

# Bassett Creek Watershed Management Commission



## 2019 Annual Report

Crystal • Golden Valley • Medicine Lake • Minneapolis  
Minnetonka • New Hope • Plymouth • Robbinsdale • St. Louis Park



May 2020

# Bassett Creek Watershed Management Commission 2019 Annual Report

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Cover photo: Plymouth Creek in Plymouth Creek Park, Plymouth; 1 year after restoration project

# Bassett Creek Watershed Management Commission

Executive Summary: 2019 Annual Report



## 2019: Celebrating 50 Years!

In 2019, the BCWMC celebrated 50 years of working to fulfill its mission:  
*Stewardship of Water Resources to Protect and Enhance Our Communities.*

The Bassett Creek Flood Control Commission was established in 1969 to address major flooding along the creek and to improve the 1920's era Bassett Creek Tunnel under Minneapolis. Between 1976 and 1992, the "new" Bassett Creek Tunnel was constructed through an award-winning partnership of local, state, and federal agencies.



The change to the "Bassett Creek Watershed Management Commission" coincided with a new focus on improving water quality in lakes and streams in addition to continuing to address localized flooding. In 2004, the BCWMC began its capital improvement program (CIP), installing 33 projects in the last 15 years with some impressive outcomes:



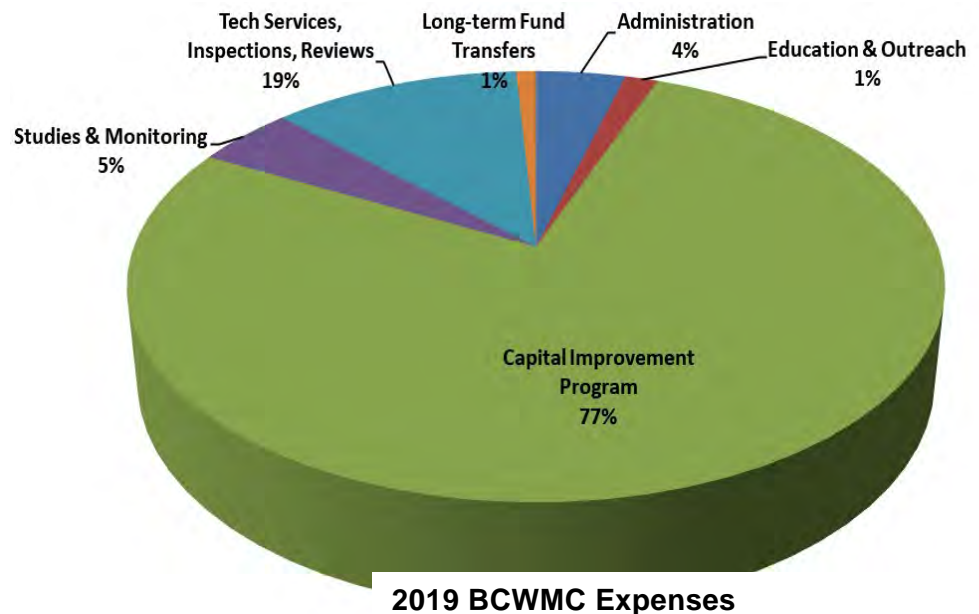
- ❖ \$15.6M levied for projects
- ❖ \$2.4M grant dollars leveraged
- ❖ 1,900 lbs of phosphorus reduced annually
- ❖ 644 tons of sediment reduced annually
- ❖ 5.7 miles of streambanks restored
- ❖ 1 lake removed from impaired waters list



Read more about BCWMC's history at: [www.bassettcreekwmo.org/about/our-history](http://www.bassettcreekwmo.org/about/our-history)

## Budget

In FY 2019, the BCWMC spent approximately \$615,000 on activities and programs and \$2.05 million on capital projects. BCWMC income included \$529,850 from member cities, \$118,000 in grants and reimbursements, and \$50,000 in development review fees. Another \$1.436 million was collected through a Hennepin County tax levy on watershed residents for the capital projects. For an itemization or more information on the BCWMC's 2019 expenditures, see the 2019 Operating Budget in Appendix A or the financial audit online.



## 2019 Highlights

*The Bassett Creek Watershed Management Commission (BCWMC) is governed by a board composed of representatives from each of the nine member cities: Crystal Golden Valley Medicine Lake Minneapolis Minnetonka New Hope Plymouth St. Louis Park and Robbinsdale. Representatives are appointed by their cities and serve three-year terms.*

**Major Projects:** The BCWMC continued to implement its capital improvements program and received critical grant funds for several projects. Information on all BCWMC projects (completed, on-going, and proposed) can be found at [www.bassettcreekwmo.org](http://www.bassettcreekwmo.org).



- **DeCola Ponds B & C Improvement Project.** Construction of this project was largely completed in 2019 including creation of a new pond and expansion of two existing ponds to alleviate flooding in Golden Valley and to improve water quality in Bassett Creek. The project received Clean Water Funds from the MN Board of Water and Soil Resources.
- **Bryn Mawr Meadows Water Quality Improvement Project.** The feasibility study was completed and this project was officially ordered. The project will reduce phosphorus by 30 lbs. per year by treating runoff from 41 acres of residential areas in Minneapolis. The project will be constructed in conjunction with the Minneapolis Park and Rec Board's redevelopment of Bryn Mawr Meadows Park. The project received a \$400,000 Clean Water Fund grant from the MN Board of Water and Soil Resources.
- **Sweeney Lake Water Quality Improvement Project.** This project in Golden Valley was officially ordered in 2019 and will vastly improve the water quality in the lake through carp management and an alum treatment slated for 2020. In 2019, this project received federal grant funding of \$330,000 through the MN Pollution Control Agency.

**Monitoring:** The BCWMC continued to assess its lakes and streams through a robust water monitoring program and completed a thorough review of its water monitoring program including reviewing goals, objectives, activities, and expenses. In 2019, the BCWMC

- Assessed the health of **Northwood and Cavanaugh Lakes** by collecting data on water quality, plankton, and aquatic plants (Appendix B),
- Completed the second year of a 2-year monitoring project on the **North Branch of Bassett Creek** including collecting data on flow, water quality, habitat, and macroinvertebrates,
- Performed continuous stream flow and water quality monitoring on **Bassett Creek at the Watershed Outlet Monitoring Program** station in partnership with the Met Council, and
- Coordinated **volunteers on seven lakes** to collect water samples and data through the Met Council's Citizen Assisted Monitoring Program.

**Education & Outreach:** The BCWMC continued engaging and educating watershed residents through various avenues including:

- Hosted a 50<sup>th</sup> **anniversary event and watershed tour** with 74 participants, a keynote address by Mark Seeley, and presentation of the BCWMC's history by long time Commission engineer, Len Kremer.
- Drafted and submitted **monthly articles** to the local newspaper, Sun Post, for an educational column on topics like reducing chlorides, planting natives, local water management, adopt-a-drain, and BCWMC history.
- Continued a partnership with Metro Blooms on the **Harrison Neighborhood Project** to engage residents, train youth, and install water quality practices.
- Engaged residents and distributed educational materials at the **Golden Valley Arts & Music Festival**.
- Continued **financial support** of West Metro Water Alliance, Metro Watershed Partners, Children's Water Festival, and Hennepin County River Watch.

# I. Annual Activity Report

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This annual report covers the Bassett Creek Watershed Management Commission's (BCWMC) activities for fiscal year 2019 (February 1, 2019—January 31, 2020). The BCWMC Annual Report was prepared to meet the Annual Reporting Requirements as set forth in Minnesota Rules Chapter 8410.0150, subparts 1, 2, and 3.

## A. 2019 Commissioners

<b>Municipality / Term Expiration</b>	<b>Commissioners</b>	<b>Alternates</b>
<b>Crystal</b> February 1, 2021	Dave Anderson	Vacant
<b>Golden Valley</b> February 1, 2021	Stacy Harwell, Treasurer	Jane McDonald Black
<b>Medicine Lake</b> February 1, 2021	Clint Carlson	Gary Holter
<b>Minneapolis</b> February 1, 2019	Michael Welch, Vice Chair	Vacant
<b>Minnetonka</b> February 1, 2022	Michael Fruen	Bill Monk
<b>New Hope</b> February 1, 2022	John Elder	Pat Crough
<b>Plymouth</b> February 1, 2020	Jim Prom, Chair	John Byrnes (until March 31) Catherine Cesnik (appointed April 11)
<b>Robbinsdale</b> February 1, 2020	Mike Scanlan, Secretary (until May 20) Vacant after May 20	Wayne Sicora
<b>St. Louis Park</b> February 1, 2020	Jim de Lambert, Secretary starting June	Patrick Noon

## B. BCWMC Staff and Consultants

### Administrator

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## C. Mission Statement, MAWD Membership, Watershed Management Plan, Goals

The mission statement of the BCWMC is *the stewardship of water resources to protect and enhance our communities.*

In 2019, the BCWMC became a member of the Minnesota Association of Watershed Districts (MAWD). The BCWMC Administrator attended Metro MAWD meetings and represented MAWD as a watershed management organization (WMO) on the Local Government Water Roundtable Work Group. The work group met on four occasions to discuss and make recommendations on BWSR's Watershed-based Funding.

The [2015 Bassett Creek Watershed Management Plan](#) (Plan) was adopted in September 2015. The annual implementation program (Table 5-4 in Plan), Capital Improvement Program (Table 5-3 in Plan), monitoring program (Appendix A in Plan), and education and outreach program (Appendix B in Plan) are being implemented and progress is being documented and evaluated.

The BCWMC's goals, as stated in its *2015 Watershed Management Plan*, fall under the categories of water quality, flood control, erosion and sediment control, stream restoration, wetland management, groundwater, public ditches, and public involvement and information. The list of nineteen goals can be found in Section 4 of the Watershed Management Plan.

Minor amendments to the Plan were adopted in 2017 and 2018 to revise requirements for development or redevelopment of linear projects, and to update the Capital Improvement Program (Table 5-3 in Plan).

## D. 2019 Activities

The BCWMC implemented the following projects and programs in 2019. Work associated with review of development proposals is listed in Section E. Work related to water monitoring is found in Section F.

### 1. Capital Improvement Program (CIP)

The BCWMC continued to implement its capital improvement program. The complete 10-year CIP can be found in Table 5-3 in Section 5.0 of the 2015 Watershed Management Plan. Information, photos, related documents (including final reports of completed projects), and progress on projects can be found at: <http://www.bassettcreekwmo.org/projects>. In 2019, progress on CIP projects included:

- **PROJECT COMPLETED:** In May 2018, construction was completed on the Plymouth Creek Restoration Project in Plymouth. Throughout 2018 and 2019, vegetation was planted and maintained. Some small repairs to banks were completed in 2019. In December 2019, the project was officially closed, a final project report was prepared and a final grant report was submitted to the BWSR.
- **PROJECT COMPLETED:** Phase 2 of the Main Stem Restoration Project 10th Ave. to Duluth St. in Golden Valley including maintenance of new vegetation. Work was completed in 2018 and a final project report was approved in 2019.
- **CONSTRUCTION PENDING:** Project designs were completed in 2017 for the Main Stem Erosion Repair Project in Minneapolis near the Fruen Mill and downstream of Cedar Ave. Construction was expected in 2018 or 2019 but was delayed due to the unanticipated need for a field based cultural and historical survey of the project area required by the U.S. Army Corps of Engineers and failed negotiations with Pioneer Paper (a significant landowner and access grantor). This project received Environmental Response Funds from Hennepin County. Construction is planned for summer 2020.
- **CONSTRUCTION COMPLETED:** Construction is complete and vegetation management is continuing on the Bassett Creek Park Pond Phase I Dredging Project: Winnetka Pond in Crystal. The project removed 18,400 cubic yards of sediment from the pond to increase permanent pool volume and sediment storage volume resulting in annual reductions of sediment and phosphorus loading to the North Branch of Bassett Creek (estimated 51.7 lbs of total phosphorus and 1,823 lbs of total suspended solids). Habitat for wildlife and pollinators will also be improved with a native buffer and goose management.
- **PLANNING UNDERWAY:** Feasibility study was nearly completed for the Bryn Mawr Meadows Water Quality Project in Minneapolis. Design and construction will coincide with park reconstruction by Minneapolis Park and Rec Board in 2022. A Clean Water Fund grant was awarded for this project in early 2020.
- **CONSTRUCTION UNDERWAY:** Late in 2019, construction got underway on the Westwood Lake Improvement Project in St. Louis Park. This project is part of a much larger reconstruction project at the Westwood Hills Nature Center (WHNC). The BCWMC CIP portion of the project includes installation of a linear water feature that captures and treats roof runoff and provides educational activities, along with a large educational sign describing watersheds and residents' role in their protection.

- **CONSTRUCTION UNDERWAY:** All of the design and much of the construction was completed for the DeCola Ponds B & C Improvement Project in Golden Valley. The project will improve flood storage volumes within the project area, develop additional water quality treatment volume, and remove accumulated sediment that has collected in the north end of DeCola Pond B. The project will alleviate local flooding around Medicine Lake Road, will improve water quality downstream, and will improve ecology and wildlife habitat, enhance active and passive recreation opportunities, and provide educational opportunities.
  
- **CONSTRUCTION UNDERWAY:** Project designs and some construction was completed for the Crane Lake Water Quality Improvement Project in the City of Minnetonka. The project is being constructed in conjunction with the reconstruction of Ridgedale Drive in the City of Minnetonka and will treat runoff from 13.3 acres of developed land that currently flows untreated into Crane Lake.
  
- **PLANNING UNDERWAY:** The feasibility study for the Jevne Park Water Quality Improvement Project in the City of Medicine Lake was approved in April and the project was officially ordered in September but no agreement for design and construction was yet approved.
  
- **PLANNING UNDERWAY:** The Sweeney Lake Water Quality Improvement Project was awarded a federal 319 grant through the Minnesota Pollution Control Agency to treat curly-leaf pondweed, manage and remove carp, and perform an alum treatment on Sweeney Lake. A work plan and grant agreement were developed; work is slated for 2020.
  
- **STUDIES UNDERWAY:** Feasibility studies for three projects slated for 2021 construction began including the Main Stem Lagoon Dredging Project in Minneapolis (BC-7), the Parkers Lake Drainage Improvement Project (PL-7) and the Mt. Olivet Stream Restoration Project (ML-20)
  
- **PLANNING UNDERWAY:** Two different projects for the Four Seasons Area Water Quality Project have been started and abandoned for different reasons. In early 2019, a new redeveloper began making plans to redevelop the Four Seasons Mall and to add water quality management components higher than required treatment levels. The BCWMC began negotiating with the developer to provide CIP funds for the additional treatment.
  
- **REMOVED FROM CIP:** The proposed Lakeview Park Pond Project in Golden Valley was slated for construction 2013. However, during the design phase of this project, it was determined that the project was not feasible due to site conditions and possible effects to neighboring homes. CIP funds were held while other alternatives in the area were sought, but no other viable options were presented. The Commission officially closed this project and moved the remaining CIP funds to the Commission's Closed Project Account.

## **2. Grant Administration**

- Submitted final project report for BWSR Clean Water Fund Grant for the Plymouth Creek Restoration Project in Plymouth. (2017 Grant)



- Submitted final project report for Hennepin County Opportunity Grant for the Plymouth Creek Restoration Project in Plymouth.
- Submitted final grant report for Met Council Stormwater Grant for Harrison Neighborhood Project.
- Submitted final grant report for Hennepin County Aquatic Invasive Species (AIS) Prevention Grant for augmented aquatic vegetation surveys and development of AIS education materials.
- Submitted grant reports for DNR-FEMA Floodplain Modeling and Mapping Project.
- Submitted interim grant reports for Clean Water Fund grant for Community Engagement for Harrison Neighborhood Project.
- Submitted interim grant reports for Metro Watershed Based Funding for DeCola Ponds B & C Improvement Project.
- Participated in Hennepin County Chloride Consortium funded with Metro Watershed Based Funding.
- Received Federal 319 grant through MPCA for Sweeney Lake Water Quality Improvement Project; developed work plan and executed grant agreement.

### **3. Annual Report**

The BCWMC prepared the 2018 Annual Report as set forth in the Minnesota Rules Chapter 8410.0150. The report was submitted to the Board of Water and Soil Resources and is available online at the Bassett Creek Watershed Management Commission website at <http://www.bassettcreekwmo.org/document/annual-report-budget>.

### **4. Citizen Participation**

The BCWMC encourages citizen participation, including providing an opportunity at each monthly BCWMC meeting for the Commission to hear citizen-input about agenda and non-agenda items. The BCWMC posts its meeting calendar, upcoming meeting agendas, meeting materials, and previous meeting minutes on its website ([www.bassettcreekwmo.org](http://www.bassettcreekwmo.org)) to provide citizens an opportunity to attend BCWMC and BCWMC Committee meetings and to monitor BCWMC actions. The BCWMC held a public hearing on September 19, 2019, regarding the 2020 proposed CIP projects: Bryn Mawr Meadows Water Quality Improvement Project, Jevne Park Stormwater Improvement Project, Crane Lake Improvement Project, and Sweeney Lake Water Quality Improvement Project. (See Section H below for further information on public involvement and education.)

### **5. BCWMC Website and Social Media**

The BCWMC regularly maintained and updated its website which features easily accessed data and information on the priority lakes and streams and BCWMC Capital Improvement Projects, along with a meeting and event calendar, interactive maps, and a document library. A “latest news” section and “featured project” on the homepage are updated regularly. The BCWMC contracts with HDR, Inc. to host the website and provide technical assistance, as needed. (Appendix D includes website analytics.)

In 2019, the BCWMC contracted with the Lawn Chair Gardener to post weekly information on the BCWMC Facebook page. The BCWMC is working on increasing the number of followers to further

disseminate its news, educational messages, and information. (Appendix D includes social media analytics.)

## **6. Water Quantity**

The BCWMC continued its lake- and stream-gauging program. The lake-gauging program consisted of collecting lake-level readings at Medicine Lake, Sweeney Lake, Parkers Lake, Westwood Lake, Crane Lake (Ridgedale Pond), Northwood Lake and the Theodore Wirth Park storage area (upstream of the Highway 55 control structure). In 2019, this work also included surveying/re-establishing benchmarks on some of the waterbodies. Lake levels were measured once per month through October.

The stream-gauging program consisted of periodically surveying stages or inspecting the creek during periods of high flow. The BCWMC also participated with the Metropolitan Council on the watershed outlet monitoring program (WOMP) designed to continuously monitor flow and water quality.

## **7. Watershed Inspections**

As of the 2014 fiscal year, the BCWMC no longer performs monthly erosion control inspections of construction sites within the watershed. The watershed inspection program includes BCMWC inspection of sites or sending communications to developers, only at the request of the member cities or the Commission. No inspections were requested or performed in 2019.

## **8. Flood Control Project Inspections**

On October 19, 25, 2019, the BCWMC performed its annual Flood Control Project inspections. The conditions of the flood control features were inspected and erosion, settlement, sedimentation, and structural issues were recorded, compiled into a report dated December 11, 2019, and reported to the Commission at its December 19, 2019 meeting. The BCWMC distributed its findings and recommendations to the Minnesota Department of Natural Resources, the U.S. Army Corps of Engineers (Corps), and staff at the BCWMC member cities.

On October 22-24, 2019, the BCWMC performed its 5-year double box culvert inspection. A separate report will be prepared during 2020 regarding the box culvert inspection.

The Commission engineer coordinated with Corps staff to schedule the Bassett Creek deep tunnel (2nd Street Tunnel) inspection during early November 2018. The water control plan, including lowering the middle pool of the Mississippi River, was not approved and the inspection was cancelled. Based on further coordination with the Corps, the Commission engineer scheduled the tunnel inspection for the week of February 25, 2019 to minimize navigation impacts and minimize disruptions to Xcel Energy's operation of the St. Anthony Falls hydropower dam. The Corp solicited public comments on the proposed drawdown from the local community and stakeholders. Based on public comments received, the Corps suspended its plans to drawdown the middle pool. The Corp is planning to revise its water control plan to allow lowering the middle pool for routine inspections. The Commission engineer will continue to coordinate with the Corps to reschedule the tunnel inspection.

## **9. XP-SWMM Phase II Project & FEMA Modeling Project**

At their April 16, 2015 meeting, the BCWMC approved the XP-SWMM Phase 2 work, to be phased over BCWMC fiscal years 2015 and 2016. The BCWMC continued to develop the XP-SWMM Phase 2 model during 2016. The work involved updating the watershed-wide XP-SWMM model developed in 2012 by

further subdividing the watershed divides, incorporating upstream storage in ponds and wetlands, including the associated storm sewer data, using new soils data, incorporating Atlas 14 precipitation data, adjusting vertical datum's, performing flow monitoring, calibrating the model, and preparing a report. The preliminary results of the BCWMC XP-SWMM Phase 2 modeling were presented to the BCWMC Commissioners in January 2017 and the final report and the resulting updated floodplain elevations were approved in May 2017. The 2015 Watershed Management Plan was updated to reflect the new floodplain elevations and a fact sheet was developed about the modeling project and updated floodplain elevations.

The XP-SWMM Phase 2 modeling project was partially funded by a Flood Damage Reduction Grant from the MN Department of Natural Resources (MnDNR).

In 2017, the MnDNR approached the BCWMC about updating the Federal Emergency Management Agency (FEMA) hydrologic and hydraulic modeling by leveraging the XP-SWMM Phase 2 model and creating the supporting GIS files for the Bassett Creek watershed with federal grant funds that would be administered through the MnDNR. Early in 2018, the BCWMC entered into an agreement with the MnDNR to perform this work, building on the newly completed XP-SWMM model. Updates to the XP-SWMM Phase 2 model were completed in early 2018 before beginning the FEMA modeling update. In 2018, the model with the updated hydrology was submitted to the MnDNR, along with a narrative describing the changes to the model to reflect recent developments/projects in the watershed. Also in 2018, the MnDNR authorized additional survey work (completed in December 2018); the model was further updated to incorporate the results of the MnDNR and BCMWC (Barr) surveys.

In 2019, the model with updated hydraulics was submitted to the MnDNR, along with a narrative describing the hydraulic changes to the model. In October 2019, the Interagency Hydrology Review Committee approved the updated model. Work that began in 2019 and will continue in 2020 includes developing floodplain, floodway, cross section, and depth grid GIS shapefiles, developing inundation maps, and performing work in support of future community meetings.

In January 2020, the BCWMC executed an amendment to their grant agreement and work scope with the MnDNR to perform additional work and extend the schedule. This project will continue through March 2021.

**10. Development Proposals**

The following table shows the number of BCWMC development proposals reviewed for conformance to BCWMC policies (including applications submitted in previous years but reviewed during the current year). The BCWMC also reviewed eight MnDNR appropriations/dewatering permit applications and one WCA submittal.

**Development Proposals Reviewed per Year**

<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>
28	38	44	44	38	35	41	37	32

See Section E: Project Reviews.

### 11. Review and Adoption of Municipal Plans and Adjacent WMO Plans/Plan Amendments

In 2018 and 2019, the BCWMC reviewed and approved the local water management plans of all nine member cities, each by resolution and determined that each plan was prepared in accordance with the requirements of Minnesota Statutes, Section 103B.235 and Minnesota Rules, Parts 8410.0160 and 8410.0170, and that they contained the requirements for a local plan, and were consistent with the Commission's water management plan.

<b>City</b>	<b>Date Approved</b>	<b>BCWMC Resolution No.</b>
Crystal	12/20/18	18-10
Golden Valley	9/20/18	18-06
Minneapolis	11/14/18	18-09
Minnetonka	12/20/18	18-11
New Hope	11/14/18	18-07
Plymouth	11/14/18	18-08
Medicine Lake	2/21/19	19-05
Robbinsdale	2/21/19	19-04
St. Louis Park	3/21/19	19-08

## 12. Aquatic Plant Management and Aquatic Invasive Species

In 2019, the Commission continued to implement the approved [recommendations of the APM/AIS committee](#) and the [AIS Rapid Response Plan](#) by 1) partnering with Three Rivers Park District to control curly-leaf pondweed in Medicine Lake, 2) using AIS Prevention Grant funds from Hennepin County to perform aquatic plant surveys in eight lakes in order to detect early AIS infestations (none were found), and 3) using AIS Prevention Grant funds from Hennepin County to create AIS identification and education cards specific to six lakes in the watershed. Lake residents have volunteered to distribute the education materials to their neighbors and all lake residents. Final grant report is available [here](#).

## 13. Technical Advisory Committee

Technical Advisory Committee meetings are open to the public and the meeting times and dates are posted on the BCWMC's website. The BCWMC Technical Advisory Committee (TAC) met seven times in 2019 to review and work on the items below. TAC members also regularly attend and participate in regular monthly Commission meetings and participated on the Education Committee.

- Develop the 2020 – 2024 Capital Improvement Program list
- Review and provide suggested additions/revisions to CIP Prioritization process (see Section 14 below)
- Assisted with 50<sup>th</sup> Anniversary Event and Watershed Tour planning
- Make recommendations regarding watershed review of development projects using proprietary manufactured treatment devices
- Review Commission's water monitoring program including identifying priority program objectives, reviewing how/if objectives are being met, and recommending changes to the monitoring program

## 14. Capital Improvement Program Prioritization Committee

In 2018, a committee was formed comprised of the Commission Administrator, Engineer, two TAC members, and six commissioners. The committee met five times in 2018 and once in 2019.

At the February 2019 meeting, the Commission approved the committee's and TAC's corresponding [recommendations](#) to 1) use a pollution hotspot map and a matrix to score potential CIP projects to help with prioritizing implementation; and 2) Commission staff and Commissioners become more involved in the initial development of the 5-year CIP.

## 15. Impaired Waters and Total Maximum Daily Loads (TMDL) Studies

The following water bodies in the Bassett Creek Watershed are listed in the Minnesota Pollution Control Agency's (MPCA) 2018 *"Inventory of Impaired Waters"*. The inventory includes listings of (1) impaired waters that require the development of a TMDL study, (2) impaired waters that have an approved TMDL study, but are not yet meeting water quality standards, and (3) impaired waters from natural causes that do not require a TMDL study. The inventory is available at the MPCA's Impaired Waters website: <http://www.pca.state.mn.us/water/tmdl/tmdl-303dlist.html>.

<b>Water Body (Lake/River ID #)</b>	<b>Pollutant or Stressor (Year of Listing)</b>
Bassett Creek from Medicine Lake to Mississippi River (07010206-538)	Fish bioassessments (2004) Fecal coliform (2008) Chloride (2010)
Plymouth Creek from Headwaters to Medicine Lake (07010206-526)	E. coli (2014) Chloride (2014)
North Branch Bassett Creek from Northwood Lake to Bassett Creek (07010206-552)	E. coli (2014)
Sweeney Lake (27-0035-01)	Nutrient/Eutrophication Biological indicators (2004) Chloride (2014)
Wirth Lake (27-0037-00)	Nutrient/Eutrophication Biological indicators (2002) – REMOVED from Impaired Waters List (2014) Mercury in fish tissue (1998) <sup>1</sup> Chloride (2016)
Medicine Lake (27-0104-00)	Nutrient/Eutrophication Biological indicators (2004) Mercury in fish tissue (1998) <sup>1</sup>
Parkers Lake (27-0107-00)	Mercury in fish tissue (1998) <sup>1</sup> Chloride (2014)
Spring Lake (27-0654-00)	Chloride (2014)
Northwood Lake (27-0627-00)	Nutrient/Eutrophication Biological indicators (2004)

<sup>1</sup> The MPCA completed a statewide mercury TMDL that was approved 2007

- Bassett Creek Fish Bioassessment Listing**—In the Final EPA-Approved MPCA 2004 CWA 303(d) List of Impaired Waters, the Main Stem of Bassett Creek, from Medicine Lake to the Mississippi River, was listed as impaired for fish (biota). In response to this listing, the MPCA completed fish sampling of the creek in 2008. The MPCA is currently reviewing the existing biota standards/listing criteria. The TMDL will be completed as part of the future watershed-wide TMDL (see “Watershed-wide TMDL”).
- Bassett Creek Fecal Coliform Listing and E. coli listings for Plymouth Creek and North Branch, Bassett Creek** –In the 2008 Final TMDL List Inventory of all Impaired Waters, Bassett Creek, from Medicine Lake to the Mississippi River, was listed as impaired for fecal coliform. In response to this listing, the BCWMC and the MPCA cooperated in collecting and analyzing E. coli samples of Bassett Creek between July 2008 and June 2010. The samples confirmed the presence of E. coli bacteria. The Bassett Creek watershed is included in the Upper Mississippi River Bacteria TMDL project. Additional data for the Upper Mississippi River E. coli TMDL was collected in 2010 and 2011, and identification of the likely sources of bacteria pollution began in 2011 and continued in 2013. Stakeholder meetings also continued in 2013. The TMDL report incorporated the draft 2014 impaired waters listings for E. coli in Plymouth Creek and North Branch, Bassett Creek, and was approved in 2014. The BCWMC provided a comment letter on the TMDL study in May, 2014, reviewed the TMDL Implementation Plan in 2015, and attended the June 25, 2015 TAC meeting to discuss the plan with MPCA staff. The final TMDL Implementation Plan was approved by the MPCA in February, 2016. The Upper Mississippi River E. coli TMDL project website maintained by the MPCA is at <https://www.pca.state.mn.us/water/tmdl/upper-mississippi-river-bacteria-tmdl-project>.

- **Sweeney Lake TMDL Study**—In the *Final EPA-Approved MPCA 2004 CWA 303(d) List of Impaired Waters*, Sweeney Lake was listed as impaired due to excess nutrients (phosphorus). The TMDL was approved on August 10, 2011.
- **Wirth Lake TMDL Study**—In the *Final EPA-Approved MPCA 2004 CWA 303(d) List of Impaired Waters*, Wirth Lake was listed as impaired due to excess nutrients (phosphorus in amounts greater than the state’s goal of 40 micrograms per liter). The Wirth Lake TMDL and implementation plan were approved October 25, 2010. The implementation plan identified one project—modifying the Wirth Lake outlet structure to prevent flow from Bassett Creek to Wirth Lake during flood periods—to achieve the annual load reductions prescribed in the TMDL. The Wirth Lake Outlet Modification Project was completed in 2012 with partial funding from a BWSR Clean Water Fund grant. The project reduces phosphorus loading to the lake by an estimated average of 55 pounds per year. A detailed comparison of the lake water quality during the past ten years with MPCA’s eutrophication standards revealed that Wirth Lake was no longer impaired for excess nutrients. A request for re-categorization was submitted to MPCA in October, 2013. In December, 2013 the BCWMC submitted a technical memorandum to MPCA requesting delisting of Wirth Lake for nutrient/eutrophication biological indicators. The memo provided a detailed water quality evaluation for MPCA consideration during the formal comment period for development of the draft 2014 impaired waters list. MPCA removed Wirth Lake from the Impaired Waters list in July, 2014.
- **Medicine Lake TMDL Study**—In the *Final EPA-Approved MPCA 2004 CWA 303(d) List of Impaired Waters*, Medicine Lake was listed as impaired due to excess nutrients (phosphorus). The TMDL and implementation plan were approved on February 8, 2011.
- **Twin Cities Metro Area (TCMA) Chloride Project** —In the *2014 Draft TMDL List Inventory of all Impaired Waters*, MPCA proposed several new impairment listings for chloride in September, 2013. Following responses to comments from BCWMC, five listings (tabulated above) remained on the 2014 Proposed Impaired Waters List (updated 4/15/2014). Based on the available monitoring data for chloride, three BCWMC water bodies—Northeast drainage to Medicine Lake, the Rockford Road drainage to Medicine Lake and Medicine Lake, were placed in a category of high-risk waters, which can be viewed as a watch list for future changes. The Twin Cities Metropolitan Area Chloride TMDL and Chloride Management Plan were approved in 2016. The TCMA Chloride Management Plan is intended to balance the public safety needs for deicing with attainment of the chronic and acute water quality standards for chloride. (The BCWMC provided comments on the draft TMDL Report and Chloride Management Plan in August 2015.) The management plan includes a performance-based approach for meeting chloride TMDLs and is also intended to protect water bodies with water quality that is currently better than the standard. A winter maintenance assessment tool was developed to support TMDL implementation efforts. The Chloride TMDL and road salt/water quality project website maintained by the MPCA is at <https://www.pca.state.mn.us/water/road-salt-and-water-quality>.
- **TMDL Implementation Reporting** Although the BCWMC is not a MS4, the Wirth Lake, Medicine Lake, and Sweeney Lake TMDLs assigned the BCWMC a role in the implementation of the TMDLs. For example, the Medicine Lake TMDL calls for the BCWMC to serve as the “convener of action for the categorical TMDL, but not as a responsible entity.” The BCWMC’s interpretation of this role is that the BCWMC should track implementation of the TMDLs, which would likely include the following tasks:

- Reporting on TMDL implementation activities to the MPCA. TMDL progress reports will be due one year after the MPCA issues the new MS4 permit. However, the new MS4 permit was not issued in 2012, so the BCWMC did not develop the implementation reports. The new MS4 permit became effective on August 1, 2013, which means the TMDL progress reports will be due each year after that, in June.
- Estimating and reporting progress towards achieving the assigned wasteload allocations. The BCWMC’s watershed P8 model, originally completed in 2013 and updated annually, is an essential tool for estimating reductions in phosphorus loading.
- Monitoring lake water quality on an annual basis. See Section G “2018 Water Quality Monitoring Data and Studies” regarding monitoring of these lakes in 2019.
- Tracking implementation of projects and quantifying progress towards meeting the TMDL allocations for the MS4s in the impaired watersheds.

## E. BCWMC Project Reviews

The following table includes review of development proposals, Wetland Conservation Act submittals, and other plans that were submitted to the BCWMC for review. The list does not include review of capital improvement projects, and review of MnDNR appropriations/ dewatering permits.

### Proposed Projects Reviewed by BCWMC in FY 2019 <sup>1</sup>

Application Form	Project Name	Date Submitted	City	Type
2016-17	Southwest Light Rail Transit (SWLRT) - Resubmittal	1/28/2019	MPLS	Street/ Hwy/ Trails/ Utility/ Municipal
2017-35	Golden Valley Road Senior Living	10/27/2017	GV	Multi-residential
2017-37A	Mpls Impound Lot Improvements and Temporary Surcharge	4/27/2018	Mpls	Street/ Hwy/ Trails/ Utility/ Municipal
2018-31	Rockford Rd/I-494 Interchange	1/9/2019	PLY	Street/ Hwy/ Trails/ Utility/ Municipal
2018-32	Plymouth Medical Office Bldg.	1/28/2019	PLY	Commercial/ Industrial/ Institutional
2019-01	Rivertree School Expansion	2/22/2019	CRY	Commercial/ Industrial/ Institutional
2019-02	Golden Valley 2019 PMP	2/23/2019	GV	Street/ Hwy/ Trails/ Utility/ Municipal
2019-03	5005 Bassett Crk Dr Fence	2/26/2019	GV	Single-family Home
2019-04	CenterPoint MBLSW Winnetka Ave	3/4/2019	Multiple Cities	Street/ Hwy/ Trails/ Utility/ Municipal
2019-05	Candlelight Terrace St. Reconstruction	3/13/2019	PLY	Street/ Hwy/ Trails/ Utility/ Municipal
2019-06	Marsh Run Apartments	3/22/2019	MTKA	Multi-residential
2019-07	Sandburg Middle School Roof	3/25/2019	GV	Commercial/ Industrial/ Institutional
2019-08	Capri Theater Addition	3/29/2019	MPLS	Commercial/ Industrial/ Institutional



Application Form	Project Name	Date Submitted	City	Type
2019-09	Wayzata E. Middle School Addition	4/2/2019	PLY	Commercial/ Industrial/ Institutional
<b>2019-10</b>	<b>Ridgedale Dr. Improvements</b>	<b>4/11/2019</b>	<b>MTKA</b>	<b>Street/ Hwy/ Trails/ Utility/ Municipal</b>
2019-11	Golden Hills Parking	4/26/2019	GV	Commercial/ Industrial/ Institutional
<b>2019-12</b>	<b>Theo Wirth GC Cart Path</b>	<b>5/1/2019</b>	<b>GV</b>	<b>Street/ Hwy/ Trails/ Utility/ Municipal</b>
2019-13	Daikin Testing Addition	5/6/2019	PLY	Commercial/ Industrial/ Institutional
2019-14	510 Cloverleaf Dr (Channel Maint. Fund)	5/30/2019	GV	Single-family Home
2019-15	Automotive Concepts Facility	6/11/2019	NH	Commercial/ Industrial/ Institutional
2019-16	Grainger Site Improvement	7/15/2019	PLY	Commercial/ Industrial/ Institutional
2019-17	Days Inn Remodel	7/15/2019	PLY	Commercial/ Industrial/ Institutional
2019-18	Northwest Campus Improvements	7/18/2019	PLY	Commercial/ Industrial/ Institutional
2019-19	Ascension Lutheran Church Addition	7/18/2019	PLY	Commercial/ Industrial/ Institutional
2019-20	Damascus Way Re-Entry Center	8/7/2019	GV	Multi-residential
2019-21	Association Free Lutheran Bible School	9/5/2019	PLY	Commercial/ Industrial/ Institutional
2019-22	Morrie's Cadillac Parking Expansion	9/9/2019	GV	Commercial/ Industrial/ Institutional
2019-23	Banner Outlot A	9/13/2019	PLY	Commercial/ Industrial/ Institutional
2019-24	Plymouth Senior Living	10/31/2019	PLY	Multi-residential
<b>2019-25</b>	<b>Four Seasons Mall Redevelopment</b>	<b>11/15/2019</b>	<b>PLY</b>	<b>Commercial/ Industrial/ Institutional</b>
<b>2019-26</b>	<b>215 Peninsula Road 215 Peninsula Road - WCA</b>	<b>11/25/2019</b>	<b>ML</b>	<b>Single-family Home</b>
2019-27	Suite Living Crystal	1/8/2020	CRY	Multi-residential
<b>2019-28</b>	<b>Plymouth 2020 Street Reconstruction</b>	<b>1/31/2020</b>	<b>PLY</b>	<b>Street/ Hwy/ Trails/ Utility/ Municipal</b>

<sup>1</sup>Projects in **bold** were presented for review and comment at a BCWMC meeting.

## F. Water Quality Monitoring Data and Studies

The following water quality monitoring and water quality studies were performed in 2019:

- **Schaper Pond Effectiveness Monitoring** – In late 2015, the City of Golden Valley installed a floating water baffle in Schaper Pond to improve the pond's phosphorus removal and reduce the phosphorus loading to Sweeney Lake (BCWMC CIP project SL-3). In 2017, the BCWMC monitored

the inflows and outflow from Schaper Pond to understand the impact of the baffle installation on Schaper Pond's ability to remove pollutants. In 2018, the Commission [results of the effectiveness monitoring](#) were presented and further analysis of the carp population began. In October 2019, the final results of the carp population study were presented to the Commission. As a result, the carp removal and management recommendations were incorporated into the Sweeney Lake Water Quality Improvement Project, a grant-funded CIP project to be implemented in 2020.

- **Citizens Assisted Lake Monitoring Program (CAMP)** — The BCWMC participated with the Metropolitan Council Environmental Services (MCES) in its citizen-assisted lake-monitoring program (CAMP). In 2019, citizen volunteers monitored the following lakes: Twin Lake and Sweeney Lake in Golden Valley, Northwood Lake in New Hope, two sites on Medicine Lake in Medicine Lake and Plymouth, Parkers Lake and Lost Lake in Plymouth, and Westwood Lake in St. Louis Park. Reports that include CAMP monitoring results can be found on the Met Council website at: <https://metro council.org/Wastewater-Water/Services/Water-Quality-Management/Lake-Monitoring-Analysis.aspx?source=child>
- **Bassett Creek WOMP Station**—Stream monitoring was performed in cooperation with the Metropolitan Council Environmental Services (MCES) as part of the stream monitoring and watershed outlet monitoring program (WOMP). The BCWMC contracts with Wenck & Associates to perform monitoring activities at this station. <http://www.metro council.org/Wastewater-Water/Services/Water-Quality-Management/Stream-Monitoring-Assessment.aspx?source=child>
- **BCWMC Stream Monitoring** – In 2019, the Commission began the second year of its new monitoring program aimed at more fully assessing the flow and water quality in its major creeks. In 2018, the Commission installed seasonally-permanent monitoring equipment on the North Branch Bassett Creek in Crystal. Both grab and composite water samples were collected and analyzed for nutrients, solids, bacteria, chlorides, dissolved oxygen, pH, conductivity, etc.
- **Routine Lake Monitoring**—In 2019, the BCWMC monitored the water quality of Northwood Lake in New Hope and Cavanaugh Lake in Plymouth. Water samples were collected from the deepest location in each lake on six occasions from April through September 2019 and analyzed in the laboratory for total phosphorus, soluble reactive phosphorus, total nitrogen, chlorophyll *a*, and chlorides. Dissolved oxygen, temperature, specific conductance, pH, oxidation reduction potential (ORP), Secchi disc transparency (Secchi depth), and turbidity were measured in the field. On five occasions from June through September, water samples were collected and analyzed for phytoplankton (algae) and zooplankton (microscopic crustaceans). An aquatic plant survey was also performed on two occasions, in June and August.

Reports for each lake are included in Appendix B and are available on the BCWMC website.

- **Monitoring by Partners** – In 2019, Medicine Lake in Plymouth and Wirth Lake in Golden Valley were monitored by the City of Plymouth/Three Rivers Park District and the Minneapolis Park and Rec Board, respectively.
- **River Watch Program**—The BCWMC continues to support the Hennepin County Environmental Services' River Watch Program. The program began in 1995 and uses student volunteers to conduct biological monitoring as a means of monitoring water quality. The grading scale used in River Watch takes into account three major biotic indices used routinely in biological monitoring

programs including the Family Biotic Index, EPT (Ephemeroptera, Plecoptera, and Trichoptera), and the number of families.

Students have been monitoring Bassett Creek since 1999. There was only one River Watch site in the Bassett Creek watershed in 2019. The *Hennepin County River Watch Report 2018* is available [here](#).

## G. Watershed Communication/Public Education

In accordance with Minnesota Rules, Chapter 8410.0100, Subpart 4, the BCWMC utilized the following information sources for providing information to the general public:

- **Improvements and Development Requirements**—The document *Requirements for Improvements and Development Proposals*, prepared by the BCWMC (updated in 2017), is posted for use and reference on the BCWMC’s website at [www.bassettcreekwmo.org/developer](http://www.bassettcreekwmo.org/developer). In 2019, the document was updated to include new procedures for submitting projects that propose to use Manufactured Treatment Devices.
- **Website**—The BCWMC launched a new user-friendly website in 2016 and maintained the information including latest news, contact list, meeting calendar, meeting materials, watershed plan, data, and projects. In 2019, there were 4,978 unique users and almost 8,000 sessions. A copy of the website Usage Report from January 1, 2019, through December 31, 2019, is included in Appendix D.
- **BCWMC Meeting Packet**— Each month in 2019 the BCWMC posted electronic all meeting materials on its website, e-mailed the link to approximately 40 parties, and mailed paper copies of materials to those requesting them (approximately 13 people).
- **Publications**—The Commission published its public hearing notices in its official publication, *Finance and Commerce* as well as other publications including the Sun Post and Minneapolis neighborhood newsletters.
- **West Metro Water Alliance (WMWA) Membership** – The BCWMC continued its participation in WMWA along with several watershed management and other water-related organizations in the west Metro area. Through WMWA, these organizations collaborated on educational campaigns including the Watershed PREP program aimed at educating 4th grade students about water resources and the impacts of stormwater. Watershed PREP has three individual lessons meeting State education standards. Lesson 1, *What is a Watershed and Why do We Care?* provides an overview of the watershed concept and is specific to each school's watershed. It describes threats to the watershed. Lesson 2, *Water Cycle - More than 2-dimensional*, describes the movement and status of water as it travels through the water cycle. Lesson 3, *Stormwater Walk*, investigates movement of surface water on school grounds. In 2019, 103 classes totaling 2,681 students participated in Lesson 1 and 58 classes with 1,516 students also participated in Lesson 2. In all, 1,266 students in the Bassett Creek Watershed participated in these lessons in 2019. In 2019, WMWA continued its “Pledge to Plant” campaign and contracted with a new project coordinator to assist with planning and executing future WMWA programs.

Also in 2019 WMWA updated its “[10 Things](#)” brochure in cooperation with Hennepin County. This publication is used at tabling events and is offered at city brochure racks. It succinctly lists 10 actions average residents can take to improve waters in their community.

WMWA also participated in the Plymouth Kids Fest in August and interacted with hundreds of children and their parents about water quality and stormwater runoff.

[www.westmetrowateralliance.org/](http://www.westmetrowateralliance.org/).

- **Metro WaterShed Partners Membership** —The BCWMC participated as a member of the Metro WaterShed Partners as a general supporter of the program and a financial supporter of the Metro Clean Water Minnesota Media Campaign. Metro Watershed Partners maintains a listserv and a website as forums for information sharing, holds monthly meetings for members to collaborate, and displays an exhibit at the State Fair to educate the public about watersheds. In 2019, the Clean Water Minnesota Media Campaign continued featuring monthly, seasonally appropriate stories about metro area residents taking action at home and in their lives to keep water clean. These professionally produced stories and photos are used by partners across a variety of media platforms. The BCWMC used these stories in newsletters and in social media. Find more information at [www.cleanwatermn.org](http://www.cleanwatermn.org).
- **Participation in Community Events and Meetings** – The BCWMC used its new educational display materials (including watershed map, banners, and bean bag toss game) and participated in the Golden Valley Arts and Music Festival (September 14th), the Golden Valley Sustainability Fair (September 20th), the annual meeting of Association of Medicine Lake Area Citizens, and at a restoration event at Westwood Nature Center. BCWMC volunteers talked with event participants, provided education on water resources, and gave away educational items like dog waste disposal bag dispensers, watershed maps, cups showing the amount of deicer needed for a certain space, native seeds, and written educational materials.
- **Bassett Creek Watershed 50th Anniversary Tour and Celebration** – On June 27th, the BCWMC held a 50th anniversary event with a tour of watershed projects and an evening reception featuring keynote speaker Mark Seeley. Long time Commission Engineer, Len Kremer, gave a presentation on the history of the organization and its involvement in the large flood control project. Approximately 74 people attended the tour and/or celebration event including some city council members, residents, and multiple partners. A commemorative booklet was also produced that includes BCWMC history, accomplishments, priorities, and future goals.
- **Chloride Education** – The BCWMC focused much effort on addressing over salting in 2019 including working with other partners in the Metro area who are concerned about over salting. BCWMC created information cards for residents to hand out at businesses that are applying too much salt. Approximately about 3,000 cards were handed out educating about smart salting practices. A companion website ([saltsmart.info](http://saltsmart.info)) was also created for residents and property managers to find more information about salt best management practices.

BCWMC produced a video on dressing right for winter weather that had a Facebook reach of 12,000 with over 7,000 views. 6,400 of those views were unique (not repeat) views.

On September 24th the BCWMC hosted a free "Smart Salting for Property Managers" certification training course. Approximately 15 people attended the course.

Four BCWMC guest column articles related to over salting were publishing in the Sun Post in 2019 (see below).

- **Partnership with Metro Blooms for Harrison Neighborhood Project** – Since 2016, the BCWMC has partnered with and supported the Metro Blooms’ Harrison Neighborhood Project. The project aims to engage residents, and commercial businesses, train youth, and install water quality practices in Minneapolis’ Near North neighborhood. The BCWMC collaborates on grant-funded projects and offers its own financial support. Since 2016, these programs have resulted in engagement with and bioswale installations on 37 residential properties; participation by neighborhood residents at 4 community block parties; engagement with 11 commercial property owners about BMP installations; and training of 15 local sustainable landcare stewards.
- **Aquatic Invasive Species (AIS) Education** – In 2019, the BCWMC received a Hennepin County AIS Prevention Grant to assist with AIS education and early detection. Lake-specific AIS identification and education cards were developed for 6 priority lakes in the watershed including Parkers, Lost, Northwood, Sweeney, Twin, and Medicine Lakes. These cards are intended for in-person dissemination among lake homeowners (neighbor to neighbor). The cards include photos and descriptions of key AIS that may enter the lake (or those that are already in the lake in the case of Medicine). The cards also include important information on a lake homeowner’s personal responsibility in AIS prevention. As an example, the Medicine Lake card can be found here.

The BCWMC also facilitated an AIS Early Detection Training course at the Plymouth Library on July 23rd. Approximately 24 people attended the training from the BCWMC and surrounding watersheds.

- **Commissioner Training Sponsorship** – The BCWMC reimbursed Commissioners for registration costs to attend the Minnesota Association of Watershed Districts Conference and Annual Meeting.
- **Creek Crossing Signs** – In 2019, city partners installed creek signs at 6 locations including 3 in Plymouth and 3 in Golden Valley, bringing the total creek signs watershed-wide to 7 crossings.
- **Educational Guest Columns in Local Papers** – Each month, the BCWMC education consultant, on the Commission’s behalf, submitted an article related to water resources to the Sun Post local newspaper. The following articles were published in the online newspaper in 2019. Some of these appeared in printed versions as well.

January 2019: The Impact of Road Salt on Wildlife and Soil  
March 2019: How to Stop the Cycle of Over Salting  
May 2019: Celebrating 50 Years – The Formation of the BCMWC  
July 2019: Who Takes Care of Our Lakes and Streams  
August 2019: Please Don’t Feed the Algae  
September 2019: Smart Salting Training Course for Property Managers  
December 2019: Smart Salting Education Program

- **Social Media** – In 2019, the BCWMC continued with weekly posts on its Facebook page. The BCWMC made 89 Facebook posts reaching 57,882 people and had 5,155 engagements. The page currently has 323 followers, which is a 32% increase from the previous year.

- **Financial Sponsorship for Organizations** – In 2019, the BCWMC continued its financial sponsorship of the Children’s Water Festival.

## H. Professional Services Proposal

The BCWMC last solicited letters of interest for legal and engineering/technical consulting services in December 2018. The BCWMC received one proposal from a legal firm and three proposals from engineering firms. The BCWMC did not take action changing its legal firm from Kennedy Graven nor its engineering consultant from Barr Engineering. As per MN State Statute, the BCWMC will solicit proposals again in 2020.

## I. Assessment of Changes in Fund Balance

A discussion of the fund balance is included in the BCWMC’s annual financial audit report. A copy of the annual audit report is available on the BCWMC website at:

<http://www.bassettcreekwmo.org/document/annual-report-budget>.

## J. Wetland Conservation Act

**1991 Wetland Conservation Act**—The interim program of the 1991 Wetland Conservation Act was effective through December 31, 1993. On January 1, 1994, the permanent program of the 1991 Wetland Conservation Act became effective. Each municipality was required to designate the local government unit (LGU) responsible for administrating the interim program and the permanent program of the 1991 Wetland Conservation Act. The following table indicates the LGU for each municipality.

<b>Municipality</b>	<b>Permanent Program (Effective 1/1/94)</b>
Crystal	Crystal
Golden Valley	Golden Valley
Medicine Lake	BCWMC
Minneapolis	Minneapolis
Minnetonka	Minnetonka
New Hope	New Hope
Plymouth	Plymouth
Robbinsdale	BCWMC
St. Louis Park	BCWMC

BCWMC = Bassett Creek Watershed Management Commission

In 2019, the BCWMC submitted to BWSR its WCA annual reporting form covering all 2019 WCA-related activities within the municipalities for which BCWMC is the LGU. The other municipalities were responsible for submitting the annual reporting form to BWSR for their respective municipality.

**Wetland Mitigation Policy**—The BCWMC’s wetland management policies specify a preference for wetland mitigation to be performed within the same subwatershed as the impacted wetland.

## II. 2020 Projected Work Plan

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**A. Capital Improvements Program (CIP)**—The BCWMC will continue to implement its capital improvements program. In 2020, this work will include:

1. **Capital Improvement Program and Prioritization**—The BCWMC will review and update its 5-year capital improvement program, and will utilize its new process of project prioritization.
2. **Progress on CIP projects:**
  - Assess the condition of Twin Lake and determine the possible need for a second dose of alum (Golden Valley) (TW-2)
  - Begin construction of the Main Stem Channel Restoration Project (CR2017-M) in Minneapolis from Cedar Lake Road to Irving Ave
  - Finalize constructing of the Bassett Creek Park Pond Dredging Project, Phase I (BCP-2) in Crystal
  - Finalize construction of the Medicine Lake Rd and Winnetka Ave Long Term Flood Mitigation Plan Project: DeCola Ponds B & C Improvement Project, Golden Valley
  - Finalize construction of the Westwood Lake Improvement Project in St. Louis Park
  - Finalize construction of the Crane Lake Improvement Project in Minnetonka
  - Continue negotiations with the City of Medicine Lake on implementation of the Jevne Park Water Quality Improvement Project
  - Implement the grant work plan for Sweeney Lake Water Quality Improvement Project including an alum treatment and carp management
  - Finalize feasibility studies for the Main Stem Bassett Creek Lagoon Dredging Project, the Parkers Lake Drainage Improvement Project, and the Mt. Olivet Stream Restoration Project
3. **Begin feasibility studies for the following BCWMC 2022 CIP projects:**
  - Medicine Lake Rd & Winnetka Ave Long Term Flood Mitigation Plan Project (DeCola Pond F Flood Storage & Diversion Project or SEA School Flood Storage Project)
  - Medley Park Stormwater Treatment Facility, Golden Valley
4. **Grant Administration:**
  - Submit final grant reports for the BWSR Clean Water Fund Grant and Hennepin County Opportunity Grant for the Plymouth Creek Restoration Project
  - Submit interim reports for the BWSR Clean Water Fund grant for the Harrison Neighborhood Community Engagement Project

- Finalize work plan, complete grant agreement, and submit interim grant reports for the BWSR Lawns to Legumes Neighborhood Demonstration Project in Harrison Neighborhood
- Finalize work plan, complete grant agreement, and submit interim grant reports for the BWSR Clean Water Fund grant for the Bryn Mawr Meadows Water Quality Improvement Project
- Submit interim reports and quarterly invoices for the 319 grant from MPCA for the Sweeney Lake Improvement Project
- Submit interim reports to the MnDNR for the FEMA modeling project for improved floodplain modeling and mapping.
- Submit interim reports to Hennepin County for the Emergency Response Fund grant for the Main Stem Erosion Repair Project

**B. Watershed Management Plan**—In 2020 the BCWMC will seek a minor or major plan amendment to update wetland management policies and add projects to the Capital Improvement Program.

### **C. Additional Monitoring, Studies, and Programs**

1. **Water Quantity**—The BCWMC will perform its lake- and stream-gauging program. The lake-gauging program will encompass Medicine Lake, Sweeney Lake, Parkers Lake, Westwood Lake, Crane Lake (Ridgedale Pond), Northwood Lake, Bassett Creek Park Pond and Theodore Wirth Park Storage area upstream of the TH 55 control structure. Two readings per month will be taken during the period April 1 – September 30; one reading per month will be taken outside this period. The stream-gauging program will consist of periodically surveying stages or inspecting the creek during periods of high flow. The program also includes periodic surveys of benchmarks.
2. **Flood Control Project Inspection**—The BCWMC will perform its annual flood control project inspection program, as set forth in the Bassett Creek Flood Control Project Operations and Maintenance Manual.
3. **Municipal Plan Review**—The BCWMC will review of the member cities’ local water management plans and plan amendments, and BCWMC review of adjacent WMO plans and plan amendments, as needed. The BCWMC will also ensure that proper official controls are in place in each member city as required by the 2015 Bassett Creek Watershed Management Plan.
4. **Water Quality**— Proposed water quality tasks for 2020 include:
  - **Water Quality Monitoring:** The BCWMC will perform detailed water quality monitoring as laid out in its Water Monitoring Program [http://www.bassettcreekwmo.org/application/files/7914/4676/6436/Appendix\\_A\\_Monitoring\\_Plan.pdf](http://www.bassettcreekwmo.org/application/files/7914/4676/6436/Appendix_A_Monitoring_Plan.pdf) In 2020, the BCWMC will monitor Sweeney Lake and Twin Lake in Golden Valley, and will cooperate with Three Rivers Park District to monitor Medicine Lake. The BCWMC will also continue its intensive stream monitoring program by establishing a monitoring site on the Sweeney Branch of Bassett Creek and beginning the first of the two-year monitoring program there.



- **Citizens Assisted Monitoring Program (CAMP):** The BCWMC has entered into an agreement with the Metropolitan Council Environmental Services (MCES) to participate in this program in 2020. Volunteer citizens will monitor the following lakes in 2020: Twin Lake and Sweeney Lake in Golden Valley, two sites of Medicine Lake in the cities of Medicine Lake and Plymouth, Northwood Lake in New Hope, Westwood Lake in St. Louis Park, and Cavanaugh Lake (new in 2020!), Parkers Lake and Lost Lake in Plymouth.
  - **Watershed Outlet Monitoring Program (WOMP):** The BCWMC is the local sponsor of this monitoring site in cooperation and with funding support from the Metropolitan Council. The Metropolitan Council Environmental Services (MCES) will provide up to \$5,000 per year in financial support between January 1, 2020, and December 31, 2020, to the BCWMC for operating the station and maintaining the rating curve. The BCWMC entered into an agreement with a Wenck & Associates to ensure the monitoring equipment is in working order, conduct routine maintenance of the WOMP site and equipment, collect samples, make in-situ field measurements, and coordinate sample delivery to MCES in 2019. BCWMC staff will continue to maintain the rating curve.
  - **River Watch Program:** The BCWMC will participate in the River Watch program managed by Hennepin County Environmental Services (HCES); up to four sites on Bassett Creek will be sampled. HCES will provide a final report of the sampling results to the BCWMC.
5. **Development Reviews**—The BCWMC will review development and redevelopment proposals in the watershed for conformance to water quality and quantity policies.
  6. **Channel Maintenance Fund**—The BCWMC will continue to fund its Creek and Streambank Trunk System Maintenance, Repair and Sediment Removal Fund (the Channel Maintenance Fund). The BCWMC collects \$25,000 annually for the fund through an assessment paid by the member cities.
  7. **Flood Control Long-Term Maintenance Fund**—The BCWMC established a long-term maintenance fund to be used to repair structures associated with the BCWMC Flood Control Project. The BCWMC collects \$25,000 annually for the fund through an assessment paid by the member cities. The fund balance is not to exceed \$1 million.
  8. **FEMA Modeling Project** – The BCWMC will continue to implement the MnDNR-grant funded project to improve floodplain modeling and mapping for FEMA.
  9. **APM/AIS Work** – The BCWMC will implement recommendations of the APM/AIS committee including treating curly-leaf pondweed in Medicine Lake, coordinating with Three Rivers Park District for level II AIS inspectors for French Regional Park.
  10. **TMDL Implementation Reporting**— The EPA approved the Wirth Lake TMDL on October 25, 2010, the Medicine Lake TMDL on February 8, 2011, and the Sweeney Lake TMDL on August 10, 2011. These TMDLs assigned categorical waste load allocations, which means a watershed approach is to be taken in implementing water quality improvement measures in these watersheds. In 2019, the BCWMC will continue tracking the implementation of the Medicine Lake, Sweeney Lake and Wirth Lake TMDLs. The BCWMC role will likely include the following tasks:
    - Assisting the cities with reporting on TMDL implementation activities to the MPCA.

- Estimating and reporting progress towards achieving the assigned wasteload allocations. The BCWMC's watershed P8 model, completed in 2013, will be an essential tool for estimating reductions in phosphorus loading.
- Monitoring lake water quality on an annual basis. See "Water Quality" bullet above regarding monitoring of these lakes in 2019.

## **D. Education and Outreach**

The BCWMC will implement its 2020 education and outreach plan (as approved by the Commission). This plan includes financial contributions and participation in the following organizations and programs: Metro WaterShed Partners, River Watch, Citizen Assisted Monitoring Program, Metro Blooms, West Metro Water Alliance (includes staff participation), and the Children's Water Festival. The plan also includes funding for Commissioner registration fees for training or programs, participation in community events such as the Golden Valley Arts and Music Festival, writing and submitting articles in local papers, developing/posting educational videos, and maintaining its website and presence on Facebook.

### **III. Annual Financial Report**

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The 2019 fiscal year for the Bassett Creek Watershed Management Commission (BCWMC) commenced on February 1, 2019 and ended January 31, 2020.

#### **A. 2019 Approved Budget**

The approved operating budget for fiscal year 2019 was \$691,850. Each member's contribution toward the annual budget is based 50 percent on the total area of the municipality within the watershed and 50 percent on the tax capacity of the area within the watershed. A copy of the 2019 operating budget, 2019 revenues, and 2019 member-city assessment table are located in Appendix A.

#### **B. Report of Revenues**

See the Financial Audit Report available online at <http://www.bassettcreekwmo.org/document/annual-report-budget>.

#### **C. Report of Expenditures**

See the Financial Audit Report available online at <http://www.bassettcreekwmo.org/document/annual-report-budget>.

#### **D. Financial Audit Report**

The annual audit report for the year ending January 31, 2020, was performed by Malloy Montague Karnowski Radosevich & Co., P.A. A copy of the annual audit report is available online at: <http://www.bassettcreekwmo.org/document/annual-report-budget>.



## **Appendix A**

### **2019 Financial Information**

- 2019 Budget and Notes
- 2019 Expected Revenues
- 2019 Member City Assessments

	A	B	C	D	E	F	G	H	I	J	K	L
1	<b>Bassett Creek Watershed Management Commission - 2019 Operating Budget</b>											
2	<b>Approved 8-16-18</b>											
3	<b>Item</b>	<b>2014 Budget</b>	<b>2014 Actual</b>	<b>2015 Budget</b>	<b>2015 Actual</b>	<b>2016 Budget</b>	<b>2016 Actual</b>	<b>2017 Budget</b>	<b>2017 Actual</b>	<b>2018 Budget</b>	<b>2019 Proposed Budget</b>	<b>See Note</b>
4	<b>ENGINEERING &amp; MONITORING</b>											
5	Technical Services	120,000	109,391	120,000	116,972	120,000	112,502	125,000	140,702	125,000	130,000	(AA)
6	Development/Project Reviews	65,000	52,643	65,000	51,622	65,000	94,619	65,000	71,791	75,000	80,000	(A)
7	Non-fee and Preliminary Reviews			15,000	53,686	15,000	35,253	15,000	20,906	10,000	15,000	(B)
8	Commission and TAC Meetings	16,000	15,984	14,500	11,525	13,000	11,808	14,000	11,753	12,000	12,000	(C)
9	Surveys and Studies	20,000	7,446	20,000	22,109	25,000	24,444	20,000	16,347	12,000	20,000	(D)
10	Water Quality / Monitoring	45,000	74,090	63,000	77,429	76,000	75,892	74,300	70,855	80,700	78,000	(E)
11	Shoreland Habitat Monitoring					6,000	2,468	-				
12	Water Quantity	11,000	12,100	11,500	9,115	11,500	8,731	11,500	8,570	6,300	10,000	(F)
13	Assistance on Erosion Control Inspections	1,000	225	1,000		1,000	-	1,000	-	1,000	-	(G)
14	Annual Flood Control Project Inspections	20,000	17,031	10,000	9,996	10,000	8,867	12,000	7,678	48,000	48,000	(H)
15	Municipal Plan Review	2,000	764	2,000		2,000	2,491	8,000	1,835	8,000	4,000	(I)
16	Watershed Outlet Monitoring Program	17,000	13,917	17,000	15,786	17,000	17,002	15,500	19,994	20,500	20,500	(J)
17	Annual XP-SWMM Model Updates/Reviews							10,000	5,650	10,000	-	(K)
18	APM/AIS Work							35,000	34,920	32,000	32,000	(L)
19	<b>Subtotal Engineering &amp; Monitoring</b>	<b>\$317,000</b>	<b>\$303,591</b>	<b>\$339,000</b>	<b>\$368,240</b>	<b>\$361,500</b>	<b>\$394,077</b>	<b>\$406,300</b>	<b>\$411,001</b>	<b>\$440,500</b>	<b>\$449,500</b>	
20	<b>PLANNING</b>											
21	Next Generation Plan Development	40,000	55,198	30,000	28,277	-	-	-			12,000	(LL)
22	<b>Subtotal Planning</b>	<b>\$40,000</b>	<b>\$55,198</b>	<b>\$30,000</b>	<b>\$28,277</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>		<b>\$0</b>	<b>\$12,000</b>	

	A	B	C	D	E	F	G	H	I	J	K	L
1	<b>Bassett Creek Watershed Management Commission - 2019 Operating Budget</b>											
2	<b>Approved 8-16-18</b>											
3	<b>Item</b>	<b>2014 Budget</b>	<b>2014 Actual</b>	<b>2015 Budget</b>	<b>2015 Actual</b>	<b>2016 Budget</b>	<b>2016 Actual</b>	<b>2017 Budget</b>	<b>2017 Actual</b>	<b>2018 Budget</b>	<b>2019 Proposed Budget</b>	<b>See Note</b>
23	<b>ADMINISTRATION</b>											
24	Administrator	60,000	53,917	62,000	59,395	62,000	59,033	67,200	60,559	67,200	69,200	(M)
25	Legal	18,500	22,269	18,500	12,969	18,500	15,470	18,500	16,249	17,000	17,000	(N)
26	Financial Management	3,045	3,045	3,200	3,200	3,200	3,277	3,200	3,200	3,200	3,500	(O)
27	Audit, Insurance & Bond	15,500	12,476	15,500	13,181	15,500	14,606	15,500	17,304	15,500	18,000	(P)
28	Digitize Historic Paper Files			2,500	-	5,000	2,167	-	-			
29	Meeting Catering Expenses	3,000	1,836	2,500	1,564	2,200	1,572	2,000	1,198	1,600	1,500	
30	Administrative Services	35,800	22,763	32,000	29,843	25,000	11,583	18,000	13,346	15,000	15,000	(Q)
31	<b>Subtotal Administration</b>	<b>\$135,845</b>	<b>\$116,306</b>	<b>\$136,200</b>	<b>\$120,152</b>	<b>\$131,400</b>	<b>\$107,708</b>	<b>\$124,400</b>	<b>\$111,856</b>	<b>\$119,500</b>	<b>\$124,200</b>	
32	<b>OUTREACH &amp; EDUCATION</b>											
33	Publications / Annual Report	2,000	2,272	4,000	1,430	2,500	1,246	2,500	1,138	1,500	1,300	(QQ)
34	Website	2,000	0	12,000	11,802	3,500	2,275	4,400	1,228	4,200	3,000	(R)
35	Watershed Education Partnerships	15,500	11,100	15,500	10,700	15,500	9,550	15,500	12,354	13,850	15,850	(S)
36	Education and Public Outreach	15,000	20,292	17,000	12,830	22,500	25,710	20,000	19,302	22,000	25,000	(T)
37	Public Communications	3,000	1,198	3,000	2,270	2,500	1,128	2,500	732	2,500	1,000	
38	<b>Subtotal Outreach &amp; Education</b>	<b>\$37,500</b>	<b>\$34,862</b>	<b>\$51,500</b>	<b>\$39,032</b>	<b>\$46,500</b>	<b>\$39,909</b>	<b>\$44,900</b>	<b>\$34,754</b>	<b>\$44,050</b>	<b>\$46,150</b>	
39	<b>MAINTENANCE FUNDS</b>											
40	Channel Maintenance Fund	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	(U)
41	Flood Control Project Long-Term Maint.	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	(V)
42	<b>Subtotal Maintenance Funds</b>	<b>\$50,000</b>	<b>\$50,000</b>	<b>\$50,000</b>	<b>\$50,000</b>	<b>\$50,000</b>	<b>\$50,000</b>	<b>\$50,000</b>	<b>\$50,000</b>	<b>\$50,000</b>	<b>\$50,000</b>	
43	<b>TMDL WORK</b>											
44	TMDL Implementation Reporting	20,000	20,000	20,000	15,881	20,000	18,950	20,000	19,209	10,000	10,000	(W)
45	<b>Subtotal TMDL Work</b>	<b>\$20,000</b>	<b>\$20,000</b>	<b>\$20,000</b>	<b>\$15,881</b>	<b>\$20,000</b>	<b>\$20,000</b>	<b>\$20,000</b>	<b>\$19,209</b>	<b>\$10,000</b>	<b>\$10,000</b>	
46	<b>GRAND TOTAL</b>	<b>\$600,345</b>	<b>\$579,957</b>	<b>\$626,700</b>	<b>\$621,582</b>	<b>\$609,400</b>	<b>\$611,694</b>	<b>\$645,600</b>	<b>\$626,820</b>	<b>\$664,050</b>	<b>\$691,850</b>	

## NOTES

- (AA) New and more complicated issues continue to arise requiring engineer review, analyses, input.
- (A) Partially funded by application fees; with the creation of the preliminary and non-fee budget category, most of the review costs will be covered by application fees. 2019 budget assumes 40 submittals at average cost of \$2,000 - \$2,500 per review, which is based on 2014 -2017 trend of increasing number of submittals and increased number of complex reviews (including MIDS)
- (B) Assumes increase in non-fee reviews in 2019 based on actual spent in 2017 (\$20,906) and reviews for light rail projects may still be needed as these projects have been delayed. This was a new line item in 2015 used to cover reviews for which either we do not receive an application fee or it's too early in the process for us to have received an application fee (such as the Blue Line LRT, SWLRT, MnDOT projects, etc.). Through agreements with Met Council, some of these costs were recovered in 2015, 2016, 2017 and expected in 2018.
- (C) Includes attendance at BCWMC meetings, TAC meetings and Next Generation Plan Steering Committee meetings (through 2015). 2010- 2013 estimates based on 18 meetings. 2014 estimate based on 30 meetings. 2015 estimate based on 24 meetings. 2016 and 2017 estimates based on 18 meetings (12 BCWMC meetings & 6 TAC meetings). 2017 budget increased to allow for additional BCWMC Engineer staff to attend Commission/TAC meetings (total of 3 assumed). 2018 budget was reduced from 2017. 2019 budget assumed same as 2018.
- (D) For Commission-directed surveys and studies not identified in other categories - e.g., past work has included watershed tours, Medicine Lake outlet work, Flood Control Project Maintenance and Responsibilities, Sweeney Lake sediment monitoring, stream monitoring equipment purchase. 2018 budget was reduced from previous years for overall budget savings. 2019 proposed budget is more in line with previous years and gives Commission flexibility to investigate or tackle unforeseen issues that arise. Could include funding for iron filings study in Northwood Lake or elsewhere.
- (E) Routine lake and stream monitoring. See details on next page.
- (F) Water Quality (lake level) monitoring. 2018 budget lowered for budget savings and will result in fewer data points. 2019 budget recommended for setting/checking benchmarks and flooding elevations; NAVD 88 benchmarks
- (G) After recommendations from the TAC and Budget Committee, the Commission's ended the erosion and sediment control inspection program (Watershed Inspection) in 2014 due to duplication with activities required by the member cities. Some budget remained here to provide, as requested by the Commission, some oversight of city inspection activities (reports of inspections are available from each city). However, little or no expenses have been incurred since 2014. Recommended to remove from budget. If inspections are needed they can be charged to general technical services.
- (H) 2019 budget includes double box culvert inspection, following NASSCO protocol (\$36,000), and based on BCMWC's new Flood Control Project policies approved in 2016; 2019 budget also includes the annual FCP inspection (\$12,000). 2018 budget includes 2nd Street (deep) tunnel inspection, following NASSCO protocol, and based on BCMWC's new Flood Control Project policies approved in 2016, which call for more-frequent inspection of the deep tunnel (\$36,000, with approximately \$10,000 for subcontractors - crane rental and Rescue Resources); the 3rd Ave tunnel will also be inspected at the same time as the 2nd Street tunnel (they are connected), rather than in 2019 (as called for in schedule); 2018 budget also includes the annual inspection (\$12,000). 2017, 2016 and 2015 budgets include usual inspection. 2017 budget increased to allow for more follow-up with cities, stemming from Flood Control Project Maintenance and Responsibilities-related effort. 2014 budget included inspection of double box culvert (performed once every 5 years).
- (I) Although the bulk of the reviews will be completed under the 2018 budget, the 2019 budget assumes a couple reviews/approvals may extend into 2019. This task has also included review of adjacent WMO plan amendments, and review of city ordinances.



(J) Monitoring at the Watershed Outlet Monitoring Program site in Minneapolis through an agreement with Met Council. Commission is reimbursed \$5,000 from Met Council. Met Council pays for equipment, maintenance, power, cell service, and lab analyses. Monitoring protocol changed in 2017 with collection of bi-monthly samples (up from once-per-month sampling). \$20,500 includes \$16,000 for Wenck or similar contractor + \$4,500 for Barr's data management and analyses

(K) This item is used to make updates to the XP-SWMM model, coordinate with P8 model updates, and assist cities with model use. However, no XP-SWMM updates are expected in 2019 and 2020 due to work on the grant funded FEMA modeling project. This line item will return in the 2021 operating budget

(L) Funds to implement recommendations of Aquatic Plant Management/Aquatic Invasive Species Committee likely including curly-leaf pondweed control in Medicine Lake and small grant program for launch inspectors, education/outreach, etc. by other organizations including TRPD, AMLAC, others

(LL) Funding that will be set aside and accrued over next 5 years to pay for 2025 Watershed Plan development which will start in 2023.

(M) Includes 3% increase in Administrator hourly rate as recommended by Budget Committee. \$72/hour for average of 80 hours per month.

(N) For Commission attorney. No change in budget over 2018 levels.

(O) Funding for City of GV staff's monthly accounting activities and coordination of annual audit. Slight increase recommended as amount has not changed in many years.

(P) Insurance and audit costs have risen considerably in the last two years.

(Q) Recording Secretary \$42/hr rate \* 21 hrs/mo (6.5 hrs for minutes, 14.5 for social media, writing articles, coordinating with city communication staff) + \$370 annual mileage + \$250/mo meeting packet printing/mailing + \$546 contingency

(QQ) Budget decrease to be more in line with actual expenses in last few years. Costs associated with Commission Engineer assistance with annual report

(R) Based on 2017-2019 agreement with HDR for website hosting and maintenance activities and closer to actual funds spent in 2017.

(S) Includes CAMP (\$7,000), River Watch (\$2,000), Metro Watershed Partners (\$3,500), Metro Blooms (\$3,000), Children's Water Festival (\$350). Does not allow for additional partnerships or increases in contributions. CAMP costs set by Met Council will increase significantly in 2019 (after 16 years w/o increases)

(T) Includes funding for West Metro Water Alliance at \$13,000 plus \$12,000 for 50th Anniversary events, document production, etc. and some funding for other educational supplies and materials including educational signage, display materials, Commissioner training, etc.

(U) Will be transferred to Channel Maintenance Fund

(V) Will be transferred to Long-Term Maintenance Fund

(W) Budget reduced in 2018 for overall budget savings. Task includes reporting on TMDL implementation and updating P8 model to include new BMPs.

Budget item	Item description	Estimated cost
<b>Cavanaugh Lake (Plymouth) and Northwood Lake (New Hope) detailed lake monitoring</b>	<p>Detailed lake monitoring includes monitoring one location each at Cavanaugh Lake and Northwood Lake on six occasions for selected parameters (total phosphorus, soluble reactive phosphorus, total nitrogen, chlorophyll a, chloride, temperature, pH, DO, specific conductance, and oxidation reduction potential), plus parameters associated with AIS vulnerability (calcium, alkalinity, hardness, sodium, magnesium, potassium, dissolved inorganic carbon, and dissolved organic carbon), sample analysis, phytoplankton and zooplankton collection and analysis, an aquatic plant survey (two occasions), preparation of a presentation and preparation of a final report (following template of 2016 &amp; 2017 reports).</p> <p>Assessment of vulnerability to AIS infestations (\$1,000/lake)</p>	<p style="text-align: right;">\$43,000</p> <p>(Note: estimated cost will be lower for Cavanaugh Lake if TRPD completes the monitoring, aquatic plant monitoring, and lab analyses.)</p> <p style="text-align: right;">\$2,000</p>
<b>Second year of two-year stream water quality/ quantity monitoring effort (automatic sampling) on North Branch</b>	<p>The stream water quality monitoring program is designed to approximate the Metropolitan Council’s Watershed Outlet Monitoring Program (WOMP) design for one location—North Branch (two additional locations would be monitored in years 3-4, and in years 5-6). The costs include 24 grab samples (approximately 1.5 per month for the open water period) and 16 storm samples. This approximates a recent change to the WOMP sampling protocols from monthly to bi-monthly samples (some WOMP stations do not collect grab samples in the winter).</p> <p>Parameters to be monitored include:</p> <ul style="list-style-type: none"> <li>• Total Phosphorus</li> <li>• Ortho Phosphorus</li> <li>• Chloride</li> <li>• E. Coli</li> <li>• Hardness</li> <li>• Sulfate</li> <li>• Dissolved Phosphorus</li> <li>• TKN</li> <li>• TSS</li> <li>• Chl-a</li> <li>• Metals</li> <li>• Nitrate/Nitrite</li> <li>• Ammonia N</li> <li>• VSS</li> <li>• Alkalinity</li> <li>• TOC</li> </ul>	<p style="text-align: right;">\$23,000</p>
<b>General Water Quality Task</b>	<p>Potential items/issues include:</p> <ul style="list-style-type: none"> <li>• Inventorying chloride sources and/or improvement measures</li> <li>• Preparing for TMDL studies on Northwood Lake and the Bassett Creek fish impairments, including coordination with the MPCA</li> <li>• Internal load assessments and/or investigation(s) of alternative chemical treatments for Medicine Lake, Lost Lake, Sweeney, etc.</li> <li>• Evaluating carp population dynamics in the Sweeney branch (down to Schaper Pond)</li> <li>• Addressing new AIS species (in 2017, the Medicine Lake zebra mussels effort was charged to the Technical Services budget)</li> </ul> <p>If any of these become larger efforts, they could be charged to the Surveys &amp; Studies budget.</p>	<p style="text-align: right;">\$10,000</p>
<b>Total Estimated Budget</b>		<p style="text-align: right;"><b>\$78,000</b></p>

**2018 Financial Information**

Fund Balance as of January 31, 2018 (audited)		\$	368,445
Income from assessments in 2018	+	\$	515,050
Expected interest income in 2018	+	\$	-
Expected income from project review fees	+	\$	55,000
Expected income from CIP Administrative Funds	+	\$	27,000
Expected transfer from Long-term Maint Fund for Flood Control Project	+	\$	48,000
Expected income from WOMP reimbursement	+	\$	5,000
Expected income from reimbursements from 2018 work <sup>1</sup>	+	\$	18,000
<hr/>			
Estimated funds available for fiscal year 2018		\$	1,036,495
Estimated expenditures for fiscal year 2018	-	\$	664,050
<hr/>			
Estimated fund balance as of January 31, 2019		\$	372,445

<sup>1</sup> Through new agreements for SWLRT & Blue Line LRT. Agreements total \$22,000 but not likely to use and be reimbursed for total amt in 2018

**2019 Revenues****Expected Income**

Proposed Assessments to cities	+	\$	529,850
Use of fund balance	+	\$	21,000
CIP Administrative Funds (2.0% of est. requested levy of \$1.4M)	+	\$	28,000
Project review fees	+	\$	60,000
Transfer from Long-term Maint Fund for Flood Control Proj Inspections <sup>2</sup>	+	\$	48,000
WOMP reimbursement	+	\$	5,000
Expected reimbursement for Blue Line LRT work	+	\$	-
Interest income in 2019	+	\$	-
		\$	<hr/> 691,850

**Expected Expenses**

Total operating budget		\$	691,850
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**Fund Balance Details**

Est. Beginning Fund Balance (Jan 31, 2019)		\$	372,445
Use of Fund Balance (see income above)	-	\$	21,000
<hr/>			
Est. Remaining Fund Balance (Jan 31, 2020)		\$	351,445

<sup>2</sup> Requires reducing Long Term Flood Control Project Amount by \$23,000.

Assessments												
Community	For Taxes Payable in 2018	2018 Percent	Current Area Watershed	Percent	Average	2013	2014	2015	2016	2017	2018	2019 Assessment
	Net Tax Capacity	of Valuation	in Acres	of Area	Percent							
						<b>\$515,016</b>	<b>\$490,345</b>	<b>\$490,345</b>	<b>\$490,345</b>	<b>\$500,000</b>	<b>\$515,050</b>	<b>\$529,850</b>
Crystal	\$8,354,192	5.43	1,264	5.09	5.26	\$27,424	\$25,504	\$25,868	\$25,771	\$25,704	\$26,904	\$27,877
Golden Valley	\$39,462,902	25.67	6,615	26.63	26.15	\$129,126	\$123,033	\$121,964	\$127,675	\$131,270	\$134,649	\$138,553
Medicine Lake	\$1,000,557	0.65	199	0.80	0.73	\$3,909	\$3,479	\$3,543	\$3,600	\$3,561	\$3,783	\$3,846
Minneapolis	\$10,318,599	6.71	1,690	6.80	6.76	\$35,236	\$32,953	\$33,235	\$32,885	\$33,609	\$34,763	\$35,805
Minnetonka	\$9,964,851	6.48	1,108	4.46	5.47	\$28,464	\$27,402	\$28,121	\$27,536	\$28,199	\$28,053	\$28,989
New Hope	\$8,492,344	5.52	1,252	5.04	5.28	\$27,648	\$26,479	\$25,681	\$25,627	\$25,917	\$26,740	\$27,987
Plymouth	\$66,201,330	43.07	11,618	46.77	44.92	\$235,310	\$224,959	\$225,159	\$220,974	\$224,531	\$231,682	\$237,986
Robbinsdale	\$2,810,841	1.83	345	1.39	1.61	\$8,479	\$7,743	\$7,587	\$7,843	\$7,747	\$8,189	\$8,523
St. Louis Park	\$7,116,412	4.63	752	3.03	3.83	\$19,420	\$18,792	\$19,184	\$18,433	\$19,463	\$20,287	\$20,284
<b>TOTAL</b>	<b>\$153,722,028</b>	<b>100.00</b>	<b>24,843</b>	<b>100.00</b>	<b>100.00</b>	<b>\$515,045</b>	<b>\$490,345</b>	<b>\$490,345</b>	<b>\$490,345</b>	<b>\$500,000</b>	<b>\$515,050</b>	<b>\$529,850</b>

**Appendix B**  
**2019 Lake Monitoring Reports**



# Northwood Lake 2019 water quality monitoring

## Monitoring water quality in Northwood Lake

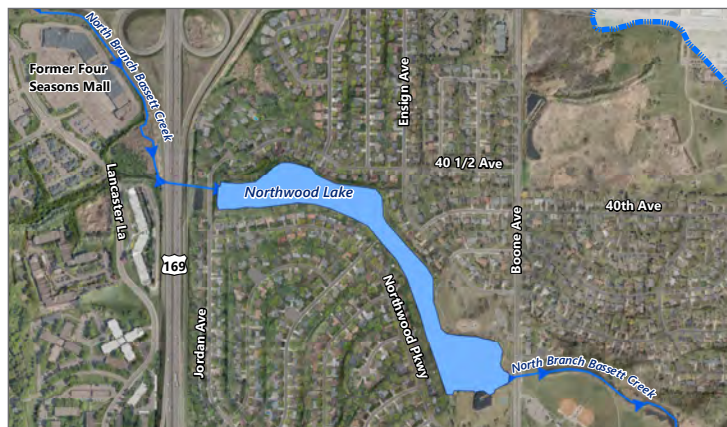
The Bassett Creek Watershed Management Commission (BCWMC) has monitored water quality conditions in the watershed’s 10 priority lakes since 1972. The purpose of this monitoring is to detect changes or trends in water quality and evaluate the effectiveness of efforts to preserve or improve water quality.

## At a glance: 2019 monitoring results

In 2019, the BCWMC monitored Northwood Lake for:

- Water chemistry (nutrients, chlorophyll a, chloride).
- Water measurements (e.g., clarity, dissolved oxygen).
- Phytoplankton and zooplankton (microscopic plants and animals).
- Macrophytes (aquatic plants).

Results of 2019 monitoring show that Northwood Lake did not meet applicable Minnesota Pollution Control Agency (MPCA) and BCWMC water quality standards for shallow lakes. Trend analyses indicate that water clarity has significantly declined over the past 20 years. In addition, the plant community did not meet the Minnesota Department of Natural Resources (MDNR) plant index of biotic integrity (IBI) standard for Floristic Quality Index (FQI), which measures the quality of the plant community (see page 4). However, the plant community has consistently improved since 2000. In 2019, the number of species in the lake met the state standard and FQI was close to meeting the standard. Curly-leaf pondweed was problematic in 2019, present at 92 percent of sample locations, with a high average density of 2.5 on a scale of 1 to 3 (increasing numbers indicate increasing density).



## About Northwood Lake

BCWMC classification	Priority-1 shallow lake
Watershed area	1,294 acres
Lake size	15 acres
Average depth	2.7 feet
Maximum depth	5 feet
Ordinary high water level	885.5 feet
Normal water level	884.4 feet
Downstream receiving waterbody	North Branch Bassett Creek
Location (city)	New Hope
MPCA impairments	Nutrients
Aquatic invasive species	Curly-leaf pondweed, purple loosestrife, hybrid cattail, reed canary grass, yellow iris
Public access	Yes

## Recommendations

- Continue to implement best management practices and capital improvement projects in the lake’s watershed to improve the lake’s water quality
- Consider management of curly-leaf pondweed to improve the lake’s water quality by reducing phosphorus loading from plant die-off
- Continue water quality and biological monitoring

# Water chemistry monitoring: 2019

## Total phosphorus levels

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 in streets, atmospheric deposition, soil erosion, plant die-off (such as curly-leaf pondweed), and lake sediment, which can release phosphorus when oxygen concentrations are absent or very low.

- **BCWMC/MPCA standard:** 60 micrograms per liter ( $\mu\text{g/L}$ ) or less.
- **Range:** Total phosphorus concentrations ranged from a low of 67  $\mu\text{g/L}$  in June to a high of 280  $\mu\text{g/L}$  in August. All concentrations were within the hypereutrophic category (very high nutrient content).
- **Summer average:** 142  $\mu\text{g/L}$  (did not meet BCWMC/MPCA standard).

## Chlorophyll $\alpha$ levels

Chlorophyll  $\alpha$  is a pigment in algae and generally reflects the amount of algae growth in a lake. Lakes which appear clear generally have chlorophyll  $\alpha$  levels less than 15 micrograms per liter ( $\mu\text{g/L}$ ).

- **BCWMC/MPCA standard:** 20  $\mu\text{g/L}$  or less.
- **Range:** Chlorophyll  $\alpha$  concentrations ranged from a low of 3.5  $\mu\text{g/L}$  in June to a high of 52.0  $\mu\text{g/L}$  in August. Concentrations were primarily in the hypereutrophic or eutrophic category, indicating poor water quality; however, there was one June sampling event when the concentration was in the mesotrophic category, indicating good water quality.
- **Summer average:** 24.3  $\mu\text{g/L}$  (did not meet BCWMC/MPCA standard).

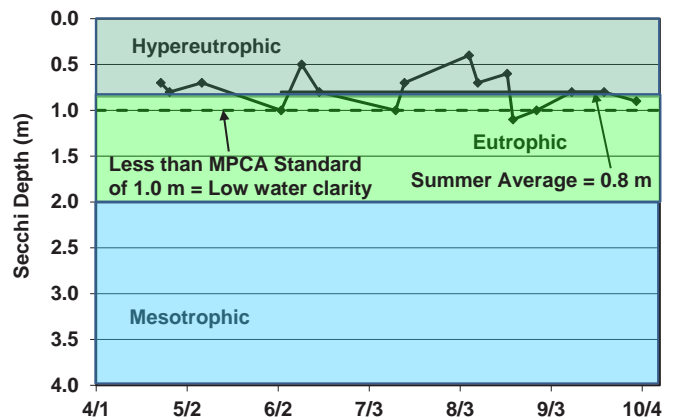
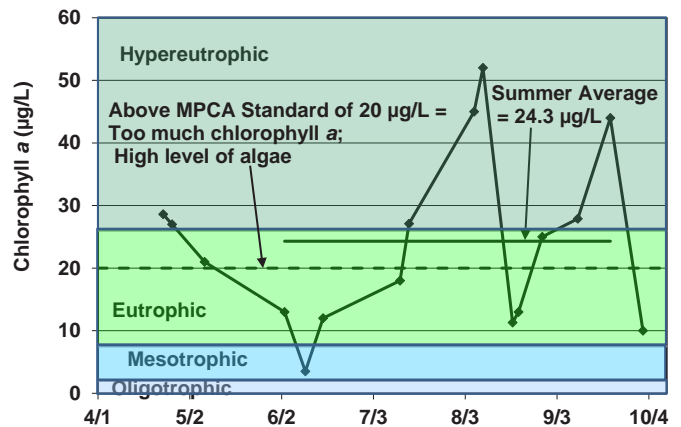
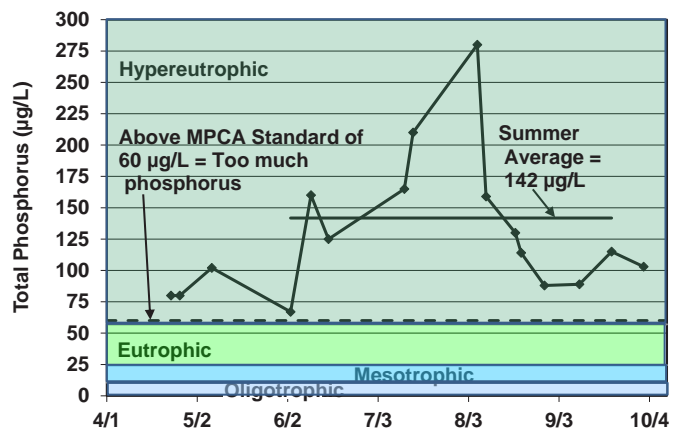
## Water clarity

Water clarity is often affected by sediment and the amount of algae or other photosynthetic organisms in a lake. It is usually measured by lowering an 8-inch "Secchi" disc into the lake; the depth at which the disc's alternating black-and-white pattern is no longer visible is considered a measure of the water's transparency.

- **BCWMC/MPCA standard:** 1.0 meters or more.
- **Range:** From 0.4 meters in early August to 1.1 meters in late August. Throughout 2019, Secchi disc depths were in the hypereutrophic or eutrophic category, indicating poor water quality.
- **Summer average:** 0.8 meters (did not meet BCWMC/MPCA standard).

## Definitions

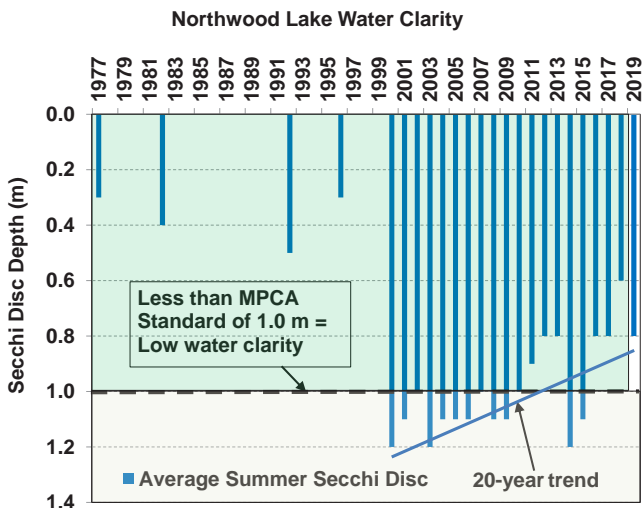
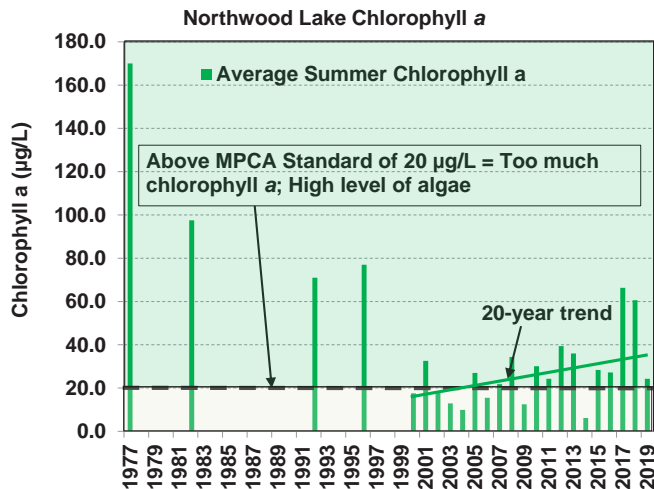
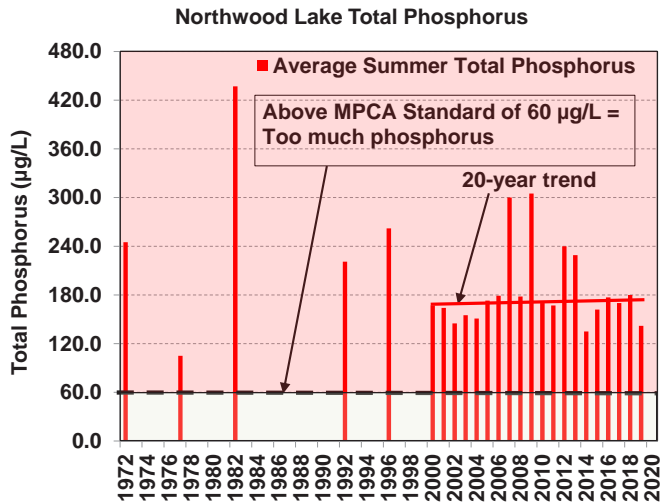
- **Hypereutrophic:** Nutrient-rich lake conditions characterized by frequent and severe algal blooms and low water clarity; excessive algae can significantly reduce lake oxygen levels
- **Eutrophic:** Lake condition characterized by abundant accumulation of nutrients supporting dense growth of algae and other organisms; decay of algae can reduce lake oxygen levels
- **Mesotrophic:** Lake condition characterized by medium levels of nutrients and clear water
- **Oligotrophic:** Lake condition characterized by a low accumulation of dissolved nutrients, high oxygen content, sparse algae growth, and very clear water



# Water chemistry monitoring from 1972–2019: historical trends

Water quality in Northwood Lake has been monitored since 1972. Summer averages (June through September) of total phosphorus, chlorophyll a, and Secchi disc depth from 1972–2019 are shown in the figures below (left). Summer averages for phosphorus have failed to meet BCWMC/MPCA standards for the entire period of record. Chlorophyll a concentrations and Secchi disc depth failed to meet the standard 71 and 46 percent of the time, respectively.

Trend analyses show declining water quality with statistically significant decreases (95 percent confidence level) in water clarity (Secchi disc depth) over the last 20 years. Total phosphorus and chlorophyll a concentrations have also increased during this period, but not at statistically significant levels.



## Chloride levels in 2019

Chloride concentrations in area lakes 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 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 established a chronic exposure chloride standard of 230 mg/l or less.

- **Range of chloride concentrations in Northwood Lake:** From a high of 195 mg/L, measured in April, to a low of 68 mg/L, measured in September. One reason the levels are staying below the standard is because the creek flows through the lake, likely carrying the chlorides downstream in early spring.
- **Average concentration:** 99 mg/L (meets MPCA standard)





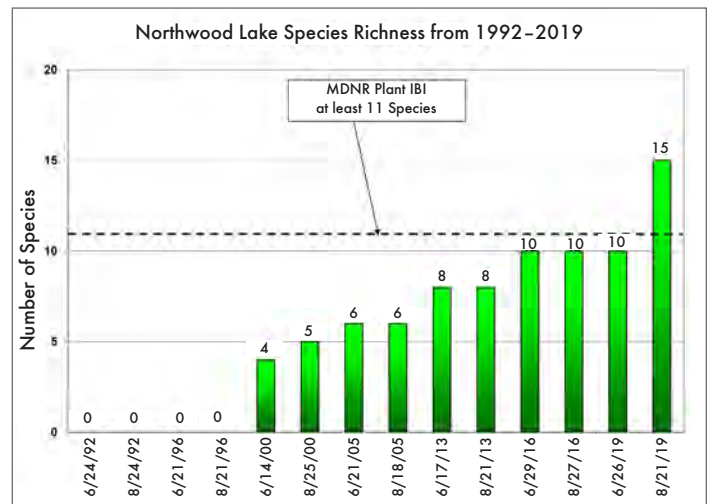
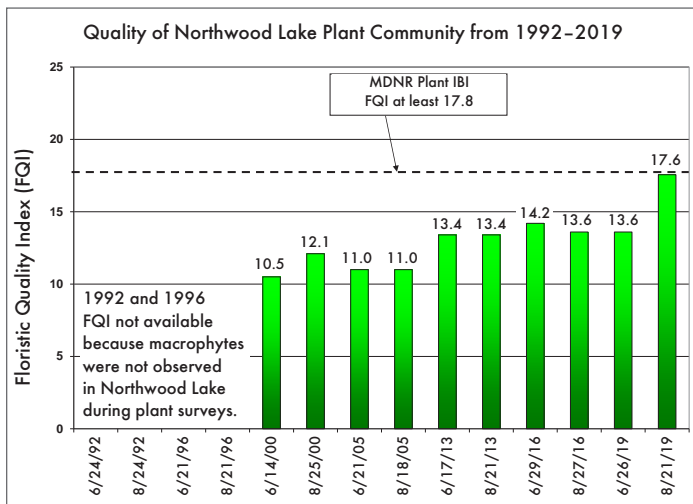
# Macrophytes

## Lake Plant Eutrophication Index of Biological Integrity (IBI)

The MDNR developed metrics to determine the overall health of a lake’s aquatic plant community. The Lake Plant Eutrophication Index of Biological Integrity (plant IBI) is expected to eventually be used by the MPCA to determine whether a lake is meeting the federal Clean Water Act standards, intended to protect aquatic life. The plant IBI includes two metrics: (1) the number of species in a lake and (2) the “quality” of the species, as measured by the floristic quality index (FQI).

Plant survey data from 1992 through 2019 were assessed to determine plant IBI trends. The figures below show the Northwood Lake FQI scores and number of species for that period compared to the MDNR plant IBI standard.

- Number of species:** The number of species in Northwood Lake has increased from four species in 2000 to 15 species in 2019. August of 2019 was the first sample event in which the number of species observed in Northwood Lake was above the standard of 11 species. Some of the most common plants are shown below. The increase is attributed to a management technique implemented by the city of New Hope in 2000. From 2000 to 2003 the city placed barley straw at predetermined locations throughout the lake. As barley straw decays, it inhibits algal growth. This increases the water’s transparency, allowing sunlight to reach the lake’s bottom and aquatic plants to become established.
- FQI values (quality of species):** The standard, as measured by FQI, is a value of 17.8 or higher. Similar to the number of species, FQI values for Northwood Lake have increased from 10.5 in 2000 to 17.6 in 2019, but still failed to meet the state standard.
- 2019 results:** Because FQI values are below the state standard, Northwood Lake may be considered impaired for aquatic plants.



### Commonly found aquatic species



**Coontail**  
*Ceratophyllum demersum*  
(native plant)



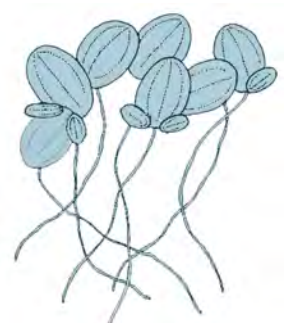
**Canadian waterweed**  
*Elodea canadensis*  
(native plant)



**Flatstem pondweed**  
*Potamogeton zosteriformis*  
(native plant)



**Curly-leaf pondweed**  
*Potamogeton crispus*  
(non-native invasive species)

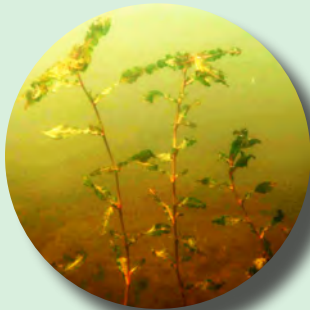


**Common duckweed**  
*Lemna minor*  
(native plant)

## Aquatic invasive species

In 2019, five invasive species were found in Northwood Lake.

- **Curly-leaf pondweed (*Potamogeton crispus*):** Curly-leaf pondweed has increased in extent and density since 2016. Though prevalent in 2016 (50% of sample locations in June), it coexisted with native plants at relatively low densities (average density of 1.4 out of 3) and was not problematic. Curly-leaf pondweed was problematic in June of 2019 when it was observed at 92 percent of sample locations, with an average density of 2.5. The surge and subsequent die-off of curly-leaf pondweed added phosphorus to the lake, resulting in increased algal growth and decreased water clarity.
- **Purple loosestrife (*Lythrum salicaria*):** This emergent species was observed along the shoreline at one location in June and two locations in August. Most plants had suffered damage from beetles introduced to control the purple loosestrife population, suggesting that the beetles were having the desired effect.
- **Hybrid cattail (*Typha glauca*):** Hybrid cattail was observed at two locations along the shoreline.
- **Reed canary grass (*Phalaris arundinacea*):** Reed canary grass was observed at two locations along the shoreline.
- **Yellow iris (*Iris pseudacorus*):** The first observation of yellow iris occurred in 2019 at one location. The appearance of yellow iris is concerning because it spreads rapidly and competes with native shoreland vegetation. Its root system forms a dense mat which compacts the soil and inhibits seed germination of other plants. It is recommended that BCWMC ask the landowner to remove the yellow iris. The landowner could either dig it up or spray it with glyphosate. An MDNR permit would be required for either method of removal.



Curly-leaf pondweed



Purple loosestrife



Hybrid cattail



Reed canary grass



## Phytoplankton and zooplankton

Samples of phytoplankton (microscopic aquatic plants) were collected from Northwood Lake to evaluate water quality and the quality of food available to zooplankton (microscopic animals). As shown in the figure below (right), phytoplankton numbers declined in June, then increased through early August, declined again in late August and increased in September. The community was dominated by green algae and diatoms—both considered a good source of food for the lake’s zooplankton. Blue-green algae, which is associated with water quality problems and can be a source of health concerns, was present in low numbers.

2019 phytoplankton numbers were within the range of numbers observed since 2005. Numbers in July and early August of 2019 were higher than numbers in July and August of 2013 and 2016. (See the graph on the following page for historical Northwood Lake phytoplankton information.) The higher numbers in 2019 are likely due, in part, to phosphorus added to the lake by curly-leaf pondweed die-off.

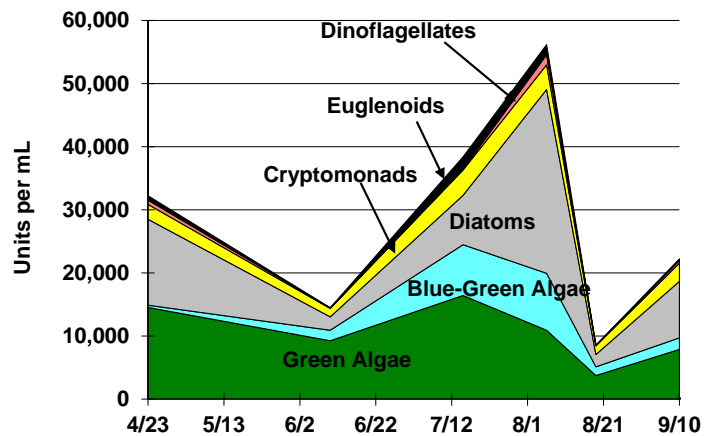
Unlike phytoplankton, zooplankton do not produce their own food. As “filter feeders,” they eat millions of small algae; given the right quantities and species, they can filter the volume of an entire lake in a matter of days. They are also a valuable food source for planktivorous fish and other organisms. Fish generally select the largest zooplankters they see and prefer cladocerans to copepods because cladocerans swim slowly and lack the copepods’ ability to escape predation by jerking or jumping out of the way.

The 2019 numbers and community composition of zooplankton in Northwood Lake reflect the impact of fish predation on the community. Small rotifers, the least preferred food for fish, dominated the zooplankton community. Small rotifers and copepods were prevalent throughout the summer, while cladocerans were observed in low numbers; their numbers were so low they are not generally visible on the figure at right.

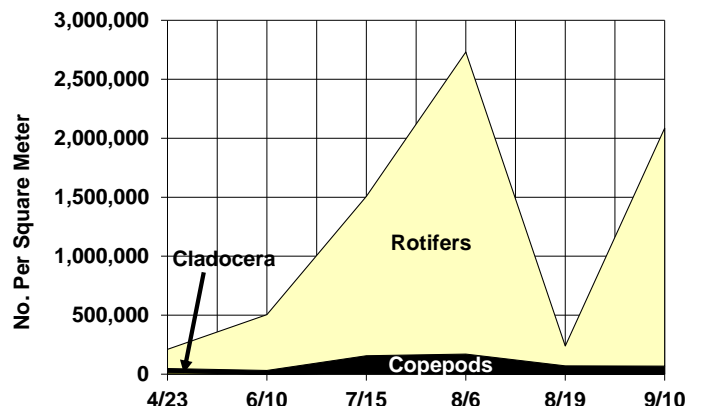
The low numbers of cladocerans are likely due to fish predation. Low numbers of cladocerans in shallow lakes are common because they have no deep water refuge to escape predation from fish. Deeper waters have sufficient oxygen for zooplankton survival, but insufficient oxygen for fish survival. Consequently, deeper lakes often have higher numbers of cladocerans than shallow lakes.

The 2019 numbers and community composition of zooplankton in Northwood Lake were within the range of numbers observed since 2013. (See the graph on the following page for historical Northwood Lake zooplankton information.) Zooplankton numbers observed from 2013 through 2019 were higher than numbers prior to 2013. The higher zooplankton numbers since 2013 are likely due to increased extent and density of aquatic plants within the lake. Aquatic plants provide hiding places for zooplankton to avoid predation by fish. Aquatic plants were not observed in Northwood Lake during plant surveys prior to 2000 and zooplankton numbers were very low. Use of barley straw to inhibit algal growth and improve water clarity in 2000 enabled plants to grow in the lake. The aquatic plant community has consistently increased in extent and density since 2000 and zooplankton numbers have also increased.

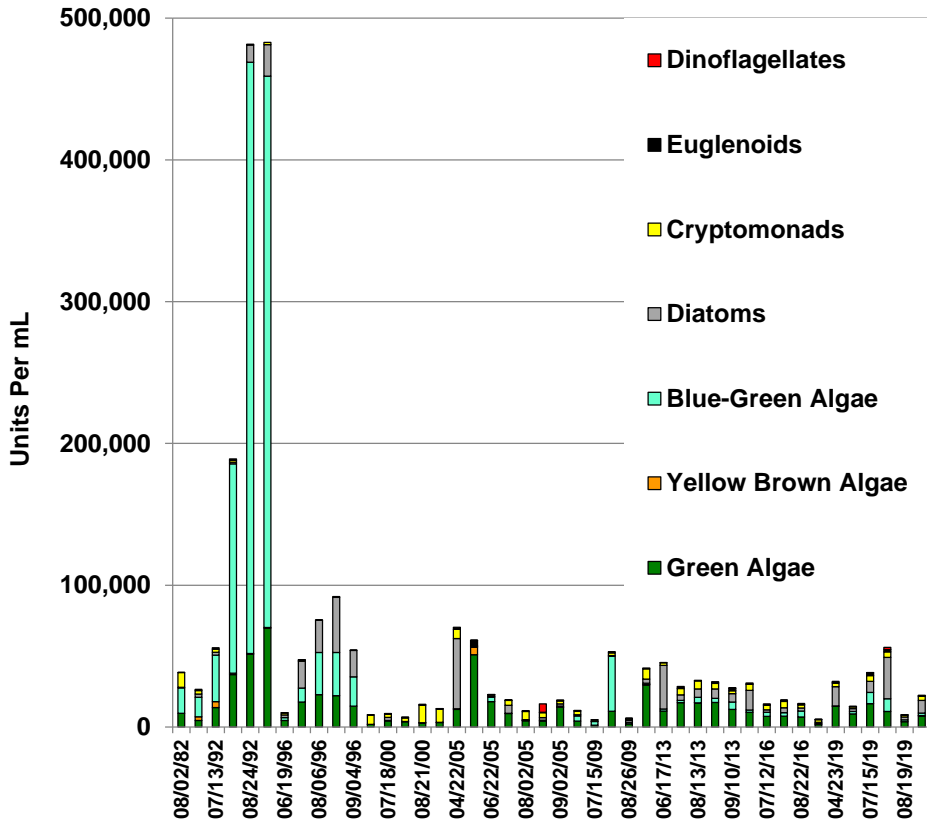
**2019 Northwood Lake Phytoplankton**



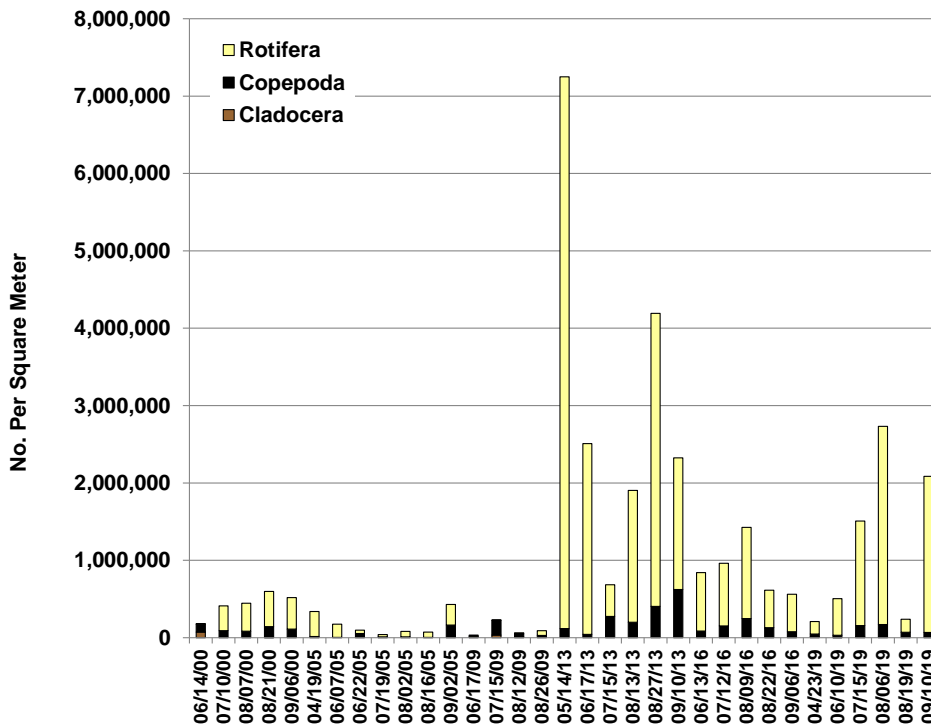
**2019 Northwood Lake Zooplankton**



### Historical Northwood Lake Phytoplankton



### Historical Northwood Lake Zooplankton



## Suitability of Northwood Lake for Aquatic Invasive Species (AIS)

A large number of AIS residing in Minnesota have not yet been observed in Northwood Lake, but could be introduced. For example, both zebra mussels and starry stonewort were recently found in nearby Medicine Lake. To determine whether Northwood Lake water quality would support the introduction of six AIS (starry stonewort, zebra mussels, spiny waterflea, faucet snail, Chinese mystery snail, and rusty crayfish) a suitability analysis for each species was performed.

The analyses compared 2019 lake water quality with the water quality conditions required for each species, specifically evaluating total phosphorus, chlorophyll a, Secchi disc depth, trophic state index, water temperature, dissolved oxygen, specific conductance, calcium, magnesium, sodium, alkalinity, hardness, and calcium carbonate. The results indicate the water quality of Northwood Lake meets the suitability requirements for rusty crayfish, faucet snail, and spiny waterflea. However, the water quality of Northwood Lake only partially meets the suitability requirements for Chinese mystery snail, zebra mussel, and starry stonewort. Hence, these species would likely survive, but may not thrive in Northwood Lake if introduced.



Bassett Creek Watershed Management Commission  
[bassettcreekwmo.org](http://bassettcreekwmo.org)



Cleaner, healthier water for a growing community



# Cavanaugh Lake (Sunset Hill Pond) 2019 water quality monitoring

## Monitoring water quality in Cavanaugh Lake

The Bassett Creek Watershed Management Commission (BCWMC) has monitored water quality conditions in the watershed’s 10 priority lakes since 1972. The purpose of this monitoring is to detect changes or trends in water quality and evaluate the effectiveness of efforts to preserve or improve water quality.

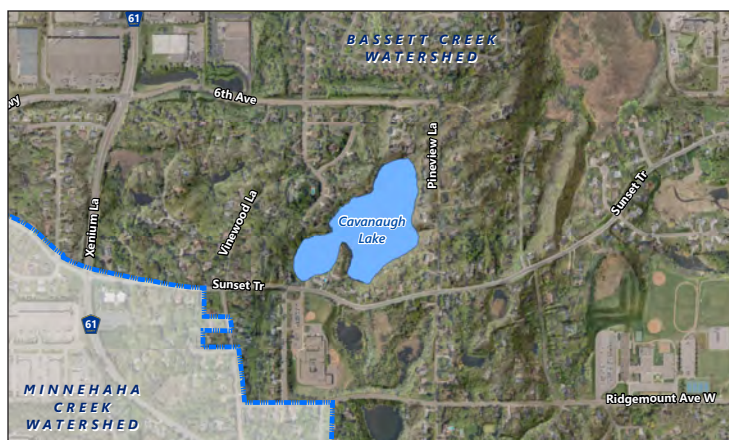
## At a glance: 2019 monitoring results

In 2019, the BCWMC monitored Cavanaugh Lake for:

- Water chemistry (nutrients, chlorophyll a, chloride).
- Water measurements (e.g., clarity, dissolved oxygen).
- Phytoplankton and zooplankton (microscopic plants and animals).
- Macrophytes (aquatic plants).

Results of 2019 monitoring show that Cavanaugh Lake met applicable Minnesota Pollution Control Agency (MPCA) and BCWMC water quality standards for shallow lakes.

In addition, the plant community met the Minnesota Department of Natural Resources (MDNR) plant index of biotic integrity (IBI) standard for the number of species and Floristic Quality Index, which measures the quality of the plant community (see page 4). Both the lake’s water quality and plant community have improved since 1998, when the lake failed to meet standards for water quality and plant community.



## About Cavanaugh Lake

BCWMC classification	Priority-2 shallow lake
Watershed area	126 acres
Lake size	13 acres
Average depth	5.3 feet
Maximum depth	10.8 feet
Downstream receiving waterbody	Plymouth Creek (during large rain events)
Location (city)	Plymouth
MPCA impairments	None
Aquatic invasive species	Curly-leaf pondweed, purple loosestrife, narrow-leaved cattail, reed canary grass
Public access	No

## Recommendations

- Continue efforts to improve the lake’s water quality and plant community
- Continue water quality and biological monitoring

# Water chemistry monitoring: 2019

## Total phosphorus levels

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 in streets, atmospheric deposition, soil erosion, plant die-off (such as curly-leaf pondweed), and lake sediment which can release phosphorus when oxygen concentrations are absent or very low.

- **BCWMC/MPCA standard:** 60 micrograms per liter ( $\mu\text{g/L}$ ) or less.
- **Range:** Total phosphorus concentrations ranged from a low of 30  $\mu\text{g/L}$  in September to a high of 62  $\mu\text{g/L}$  in April. The April concentration was in the hypereutrophic category (very high nutrient content) and all other concentrations were within the eutrophic category (high nutrient content).
- **Summer average:** 46  $\mu\text{g/L}$  (met BCWMC/MPCA standard).

## Chlorophyll a levels

Chlorophyll a is a pigment in algae and generally reflects the amount of algae growth in a lake. Lakes which appear clear generally have chlorophyll a levels less than 15 micrograms per liter ( $\mu\text{g/L}$ ).

- **BCWMC/MPCA standard:** 20  $\mu\text{g/L}$  or less.
- **Range:** Chlorophyll a concentrations ranged from a low of 2.9  $\mu\text{g/L}$  in September to a high of 16.2  $\mu\text{g/L}$  in late August. Throughout 2019, chlorophyll a concentrations were generally in the eutrophic category, indicating poor water quality; however, during one September sample event the concentration was in the mesotrophic category, indicating good water quality.
- **Summer average:** 10.3  $\mu\text{g/L}$  (met the BCWMC/MPCA standard).

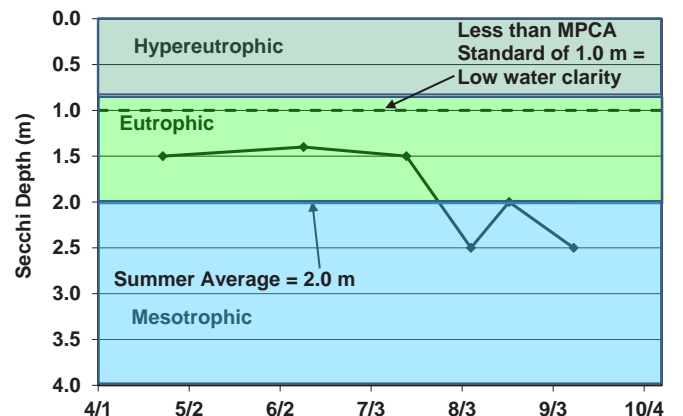
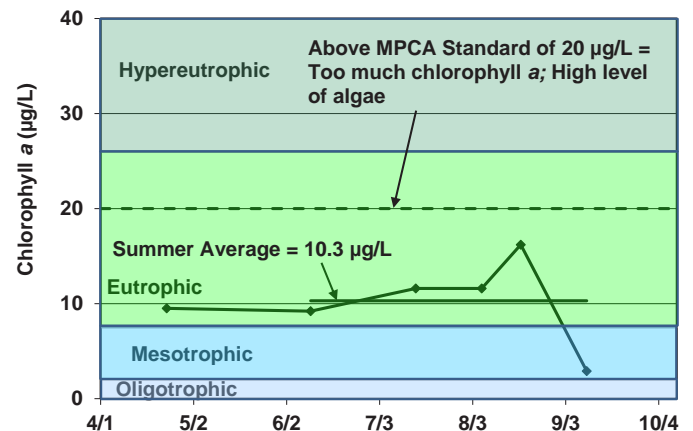
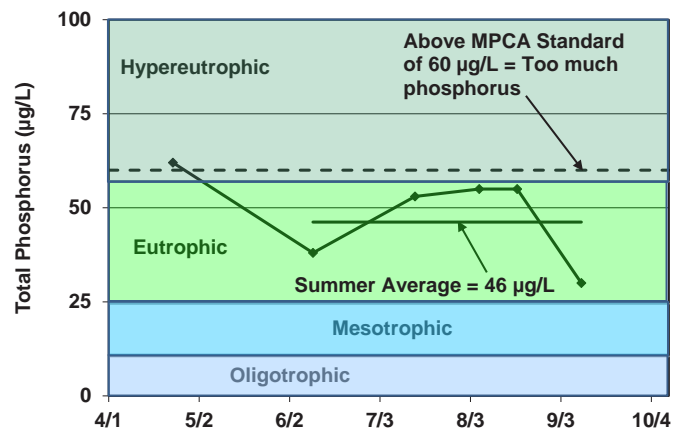
## Water clarity

Water clarity is often affected by sediment and the amount of algae or other photosynthetic organisms in a lake. It is usually measured by lowering an 8-inch "Secchi" disc into the lake; the depth at which the disc's alternating black-and-white pattern is no longer visible is considered a measure of the water's transparency.

- **BCWMC/MPCA standard:** 1.0 meters or more.
- **Range:** Secchi disc depth ranged from 1.4 meters in June to 2.5 meters in early August and September. From April through July depths were in the eutrophic category, indicating poor water quality; during August and September they were in the mesotrophic category, indicating good water quality.
- **Summer average:** 2.0 meters (met BCWMC/MPCA standard).

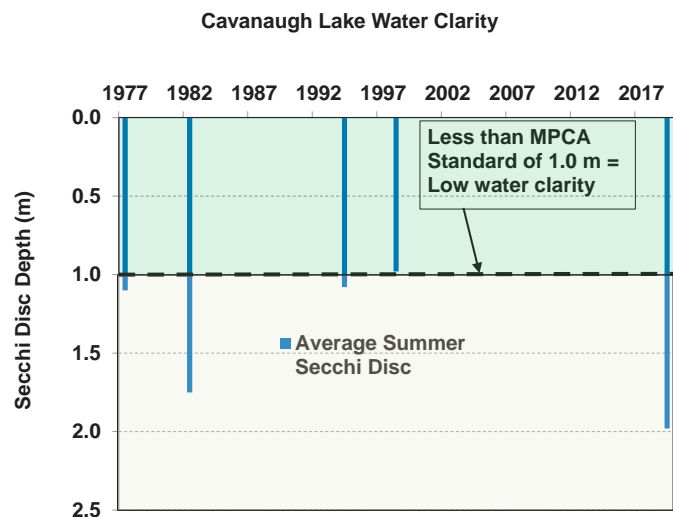
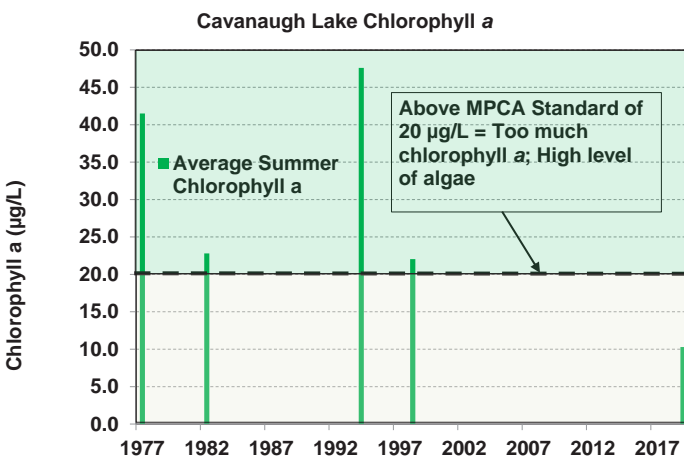
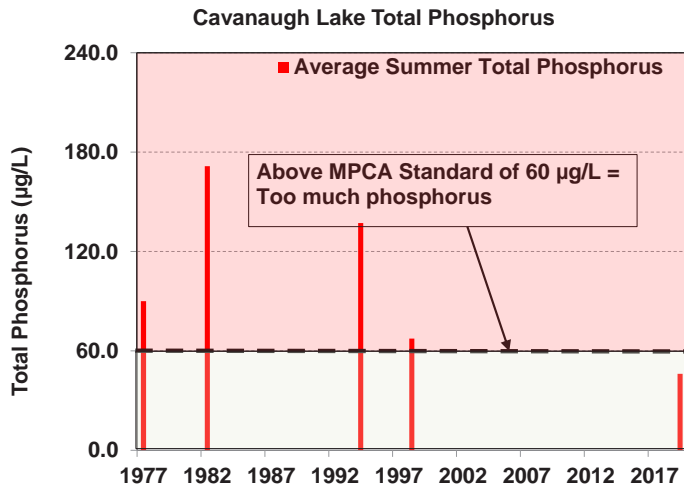
## Definitions

- **Hypereutrophic:** Nutrient-rich lake conditions characterized by frequent and severe algal blooms and low water clarity; excessive algae can significantly reduce lake oxygen levels
- **Eutrophic:** Lake condition characterized by abundant accumulation of nutrients supporting dense growth of algae and other organisms; decay of algae can reduce lake oxygen levels
- **Mesotrophic:** Lake condition characterized by medium levels of nutrients and clear water
- **Oligotrophic:** Lake condition characterized by a low accumulation of dissolved nutrients, high oxygen content, sparse algae growth, and very clear water



# Water chemistry monitoring from 1977–2019: historical trends

Water quality in Cavanaugh Lake has been monitored since 1977. Summer averages (June through September) of total phosphorus, chlorophyll a, and Secchi disc depth from 1977–2019 are shown in the figures below. Summer averages for total phosphorus and chlorophyll a failed to meet the MPCA/BCWMC standard in 1977, 1982, 1994, and 1998, but met the standard in 2019. Secchi disc depth met the standard all years except 1998.



## Chloride levels in 2019

Chloride concentrations in area lakes 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 exposure chloride standard of 230 mg/l or less.

- **Range of chloride concentrations in Cavanaugh Lake:** From a high of 70 mg/L, measured in April, to a low of 50 mg/L, measured in September
- **Average concentration:** 59 mg/L (meets MPCA standard).

These low numbers are indicative of the small watershed area with little directly connected impervious area.





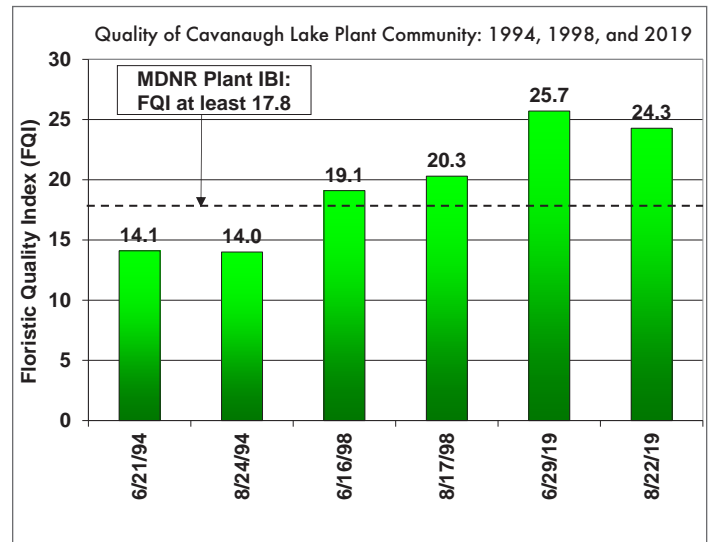
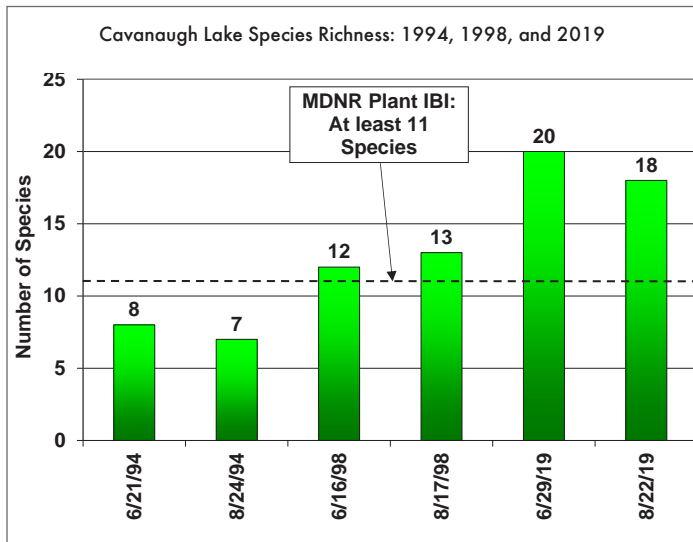
# Macrophytes

## Lake Plant Eutrophication Index of Biological Integrity (IBI)

The MDNR developed metrics to determine the overall health of a lake’s aquatic plant community. The Lake Plant Eutrophication Index of Biological Integrity (plant IBI) is expected, eventually, to be used by the MPCA to determine whether a lake is meeting the federal Clean Water Act standards intended to protect aquatic life. The plant IBI includes two metrics: (1) the number of species in a lake and (2) the “quality” of the species, as measured by the floristic quality index (FQI).

Plant survey data from 1994, 1998, and 2019 were assessed to determine plant IBI trends. The figures below show the Cavanaugh Lake FQI scores and number of species for that period compared to the MDNR plant IBI impairment threshold.

- **Number of species:** The number of species in Cavanaugh Lake has steadily improved over time, from a low of seven species observed in 1994, to 13 species in 1998, and 20 species in 2019—well exceeding the standard of at least 11 species. Some of the most common plants are shown below.
- **FQI values (quality of species):** The standard, as measured by FQI, is a minimum value of 17.8. During the period examined, FQI values for Cavanaugh Lake increased from 14.0 to 25.7, exceeding the standard of 17.8 in 1998 and 2019.
- **2019 results:** Both the number of species in the lake and FQI values were higher than the minimum IBI thresholds that define impairment. As such, the waters would not be considered impaired for aquatic plants. In 2019, the Cavanaugh Lake plant community had higher numbers of species and higher FQI scores than in previous years.



### Commonly found aquatic species



**Coontail**  
*Ceratophyllum demersum*  
(native plant)



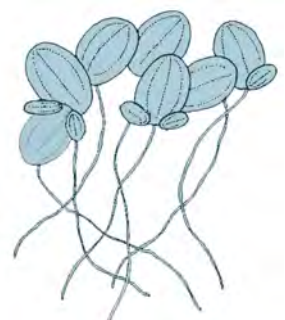
**Canadian waterweed**  
*Elodea canadensis*  
(native plant)



**Flatstem pondweed**  
*Potamogeton zosteriformis*  
(native plant)



**Curly-leaf pondweed**  
*Potamogeton crispus*  
(non-native invasive species)

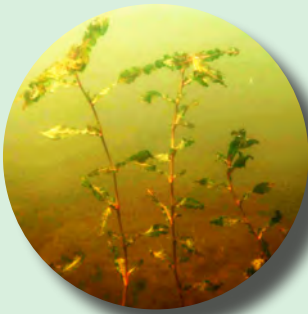


**Common duckweed**  
*Lemna minor*  
(native plant)

## Aquatic invasive species

In 2019, four invasive species were present in Cavanaugh Lake.

- **Curly-leaf pondweed (*Potamogeton crispus*):** The first sighting of curly-leaf pondweed occurred in June of 2019; low-density growth was observed at two southwest bay sample sites. All plants were isolated individuals under the canopy of white water lilies, which will likely limit the expansion of curly-leaf pondweed in the lake.
- **Purple loosestrife (*Lythrum salicaria*):** This emergent species was observed in a few scattered clumps along the shoreline in August.
- **Narrow-leaved cattail (*Typha glauca*):** Narrow-leaved cattail was observed at a single location along the north shoreline in June and August.
- **Reed canary grass (*Phalaris arundinacea*):** Reed canary grass was observed at a single location along the north shoreline in June and August.



Curly-leaf pondweed



Purple loosestrife



Narrow-leaved cattail



Reed canary grass



Curly-leaf pondweed in the lake's southwest bay

## Phytoplankton and zooplankton

Samples of phytoplankton (microscopic aquatic plants) were collected from Cavanaugh Lake to evaluate water quality and the quality of food available to zooplankton (microscopic animals). As shown in the figure below (right), phytoplankton numbers increased in June, then steadily decreased through September. In April and June, the community was dominated by green algae—considered a good source of food for the lake’s zooplankton. In July, the community was co-dominated by green algae and small-celled blue-green algae. Blue-green algae are a poor quality food because they may be toxic and may not be assimilated if ingested. In August and September, the community comprised roughly equal numbers of green algae, blue-green algae, and cryptomonads. Cryptomonads are considered a good source of food for the lake’s zooplankton.

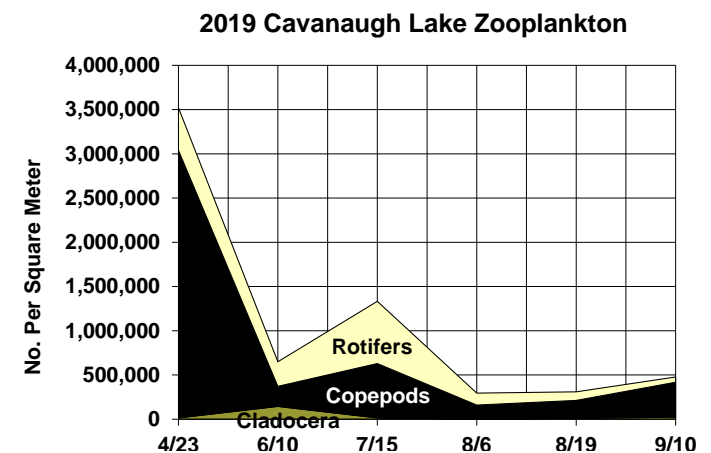
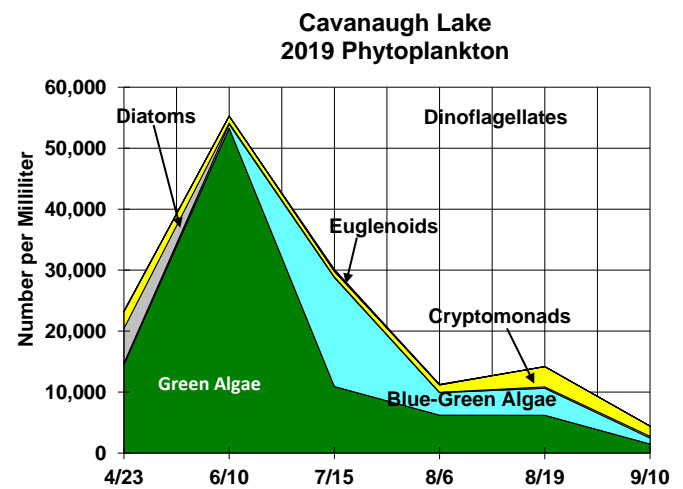
In 2019, blue-green algae numbers were lower than 1994 and, with the exception of July, were also lower than 1998. (See the graph on following page for historical Cavanaugh Lake phytoplankton information.) 2019 green algae numbers were higher in June, but were relatively similar to 1994 and 1998 numbers during July through September. The 2019 changes are favorable for lake water clarity and the health of the zooplankton community. By virtue of their smaller size, green algae take up less space in the water column than most blue-green algae—resulting in better water clarity. Water clarity was, on average, better in 2019 than 1994 and 1998. Green algae are a better quality food source than blue-green algae and contribute towards a healthier zooplankton community.

Unlike phytoplankton, zooplankton do not produce their own food. As “filter feeders,” they eat millions of small algae; given the right quantities and species, they can filter the volume of an entire lake in a matter of days. They are also a valuable food source for planktivorous fish and other organisms. Fish generally select the largest zooplankters they see and prefer cladocerans to copepods because cladocerans swim slowly and lack the copepods’ ability to escape predation by jerking or jumping out of the way.

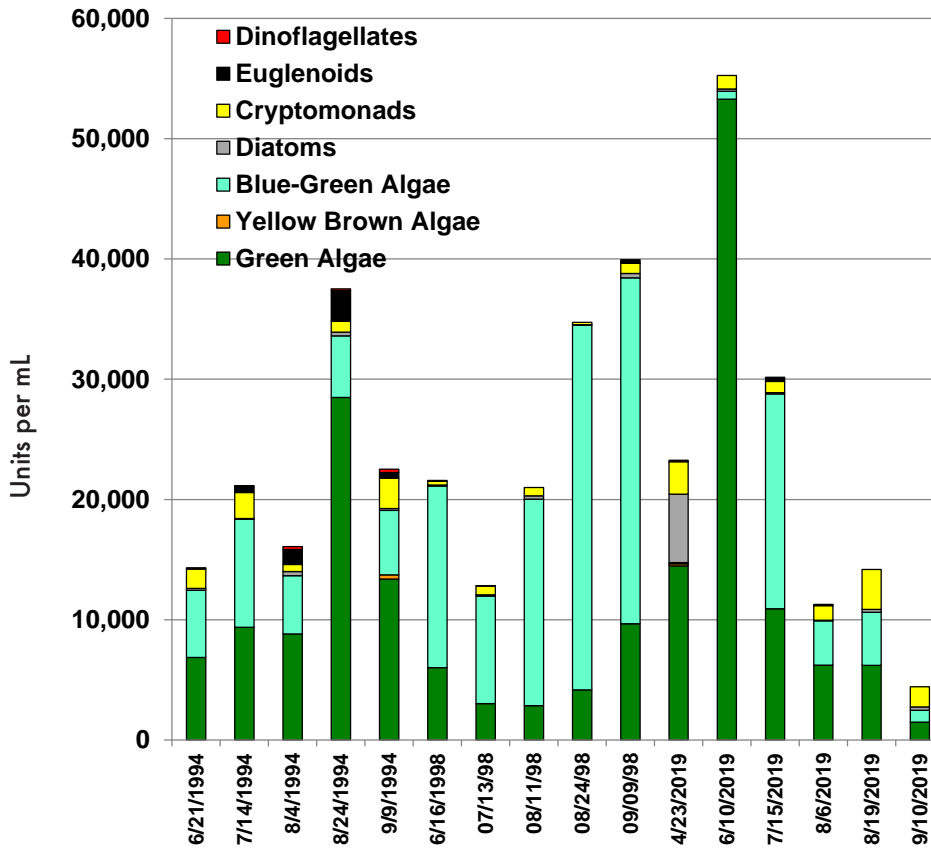
The 2019 numbers and community composition of zooplankton in Cavanaugh Lake reflect the impact of fish predation on the community. Zooplankton numbers were highest in spring, prior to the spring hatch of fish, and declined quickly when the newly hatched fish began feeding on zooplankton. Small rotifers and copepods were prevalent throughout the summer, while cladocerans were observed in low numbers; their numbers were so low they are not generally visible on the figure at right. The low numbers of cladocerans are likely due to fish predation. Low numbers of cladocerans in shallow lakes are common

because they have no refuge to escape predation. Deeper waters have sufficient oxygen for zooplankton survival, but insufficient oxygen for fish survival. Consequently, deeper lakes often have higher numbers of cladocerans than shallow lakes.

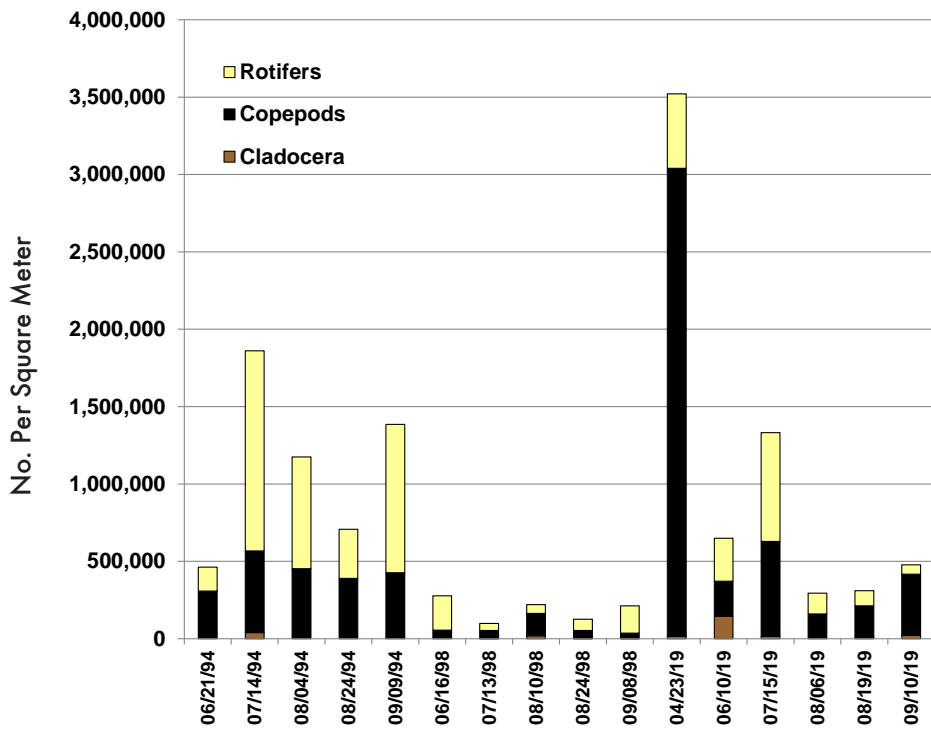
Numbers of zooplankton during the summer were higher in 2019 than 1998 and relatively similar to 1994 numbers. (See the graph on the following page for historical Cavanaugh Lake zooplankton information.) Reductions in the amount of good quality food (green algae) available to zooplankton in 1998 appear to have reduced zooplankton numbers. In 2019, increased numbers of green algae and reduced numbers of blue-green algae (poor quality food) are correlated with increased numbers of zooplankton. Community composition in summer was relatively similar during all three years. Rotifers and copepods were prevalent throughout the summer and cladoceran numbers were consistently low due to fish predation.



Historical Cavanaugh Lake Phytoplankton



Historical Cavanaugh Lake Zooplankton



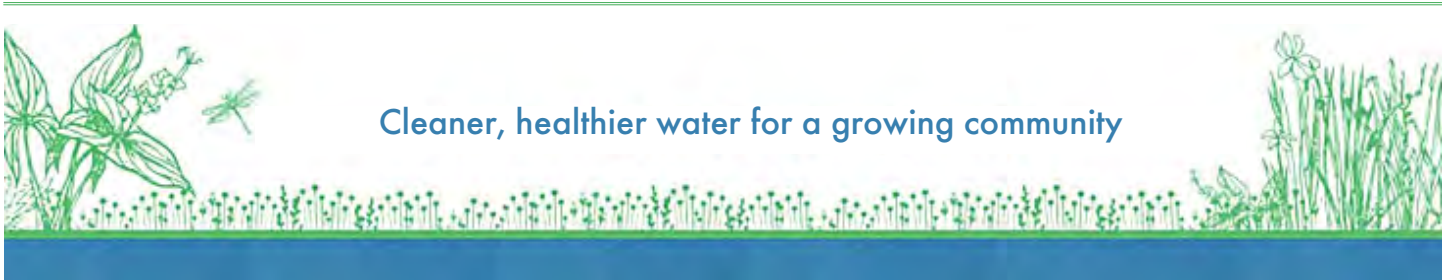
## Suitability of Cavanaugh Lake for Aquatic Invasive Species (AIS)

A large number of AIS residing in Minnesota have not yet been observed in Cavanaugh Lake, but could be introduced. For example, both zebra mussels and starry stonewort were recently found in nearby Medicine Lake. To determine whether Cavanaugh Lake water quality would support the introduction of six AIS (starry stonewort, zebra mussels, spiny waterflea, faucet snail, Chinese mystery snail, and rusty crayfish) a suitability analysis for each species was performed.

The analyses compared 2019 lake water quality with the water quality conditions required for each species, specifically evaluating total phosphorus, chlorophyll a, Secchi disc depth, trophic state index, water temperature, dissolved oxygen, specific conductance, calcium, magnesium, sodium, alkalinity, hardness, and calcium carbonate. The results indicate the water quality of Cavanaugh Lake meets the suitability requirements for rusty crayfish, faucet snail, and spiny waterflea. The lake's water quality only partially meets the suitability requirements for Chinese mystery snail, zebra mussel, and starry stonewort. Hence, these species would likely survive, but may not thrive in Cavanaugh Lake if introduced.



Bassett Creek Watershed Management Commission  
[bassettcreekwmo.org](http://bassettcreekwmo.org)





**Appendix C**  
**2019 Resolutions**



## Bassett Creek Watershed Management Commission

### RESOLUTION NO. 19-01

Member Welch introduced the following resolution and moved its adoption:

A RESOLUTION APPROVING THE REIMBURSEMENT TO THE BASSETT CREEK WATERSHED MANAGEMENT COMMISSION 2.0% OF THE TAX LEVY REQUEST TO HENNEPIN COUNTY FOR COLLECTION IN 2018, FOR ADMINISTRATIVE EXPENSES FOR CAPITAL IMPROVEMENT PROGRAM (CIP) PROJECTS AND APPROVING THE TRANSFER OF THE FUNDS FROM THE CIP ACCOUNT TO THE ADMINISTRATIVE ACCOUNT

BE IT RESOLVED by the Bassett Creek Watershed Management Commission of the Cities of Crystal, Golden Valley, Medicine Lake, Minneapolis, Minnetonka, New Hope, Plymouth, Robbinsdale, and St. Louis Park that:

1. The Bassett Creek Watershed Management Commission (BCWMC) will be reimbursed \$26,936, which is 2.0% of the BCWMC's September 2017 tax request in the amount of \$1,346,815 to Hennepin County for collection in 2018, for administrative expenses for Capital Improvement Projects.
2. The Bassett Creek Watershed Management Commission directs its Deputy Treasurer to transfer the reimbursed funds from the Commission's CIP Account to its Administrative Account.

  
Chair 1/17/19  
Date

Attest:

  
Secretary 1/17/2019  
Date

The motion for adoption of the foregoing resolution was seconded by Member Byrnes and upon a vote being taken thereon, the following voted in favor thereof: 9 and the following voted against the same 0 whereupon said resolution was declared duly passed and adopted.





## Bassett Creek Watershed Management Commission

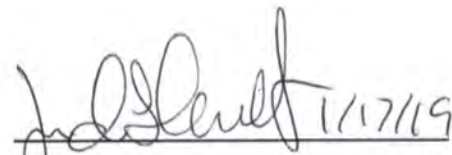
RESOLUTION NO. 19-02

Member Welch introduced the following resolution and moved its adoption:

A RESOLUTION APPROVING THE TRANSFER OF BASSETT CREEK WATERSHED MANAGEMENT COMMISSION FUNDS FROM THE ADMINISTRATIVE ACCOUNT TO THE EROSION/SEDIMENT (CHANNEL MAINTENANCE) ACCOUNT AND LONG-TERM MAINTENANCE ACCOUNT

BE IT RESOLVED by the Bassett Creek Watershed Management Commission that:

1. \$25,000 will be transferred from the Bassett Creek Watershed Management Commission's Administrative Account to the Erosion/Sediment (Channel Maintenance Fund) account.
2. \$4,000 will be transferred from the Bassett Creek Watershed Management Commission's Administrative Account to the Long-Term Maintenance account which equals the annual \$25,000 transfer amount less the estimated cost of the 2018 inspections of the BCWMC Flood Control Project of \$21,000.

  
\_\_\_\_\_  
Chair Date

Attest:  
  
\_\_\_\_\_  
Secretary Date

The motion for adoption of the foregoing resolution was seconded by Member Byrnes and upon a vote being taken thereon, the following voted in favor thereof: 9 and the following voted against the same 0 whereupon said resolution was declared duly passed and adopted.

**RESOLUTION 19-03**

Member Carlson introduced the following resolution and moved its adoption:

**RESOLUTION DESIGNATING DEPOSITORIES FOR  
BASSETT CREEK WATERSHED MANAGEMENT COMMISSION FUNDS**

BE IT RESOLVED by the Bassett Creek Watershed Management Commission of the Cities of Crystal, Golden Valley, Medicine Lake, Minneapolis, Minnetonka, New Hope, Plymouth, Robbinsdale, and St. Louis Park that the following are named as depositories for funds, subject to the furnishing of collateral for funds on deposit as provided in the Laws of the State of Minnesota: **RBC Dain Rauscher; Wells Fargo; 4M Fund; U.S. Bank**

BE IT FURTHER RESOLVED that a sweep account will be used for nightly balances.

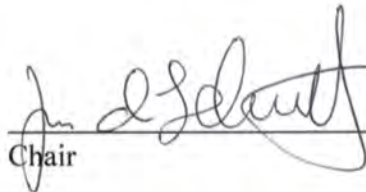
BE IT FURTHER RESOLVED that the following signatories or alternates are authorized to be signatories on checks drawn on funds deposited:

General Checking: Chair or Vice Chair and Treasurer or Deputy Treasurer  
Each check shall require two signatures.

BE IT FURTHER RESOLVED that the following shall be authorized to make investments of the Bassett Creek Watershed Management Commission and shall be authorized to deposit the principal of said investments in the above named depositories as necessary and beneficial to the Bassett Creek Watershed Management Commission: Deputy Treasurer of the Bassett Creek Watershed Management Commission, or Accounting Coordinator for City of Golden Valley.

The Deputy Treasurer shall supply each of the depositories with certified copies of this resolution along with such signature documentation as is required by the depository and the authorizations set forth above.

Adopted by the Board of the Bassett Creek Watershed Management Commission this 21<sup>st</sup> day of February 2019.

  
Chair

ATTEST:

 2-21-2019  
Secretary Date

The motion for the adoption of the foregoing resolution was seconded by Member Scanlan and upon a vote being taken thereon, the following voted in favor thereof: 8 and the following voted against the same 0 whereupon said resolution was declared duly passed and adopted.

BASSETT CREEK WATERSHED MANAGEMENT COMMISSION  
RESOLUTION NO. 19-04

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

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

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

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

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


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

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

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

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

Adopted by the Board of Commission of the Bassett Creek Watershed Management Commission the 21<sup>st</sup> day of February, 2019.

  
\_\_\_\_\_  
Chair

ATTEST:

  
\_\_\_\_\_  
Secretary

BASSETT CREEK WATERSHED MANAGEMENT COMMISSION  
RESOLUTION NO. 19-05

A RESOLUTION APPROVING THE LOCAL WATER  
MANAGEMENT PLAN PREPARED BY THE CITY OF MEDICINE LAKE

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

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

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

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

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

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

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

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

Adopted by the Board of Commission of the Bassett Creek Watershed Management Commission the 21<sup>st</sup> day of February, 2019.

Chair



ATTEST:

  
Secretary



BASSETT CREEK WATERSHED  
MANAGEMENT COMMISSION

RESOLUTION NO. 19-07

**Supporting State Law That Provides Limited Liability to Commercial Salt Applicators That are Certified Through an Established Voluntary Salt Applicator Certification Program**

**WHEREAS** chloride contamination of water resources has been found in urban areas around the state; and

**WHEREAS** the Minnesota Pollution Control Agency (MPCA) has listed 39 waterbodies in the Twin Cities metro area as impaired for chloride and has completed Total Maximum Daily Load (TMDL) studies on Nine Mile Creek and Shingle Creek and recently completed the Twin Cities Metropolitan Area Chloride TMDL; and

**WHEREAS** the TMDL studies have indicated that the largest chloride source to our lakes and streams is through the application of chloride compounds on roads, parking lots, sidewalks and other hard surfaces for winter maintenance practices; and

**WHEREAS** liability for property damage or personal injury as a result of snow or ice is one of the main reasons over-salting occurs and many private commercial contractors and property owners are reluctant to implement salt-reduction practices for fear of increased liability; and

**WHEREAS** the MPCA currently oversees a voluntary Smart Salting Certification Program that provides training to public and commercial salt applicators, private property owners and managers and others on how to maintain safe surfaces using salt efficiently.

**NOW, THEREFORE BE IT RESOLVED**, the Bassett Creek Watershed Management Commission 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.

A handwritten signature in black ink, appearing to be "Alan K...", written over a horizontal line.

Chair

March 21, 2019

ATTEST:

A handwritten signature in black ink, appearing to be "Marilyn R. Lambert", written over a horizontal line.

Secretary March 21, 2019

BASSETT CREEK WATERSHED MANAGEMENT COMMISSION  
RESOLUTION NO. 19-08

A RESOLUTION APPROVING THE SURFACE WATER  
MANAGEMENT PLAN PREPARED BY THE CITY OF ST. LOUIS PARK

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

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

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

WHEREAS, the City of St. Louis Park ("City") has prepared and submitted to the Commission the City's local surface water management plan; and

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

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

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


1. The St. Louis Park Surface Water Management Plan dated March 2019 is hereby approved with the understanding that the final plan may include changes required to respond to comments from other watersheds, but conditioned on those changes not revising the provisions applicable within the Bassett Creek Watershed.
2. In accordance with Minnesota Statutes, Section 103B.235, subdivision 4, the City shall adopt and implement its local plan within 120 days of this approval and amend its official controls in accordance with the plan within 180 days.
3. Pursuant to Minnesota Statutes, Section 103B.235, subdivision 5, and to be consistent with the Commission's water management plan, the City shall submit any proposed amendments to its local plan to the Commission for review and approval prior to adoption.

Adopted by the Board of Commission of the Bassett Creek Watershed Management Commission the 21<sup>st</sup> day of March, 2019.



Chair

ATTEST:



Secretary

**BASSETT CREEK WATERSHED MANAGEMENT COMMISSION  
RESOLUTION NO. 19-09**

A RESOLUTION ORDERING THE 2020 IMPROVEMENTS,  
DESIGNATING ENTITIES RESPONSIBLE FOR CONSTRUCTION,  
MAKING FINDINGS PURSUANT TO MINNESOTA STATUTES, SECTION  
103B.251, CERTIFYING COSTS TO HENNEPIN COUNTY, AND APPROVING  
AGREEMENTS FOR CONSTRUCTION OF THE IMPROVEMENTS

WHEREAS, on September 17, 2015, the Bassett Creek Watershed Management Commission ("Commission") adopted the *Bassett Creek Watershed Management Commission, Water Management Plan, September 2015* (the "Plan");

WHEREAS, the Plan includes a capital improvement program ("CIP") listing capital projects in Table 5-3 of the Plan;

WHEREAS, the CIP includes the following capital projects for the year 2020 (collectively, the "2020 Projects"):

- a) Bryn Mawr Meadows Water Quality Improvement Project (BC-5)
- b) Jevne Park Stormwater Improvement Project (ML-21)
- c) Crane Lake Improvement Project (CL-3)
- d) Sweeney Lake Water Quality Improvement Project (SL-8); and

WHEREAS, the Plan specifies a county tax levy under Minnesota Statutes, section 103B.251 as the source of funding for the 2020 Projects; and

WHEREAS, on September 19, 2019, following published and mailed notice in accordance with the Commission's Joint Power Agreement and Minnesota Statutes, section 103B.251, the Commission conducted a public hearing on the 2020 Projects; and

WHEREAS, the 2020 Projects will be conducive to the public health, promote the general welfare and is in compliance with Minnesota Statutes, sections 103B.205 to 103B.255 (the "Act") and with the Plan as adopted and amended in accordance with the Act.

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

1. The 2020 Projects are hereby ordered.
2. The estimated cost of the Bryn Mawr Meadows Water Quality Improvement Project is Nine Hundred Four Thousand Nine Hundred Dollars (\$904,900). Of this amount, One Hundred Thousand Dollars (\$100,000) will be paid from funds received from a county tax levy pursuant to Minnesota Statutes, section 103B.251 levied in 2019 for collection in 2020. Additional funds of up to Eight Hundred Four Thousand Nine Hundred Dollars (\$804,900) will be paid from funds received from a county tax levy pursuant to Minnesota Statutes, section 103B.251, levied in 2020 for collection in 2021.
3. The estimated cost of the Jevne Park Stormwater Improvement Project is Five Hundred Thousand Dollars (\$500,000). Of this amount, Five Thousand Hundred Dollars (\$500,000) will

be paid from funds received from a county tax levy pursuant to Minnesota Statutes, section 103B.251 levied in 2019 for collection in 2020.

4. The estimated cost of the Crane Lake Improvement Project is Five Hundred Eighty-two Thousand Eight Hundred Thirty Seven Dollars (\$582,837). Of this amount, Three Hundred Eighty Thousand Dollars (\$380,000) will be paid from funds received from a county tax levy pursuant to Minnesota Statutes, section 103B.251 levied in 2019 for collection in 2020. The remaining funds will come from the City of Minnetonka.
5. The estimated cost of the Sweeney Lake Water Quality Improvement Project is Five Hundred Fifty Thousand Dollars (\$550,000). Of this amount, Twenty Thousand Dollars (\$20,000) will be paid from funds received from a county tax levy pursuant to Minnesota Statutes, section 103B.251 levied in 2019 for collection in 2020. Additional funds of up to Two Hundred Thousand Dollars (\$200,000) will be paid from funds received from a county tax levy pursuant to Minnesota Statutes, section 103B.251, levied in 2020 for collection in 2021. Additional funds will be paid through a Federal Clean Water Act Section 319 grant.
6. The cost of Medicine Lake Rd and Winnetka Ave Long Term Flood Mitigation Plan Implementation: DeCola Ponds B & C Improvement Project was partially paid from a county tax levy collected in 2019 totaling One Million Thirty One Thousand Five Hundred Dollars (\$1,031,500), a State Clean Water Fund grant totaling Sixty Eight Thousand Five Hundred Dollars (\$68,500), and contributions from the City of Golden Valley, and other State and local grants.. The remaining estimated cost of the project is Five Hundred Thousand Dollars (\$500,000) to be paid from funds received from a county tax levy pursuant to Minnesota Statutes, section 103B.251 levied in 2019 for collection in 2020.
7. The total amount certified to Hennepin County for the 2020 Projects is One Million Five Hundred Thousand Dollars (\$1,500,000) for payment by the County in accordance with Minnesota Statutes, section 103B.251, subdivision 6.
8. The Commission has received, accepted, and approved the feasibility reports for the 2020 Projects.
9. The costs of the 2020 Projects will be paid by the Commission up to the amount specified in paragraphs 2 - 6 above from proceeds received from Hennepin County pursuant to Minnesota Statutes, section 103B.251 and grant funding, if awarded. Additional costs may be paid by the city constructing the particular project, but no costs will be charged to other members of the Commission.
10. The Minneapolis Park and Recreation Board is designated as the entity responsible for contracting for the construction of the Bryn Mawr Meadows Water Quality Improvement Project, and the engineer designated for preparation of plans and specifications is an engineer selected and retained by the Minneapolis Park and Recreation Board. Contracts for construction shall be let in accordance with the requirements of law applicable to the Minneapolis Park and Recreation Board.
11. The City of Medicine Lake is designated as the member responsible for contracting for the construction of the Jevne Park Stormwater Improvement Project, and the engineer designated for preparation of plans and specifications is the Medicine Lake City Engineer, or other engineers selected and retained by the City of Medicine Lake. Contracts for construction shall be let, in accordance with the requirements of law applicable to the City of Medicine Lake.

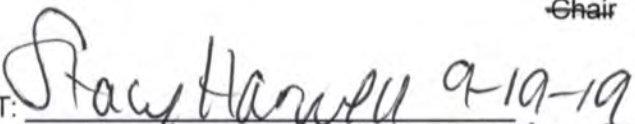


12. The City of Minnetonka is designated as the member responsible for contracting for the construction of the Crane Lake Improvement Project, and the engineer designated for preparation of plans and specifications is the Minnetonka City Engineer, or other engineers selected and retained by the City of Minnetonka. Contracts for construction shall be let in accordance with the requirements of law applicable to the City of Minnetonka. The Cooperative Agreement with the City of Minnetonka for the construction of the Crane Lake Improvement Project is approved, and the Chair and Secretary are authorized to execute the agreement on behalf of the Commission.

13. The Commission is the entity responsible for contracting for the implementation of the Sweeney Lake Water Quality Improvement Project. Contracts for construction shall be let in accordance with the requirements of law applicable to the Commission.

Adopted by the Board of Commission of the Bassett Creek Watershed Management Commission the 19<sup>th</sup> day of September, 2019.

 9-19-19  
~~Chair~~ VICE CHAIR

ATTEST:  9-19-19  
Secretary ~~VICE CHAIR~~ TREASURER



**Appendix D**  
**2019 Website Usage and Social Media Report**



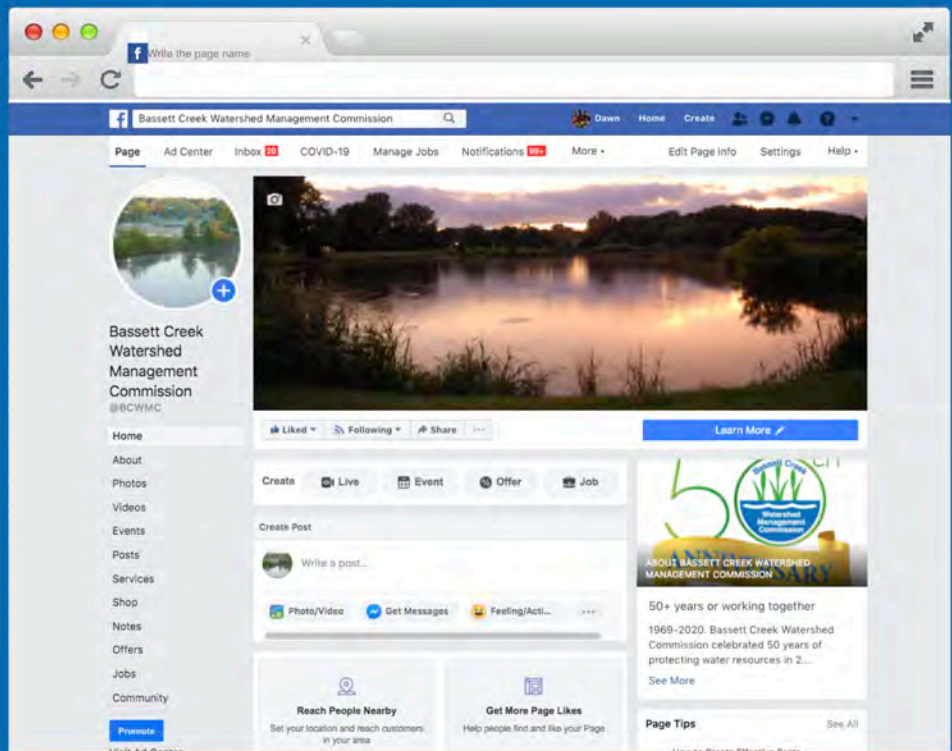
# facebook

## 2019 Report

01/01/2019 – 12/31/2019

Total Page Likes  
**293**

Increased by  
**▲ 36.9%**  
Last Year



[facebook.com/BCWMC](https://facebook.com/BCWMC)

# 2019 Facebook Page Overview

Last Year - 01/01/2019 – 12/31/2019



Number of Posts



Reach



Post Engagements























































Impressions

BCWMC post appeared in news feeds

Clicks, reactions, comments, or shares

Content from BCWMC Page entered their screen

Date	Time	Image	Text	Engagements	Reactions	Comments	Shares
12/26/2019	10:06 AM		Free bird feeders-a wonderful reason to wait	55	2	6	1
12/23/2019	9:04 AM		Innovative!	81	3	10	1
12/19/2019	8:24 AM		Keeping PFAs out of our drinking water is	33	0	0	1
12/12/2019	8:01 AM		Please help us spread the word about not spreading	138	8	8	1
12/05/2019	10:51 AM		Crunching our way into stores is very, very bad for	51	2	2	1

11/28/2019 9:45 AM	 Happy Thanksgiving, Everyone! This story			32		0 2	
11/25/2019 7:28 PM	 Ready or not, here comes the snow! Safety is the top			52		0 1	
11/18/2019 6:34 PM	 Best medicine in the world has the best maintenance			84		5 9	
11/13/2019 7:47 PM	 Good advice from area high school students.			12.8K		131 33	Salt
11/13/2019 6:23 PM	 The pollution isn't necessarily new, we're			120		4 30	
11/13/2019 9:39 AM	 OK K-9 lovers, check this out. Come meet the dog			41		1 4	
11/08/2019 2:15 PM	 A zebra mussel sniffing dog?! How amazing is			25		0 2	
10/25/2019 10:16 AM	 Ah, the power of one to light the fire and the			40		0 3	
10/19/2019 8:48 PM	 Webinar: Lawns to Legumes: Your Yard Can			22		2 2	
10/19/2019 5:28 PM	 Great grant opportunity to establish native plants in			50		6 6	
10/19/2019 3:16 PM	 DNR seeking applications to serve on Aquatic			73		0 3	
10/11/2019 7:58 PM	 Proud to partner with so many!			72		6 7	
10/05/2019 7:52 AM	 This video is not for the faint of heart. Climate			67		3 19	
10/01/2019 2:34 PM	 Wonderful things going on in our watershed!			40		1 1	
10/01/2019 11:03 AM	 I love the The Xerces Society message, but it's			29		0 0	
09/27/2019 8:44 AM	 "While the report covers how climate change is			68		3 3	
09/27/2019 8:29 AM	 Whoa. Anyone else considering switching to			80		9 3	

09/22/2019 10:41 PM					41		0 1	
09/21/2019 5:34 PM	 Good article. Make your yard be a work horse AND				28		2 2	
09/15/2019 8:16 PM	 Check this out!				277		17 80	
09/11/2019 4:15 PM	 Do you want to walk the talk of loving our				70		2 4	
09/11/2019 10:56 AM	 We still have some spots! Sign up today at				47		0 2	
09/05/2019 3:27 PM	 Calling all property managers! Please attend				23		2 0	
08/27/2019 7:23 PM	 Thanks Sun Post for helping spread the word				169		11 12	
08/23/2019 2:13 PM	 So nice to read a little good news...				82		10 9	
08/19/2019 5:58 PM	 If you're concerned that salt levels are too high in				730		11 8	
08/17/2019 8:20 PM	Interesting article...				35		0 0	
08/16/2019 5:13 PM	 Have you seen this?				93		8 13	
08/16/2019 5:11 PM					37		4 0	
08/16/2019 4:58 PM	 If you're tired of pitted sidewalks, spending too				64		2 4	
07/30/2019 7:47 AM	 Are you concerned about clean water and interested				50		1 2	
07/18/2019 6:46 PM	 If you need to water, water wisely.				98		4 6	
07/10/2019 7:57 PM	 <a href="#">With sponsorship from Hennepin County, the</a>				2.5K		26 41	AIS
07/01/2019 6:06 PM	 Perfect timing for this holiday weekend! Please				4.3K		142 45	AIS



















































50th Anniversary celebration

06/27/2019 7:24 PM		Thank you Mark Seeley for your keynote address			2.5K		76 142	
06/13/2019 3:14 PM		Exactly!			92		10 22	
06/13/2019 10:33 AM		Nice to see these pollinator and water-			68		8 5	
06/05/2019 8:00 AM		During the 1920s, the middle section of Bassett			81		6 7	
05/28/2019 1:14 PM		Caring for water often begins with caring for our			62		2 4	
05/24/2019 10:09 PM		Great project!			54		8 4	
05/23/2019 4:11 PM		As we all prepare to head off to "the lake," there is a			31		0 0	
05/23/2019 4:05 PM		This is a great family event. Hope you can			17		0 0	
05/22/2019 9:25 PM		This is super interesting!			115		10 9	
05/19/2019 5:52 PM		Please act. We NEED citizen input.			28		1 1	
05/19/2019 5:41 PM		Winter over salting is largely due to fear of not			157		15 12	
05/13/2019 12:07 PM		Gentle bees. So cool!			52		6 4	
05/07/2019 8:47 PM		Tickets are going fast. Sign up today!			29		1 0	
05/01/2019 8:00 AM		As early as the 1890s, bridges crisscrossed the			172		18 4	
04/24/2019 8:00 AM		15th Annual Land Development Conference,			63		5 3	
04/20/2019 5:17 PM		We are proud to partner with Metro Blooms.			70		6 7	
04/17/2019 8:00 AM		2019 WATER SUMMIT: Bridging Science and			50		2 3	



04/17/2019 8:00 AM		2019 WATER SUMMIT: Bridging Science and			50		2 3	
04/17/2019 7:28 AM		And don't forget to register your planting at			171		6 11	
04/15/2019 2:42 PM		It's so important to learn from our history, isn't it?			84		4 2	
04/15/2019 2:38 PM		Important work...			63		0 0	
04/10/2019 8:00 AM		EARTH DAY CLEAN UP BASSETT CREEK PARK			352		7 13	
04/08/2019 8:00 AM		Bassett Creek was originally named			61		1 3	
04/06/2019 9:48 AM		Democracy in action...			56		1 1	
04/02/2019 8:00 AM		WATER ACTION DAY AT THE CAPITOL			41		0 1	
03/27/2019 9:17 AM		AQUATIC INVASIVE SPECIES DETECTORS			41		1 0	
03/25/2019 1:56 PM		Small actions like adopting a drain have			256		9 19	
03/21/2019 9:31 AM					3.4K		16 3	
03/20/2019 7:51 AM		PSSST! Want to have a great excuse to sneak			3.4K		446 166	
03/18/2019 12:16 PM		1969 was the year Neil Armstrong walked on the			42		1 2	
03/12/2019 2:49 PM		Flood watch. Clear those storm drains in your			31		1 0	
03/12/2019 2:46 PM		Concerned about flooding? So are we.			67		10 3	
03/12/2019 2:46 PM					55		2 1	
03/05/2019 7:06 AM		Great reminder of why the EPA laws are so important			37		1 0	

Stormwater runoff

03/01/2019 12:00 PM		"...the average American's water footprint for buying,			95		12 4	
02/28/2019 4:31 PM		Did you know that chloride (salt) concentrations are			406		60 29	
02/26/2019 12:26 PM		What's your water footprint? It's more than			67		5 2	
02/20/2019 11:01 AM		Got 4 minutes? Listen to this interesting story about			186		7 26	
02/13/2019 8:33 AM		<a href="#">Education in action.</a> <a href="#">Thank you Bloomington</a>			68		5 9	
02/09/2019 8:07 PM		Keep on fighting the good fight!			39		1 0	
02/07/2019 1:23 PM		The purpose of lowering the river by 13 feet is to			383		33 23	
02/07/2019 1:16 PM		Thanks to all of our attendees!			39		6 2	
02/06/2019 2:34 PM		Be smart, be safe and consider getting some			139		15 13	
01/29/2019 9:27 PM		Nailed it. Great job Edina, Minnesota!			3K		213 51	Salt
01/29/2019 3:48 PM		There's always a flip side...			51		3 4	
01/29/2019 10:18 AM		Please remember that it's too cold for de-icers to			36		0 4	
01/25/2019 9:44 AM		Looks like a fantastic event hosted by the U of			25		1 2	
01/24/2019 7:21 PM		Got two minutes? Then please check out how we			48		1 3	
01/15/2019 8:52 AM		A healthy environment starts with healthy people			11		0 2	
01/11/2019 8:02 PM					35		0 0	
01/09/2019 4:16 PM		Coal tar sealant has been banned for a few years,			86		2 2	

Reports

Jan 1, 2019 - Dec 31, 2019

All Users  
100.00% Sessions

Total unique users

**4,978**  
% of Total: 75.13% (6,626)



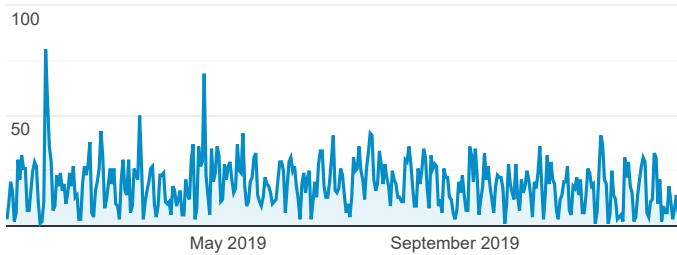
Total Sessions

**7,687**  
% of Total: 82.04% (9,370)



Users

● Users



Avg. Session Duration

**00:02:29**  
Avg for View: 00:02:04 (19.80%)



Avg. Pages per session

**2.72**  
Avg for View: 2.43 (12.01%)

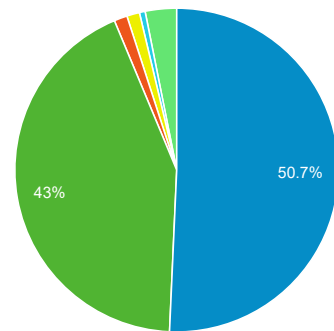


Sessions By Page

Page	Sessions
/	3,451
/lakes-streams/twin-lake	316
/lakes-streams/northwood-lake	228
/lakes-streams/sweeney-lake	213
/lakes-streams/medicine-lake	201
/projects	190
/meeting-events	181
/lakes-streams/plymouth-creek	178
/lakes-streams/parkers-lake	165
/lakes-streams	149

Traffic source

■ google 
 ■ (direct) 
 ■ yahoo 
 ■ bing 
 ■ minneapolismn.gov 
 ■ Other



Sessions by City

City	Sessions
Minneapolis	1,625
Golden Valley	790
Plymouth	599
Eden Prairie	559
Saint Paul	361
Minnnetonka	256
Bloomington	217
Chicago	207
Quincy	175
Cheyenne	174

Sessions by Browser

Browser	Sessions
Chrome	4,006
Internet Explorer	1,521
Safari	1,441
Firefox	298
Edge	281
Samsung Internet	55