedale Center and Ridgedale Drive. The water quality improvement options selected for implementation would be constructed as part of the city's Ridgedale Drive Reconstruction project, scheduled for construction in 2019.

The feasibility analysis identifies eight water quality improvement options, including:

- Option 1 – Dredge Ridgedale Pond to address future maintenance needs and improve pollutant removal efficiency
- Option 2 – Modify Ridgedale Pond outlet to provide low flow drawdown and enhanced treatment in-between rainfall events
- Option 3 – Reuse stormwater from Ridgedale Pond for irrigation
- Option 4 – Install stormwater treatment BMPs in Ridgedale shopping center parking lot upstream of Ridgedale Pond or the northeast pond
- Option 5 – Install stormwater runoff BMPs to provide treatment systems for runoff not currently receiving treatment prior to discharge to Crane Lake
- Option 6 – Periodically dose stormwater ponds with alum to improve water quality and reduce rate of internal sediment nutrient release
- Option 7 – Divert high chloride snow-melt water to reverse osmosis treatment system
- Option 8 – Divert high chloride snow-melt runoff to sanitary sewer

The feasibility study evaluated these eight options at a high level, and based on input from City of Minnetonka staff, the eight options were narrowed down to three recommended options. The feasibility study further evaluated these three recommended options (option 5, option 6, and option 8) for BCWMC consideration as part of the CIP #CL-3 project. The three options are further discussed below. Table 1 from the feasibility study, edited for clarity, is provided below and compares the three recommended options.

The study also discusses alternatives to reduce inundation depths in the Ridgedale Center parking lot during the 100-year storm event. However, these alternatives are part of the Ridgedale Drive conveyance analysis and are not part of the CIP #CL-3 project, and were therefore not reviewed by the BCWMC Engineer.

Option 5 – Stormwater Treatment for Untreated Runoff to Crane Lake

According to the feasibility analysis, stormwater runoff from 13.4 acres currently flows to Crane Lake without treatment. This option includes constructing a stormwater pond or underground treatment system in the southeast part of the study area, either in public right-of-way, the Ridgedale shopping center, or in a private parking lot at the Sheraton Minneapolis West hotel, adjacent to Crane Lake. The feasibility study indicates that, based on the type of BMP selected, treatment could be provided through sedimentation, skimming, or filtration, although details on the specific types of BMPs have not been provided. This alternative would require coordination with private property owners and an easement for the proposed stormwater utilities, especially if located in the private parking lot.

To: Bassett Creek Watershed Management Commission
From: Barr Engineering Co.
Subject: Item 5A – Review Draft Feasibility Study for Crane Lake Improvement Project via Ridgedale Drive (CIP #CL-3) – Minnetonka, MN
Date: September 12, 2018
Page: 3

Option 6 – Alum Treatment in Ridgedale Pond

This option includes implementing alum treatment in Ridgedale Pond to reduce internal phosphorus loading and reduce total phosphorus in the water column, either through periodic dosing or regular titration of alum into the pond based on inflows.

Option 8 – High Chloride Snowmelt Runoff Diversion to Sanitary Sewer

This option includes the pumping of snowmelt runoff from the Ridgedale Pond watershed to the Metropolitan Council Environmental Services (MCES) sanitary sewer, rather than discharging to Crane Lake (which has elevated levels of chlorides). The snowmelt runoff maybe be captured in a subsurface storage tank or pumped directly from Ridgedale Pond. This option will require further evaluation of the feasibility and permitting requirements for diverting snowmelt runoff with high chloride concentrations to the sanitary sewer, and if that will be allowed by the MCES. Additionally, this option does not reduce the private application of chlorides and salts in the watershed; however, it would divert the chloride load away from Crane Lake. This diverted runoff would be sent to the MCES wastewater treatment plant (although treatment in the plant will not remove/reduce chlorides) and this water would ultimately discharge to the Mississippi River.

Table 1: Features, Costs, and Benefits of Recommended Options

| Recommended Options | | Watershed Area (acre) | Pollutant Addressed | Raw Loading (Pound/Year) ¹ | Existing Percent Removal (%) | Proposed Percent Removal (%) | Annual Pollutant Removal (Pound/Year) | Total Project Capital Cost (\$) | Annualized 30-Year Life Cycle Cost (\$/Year) | Annualized Cost per Pound of Pollutant Removed (\$/Pound/Year) |
|---------------------|---|-----------------------|---------------------|---------------------------------------|------------------------------|------------------------------|---------------------------------------|---------------------------------|--|--|
| Option 5 | Construct a pond or underground treatment system for untreated runoff to Crane Lake (CL-417B) | 13.4 | TSS | 5,360 | 0 | 80 | 4,300 | \$390,000 | \$18,000 ⁴ | \$4.20 |
| | | | TP | 20.1 | 0 | 50 | 10 | | | \$1,800 |
| Option 6 | Implement alum treatment in Ridgedale Pond (CL-410) | 97.9 | TP | 149.2 | 72 | 85 | 20 | N/A ³ | \$25,000 | \$1,250 |
| Option 8 | Monitor snowmelt and divert runoff with high chloride concentrations from the Ridgedale Center parking lot to the sanitary sewer ² | 97.9 | TSS | 40,077 | 94 | 100 | 3,610 | \$150,000 | \$45,000 ⁵ | \$12.50 |
| | | | TP | 149.2 | 72 | 100 | 41.8 | | | \$1,080 |
| | | | Chloride | 52,600 | 0 | 95 | 50,000 | | | \$0.90 |

¹ Existing information from *Crane Lake – Water Quality and Subwatershed Assessment* dated June 2017.

² This option will treat 24 acre-feet per year, which assumes three inches of snowmelt runoff volume for the winter months, based on monthly average precipitation data.

³ Limited capital costs as this is a lease option.

⁴ Assumes \$5,000 maintenance cost per year during 30-year life cycle.

⁵ Assumes \$32,000 in MCES treatment charges and \$8,000 maintenance per year

Recommendations

The Commission Engineer recommends the following revisions to the draft *Stormwater Management Feasibility Analysis 2019 Ridgedale Drive Reconstruction and Crane Lake Improvement Project (BCWMC CIP #CL-3)* (dated 9/10/2018):

Note: At the request of the City of Minnetonka, we focused our feasibility study review on the three recommended water quality improvement projects (Options 5, 6, and 8), and did not focus efforts on projects that were evaluated at a high level but were eliminated for consideration by the City of Minnetonka during the development of the feasibility report.

1. Two different pieces of information were provided for use in the Crane Lake Feasibility Study:
 - a. The excerpt from the 2014-2016 Subwatershed Assessment Report (including the revised P8 model), dated June 2017, completed by Barr for the City of Minnetonka
 - b. The 2016 Water Quality Summary for Crane Lake, developed by Barr for the BCWMCThe references to these studies need to be revised in the Feasibility Study to reference the correct study and for whom the study was completed.
2. For the recommended options (at a minimum), the report should identify the BCWMC objectives (from the Watershed Management Plan) that are addressed by each of the alternatives.
3. Eight water quality improvement options were evaluated at a high level and summarized in the feasibility study report, but based on City input, only three options were selected by the City for further evaluation/consideration. The report should provide the pros and cons of each alternative so it is clear to the Commission why the recommended alternatives were selected/preferred.
4. All figures in the report should be titled, numbered, and referenced in the text accordingly, so it is clear what figure the reader should be reviewing as they are reading the report text.
5. Section II should include a brief summary of the existing water quality in Crane Lake, focusing at a minimum on total phosphorus and chloride concentrations in comparison with MPCA state standards/potential impairments, as these pollutants are the focus of the alternatives considered.
6. Section V, paragraph 1 references small pretreatment ponds that treat runoff from areas of Ridgedale Drive downstream of Ridgedale Pond or the pond to the northeast of Ridgedale Center. It is not clear what ponds this statement is referring to and is not clear on the figures provided. A figure should be included highlighting all of the existing ponds that are referenced in this paragraph, including Ridgedale Pond, the northeast pond, the small pretreatment ponds, and Crane Lake.
7. Section V, paragraphs 1 and 3, discusses the existing ponds that provide treatment upstream of Crane Lake. The report should include a summary of the existing pollutant removal, as a percentage and as estimated pounds per year, in the existing ponds at Ridgedale Center, for both the south and northeast ponds.
8. Section VI includes cost estimates for various stormwater treatment improvements. For the recommended options (at a minimum), the report text should clearly state the cost assumptions for construction, contingency, planning, engineering, and design to support the provided cost estimates. A similar footnote should be added to the Total Project Capital Costs heading in Table 1 to reflect these assumptions.
9. Section VI, item 1) outlines the potential dredging of Ridgedale Pond. Barr Engineering provided a P8 model for the City of Minnetonka to use in the BCWMC Crane Lake Improvement Project; this model was originally developed for the BCWMC and was updated on behalf of the city for a more recent study. The existing treatment performance of the pond noted in the text is based on

the provided P8 model. However, Barr did not complete the P8 analysis for this feasibility study as the text indicates. This should be revised and clarified in the text.

10. Section VI, item 5) (Option 5) describes the project to provide treatment of 13.4 acres of untreated watershed runoff along Ridgedale Drive. The BMP as evaluated is listed as either a pond or underground treatment system. The report should clarify this alternative, as summarized below:
 - a. The report needs to clarify the details of the proposed BMP. What is the anticipated size/volume of the proposed BMP? Is this BMP intended to treat 1.1 inches of runoff from the impervious surfaces of the watershed? Assuming the watershed is approximately 70% impervious and the BMP is to provide treatment of 1.1 inches of runoff, the estimated volume would be 37,500 cubic feet. The costs can vary greatly, depending on the type of system implemented (surface versus subsurface). Additionally, using typical subsurface construction costs per volume provided, we would estimate a project construction cost of \$375,000 - \$750,000, which is significantly higher than the \$300,000 estimate provided.
 - b. As identified, this project will be primarily located on private property (at the Sheraton Minneapolis West Hotel) and will require the purchase of an easement. The estimated footprint of the BMP and the associated easement area should be summarized as part of this feasibility study, as the easement cost could be significant. The total project capital cost should also include the estimated easement cost.
 - c. The report identifies public education as a potential part of this feature. The proposed cost estimate should include costs for the development of an educational experience.
 - d. The report should discuss the permitting requirements for this option.
11. Section VI, item 6) (Option 6) describes the project to treat the Ridgedale stormwater ponds with alum to target internal sediment nutrient release and improve water quality. The report should clarify this alternative, as summarized below:
 - a. The heading description of the project indicates treatment of multiple ponds at Ridgedale although the figure of the alternatives and Table 1 only suggest that this is alum treatment of Ridgedale Pond. The project heading/description should be clarified.
 - b. Recent water quality monitoring of Ridgedale Pond is limited to one sample collected in July 2018. Typically, alum treatment is intended to manage internal loading; however, it is not clear that internal loading is an issue in this pond. A summary of the water quality from the July 2018 sample should be included in the discussion for this alternative and if this indicated elevated phosphorus levels due to internal loading.
 - c. There are two approaches proposed to performing the alum treatment: 1) titration of alum into the pond based on flow rates and 2) period batch treatments based on rainfall or water quality sampling. Further discussion of these options are needed based on the questions provided below:
 - i. A system that titrates into the pond based on flow rates into/out of the pond will result in the constant development and settlement of an aluminum hydroxide precipitate (floc) that will accumulate in the pond. These systems typically include a floc settlement pond that collects the settled floc, which can then be managed by removal from the pond (e.g. pumping to the sanitary sewer). As proposed, it appears that the alternative will use the existing stormwater pond for the collection of floc; however, more details on how this would be managed needs to be discussed before this approach can be further considered. What is the anticipated flow rate to be treated? Where would the temporary/permanent

- dosing equipment/chemical storage be installed (the discussion suggests that this equipment would be rented)? Does the pond have the buffering capacity for the proposed dosing/frequency of alum?
- ii. For a system that does batch treatment of the pond, how frequently would these applications occur? Where would the temporary/permanent dosing equipment/chemical storage be installed (the discussion suggests that this equipment would be rented)? How would this alum be evenly distributed through the pond for this approach? Does the pond have the buffering capacity for the proposed dosing/frequency of alum?
- d. Based on the limited detail provided for the alum treatment concepts, the total phosphorus removal for this option as presented appears high. The report assumes that alum treatment will increase phosphorus removal to up to 85% from the existing removal by Ridgedale Pond of 72% for ALL runoff. Based on a summary for alum treatment on the Lake Management page on the MnDNR website, suggests removals of at or above 80%. (<https://www.pca.state.mn.us/water/lake-protection-and-management>). Monitoring of the Tanners Lake alum treatment system in the Ramsey-Washington Metro Watershed District indicated removals of 70-80% for treated runoff (<https://www.rwmwd.org/projects/tanners-lake-alum-treatment-facility/>); however, it is important to note that approximately 15% of flows bypass this treatment system. If 85% removals are applied for the effectiveness of the treatment for ALL runoff to Ridgedale Pond, further documentation of studies supporting these removals should be provided. The report should also summarize additional details about each of the alum concepts that support that the concept will be able to treat to that level. The report indicates that only 100 acre-ft of runoff would be treated (during non-winter months) which is approximately 70% of the annual runoff volume to the pond, which suggests that not ALL runoff would be treated, which conflicts with the pollutant removal estimates.
- e. The report should discuss the permitting requirements for the two alum treatment options, including follow-up with the appropriate agencies. The conversations with agency staff will likely determine if the agencies would allow the alum application approaches for Ridgedale Pond. Ridgedale Pond is a MnDNR public water (27-735W) and the proposed option will likely trigger a MnDNR public waters work permit. Depending on the type of alum system proposed, other permits may be required, such as an MPCA NPDES permit.
 - f. The cost estimate does not include any upfront total project capital cost, and only includes an annual lease rate, alum cost, and operation and monitoring cost. Costs for the potential management of floc should also be considered. Based on the number of unknowns to these concepts at this time, it is not realistic to assume that there are no initial capital costs for this option. Capital costs should include estimates for further evaluation and development, monitoring, engineering and design, permitting, treatment system location and site preparation (even for installation of a temporary system), and potentially easement purchase for this space if not located on public property. The feasibility report should include additional discussion related to these costs.
12. Section VI, item 8) (Option 8) describes the project diverting high-chloride snowmelt runoff to the sanitary sewer system. The report should clarify this alternative, as summarized below:
- a. As discussed in the report, the watershed area to be diverted to the sanitary sewer reflects the entire watershed to Ridgedale Pond, which includes a portion of Ridgedale Center, as well as the watershed area to the south. Based on previous discussions with

city staff and their consultant regarding this option, our understanding is that the focus of this option would be on the Ridgedale Center runoff, especially if the runoff was collected in a subsurface storage tank, rather than being pumped directly from Ridgedale Pond. The report should clarify these two different approaches for this option.

- b. The option that considers drawing down Ridgedale Pond to store snowmelt in the winter, indicates that 20 acre-ft of storage could be developed; however, this assumes that the pond is completely drawn down. Ridgedale Pond is a MnDNR public water (27-735W) and it is unlikely that the MnDNR would allow a complete drawdown as proposed. This option and the associated assumptions should be reviewed and clarified in the report, and based on the proposed pumping rates the report should summarize the volume of snowmelt storage that is needed. Pollutant removals should be revised based on the estimated fraction of snowmelt that can be intercepted based on the contributing watershed, pumping rate, and proposed storage, which should be based on modeling.
- c. For the option that would consider storing snowmelt in a subsurface storage tank, what volume of snowmelt storage is proposed? Does this option only target the collection of runoff from Ridgedale Center or the entire watershed to Ridgedale Pond? This option and the associated assumptions should be reviewed and clarified in the report. Pollutant removals should be revised based on the estimated fraction of snowmelt that can be intercepted based on the contributing watershed, pumping rate, and proposed storage, which should be based on modeling.
- d. The report should include a discussion of the estimated chloride concentrations in the snowmelt runoff and state the assumed chloride concentration used to quantify the estimated load reduction. The report should also include a discussion of the estimated runoff between December and April.
- e. Because there are two potential collection methods for the snowmelt diversion option, separate cost estimates should be developed for each collection method as they can result in significantly different costs. For the option that includes a subsurface storage tank, the cost of the tank should be included (along with the anticipated lift station and monitoring costs) as well as any easement costs. If located on public property, this should be noted in the report. Once constructed, we would anticipate the annual operation and maintenance costs would be similar for the two collections methods, assuming they intercept similar amounts of snowmelt volume.
- f. The report should discuss the permitting requirements for the option and include follow-up discussion with the appropriate agencies. For both collection options, this will include a summary of discussions with MCES to-date, if discussions indicate if MCES will consider a snowmelt diversion to the sanitary sewer, and anticipated next steps for this alternative. Additionally, for the option considering pumping from Ridgedale Pond and proposing drawdown of the pond to provide storage for snowmelt, because this pond is a MnDNR public water (27-735W), this option will likely trigger a MnDNR public waters work permit and require approval from the MnDNR.
- g. The report should include discussion of sanitary sewer capacity issues that should be considered as part of this project and how the proposed alternatives could be developed to minimize impact on the existing sanitary sewer system.
- h. The report discussion should also include a clear summary of how this alternative does not physically remove chlorides, but how it will remove chloride loads to Crane Lake/Bassett Creek but these loads are ultimately going to pass through the wastewater treatment system (untreated) and be discharged to the Mississippi River, etc.

To: Bassett Creek Watershed Management Commission
From: Barr Engineering Co.
Subject: Item 5A – Review Draft Feasibility Study for Crane Lake Improvement Project via Ridgedale Drive (CIP #CL-3) – Minnetonka, MN
Date: September 12, 2018
Page: 9

13. The 30-year annualized costs and cost-benefits for recommended stormwater treatment improvement project options will likely need updating, based on the revised cost and pollutant loading estimates in response to the above comments. The report should also discuss the life span and interest rates used for the annualized costs.
14. Section VII. C heading should be more general, such as “reduce pollutant loading to Crane Lake” as one of the options also reduces chlorides.

Memorandum

To: Bassett Creek Watershed Management Commission
From: Barr Engineering Co.
Subject: Item 5B: Consider Approval of Additional Carp Survey Work in Schaper Pond
BCWMC September 20, 2018 Meeting Agenda
Date: September 12, 2018

Recommendations:

1. Perform additional carp survey work in Schaper Pond in 2018 and 2019, including implanting PIT tags in carp captured during the upcoming final 2018 survey, installing PIT antenna and station equipment at the Schaper Pond inlet and outlet, conducting another carp population survey in early summer 2019, and reporting the survey results.
2. Authorize expenditures of Schaper Pond Diversion Project CIP funds up to \$35,000 for the above additional carp survey work. (Current CIP funds remaining are approximately \$240,000.)

1.0 Background

Schaper Pond is classified by the Minnesota Department of Natural Resources as a public water wetland; it is located south of Sweeney Lake and north of Highway 55 in Golden Valley. The pond receives about 90% of its flow from the Sweeney Branch of Bassett Creek from the south (under Highway 55), and 10% of its flow from a storm water inlet (called the Railroad inlet) in the northwest lobe of the pond. The pond outlets directly to Sweeney Lake from the northeast lobe (Figure 1).

The BCWMC selected the Schaper Pond Diversion Project alternative from the [feasibility study](#). The City of Golden Valley constructed the project, which was designed to divert water, via a floating water baffle, within the pond to direct more of the water flows to the northwest part of the pond. Based on the 2011 monitoring data and modeling, it was believed that the diversion would reduce the amount of phosphorus reaching Sweeney Lake by an estimated 81 - 156 pounds per year.

The 2017 Schaper Pond effectiveness monitoring was initiated after it was confirmed that the floating barrier was secured and working properly. Figure 1 shows the water quality grab sample locations. The 2017 and 2011 sampling locations, equipment and methods were identical. When comparing the water quality in the pond and upstream of/entering the pond between 2011 and 2017, it was determined that Schaper Pond was not removing suspended solids or total phosphorus as well as it did in 2011, and during most of the monitored events, the flow-weighted pollutant concentrations are higher at the pond outlet than the combined inflows. In addition, a single longitudinal monitoring event appeared to provide a better understanding about where within the pond system the treatment effectiveness is compromised.



The 2017 monitoring indicated that there were unexpected factors contributing to the results, which had not previously been assessed (carp) or might require updated information (such as the bathymetry). Consequently, at its May 2018 meeting the Commission approved additional monitoring this summer to identify the gaps in the available data and distinguish the source(s) or factors that are limiting the treatment capacity of the pond. The additional monitoring included performing longitudinal water quality monitoring and surveys of the carp and pond's bathymetry.

2.0 Preliminary results of 2018 monitoring and surveys

To date, we have completed the bathymetric survey, two of the three carp surveys and four of six longitudinal water quality monitoring events that were recommended. Preliminary results of the 2018 monitoring and surveys indicate the following:

- The 2018 bathymetric survey indicates that some sedimentation has taken place in discrete areas of the pond, but that it is unlikely that those changes have greatly altered the settling or treatment capacity in the northwest corner of the pond. For our final reporting, we intend to overlay the electronic surface mapping from the previous survey (2014) with the 2018 survey to depict the exact places in the pond where sedimentation may need to be addressed as a maintenance activity, depending on whether or not the floating baffle is retained.
- The 2018 water quality monitoring continues to confirm that pollutant concentrations are higher as the flow moves longitudinally through the pond. One out of the four water quality monitoring events showed that sediment phosphorus release could have contributed to higher phosphorus levels at the outlet, compared to the upstream sites. Otherwise, it does not appear that anoxic sediment phosphorus release is a significant source of the phosphorus that reaches the outlet when higher flows (above summer baseflow levels) are conveyed through the pond.
- The first carp survey estimated the carp population in the pond that day to be 227 individuals, with an average mass between 4 and 5 pounds. The biomass for the pond at that time was about 368 kilograms/hectare, which is nearly four times the recommended threshold for carp management. The second survey resulted in the capture of 37 carp in one hour of electrofishing. Most of the carp were captured in the deeper-water portion of the northwest lobe. Six of the 37 carp were young of year (YOY), making it very likely that successful recruitment (i.e., fish surviving to enter the fishery or a mature life stage) occurred this year, and likely within Schaper Pond (i.e., these fish likely hatched, and continue to survive, in the pond). Three of the 37 fish were recaptured from the first survey, which provides another way of assessing the population.

3.0 Recommendations for additional carp survey work

The two carp surveys completed thus far have confirmed that large numbers of carp inhabit the northwest lobe of Schaper Pond, with more than enough biomass to adversely impact water quality, including

indications that Schaper Pond represents a place for rearing young-of-year carp. As a result, it appears that the third carp survey represents an opportunity to begin gathering the kind of data needed to make future carp management decisions, including information about carp recruitment and mobility throughout the Sweeney Branch system. To guide that decision-making, it will be important to know whether the current carp population survives and/or remains in Schaper Pond year-round or if the carp are moving back and forth between Sweeney Lake and/or upstream water bodies.

3.1 Suggestions for the third 2018 carp survey and 2019 carp monitoring

We recommended expanding the scope of the third (fall) carp survey to attach PIT (passive integrated transponder) tags to nearly all of the carp that are caught and install antenna stations at the Hwy 55 inlet and the Schaper Pond outlet to Sweeney Lake. PIT tags are attached to carp, and used in conjunction with stationary antenna (to trip a signal) and recorders, to track the movement of each fish. PIT tags provide a means to obtain representative data on the whole carp population (including YOY carp), including the upstream and downstream movement of the carp from the pond over time.

The proposed schedule assumes that Carp Solutions would complete the third 2018 carp survey and PIT tagging in September, followed by antenna station installation in October 2018. We further recommend that the BCWMC rent the PIT antenna and recording equipment through Carp Solutions and work with them to monitor and evaluate the results by the end of June 2019. The total estimated additional cost (including equipment rental and expenses) for the BCWMC Engineer and Carp Solutions to complete this effort is estimated at \$30,000. (This amount is in addition to the \$16,000 already budgeted for the 2018 monitoring and surveys.)

3.2 Reporting on 2018 and 2019 monitoring

We will compile the results of the 2018 and 2019 surveys and monitoring, and compare them with past monitoring data in a technical memorandum. The memorandum would include conclusions and recommendations for improving water quality treatment in Schaper Pond/next steps and specific options for carp management. Our estimated additional cost to report on the results of the 2018/2019 surveys and monitoring is \$5,000, including a final presentation to the Commission. (This amount is in addition to the \$5,000 already budgeted for reporting on only the 2018 findings.)

Memorandum

To: Bassett Creek Watershed Management Commission
From: Barr Engineering Co.
Subject: Item 5C – Review Results of Comparative Analysis of Linear Projects: Water Quality Treatment Outcomes
Date: September 12, 2018
Project: 23270051 2018 003

Background

At their May 18, 2017 meeting, the Commission approved revisions to the BCWMC's Requirements for Improvements and Development Proposals (Requirements document) that revised the BCWMC's water quality performance standards for linear projects. The previous (2015) standards required MIDS treatment for linear projects when the project would result in 1 acre of new/fully reconstructed impervious:

MIDS standard: capture and retain the larger of 1.1 inches off the net increase in impervious – or – 0.55 inches off the new/fully reconstructed impervious (acre-feet). Follow flexible treatment options if volume reduction BMPs are not feasible or not allowed.

The revised/current (2017) standards require treatment for linear projects when the project will result in 1 acre of net new impervious:

BCWMC standard: capture & retain 1.1 inches off the net new impervious area (acre-feet). Follow flexible treatment options if volume reduction BMPs are not feasible or not allowed.

At their June 2017 meeting, the Commission requested an analysis comparing the revised linear project standards and the previous MIDS standards on linear projects reviewed by the BCWMC after the BCWMC revised the standards.

Analysis

We compared the MIDS water quality (previous) requirements and the BWCMC water quality (current) requirements for the 11 linear projects that triggered BCWMC review, since the May 2017 commission meeting. Table 1 shows the 11 linear projects, pertinent project data, the required water quality treatment volume under previous and current requirements, and the amount of treatment that was provided.

As shown in Table 1, none of the 11 linear projects reviewed triggered water quality treatment per the current requirements, whereas 8 of the 11 projects would have triggered water quality treatment per the

previous requirements. For the 8 projects that would have triggered water quality treatment per the previous requirements, the total required treatment volume would have been 1.11 acre-feet. However, many projects in the Bassett Creek watershed are unable to meet volume reduction requirements, often due to low infiltrating soils, and it is not known if the project proposers could have provided that treatment volume.

Linear and non-linear projects that triggered water quality treatment since the May 2017 Commission meeting were reviewed. Linear projects (11 total) have created 25.94 acres of new/fully reconstructed impervious surfaces resulting in an estimated TP loading of 46.3 pounds per year. The previous requirements would have required 60 to 100 percent TP removal, based on volume reduction capacity of the site, resulting in estimated pollutant removals of 27.8 - 46.3 pounds per year of TP. However, the net new impervious surface added by the linear projects was 1.17 acres, resulting in an additional TP loading of 2.1 pounds per year compared to existing conditions. Non-linear projects (8 total) have created 15.35 acres of new/fully reconstructed impervious surfaces resulting in an estimated TP loading of 33.77 pounds per year. These non-linear projects have provided an average of 72% TP removal for a total estimated TP removal of 24.16 pounds per year.

The magnitude of the reduced water quality treatment for linear projects was also evaluated by comparing the estimated TP loading from the linear projects to the total TP loading for the watershed. The BCWMC P8 model, developed and adopted in 2012, estimates TP loads at the BCWMC Tunnel of 1168.33 pounds per year. Based on this loading, the linear projects submitted since the May 2017 Commission meeting, are contributing up to 2.4% - 4.0% additional TP loading to Bassett Creek relative to the loading that would have occurred with the previous requirements in place. Compared to existing conditions, the linear projects submitted since May 2017 are contributing approximately 0.2 % additional TP loading to Bassett Creek. However, water quality benefits and TP removal may be provided by downstream treatment prior to discharging to Bassett Creek, therefore the estimated 2.4% - 4.0% TP loading increase should be viewed as a maximum. A more detailed analysis of the specific effects of these linear projects could be performed using a P8 model.

Table 1. Comparison of previous (2015) and current (2017) BCWMC triggers and water quality performance standards for linear projects

| BCWMC Reviews of Linear Projects | | | 2017-33 Metro Transit C Line BRT | 2018-02 Hwy 55 Frontage Road Reconstruction | 2018-04 GV 2018 PMP | 2018-05 Luce Line Regional Trail Reconstruction | 2018-07 Toledo-Scott Avenue Reconstruction | 2018-08 Kilmer Park Street Reconstruction | 2018-09 CenterPoint Energy 2018 MBLC GV West | 2018-11 CenterPoint Energy Boone Avenue N Mill | 2018-15 Trunk Highway 55 (TH 55) West Improvements | 2018-18 CenterPoint Energy 2018 MBLC GV Central | 2018-21 MCES Golden Valley Interceptor |
|--|---|---|-------------------------------------|---|------------------------|---|--|---|--|--|--|---|--|
| BCWMC Project Review Data | Project Disturbance (acres) | | 5.50 | 1.50 | 8.37 | 1.92 | 3.40 | 7.70 | 1.80 | 0.90 | 2.66 | 1.77 | 4.42 |
| | Existing Impervious (acres) | | 5.40 | 1.15 | 5.27 | 0.76 | 2.89 | 4.58 | 1.80 | 0 | 0.92 | 1.77 | 0.86 |
| | Proposed Impervious (acres) | | 5.00 | 1.17 | 5.07 | 0.73 | 3.00 | 4.96 | 1.80 | 0 | 1.58 | 1.77 | 0.86 |
| | Change in Impervious (acres) | | -0.40 | 0.02 | -0.20 | -0.03 | 0.11 | 0.38 | 0 | 0 | 0.66 | 0 | 0 |
| | New Impervious (acres) | | 0 | 0.02 | 0 | 0 | 0.11 | 0.38 | 0 | 0 | 0.66 | 0 | 0 |
| | Reconstructed Impervious (acres) | | 5.00 | 1.15 | 5.07 | 0.73 | 2.89 | 4.58 | 1.80 | 0 | 0.92 | 1.77 | 0.86 |
| | Total New and Reconstructed Impervious (acres) | | 5.00 | 1.17 | 5.07 | 0.73 | 3.00 | 4.96 | 1.80 | 0 | 1.58 | 1.77 | 0.86 |
| Previous (2015) BCWMC Requirement: | Trigger MIDS at 1 acre of new/fully reconstructed impervious | MIDS Treatment: Capture & retain larger of 1.1 inches off the net increase in impervious – or – 0.55 inches off the new/fully reconstructed impervious (acre-feet) | 0.23 | 0.05 | 0.23 | 0 | 0.14 | 0.23 | 0.08 | 0 | 0.07 | 0.08 | 0 |
| Current (2017) BCWMC Requirement: | Trigger treatment at 1 acre of net new impervious | Capture & retain 1.1 inches off the net new impervious area (acre-feet), plus go through MIDS flexible treatment options for the net new impervious area if it's not possible to capture and retain 1.1 inches of runoff from these areas | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Actual Treatment Provided: | Capture and Retain Volume Provided (acre-feet) ¹ | | 0 | - ² | 0 ³ | 0 | - ² | 0 | 0 | 0 | 0 | 0 | 0 |

¹ Projects with site restrictions may not be required to "capture & retain" the water quality volume. These projects must follow BCWMC Flexible Treatment Options (FTOs).

² Water quality treatment provided but information and/or documentation not provided for review.

³ No volume retained specifically as part of project, but a filtration basin proposed as mitigation for 2016 PMP project and 2017 PMP project.

BASSETT CREEK WATERSHED MANAGEMENT COMMISSION
RESOLUTION NO. 18-06

A RESOLUTION APPROVING THE LOCAL SURFACE WATER
MANAGEMENT PLAN PREPARED BY THE CITY OF GOLDEN VALLEY

WHEREAS, the Bassett Creek Watershed Management Commission ("Commission") is a joint powers watershed management organization established in accordance with Minnesota Statutes, Section 103B.211; and

WHEREAS, the Commission has prepared a water management plan, which has been reviewed by all appropriate state and local agencies and has been approved by the Board of Water and Soil Resources; and

WHEREAS, the Commission's water management plan and Minnesota Statutes require that local water management plans be prepared in accordance with Minnesota Statutes, Section 103B.235 and Minnesota Rules, Chapter 8410; and

WHEREAS, the City of Golden Valley ("City") has prepared and submitted to the Commission the City's local water management plan; and

WHEREAS, Minnesota Statutes, Section 103B.235, subdivision 3 authorizes the Commission to review and approve local water management plans and to take other actions necessary to assure that the local plan is in conformance with the Commission's plan and the standards set forth therein; and

WHEREAS, the Commission reviewed the City's plan and has determined it was prepared in accordance with the requirements of Minnesota Statutes, Section 103B.235 and Minnesota Rules, Parts 8410.0160 and 8410.0170, it contains the requirements for a local plan, and is consistent with the Commission's water management plan.

NOW, THEREFORE, BE IT RESOLVED, by the Bassett Creek Watershed Management Commission, as follows:

1. The Golden Valley Surface Water Management Plan dated September 2018, is hereby approved.
2. In accordance with Minnesota Statutes, Section 103B.235, subdivision 4, the City shall adopt and implement its local plan within 120 days of this approval and amend its official controls in accordance with the plan within 180 days.
3. Pursuant to Minnesota Statutes, Section 103B.235, subdivision 5, and to be consistent with the Commission's water management plan, the City shall submit any proposed amendments to its local plan to the Commission for review and approval prior to adoption.

Adopted by the Board of Commission of the Bassett Creek Watershed Management Commission the 20th day of September, 2018.

Chair

ATTEST:

Secretary

Northwood Lake Improvement Project

BCWMC Project NL-1



FINAL REPORT
September 12, 2018

I. Project Area

Northwood Lake is an impoundment of the North Branch of Bassett Creek in the City of New Hope and is directly tributary to the North Branch Bassett Creek which flows into the Main Stem of Bassett Creek and into the Mississippi River.

As identified on the map on the front of this report, this project identified two areas of storm water treatment (Concept A and Concept C) adjacent to Northwood Lake. This storm water project was combined and completed in conjunction with the City of New Hope's Northwood Park and Playground Reconstruction Project and the Jordan Avenue Reconstruction project.

II. Project Description and Outcomes

The Northwood Lake Water Quality Improvement Project treats storm water runoff from 110 acres of previously untreated urban land. At the east end of the lake in Northwood Park the project included design and construction of a pre-treatment device, a 160,000-gallon underground storm water re-use chamber, pump house, distribution system to irrigate 6.4 acres of adjacent ball fields, and an overflow structure directed into a series of linear rain gardens for treatment prior to discharging into Northwood Lake. At the west end of Northwood Lake, a wet ponding basin was constructed to treat storm water runoff from backyards and Jordan Avenue. The project was designed to reduce total phosphorus loadings to the lake by an estimated 22 pounds per year.

The Project was designed in late 2015 and constructed March 2016 to May 2017. The storm water re-use tank and irrigation system first operated in June 2017. To date, over 1.2 million gallons of water have been captured and re-used to irrigate ballfields. The rain gardens have captured and filtered overflow water from the tank, and vegetation around the rain gardens is now well established. The pond on the west end of the lake is working well and vegetation surrounding the pond is also well established.

LONG TERM RESULTS: The primary and immediate results of this project will continue to be realized for the expected life of the project of 30 years or more. This project reduced the volume and improved the quality of storm water runoff reaching Northwood Lake. Additionally, it conserves drinking water by using captured storm water to irrigate adjacent ballfields.

The secondary benefits of the project will also continue for years to come. Visitors to Northwood Park where the project is located can read and learn about the project and how their own actions impact water quality. They can also watch the rain gardens work to infiltrate the overflow runoff during large precipitation events and can witness the growth and blooms of the native plantings in the rain gardens.

This project also resulted in a community conversation about the balance between the need for storm water management and the desire to maintain open space in the park (hence the use of the underground system rather than a storm water pond!). The community group "Friends of Northwood Lake" also became more active and involved due to this project. The results of the project were shared with a variety of groups through the products and public outreach activities noted above. Other audiences that may benefit from this project are cities,

watershed organizations, or private developers considering the use of underground storage and/or storm water reuse. Since this project is in a city park with good access, it could be used as a demonstration site.

III. Project Timeline and Key Documents

- This project was originally identified in the city's 2008 Local Water Management Plan. The plan can be found on the city's website shown below. On Table 6.2, Existing Stormwater Management Issues and Possible Corrective Actions, staff identified an area in Northwood Park (BC – P2.5C) as an area for potential stormwater ponding in the future.

https://www.newhopemn.gov/city_hall/public_works/utilities/storm_water/

- Northwood Lake was added to the State's Impaired Waters List (303(d) list due to high nutrients in 2004. A TMDL has not been completed for this lake. The lake's fully developed watershed of 1,341 acres has little or no stormwater treatment. Other pollutants impacting the lake include bacteria, solids, chlorides, PAHs, etc.
- Feasibility Report: In 2015, the city began preparation of a feasibility study for this project. During this process, many stakeholders identified the high priority of keeping the available green space at Northwood Park. The feasibility report identified three concepts for water treatment at Northwood Lake. Concepts A and B located in the original area identified at Northwood Park, and Concept C located on a vacant city owned lot on the other side of the lake. These concepts and the full feasibility report can be viewed on the Bassett Creek Watershed project page. In November 2014, the Commission approved the feasibility study and set the project budget. The project was officially ordered by the Commission after a public hearing in August 2015 and the Commission entered an agreement with the City of New Hope to design and construct the project.
- Resolution Ordering the Project:
<http://www.bassettcreekwmo.org/application/files/4514/4692/0568/Resolution-15-04-Ordering2016projects-NorthwoodLakeImprov-NewHope.pdf>
- 50% Plans
<http://www.bassettcreekwmo.org/application/files/1314/4692/0568/5G-Full-50-PERCENT-REVIEW-SET.pdf>
- 90% Plans
http://www.bassettcreekwmo.org/application/files/7914/7913/7257/Item_5C_NW_Lake_90_Plans_Full_Set_11-2-15.pdf
- Construction Timeline: Construction began in May of 2016. Substantial completion of the project work was completed by the fall of 2016. Numerous punch list items extended this project through 2017. The project was ultimately closed out by the New Hope City Council in February of 2018. The final MPCA grant report was processed in the summer of 2018.
- PRODUCTS: The following products were developed for or about this project. They are all found on the project webpage at: <http://www.bassettcreekwmo.org/projects/all-projects/nwl-improvement>

1. Project Feasibility Study (predates grant November 2014)

2. 50% Design Plans and BCWMC Engineer Memo (September 2015)
3. 90% Design Plans and BCWMC Engineer Memo (November 2015)
4. Virtual Tour of Project (October 2016)
5. MN Cities Magazine Article (May-June 2018)
 - The City of New Hope received the 2017 Sustainable City Award from the League of Minnesota Cities and Minnesota GreenStep Cities
6. Educational sign (installed June 2018)

IV. Funding

The funding sources for the storm water project related items are shown in the table below. Funding sources included the BCWMC, Clean Water Partnership Grant from the Minnesota Pollution Control Agency, Clean Water Fund grant from the Minnesota Board of Water and Soil Resources, and the City of New Hope.

| Funding Sources for BCWMC Project Costs | Funding Amount |
|--|-----------------------|
| BCWMC | \$769,667.47 |
| MPCA Grant | \$300,000.00 |
| BCWMC – BWSR Grant Portion | \$315,600.00 |
| City – BWSR Grant Portion (21.1% of \$400,000 Grant Share) | \$84,400.00 |
| City – Storm Fund | \$326,406.20 |
| Total BCWMC Storm Water Related Costs | \$1,796,073.67 |

In relation to the original construction costs, this project incurred an overrun for the BCWMC storm water related items of approximately \$50,000. This overrun was primarily due to the following items:

- Installation of temporary construction fence to alleviate excessive public foot traffic while the restoration work was underway
- Grading revisions and export of common excavation materials offsite to avoid impacts to 100-year floodplain.
- Installation of a weir and valve to control storm water flows entering the underground storage tank and rain gardens.

V. Lessons Learned

One of the primary issues encountered was a large amount of base flow (continual storm water flows, groundwater, sump pump discharge) in the storm sewer. In the wet fall and winter of 2016/2017, there was water flowing into the tank which was overflowing into the rain gardens. Water flowing continuously into the gardens created maintenance and vegetation establishment difficulties. This also posed a safety concern, as water would run into the rain gardens during the winter months and then freeze creating a significant amount of ice. To control the base flows, a “by-pass” valve was installed in spring 2017. During wet periods when the irrigation is not in use, such as the winter months, city staff can now adjust the valve to bypass the tank and gardens. The bypass valve also allows city staff to complete maintenance on the tank, pretreatment structures, and rain gardens without encountering the base flows.

VI. Maintenance

The City of New Hope Public Works department has incorporated a variety of new maintenance activities at the tank. In the spring and fall staff vacuum out the debris collected in the swirl grit chambers located where stormwater enters the tank. This spring, staff removed about 1 cubic yard of debris from the swirl chambers.

This year, Stantec Consulting volunteered to perform the maintenance required at the 3 rain gardens installed at Northwood Park. Consulting and city staff met with area residents, once in the spring and once again upcoming in the fall. Staff and residents worked together to remove invasive plants and weeds from the rain gardens. Next year, staff has hired a maintenance contractor to perform the necessary maintenance at the gardens.

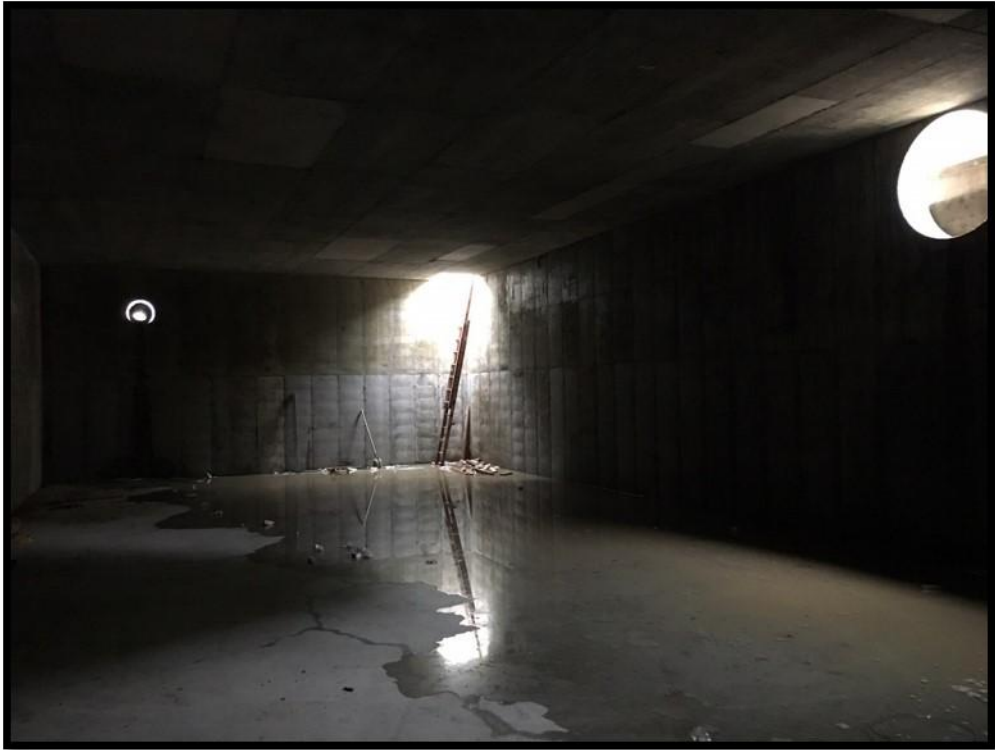
Staff will review interior inspection of the tank annually. In approximately 10 years the tank will be fully drained, and any debris at the bottom of the tank will be vacuumed out.

VII. Photos



Underground Storm Water Reuse Tank





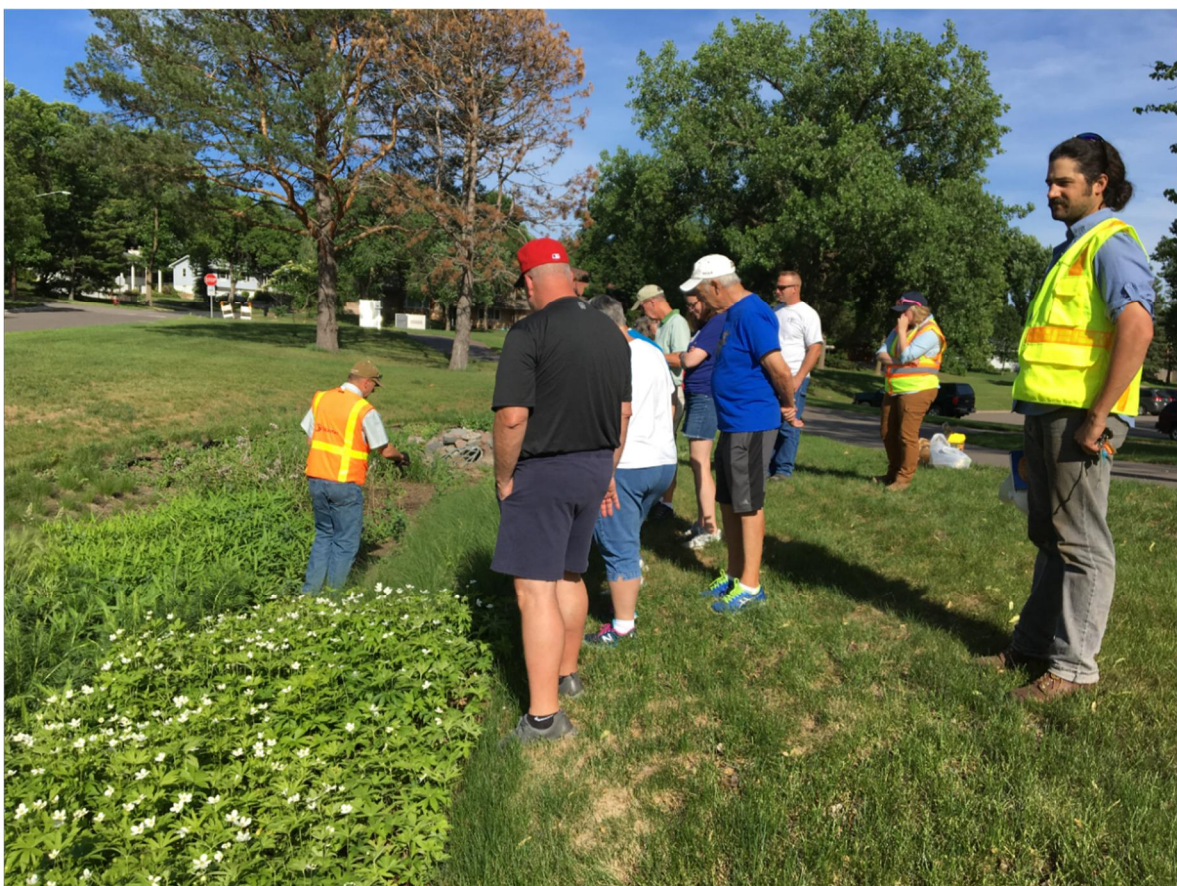
Inside Underground Storm Water Reuse Tank



Rain Garden Construction



Rain Garden Planting



Rain Garden Maintenance Training to Friends of Northwood Lake Association



Rain Garden Maintenance





Rain Garden Following Rain Event



Finished Rain Garden



Finished Rain Garden



Educational Sign

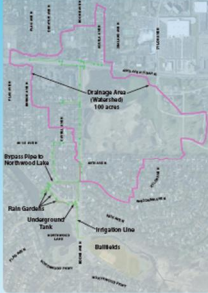
City of New Hope Rainwater Harvesting (Stormwater Re-use) Water Quality System

Project Description

In 2016, the City of New Hope implemented several Best Management Practices (BMPs) to improve the water quality of Northwood Lake and downstream waters. Currently the lake does not meet State standards for water quality due to excessive nutrients. So, it was a priority for the city and the watershed organization to install improvements to help clean the water.

This project was constructed in coordination with the Bassett Creek Watershed Management Commission (BCWMC) to capture, treat, and reuse stormwater with the underground tank and a series of infiltration basins (rain gardens). Now instead of rainwater polluted with fertilizers, grass clippings and pet waste flowing directly into the lake, it's captured, cleaned and reused or infiltrated into the ground.

Area Drainage Map



Northwood Park Stormwater Harvesting Map



We All Have Waterfront Property! Here's How You Can Help Keep Our Lakes and Streams Clean:

- Sweep up debris like fertilizer, grass clippings and winter salt from your driveway and sidewalks so it doesn't flow downstream.
- Pick up your pet's waste in your yard and dispose of it in the trash.
- Direct downspouts away from pavement. Install a raingarden! Make a "bathtub" for rain in your yard.
- Cleanout stormdrains in front of your home to prevent potential flooding and pollutants from entering the storm sewer system.

Water Conservation Benefits

- Uses recycled runoff to irrigate the 6.4 acres Northwood Park ball fields and soccer field.
- Reduce the City's annual water usage by up to 2.5 million gallons.

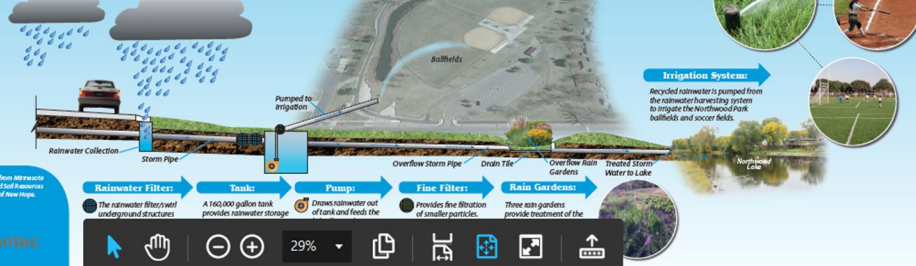
Water Quality Benefits

- Helps prevent pollutants from entering Northwood Lake.
- Prevents approximately 16 lbs. of phosphorus per year from entering Northwood Lake, ultimately reducing the amount of algae in the lake.
- Prevents approximately 4,600 lbs. of suspended solids (trash, debris, erosion, etc.) per year from entering Northwood Lake, ultimately improving the clarity of the water.

Runoff Control Benefits

- Redirect runoff from approximately 100 acres, including 22 acres of impervious surfaces to the rainwater harvesting tank.
- Recycle up to 335,000 cubic feet of stormwater runoff volume annually.
- Stores runoff from a 1-inch rainfall in the 160,000 gallon rainwater harvesting tank.

Rainwater Harvesting System Diagram



This rainwater harvesting project was made possible through the partnership and funding from Minnesota Pollution Control Agency, Clean Water National Program, the Minnesota Board of Water and Soil Resources, Clean Water Fund (CWR), Bassett Creek Watershed Management Commission, and the City of New Hope.



Educational Sign



Saving Northwood Park Green Space



Jordan Avenue Pond Construction





Bassett Creek Watershed Management Commission

MEMO

Date: September 11, 2018
From: Laura Jester, Administrator
To: BCWMC Commissioners
RE: **Administrator's Report**

Aside from this month's agenda items, the Commission Engineers, city staff, committee members, and I continue to work on the following Commission projects and issues.

CIP Projects (more resources at <http://www.bassettcreekwmo.org/projects.>)

2019 Medicine Lake Road and Winnetka Avenue Area Long Term Flood Mitigation Plan Implementation Phase I: DeCola Ponds B & C Improvement Project (BC-2, BC-3 & BC-8), Golden Valley: A feasibility study for this project was completed in May after months of study, development of concepts and input from residents at two public open houses. At the May meeting, the Commission approved Concept 3 and set a maximum 2019 levy. Also in May, the Minnesota Legislature passed the bonding bill and the MDNR has since committed \$2.3M for the project. The Hennepin County Board approved a maximum 2019 levy request at their meeting in July. A BCWMC public hearing on this project was held on August 16th with no comments being received. Also at that meeting the Commission officially ordered the project and entered an agreement with the City of Golden Valley to design and construct the project. Project website: <http://www.bassettcreekwmo.org/index.php?cid=433>

2020 Bryn Mawr Meadows Water Quality Improvement Project (BC-5), Minneapolis: (No change since July) At their meeting in September, the Commission approved a proposal from the Commission Engineer to complete a feasibility study for this project. A project kick-off meeting was held on October 23rd. A wetland delineation is complete and submitted for approval. Preliminary concepts were developed and discussed with designers for Minneapolis Park and Rec Board. A meeting with permitting agencies was held on January 19th and another meeting with MPRB designers was held February 13th to review possible concepts. Soil borings were recently completed and a public open house on the MPRB's Bryn Mawr Meadows Park improvement project was held March 8th and had about 50 participants. At their meeting in April, the Commission approved a TAC and staff recommendation to move this project from implementation in 2019 to design in 2020 and construction in 2021 to better coincide with the MPRB's planning and implementation of significant improvements and redevelopment Bryn Mawr Meadows Park where the project will be located. A draft feasibility study will be presented at the September 2018 Commission meeting. Project website: <http://www.bassettcreekwmo.org/projects/all-projects/bryn-mawr-meadows-water-quality-improvement-project>

2019 Westwood Lake Water Quality Improvement Project (WST-2), St. Louis Park: At their meeting in September 2017, the Commission approved a proposal from the Commission Engineer to complete a feasibility study for this project. The project will be completed in conjunction with the Westwood Hills Nature Center reconstruction project. After months of study, several meetings with city consultants and nature center staff, and a public open house, the Commission approved Concept 3 (linear water feature) and set a maximum 2019 levy at their May meeting. 50% designs were approved at the July meeting and 90% design plans were approved at the August meeting. The Hennepin County Board approved a maximum 2019 levy request at their meeting in July. A BCWMC public hearing on this project was held on August 16th with no comments being received. Also at that meeting the Commission officially ordered the project and entered an agreement with the City of St. Louis Park to design and construct the project. Project website: <http://www.bassettcreekwmo.org/projects/all-projects/westwood-lake-water-quality-improvement-project>

2018 Bassett Creek Park Pond Phase I Dredging Project: Winnetka Pond, Crystal (BCP-2): The final feasibility study for this project was approved at the May 2017 meeting and is available on the project page online at <http://www.bassettcreekwmo.org/index.php?cID=403>. At the September 2017 meeting, the Commission held a public hearing on the project and adopted a resolution officially ordering the project, certifying costs to Hennepin County, and entering an agreement with the City of Crystal for design and construction. Hennepin County approved the 2018 final levy request at their meeting in November 2017. The City of Crystal hired Barr Engineering to design the project. At their meeting in April, the Commission approved 50% design plans. A public open house on the project was held May 24th where four residents asked questions, provided comments, and expressed support. 90% design plans were approved at the June 2018 meeting. Bidding documents are complete but bidding was postponed due to the need for an Environmental Assessment Worksheet (EAW). Development of the EAW is nearly complete and will be submitted soon. Construction is expected this winter.

2017 Plymouth Creek Restoration Project, Annapolis Lane to 2,500 feet Upstream (2017CR-P): (No change since August) All project documents including the feasibility study and 90% design plans are available online at <http://www.bassettcreekwmo.org/index.php?cID=284>. The BCWMC executed agreements with the BWSR for a \$400,000 Clean Water Fund grant and with Hennepin County for a \$50,000 Opportunity Grant and a subgrant agreement with the City was executed. Project design was completed by the city's contractor, Wenck Associates, with 60% and 90% design plans approved by the Commission at the April and August 2017 meetings, respectively. Plymouth City Council awarded a construction contract in early December 2018 and construction got underway on December 11, 2018. Streambank restoration work is complete in all three reaches. Vegetation is currently being established. Requests for reimbursement to the city were approved at the June and July BCWMC meetings. I will work on submitting a grant request to the State, if appropriate given expenditures.

2017 Main Stem Bassett Creek Streambank Erosion Repair Project (2017CR-M) (No change since June): The feasibility study for this project was approved at the April Commission meeting and the final document is available on the project page at: <http://www.bassettcreekwmo.org/index.php?cID=281>. A Response Action Plan to address contaminated soils in the project area was completed by Barr Engineering with funding from Hennepin County and was reviewed and approved by the MPCA. The Commission was awarded an Environmental Response Fund grant from Hennepin County for \$150,300 and a grant agreement is in the process of being signed by the county. A subgrant agreement with the City will be developed. The City hired Barr Engineering to design and construct the project. Fifty-percent and 90% designs were approved at the August and October Commission meetings, respectively. In September, design plans were presented by Commission and city staff to the Harrison Neighborhood Association's Glenwood Revitalization Team committee and through a public open house on the project. Bidding for construction is complete and a pre-construction meeting was recently held. Construction was to begin this summer but will be delayed until winter/spring 2019 due to the unanticipated need for a field based cultural and historical survey of the project area required by the Army Corps of Engineers and the preference for Pioneer Paper (a significant landowner and access grantor) for a spring/summer construction window.

2016 Northwood Lake Improvement Project, New Hope (NL-1) (See Item 5E): Northwood Lake Improvement Project is nearing completion with all major work complete. The storm water tank was fully operational in June and irrigated the fields all summer. Since it began operating the tank has captured and reused 904,000 gallons of storm water. All raingardens are planted and working well. A grand opening of the park was held last spring. Friends of Northwood Lake disseminated water quality educational materials, including BCWMC materials. A semi-annual grant report was submitted to the MPCA in January. The final piece of the project – an educational sign was designed, fabricated, and recently installed (see photo). A final grant report was submitted to the MN Pollution Control Agency. A final project report will be presented by the City of New Hope at this meeting.

2015 Main Stem Restoration Project 10th Avenue to Duluth Street, Golden Valley (2015CR) (No change since October 2017): The restoration project is being constructed in two phases, each under separate contract. Phase

one included stream bank shaping, placement of field stone rock and 12-inch bio-logs, and repair of storm sewer outlets. The first phase of the project began in November 2015 and was finished in June 2016. Turf establishment and minor restoration repairs in Phase 1 were accepted in late October 2016. Repairs to some areas where flooding impacted rocks or biologs were completed and accepted in mid-December 2016. Phase 1 of the construction project has entered the warranty period.

Phase 2 of the project includes the establishment of native vegetation along the stream, including grasses, wildflowers, shrubs, live stakes and fascines, and cordgrass plugs. The project has been seeded and stabilized and maintenance mowing and spot treatments have been completed. Applied Ecological Services (AES) installed live stakes and fascines this spring and completed the tree and shrub planting along the restoration project. AES will continue to monitor and maintain the native vegetation through 2018. It is anticipated that the total contract amount for both Phase one and Phase two will be within the Watershed's overall project budget.

2014 Schaper Pond Diversion Project, Golden Valley (SL-3) (See Item 5B): Repairs to the baffle structure were made in 2017 after anchor weights pulled away from the bottom of the pond and some vandalism occurred in 2016. The city continues to monitor the baffle and check the anchors, as needed. Vegetation around the pond was planted in 2016 and a final inspection of the vegetation was completed last fall. Once final vegetation has been completed, erosion control will be pulled and the contract will be closed. The Commission Engineer began the Schaper Pond Effectiveness Monitoring Project last summer and presented results and recommendations at the May 2018 meeting. Additional effectiveness monitoring is being performed this summer. At the July meeting the Commission Engineer reported that over 200 carp were discovered in the pond during a recent carp survey. The Commission Engineer will present additional information and recommendations regarding carp.

2014 Twin Lake In-lake Alum Treatment, Golden Valley (TW-2): (No change since June) At their March 2015 meeting, the Commission approved the project specifications and directed the city to finalize specifications and solicit bids for the project. The contract was awarded to HAB Aquatic Solutions. The alum treatment spanned two days: May 18- 19, 2015 with 15,070 gallons being applied. Water temperatures and water pH stayed within the desired ranges for the treatment. Early transparency data from before and after the treatment indicates a change in Secchi depth from 1.2 meters before the treatment to 4.8 meters on May 20th. There were no complaints or comments from residents during or since the treatment. Water monitoring continues to determine if and when a second alum treatment is necessary. Lake monitoring results from 2017 were presented at the June 2018 meeting. Commissioners agreed with staff recommendations to keep the CIP funding remaining for this project as a 2nd treatment may be needed in the future.

2013 Four Season Area Water Quality Project/Agora Development (NL-2) (No change since May): At their meeting in December 2016, the Commission took action to contribute up to \$830,000 of Four Seasons CIP funds for stormwater management at the Agora development on the old Four Seasons Mall location. At their February 2017 meeting the Commission approved an agreement with Rock Hill Management (RHM) and an agreement with the City of Plymouth allowing the developer access to a city-owned parcel to construct a wetland restoration project and to ensure ongoing maintenance of the CIP project components. At the August 2017 meeting, the Commission approved the 90% design plans for the CIP portion of the project. At the April 2018 meeting, Commissioner Prom notified the Commission that RHM recently disbanded its efforts to purchase the property for redevelopment. I will be writing letters to the RHM and the City of Plymouth to officially cancel the agreements. Staff will work with the City of Plymouth to determine another possible option for treatment in this area.

Other Work

CIP Project Work and Technical Assistance

- Updated CIP webpages
- Drafted and distributed letter to Medicine Lake residents re: Jevne Park Stormwater Improvement Project including seeking permission to survey several private properties
- Met with Commission Engineers, City of Minnetonka staff and city consultants to review options for Crane Lake Improvement Project
- Reviewed and commented on draft feasibility study for Crane Lake Improvement Project
- Reviewed and edited Northwood Lake Improvement Project Final Report
- Reviewed revised Golden Valley Surface Water Management Plan

Administration and Education

- Certified 2019 tax levy to the County
- Participated in Hennepin County Chloride Consortium meeting re: implementation of Watershed Based Funding for county-wide chloride project
- Drafted notes from Sweeney Lake Aeration Study public meeting
- Reviewed draft August press release
- Attended WMWA meeting
- Set meeting, developed/distributed agenda and attended BCWMC Education Committee meeting
- Reviewed possibility of Conservation Partnership Legacy grant for Sweeney Lake alum treatment
- Set date for Workshop for Lake Groups: Options for Organizing and communicated with various lake leaders and presenters
- Met with Metro Blooms re: Mapping Resilient Cities event
- Coordinated volunteers for Golden Valley Arts and Music Festival