Bassett Creek Watershed Management Commission

Regular Meeting
Thursday July 16, 2020
8:30 – 11:00 a.m.
Via WebEx – Click HERE to join the meeting.
Or join by phone: +1-408-418-9388; Use access code: 126 534 7357; Password: BCWMC.

AGENDA

1. **CALL TO ORDER and ROLL CALL**

2. **PUBLIC FORUM ON NON-AGENDA ITEMS –** *Members of the public 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 Commission committee.*

3. **APPROVAL OF AGENDA**

4. **CONSENT AGENDA**
   - A. Approval of Minutes – June 18, 2020 Commission Meeting
   - B. Acceptance of July 2020 Financial Report
   - C. Approval of Payment of Invoices
     - i. Keystone Waters, LLC – June 2020 Administrative Services
     - ii. Keystone Waters, LLC – June 2020 Printing Expenses
     - iii. Barr Engineering – June 2020 Engineering Services
     - iv. Lawn Chair Gardener – June 2020 Administrative and Education Services
     - v. Wenck – June WOMP Monitoring
     - vi. Kennedy & Graven – May 2020 Legal Services
     - vii. Metro Conservation Districts – Children's Water Festival Contribution
     - viii. Metro Blooms – Lawns to Legumes Grant Expenses
     - ix. HDR – Website Services
   - D. Approval of Salt Symposium Registration Reimbursement for Alternate Commissioner Cesnik
   - E. Approval of Bassett's Creek Park (North) Phase 1 Improvement Project, Minneapolis
   - F. Approval of 1230 Angelo Drive Shoreline Repair Project, Golden Valley
   - G. Set Public Hearing on 2021 CIP Project for September 17, 2020

5. **BUSINESS**
   - A. Receive Update on Main Stem Lagoon Dredging Project and Maximum Levy Discussions (15 min)
     - i. Consider Submitting Application for Clean Water Fund Competitive Grant
   - B. Review Report and Receive Presentation of North Branch Bassett Creek 2018-2019 Water Quality and Biotic Index Monitoring Results (25 min)
   - C. Review Report and Receive Presentation of Main Stem Bassett Creek Biotic Index Monitoring Results (20 min)
   - D. Consider Submitting Resolution for 2021 MAWD Legislative Platform (10 min)
   - E. Discuss Meeting Format for August 20th BCWMC Meeting (10 min)

6. COMMUNICATIONS (10 minutes)

A. Administrator's Report
   i. Medicine Lake Mapping AIS with Drone
   ii. Potential Restoration Partnership with Friends of Mississippi River
   iii. Diversity, Equity, and Inclusion Work
B. Chair
C. Commissioners
D. TAC Members
E. Committees
F. Education Consultant
   i. Latest Education Video on Raingardens
G. Legal Counsel
H. Engineer
   i. Sweeney Lake Water Quality Improvement Project

7. INFORMATION ONLY (Information online only)

A. CIP Project Updates http://www.bassettcreekwmo.org/projects
B. Grant Tracking Summary and Spreadsheet
C. 2020 BCWMC Administrative Calendar
D. Letter of Support for USACE Mississippi River Drawdown
E. 2020 Salt Symposium (online; registration reimbursement available)
F. Lakeshore Restoration Animated Video by Anoka SWCD
G. Lawns to Legumes Progress Report to BWSR
H. WCA Notice of Decision, Plymouth
I. WCA Notice of Application, Plymouth

8. ADJOURNMENT

Upcoming Meetings & Events

- Metro MAWD – Tuesday July 21st – Online through Go To Meeting
- 2020 Salt Symposium – August 4 – 5; online and live streamed; register at https://fortinconsulting.com/salt-symposium/
- Bassett Creek Watershed Mgmt Commission Meeting: Thursday August 20th, 8:30 a.m., location TBD
- Minnesota Water Resources Conference – October 20 – 21; St. Paul River Centre; https://ccaps.umn.edu/minnesota-water-resources-conference

Bassett Creek Watershed Management Commission

AGENDA MEMO
Date: July 8, 2020
To: BCWMC Commissioners
From: Laura Jester, Administrator
RE: Background Information for 7/16/20 BCWMC Meeting

1. **CALL TO ORDER and ROLL CALL**
2. **PUBLIC FORUM ON NON-AGENDA ITEMS**
3. **APPROVAL OF AGENDA – ACTION ITEM with attachment**

4. **CONSENT AGENDA**
   A. Approval of Minutes – June 18, 2020 Commission Meeting- **ACTION ITEM with attachment**
   B. Acceptance of July Financial Report - **ACTION ITEM with attachment (full report online)**
   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 – June 2020 Administrative Services
      ii. Keystone Waters, LLC – June 2020 Printing Expenses
      iii. Barr Engineering – June 2020 Engineering Services
      iv. Lawn Chair Gardener – June 2020 Administrative and Education Services
      v. Wenck – WOMP Monitoring
      vi. Kennedy & Graven – May 2020 Legal Services
      vii. Metro Conservation Districts – Children's Water Festival Contribution
      viii. Metro Blooms – Lawns to Legumes Grant Expenses
      ix. HDR – Website Services

   D. Approval of Salt Symposium Registration Reimbursement for Alternate Commissioner Cesnik – **ACTION ITEM with attachment** – *Alternate Commissioner Cesnik plans to attend the Salt Symposium and requests reimbursement for registration costs. The Commission's education and outreach budget includes funds for reimbursement of trainings. Staff recommends approval.*

   E. Approval of Bassett's Creek Park (North) Phase 1 Improvement Project, Minneapolis – **ACTION ITEM with attachment** – *The proposed project is located in the Bassett Creek Main Stem subwatershed within Bassett's Creek Park (North) in Minneapolis. The project includes park improvements such as new playground equipment, benches, tables, trails, sidewalks, planting beds, picnic areas, and a dog run with a fence. The proposed project results in 0.99 acres of grading (disturbance), and creates an increase of 0.20 acres of impervious surface. Although the project includes work in the floodplain, it does not result in an increase in flood level at any point along the trunk system. The project meets erosion and sediment control requirements. Staff recommends approval.*

   F. Approval of 1230 Angelo Drive Shoreline Repair Project, Golden Valley – **ACTION ITEM with attachment** – *The proposed project includes shoreline repairs at a single family home on Sweeney Lake including removing a timber retaining wall and placing 100 linear feet of limestone boulders and riprap along the shoreline and creating a 10-foot buffer and beach area. Although work is proposed in the floodplain, no floodplain fill is proposed. All other BCWMC requirements are met or are not applicable. Staff recommends approval.*

G. Set Public Hearing on 2021 CIP Project for September 17, 2020 – **ACTION ITEM no attachment** – *Before setting the final 2021 levy and officially ordering the CIP projects, the Commission should hold a public hearing on its 2021 CIP at its September meeting. Staff recommends setting the hearing date so that the 45-day notice to member cities can be provided.*

5. BUSINESS

A. Receive Update on Main Stem Lagoon Dredging Project and Maximum Levy Discussions (15 min) – *At the meeting last month, the Commission approved a maximum levy of nearly $1.8M, including $800,000 to begin implementing the Main Stem Lagoon Dredging Project. I was directed to further investigate partnerships and possible grant opportunities and to schedule a meeting with Hennepin County Commission Fernando. Although a meeting with the Commissioner has not yet been set, I recently met with MPRB staff and have researched some grant opportunities. I will provide a verbal update at the meeting.*

   i. Consider Submitting Application for Clean Water Fund Competitive Grant **- DISCUSSION ITEM with attachment** – *There is approximately $12M in Clean Water Funds available statewide for "projects and practices" through the competitive grant process. The application deadline is August 17th. It's possible the Main Stem Lagoon Dredging Project will score well for these funds because of its high pollutant removals, high cost effectiveness, complete feasibility study, and established partnerships. I recommend that the Commission submit an application requesting $400,000 in grant funds.*

B. Review Report and Receive Presentation of North Branch Bassett Creek 2018-2019 Water Quality and Biotic Index Monitoring Results (25 min) – **INFORMATION ITEM with attachment** – *As of 2015, the BCWMC Monitoring Program includes monitoring streams not only for biota (as has been performed since 1980), but also for water quality and flow. In order to spread out costs, only one stream at a time is monitored, which occurs over a two-year time period. The North Branch Bassett Creek was monitored in 2018 and 2019. The monitoring report is attached and the Commission Engineer will present the results at this meeting.*

C. Review Report and Receive Presentation of Main Stem Bassett Creek Biotic Index Monitoring Results (20 min) – **INFORMATION ITEM with attachment** – *Between 1980 and 2018, the BCWMC has collected data on biota and habitat from the Main Stem of Bassett Creek on 11 occasions in order to evaluate water quality and detect changes over time. In 2018, the BCWMC monitored the Main Stem of Bassett Creek at two locations: 1) east of Brookridge Avenue, and 2) at Rhode Island Avenue. The Met Council monitored the Main Stem at Irving Avenue in 2018 for both water quality (through the WOMP program) and biota/habitat. The attached report includes results of the biota and habitat monitoring at all three locations and will be presented by the Commission Engineer at this meeting. WOMP water quality monitoring results are reported by the Met Council in separate reports not included here.*

D. Consider Submitting Resolution for 2021 MAWD Legislative Platform (10 min) – **DISCUSSION ITEM with attachment** – *The Commission should discuss whether or not it would like to propose resolutions for the MAWD Board to consider for the 2021 Legislative platform. Proposed resolutions are due by September 1st and will be considered at the MAWD annual meeting in December. See the attached memo from MAWD for more information.*

E. Discuss Meeting Format for August 20th BCWMC Meeting (10 min) – **DISCUSSION ITEM no attachment** – *The Commission should decide how it would like to proceed with its August meeting. I understand Golden Valley City Hall is still unavailable for outside meetings and that Plymouth City Hall is likely available for a Commission meeting.*

6. **COMMUNICATIONS (10 minutes)**
   A. Administrator's Report – **INFORMATION ITEM with attachment**
      i. Medicine Lake Mapping AIS with Drone
      ii. Diversity, Equity, and Inclusion Work
   B. Chair
   C. Commissioners
   D. TAC Members
   E. Committees
   F. Education Consultant
      i. Latest Education Video on Raingardens
   G. Legal Counsel
   H. Engineer
      i. Sweeney Lake Water Quality Improvement Project

7. **INFORMATION ONLY (Information online only)**
   A. CIP Project Updates http://www.bassettcreekwmo.org/projects
   B. Grant Tracking Summary and Spreadsheet
   C. 2020 BCWMC Administrative Calendar
   D. Letter of Support for USACE Mississippi River Drawdown
   E. 2020 Salt Symposium (online; registration reimbursement available)
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8. **ADJOURNMENT**

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Item 4A.
BCWMC 7-16-20

Bassett Creek Watershed Management Commission

DRAFT Minutes of Regular Meeting
Thursday, June 18, 2020
8:30 a.m.
Via video conference due to the COVID-19 global pandemic

1. CALL TO ORDER and ROLL CALL

On Thursday, June 18, 2020 at 8:33 a.m. via video conference, Vice Chair Welch called the meeting of the Bassett Creek Watershed Management Commission (BCWMC) to order.

Commissioners and city staff present:

City	Commissioner	Alternate Commissioner	Technical Advisory Committee Members (City Staff)
Crystal	Dave Anderson	*Vacant Position*	Mark Ray
Golden Valley	Stacy Harwell (Treasurer)	Jane McDonald Black	Drew Chirpich
Medicine Lake	*Absent*	Gary Holter	*Absent*
Minneapolis	Michael Welch (Vice Chair)	*Vacant Position*	Liz Stout
Minnetonka	*Absent*	*Absent*	Leslie Yetka
New Hope	*Absent*	Patrick Crough	Megan Hedstrom
Plymouth	James Prom	Catherine Cesnik	Ben Scharenbroich
Robbinsdale	*Vacant Position*	*Absent*	Marta Roser, Richard McCoy
St. Louis Park	Jim de Lambert	*Absent*	Erick Francis

Administrator	Laura Jester, Keystone Waters
Engineer	Karen Chandler, Barr Engineering Jim Herbert, Barr Engineering
Recorder	Dawn Pape, Lawn Chair Gardener
Legal Counsel	Dave Anderson, Kennedy & Graven
Presenters/ Guests/Public	Julie Benadum, Brown and Caldwell Kelly MacIntyre, City of Minneapolis McKenzie Erickson, resident Rachael Crabb, Minneapolis Park and Recreation Board

2. PUBLIC FORUM ON NON-AGENDA ITEMS

Resident McKenzie Erickson was present, but didn't have any non-agenda items to discuss.

3. APPROVAL OF AGENDA

MOTION: Alternate Commissioner Holter moved to approve the agenda, and moving agenda item 5A from an action item to a discussion item. Commissioner Welch seconded the motion. Upon a rollcall vote, the motion carried 7-0, with the cities of Minnetonka and Robbinsdale absent.

4. CONSENT AGENDA

The following items were approved as part of the consent agenda: May commission meeting minutes, June financial report, payment of invoices, approval of West Broadway Ave (CSAH81) Bridges Reconstruction Project in Minneapolis and Robbinsdale.

The general and construction account balances reported in the June 2020 Financial Report are as follows:

Checking Account Balance	763,135.24
TOTAL GENERAL FUND BALANCE	763,135.24
TOTAL CASH & INVESTMENTS ON-HAND (6/8/20)	3,291,907.52
CIP Projects Levied – Budget Remaining	(4,548,198.60)
Closed Projects Remaining Balance	1,583,848.92
2015-2018 Anticipated Tax Levy Revenue	19,326.30
2019 Anticipated Tax Levy Revenue	10,952.29
Anticipated Closed Project Balance	1,614,127.51

MOTION: Commissioner Harwell moved to approve the consent agenda. Alternate Commissioner Cesnik seconded the motion. Upon a rollcall vote, the motion carried 7-0, with the cities of Minnetonka and Robbinsdale absent.

5. BUSINESS

A. Consider Variance Request and Approval of Sanitary Sewer Replacement Project, Minneapolis

Administrator Jester noted that due to its complexity, this item is for discussion at this meeting and possible action at the July meeting. The city of Minneapolis requested a variance to Section 8.3 of the BCWMC Requirements document for the utility crossing requirement of a minimum depth of 4.0 feet below the channel invert. Julie Benadum, Minneapolis' consultant from Brown and Caldwell, and Kelly MacIntyre with the city, gave a presentation with an overview of the project and the variance request. The proposed linear project includes replacement of 2,300 linear feet of sanitary sewer, including 75 linear feet under Bassett Creek at the unused Irving Avenue bridge. The project will be completed in phases due to the high costs and the pipe will be installed on pilings because soils are contaminated and swampy. The tunneling method for the installation is not possible because of the poor soil conditions, so the city proposed to use an "open cut" channel. Except for removal of the bridge, no permanent changes are expected. During construction, the creek would be diverted around the construction area.

Commissioner Welch commented that this is a huge project and Commissioner Harwell noted its complexity and asked for the Commission Engineer's thoughts on the proposed lower amount of cover over the pipe than

required. Commission Engineer Chandler stated that there is concern about the proposed 2-ft. cover over the pipe and they are hoping to better understand engineering constraints.

There was a brief discussion about flow conditions inside the pipe. It was also noted that the new piles will have a depth of 120-160 feet which will be designed for a 100-year lifespan.

Commission Engineer Herbert clarified that the Commission's 4-foot cover rule came from another project many years ago where the BCWMC required 4 feet of cover and that the engineer's primary concern is scouring within the creek. He commented that he would like to see the pipe covered by at least 3 feet and if that's not possible, would need to see analysis of scour/adequate protection. He noted that the Bassett Creek tunnel just downstream would slow creek velocities under high flow conditions.

Brown and Caldwell Engineer, Julie Benadum, clarified that they plan to move the sheet pile structure in the stream 20 feet downstream of its current location to protect the sanitary pipe. Commission Engineer Herbert stated the revised plans need more sheet pile information.

BCWMC TAC member Stout mentioned that many things are very complicated about this project—not just the soils. Other factors to consider include existing easements, tie in elevations that cannot change, and routing around the Bryn Mawr Meadows Park Project. The pipe will sit upon 80-100 ft. pilings. She also pointed out that decades ago, the Commission's Flood Control Project lowered the creek in this area by 4-5 feet. There was discussion about the size of the proposed pipe (smaller than the existing pipe because it will only convey sanitary flows and not also stormwater); the fact that there's no evidence of sanitary sewer contaminating the creek, but rather it's more likely creek water is entering the pipe; and that the sewer serves homes west of Bryn Mawr Meadows Park. It was noted the project will cost about $10 million, including contaminated soil cleanup costs.

Commissioners were asked to submit any further comments or questions about the project to Administrator Jester.

B. Consider Approval of Commission Engineer Recommendations Regarding Flood Control Project

In October 2019, the Commission Engineer inspected the Bassett Creek Double Box Culvert, which is part of the BCWMC Flood Control Project. Based on inspection observations and evaluation of tunnel condition, several repairs are recommended.

Commission Engineer Herbert reviewed results of the inspection and the Commission Engineer's two recommendations: 1) approve the report and submit it to the proper authorities, and 2) direct the engineers to develop an estimate (opinion) of costs for repairs. Commission Engineer Herbert continued with an overview of how the culvert was originally constructed and reviewed the repairs that need to be made including: shear key joint repair, crack sealing and deposit removal, and repairing exposed reinforcement. He noted the repairs are needed to minimize continuous infiltration and soil transport into the tunnel.

Commission Engineer Herbert noted the repairs would likely cost greater than $100,000 and that a 2016 BCWMC policy for maintenance and repair of the tunnel should guide the process and outline responsibilities for repairs.

[Chair Prom joined the meeting and assumes role of chairing the meeting.]

Commissioner Welch noted that another way to look at this project is to assess the risks of not doing the repairs. He also mentioned that since it is an expensive endeavor just to enter the tunnel, all necessary repairs should be done at the same time.

MOTION: Commissioner Welch moved to approve the Commission Engineer recommendations and to have the Commission attorney assess the risks of not performing the repairs. Alternate Commissioner Crough seconded the motion. Upon a rollcall vote, the motion carried 7-0, with the cities of Minnetonka and Robbinsdale absent.

C. Consider Submitting Letter of Support for U.S. Army Corps of Engineers (ACOE) Mississippi River Middle Pool Drawdown

Administrator Jester reported the Commission was recently notified by the ACOE that they are developing an Environmental Assessment (EA) for a proposed drawdown of the Middle Pool of the Mississippi River (between Upper and Lower St. Anthony Falls dams). The main purpose of the drawdown is to facilitate ACOE inspections of the concrete walls in this area. The proposed drawdown would take place in the September–November timeframe and offers an excellent opportunity for the BCWMC to perform its 5-year inspection of the deep tunnel (where the Bassett Creek tunnel enters the Mississippi River). The EA is expected to be out for comment later this month. Administrator Jester and Commission Engineers recommend that the Commission submit a letter of support to the ACOE on the proposed drawdown.

There was consensus that a letter of support was an appropriate action. Chair Prom directed Administrator Jester to write the letter for his signature.

D. Consider Approval of Feasibility Study for 2021 Main Stem Lagoon Dredging Project

Administrator Jester noted that at the May meeting, the Commission reviewed the feasibility study for this project, received a presentation by the Commission Engineer, and took action approving implementation of Alternative 2, Option 1 (dredging all lagoons to 6-feet). She noted that funding options for that alternative will be discussed in the next item, but that official approval of the feasibility study is also needed.

MOTION: Alternate Commissioner Holter moved to approve the Feasibility Study for 2021 Main Stem Lagoon Dredging Project. Commissioner Welch seconded the motion. Upon a rollcall vote, the motion carried 7-0, with the cities of Minnetonka and Robbinsdale absent.

[Commissioner Harwell departs the meeting; Alternate Commissioner McDonald Black assumes voting role for Golden Valley.]

E. Consider Funding Options for Main Stem Lagoon Dredging Project and Set 2021 Maximum Levy

Administrator Jester reported that the Commission must set a maximum levy amount to be collected by Hennepin County in 2021 for the CIP projects. She noted a final 2021 levy will be set at the September 2020 meeting. She noted that there are four projects slated to begin in 2021, plus two projects that were split between 2020 and 2021 for levy funds.

Administrator Jester reviewed funding required to implement the chosen alternatives for each project. She also reported that she and the Commission's Deputy Treasurer worked to accurately account for future (secured) grant funding and levy funds and projected the Commission's Closed Project Account to be over $1.6 million. Administrator Jester noted her funding options include using up to $1.2 million to help fund CIP projects over the next three years.

There was considerable discussion about the high cost of the Main Stem Lagoon Dredging Project, but also the significant water quality improvements at very low cost per pound of pollutant removal. Due to the large amount of contaminated sediment to be removed, the total project cost is estimated at $3,259,000. Originally, the BCWMC 5-year CIP schedule only included $400,000 for this project.

Administrator Jester review several options for funding and implementing the Main Stem Lagoon Dredging Project including:

1. Spreading the cost over multiple years
2. Postponing the project for a future year
3. Pursuing funding partners (MPRB, city of Minneapolis, city of Golden Valley)
4. Utilizing BCWMC Closed Project Account Funds
5. Applying for grant funding

MOTION: Commissioner Welch moved to approve the maximum levy at $1,774,780 and implement the Main Stem Lagoon Dredging Project beginning in 2021 by spreading the cost of the project over 3 levy years, using $1.2M in Closed Project Funds ($400,000 a year for 3 years), pursuing grant funding for the project, continuing discussions with Minneapolis Park and Rec Board for possible funding, meeting with Hennepin County Commissioner Fernando to review and discuss the project and reviewing any new information at the September meeting ahead of setting the final levy. Alternate Commissioner McDonald Black seconded the motion.

There was a lengthy discussion about the fact that Administrator Jester's recommended 2021 maximum levy request of almost $1.8 million would be an 18.3% increase over the 2020 levy.

Commissioner Welch pointed out that the Commission was only setting the maximum levy (not the final levy), and they could lower the dollar amount in September. He also noted the county's ERF grant as a viable option and stressed the importance of meeting with Hennepin County Commissioner Fernando.

Alternate Commissioner McDonald Black wondered if more Closed Project Account funding should be used in 2021 and less in later years in order to bring the 2021 maximum levy lower.

Alternate Commissioner Cesnik brought up how COVID constraints might affect the budget. Administrator Jester explained that this is exactly why it makes it a difficult request, but delaying might only make the costs rise.

Commissioner Anderson stated that he cannot accept an 18.3% increase and noted that the Medicine Lake Road Long Term Flood Mitigation Project was funded over 8 years. He suggested that the 3 lagoons could be viewed as three separate projects.

It was reiterated that the action on the table sets the maximum levy and that the final levy amount can be adjusted later in the year after input from Hennepin County Commissioner Fernando, the knowledge of possible grant opportunities, and shifting the use of more Closed Project Account funds earlier.

VOTE: Upon a rollcall vote, the motion carried 5-2, with the cities of Crystal and Plymouth voting against and the cities of Minnetonka and Robbinsdale absent from the vote.

F. Discuss Meeting Format for July 16th BCWMC Meeting

Administrator Jester noted that that the Governor's Executive Order 20-74 says that governmental entities are strongly encouraged to hold remote meetings whenever possible as permitted by state or local authority. She also noted that while it might be possible, the logistics of a hybrid meeting, where some members are in a meeting room and others join from remote locations, would be challenging.

There was a discussion of the pros and cons of holding in-person meetings. Chair Prom and Commissioner Anderson expressed preference for in-person meetings. Alternate Commissioner McDonald Black expressed concern for commission members' health and stated she didn't think it was worth the risk. Other commissioners also noted a preference for an online meeting for July. Administrator Jester was directed to organize another WebEx meeting for July.

6. COMMUNICATIONS

A. Administrator's Report

i. Watershed-Based Implementation Funding 2nd Convene Meeting

Meeting among all partners was held and went well. The group began developing metrics and methods for evaluating projects for potential funding. A third meeting is scheduled for later in the month.

ii. Update on BWSR's Performance Review and Assessment Program

The PRAP review of the Commission has been postponed until 2021.

B. Chair

Apologized for being late to the meeting and thanked everyone for their patience with these online meetings.

C. Commissioners

Nothing to report

D. TAC Members
Nothing to report
E. Committees
Nothing to report
F. Education Consultant
i. Latest Education Video Alternative Lawns. The videos are doing well on Facebook and the raingarden video will be coming out soon.
G. Legal Counsel
Nothing to report
H. Engineer
i. Sochacki Subwatershed Assessment
The Three River Parks District is in the early stages of performing monitoring
ii. Sweeney Lake Water Quality Improvement Project
Curly-leaf pondweed control was completed.
Carp removal – Carp tagging is done. They will start capture/removal soon and the box nets have been installed.

7. INFORMATION ONLY (Information online only)
A. CIP Project Updates http://www.bassettcreekwmo.org/projects
B. Grant Tracking Summary and Spreadsheet
C. 2020 BCWMC Administrative Calendar
D. 2019 WMWA Annual Report
E. 2020 Salt Symposium (online; registration reimbursement available)
F. WCA Notices of Decision, Plymouth

8. ADJOURNMENT

The meeting adjourned at 10:37 a.m.

_____
Signature/Title Date

_____
Signature/Title Date

Item 4B.
BCWMC 7-16-20
Full document
online

Bassett Creek Watershed Commision
General Fund (Administration) Financial Report **(UNAUDITED)**
Fiscal Year: February 1, 2020 through January 31, 2021
MEETING DATE: July 16, 2020

BEGINNING BALANCE		**8-Jun-2020**		**763,135.24**
ADD:				
General Fund Revenue:				
	Interest less Bank Fees		(7.95)	
Permits:				
	City of Minneapolis	??	1,500.00	
	Marshall Tanick	BCWMC 2020-18	500.00	
	Reimbursed Construction Costs		7,996.45	
		Total Revenue and Transfers In		**9,988.50**
DEDUCT:				
Checks:				
3313	Barr Engineering	June services	42,222.44	
3314	Kennedy & Graven	May Legal	1,781.05	
3315	Keystone Waters LLC	June Administrator	4,114.57	
3316	Lawn Chair Gardener	June Admin Serv / Educ	945.00	
3317	Wenck Associates	June WOMP	1,097.50	
3318	HDR Engineering	Website Services	367.64	
3319	Metro Blooms	Lawns to Legumes Grant Expen	1,593.40	
3320	Metro Conservation Districts	Sponsorship	350.00	
3321	Catherine Cesnik	Training Reimbursement	160.00	
		Total Checks/Deductions		**52,631.60**
Outstanding from previous month:				
3308	Lawn Chair Gardener	May Admin Services	1,231.25	
ENDING BALANCE		**8-Jul-2020**		**720,492.14**

Bassett Creek Watershed Commision
General Fund (Administration) Financial Report **(UNAUDITED)**
Fiscal Year: February 1, 2020 through January 31, 2021
MEETING DATE: July 16, 2020

		2020/2021 BUDGET	CURRENT MONTH	YTD 2020/2021	BALANCE
OTHER GENERAL FUND REVENUE					
ASSESSEMENTS TO CITIES		550,450	0.00	512,820.00	37,630.00
PROJECT REVIEW FEES		50,000	2,000.00	36,500.00	13,500.00
WOMP REIMBURSEMENT		5,000	0.00	0.00	5,000.00
TRANSFERS FROM LONG TERM FUND & CIP		42,000	0.00	0.00	42,000.00
CIP ADMINISTRATIVE CHARGE	30,000				
LONG TERM MAINT-FLOOD CONTROL PRO	12,000				
USE OF FUND BALANCE		15,000	0.00	0.00	15,000.00
METROPOLITAN COUNCIL - LRT			0.00	0.00	
THREE RIVERS PARK DISTRICT - CURLY LEAF POND			0.00	0.00	
REVENUE TOTAL		**662,450**	**2,000.00**	**549,320.00**	**113,130.00**
EXPENDITURES					
ENGINEERING & MONITORING					
TECHNICAL SERVICES		130,000	10,220.00	69,493.19	60,506.81
DEV/PROJECT REVIEWS		75,000	12,194.00	48,421.75	26,578.25
NON-FEE/PRELIM REVIEWS		20,000	398.50	6,627.50	13,372.50
COMMISSION AND TAC MEETINGS		12,000	874.00	3,704.20	8,295.80
SURVEYS & STUDIES		10,000	0.00	0.00	10,000.00
WATER QUALITY/MONITORING		102,600	8,754.49	45,929.39	56,670.61
WATER QUANTITY		6,500	0.00	2,466.44	4,033.56
ANNUAL FLOOD CONTROL INSPECTIONS		12,000	1,785.00	13,595.50	(1,595.50)
REVIEW MUNICIPAL PLANS		2,000	0.00	1,260.00	740.00
WOMP		20,500	1,097.50	7,245.08	13,254.92
APM / AIS WORK		30,000	0.00	6,634.42	23,365.58
ENGINEERING & MONITORING TOTAL		**420,600**	**35,323.49**	**205,377.47**	**215,222.53**
PLANNING					
Next Generation Plan Development		18,000	0.00	0.00	18,000.00
MAINTENANCE FUNDS TOTAL		**18,000**	**0.00**	**0.00**	**18,000.00**
ADMINISTRATION					
ADMINISTRATOR		69,200	3,780.00	26,334.00	42,866.00
MN ASSOC WATERSHED DIST DUES		500	0.00	500.00	0.00
LEGAL COSTS		15,000	1,781.05	7,552.05	7,447.95
AUDIT, INSURANCE & BONDING		18,000	0.00	18,684.00	(684.00)
FINANCIAL MANAGEMENT		3,500	0.00	0.00	3,500.00
MEETING EXPENSES		1,500	0.00	223.50	1,276.50
ADMINISTRATIVE SERVICES		15,000	975.82	4,509.10	10,490.90
ADMINISTRATION TOTAL		**122,700**	**6,536.87**	**57,802.65**	**64,897.35**
OUTREACH & EDUCATION					
PUBLICATIONS/ANNUAL REPORT		1,300	0.00	1,000.00	300.00
WEBSITE		1,000	367.64	367.64	632.36
PUBLIC COMMUNICATIONS		1,000	0.00	484.37	515.63
EDUCATION AND PUBLIC OUTREACH		22,000	2,057.15	4,543.26	17,456.74
WATERSHED EDUCATION PARTNERSHIPS		15,850	350.00	9,850.00	6,000.00
OUTREACH & EDUCATION TOTAL		**41,150**	**2,774.79**	**16,245.27**	**24,904.73**
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	0.00	10,000.00
TMDL WORK TOTAL		**10,000**	**0.00**	**0.00**	**10,000.00**
TOTAL EXPENSES		**662,450**	**44,635.15**	**279,425.39**	**383,024.61**

BCWMC Construction Account
Fiscal Year: February 1, 2020 through January 31, 2021 **(UNAUDITED)**
July 2020 Financial Report

Cash Balance 06/08/2020				
Cash		696,802.17		
	Total Cash		696,802.17	
Investments:				
Minnesota Municipal Money Market (4M Fund)		2,500,000.00		
2018-20 Dividends		88,193.54		
2020-21 Dividends		6,911.81		
Dividends-Current		67.81		
	Total Investments		2,595,173.16	
	Total Cash & Investments			3,291,975.33
Add:				
Interest Revenue (Bank Charges)		(17.78)		
Hennepin County - Property Tax Settlement		736,719.54		
	Total Revenue			736,701.76
Less:				
CIP Projects Levied - Current Expenses - TABLE A		(6,062.95)		
Proposed & Future CIP Projects to Be Levied - Current Expenses - TABLE B		(1,372.50)		
	Total Current Expenses			(7,435.45)
	Total Cash & Investments On Hand	**7/8/2020**		**4,021,241.64**
Total Cash & Investments On Hand		4,021,241.64		
Current Anticipated Levy -2020 (July 20/Dec 20/Jan 21)		766,309.68		
CIP Projects Levied - Budget Remaining - **TABLE A**		(4,542,135.65)		
Secured Grant Funds (CIP Projects Levied)-Not yet received		710,060.00		
2021 Expected Levy for 2020/2021 Projects		630,080.00		
Closed Projects Remaining Balance		**1,585,555.67**		
2015 - 2018 Anticipated Tax Levy Revenue - **TABLE C**		2,288.14		
2019 Anticipated Tax Levy Revenue - TABLE C		4,953.76		
Anticipated Closed Project Balance		**1,592,797.57**		
Proposed & Future CIP Project Amount to be Levied - **TABLE B**		0.00		

TABLE A - CIP PROJECTS LEVIED

		Approved Budget	Current Expenses	2020/21 YTD Expenses	**INCEPTION** To Date Expenses	Remaining Budget	Grant Funds Received-included in Cash Balances	Secured Grant Funds	2021 Expected Levy for 2020/2021 Projects
Projects Completed-to be removed at year end									
Northwood Lake Pond (NL-1) - FINALLED	1,433,740								
Close Project - Use Closed Project Funds	13,403	1,447,143	0.00	0.00	1,447,143.38	0.00	700,000		
Plymouth Creek Restoration (2017 CR-P) - FINALLED	863,573	627,329	0.00	0.00	627,329.10	0.00	435,468		
Close Project - funds to Closed Project Fund	(236,244)								
Current Projects									
Four Seasons Mall Area Water Quality Proj (NL-2)		990,000	0.00	7,319.00	182,350.56	807,649.44			
2014									
Schaper Pond Enhance Feasibility/Project (SL-1)(SL-3)		612,000	0.00	3,146.00	431,508.45	180,491.55			
Twin Lake Alum Treatment Project (TW-2)		163,000	0.00	0.00	91,037.82	71,962.18			
2017									
Main Stem Cedar Lk Rd-Dupont (2017CR-M) 2017 Levy	400,000	1,064,472	0.00	0.00	132,029.25	932,442.75			
2018 Levy	664,472							150,300	
2018									
Bassett Creek Park & Winnetka Ponds Dredging (BCP-2)		1,000,000							
Mar-19 Budget Adj		114,301							
Mar-19 From Channel Maint		9,050	0.00	0.00	1,063,148.32	60,202.68			
2019									
Decola Ponds B&C Improvement(BC-2,BC-3,BC-8)		1,031,500	0.00	787,615.09	894,212.65	137,287.35	34,287	34,287	
Westwood Lake Water Quality Improvement Project(Feasibility)		404,500	0.00	174,486.76	223,640.96	180,859.04			
2020									
Bryn Mawr Meadows (BC-5)		912,000	0.00	0.00	97,687.03	814,312.97	200,000	200,000	412,000
Jevne Park Stormwater Mgmt Feasibility (ML-21)		500,000	0.00	0.00	46,390.75	453,609.25			
Crane Lake Improvement Proj (CL-3)		380,000	0.00	0.00	12,000.85	367,999.15			
Sweeney Lake WQ Improvement Project (SL-8)		568,080	6,062.95	31,610.71	32,760.71	535,319.29	4,527	325,473	218,080
		9,823,375	6,062.95	1,004,177.56	5,281,239.83	4,542,135.65		710,060.00	630,080.00

TABLE B - PROPOSED & FUTURE CIP PROJECTS TO BE LEVIED

	Approved Budget - To Be Levied	Current Expenses	2020/21 YTD Expenses	**INCEPTION** To Date Expenses	Remaining Budget
2021					
Main Stem Dredging Project (BC-7)	0	751.50	32,846.50	75,041.22	(75,041.22)
Mt Olivet Stream Restoration (ML-20)	0	162.00	14,410.50	35,993.92	(35,993.92)
Parkers Lake Stream Restoration (PL-7)	0	459.00	24,564.90	57,547.12	(57,547.12)
2021 Project Totals	0	1,372.50	71,821.90	168,582.26	(168,582.26)
Total Proposed & Future CIP Projects to be Levied	0	1,372.50	71,821.90	168,582.26	(168,582.26)

BCWMC Construction Account
Fiscal Year: February 1, 2020 through January 31, 2021 **(UNAUDITED)**
July 2020 Financial Report

TABLE C - TAX LEVY REVENUES

	County Levy	**Abatements / Adjustments**	**Adjusted Levy**	**Current Received**	**Year to Date Received**	**Inception To Date Rec'd**	**Balance to be Collected**	BCWMO Levy
2020 Tax Levy	1,500,000.00	1,537.81	1,501,537.81	735,228.13	735,228.13	735,228.13	766,309.68	1,500,000.00
2019 Tax Levy	1,436,000.00	(4,500.13)	1,431,499.87	1,498.40	1,498.40	1,426,546.11	4,953.76	1,436,000.00
2018 Tax Levy	1,346,815.00	(8,893.33)	1,337,921.67	(405.17)	(405.17)	1,335,359.23	2,562.44	947,115.00
2017 Tax Levy	1,303,600.00	(16,571.62)	1,287,028.38	150.38	150.38	1,287,861.38	(833.00)	1,303,600.00
2016 Tax Levy	1,222,000.00	(11,662.58)	1,210,337.42	74.86	74.86	1,210,145.57	191.85	1,222,000.00
2015 Tax Levy	1,000,000.00	(103.70)	999,896.30	172.94	172.94	999,529.45	366.85	1,000,000.00
				736,719.54			**773,551.58**	

OTHER PROJECTS:

		Approved Budget	**Current Expenses / (Revenue)**	**2020/21 YTD Expenses / (Revenue)**	**INCEPTION To Date Expenses / (Revenue)**	**Remaining Budget**
TMDL Studies						
TMDL Studies		135,000	0.00	0.00	107,765.15	27,234.85
TOTAL TMDL Studies		135,000	0.00	0.00	107,765.15	27,234.85
Flood Control Long-Term						
Flood Control Long-Term Maintenance	FEMA Model	694,573	561.00	3,087.50	412,257.41	
Less: State of MN - DNR Grants			0.00	0.00	(141,846.90)	
		694,573	561.00	3,087.50	270,410.51	424,162.49
Annual Flood Control Projects:						
Flood Control Emergency Maintenance		500,000	0.00	0.00	0.00	500,000.00
Annual Water Quality						
Channel Maintenance Fund		415,950	0.00	11,453.70	267,073.30	148,876.7
Metro Blooms Harrison Neighborhood CWF Grant Project		134,595	0.00	0.00	87,892.89	46,702.11
BWSR Grant					(67,298.00)	(67,298.00)
		134,595	0.00	0.00	20,594.89	
Total Other Projects		1,880,118	561.00	14,541.20	598,545.85	1,079,678.15

Item 4D.
BCWMC 7-16-20

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We hope you will attend the whole event, but we understand you are busy and may not be able. We will be following the agenda times closely so if you want to tune in just for specific presentations, you will be able to do so.

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Organization	Ms
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Phone Number	5712757757
Email	cesnik@gmail.com; Opted In
Additional Options	Professional Development Hours
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Date	06/29/2020

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Memorandum

To: Bassett Creek Watershed Management Commission (BCWMC)
From: Barr Engineering Co. (Barr)
Subject: Item 4E: Bassett's Creek Park (North) Phase 1 Improvements – Minneapolis, MN
BCWMC July 16, 2020 Meeting Agenda
Date: July 8, 2020
Project: 23270051.48 2020 2222

4E Bassett's Creek Park (North) Phase 1 Improvements – Minneapolis, MN BCWMC 2020-17

Summary:

Proposed Work: Park improvements including new playground equipment, benches, tables, trails, sidewalks, planting beds, picnic areas, and a dog run with a fence
Basis for Review at Commission Meeting: Cut and fill in the floodplain
Impervious Surface Area: Increase 0.20 acres (including all bid alternates)
Recommendation: Approval

General Project Information

The proposed project is located in the Bassett Creek Main Stem subwatershed at three locations within Bassett's Creek Park (North) in Minneapolis. The proposed project results in 0.99 acres of grading (disturbance), does not result in any reconstructed impervious, and creates an increase of 0.20 acres of impervious (including all alternatives) from 0.03 acres (existing) to 0.23 acres (proposed).

Floodplain

The proposed project includes work in the Bassett Creek 1% (base flood elevation, 100-year) floodplain. The October 2019 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 1% (base flood elevation, 100-year) floodplain elevation of Bassett Creek varies in the project vicinity from 813.7 to 814.5 feet NAVD88.

The proposed project will result in approximately 0.3 cubic yards of fill and 1.8 cubic yards of cut in the floodplain for a net increase in floodplain storage of approximately 1.5 cubic yards. The proposed project does not result in an increase in flood level at any point along the trunk system.

Wetlands

The City of Minneapolis is the local government unit (LGU) responsible for administering the Wetland Conservation Act; therefore, BCWMC wetland review is not required.

Rate Control

The proposed project does not create one or more acres of new or fully reconstructed impervious surfaces; therefore, BCWMC rate control review is not required. Drainage patterns will generally remain the same between existing and proposed conditions.

Water Quality

The proposed project does not create one or more acres of new or fully reconstructed impervious surfaces; therefore, BCWMC water quality review is not required.

Erosion and Sediment Control

The proposed project results in 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 rock construction entrances, silt fence, catch basin inlet protection, temporary seeding, and temporary mulch or erosion control blanket. Permanent erosion and sediment control features include stabilization with turf, native plantings, hardscapes, or playground mulch.

Recommendation

Approval

Project Location
Municipality
BCWMC Legal Boundary
Major Subwatershed
Bassett Creek

BARR

N

0 150 300 Feet

Bassett Creek Watershed Management Commission

BCWMC #2020-17
BASSETT'S CREEK PARK (NORTH) PHASE 1 IMPROVEMENTS
Minneapolis, MN

LOCATION MAP

Barr Footer: ArcGIS 10.7.1, 2020-07-06 11:41 File: I:\Client\BassettCreek\gis\maps\Permits\Maps-2020\2020-17 Basset's Creek Park (North) Phase I Improvements.mxd User: EMA

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Memorandum

To: Bassett Creek Watershed Management Commission (BCWMC)
From: Barr Engineering Co. (Barr)
Subject: Item 4F: 1230 Angelo Drive Shoreline Repair – Golden Valley, MN
BCWMC July 16, 2020 Meeting Agenda
Date: July 8, 2020
Project: 23270051.48 2020 2223

4F 1230 Angelo Drive Shoreline Repair – Golden Valley, MN BCWMC 2020-18

Summary:

Proposed Work: Single-family home shoreline repairs

Basis for Review at Commission Meeting: Shoreline repairs

Impervious Surface Area: No change

Recommendation: Approval

General Project Information

The proposed project is located in the Sweeney Lake subwatershed at 1230 Angelo Drive in Golden Valley and includes shoreline repairs. The applicant proposes to restore the Sweeney Lake shoreline along their property by removing a timber retaining wall and placing approximately 100 linear feet of limestone boulders and riprap along the shoreline and creating a 10-foot buffer and beach area. The applicant is also proposing to repair and rebuild a deck and repair and rebuild stairs near the shoreline. The proposed project does not result in any changes to impervious surfaces.

Floodplain

The proposed project includes work in the Bassett Creek 1% (base flood elevation, 100-year) floodplain. The October 2019 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 1% (base flood elevation, 100-year) floodplain elevation of Sweeney Lake is 831.9 feet NAVD88.

The proposed project does not involve fill in the floodplain.

Lakes, Streams, and Wetlands

The proposed project includes the referenced shoreline repairs along Sweeney Lake that triggers review by the Commission. The 1 ft. high x 2 ft. wide rectangular limestone boulders will be placed one boulder high to the north of the dock and two boulders high to the south of the dock. The limestone boulders

match the boulders of the house to the north. Riprap will be installed lakeside of the shed. The proposed 10 ft. x 25 ft. beach includes imported sand placed on the landside of the limestone boulders.

The City of Golden Valley is the local government unit (LGU) responsible for administering the Wetland Conservation Act; therefore, BCWMC wetland review is not required.

Rate Control

The proposed project does not create one or more acres of new or fully reconstructed impervious surfaces; therefore, BCWMC rate control review is not required. Drainage patterns will generally remain the same between existing and proposed conditions.

Water Quality

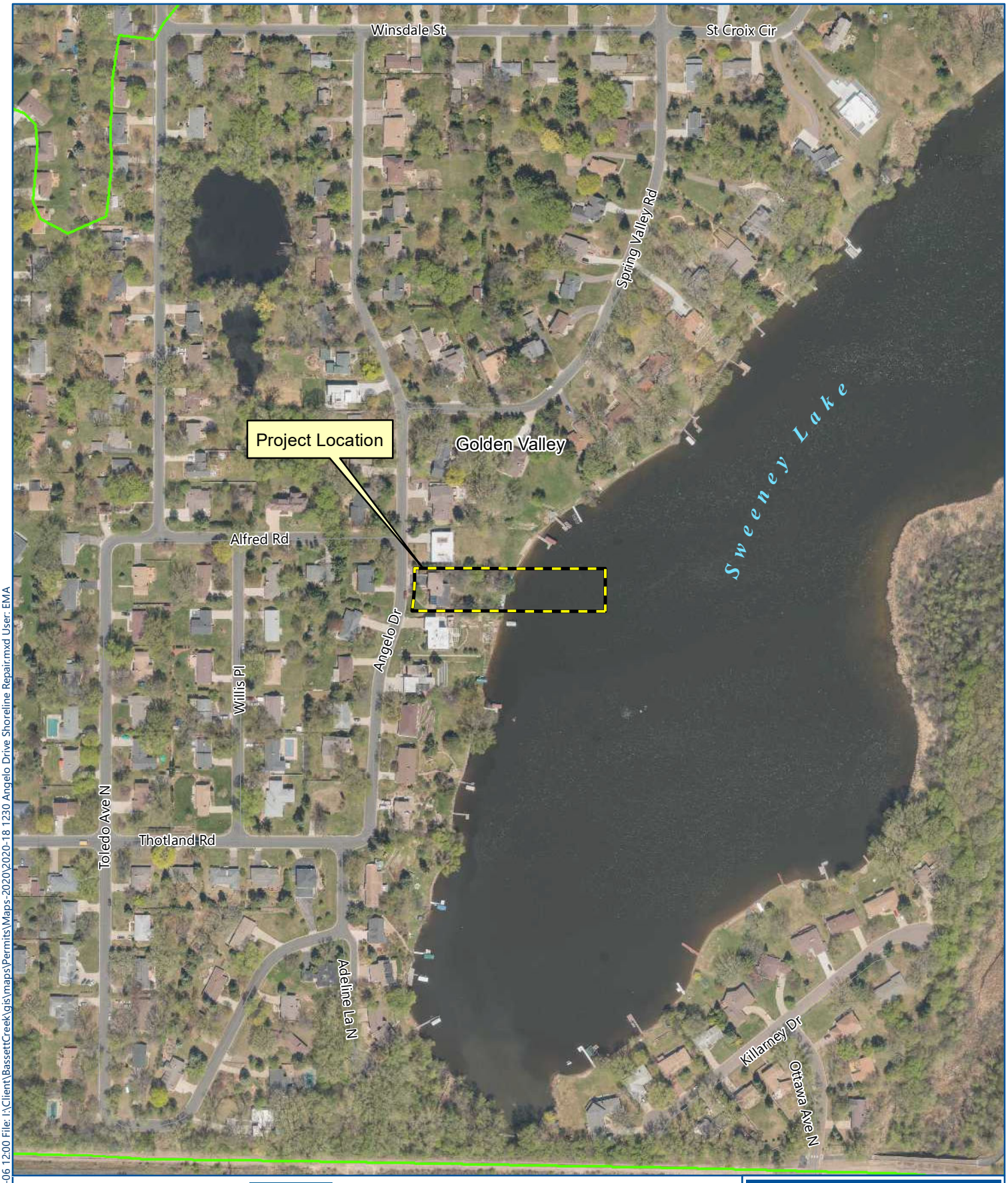
The proposed project does not create one or more acres of new or fully reconstructed impervious surfaces; therefore, BCWMC water quality review is not required.

Erosion and Sediment Control

Single family homes are exempt from BCWMC erosion and sediment control requirements.

Recommendation

Approval



Project Location
Municipality
BCWMC Legal Boundary
Major Subwatershed
Bassett Creek

BARR

N

0 150 300 Feet

Bassett Creek Watershed Management Commission

BCWMC #2020-18
1230 ANGELO DRIVE
SHORELINE REPAIR
Golden Valley, MN

LOCATION MAP

Barr Footer: ArcGIS 10.7.1, 2020-07-06 12:00 File: I:\Client\BassettCreek\gis\maps\Permits\Maps-2020\2020-18 1230 Angelo Drive Shoreline Repair.mxd User: EMA

BOARD OF WATER AND SOIL RESOURCES

FY 2021

Clean Water Fund Competitive Grants Request for Proposal (RFP)

CLEAN WATER LAND & LEGACY AMENDMENT

MINNESOTA POLLUTION CONTROL AGENCY

DEPARTMENT OF AGRICULTURE

Purpose and Application Information

The Clean Water Fund was established in Minnesota Statute 114D.50 to implement part of Article XI, Section 15, of the Minnesota Constitution, with the purpose of protecting, enhancing, and restoring water quality in lakes, rivers, and streams in addition to protecting ground water and drinking water sources from degradation. These funds must supplement traditional sources of funding and may not be used as a substitute to fund activities or programs.

The appropriation language governing the use of these funds is in Minnesota Session Laws 2019, 1st Special Session, Chapter 2, Article 2, Section 7. Table 1 lists the Clean Water Fund (CWF) programs available to BWSR and other executive branch agencies. Final funding decisions will be dependent on the actual funds available.

Table 1: FY 2021 Competitive Clean Water Grant Funding Available[1]

Agency Fund	Funding Amount	Governmental Units Eligible for Funding	Required Match
BWSR Projects and Practices *Drinking Water subprogram*	Up to $12,000,000 Up to 20% of projects and practices funding amount	Soil and Water Conservation Districts, Watershed Districts, WMOs, Counties, Cities[2], and JPBs of these organizations	25%
BWSR Multipurpose Drainage Management	Up to $700,000	Partnership of a Chapter 103E Drainage Authority[3] and Soil and Water Conservation District(s)	25%
MDA AgBMP Loans	$0 in NEW appropriations $1.4 M existing awards $2.8 M FY2021 repayments $4.2 M Available	Any LGU may apply, but awards will be coordinated through existing contract holders. $4.2 M available to coordinate with this Competitive CWF Grant application.	Not Required
MPCA Clean Water Partnership Loans	Up to $10,000,000	Local governmental units with the ability to generate revenue or a group with an eligible sponsor of an LGU with revenue generating authority	Not Required
Total	**Up to $26,900,000**		

[1] Amounts shown are estimates, actual amounts will be determined prior to the end of the application period.

[2] Cities must have a state approved local water management plan. BWSR recognizes the 7-county metropolitan area city water plans approved by a Watershed District or a Watershed Management Organization (WMO) as a State approved plan.

[3] County, Joint County Board, or Watershed District

What is New for 2021

1. Supplemental questions **must** be submitted in eLINK via attachment as part of any application that contain Livestock Waste Management practices including practices to address stockpiles. Funding will only be provided for those projects listed on the supplemental questions sheet (page 11).
2. For any proposal submitted as part of the **Drinking Water Subgrant**, **a map** of a proposed project area showing why the areas is targeted for drinking water protection or restoration **is required** (page 14).
3. Location of proposed storage and treatment wetlands proposed under the Multipurpose Drainage Management program must be identified at time of application(page 16).
4. Components of projects needed to meet the statutory requirements of 103E Drainage Law (page 17).

Proposal Requirements

A. Applicant Eligibility

- As defined in the FY 2021 Clean Water Fund Competitive Grant Policy, eligible applicants include local government units (counties, watershed districts, watershed management organizations, soil and water conservation districts, and seven-county metro cities) or local government joint power boards working under a current State approved and locally adopted local water management plan or soil and water conservation district (SWCD) comprehensive plan. Counties in the seven-county metropolitan area are eligible if they have adopted a county groundwater plan or county comprehensive plan that has been approved by the Metropolitan Council under Minn. Stat. Chapter 473. Cities in the seven-county metropolitan area are eligible if they have a water plan that has been approved by a watershed district or a watershed management organization as provided under Minn. Stat. 103B.235. Cities, including those outside of the seven-county metropolitan area, are encouraged to work with another eligible local government if interested in receiving grant funds.
- Partner organizations such as non-profits, watershed groups, school districts or lake associations are not directly eligible to apply and must work in conjunction with eligible applicants as defined above.
- LGUs are eligible to receive grant funds if they are working under a current water management plan that has been **state approved and locally adopted** when the BWSR Board authorizes the grant awards.

B. Match

All BWSR CWF competitive grants require a minimum non-state match equal to at least 25% of the amount of Clean Water Funds requested or received. The match must be cash or in-kind cash value of goods, materials, and services directly attributed to project accomplishments.

C. Project Period

The project period starts when the grant agreement is executed, meaning all required signatures have been obtained. Work that occurs before this date is not eligible for reimbursement with grant funds and cannot be used as match. All grants must be completed by December 31, 2023.

If a project receives federal funds, the period of the grant agreement may be extended to equal the length of time that the federal funds are available subject to limitation. Applicants using federal funds are encouraged to contact BWSR soon after the award of funds to ensure the grant agreement can be developed appropriately.

D. Payment Schedule

Grant payments will be distributed in three installments to the grantee. The first payment of 50% of the grant amount will be paid after work plan approval and execution of the grant agreement provided the grant applicant is in compliance with all BWSR website and eLINK reporting requirements for previously awarded BWSR grants. The second payment of 40% of the grant amount will be paid once the grantee has provided BWSR with notification and BWSR has reconciled expenditures of the initial payment. The last 10% will be paid after all final reporting requirements are met, the grantee has provided BWSR with a final financial report, and BWSR has reconciled these expenditures.

E. Reporting and Administration Requirements

- All grant recipients are required to report on the outcomes, activities, and accomplishments of Clean Water Fund grants. Outputs will serve as surrogates for outcomes and will be reported as estimated pollutant reductions and progress towards goals based on the best available information.
- All BWSR funded grants are managed through eLINK. All applications will be submitted electronically through eLINK. Successful applicants will be required to complete a work plan in eLINK. All required reporting will be completed through eLINK. For more information go to https://bwsr.state.mn.us/elink.
- BWSR Clean Water Funds will be administered via a standard grant agreement. BWSR will use grant agreements as contracts for assurance of deliverables and compliance with appropriate statutes, rules and established policies. Willful or negligent disregard of relevant statutes, rules and policies may lead to imposition of financial penalties on the grant recipient.
- When practicable, grant recipients shall prominently display on their website the legacy logo. Grant recipients must display on their website either a link to their project from the Legislative Coordinating Commission Legacy Site (http://legacy.leg.mn) or a clean water project summary that includes a description of the grant activities, including expenditure of grant funds and measurable outcomes.
- When practicable, grant recipients must display a sign with the Legacy Logo at the project site or other public location identifying the project was built with assistance from Clean Water, Land and Legacy Amendment. When practicable, grant recipients must display the Legacy Logo on printed and other media funded with money from the Clean Water Fund. The logo and specifications can be found at http://www.legacy.leg.mn/legacy-logo.
- All grantees receiving funds for BWSR programs must follow the FY20 Clean Water Fund Implementation Program Policy and BWSR Grants Administration Manual, which can be found at https://bwsr.state.mn.us/grants/manual/

F. Evaluation Restoration Program

All Clean Water Fund restoration projects with restoration benefits may be subject to an evaluation in accordance with Minn. Stat. 114D.50 Subd. 6. Primary goals of the restoration evaluation program are to evaluate the projects relative to the law, current science, and the stated goals and standards in the restoration plan and to improve future habitat restorations by creating a feedback loop from lessons learned in the field.

Key recommendations that applicants should follow are:

1. **Improved Project Planning** - Thorough project planning will enable project managers to make informed decisions and improve capacity to achieve desired outcomes
2. **Improved Vegetation for Stream Projects** - Well established vegetation is critical for the long-term success of stream projects. Establishing native vegetation takes planning and diligent maintenance.
3. **Improved Project Teams** - Bringing more sets of expertise to the table will ideally: minimize instances of non-native plant use, identify plan components with high risk of limited success, help plan contingencies for potential challenges, and broaden project goals.
4. **Improved Documentation** - Documentation is critical for understanding, tracking, and achieving successful restorations.

For more information regarding the Restoration Evaluation Program visit the follow website: https://www.dnr.state.mn.us/legacy/restoration-evaluation.html

G. Incomplete Applications

Applications that do not comply with all application requirements will not be considered for funding, as provided below.

- Components of the application are incomplete or missing including information on pollution reduction estimates where applicable;
- Any required documentation is missing including uploading required feasibility studies for in-lake treatments, supplemental questions for feedlot projects or the budget spreadsheet for multi-purpose drainage management.
- The match amount does not meet grant requirements; or
- The minimum grant dollar amount is not met.

Application Guidelines

A. Deadline and Timeline

No late submissions or incomplete applications will be considered for funding.

■ June 29, 2020	Application period begins
■ August 17, 2020	Application deadline at 4:30 p.m.*
■ December 17, 2020	BWSR Board authorizes grant awards (proposed)
■ February 2021	BWSR grant agreements sent to recipients (proposed)
■ March 15, 2021	Work plan submittal deadline
■ April 6, 2021	Grant execution deadline

*The application must be submitted by 4:30 PM. Late responses will not be considered. The grant applicant is responsible for proving timely submittal.

B. Native Vegetation

All projects that involve vegetation restoration or establishment are subject to BWSR's Native Vegetation Establishment and Enhancement Guidelines found at: https://bwsr.state.mn.us/sites/default/files/2019-07/Updated%20guidelines%20Final%2007-01-19.pdf. Key requirements within the Guidelines include the use of native vegetation, providing pollinator habitat, and incorporating high diversity levels.

C. Permitting

The applicant is responsible for obtaining and complying with all permits necessary to execute the project. If applicable, successful applicants will be required to provide sufficient documentation prior to work plan approval that the project expects to receive or has received all necessary federal, state and local permits and meets all water quality rules, including those that apply to the utilization of an existing water body as a water quality treatment device. ***Applicants are strongly encouraged to contact the appropriate regulatory agencies early in the grant application development process to ensure potential projects can meet all applicable regulatory requirements.***

For information regarding MPCA storm water permitting requirements, please go to:

Construction stormwater permit overview
http://www.pca.state.mn.us/index.php/view-document.html?gid=7386

Common Plan of Development
http://www.pca.state.mn.us/index.php/view-document.html?gid=7396

Untreated Stormwater Runoff to Lakes, Streams, and Wetlands
http://www.pca.state.mn.us/index.php/view-document.html?gid=11864

D. Applications

1. Applications need to be submitted via **eLINK**. Eligible applicants without a current eLINK user account must submit a request to establish an eLINK account ***no later than 7 days prior to the application*** deadline. As part of the application, eLINK will require applicants to map the location of the proposed project area.

2. Proposals involving in-lake treatment, feedlot projects or multipurpose drainage management must include required attachments in eLINK at the time of application.

3. Proposals may include only one image to be submitted within their eLINK application. **Only .jpg, .tiff, or .png file types are allowed**. All other file types of images are not accessible to reviewers.

4. Proposals should clearly articulate what water resource is being targeted in the application. Proposals should demonstrate significant, measurable project outputs and outcomes targeted to critical pollution source areas that will help achieve water quality objectives for the water resource of concern; be consistent with a watershed management plan that has been state approved and locally adopted or an approved total maximum daily load study (TMDL), Watershed Restoration and Protection Strategy

(WRAPS), Groundwater Restoration and Protection Strategy (GRAPS), surface water intake plan, or well head protection plan.

5. As appropriate, outputs should include scientifically credible estimates of pollutant reductions expected as a result of the project, as well as other measures such as acres of wetlands/forest, miles of riparian buffer or stream bank restored, acres treated by stormwater BMPs, or acres of specific agricultural conservation practices implemented including acres treated by the installation of the practice. ***Applications with unrealistic pollution reduction estimates will not be considered.***

6. Proposals submitted under the BWSR Clean Water Fund Grant categories must request state funds that equal or exceed $30,000. Applications submitted that do not meet this minimum dollar amount will not be accepted. Actual awards may be less than this minimum when applications receive partial funding.

7. Proposals for projects meeting a waste load allocation and located on publicly owned land and exceeding $750,000 should first consult with the Minnesota Public Facilities Authority before applying for BWSR Clean Water Funds.

8. Structural projects and practices must be of long-lasting public benefit. LGUs must provide assurances that the landowner or land occupier will keep the project in place for the effective life of the project.

9. Effective life is defined in the https://bwsr.state.mn.us/grant-program-policies. Information defining effective life not provided in the application must be defined in the work plan. The effective life for in-lake or in-channel treatments such as alum treatments must be assessed and determined as part of the required feasibility study prior to applying for funding.

10. Proposals must have plans for long-term maintenance and inspection monitoring for the duration of the life of a project as part of their project files. Work plans developed for funded applications will rely on this information for operation, maintenance and inspection requirements after the project is completed.

11. Applicants should evaluate the impacts that climate change (such as fluctuating precipitation patterns and drought) may have on the ability of the proposed project to meet objectives and whether the proposed project increases landscape resiliency.

12. For projects that are proposing to infiltrate stormwater, the following guidance should be taken into consideration: http://stormwater.pca.state.mn.us/images/3/3a/Evaluating_Proposed_Stormwater_Infiltration_Projects_in_Vulnerable_Wellhead_Protection_Areas.pdf

13. Applications may receive partial funding for the following reasons: 1) an absence of or limited identification of specific project locations, 2) budgeted items that were not discussed in the application or have no connection to the central purpose of the application were included by an applicant; 3) to address budget categories out of balance with the project scope and 4) insufficient funds remaining in a grant category to fully fund a project. Prior to final selection, the Board may engage applicants to resolve questions or to discuss modifications to the project or funding request.

14. Proposals from applicants that were previously awarded Clean Water Funds will be considered during the review process for applications submitted in response to this RFP. However, applicants that have

expended less than 50% of previous award(s) at the time of this application will need to demonstrate organizational capacity to finalize current projects and complete new projects concurrently.

General Information

A. Grants and Public Information

Under Minnesota Statute 13.599, responses to an RFP are nonpublic until the application deadline is reached. At that time, the name and address of the grantee, and the amount requested becomes public. All other data is nonpublic until the negotiation of the grant agreement with the selected grantee is completed. After the application evaluation process is completed, all data (except trade secret data) becomes public. Data created during the evaluation process is nonpublic until the negotiation of the grant agreement with the selected grantee(s) is completed.

B. Prevailing Wage

It is the responsibility of the grant recipient or contractor to pay prevailing wages on construction projects to which state prevailing wage laws apply (Minn. Stat. 177.42 – 177.44). All laborers and mechanics employed by grant recipients and subcontractors funded in whole or in part with state funds included in this RFP shall be paid wages at rates not less than those prevailing on projects of a character similar in the locality. Additional information on prevailing wage requirements is available on the Department of Labor and Industry (DOLI) website https://www.dli.mn.gov/business/employment-practices/prevailing-wage-information. Questions about the application of prevailing wage rates should be directed to DOLI at 651-284-5091.

C. Conflict of Interest

State Grant Policy 08-01, (see https://mn.gov/admin/government/grants/policies-statutes-forms/) Conflict of Interest for State Grant-Making, also applies to BWSR grantees. Grantees' conflicts of interest are generally considered organizational conflicts of interest. Organizational conflicts of interest occur when:

1. A grantee is unable or potentially unable to render impartial assistance or advice due to competing duties or loyalties,
2. A grantee's objectivity in carrying out the grant is or might be otherwise impaired due to competing duties or loyalties, or
3. A grantee or potential grantee has an unfair competitive advantage through being furnished unauthorized proprietary information or source selection information that is not available to all competitors.

D. Questions

This RFP, the FY2021 Clean Water Fund Competitive Grant Policy adopted by the BWSR, and the Grants Administration Manual (https://bwsr.state.mn.us/grants/manual/) provide the framework for funding and administration of the FY2021 Clean Water Fund Competitive Grant Program (www.bwsr.state.mn.us/grants/apply/index.html).

Questions regarding grant applications should be directed to your area Board Conservationist or Clean Water Specialist; a map of work areas and contact information is available at BWSR Maps and Apps Gallery. Questions may also be submitted by email to cwfquestions@state.mn.us. Responses will be posted on the BWSR website as a "Frequently Asked Questions" (FAQ) document and updated weekly throughout the RFP. The final update will be posted on August 6, 2019.

Questions about the Restoration Evaluation Program can be directed to:

Wade Johnson
wade.a.johnson@state.mn.us
651-259-5057

Gina Quiram
gina.quiram@state.mn.us
651-259-5067

Questions about the MDA AgBMP Loan Program and requesting funds through this application can be answered by calling Dwight Wilcox (651) 201-6618 or emailing AgBMP.Loans@state.mn.us.

Questions about the MPCA Clean Water Partnership Loan Program can be answered by calling Cindy Penny at 651-757-2099 or cynthia.penny@state.mn.us.

For more information on who to contact at the Minnesota Department of Health in regards to questions about Drinking Water Supply Management Areas or Well Head Protection areas, visit: https://www.health.state.mn.us/communities/environment/water/docs/swpstaffmap.pdf.

Project and Practices

This grant makes an investment in on-the-ground projects and practices that will protect or restore water quality in lakes, rivers or streams, or will protect groundwater or drinking water. Examples include stormwater practices, agricultural conservation practices, livestock waste management, lakeshore and stream bank stabilization, stream restoration, and SSTS upgrades.

Specific Requirements – Projects and Practices

- Through the Nonpoint Priority Funding Plan, the following three high-level state priorities have been established for Clean Water Fund nonpoint implementation:

  1. Restore those waters that are closest to meeting state water quality standards
  2. Protect those high-quality unimpaired waters at greatest risk of becoming impaired
  3. Restore and protect water resources for public use and public health, including drinking water.

- To meet the project assurances (section 3.2 of Policy) for streambank stabilization or stream restoration projects, applicants must commit to provide financial assurance from local sources for repairs and maintenance. Assurance (recommended at least 20 percent of total project cost) needs to be documented prior to work plan approval to ensure projects provide the proposed long-term clean water benefits.

- Proposals must include a measurable goal. For projects proposed to help meet a Total Maximum Daily Load, measurable goals need to be quantified as the needed annual pollution load reduction.

- SSTS project landowners must meet low income thresholds. Applicants are strongly encouraged to use existing income guidelines from U.S. Rural Development as the basis for their definition of low income.

- Livestock Waste Management Applications:

  a. Practices must follow the MN NRCS practice docket, which is found on the NRCS website: https://efotg.sc.egov.usda.gov/#/details
  b. Supplemental questions **must** be submitted in eLINK via attachment as part of any application that contain Livestock Waste Management practices including practices to address stockpiles. Applications that do not have this attachment will be deemed ineligible.
  c. Funding will only be provided for those projects listed on the supplemental questions sheet.

- In-lake management activities must have completed a feasibility study that is attached to the eLINK grant application. The study must include:

  a. Lake and watershed information (at minimum, include lake morphology and depth, summary of water quality information, and the assessment of aquatic invasive species);

  b. Description of internal load vs. external load reductions;

  c. History of projects completed in the watershed, as well as other in-lake treatments if applicable;

  d. Cost benefit analysis of treatment options;

  e. Projected effective life of the proposed treatment;

  f. Plan for monitoring surface water quality to assure the project's total phosphorus goal will be achieved during the project's effective life, and

  g. For activities related to rough fish (example carp), the feasibility study must also include:

  i. Methods to estimate adult and juvenile carp populations;

ii. Description of the interconnectedness of waterbodies (lakes, ponds, streams, wetlands, etc.);
iii. Identification of nursery areas;
iv. Methods to track carp movement;
v. Proposed actions to limit recruitment and movement; and
vi. Proposed actions to reduce adult carp populations

Ineligible Use of Grant Funds – Projects and Practices

1 Activities that do not have a primary benefit of water quality.

2 Routine and/or baseline water quality monitoring

3 Household water conservation appliances and water fixtures.

4 Wastewater treatment with the exception of Subsurface Sewage Treatment Systems

5 Municipal drinking water supply facilities or individual drinking water treatment systems.

6 Stormwater conveyances that collect and move runoff, but do not provide water quality treatment benefit.

7 Replacement, realignment or creation of bridges, trails or roads.

8 Aquatic Plant Harvesting

9 Routine maintenance or repair of best management practices, capital equipment and infrastructure within the effective life of existing practices or projects.

10 Feedlots

a. Feedlot expansions beyond state registered number of animal units, with exception of activities under section 3.8 of the policy, *Practice Standards*: *Livestock Waste Management Practices.*

b. Slats placed on top of manure storage structures.

11 Subsurface Sewage Treatment Systems (SSTS):

a. Small community wastewater treatment systems serving over 10,000 gallons per day with a soil treatment system, and

b. A small community wastewater treatment system that discharges treated sewage effluent directly to surface waters without land treatment.

12 Fee title land acquisition or easement costs, unless specifically allowed. If not specifically allowed, land acquisition and easement costs can count toward the required match if directly associated with the project and incurred within the grant period.

13 Buffers that are required by law (including Drainage Law and Buffer Law).

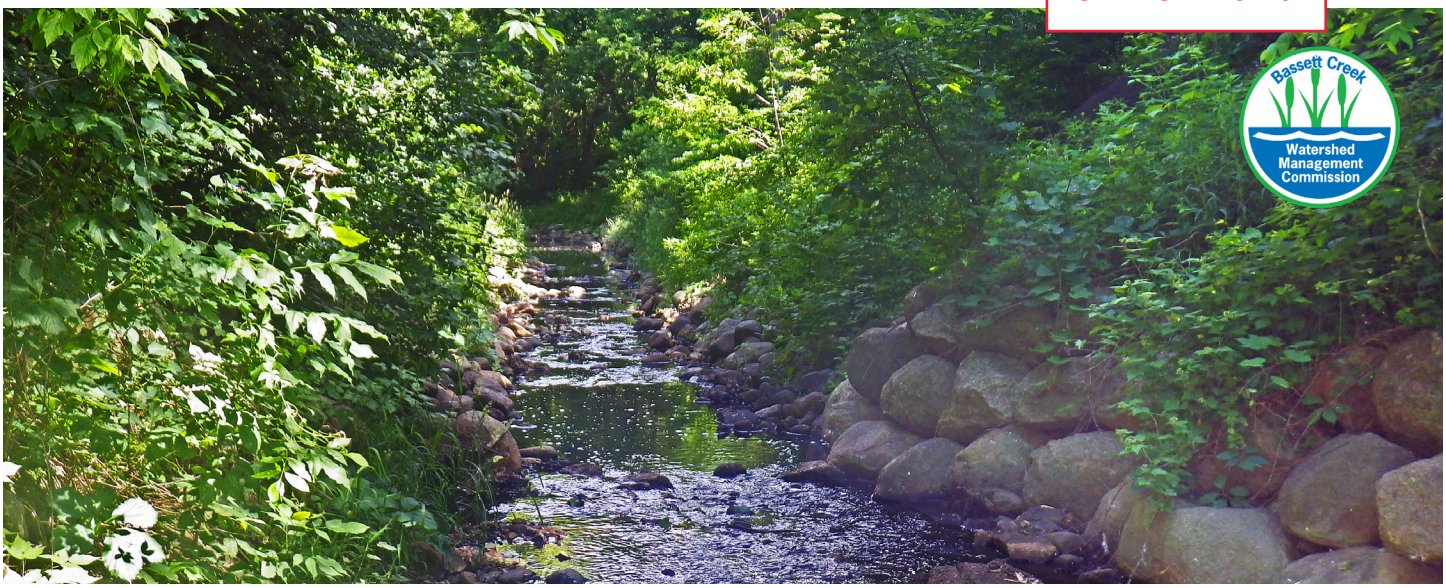
14 Components of projects needed to meet the statutory requirements of 103E Drainage Law.

Ranking Criteria – Projects and Practices

BWSR staff initially review all applications for eligibility. Eligible applications are further screened and forwarded to an interagency work team (BWSR, MPCA, MDA, MDH and DNR) that will review and rank Projects and Practices applications in order to make a funding recommendation to the BWSR Board.

Projects and Practices Ranking Criteria	
Ranking Criteria	**Maximum Points Possible**
Project Abstract: The project abstract succinctly describes what results the applicant is trying to achieve and how they intend to achieve those results.	5
Prioritization (Relationship to Plans): The proposal is based on priority protection or restoration actions listed in or derived from an approved local water management plan and is linked to statewide Clean Water Fund priorities and public benefits.	20
Targeting: The proposed project addresses identified critical pollution sources or risks impacting the water resource(s).	25
Measurable Outcomes and Project Impact: The proposed project has a quantifiable reduction in pollution for restoration projects or measurable outputs for protection projects and directly addresses the water quality concern identified in the application.	25
Cost Effectiveness and Feasibility: The application identifies a cost effective and feasible solution to address the non-point pollution concern(s).	15
Project Readiness: The application has a set of specific activities that can be implemented soon after grant award.	10
Total Points Available	**100**

Item 5B.
BCWMC 7-16-20



2018–2019 Stream Monitoring and 2018 Biotic Index Evaluation of the North Branch of Bassett Creek

Summary

In 2018 and 2019, the BCWMC collected flow and water quality data from the North Branch of Bassett Creek. The purpose of the stream monitoring program is to evaluate flow and water quality, detect changes over time, determine whether the Minnesota Pollution Control Agency (MPCA) water quality standards are met, and identify stressors to the biological community.

Results of the North Branch stream monitoring program show the stream met MPCA standards for temperature, metals (total cadmium, chromium, copper, nickel, lead, and zinc), and stream eutrophication (i.e., total phosphorus in combination with chlorophyll *a*), but failed to meet standards for chlorides and total suspended solids. While the stream also failed to meet the MPCA standard for E. coli bacteria in 2018 and 2019, the MPCA requires collection of a minimum number of samples within a 10-year period before determining impairment. The number of samples collected in 2018 and 2019 was less than the required minimum. Therefore, the stream is not, yet, considered impaired for E. coli.

Between 1980 and 2018, the BCWMC collected benthic macroinvertebrates (bottom-dwelling organisms) from the North Branch of Bassett Creek on 11 occasions. The purpose of the sampling was to evaluate water quality and detect changes over time. The 2018 monitoring program sampled for macroinvertebrates and assessed habitat.

Three biotic indices were used to assess the macroinvertebrate data:

- **Hilsenhoff Biotic Index (HBI)—**Assesses long-term oxygen content of the stream.
- **Invertebrate Community Index (ICI)—**Measures the average tolerance of the macroinvertebrate community to a wide range of pollutants.
- **Macroinvertebrate Index of Biotic Integrity (M-IBI)—**Assesses the health of the macroinvertebrate communities. The MPCA developed the M-IBI and added it to Minnesota's water quality standards to help identify biologically impaired rivers and streams.

2018 Hilsenhoff Biotic Index (HBI) and Invertebrate Community Index (ICI) scores were consistent with past values.

None of the locations monitored from 2006 through 2018 met the MPCA M-IBI impairment standard and poorer M-IBI scores were documented at the North Branch in 2018. Thus, the North Branch of Bassett Creek would be considered biologically impaired. The 2018 decrease in score may be due to the negative impacts of increased flow and increased pollutant loading during a major precipitation event that occurred 2 weeks prior to collection of the 2018 macroinvertebrate samples.

Poorer M-IBI scores in 2018 reflected:

- Decreased numbers of taxa (a scientifically classified group or entity) known as climbers (i.e., taxa requiring habitat such as overhanging vegetation and algae that provide opportunities to climb); this is an indication of poorer habitat.
- An increased percentage of tolerant taxa in the stream.
- A lower HBI_MN score, resulting from a higher percentage of tolerant taxa in the stream.
- Lower numbers of Odonata taxa (i.e., dragonflies and damselflies).
- Lower numbers of taxa known as predators (i.e., taxa that feed on other organisms in the stream).
- Lower numbers of Trichoptera taxa (i.e., caddisflies).

Recommendations

Because the North Branch of Bassett Creek is biologically impaired and failed to meet MPCA standards for total suspended solids, chlorides, and E. coli bacteria from 2018 through 2019, it is recommended that BCWMC continue to:

- Assess the North Branch of Bassett Creek to identify the cause of high concentrations of total suspended solids and E. coli bacteria and implement management measures to reduce concentrations and meet MPCA water quality standards for the stream.
- Continue education efforts to reduce chloride use in the watershed (e.g., Smart Salting Certification training) with a goal of meeting the MPCA chloride standard for the stream.
- Assess the North Branch of Bassett Creek to identify and implement additional habitat and/or water quality improvement projects to improve the macroinvertebrate community with a goal of meeting the M-IBI impairment threshold for the stream.
- Monitor stream habitat, flow, and water quality to determine if the stream meets MPCA water quality standards, identify changes over time, and identify stressors to the macroinvertebrate community.
- Monitor habitat, flow, and water quality when biological samples are collected to identify changes over time and stressors to the macroinvertebrate community.

Stream monitoring

The North Branch of Bassett Creek was monitored from 2018 through 2019 at a station immediately downstream of 34th Avenue and upstream of the biological monitoring location. Figure 1 shows the location of the monitoring station. Table 1 describes the stream restoration project completed in this area.

Water depth, flow, specific conductance, and temperature were measured continuously during the monitoring period. Water quality samples were collected manually on 14 occasions to monitor base-flow conditions and with an automatic sampler on 16 occasions to monitor storm events.

Because ice conditions in the channel during winter months prevent accurate measurements, the monitoring period was limited to spring through early winter (May through December of 2018 and April 2019 through January 3, 2020). All storm and base-flow samples were analyzed for nutrients (total phosphorus, dissolved phosphorus, nitrate/nitrite, and total Kjeldahl nitrogen), solids (total suspended solids and volatile suspended solids), chlorides, hardness, sulfate, alkalinity, and total organic carbon. Quarterly samples were analyzed for metals (chromium, cadmium, copper, lead, nickel, and zinc). In addition, grab samples were analyzed for ortho phosphorus, chlorophyll *a*, and E. coli bacteria. The following equipment was used for the monitoring program:

- **Radar water-level sensor:** A radar water-level sensor (Figure 2) measured water levels at 15-minute intervals and a data logger (Figure 3 and Figure 4) recorded the measurements. A data logger is an electronic device that records data over time. Flow was measured at a range of depths using a flow meter, and a stage-rating curve was developed to estimate flow from the measured water depths. The stage-rating curve equation was added to the data logger program, which allowed the automatic computation of flow from water depth for the duration of the monitoring period.
- **Cellular modem (Figure 3):** Enabled staff to control equipment and download data from their offices.
- **SunSaver regulator (Figure 3):** This instrument controls the current flowing from the solar panel to the battery and prevents the current from flowing in reverse (i.e., battery to solar panel).

Table 1: Capital improvement project (stream restoration) along the North Branch of Bassett Creek

Project	Status	Location
North Branch Bassett Creek Restoration Project: 200 feet upstream of Douglas Drive to 32nd Avenue North	Construction began fall 2012; completed in fall 2013	Crystal

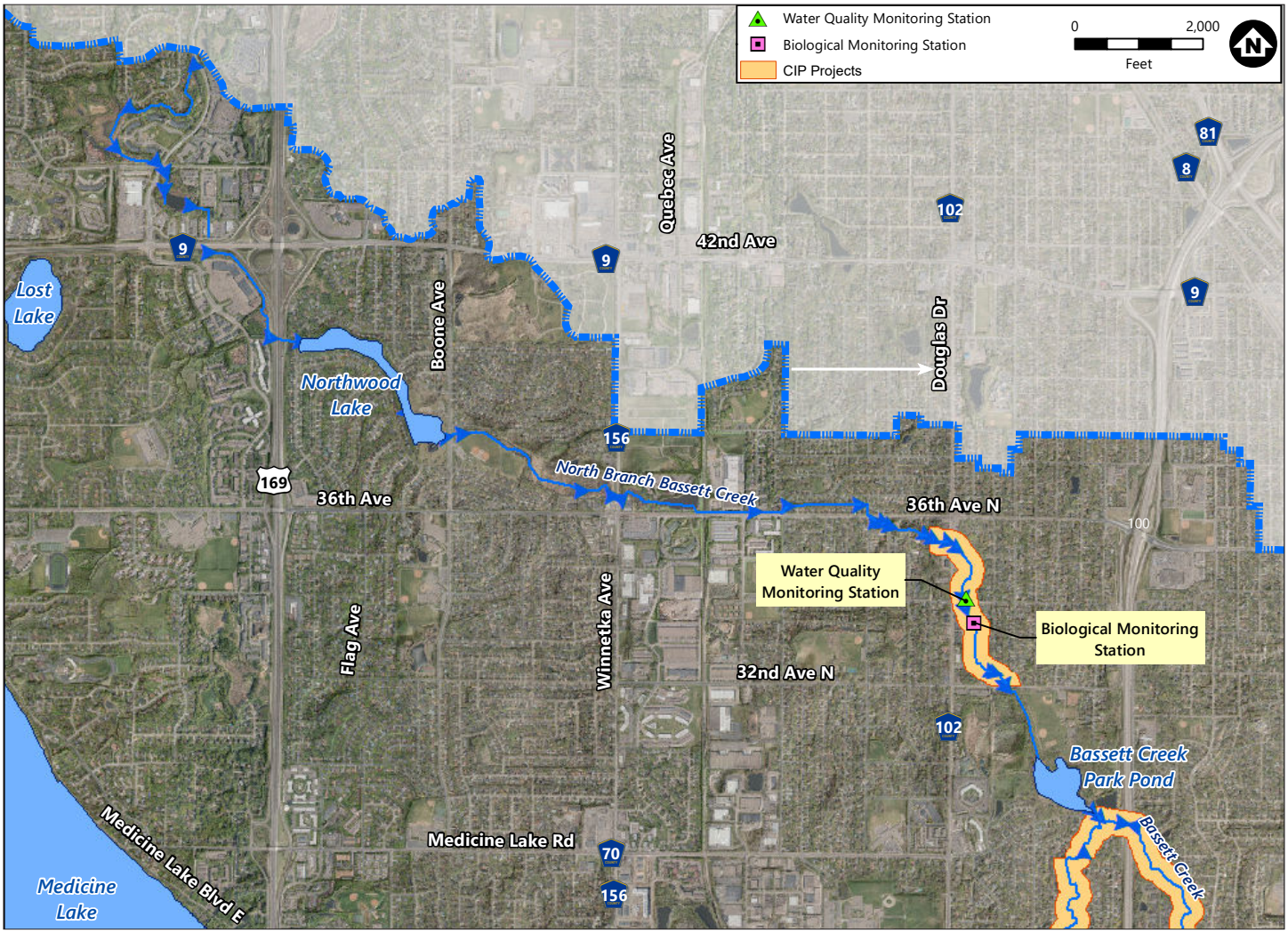


Figure 1: North Branch Water Quality and Biological monitoring locations at 34th Avenue

- **Temperature probe and data logger (Figure 3):** The probe measured water temperature and the data logger recorded the measurements.
- **Specific conductance probe and data logger (Figure 3):** The probe measured specific conductance and the data logger recorded the measurements.
- **Solar panel (Figure 4):** Charged the battery used to operate the equipment.
- **Automatic sampler (Figure 5) and sampler intake:** Collected storm samples.

Figure 2: Radar water level sensor

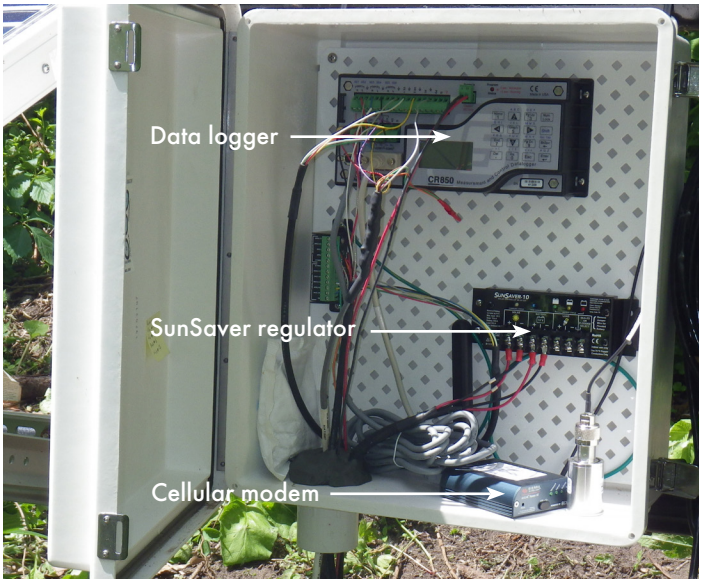


Figure 3: Data logger, cellular modem, and SunSaver regulator

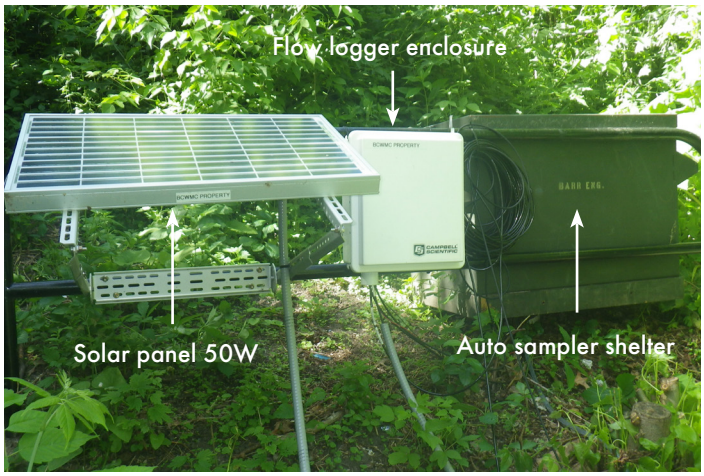


Figure 4: Solar panel, flow logger enclosure, and auto sampler shelter

Figure 5: Automatic sampler and external battery

Results of 2018–2019 stream monitoring program

Water depth and flow

Water depth and flow were measured at 15-minute intervals throughout the monitoring period. The results are shown in Table 2 and Figures 6 and 7.

The highest flows during 2018 and 2019 are more uncertain and considered provisional due to the lack of depth and flow data at the high levels during development of the stage-rating curve. It is difficult to capture these high measurements due to the flashiness of the stream (rapid increases and decreases in depth and flow after a storm).

Temperature

Temperature was measured at 15-minute intervals throughout the monitoring period. During the 2018 monitoring period, the average daily temperature ranged from 32° F to 80 °F; the overall average was 59° F (Figure 8). During the 2019 monitoring period, average daily temperature ranged from 32 °F to 79 °F; the overall average was 59 °F (Figure 8). All measurements met the MPCA standard of less than or equal to 86°F. The MPCA is not currently using the standard to assess warm-water streams such as the North Branch of Bassett Creek. Instead, it is evaluating mostly cold-water fisheries for temperature-caused impairment because of the special sensitivity of cold-water fish to temperature elevations.

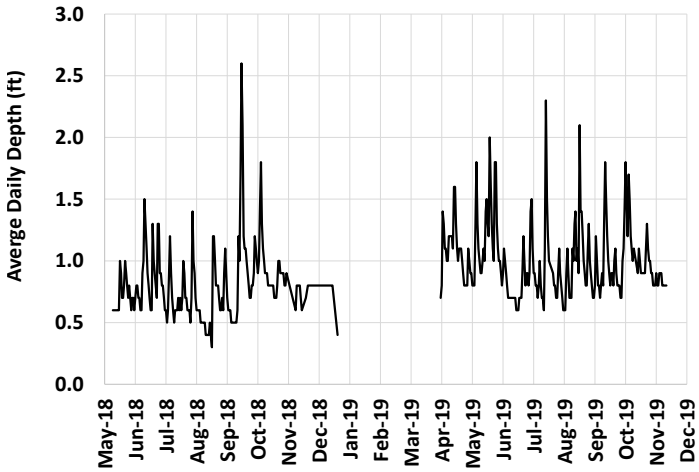


Figure 6: Average daily depth of the North Branch of Bassett Creek at 34th Avenue

Table 2: 2018–2019 water depth and flow

Parameter	2018			2019		
	Low	High	Average	Low	High	Average
Average daily water depth	0.3 feet 8/23/18	2.6 feet 9/21/18	0.8 feet	0.6 feet 6/19/19	3.5 feet 7/16/19	1.0 foot
Average daily flow	0.01 cfs 8/23/18	74.9 cfs 9/21/18	2.9 cfs	0.3 cfs 7/14/19	53.4 cfs 7/16/19	5.4 cfs

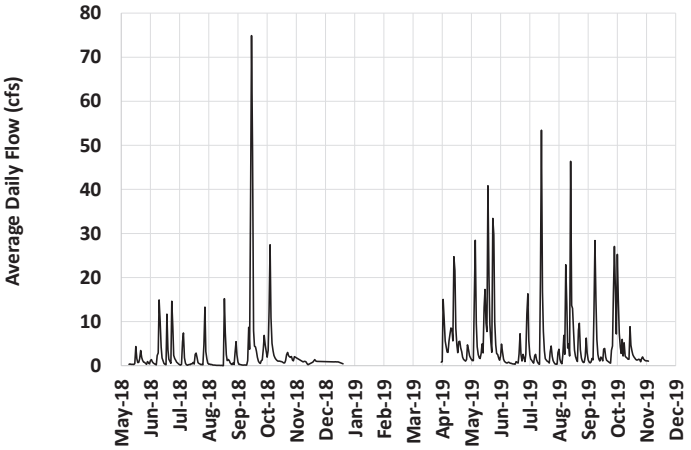


Figure 7: Average daily flow of the North Branch of Bassett Creek at 34th Avenue

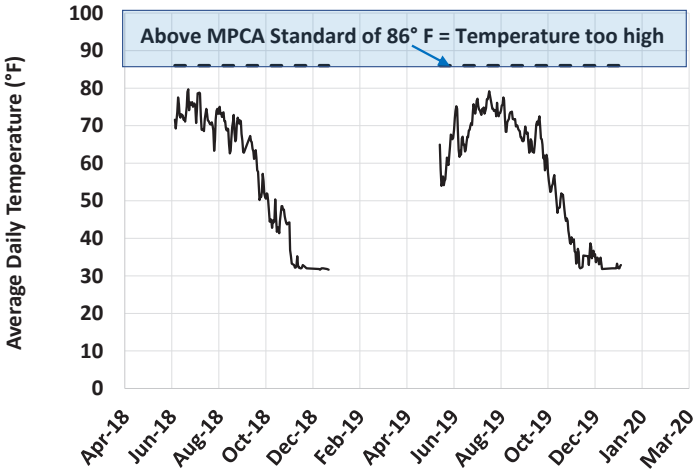


Figure 8: Average daily temperature of the North Branch of Bassett Creek at 34th Avenue

Chlorides

Chloride concentrations in area streams have increased since the early 1990s when many government agencies switched from sand or sand/salt mixtures to salt for winter road maintenance. When snow and ice melts, the salt goes with it, washing into lakes, streams, wetlands, and groundwater. It only takes 1 teaspoon of road salt to permanently pollute 5 gallons of water. And, once in the water, there is no way to remove chloride.

Because high concentrations of chloride can harm fish and plant life, the MPCA has established a chronic chloride exposure standard of 230 mg/L or less.

Based on samples collected in 2018 and 2019, chloride concentrations in the North Branch of Bassett Creek ranged from a low of 10 mg/L, measured September 28, 2018, to a high of 437 mg/L, measured December 28, 2019 (Figure 9). Two of the 30 samples (7 percent) exceeded the MPCA standard; both were collected in December of 2019 (Figure 9).

Additional information about chloride concentrations was captured by doing a specific-conductance analysis. Specific conductance measures how well water can conduct electricity. It provides an indication of what is dissolved in the water and increases with larger numbers of ions, including chloride ions. A linear regression analysis of specific conductance and chloride measurements from the North Branch of Bassett Creek indicated that 87 percent of the specific-conductance value was due to chloride ions in the stream. The outcome of the linear regression analysis was a regression equation, which is a statistical model of the relationship between specific conductance and chloride. The model was used to estimate average daily chloride values from the average daily specific-conductance values measured in the stream. In 2018, the estimated chloride concentrations in the stream ranged from 0 mg/L to 374 mg/L, with an average of 134 mg/L. The estimated number of days that chloride concentrations exceeded the MPCA standard was 32 of the 223 days of specific-conductance measurements

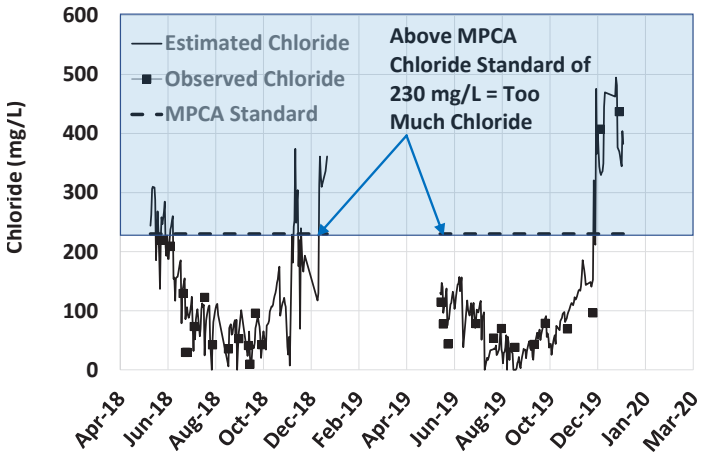


Figure 9: Chloride concentrations: Observed and estimated from average daily specific-conductance measurements of the North Branch of Bassett Creek at 34th Avenue

(14 percent). In 2019, the estimated chloride concentrations in the stream ranged from 0 mg/L to 495 mg/L, with an average of 114 mg/L. The estimated number of days that chloride concentrations exceeded the MPCA standard was 23 of the 232 days of specific-conductance measurements (10 percent) (Figure 9).

E. coli bacteria

The Environmental Protection Agency (EPA) determined that E. coli is the preferred indicator of the potential presence of waterborne pathogens. The MPCA standard for E. coli protects streams used for two types of recreation: primary body contact (e.g., swimming, where inadvertent ingestion of water is likely) and secondary body contact (e.g., wading, where the likelihood of ingesting water is much smaller). The MPCA uses average and maximum E. coli values to determine impairment. E. coli standards are applicable only during the warmer months of April through October since swimming or wading in Minnesota streams during the November through March period is not expected.

Average E. coli is assessed by a standard based on a geometric mean EPA criterion of 126 E. coli colony-forming units (cfu) per 100 mL. Data are aggregated by individual month (e.g., all April values, all May values, etc.) for up to 10 years to determine impairment due to high average monthly E. coli values. (Figure 10). At least three months of data must be collected, preferably between June and September, and at least 5 values must be collected per month for those three months (15 samples) to determine impairment due to high average E. coli.

Maximum E. coli is assessed by a criterion of a maximum of 1,260 cfu that is not to be exceeded by 10 percent of all samples taken over the 10-year assessment period—independent of month (Figure 11).

If the geometric mean of the aggregated monthly values for one or more months exceeds 126 cfu per 100 mL, that reach is considered to be impaired. Also, a waterbody is considered to be impaired if more than 10 percent of individual values over the 10-year assessment period (independent of month) exceed 1,260 cfu per 100 mL.

Historical monitoring data have generally pointed to high levels of bacteria on the North Branch of Bassett

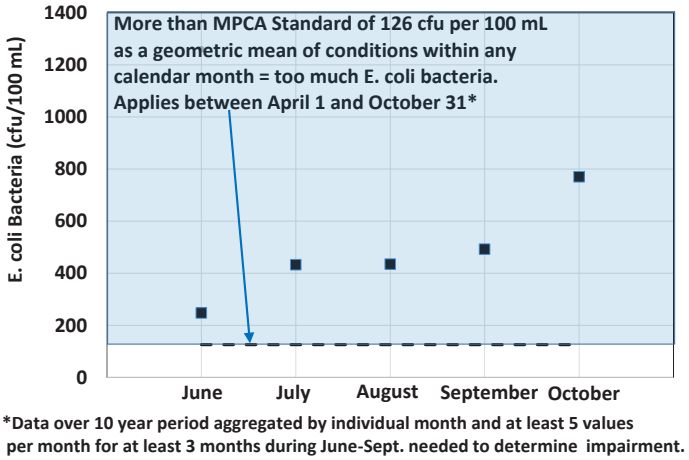


Figure 10: 2018–2019 monthly geometric means of E. coli bacteria from the North Branch of Bassett Creek at 34th Avenue

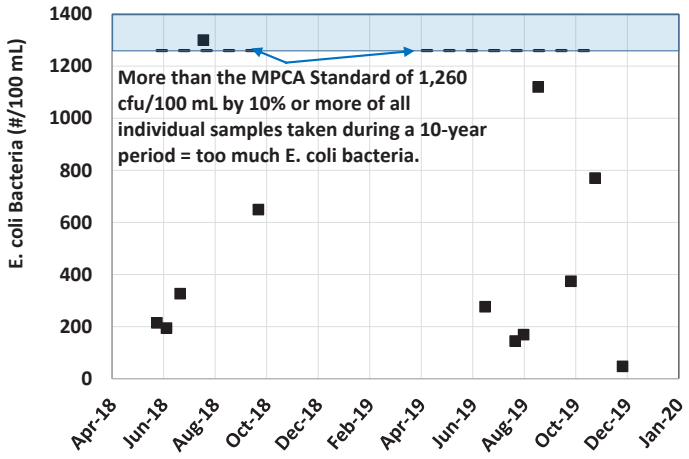


Figure 11: 2018–2019 E. coli bacteria from the North Branch of Bassett Creek at 34th Avenue

Creek. Fecal coliform bacteria data collected from 1975 through 1985 documented consistently high bacteria levels in the stream. During that period, fecal coliform bacteria was the preferred indicator of the potential presence of waterborne pathogens.

Monitoring from 2008 through 2010 again identified high bacteria levels in the stream. E. coli samples were collected between 32nd and 34th Avenue from July through September of 2008, June through September of 2009, and June of 2010. Individual E. coli values ranged from a low of 250 cfu per 100 mL to a high of 2,400 cfu per 100 mL.

Consistent with past data, high bacteria levels were found in the stream in 2018 and 2019. The April through October monthly geometric means from the aggregated 2018 through 2019 values ranged from a low of 247 cfu per 100 mL in June to a high of 770 cfu per 100 mL in October (Figure 10). All monthly geometric means failed to meet the MPCA standard of 126 cfu per 100 mL (Figure 10). However, fewer than five individual values were used to compute the monthly averages. At least three months of data must be collected, preferably between June and September, and at least five values must be collected per month for those three months (15 samples) to determine impairment due to high average E. coli. The 2018 through 2019 aggregated data consisted of from two to four samples per month. Hence, the monthly averages did not meet the MPCA criteria for determining impairment. Data collected from the North Branch in the future could be aggregated with 2018 and 2019 data to attain the MPCA minimum data requirement for determining impairment from monthly averages.

According to the standard, a water body is also considered impaired if more than 10 percent of individual samples taken from April 1 through October 31 over a 10-year period (independent of month) exceed 1,260 cfu per 100 mL. In 2018 and 2019 a single sample value of 1,300 cfu/100 mL, measured on July 25, 2018, exceeded the impairment threshold (Figure 11). Because this was one sample out of 11 (9 percent) samples collected during the April through October period, the MPCA standard was met.

Total phosphorus and chlorophyll *a*

While phosphorus is necessary for plant and algae growth, too much phosphorus leads to excessive algae, decreased water clarity, and water quality impairment. Some common sources of phosphorus are fertilizers, leaves and grass clippings from streets, atmospheric deposition, eroded soil, and material from plant die-off. The quantity of algae in water is measured by chlorophyll *a,* a pigment in algae. The MPCA standard for total phosphorus and chlorophyll *a* is the river eutrophication standard (RES). RES is a two-part standard, requiring an exceedance of the "causative variable," total phosphorus, and a "response variable," which indicates the presence of eutrophication (excessive nutrients). Total phosphorus and chlorophyll *a* are used in combination and not independently. To determine whether a stream is impaired, data must be collected during at least 2 different years during a 10-year period and a minimum of 12 measurements per parameter (from June to September) must be used to determine the seasonal average. The seasonal average is then compared with the MPCA standard for each parameter: a maximum of 100 micrograms per liter (µg/L) for total phosphorus and a maximum of 18 µg/L for chlorophyll *a*. Both must be exceeded for the stream to be impaired.

The 2018 through 2019 seasonal average (June through September) for the causative variable, total phosphorus, was 235 µg/L, which exceeded the MPCA standard (Figure 12). The 2018 through 2019 seasonal average response variable, chlorophyll a, was 17.6 µg/L, which was within the MPCA standard (Figure 13). Even though the causative variable (total phosphorus) failed to meet the MPCA standard, the stream was not impaired since the response variable (chlorophyll *a*) met the MPCA standard.

Total suspended solids

Total suspended solids consist of soil particles, algae, and other materials that are suspended in water and cause a lack of clarity. Excessive total suspended solids can harm aquatic life and degrade aesthetic and recreational qualities. A stream is considered to exceed the standard for total suspended solids (30 mg/L) if (1) the standard is exceeded more than 10 percent of the days of the assessment season (April through September) and (2) there are at least three such measurements exceeding the standard.

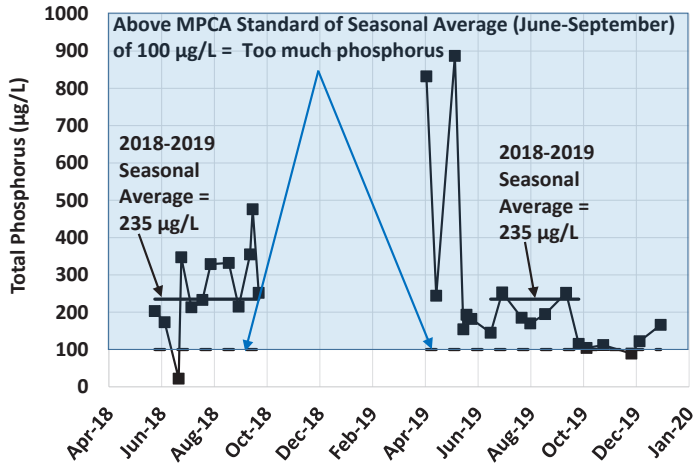


Figure 12: 2018–2019 total phosphorus from the North Branch of Bassett Creek at 34th Avenue

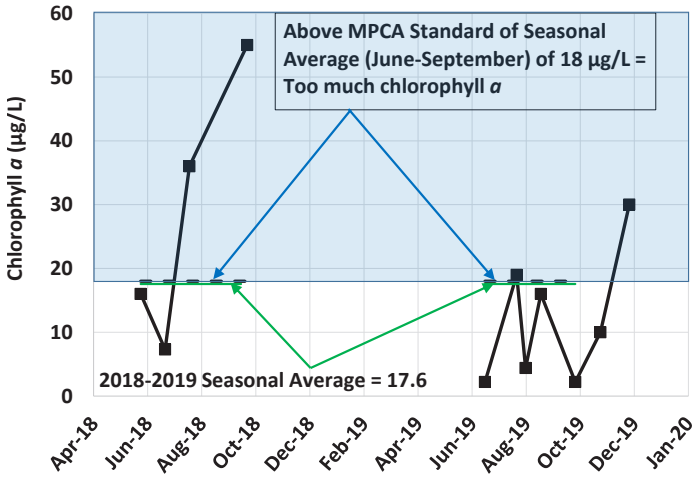


Figure 13: 2018–2019 chlorophyll *a* from the North Branch of Bassett Creek at 34th Avenue

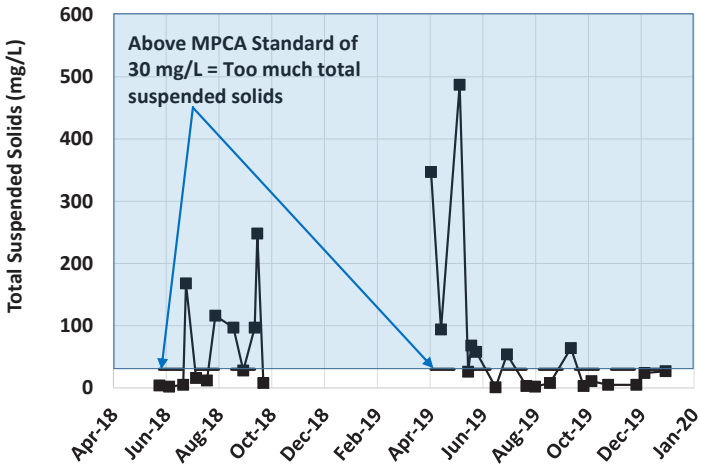


Figure 14: 2018–2019 total suspended solids from the North Branch of Bassett Creek at 34th Avenue

In 2018, total suspended solids concentrations in the North Branch of Bassett Creek ranged from a low of 2 mg/L on June 12 to a high of 248 mg/L on September 20 (Figure 14); the average was 67 mg/L. Five of the 12 samples collected from April through September (42 percent) exceeded the MPCA standard of 30 mg/L. In 2019, total suspended solids concentrations ranged from a low of 1 mg/L on June 18 to a high of 487 mg/L on May 9 (Figure 14); the average was 72 mg/L. Seven of the 13 samples collected from April through September (54 percent) exceeded the MPCA standard of a maximum of 30 mg/L. As such, the stream would be considered imparied; however, it is not, yet, listed on the MPCA's impaired waters list.

Metals

Metals are naturally occurring elements found throughout the earth's crust. Their multiple industrial, domestic, agricultural, medical, and technological applications have led to their widespread distribution in the environment. Because heavy metal-induced toxicity can harm aquatic life, the MPCA has established three standards for Class 2B waters like Bassett Creek—chronic, maximum, and final acute values (FAVs)—for each metals species. The chronic standard (CS) is the highest concentration of a toxicant that aquatic organisms can be indefinitely exposed to with no harmful effects. The maximum standard (MS) is a concentration that protects aquatic organisms from potential lethal effects of a short-term "spike" in toxicant concentrations. The MS is always equal to one-half of the FAV. The FAV is the concentration that would kill about one-half of the exposed individuals of a very sensitive species. The FAV is most often used as an "end-of-pipe" effluent limit to prevent an acutely toxic condition in the effluent or the mixing zone. Because increases in water hardness decrease toxicity of metals, the MPCA metals standards vary with water hardness. To show this variation, metals concentrations are plotted on the y-axis and hardness on the x-axis on Figures 15 through 20.

Quarterly samples were collected from the North Branch of Bassett Creek and analyzed for total cadmium, total chromium, total copper, total nickel, total lead, and total zinc during the 2018 and 2019 monitoring period. All samples met the MPCA standards (Figures 15 through 20), indicating metals are not causing heavy metal-induced toxicity to aquatic organisms in the stream.

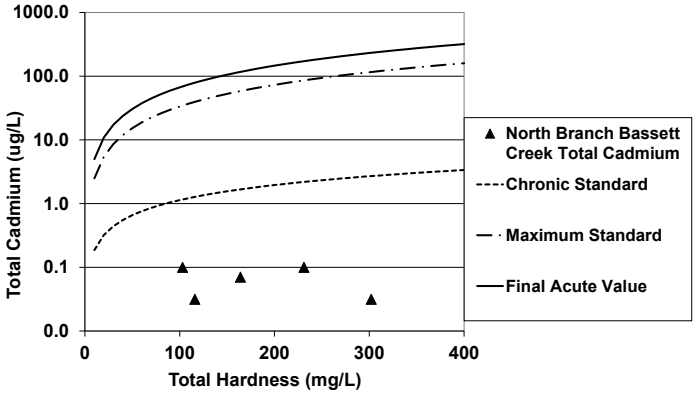


Figure 15: 2018–2019 total cadmium from the North Branch of Bassett Creek at 34th Avenue compared to MPCA standards

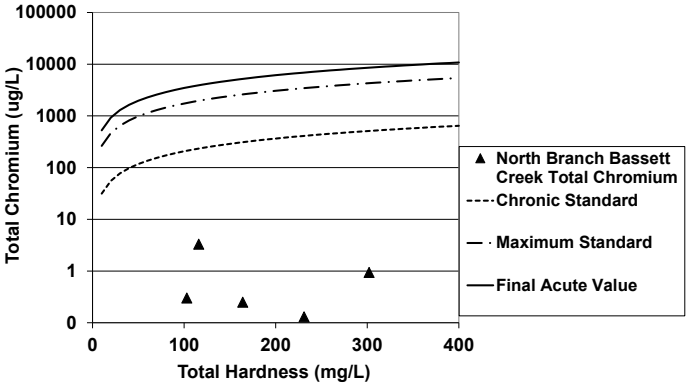


Figure 16: 2018–2019 total chromium from the North Branch of Bassett Creek at 34th Avenue compared to MPCA standards

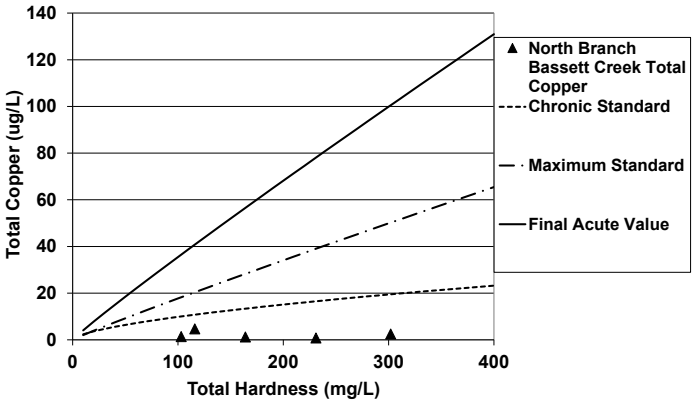


Figure 17: 2018–2019 total copper from the North Branch of Bassett Creek at 34th Avenue compared to MPCA standards

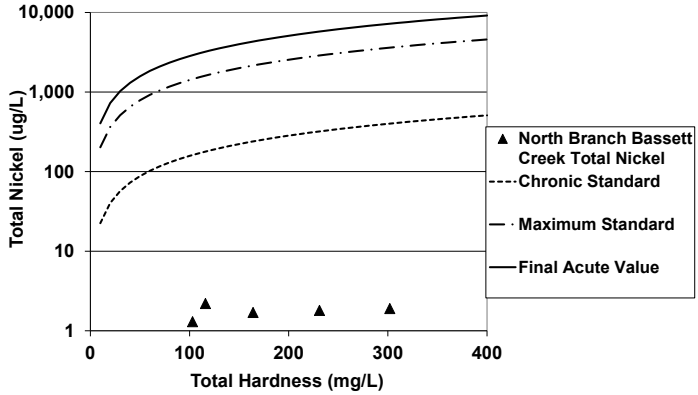


Figure 18: 2018–2019 total nickel from the North Branch of Bassett Creek at 34th Avenue compared to MPCA standards

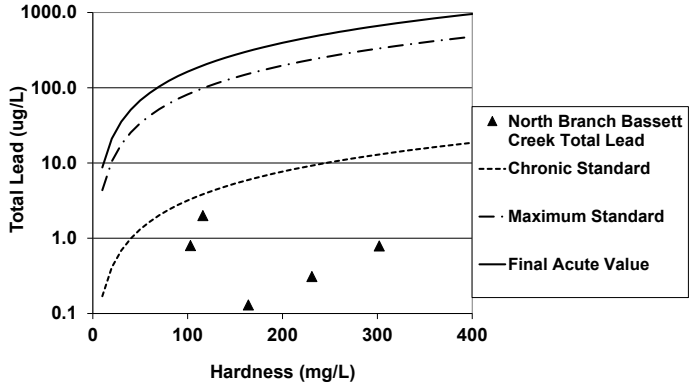


Figure 19: 2018–2019 total lead from the North Branch of Bassett Creek at 34th Avenue compared to MPCA standards

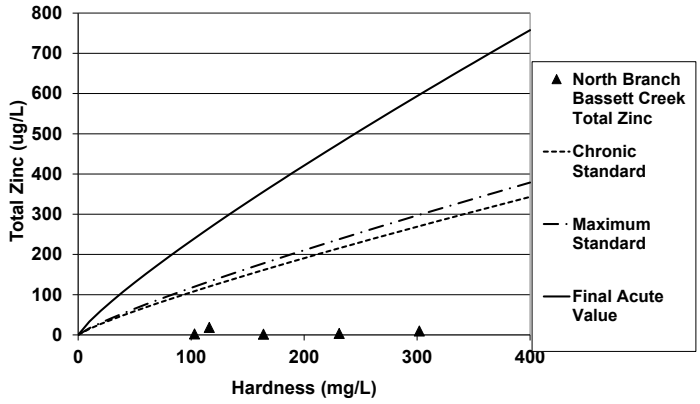


Figure 20: 2018–2019 total zinc from the North Branch of Bassett Creek at 34th Avenue compared to MPCA standards

Biotic index evaluation

Between 1980 and 2018, the Bassett Creek Watershed Management Commission (BCWMC) collected benthic macroinvertebrates (bottom-dwelling organisms) from the North Branch of Bassett Creek on 11 occasions (see Figure 1 for the sampling location). The purpose of the sampling is to evaluate water quality and detect changes over time.

In 2018, the BCWMC monitored the North Branch of Bassett Creek for:

- Macroinvertebrates
- Habitat

Three biotic indices were used to assess the macroinvertebrate data:

- **Hilsenhoff Biotic Index (HBI)—**Assesses long-term oxygen content of the stream.
- **Invertebrate Community Index (ICI)—** Determines the average tolerance of the macroinvertebrate community to a wide range of pollutants.
- **Macroinvertebrate Index of Biotic Integrity (M-IBI)—**Assesses the health of the macroinvertebrate communities. The Minnesota Pollution Control Agency (MPCA) developed the M-IBI and added it to Minnesota's water quality standards to help identify biologically impaired rivers and streams.

North Branch Bassett Creek habitat

Habitat is a key factor in determining the presence and distribution of macroinvertebrates in streams. Stream macroinvertebrates are influenced by such habitat factors as substrate size and composition, quantity of fine sediment deposited on the substrate, and presence of vegetation. The substrate provides places for food and refuge for macroinvertebrates. Aquatic vegetation provides shelter against predation by small fish. Adverse changes in habitat can result in adverse changes to the macroinvertebrate community.

Habitat surveys of the North Branch at 34th Avenue were completed during 2015 and 2018 using the MPCA quantitative habitat survey method. The survey results are summarized in Table 3. Habitat changes documented by the 2018 survey include:

- An increase in flows and water depths (Figure 21 and 22).
- An increase in depth of fine sediments.
- A decrease in the average embeddedness of coarse sediment.
- A decrease (to none) in percent of transects with left-bank erosion.
- A decrease (to none) in the average length of left-bank erosion; right bank erosion was not observed during either 2015 or 2018.
- A decrease (to none) in the average amount of algae.
- An increase in boulders (as represented by the "percent of transect over at least 10 cm of water with boulders" metric) due to an increased area of the sample reach with water deeper than 10 cm.

Figure 21 and 22: North Branch of Bassett Creek at 34th Avenue in 2015 (top) and 2018 (bottom)

Table 3: 2015 and 2018 North Branch Bassett Creek habitat comparison at 34th Avenue

Parameter	North Branch	
	2015	2018
Discharge (flow) (cfs)	0.03	8.2
Average depth of water (cm)	6	25
Average depth of fine sediment (cm)	0.6	0.7
Average embeddedness of coarse sediment (%)	51	38
Percent of transects with left-bank erosion	15	0
Percent of transects with right-bank erosion	0	0
Average length of bank erosion per transect: left bank (m)	0.3	0
Average length of bank erosion per transect: right bank (m)	0	0
Average amount of algae (filamentous or attached) observed on quadrate (%)	31	0
Average number of macrophytes observed on quadrate (%)	0	0
Percent length of transect over at least 10 cm of water depth with overhanding vegetation	0	0
Percent length of transect over at least 10 cm of water depth with submergent vegetation	0	0
Percent length of transect over at least 10 cm of water depth with emergent vegetation	0	0
Percent length of transect over at least 10 cm of water depth with woody debris	0	0
Percent length of transect over at least 10 cm of water depth with boulders	13.8	19.2

HBI and ICI

From 1980 through 2018, the BCWMC assessed macroinvertebrates using biotic indices to evaluate the water quality of the North Branch of Bassett Creek. The Hilsenhoff Biotic Index (HBI) was used to assess the long-term oxygen content of the stream from 1980 through 2018. Sediment added to streams by stormwater runoff or streambank erosion contains organic matter that consumes oxygen during degradation, lowering oxygen levels in the stream. The HBI assesses stream oxygen by determining the average tolerance of the macroinvertebrate community to low oxygen conditions.

A second index, the Invertebrate Community Index (ICI), provides a broader view of the stream's water quality from 1995 through 2018 by determining the average tolerance of the macroinvertebrate community to a wide range of pollutants.

To determine whether any trends could be detected, HBI scores from 2018 were compared to scores from 1980 through 2015, and ICI scores from 2018 were compared to scores from 1995 through 2015. The 2018 HBI and ICI scores were consistent with past scores. The results of the trend analyses indicate there were no statistically significant changes (i.e., there is more than a 5 percent probability that changes were due to chance).

M-IBI biological metrics

The MPCA has established biological water quality standards for all Minnesota streams and rivers, including Bassett Creek. A macroinvertebrate index of biotic integrity (M-IBI) and a fish index of biotic integrity (F-IBI) were added to Minnesota standards and approved by the United States Environmental Protection Agency on June 26, 2018.

The M-IBI helps identify biologically impaired rivers and streams by assessing the health of their macroinvertebrate communities. The BCWMC used the M-IBI to assess the North Branch of Bassett Creek from 2006 through 2018 to determine whether it met the MPCA standard for macroinvertebrates (Figure 24).

The M-IBI score is the sum of the scores from 10 individual metrics (Table 4). Each metric assesses an attribute of the macroinvertebrate community; collectively, the metrics assess the overall health of the community.

Each M-IBI metric has a scale of 0 to 10, the lowest possible score is 0 and the highest is 10. Increasing scores indicate improving conditions. Because 10 metrics are summed to attain the M-IBI score and each metric has a maximum score of 10, the maximum possible score is 100. To meet the MPCA

macroinvertebrate standard, the sum of the scores from the 10 individual metrics must equal or exceed the impairment threshold—a score of at least 37 for the North Branch of Bassett Creek. On average, a score of at least 3.7 for each metric would be needed to meet the impairment threshold.

As shown in Figure 23, none of the monitoring from 2006 through 2018 met the MPCA M-IBI impairment standard. Thus, the North Branch of Bassett Creek would be considered biologically impaired. M-IBI scores improved slightly from 2006 through 2009 (i.e., 1 percent to 6 percent). After BCWMC completed a stream restoration project on the North Branch in 2013 (Figure 1 and Table 1), the M-IBI score improved by 55 percent in 2015. However, the score worsened in 2018 to the lowest score to date (Figure 23).

The worsened score in 2018 may be due to the negative impacts of increased flow and increased pollutant loading during a major precipitation event 2 weeks prior to collection of the 2018 macroinvertebrate samples. The Minneapolis-St. Paul International Airport weather station documented 3.28 inches of precipitation on September 20, 2018, which increased flow in the North Branch from 4 cubic feet per second (cfs) on September 19, to 40 cfs on September 20, and 75 cfs on September 21 (Figure 7). Flow then rapidly declined to 4 cfs by September 24 (Figure 7). Total suspended solids concentrations in the stream increased to 248 mg/L on September 20 and declined to 8 mg/L by September 27 (Figure 14). It appears the high flows and high concentrations of total suspended solids may have adversely impacted the macroinvertebrate community, resulting in a lower M-IBI score.

The 10 individual metrics of the M-IBI were assessed to determine changes since 2006. The scores were also compared to the individual metric score required to attain the impairment threshold score of 37 (an average of 3.7). Poorer scores for six of the 10 metrics were documented in the North Branch of Bassett Creek during 2018. The worsening scores are discussed in the following paragraphs. The monitoring location is pictured in Figure 22.

Table 4: M-IBI metrics

Metric Name	Metric Description
ClimberCh	The number of different types of macroinvertebrates that are climbers (climb on vegetation or woody debris)
ClingerChTxPct	Relative percentage of the types of macroinvertebrates adapted to cling to a substrate, such as a rock
DomFiveChPct	The percent of the dominant five types of macroinvertebrates
HBI_MN	A measure of pollution based on tolerance values assigned to each individual type (e.g., genus or species) of macroinvertebrate. A tolerance value indicates how tolerant each type of organism is to disturbance that alters habitat and/or pollution.
InsectTxPct	The percent of macroinvertebrates collected from the stream that are insects
Odonata	The number of different types of macroinvertebrates in the Odonata group
Plecoptera	The number of different types of macroinvertebrates in the Plecoptera group
Predator	The number of different types of macroinvertebrates that are predators
Tolerant2ChTxPct	The percent of the types of macroinvertebrates that have a Minnesota tolerance value equal to or greater than 6
Trichoptera	The number of different types of macroinvertebrates in the Trichoptera group

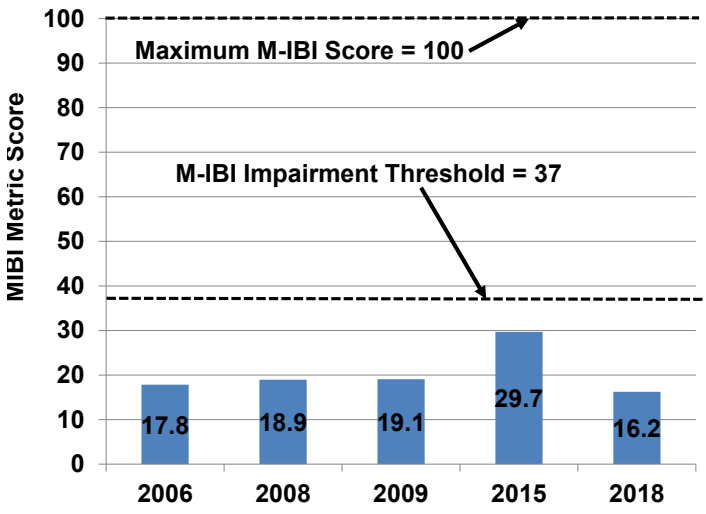


Figure 23: 2006–2018 M-IBI scores from the North Branch Bassett Creek location

ClimberCh

ClimberCh is a metric that assesses the number of different types of macroinvertebrates in a stream that are climbers. Climbers are macroinvertebrates, such as damselfly larvae, that live on plants, algae, plant debris, logs, or roots found in a stream or on vegetation overhanging the stream. The score for the metric ClimberCh is determined from the number of different climber taxa (genus/species) found at a sample location. A score of 0 is assigned when two or fewer climber taxa are found, and a score of 10 is assigned when 12 or more climber taxa are found. Scores from 1 to 9 are assigned when three to 11 climber taxa are present.

To support the presence of climbers, the stream's habitat must contain live plants, algae, plant debris, logs, or roots, or have vegetation overhanging the stream. In 2015, filamentous algae present in about a third of the sample reach supported climbers and nine climber taxa were observed. In 2018, there were no algae found during sampling. It appears that scouring, produced by the high flows from the September 20 rainstorm (Figure 7), may have removed the algae, adversely impacting climber habitat and decreasing the number of climber taxa to five. Historically, the number of climber taxa have ranged from five to nine. M-IBI metric scores during 2006, 2009, and 2015 exceeded the impairment threshold of 3.7, but were less than the impairment threshold in 2008 and 2018 (Figure 24).

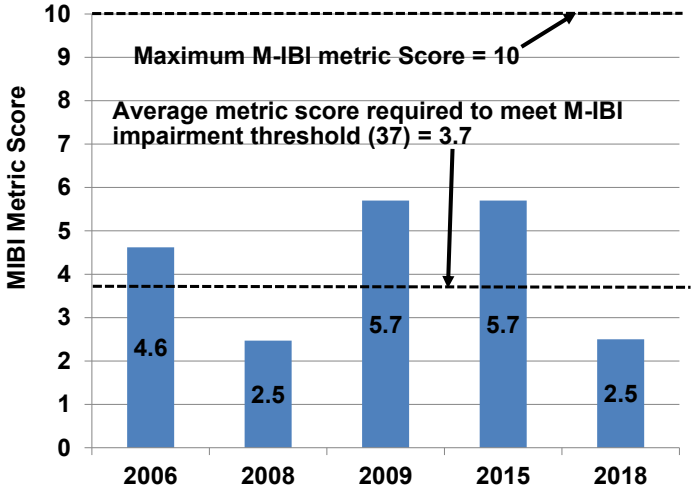


Figure 24: Above: ClimberCh scores from 2006–2018. The 2018 score failed to meet the M-IBI impairment threshold (3.7). Left: The climber Belostoma (giant waterbug)

Tolerant2ChTxPct

The MPCA has developed tolerance values (TVs) for macroinvertebrate taxa collected in Minnesota (MN TVs). Tolerance values range from 0 to 10, with increasing TVs indicating stream degradation. The Tolerant2ChTxPct metric uses the relative percentage of taxa with TVs greater than or equal to 6 to assess the percentage of taxa that are tolerant to stream degradation. A score of zero is assigned when taxa with TVs greater than or equal to 6 comprise 94 percent or more of the sample, and a score of 10 is assigned when they comprise 47 percent or less of the sample. Intermediary scores are assigned when they comprise between 47 and 94 percent of the sample.

The overall work of the BCWMC and member cities to reduce pollution and improve water quality (including the BCWMC North Branch CIP project, city projects, development requirements, education, and nonstructural BMPs) may have contributed to reductions in the percentage of taxa that are tolerant to stream degradation from 2006 through 2015 (Figure 25). Scores improved from 0 in 2006 to 4.4 in 2015—the first year the score was better than the impairment threshold (Figure 25). Although the 2018 score of 1.9 was 57 percent worse than the 2015 score, it was similar to the 2009 score and better than 2006 and 2008 scores (Figure 25). Adverse flow and water quality impacts from storms, including a storm occurring two weeks prior to sampling, may have contributed to a score decrease in 2018.

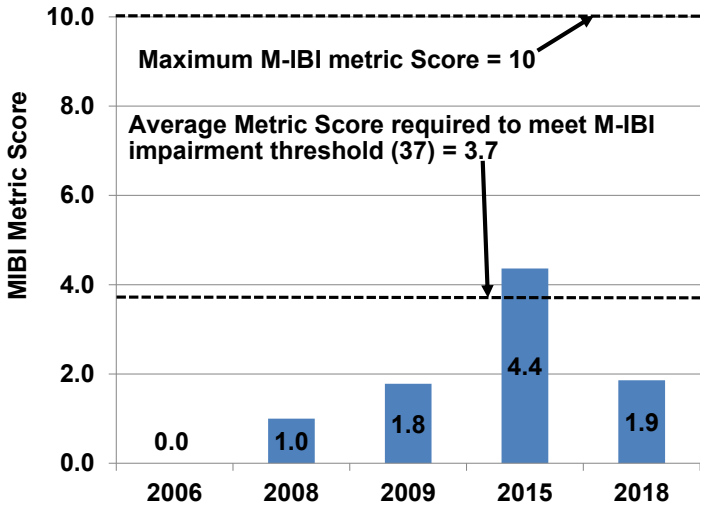


Figure 25: Above: Tolerant2ChTxPct scores from 2006–2018. The 2018 score failed to meet the M-IBI impairment threshold (3.7). Left: Simulium (blackfly larvae)

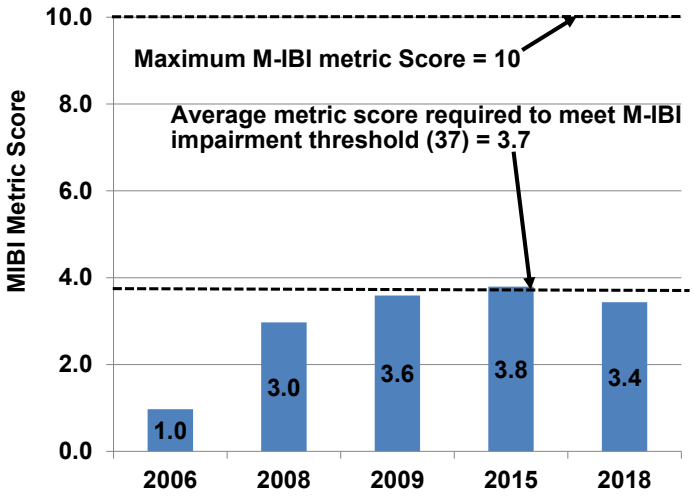


Figure 26: Above: HBI_MN scores from 2006–2018. The 2018 score failed to meet the M-IBI impairment threshold (3.7). Left: Sphaerium (fingernail clam)

HBI_MN

The HBI_MN metric, developed by the MPCA, is a measure of pollution based on tolerance values assigned to each individual taxon. The MPCA-assigned tolerance values are based on analysis of six disturbance variables: human disturbance score (a land-use-based stressor score), Minnesota stream habitat assessment score, total phosphorus, total suspended solids, ammonia, and nitrate/nitrite. Dissolved oxygen was not directly used to determine tolerance values because both very high and very low dissolved oxygen values correlate with stress on the macroinvertebrate community. However, the generalized stressors used to develop tolerance values for the HBI_MN often correlate with dissolved oxygen stress. The HBI_MN metric score is based on the average tolerance value of the sample. A score of zero is assigned when the average tolerance value is 8.3 to 10, and a value of 10 is assigned when the average is 0 to 4.9. Intermediary values are assigned when the average tolerance value is between 4.9 and 8.3.

The overall work of the BCWMC and member cities to reduce pollution and improve water quality (including the BCWMC CIP project, city projects, development requirements, education, and nonstructural BMPs) may have contributed to the improvements in HBI_MN from 2006 through 2015 (Figure 26). The 2018 score was worse than 2015. This may be due, in part, to increased pollutant loading during storms, including a major storm on September 20, 2018, when the concentration of total suspended solids increased to 248 mg/L. In 2018 42 percent of samples collected exceeded the MPCA standard of 30 mg/L, and the average total suspended solids concentration was 67 mg/L (Figure 14). Although the 2018 score was about 10 percent worse than the 2015 score, it was better than both 2006 and 2008 scores, indicating that an overall improvement in water quality has occurred since 2006 (Figure 26).

Odonata (dragonflies and damselflies)

Odonata, which include dragonflies and damselflies, are a diverse group of organisms that have a wide array of sensitivities and life histories. They exploit most aquatic microhabitats, and their diversity is considered a good indicator of aquatic health. The score for this metric is determined by the number of Odonata taxa (e.g., genus or species). A score of zero is assigned when no Odonata taxa are present, and a score of 10 is assigned when five taxa are present. Intermediary scores are assigned when one to four taxa are present.

All scores from 2006 through 2018 were better than the impairment threshold (Figure 27). Since 2006, scores have fluctuated between 3.9 (2008, 2009, and 2018) and 6.1 (2006 and 2015). It appears that a stream restoration project completed in 2013 may have improved the score for this metric in 2015 (Figure 1 and Table 1). However, adverse flow and water quality impacts from storms, including a storm two weeks prior to sampling, may have contributed to a score decrease in 2018 (Figure 27).

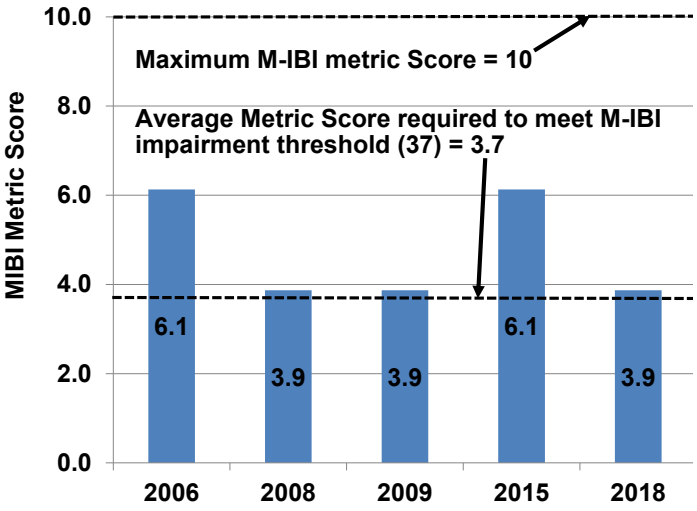


Figure 27: Above: Odonata scores from 2006–2018. The 2018 score of 3.9 met the M-IBI impairment threshold (3.7). Left: Odonata Calopteryx (damselfly larvae)

Predator

Predators, such as damselflies, beetles, water bugs, leeches, and water striders (Figure 28) feed on living animals (e.g., insects). Water quality or habitat degradation reduces the number of predator taxa. The score for this metric is determined by the number of predator taxa. A score of zero is assigned when three or fewer predator taxa are found, and a score of 10 is assigned when 16 or more are found. Intermediate values are assigned when four to 15 predator taxa are found.

Scores for the predator metric consistently improved from 2008 through 2015, and the 2015 score was better than the impairment threshold (Figure 28). However, in 2018 the score was the worst to date (Figure 28). Adverse flow and water quality impacts from storms, including a major storm occurring two weeks prior to sampling, may have contributed to the score decrease in 2018 (Figure 28).

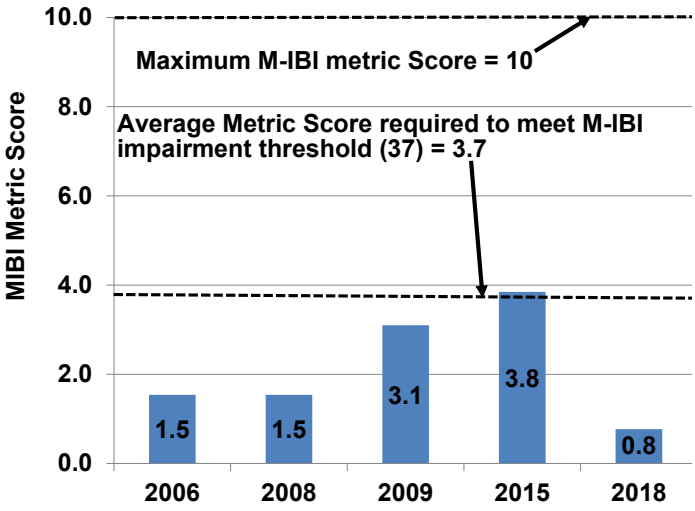


Figure 28: Above: Predator scores from 2006–2018. The 2018 score failed to meet the M-IBI impairment threshold (3.7). Left: The predator Liodessus (beetle)

Trichoptera (caddisflies)

Trichoptera (caddisflies) taxa feed in a variety of ways: some spin nets to trap food and others collect or scrape food on exposed rocks. Many caddisflies build gravel or wood cases to protect themselves from predators; others are predators themselves. In general, many families of Trichoptera are sensitive to excess nutrients and excess sedimentation. Taxa richness of Trichoptera declines steadily as humans eliminate the variety and complexity of their stream habitat. The score for this metric is determined by the number of Trichoptera taxa. A score of 0 is assigned when two or fewer Trichoptera taxa are found, and a score of 10 is assigned when 12 or more Trichoptera taxa are found. Scores from 1 to 9 are assigned when three to 11 Trichoptera taxa are found.

Improving scores from 2009 through 2015 appear to be a positive result of the overall work of the BCWMC and member cities to reduce pollution and improve water quality (including the BCWMC North Branch CIP project, city projects, development requirements, education, and nonstructural BMPs) (Figure 29). The score of zero in 2018 (Figure 29) may be due to increased pollutant loading during storms—including a major storm on September 20 which increased the concentration of total suspended solids to 248 mg/L. In 2018, 42 percent of total suspended solids samples exceeded the MPCA standard of 30 mg/L, and the average total suspended solids concentration was 67 mg/L (Figure 14). This excess sedimentation appears to have reduced the number of Trichopera taxa in the stream.

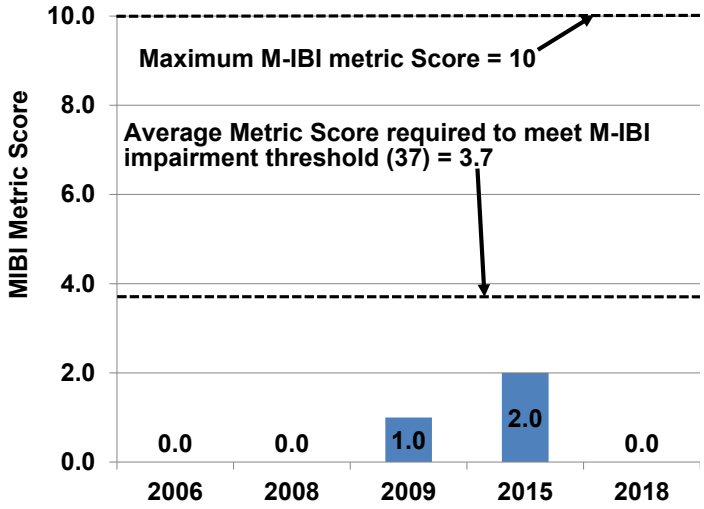


Figure 29: Above: Trichoptera scores from 2006–2018. The 2018 scores failed to meet the M-IBI impairment threshold (3.7). Left: Trichoptera Cheumatopsyche (caddisfly larvae)

Item 5C.
BCWMC 7-16-20

2018 Biotic Index Evaluation of the Main Stem of Bassett Creek

Between 1980 and 2018, the Bassett Creek Watershed Management Commission (BCWMC) has collected benthic macroinvertebrates (bottom-dwelling organisms) from the Main Stem of Bassett Creek on 11 occasions. The purpose of the sampling was to evaluate water quality and detect changes over time.

In 2018, the BCWMC monitored the Main Stem of Bassett Creek east of Brookridge Avenue and at Rhode Island Avenue and the Metropolitan Council Environmental Services monitored the Main Stem at Irving Avenue (Figure 1, page 2) for:

- Macroinvertebrates.
- Flow and water quality measurements.
- Habitat.

Three biotic indices were used to assess the macroinvertebrate data:

- **Hilsenhoff Biotic Index (HBI)—**Assessed long-term oxygen content of the stream.
- **Invertebrate Community Index (ICI)—** Determined the average tolerance of the macroinvertebrate community to a wide range of pollutants.
- **Macroinvertebrate Index of Biotic Integrity (M-IBI)—**Assessed the health of the macroinvertebrate communities. The Minnesota Pollution Control Agency (MPCA) developed the M-IBI and added it to Minnesota's water quality standards to help identify biologically impaired rivers and streams.

At a glance: 2018 results

HBI and ICI summary

In 2018, a statistically significant trend toward improving HBI scores (indicating improving oxygen conditions), was documented at the Main Stem Irving Avenue location. The improved HBI score at this location appears to have resulted from a Main Stem stream restoration project which stabilized the stream and reduced sediment: CIP project #1, from Golden Valley Road to Glenwood Avenue, completed in 2015 (Figure 1, Table 1). Sediment contains organic matter, which consumes oxygen during degradation, lowering oxygen levels in the stream. The significant improvement in HBI score documents the improved quality due to the sediment reductions in the stream following completion of the project.

The 2018 ICI score from the Main Stem at Irving Avenue and the 2018 HBI and ICI scores from all other Main Stem sampling locations were consistent with past scores.

M-IBI summary

Improved M-IBI scores were documented at all Main Stem locations in 2018 (Figure 6). Consistently improving M-IBI scores were documented at the east of Brookridge location since 2012 and at the Irving Avenue location since 2008. The long-term improvements appear to show the positive impacts of multiple stream restoration projects completed from 2012 through 2018 (Figure 1, Table 1).

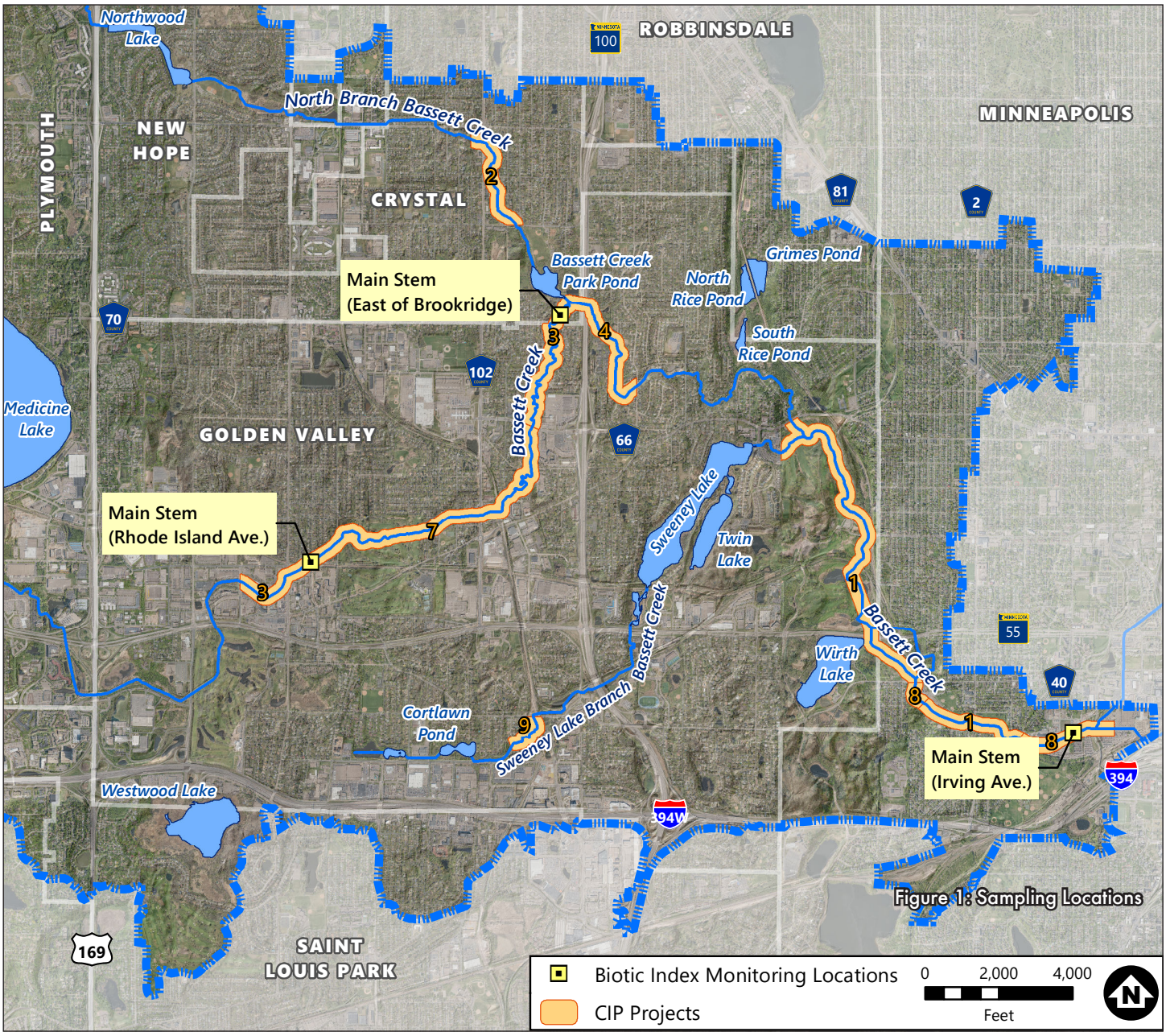


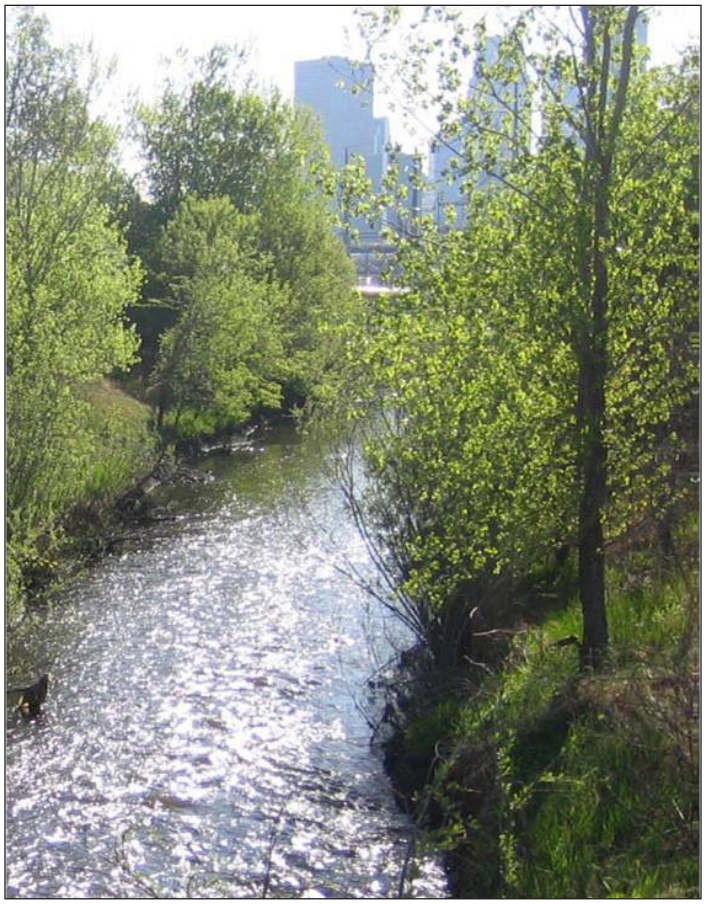
Table 1: Capital Improvement Projects (Stream Restoration) along Bassett Creek

#	Project Name	Status	Location
1	Main Stem Restoration Project, Golden Valley Rd. to Glenwood Ave.	Construction began Oct. 2014; substantial completion spring 2015; project acceptance Nov. 2015	Golden Valley
2	North Branch Bassett Creek Restoration Project, 200 Feet Upstream of Douglas Dr. to 32nd Ave. N.	Construction began fall 2012; construction completed fall 2013	Crystal
3	Main Stem Restoration Project, Wisconsin Ave. to 10th Ave. and Duluth St. to the Crystal Border	Construction began Dec. 2012; substantial completion March 2013; project acceptance Nov. 2013	Crystal
4	Main Stem Restoration Project Golden Valley-Crystal Border to Regent Ave.	Construction completed winter of 2010-2011; final construction tasks and plantings in summer 2012	Golden Valley
7	Bassett Creek Main Stem Stream Restoration Project, 10th Ave. to Duluth St.	Construction began winter 2015-2016; construction completed in 2016; establishment of native vegetation began in 2016 and continued through 2018	Golden Valley
8	Main Stem Channel Restoration, Cedar Lake Rd. to Dupont Ave. N/2nd Ave. N, plus Fruen Mill Area	Anticipated construction start 2020	Minneapolis
9	Sweeney Lake Branch Channel Restoration, Cortlawn Pond to Turner's Crossroad	Construction began/completed spring 2008	Golden Valley

Better M-IBI scores in 2018 resulted from improvement in seven of the 10 metrics that collectively determine the score:

- Increased numbers of taxa known as climbers (i.e., taxa requiring habitat such as overhanging vegetation that provides opportunities to climb); this is an indication of improved habitat.
- An increased percentage of taxa known as clingers (i.e., taxa that cling to rocks and other substrate to avoid being washed away by the stream); this is an indication of lower sediment in the stream (sediment causes surfaces to be more slippery and makes it harder to cling to the substrate).
- A greater diversity and more even distribution of organisms so that the dominant five taxa comprised a lower percentage of the total sample.
- A reduced percentage of tolerant taxa in the stream.
- A higher HBI_MN score, resulting from a lower percentage of tolerant taxa in the stream.
- Increased numbers of Odonata taxa (i.e., dragonflies and damselflies).
- Increased numbers of taxa known as predators (i.e., taxa that feed on other organisms in the stream).

Unfortunately, despite the improving scores, none of the Main Stem locations monitored from 2006 through 2018 met the MPCA M-IBI impairment standard. Thus, Bassett Creek would be considered biologically impaired.



Recommendations

Because Bassett Creek is biologically impaired, it is recommended that BCWMC continue to:

- **Assess Bassett Creek** to identify and implement additional habitat and/or water quality improvement projects to further improve the macroinvertebrate community with a goal of meeting the M-IBI impairment threshold for the stream.
- **Monitor the macroinvertebrates of Bassett Creek** periodically to assess the health of the community and determine whether the M-IBI impairment standard has been met
- **Monitor habitat, flow, and water quality** when biological samples are collected to identify changes over time and identify stressors to the macroinvertebrate community.

Main Stem Bassett Creek habitat

The BCWMC completed habitat surveys of the Main Stem at Rhode Island Avenue and east of Brookridge in 2015 and 2018 using the MPCA quantitative habitat survey methods. The survey results are summarized in Table 2. Flows and water depths were higher in 2018 than 2015 (Table 2, Figures 2 through 5). The habitat survey results indicate the Main Stem stream restoration project from 10th Avenue to Duluth Street improved habitat at the Rhode Island Avenue and east of Brookridge locations. Project construction began in the winter of 2015 and concluded in 2018 with the establishment of native vegetation along the restored stream banks. Habitat improvements at Rhode Island Avenue documented by the 2018 survey include the following:

- A decrease in the average depth of fine sediment
- A decrease (to none) in percent of transects with left-bank erosion
- A decrease in percent of transects with right-bank erosion
- A decrease in the average length of bank erosion per transect for both the left bank and right bank
- An increase in the average amount of algae
- An increase in the average number of aquatic plants
- An increase in the amount of overhanging vegetation and submergent vegetation (as represented by the "percent length of transect over at least 10 cm of water with overhanging vegetation and submergent vegetation" metrics).

Habitat improvements east of Brookridge documented by the 2018 survey include:

- A decrease in the average embeddedness of coarse sediment
- A decrease in the percent of transects with right-bank erosion
- A decrease in the average length of bank erosion per transect for the left bank
- An increase in the amount of overhanging vegetation (as represented by the "percent length of transect over at least 10 cm of water with overhanging vegetation" metric).
- An increase in the amount of woody debris (as represented by the "percent of transect over at least 10 cm of water with woody debris" metric).

Metropolitan Council Environmental Services (MCES) used the MPCA qualitative habitat survey—the MPCA Stream Habitat Assessment (MSHA)—to monitor habitat at the Main Stem at Irving Avenue in 2017 and 2018. A stream restoration project from Golden Valley Road to Glenwood Avenue was completed in 2015. The 2017 and 2018 habitat surveys provided a post-project assessment of habitat at Irving Avenue.

Habitat was relatively stable between the two years with a slight improvement in 2018. On a scale of 0 to 100, with higher scores indicating a better habitat, the overall habitat score for this location was 66.1 in 2017 and 68.6 in 2018. A comparison of the two surveys shows the following changes:

- Siltation increased from a "normal" rating in 2017 to a "moderate" rating in 2018. Water quality monitoring by MCES documented an increase in total suspended solids concentrations from 2017 to 2018, which is the likely cause of the increased siltation.
- Channel stability increased from "moderate" in 2017 to "moderate/high" in 2018.
- Floating leaf plants were observed in 2018 but not 2017.
- Pool width was equal to riffle width in 2018, but less than riffle width in 2017.

HBI and ICI

From 1980 through 2018, the BCWMC assessed macroinvertebrates using biotic indices to evaluate the water quality of the Main Stem of Bassett Creek. The Hilsenhoff Biotic Index (HBI) was used to assess the long-term oxygen content of the stream from 1980 through 2018. HBI assesses stream oxygen by determining the average tolerance of the macroinvertebrate community to low oxygen conditions. Sediment added to streams by stormwater runoff or streambank erosion contains organic matter that consumes oxygen during degradation, lowering oxygen levels in the stream. The HBI assessment of oxygen conditions documents water quality changes related to changes in sediment from stormwater runoff.

Table 2: 2015 and 2018 Bassett Creek Main Stem habitat comparison: Rhode Island Avenue and east of Brookridge

Parameter	Rhode Island Avenue		East of Brookridge	
	2015	2018	2015	2018
Discharge (flow), cubic feet per second (cfs)	4.3	40.3	3.4	40.8
Average depth of water (cm)	18	39	19	34
Average depth of fine sediment (cm)	2.0	0.3	0.4	2.3
Average embeddedness of coarse substrates (nearest 25%)	50	50	50	42
Percent of transects with left-bank erosion	92	0	54	77
Percent of transects with right-bank erosion	77	0	62	39
Average length of bank erosion per transect: left bank (m)	1.1	0	0.5	0.4
Average length of bank erosion per transect: right bank (m)	0.6	0	0.6	0.7
Average amount of algae (filamentous or attached) observed on quadrate[1] (%)	0.0	2.9	8.0	1.8
Average number of aquatic plants observed on quadrate[1] (%)	0.0	5.8	0.0	0.0
Percent length of transect over at least 10 cm of water depth with overhanding vegetation	0.0	1.0	0.0	0.4
Percent length of transect over at least 10 cm of water depth with submergent vegetation	0.0	9.0	0.0	0.0
Percent length of transect over at least 10 cm of water depth with emergent vegetation	0.0	0.0	0.0	0.0
Percent length of transect over at least 10 cm of water depth with woody debris	2.7	0.0	0.0	0.4
Percent length of transect over at least 10 cm of water depth with boulders	0.0	6.0	6.7	4.2

[1] Each transect is divided into four equal parts (a quadrate); each quadrate is evaluated.

Figure 2: Main Stem of Bassett Creek east of Brookridge in 2015

Figure 3: Main Stem of Bassett Creek east of Brookridge in 2018

Figure 4: Main Stem of Bassett Creek at Rhode Island Ave. in 2015

Figure 5: Main Stem of Bassett Creek at Rhode Island Ave. in 2018

A second index, the Invertebrate Community Index (ICI), provided a broader view of the stream's water quality by determining the average tolerance of the macroinvertebrate community to a wide range of pollutants from 1995 through 2018.

To determine whether any trends could be detected, HBI scores from 2018 were compared to scores from 1980 through 2015, and ICI scores from 2018 were compared to scores from 1995 through 2015. A trend toward decreasing HBI scores (improving oxygen conditions) was documented on the Main Stem at the Irving Avenue location. The trend was statistically significant (i.e., there was a 5 percent or less probability that the change was due to chance). The improved HBI score at this location appears to be the result of the Main Stem stream restoration project from Golden Valley Road to Glenwood Avenue, completed in 2015 (Figure 1 and Table 1). The project stabilized the stream bank and was expected to reduce total suspended solids.

The 2018 ICI score from the Main Stem at Irving Avenue and the 2018 HBI and ICI scores from the other Main Stem sampling locations were consistent with past scores. The results of trend analyses at these locations indicate there were no statistically significant changes (i.e., there is more than a 5 percent probability that changes were due to chance).

M-IBI biological metrics

The MPCA has established biological water quality standards for all Minnesota streams and rivers, including Bassett Creek. A macroinvertebrate index of biotic integrity (M-IBI) and a fish index of biotic integrity (F-IBI) were added to Minnesota standards and approved by the United States Environmental Protection Agency on June 26, 2018.

The M-IBI helps identify biologically impaired rivers and streams by assessing the health of their macroinvertebrate communities. The BCWMC used the M-IBI to assess the Main Stem of Bassett Creek from 2006 through 2018 to determine whether it met the MPCA standard for macroinvertebrates (Figure 6).

The M-IBI score is the sum of the scores from 10 individual metrics (Table 3). Each metric assesses an attribute of the macroinvertebrate community; collectively, the metrics assess the overall health of the community.

Each M-IBI metric has a scale of 0 to 10; the lowest possible score is 0 and the highest is 10. Increasing scores indicate improving conditions. Because 10 metrics are summed to attain the M-IBI score and each metric has a maximum score of 10, the maximum possible score is 100. To meet the MPCA macroinvertebrate standard, the sum of the scores from the 10 individual metrics must equal or exceed the impairment threshold—a score of at least 37 for Bassett Creek. On average, a score of at least 3.7 for each metric would be needed to attain the impairment threshold.

As shown in Figure 6, none of the Main Stem locations monitored from 2006 through 2018 met the MPCA M-IBI impairment standard. Thus, Bassett Creek would be considered biologically impaired. However, improved M-IBI scores were documented at all Main Stem locations in 2018 (Figure 6). Improving M-IBI scores were documented consistently at the east of Brookridge location since 2012 and at the Irving Avenue location since 2008. The long-term improvements appear to reflect the positive impacts of multiple stream restoration projects completed from 2012 through 2018 (Figure 1 and Table 1):

- **CIP project #4—**Crystal border to Regent Avenue (completed 2012)
- **CIP project #3—**Wisconsin Avenue to 10th Avenue and Duluth Street to the Crystal border (completed 2013)
- **CIP project #1—**Golden Valley Road to Irving Avenue (completed in 2015)
- **CIP project #7—**10th Avenue to Duluth Street (construction completed in 2016; establishment of native vegetation began in 2016 and continued through 2018)

The 10 individual metrics of the M-IBI were assessed to determine changes since 2006. The scores were also compared to the individual metric score required to attain the impairment threshold score of 37 (an average of 3.7). Improved scores for seven of the 10 metrics were documented in the Main Stem of Bassett Creek during 2018. The improvements are discussed in the following paragraphs.

Table 3: M-IBI Metrics

Metric Name	Metric Description
ClimberCh	The number of different types of macroinvertebrates that are climbers (climb on vegetation or woody debris) determines the score. Higher numbers result in a better score.
ClingerChTxPct	Relative percentage of the types of macroinvertebrates adapted to cling to a substrate, such as a rock, in swift-flowing water determines the score. Higher numbers result in a better score.
DomFiveChPct	The percent of the dominant five types of macroinvertebrates determines the score. A lower percent results in a better score because a diverse community is healthier than a community primarily comprising a few species.
HBI_MN	This is a measure of pollution based on tolerance values assigned to each individual type (e.g., genus or species) of macroinvertebrate. A tolerance value indicates how tolerant each type of organism is to disturbance that alters habitat and/or pollution. The score is based on the average tolerance value computed for the community. Lower tolerance values result in a better score because they indicate the stream comprises sensitive organisms that would be eliminated by disturbance and/or pollution.
InsectTxPct	The percent of macroinvertebrates collected from the stream that are insects determines the score. Higher numbers result in a better score because a higher percentage of insects is associated with a healthier stream.
Odonata	The number of different types of macroinvertebrates in the Odonata group, which includes dragonflies and damselflies, determines the score. Higher numbers result in a better score.
Plecoptera	The number of different types of macroinvertebrates in the Plecoptera group, which includes stoneflies, determines the score. Higher numbers result in a better score.
Predator	The number of different types of macroinvertebrates that are predators (i.e., eat other macroinvertebrates) determines the score. Higher numbers result in a better score.
Tolerant2ChTxPct	The percent of the types of macroinvertebrates that have a Minnesota tolerance value equal to or greater than 6 determines the score. Tolerance values range from 1 to 10 and values from 6 to 10 indicate organisms more tolerant of disturbed habitat and/or pollution than 1 to 5.
Trichoptera	The number of different types of macroinvertebrates in the Trichoptera group, which includes caddisflies, determines the score. Higher numbers result in a better score.

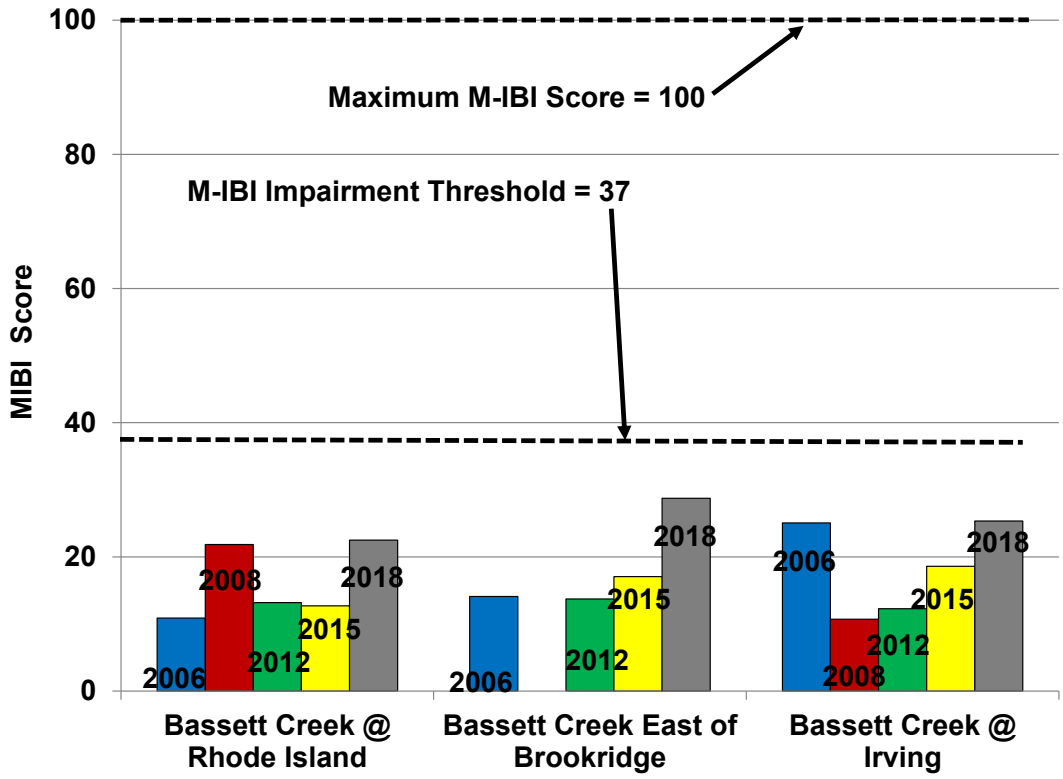


Figure 6: 2006–2018 MIBI scores from Main Stem Bassett Creek

Climber Ch

ClimberCh is a metric that assesses the number of different types of macroinvertebrates in a stream that are climbers. Climbers are macroinvertebrates, such as damselfly larvae, that live on plants, algae, plant debris, logs, or roots found in a stream or on vegetation overhanging the stream. The score for the metric ClimberCh is determined from the number of different climber taxa (genus/species) found at a sample location. A score of 0 is assigned when two or fewer climber taxa are found, and a score of 10 is assigned when 12 or more climber taxa are found. Scores from 1 to 9 are assigned when three to 11 climber taxa are found. To support the presence of climbers, the stream must contain habitat that provides opportunities for these taxa to climb, such as live plants, algae, plant debris, logs, roots, or overhanging vegetation.

Habitat data, shown in Table 2, indicate stream restoration projects on the Main Stem of Bassett Creek improved habitat for climbers and increased the number of climber taxa at all Main Stem locations in 2018. Improved habitat includes:

- Increased overhanging vegetation at both the east of Brookridge Avenue and Rhode Island Avenue (Figure 7) locations.
- Increased algae, aquatic plants, submerged vegetation, and woody debris at the Rhode Island Avenue location (Figure 7).

Main Stem locations east of Brookridge and at Irving Avenue had one or two climber taxa in 2012 and 2015 (a score of 0 for both years). An increase to four climber taxa at both locations in 2018 improved the score to 1.4 (Figure 8).

The Rhode Island Avenue location has consistently supported climber taxa. However, the number of climbers decreased from five in 2008 to three in 2012. A stream restoration project from Wisconsin Avenue to 10th Avenue from December 2012 through November 2013 (#3 on Figure 1) and from 10th Avenue to Duluth Street from winter 2015–2016 through 2018 (#7 on Figure 1) improved habitat and appeared to result in an increase in the number of climber taxa at the Rhode Island location. After completion of the projects, the number increased to four in 2015 and seven in 2018, resulting in a score of 5.4 (Figure 8). This is the only time during the period examined that the score exceeded the impairment threshold of 3.7 (Figure 8).

Figure 7: In addition to increased overhanging vegetation, the Rhode Island Avenue location had increased algae, submerged vegetation, and woody debris—all conducive to Climbers.

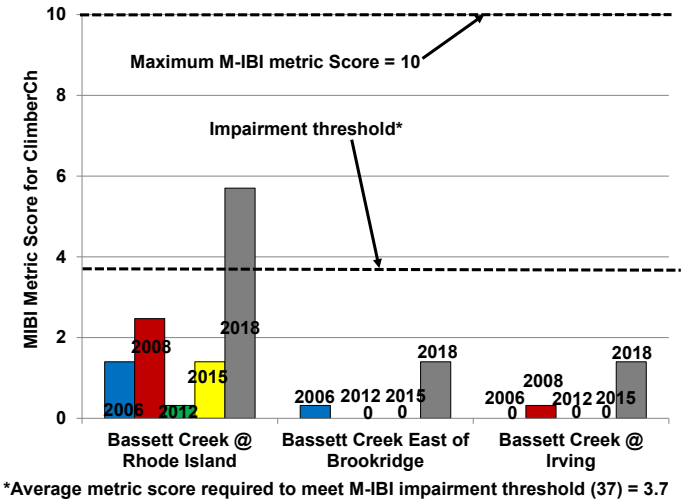
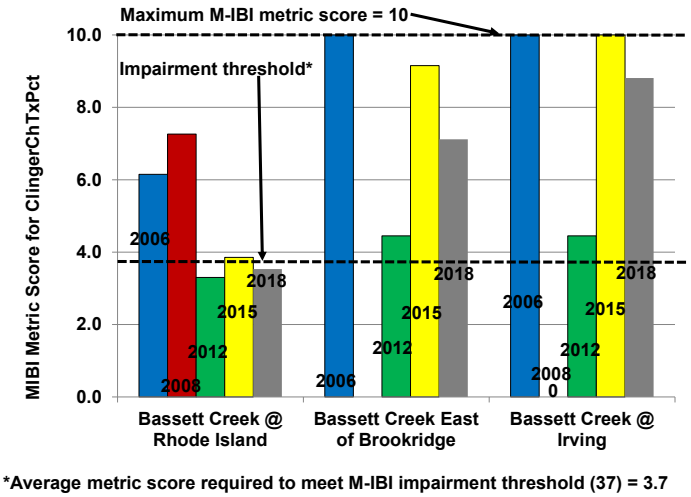


Figure 8: Above: ClimberCh scores from three monitoring stations. Scores at two of the three locations failed to meet the M-IBI impairment threshold (3.7). Left: The climber Belostoma (giant waterbug)

ClingerTxPct

The ClingerTxPct metric score is based on the relative percentage of taxa adapted to cling to substrates in swift-flowing water. The number of macroinvertebrates in the "clinger" group can provide an indication of how flow regimes and hydrologic conditions may be impacting macroinvertebrates in a stream. The clinger group is best suited for high-flow or "flashy" environments, with physiological and morphological adaptions which allow them to attach to fixed, coarse substrates (gravel, cobble, or boulders) and avoid being carried downstream. Clingers maintain a relatively fixed position on firm, clean substrates in current. Sediment deposited on the substrate causes surfaces to become slippery and makes it difficult for them to attach firmly and avoid being carried downstream. For this reason, clingers would not be expected to thrive in streams with high quantities of sediment. Hence, a relatively high percentage of clinger taxa in a stream indicates a low quantity of sediment. When 20 percent or less of the sample comprises clingers, a score of 0 is assigned. When 46 percent or more of the sample comprises clingers, a score of 10 is assigned. Scores of 1 to 9 are assigned when the percent of clingers in the sample is between 20 percent and 46 percent.

During the period examined, the Main Stem of Bassett Creek generally supported a healthy number of clinger taxa. All scores for this metric have been better than the impairment threshold at the east of Brookridge location since 2006 and at the Irving Avenue location in 2006 and from 2012 to 2018 (Figure 9). Scores at the Rhode Island Avenue location were better than the impairment threshold in 2006 and 2008, but declined in 2012. Scores improved in 2015 and 2018 indicating stream restoration projects from Wisconsin Avenue to 10th Avenue and 10th Avenue to Duluth Street (# 3 and # 7 on Figure 1) improved habitat for clingers at this location. The 2018 score of 3.5 was close to the impairment threshold of 3.7 (Figure 9.) Improved habitat and sediment reductions from the stream restoration project completed at Rhode Island Avenue in 2018 are expected to increase future scores.



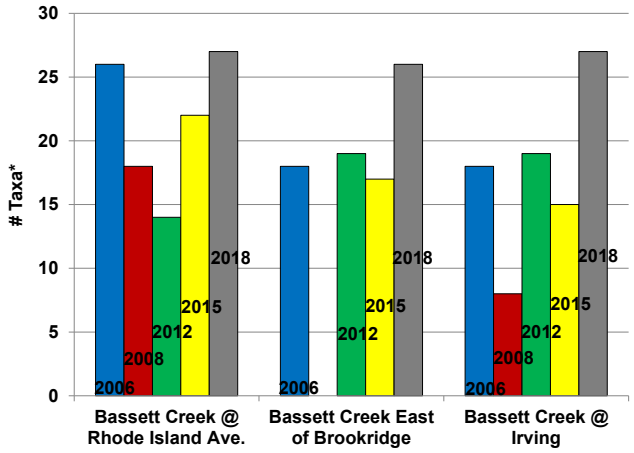
*Average metric score required to meet M-IBI impairment threshold (37) = 3.7

Figure 9: Above: ClingerTxPct scores from three monitoring stations. Scores at one of the three locations failed to meet the M-IBI impairment threshold (3.7) in 2018. All three locations had reduced scores in 2018. Left: The clinger Baetis flavistriga (mayfly nymph)

DomFiveChPct

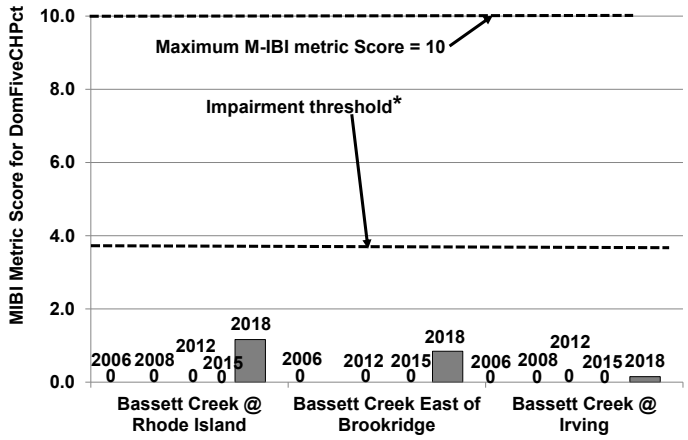
Healthy and stable streams are characterized by a greater diversity and more even distribution of organisms among taxa rather than dominance by a few. The DomFiveChPct uses the percentage of the macroinvertebrate community comprised by the dominant five taxa to assess stream health. For this metric, a higher percentage indicates a less even distribution among taxa and is indicative of stream degradation. Conversely, a lower percentage is indicative of a more even distribution and a healthier stream. A score of 0 is assigned when the dominant five taxa comprise 78 percent or more of the sample, and a score of 10 is assigned when they comprise 38 percent or less. Intermediary scores are assigned when they comprise between 38 and 78 percent of the sample.

Main Stem stream restoration projects (#1, #3, #4, and #7 on Figure 1 and Table 1) appear to have increased the number of taxa at Main Stem locations and improved distribution. The number of taxa at all Main Stem locations in 2018 was the highest to date (Figure 10). 2018 was also the first time that a score greater than zero was observed for the DomFiveChPct metric at any of the Main Stem locations (Figure 11).



*#Taxa is the # of different family, genus, and species found in each sample.

Figure 10: Number of taxa at three Main Stem locations



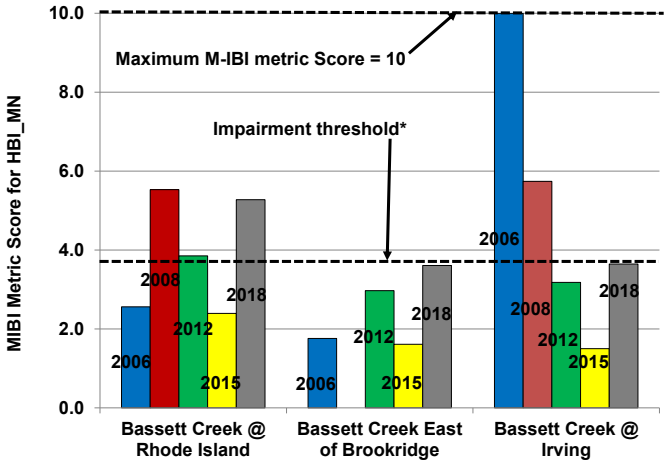
*Average metric score required to meet M-IBI impairment threshold (37) = 3.7

Figure 11: Above: DomFiveChPct scores from three monitoring stations. Scores at all three locations failed to meet the M-IBI impairment threshold (3.7). Left: One of the five dominant taxa, Baetis Gammarus (amphipod crustacean)

HBI_MN

The HBI_MN, developed by the MPCA, is a measure of pollution, based on tolerance values assigned to each individual taxon. The MPCA-assigned tolerance values are based on analysis of six disturbance variables: human disturbance score (a land-use-based stressor score), Minnesota Stream Habitat Assessment score, total phosphorus, total suspended solids, ammonia, and nitrate/nitrite. Dissolved oxygen is not directly used to determine tolerance values because both very high and very low dissolved oxygen values correlate with stress on the macroinvertebrate community. However, the generalized stressors used to develop tolerance values for the HBI_MN often correlate with dissolved oxygen stress. The HBI_MN metric score is based on the average tolerance value of the sample. A score of zero is assigned when the average tolerance value is 8.3 to 10, and a value of 10 is assigned when the average is 0 to 4.9. Intermediary values are assigned when the average tolerance value is between 4.9 and 8.3.

The overall work of the BCWMC and member cities to reduce pollution and improve water quality (including BCWMC CIP projects, city projects, development requirements, education, and non-structural BMPs) may have contributed to improvements to HBI_MN, with scores at all three locations more than doubling in 2018. The 2018 score of 5.3 at Rhode Island Avenue was better than the impairment threshold of 3.7, while scores of 3.6 east of Brookridge and at Irving Avenue were only slightly below the impairment threshold (Figure 12).



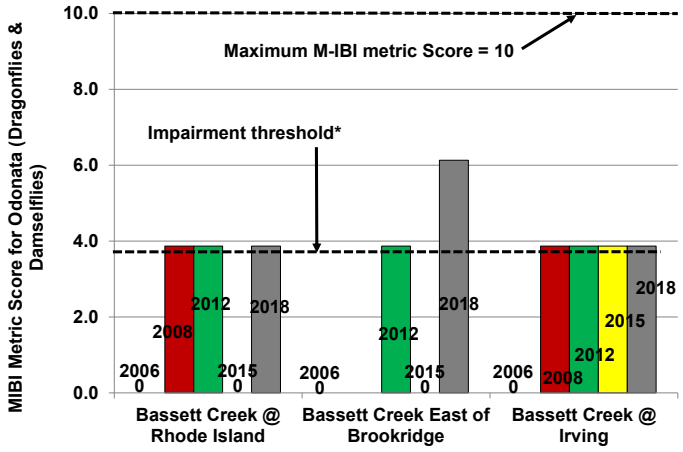
*Average metric score required to meet M-IBI impairment threshold (37) = 3.7

Figure 12: Above: HBI_MN scores from three monitoring stations. Scores increased in 2018, but failed to meet the M-IBI impairment threshold (3.7) at two locations. Left: Sphaerium (fingernail clam)

Odonata (dragonflies and damselflies)

Odonata, which include dragonflies and damselflies, are a diverse group of organisms that have a wide array of sensitivities and life histories. They exploit most aquatic microhabitats, and their diversity is considered a good indicator of aquatic health. The score for this metric is determined by the number of Odonata taxa (e.g., genus or species). A score of zero is assigned when no Odonata taxa are present, and a score of 10 is assigned when five taxa are present. Intermediary scores are assigned when one to four taxa are present.

In 2018, scores at all three Main Stem locations were better than the impairment threshold (Figure 13). Rhode Island Avenue and east of Brookridge locations have generally supported Odonata since 2008; however, in 2015 both locations had scores of 0. After completion of a stream restoration project from 10th Avenue to Duluth Street from the winter of 2015–2016 through 2018 (#7 on Figure 1 and Table 1) scores increased to 3.9 at the Rhode Island location and 6.1 at the east of Brookridge Avenue location (Figure 13). Scores at Irving Avenue have been stable (3.9) and better than the impairment threshold since 2008 (Figure 13).



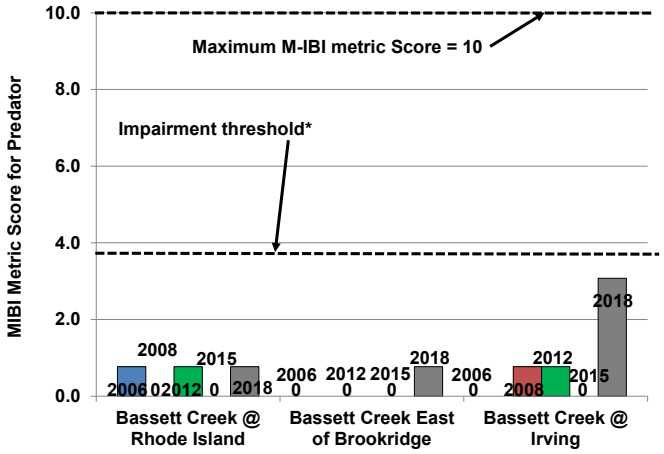
*Average metric score required to meet M-IBI impairment threshold (37) = 3.7

Figure 13: Above: Odonata scores from three monitoring stations. Scores at all three locations met the M-IBI impairment threshold (3.7). Left: Odonata Calopteryx (damselfly larvae)

Predator

Predators, such as damselflies, beetles, water bugs, leeches, and water striders, feed on living animals (e.g., insects). Water quality or habitat degradation reduces the number of predator taxa. The score for this metric is determined by the number of predator taxa. A score of zero is assigned when three or fewer predator taxa are found, and a score of 10 is assigned when 16 or more are found. Intermediary values are assigned when four to 15 predator taxa are found.

Although scores for the Predator metric were less than the impairment threshold in 2018, scores at all three locations improved from a 2015 score of zero. This improvement appears to be a positive result of Main Stem stream restoration projects #1 and #7, (Figure 1 and Table 1). The 2018 score of 0.8 at the east of Brookridge location was the only predator metric score greater than zero at this location during the entire period examined (Figure 14). The 2018 score of 3.1 at Irving Avenue was more than three times greater than all previous scores for this metric (Figure 14), and the score of 0.8 at Rhode Island Avenue was greater than the score of 0 in 2015 and similar to scores in 2006 and 2012 (Figure 14).



*Average metric score required to meet M-IBI impairment threshold (37) = 3.7

Figure 14: Above: Predator scores from three monitoring stations. Scores at all three locations failed to meet the M-IBI impairment threshold (3.7). Left: The predator Liodessus (beetle)

Tolerant2ChTxPct

The MPCA has developed tolerance values (TVs) for macroinvertebrate taxa collected in Minnesota (MN TVs). Tolerance values range from 0 to 10, with increasing TVs indicating stream degradation. The Tolerant2ChTxPct metric uses the relative percentage of taxa with TVs greater than or equal to 6 to assess the percentage of taxa that are tolerant to stream degradation. A score of 0 is assigned when taxa with TVs greater than or equal to 6 comprise 94 percent or more of the sample, and a score of 10 is assigned when they comprise 47 percent or less of the sample. Intermediary scores are assigned when they comprise between 47 and 94 percent of the sample.

Main Stem stream restoration projects (#1, #3, #4, and #7 on Figure 1 and Table 1) appear to have reduced the relative percentage of tolerant taxa in the stream by creating conditions favorable for less-tolerant taxa. Scores of 5.3 and 6.9 were observed at the east of Brookridge location in 2015 and 2018, both better than the impairment threshold of 3.7 and the first scores above zero at these locations during the period examined (Figure 15). Scores of 3.2 (2015) and 2.5 (2018) at the Irving Avenue location were the first scores above zero at this location during the period examined (Figure 15). Scores of 5.1 (2015) and 2.2 (2018) at the Rhode Island location were the highest scores at this location during the period examined (Figure 15).

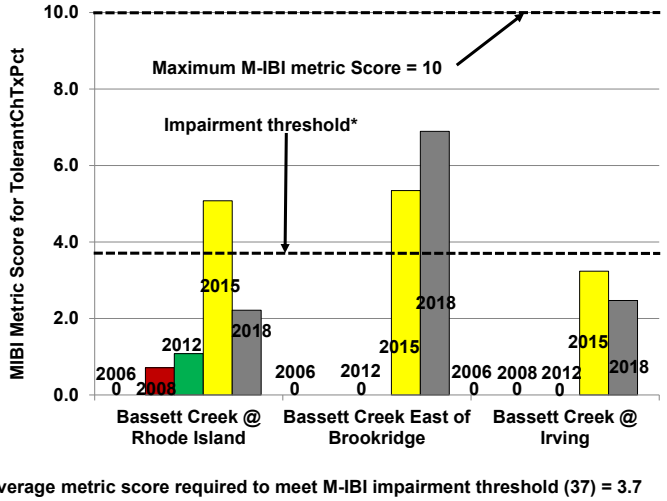


Figure 15: Above: Tolerant2ChTxPct scores from three monitoring stations. Scores at two of the three locations failed to meet the M-IBI impairment threshold (3.7). Left: Simulium (blackfly larvae)

Item 5D.
BCWMC 7-16-20

MEMORANDUM

DATE: July 1, 2020

TO: MAWD Members

FROM: Sherry Davis White, Resolutions Committee Chair

RE: 2020 REQUEST FOR MAWD RESOLUTIONS

MINNESOTA ASSOCIATION OF WATERSHED DISTRICTS, INC
Land and Water Shall be Preserved

It is that time of year for MAWD members to submit their policy recommendations through our resolutions process. Here are the next steps and timeline:

July / August	Members discuss and approve resolutions at their local WD/WMO meetings
September 1	Administrators submit resolutions and background information documents to the MAWD office at emily@mnwatershed.org by September 1
September / October	Resolutions Committee will review resolutions, gather further information when deemed necessary, discuss and make recommendations on their passage to the members
October 31	Resolutions (with committee feedback) will be emailed to each district by Oct. 31
November	Members should discuss the resolutions at their November meetings and decide who will be voting on their behalf at the annual meeting (2 voting members allowed per watershed organization)
December	Delegates discuss and vote on resolutions at the annual meeting
December / January	Legislative Committee will review existing and new resolutions and make a recommendation to the MAWD Board of Directors for the 2021 legislative platform
January 2021	MAWD Board of Directors will finalize the 2021 legislative platform
January 5, 2021	First day of the 92nd legislative biennium

Resolutions passed by the membership at the annual meeting will remain MAWD policy for five years. After five years resolutions will sunset and if desired, will need to be resubmitted and passed at the annual meeting to keep those issues active.

See the enclosed lists for resolutions that are active and those that will sunset at the end of the year.

Please feel free to contact me at sherrywhite@mediacombb.net or our Executive Director Emily Javens if you have any questions at emily@mnwatershed.org or (651) 440-9407.

THANK YOU FOR YOUR EFFORTS IN OUR POLICY DEVELOPMENT!

Background Information
2020 MAWD Resolution

Proposing District: _____

Contact Name: _____

Phone Number: _____

Email Address: _____

Resolution Title: _____

_____

Background that led to the submission of this resolution:

Ideas for how this issue could be solved:

Anticipated support or opposition from other governmental units?

(Check one) This issue is of importance to:

Only our district _____
Only our region _____
The entire state _____

Active MAWD Resolutions

July 1, 2020

FINANCE ISSUES

2018-02 Increase the $250k General Fund Tax Levy Limit

MAWD supports legislation to increase or remove the $250,000 general fund ad valorem tax levy limit set in MN statute 103D.905 subd. 3. If the limit is raised to a new dollar amount, MAWD supports an inflationary adjustment be added to statute.

2017-05 Middle Fork Crow River Watershed District General Operating Levy Adjustment

MAWD supports the efforts of Middle Fork Crow River Watershed District to draft and advance special legislation affecting a change in its general fund levy cap.

2019-08: Heron Lake Watershed District General Operating Levy Adjustment

MAWD supports an increase in Heron Lake Watershed District's general operating levy cap from $250,000 to an amount not to exceed $500,000.

2019-09: Shell Rock River Watershed District General Operating Levy Adjustment

MAWD supports an increase in Shell Rock River Watershed District's general operating levy cap from $250,000 to an amount not to exceed $500,000.

2019-10: Pelican River Watershed District General Operating Levy Adjustment

MAWD supports an increase in Pelican River Watershed District's general operating levy cap from $250,000 to an amount not to exceed $500,000.

2019-11: Buffalo Red River Watershed District General Operating Levy Adjustment

MAWD supports an increase in Buffalo Red River Watershed District's general operating levy cap from $250,000 to an amount not to exceed $500,000.

2019-06: Oppose Legislation that Forces Spending on Political Boundaries.

MAWD opposes legislation that establishes spending requirements or restricts watershed district spending by political regions or boundaries.

2017-06 Obtain Stable Funding for the Flood Damage Reduction Program

MAWD supports stable funding (as opposed to the current even year bonding process) for the DNR's Flood Damage Reduction Program. A suggested sustainable level of funding is $25 million per year for the next 10 years.

2016-03 Tax Law Treatment of Conservation Easements

MAWD pursue a legislative initiative to define "riparian buffer" for purposes of conservation easements in state tax code and to establish an administrative procedure whereby a watershed organization would certify, for purposes of section 273.117, a conservation easement or restriction as meeting the water quantity and quality purposes cited in the tax law and therefore be eligible for a reduction in estimated market value.

URBAN STORMWATER

017-04 Limited Liability for Certified Commercial Salt Applicators

MAWD supports passage and enactment of state law that provides a limited liability exemption to commercial salt applicators and property owners using salt applicators who are certified through the established salt applicator certification program who follow best management practices.

2017-07 Creation of a Stormwater Reuse Task Force

MAWD pursue legislation requiring creation of a Stormwater Reuse Task Force with membership from Watershed Districts, Cities, Counties, State Agencies and other Stormwater Reuse implementers; and that the Stormwater Reuse Task Force should be charged with developing recommendations that further clarify and/or replace the information in the Water Reuse Report that relates to stormwater reuse best management practices.

PUBLIC DRAINAGE LAW

2019-04: Clarify County Financing Obligations and/or Authorize Watershed District General Obligation Bonding for Public Drainage Projects.

MAWD supports legislation to achieve one or both of the following:

a) To clarify that an affected county must finance a watershed district drainage project on project establishment and request of the watershed district; and
b) To authorize watershed districts to finance drainage project establishment and construction by issuance of bonds payable from assessments and backed by the full faith and credit of the watershed district; and further provide for adequate tax levy authority to assure the watershed district's credit capacity.

2019-02: Add a Classification for Public Drainage Systems that are Artificial Watercourses

MAWD supports removal of the default Class 2 categorization for public drainage systems that are artificial watercourses and supports a default Class 7 categorization for public drainage systems that are artificial watercourses.

2018-08 Reinforce Existing Rights to Maintain/Repair 103E Drainage Systems

MAWD supports legislation modeled after House File 2687 and Senate File 2419 of the ninetieth legislature (2017-2018) reinforcing that the DNR cannot restrict existing rights to maintain and repair 103E public drainage systems.

AQUATIC INVASIVE SPECIES

2017-02 Temporary Lake Quarantine Authorization to Control the Spread of AIS

MAWD supports legislation granting to watershed districts, independently or under DNR oversight, the authority, after public hearing and technical findings, to impose a public access quarantine, for a defined period of time in conjunction with determining and instituting an AIS management response to an infestation.

2019-07: Chinese Mystery Snail Designation Change and Research Needs.

MAWD supports Chinese Mystery Snail prevention and control research and to change the Chinese Mystery Snail designated status in Minnesota as a regulated species to a prohibited species.

LOCAL and STATE WATERSHED MANAGEMENT COORDINATION / REPRESENTATION

2019-01 Streamline the DNR permitting process

MAWD supports legislation, rules, and/or agency policies to streamline the DNR permitting process by increasing responsiveness, decreasing the amount of time it takes to approve permits, providing a detailed fee schedule prior to application, and conducting water level management practices that result in the DNR reacting more quickly to serious, changing climate conditions.

2019-03: Support for Managing Water Flows in the Minnesota River Basin Through Increased Water Storage and Other Strategies and Practices.

MAWD supports efforts to manage the flow of water in the Minnesota River Basin and the Minnesota River Congress in its efforts to increase water storage on the landscape; and

MAWD supports the Minnesota River Congress in its efforts to secure state and federal programs targeted specifically to increase surface water storage in the Minnesota River Watershed.

2019-05: Watershed District Membership on Wetland Technical Evaluation Panels.

MAWD supports legislation to allow technical representatives of watershed districts to be official members of wetland technical evaluation panels (TEPs).

2018-04 Require Watershed District Permits for the DNR

MAWD supports an amendment to the MN Statute § 103D.315, subd. 5, to include the MN Department of Natural Resources as a state agency required to get permits from watershed districts when applicable**.**

2018-06 Ensure Timely Updates to Wildlife Management Area (WMA) Plans

MAWD supports that Wildlife Management Area (WMA) operation and maintenance plans and/or management plans are either drafted or brought current in a timely fashion, with input from local governmental entities, to ensure their consideration in future One Watershed One Plan efforts.

2018-03 Require Timely Appointments to the BWSR Board

MAWD supports legislation that requires the Governor to make BWSR board appointments within 90 days of a vacancy or board member term expiration.

2018-09 Clean Water Council Appointments

MAWD may ask the representative of the Clean Water Council to resign when they lose their direct association to a watershed district; and that MAWD will recommend to the Governor's office that managers and/or administrators in good standing with MAWD be appointed to the Clean Water Council.

WATERSHED OFFICE OPERATIONS

2016-01 Making Human Resources Expertise Available to Districts through MAWD

MAWD research potential options of making human resources expertise available to districts and make every effort to assure districts have access to the expertise they need to effectively manage their organizations.

Resolutions to Sunset

Effective December 31, 2020

In accordance with MAWD's Sunset Policy, the following resolutions will be archived at the end of the year and will no longer be considered for future legislative and administrative platforms. The Sunset Policy says that resolutions older than five years old shall be removed from the books. If your watershed feels any of these issues should continue to be actively pursued with MAWD resources, then your watershed board needs to write up a new resolution and the issue will need to be voted on and renewed by the membership at the next annual meeting to be held in December.

2015-01 Encourage DNR to Permit Storing Water on DNR Land

MAWD supports the temporary storage of water on existing DNR-controlled wetlands in the times of major flood events.

2015-02 Road Raises for Cities with Levees

MAWD supports the State of Minnesota providing financial support through the MN DNR Flood Damage Reduction Program to cost share with local, state, and federal road authorities to provide road raises as an additional feature of flood control levee projects.

2015-05 Improvements in Process with Permitting Authorities for Water Quality Improvement Projects

MAWD supports all permitting authorities:

1. Identify all regulatory requirements and applicable standards that have been developed, formalized, and codified into applicable laws, statutes, and rules that apply to proposed water quality improvement projects within 30 days of receiving a permit application;
2. Coordinate with permit applicants on proposed water quality improvement projects as part of the technical advisory committee process;
3. Consider the development of internal technical advisory/evaluation committees within each authority to review proposed water quality improvement projects; and
4. Allow permit applicants to address all members of each authority's organization that are offering comments and concerns on a proposed water quality improvement project early on through the technical advisory committee process, instead of trying to go through one contact person at each authority.

2015-06 Establishment of Minnesota River Basin Commission

MAWD supports the legislative establishment of a MN River Basin Commission to provide effective and efficient proactive comprehensive basin planning; administration; project development; implementation; construction and maintenance or water resource projects and programs of benefit to the MN River Basin with a focus on water quantity and water quality management.

2015-07 Review Commitment to Clean Water Council Process for Recommendations to Governor and Legislature on Spending Priorities of the Clean Water Fund

MAWD supports a review of our commitment to the present Clean Water Council funding recommendation process and make a recommendation to the membership at our 2016 Annual Meeting on our continued participation in that process.

2015-08 Protect the Integrity of the Clean Water Council Appointments

MAWD supports legislation to protect the integrity of Clean Water Council appointments by supporting legislation similar to the BWSR appointment process for local government appointments, and that any state agency influence on the appointment process for local government representatives or any other specific represented groups on the Clean Water Council not be tolerated.

Item 6A.
BCWMC 7-16-20

Bassett Creek Watershed Management

MEMO

Date: July 8, 2020
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 2018 after months of study, development of concepts and input from residents at two public open houses. At the May 2018 meeting, the Commission approved Concept 3 and set a maximum 2019 levy. Also in May 2018, 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 2018. A BCWMC public hearing on this project was held on August 16, 2018 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. In September 2018, the City of Golden Valley approved the agreement with the BCWMC. The Sun Post ran an article on this project October 2018. Another public open house and presentation of 50% designs was held February 6, 2019. An EAW report was completed and available for public review and comment December 17 – January 16, 2019. At their meeting in February 2019, the Commission approved the 50% design plans. Another public open house was held April 10th and a public hearing on the water level drawdown was held April 16th. 90% Design Plans were approved at the April Commission meeting. It was determined a Phase 1 investigation of the site is not required. The City awarded a contract to Dahn Construction for the first phase of the project, which involves earthwork, utilities, and trail paving and extends through June 2020. Dewatering began late summer 2019. Tree removal was completed in early winter; excavation was ongoing through the winter. As of early June 2020, earth work and infrastructure work by Dahn Construction is nearly complete and trail paving is complete. Vegetative restoration by AES is underway including soil prep and seeding. Plants, shrubs, and trees will begin soon along with placement to goose protection fencing to help ensure successful restoration. The restoration work is nearly complete. Bare root trees will be planted in September. Project website: http://www.bassettcreekwmo.org/index.php?cID=433 .

2020 Bryn Mawr Meadows Water Quality Improvement Project (BC-5), Minneapolis (No change since May): A feasibility study by the Commission Engineer began last fall and included wetland delineations, soil borings, public open houses held in conjunction with MPRB's Bryn Mawr Meadows Park improvement project, and input from MPRB's staff and design consultants. 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. The final feasibility study was approved at the January 2019 Commission meeting. Staff discussed the maintenance of Penn Pond with MnDOT and received written confirmation that pond maintenance will occur prior to the park's reconstruction project with coordination among the BCWMC, MPRB, and MnDOT. A public hearing for this project was held September 19, 2019. The project was officially ordered at that meeting. An agreement with the MPRB and the city of Minneapolis will be considered at a future meeting. In January 2020 this project was awarded a $400,000 Clean Water Fund grant from BWSR; a grant work plan was completed and the grant with BWSR was fully executed in early May. The project and the grant award was recently the subject of an article in the Southwest Journal: https://www.southwestjournal.com/voices/green-digest/2020/02/state-awards-grant-to-bryn-mawr-runoff-project/. Project website: http://www.bassettcreekwmo.org/projects/all-projects/bryn-mawr-meadows-water-quality-improvement-project

2020 Jevne Park Stormwater Improvement Project (ML-21) Medicine Lake (No change since Oct): At their meeting in July 2018, the Commission approved a proposal from the Commission Engineer to prepare a feasibility study for this project. The study got underway last fall and the city's project team met on multiple occasions with the Administrator and Commission Engineer. The Administrator and Engineer also presented the draft feasibility study to the Medicine Lake City Council on February 4, 2019 and a public open house was held on February 28th. The feasibility study was approved at the April Commission meeting with intent to move forward with option 1. The city's project team is continuing to assess the project and understand its implications on city finances, infrastructure, and future management. The city received proposals from 3 engineering firms for project design and construction. At their meeting on August 5th, the Medicine Lake City Council voted to continue moving forward with the project and negotiating the terms of the agreement with BCWMC. Staff was directed to continue negotiations on the agreement and plan to order the project pending a public hearing at this meeting. Staff continues to correspond with the city's project team and city consultants regarding language in the agreement. The BCWMC held a public hearing on this project on September 19, 2019 and received comments from residents both in favor and opposed to the project. The project was officially ordered on September 19, 2019. On October 4, 2019, the Medicine Lake City Council took action not to move forward with the project. At their meeting on October 17th, the Commission moved to table discussion on the project. The project remains on the 2020 CIP list. Project webpage: http://www.bassettcreekwmo.org/index.php?cID=467.

2019 Westwood Lake Water Quality Improvement Project (WST-2) St. Louis Park (No change since June): 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. 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 and directed the Education Committee to assist with development of a BCWMC educational sign for inside the nature center. The draft sign was presented at the October meeting and was finalized over the winter. Construction on the new building started this spring. The Sun Sailor printed an article on the project in October 2018. All educational signs were finalized and are currently in production. Some slight modifications to the project plans were made late in 2019 at the request of city inspectors. Building and project construction is well underway. The bog was installed this spring and construction is getting close to completion. The building received an occupancy permit last week and the first kids camp was hosted in the building this week. The bog sign is installed and the bog is already providing habitat for birds, duck, and frogs. The small pond areas and stream connecting the ponds are completed (see photo of construction). The pumps and pump patio area will be installed in the coming weeks. The grand opening celebration is scheduled for September 13th. 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) (No change since Dec): 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. An Environmental Assessment Worksheet was recently approved and a construction company was awarded the contract. A pre-construction meeting was held December 14th and construction began in January. A large area of contamination was discovered during excavation in February 2019. At their meeting February 21, 2019 the Commission approved additional funding for this project in order to properly dispose of the contamination and continue building the project as designed. An amended agreement with the city of Crystal was approved at the March Commission meeting. Pond dredging and other storm sewer work was completed in early summer. The landscaping contractor completed a final herbicide treatment in preparation for seeding in late October and was set to perform dormant seeding in late October or early November.

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 2017, 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 summer of 2018 but will be delayed until summer 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. The cultural and historical survey fieldwork is complete and a final report was sent to the State Historical Preservation Office (SHPO) in February. The Hennepin County ERF grant agreement was amended to extend the term. Construction was scheduled to begin in September but will be pushed to late November. City staff updated the Commission on the latest developments with this project at the Sept 19 and Oct 17, 2019 meetings (see memos in those meeting packets). The section along Pioneer Paper will no longer be stabilized/restored due to lack of access and cooperation from Pioneer Paper. For various reasons the project did not get underway in late 2019 as planned. Currently, city and consultant staff are working to complete some permitting requirements and plan to implement the project starting in September 2020. The prolonged schedule and additional requirements resulted in an increase in the design budget of $32,500, and the construction contractor will have a rate increase as well. The city is hoping to gain access to the Pioneer Paper property so that they can complete the entire project as originally planned. The ERF grant has been recommended for extension and is in the approval process.

2014 Schaper Pond Diversion Project, Golden Valley (SL-3) (No change since Oct): 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. At the September meeting the Commission approved the Engineer's recommendation to perform a more in-depth survey of carp including transmitters to learn where and when carp are moving through the system. A Federal 319 grant for management of carp in relation to Schaper Pond and Sweeney Lake was recently approved by the MPCA and the grant agreement may be available by the December Commission meeting. At the October 17th meeting, the Commission received a report on the carp surveys and recommendations for carp removal and management. Project webpage: http://www.bassettcreekwmo.org/index.php?cID=277.

Sweeney Lake Water Quality Improvement Project, Golden Valley (SL-8): This project was added to the 2020 CIP list after receiving a federal 319 grant from the MPCA. It is partially a result of the carp surveys completed through the Schaper Pond Diversion Project and a study of the year-round aeration on Sweeney Lake. This project will treat curly-leaf pondweed in spring 2020, will remove carp in summer 2020, and will perform an alum treatment on Sweeney Lake in late summer 2020. The project was officially ordered by the Commission after a public hearing in September 2019. A public open house on this project was held via Webex on April 8th with approximately 20 people joining. The open

house presentation and a question and answer document is available online. The curly-leaf pondweed herbicide treatment was completed in May. Carp Solutions performed carp tracking and setting nets in early June. The first round of netting resulted in 334 carp removed from Sweeney Lake (mean length 620 mm, mean weight 3.1 kg), representing an estimated 29% of the total population. From Schaper Pond 82 carp removed which likely represents about 17% of the initial population. Another round of carp removals will happen at the end of July. The project website is continually updated to keep lake residents informed: Sweeney Lake Water Quality Improvement Project, SL-8).

2014 Twin Lake In-lake Alum Treatment, Golden Valley (TW-2): (No change since June 2018) 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. Project webpage: http://www.bassettcreekwmo.org/index.php?cID=278.

2013 Four Seasons Area Water Quality Project/Agora Development (NL-2) (No change since June): 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. In 2019, a new potential buyer/developer (Dominium) began preparing plans for redevelopment at the site. City staff, the Commission Engineer and I have met on numerous occasions with the developer and their consulting engineers to discuss stormwater management and opportunities with "above and beyond" pollutant reductions. Concurrently, the Commission attorney has been working to draft an agreement to transfer BCWMC CIP funds for the above and beyond treatment. At their meeting in December, Dominium shared preliminary project plans and the Commission discussed the redevelopment and potential "above and beyond" stormwater management techniques. At the April 2020 meeting, the Commission conditionally approved the 90% project plans. The agreements with Dominium and the city of Plymouth to construct the project were approved May 2020 and project designers are coordinating with Commission Engineers to finalize plans per conditions. Project webpage: http://www.bassettcreekwmo.org/index.php?cID=282.

2020 Crane Lake Improvement Project (CL-3) (No change since June): This project was constructed in conjunction with the reconstruction of Ridgedale Drive in the City of Minnetonka. At their meeting on March 21, 2019, the BCWMC approved the project's feasibility study and chose to implement Option 3 from the study. At their meeting on May 16, 2019, the BCWMC approved the 90% design plans for the project. Construction is expected in early 2020. A public hearing on this project was held on September 19, 2019. No persons commented on the project. The project was officially ordered and an agreement with the city of Minnetonka was approved at the same meeting. Project webpage: http://www.bassettcreekwmo.org/index.php?cID=490.

June 2020 update:

•Underground storm water tank was installed last fall.
•Construction of the lift station, which will pump storm water from the underground storm water tank into the rain gardens, will be completed within the next couple weeks.
•All storm sewer along Ridgedale Drive and within the area draining to the underground storm water tank is installed.
•Rain gardens are constructed (see photo; weed control needed), plantings to be installed over the next several weeks
•Underground storm water tank and pumping system to the rain gardens will be fully operational this fall.

•Educational sign design will be completed in 2020 and installation will occur in 2021.
•Additional project updates can be viewed on our City Website Project Page: https://www.minnetonkamn.gov/services/construction-projects/street-and-utility-projects/ridgedale-drive-improvements-project

Other Work

CIP Project Work and Technical Assistance

- Tracked work on Sweeney Lake Improvement Project and disseminated information to lake association and updated website
- Reviewed draft BCWMC Stream Monitoring Report and presentation for BCWMC meeting
- Discussed Main Stem Lagoon Dredging Project funding and implementation with MPRB staff
- Discussed Irving Ave. Sanitary Sewer Project and variance request with city staff and Commission Engineer

Administration and Education

- Submitted proposed 2021 Operating Budget to city clerks and staff for comment by August 1st
- Prepare and submit max levy request to county; review and comment on county staff documents on the same; worked to arrange meeting with Commissioner Fernando
- Drafted letter of support for Mississippi River drawdown; submitted to ACOE (through Chair Prom)
- Participated in Watershed Partners meeting re: anti-racism and environmental justice in watershed work
- Reviewed education column and videos; posted latest video online
- Reviewed/commented on updated WMWA website
- Participated in Watershed Based Implementation Funding Convene meeting #3
- Updated BCWMC grants spreadsheets
- Reviewed/revised/submitted progress report on Lawns to Legumes Neighborhood grant
- Updated BCWMC website domain name registration